parvalux
by maxon

Product Range

2026



parvalux.com

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Welcome to the Parvalux Product Range Catalogue 2026.
Here, you can explore our complete range of motor and gearboxes and find out more about our modular range, accessories, and custom drive solutions.

Standard AC motors	162 - 199
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Made in the
since 1947

1940 1950 1960 1970 1980

1947

Parvalux is first established in Romford, Essex where it began selling motor rewinds before quickly moving into motor manufacture.

1957

Parvalux relocates to Parkstone, Dorset - but only for 4 years. In 1961, all manufacturing facilities are moved to Wallisdown Road, Bournemouth, just a mile away.

1981

Parvalux completes the expansion of its manufacturing facility, doubling its footprint and output capacity. In 1995, all CNC equipment is upgraded.



e UK

Established in 1947 by Mr. L.J. Clarke, Parvalux started as a motor rewind specialist and has grown into a true British manufacturing success story.

Continuous investment in our products, capabilities, and facilities has seen Parvalux evolve into the UK's largest fractional-horsepower electric motor manufacturer.

1990 2000 2010 2020 2030

2008

Parvalux acquires its main competitor, EMD drive systems. This acquisition makes Parvalux the largest fractional-horsepower electric motor manufacturer in the UK.

2013

Parvalux opens its Machining Centre of Excellence, a separate facility that manufactures all shafts and gears used in Parvalux products. In 2017, all high-volume production lines are moved into a purpose-built facility that enables a higher efficiency build process for our most popular products.

2018

Parvalux is acquired by maxon and now has representation on every continent and the backing of one of the finest technical teams on the planet.

2023

Parvalux relocates to Parvalux House, unifying all three facilities into one purpose-built factory that will enable further expansion of its electric motor manufacturing capabilities.

We know how to move

your project



Building automation

→ Access control
→ Door automation
→ Automated blinds / shutters
+ more



Industrial automation

→ Cleaning equipment
→ Mixing equipment
→ Printing equipment
+ more



Materials handling

→ AGVs
→ Conveyors
→ Packaging automation
+ more



Mobility solutions

→ Patient hoists
→ Powered wheelchairs
→ Stairlifts
+ more

t to market



Transport & logistics

→ Caravan movers
→ Wiper systems
→ Tarp pullers
+ more



Agriculture equipment

→ Honey extractors
→ Livestock feed systems
→ Ventilation systems
+ more



Leisure equipment

→ Amusement machines
→ Clay pigeon traps
→ Golf trolleys
+ more



Medical devices

→ Air pumps
→ Medical and fluid pumps
→ Ventilators
+ more

With over 75 years of experience in motor manufacture, Parvalux delivers high-performance, reliable solutions across a diverse range of industries and markets. From industrial automation and leisure to mobility solutions and agriculture equipment, we combine extensive engineering expertise with advanced manufacturing capabilities to create geared electric motors that meet your exact specification.

Our flexible approach, commitment to innovation, and rigorous quality control enable us to support both high-volume production and highly customized applications, making us a trusted partner for market-leaders worldwide.

Parvalux product ran

Inline gearboxes

- Worm and spur gear
- Bronze and composite gear material
- Wide range of ratios

Encoders

- Incremental
- Differential
- Magnetic

Controllers

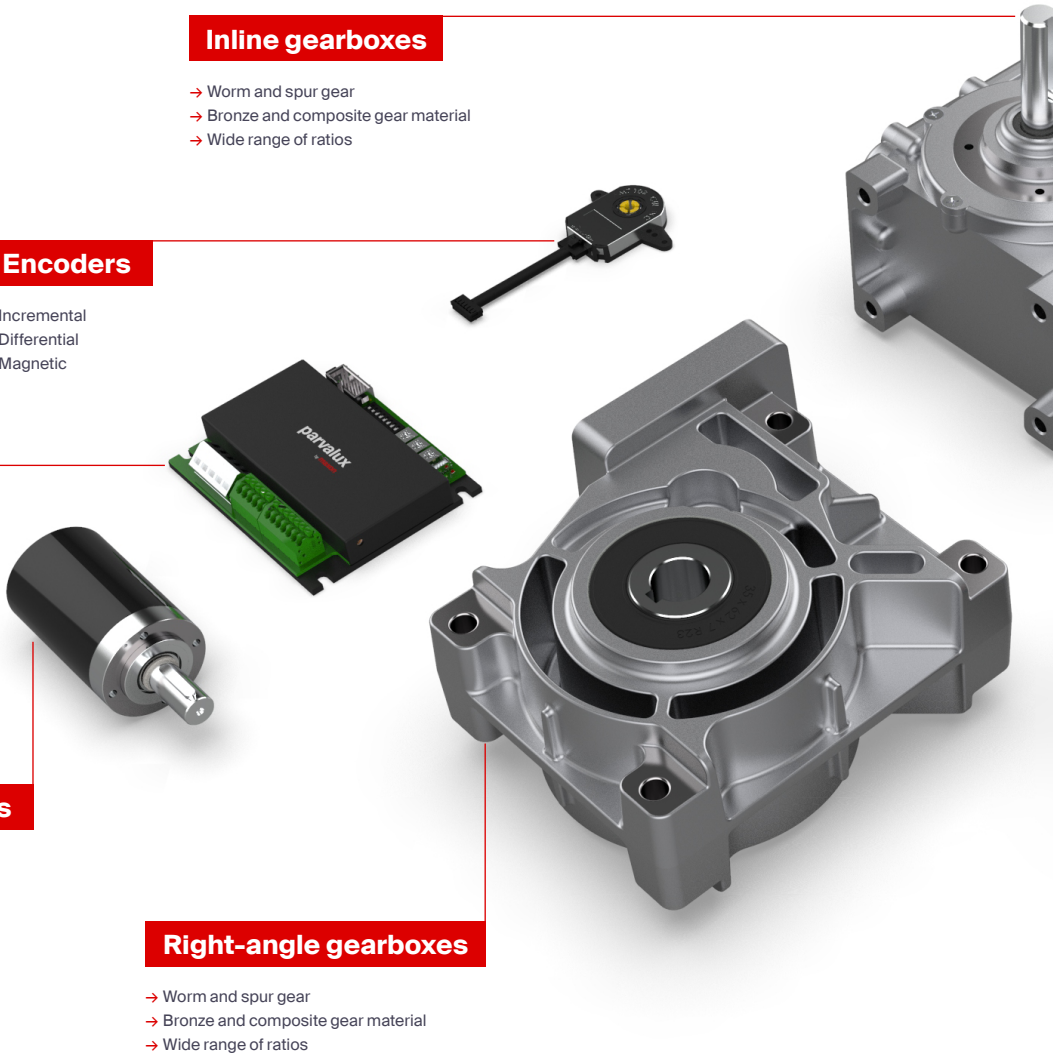
- SC 50/15
- EPOS
- ESCON
- Micro MAC
- Mini MAC

Planetary gearboxes

- PGx42
- PGx52
- PGx70

Right-angle gearboxes

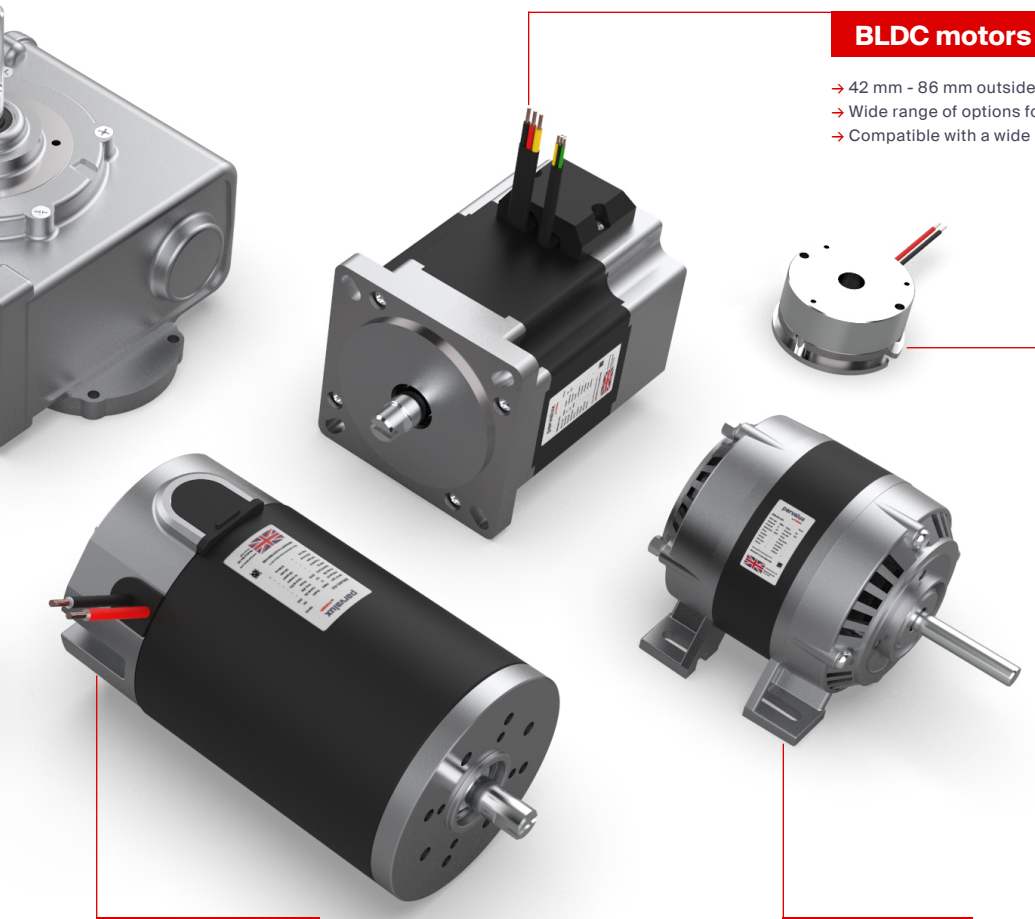
- Worm and spur gear
- Bronze and composite gear material
- Wide range of ratios



nge

Our product range includes robust PMDC, high-efficiency BLDC and versatile AC electric motors that can be paired with right-angle, inline, and planetary gearboxes to deliver optimal performance and reliability.

Where enhanced accuracy and control is required, the range can be complemented with encoders, brakes and controllers, enabling more precise motion control, improved safety, and seamless system integration.



BLDC motors

- 42 mm - 86 mm outside square with multiple stack lengths
- Wide range of options for voltage, speed, power and torque
- Compatible with a wide range of gearboxes, encoders, and brakes

Brakes

- 1.5 Nm
- 2.0 Nm
- 4.0 Nm manual release
- Power-on

PMDC motors

- 38 mm - 90 mm outside diameter with multiple stack lengths
- Wide range of options for voltage, speed, power and torque
- Compatible with a wide range of gearboxes, encoders, and brakes

AC motors

- 81 mm - 120 mm outside diameter with multiple stack lengths
- Single and three-phase options available
- Optional motor feet, added terminal box and totally enclosed units available

Standard product range

Overview

Motor	V	rpm	W	Nm (Cont.)	Nm (Int.)	Page
BLDC						
PBL42-15	24 - 48	4000	26	0.063	0.095	88
PBL42-35	24 - 48	4000	42	0.10	0.15	90
PBL60-50	24 - 48	3000	104	0.33	0.58	92
PBL60-70	24 - 48	3000	157	0.50	0.88	94
PBL70-70	48	4500	363	0.77	1.35	96
PBL70-80	48	4500	415	0.88	1.54	98
PBL86-55	48	4000	419	1.00	1.75	100
PBL86-80	48	4000	586	1.40	2.45	102
PMDC						
PM7	12 - 48	3000	15	0.05	0.08	106
PM8	12 - 220	3000	25	0.078	0.110	108
PM9	12 - 220	3000	38	0.12	0.17	110
PM10	12 - 220	3000	45	0.14	0.20	112
PM11	12 - 220	3000	101	0.32	0.53	114
PM1	12 - 220	3000	157	0.50	0.65	116
PM2	12 - 220	3000	182	0.58	0.75	118
PM3	12 - 220	3000	119	0.38	0.50	120
PM4	12 - 220	3000	141	0.45	0.58	122
PM5	12 - 220	3000	170	0.54	0.70	124
PM6	12 - 220	3000	220	0.70	0.90	126
PM50	12 - 220	3000	210	0.67	1.17	128
PM60	12 - 220	3000	273	0.87	1.15	130
PM70-125	12 - 48	3000	79	0.25	0.42	132
PM70-146	12 - 48	3000	157	0.50	0.88	134
PM90-150	12 - 48	3000	157 - 210	0.67	1.17	136
PM90-180	12 - 48	3000	236	0.90	1.50	138
EPM						
EPM50-25	12 - 48	3000	79	0.25	0.44	142
EPM50-38	12 - 48	3000	94	0.30	0.50	144
EPM50-50	12 - 48	3000	123	0.39	0.65	146
EPM50-63	12 - 48	3000	151	0.48	0.80	148
EPM63-50	12 - 48	3000	220	0.70	1.17	150
EPM63-50 (V)	12 - 48	3000	327	1.04	1.60	152
EPM63-75	12 - 48	3000	283	0.90	1.50	154
EPM63-75 (V)	12 - 48	3000	377	1.20	1.80	156
EPM63-100	12 - 48	3000	377	1.20	1.90	158
EPM63-100 (V)	12 - 48	3000	471	1.50	2.40	160
AC						
SD21	115 - 230	1400 - 3400	8 - 20	0.05 - 0.07	-	164
SD41	115 - 400	1400 - 3400	10 - 25	0.06 - 0.10	-	168
SD8	115 - 400	1400 - 3400	35 - 60	0.17 - 0.24	-	172
SD38	115 - 400	1400 - 3400	35 - 60	0.17 - 0.24	-	176
SD28	115 - 400	1400 - 3400	55 - 120	0.28 - 0.41	-	180
SD29	115 - 400	1400 - 3400	55 - 120	0.28 - 0.41	-	184
SD13	115 - 400	1400 - 3400	100 - 190	0.42 - 0.70	-	188
SD18	115 - 400	1400 - 3400	100 - 190	0.42 - 0.70	-	192
SD48	115 - 400	1400 - 3400	55 - 250	0.53 - 1.30	-	196
AC/DC						
SD1	12 - 24	2000 - 6000	10 - 75	0.05 - 0.14	-	202
SD11	12 - 36	2000 - 6000	15 - 150	0.06 - 0.30	-	206
SD12	12 - 24	2000 - 6000	50 - 190	0.24 - 0.40	-	210

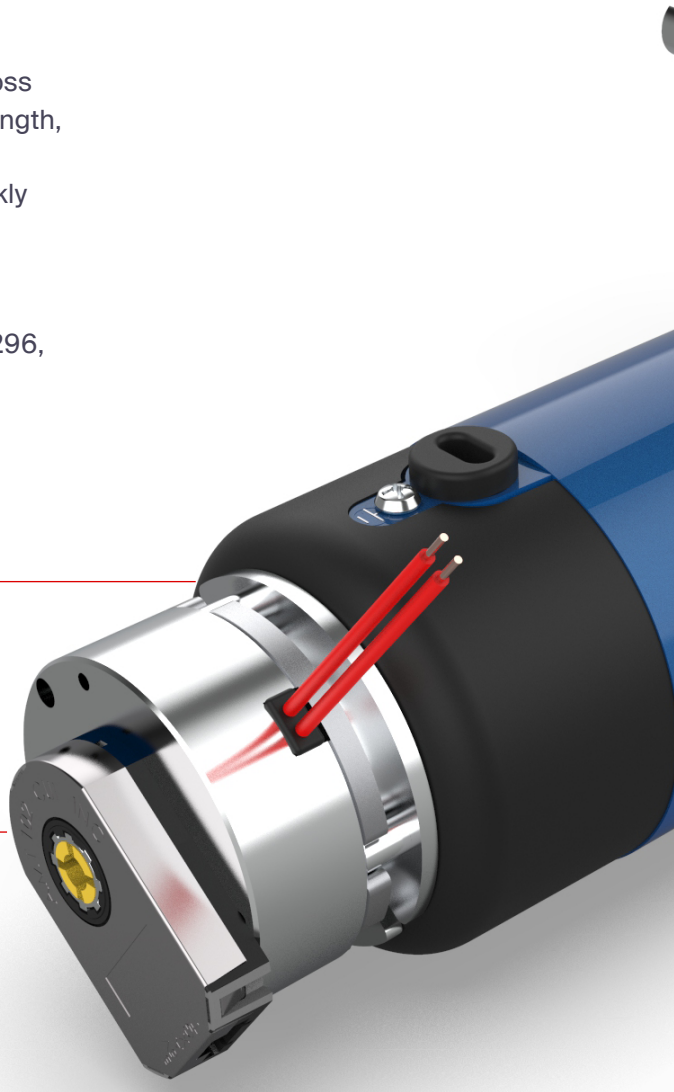
Gearbox	Gear type	Nm (Cont.)	Nm (Int.)	N (Radial)	N (Axial)	Page
Right-angle						
S Box composite	Worm	3.0	4.8	250	150	216
S Box bronze	Worm	4.5	7.2	250	150	217
GB28 bronze	Worm	5.0	8.0	400	300	218
GB58 composite	Worm	4.0	8.0	400	300	219
SWS composite	Worm spur	11.0	11.0	177	112	220
M Box composite	Worm	8.0	13.0	350	300	222
M Box bronze	Worm	12.0	19.0	350	300	223
GB80 composite	Worm	8.0	13.0	350	300	224
L Box composite	Worm	14.6	15.0	177	132	226
L Box bronze	Worm	22.0	22.0	177	132	227
LH composite	Worm	14.6	15.0	196	314	228
LH bronze	Worm	22.0	22.0	196	314	229
MWS composite	Worm spur	45.0	45.0	353	177	230
GB36 composite	Worm spur	45.0	45.0	353	177	231
GB12 composite	Worm	20.0	32.0	500	300	232
GB12 bronze	Worm	30.0	48.0	500	300	233
GB9 composite	Worm	50.0	80.0	800	600	234
GB9 bronze	Worm	75.0	120.0	800	600	235
LWS composite	Worm spur	100.0	100.0	446	226	236
GB14 bronze	Worm	120.0	300.0	2335	1750	237
GB65 bronze	Worm	120.0	300.0	2335	1750	238
Inline						
LIW composite	Worm	28.0	28.0	353	196	242
LIW bronze	Worm	45.0	45.0	353	196	243
LIS composite	Spur	74.0	100.0	265	177	244
Planetary						
PGx42	Planetary	11.3	16.9	360	150	248
PGx52	Planetary	30.0	45.0	900	200	249
PGx70	Planetary	30.0	37.5	1000	825	250

Accessory	Page
Encoder	
Incremental	254
Differential	255
Magnetic	256
Brake	
1.5 Nm	258
2.0 Nm	259
4.0 Nm manual-release	260
Power-on	261
Controllers	
SC 50/15	262
maxon EPOS	265
maxon ESCON	274
maxon MicroMAC	282
maxon MiniMAC	283

Customisat options

There are a number of customisation options available across our entire range of products - from modifications in shaft length, diameter and position, to special windings for alterations in voltage and output speed - our team of engineers can quickly customise any aspect of your product to perfectly suit your desired application.

Get in touch with your local sales engineer, found on page 296, to discuss your options



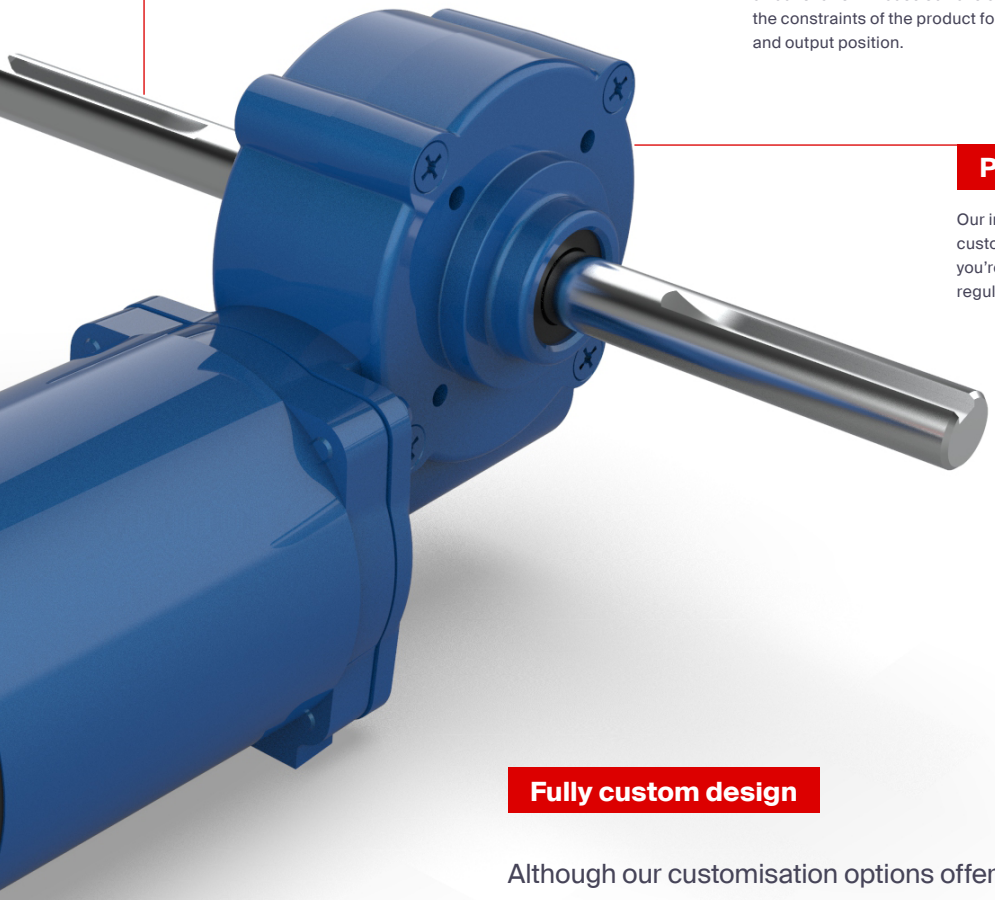
IP rating

The addition of custom-sealing enables us to improve the IP rating of a wide range of our products above their standard. Speak to one of our sales engineers to discuss your options.

Accessories

We offer a large range of accessory options for both motors and gearboxes, including brakes, encoders, controllers, tacho-generators, connectors, terminal boxes and custom flanges.

tion



Shaft modifications

Whether this is for the motor or gearbox, we manufacture all our shafts in-house so have complete flexibility within the constraints of the product for shaft diameter, length, and output position.

Paint finish

Our in-house spray-painting facility allows us to customise your product in various colours. So, whether you're matching your branding or meeting safety regulations, we've got you covered.

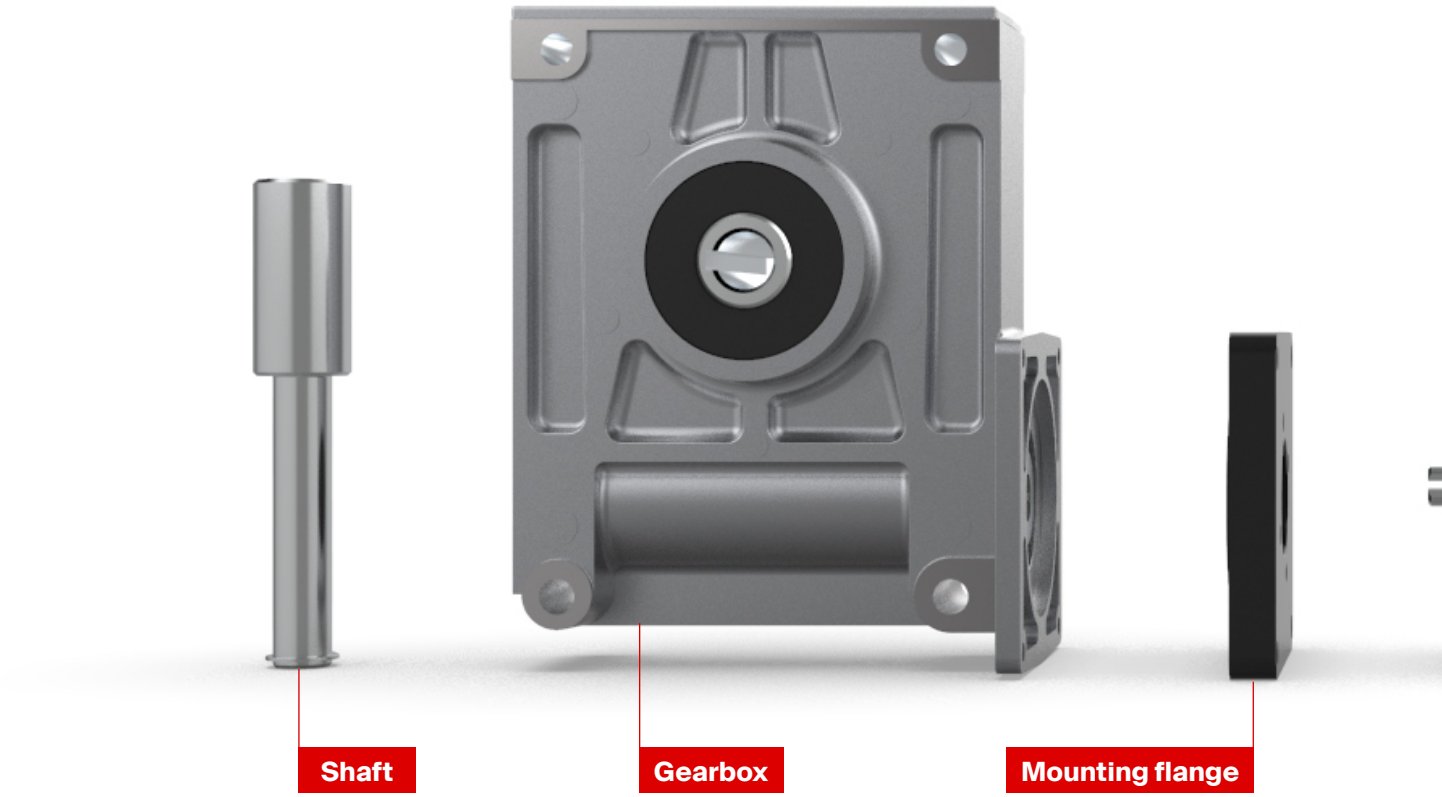
Fully custom design

Although our customisation options offer a wide range of variation in terms of the output performance of our standard products, we appreciate that sometimes a full-custom unit is required to meet your exact specification.

Whether it's fitting your motor-gearbox within the space constraints of your application, improving the IP rating, or fine-tuning the torque and speed output of your solution, our team of expert design engineers, meticulous project managers, and specialist product experts have extensive experience working across a wide range of markets and are on-hand to create a custom drive solution that meets the exact requirements of your application.

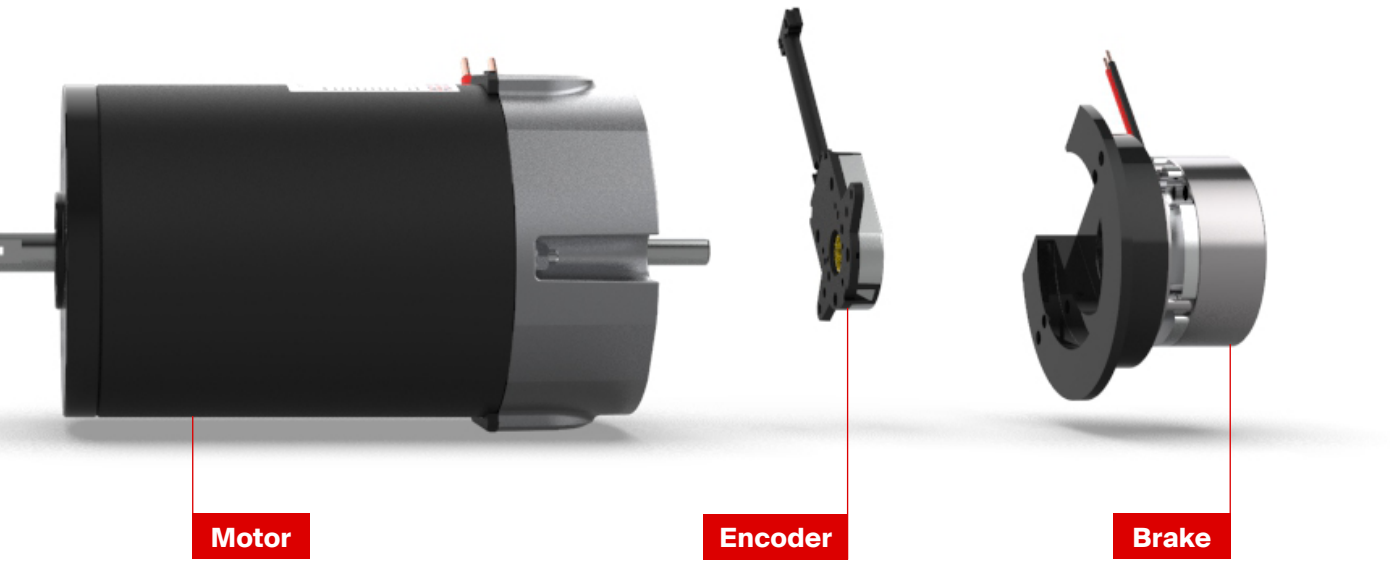
We know how to move

product out
within 72 ho



t the door
ours

Featuring both brushed and brushless motors, an ever-expanding range of gearboxes, and a selection of accessories to fine tune your configuration, the **Parvalux modular range** offers a rapid route to proof-of-concept with orders shipped within 72 hours of confirmation.

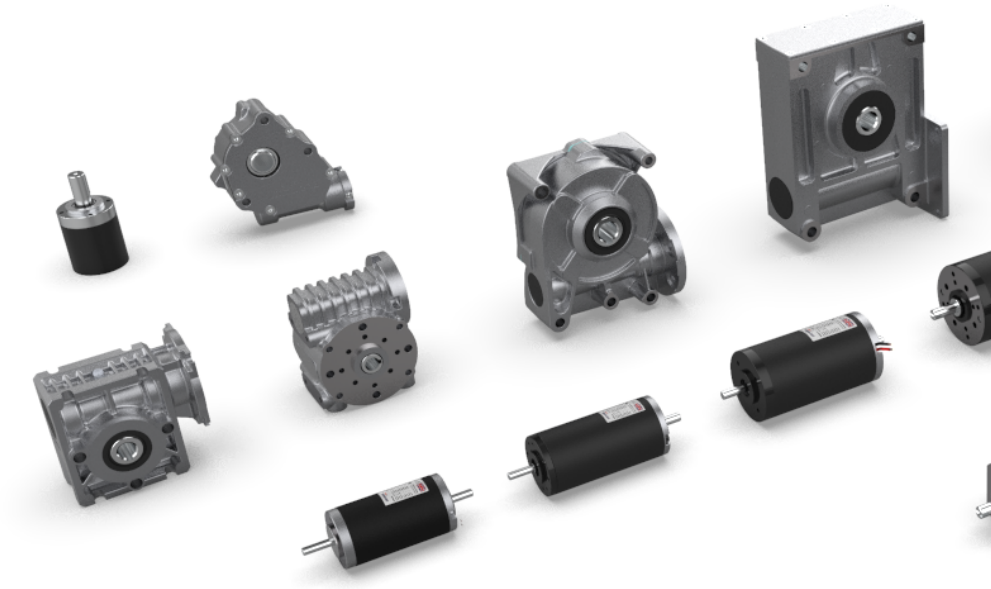


Modular matrix

Cross reference of the compatible modular range components

Motor	Gearboxes						
	GB28	GB80	GB12	GB56	GB9	GB65	PGx42
PBL42	781249						875216
PBL60	781251	854740	781252				
PBL70			781255				
PBL86			781260		781261	781261	
RE38				---			865932
BRx42							865932
BRx52		854737					
BRx63	781239	854739					
BRx70		854737	781242				
BRx90			781244		781247	781247	
Shaft kit	735908	860809	735803		735898	854742	

Key	######	Compatible combination of motor and gearbox (number = mounting flange part number // --- = no mounting flange needed between components)
	######	Compatible shaft extension kit for the listed gearbox (number = shaft kit part number)



Accessories			
Encoder	Brake	Encoder + Brake	Controller
781280			---
---	---	781281	---
---	---	781281	---
---	---	781284	---
781275			---
781275			---
837660			---
781276	781276	865630	---
---	---	781277	---
---	---	781279	---

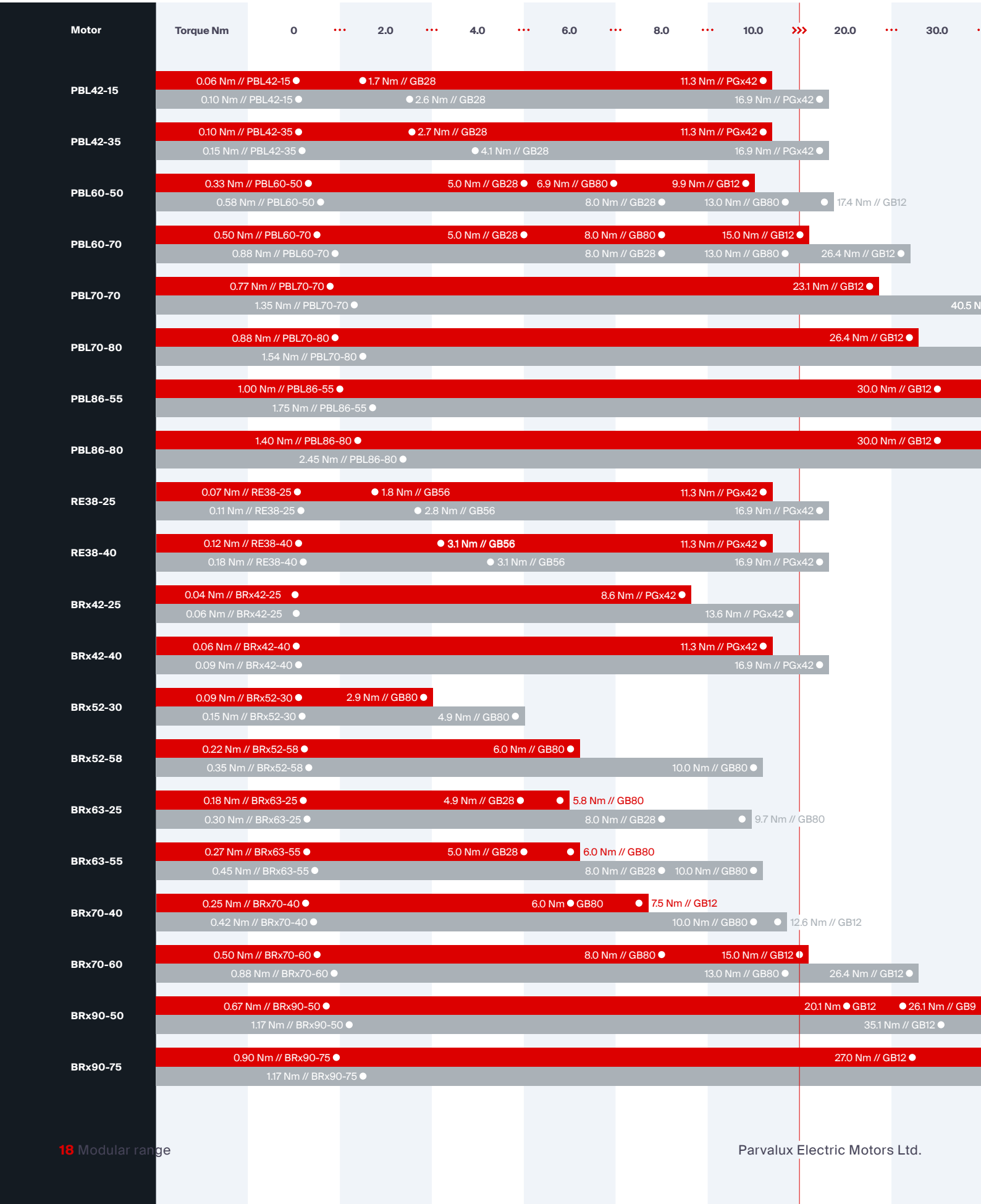
Scan here to find out more

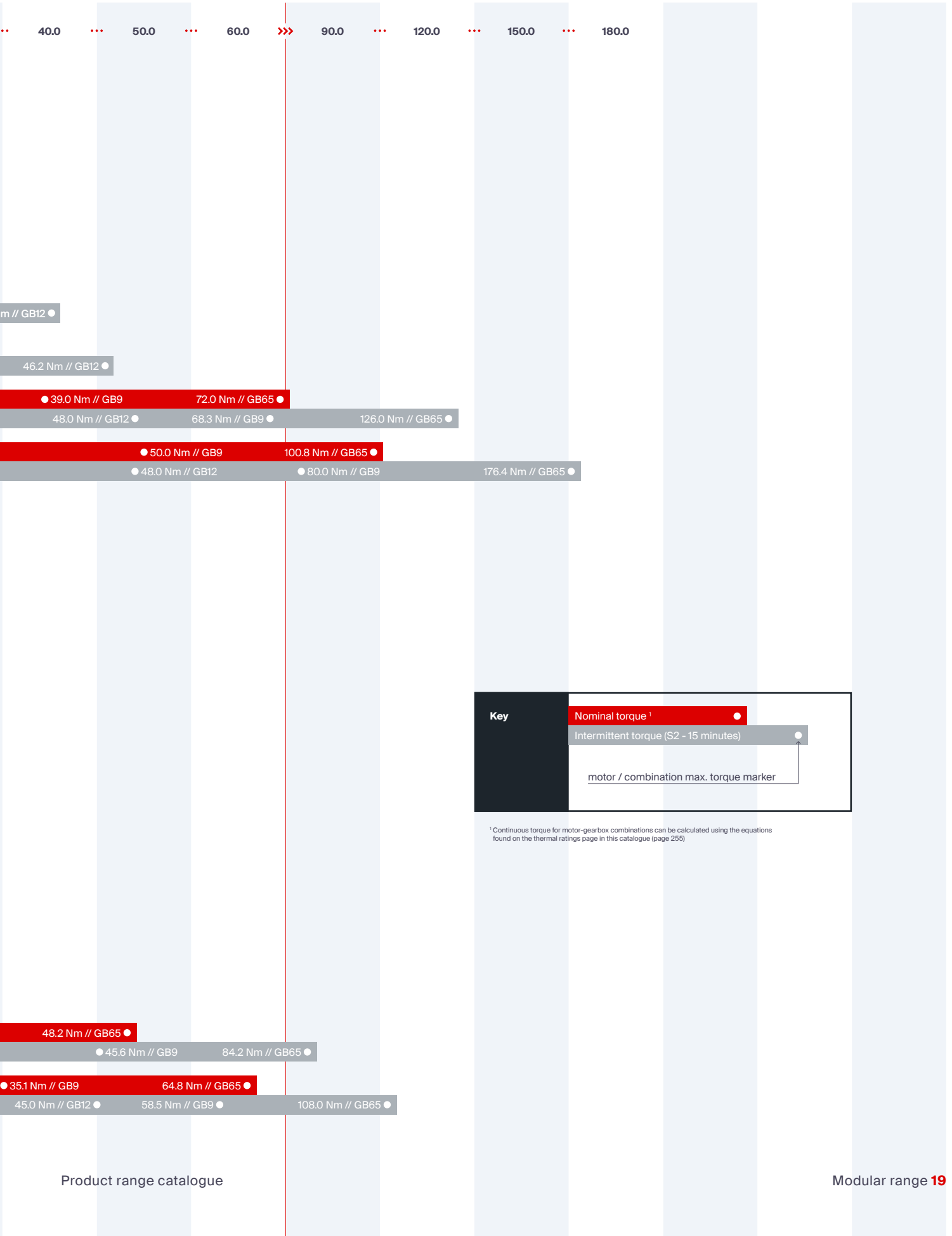
######	Compatible accessory for the listed motor (number = mounting flange part number)
---	Compatible accessory for the listed motor (--- = no mounting flange needed between components)



Modular Selection Guide

Quickview of the torque output of the modular range combinations





[1] Continuous torque for motor-gearbox combinations can be calculated using the equations found on the thermal ratings page in this catalogue (page 255)

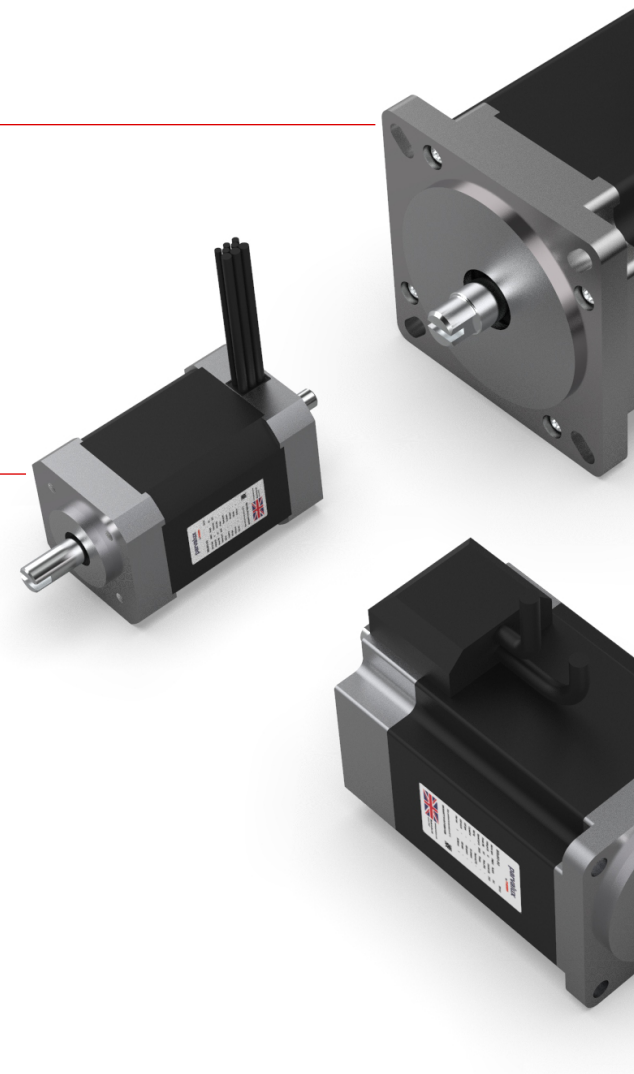
Modular BLDC moto

PBL86

→ 86 mm square frame
→ 55 mm and 80 mm stack length
→ 4000 rpm nominal speed
→ 2.45 Nm max intermittent torque

PBL42

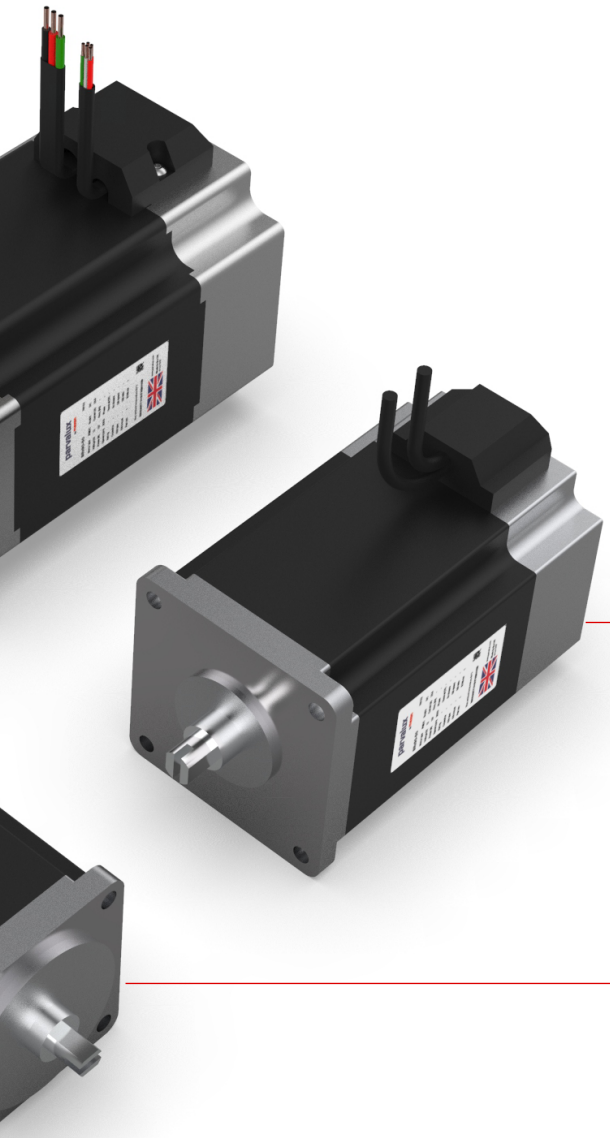
→ 42 mm square frame
→ 15 mm and 35 mm stack length
→ 4000 rpm nominal speed
→ 0.15 Nm max intermittent torque



rs

Available to order direct from our website, our modular BLDC motor range is available to configure online. Choose between four frame sizes, each with two stack lengths, as well as options for voltage, additional gearboxes, and a selection of accessories.

Our BLDC motors offer high starting torque, excellent power density and require no maintenance, making them ideal for use in ‘fit and forget’ applications.



PBL70

- 70 mm square frame
- 70 mm and 80 mm stack length
- 4500 rpm nominal speed
- 1.54 Nm max intermittent torque

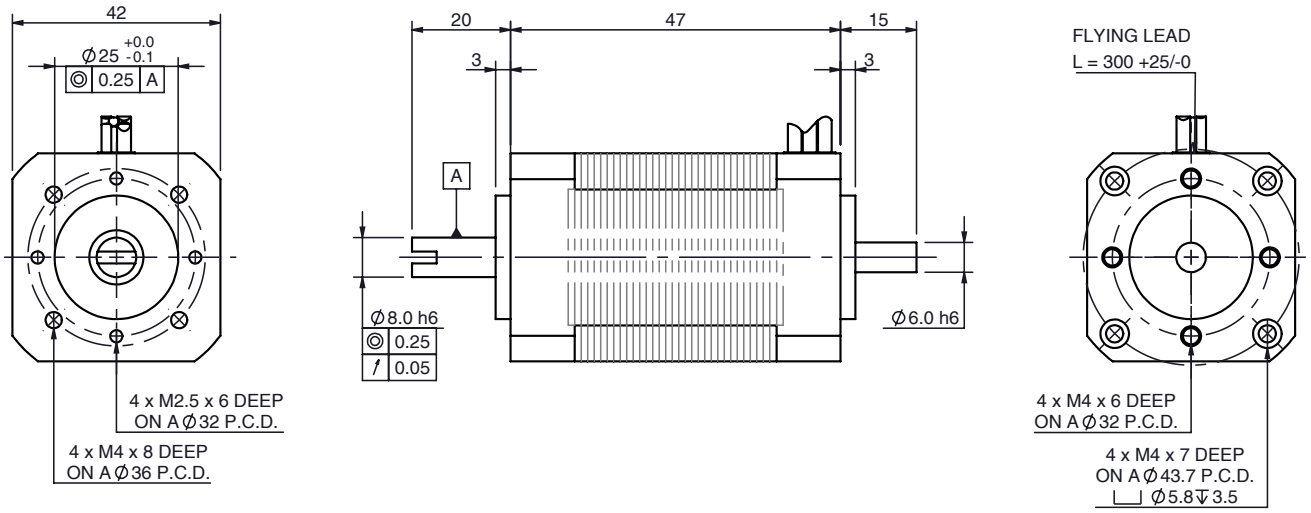
PBL60

- 60 mm square frame
- 50 mm and 70 mm stack length
- 3000 rpm nominal speed
- 0.88 Nm max intermittent torque

PBL42-15 BLDC motor

Ø42 mm frame // 15 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data			
1	Part number		776614	776615
2	Nominal power	W	26	26
3	Nominal voltage	V	24	48
4	No load speed	rpm	6068	6227
5	No load current	A	0.4	0.3
6	Nominal speed	rpm	4000	4000
7	Nominal continuous torque (S1)	Nm	0.063	0.063
8	Nominal continuous current (S1)	A	1.8	1.0
9	Max Intermittent torque (S2 - 15 minutes)	Nm	0.095	0.095
10	Stall current	A	6.50	3.34
11	Stall torque	Nm	0.21	0.21
12	Stack length	mm	15	15
13	Maximum efficiency	%	75	75
14	Ra	Ω	1.8	7.1
15	Rl	mH	2.23	0.91
16	Speed constant	rpm/V	230.4	142.0
17	Torque constant	Nm/A	0.032	0.070
18	Speed torque gradient	rpm/Nm	28152	29351
19	Rotor inertia	Kgcm²	3.3×10^{-6}	3.3×10^{-6}
20	Weight	Kg	0.30	0.30

Connection details		
Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Yellow	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
Blue	UL1569/26 AWG	Hall C
Yellow	UL1569/20 AWG	Phase U
Green	UL1569/20 AWG	Phase V
Blue	UL1569/20 AWG	Phase W

	Thermal data		
22	Ambient temperature	°C	40

	Mechanical data		
23	Radial load [distance from flange]	N [mm]	130 [15]
24	Radial play	mm [@g]	0.06 [450]
25	Axial end play	mm [@g]	0.06 [450]

	Other data		
26	Number of poles		8
27	Winding type		Delta
28	Hall effect angle (electrical angle)	°	120
29	IP Rating		IP54
30	Enclosure		Enclosed
31	Insulation Class		B

Compatible products

Gearbox	Page #
S Box	216
GB28	66
SWS	220
PGx42	74

Brake	Page #
On request	-

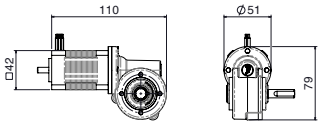
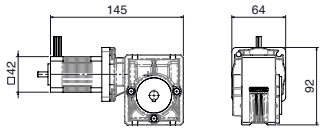
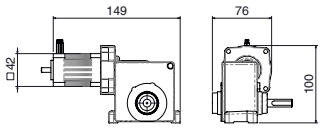
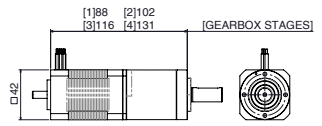
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL42-15 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL42-15-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	1000	133	57	1000	133	57
		Nominal torque	Nm	0.2	1.2	1.8	0.2	1.1	1.5
		Intermittent torque	Nm	0.3	1.9	2.7	0.3	1.6	2.3
PBL42-15-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	4	30	70
		Speed	rpm	-	-	-	267	133	67
		Nominal torque	Nm	-	-	-	0.7	1.2	1.7
		Intermittent torque	Nm	-	-	-	1.1	1.9	2.6
PBL42-15-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	111	19	3	-	-	-
		Nominal torque	Nm	1.6	9.3	11.0	-	-	-
		Intermittent torque	Nm	2.4	11.0	11.0	-	-	-
PBL42-15-PGx42		Gear material		Steel	Steel	Steel	Steel	Steel	-
		Gear ratio [stages] [2]	:1	4.3 [1]	19 [2]	66 [3]	150 [4]	353 [4]	-
		Speed	rpm	930	211	61	27	11	-
		Nominal torque	Nm	0.2	1.0	3.0	6.0	11.3	-
		Intermittent torque	Nm	0.4	1.5	4.5	9.1	16.9	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

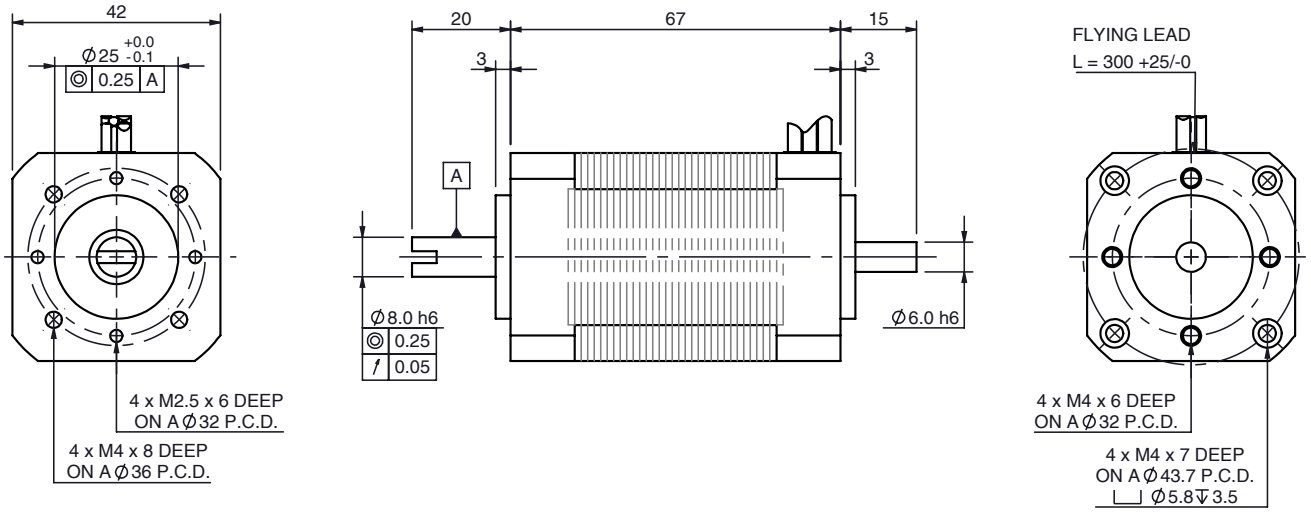
→ Technical data displayed above calculated based on **PBL42-15 48V 4000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL42-35 BLDC motor

Ø42 mm frame // 35 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data			
1	Part number		776616	776617
2	Nominal power	W	42	42
3	Nominal voltage	V	24	48
4	No load speed	rpm	5835	6001
5	No load current	A	0.4	0.3
6	Nominal speed	rpm	4000	4000
7	Nominal continuous torque (S1)	Nm	0.10	0.10
8	Nominal continuous current (S1)	A	2.6	1.3
9	Max Intermittent torque (S2 - 15 minutes)	Nm	0.15	0.15
10	Stall current	A	9.6	5.0
11	Stall torque	Nm	0.4	0.4
12	Stack length	mm	35	35
13	Maximum efficiency	%	77	75
14	Ra	Ω	0.87	3.35
15	Rl	mH	1.30	5.41
16	Speed constant	rpm/V	251.7	132.2
17	Torque constant	Nm/A	0.043	0.093
18	Speed torque gradient	rpm/Nm	14157	13361
19	Rotor inertia	Kgcm²	5.5 x 10^{-6}	5.5 x 10^{-6}
20	Weight	Kg	0.45	0.45

Connection details		
Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Yellow	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
Blue	UL1569/26 AWG	Hall C
Yellow	UL1569/20 AWG	Phase U
Green	UL1569/20 AWG	Phase V
Blue	UL1569/20 AWG	Phase W

	Thermal data		
22	Ambient temperature	°C	40

	Mechanical data		
23	Radial load [distance from flange]	N [mm]	130 [15]
24	Radial play	mm [@g]	0.06 [450]
25	Axial end play	mm [@g]	0.06 [450]

	Other data		
26	Number of poles		8
27	Winding type		Delta
28	Hall effect angle (electrical angle)	°	120
29	IP Rating		IP54
30	Enclosure		Enclosed
31	Insulation Class		B

Compatible products

Gearbox	Page #
S Box	216
GB28	66
SWS	220
PGx42	74

Brake	Page #
On request	-

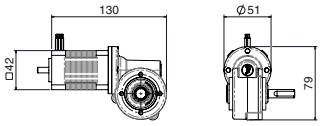
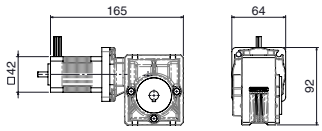
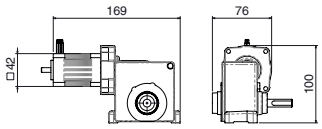
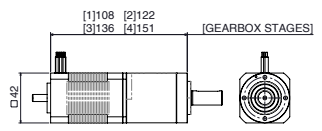
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL42-35 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL42-35-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	1000	133	57	1000	133	57
		Nominal torque	Nm	0.3	2.0	2.0	0.3	1.7	2.5
		Intermittent torque	Nm	0.5	2.9	3.2	0.4	2.6	3.7
PBL42-35-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	267	133	67
		Nominal torque	Nm	-	-	-	1.1	2.0	2.7
		Intermittent torque	Nm	-	-	-	1.7	2.9	4.1
PBL42-35-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	111	19	3	-	-	-
		Nominal torque	Nm	2.6	11.0	11.0	-	-	-
		Intermittent torque	Nm	3.8	11.0	11.0	-	-	-
PBL42-35-PGx42		Gear material		Steel	Steel	Steel	Steel	Steel	-
		Gear ratio [stages] [2]	:1	4.3 [1]	19 [2]	66 [3]	150 [4]	353 [4]	-
		Speed	rpm	930	211	61	27	11	-
		Nominal torque	Nm	0.4	1.5	4.8	9.6	11.3	-
		Intermittent torque	Nm	0.6	2.3	7.1	14.4	16.9	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

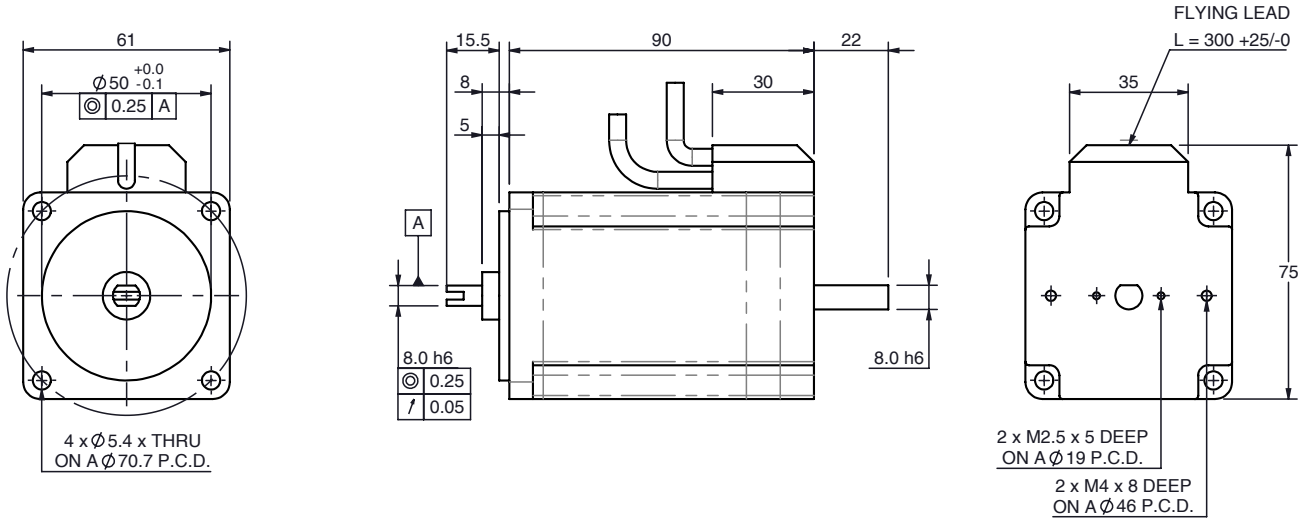
→ Technical data displayed above calculated based on **PBL42-35 48V 4000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL60-50 BLDC motor

Ø60 mm frame // 50 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data			
1	Part number		776618	776619
2	Nominal power	W	104	104
3	Nominal voltage	V	24	48
4	No load speed	rpm	3798	3827
5	No load current	A	1.1	0.5
6	Nominal speed	rpm	3000	3000
7	Nominal continuous torque (S1)	Nm	0.33	0.33
8	Nominal continuous current (S1)	A	6.1	3.0
9	Max Intermittent torque (S2 - 15 minutes)	Nm	0.58	0.58
10	Stall current	A	41.00	26.40
11	Stall torque	Nm	2.6	3.4
12	Stack length	mm	50	50
13	Maximum efficiency	%	80	84
14	Ra	Ω	0.202	0.757
15	Rl	mH	0.21	0.86
16	Speed constant	rpm/V	159.6	80.7
17	Torque constant	Nm/A	0.07	0.13
18	Speed torque gradient	rpm/Nm	1502.6	1152.9
19	Rotor inertia	Kgcm²	4.97 x 10^{-5}	4.97 x 10^{-5}
20	Weight	Kg	1.20	1.20

	Thermal data		
21	Ambient temperature	°C	40

	Mechanical data		
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.025 [450]
24	Axial end play	mm [@g]	0.025 [450]

	Other data		
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Connection details		
Lead colour	Lead gauge	Function
Red	UL1007/26 AWG	VCC
Black	UL1007/26 AWG	GND
Blue	UL1007/26 AWG	Hall A
Green	UL1007/26 AWG	Hall B
White	UL1007/26 AWG	Hall C
Red	UL1007/18 AWG	Phase U
Yellow	UL1007/18 AWG	Phase V
Black	UL1007/18 AWG	Phase W

Compatible products

Gearbox	Page #
S Box	216
GB28	66
GB58	219
M Box	222
GB80	67
MWS	230
GB36	231
PGx52	249
GB12	232

Brake	Page #
1.5 Nm	80
2.0 Nm	259
4.0 Nm	260
Power-On	261

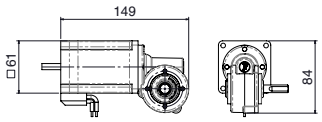
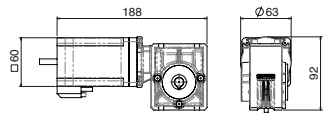
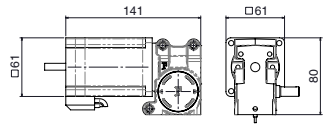
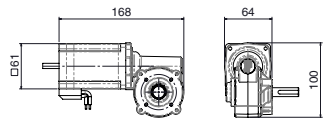
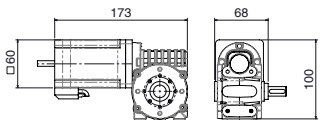
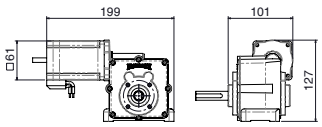
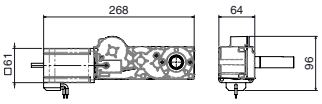
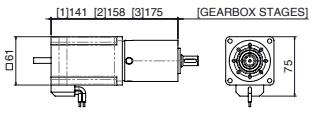
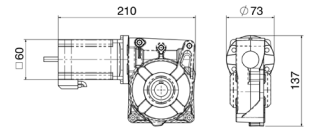
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL60-50 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL60-50-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750	100	43	750	100	43
		Nominal torque	Nm	1.1	3.0	2.0	0.9	4.5	3.0
		Intermittent torque	Nm	1.9	4.8	3.2	1.6	7.2	4.8
PBL60-50-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200	100	50
		Nominal torque	Nm	-	-	-	3.7	5.0	5.0
		Intermittent torque	Nm	-	-	-	6.5	8.0	8.0
PBL60-50-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750	200	120	-	-	-
		Nominal torque	Nm	1.1	3.7	4.0	-	-	-
		Intermittent torque	Nm	2.0	6.5	8.0	-	-	-
PBL60-50-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750	100	42	750	100	42
		Nominal torque	Nm	1.1	6.9	5.0	1.0	6.0	8.0
		Intermittent torque	Nm	2.0	12.2	8.0	1.7	10.6	12.0
PBL60-50-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	200	100	50	-	-	-
		Nominal torque	Nm	3.8	6.9	6.0	-	-	-
		Intermittent torque	Nm	6.7	12.2	10.0	-	-	-
PBL60-50-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125	25	2	-	-	-
		Nominal torque	Nm	6.0	22.0	45.0	-	-	-
		Intermittent torque	Nm	9.0	22.0	45.0	-	-	-
PBL60-50-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125	25	2	-	-	-
		Nominal torque	Nm	6.0	22.0	45.0	-	-	-
		Intermittent torque	Nm	9.0	22.0	45.0	-	-	-
PBL60-50-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769	68	17
		Nominal torque	Nm	-	-	-	1.2	13.4	30.0
		Intermittent torque	Nm	-	-	-	2.1	23.0	45.0
PBL60-50-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	200	100	50	200	100	50
		Nominal torque	Nm	4.1	7.1	10.9	3.7	6.4	9.9
		Intermittent torque	Nm	7.2	12.5	19.1	6.5	11.3	17.4

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

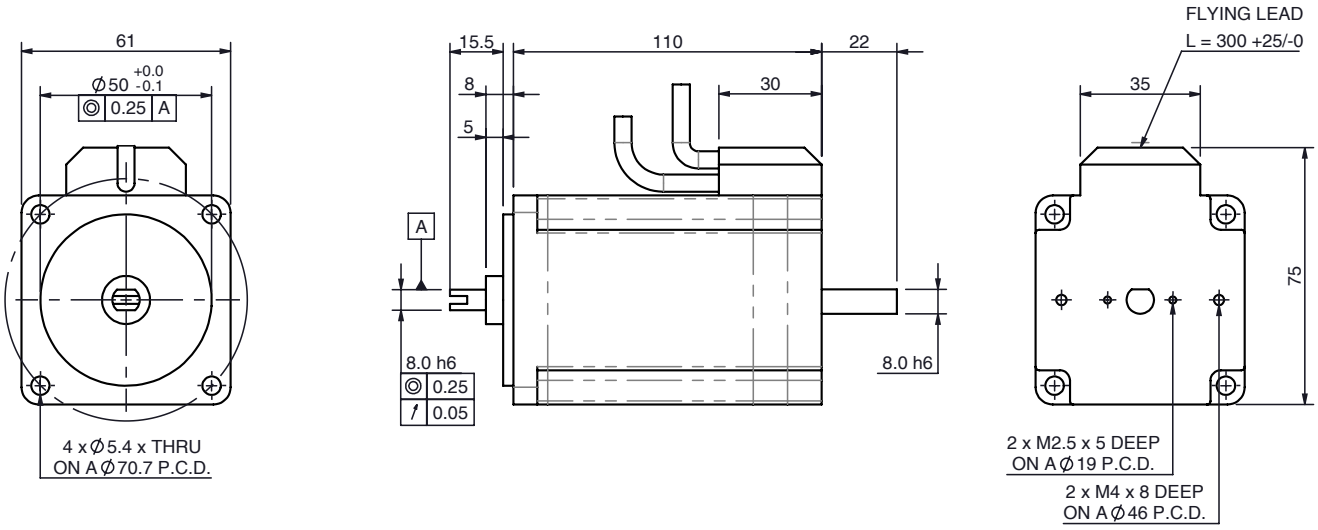
→ Technical data displayed above calculated based on **PBL60-50 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL60-70 BLDC motor

Ø60 mm frame // 70 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data			
1	Part number		776620	776621
2	Nominal power	W	157	157
3	Nominal voltage	V	24	48
4	No load speed	rpm	3983	3811
5	No load current	A	1.7	0.7
6	Nominal speed	rpm	3000	3000
7	Nominal continuous torque (S1)	Nm	0.5	0.5
8	Nominal continuous current (S1)	A	9.9	4.6
9	Max Intermittent torque (S2 - 15 minutes)	Nm	0.88	0.88
10	Stall current	A	63.44	36.90
11	Stall torque	Nm	3.7	4.5
12	Stack length	mm	70	70
13	Maximum efficiency	%	0.77	0.83
14	Ra	Ω	0.12	0.48
15	Rl	mH	0.12	0.56
16	Speed constant	rpm/V	167.30	80.34
17	Torque constant	Nm/A	0.06	0.12
18	Speed torque gradient	rpm/Nm	1121.90	870.34
19	Rotor inertia	Kgcm²	7.28 x 10^{-5}	7.28 x 10^{-5}
20	Weight	Kg	1.60	1.60

	Thermal data		
21	Ambient temperature	°C	40

	Mechanical data		
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.025 [450]
24	Axial end play	mm [@g]	0.025 [450]

	Other data		
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Connection details

Lead colour	Lead gauge	Function
Red	UL1007/26 AWG	VCC
Black	UL1007/26 AWG	GND
Blue	UL1007/26 AWG	Hall A
Green	UL1007/26 AWG	Hall B
White	UL1007/26 AWG	Hall C
Red	UL1007/18 AWG	Phase U
Yellow	UL1007/18 AWG	Phase V
Black	UL1007/18 AWG	Phase W

Compatible products

Gearbox	Page #
S Box	216
GB28	66
GB58	219
M Box	222
GB80	67
MWS	230
GB36	231
PGx52	249
GB12	232

Brake	Page #
1.5 Nm	80
2.0 Nm	259
4.0 Nm	260
Power-On	261

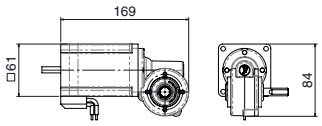
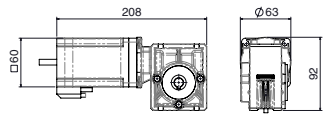
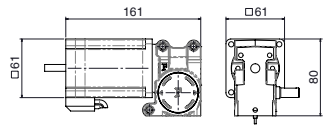
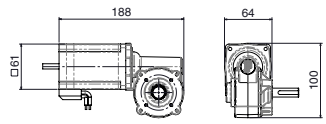
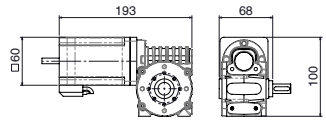
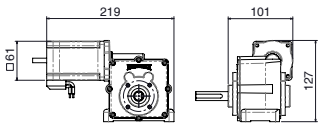
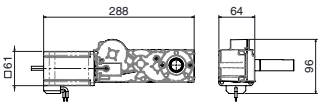
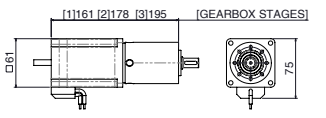
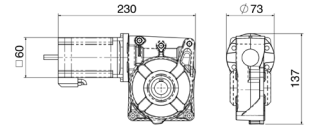
Encoder	Page #
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Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL60-70 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL60-70-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750	100	43	750	100	43
		Nominal torque	Nm	1.6	3.0	2.0	1.4	4.5	3.0
		Intermittent torque	Nm	2.8	4.8	3.2	2.5	7.2	4.8
PBL60-70-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200	100	50
		Nominal torque	Nm	-	-	-	5.0	5.0	5.0
		Intermittent torque	Nm	-	-	-	8.0	8.0	8.0
PBL60-70-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750	200	120	-	-	-
		Nominal torque	Nm	1.7	4.0	4.0	-	-	-
		Intermittent torque	Nm	3.0	8.0	8.0	-	-	-
PBL60-70-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750	100	42	750	100	42
		Nominal torque	Nm	1.7	8.0	5.0	1.5	9.2	8.0
		Intermittent torque	Nm	3.0	13.0	8.0	2.6	16.1	12.0
PBL60-70-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	200	100	50	-	-	-
		Nominal torque	Nm	5.8	8.0	6.0	-	-	-
		Intermittent torque	Nm	10.2	13.0	10.0	-	-	-
PBL60-70-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125	25	2	-	-	-
		Nominal torque	Nm	9.0	22.0	45.0	-	-	-
		Intermittent torque	Nm	9.0	22.0	45.0	-	-	-
PBL60-70-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125	25	2	-	-	-
		Nominal torque	Nm	9.0	22.0	45.0	-	-	-
		Intermittent torque	Nm	9.0	22.0	45.0	-	-	-
PBL60-70-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769	68	17
		Nominal torque	Nm	-	-	-	1.9	15.0	30.0
		Intermittent torque	Nm	-	-	-	3.3	23.0	45.0
PBL60-70-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	200	100	50	200	100	50
		Nominal torque	Nm	6.2	10.8	16.5	5.6	9.8	15.0
		Intermittent torque	Nm	11.0	19.0	29.0	9.9	17.2	26.4

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

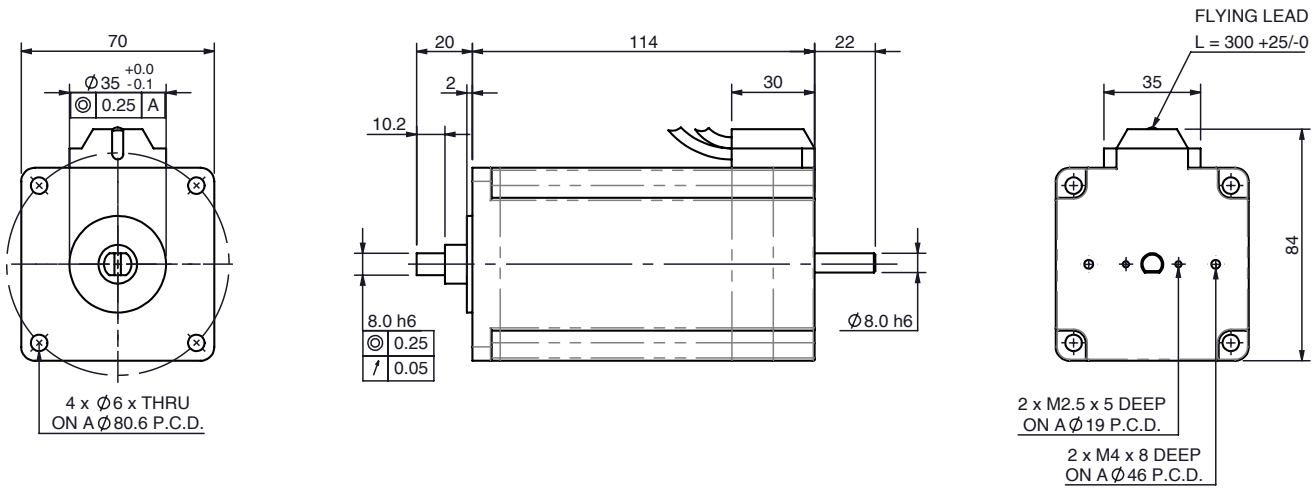
→ Technical data displayed above calculated based on **PBL60-70 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL70-70 BLDC motor

Ø70 mm frame // 70 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Technical data			
1	Part number		776622
2	Nominal power	W	363
3	Nominal voltage	V	48
4	No load speed	rpm	4857
5	No load current	A	1.4
6	Nominal speed	rpm	4500
7	Nominal continuous torque (S1)	Nm	0.77
8	Nominal continuous current (S1)	A	8.9
9	Max Intermittent torque (S2 - 15 minutes)	Nm	1.35
10	Stall current	A	68.2
11	Stall torque	Nm	6.9
12	Stack length	mm	70
13	Maximum efficiency	%	84
14	Ra	Ω	0.15
15	Rl	mH	0.283
16	Speed constant	rpm/V	102.2
17	Torque constant	Nm/A	0.103
18	Speed torque gradient	rpm/Nm	731.0
19	Rotor inertia	Kgcm²	2.39 x 10^{-4}
20	Weight	Kg	2.20

Thermal data			
21	Ambient temperature	°C	40

Mechanical data			
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.025 [450]
24	Axial end play	mm [@g]	0.025 [450]

Other data			
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Connection details		
Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Blue	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
White	UL1569/26 AWG	Hall C
Red	UL3266/16 AWG	Phase U
Yellow	UL3266/16 AWG	Phase V
Black	UL3266/16 AWG	Phase W

Compatible products

Gearbox	Page #
GB80	67
L / LH Box	226
LIW	242
PGx70	250
GB12	68
LIS	244
LWS	236

Brake	Page #
1.5 Nm	80
2.0 Nm	259
4.0 Nm	260
Power-On	261

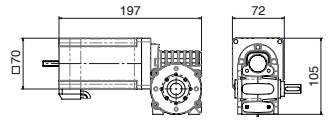
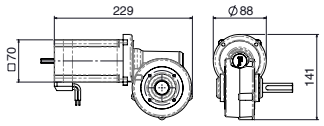
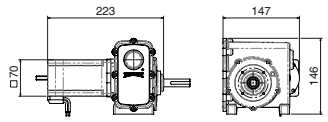
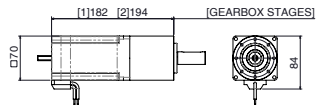
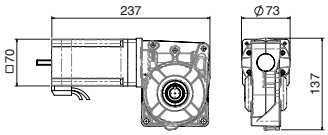
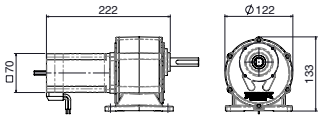
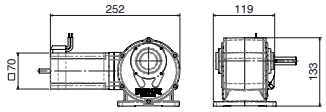
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL70-70 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL70-70-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	300	150	75	-	-	-
		Nominal torque	Nm	8.0	8.0	6.0	-	-	-
		Intermittent torque	Nm	13.0	13.0	10.0	-	-	-
PBL70-70-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	900	150	75	900	150	75
		Nominal torque	Nm	3.5	15.0	15.0	3.2	15.0	19.0
		Intermittent torque	Nm	6.1	15.0	15.0	5.7	22.0	22.0
PBL70-70-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	125	11	4	125	11	4
		Nominal torque	Nm	20.5	28.0	28.0	20.5	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	36.0	45.0	45.0
PBL70-70-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	1154	214	102
		Nominal torque	Nm	-	-	-	2.9	14.9	30.0
		Intermittent torque	Nm	-	-	-	5.0	26.1	37.5
PBL70-70-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	300	150	75	300	150	75
		Nominal torque	Nm	9.6	16.6	20.0	8.7	15.0	23.1
		Intermittent torque	Nm	16.8	29.2	32.0	15.2	26.3	40.5
PBL70-70-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	6	50	115	-	-	-
		Speed	rpm	750	90	39	-	-	-
		Nominal torque	Nm	3.6	29.6	68.2	-	-	-
		Intermittent torque	Nm	6.2	51.0	100.0	-	-	-
PBL70-70-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	94	7	1	-	-	-
		Nominal torque	Nm	25.1	100.0	100.0	-	-	-
		Intermittent torque	Nm	44.1	100.0	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

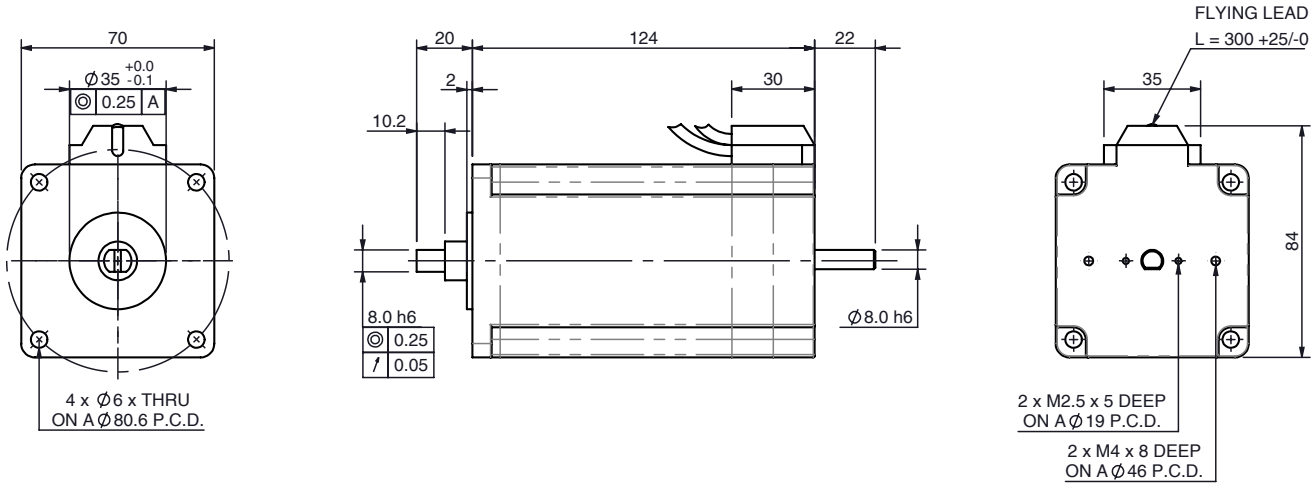
→ Technical data displayed above calculated based on **PBL70-70 48V 4500 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL70-80 BLDC motor

Ø70 mm frame // 80 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data		
1	Part number		776623
2	Nominal power	W	415
3	Nominal voltage	V	48
4	No load speed	rpm	4902
5	No load current	A	1.5
6	Nominal speed	rpm	4500
7	Nominal continuous torque (S1)	Nm	0.88
8	Nominal continuous current (S1)	A	10.4
9	Max Intermittent torque (S2 - 15 minutes)	Nm	1.54
10	Stall current	A	75.6
11	Stall torque	Nm	7.3
12	Stack length	mm	80
13	Maximum efficiency	%	82
14	Ra	Ω	0.151
15	Rl	mH	0.22
16	Speed constant	rpm/V	103
17	Torque constant	Nm/A	0.10
18	Speed torque gradient	rpm/Nm	691.7
19	Rotor inertia	Kgcm²	2.77 x 10^{-4}
20	Weight	Kg	2.60

Connection details

Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Blue	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
White	UL1569/26 AWG	Hall C
Red	UL3266/16 AWG	Phase U
Yellow	UL3266/16 AWG	Phase V
Black	UL3266/16 AWG	Phase W

	Thermal data		
21	Ambient temperature	°C	40

	Mechanical data		
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.025 [450]
24	Axial end play	mm [@g]	0.025 [450]

	Other data		
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Compatible products

Gearbox	Page #
GB80	67
L / LH Box	226
LIW	242
PGx70	250
GB12	68
LIS	244
LWS	236

Brake	Page #
1.5 Nm	80
2.0 Nm	259
4.0 Nm	260
Power-On	261

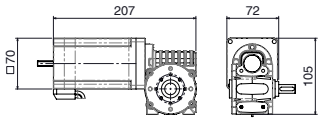
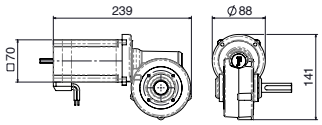
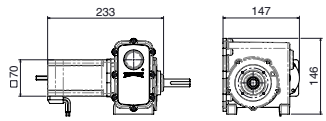
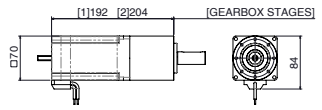
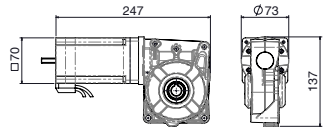
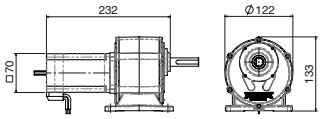
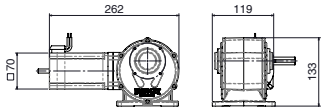
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL70-80 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL70-80-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	300	150	75	-	-	-
		Nominal torque	Nm	8.0	8.0	6.0	-	-	-
		Intermittent torque	Nm	13.0	13.0	10.0	-	-	-
PBL70-80-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	900	150	75	900	150	75
		Nominal torque	Nm	4.0	15.0	15.0	3.7	17.2	19.0
		Intermittent torque	Nm	6.9	15.0	15.0	6.5	22.0	22.0
PBL70-80-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	125	11	4	125	11	4
		Nominal torque	Nm	23.4	28.0	28.0	23.4	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	41.0	45.0	45.0
PBL70-80-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	1154	214	102
		Nominal torque	Nm	-	-	-	3.3	17.0	30.0
		Intermittent torque	Nm	-	-	-	5.7	29.8	37.5
PBL70-80-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	300	150	75	300	150	75
		Nominal torque	Nm	11.0	19.0	20.0	9.9	17.2	26.4
		Intermittent torque	Nm	19.2	32.0	32.0	17.3	30.0	46.2
PBL70-80-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	6	50	115	-	-	-
		Speed	rpm	750	90	39	-	-	-
		Nominal torque	Nm	4.1	33.9	74.0	-	-	-
		Intermittent torque	Nm	7.1	51.0	100.0	-	-	-
PBL70-80-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	94	7	1	-	-	-
		Nominal torque	Nm	28.7	100.0	100.0	-	-	-
		Intermittent torque	Nm	45.0	100.0	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

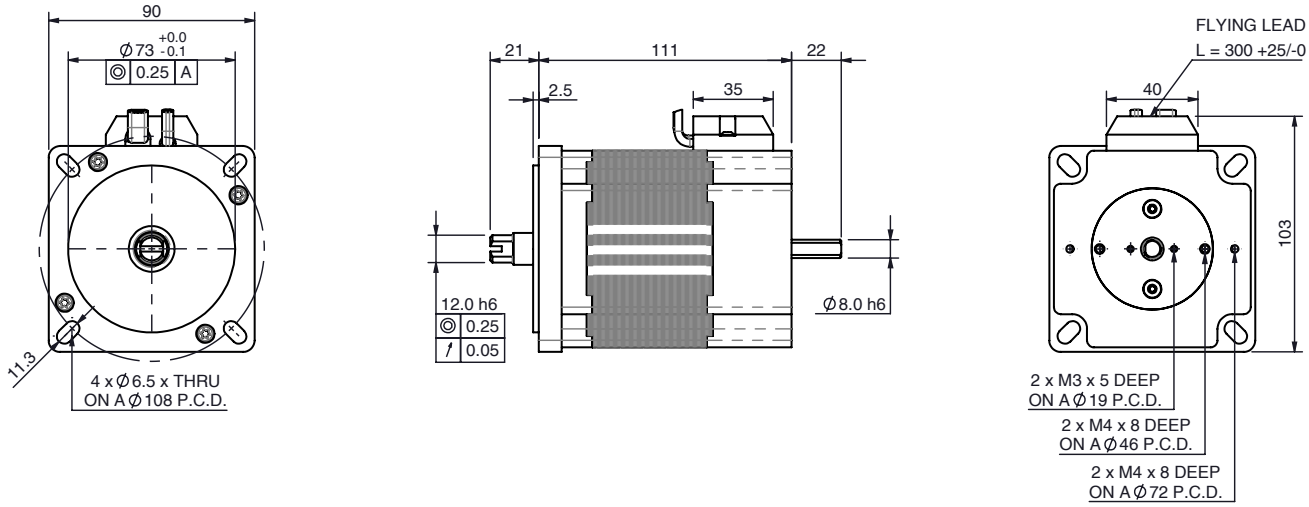
→ Technical data displayed above calculated based on **PBL70-80 48V 4500 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL86-55 BLDC motor

Ø86 mm frame // 55 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data		
1	Part number		776624
2	Nominal power	W	419
3	Nominal voltage	V	48
4	No load speed	rpm	4342
5	No load current	A	1.2
6	Nominal speed	rpm	4000
7	Nominal continuous torque (S1)	Nm	1.0
8	Nominal continuous current (S1)	A	10.3
9	Max Intermittent torque (S2 - 15 minutes)	Nm	1.75
10	Stall current	A	93
11	Stall torque	Nm	10.1
12	Stack length	mm	55
13	Maximum efficiency	%	85
14	Ra	Ω	0.087
15	Rl	mH	0.23
16	Speed constant	rpm/V	90.8
17	Torque constant	Nm/A	0.11
18	Speed torque gradient	rpm/Nm	439.5
19	Rotor inertia	Kgm^2	2.04×10^{-4}
20	Weight	Kg	3.20

	Thermal data		
21	Ambient temperature	°C	40

	Mechanical data		
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.06 [450]
24	Axial end play	mm [@g]	0.08 [450]

	Other data		
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Connection details

Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Blue	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
White	UL1569/26 AWG	Hall C
Red	UL1569/14 AWG	Phase U
Yellow	UL1569/14 AWG	Phase V
Black	UL1569/14 AWG	Phase W

Compatible products

Gearbox	Page #
PGx70	250
GB12	68
GB9	70
GB65	71

Brake	Page #
1.5 Nm	80
2.0 Nm	259
4.0 Nm	260
Power-On	261

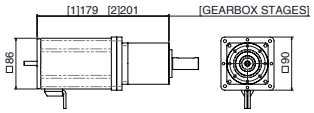
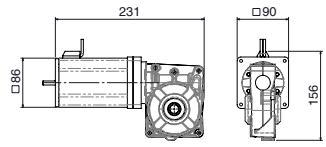
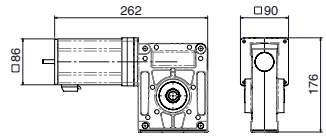
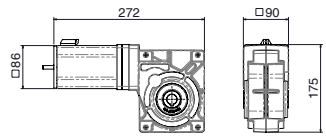
Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Key
Standard combination
Modular combination

PBL86-55 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL86-55-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	1026	190	91
		Nominal torque	Nm	-	-	-	3.7	19.3	30.0
		Intermittent torque	Nm	-	-	-	6.5	33.8	37.5
PBL86-55-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	267	133	67	267	133	67
		Nominal torque	Nm	12.5	20.0	20.0	11.3	19.5	30.0
		Intermittent torque	Nm	21.8	32.0	32.0	19.7	34.1	48.0
PBL86-55-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	15	30	60	15	30	60
		Speed	rpm	267	133	67	267	133	67
		Nominal torque	Nm	12.8	22.5	39.0	12.0	21.0	33.0
		Intermittent torque	Nm	22.3	39.4	68.3	21.0	36.8	57.8
PBL86-55-GB65		Gear material [1]		Bronze	Bronze	Bronze	Bronze	Bronze	-
		Gear ratio [2]	:1	20	40	80	120	160	-
		Speed	rpm	200	100	50	33	25	-
		Nominal torque	Nm	16.2	30.4	56.0	72.0	68.8	-
		Intermittent torque	Nm	28.4	53.2	98.0	126.0	120.4	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

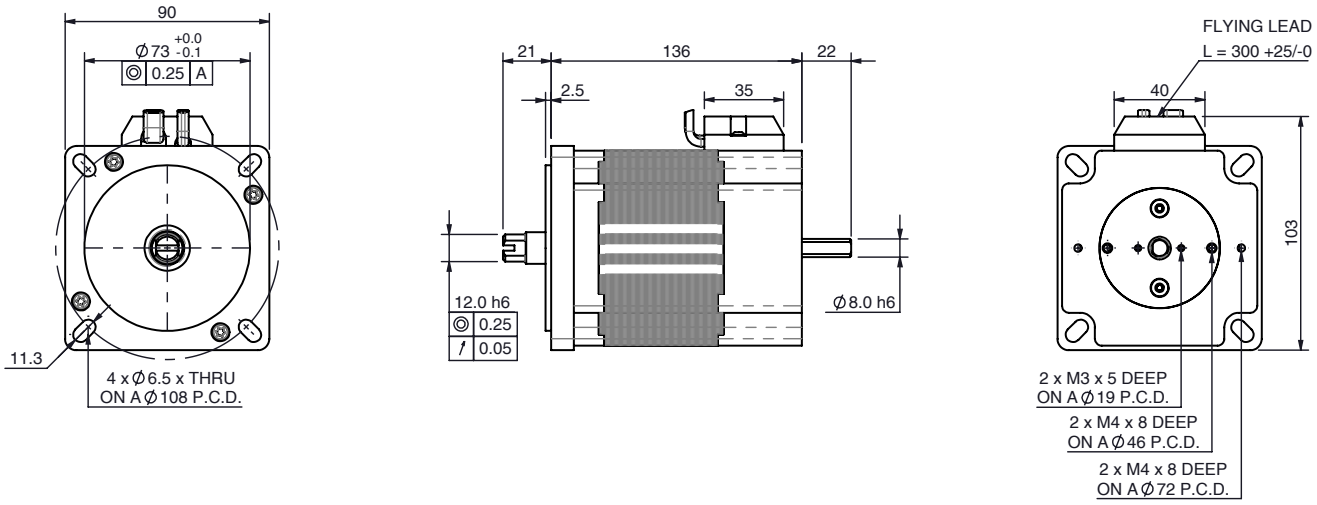
→ Technical data displayed above calculated based on **PBL86-55 48V 4000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL86-80 BLDC motor

Ø86 mm frame // 80 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data		
1	Part number		776625
2	Nominal power	W	586
3	Nominal voltage	V	48
4	No load speed	rpm	4192
5	No load current	A	1.9
6	Nominal speed	rpm	4000
7	Nominal continuous torque (S1)	Nm	1.4
8	Nominal continuous current (S1)	A	14.4
9	Max Intermittent torque (S2 - 15 minutes)	Nm	2.45
10	Stall current	A	116
11	Stall torque	Nm	12.7
12	Stack length	mm	80
13	Maximum efficiency	%	83
14	Ra	Ω	0.057
15	Rl	mH	0.16
16	Speed constant	rpm/V	87.9
17	Torque constant	Nm/A	0.11
18	Speed torque gradient	rpm/Nm	345.6
19	Rotor inertia	Kgm^2	2.9×10^{-4}
20	Weight	Kg	4.20

	Thermal data		
21	Ambient temperature	°C	40

	Mechanical data		
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.06 [450]
24	Axial end play	mm [@g]	0.08 [450]

	Other data		
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Connection details

Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Blue	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
White	UL1569/26 AWG	Hall C
Red	UL1569/14 AWG	Phase U
Yellow	UL1569/14 AWG	Phase V
Black	UL1569/14 AWG	Phase W

Compatible products

Gearbox	Page #
PGx70	250
GB12	68
GB9	70
GB65	71

Brake	Page #
1.5 Nm	80
2.0 Nm	259
4.0 Nm	260
Power-On	261

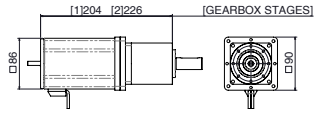
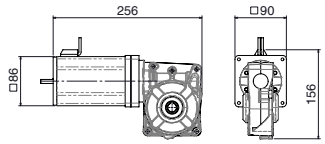
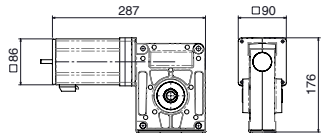
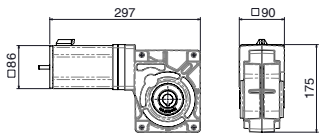
Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Key
Standard combination
Modular combination

PBL86-80 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL86-80-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	1026	190	91
		Nominal torque	Nm	-	-	-	5.2	27.0	30.0
		Intermittent torque	Nm	-	-	-	9.1	37.5	37.5
PBL86-80-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	267	133	67	267	133	67
		Nominal torque	Nm	17.4	20.0	20.0	15.8	27.3	30.0
		Intermittent torque	Nm	30.5	32.0	32.0	27.6	47.8	48.0
PBL86-80-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	15	30	60	15	30	60
		Speed	rpm	267	133	67	267	133	67
		Nominal torque	Nm	17.9	31.5	50.0	16.8	29.4	46.2
		Intermittent torque	Nm	31.2	55.1	80.0	29.4	51.5	80.9
PBL86-80-GB65		Gear material [1]		Bronze	Bronze	Bronze	Bronze	Bronze	-
		Gear ratio [2]	:1	20	40	80	120	160	-
		Speed	rpm	200	100	50	33	25	-
		Nominal torque	Nm	22.7	42.6	78.4	100.8	96.3	-
		Intermittent torque	Nm	39.7	74.5	137.2	176.4	168.6	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

→ Technical data displayed above calculated based on **PBL86-80 48V 4000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

Modular PMDC moto

BRx52

- Ø52 mm frame
- 30 mm and 58 mm stack length
- 3000 rpm nominal speed
- 0.35 Nm max intermittent torque

RE38

- Ø38 mm frame
- 25 mm and 40 mm stack length
- 3250 rpm nominal speed
- 0.18 Nm max intermittent torque

BRx70

- Ø70 mm frame
- 40 mm and 60 mm stack length
- 3000 rpm nominal speed
- 0.88 Nm max intermittent torque



ors

Available to order direct from our website, our PMDC modular motor range is available to configure online. Choose between five frame sizes, each with two stack lengths, as well as options for voltage, additional gearboxes, and a selection of accessories.

Our PMDC motors are robust, reliable, and cost effective, making them the perfect solution for a wide range of industrial applications.



BRx90

- Ø90 mm frame
- 50 mm and 75 mm stack length
- 3000 rpm nominal speed
- 1.50 Nm max intermittent torque

BRx42

- Ø42 mm frame
- 25 mm and 40 mm stack length
- 3000 rpm nominal speed
- 0.09 Nm max intermittent torque

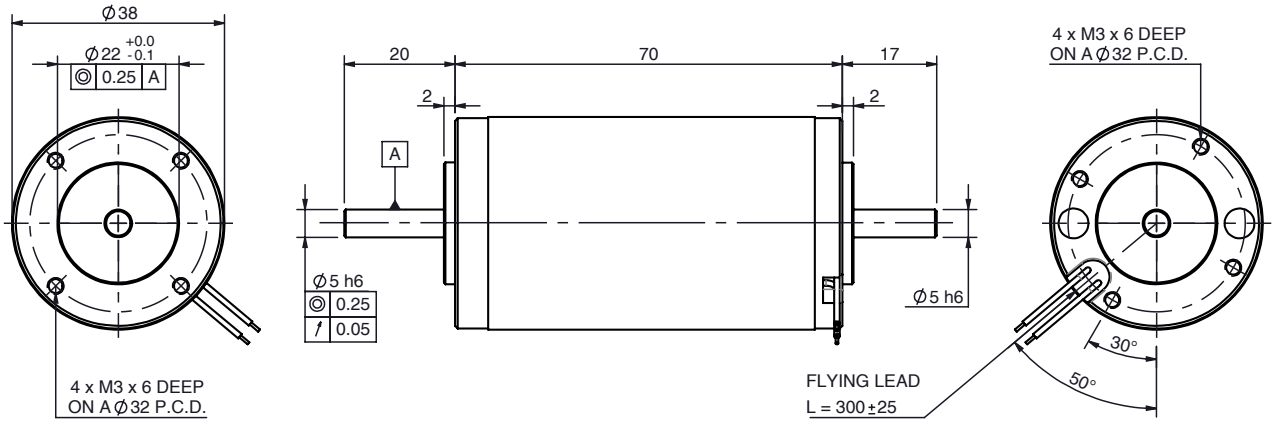
BRx63

- Ø63 mm frame
- 25 mm and 40 mm stack length
- 3000 rpm nominal speed
- 0.45 Nm max intermittent torque

RE38-25 PMDC motor

Ø38 mm frame // 25 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Technical data				
1	Part number		857662	857663
2	Nominal power	W	24	24
3	Nominal voltage	V	24	48
4	No load speed	rpm	4090	4175
5	No load current	A	0.2	0.1
6	Nominal speed	rpm	3250	3250
7	Nominal continuous torque (S1)	Nm	0.07	0.07
8	Nominal continuous current (S1)	A	1.37	0.70
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.11	0.11
10	Stall current	A	7.64	3.83
11	Stall torque	Nm	0.41	0.41
12	Stack length	mm	25	25
13	Maximum efficiency	%	0.78	0.77
14	Terminal resistance	Ω	2.53	9.91
15	Terminal inductance	mH	2.29	9.15
16	Speed constant	rpm/V	173.6	87.9
17	Torque constant	Nm/A	0.05	0.11
18	Speed torque gradient	rpm/Nm	10197	10541
19	Rotor inertia	gcm²	9.5 x 10^{-6}	9.5 x 10^{-6}

Thermal data			
20	Ambient temperature	°C	40

Mechanical data			
21	Radial load [distance from flange]	N [mm]	60 [20]

Other data			
22	Number of poles		2
23	Weight	Kg	0.30
24	IP rating		IP50
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
PGx42	74
GB56	69

Brake	Page #
N/A	-

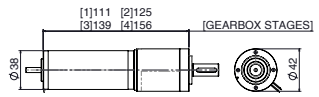
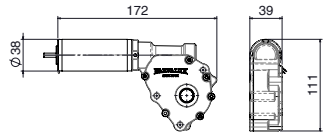
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

RE38-25 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
RE38-25-PGx42		Gear material [1]		Bronze	Bronze	Bronze	Bronze	Bronze
		Gear ratio [stages][2]	:1	4.3 [1]	19 [2]	66 [3]	150 [4]	353 [4]
		Speed	rpm	755.8	171.1	49.2	21.7	9.2
		Nominal torque	Nm	0.3	1.1	3.3	6.7	11.3
		Intermittent torque	Nm	0.4	1.7	5.2	10.6	16.9
RE38-25-GB56		Gear material [1]		Comp.	Comp.	Comp.	Comp.	Comp.
		Gear ratio [stages][2]	:1	4	30	70	4	30
		Speed	rpm	108.3	81.3	67.7	54.2	46.4
		Nominal torque	Nm	1.2	1.5	1.7	1.8	1.8
		Intermittent torque	Nm	1.9	2.4	2.6	2.8	2.8

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

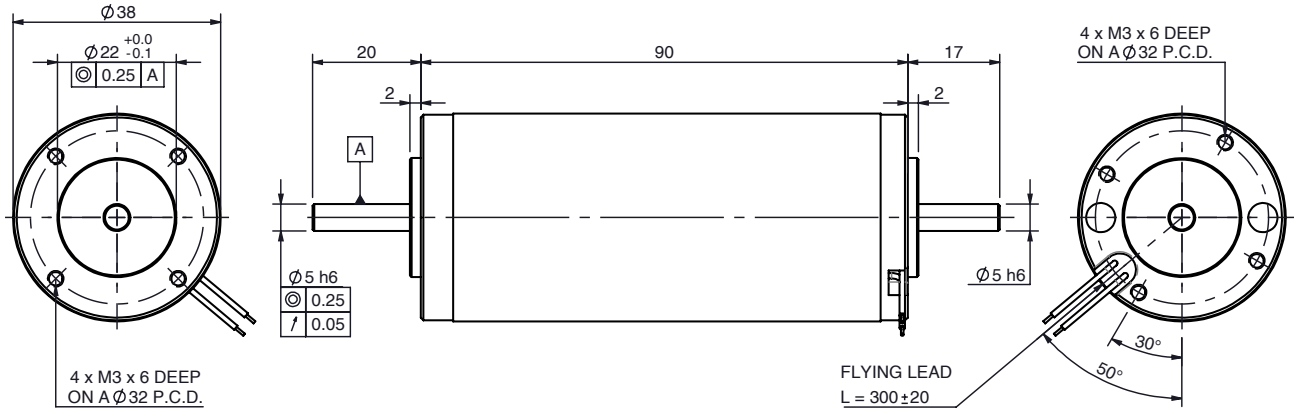
→ Technical data displayed above calculated based on **RE38-25 48V 3250 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

RE38-40 PMDC motor

Ø38 mm frame // 40 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data			
1	Part number		857664	857665
2	Nominal power	W	40	40
3	Nominal voltage	V	24	48
4	No load speed	rpm	4065	3856
5	No load current	A	0.23	0.12
6	Nominal speed	rpm	3200	3200
7	Nominal continuous torque (S1)	Nm	0.12	0.12
8	Nominal continuous current (S1)	A	2.20	1.11
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.18	0.18
10	Stall current	A	10.7	5.9
11	Stall torque	Nm	0.63	0.68
12	Stack length	mm	40	40
13	Maximum efficiency	%	0.77	0.77
14	Terminal resistance	Ω	1.72	6.86
15	Terminal inductance	mH	1.62	6.92
16	Speed constant	rpm/V	170.7	81.6
17	Torque constant	Nm/A	0.06	0.12
18	Speed torque gradient	rpm/Nm	6533	5830
19	Rotor inertia	gcm²	1.3×10^{-5}	1.3×10^{-5}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	60 [20]

	Other data		
22	Number of poles		2
23	Weight	Kg	0.40
24	IP rating		IP50
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
PGx42	74
GB56	69

Brake	Page #
N/A	-

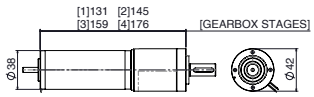
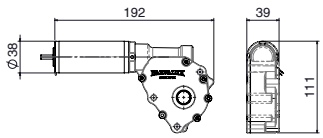
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

RE38-40 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
RE38-40-PGx42		Gear material [1]		Bronze	Bronze	Bronze	Bronze	Bronze
		Gear ratio [stages][2]	:1	4.3 [1]	19 [2]	66 [3]	150 [4]	353 [4]
		Speed	rpm	744.2	168.4	48.5	21.3	9.1
		Nominal torque	Nm	0.5	1.8	5.7	11.3	11.3
		Intermittent torque	Nm	0.7	2.8	8.6	16.9	16.9
RE38-40-GB56		Gear material [1]		Comp.	Comp.	Comp.	Comp.	Comp.
		Gear ratio [stages][2]	:1	4	30	70	4	30
		Speed	rpm	106.7	80.0	66.7	53.3	45.7
		Nominal torque	Nm	2.1	2.6	2.9	3.1	3.0
		Intermittent torque	Nm	3.2	3.9	4.3	4.6	4.5

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

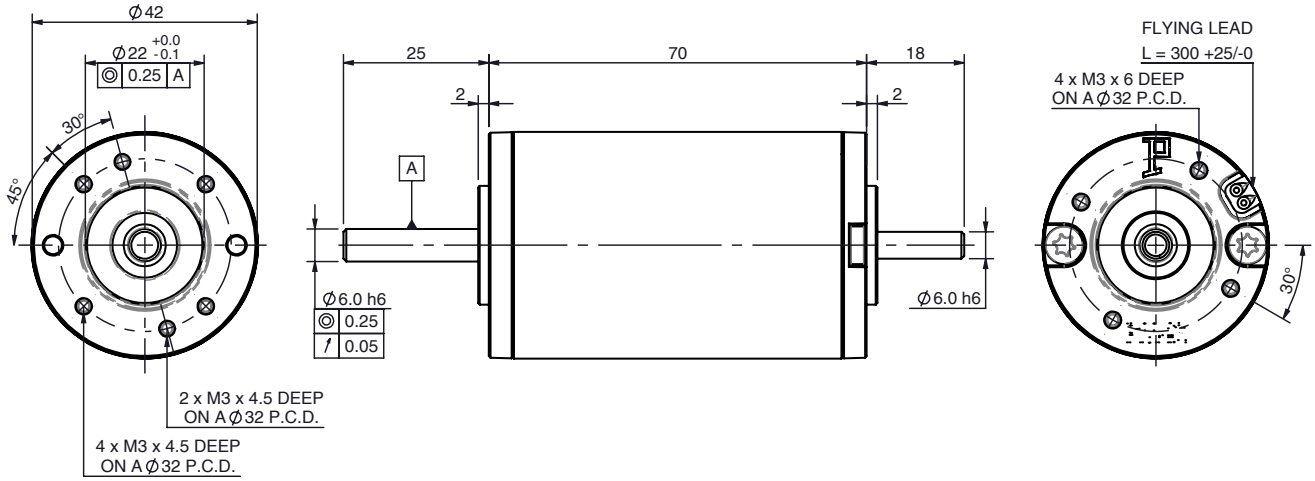
→ Technical data displayed above calculated based on **RE38-40 48V 3200 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

BRx42-25 PMDC motor

Ø42 mm frame // 19 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data			
1	Part number		781076	781077
2	Nominal power	W	12	12
3	Nominal voltage	V	12	24
4	No load speed	rpm	4091	4006
5	No load current	A	0.280	0.150
6	Nominal speed	rpm	3000	3000
7	Nominal continuous torque (S1)	Nm	0.038	0.038
8	Nominal continuous current (S1)	A	1.60	0.78
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.06	0.06
10	Stall current	A	5.30	2.78
11	Stall torque	Nm	0.13	0.14
12	Stack length	mm	19	19
13	Maximum efficiency	%	71	71
14	Terminal resistance	Ω	2.09	7.02
15	Terminal inductance	mH	1.56	7.26
16	Speed constant	rpm/V	354.6	175.1
17	Torque constant	Nm/A	0.03	0.05
18	Speed torque gradient	rpm/Nm	32623	29121
19	Rotor inertia	gcm²	1.0 x 10^{-5}	1.0 x 10^{-5}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	60 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	0.39
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
S Box	216
GB58	219
PGx42	248

Brake	Page #
On request	-

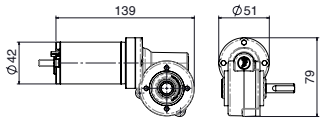
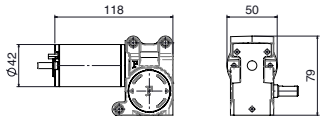
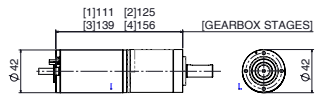
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

BRx42-25 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
BRx42-25-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750.0	100.0	42.9	750.0	100.0	42.9
		Nominal torque	Nm	0.1	0.7	1.1	0.1	0.6	0.9
		Intermittent torque	Nm	0.2	1.2	1.7	0.2	1.0	1.5
BRx42-25-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750.0	200.0	120.0	-	-	-
		Nominal torque	Nm	0.1	0.4	0.6	-	-	-
		Intermittent torque	Nm	0.2	0.7	1.0	-	-	-
BRx42-25-PGx42		Gear material [1]		Bronze	Bronze	Bronze	Bronze	Bronze	
		Gear ratio [stages] [2]	:1	4.3 [1]	19 [2]	66 [3]	150 [4]	353 [4]	
		Speed	rpm	697.7	157.9	45.5	20.0	8.5	
		Nominal torque	Nm	0.1	0.6	1.8	3.6	8.6	
		Intermittent torque	Nm	0.2	0.9	2.9	5.8	13.6	

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

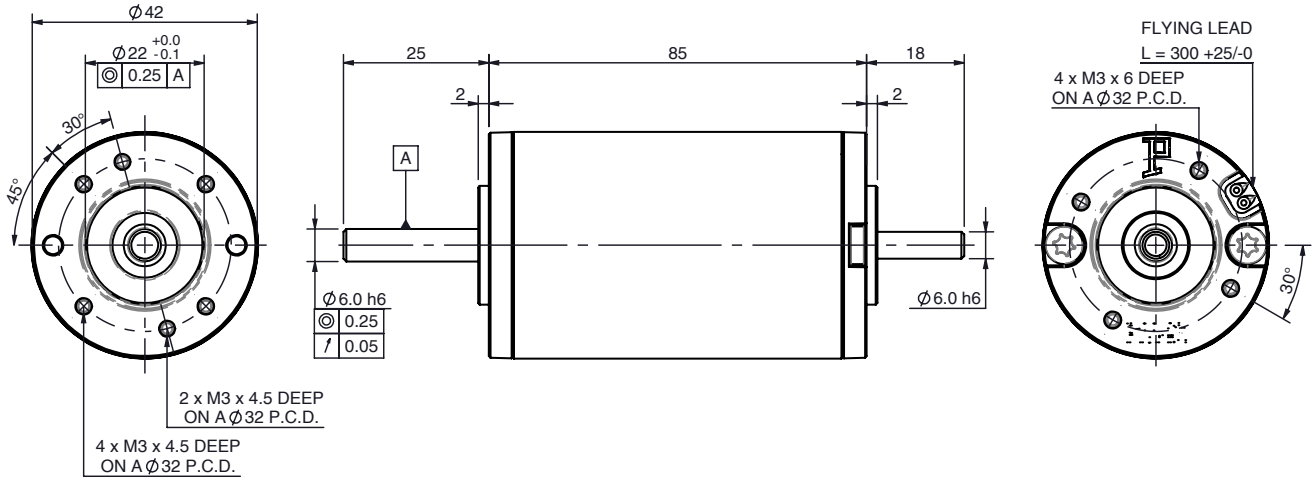
→ Technical data displayed above calculated based on **BRx42-25 24V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

BRx42-40 PMDC motor

Ø42 mm frame // 34 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		781079	781080	781081
2	Nominal power	W	18	18	18
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3925	3931	4054
5	No load current	A	0.20	0.10	0.08
6	Nominal speed	rpm	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.057	0.057	0.057
8	Nominal continuous current (S1)	A	2.20	1.06	0.51
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.09	0.09	0.09
10	Stall current	A	8.50	4.79	1.92
11	Stall torque	Nm	0.20	0.26	0.27
12	Stack length	mm	34	34	34
13	Maximum efficiency	%	0.74	0.76	0.85
14	Terminal resistance	Ω	1.51	4.35	17.25
15	Terminal inductance	mH	1.01	4.39	18.29
16	Speed constant	rpm/V	329	164	87.5
17	Torque constant	Nm/A	0.03	0.06	0.12
18	Speed torque gradient	rpm/Nm	17670	14935	18613
19	Rotor inertia	gcm²	1.4 x 10^{-5}	1.4 x 10^{-5}	1.4 x 10^{-5}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	60 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	0.52
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
S Box	216
GB58	219
PGx42	248

Brake	Page #
On request	-

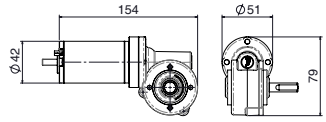
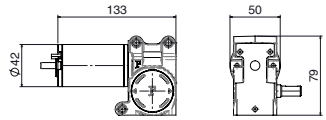
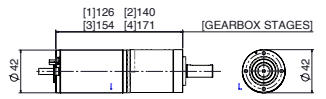
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

BRx42-40 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
BRx42-40-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750.0	100.0	42.9	750.0	100.0	42.9
		Nominal torque	Nm	0.2	1.1	1.6	0.2	1.0	1.4
		Intermittent torque	Nm	0.3	1.8	2.5	0.3	1.5	2.2
BRx42-40-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750.0	200.0	120.0	-	-	-
		Nominal torque	Nm	0.2	0.6	1.0	-	-	-
		Intermittent torque	Nm	0.3	1.0	1.5	-	-	-
BRx42-40-PGx42		Gear material [1]		Bronze	Bronze	Bronze	Bronze	Bronze	
		Gear ratio [stages] [2]	:1	4.3 [1]	19 [2]	66 [3]	150 [4]	353 [4]	
		Speed	rpm	697.7	157.9	45.5	20.0	8.5	
		Nominal torque	Nm	0.2	0.9	2.7	5.5	11.3	
		Intermittent torque	Nm	0.3	1.4	4.3	8.6	16.9	

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

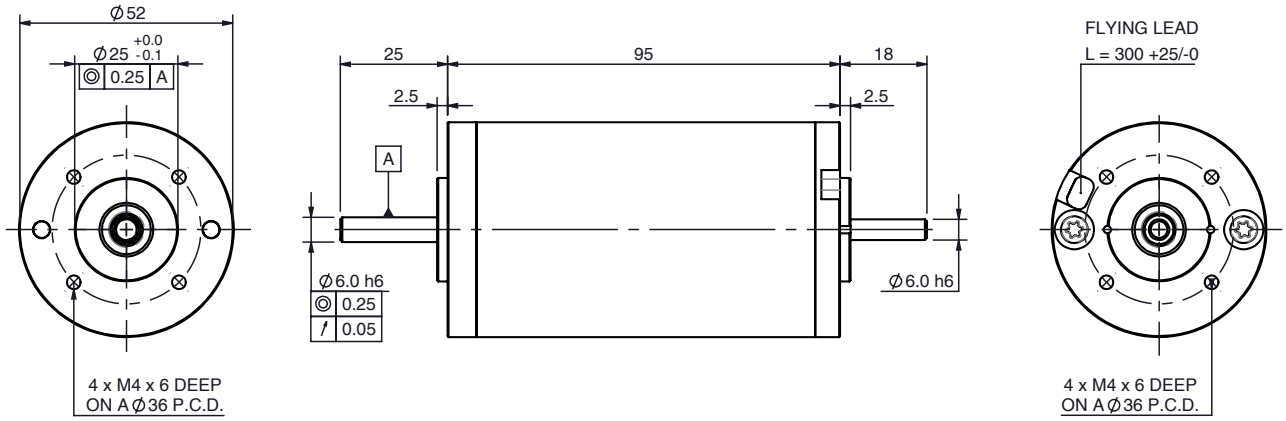
→ Technical data displayed above calculated based on **BRx42-40 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

BRx52-30 PMDC motor

Ø52 mm frame // 30 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		787108	787109	787110
2	Nominal power	W	28	28	28
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3853	3561	3547
5	No load current	A	0.80	0.51	0.20
6	Nominal speed	rpm	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.09	0.09	0.09
8	Nominal continuous current (S1)	A	3.4	1.7	0.9
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.15	0.15	0.15
10	Stall current	A	16.2	9.8	5.0
11	Stall torque	Nm	0.43	0.50	0.56
12	Stack length	mm	30	30	30
13	Maximum efficiency	%	76	78	71
14	Terminal resistance	Ω	0.43	1.93	6.69
15	Terminal inductance	mH	0.675	2.713	11.390
16	Speed constant	rpm/V	332.4	154.9	76.7
17	Torque constant	Nm/A	0.03	0.060	0.120
18	Speed torque gradient	rpm/Nm	7585	7250	6692
19	Rotor inertia	gcm²	2.33 x 10^{-5}	2.33 x 10^{-5}	2.33 x 10^{-5}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	90 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	0.85
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
GB80	67
GB36	231
PGx52	249

Brake	Page #
1.5 Nm	258

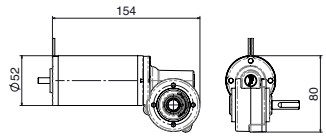
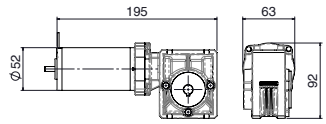
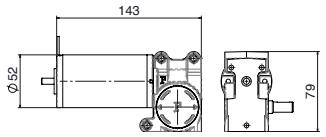
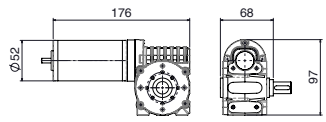
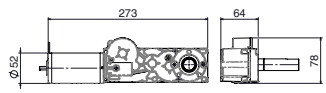
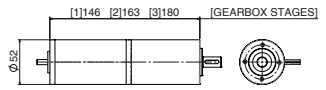
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

BRx52-30 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
BRx52-30-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750.0	100.0	42.9	750.0	100.0	42.9
		Nominal torque	Nm	0.3	1.8	2.0	0.3	1.5	2.2
		Intermittent torque	Nm	0.5	2.9	3.2	0.4	2.6	3.7
BRx52-30-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200.0	100.0	50.0
		Nominal torque	Nm	-	-	-	1.0	1.8	2.4
		Intermittent torque	Nm	-	-	-	1.7	2.9	4.1
BRx52-30-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750.0	200.0	120.0	-	-	-
		Nominal torque	Nm	0.3	1.0	1.5	-	-	-
		Intermittent torque	Nm	0.5	1.7	2.6	-	-	-
BRx52-30-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	200.0	100.0	50.0	-	-	-
		Nominal torque	Nm	1.0	1.9	2.9	-	-	-
		Intermittent torque	Nm	1.7	3.2	4.9	-	-	-
BRx52-30-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125.0	25.0	2.1	-	-	-
		Nominal torque	Nm	1.6	8.0	45.0	-	-	-
		Intermittent torque	Nm	2.7	13.3	45.0	-	-	-
BRx52-30-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769.2	68.2	17.4
		Nominal torque	Nm	-	-	-	0.3	3.6	13.8
		Intermittent torque	Nm	-	-	-	0.6	6.1	23.0

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

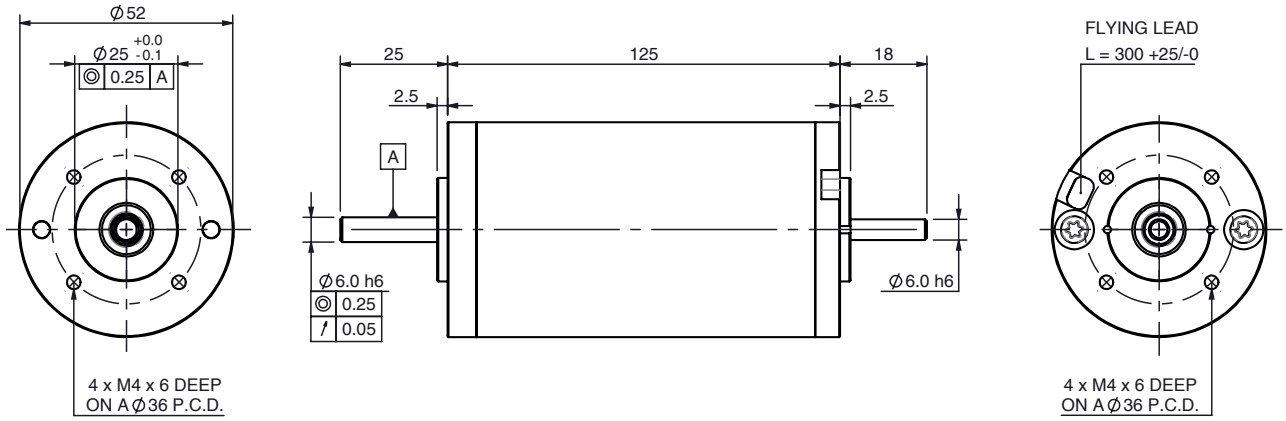
→ Technical data displayed above calculated based on **BRx52-30 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

BRx52-58 PMDC motor

Ø52 mm frame // 58 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		787111	787113	787114
2	Nominal power	W	48	69	69
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3513	3840	3838
5	No load current	A	0.60	0.40	0.16
6	Nominal speed	rpm	2850	3000	3000
7	Nominal continuous torque (S1)	Nm	0.16	0.22	0.22
8	Nominal continuous current (S1)	A	5.5	3.9	2.2
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.35	0.35	0.35
10	Stall current	A	23.6	19.0	9.5
11	Stall torque	Nm	0.7	1.1	1.0
12	Stack length	mm	58	58	58
13	Maximum efficiency	%	73	80	80
14	Terminal resistance	Ω	0.570	0.937	3.420
15	Terminal inductance	mH	0.385	1.272	5.217
16	Speed constant	rpm/V	300.4	161.8	80.8
17	Torque constant	Nm/A	0.031	0.056	0.100
18	Speed torque gradient	rpm/Nm	5166	3805	4411
19	Rotor inertia	gcm²	5.7×10^{-5}	5.7×10^{-5}	5.7×10^{-5}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	90 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	1.16
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
GB80	67
GB36	231
PGx52	249

Brake	Page #
1.5 Nm	258

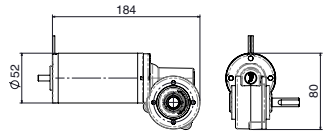
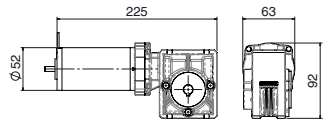
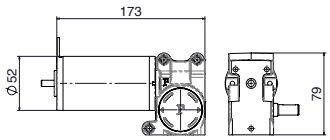
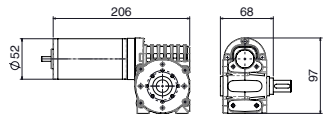
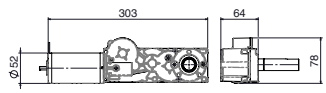
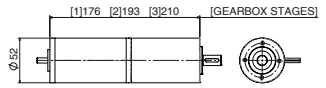
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

BRx52-58 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
BRx52-58-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750.0	100.0	42.9	750.0	100.0	42.9
		Nominal torque	Nm	0.7	3.0	2.0	0.6	3.8	3.0
		Intermittent torque	Nm	1.1	4.8	3.2	1.0	6.0	4.8
BRx52-58-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200.0	100.0	50.0
		Nominal torque	Nm	-	-	-	2.5	4.3	5.0
		Intermittent torque	Nm	-	-	-	3.9	6.8	8.0
BRx52-58-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750.0	200.0	120.0	-	-	-
		Nominal torque	Nm	0.7	2.5	3.7	-	-	-
		Intermittent torque	Nm	1.2	3.9	6.0	-	-	-
BRx52-58-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	200.0	100.0	50.0	-	-	-
		Nominal torque	Nm	2.5	4.6	6.0	-	-	-
		Intermittent torque	Nm	4.0	7.4	10.0	-	-	-
BRx52-58-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125.0	25.0	2.1	-	-	-
		Nominal torque	Nm	4.0	19.5	45.0	-	-	-
		Intermittent torque	Nm	6.4	22.0	45.0	-	-	-
BRx52-58-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769.2	68.2	17.4
		Nominal torque	Nm	-	-	-	0.8	8.9	30.0
		Intermittent torque	Nm	-	-	-	1.3	14.2	45.0

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

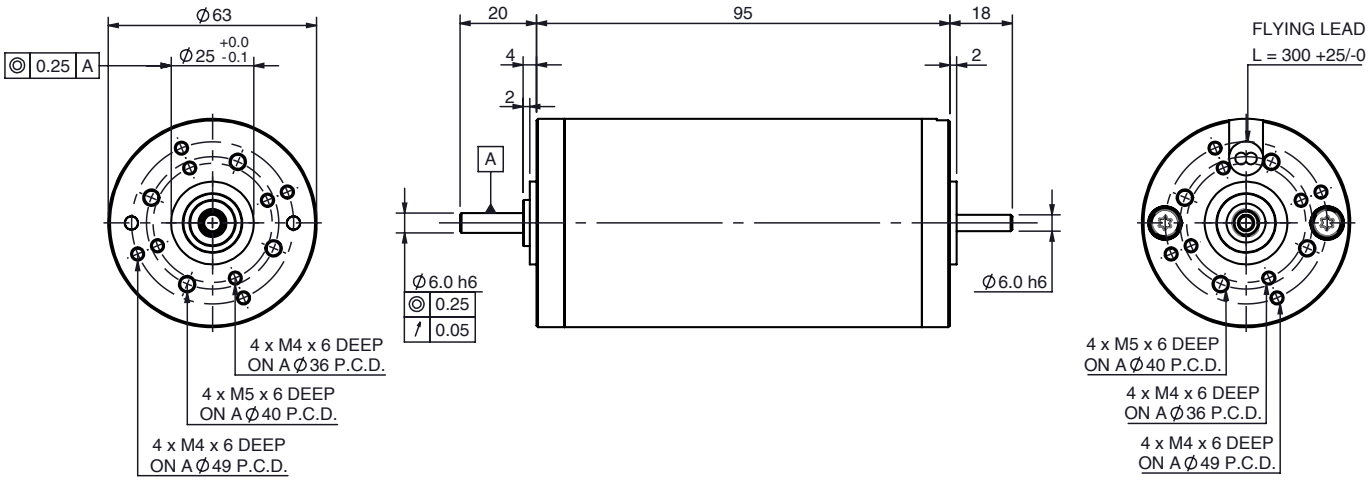
→ Technical data displayed above calculated based on **BRx52-58 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

BRx63-25 PMDC motor

Ø63 mm frame // 25 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		781083	781084	781085
2	Nominal power	W	47	57	57
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3488	3591	3621
5	No load current	A	0.6	0.30	0.15
6	Nominal speed	rpm	2500	3000	3000
7	Nominal continuous torque (S1)	Nm	0.18	0.18	0.18
8	Nominal continuous current (S1)	A	6.0	3.0	1.6
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.30	0.30	0.30
10	Stall current	A	19.4	11.8	6.9
11	Stall torque	Nm	0.6	0.7	0.8
12	Stack length	mm	25	25	25
13	Maximum efficiency	%	67	84	84
14	Terminal resistance	Ω	1.260	1.649	5.130
15	Terminal inductance	mH	0.5016	2.204	8.520
16	Speed constant	rpm/V	298.1	151.7	76.5
17	Torque constant	Nm/A	0.03	0.06	0.12
18	Speed torque gradient	rpm/Nm	6269	5656	5037
19	Rotor inertia	gcm²	7.4 x 10^{-5}	7.4 x 10^{-5}	7.4 x 10^{-5}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	0.85
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
S Box	216
GB28	66
GB58	219
M Box	222
GB80	67
GB36	231
PGx52	249

Brake	Page #
1.5 Nm	80

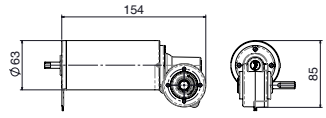
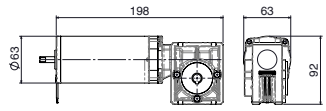
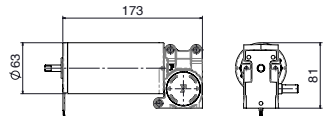
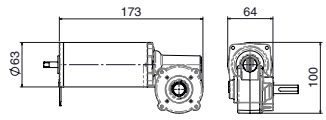
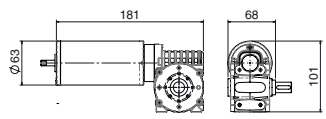
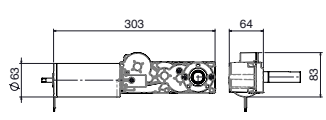
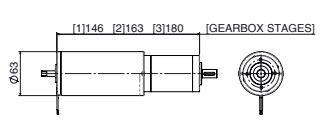
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

BRx63-25 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
BRx63-25-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750.0	100.0	42.9	750.0	100.0	42.9
		Nominal torque	Nm	0.6	3.0	2.0	0.5	3.1	3.0
		Intermittent torque	Nm	1.0	4.8	3.2	0.8	5.1	4.8
BRx63-25-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200.0	100.0	50.0
		Nominal torque	Nm	-	-	-	2.0	3.5	4.9
		Intermittent torque	Nm	-	-	-	3.4	5.9	8.0
BRx63-25-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750.0	200.0	120.0	-	-	-
		Nominal torque	Nm	0.6	2.0	3.1	-	-	-
		Intermittent torque	Nm	1.0	3.4	5.1	-	-	-
BRx63-25-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	0.6	3.8	5.0	0.5	3.3	5.2
		Intermittent torque	Nm	1.0	6.3	8.0	0.9	5.5	8.6
BRx63-25-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	200.0	100.0	50.0	-	-	-
		Nominal torque	Nm	2.1	3.8	5.8	-	-	-
		Intermittent torque	Nm	3.5	6.3	9.7	-	-	-
BRx63-25-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125.0	25.0	2.1	-	-	-
		Nominal torque	Nm	3.3	16.0	45.0	-	-	-
		Intermittent torque	Nm	5.5	22.0	45.0	-	-	-
BRx63-25-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769.2	68.2	17.4
		Nominal torque	Nm	-	-	-	0.7	7.3	27.6
		Intermittent torque	Nm	-	-	-	1.1	12.1	45.0

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

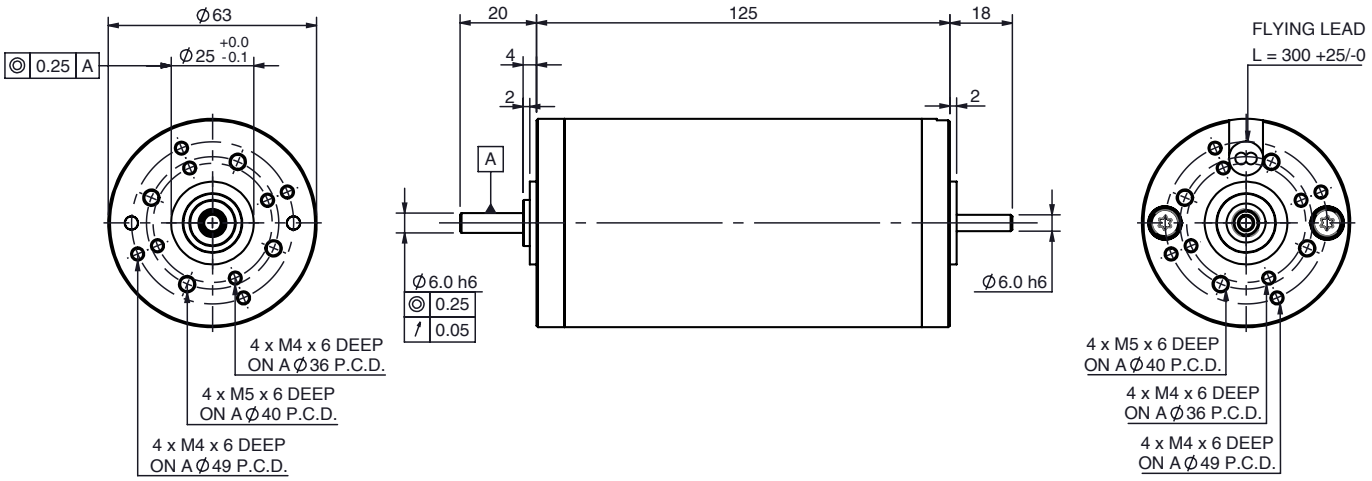
→ Technical data displayed above calculated based on **BRx63-25 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

BRx63-55 PMDC motor

Ø63 mm frame // 55 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		781088	781089	781090
2	Nominal power	W	79	85	85
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3665	3617	3613
5	No load current	A	0.70	0.31	0.18
6	Nominal speed	rpm	2800	3000	3000
7	Nominal continuous torque (S1)	Nm	0.27	0.27	0.27
8	Nominal continuous current (S1)	A	9.2	4.7	2.4
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.45	0.45	0.45
10	Stall current	A	38.3	27.9	19.2
11	Stall torque	Nm	1.16	1.65	2.20
12	Stack length	mm	55	55	55
13	Maximum efficiency	%	76	81	85
14	Terminal resistance	Ω	0.745	0.593	2.300
15	Terminal inductance	mH	0.198	0.92	3.60
16	Speed constant	rpm/V	303.1	150.9	75.4
17	Torque constant	Nm/A	0.03	0.06	0.10
18	Speed torque gradient	rpm/Nm	3181	2336	1741
19	Rotor inertia	gcm²	9.3×10^{-5}	9.3×10^{-5}	9.3×10^{-5}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	1.16
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
S Box	216
GB28	66
GB58	219
M Box	222
GB80	67
GB36	231
PGx52	249

Brake	Page #
1.5 Nm	80

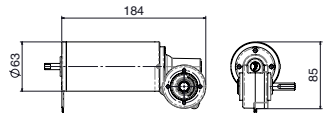
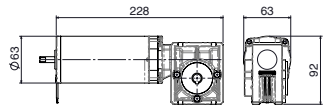
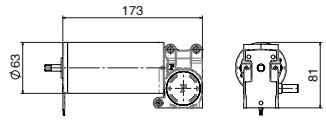
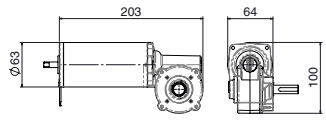
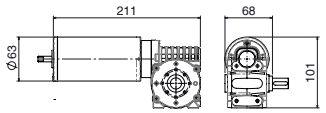
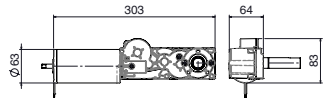
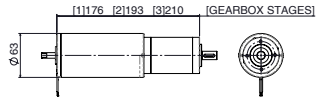
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

BRx63-55 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
BRx63-55-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750.0	100.0	42.9	750.0	100.0	42.9
		Nominal torque	Nm	0.9	3.0	2.0	0.8	4.5	3.0
		Intermittent torque	Nm	1.4	4.8	3.2	1.3	7.2	4.8
BRx63-55-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200.0	100.0	50.0
		Nominal torque	Nm	-	-	-	3.0	5.0	5.0
		Intermittent torque	Nm	-	-	-	5.1	8.0	8.0
BRx63-55-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750.0	200.0	120.0	-	-	-
		Nominal torque	Nm	0.9	3.0	4.0	-	-	-
		Intermittent torque	Nm	1.5	5.1	7.7	-	-	-
BRx63-55-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	0.9	5.7	5.0	0.8	4.9	7.8
		Intermittent torque	Nm	1.5	9.5	8.0	1.3	8.2	12.0
BRx63-55-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	200.0	100.0	50.0	-	-	-
		Nominal torque	Nm	3.1	5.7	6.0	-	-	-
		Intermittent torque	Nm	5.2	9.5	10.0	-	-	-
BRx63-55-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125.0	25.0	2.1	-	-	-
		Nominal torque	Nm	4.9	22.0	45.0	-	-	-
		Intermittent torque	Nm	8.2	22.0	45.0	-	-	-
BRx63-55-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769.2	68.2	17.4
		Nominal torque	Nm	-	-	-	1.0	10.9	30.0
		Intermittent torque	Nm	-	-	-	1.7	18.2	45.0

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

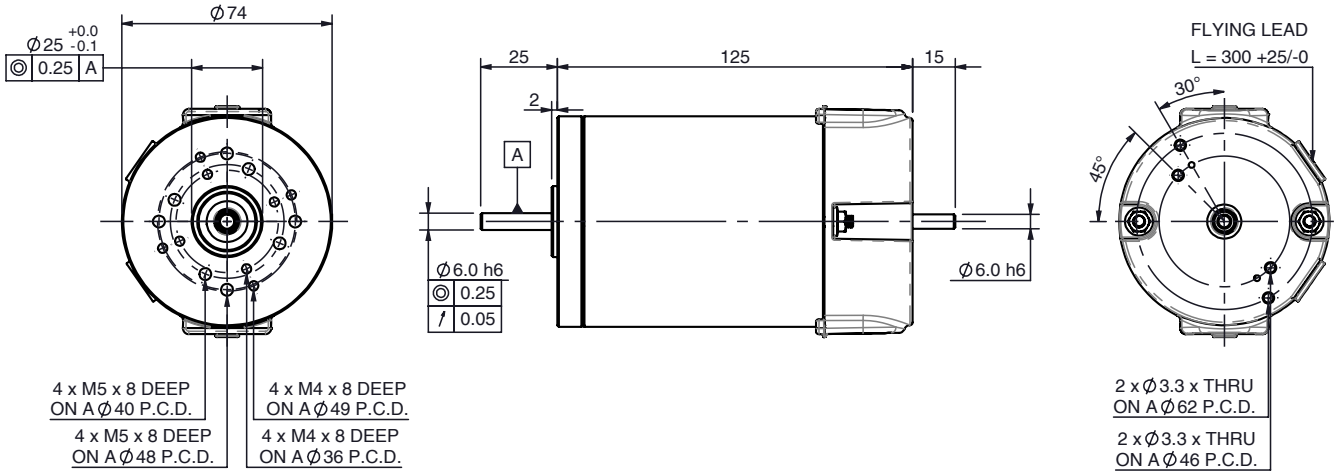
→ Technical data displayed above calculated based on **BRx63-55 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

BRx70-40 PMDC motor

Ø70 mm frame // 40 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		781092	781093	781094
2	Nominal power	W	79	79	79
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3340	3433	3167
5	No load current	A	1.50	0.80	0.28
6	Nominal speed	rpm	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.25	0.25	0.25
8	Nominal continuous current (S1)	A	9.2	4.7	2.1
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.42	0.42	0.42
10	Stall current	A	59.2	33.5	18.7
11	Stall torque	Nm	1.8	2.1	2.4
12	Stack length	mm	40	40	40
13	Maximum efficiency	%	71	78	78
14	Terminal resistance	Ω	0.13	0.44	1.86
15	Terminal inductance	mH	0.253	1.235	5.060
16	Speed constant	rpm/V	280.1	145.0	66.6
17	Torque constant	Nm/A	0.03	0.06	0.13
18	Speed torque gradient	rpm/Nm	1944	1784	1415
19	Rotor inertia	gcm²	1.83 x 10^{-4}	1.83 x 10^{-4}	1.83 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	1.85
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	67
PGx52	249
PGx70	250
GB12	68

Brake	Page #
1.5 Nm	80
2.0 Nm	259
Power-On	261

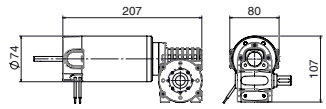
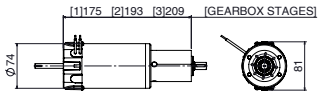
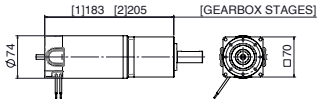
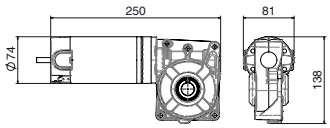
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

BRx70-40 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data							
BRx70-40-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	200.0	100.0	50.0	-	-	-
		Nominal torque	Nm	2.9	5.3	6.0	-	-	-
		Intermittent torque	Nm	4.9	8.8	10.0	-	-	-
BRx70-40-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769.2	68.2	17.4
		Nominal torque	Nm	-	-	-	0.9	10.1	30.0
		Intermittent torque	Nm	-	-	-	1.6	17.0	45.0
BRx70-40-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	0.9	4.8	10.1
		Intermittent torque	Nm	-	-	-	1.6	8.1	17.0
BRx70-40-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	200.0	100.0	50.0	200.0	100.0	50.0
		Nominal torque	Nm	3.1	5.4	8.3	2.8	4.9	7.5
		Intermittent torque	Nm	5.2	9.1	13.9	4.7	8.2	12.6

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

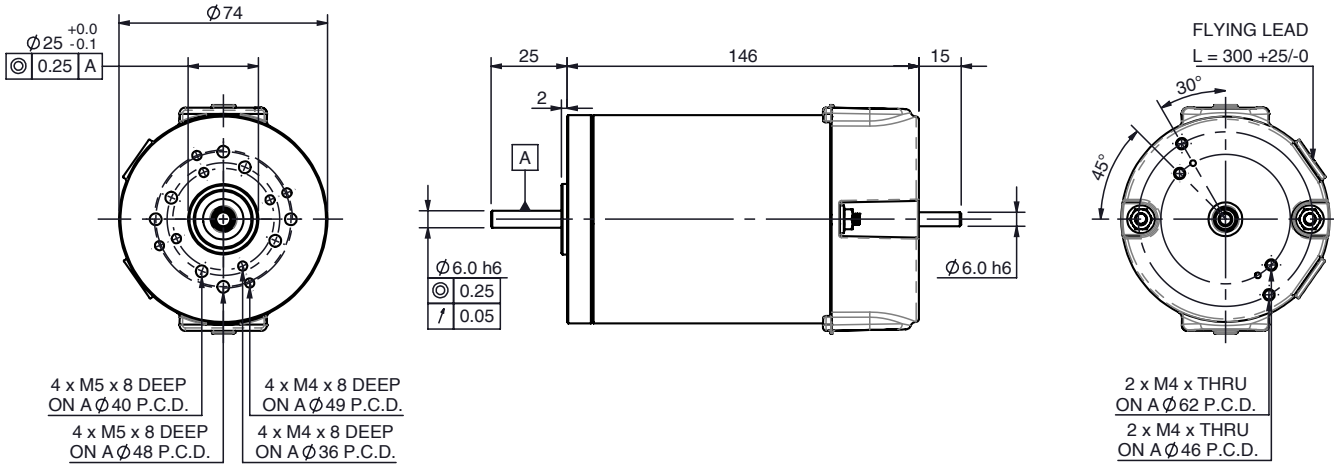
→ Technical data displayed above calculated based on **BRx70-40 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

BRx70-60 PMDC motor

Ø70 mm frame // 60 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		781095	781096	781097
2	Nominal power	W	157	157	157
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3970	3580	3310
5	No load current	A	1.80	0.80	0.37
6	Nominal speed	rpm	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.5	0.5	0.5
8	Nominal continuous current (S1)	A	21.0	9.0	4.2
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.88	0.88	0.88
10	Stall current	A	70.7	48.0	28.7
11	Stall torque	Nm	1.8	2.8	3.6
12	Stack length	mm	60	60	60
13	Maximum efficiency	%	72	79	82
14	Terminal resistance	Ω	0.10	0.36	1.51
15	Terminal inductance	mH	0.15	0.81	3.29
16	Speed constant	rpm/V	333.1	150.4	69.1
17	Torque constant	Nm/A	0.026	0.060	0.130
18	Speed torque gradient	rpm/Nm	2423	1383	985
19	Rotor inertia	gcm²	2.5 x 10^{-4}	2.5 x 10^{-4}	2.5 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	2.25
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	67
PGx52	249
PGx70	250
GB12	68

Brake	Page #
1.5 Nm	80
2.0 Nm	259
Power-On	261

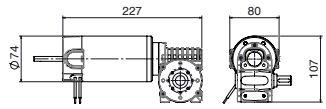
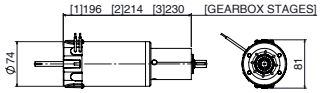
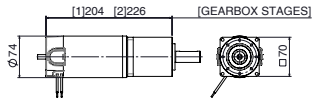
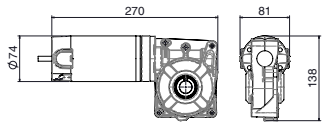
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

BRx70-60 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
BRx70-60-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	200.0	100.0	50.0	-	-	-
		Nominal torque	Nm	5.8	8.0	6.0	-	-	-
		Intermittent torque	Nm	10.2	13.0	10.0	-	-	-
BRx70-60-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769.2	68.2	17.4
		Nominal torque	Nm	-	-	-	1.9	15.0	30.0
		Intermittent torque	Nm	-	-	-	3.3	23.0	45.0
BRx70-60-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	1.9	9.7	20.2
		Intermittent torque	Nm	-	-	-	3.3	17.0	35.6
BRx70-60-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	200.0	100.0	50.0	200.0	100.0	50.0
		Nominal torque	Nm	6.2	10.8	16.5	5.6	9.8	15.0
		Intermittent torque	Nm	11.0	19.0	29.0	9.9	17.2	26.4

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

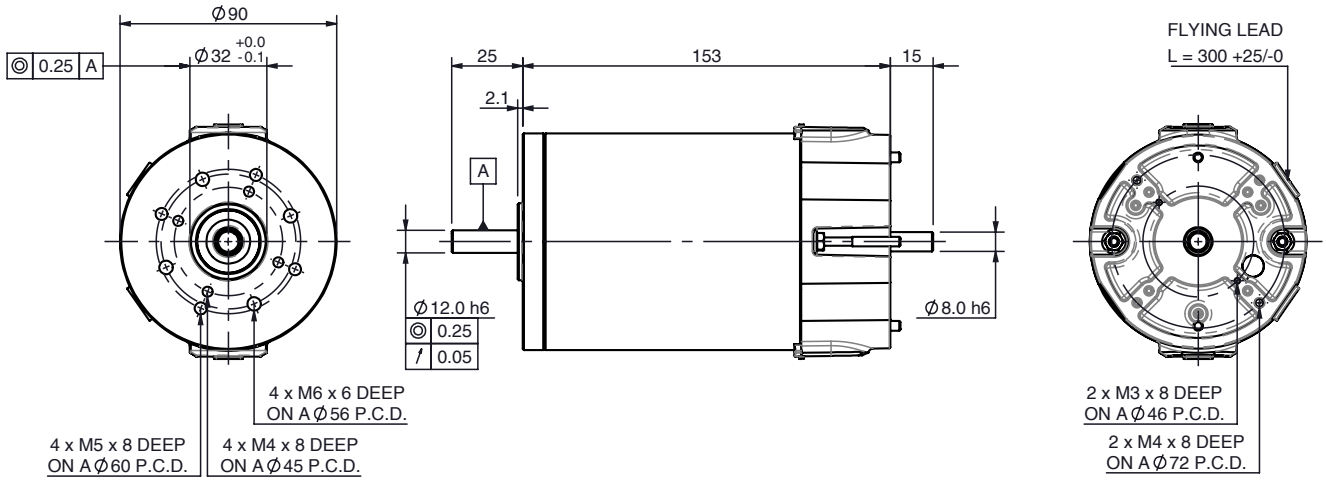
→ Technical data displayed above calculated based on **BRx70-60 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

BRx90-50 PMDC motor

Ø90 mm frame // 50 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		781102	781103	781104
2	Nominal power	W	157	210	210
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3870	3423	3480
5	No load current	A	2.6	1.1	0.6
6	Nominal speed	rpm	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.50	0.67	0.67
8	Nominal continuous current (S1)	A	25.5	10.5	5.7
9	Max. intermittent torque (S2 - 15 minutes)	Nm	1.17	1.17	1.17
10	Stall current	A	83.7	82.1	51.8
11	Stall torque	Nm	2.40	5.61	6.70
12	Stack length	mm	50	50	50
13	Maximum efficiency	%	67	81	80
14	Terminal resistance	Ω	0.112	0.294	0.580
15	Terminal inductance	mH	100.5	504.4	1987.0
16	Speed constant	rpm/V	314.9	139.0	69.1
17	Torque constant	Nm/A	0.030	0.069	0.130
18	Speed torque gradient	rpm/Nm	1509.7	590.0	511.0
19	Rotor inertia	gcm²	6.57 x 10^{-4}	6.57 x 10^{-4}	6.57 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	3.60
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	224
PGx70	250
GB12	68
GB9	70
GB65	71

Brake	Page #
1.5 Nm	80
2.0 Nm	259
4.0 Nm	260
Power-On	261

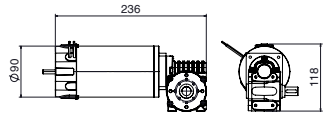
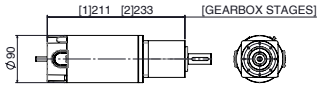
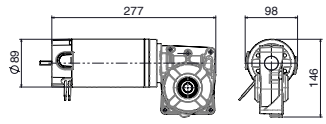
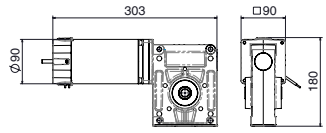
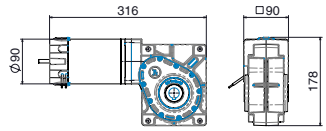
Encoder	Page #
Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

BRx90-50 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
BRx90-50-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	2.3	8.0	5.0	-	-	-
		Intermittent torque	Nm	4.0	13.0	8.0	-	-	-
BRx90-50-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	2.5	12.9	27.1
		Intermittent torque	Nm	-	-	-	4.3	22.6	37.5
BRx90-50-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	200.0	100.0	50.0	200.0	100.0	50.0
		Nominal torque	Nm	8.3	14.5	20.0	7.5	13.1	20.1
		Intermittent torque	Nm	14.6	25.3	32.0	13.2	22.8	35.1
BRx90-50-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	200.0	100.0	50.0	200.0	100.0	50.0
		Nominal torque	Nm	8.5	15.1	26.1	8.0	14.1	22.1
		Intermittent torque	Nm	14.9	26.3	45.6	14.0	24.6	38.6
BRx90-50-GB65		Gear material [1]		Bronze	Bronze	Bronze	Bronze	Bronze	-
		Gear ratio [2]	:1	20	40	80	120	160	-
		Speed	rpm	150.0	75.0	37.5	25.0	18.8	-
		Nominal torque	Nm	10.9	20.4	37.5	48.2	46.1	-
		Intermittent torque	Nm	19.0	35.6	65.5	84.2	80.5	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

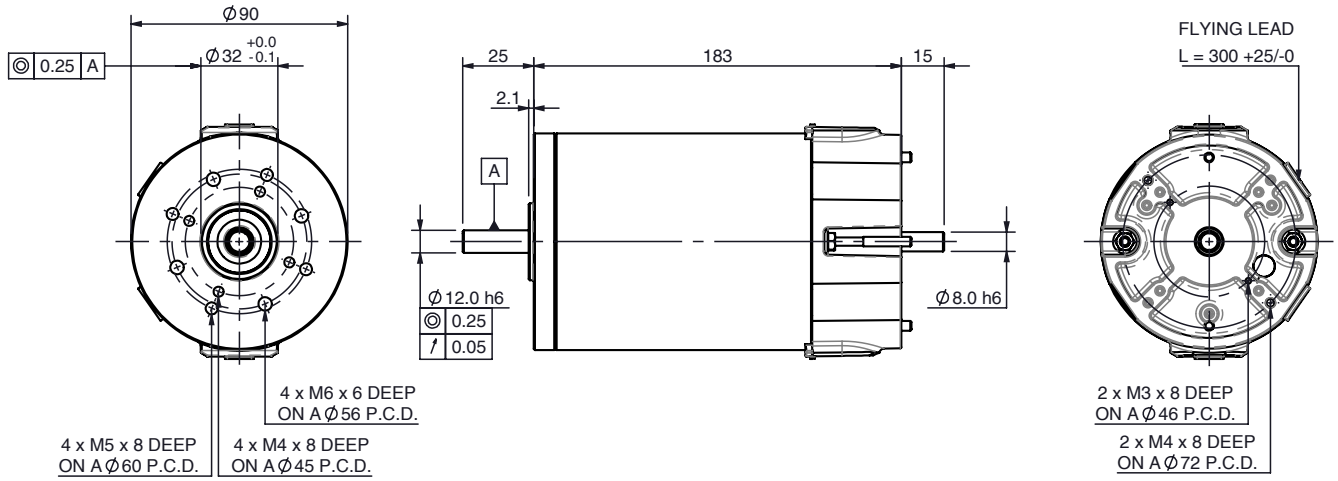
→ Technical data displayed above calculated based on **BRx90-50 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

BRx90-75 PMDC motor

Ø90 mm frame // 75 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		781106	781107	781108
2	Nominal power	W	236	283	283
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3750	3417	3376
5	No load current	A	3.4	1.2	0.6
6	Nominal speed	rpm	2500	3000	3000
7	Nominal continuous torque (S1)	Nm	0.9	0.9	0.9
8	Nominal continuous current (S1)	A	33.2	14.5	7.3
9	Max. intermittent torque (S2 - 15 minutes)	Nm	1.50	1.50	1.50
10	Stall current	A	83.5	93.0	58.0
11	Stall torque	Nm	2.38	6.14	7.71
12	Stack length	mm	75	75	75
13	Maximum efficiency	%	69	79	80
14	Terminal resistance	Ω	0.116	0.312	0.426
15	Terminal inductance	mH	78.3	422.3	1620.0
16	Speed constant	rpm/V	311.3	135.9	68.0
17	Torque constant	Nm/A	0.03	0.07	0.13
18	Speed torque gradient	rpm/Nm	1667.4	547.1	433.0
19	Rotor inertia	gcm²	8.65 x 10^{-4}	8.65 x 10^{-4}	8.65 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	4.00
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	224
PGx70	250
GB12	68
GB9	70
GB65	71

Brake	Page #
1.5 Nm	80
2.0 Nm	259
4.0 Nm	260
Power-On	261

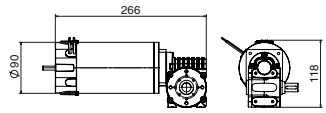
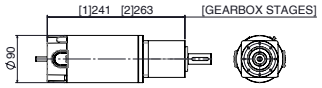
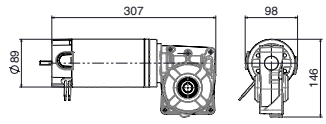
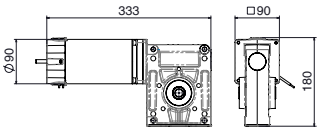
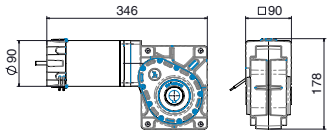
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Incr. 5-pin	78
Incr. 10-pin	78
Diff. 10-pin	79
Magnetic	256

Controller	Page #
SC 50/15	82
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

BRx90-75 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
BRx90-75-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	3.1	8.0	5.0	-	-	-
		Intermittent torque	Nm	5.1	13.0	8.0	-	-	-
BRx90-75-PGx72		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	3.3	17.4	30.0
		Intermittent torque	Nm	-	-	-	5.6	29.0	37.5
BRx90-75-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	200.0	100.0	50.0	200.0	100.0	50.0
		Nominal torque	Nm	11.2	19.4	20.0	10.1	17.6	27.0
		Intermittent torque	Nm	18.7	32.0	32.0	16.9	29.3	45.0
BRx90-75-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	200.0	100.0	50.0	200.0	100.0	50.0
		Nominal torque	Nm	11.5	20.3	35.1	10.8	18.9	29.7
		Intermittent torque	Nm	19.1	33.8	58.5	18.0	31.5	49.5
BRx90-75-GB65		Gear material [1]		Bronze	Bronze	Bronze	Bronze	Bronze	-
		Gear ratio [2]	:1	20	40	80	120	160	-
		Speed	rpm	150.0	75.0	37.5	25.0	18.8	-
		Nominal torque	Nm	14.6	27.4	50.4	64.8	61.9	-
		Intermittent torque	Nm	24.3	45.6	84.0	108.0	103.2	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

→ Technical data displayed above calculated based on **BRx90-75 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

Modular rig gearboxes

GB12

- 15:1 / 30:1 / 60:1 gear ratio
- Bronze gears
- Shaft extension kit 735903



GB28

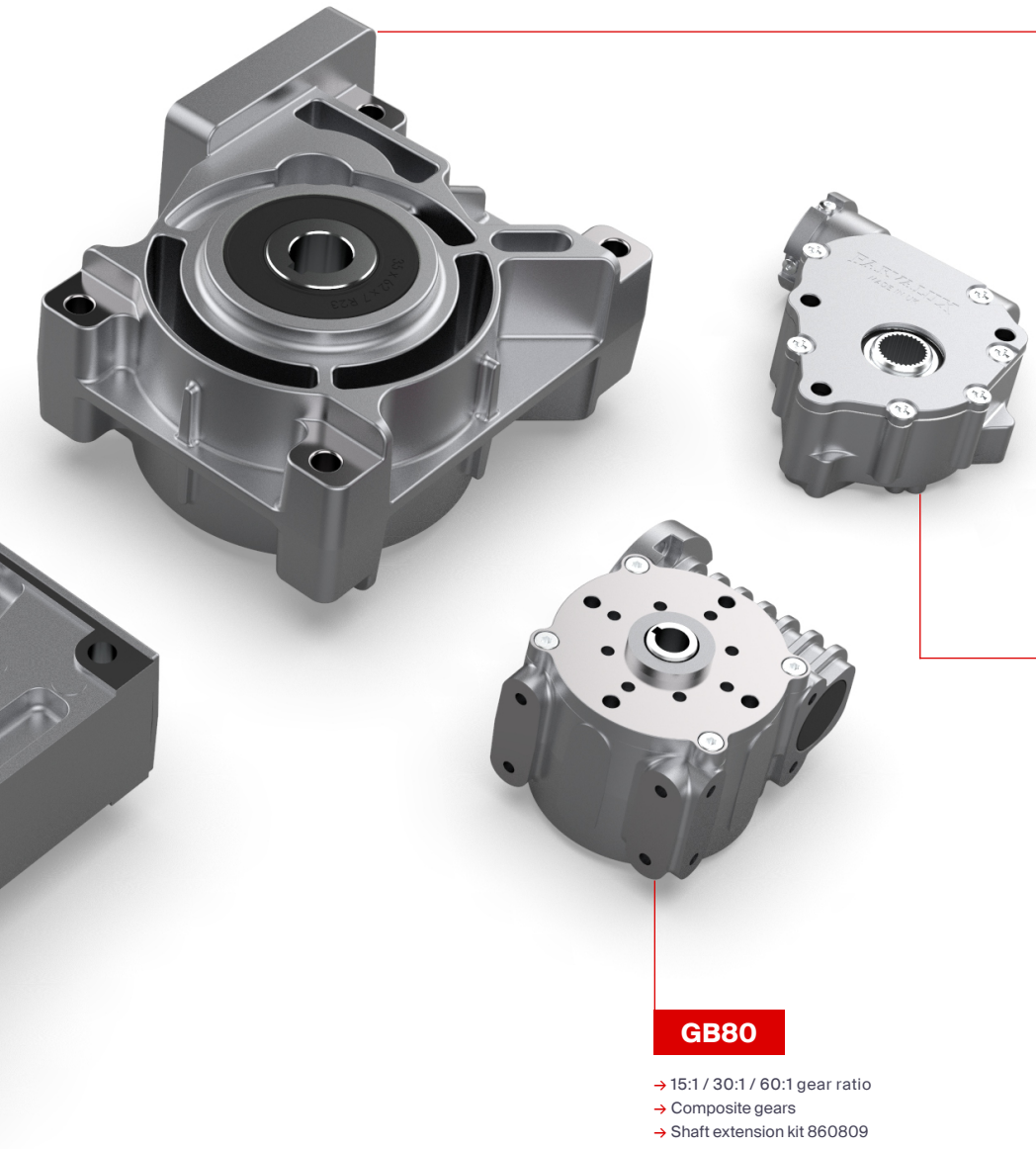
- 15:1 / 30:1 / 60:1 gear ratio
- Bronze gears
- Shaft extension kit 735908

GB9

- 15:1 / 30:1 / 60:1 gear ratio
- Composite gears
- Shaft extension kit 735898

ht-angle

Supplied as standard with a hollow shaft, our modular gearboxes integrate seamlessly with our motors through use of intelligently designed mounting flanges.



GB65

→ 20:1 / 40:1 / 80:1 / 120:1 / 160:1 gear ratio
→ Bronze and steel gears
→ Shaft extension kit 854742

GB56

→ 30:1 / 40:1 / 48:1 / 60:1 / 70:1 gear ratio
→ Composite gears

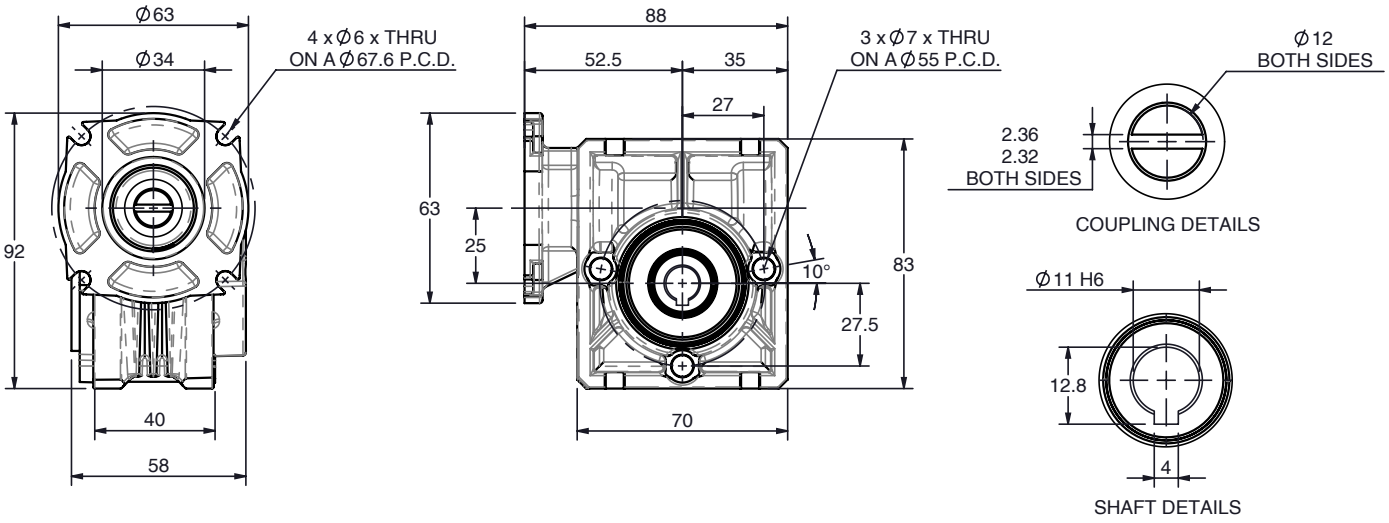
GB80

→ 15:1 / 30:1 / 60:1 gear ratio
→ Composite gears
→ Shaft extension kit 860809

GB28 Right-angle gearbox // Bronze gears

15:1 - 60:1 ratio // 8.0 Nm

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

	Technical data						
1	Part number		735904	-	735906	-	735907
2	Gear ratio	:1	15	25	30	50	60
3	Stages		1	1	1	1	1
4	Max. continuous torque (S1) [1] [2]	Nm	5.0	5.0	5.0	5.0	5.0
5	Max. intermittent torque [2]	Nm	8.0	8.0	8.0	8.0	8.0
6	Efficiency	%	75	70	65	50	45
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	300	300	300	300	300
9	Max. radial load, 12 mm from flange	N	400	400	400	400	400
10	Weight	Kg	0.83	0.83	0.83	0.83	0.83
11	Gear material		Bronze	Bronze	Bronze	Bronze	Bronze

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255

Compatible products

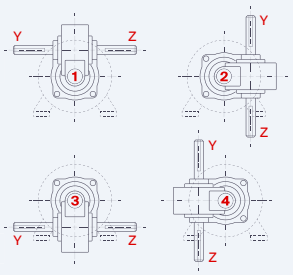
BLDC	Page #
PBL42-15	22
PBL42-30	24
PBL60-50	26
PBL60-70	28

PMDC	Page #
BRx52-30	48
BRx52-58	50
BRx63-25	52
BRx63-55	54
PM7	106
PM8	108
PM9	110
PM10	112
PM11	114

AC	Page #
SD21	164
SD41	168
SD8	172
SD38	176
SD28	180
SD29	184

Shaft extension	Page #
735908	84

Gearbox output position



Key

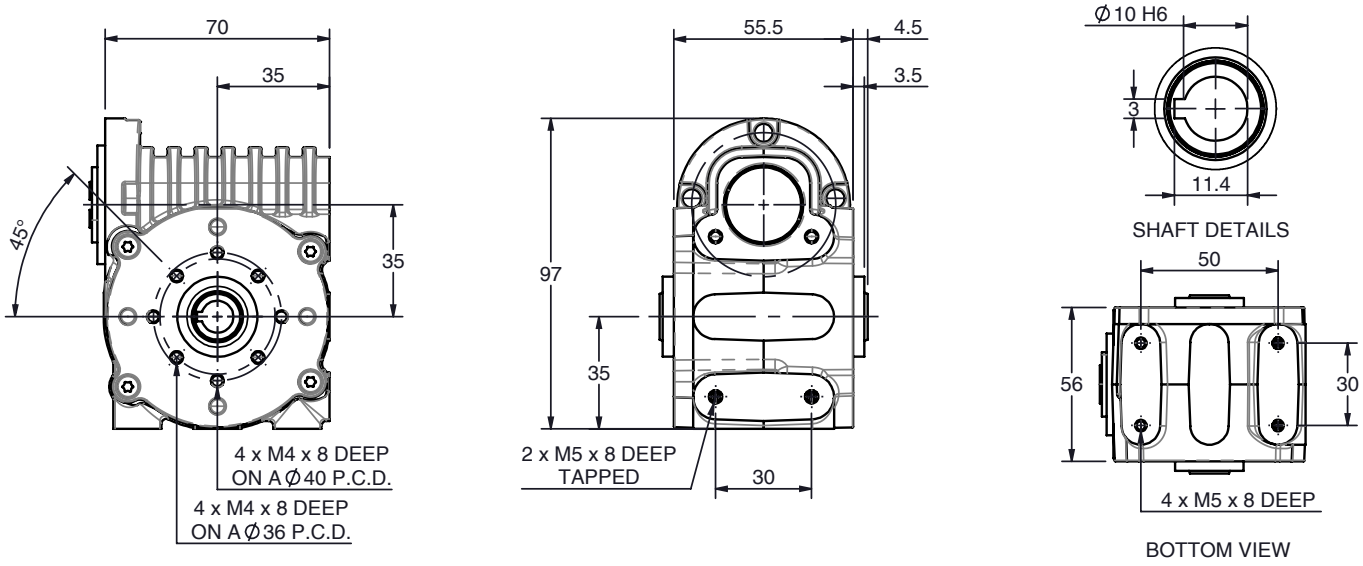
Standard combination

Modular combination

GB80 Right-angle gearbox // Composite gears

4:1 - 72:1 ratio // 13.0 Nm

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

	Technical data											
1	Part number		-	-	-	888018	-	888020	-	-	888021	-
2	Gear ratio [1]	:1	4	6	10	15	20	30	40	54	60	72
3	Stages		1	1	1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [2 3]	Nm	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.0	6.0	5.0
5	Max. intermittent torque [3]	Nm	13.0	13.0	13.0	13.0	13.0	13.0	13.0	11.0	10.0	8.0
6	Efficiency	%	85	85	82	77	74	70	65	56	54	46
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	300	300	300	300	300	300	300	300	300	300
9	Max. radial load, 12 mm from flange	N	350	350	350	350	350	350	350	350	350	350
10	Weight	Kg	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] Other standard ratios available on request (:1): 5, 8, 9, 12, 13, 14, 18, 25, 33, 44, 48, 66 [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

Compatible products

BLDC	Page #
PBL60-50	26
PBL60-70	28
PBL70-70	30
PBL70-80	32

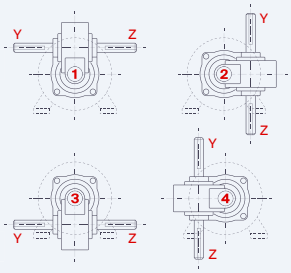
PMDC	Page #
BRx52-30	48
BRx52-58	50
BRx63-25	52
BRx63-55	54
BRx70-25	56
BRx70-60	58
BRx90-50	60
BRx90-75	62
PM10	112
PM11	114
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126

PMDC	Page #
PM50	128
PM60	130
PM70-125	132
PM70-146	134
PM90-150	136
PM90-180	138
EPM50-25	142
EPM50-38	144
EPM50-50	146
EPM50-63	148
EPM63-50	150
EPM63-50 (V)	152
EPM63-75	154
EPM63-75 (V)	156
EPM63-100	158
EPM63-100 (V)	160

(V) = ventilated

Shaft extension	Page #
860809	84

Gearbox output position



Key

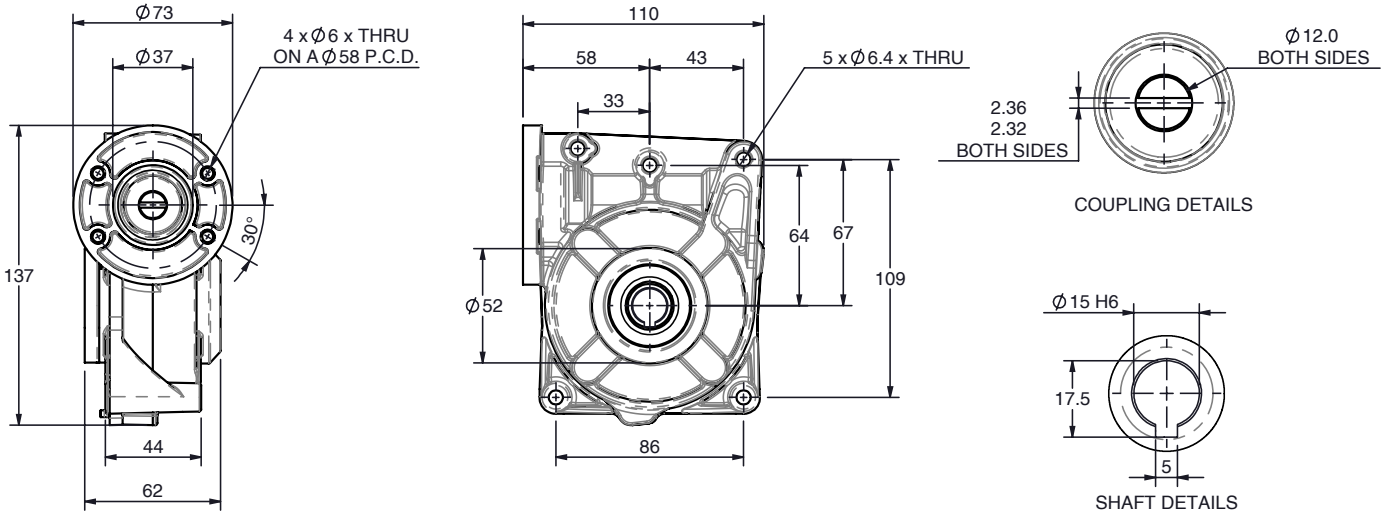
Standard combination

Modular combination

GB12 Right-angle gearbox // Bronze gears

12.5:1 - 75:1 ratio // 48.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Composite gear version available as part of our standard gearbox range
Please see page ___ for further details

	Technical data											
1	Part number		-	-	735900	-	-	-	735901	-	735902	-
2	Gear ratio	:1	12.5	14	15	19	21	25	30	50	60	75
3	Stages		1	1	1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [1,2]	Nm	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	27.0
5	Max. intermittent torque [2]	Nm	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	43.0
6	Efficiency	%	80	75	75	73	73	72	65	55	50	45
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	600	600	600	600	600	600	600	600	600	600
9	Max. radial load, 12 mm from flange	N	800	800	800	800	800	800	800	800	800	800
10	Weight	Kg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
11	Gear material		Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255

Compatible products

BLDC	Page #
PBL60-50	26
PBL60-70	28
PBL70-70	30
PBL70-80	32
PBL86-55	34
PBL86-80	36

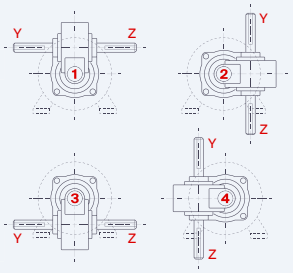
PMDC	Page #
BRx70-40	56
BRx70-60	58
BRx90-50	60
BRx90-75	62
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126
PM50	128
PM60	130
PM70-125	132

PMDC	Page #
PM70-146	134
PM90-150	136
PM90-180	138
EPM50-25	142
EPM50-38	144
EPM50-50	146
EPM63-50	148
EPM63-50 (V)	150
EPM63-75	152
EPM63-75 (V)	154
EPM63-100	156
EPM63-100 (V)	158

AC	Page #
SD13	188
SD18	192
SD48	196

Shaft extension	Page #
735903	84

Gearbox output position



Key

Standard combination

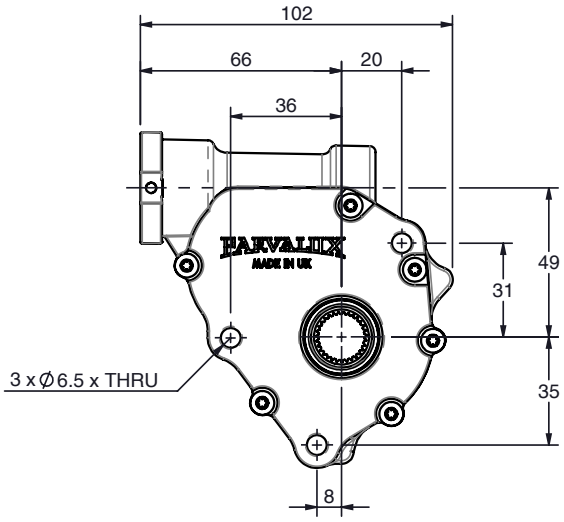
Modular combination

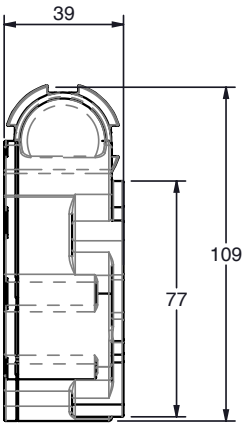
(V) = ventilated

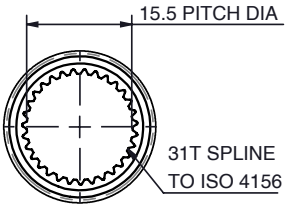
GB56 Right-angle gearbox // Composite gears

30:1 - 70:1 ratio // 50.0 Nm

all dimensions in mm







SHAFT DETAILS

Part number key		
Modular	######	
Standard	######	
Calculated data	######	

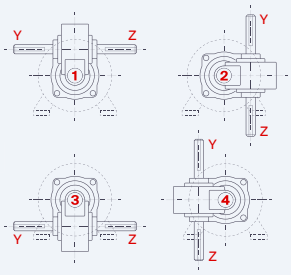
Technical data							
1	Part number		861141	861142	861143	861144	861145
2	Gear ratio (worm)	:1	30	40	48	60	70
3	Gear ratio (worm)		3.05	3.05	3.05	3.05	3.05
4	Stages		2	2	2	2	2
5	Max. continuous torque (S1) [1 2]	Nm	8.0	8.0	8.0	8.0	8.0
6	Max. intermittent torque [2]	Nm	50.0	50.0	50.0	50.0	50.0
7	Efficiency	%	59	54	50	43	36
8	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25
9	Max. axial load (dynamic)	N	300	300	300	300	300
10	Max. radial load, 12 mm from flange	N	400	400	400	400	400
11	Weight	Kg	0.6	0.6	0.6	0.6	0.6
12	Gear material		Composite	Composite	Composite	Composite	Composite

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255

Compatible products

PMDC	Page #
RE38-25	40
RE38-40	42

Gearbox output position



Key

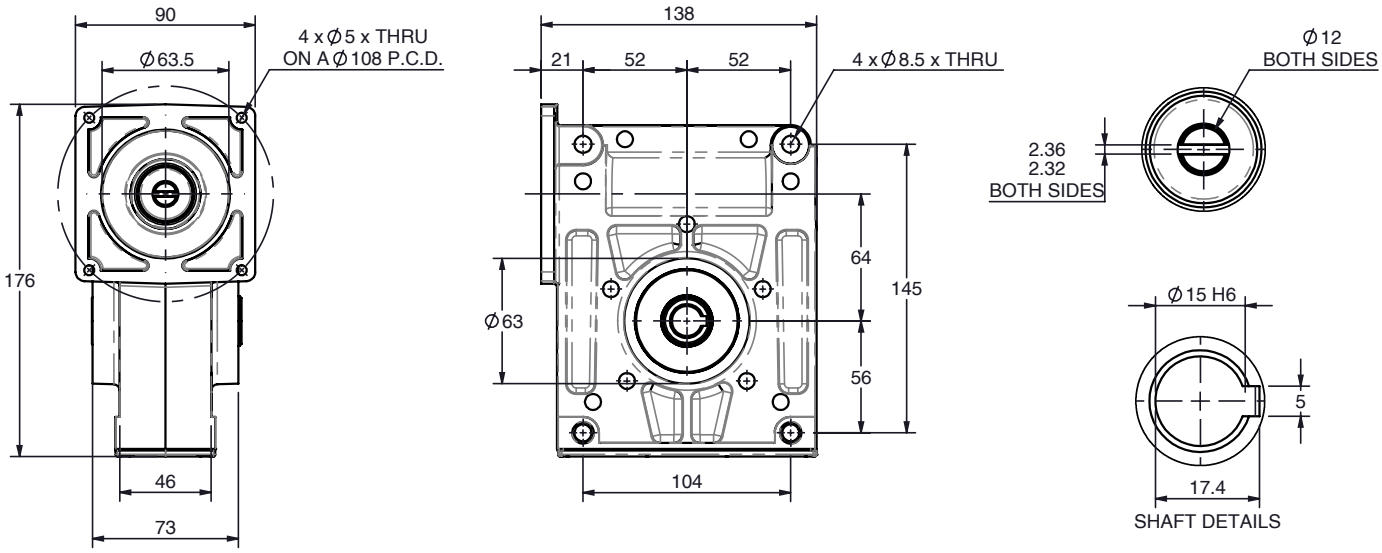
Standard combination

Modular combination

GB9 Right-angle gearbox // Composite gears

12.5:1 - 75:1 ratio // 80.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Bronze gear version available as part of our standard gearbox range
Please see page ___ for further details

	Technical data								
1	Part number		-	735894	-	735895	-	735896	-
2	Gear ratio	:1	12.5	15	25	30	40	60	75
3	Stages		1	1	1	1	1	1	1
4	Max. continuous torque (S1) [1] [2]	Nm	50.0	50.0	50.0	50.0	50.0	50.0	40.0
5	Max. intermittent torque [2]	Nm	80.0	80.0	80.0	80.0	80.0	80.0	70.0
6	Efficiency	%	90	85	80	75	70	65	50
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	600	600	600	600	600	600	600
9	Max. radial load, 12 mm from flange	N	800	800	800	800	800	800	800
10	Weight	Kg	2.3	2.3	2.3	2.3	2.3	2.3	2.3
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255

Compatible products

BLDC	Page #
PBL86-55	34
PBL86-80	36

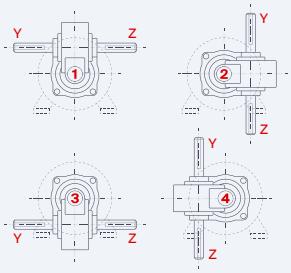
PMDC	Page #
BRx90-50	60
BRx90-75	62
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126
PM50	128
PM60	130
PM90-150	136

PMDC	Page #
PM90-180	138
EPM50-25	142
EPM50-38	144
EPM50-50	146
EPM50-63	148
EPM63-50	150
EPM63-50 (V)	152
EPM63-75	154
EPM63-75 (V)	156
EPM63-100	158
EPM63-100 (V)	160

AC	Page #
SD13	188
SD18	192
SD48	196

Shaft extension	Page #
735898	84

Gearbox output position



Key

Standard combination

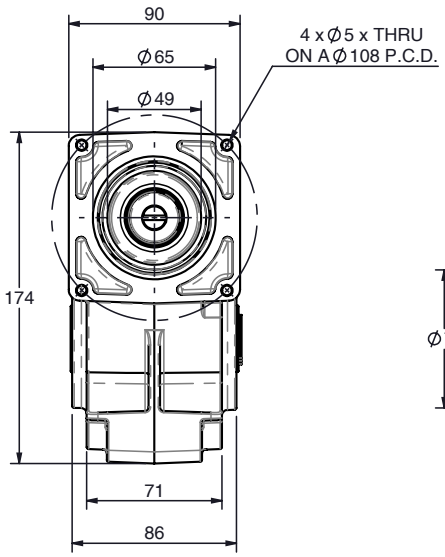
Modular combination

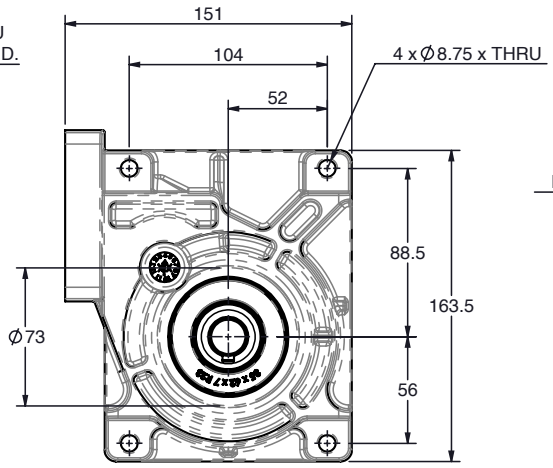
(V) = ventilated

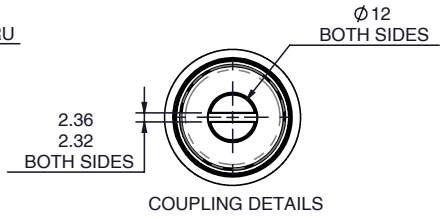
GB65 Right-angle gearbox // Steel / bronze gears

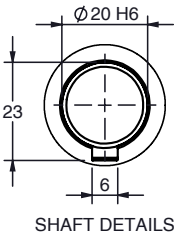
60:1 - 160:1 ratio // 300.0 Nm

all dimensions in mm









Part number key		
Modular		######
Standard		######
Calculated data		######

	Technical data								
1	Part number		854060	853270	-	827936	-	827934	827943
2	Gear ratio	:1	20	40	60	80	100	120	160
3	Stages		2	2	2	2	2	2	2
4	Max. continuous torque (S1) [1] [2]	Nm	120.0	120.0	120.0	120.0	120.0	120.0	120.0
5	Max. intermittent torque [2]	Nm	300.0	300.0	300.0	300.0	300.0	300.0	300.0
6	Efficiency	%	81	76	75	70	65	60	43
7	Backlash	arc.min	35-65	35-65	35-65	35-65	35-65	35-65	35-65
8	Max. axial load (dynamic)	N	1750	1750	1750	1750	1750	1750	1750
9	Max. radial load, 12 mm from flange	N	2335	2335	2335	2335	2335	2335	2335
10	Weight	Kg	3.5	3.5	3.5	3.5	3.5	3.5	3.5
11	Gear material [3]		S / B	S / B	S / B	S / B	S / B	S / B	S / B

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255 [3] S / B = Steel / Bronze

Compatible products

BLDC	Page #
PBL86-55	34
PBL86-80	36

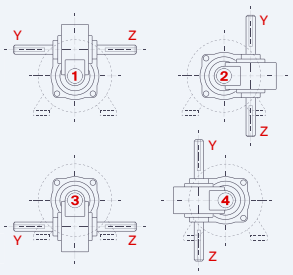
PMDC	Page #
BRx90-50	60
BRx90-75	62
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126
PM50	128
PM60	130
PM90-150	136

PMDC	Page #
PM90-180	138
EPM50-25	142
EPM50-38	144
EPM50-50	146
EPM50-63	148
EPM63-50	150
EPM63-50 (V)	152
EPM63-75	154
EPM63-75 (V)	156
EPM63-100	158
EPM63-100 (V)	160

AC	Page #
SD13	188
SD18	192
SD48	196

Shaft extension	Page #
854742	84

Gearbox output position



Key

Standard combination

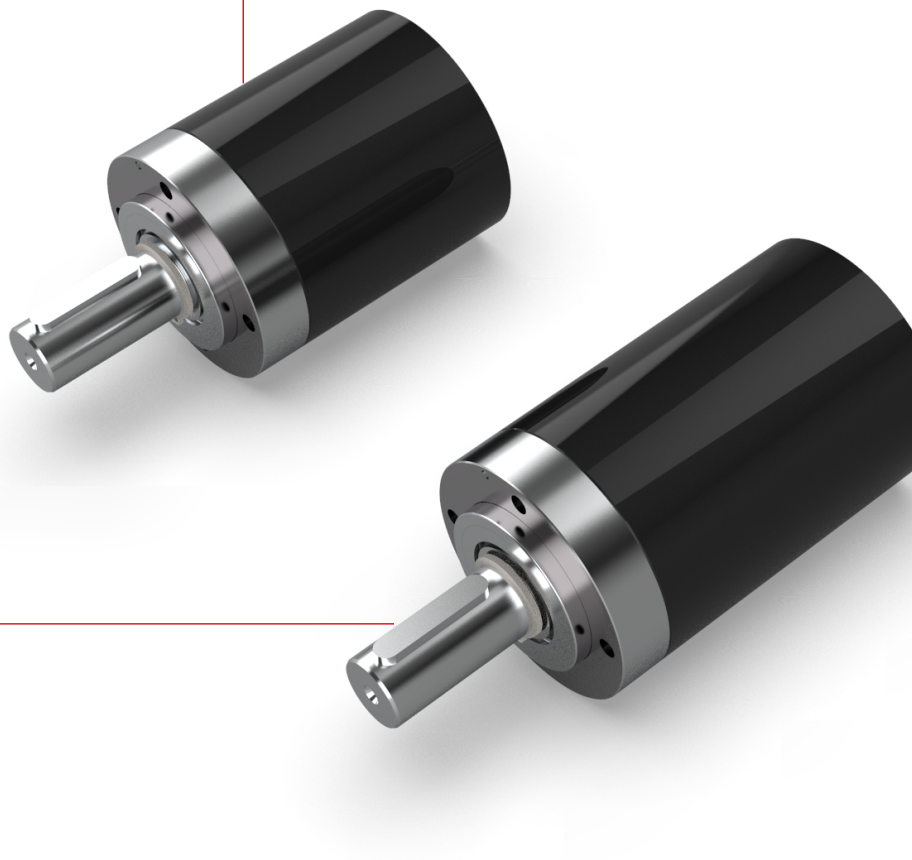
Modular combination

(V) = ventilated

Modular pla
gearboxes

PGx42

→ 2 stage
→ 19:1 gear ratio
→ Steel gears

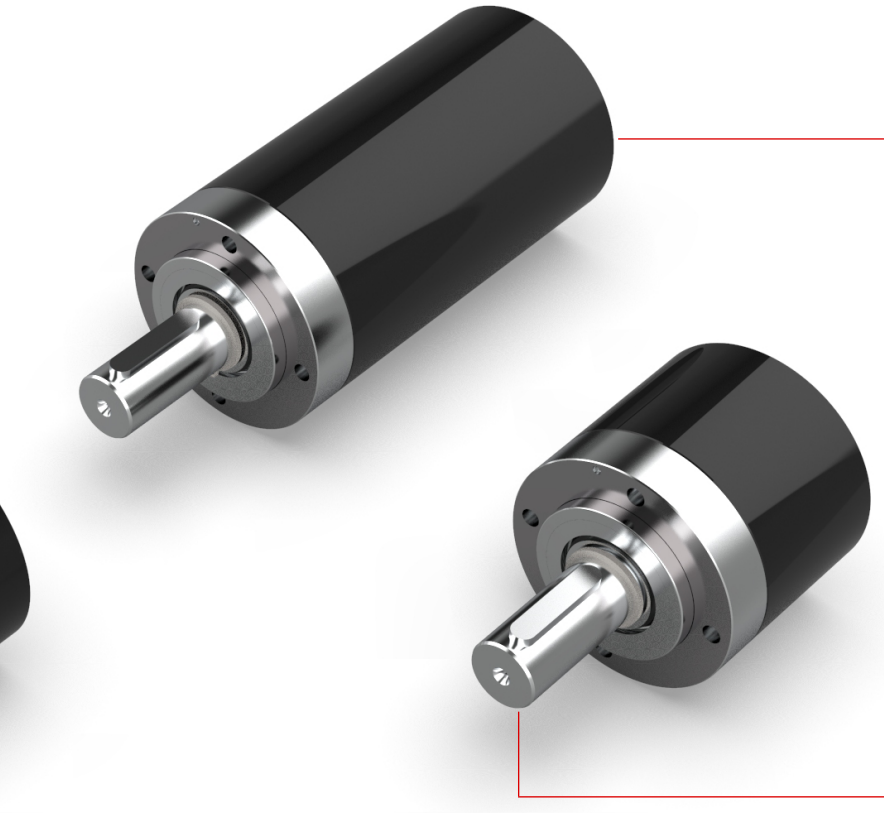


PGx42

→ 3 stage
→ 66:1 gear ratio
→ Steel gears

anetary

Our range of modular planetary gearboxes currently includes the PGx42 gearhead. This is available as either 1, 2, 3, or 4 stage and in a range of ratios.



PGx42

- 4 stage
- 150:1 / 353:1 gear ratio
- Steel gears

PGx42

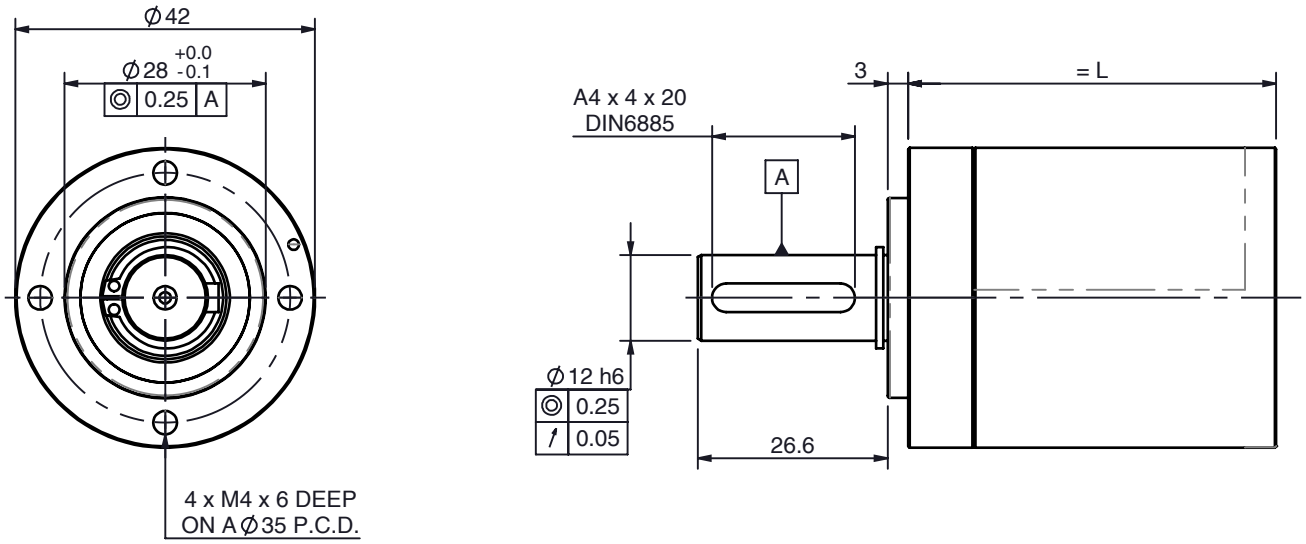
- 1 stage
- 4.3:1 gear ratio
- Steel gears

PGx42

Inline planetary gearbox // Steel gears

3.5:1 - 936:1 ratio // 16.9 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Planetary gearboxes are only available as part of a motor-gearbox combination and cannot be purchased as a gearbox-only unit. Please contact your local sales engineer to discuss your combination options

	Technical data											
1	Part number		-	891037	-	891038	891039	-	891040	891041	-	-
2	Gear ratio [1]	:1	3.5	4.3	12	19	66	126	150	353	676	936
3	Stages		1	1	2	2	3	3	4	4	4	4
4	Max. continuous torque (S1) [2]	Nm	2.3	2.3	5.6	5.6	11.3	11.3	11.3	11.3	11.3	11.3
5	Max. intermittent torque	Nm	3.4	3.4	8.5	8.5	16.9	16.9	16.9	16.9	16.9	16.9
6	Efficiency	%	90	90	81	81	72	72	64	64	64	64
7	Backlash	arc.min	36	36	48	48	60	60	60	60	60	60
8	Max. axial load (dynamic)	N	150	150	150	150	150	150	150	150	150	150
9	Max. radial load, 12 mm from flange	N	120	120	240	240	360	360	360	360	360	360
10	Weight	Kg	0.26	0.26	0.36	0.36	0.46	0.46	0.56	0.56	0.56	0.56
11	Gear material		Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
12	Max. continuous input speed	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
13	Max. intermittent input speed	rpm	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
14	Ambient temperature	°C	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100
15	Max. transmissable power	W	580	580	580	580	580	580	580	580	580	580
16	Length	mm	37.3	37.3	51.8	51.8	66.3	66.3	80.8	80.8	80.8	80.8

[1] Other standard ratios available on request (:1): 15, 21, 26, 43, 53, 74, 81, 113, 156, 186, 230, 257, 285, 319, 394, 441, 488, 546, 756 [2] S1 duty cycle based on 3000 RPM input speed

Modular system

BLDC	Page #
PBL42-15	22
PBL42-35	24

PMDC	Page #
RE38-25	40
RE38-40	42
BRx42-25	44
BRx42-40	46
PM7	106
PM8	108
PM9	110

AC	Page #
SD21	164
SD41	168

Key
Standard combination
Modular combination

Notes

Modular accessories

1.5 Nm brake

→ Part number 735914

Incremental encoder

→ Part number 735912 (5-pin) / 919386 (10-pin)

Differential encoder

→ Part number 919388



GB28 shaft kit

→ Part number 735908

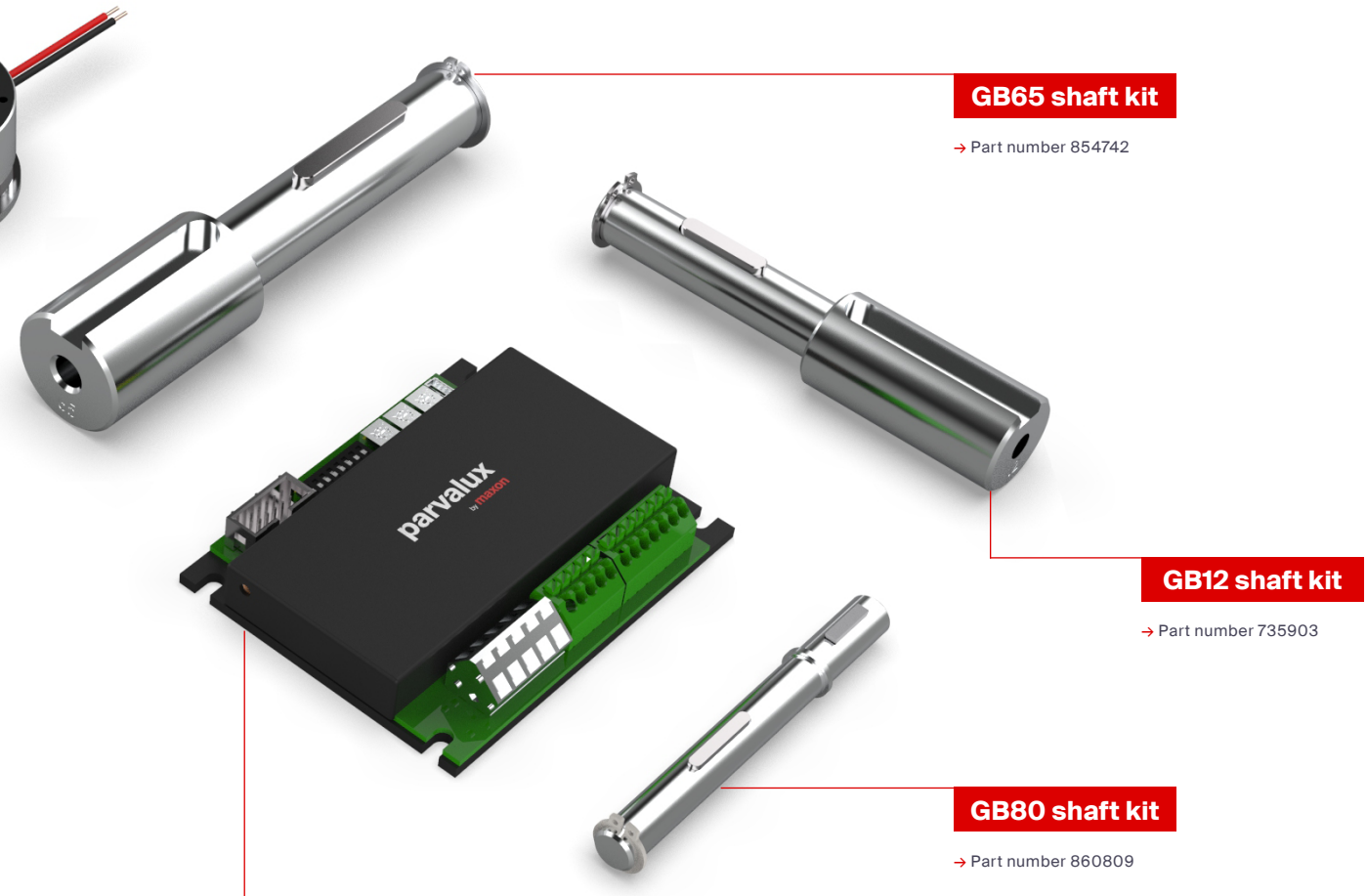
GB9 shaft kit

→ Part number 735898

S

Our range of modular accessories integrate seamlessly with the range through use of intelligently designed mounting flanges and fixings.

Fine tune your selection by adding a brake, encoder, or controller to your motor, and a shaft extension kit to your gearbox to ensure your configuration meets the exact requirements of your application.



GB65 shaft kit

→ Part number 854742

GB12 shaft kit

→ Part number 735903

GB80 shaft kit

→ Part number 860809

SC 50/15 controller

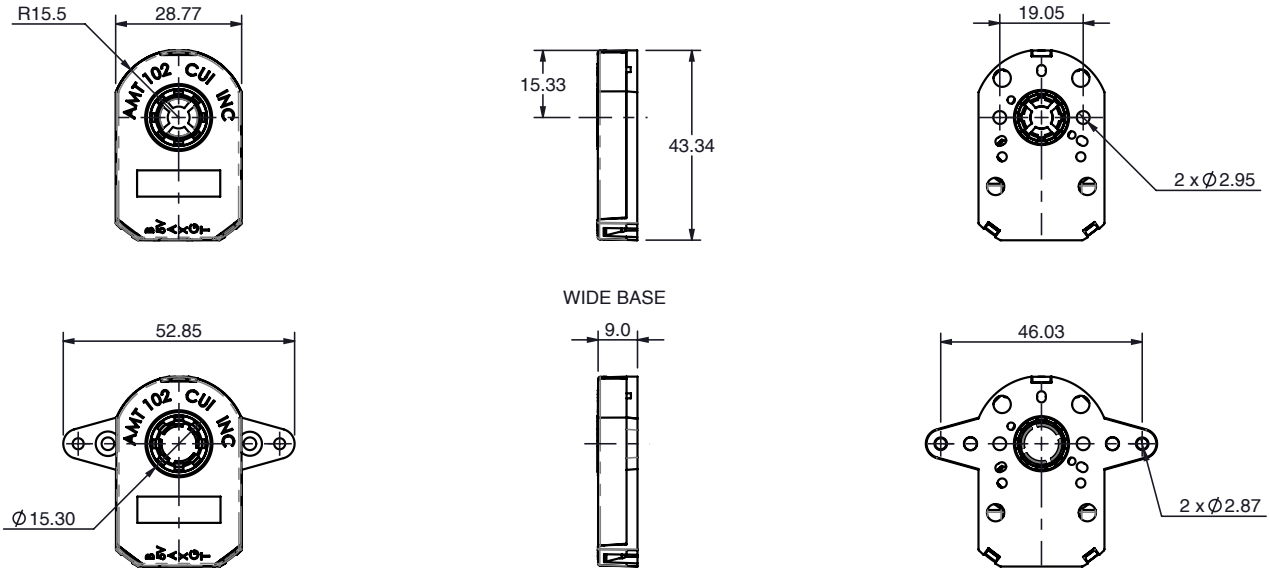
→ Part number 738590

Incremental encoder

Incremental encoder 5-pin 735912 // **Incremental encoder 10-pin** 919386

all dimensions in mm

wiring details available on request



	Electrical data	Conditions / description		min	typ	max
1	Power supply (VDD)	VDD	V	3.6	5.0	5.5
2	Current consumption [1]	with unloaded output	mA		6.0	
3	Output high level		V	VDD 0.8		
4	Output low level		V			0.4
5	Output current [2]	CMOS sink / source per channel	mA			2.0
6	Rise / fall time		ns		30	

	Incremental characteristics	Conditions / description		min	typ	max
1	Channels	Quadrature A, B, and X index				
2	Waveform	CMOS voltage square wave				
3	Phase difference	A leads B for CCW rotation (viewed from the front)	°		90	
4	Quadrature resolutions [1]	48, 96, 100, 125, 192, 200, 250, 256, 384, 400, 500, 512, 800, 1000, 1024, 2048	PPR			
5	Index [2]	one pulse per 360° rotation				
6	Accuracy		°		0.25	
7	Quadrature duty cycle (at each resolution)	256, 512, 1024, 2048	%	49	50	51
		48, 96, 100, 125, 192, 200, 250, 384, 400, 500	%	47	50	53
		800, 1000	%	43	50	56

[1] Resolution selected via adjustable DIP switch, pre-set to 2048 PPR. All resolutions are listed as pre-quadrature, meaning the final number of counts is PPR x 4

[2] Some stepper motors may leak a magnetic field causing the index pulse to not function properly (non-magnetic version available with 8 pulses per revolution)

	Mechanical data	Conditions / description		min	typ	max
1	Motor shaft length		mm	9		
2	Weight		g		20.5	
3	Axial play		mm			±0.3
4	Rotational speed (at each resolution)	192, 284, 400, 500, 800, 1000, 1024, 2048	rpm			7500
		48, 96, 100, 125, 200, 250, 256, 512	rpm			15000

	Environmental	Conditions / description		min	typ	max
1	Operating temperature [1]		°C	-40		100
2	Humidity	non-condensing	%			95
3	Vibration	20~500 Hz, 1 hour each XYZ	G			10
4	Shock	11 ms, ±XYZ direction	G			50
5	RoHS	2011 / 65 / EU				

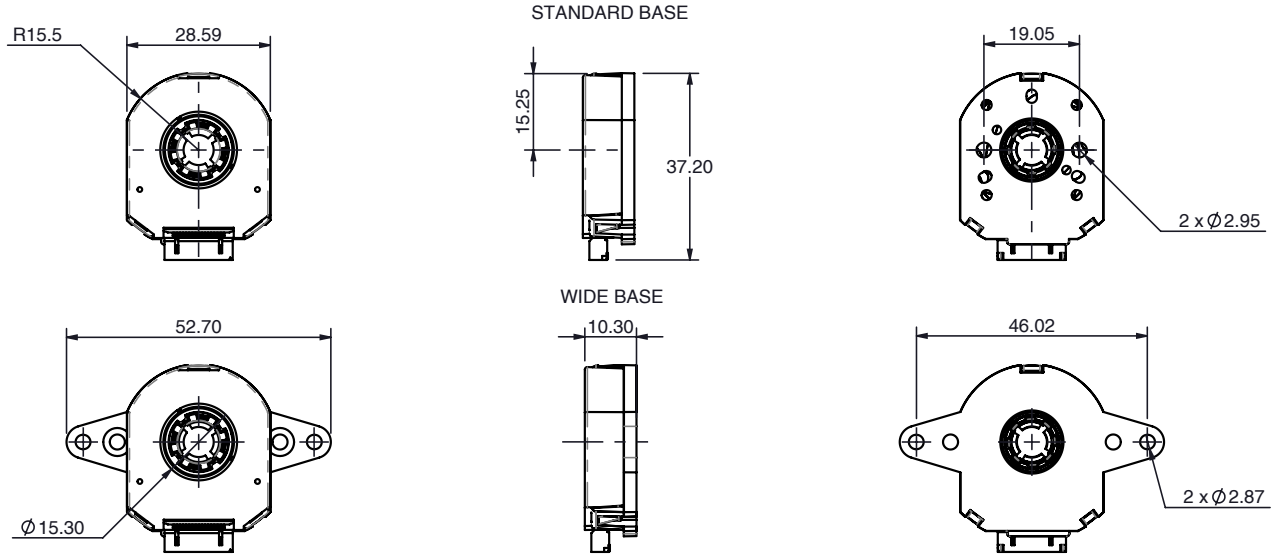
1 Encoders with operating temperature of -40 - 125°C are available as a custom order

Differential encoder

919388

all dimensions in mm

wiring details available on request



	Electrical data	Conditions / description		min	typ	max
1	Power supply (VDD)	VDD	V	4.5	5.0	5.5
2	Start-up time [1]		ms		200	
3	Current consumption	with unloaded output	mA		16	
4	Single ended channels	output high level	V	VDD 0.1		
		output low level	V			0.1
		output current (per channel)	mA			15
		rise/fall time	ns		8	
5	Differential RS-422 channels	output high level	V	3		
		output low level	V			0.1
		output current (per channel)	mA			25
		rise/fall time	ns	7	11	20

[1] Encoder must be stationary during start-up

	Incremental characteristics	Conditions / description		min	typ	max
1	Channels	CMOS voltage (S) - A, B, Z / Quadrature line driver (Q) - A, A, B, B, Z, Z				
2	Waveform	CMOS voltage square wave				
3	Phase difference	A leads B for CCW rotation (viewed from the front)				
4	Quadrature resolutions [1]	48, 96, 100, 125, 192, 200, 250, 256, 384, 400, 500, 512, 800, 1000, 1024, 2048	PPR			
5	Index [2]	one pulse per 360° rotation				
6	Accuracy		°		0.2	
7	Quadrature duty cycle (at each resolution)	256, 512, 1024, 2048	%	49	50	51
		48, 96, 100, 125, 192, 200, 250, 384, 400, 500	%	47	50	53
		800, 1000	%	43	50	56

[1] Resolution selected via adjustable DIP switch, pre-set to 2048 PPR. All resolutions are listed as pre-quadrature, meaning the final number of counts is PPR x 4

[2] Some stepper motors may leak a magnetic field causing the index pulse to not function properly (non-magnetic version available with 8 pulses per revolution)

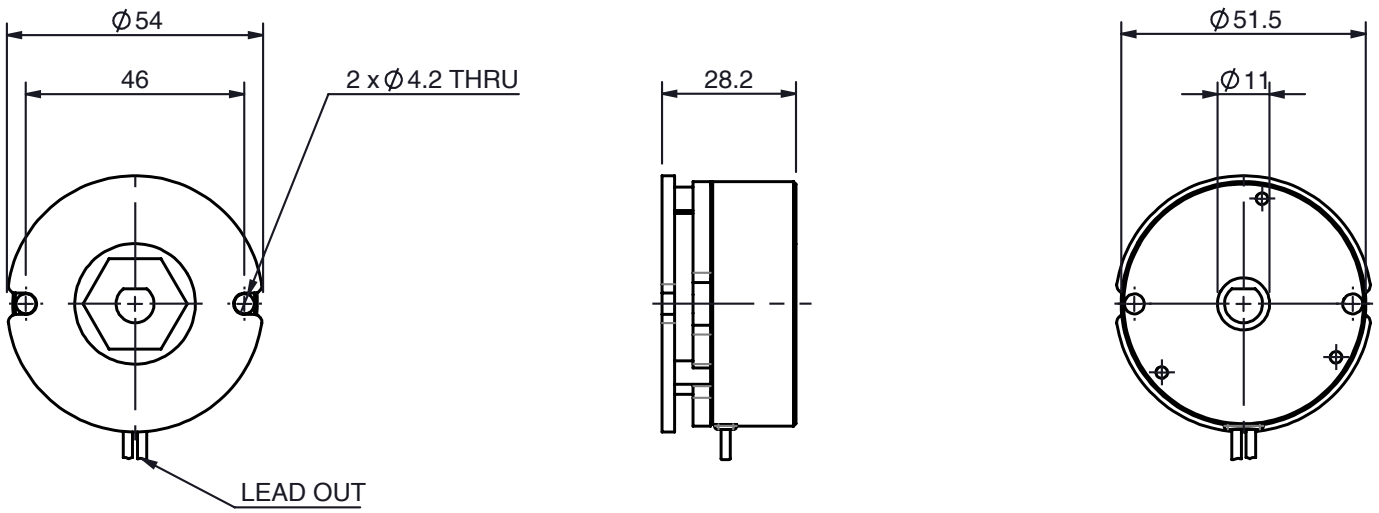
	Mechanical data	Conditions / description		min	typ	max
1	Motor shaft length		mm	9		
2	Weight	Weight varies by configuration	g		15.7	
3	Axial play		mm			±0.3
4	Rotational speed (at each resolution)	48, 96, 100, 125, 182, 200, 250, 256, 384, 400, 500, 512, 800, 1000, 1024, 2048	rpm			8000
		360, 768, 1600, 2000, 4096	rpm			4000
		2500	rpm			2500

	Environmental	Conditions / description		min	typ	max
1	Operating temperature		°C	-40		100
2	Humidity	non-condensing	%			85
3	Vibration	20~500 Hz, 1 hour each XYZ	G			5
4	Shock	11 ms, ±XYZ direction	G			200
5	RoHS	2011 / 65 / EU				

1.5 Nm Brake

735914

all dimensions in mm



	Technical data		
1	Static torque	**Nm**	1.5
2	Ambient temperature	**°C**	-20 to +40
3	Duty cycle	**%**	50
4	Voltage	**V**	12 - 24
5	Power	**W**	11

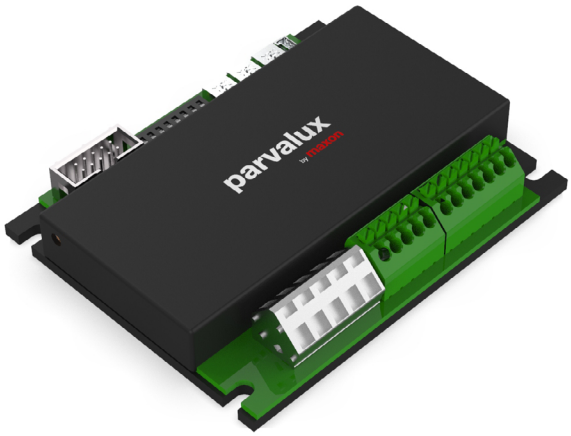
	Mounting		
	Flange mount		
1	End plate outer diameter	**mm**	75.0
2	Mounting PCD	**mm**	68.0
3	Number of holes		2, 3 or 4

Notes

SC 50/15 BLDC / PMDC controller

738590

Hardware reference document available at parvalux.com



	Electrical rating		
1	Nominal power supply voltage $+V_{cc}$	**VDC**	12 - 50
2	Absolute supply voltage $+V_{min}$ / $+V_{max}$	**VDC**	10 / 56
3	Output voltage (max.)	**V**	0.98 x $+V_{cc}$
4	Output current I_{cont} / I_{max} (< 10 s)	**A**	15 / 30
5	Pulse width modulation frequency	**kHz**	53.6
6	Sampling rate PI speed controller	**kHz**	5.36
7	Max. efficency	**%**	98
8	Max. speed - PMDC motor		Open loop: limited by max. permissable speed (motor) and max. output voltage (controller) Closed loop: 5000 to 15,000 rpm, dependent on configuration
9	Max. speed - BLDC motor		2500 ... 30,000 rpm, dependent on configuration
10	Built-in filter choke	**nH; A**	3 x 200; 15

	Inputs and outputs	
1	Digital input - «Enable»	Logic +2.1 ... +30 VDC
2	Digital input - «Direction»	Logic +2.1 ... +30 VDC
3	Digital input - «Stop»	Logic +2.1 ... +30 VDC
4	Digital output - «Ready»	Logic signal output, 3.3 VDC, Ri: 2.2 kΩ, Push-Pull
5	Analog input - «Speed set value»	PWM signal (fixed amplitude 0 ... 5 VDC, 1 kHz ... 10 kHz)
6	Digital hall sensors H1, H2, H3	+2.0 ... +24 VDC (internal pull-up)
7	Digital incremental encoder signals A, A\, B, B\	EIA RS422, max. 1 MHz, max. 100 kHz (single-ended)

	Voltage outputs	
1	Sensor supply voltage V_{sensor}	+5 VDC / I_L ≤100 mA

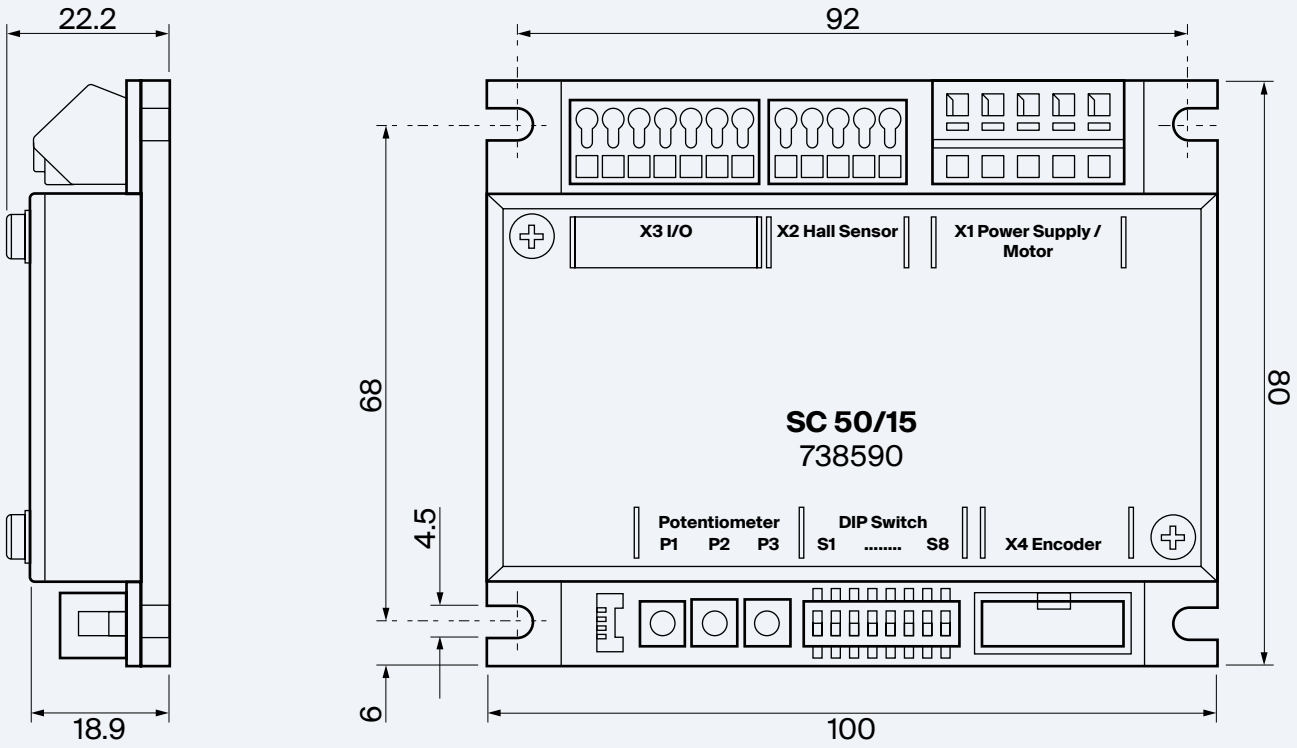
	Motor connections	
1	PMDC motor	+ motor, - motor
2	BLDC motor	Motor winding 1, motor winding 2, motor winding 3

	Configuration	
1	DIP switch	SMD type, 8 position for the setting of: • Motor Type • Control Mode • Speed Set Value Source • Speed Sensor Selection / Encoder Resolution • Hall Sensor Polarity • Speed Range Selection
2	Potentiometers	3 x angular type 210° for the setting of: • Speed Ramp/Speed Set Value • Continuous/Maximum Current Limit • Controller Gain

	Status indicators	
1	Device status - Operation	Green LED
2	Device status - Error	Red LED

Physical

1	Weight	g	151
2	Dimensions (L x W x H)	mm	100.0 x 80.0 x 22.2
3	Mounting		Slotted flange for M4 screws



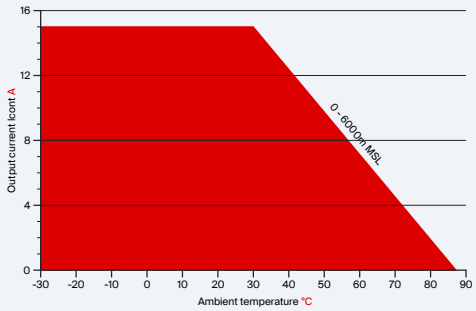
Environment

1	Temperature - Operation	°C	-30 ... +30
2	Temperature - Extended range [a]	°C	+30 ... +84; Derating: -0.278 A/°C
3	Temperature - Storage	°C	-30 ... +85
4	Altitude [b]	m	0 ... 6000 MSL
5	Humidity	%	5 ... 90 (condensation not permitted)

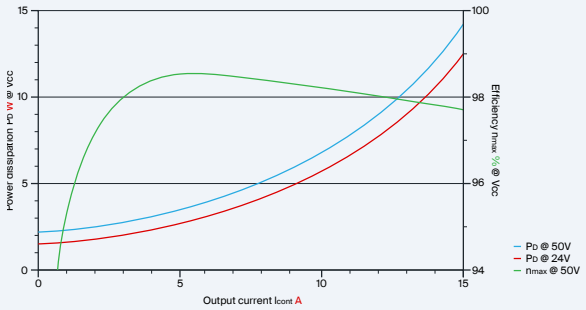
[a] Operation within the extended range is permitted. However, a respective derating (declination of output current I_{cont}) as to the stated values will apply. [b] Operating altitude in meters above Mean Sea Level, MSL.

Thermal data

Derating of output current



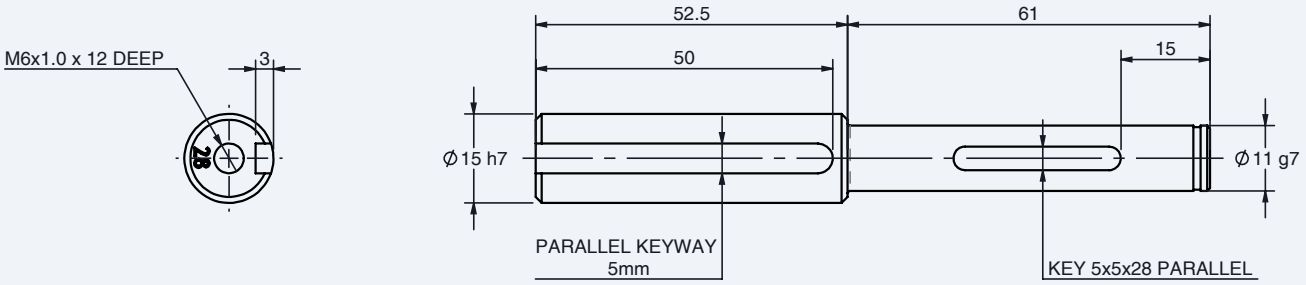
Power dissipation and efficiency



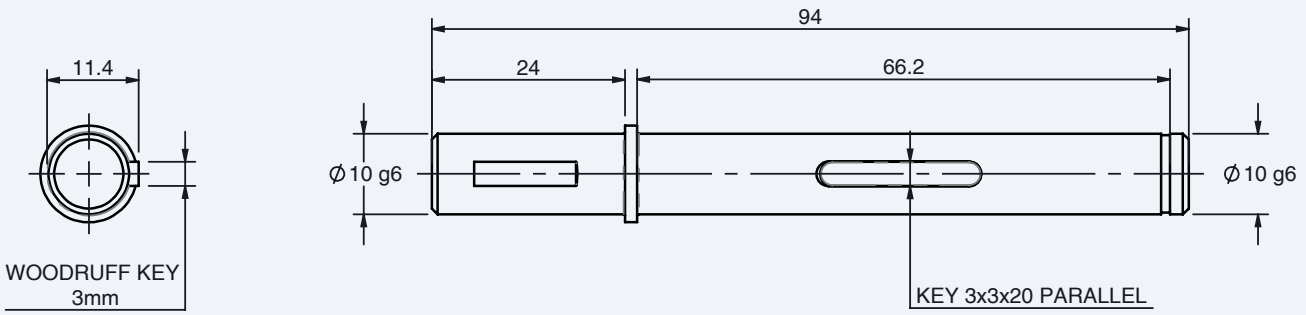
Shaft extension kits

all dimensions in mm

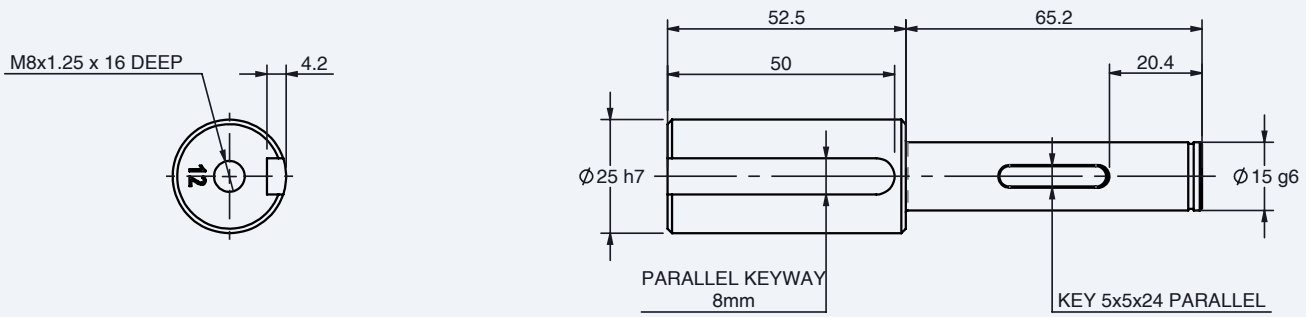
GB28 shaft kit



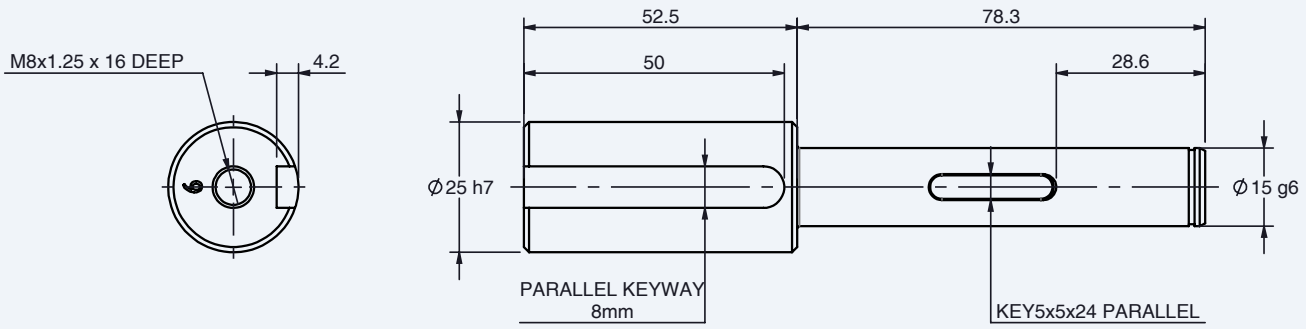
GB80 shaft kit



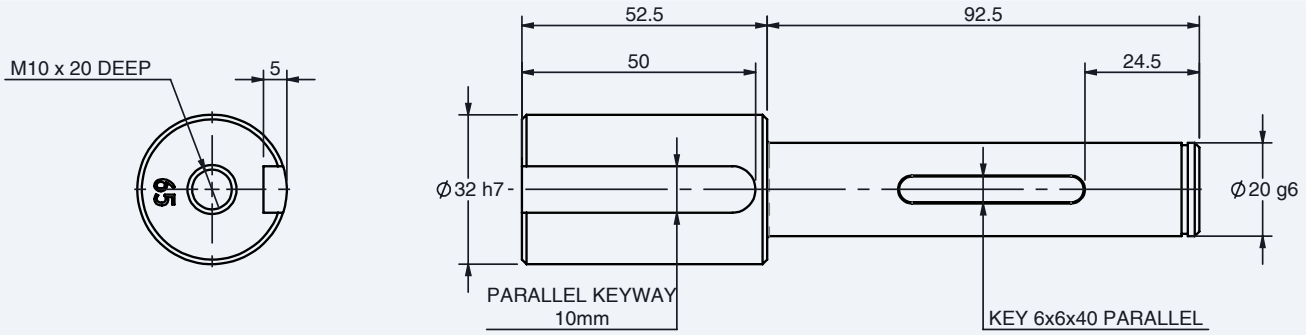
GB12 shaft kit

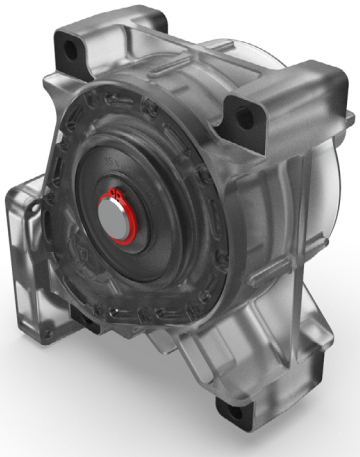


GB9 shaft kit



GB65 shaft kit





Shaft extension kit assembly

Our modular shaft extension kits are supplied, as standard, disassembled from their appropriate gearboxes. This enables you to select the output position of your shaft when assembling the shaft and gearbox yourself.

To assemble the shaft extension kit to your gearbox simply slide the shaft through the hollow shaft fully and fasten on the non-output side using the circlip included (shown in red on this image). For additional support in the assembly process please contact your local sales engineer.

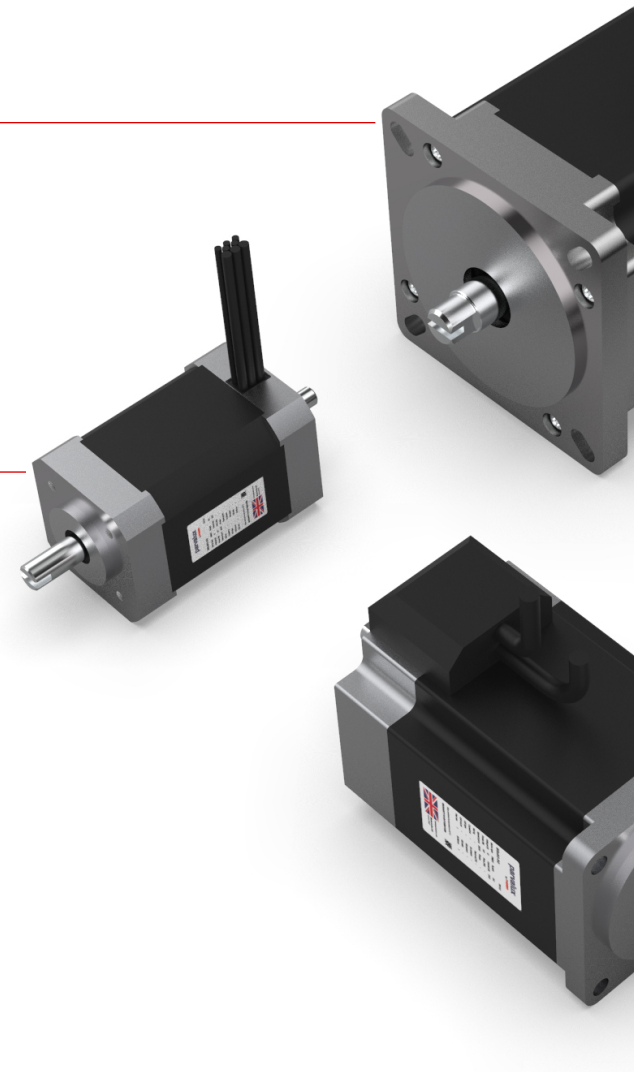
Standard BLDC moto

PBL86

- 86 mm square frame
- 55 mm and 80 mm stack length
- 4000 rpm nominal speed
- 2.45 Nm max intermittent torque

PBL42

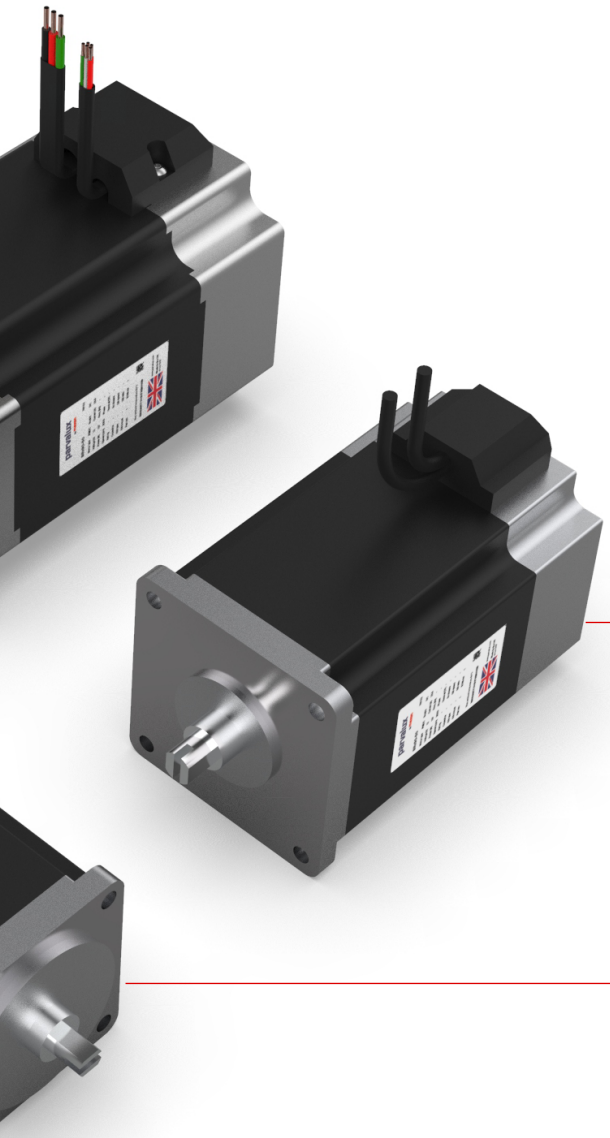
- 42 mm square frame
- 15 mm and 35 mm stack length
- 4000 rpm nominal speed
- 0.15 Nm max intermittent torque



rs

Parvalux brushless DC (BLDC) motors are available as either motor-only or in combination with a wide selection of inline or right-angle gearboxes.

BLDC motors require no maintenance, which makes them ideal for use in ‘fit and forget’ applications. They offer high starting torque, excellent power density and quiet operation.



PBL70

- 70 mm square frame
- 70 mm and 80 mm stack length
- 4500 rpm nominal speed
- 1.54 Nm max intermittent torque

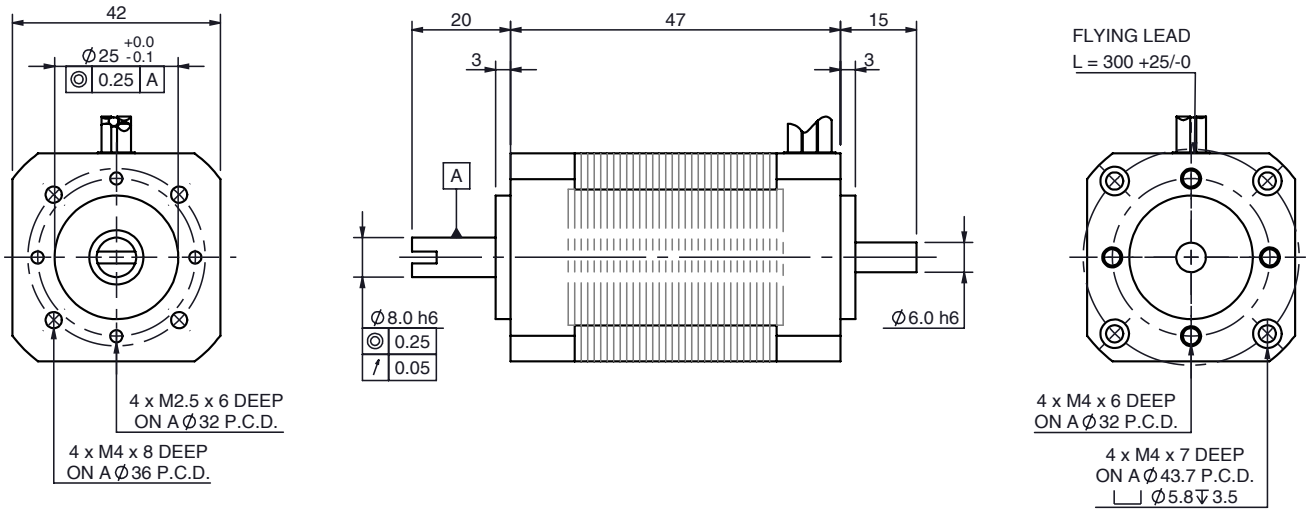
PBL60

- 60 mm square frame
- 50 mm and 70 mm stack length
- 3000 rpm nominal speed
- 0.88 Nm max intermittent torque

PBL42-15 BLDC motor

Ø42 mm frame // 15 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data			
1	Part number		776614	776615
2	Nominal power	W	26	26
3	Nominal voltage	V	24	48
4	No load speed	rpm	6068	6227
5	No load current	A	0.4	0.3
6	Nominal speed	rpm	4000	4000
7	Nominal continuous torque (S1)	Nm	0.063	0.063
8	Nominal continuous current (S1)	A	1.8	1.0
9	Max Intermittent torque (S2 - 15 minutes)	Nm	0.095	0.095
10	Stall current	A	6.50	3.34
11	Stall torque	Nm	0.21	0.21
12	Stack length	mm	15	15
13	Maximum efficiency	%	75	75
14	Ra	Ω	1.8	7.1
15	Rl	mH	2.23	0.91
16	Speed constant	rpm/V	230.4	142.0
17	Torque constant	Nm/A	0.032	0.070
18	Speed torque gradient	rpm/Nm	28152	29351
19	Rotor inertia	Kgcm²	3.3×10^{-6}	3.3×10^{-6}
20	Weight	Kg	0.30	0.30

	Thermal data		
22	Ambient temperature	°C	40

	Mechanical data		
23	Radial load [distance from flange]	N [mm]	130 [15]
24	Radial play	mm [@g]	0.06 [450]
25	Axial end play	mm [@g]	0.06 [450]

	Other data		
26	Number of poles		8
27	Winding type		Delta
28	Hall effect angle (electrical angle)	°	120
29	IP Rating		IP54
30	Enclosure		Enclosed
31	Insulation Class		B

Connection details		
Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Yellow	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
Blue	UL1569/26 AWG	Hall C
Yellow	UL1569/20 AWG	Phase U
Green	UL1569/20 AWG	Phase V
Blue	UL1569/20 AWG	Phase W

Compatible products

Gearbox	Page #
S Box	216
GB28	218
SWS	220
PGx42	248

Brake	Page #
On request	-

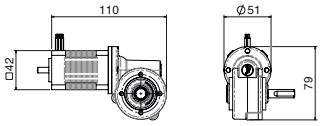
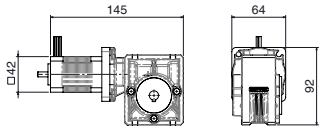
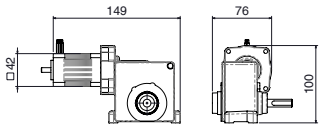
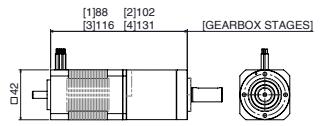
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	255
Diff. 10-pin	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL42-15 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL42-15-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	1000	133	57	1000	133	57
		Nominal torque	Nm	0.2	1.2	1.8	0.2	1.1	1.5
		Intermittent torque	Nm	0.3	1.9	2.7	0.3	1.6	2.3
PBL42-15-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	4	30	70
		Speed	rpm	-	-	-	267	133	67
		Nominal torque	Nm	-	-	-	0.7	1.2	1.7
		Intermittent torque	Nm	-	-	-	1.1	1.9	2.6
PBL42-15-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	111	19	3	-	-	-
		Nominal torque	Nm	1.6	9.3	11.0	-	-	-
		Intermittent torque	Nm	2.4	11.0	11.0	-	-	-
PBL42-15-PGx42		Gear material		Steel	Steel	Steel	Steel	Steel	-
		Gear ratio [stages] [2]	:1	4.3 [1]	19 [2]	66 [3]	150 [4]	353 [4]	-
		Speed	rpm	930	211	61	27	11	-
		Nominal torque	Nm	0.2	1.0	3.0	6.0	11.3	-
		Intermittent torque	Nm	0.4	1.5	4.5	9.1	16.9	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

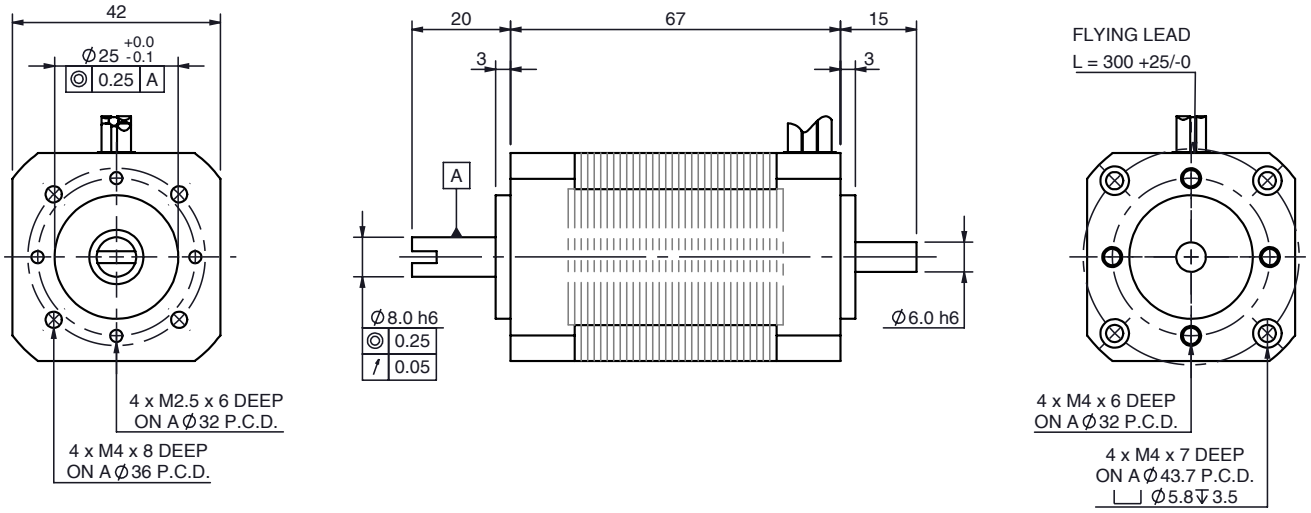
→ Technical data displayed above calculated based on **PBL42-15 48V 4000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL42-35 BLDC motor

Ø42 mm frame // 35 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data			
1	Part number		776616	776617
2	Nominal power	W	42	42
3	Nominal voltage	V	24	48
4	No load speed	rpm	5835	6001
5	No load current	A	0.4	0.3
6	Nominal speed	rpm	4000	4000
7	Nominal continuous torque (S1)	Nm	0.10	0.10
8	Nominal continuous current (S1)	A	2.6	1.3
9	Max Intermittent torque (S2 - 15 minutes)	Nm	0.15	0.15
10	Stall current	A	9.6	5.0
11	Stall torque	Nm	0.4	0.4
12	Stack length	mm	35	35
13	Maximum efficiency	%	77	75
14	Ra	Ω	0.87	3.35
15	Rl	mH	1.30	5.41
16	Speed constant	rpm/V	251.7	132.2
17	Torque constant	Nm/A	0.043	0.093
18	Speed torque gradient	rpm/Nm	14157	13361
19	Rotor inertia	Kgcm²	5.5 x 10^{-6}	5.5 x 10^{-6}
20	Weight	Kg	0.45	0.45

Connection details		
Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Yellow	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
Blue	UL1569/26 AWG	Hall C
Yellow	UL1569/20 AWG	Phase U
Green	UL1569/20 AWG	Phase V
Blue	UL1569/20 AWG	Phase W

	Thermal data		
22	Ambient temperature	°C	40

	Mechanical data		
23	Radial load [distance from flange]	N [mm]	130 [15]
24	Radial play	mm [@g]	0.06 [450]
25	Axial end play	mm [@g]	0.06 [450]

	Other data		
26	Number of poles		8
27	Winding type		Delta
28	Hall effect angle (electrical angle)	°	120
29	IP Rating		IP54
30	Enclosure		Enclosed
31	Insulation Class		B

Compatible products

Gearbox	Page #
S Box	216
GB28	218
SWS	220
PGx42	248

Brake	Page #
On request	-

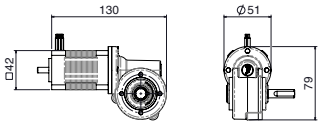
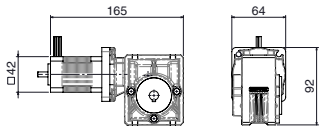
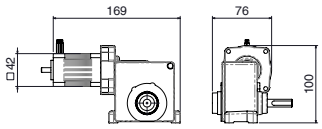
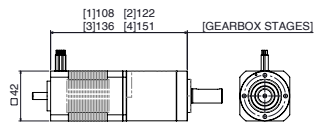
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	255
Diff. 10-pin	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL42-35 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL42-35-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	1000	133	57	1000	133	57
		Nominal torque	Nm	0.3	2.0	2.0	0.3	1.7	2.5
		Intermittent torque	Nm	0.5	2.9	3.2	0.4	2.6	3.7
PBL42-35-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	267	133	67
		Nominal torque	Nm	-	-	-	1.1	2.0	2.7
		Intermittent torque	Nm	-	-	-	1.7	2.9	4.1
PBL42-35-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	111	19	3	-	-	-
		Nominal torque	Nm	2.6	11.0	11.0	-	-	-
		Intermittent torque	Nm	3.8	11.0	11.0	-	-	-
PBL42-35-PGx42		Gear material		Steel	Steel	Steel	Steel	Steel	-
		Gear ratio [stages] [2]	:1	4.3 [1]	19 [2]	66 [3]	150 [4]	353 [4]	-
		Speed	rpm	930	211	61	27	11	-
		Nominal torque	Nm	0.4	1.5	4.8	9.6	11.3	-
		Intermittent torque	Nm	0.6	2.3	7.1	14.4	16.9	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

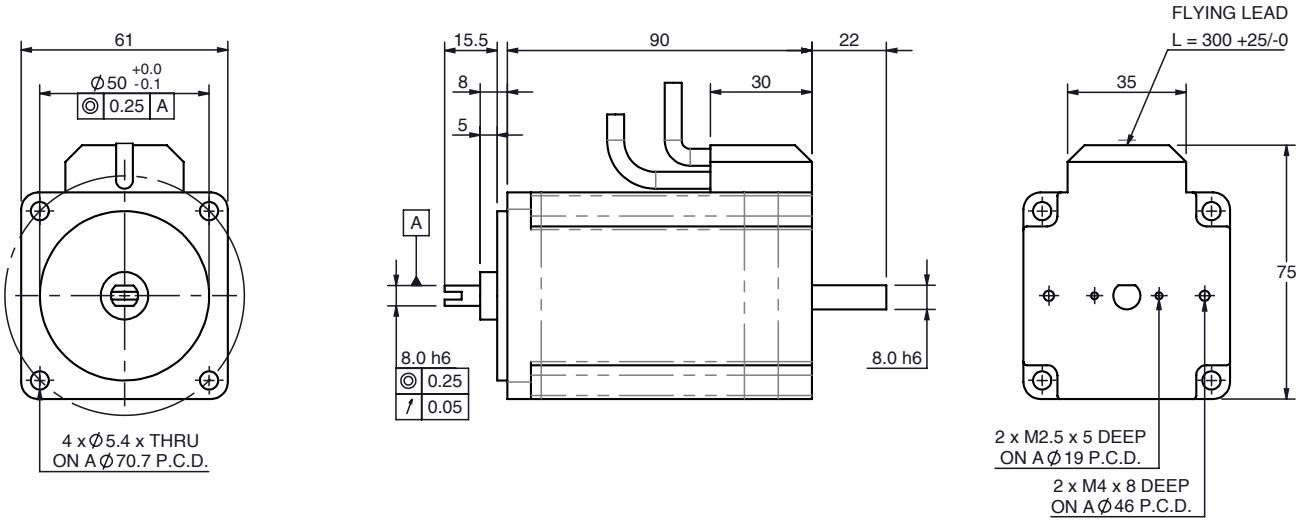
→ Technical data displayed above calculated based on **PBL42-35 48V 4000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL60-50 BLDC motor

Ø60 mm frame // 50 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data			
1	Part number		776618	776619
2	Nominal power	W	104	104
3	Nominal voltage	V	24	48
4	No load speed	rpm	3798	3827
5	No load current	A	1.1	0.5
6	Nominal speed	rpm	3000	3000
7	Nominal continuous torque (S1)	Nm	0.33	0.33
8	Nominal continuous current (S1)	A	6.1	3.0
9	Max Intermittent torque (S2 - 15 minutes)	Nm	0.58	0.58
10	Stall current	A	41.00	26.40
11	Stall torque	Nm	2.6	3.4
12	Stack length	mm	50	50
13	Maximum efficiency	%	80	84
14	Ra	Ω	0.202	0.757
15	Rl	mH	0.21	0.86
16	Speed constant	rpm/V	159.6	80.7
17	Torque constant	Nm/A	0.07	0.13
18	Speed torque gradient	rpm/Nm	1502.6	1152.9
19	Rotor inertia	Kgcm²	4.97×10^{-5}	4.97×10^{-5}
20	Weight	Kg	1.20	1.20

	Thermal data		
21	Ambient temperature	°C	40

	Mechanical data		
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.025 [450]
24	Axial end play	mm [@g]	0.025 [450]

	Other data		
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Connection details

Lead colour	Lead gauge	Function
Red	UL1007/26 AWG	VCC
Black	UL1007/26 AWG	GND
Blue	UL1007/26 AWG	Hall A
Green	UL1007/26 AWG	Hall B
White	UL1007/26 AWG	Hall C
Red	UL1007/18 AWG	Phase U
Yellow	UL1007/18 AWG	Phase V
Black	UL1007/18 AWG	Phase W

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
GB80	224
MWS	230
GB36	231
PGx52	249
GB12	232

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

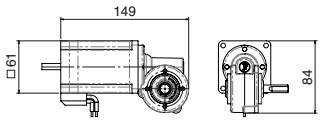
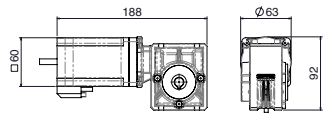
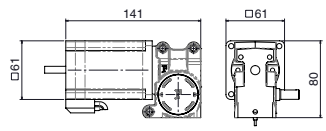
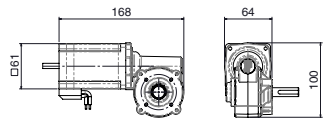
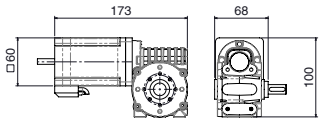
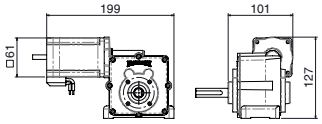
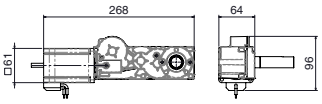
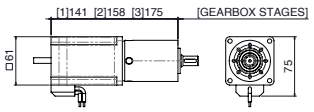
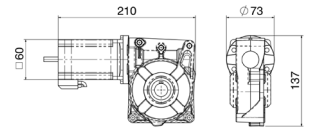
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL60-50 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL60-50-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750	100	43	750	100	43
		Nominal torque	Nm	1.1	3.0	2.0	0.9	4.5	3.0
		Intermittent torque	Nm	1.9	4.8	3.2	1.6	7.2	4.8
PBL60-50-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200	100	50
		Nominal torque	Nm	-	-	-	3.7	5.0	5.0
		Intermittent torque	Nm	-	-	-	6.5	8.0	8.0
PBL60-50-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750	200	120	-	-	-
		Nominal torque	Nm	1.1	3.7	4.0	-	-	-
		Intermittent torque	Nm	2.0	6.5	8.0	-	-	-
PBL60-50-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750	100	42	750	100	42
		Nominal torque	Nm	1.1	6.9	5.0	1.0	6.0	8.0
		Intermittent torque	Nm	2.0	12.2	8.0	1.7	10.6	12.0
PBL60-50-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	200	100	50	-	-	-
		Nominal torque	Nm	3.8	6.9	6.0	-	-	-
		Intermittent torque	Nm	6.7	12.2	10.0	-	-	-
PBL60-50-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125	25	2	-	-	-
		Nominal torque	Nm	6.0	22.0	45.0	-	-	-
		Intermittent torque	Nm	9.0	22.0	45.0	-	-	-
PBL60-50-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125	25	2	-	-	-
		Nominal torque	Nm	6.0	22.0	45.0	-	-	-
		Intermittent torque	Nm	9.0	22.0	45.0	-	-	-
PBL60-50-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769	68	17
		Nominal torque	Nm	-	-	-	1.2	13.4	30.0
		Intermittent torque	Nm	-	-	-	2.1	23.0	45.0
PBL60-50-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	200	100	50	200	100	50
		Nominal torque	Nm	4.1	7.1	10.9	3.7	6.4	9.9
		Intermittent torque	Nm	7.2	12.5	19.1	6.5	11.3	17.4

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

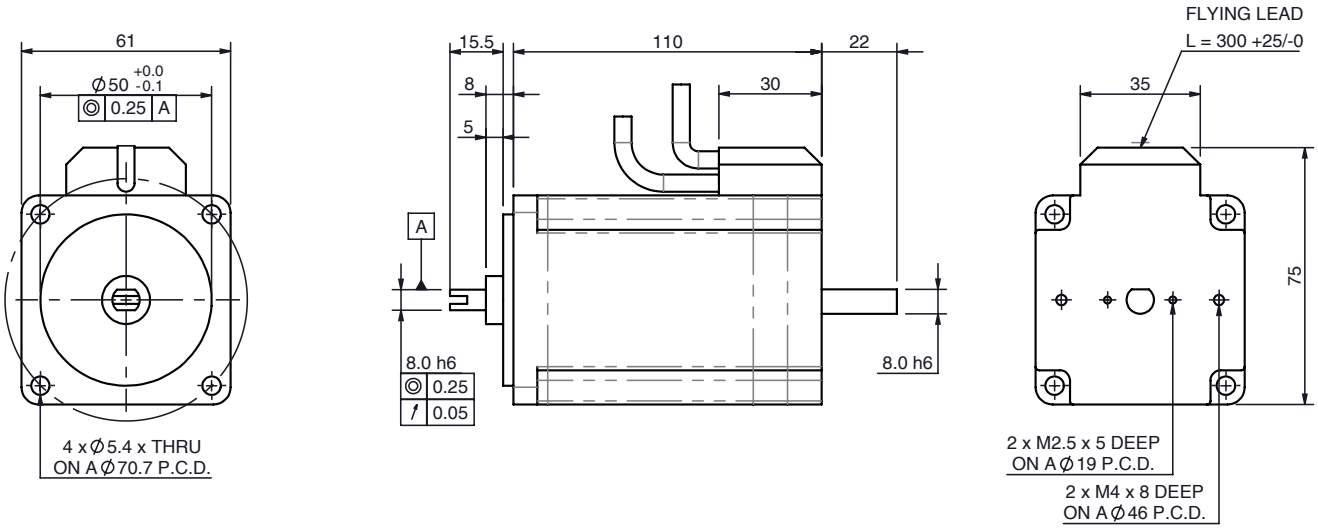
→ Technical data displayed above calculated based on **PBL60-50 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL60-70 BLDC motor

Ø60 mm frame // 70 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data			
1	Part number		776620	776621
2	Nominal power	W	157	157
3	Nominal voltage	V	24	48
4	No load speed	rpm	3983	3811
5	No load current	A	1.7	0.7
6	Nominal speed	rpm	3000	3000
7	Nominal continuous torque (S1)	Nm	0.5	0.5
8	Nominal continuous current (S1)	A	9.9	4.6
9	Max Intermittent torque (S2 - 15 minutes)	Nm	0.88	0.88
10	Stall current	A	63.44	36.90
11	Stall torque	Nm	3.7	4.5
12	Stack length	mm	70	70
13	Maximum efficiency	%	0.77	0.83
14	Ra	Ω	0.12	0.48
15	Rl	mH	0.12	0.56
16	Speed constant	rpm/V	167.30	80.34
17	Torque constant	Nm/A	0.06	0.12
18	Speed torque gradient	rpm/Nm	1121.90	870.34
19	Rotor inertia	Kgcm²	7.28 x 10^{-5}	7.28 x 10^{-5}
20	Weight	Kg	1.60	1.60

	Thermal data		
21	Ambient temperature	°C	40

	Mechanical data		
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.025 [450]
24	Axial end play	mm [@g]	0.025 [450]

	Other data		
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Connection details		
Lead colour	Lead gauge	Function
Red	UL1007/26 AWG	VCC
Black	UL1007/26 AWG	GND
Blue	UL1007/26 AWG	Hall A
Green	UL1007/26 AWG	Hall B
White	UL1007/26 AWG	Hall C
Red	UL1007/18 AWG	Phase U
Yellow	UL1007/18 AWG	Phase V
Black	UL1007/18 AWG	Phase W

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
GB80	224
MWS	230
GB36	231
PGx52	249
GB12	232

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

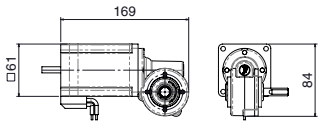
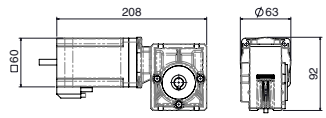
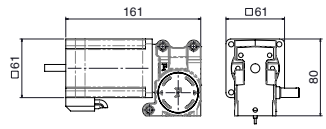
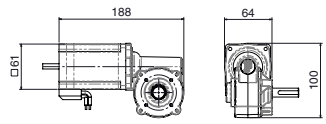
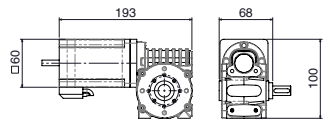
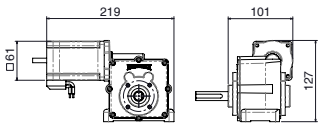
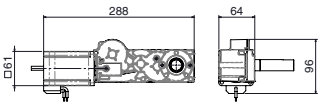
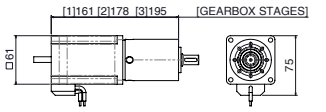
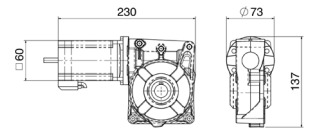
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL60-70 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL60-70-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750	100	43	750	100	43
		Nominal torque	Nm	1.6	3.0	2.0	1.4	4.5	3.0
		Intermittent torque	Nm	2.8	4.8	3.2	2.5	7.2	4.8
PBL60-70-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200	100	50
		Nominal torque	Nm	-	-	-	5.0	5.0	5.0
		Intermittent torque	Nm	-	-	-	8.0	8.0	8.0
PBL60-70-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750	200	120	-	-	-
		Nominal torque	Nm	1.7	4.0	4.0	-	-	-
		Intermittent torque	Nm	3.0	8.0	8.0	-	-	-
PBL60-70-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750	100	42	750	100	42
		Nominal torque	Nm	1.7	8.0	5.0	1.5	9.2	8.0
		Intermittent torque	Nm	3.0	13.0	8.0	2.6	16.1	12.0
PBL60-70-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	200	100	50	-	-	-
		Nominal torque	Nm	5.8	8.0	6.0	-	-	-
		Intermittent torque	Nm	10.2	13.0	10.0	-	-	-
PBL60-70-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125	25	2	-	-	-
		Nominal torque	Nm	9.0	22.0	45.0	-	-	-
		Intermittent torque	Nm	9.0	22.0	45.0	-	-	-
PBL60-70-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125	25	2	-	-	-
		Nominal torque	Nm	9.0	22.0	45.0	-	-	-
		Intermittent torque	Nm	9.0	22.0	45.0	-	-	-
PBL60-70-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769	68	17
		Nominal torque	Nm	-	-	-	1.9	15.0	30.0
		Intermittent torque	Nm	-	-	-	3.3	23.0	45.0
PBL60-70-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	200	100	50	200	100	50
		Nominal torque	Nm	6.2	10.8	16.5	5.6	9.8	15.0
		Intermittent torque	Nm	11.0	19.0	29.0	9.9	17.2	26.4

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

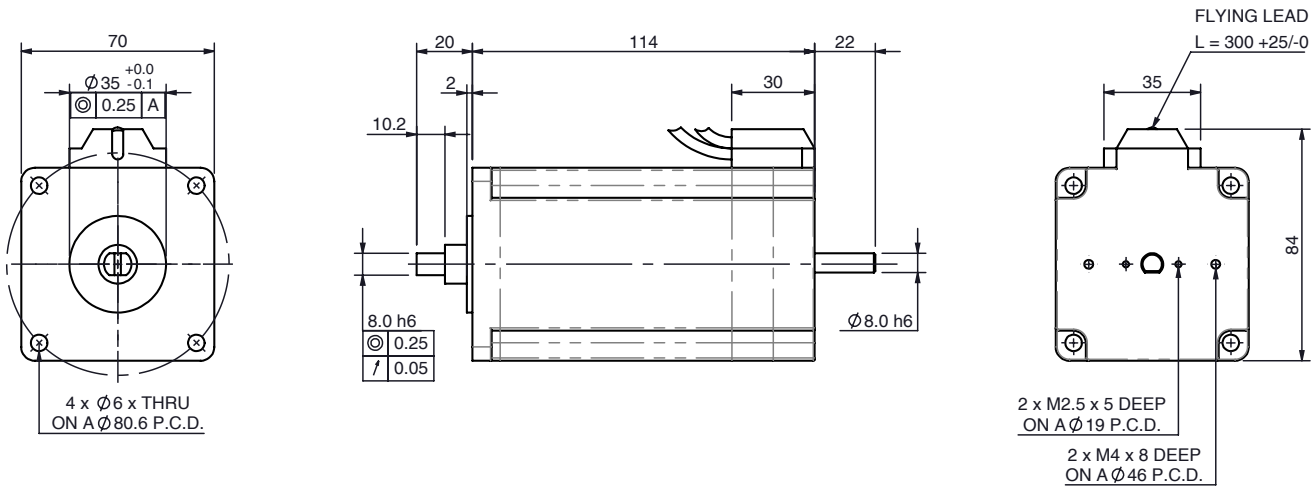
→ Technical data displayed above calculated based on **PBL60-70 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL70-70 BLDC motor

Ø70 mm frame // 70 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Technical data			
1	Part number		776622
2	Nominal power	W	363
3	Nominal voltage	V	48
4	No load speed	rpm	4857
5	No load current	A	1.4
6	Nominal speed	rpm	4500
7	Nominal continuous torque (S1)	Nm	0.77
8	Nominal continuous current (S1)	A	8.9
9	Max Intermittent torque (S2 - 15 minutes)	Nm	1.35
10	Stall current	A	68.2
11	Stall torque	Nm	6.9
12	Stack length	mm	70
13	Maximum efficiency	%	84
14	Ra	Ω	0.15
15	Rl	mH	0.283
16	Speed constant	rpm/V	102.2
17	Torque constant	Nm/A	0.103
18	Speed torque gradient	rpm/Nm	731.0
19	Rotor inertia	Kgcm²	2.39 x 10^{-4}
20	Weight	Kg	2.20

Thermal data			
21	Ambient temperature	°C	40

Mechanical data			
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.025 [450]
24	Axial end play	mm [@g]	0.025 [450]

Other data			
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Connection details		
Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Blue	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
White	UL1569/26 AWG	Hall C
Red	UL3266/16 AWG	Phase U
Yellow	UL3266/16 AWG	Phase V
Black	UL3266/16 AWG	Phase W

Compatible products

Gearbox	Page #
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
LIS	244
LWS	236

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

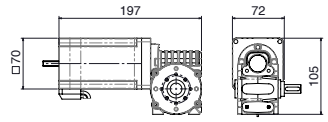
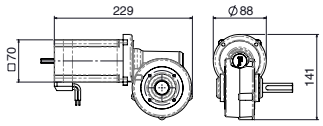
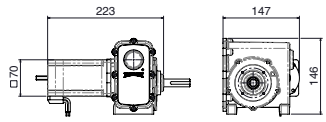
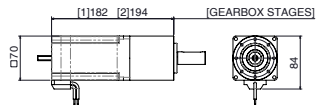
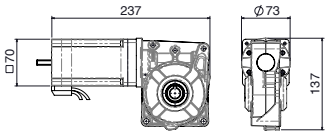
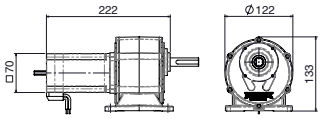
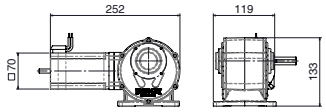
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL70-70 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data							
PBL70-70-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	300	150	75	-	-	-
		Nominal torque	Nm	8.0	8.0	6.0	-	-	-
		Intermittent torque	Nm	13.0	13.0	10.0	-	-	-
PBL70-70-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	900	150	75	900	150	75
		Nominal torque	Nm	3.5	15.0	15.0	3.2	15.0	19.0
		Intermittent torque	Nm	6.1	15.0	15.0	5.7	22.0	22.0
PBL70-70-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	125	11	4	125	11	4
		Nominal torque	Nm	20.5	28.0	28.0	20.5	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	36.0	45.0	45.0
PBL70-70-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	1154	214	102
		Nominal torque	Nm	-	-	-	2.9	14.9	30.0
		Intermittent torque	Nm	-	-	-	5.0	26.1	37.5
PBL70-70-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	300	150	75	300	150	75
		Nominal torque	Nm	9.6	16.6	20.0	8.7	15.0	23.1
		Intermittent torque	Nm	16.8	29.2	32.0	15.2	26.3	40.5
PBL70-70-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	6	50	115	-	-	-
		Speed	rpm	750	90	39	-	-	-
		Nominal torque	Nm	3.6	29.6	68.2	-	-	-
		Intermittent torque	Nm	6.2	51.0	100.0	-	-	-
PBL70-70-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	94	7	1	-	-	-
		Nominal torque	Nm	25.1	100.0	100.0	-	-	-
		Intermittent torque	Nm	44.1	100.0	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

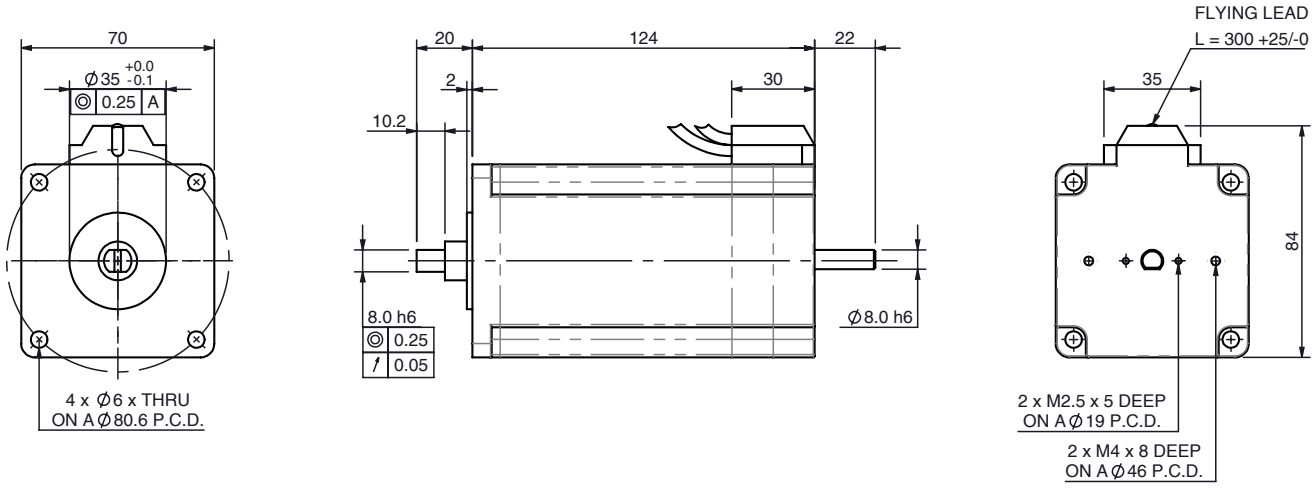
→ Technical data displayed above calculated based on **PBL70-70 48V 4500 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PBL70-80 BLDC motor

Ø70 mm frame // 80 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data		
1	Part number		776623
2	Nominal power	W	415
3	Nominal voltage	V	48
4	No load speed	rpm	4902
5	No load current	A	1.5
6	Nominal speed	rpm	4500
7	Nominal continuous torque (S1)	Nm	0.88
8	Nominal continuous current (S1)	A	10.4
9	Max Intermittent torque (S2 - 15 minutes)	Nm	1.54
10	Stall current	A	75.6
11	Stall torque	Nm	7.3
12	Stack length	mm	80
13	Maximum efficiency	%	82
14	Ra	Ω	0.151
15	Rl	mH	0.22
16	Speed constant	rpm/V	103
17	Torque constant	Nm/A	0.10
18	Speed torque gradient	rpm/Nm	691.7
19	Rotor inertia	Kgcm²	2.77 x 10^{-4}
20	Weight	Kg	2.60

Connection details

Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Blue	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
White	UL1569/26 AWG	Hall C
Red	UL3266/16 AWG	Phase U
Yellow	UL3266/16 AWG	Phase V
Black	UL3266/16 AWG	Phase W

	Thermal data		
21	Ambient temperature	°C	40

	Mechanical data		
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.025 [450]
24	Axial end play	mm [@g]	0.025 [450]

	Other data		
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Compatible products

Gearbox	Page #
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
LIS	244
LWS	236

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

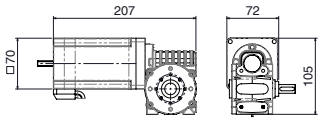
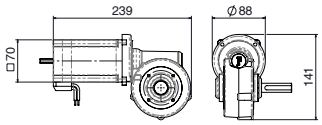
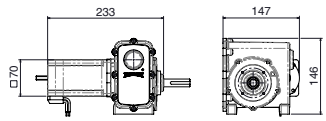
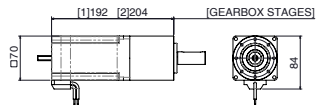
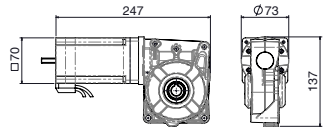
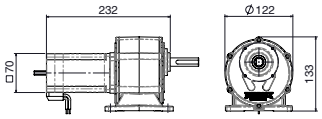
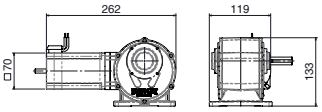
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PBL70-80 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL70-80-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	-	-	-
		Speed	rpm	300	150	75	-	-	-
		Nominal torque	Nm	8.0	8.0	6.0	-	-	-
		Intermittent torque	Nm	13.0	13.0	10.0	-	-	-
PBL70-80-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	900	150	75	900	150	75
		Nominal torque	Nm	4.0	15.0	15.0	3.7	17.2	19.0
		Intermittent torque	Nm	6.9	15.0	15.0	6.5	22.0	22.0
PBL70-80-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	125	11	4	125	11	4
		Nominal torque	Nm	23.4	28.0	28.0	23.4	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	41.0	45.0	45.0
PBL70-80-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	1154	214	102
		Nominal torque	Nm	-	-	-	3.3	17.0	30.0
		Intermittent torque	Nm	-	-	-	5.7	29.8	37.5
PBL70-80-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	300	150	75	300	150	75
		Nominal torque	Nm	11.0	19.0	20.0	9.9	17.2	26.4
		Intermittent torque	Nm	19.2	32.0	32.0	17.3	30.0	46.2
PBL70-80-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	6	50	115	-	-	-
		Speed	rpm	750	90	39	-	-	-
		Nominal torque	Nm	4.1	33.9	74.0	-	-	-
		Intermittent torque	Nm	7.1	51.0	100.0	-	-	-
PBL70-80-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	94	7	1	-	-	-
		Nominal torque	Nm	28.7	100.0	100.0	-	-	-
		Intermittent torque	Nm	45.0	100.0	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

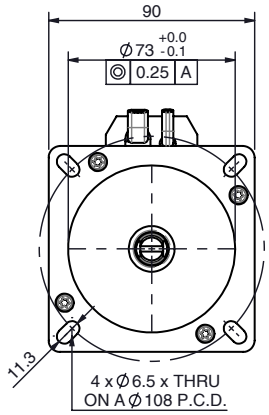
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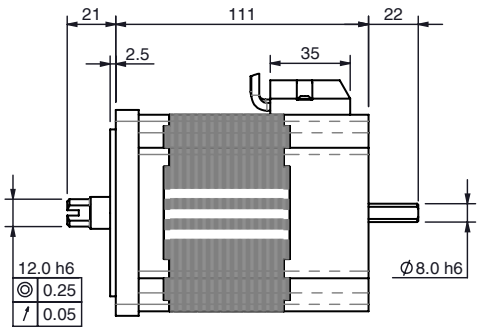
→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

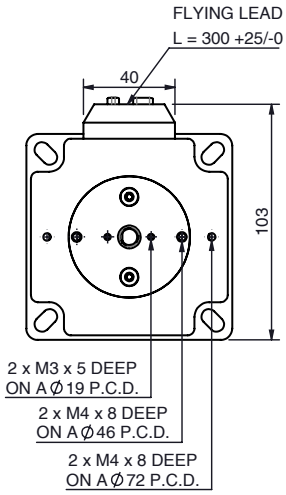
PBL86-55 BLDC motor

Ø86 mm frame // 55 mm stack

all dimensions in mm







Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data		
1	Part number		776624
2	Nominal power	W	419
3	Nominal voltage	V	48
4	No load speed	rpm	4342
5	No load current	A	1.2
6	Nominal speed	rpm	4000
7	Nominal continuous torque (S1)	Nm	1.0
8	Nominal continuous current (S1)	A	10.3
9	Max Intermittent torque (S2 - 15 minutes)	Nm	1.75
10	Stall current	A	93
11	Stall torque	Nm	10.1
12	Stack length	mm	55
13	Maximum efficiency	%	85
14	Ra	Ω	0.087
15	Rl	mH	0.23
16	Speed constant	rpm/V	90.8
17	Torque constant	Nm/A	0.11
18	Speed torque gradient	rpm/Nm	439.5
19	Rotor inertia	Kgm^2	2.04×10^{-4}
20	Weight	Kg	3.20

	Thermal data		
21	Ambient temperature	°C	40

	Mechanical data		
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.06 [450]
24	Axial end play	mm [@g]	0.08 [450]

	Other data		
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Connection details

Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Blue	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
White	UL1569/26 AWG	Hall C
Red	UL1569/14 AWG	Phase U
Yellow	UL1569/14 AWG	Phase V
Black	UL1569/14 AWG	Phase W

Compatible products

Gearbox	Page #
PGx70	250
GB12	232
GB9	234
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

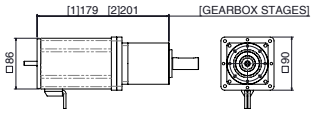
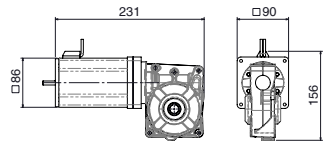
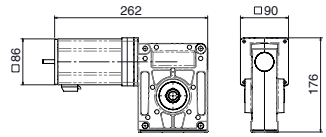
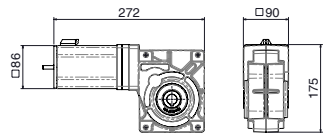
Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Key
Standard combination
Modular combination

PBL86-55 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL86-55-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	1026	190	91
		Nominal torque	Nm	-	-	-	3.7	19.3	30.0
		Intermittent torque	Nm	-	-	-	6.5	33.8	37.5
PBL86-55-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	267	133	67	267	133	67
		Nominal torque	Nm	12.5	20.0	20.0	11.3	19.5	30.0
		Intermittent torque	Nm	21.8	32.0	32.0	19.7	34.1	48.0
PBL86-55-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	15	30	60	15	30	60
		Speed	rpm	267	133	67	267	133	67
		Nominal torque	Nm	12.8	22.5	39.0	12.0	21.0	33.0
		Intermittent torque	Nm	22.3	39.4	68.3	21.0	36.8	57.8
PBL86-55-GB65		Gear material [1]		Bronze	Bronze	Bronze	Bronze	Bronze	-
		Gear ratio [2]	:1	20	40	80	120	160	-
		Speed	rpm	200	100	50	33	25	-
		Nominal torque	Nm	16.2	30.4	56.0	72.0	68.8	-
		Intermittent torque	Nm	28.4	53.2	98.0	126.0	120.4	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

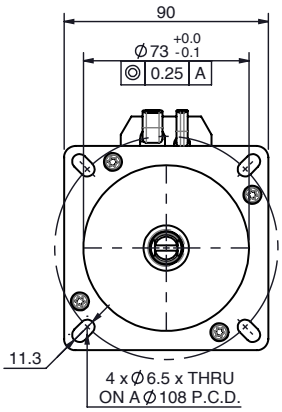
→ Technical data displayed above calculated based on **PBL86-55 48V 4000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

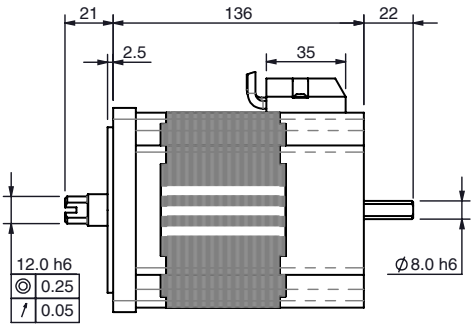
→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

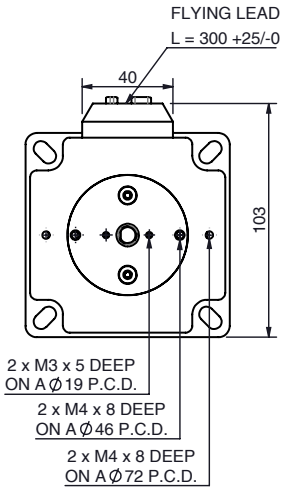
PBL86-80 BLDC motor

Ø86 mm frame // 80 mm stack

all dimensions in mm







Part number key	
Modular	######
Standard	######
Calculated data	######

	Technical data		
1	Part number		776625
2	Nominal power	W	586
3	Nominal voltage	V	48
4	No load speed	rpm	4192
5	No load current	A	1.9
6	Nominal speed	rpm	4000
7	Nominal continuous torque (S1)	Nm	1.4
8	Nominal continuous current (S1)	A	14.4
9	Max Intermittent torque (S2 - 15 minutes)	Nm	2.45
10	Stall current	A	116
11	Stall torque	Nm	12.7
12	Stack length	mm	80
13	Maximum efficiency	%	83
14	Ra	Ω	0.057
15	Rl	mH	0.16
16	Speed constant	rpm/V	87.9
17	Torque constant	Nm/A	0.11
18	Speed torque gradient	rpm/Nm	345.6
19	Rotor inertia	Kgm^2	2.9×10^{-4}
20	Weight	Kg	4.20

	Thermal data		
21	Ambient temperature	°C	40

	Mechanical data		
22	Radial load [distance from flange]	N [mm]	350 [15]
23	Radial play	mm [@g]	0.06 [450]
24	Axial end play	mm [@g]	0.08 [450]

	Other data		
25	Number of poles		8
26	Winding type		Delta
27	Hall effect angle (electrical angle)	°	120
28	IP Rating		IP54
29	Enclosure		Enclosed
30	Insulation Class		B

Connection details

Lead colour	Lead gauge	Function
Red	UL1569/26 AWG	VCC
Black	UL1569/26 AWG	GND
Blue	UL1569/26 AWG	Hall A
Green	UL1569/26 AWG	Hall B
White	UL1569/26 AWG	Hall C
Red	UL1569/14 AWG	Phase U
Yellow	UL1569/14 AWG	Phase V
Black	UL1569/14 AWG	Phase W

Compatible products

Gearbox	Page #
PGx70	250
GB12	232
GB9	234
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

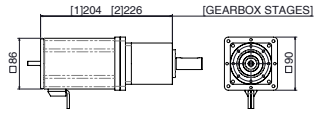
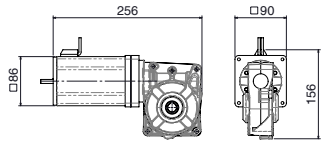
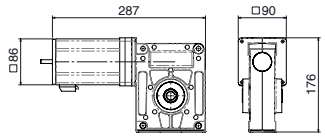
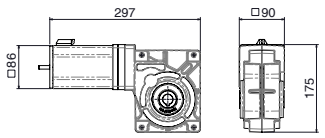
Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Key
Standard combination
Modular combination

PBL86-80 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PBL86-80-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Steel	Steel	Steel
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	1026	190	91
		Nominal torque	Nm	-	-	-	5.2	27.0	30.0
		Intermittent torque	Nm	-	-	-	9.1	37.5	37.5
PBL86-80-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	15	30	60	15	30	60
		Speed	rpm	267	133	67	267	133	67
		Nominal torque	Nm	17.4	20.0	20.0	15.8	27.3	30.0
		Intermittent torque	Nm	30.5	32.0	32.0	27.6	47.8	48.0
PBL86-80-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	15	30	60	15	30	60
		Speed	rpm	267	133	67	267	133	67
		Nominal torque	Nm	17.9	31.5	50.0	16.8	29.4	46.2
		Intermittent torque	Nm	31.2	55.1	80.0	29.4	51.5	80.9
PBL86-80-GB65		Gear material [1]		Bronze	Bronze	Bronze	Bronze	Bronze	-
		Gear ratio [2]	:1	20	40	80	120	160	-
		Speed	rpm	200	100	50	33	25	-
		Nominal torque	Nm	22.7	42.6	78.4	100.8	96.3	-
		Intermittent torque	Nm	39.7	74.5	137.2	176.4	168.6	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

→ Technical data displayed above calculated based on **PBL86-80 48V 4000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

Standard PMDC moto

PM10 / PM11

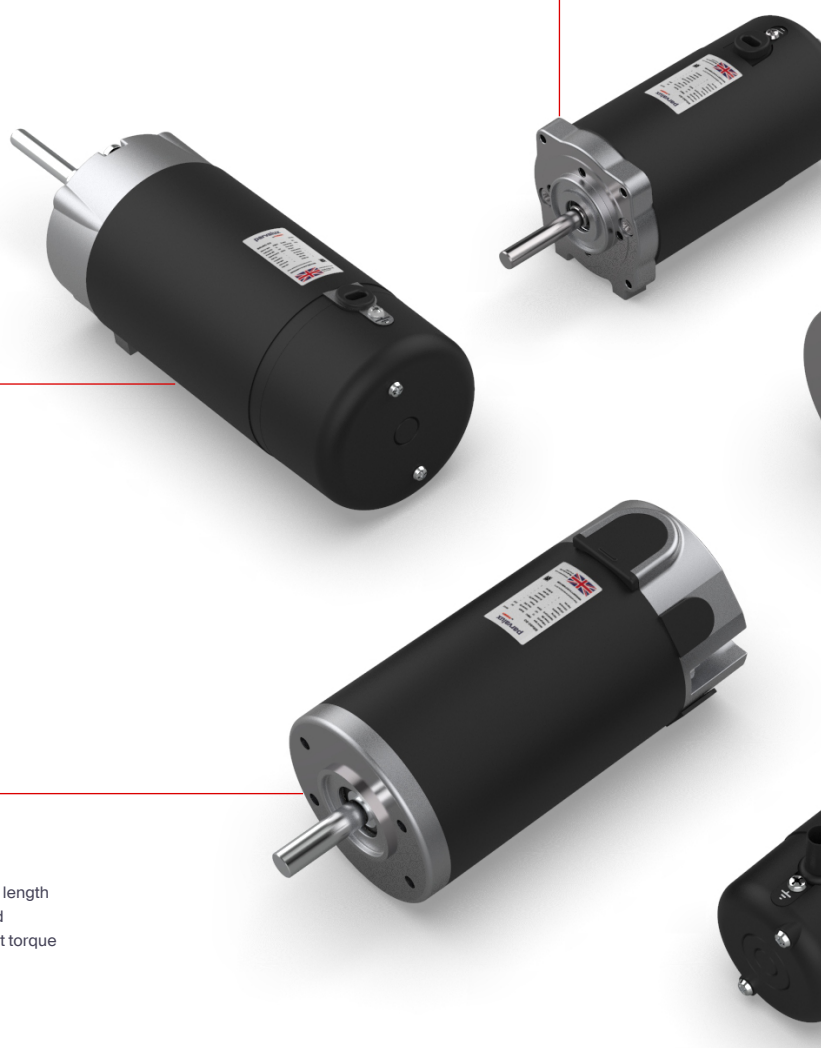
- Ø66 mm frame
- 26 mm and 44 mm stack length
- 3000 rpm nominal speed
- 0.53 Nm max intermittent torque

PM50 / PM60

- Ø77 mm frame
- 81 mm stack length
- 3000 rpm nominal speed
- 1.17 Nm max intermittent torque

PM70

- Ø74 mm frame
- 40 mm and 60 mm stack length
- 3000 rpm nominal speed
- 0.88 Nm max intermittent torque



ors

Reliable and with a high starting torque, Parvalux PMDC motors can be combined with one of our gearboxes to reduce speed and increase torque for the ultimate solution.

Popular in a myriad of markets, our standard range of motors are also available with a wide selection of customisation options that enable further fine-tuning of your PMDC solution to your exact specification.



PM90

- Ø90 mm frame
- 50 mm and 75 mm stack length
- 3000 rpm nominal speed
- 1.50 Nm max intermittent torque

PM1 - PM6

- Ø77 mm frame
- 45 mm / 57 mm / 69 mm stack length
- 3000 rpm nominal speed
- 0.90 Nm max intermittent torque

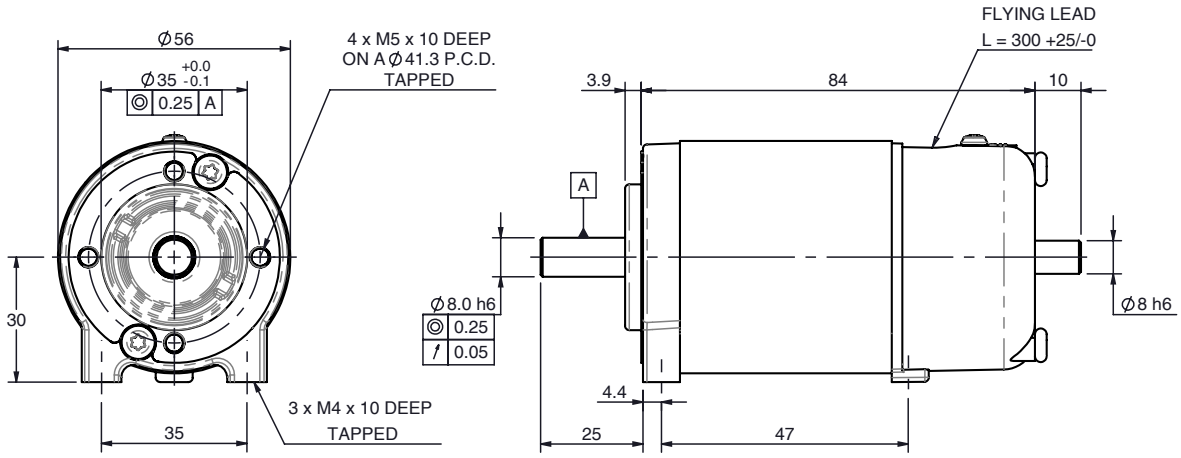
PM7 - PM9

- Ø56 mm frame
- 12 mm / 24 mm / 37 mm stack length
- 3000 rpm nominal speed
- 0.17 Nm max intermittent torque

PM7 PMDC motor

Ø56 mm frame // 12 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Technical data						
1	Part number		775282	775283	775284	775285
2	Nominal power	W	15	15	15	15
3	Nominal voltage	V	12	24	40	48
4	No load speed	rpm	3743	4057	4194	4154
5	No load current	A	0.40	0.28	0.13	0.11
6	Nominal speed	rpm	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.05	0.05	0.05	0.05
8	Nominal continuous current (S1)	A	2.11	1.39	0.75	0.62
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.08	0.08	0.08	0.08
10	Stall current	A	10.0	4.9	2.4	2.0
11	Stall torque	Nm	0.3	0.2	0.2	0.2
12	Stack length	mm	12	12	12	12
13	Maximum efficiency	%	61	47	52	52
14	Terminal resistance	Ω	1.0	4.9	16.7	24.2
15	Terminal inductance	mH	-	-	-	-
16	Speed constant	rpm/V	319	172	112	93
17	Torque constant	Nm/A	0.028	0.043	0.078	0.094
18	Speed torque gradient	rpm/Nm	13959	20491	23482	23483
19	Rotor inertia	gcm²	361	361	361	361

Thermal data			
20	Ambient temperature	°C	40

Mechanical data			
21	Radial load [distance from flange]	N [mm]	110 [15]

Other data			
22	Number of poles		2
23	Weight	Kg	0.5
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
SWS	220
PGx42	248
GB36	231

Brake	Page #
N/A	-

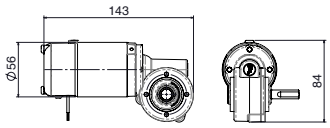
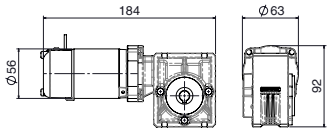
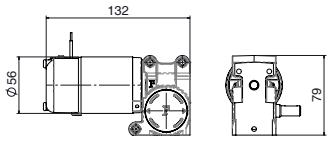
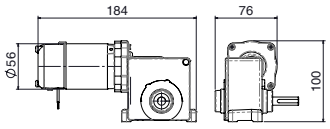
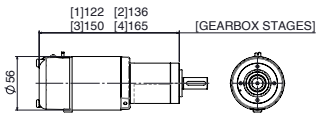
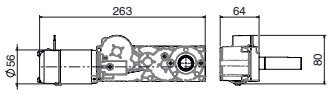
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM7 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM7-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750.0	100.0	42.9	750.0	100.0	42.9
		Nominal torque	Nm	0.2	1.0	1.4	0.1	0.9	1.2
		Intermittent torque	Nm	0.3	1.6	2.2	0.2	1.4	2.0
PM7-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200.0	100.0	50.0
		Nominal torque	Nm	-	-	-	0.6	1.0	1.4
		Intermittent torque	Nm	-	-	-	0.9	1.6	2.2
PM7-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750.0	200.0	120.0	-	-	-
		Nominal torque	Nm	0.2	0.6	0.9	-	-	-
		Intermittent torque	Nm	0.3	0.9	1.4	-	-	-
PM7-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	83.3	14.5	2.2	-	-	-
		Nominal torque	Nm	1.3	7.3	11.0	-	-	-
		Intermittent torque	Nm	2.0	11.0	11.0	-	-	-
PM7-PGx42		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.5 [1]	353 [4]	936 [4]
		Speed	rpm	-	-	-	857.1	8.5	3.2
		Nominal torque	Nm	-	-	-	0.2	11.3	11.3
		Intermittent torque	Nm	-	-	-	0.3	16.9	16.9
PM7-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125.0	25.0	2.1	-	-	-
		Nominal torque	Nm	0.9	4.4	37.8	-	-	-
		Intermittent torque	Nm	1.5	7.1	45.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

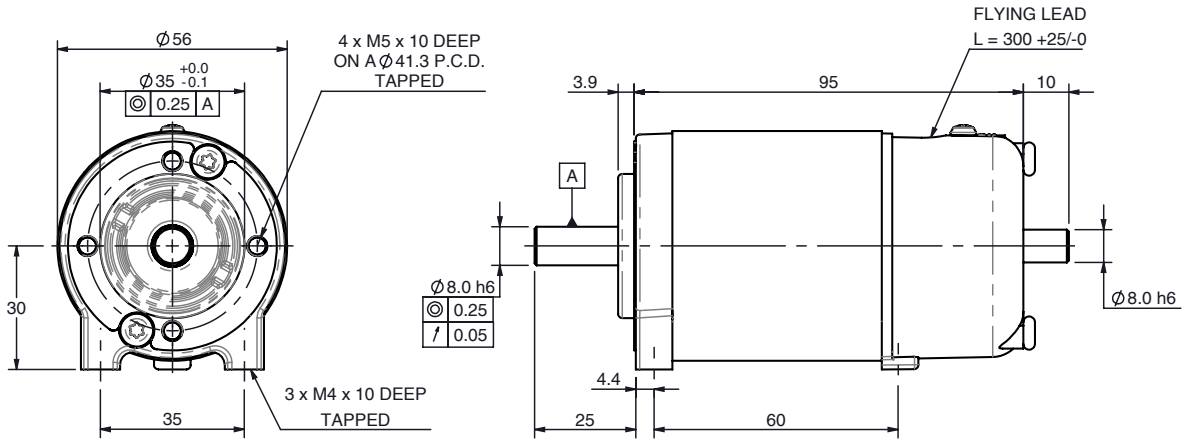
→ Technical data displayed above calculated based on **PM7 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM8 PMDC motor

Ø56 mm frame // 24 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data							
1	Part number		775295	775296	775297	775298	775299	775300
2	Nominal power	W	25	25	25	25	25	25
3	Nominal voltage	V	12	24	40	48	110	220
4	No load speed	rpm	4317	3812	4099	3936	3849	4229
5	No load current	A	0.60	0.20	0.13	0.11	0.05	0.03
6	Nominal speed	rpm	3000	3000	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.078	0.078	0.078	0.078	0.078	0.078
8	Nominal continuous current (S1)	A	3.60	1.90	1.03	0.76	0.34	0.18
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.11	0.11	0.11	0.11	0.11	0.11
10	Stall current	A	19.0	7.9	5.4	4.1	1.3	0.8
11	Stall torque	Nm	0.5	0.5	0.5	0.4	0.3	0.4
12	Stack length	mm	24	24	24	24	24	24
13	Maximum efficiency	%	68	64	65	71	62	70
14	Terminal resistance	Ω	0.5	2.4	4.7	11.7	72.0	171.0
15	Terminal inductance	mH	-	-	-	-	-	-
16	Speed constant	rpm/V	353	151	97	78	34	18
17	Torque constant	Nm/A	0.026	0.060	0.090	0.120	0.260	0.520
18	Speed torque gradient	rpm/Nm	9131	8230	4593	9980	13485	10916
19	Rotor inertia	gcm²	523	523	523	523	523	523

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	110 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	0.6
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
SWS	220
PGx42	248
GB36	231

Brake	Page #
N/A	-

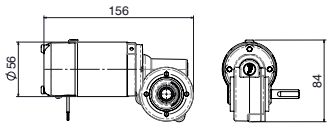
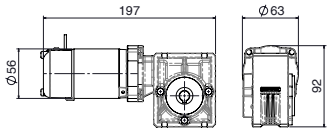
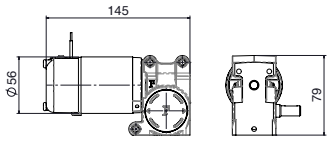
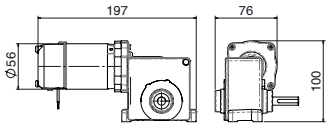
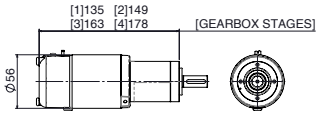
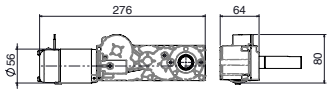
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM8 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM8-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750.0	100.0	42.9	750.0	100.0	42.9
		Nominal torque	Nm	0.2	1.5	2.0	0.2	1.3	1.9
		Intermittent torque	Nm	0.4	2.1	3.1	0.3	1.9	2.7
PM8-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200.0	100.0	50.0
		Nominal torque	Nm	-	-	-	0.9	1.5	2.1
		Intermittent torque	Nm	-	-	-	1.2	2.1	3.0
PM8-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750.0	200.0	120.0	-	-	-
		Nominal torque	Nm	0.3	0.9	1.3	-	-	-
		Intermittent torque	Nm	0.4	1.2	1.9	-	-	-
PM8-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	83.3	14.5	2.2	-	-	-
		Nominal torque	Nm	2.0	11.0	11.0	-	-	-
		Intermittent torque	Nm	2.8	11.0	11.0	-	-	-
PM8-PGx42		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.5 [1]	353 [4]	936 [4]
		Speed	rpm	-	-	-	857.1	8.5	3.2
		Nominal torque	Nm	-	-	-	0.2	11.3	11.3
		Intermittent torque	Nm	-	-	-	0.3	16.9	16.9
PM8-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125.0	25.0	2.1	-	-	-
		Nominal torque	Nm	1.4	6.9	45.0	-	-	-
		Intermittent torque	Nm	2.0	9.8	45.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

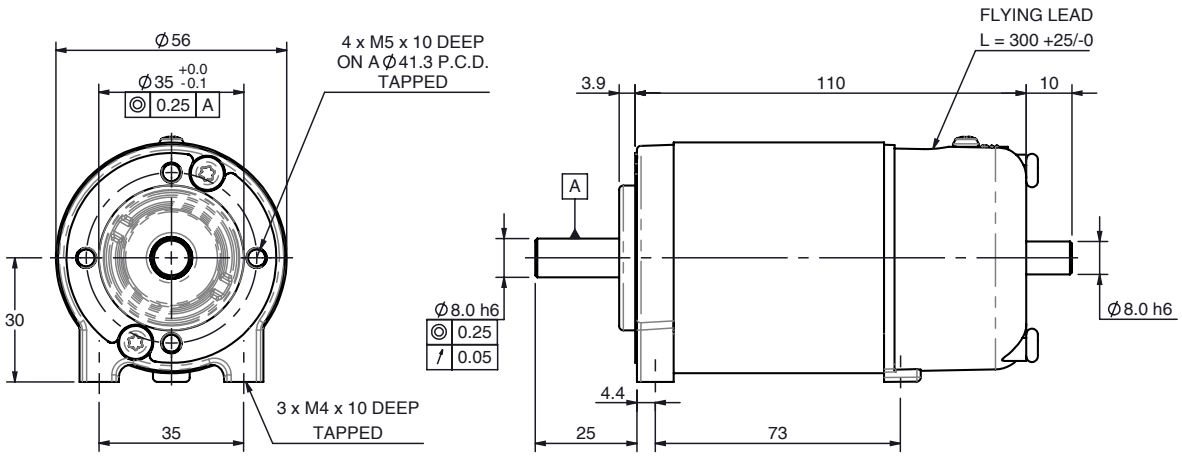
→ Technical data displayed above calculated based on **PM8 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM9 PMDC motor

Ø56 mm frame // 37 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data							
1	Part number		775302	775303	775304	775305	775306	775307
2	Nominal power	W	38	38	38	38	38	38
3	Nominal voltage	V	12	24	40	48	110	220
4	No load speed	rpm	3546	3674	3700	3738	3813	3645
5	No load current	A	0.50	0.20	0.12	0.10	0.10	0.05
6	Nominal speed	rpm	3000	3000	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.12	0.12	0.12	0.12	0.12	0.12
8	Nominal continuous current (S1)	A	4.2	2.1	1.3	1.1	0.5	0.3
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.17	0.17	0.17	0.17	0.17	0.17
10	Stall current	A	18.30	10.30	6.20	5.30	2.44	1.12
11	Stall torque	Nm	0.60	0.63	0.63	0.64	0.63	0.60
12	Stack length	mm	37	37	37	37	37	37
13	Maximum efficiency	%	71	75	75	75	66	66
14	Terminal resistance	Ω	0.7	1.8	6.4	9.0	45.0	197.0
15	Terminal inductance	mH	-	-	-	-	-	-
16	Speed constant	rpm/V	296	148	90	76	35	17
17	Torque constant	Nm/A	0.033	0.063	0.104	0.120	0.270	0.570
18	Speed torque gradient	rpm/Nm	6087	5827	5827	5825	6055	6055
19	Rotor inertia	gcm²	596	596	596	596	596	596

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	110 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	0.7
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
SWS	220
PGx42	248
GB36	231

Brake	Page #
N/A	-

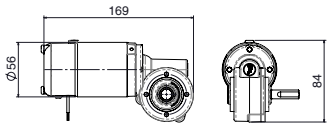
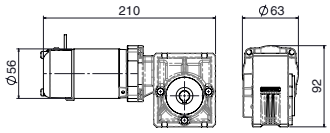
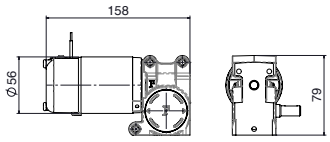
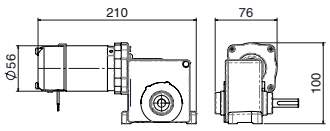
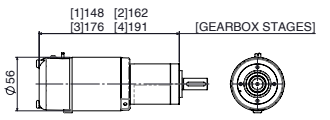
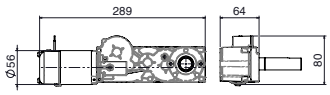
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM9 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM9-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750.0	100.0	42.9	750.0	100.0	42.9
		Nominal torque	Nm	0.4	2.3	2.0	0.3	2.1	2.9
		Intermittent torque	Nm	0.5	3.3	3.2	0.5	2.9	4.2
PM9-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200.0	100.0	50.0
		Nominal torque	Nm	-	-	-	1.4	2.3	3.2
		Intermittent torque	Nm	-	-	-	1.9	3.3	4.6
PM9-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750.0	200.0	120.0	-	-	-
		Nominal torque	Nm	0.4	1.4	2.0	-	-	-
		Intermittent torque	Nm	0.6	1.9	2.9	-	-	-
PM9-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	83.3	14.5	2.2	-	-	-
		Nominal torque	Nm	3.1	11.0	11.0	-	-	-
		Intermittent torque	Nm	4.3	11.0	11.0	-	-	-
PM9-PGx42		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.5 [1]	353 [4]	936 [4]
		Speed	rpm	-	-	-	857.1	8.5	3.2
		Nominal torque	Nm	-	-	-	0.4	11.3	11.3
		Intermittent torque	Nm	-	-	-	0.5	16.9	16.9
PM9-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125.0	25.0	2.1	-	-	-
		Nominal torque	Nm	2.2	10.7	45.0	-	-	-
		Intermittent torque	Nm	3.1	15.1	45.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

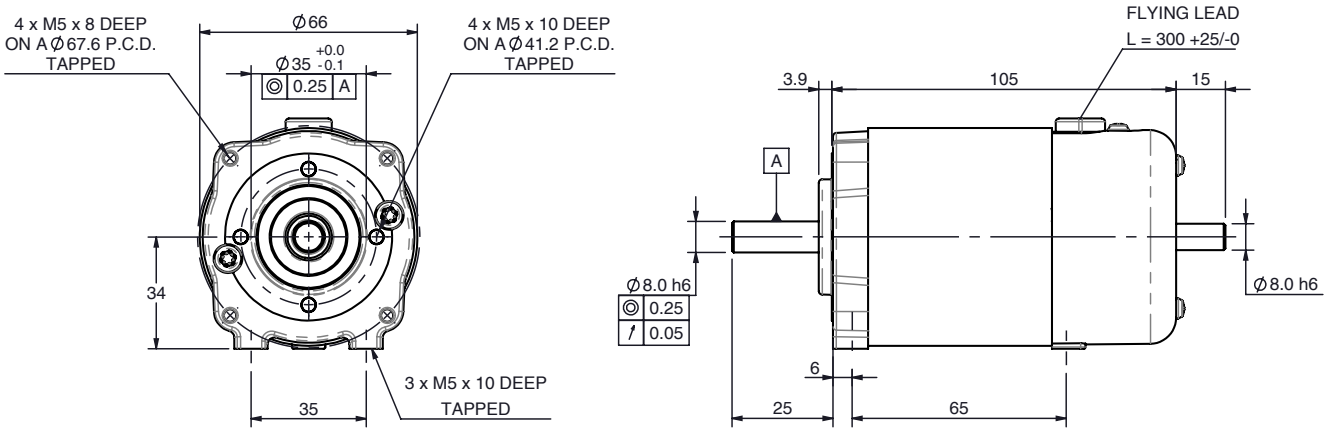
→ Technical data displayed above calculated based on **PM9 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM10 PMDC motor

Ø66 mm frame // 26 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data							
1	Part number		775321	775322	775323	775324	775325	775326
2	Nominal power	W	45	45	45	45	45	45
3	Nominal voltage	V	12	24	40	48	110	220
4	No load speed	rpm	4185	3895	3820	4082	4252	3707
5	No load current	A	0.70	0.34	0.19	0.21	0.07	0.04
6	Nominal speed	rpm	3000	3000	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.14	0.14	0.14	0.14	0.14	0.14
8	Nominal continuous current (S1)	A	6.00	2.60	1.70	1.55	0.64	0.30
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.20	0.20	0.20	0.20	0.20	0.20
10	Stall current	A	32.0	11.0	7.9	6.9	3.3	1.5
11	Stall torque	Nm	0.8	0.7	0.7	0.7	0.8	0.8
12	Stack length	mm	26	26	26	26	26	26
13	Maximum efficiency	%	71	74	67	66	73	69
14	Terminal resistance	Ω	0.3	1.2	5.1	5.6	23.7	116.0
15	Terminal inductance	mH	-	-	-	-	-	-
16	Speed constant	rpm/V	341	154	93	80	35	16
17	Torque constant	Nm/A	0.062	0.062	0.092	0.105	0.240	0.540
18	Speed torque gradient	rpm/Nm	5165	5765	5385	5854	5342	4827
19	Rotor inertia	gcm²	944	944	944	944	944	944

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	1.1
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
GB80	224
MWS	230
GB36	231
LIW	242
PGx52	249
LIS	244
LWS	236

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

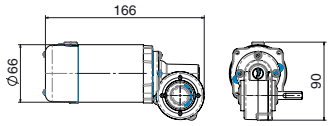
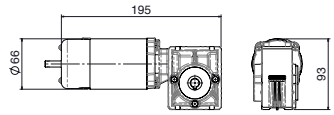
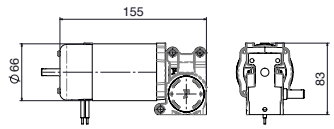
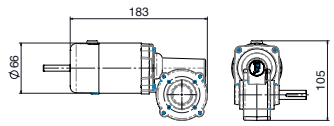
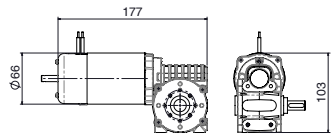
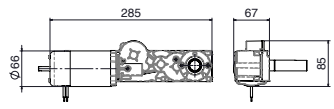
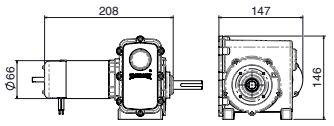
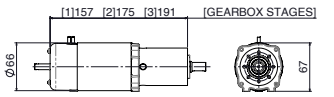
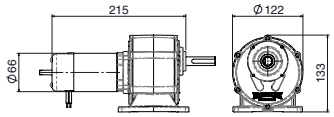
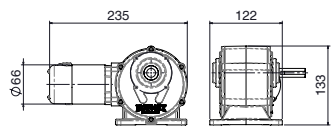
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM10 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM10-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750.0	100.0	42.9	750.0	100.0	42.9
		Nominal torque	Nm	0.4	2.7	2.0	0.4	2.4	3.0
		Intermittent torque	Nm	0.6	3.9	3.2	0.6	3.4	4.8
PM10-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200.0	100.0	50.0
		Nominal torque	Nm	-	-	-	1.6	2.7	3.8
		Intermittent torque	Nm	-	-	-	2.3	3.9	5.4
PM10-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750.0	200.0	120.0	-	-	-
		Nominal torque	Nm	0.5	1.6	2.4	-	-	-
		Intermittent torque	Nm	0.7	2.3	3.4	-	-	-
PM10-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	0.5	2.9	4.6	0.4	2.6	4.0
		Intermittent torque	Nm	0.7	4.2	6.6	0.6	3.7	5.8
PM10-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	0.5	2.9	4.6	-	-	-
		Intermittent torque	Nm	0.7	4.2	6.6	-	-	-
PM10-GB36 *		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125.0	25.0	2.1	-	-	-
		Nominal torque	Nm	2.6	12.4	45.0	-	-	-
		Intermittent torque	Nm	3.6	17.8	45.0	-	-	-
PM10-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	3.7	28.0	28.0	3.7	33.0	45.0
		Intermittent torque	Nm	5.3	28.0	28.0	5.3	45.0	45.0
PM10-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769.2	68.2	17.4
		Nominal torque	Nm	-	-	-	0.5	5.7	21.4
		Intermittent torque	Nm	-	-	-	0.7	8.1	30.6
PM10-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	0.6	5.4	12.4	-	-	-
		Intermittent torque	Nm	0.9	7.7	17.7	-	-	-
PM10-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	48	672	3450
		Speed	rpm	-	-	-	62.5	4.5	0.9
		Nominal torque	Nm	-	-	-	4.6	61.2	100.0
		Intermittent torque	Nm	-	-	-	6.5	87.4	100.0

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

→ Technical data displayed above calculated based on **PM10 220V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

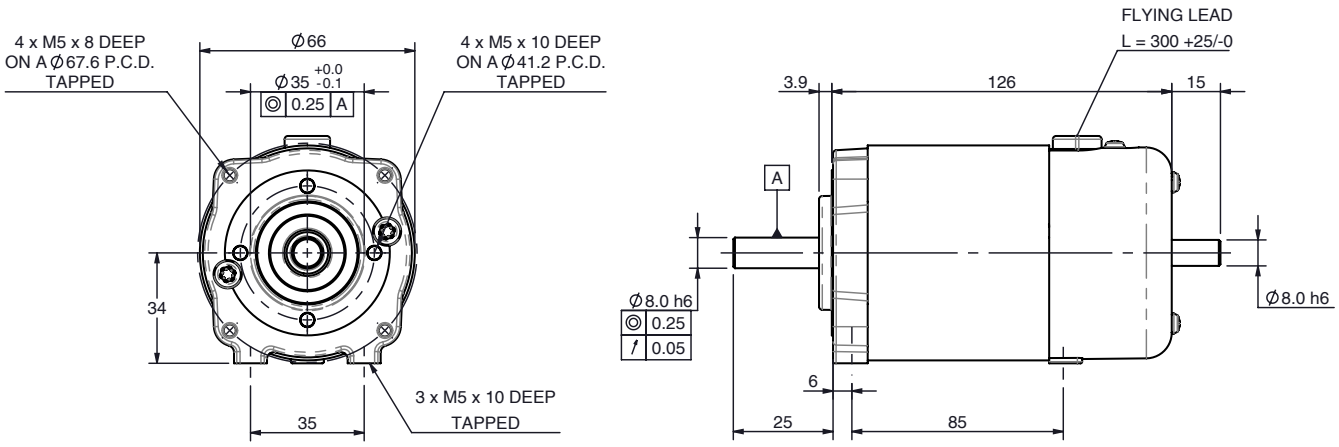
→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

→ *PM10-GB36 will provide the same technical data as the PM10-MWS. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM11 PMDC motor

Ø66 mm frame // 44 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data							
1	Part number		775328	775329	775330	775331	775332	775333
2	Nominal power	W	101	101	101	101	101	101
3	Nominal voltage	V	12	24	40	48	110	220
4	No load speed	rpm	4004	4012	3804	3844	3627	3957
5	No load current	A	0.60	0.40	0.28	0.23	0.12	0.05
6	Nominal speed	rpm	3000	3000	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.32	0.32	0.32	0.32	0.32	0.32
8	Nominal continuous current (S1)	A	12.3	5.6	3.3	1.2	1.2	0.7
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.53	0.53	0.53	0.53	0.53	0.53
10	Stall current	A	47.0	22.0	17.0	14.0	6.4	2.5
11	Stall torque	Nm	1.3	1.3	1.8	1.8	1.9	1.3
12	Stack length	mm	44	44	44	44	44	44
13	Maximum efficiency	%	76	81	82	82	80	74
14	Terminal resistance	Ω	0.1	0.7	2.4	1.2	17.2	50.0
15	Terminal inductance	mH	-	-	-	-	-	-
16	Speed constant	rpm/V	321	162	93	77	33	18
17	Torque constant	Nm/A	0.03	0.06	0.10	0.12	0.30	0.52
18	Speed torque gradient	rpm/Nm	3149	3061	2142	2165	1914	3051
19	Rotor inertia	gcm²	1260	1260	1260	1260	1260	1260

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	1.6
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
GB80	224
MWS	230
GB36	231
LIW	242
PGx52	249
LIS	244
LWS	236

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

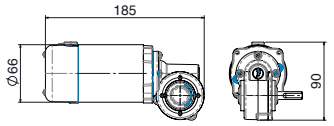
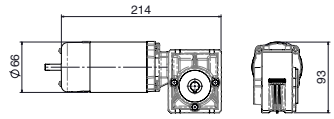
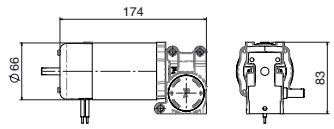
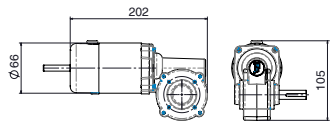
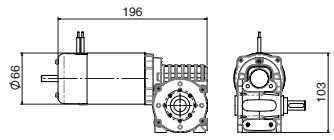
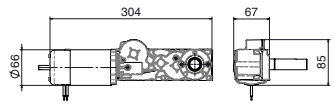
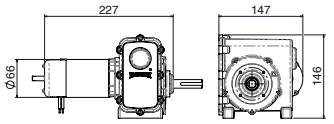
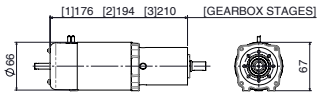
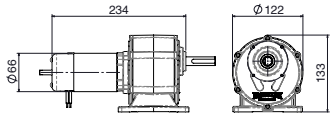
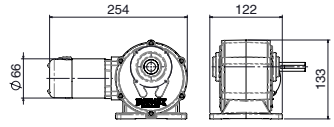
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM11 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM11-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	750.0	100.0	42.9	750.0	100.0	42.9
		Nominal torque	Nm	1.0	3.0	2.0	0.9	4.5	3.0
		Intermittent torque	Nm	1.7	4.8	3.2	1.5	7.2	4.8
PM11-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	200.0	100.0	50.0
		Nominal torque	Nm	-	-	-	3.6	5.0	5.0
		Intermittent torque	Nm	-	-	-	6.0	8.0	8.0
PM11-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	750.0	200.0	120.0	-	-	-
		Nominal torque	Nm	1.1	3.6	4.0	-	-	-
		Intermittent torque	Nm	1.8	6.0	8.0	-	-	-
PM11-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	1.1	6.7	5.0	0.9	5.9	8.0
		Intermittent torque	Nm	1.8	11.1	8.0	1.6	9.7	12.0
PM11-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	1.1	6.7	5.0	-	-	-
		Intermittent torque	Nm	1.8	11.1	8.0	-	-	-
PM11-GB36 *		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	125.0	25.0	2.1	-	-	-
		Nominal torque	Nm	5.8	22.0	45.0	-	-	-
		Intermittent torque	Nm	9.0	22.0	45.0	-	-	-
PM11-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	8.5	28.0	28.0	8.5	45.0	45.0
		Intermittent torque	Nm	14.1	28.0	28.0	14.1	45.0	45.0
PM11-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	769.2	68.2	17.4
		Nominal torque	Nm	-	-	-	1.2	13.0	30.0
		Intermittent torque	Nm	-	-	-	2.0	21.5	45.0
PM11-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	1.5	12.3	28.3	-	-	-
		Intermittent torque	Nm	2.4	20.4	46.9	-	-	-
PM11-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	48	672	3450
		Speed	rpm	-	-	-	62.5	4.5	0.9
		Nominal torque	Nm	-	-	-	10.4	100.0	100.0
		Intermittent torque	Nm	-	-	-	17.3	100.0	100.0

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

→ Technical data displayed above calculated based on **PM10 220V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

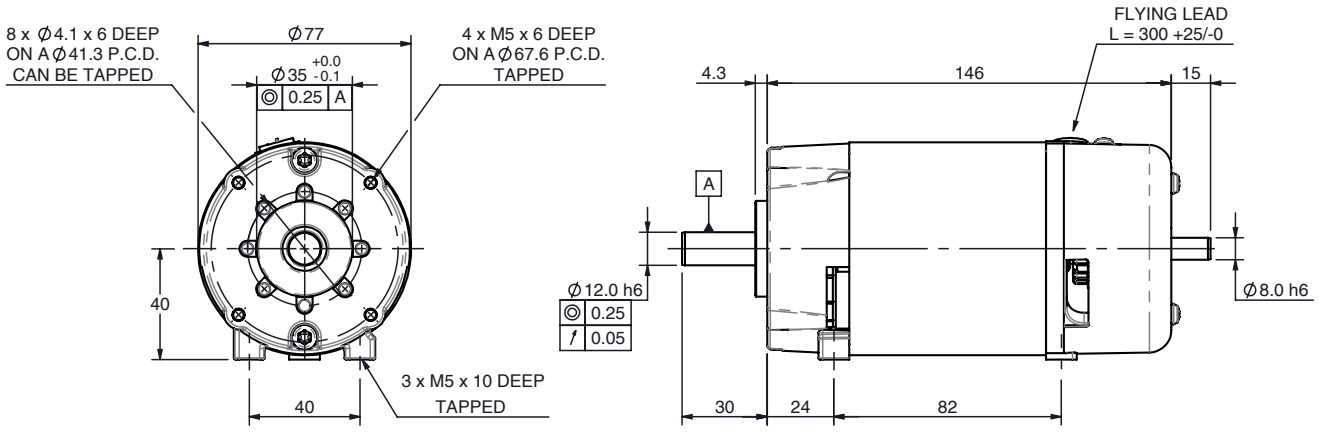
→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

→ *PM11-GB36 will provide the same technical data as the PM11-MWS. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM1 PMDC motor

Ø77 mm frame // 45 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data							
1	Part number		773352	773353	773354	773355	773356	773357
2	Nominal power	W	157	157	157	157	157	157
3	Nominal voltage	V	12	24	40	48	110	220
4	No load speed	rpm	4364	4115	3676	3870	3874	4110
5	No load current	A	1.46	1.08	0.56	0.45	0.26	0.12
6	Nominal speed	rpm	3000	3000	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.5	0.5	0.5	0.5	0.5	0.5
8	Nominal continuous current (S1)	A	22.5	10.5	5.7	4.7	2.3	1.1
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.65	0.65	0.65	0.65	0.65	0.65
10	Stall current	A	72.0	40.3	30.0	24.0	9.4	4.2
11	Stall torque	Nm	1.9	2.1	2.9	2.8	2.3	2.1
12	Stack length	mm	45	45	45	45	45	45
13	Maximum efficiency	%	69	68	71	75	63	71
14	Terminal resistance	Ω	0.2	0.6	1.3	2.0	11.8	52.6
15	Terminal inductance	mH	-	-	-	-	-	-
16	Speed constant	rpm/V	351	175	89	77	35	18
17	Torque constant	Nm/A	0.024	0.053	0.099	0.120	0.250	0.510
18	Speed torque gradient	rpm/Nm	2601	1963	1283	1398	1715	1991
19	Rotor inertia	gcm²	1260	1260	1260	1260	1260	1260

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	2.1
24	IP rating		IP21
25	Enclosure		Ventilated
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

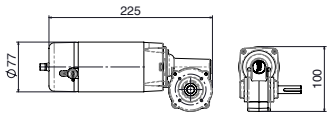
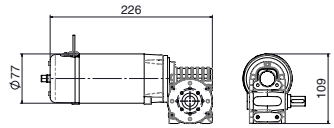
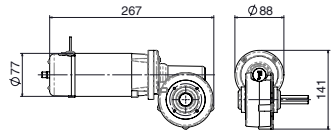
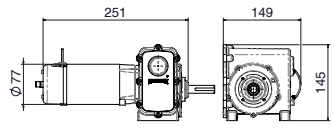
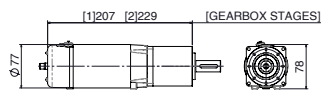
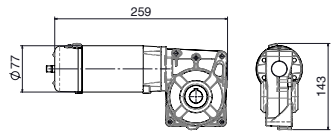
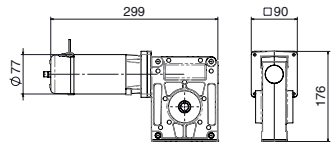
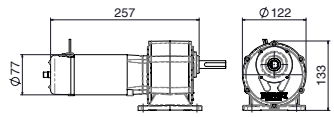
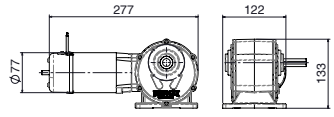
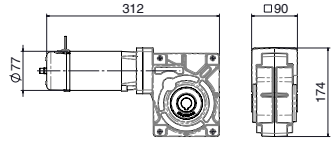
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM1 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM1-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	1.7	8.0	5.0	1.5	9.2	8.0
		Intermittent torque	Nm	2.2	13.0	8.0	1.9	11.9	12.0
PM1-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	1.7	8.0	5.0	-	-	-
		Intermittent torque	Nm	2.2	13.0	8.0	-	-	-
PM1-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1						
		Speed	rpm						
		Nominal torque	Nm						
		Intermittent torque	Nm						
PM1-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	13.3	28.0	28.0	13.3	45.0	45.0
		Intermittent torque	Nm	17.3	28.0	28.0	17.3	45.0	45.0
PM1-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	1.9	9.7	20.2
		Intermittent torque	Nm	-	-	-	2.4	12.6	26.3
PM1-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	5.3	10.8	18.0	5.0	9.8	16.9
		Intermittent torque	Nm	6.9	14.0	24.4	6.5	12.7	21.9
PM1-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	5.6	11.3	18.8	5.3	10.5	16.9
		Intermittent torque	Nm	7.3	14.6	24.4	6.9	13.7	21.9
PM1-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	2.3	19.3	44.3	-	-	-
		Intermittent torque	Nm	3.0	25.0	57.6	-	-	-
PM1-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	16.3	100.0	100.0	-	-	-
		Intermittent torque	Nm	21.2	100.0	100.0	-	-	-
PM1-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	8.1	28.0	34.4
		Intermittent torque	Nm	-	-	-	10.5	36.4	44.7

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

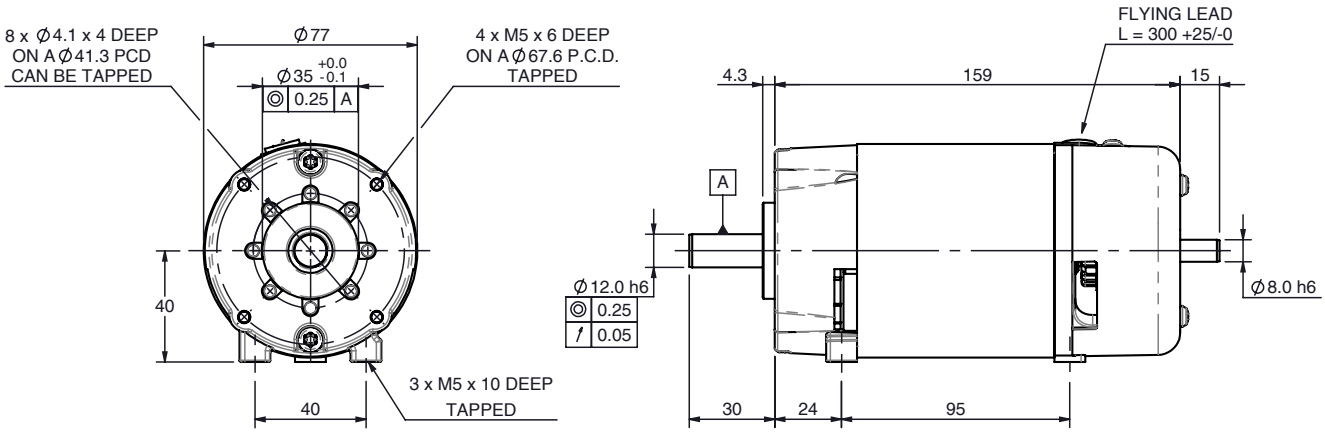
→ Technical data displayed above calculated based on **PM1 220V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM2 PMDC motor

Ø77 mm frame // 57 mm stack

all dimensions in mm



Part number key		
Modular	######	**Please see our customisation options page for details on the modifications available on our products.**
Standard	######	Advice and guidance on these options are available from your local sales engineer.
Calculated data	######	

Technical data							
1 Part number		773842	773843	773844	773845	773846	773847
2 Nominal power	**W**	182	182	182	182	182	182
3 Nominal voltage	**V**	12	24	40	48	110	220
4 No load speed	**rpm**	4436	3850	3697	4117	3856	4011
5 No load current	**A**	1.90	1.28	0.55	0.70	0.18	0.11
6 Nominal speed	**rpm**	3000	3000	3000	3000	3000	3000
7 Nominal continuous torque (S1)	**Nm**	0.58	0.58	0.58	0.58	0.58	0.58
8 Nominal continuous current (S1)	**A**	23.5	11.3	6.5	5.9	2.5	1.3
9 Max. intermittent torque (S2 - 15 minutes)	**Nm**	0.68	0.75	0.75	0.75	0.75	0.75
10 Stall current	**A**	63.4	44.3	33.4	20.0	10.4	5.2
11 Stall torque	**Nm**	1.7	2.5	3.2	2.1	2.6	2.6
12 Stack length	**mm**	57	57	57	57	57	57
13 Maximum efficiency	**%**	73	69	73	68	72	72
14 Terminal resistance	**Ω**	0.2	0.5	1.2	2.4	10.4	42.0
15 Terminal inductance	**mH**	-	-	-	-	-	-
16 Speed constant	**rpm/V**	343	161	90	86	35	17
17 Torque constant	**Nm/A**	0.03	0.06	0.01	0.11	0.25	0.51
18 Speed torque gradient	**rpm/Nm**	2695	1539	1143	1916	1470	1528
19 Rotor inertia	**gcm²**	2830	2830	2830	2830	2830	2830

Thermal data		
20 Ambient temperature	**°C**	40

Mechanical data		
21 Radial load [distance from flange]	**N [mm]**	200 [15]

Other data		
22 Number of poles		2
23 Weight	**Kg**	2.5
24 IP rating		IP21
25 Enclosure		Ventilated
26 Insulation Class		F
27 Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

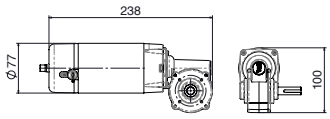
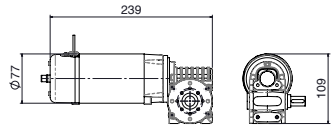
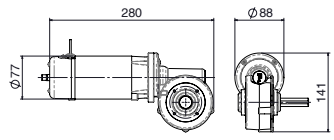
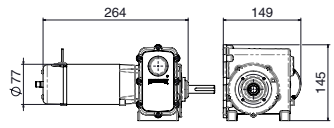
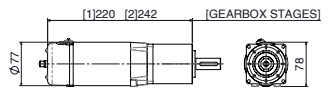
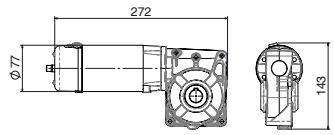
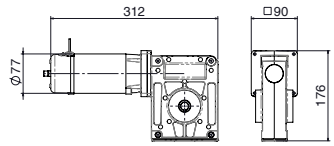
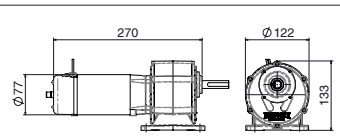
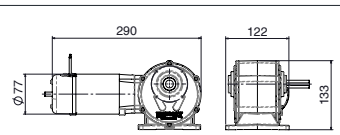
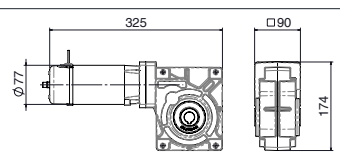
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM2 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM2-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	2.0	8.0	5.0	1.7	10.6	8.0
		Intermittent torque	Nm	2.6	13.0	8.0	2.2	13.7	12.0
PM2-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	2.0	8.0	5.0	-	-	-
		Intermittent torque	Nm	2.6	13.0	8.0	-	-	-
PM2-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1						
		Speed	rpm						
		Nominal torque	Nm						
		Intermittent torque	Nm						
PM2-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	15.5	28.0	28.0	15.5	45.0	45.0
		Intermittent torque	Nm	20.0	28.0	28.0	20.0	45.0	45.0
PM2-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	2.1	11.2	23.5
		Intermittent torque	Nm	-	-	-	2.8	14.5	30.4
PM2-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	6.2	12.5	18.0	5.8	11.3	19.6
		Intermittent torque	Nm	8.0	16.2	28.1	7.5	14.6	25.3
PM2-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	6.5	13.1	21.8	6.2	12.2	19.6
		Intermittent torque	Nm	8.4	16.9	28.1	8.0	15.8	25.3
PM2-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	2.7	22.3	51.4	-	-	-
		Intermittent torque	Nm	3.5	28.9	66.4	-	-	-
PM2-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	18.9	100.0	100.0	-	-	-
		Intermittent torque	Nm	24.5	100.0	100.0	-	-	-
PM2-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	9.4	32.5	39.9
		Intermittent torque	Nm	-	-	-	12.2	42.0	51.6

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

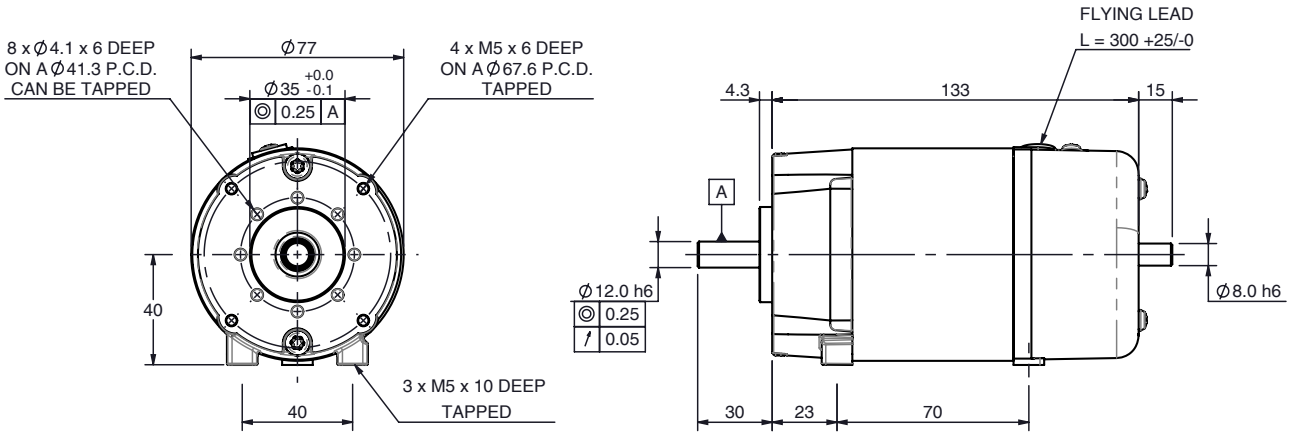
→ Technical data displayed above calculated based on **PM2 220V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM3 PMDC motor

Ø77 mm frame // 45 mm stack

all dimensions in mm



Part number key		
Modular	######	**Please see our customisation options page for details on the modifications available on our products.** Advice and guidance on these options are available from your local sales engineer.
Standard	######	
Calculated data	######	

Technical data							
1 Part number		774305	774306	774307	774308	774309	774310
2 Nominal power	**W**	119	119	119	119	119	119
3 Nominal voltage	**V**	12	24	40	48	110	220
4 No load speed	**rpm**	4364	4115	3676	3870	3874	4110
5 No load current	**A**	1.46	1.08	0.56	0.45	0.26	0.12
6 Nominal speed	**rpm**	3000	3000	3000	3000	3000	3000
7 Nominal continuous torque (S1)	**Nm**	0.38	0.38	0.38	0.38	0.38	0.38
8 Nominal continuous current (S1)	**A**	17.5	8.2	4.4	3.7	1.8	0.9
9 Max. intermittent torque (S2 - 15 minutes)	**Nm**	0.50	0.50	0.50	0.50	0.50	0.50
10 Stall current	**A**	72.0	40.3	30.0	24.0	9.4	4.2
11 Stall torque	**Nm**	1.9	2.1	2.9	2.8	2.3	2.1
12 Stack length	**mm**	45	45	45	45	45	45
13 Maximum efficiency	**%**	69	68	71	75	63	71
14 Terminal resistance	**Ω**	0.2	0.6	1.3	2.0	11.8	52.6
15 Terminal inductance	**mH**	-	-	-	-	-	-
16 Speed constant	**rpm/V**	351	175	89	77	35	18
17 Torque constant	**Nm/A**	0.024	0.053	0.099	0.120	0.250	0.510
18 Speed torque gradient	**rpm/Nm**	2601	1963	1283	1398	1715	1991
19 Rotor inertia	**gcm²**	1260	1260	1260	1260	1260	1260

Thermal data		
20 Ambient temperature	**°C**	40

Mechanical data		
21 Radial load [distance from flange]	**N [mm]**	200 [15]

Other data		
22 Number of poles		2
23 Weight	**Kg**	2.1
24 IP rating		IP54
25 Enclosure		Enclosed
26 Insulation Class		F
27 Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

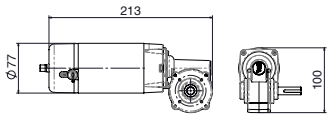
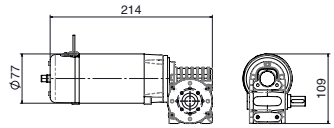
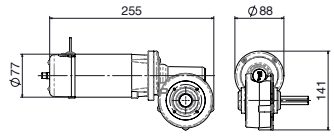
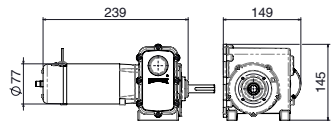
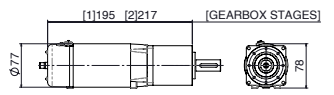
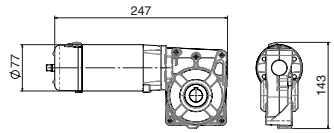
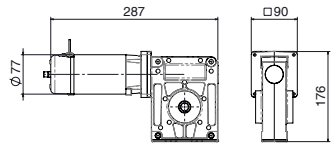
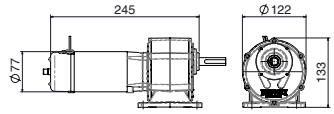
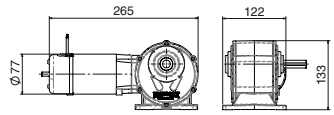
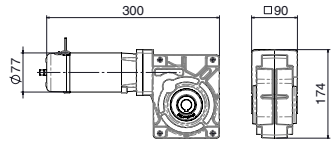
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Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM3 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM3-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	1.3	8.0	5.0	1.1	7.0	8.0
		Intermittent torque	Nm	1.7	10.5	8.0	1.5	9.2	12.0
PM3-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	1.3	8.0	5.0	-	-	-
		Intermittent torque	Nm	1.7	10.5	8.0	-	-	-
PM3-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1						
		Speed	rpm						
		Nominal torque	Nm						
		Intermittent torque	Nm						
PM3-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	10.1	28.0	28.0	10.1	45.0	45.0
		Intermittent torque	Nm	13.3	28.0	28.0	13.3	45.0	45.0
PM3-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	1.4	7.3	15.4
		Intermittent torque	Nm	-	-	-	1.9	9.7	20.2
PM3-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	4.0	8.2	14.3	3.8	7.4	12.8
		Intermittent torque	Nm	5.3	10.8	18.8	5.0	9.8	16.9
PM3-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	4.3	8.6	14.3	4.0	8.0	12.8
		Intermittent torque	Nm	5.6	11.3	18.8	5.3	10.5	16.9
PM3-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	1.8	14.6	33.6	-	-	-
		Intermittent torque	Nm	2.3	19.3	44.3	-	-	-
PM3-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	12.4	100.0	100.0	-	-	-
		Intermittent torque	Nm	16.3	100.0	100.0	-	-	-
PM3-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	6.2	21.3	26.1
		Intermittent torque	Nm	-	-	-	8.1	28.0	34.4

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

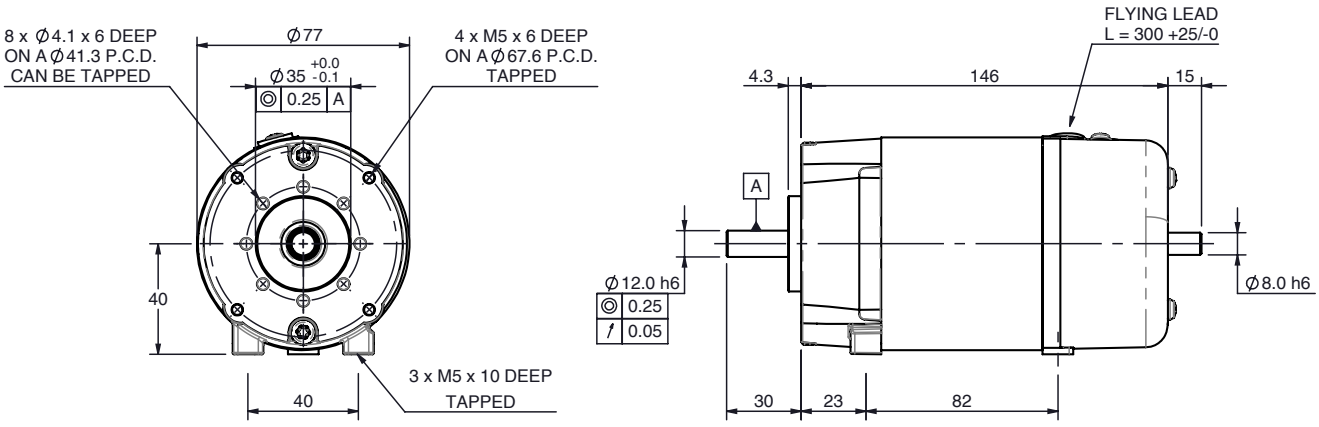
→ Technical data displayed above calculated based on **PM3 220V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM4 PMDC motor

Ø77 mm frame // 57 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data							
1	Part number		774710	774711	774712	774713	774714	774715
2	Nominal power	W	141	141	141	141	141	141
3	Nominal voltage	V	12	24	40	48	110	220
4	No load speed	rpm	4436	3850	3697	4117	3856	4011
5	No load current	A	1.90	1.28	0.55	0.70	0.18	0.11
6	Nominal speed	rpm	3000	3000	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.45	0.45	0.45	0.45	0.45	0.45
8	Nominal continuous current (S1)	A	18.6	9.1	5.1	4.7	2.0	1.0
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.58	0.58	0.58	0.58	0.58	0.58
10	Stall current	A	63.4	44.3	33.4	20.0	10.4	5.2
11	Stall torque	Nm	1.7	2.5	3.2	2.1	2.6	2.6
12	Stack length	mm	57	57	57	57	57	57
13	Maximum efficiency	%	73	69	73	68	72	72
14	Terminal resistance	Ω	0.2	0.5	1.2	2.4	10.4	42.0
15	Terminal inductance	mH	-	-	-	-	-	-
16	Speed constant	rpm/V	343	161	90	86	35	17
17	Torque constant	Nm/A	0.027	0.058	0.098	0.110	0.250	0.510
18	Speed torque gradient	rpm/Nm	2695	1539	1143	1916	1470	1528
19	Rotor inertia	gcm²	2830	2830	2830	2830	2830	2830

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	2.5
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

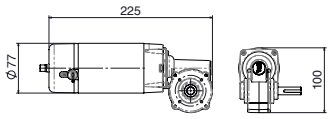
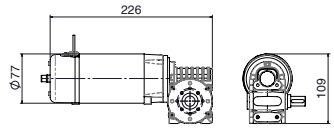
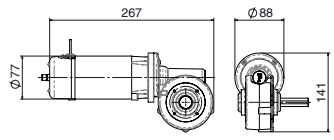
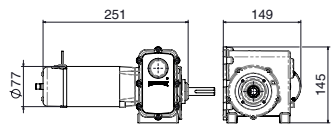
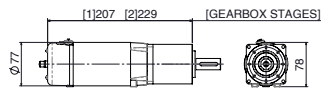
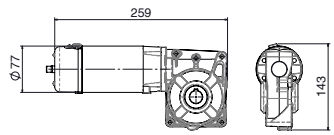
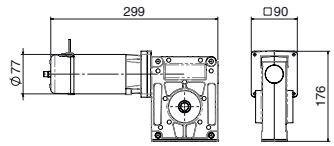
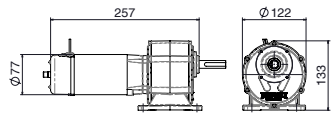
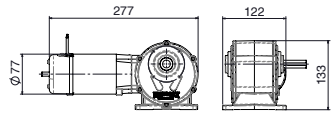
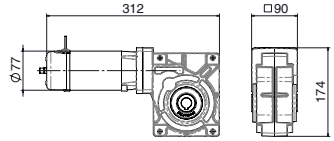
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM4 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM4-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	1.5	8.0	5.0	1.3	8.2	8.0
		Intermittent torque	Nm	2.0	12.2	8.0	1.7	10.6	12.0
PM4-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	1.5	8.0	5.0	-	-	-
		Intermittent torque	Nm	2.0	12.2	8.0	-	-	-
PM4-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1						
		Speed	rpm						
		Nominal torque	Nm						
		Intermittent torque	Nm						
PM4-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	12.0	28.0	28.0	12.0	45.0	45.0
		Intermittent torque	Nm	15.5	28.0	28.0	15.5	45.0	45.0
PM4-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	1.7	8.7	18.2
		Intermittent torque	Nm	-	-	-	2.1	11.2	23.5
PM4-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	4.8	9.7	16.9	4.5	8.8	15.2
		Intermittent torque	Nm	6.2	12.5	21.8	5.8	11.3	19.6
PM4-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	5.1	10.1	16.9	4.8	9.5	15.2
		Intermittent torque	Nm	6.5	13.1	21.8	6.2	12.2	19.6
PM4-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	2.1	17.3	39.8	-	-	-
		Intermittent torque	Nm	2.7	22.3	51.4	-	-	-
PM4-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	14.7	100.0	100.0	-	-	-
		Intermittent torque	Nm	18.9	100.0	100.0	-	-	-
PM4-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	7.3	25.2	31.0
		Intermittent torque	Nm	-	-	-	9.4	32.5	39.9

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

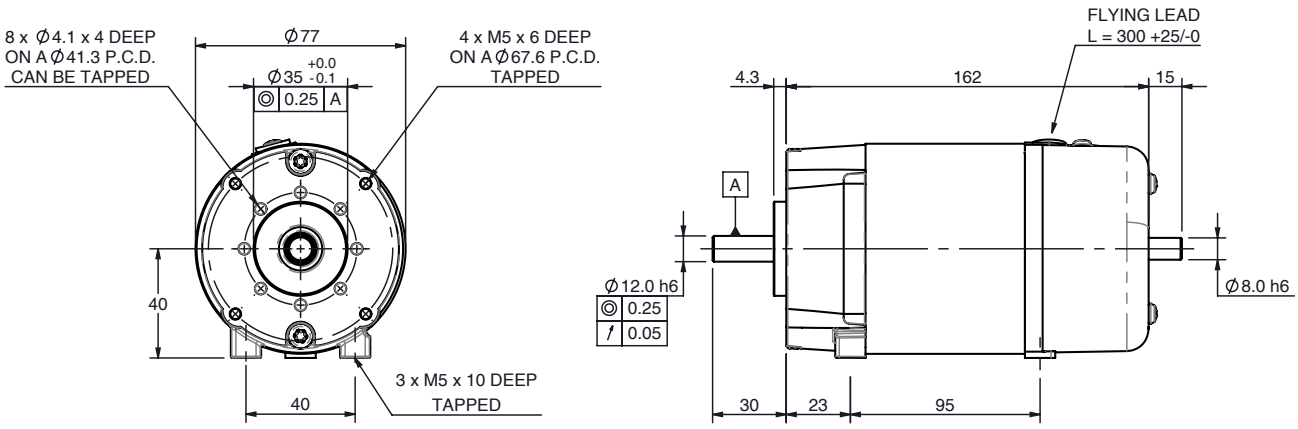
→ Technical data displayed above calculated based on **PM4 220V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM5 PMDC motor

Ø77 mm frame // 69 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Technical data							
1 Part number		774940	774941	774942	774943	774944	774945
2 Nominal power	W	170	170	170	170	170	170
3 Nominal voltage	V	12	24	40	48	110	220
4 No load speed	rpm	3602	3869	3789	3748	3511	3726
5 No load current	A	1.80	1.31	0.41	0.77	0.29	0.11
6 Nominal speed	rpm	3000	3000	3000	3000	3000	3000
7 Nominal continuous torque (S1)	Nm	0.54	0.54	0.54	0.54	0.54	0.54
8 Nominal continuous current (S1)	A	18.3	10.6	5.6	4.9	2.1	1.1
9 Max. intermittent torque (S2 - 15 minutes)	Nm	0.70	0.70	0.70	0.70	0.70	0.70
10 Stall current	A	66.0	53.4	36.0	26.0	12.3	1.1
11 Stall torque	Nm	2.1	3.0	3.6	3.3	3.6	3.3
12 Stack length	mm	69	69	69	69	69	69
13 Maximum efficiency	%	73	71	81	75	73	74
14 Terminal resistance	Ω	0.18	0.45	1.13	1.85	8.97	36.00
15 Terminal inductance	mH	-	-	-	-	-	-
16 Speed constant	rpm/V	301	156	91	78	32	16
17 Torque constant	Nm/A	0.033	0.058	0.100	0.130	0.300	0.550
18 Speed torque gradient	rpm/Nm	1723	1284	1048	1146	975	1136
19 Rotor inertia	gcm²	3250	3250	3250	3250	3250	3250

Thermal data		
20 Ambient temperature	°C	40

Mechanical data		
21 Radial load [distance from flange]	N [mm]	200 [15]

Other data		
22 Number of poles		2
23 Weight	Kg	2.7
24 IP rating		IP54
25 Enclosure		Enclosed
26 Insulation Class		F
27 Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

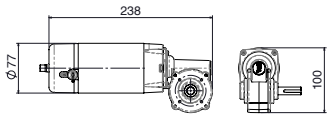
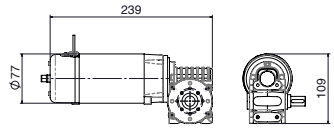
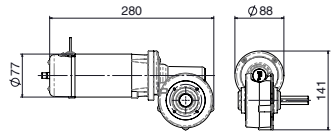
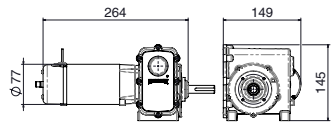
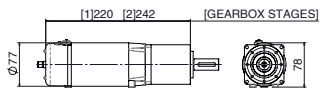
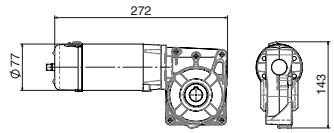
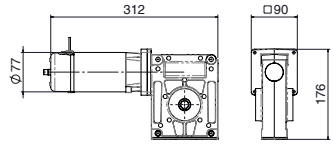
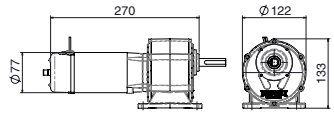
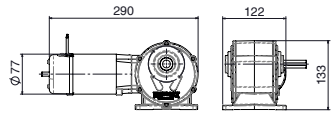
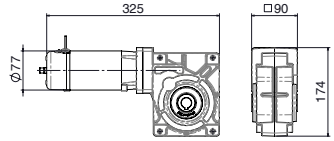
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM5 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM5-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	1.8	8.0	5.0	1.6	9.9	8.0
		Intermittent torque	Nm	2.4	13.0	8.0	2.1	12.8	12.0
PM5-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	1.8	8.0	5.0	-	-	-
		Intermittent torque	Nm	2.4	13.0	8.0	-	-	-
PM5-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1						
		Speed	rpm						
		Nominal torque	Nm						
		Intermittent torque	Nm						
PM5-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	14.4	28.0	28.0	14.4	45.0	45.0
		Intermittent torque	Nm	18.6	28.0	28.0	18.6	45.0	45.0
PM5-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	2.0	10.4	21.9
		Intermittent torque	Nm	-	-	-	2.6	13.5	28.3
PM5-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	5.7	11.7	18.0	5.4	10.5	18.2
		Intermittent torque	Nm	7.4	15.1	26.3	7.0	13.7	23.6
PM5-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	6.1	12.2	20.3	5.7	11.3	18.2
		Intermittent torque	Nm	7.9	15.8	26.3	7.4	14.7	23.6
PM5-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	2.5	20.8	47.8	-	-	-
		Intermittent torque	Nm	3.2	27.0	62.0	-	-	-
PM5-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	17.6	100.0	100.0	-	-	-
		Intermittent torque	Nm	22.8	100.0	100.0	-	-	-
PM5-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	8.7	30.2	37.2
		Intermittent torque	Nm	-	-	-	11.3	39.2	48.2

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

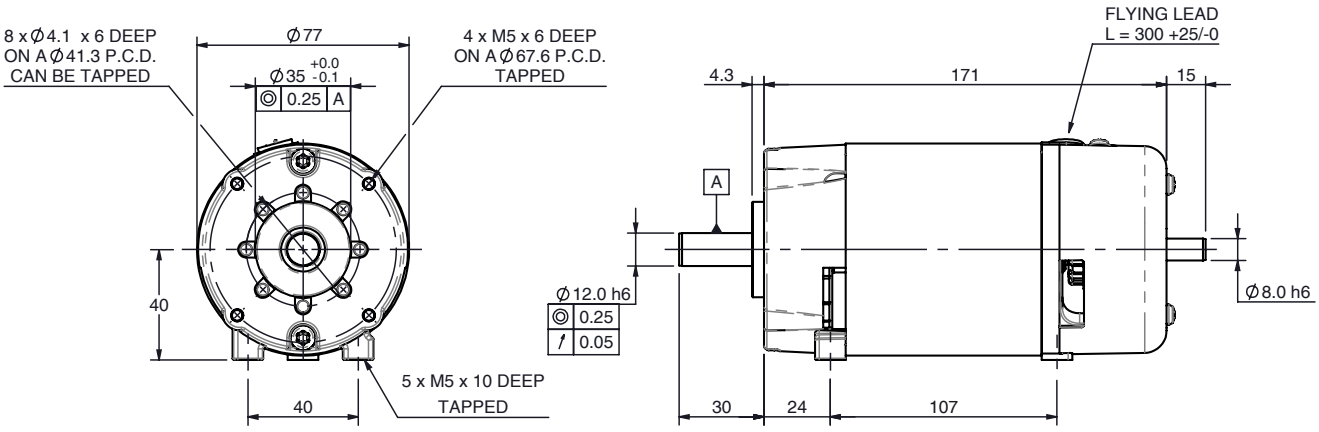
→ Technical data displayed above calculated based on **PM5 220V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM6 PMDC motor

Ø77 mm frame // 69 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Technical data							
1 Part number		775121	775122	775123	775124	775125	775126
2 Nominal power	W	220	220	220	220	220	220
3 Nominal voltage	V	12	24	40	48	110	220
4 No load speed	rpm	4322	3869	3789	3748	3511	3726
5 No load current	A	2.20	1.31	0.41	0.77	0.29	0.11
6 Nominal speed	rpm	3000	3000	3000	3000	3000	3000
7 Nominal continuous torque (S1)	Nm	0.7	0.7	0.7	0.7	0.7	0.7
8 Nominal continuous current (S1)	A	27.8	13.4	7.2	6.2	2.6	1.4
9 Max. intermittent torque (S2 - 15 minutes)	Nm	0.9	0.9	0.9	0.9	0.9	0.9
10 Stall current	A	94.0	53.4	36.0	26.0	12.3	1.1
11 Stall torque	Nm	2.5	3.0	3.6	3.3	3.6	3.3
12 Stack length	mm	69	69	69	69	69	69
13 Maximum efficiency	%	75	71	81	75	73	74
14 Terminal resistance	Ω	0.13	0.45	1.13	1.85	8.97	36.00
15 Terminal inductance	mH	-	-	-	-	-	-
16 Speed constant	rpm/V	359	156	91	78	32	16
17 Torque constant	Nm/A	0.027	0.058	0.100	0.130	0.300	0.550
18 Speed torque gradient	rpm/Nm	1723	1284	1048	1146	975	1136
19 Rotor inertia	gcm²	3250	3250	3250	3250	3250	3250

Thermal data		
20 Ambient temperature	°C	40

Mechanical data		
21 Radial load [distance from flange]	N [mm]	200 [15]

Other data		
22 Number of poles		2
23 Weight	Kg	2.7
24 IP rating		IP21
25 Enclosure		Ventilated
26 Insulation Class		F
27 Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

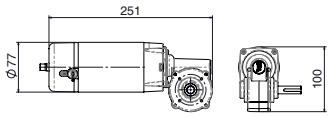
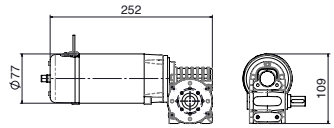
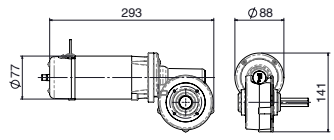
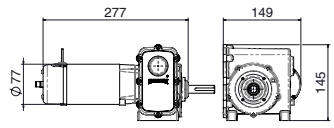
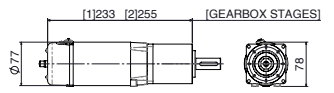
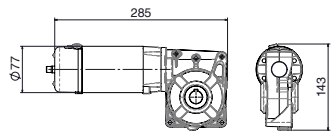
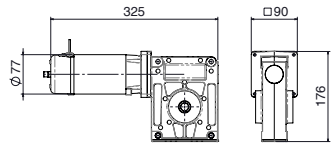
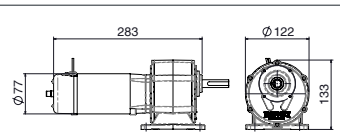
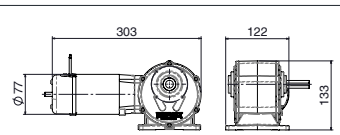
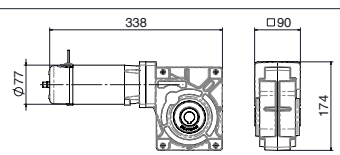
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM6 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM6-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	2.4	8.0	5.0	2.1	12.0	8.0
		Intermittent torque	Nm	3.1	13.0	8.0	2.7	16.5	12.0
PM6-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	2.4	8.0	5.0	-	-	-
		Intermittent torque	Nm	3.1	13.0	8.0	-	-	-
PM6-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1						
		Speed	rpm						
		Nominal torque	Nm						
		Intermittent torque	Nm						
PM6-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	18.6	28.0	28.0	18.6	45.0	45.0
		Intermittent torque	Nm	24.0	28.0	28.0	24.0	45.0	45.0
PM6-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	2.6	13.5	28.3
		Intermittent torque	Nm	-	-	-	3.3	17.4	36.4
PM6-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	7.4	15.1	18.0	7.0	13.7	23.6
		Intermittent torque	Nm	9.6	19.4	29.0	9.0	17.6	30.4
PM6-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	7.9	15.8	26.3	7.4	14.7	23.6
		Intermittent torque	Nm	10.1	20.3	33.8	9.6	18.9	30.4
PM6-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	3.2	27.0	62.0	-	-	-
		Intermittent torque	Nm	4.2	34.7	79.7	-	-	-
PM6-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	22.8	100.0	100.0	-	-	-
		Intermittent torque	Nm	29.4	100.0	100.0	-	-	-
PM6-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	11.3	39.2	48.2
		Intermittent torque	Nm	-	-	-	14.6	50.4	61.9

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

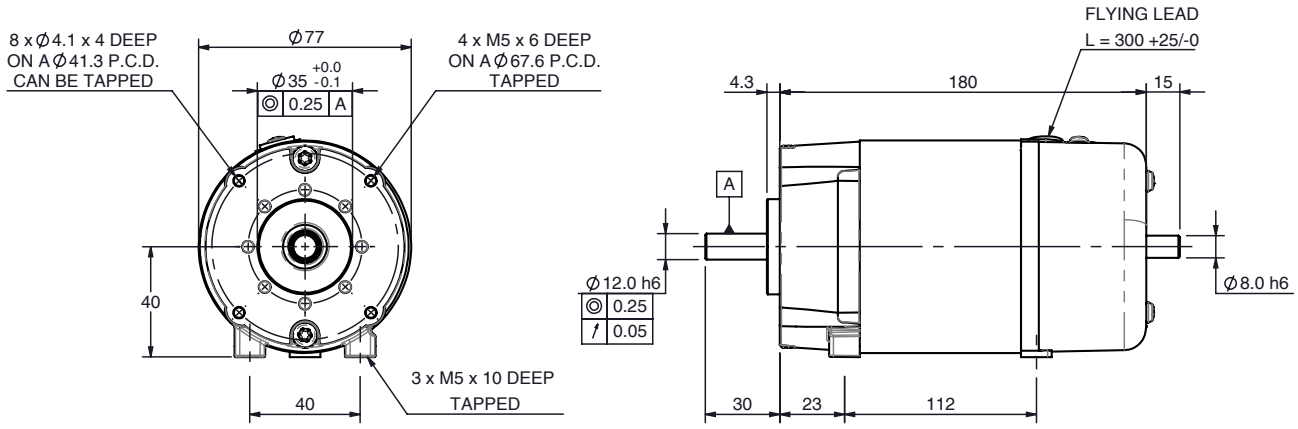
→ Technical data displayed above calculated based on **PM6 220V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM50 PMDC motor

Ø77 mm frame // 81 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Technical data							
1 Part number		775158	775159	775160	775161	775162	775163
2 Nominal power	W	210	210	210	210	210	210
3 Nominal voltage	V	12	24	40	48	110	220
4 No load speed	rpm	3559	3865	3748	3641	3668	3797
5 No load current	A	2.30	1.30	0.65	0.52	0.27	0.14
6 Nominal speed	rpm	3000	3000	3000	3000	3000	3000
7 Nominal continuous torque (S1)	Nm	0.67	0.67	0.67	0.67	0.67	0.67
8 Nominal continuous current (S1)	A	22.5	12.3	7.6	6.2	2.5	1.3
9 Max. intermittent torque (S2 - 15 minutes)	Nm	1.17	1.17	1.17	1.17	1.17	1.17
10 Stall current	A	101.0	80.0	51.0	40.4	19.0	8.6
11 Stall torque	Nm	3.3	4.8	4.8	4.7	5.5	4.8
12 Stack length	mm	81	81	81	81	81	81
13 Maximum efficiency	%	74	79	75	75	81	79
14 Terminal resistance	Ω	0.12	0.30	0.78	1.19	5.85	25.50
15 Terminal inductance	mH	-	-	-	-	-	-
16 Speed constant	rpm/V	296	156	88	71	33	17
17 Torque constant	Nm/A	0.336	0.060	0.090	0.120	0.290	0.570
18 Speed torque gradient	rpm/Nm	1079	809	777	777	666	797
19 Rotor inertia	gcm²	4600	4600	4600	4600	4600	4600

Thermal data		
20 Ambient temperature	°C	40

Mechanical data		
21 Radial load [distance from flange]	N [mm]	200 [15]

Other data		
22 Number of poles		2
23 Weight	Kg	2.9
24 IP rating		IP54
25 Enclosure		Enclosed
26 Insulation Class		F
27 Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

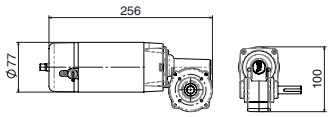
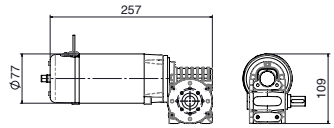
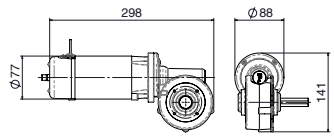
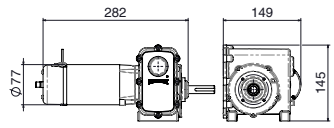
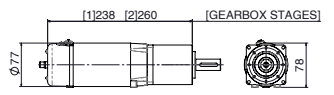
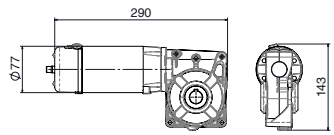
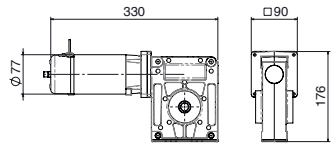
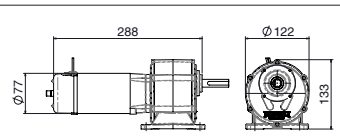
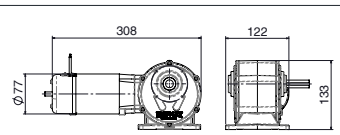
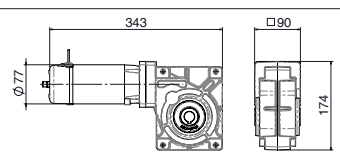
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM50 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM50-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	2.3	8.0	5.0	2.0	12.0	8.0
		Intermittent torque	Nm	4.0	13.0	8.0	3.5	19.0	12.0
PM50-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	2.3	8.0	5.0	-	-	-
		Intermittent torque	Nm	4.0	13.0	8.0	-	-	-
PM50-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1						
		Speed	rpm						
		Nominal torque	Nm						
		Intermittent torque	Nm						
PM50-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	17.8	28.0	28.0	17.8	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	31.2	45.0	45.0
PM50-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	2.5	12.9	27.1
		Intermittent torque	Nm	-	-	-	4.3	22.6	37.5
PM50-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	7.1	14.5	18.0	6.7	13.1	22.6
		Intermittent torque	Nm	12.4	25.3	29.0	11.7	22.8	39.5
PM50-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	7.5	15.1	25.1	7.1	14.1	22.6
		Intermittent torque	Nm	13.2	26.3	43.9	12.4	24.6	39.5
PM50-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	3.1	25.8	59.3	-	-	-
		Intermittent torque	Nm	5.4	45.0	100.0	-	-	-
PM50-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	21.9	100.0	100.0	-	-	-
		Intermittent torque	Nm	38.2	100.0	100.0	-	-	-
PM50-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	10.9	37.5	46.1
		Intermittent torque	Nm	-	-	-	19.0	65.5	80.5

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

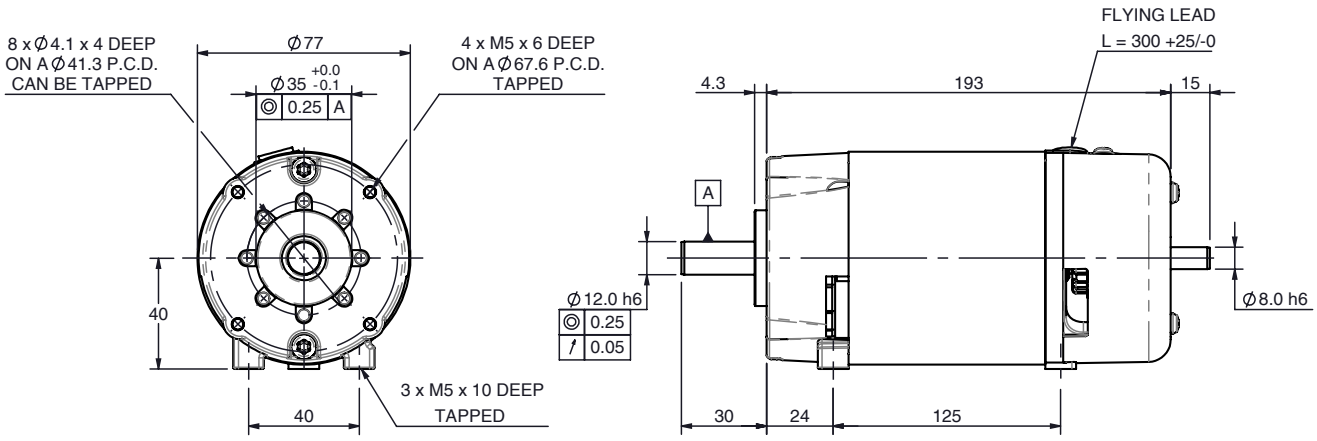
→ Technical data displayed above calculated based on **PM50 220V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM60 PMDC motor

Ø77 mm frame // 81 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Technical data							
1 Part number		775166	775167	775168	775169	775170	775171
2 Nominal power	W	273	273	273	273	273	273
3 Nominal voltage	V	12	24	40	48	110	220
4 No load speed	rpm	3562	3638	3846	3564	4091	3983
5 No load current	A	2.50	1.20	0.59	0.77	0.35	0.13
6 Nominal speed	rpm	3000	3000	3000	3000	3000	3000
7 Nominal continuous torque (S1)	Nm	0.87	0.87	0.87	0.87	0.87	0.87
8 Nominal continuous current (S1)	A	28.5	14.8	9.4	8.0	3.6	1.8
9 Max. intermittent torque (S2 - 15 minutes)	Nm	1.15	1.15	1.15	1.15	1.15	1.15
10 Stall current	A	112.0	76.0	54.0	55.0	17.4	8.7
11 Stall torque	Nm	3.7	4.8	5.3	6.4	4.5	4.7
12 Stack length	mm	81	81	81	81	81	81
13 Maximum efficiency	%	77	79	80	74	77	78
14 Terminal resistance	Ω	0.11	0.32	0.74	0.87	6.34	25.30
15 Terminal inductance	mH	-	-	-	-	-	-
16 Speed constant	rpm/V	285	146	92	73	37	17
17 Torque constant	Nm/A	0.034	0.064	0.098	0.120	0.260	0.530
18 Speed torque gradient	rpm/Nm	974	760	732	552	906	874
19 Rotor inertia	gcm²	4600	4600	4600	4600	4600	4600

Thermal data		
20 Ambient temperature	°C	40

Mechanical data		
21 Radial load [distance from flange]	N [mm]	200 [15]

Other data		
22 Number of poles		2
23 Weight	Kg	2.9
24 IP rating		IP21
25 Enclosure		Ventilated
26 Insulation Class		F
27 Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

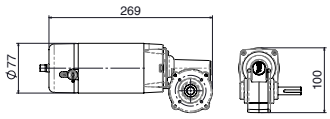
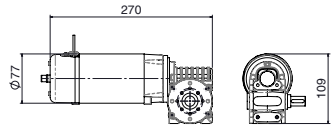
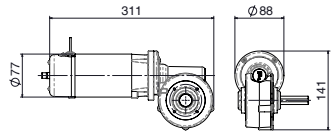
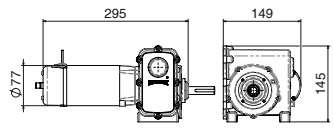
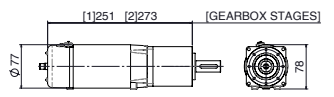
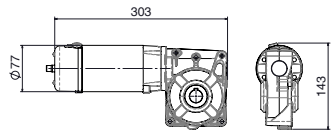
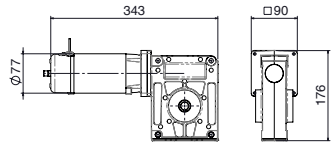
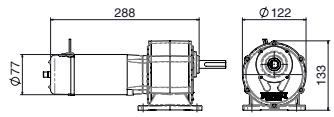
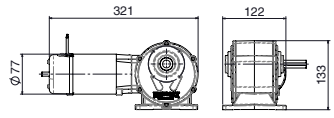
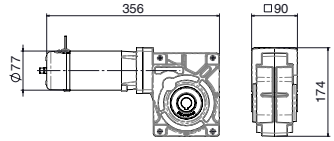
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM60 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data							
PM60-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	3.0	8.0	5.0	2.6	12.0	8.0
		Intermittent torque	Nm	3.9	13.0	8.0	3.4	19.0	12.0
PM60-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	3.0	8.0	5.0	-	-	-
		Intermittent torque	Nm	3.9	13.0	8.0	-	-	-
PM60-L Box		Gear material [1]							
		Gear ratio [2]	:1						
		Speed	rpm						
		Nominal torque	Nm						
		Intermittent torque	Nm						
PM60-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	23.2	28.0	28.0	23.2	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	30.6	45.0	45.0
PM60-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	3.2	16.8	30.0
		Intermittent torque	Nm	-	-	-	4.3	22.2	37.5
PM60-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	9.2	18.8	18.0	8.7	17.0	27.0
		Intermittent torque	Nm	12.2	24.8	29.0	11.5	22.4	38.8
PM60-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	9.8	19.6	32.6	9.2	18.3	29.4
		Intermittent torque	Nm	12.9	25.9	43.1	12.2	24.2	38.8
PM60-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	4.0	33.5	74.0	-	-	-
		Intermittent torque	Nm	5.3	44.3	100.0	-	-	-
PM60-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	28.4	100.0	100.0	-	-	-
		Intermittent torque	Nm	37.5	100.0	100.0	-	-	-
PM60-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	14.1	48.7	59.9
		Intermittent torque	Nm	-	-	-	18.6	64.4	79.1

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

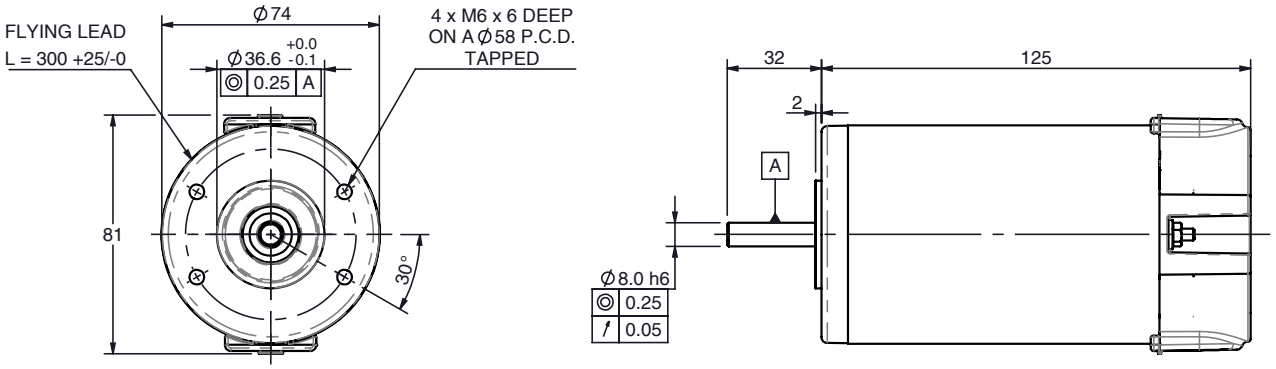
→ Technical data displayed above calculated based on **PM60 220V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM70-125 PMDC motor

Ø74 mm frame // 40 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Technical data					
1	Part number		-	-	-
2	Nominal power	W	79	79	79
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3340	3433	3167
5	No load current	A	1.50	0.80	0.28
6	Nominal speed	rpm	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.25	0.25	0.25
8	Nominal continuous current (S1)	A	9.2	4.7	2.1
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.42	0.42	0.42
10	Stall current	A	59.2	33.5	18.7
11	Stall torque	Nm	1.8	2.1	2.4
12	Stack length	mm	40	40	40
13	Maximum efficiency	%	71	78	78
14	Terminal resistance	Ω	0.13	0.44	1.86
15	Terminal inductance	mH	0.253	1.235	5.060
16	Speed constant	rpm/V	280.1	145.0	66.6
17	Torque constant	Nm/A	0.03	0.06	0.13
18	Speed torque gradient	rpm/Nm	1944	1784	1415
19	Rotor inertia	gcm²	1.83×10^{-4}	1.83×10^{-4}	1.83×10^{-4}

Thermal data			
20	Ambient temperature	°C	40

Mechanical data			
21	Radial load [distance from flange]	N [mm]	200 [15]

Other data			
22	Number of poles		2
23	Weight	Kg	1.85
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
PGx70	250
GB12	232

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

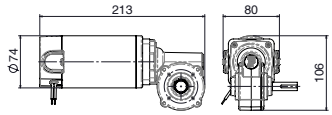
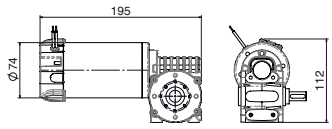
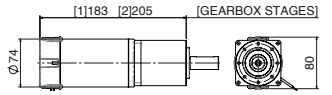
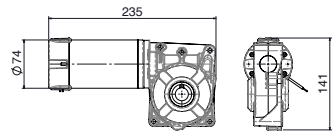
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Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM70-125 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM70-125-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	0.9	5.3	5.0	0.7	4.6	7.2
		Intermittent torque	Nm	1.4	8.8	8.0	1.2	7.7	12.0
PM70-125-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	0.9	5.3	5.0	-	-	-
		Intermittent torque	Nm	1.4	8.8	8.0	-	-	-
PM70-125-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	0.9	4.8	10.1
		Intermittent torque	Nm	-	-	-	1.6	8.1	17.0
PM70-125-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	2.7	5.4	9.4	2.5	4.9	8.4
		Intermittent torque	Nm	4.5	9.1	15.8	4.2	8.2	14.2

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

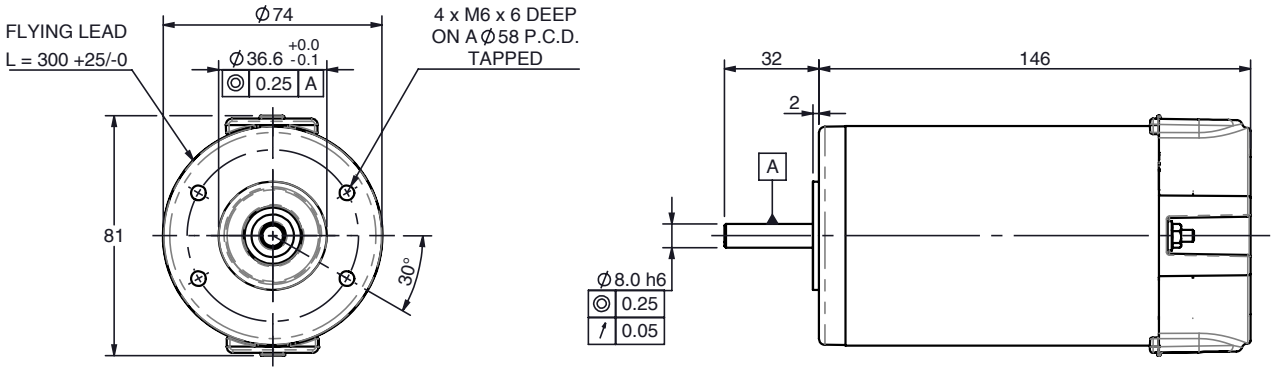
→ Technical data displayed above calculated based on **PM70-125 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM70-146 PMDC motor

Ø74 mm frame // 60 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		-	-	-
2	Nominal power	W	157	157	157
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3970	3580	3310
5	No load current	A	1.80	0.80	0.37
6	Nominal speed	rpm	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.5	0.5	0.5
8	Nominal continuous current (S1)	A	21.0	9.0	4.2
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.88	0.88	0.88
10	Stall current	A	70.7	48.0	28.7
11	Stall torque	Nm	1.8	2.8	3.6
12	Stack length	mm	60	60	60
13	Maximum efficiency	%	72	79	82
14	Terminal resistance	Ω	0.10	0.36	1.51
15	Terminal inductance	mH	0.15	0.81	3.29
16	Speed constant	rpm/V	333.1	150.4	69.1
17	Torque constant	Nm/A	0.026	0.060	0.130
18	Speed torque gradient	rpm/Nm	2423	1383	985
19	Rotor inertia	gcm²	2.5 x 10^{-4}	2.5 x 10^{-4}	2.5 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	2.25
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
PGx70	250
GB12	232

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

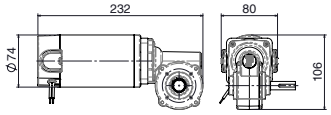
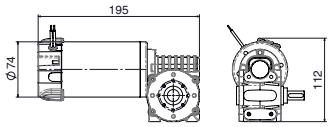
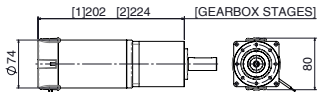
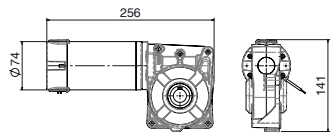
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM70-146 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM70-146-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	1.7	8.0	5.0	1.5	9.2	8.0
		Intermittent torque	Nm	3.0	13.0	8.0	2.6	16.1	12.0
PM70-146-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	1.7	8.0	5.0	-	-	-
		Intermittent torque	Nm	3.0	13.0	8.0	-	-	-
PM70-146-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	1.9	9.7	20.2
		Intermittent torque	Nm	-	-	-	3.3	17.0	35.6
PM70-146-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	5.3	10.8	18.0	5.0	9.8	16.9
		Intermittent torque	Nm	9.4	19.0	29.0	8.8	17.2	29.7

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

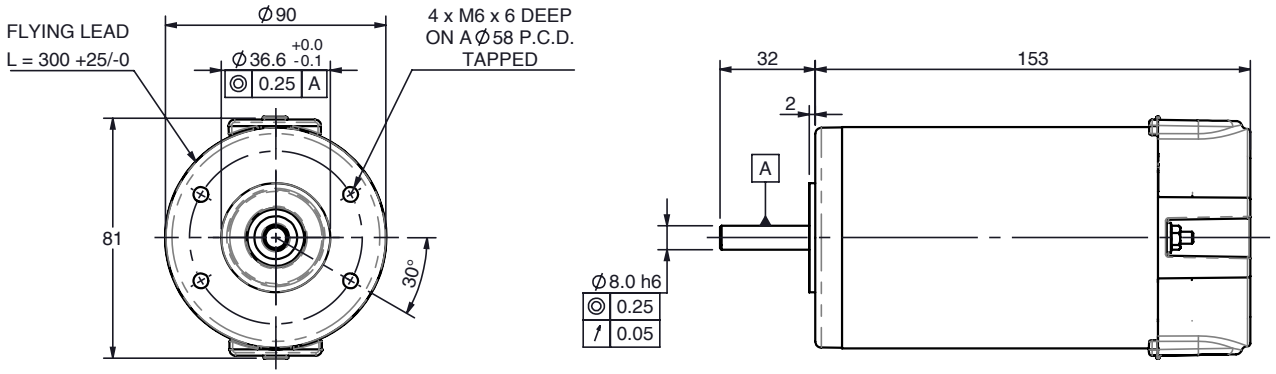
→ Technical data displayed above calculated based on **PM70-146 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM90-150 PMDC motor

Ø90 mm frame // 50 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		-	-	-
2	Nominal power	W	157	210	210
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3870	3423	3480
5	No load current	A	2.6	1.1	0.6
6	Nominal speed	rpm	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.50	0.67	0.67
8	Nominal continuous current (S1)	A	25.5	10.5	5.7
9	Max. intermittent torque (S2 - 15 minutes)	Nm	1.17	1.17	1.17
10	Stall current	A	83.7	82.1	51.8
11	Stall torque	Nm	2.40	5.61	6.70
12	Stack length	mm	50	50	50
13	Maximum efficiency	%	67	81	80
14	Terminal resistance	Ω	0.112	0.294	0.580
15	Terminal inductance	mH	100.5	504.4	1987.0
16	Speed constant	rpm/V	314.9	139.0	69.1
17	Torque constant	Nm/A	0.030	0.069	0.130
18	Speed torque gradient	rpm/Nm	1509.7	590.0	511.0
19	Rotor inertia	gcm²	6.57 x 10^{-4}	6.57 x 10^{-4}	6.57 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	3.60
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB14	237
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

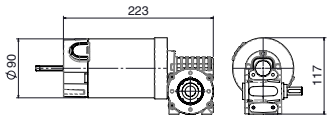
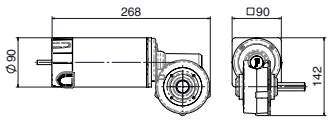
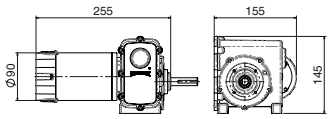
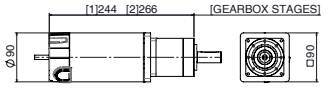
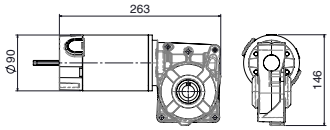
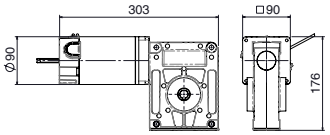
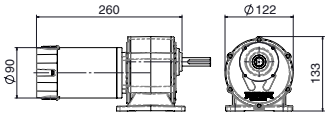
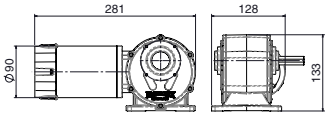
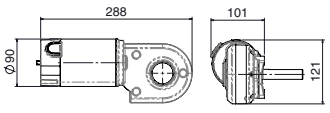
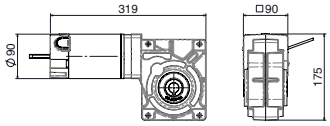
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM90-150 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM90-150-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	2.3	8.0	5.0	-	-	-
		Intermittent torque	Nm	4.0	13.0	8.0	-	-	-
PM90-150-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1						
		Speed	rpm						
		Nominal torque	Nm						
		Intermittent torque	Nm						
PM90-150-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	17.8	28.0	28.0	17.8	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	31.2	45.0	45.0
PM90-150-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	2.5	12.9	27.1
		Intermittent torque	Nm	-	-	-	4.3	22.6	37.5
PM90-150-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	7.1	14.5	18.0	6.7	13.1	22.6
		Intermittent torque	Nm	12.4	25.3	29.0	11.7	22.8	39.5
PM90-150-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	7.5	15.1	25.1	7.1	14.1	22.6
		Intermittent torque	Nm	13.2	26.3	43.9	12.4	24.6	39.5
PM90-150-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	3.1	25.8	59.3	-	-	-
		Intermittent torque	Nm	5.4	45.0	100.0	-	-	-
PM90-150-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	21.9	100.0	100.0	-	-	-
		Intermittent torque	Nm	38.2	100.0	100.0	-	-	-
PM90-150-GB14		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	10.9	37.5	46.1
		Intermittent torque	Nm	-	-	-	19.0	65.5	80.5
PM90-150-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	10.9	37.5	46.1
		Intermittent torque	Nm	-	-	-	19.0	65.5	80.5

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

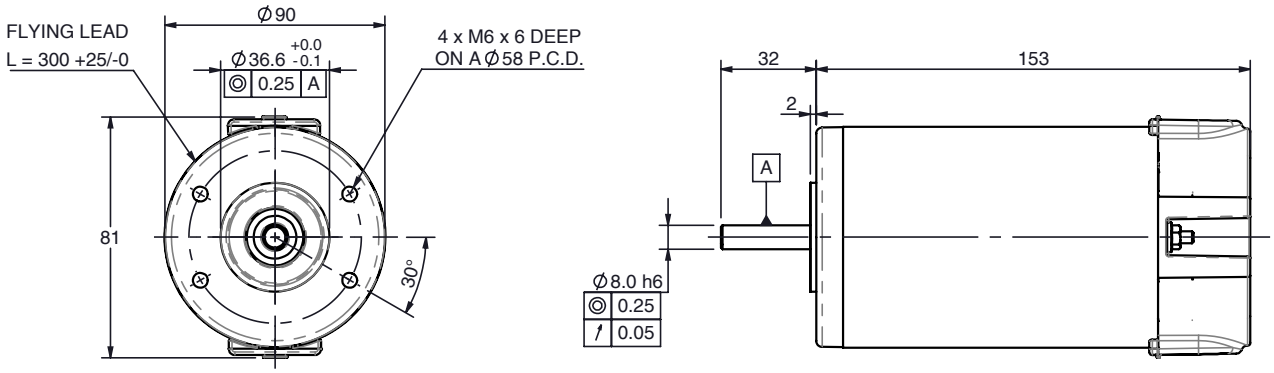
→ Technical data displayed above calculated based on **PM90-150 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

PM90-180 PMDC motor

Ø90 mm frame // 75 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data				
1	Part number		-	-	-
2	Nominal power	W	236	283	283
3	Nominal voltage	V	12	24	48
4	No load speed	rpm	3750	3417	3376
5	No load current	A	3.4	1.2	0.6
6	Nominal speed	rpm	2500	3000	3000
7	Nominal continuous torque (S1)	Nm	0.9	0.9	0.9
8	Nominal continuous current (S1)	A	33.2	14.5	7.3
9	Max. intermittent torque (S2 - 15 minutes)	Nm	1.50	1.50	1.50
10	Stall current	A	83.5	93.0	58.0
11	Stall torque	Nm	2.38	6.14	7.71
12	Stack length	mm	75	75	75
13	Maximum efficiency	%	69	79	80
14	Terminal resistance	Ω	0.116	0.312	0.426
15	Terminal inductance	mH	78.3	422.3	1620.0
16	Speed constant	rpm/V	311.3	135.9	68.0
17	Torque constant	Nm/A	0.03	0.07	0.13
18	Speed torque gradient	rpm/Nm	1667.4	547.1	433.0
19	Rotor inertia	gcm²	8.65 x 10^{-4}	8.65 x 10^{-4}	8.65 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	4.00
24	IP rating		IP54
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	224
L Box	226
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB14	237
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

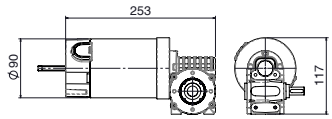
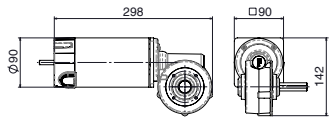
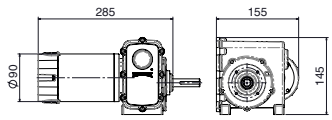
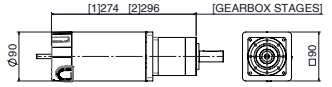
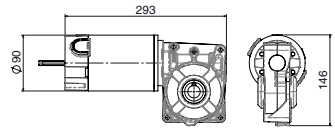
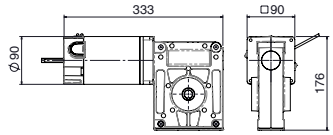
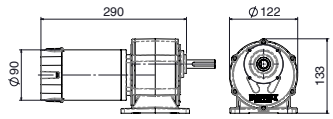
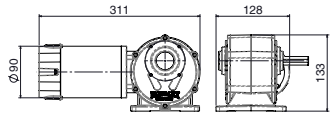
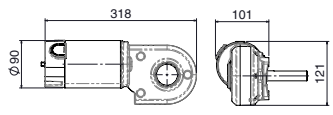
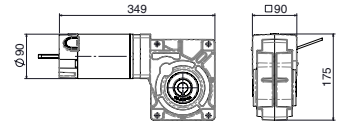
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

PM90-180 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
PM90-180-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	3.1	8.0	5.0	-	-	-
		Intermittent torque	Nm	5.1	13.0	8.0	-	-	-
PM90-180-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1						
		Speed	rpm						
		Nominal torque	Nm						
		Intermittent torque	Nm						
PM90-180-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	24.0	28.0	28.0	24.0	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	40.0	45.0	45.0
PM90-180-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	3.3	17.4	30.0
		Intermittent torque	Nm	-	-	-	5.6	29.0	37.5
PM90-180-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	9.6	19.4	18.0	9.0	17.6	27.0
		Intermittent torque	Nm	15.9	32.0	29.0	15.0	29.3	43.0
PM90-150-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	10.1	20.3	33.8	9.6	18.9	30.4
		Intermittent torque	Nm	16.9	33.8	56.3	15.9	31.5	50.6
PM90-180-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	4.2	34.7	74.0	-	-	-
		Intermittent torque	Nm	6.9	51.0	100.0	-	-	-
PM90-180-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	29.4	100.0	100.0	-	-	-
		Intermittent torque	Nm	45.0	100.0	100.0	-	-	-
PM90-180-GB14		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	14.6	50.4	61.9
		Intermittent torque	Nm	-	-	-	24.3	84.0	103.2
PM90-180-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	14.6	50.4	61.9
		Intermittent torque	Nm	-	-	-	24.3	84.0	103.2

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

→ Technical data displayed above calculated based on **PM90-180 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

Standard EPM motors

EPM50

- Ø73 mm frame
- 25 mm / 38 mm / 50 mm / 63 mm stack length
- 3000 rpm nominal speed
- 0.80 Nm max intermittent torque



S

Our EPM motor range offers a wide selection of output speeds, power, and torque to perfectly meet the requirements of applications in a myriad of market sectors.

Reliable and robust, they combine seamlessly with our gearbox and accessory range, enabling you to fine tune the output performance of your motor-gearbox system.



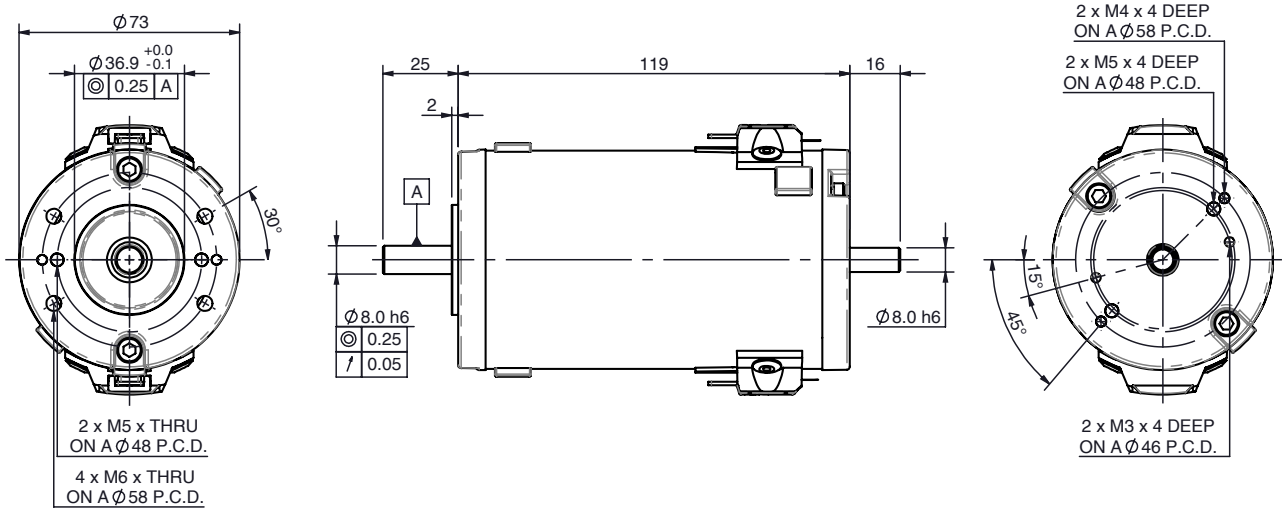
EPM63

- Ø89 mm frame
- 50 mm / 75 mm / 100 mm stack length
- 3000 rpm nominal speed
- 2.40 Nm max intermittent torque

EPM50-25 PMDC motor

Ø73 mm frame // 25 mm stack

all dimensions in mm



Part number key		
Modular	######	**Please see our customisation options page for details on the modifications available on our products.**
Standard	######	Advice and guidance on these options are available from your local sales engineer.
Calculated data	######	

	Technical data					
1	Part number		-	-	-	-
2	Nominal power	W	79	79	79	79
3	Nominal voltage	V	12	24	40	48
4	No load speed	rpm	4376	4136	4073	3893
5	No load current	A	1.75	1.04	0.61	0.31
6	Nominal speed	rpm	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.25	0.25	0.25	0.25
8	Nominal continuous current (S1)	A	12.3	5.6	3.3	2.6
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.44	0.44	0.44	0.44
10	Stall current	A	35.7	23.6	13.8	11.5
11	Stall torque	Nm	0.81	1.16	1.14	1.20
12	Stack length	mm	25	25	25	25
13	Maximum efficiency	%	61	64	65	70
14	Terminal resistance	Ω	0.34	1.02	2.91	4.19
15	Terminal inductance	mH	-	-	-	-
16	Speed constant	rpm/V	383.4	180.3	106.6	83.4
17	Torque constant	Nm/A	0.024	0.050	0.080	0.110
18	Speed torque gradient	rpm/Nm	5800	3621	3621	3428
19	Rotor inertia	Kgcm²	1.41×10^{-4}	1.41×10^{-4}	1.41×10^{-4}	1.41×10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	1.40
24	IP rating		IP44
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
PGx70	250
GB12	232

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

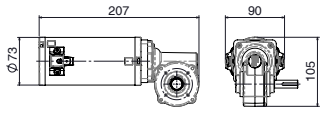
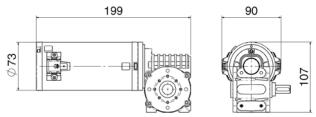
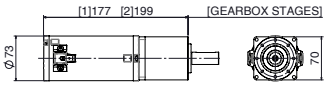
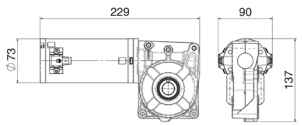
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

EPM50-25 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
EPM50-25-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	0.9	5.3	5.0	0.7	4.6	7.2
		Intermittent torque	Nm	1.5	9.2	8.0	1.3	8.1	12.0
EPM50-25-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	0.9	5.3	5.0	-	-	-
		Intermittent torque	Nm	1.5	9.2	8.0	-	-	-
EPM50-25-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	0.9	4.8	10.1
		Intermittent torque	Nm	-	-	-	1.6	8.5	17.8
EPM50-25-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	2.7	5.4	9.4	2.5	4.9	8.4
		Intermittent torque	Nm	4.7	9.5	16.5	4.4	8.6	14.9

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

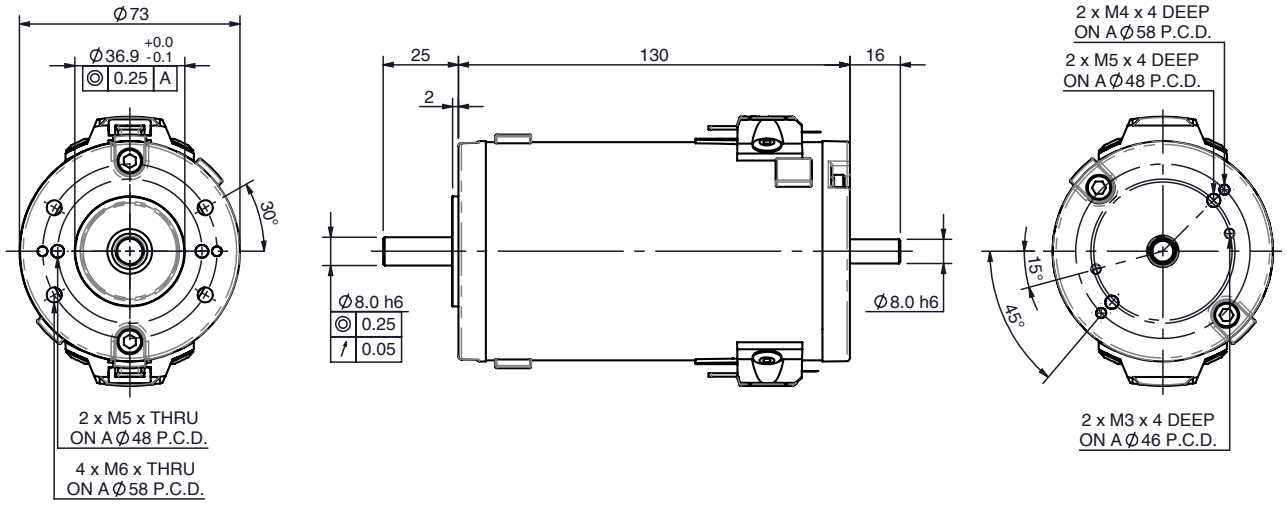
→ Technical data displayed above calculated based on **EPM50-25 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

EPM50-38 PMDC motor

Ø73 mm frame // 38 mm stack

all dimensions in mm



Part number key		
Modular	######	**Please see our customisation options page for details on the modifications available on our products.**
Standard	######	Advice and guidance on these options are available from your local sales engineer.
Calculated data	######	

	Technical data					
1	Part number		-	-	-	-
2	Nominal power	W	94	94	94	94
3	Nominal voltage	V	12	24	40	48
4	No load speed	rpm	3807	3827	3939	3920
5	No load current	A	1.4	0.57	0.35	0.29
6	Nominal speed	rpm	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.3	0.3	0.3	0.3
8	Nominal continuous current (S1)	A	11.0	5.5	3.4	2.8
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.50	0.50	0.50	0.50
10	Stall current	A	76	32	20	17
11	Stall torque	Nm	2.3	1.9	1.9	1.9
12	Stack length	mm	38	38	38	38
13	Maximum efficiency	%	78	77	77	77
14	Terminal resistance	Ω	0.159	0.760	1.990	2.900
15	Terminal inductance	mH	-	-	-	-
16	Speed constant	rpm/V	312	156	96	80
17	Torque constant	Nm/A	0.031	0.060	0.098	0.120
18	Speed torque gradient	rpm/Nm	1646	2041	2041	2041
19	Rotor inertia	Kgcm²	1.57×10^{-4}	1.57×10^{-4}	1.57×10^{-4}	1.57×10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	1.60
24	IP rating		IP44
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
PGx70	250
GB12	232

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

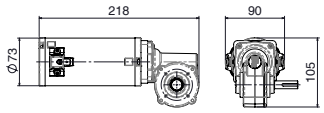
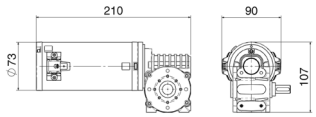
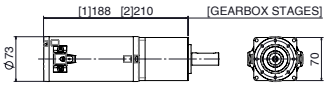
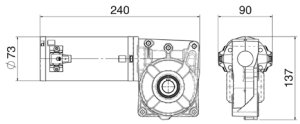
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

EPM50-38 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
EPM50-38-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	1.0	6.3	5.0	0.9	5.5	8.0
		Intermittent torque	Nm	1.7	10.5	8.0	1.5	9.2	12.0
EPM50-38-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	1.0	6.3	5.0	-	-	-
		Intermittent torque	Nm	1.7	10.5	8.0	-	-	-
EPM50-38-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	1.1	5.8	12.1
		Intermittent torque	Nm	-	-	-	1.9	9.7	20.2
EPM50-38-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	3.2	6.5	11.3	3.0	5.9	10.1
		Intermittent torque	Nm	5.3	10.8	18.8	5.0	9.8	16.9

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

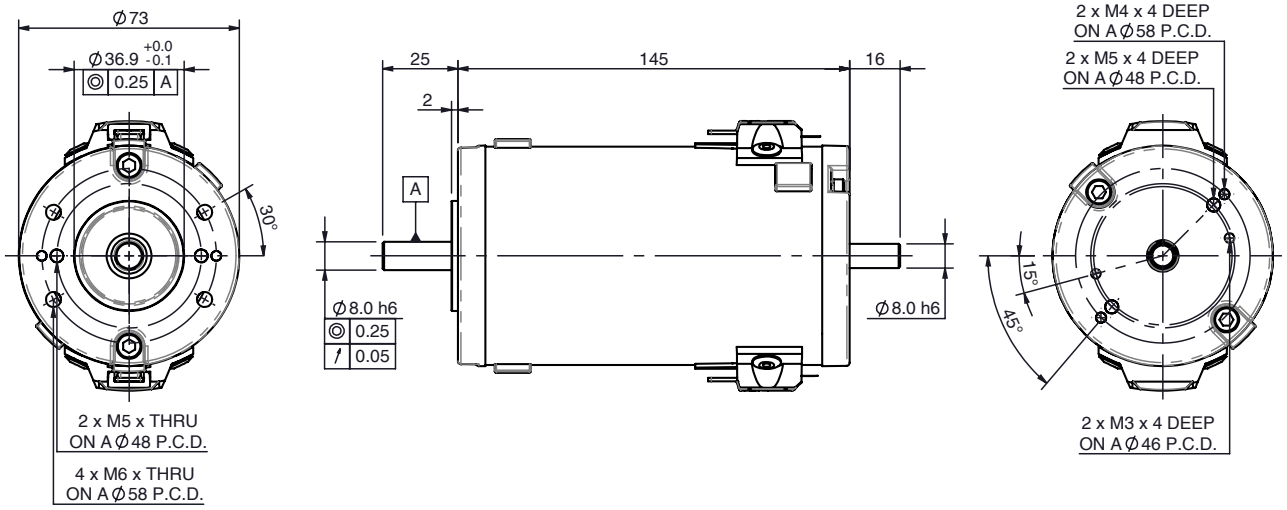
→ Technical data displayed above calculated based on **EPM50-38 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

EPM50-50 PMDC motor

Ø73 mm frame // 50 mm stack

all dimensions in mm



Part number key		
Modular	######	**Please see our customisation options page for details on the modifications available on our products.**
Standard	######	Advice and guidance on these options are available from your local sales engineer.
Calculated data	######	

	Technical data					
1	Part number		-	-	-	-
2	Nominal power	W	123	123	123	123
3	Nominal voltage	V	12	24	40	48
4	No load speed	rpm	4051	3624	3579	3624
5	No load current	A	1.26	0.50	0.30	0.25
6	Nominal speed	rpm	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.39	0.39	0.39	0.39
8	Nominal continuous current (S1)	A	14.3	6.7	4.0	3.3
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.65	0.65	0.65	0.65
10	Stall current	A	77	41	24	20
11	Stall torque	Nm	2.3	2.5	2.5	2.5
12	Stack length	mm	50	50	50	50
13	Maximum efficiency	%	81	79	80	80
14	Terminal resistance	Ω	0.16	0.59	1.68	2.36
15	Terminal inductance	mH	-	-	-	-
16	Speed constant	rpm/V	1786	148	88	74
17	Torque constant	Nm/A	0.03	0.06	0.11	0.13
18	Speed torque gradient	rpm/Nm	1786	1426	1426	1426
19	Rotor inertia	Kgcm²	2.28×10^{-4}	2.28×10^{-4}	2.28×10^{-4}	2.28×10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	2.05
24	IP rating		IP44
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
PGx70	250
GB12	232

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

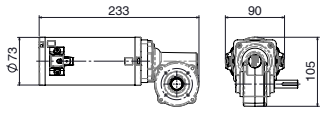
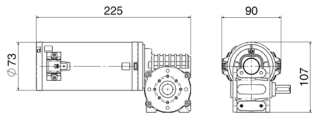
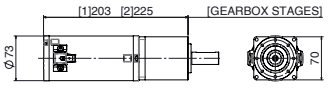
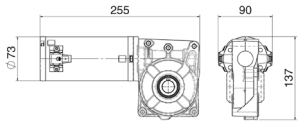
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

EPM50-50 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
EPM50-50-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	1.3	8.0	5.0	1.2	7.1	8.0
		Intermittent torque	Nm	2.2	13.0	8.0	1.9	11.9	12.0
EPM50-50-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	1.3	8.0	5.0	-	-	-
		Intermittent torque	Nm	2.2	13.0	8.0	-	-	-
EPM50-50-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	1.4	7.5	15.8
		Intermittent torque	Nm	-	-	-	2.4	12.6	26.3
EPM50-50-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	4.1	8.4	14.6	3.9	7.6	13.2
		Intermittent torque	Nm	6.9	14.0	24.4	6.5	12.7	21.9

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

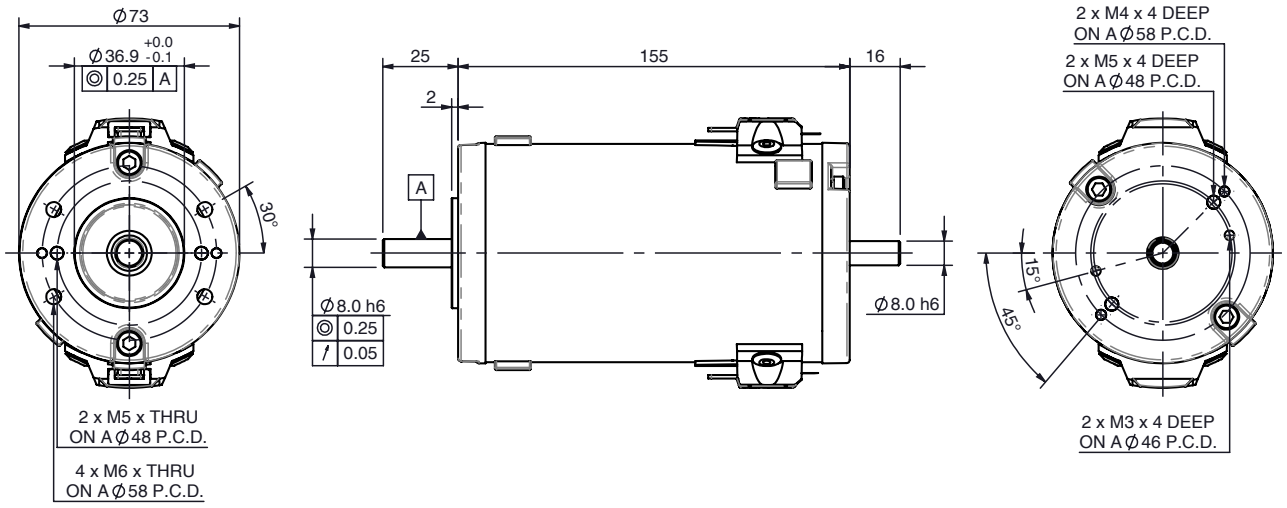
→ Technical data displayed above calculated based on **EPM50-50 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

EPM50-63 PMDC motor

Ø73 mm frame // 63 mm stack

all dimensions in mm



Part number key		
Modular	######	**Please see our customisation options page for details on the modifications available on our products.**
Standard	######	Advice and guidance on these options are available from your local sales engineer.
Calculated data	######	

	Technical data					
1	Part number		-	-	-	-
2	Nominal power	W	151	151	151	151
3	Nominal voltage	V	12	24	40	48
4	No load speed	rpm	4119	3912	3650	3598
5	No load current	A	1.30	0.50	0.27	0.22
6	Nominal speed	rpm	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.48	0.48	0.48	0.48
8	Nominal continuous current (S1)	A	18.0	8.4	4.9	4.1
9	Max. intermittent torque (S2 - 15 minutes)	Nm	0.80	0.80	0.80	0.80
10	Stall current	A	79	42	32	26
11	Stall torque	Nm	2.3	2.8	3.3	3.2
12	Stack length	mm	63	63	63	63
13	Maximum efficiency	%	80	80	81	81
14	Terminal resistance	Ω	0.15	0.57	1.25	1.86
15	Terminal inductance	mH	-	-	-	-
16	Speed constant	rpm/V	330	178	90	74
17	Torque constant	Nm/A	0.03	0.06	0.10	0.13
18	Speed torque gradient	rpm/Nm	1835	1412	1121	1120
19	Rotor inertia	Kgcm²	2.48 x 10^{-4}	2.48 x 10^{-4}	2.48 x 10^{-4}	2.48 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
22	Number of poles		2
23	Weight	Kg	2.15
24	IP rating		IP44
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
M Box	222
GB80	224
PGx70	250
GB12	232

Brake	Page #
1.5 Nm	258
2.0 Nm	259
Power-On	261

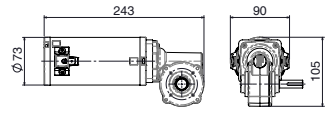
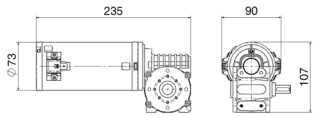
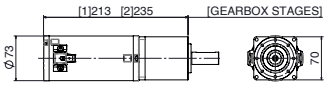
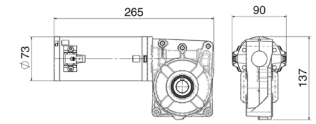
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

EPM50-63 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
EPM50-63-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	750.0	100.0	41.7	750.0	100.0	41.7
		Nominal torque	Nm	1.6	8.0	5.0	1.4	8.8	8.0
		Intermittent torque	Nm	2.7	13.0	8.0	2.4	14.6	12.0
EPM50-63-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	1.6	8.0	5.0	-	-	-
		Intermittent torque	Nm	2.7	13.0	8.0	-	-	-
EPM50-63-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	1.8	9.3	19.4
		Intermittent torque	Nm	-	-	-	3.0	15.5	32.4
EPM50-63-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	5.1	10.4	18.0	4.8	9.4	16.2
		Intermittent torque	Nm	8.5	17.3	29.0	8.0	15.6	27.0

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

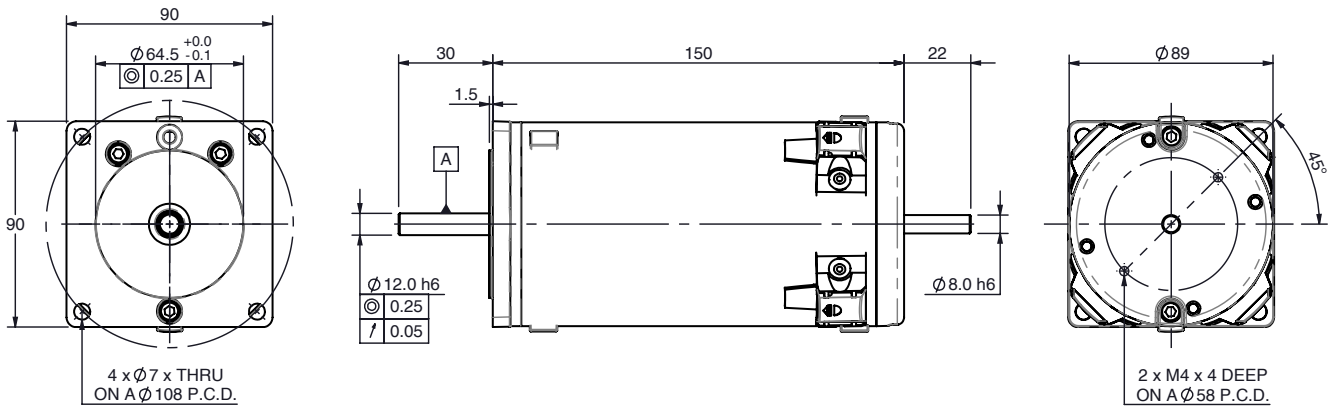
→ Technical data displayed above calculated based on **EPM50-63 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

EPM63-50 PMDC motor

Ø89 mm frame // 50 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data					
1	Part number		-	-	-	-
2	Nominal power	W	220	220	220	220
3	Nominal voltage	V	12	24	40	48
4	No load speed	rpm	3899	3992	3881	3854
5	No load current	A	4.70	2.60	1.50	1.24
6	Nominal speed	rpm	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.7	0.7	0.7	0.7
8	Nominal continuous current (S1)	A	28.4	14.5	8.4	7.0
9	Max. intermittent torque (S2 - 15 minutes)	Nm	1.17	1.17	1.17	1.17
10	Stall current	A	115	83	47	39
11	Stall torque	Nm	3.3	4.8	4.7	4.6
12	Stack length	mm	50	50	50	50
13	Maximum efficiency	%	67	70	70	70
14	Terminal resistance	Ω	0.10	0.29	0.85	1.24
15	Terminal inductance	mH	-	-	-	-
16	Speed constant	rpm/V	320	159	93	77
17	Torque constant	Nm/A	0.03	0.06	0.10	0.12
18	Speed torque gradient	rpm/Nm	1200	831	831	831
19	Rotor inertia	gcm²	6.13 x 10^{-4}	6.13 x 10^{-4}	6.13 x 10^{-4}	6.13 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		4
23	Weight	Kg	3.00
24	IP rating		IP44
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	224
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

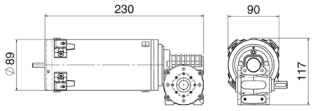
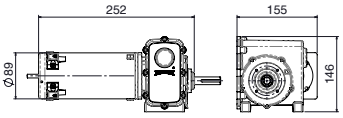
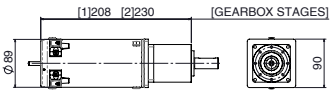
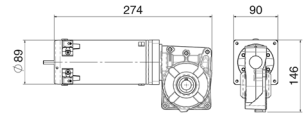
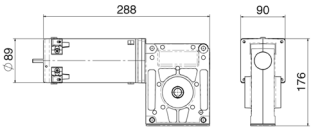
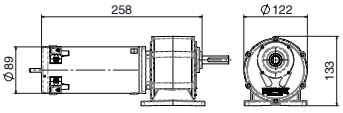
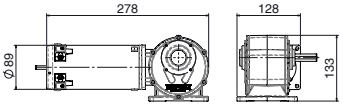
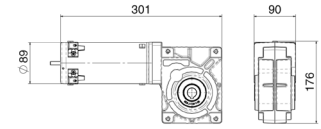
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

EPM63-50 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
EPM63-50-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	2.4	8.0	5.0	-	-	-
		Intermittent torque	Nm	4.0	13.0	8.0	-	-	-
EPM63-50-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	18.6	28.0	28.0	18.6	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	31.2	45.0	45.0
EPM63-50-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	2.6	13.5	28.3
		Intermittent torque	Nm	-	-	-	4.3	22.6	37.5
EPM63-50-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	7.4	15.1	18.0	7.0	13.7	23.6
		Intermittent torque	Nm	12.4	25.3	29.0	11.7	22.8	39.5
EPM63-50-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	7.9	15.8	26.3	7.4	14.7	23.6
		Intermittent torque	Nm	13.2	26.3	43.9	12.4	24.6	39.5
EPM63-50-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	3.2	27.0	62.0	-	-	-
		Intermittent torque	Nm	5.4	45.0	100.0	-	-	-
EPM63-50-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	22.8	100.0	100.0	-	-	-
		Intermittent torque	Nm	38.2	100.0	100.0	-	-	-
EPM63-50-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	11.3	39.2	48.2
		Intermittent torque	Nm	-	-	-	19.0	65.5	80.5

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

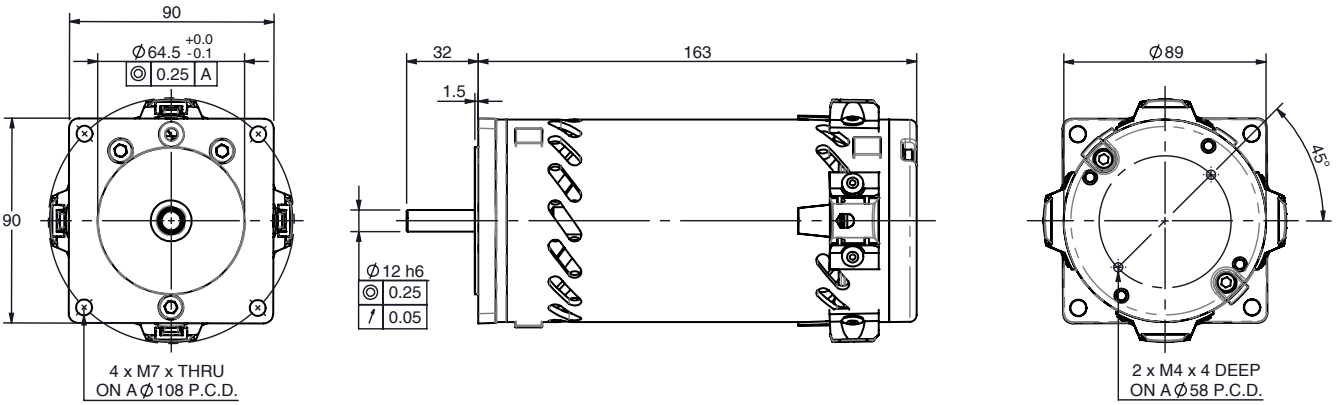
→ Technical data displayed above calculated based on **EPM63-50 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

EPM63-50 Ventilated PMDC motor

Ø89 mm frame // 50 mm stack

all dimensions in mm



Part number key		
Modular	######	**Please see our customisation options page for details on the modifications available on our products.** Advice and guidance on these options are available from your local sales engineer.
Standard	######	
Calculated data	######	

	Technical data					
1	Part number		-	-	-	-
2	Nominal power	W	327	327	327	327
3	Nominal voltage	V	12	24	40	48
4	No load speed	rpm	4548	3992	3881	3854
5	No load current	A	5.50	2.60	1.50	1.04
6	Nominal speed	rpm	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	1.04	1.04	1.04	1.04
8	Nominal continuous current (S1)	A	46.0	20.0	11.4	7.0
9	Max. intermittent torque (S2 - 15 minutes)	Nm	1.60	1.60	1.60	1.60
10	Stall current	A	156.0	83.0	47.0	38.7
11	Stall torque	Nm	3.8	4.8	4.7	4.6
12	Stack length	mm	50	50	50	50
13	Maximum efficiency	%	69	70	70	70
14	Terminal resistance	Ω	0.08	0.29	0.85	1.24
15	Terminal inductance	mH	-	-	-	-
16	Speed constant	rpm/V	371	159	93	77
17	Torque constant	Nm/A	0.025	0.059	0.100	0.123
18	Speed torque gradient	rpm/Nm	1200	831	831	831
19	Rotor inertia	gcm²	6.13 x 10^{-4}	6.13 x 10^{-4}	6.13 x 10^{-4}	6.13 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		4
23	Weight	Kg	3.10
24	IP rating		IP21
25	Enclosure		Ventilated
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	224
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

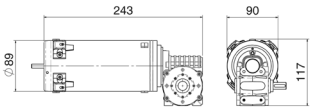
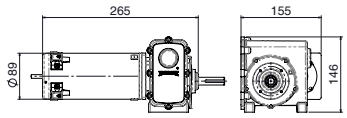
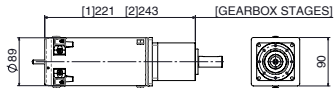
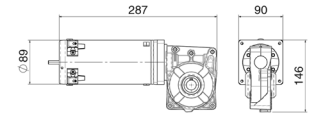
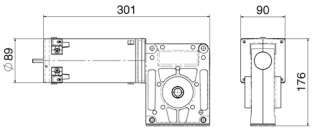
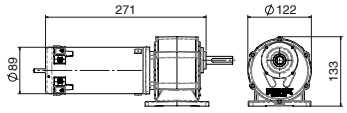
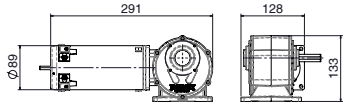
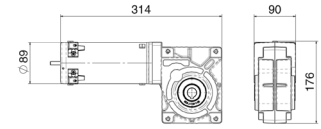
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

EPM63-50 Ventilated combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
EPM63-50-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	3.5	8.0	5.0	-	-	-
		Intermittent torque	Nm	5.4	13.0	8.0	-	-	-
EPM63-50-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	27.7	28.0	28.0	27.7	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	42.6	45.0	45.0
EPM63-50-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	3.9	20.1	30.0
		Intermittent torque	Nm	-	-	-	5.9	30.9	37.5
EPM63-50-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	11.1	20.0	18.0	10.4	20.3	27.0
		Intermittent torque	Nm	17.0	32.0	29.0	16.0	31.2	43.0
EPM63-50-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	11.7	23.4	39.0	11.1	21.8	35.1
		Intermittent torque	Nm	18.0	36.0	60.0	17.0	33.6	54.0
EPM63-50-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	4.8	40.0	74.0	-	-	-
		Intermittent torque	Nm	7.4	51.0	100.0	-	-	-
EPM63-50-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	33.9	100.0	100.0	-	-	-
		Intermittent torque	Nm	45.0	100.0	100.0	-	-	-
EPM63-50-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	16.8	58.2	71.6
		Intermittent torque	Nm	-	-	-	25.9	89.6	110.1

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

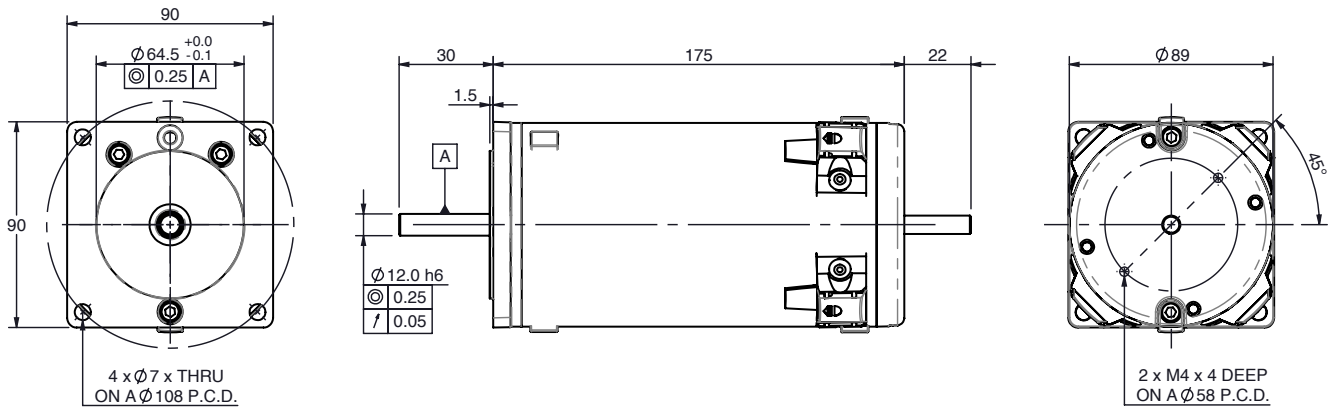
→ Technical data displayed above calculated based on **EPM63-50 Ventilated 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

EPM63-75 PMDC motor

Ø89 mm frame // 75 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data					
1	Part number		-	-	-	-
2	Nominal power	W	283	283	283	283
3	Nominal voltage	V	12	24	40	48
4	No load speed	rpm	3564	3973	3913	3973
5	No load current	A	3.40	1.70	1.00	0.85
6	Nominal speed	rpm	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	0.9	0.9	0.9	0.9
8	Nominal continuous current (S1)	A	25.8	13.2	7.8	6.6
9	Max. intermittent torque (S2 - 15 minutes)	Nm	1.50	1.50	1.50	1.50
10	Stall current	A	178.0	88.0	51.3	44.0
11	Stall torque	Nm	5.5	5.3	5.2	5.3
12	Stack length	mm	75	75	75	75
13	Maximum efficiency	%	67	79	79	80
14	Terminal resistance	Ω	0.067	0.272	0.780	1.090
15	Terminal inductance	mH	-	-	-	-
16	Speed constant	rpm/V	288.0	160.0	94.4	80.0
17	Torque constant	Nm/A	0.031	0.061	0.100	0.120
18	Speed torque gradient	rpm/Nm	649	755	755	755
19	Rotor inertia	gcm²	2.83 x 10^{-4}	2.83 x 10^{-4}	2.83 x 10^{-4}	2.83 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		4
23	Weight	Kg	4.00
24	IP rating		IP44
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	224
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

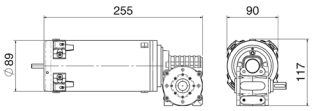
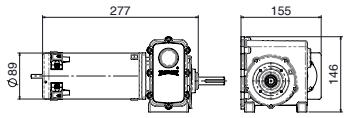
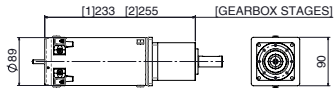
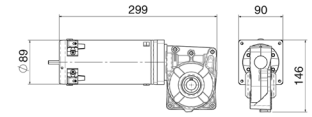
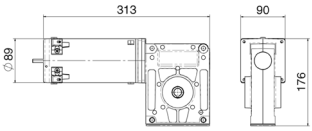
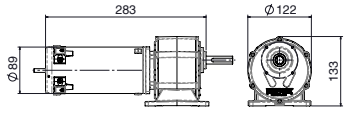
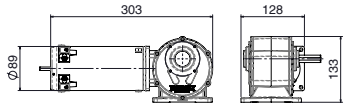
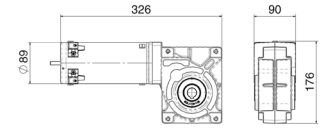
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

EPM63-75 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
EPM63-75-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	3.1	8.0	5.0	-	-	-
		Intermittent torque	Nm	5.1	13.0	8.0	-	-	-
EPM63-75-LW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	24.0	28.0	28.0	24.0	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	40.0	45.0	45.0
EPM63-75-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	3.3	17.4	30.0
		Intermittent torque	Nm	-	-	-	5.6	29.0	37.5
EPM63-75-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	9.6	19.4	18.0	9.0	17.6	27.0
		Intermittent torque	Nm	15.9	32.0	29.0	15.0	29.3	43.0
EPM63-75-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	10.1	20.3	33.8	9.6	18.9	30.4
		Intermittent torque	Nm	16.9	33.8	56.3	15.9	31.5	50.6
EPM63-75-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	4.2	34.7	74.0	-	-	-
		Intermittent torque	Nm	6.9	51.0	100.0	-	-	-
EPM63-75-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	29.4	100.0	100.0	-	-	-
		Intermittent torque	Nm	45.0	100.0	100.0	-	-	-
EPM63-75-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	14.6	50.4	61.9
		Intermittent torque	Nm	-	-	-	24.3	84.0	103.2

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

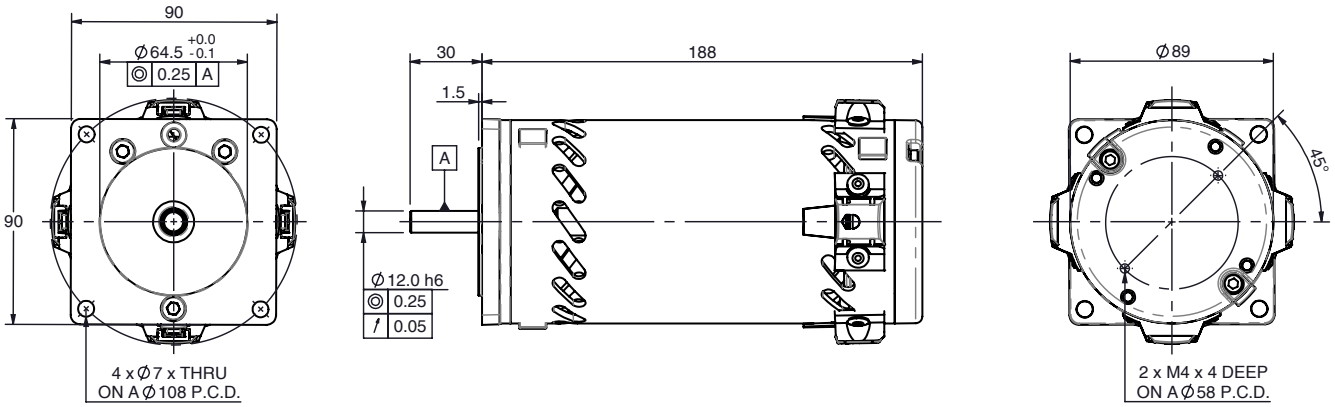
→ Technical data displayed above calculated based on **EPM63-75 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

EPM63-75 Ventilated PMDC motor

Ø89 mm frame // 75 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data					
1	Part number		-	-	-	-
2	Nominal power	W	377	377	377	377
3	Nominal voltage	V	12	24	40	48
4	No load speed	rpm	4158	3973	3913	3973
5	No load current	A	4.00	1.70	1.00	0.85
6	Nominal speed	rpm	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	1.2	1.2	1.2	1.2
8	Nominal continuous current (S1)	A	30.0	21.4	12.6	10.7
9	Max. intermittent torque (S2 - 15 minutes)	Nm	1.80	1.80	1.80	1.80
10	Stall current	A	242	88	51	44
11	Stall torque	Nm	6.4	5.3	5.2	5.3
12	Stack length	mm	75	75	75	75
13	Maximum efficiency	%	75	80	79	79
14	Terminal resistance	Ω	0.050	0.272	0.780	1.090
15	Terminal inductance	mH	-	-	-	-
16	Speed constant	rpm/V	335	160	94	80
17	Torque constant	Nm/A	0.027	0.061	0.100	0.120
18	Speed torque gradient	rpm/Nm	649	755	755	755
19	Rotor inertia	gcm²	2.83 x 10^{-4}	2.83 x 10^{-4}	2.83 x 10^{-4}	2.83 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		4
23	Weight	Kg	4.10
24	IP rating		IP21
25	Enclosure		Ventilated
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	224
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

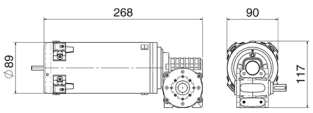
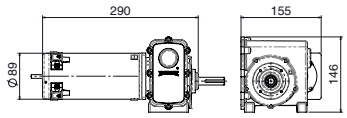
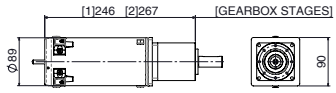
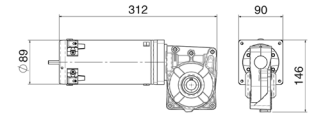
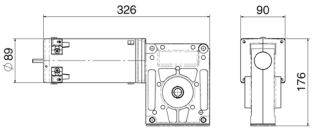
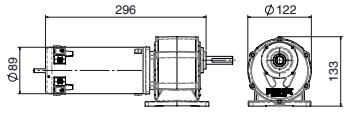
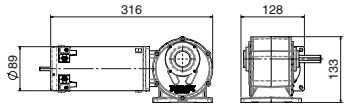
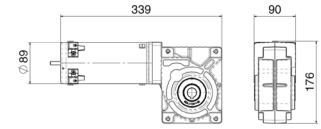
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

EPM63-75 Ventilated combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
EPM63-75-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	4.1	8.0	5.0	-	-	-
		Intermittent torque	Nm	6.1	13.0	8.0	-	-	-
EPM63-75-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	28.0	28.0	28.0	32.0	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	45.0	45.0	45.0
EPM63-75-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	4.4	23.2	30.0
		Intermittent torque	Nm	-	-	-	6.7	34.8	37.5
EPM63-75-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	12.8	20.0	18.0	12.0	23.4	27.0
		Intermittent torque	Nm	19.1	32.0	29.0	18.0	35.1	43.0
EPM63-75-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	13.5	27.0	40.0	12.8	25.2	40.5
		Intermittent torque	Nm	20.3	40.5	67.5	19.1	37.8	60.8
EPM63-75-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	5.5	46.2	74.0	-	-	-
		Intermittent torque	Nm	8.3	51.0	100.0	-	-	-
EPM63-75-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	39.2	100.0	100.0	-	-	-
		Intermittent torque	Nm	45.0	100.0	100.0	-	-	-
EPM63-75-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	19.4	67.2	82.6
		Intermittent torque	Nm	-	-	-	29.2	100.8	123.8

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

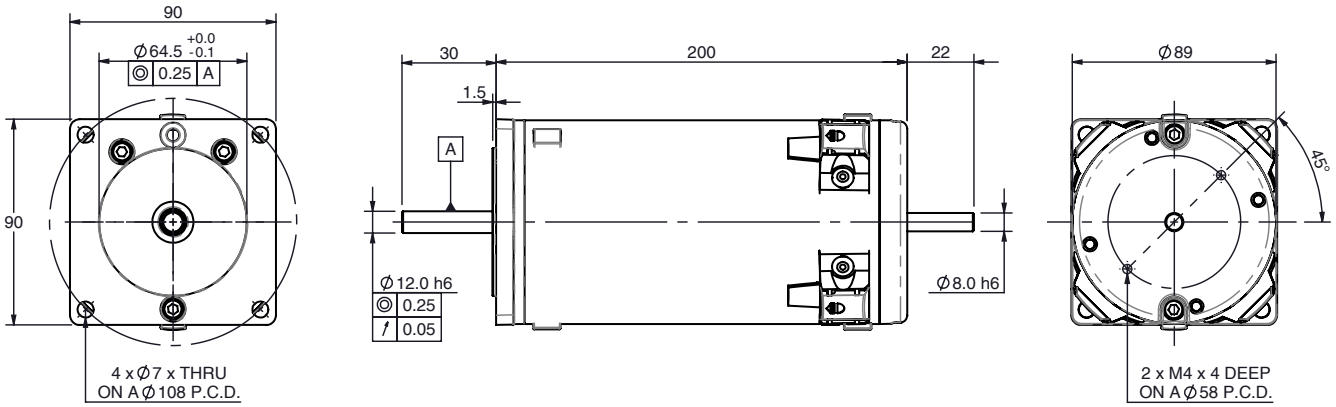
→ Technical data displayed above calculated based on **EPM63-75 Ventilated 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

EPM63-100 PMDC motor

Ø89 mm frame // 100 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data					
1	Part number		-	-	-	-
2	Nominal power	W	377	377	377	377
3	Nominal voltage	V	12	24	40	48
4	No load speed	rpm	4771	3895	3819	3895
5	No load current	A	5.20	1.90	1.10	0.94
6	Nominal speed	rpm	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	1.2	1.2	1.2	1.2
8	Nominal continuous current (S1)	A	54.6	22.3	13.1	11.1
9	Max. intermittent torque (S2 - 15 minutes)	Nm	1.90	1.90	1.90	1.90
10	Stall current	A	194	134	77	67
11	Stall torque	Nm	4.6	7.7	7.5	7.7
12	Stack length	mm	100	100	100	100
13	Maximum efficiency	%	73	78	78	78
14	Terminal resistance	Ω	0.062	0.300	0.520	0.720
15	Terminal inductance	mH	-	-	-	-
16	Speed constant	rpm/V	393	158	93	79
17	Torque constant	Nm/A	0.024	0.060	0.100	0.120
18	Speed torque gradient	rpm/Nm	1041	509	509	509
19	Rotor inertia	gcm²	9.64 x 10^{-4}	9.64 x 10^{-4}	9.64 x 10^{-4}	9.64 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		4
23	Weight	Kg	4.50
24	IP rating		IP44
25	Enclosure		Enclosed
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	224
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

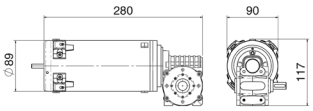
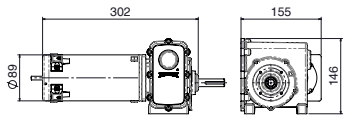
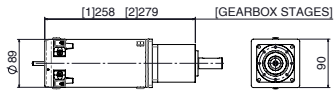
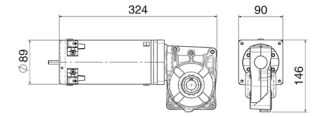
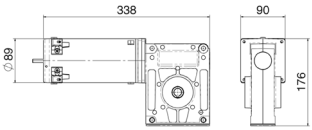
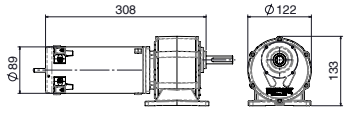
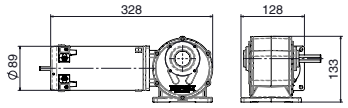
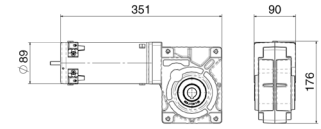
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Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

EPM63-100 combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
EPM63-100-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	4.1	8.0	5.0	-	-	-
		Intermittent torque	Nm	6.5	13.0	8.0	-	-	-
EPM63-100-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	28.0	28.0	28.0	32.0	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	45.0	45.0	45.0
EPM63-100-PGX70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	4.4	23.2	30.0
		Intermittent torque	Nm	-	-	-	7.0	36.7	37.5
EPM63-100-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	12.8	20.0	18.0	12.0	23.4	27.0
		Intermittent torque	Nm	20.2	32.0	29.0	19.0	37.1	43.0
EPM63-100-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	13.5	27.0	40.0	12.8	25.2	40.5
		Intermittent torque	Nm	21.4	42.8	70.0	20.2	39.9	64.1
EPM63-100-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	5.5	46.2	74.0	-	-	-
		Intermittent torque	Nm	8.8	51.0	100.0	-	-	-
EPM63-100-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	39.2	100.0	100.0	-	-	-
		Intermittent torque	Nm	45.0	100.0	100.0	-	-	-
EPM63-100-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	19.4	67.2	82.6
		Intermittent torque	Nm	-	-	-	30.8	106.4	130.7

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

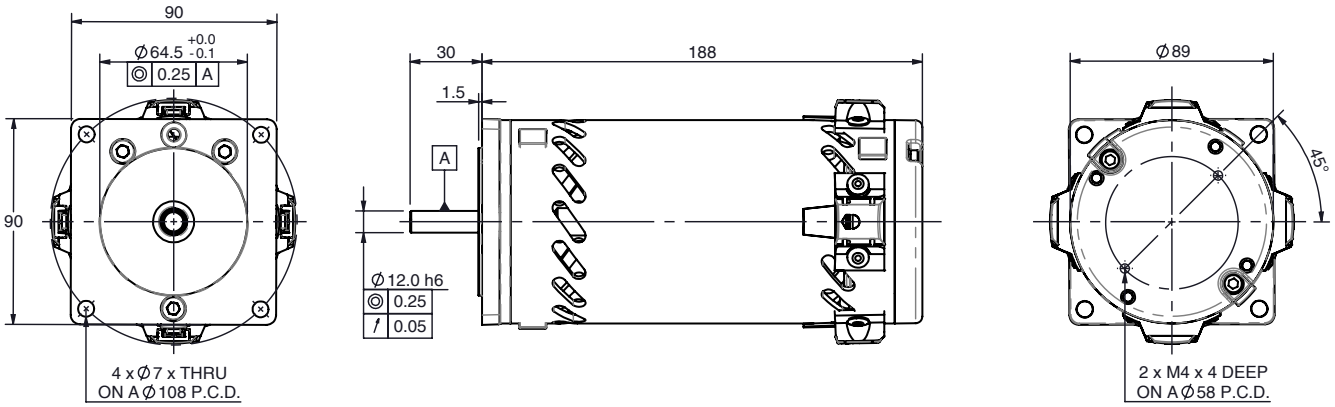
→ Technical data displayed above calculated based on **EPM63-100 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

EPM63-100 Ventilated PMDC motor

Ø89 mm frame // 100 mm stack

all dimensions in mm



Part number key		
Modular	######	**Please see our customisation options page for details on the modifications available on our products.**
Standard	######	Advice and guidance on these options are available from your local sales engineer.
Calculated data	######	

	Technical data					
1	Part number		-	-	-	-
2	Nominal power	W	471	471	471	471
3	Nominal voltage	V	12	24	40	48
4	No load speed	rpm	4771	3895	3819	3895
5	No load current	A	5.20	1.90	1.10	0.94
6	Nominal speed	rpm	3000	3000	3000	3000
7	Nominal continuous torque (S1)	Nm	1.5	1.5	1.5	1.5
8	Nominal continuous current (S1)	A	67.0	27.5	16.2	13.7
9	Max. intermittent torque (S2 - 15 minutes)	Nm	2.00	2.40	2.40	2.40
10	Stall current	A	194	134	77	67
11	Stall torque	Nm	4.6	7.7	7.5	7.7
12	Stack length	mm	100	100	100	100
13	Maximum efficiency	%	67	78	78	78
14	Terminal resistance	Ω	0.06	0.18	0.52	0.72
15	Terminal inductance	mH	-	-	-	-
16	Speed constant	rpm/V	393	158	93	79
17	Torque constant	Nm/A	0.024	0.060	0.100	0.120
18	Speed torque gradient	rpm/Nm	1041	509	509	509
19	Rotor inertia	gcm²	9.64 x 10^{-4}	9.64 x 10^{-4}	9.64 x 10^{-4}	9.64 x 10^{-4}

	Thermal data		
20	Ambient temperature	°C	40

	Mechanical data		
21	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
22	Number of poles		4
23	Weight	Kg	4.60
24	IP rating		IP21
25	Enclosure		Ventilated
26	Insulation Class		F
27	Reversible		Yes

Compatible products

Gearbox	Page #
GB80	224
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

Brake	Page #
1.5 Nm	258
2.0 Nm	259
4.0 Nm	260
Power-On	261

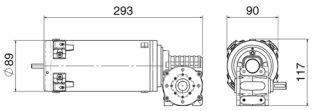
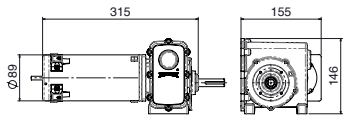
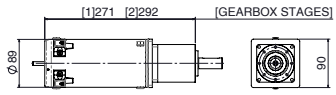
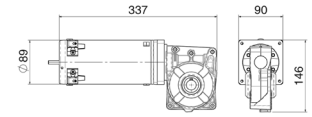
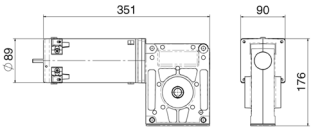
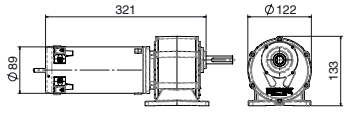
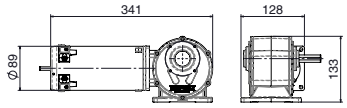
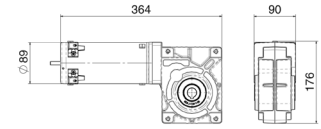
Encoder	Page #
Incr. 5-pin	254
Incr. 10-pin	254
Diff. 10-pin	255
Magnetic	256

Controller	Page #
SC 50/15	262
EPOS	265
ESCON	274

Key
Standard combination
Modular combination

EPM63-100 Ventilated combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
EPM63-100-GB80		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	-	-	-
		Speed	rpm	750.0	100.0	41.7	-	-	-
		Nominal torque	Nm	5.1	8.0	5.0	-	-	-
		Intermittent torque	Nm	8.2	13.0	8.0	-	-	-
EPM63-100-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	83.3	7.5	2.5	83.3	7.5	2.5
		Nominal torque	Nm	28.0	28.0	28.0	40.0	45.0	45.0
		Intermittent torque	Nm	28.0	28.0	28.0	45.0	45.0	45.0
EPM63-100-PGX70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	769.2	142.9	68.2
		Nominal torque	Nm	-	-	-	5.6	29.0	30.0
		Intermittent torque	Nm	-	-	-	8.9	37.5	37.5
EPM63-100-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	15.9	20.0	18.0	15.0	29.3	27.0
		Intermittent torque	Nm	25.5	32.0	29.0	24.0	46.8	43.0
EPM63-100-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	240.0	100.0	40.0	240.0	100.0	40.0
		Nominal torque	Nm	16.9	33.8	40.0	15.9	31.5	50.6
		Intermittent torque	Nm	27.0	54.0	70.0	25.5	50.4	81.0
EPM63-100-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	500.0	60.0	26.1	-	-	-
		Nominal torque	Nm	6.9	51.0	74.0	-	-	-
		Intermittent torque	Nm	11.1	51.0	100.0	-	-	-
EPM63-100-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	62.5	4.5	0.9	-	-	-
		Nominal torque	Nm	45.0	100.0	100.0	-	-	-
		Intermittent torque	Nm	45.0	100.0	100.0	-	-	-
EPM63-100-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	150.0	37.5	18.8
		Nominal torque	Nm	-	-	-	24.3	84.0	103.2
		Intermittent torque	Nm	-	-	-	38.9	134.4	165.1

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes
[1] Comp. = Composite gears
[2] Full gear ratio options displayed on individual gearbox datasheets

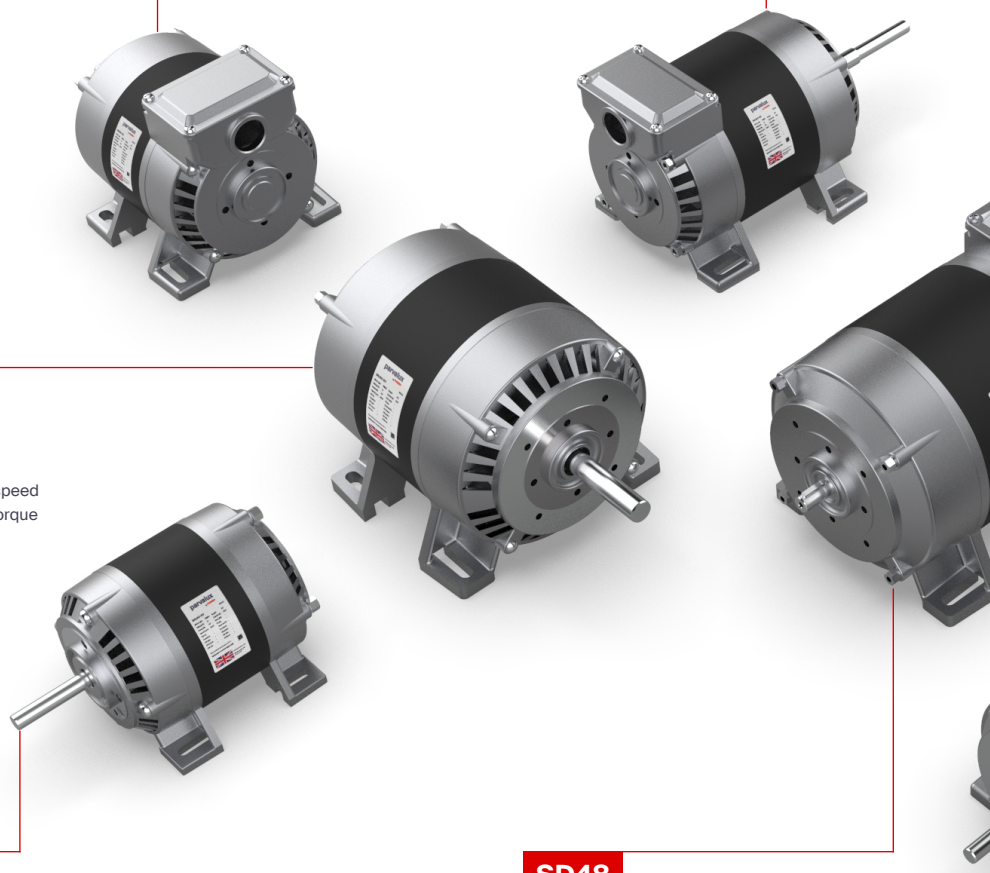
→ Technical data displayed above calculated based on **EPM63-100 Ventilated 48V 3000 rpm** motor. Intermittent torque displayed based on S2 - 15 minute duty cycle.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

Standard AC motors

SD48

- Ø96 mm frame
- 37 mm stack length
- 1400 - 3400 rpm nominal speed
- 0.24 Nm max continuous torque



SD13

- Ø120 mm frame
- 46 mm stack length
- 1400 - 3400 rpm nominal speed
- 0.85 Nm max continuous torque

SD41

- Ø81 mm frame
- 38 mm stack length
- 1400 - 3400 rpm nominal speed
- 0.10 Nm max continuous torque

SD48

- Ø120 mm frame
- 59 mm stack length
- 1400 - 3400 rpm nominal speed
- 1.30 Nm max continuous torque

Available as either single or three phase units, Parvalux AC electric motors come in aluminium housings as both motor-only and geared units. Our AC motors have been hand-built in Britain since 1947 and are available worldwide.

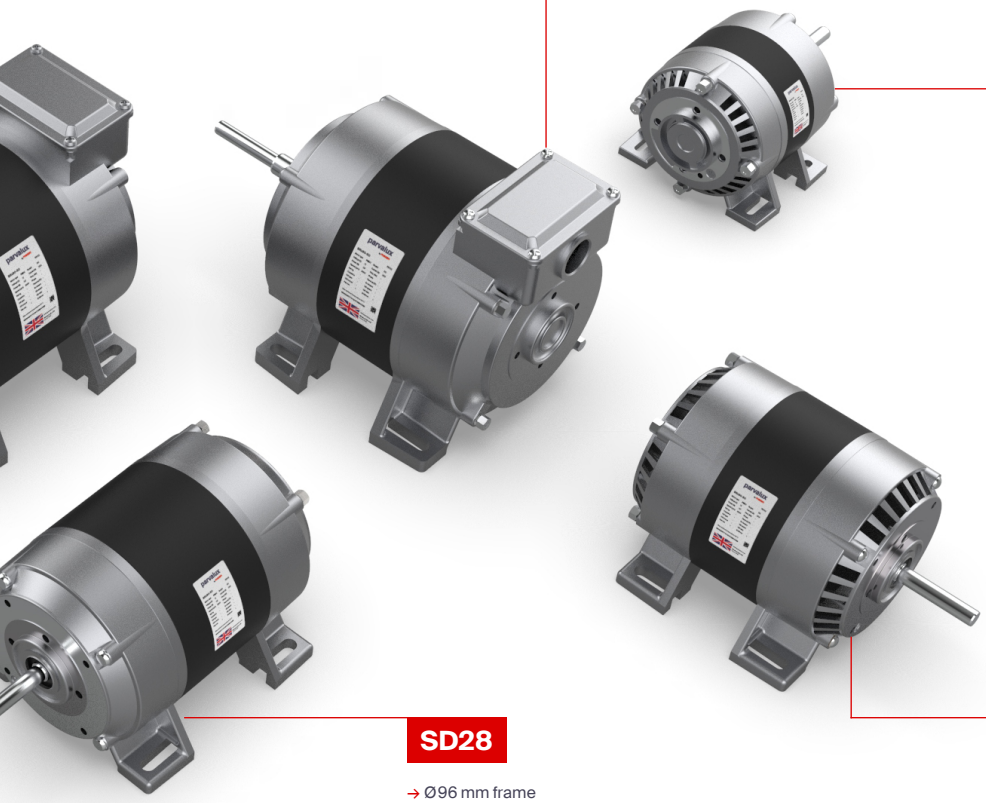
- AC induction, single and three-phase
- 2-Pole and 4-pole
- Permanent capacitor and capacitor start/run

SD29

- Ø96 mm frame
- 56 mm stack length
- 1400 - 3400 rpm nominal speed
- 0.41 Nm max continuous torque

SD18

- Ø120 mm frame
- 46 mm stack length
- 1400 - 3400 rpm nominal speed
- 0.85 Nm max continuous torque



SD21

- Ø81 mm frame
- 25 mm stack length
- 1400 - 3400 rpm nominal speed
- 0.07 Nm max continuous torque

SD28

- Ø96 mm frame
- 56 mm stack length
- 1400 - 3400 rpm nominal speed
- 0.41 Nm max continuous torque

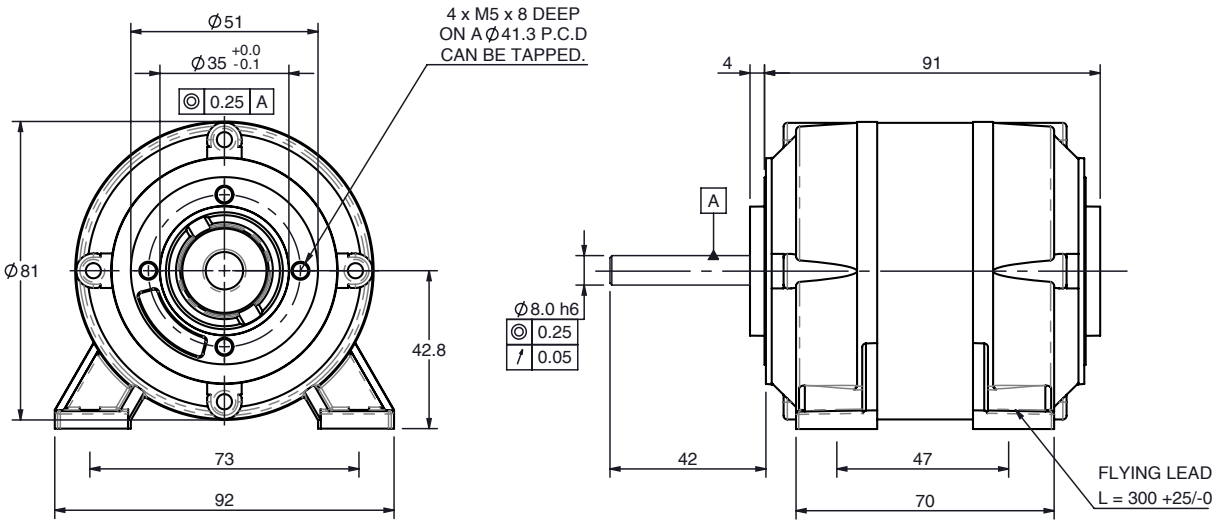
SD8

- Ø96 mm frame
- 37 mm stack length
- 1400 - 3400 rpm nominal speed
- 0.24 Nm max continuous torque

SD21 (2-POLE) AC motor

Ø81 mm frame // 25 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Feet optional on this motor - please contact your local sales engineer for more information.

	Technical data			
1	Part number		-	-
2	Phases		1	1
3	Frequency	Hz	50	60
4	Nominal voltage	V AC	230/115	230/115
5	Nominal power	W	20	20
6	Nominal speed	rpm	2800	3400
7	Nominal continuous torque (S1)	Nm	0.07	0.06
8	Nominal continuous current (S1)	A	0.34	0.60
9	Starting Current	A	0.85	1.50
10	Input power	W	80	80
11	Capacitor Value	M.F.D	2.0	2.0/8.4
12	Starting torque full load	%	85	85
13	Stack length	mm	25	25
14	Number of poles		2	2
15	Rotor inertia	Kg/cm²	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	110 [15]

	Other data		
18	Weight	Kg	1.5
19	Enclosure		VENT/TE
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
SWS	220
M Box	222
PGx42	248
GB36	231
LWS	236

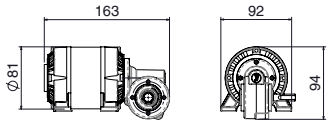
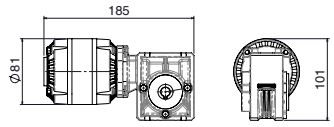
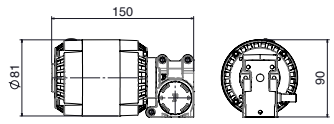
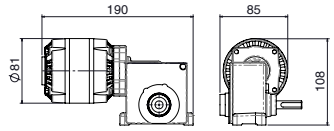
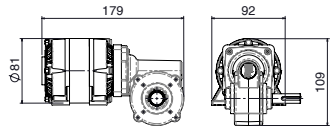
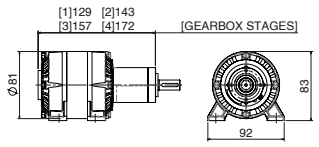
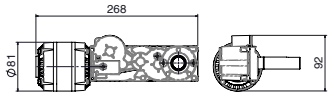
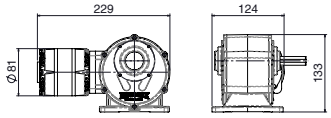
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD21 (2-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD21-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	850.0	113.3	48.6	850.0	113.3	48.6
		Nominal torque	Nm	0.2	1.2	1.7	0.2	1.0	1.5
SD21-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	226.7	113.3	56.7
		Nominal torque	Nm	-	-	-	0.7	1.2	1.6
SD21-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	850.0	226.7	136.0	-	-	-
		Nominal torque	Nm	0.2	0.7	1.0	-	-	-
SD21-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	94.4	16.4	2.5	-	-	-
		Nominal torque	Nm	1.5	8.8	11.0	-	-	-
SD21-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	850.0	113.3	47.2	850.0	113.3	47.2
		Nominal torque	Nm	0.2	1.3	2.0	0.2	1.1	1.7
SD21-PGx42		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.5 [1]	353 [4]	936 [4]
		Speed	rpm	-	-	-	971.4	9.6	3.6
		Nominal torque	Nm	-	-	-	0.2	11.3	11.3
SD21-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	1.1	5.3	45.0	-	-	-
SD21-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	70.8	5.1	1.0	-	-	-
		Nominal torque	Nm	2.0	26.2	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

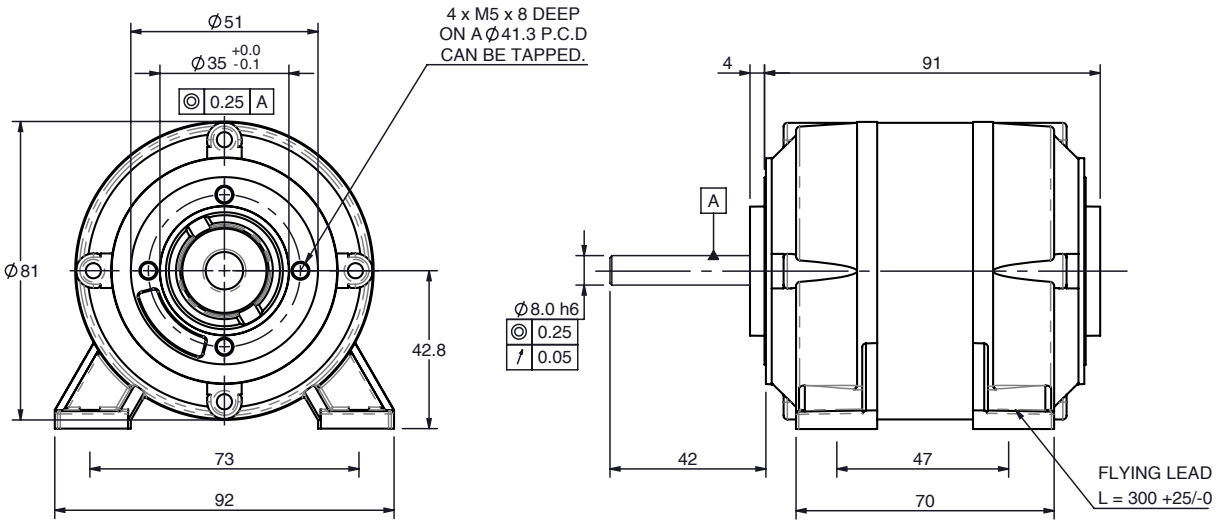
→ Technical data displayed above calculated based on **SD21 (2-POLE) 1 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD21 (4-POLE) AC motor

Ø81 mm frame // 25 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Feet optional on this motor - please contact your local sales engineer for more information.

	Technical data			
1	Part number		-	-
2	Phases		1	1
3	Frequency	**Hz**	50	60
4	Nominal voltage	**V AC**	230/115	230/115
5	Nominal power	**W**	8	8
6	Nominal speed	**rpm**	1400	1700
7	Nominal continuous torque (S1)	**Nm**	0.06	0.05
8	Nominal continuous current (S1)	**A**	0.18	0.42
9	Starting Current	**A**	0.45	1.05
10	Input power	**W**	40	40
11	Capacitor Value	**M.F.D**	2.5	2.5/10.0
12	Starting torque full load	**%**	100	100
13	Stack length	**mm**	25	25
14	Number of poles		4	4
15	Rotor inertia	**Kg/cm²**	-	-

	Thermal data		
16	Ambient temperature	**°C**	40

	Mechanical data		
17	Radial load [distance from flange]	**N [mm]**	110 [15]

	Other data		
18	Weight	**Kg**	1.5
19	Enclosure		VENT/TE
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
SWS	220
M Box	222
PGx42	248
GB36	231
LWS	236

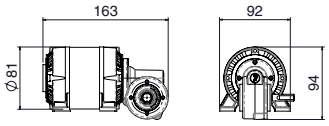
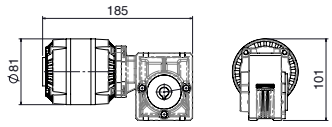
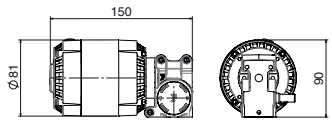
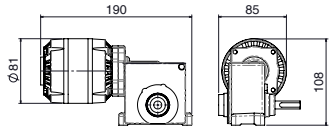
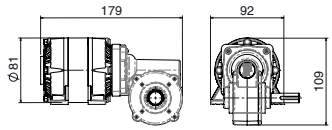
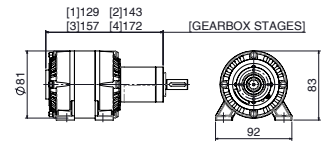
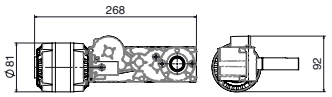
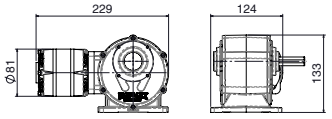
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD21 (4-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD21-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	425.0	56.7	24.3	425.0	56.7	24.3
		Nominal torque	Nm	0.2	1.0	1.4	0.1	0.9	1.2
SD21-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	113.3	56.7	28.3
		Nominal torque	Nm	-	-	-	0.6	1.0	1.4
SD21-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	425.0	113.3	68.0	-	-	-
		Nominal torque	Nm	0.2	0.6	0.9	-	-	-
SD21-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	47.2	8.2	1.2	-	-	-
		Nominal torque	Nm	1.3	7.3	11.0	-	-	-
SD21-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	425.0	56.7	23.6	425.0	56.7	23.6
		Nominal torque	Nm	0.2	1.1	1.7	0.1	0.9	1.4
SD21-PGx42		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.5 [1]	353 [4]	936 [4]
		Speed	rpm	-	-	-	485.7	4.8	1.8
		Nominal torque	Nm	-	-	-	0.2	11.3	11.3
SD21-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	0.9	4.4	37.8	-	-	-
SD21-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	35.4	2.5	0.5	-	-	-
		Nominal torque	Nm	1.6	21.8	94.9	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

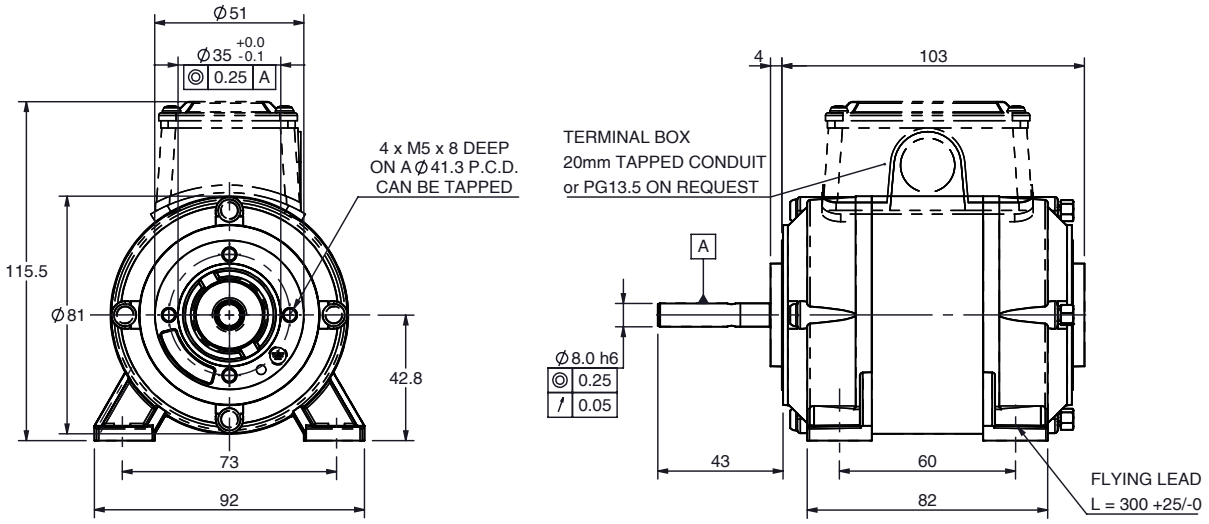
→ Technical data displayed above calculated based on **SD21 (4-POLE) 1 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD41 (2-POLE) AC motor

Ø81 mm frame // 38 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	25	25	25	25
6	Nominal speed	rpm	2800	3400	2800	3400
7	Nominal continuous torque (S1)	Nm	0.09	0.07	0.10	0.08
8	Nominal continuous current (S1)	A	0.25	0.70	0.14	-
9	Starting Current	A	0.63	1.75	0.35	0
10	Input power	W	65	-	58	-
11	Capacitor Value	M.F.D	2.5	2.0/8.4	-	-
12	Starting torque full load	%	100	100	150	150
13	Stack length	mm	38	38	38	38
14	Number of poles		2	2	2	2
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	110 [15]

	Other data		
18	Weight	Kg	2.1
19	Enclosure		VENT/TE
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
SWS	220
M Box	222
PGx42	248
GB36	231
LWS	236

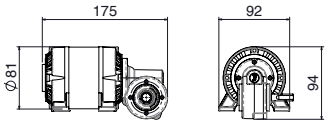
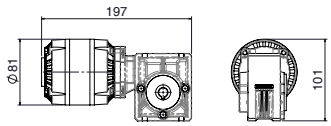
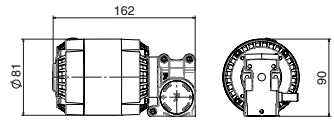
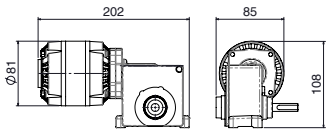
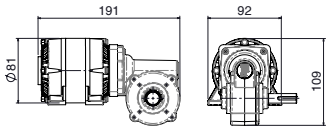
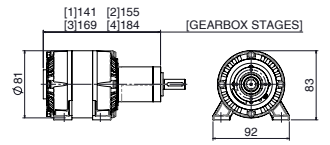
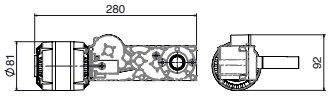
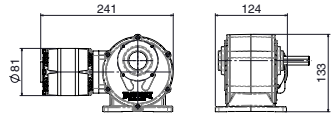
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD41 (2-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD41-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	850.0	113.3	48.6	850.0	113.3	48.6
		Nominal torque	Nm	0.3	1.6	2.0	0.2	1.4	2.0
SD41-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	226.7	113.3	56.7
		Nominal torque	Nm	-	-	-	0.9	1.6	2.2
SD41-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	850.0	226.7	136.0	-	-	-
		Nominal torque	Nm	0.3	0.9	1.4	-	-	-
SD41-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	94.4	16.4	2.5	-	-	-
		Nominal torque	Nm	2.0	11.0	11.0	-	-	-
SD41-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	850.0	113.3	47.2	850.0	113.3	47.2
		Nominal torque	Nm	0.3	1.7	2.6	0.2	1.5	2.3
SD41-PGx42		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.5 [1]	353 [4]	936 [4]
		Speed	rpm	-	-	-	971.4	9.6	3.6
		Nominal torque	Nm	-	-	-	0.3	11.3	11.3
SD41-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	1.5	7.1	45.0	-	-	-
SD41-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	70.8	5.1	1.0	-	-	-
		Nominal torque	Nm	2.6	34.9	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

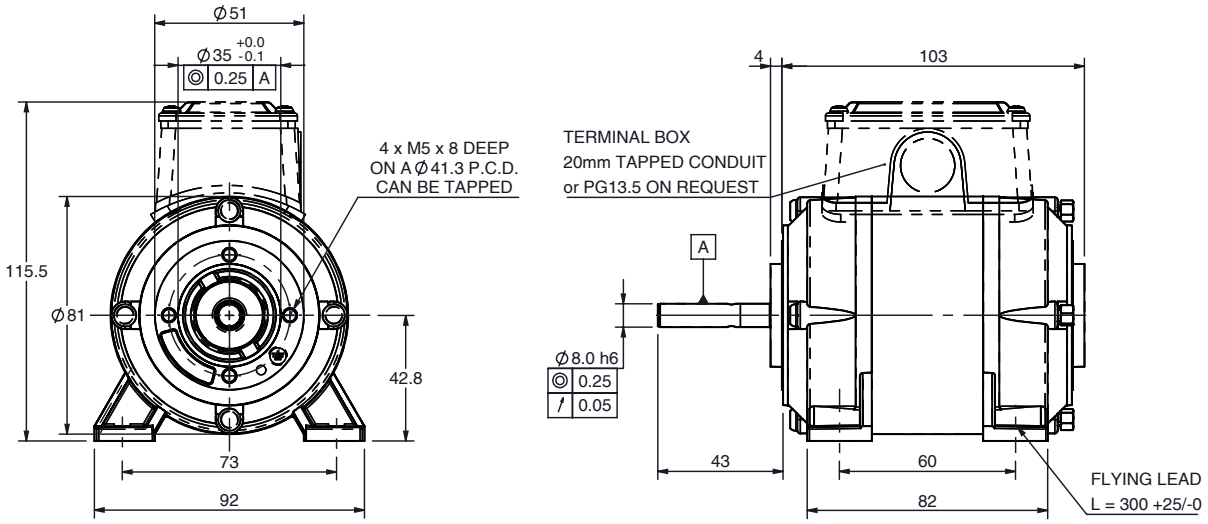
→ Technical data displayed above calculated based on **SD41 (2-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD41 (4-POLE) AC motor

Ø81 mm frame // 38 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	10	10	10	10
6	Nominal speed	rpm	1400	1700	1400	1700
7	Nominal continuous torque (S1)	Nm	0.07	0.06	0.09	0.07
8	Nominal continuous current (S1)	A	0.20	0.60	0.14	-
9	Starting Current	A	0.50	1.50	0.35	0
10	Input power	W	40	-	47	-
11	Capacitor Value	M.F.D	3.0	3.0/10.0	-	-
12	Starting torque full load	%	100	100	150	150
13	Stack length	mm	38	38	38	38
14	Number of poles		4	4	4	4
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	110 [15]

	Other data		
18	Weight	Kg	2.1
19	Enclosure		VENT/TE
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
SWS	220
M Box	222
PGx42	248
GB36	231
LWS	236

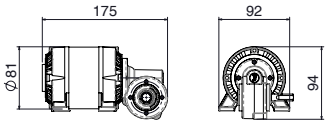
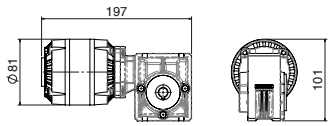
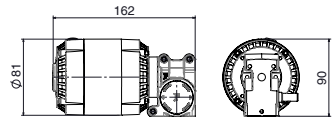
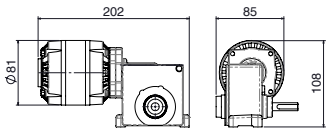
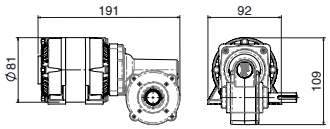
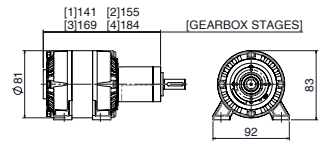
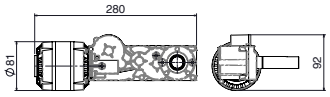
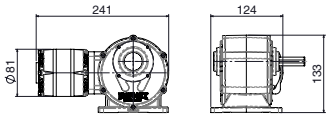
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD41 (4-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD41-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	425.0	56.7	24.3	425.0	56.7	24.3
		Nominal torque	Nm	0.2	1.4	2.0	0.2	1.2	1.7
SD41-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	113.3	56.7	28.3
		Nominal torque	Nm	-	-	-	0.8	1.4	1.9
SD41-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	425.0	113.3	68.0	-	-	-
		Nominal torque	Nm	0.2	0.8	1.2	-	-	-
SD41-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	47.2	8.2	1.2	-	-	-
		Nominal torque	Nm	1.8	10.3	11.0	-	-	-
SD41-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	425.0	56.7	23.6	425.0	56.7	23.6
		Nominal torque	Nm	0.2	1.5	2.3	0.2	1.3	2.0
SD41-PGx42		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.5 [1]	353 [4]	936 [4]
		Speed	rpm	-	-	-	485.7	4.8	1.8
		Nominal torque	Nm	-	-	-	0.2	11.3	11.3
SD41-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	1.3	6.2	45.0	-	-	-
SD41-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	35.4	2.5	0.5	-	-	-
		Nominal torque	Nm	2.3	30.6	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

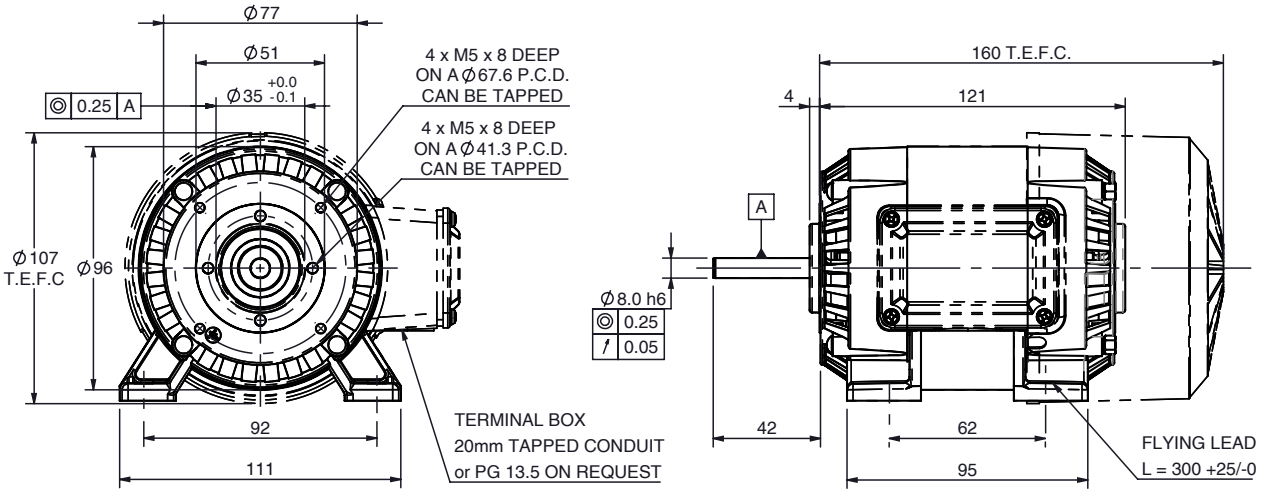
→ Technical data displayed above calculated based on **SD41 (4-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD8 (2-POLE) AC motor

Ø96 mm frame // 37 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.
Totally enclosed fan cooled (TEFC) option also available

	Technical data					
1	Part number		-	-		
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	60	60	60	60
6	Nominal speed	rpm	2800	3400	2800	3400
7	Nominal continuous torque (S1)	Nm	0.20	0.17	0.20	0.17
8	Nominal continuous current (S1)	A	0.57	-	0.24	-
9	Starting Current	A	1.42	0	0.60	0
10	Input power	W	127	127	105	105
11	Capacitor Value	M.F.D	4.0	4.0/14.0	-	-
12	Starting torque full load	%	75	75	200	200
13	Stack length	mm	37	37	37	37
14	Number of poles		2	2	2	2
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
18	Weight	Kg	2.8
19	Enclosure		VENT/TE
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
MWS	230
GB36	231
LIW	242
PGx52	249
LIS	244
LWS	236

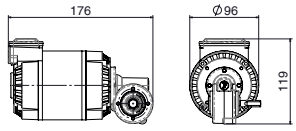
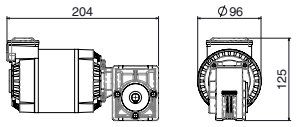
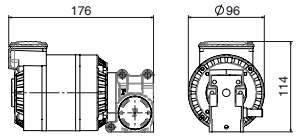
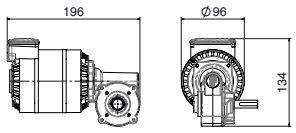
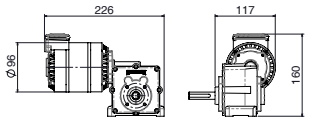
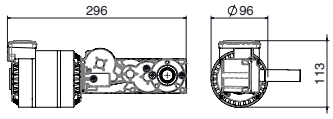
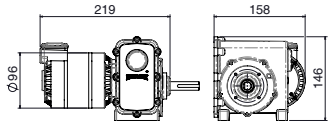
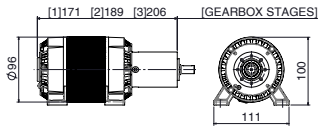
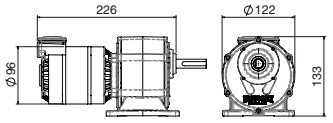
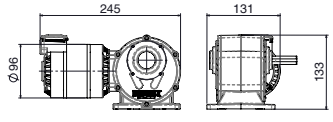
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD8 (2-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD8-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	850.0	113.3	48.6	850.0	113.3	48.6
		Nominal torque	Nm	0.5	3.0	2.0	0.5	2.9	3.0
SD8-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	226.7	113.3	56.7
		Nominal torque	Nm	-	-	-	1.9	3.3	4.6
SD8-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	850.0	226.7	136.0	-	-	-
		Nominal torque	Nm	0.6	1.9	2.9	-	-	-
SD8-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	850.0	113.3	47.2	850.0	113.3	47.2
		Nominal torque	Nm	0.6	3.6	5.0	0.5	3.1	4.9
SD8-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	3.1	15.1	45.0	-	-	-
SD8-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	3.1	15.1	45.0	-	-	-
SD8-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	94.4	8.5	2.8	94.4	8.5	2.8
		Nominal torque	Nm	4.5	28.0	28.0	4.5	40.1	45.0
SD8-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	871.8	77.3	19.8
		Nominal torque	Nm	-	-	-	0.6	6.9	26.0
SD8-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	566.7	68.0	29.6	-	-	-
		Nominal torque	Nm	0.8	6.5	15.1	-	-	-
SD8-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	70.8	5.1	1.0	-	-	-
		Nominal torque	Nm	5.5	74.3	100.0	-	-	-

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

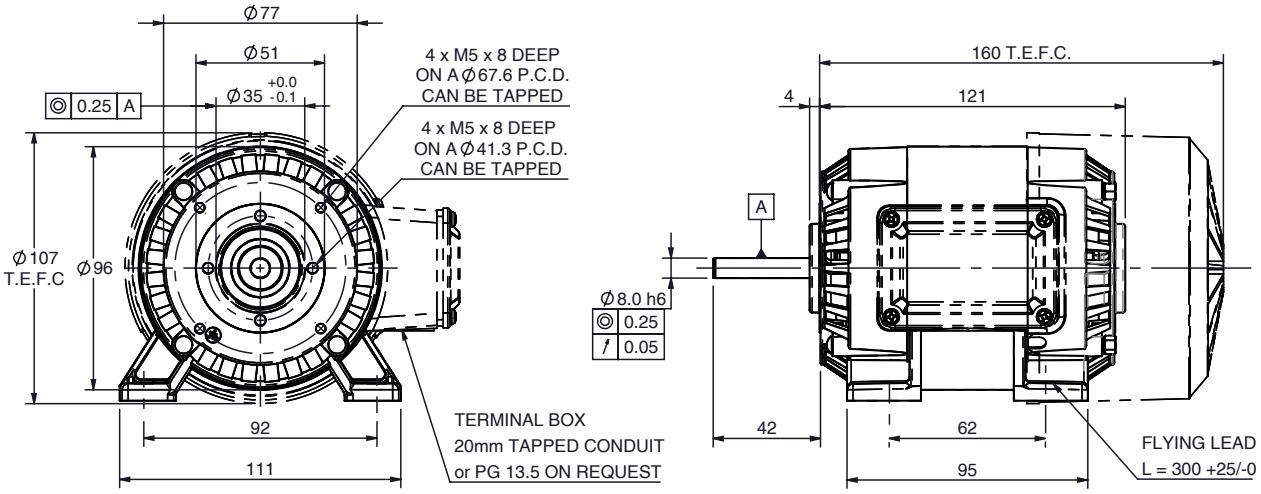
→ Technical data displayed above calculated based on **SD8 (2-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD8 (4-POLE) AC motor

Ø96 mm frame // 37 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.
Totally enclosed fan cooled (TEFC) option also available

	Technical data					
1	Part number		-	-		
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	35	35	35	35
6	Nominal speed	rpm	1400	1700	1400	1700
7	Nominal continuous torque (S1)	Nm	0.24	0.20	0.24	0.20
8	Nominal continuous current (S1)	A	0.3	-	0.24	-
9	Starting Current	A	0.75	0	0.60	0
10	Input power	W	75	75	80	80
11	Capacitor Value	M.F.D	2.5	2.5/10.0	-	-
12	Starting torque full load	%	85	85	200	200
13	Stack length	mm	37	37	37	37
14	Number of poles		4	4	4	4
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
18	Weight	Kg	2.8
19	Enclosure		VENT/TE
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
MWS	230
GB36	231
LIW	242
PGx52	249
LIS	244
LWS	236

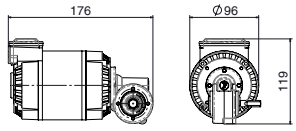
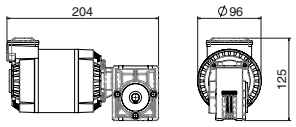
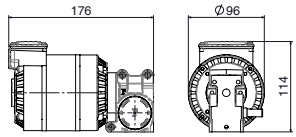
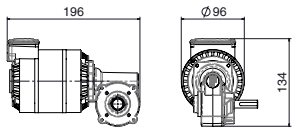
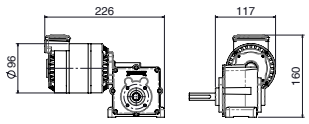
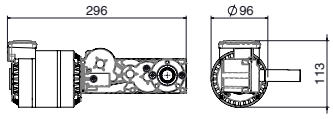
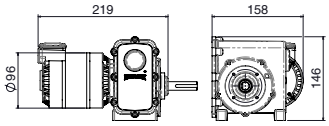
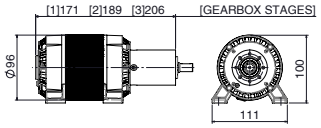
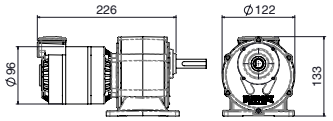
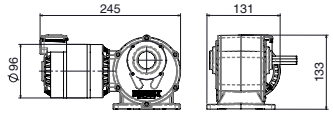
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD8 (4-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD8-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	425.0	56.7	24.3	425.0	56.7	24.3
		Nominal torque	Nm	0.6	3.0	2.0	0.6	3.4	3.0
SD8-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	113.3	56.7	28.3
		Nominal torque	Nm	-	-	-	2.3	3.9	5.0
SD8-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	425.0	113.3	68.0	-	-	-
		Nominal torque	Nm	0.7	2.3	3.4	-	-	-
SD8-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	425.0	56.7	23.6	425.0	56.7	23.6
		Nominal torque	Nm	0.7	4.2	5.0	0.6	3.7	5.8
SD8-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	3.6	17.8	45.0	-	-	-
SD8-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	3.6	17.8	45.0	-	-	-
SD8-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	47.2	4.3	1.4	47.2	4.3	1.4
		Nominal torque	Nm	5.3	28.0	28.0	5.3	45.0	45.0
SD8-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	435.9	38.6	9.9
		Nominal torque	Nm	-	-	-	0.7	8.1	30.0
SD8-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	283.3	34.0	14.8	-	-	-
		Nominal torque	Nm	0.9	7.7	17.7	-	-	-
SD8-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	35.4	2.5	0.5	-	-	-
		Nominal torque	Nm	6.5	87.4	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

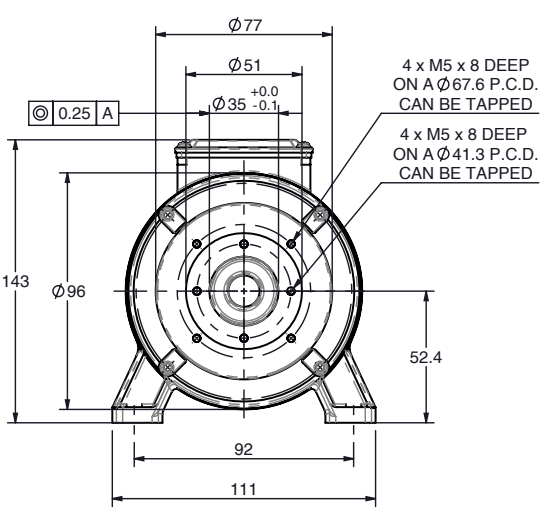
→ Technical data displayed above calculated based on **SD8 (4-POLE) 3 Phase 60Hz** motor.

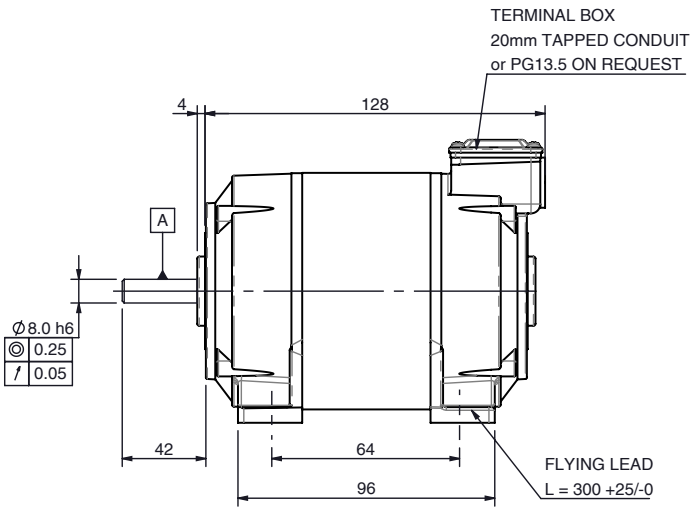
→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD38 (2-POLE) AC motor

Ø96 mm frame // 37 mm stack

all dimensions in mm





Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	60	60	60	60
6	Nominal speed	rpm	2800	3400	2800	3400
7	Nominal continuous torque (S1)	Nm	0.20	0.17	0.20	0.17
8	Nominal continuous current (S1)	A	0.57	-	0.24	-
9	Starting Current	A	1.43	0	0.60	0
10	Input power	W	127	127	105	105
11	Capacitor Value	M.F.D	4.0	4.0/14.0	-	-
12	Starting torque full load	%	75	75	200	200
13	Stack length	mm	37	37	37	37
14	Number of poles		2	2	2	2
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
18	Weight	Kg	2.9
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
MWS	230
GB36	231
LIW	242
PGx52	249
LIS	244
LWS	236

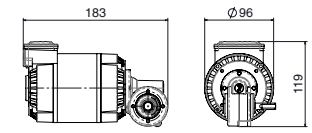
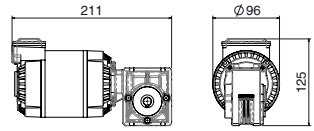
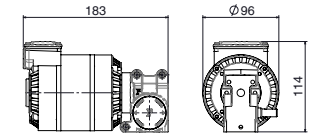
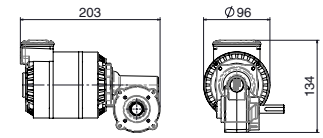
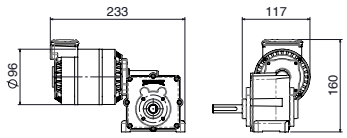
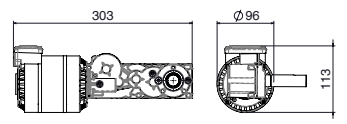
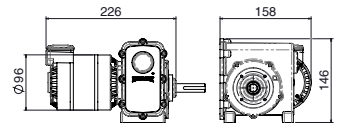
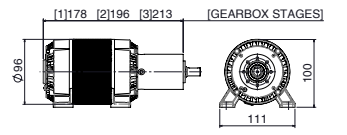
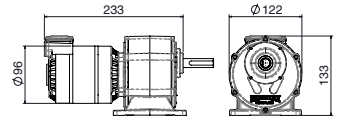
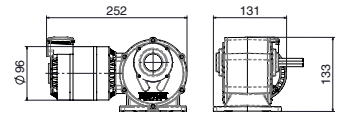
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD38 (2-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD38-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	850.0	113.3	48.6	850.0	113.3	48.6
		Nominal torque	Nm	0.5	3.0	2.0	0.5	2.9	3.0
SD38-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	226.7	113.3	56.7
		Nominal torque	Nm	-	-	-	1.9	3.3	4.6
SD38-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	850.0	226.7	136.0	-	-	-
		Nominal torque	Nm	0.6	1.9	2.9	-	-	-
SD38-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	850.0	113.3	47.2	850.0	113.3	47.2
		Nominal torque	Nm	0.6	3.6	5.0	0.5	3.1	4.9
SD38-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	3.1	15.1	45.0	-	-	-
SD38-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	3.1	15.1	45.0	-	-	-
SD38-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	94.4	8.5	2.8	94.4	8.5	2.8
		Nominal torque	Nm	4.5	28.0	28.0	4.5	40.1	45.0
SD38-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	871.8	77.3	19.8
		Nominal torque	Nm	-	-	-	0.6	6.9	26.0
SD38-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	566.7	68.0	29.6	-	-	-
		Nominal torque	Nm	0.8	6.5	15.1	-	-	-
SD38-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	70.8	5.1	1.0	-	-	-
		Nominal torque	Nm	5.5	74.3	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

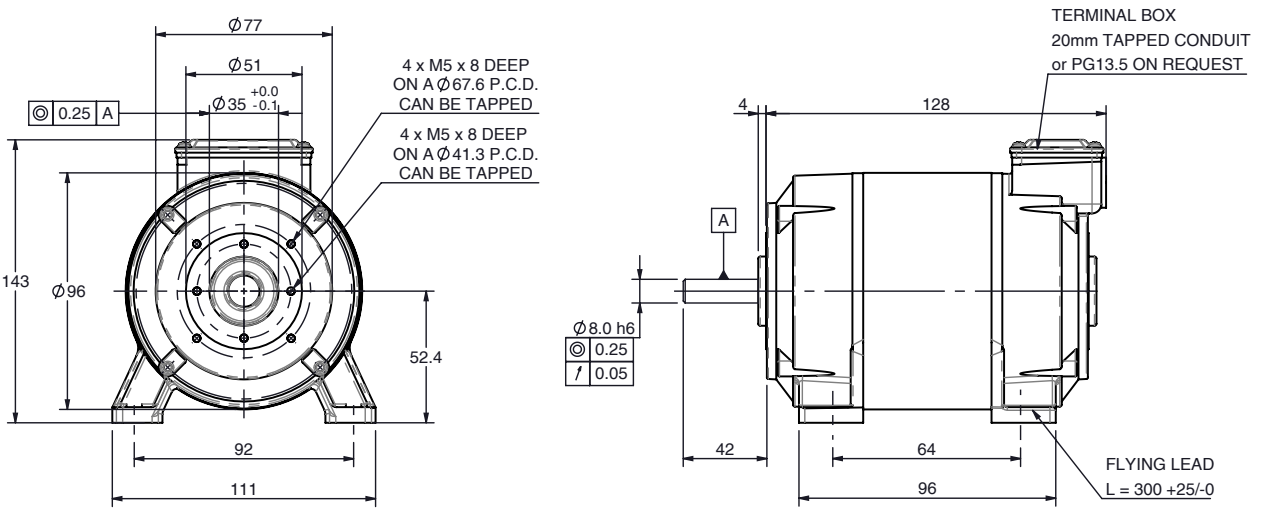
→ Technical data displayed above calculated based on **SD38 (2-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD38 (4-POLE) AC motor

Ø96 mm frame // 37 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	35	35	35	35
6	Nominal speed	rpm	1400	1700	1400	1700
7	Nominal continuous torque (S1)	Nm	0.24	0.20	0.24	0.20
8	Nominal continuous current (S1)	A	0.30	-	0.24	-
9	Starting Current	A	0.75	0	0.60	0
10	Input power	W	75	75	80	80
11	Capacitor Value	M.F.D	2.5	2.5/10.0	-	-
12	Starting torque full load	%	85	85	200	200
13	Stack length	mm	37	37	37	37
14	Number of poles		4	4	4	4
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
18	Weight	Kg	2.9
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
MWS	230
GB36	231
LIW	242
PGx52	249
LIS	244
LWS	236

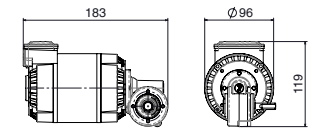
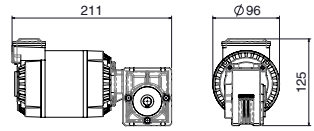
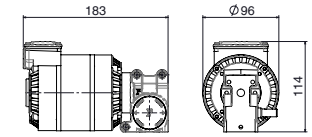
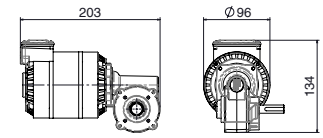
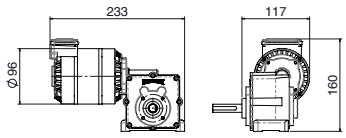
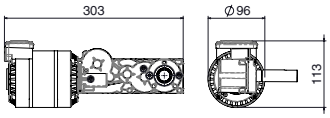
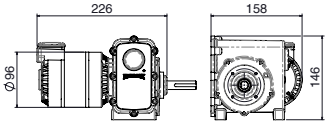
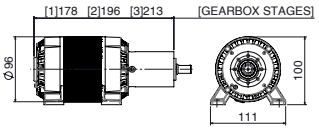
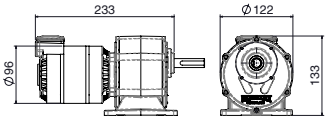
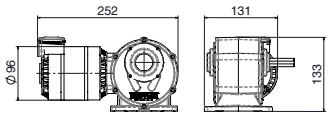
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD38 (4-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD38-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	425.0	56.7	24.3	425.0	56.7	24.3
		Nominal torque	Nm	0.6	3.0	2.0	0.6	3.4	3.0
SD38-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	113.3	56.7	28.3
		Nominal torque	Nm	-	-	-	2.3	3.9	5.0
SD38-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	425.0	113.3	68.0	-	-	-
		Nominal torque	Nm	0.7	2.3	3.4	-	-	-
SD38-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	425.0	56.7	23.6	425.0	56.7	23.6
		Nominal torque	Nm	0.7	4.2	5.0	0.6	3.7	5.8
SD38-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	3.6	17.8	45.0	-	-	-
SD38-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	3.6	17.8	45.0	-	-	-
SD38-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	47.2	4.3	1.4	47.2	4.3	1.4
		Nominal torque	Nm	5.3	28.0	28.0	5.3	45.0	45.0
SD38-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	435.9	38.6	9.9
		Nominal torque	Nm	-	-	-	0.7	8.1	30.0
SD38-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	283.3	34.0	14.8	-	-	-
		Nominal torque	Nm	0.9	7.7	17.7	-	-	-
SD38-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	35.4	2.5	0.5	-	-	-
		Nominal torque	Nm	6.5	87.4	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

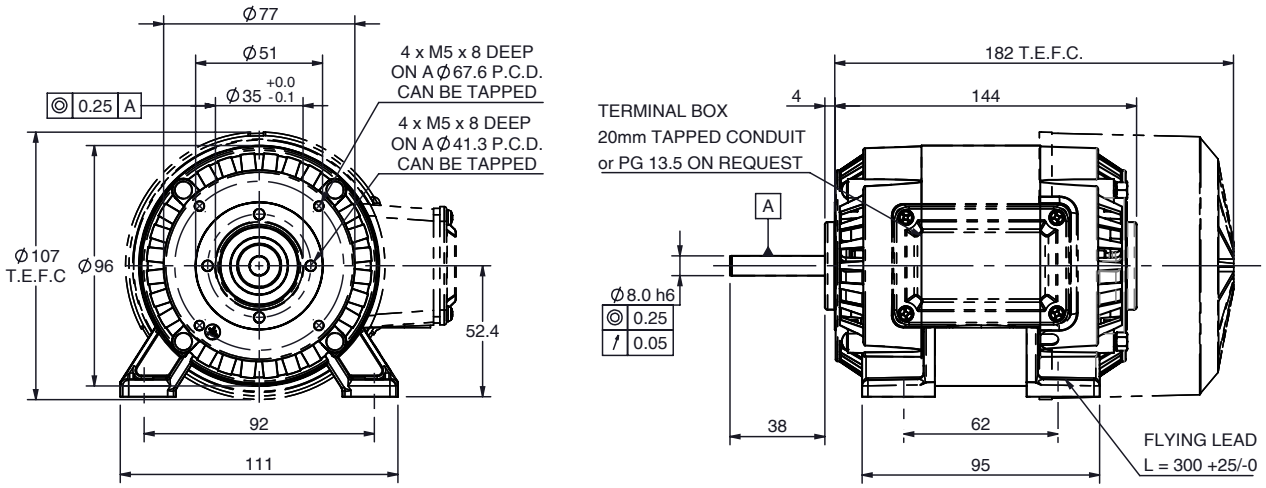
→ Technical data displayed above calculated based on **SD38 (4-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD28 (2-POLE) AC motor

Ø96 mm frame // 56 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.
Totally enclosed fan cooled (TEFC) option also available

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	100	100	120	120
6	Nominal speed	rpm	2800	3400	2800	3400
7	Nominal continuous torque (S1)	Nm	0.34	0.28	0.41	0.41
8	Nominal continuous current (S1)	A	0.76	-	0.36	-
9	Starting Current	A	1.90	0	0.90	0
10	Input power	W	185	185	185	185
11	Capacitor Value	M.F.D	6.0	6.0/20.0	-	-
12	Starting torque full load	%	85	85	150	150
13	Stack length	mm	56	56	56	56
14	Number of poles		2	2	2	2
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
18	Weight	Kg	3.6
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
MWS	230
GB36	231
LIW	242
PGx52	249
LIS	244
LWS	236

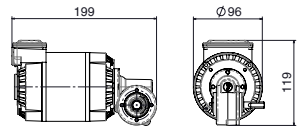
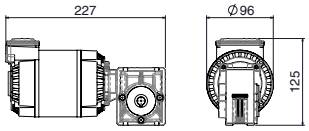
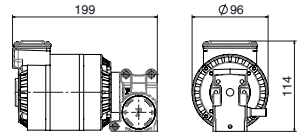
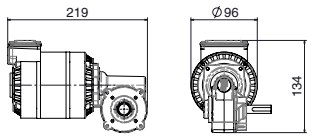
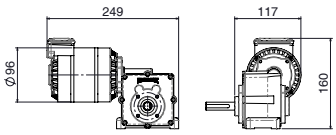
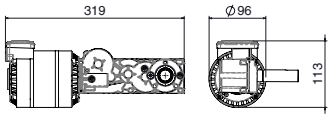
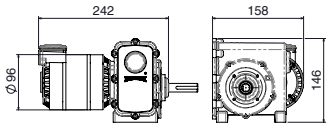
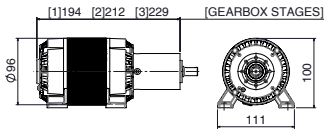
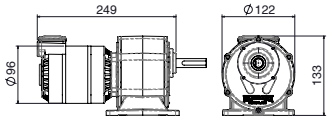
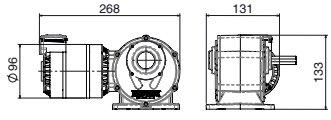
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD28 (2-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD28-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	850.0	113.3	48.6	850.0	113.3	48.6
		Nominal torque	Nm	1.3	3.0	2.0	1.1	4.5	3.0
SD28-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	226.7	113.3	56.7
		Nominal torque	Nm	-	-	-	4.6	5.0	5.0
SD28-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	850.0	226.7	136.0	-	-	-
		Nominal torque	Nm	1.4	4.0	4.0	-	-	-
SD28-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	850.0	113.3	47.2	850.0	113.3	47.2
		Nominal torque	Nm	1.4	8.0	5.0	1.2	7.5	8.0
SD28-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	7.5	22.0	45.0	-	-	-
SD28-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	7.5	22.0	45.0	-	-	-
SD28-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	94.4	8.5	2.8	94.4	8.5	2.8
		Nominal torque	Nm	10.9	28.0	28.0	10.9	45.0	45.0
SD28-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	871.8	77.3	19.8
		Nominal torque	Nm	-	-	-	1.5	15.0	30.0
SD28-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	566.7	68.0	29.6	-	-	-
		Nominal torque	Nm	1.9	15.8	36.3	-	-	-
SD28-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	70.8	5.1	1.0	-	-	-
		Nominal torque	Nm	13.4	100.0	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

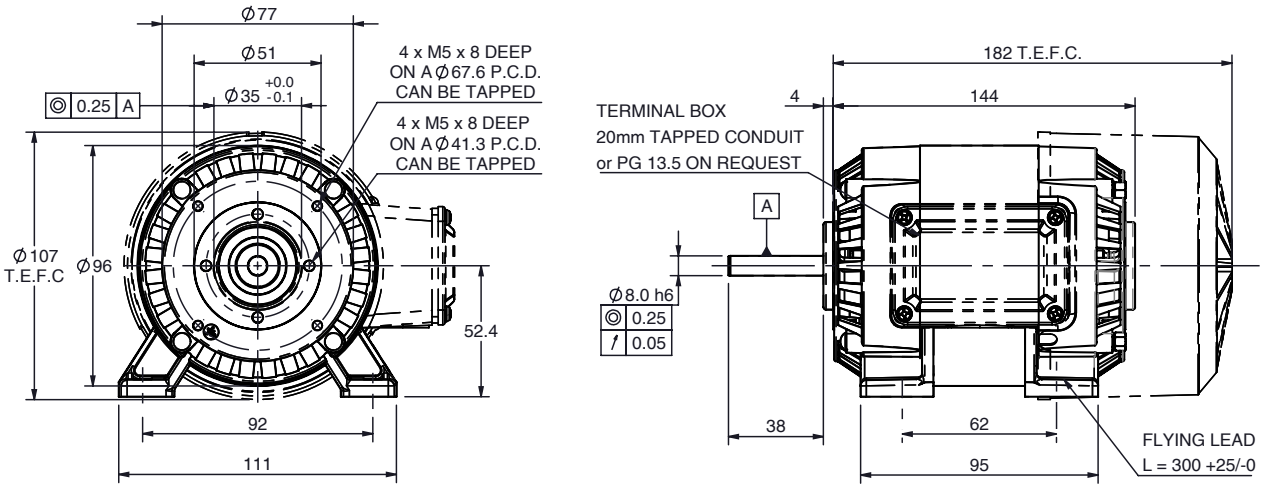
→ Technical data displayed above calculated based on **SD28 (2-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD28 (4-POLE) AC motor

Ø96 mm frame // 56 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.
Totally enclosed fan cooled (TEFC) option also available

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	55	55	55	55
6	Nominal speed	rpm	1400	1700	1400	1700
7	Nominal continuous torque (S1)	Nm	0.38	0.31	0.38	0.38
8	Nominal continuous current (S1)	A	0.41	-	0.28	-
9	Starting Current	A	1.03	0	0.70	0
10	Input power	W	100	100	100	100
11	Capacitor Value	M.F.D	3.0/4.0	4.0/14.0	-	-
12	Starting torque full load	%	85	85	150	150
13	Stack length	mm	56	56	56	56
14	Number of poles		4	4	4	4
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
18	Weight	Kg	3.6
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
MWS	230
GB36	231
LIW	242
PGx52	249
LIS	244
LWS	236

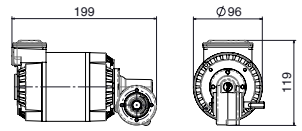
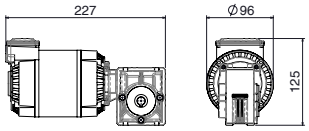
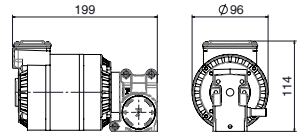
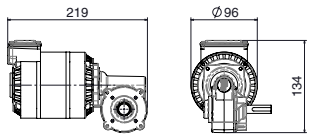
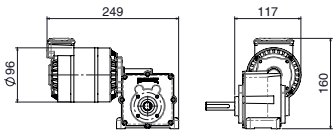
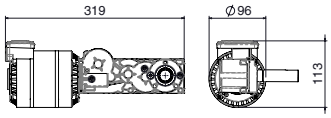
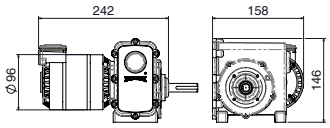
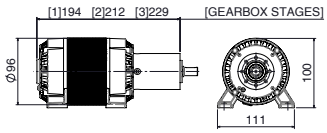
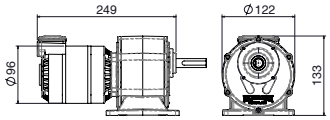
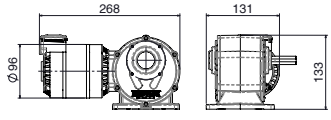
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD28 (4-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD28-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	425.0	56.7	24.3	425.0	56.7	24.3
		Nominal torque	Nm	1.2	3.0	2.0	1.1	4.5	3.0
SD28-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	113.3	56.7	28.3
		Nominal torque	Nm	-	-	-	4.3	5.0	5.0
SD28-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	425.0	113.3	68.0	-	-	-
		Nominal torque	Nm	1.3	4.0	4.0	-	-	-
SD28-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	425.0	56.7	23.6	425.0	56.7	23.6
		Nominal torque	Nm	1.3	8.0	5.0	1.1	7.0	8.0
SD28-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	6.9	22.0	45.0	-	-	-
SD28-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	6.9	22.0	45.0	-	-	-
SD28-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	47.2	4.3	1.4	47.2	4.3	1.4
		Nominal torque	Nm	10.1	28.0	28.0	10.1	45.0	45.0
SD28-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	435.9	38.6	9.9
		Nominal torque	Nm	-	-	-	1.4	15.0	30.0
SD28-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	283.3	34.0	14.8	-	-	-
		Nominal torque	Nm	1.8	14.6	33.6	-	-	-
SD28-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	35.4	2.5	0.5	-	-	-
		Nominal torque	Nm	12.4	100.0	100.0	-	-	-

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

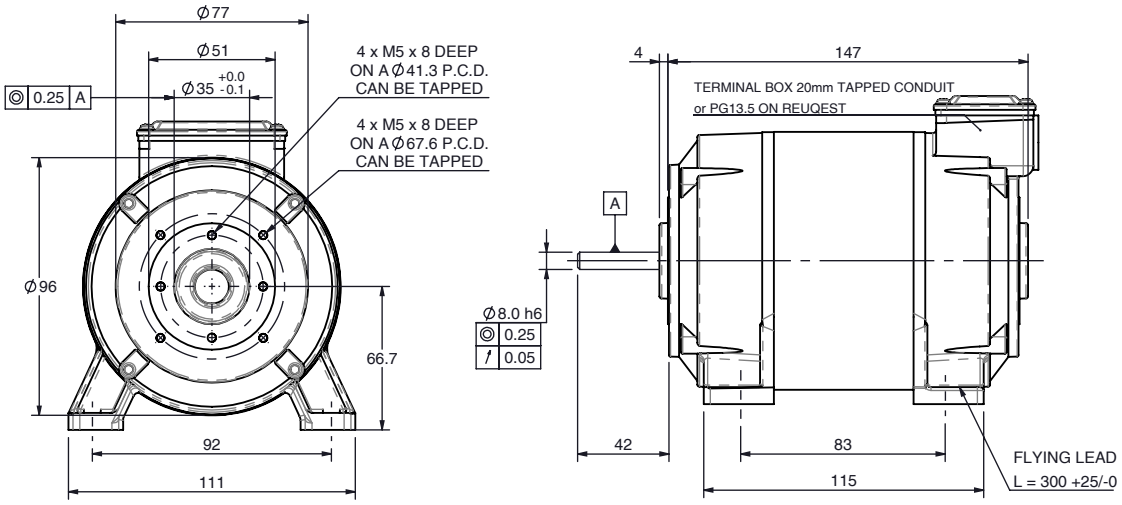
→ Technical data displayed above calculated based on **SD28 (4-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD29 (2-POLE) AC motor

Ø96 mm frame // 56 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	100	100	120	120
6	Nominal speed	rpm	2800	3400	2800	3400
7	Nominal continuous torque (S1)	Nm	0.34	0.28	0.41	0.41
8	Nominal continuous current (S1)	A	0.76	-	0.36	-
9	Starting Current	A	1.90	0	0.90	0
10	Input power	W	185	185	185	185
11	Capacitor Value	M.F.D	6.0	6.0/20.0	-	-
12	Starting torque full load	%	85	85	150	150
13	Stack length	mm	56	56	56	56
14	Number of poles		2	2	2	2
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	150 [15]

	Other data		
18	Weight	Kg	3.6
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
MWS	230
GB36	231
LIW	242
PGx52	249
LIS	244
LWS	236

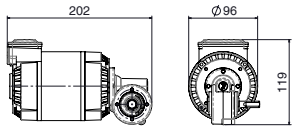
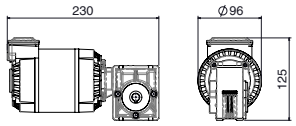
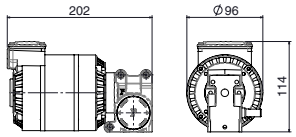
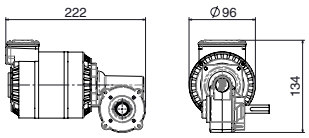
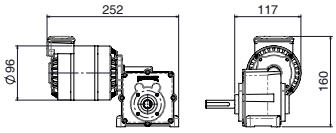
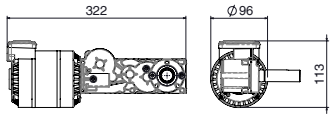
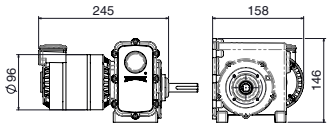
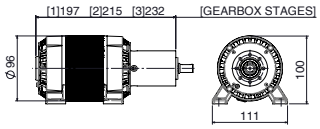
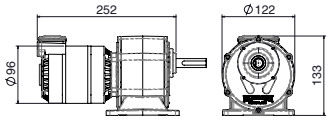
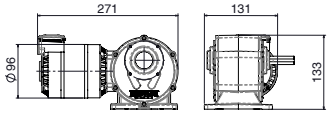
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD29 (2-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD29-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	850.0	113.3	48.6	850.0	113.3	48.6
		Nominal torque	Nm	1.3	3.0	2.0	1.1	4.5	3.0
SD29-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	226.7	113.3	56.7
		Nominal torque	Nm	-	-	-	4.6	5.0	5.0
SD29-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	850.0	226.7	136.0	-	-	-
		Nominal torque	Nm	1.4	4.0	4.0	-	-	-
SD29-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	850.0	113.3	47.2	850.0	113.3	47.2
		Nominal torque	Nm	1.4	8.0	5.0	1.2	7.5	8.0
SD29-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	7.5	22.0	45.0	-	-	-
SD29-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	7.5	22.0	45.0	-	-	-
SD29-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	94.4	8.5	2.8	94.4	8.5	2.8
		Nominal torque	Nm	10.9	28.0	28.0	10.9	45.0	45.0
SD29-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	871.8	77.3	19.8
		Nominal torque	Nm	-	-	-	1.5	15.0	30.0
SD29-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	566.7	68.0	29.6	-	-	-
		Nominal torque	Nm	1.9	15.8	36.3	-	-	-
SD29-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	70.8	5.1	1.0	-	-	-
		Nominal torque	Nm	13.4	100.0	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

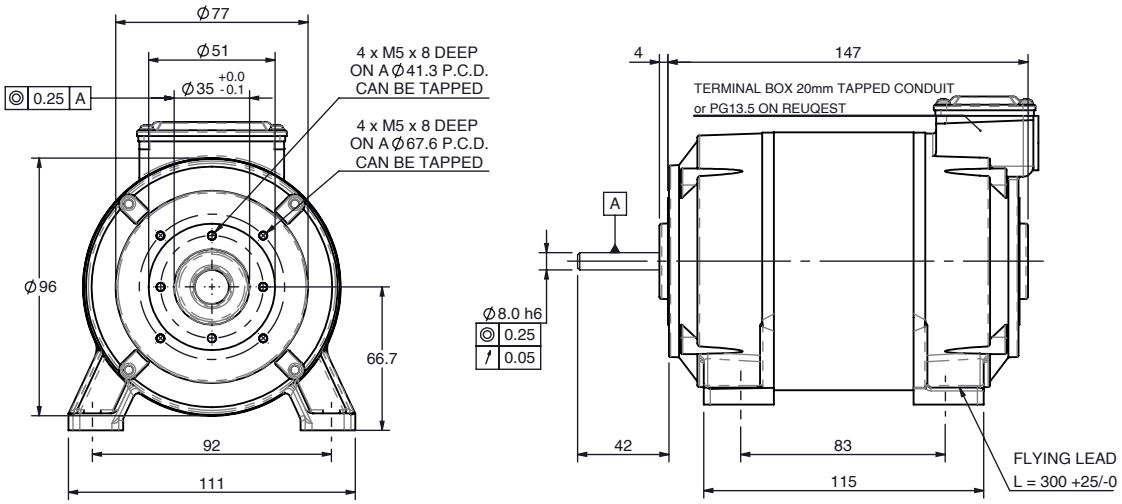
→ Technical data displayed above calculated based on **SD29 (2-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD29 (4-POLE) AC motor

Ø96 mm frame // 56 mm stack

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Feet optional on this motor - please contact your local sales engineer for more information.

Technical data						
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	55	55	55	55
6	Nominal speed	rpm	1400	1700	1400	1700
7	Nominal continuous torque (S1)	Nm	0.38	0.31	0.38	0.38
8	Nominal continuous current (S1)	A	0.41	-	0.28	-
9	Starting Current	A	1.03	0	0.70	0
10	Input power	W	100	100	100	100
11	Capacitor Value	M.F.D	3.0/4.0	4.0/14.0	-	-
12	Starting torque full load	%	85	85	150	150
13	Stack length	mm	56	56	56	56
14	Number of poles		4	4	4	4
15	Rotor inertia	Kg/cm²	-	-	-	-

Thermal data			
16	Ambient temperature	°C	40

Mechanical data			
17	Radial load [distance from flange]	N [mm]	150 [15]

Other data			
18	Weight	Kg	3.6
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
S Box	216
GB28	218
GB58	219
M Box	222
MWS	230
GB36	231
LIW	242
PGx52	249
LIS	244
LWS	236

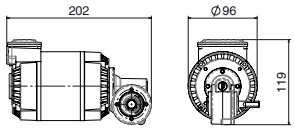
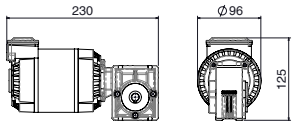
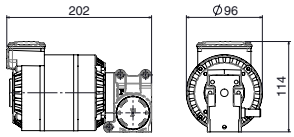
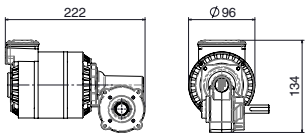
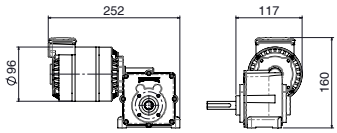
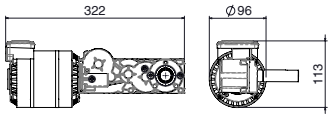
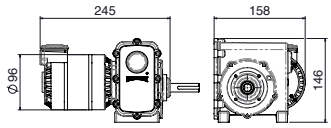
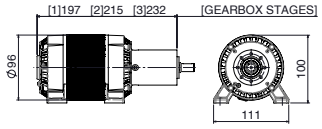
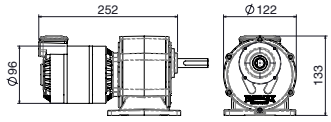
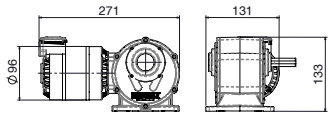
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD29 (4-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD29-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	425.0	56.7	24.3	425.0	56.7	24.3
		Nominal torque	Nm	1.2	3.0	2.0	1.1	4.5	3.0
SD29-GB28		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	15	30	60
		Speed	rpm	-	-	-	113.3	56.7	28.3
		Nominal torque	Nm	-	-	-	4.3	5.0	5.0
SD29-GB58		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	15	25	-	-	-
		Speed	rpm	425.0	113.3	68.0	-	-	-
		Nominal torque	Nm	1.3	4.0	4.0	-	-	-
SD29-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	425.0	56.7	23.6	425.0	56.7	23.6
		Nominal torque	Nm	1.3	8.0	5.0	1.1	7.0	8.0
SD29-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	6.9	22.0	45.0	-	-	-
SD29-GB36		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	6.9	22.0	45.0	-	-	-
SD29-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	47.2	4.3	1.4	47.2	4.3	1.4
		Nominal torque	Nm	10.1	28.0	28.0	10.1	45.0	45.0
SD29-PGx52		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	44 [2]	172 [3]
		Speed	rpm	-	-	-	435.9	38.6	9.9
		Nominal torque	Nm	-	-	-	1.4	15.0	30.0
SD29-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	283.3	34.0	14.8	-	-	-
		Nominal torque	Nm	1.8	14.6	33.6	-	-	-
SD29-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	35.4	2.5	0.5	-	-	-
		Nominal torque	Nm	12.4	100.0	100.0	-	-	-

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

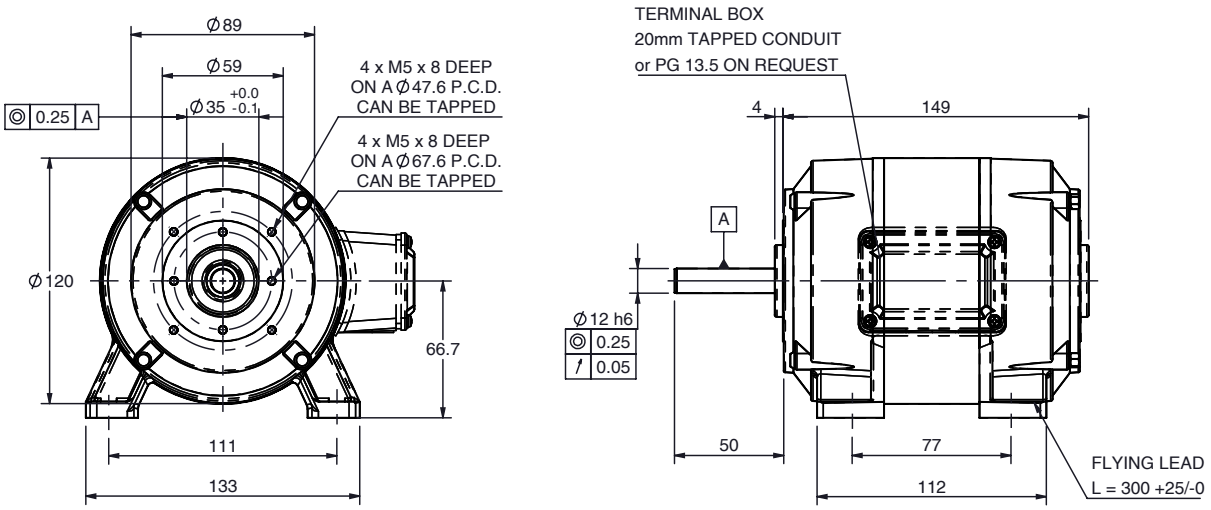
→ Technical data displayed above calculated based on **SD29 (4-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD13 (2-POLE) AC motor

Ø120 mm frame // 46 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	150	150	190	190
6	Nominal speed	rpm	2800	3400	2800	3400
7	Nominal continuous torque (S1)	Nm	0.51	0.42	0.65	0.53
8	Nominal continuous current (S1)	A	1.20	-	0.46	-
9	Starting Current	A	3.0	0	1.2	0
10	Input power	W	290	290	273	273
11	Capacitor Value	M.F.D	8.4	8.4/30.0	-	-
12	Starting torque full load	%	80	80	200	200
13	Stack length	mm	46	46	46	46
14	Number of poles		2	2	2	2
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
18	Weight	Kg	5.4
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
M Box	222
L Box	224
MWS	230
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

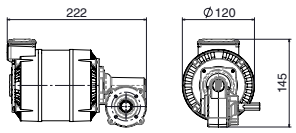
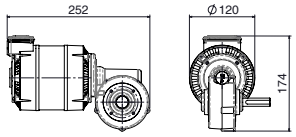
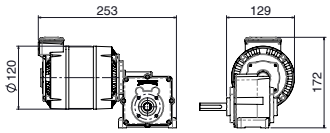
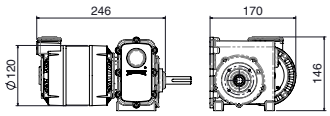
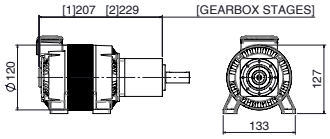
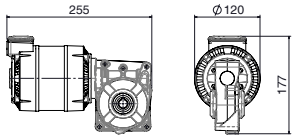
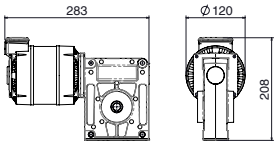
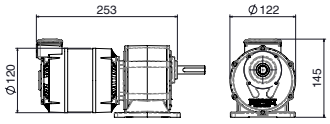
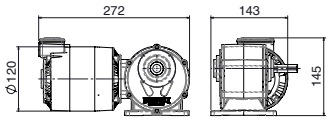
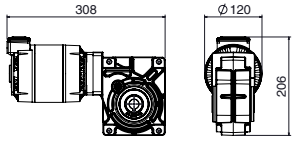
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD13 (2-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD13-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	850.0	113.3	47.2	850.0	113.3	47.2
		Nominal torque	Nm	1.8	8.0	5.0	1.6	9.7	8.0
SD13-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	680.0	113.3	56.7	680.0	113.3	56.7
		Nominal torque	Nm	2.4	11.4	15.0	2.2	10.3	14.3
SD13-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	9.0	22.0	45.0	-	-	-
SD13-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	94.4	8.5	2.8	94.4	8.5	2.8
		Nominal torque	Nm	14.1	28.0	28.0	14.1	45.0	45.0
SD13-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	871.8	161.9	77.3
		Nominal torque	Nm	-	-	-	2.0	10.2	21.5
SD13-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	272.0	113.3	45.3	272.0	113.3	45.3
		Nominal torque	Nm	5.6	11.4	18.0	5.3	10.3	17.9
SD13-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	272.0	113.3	45.3	272.0	113.3	45.3
		Nominal torque	Nm	6.0	11.9	19.9	5.6	11.1	17.9
SD13-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	566.7	68.0	29.6	-	-	-
		Nominal torque	Nm	2.4	20.4	46.9	-	-	-
SD13-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	70.8	5.1	1.0	-	-	-
		Nominal torque	Nm	17.3	100.0	100.0	-	-	-
SD13-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	170.0	42.5	21.3
		Nominal torque	Nm	-	-	-	8.6	29.7	36.5

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

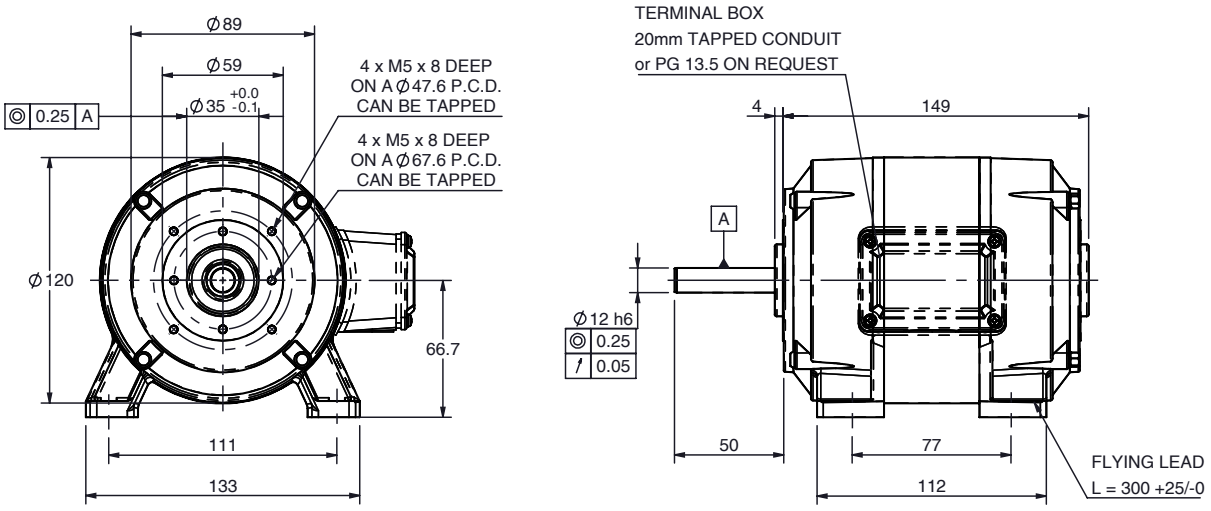
→ Technical data displayed above calculated based on **SD13 (2-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD13 (4-POLE) AC motor

Ø120 mm frame // 46 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	100	100	125	125
6	Nominal speed	rpm	1400	1700	1400	1700
7	Nominal continuous torque (S1)	Nm	0.68	0.56	0.85	0.70
8	Nominal continuous current (S1)	A	0.76	-	0.44	-
9	Starting Current	A	1.9	0	1.1	0
10	Input power	W	180	180	210	210
11	Capacitor Value	M.F.D	6.0	6.0/24.0	-	-
12	Starting torque full load	%	75	75	200	200
13	Stack length	mm	46	46	46	46
14	Number of poles		4	4	4	4
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
18	Weight	Kg	5.4
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
M Box	222
L Box	224
MWS	230
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

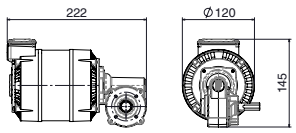
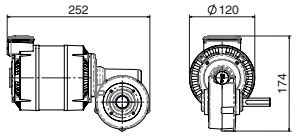
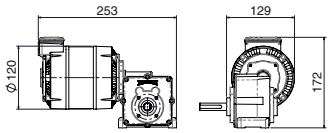
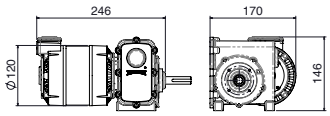
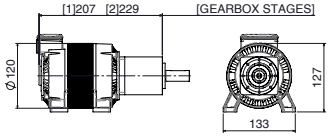
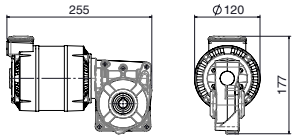
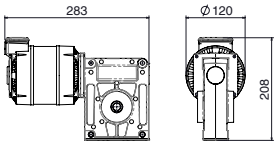
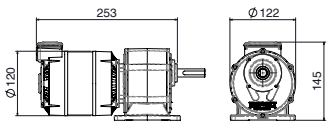
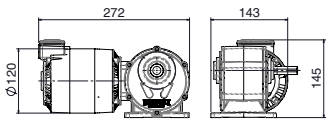
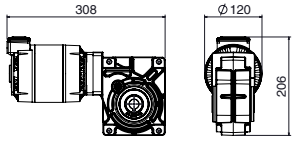
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD13 (4-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD13-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	425.0	56.7	23.6	425.0	56.7	23.6
		Nominal torque	Nm	2.4	8.0	5.0	2.1	12.0	8.0
SD13-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	340.0	56.7	28.3	340.0	56.7	28.3
		Nominal torque	Nm	3.2	15.0	15.0	2.9	13.7	18.9
SD13-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	9.0	22.0	45.0	-	-	-
SD13-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	47.2	4.3	1.4	47.2	4.3	1.4
		Nominal torque	Nm	18.6	28.0	28.0	18.6	45.0	45.0
SD13-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	435.9	81.0	38.6
		Nominal torque	Nm	-	-	-	2.6	13.5	28.3
SD13-GB12		Gear material [1]							
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	136.0	56.7	22.7	136.0	56.7	22.7
		Nominal torque	Nm	7.4	15.1	18.0	7.0	13.7	23.6
SD13-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	136.0	56.7	22.7	136.0	56.7	22.7
		Nominal torque	Nm	7.9	15.8	26.3	7.4	14.7	23.6
SD13-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	283.3	34.0	14.8	-	-	-
		Nominal torque	Nm	3.2	27.0	62.0	-	-	-
SD13-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	35.4	2.5	0.5	-	-	-
		Nominal torque	Nm	22.8	100.0	100.0	-	-	-
SD13-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	85.0	21.3	10.6
		Nominal torque	Nm	-	-	-	11.3	39.2	48.2

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

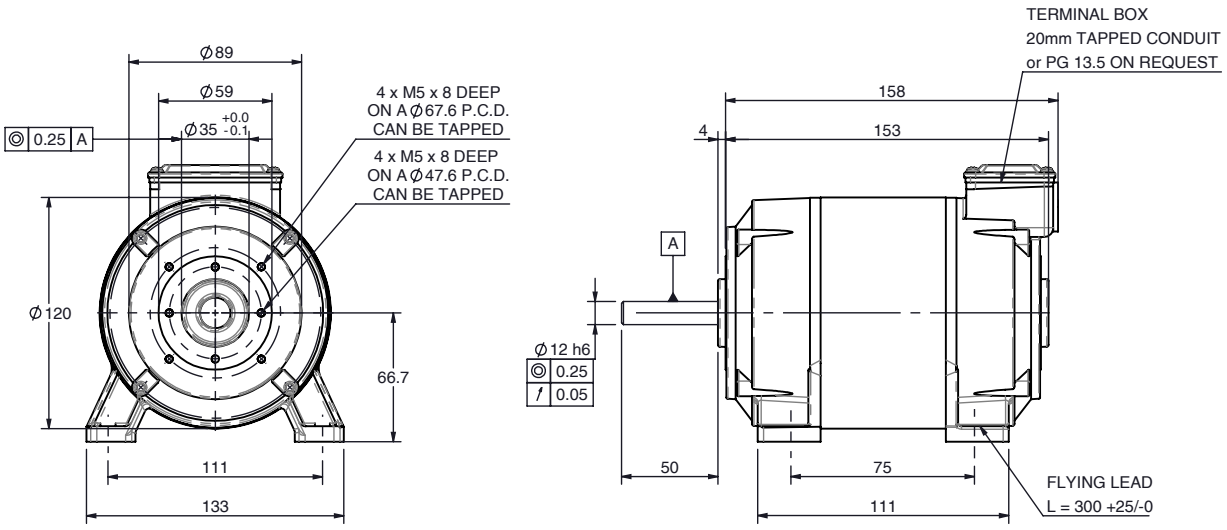
→ Technical data displayed above calculated based on **SD13 (4-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD18 (2-POLE) AC motor

Ø120 mm frame // 46 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	150	150	190	190
6	Nominal speed	rpm	2800	3400	2800	3400
7	Nominal continuous torque (S1)	Nm	0.51	0.42	0.65	0.53
8	Nominal continuous current (S1)	A	1.20	-	0.46	-
9	Starting Current	A	3.0	0	1.2	0
10	Input power	W	290	290	273	273
11	Capacitor Value	M.F.D	8.4	8.4/30.0	-	-
12	Starting torque full load	%	80	80	200	200
13	Stack length	mm	46	46	46	46
14	Number of poles		2	2	2	2
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
18	Weight	Kg	5.4
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
M Box	222
L Box	224
MWS	230
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

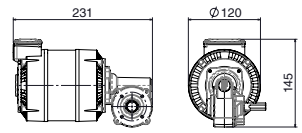
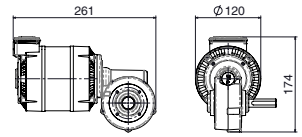
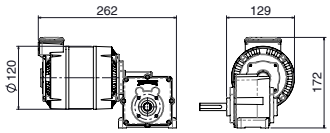
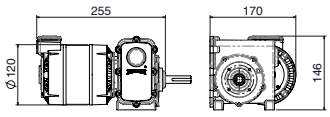
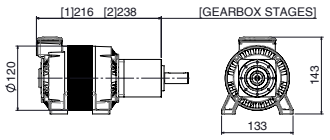
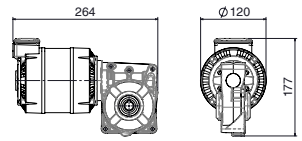
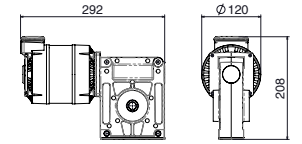
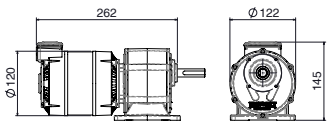
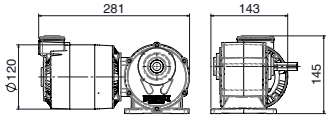
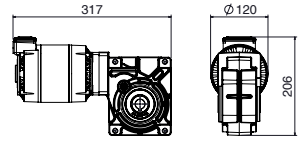
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD18 (2-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD18-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	850.0	113.3	47.2	850.0	113.3	47.2
		Nominal torque	Nm	1.8	8.0	5.0	1.6	9.7	8.0
SD18-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	680.0	113.3	56.7	680.0	113.3	56.7
		Nominal torque	Nm	2.4	11.4	15.0	2.2	10.3	14.3
SD18-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	9.0	22.0	45.0	-	-	-
SD18-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	94.4	8.5	2.8	94.4	8.5	2.8
		Nominal torque	Nm	14.1	28.0	28.0	14.1	45.0	45.0
SD18-PGX70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	871.8	161.9	77.3
		Nominal torque	Nm	-	-	-	2.0	10.2	21.5
SD18-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	272.0	113.3	45.3	272.0	113.3	45.3
		Nominal torque	Nm	5.6	11.4	18.0	5.3	10.3	17.9
SD18-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	272.0	113.3	45.3	272.0	113.3	45.3
		Nominal torque	Nm	6.0	11.9	19.9	5.6	11.1	17.9
SD18-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	566.7	68.0	29.6	-	-	-
		Nominal torque	Nm	2.4	20.4	46.9	-	-	-
SD18-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	70.8	5.1	1.0	-	-	-
		Nominal torque	Nm	17.3	100.0	100.0	-	-	-
SD18-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	170.0	42.5	21.3
		Nominal torque	Nm	-	-	-	8.6	29.7	36.5

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

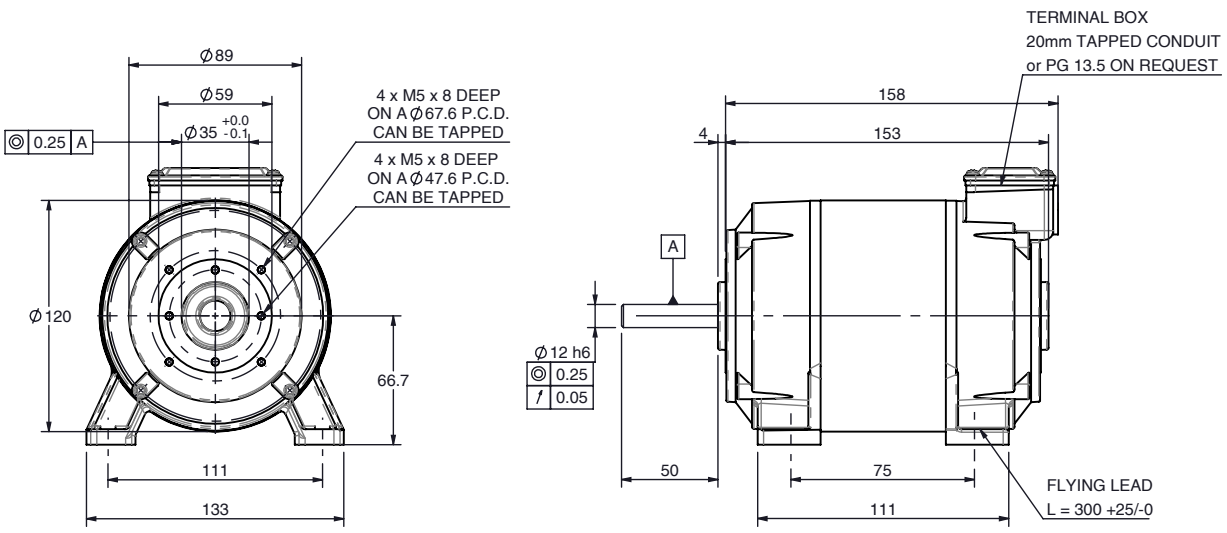
→ Technical data displayed above calculated based on **SD18 (2-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD18 (4-POLE) AC motor

Ø120 mm frame // 46 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	100	100	125	125
6	Nominal speed	rpm	1400	1700	1400	1700
7	Nominal continuous torque (S1)	Nm	0.68	0.56	0.85	0.70
8	Nominal continuous current (S1)	A	0.76	-	0.44	-
9	Starting Current	A	1.9	0	1.1	0
10	Input power	W	180	180	210	210
11	Capacitor Value	M.F.D	6.0	6.0/24.0	-	-
12	Starting torque full load	%	75	75	200	200
13	Stack length	mm	46	46	46	46
14	Number of poles		4	4	4	4
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
18	Weight	Kg	5.4
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Permanent capacitor, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
M Box	222
L Box	224
MWS	230
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

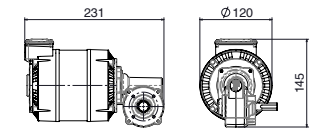
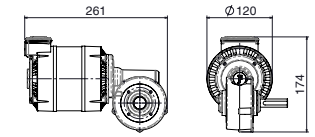
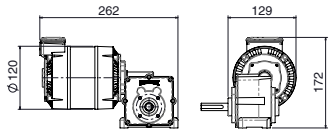
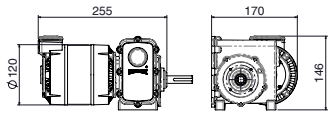
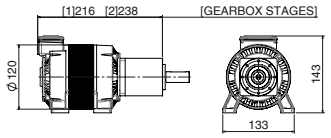
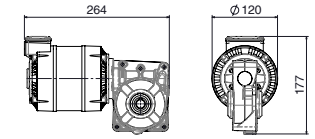
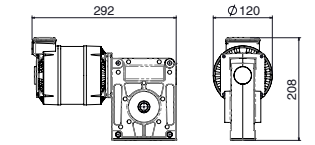
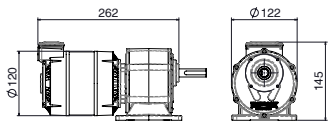
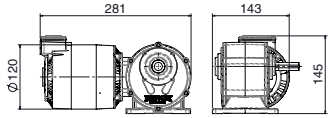
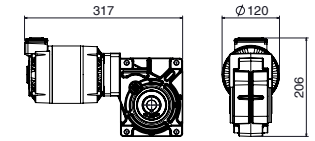
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD18 (4-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD18-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	425	57	24	425	57	24
		Nominal torque	Nm	2.4	8.0	5.0	2.1	12.0	8.0
SD18-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	340	57	28	340	57	28
		Nominal torque	Nm	3.2	15.0	15.0	2.9	13.7	18.9
SD18-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	71	14	1	-	-	-
		Nominal torque	Nm	9.0	22.0	45.0	-	-	-
SD18-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	47	4	1	47	4	1
		Nominal torque	Nm	18.6	28.0	28.0	18.6	45.0	45.0
SD18-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	435.9	81.0	38.6
		Nominal torque	Nm	-	-	-	2.6	13.5	28.3
SD18-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	136	57	23	136	57	23
		Nominal torque	Nm	7.4	15.1	18.0	7.0	13.7	23.6
SD18-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	136	57	23	136	57	23
		Nominal torque	Nm	7.9	15.8	26.3	7.4	14.7	23.6
SD18-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	283	34	15	-	-	-
		Nominal torque	Nm	3.2	27.0	62.0	-	-	-
SD18-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	35	3	0	-	-	-
		Nominal torque	Nm	22.8	100.0	100.0	-	-	-
SD18-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	85	21	11
		Nominal torque	Nm	-	-	-	11.3	39.2	48.2

Key

Standard combination / standard gear ratio

Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

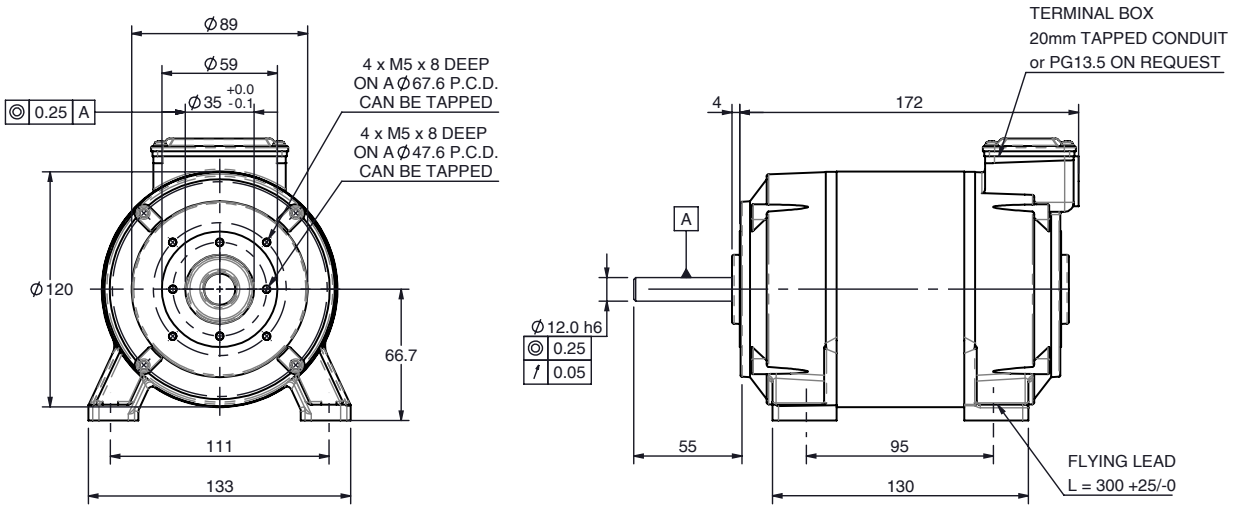
→ Technical data displayed above calculated based on **SD18 (4-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD48 (2-POLE) AC motor

Ø120 mm frame // 59 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	190	100	250	250
6	Nominal speed	rpm	2800	3400	2800	3400
7	Nominal continuous torque (S1)	Nm	0.65	0.53	0.85	0.70
8	Nominal continuous current (S1)	A	1.70	-	0.75	-
9	Starting Current	A	4.25	0	1.88	0
10	Input power	W	324	324	400	400
11	Capacitor Value	M.F.D	40.0/50.0	40.0/50.0	-	-
12	Starting torque full load	%	130	130	150	150
13	Stack length	mm	56	56	56	56
14	Number of poles		2	2	2	2
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
18	Weight	Kg	6.5
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Capacitor start, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
M Box	222
L Box	224
MWS	230
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

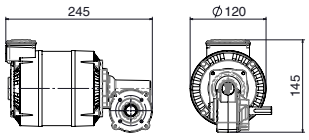
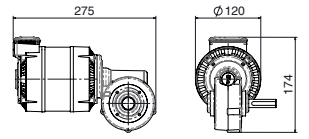
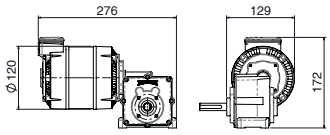
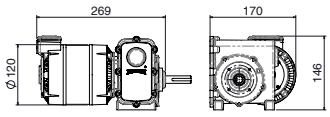
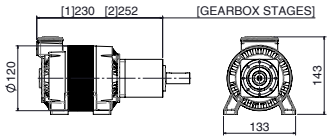
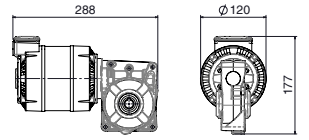
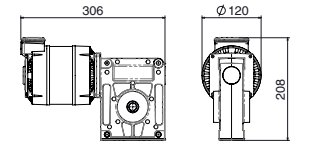
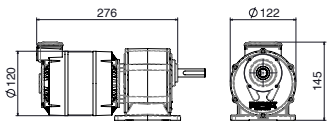
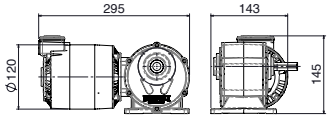
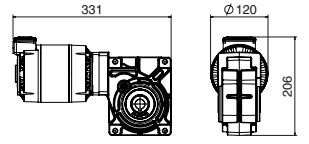
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD48 (2-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD48-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	850.0	113.3	47.2	850.0	113.3	47.2
		Nominal torque	Nm	2.4	8.0	5.0	2.1	12.0	8.0
SD48-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	680.0	113.3	56.7	680.0	113.3	56.7
		Nominal torque	Nm	3.2	15.0	15.0	2.9	13.7	18.9
SD48-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	141.7	28.3	2.4	-	-	-
		Nominal torque	Nm	9.0	22.0	45.0	-	-	-
SD48-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	94.4	8.5	2.8	94.4	8.5	2.8
		Nominal torque	Nm	18.6	28.0	28.0	18.6	45.0	45.0
SD48-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	871.8	161.9	77.3
		Nominal torque	Nm	-	-	-	2.6	13.5	28.3
SD48-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	272.0	113.3	45.3	272.0	113.3	45.3
		Nominal torque	Nm	7.4	15.1	18.0	7.0	13.7	23.6
SD48-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	272.0	113.3	45.3	272.0	113.3	45.3
		Nominal torque	Nm	7.9	15.8	26.3	7.4	14.7	23.6
SD48-LJS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	566.7	68.0	29.6	-	-	-
		Nominal torque	Nm	3.2	27.0	62.0	-	-	-
SD48-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	70.8	5.1	1.0	-	-	-
		Nominal torque	Nm	22.8	100.0	100.0	-	-	-
SD48-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	170.0	42.5	21.3
		Nominal torque	Nm	-	-	-	11.3	39.2	48.2

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

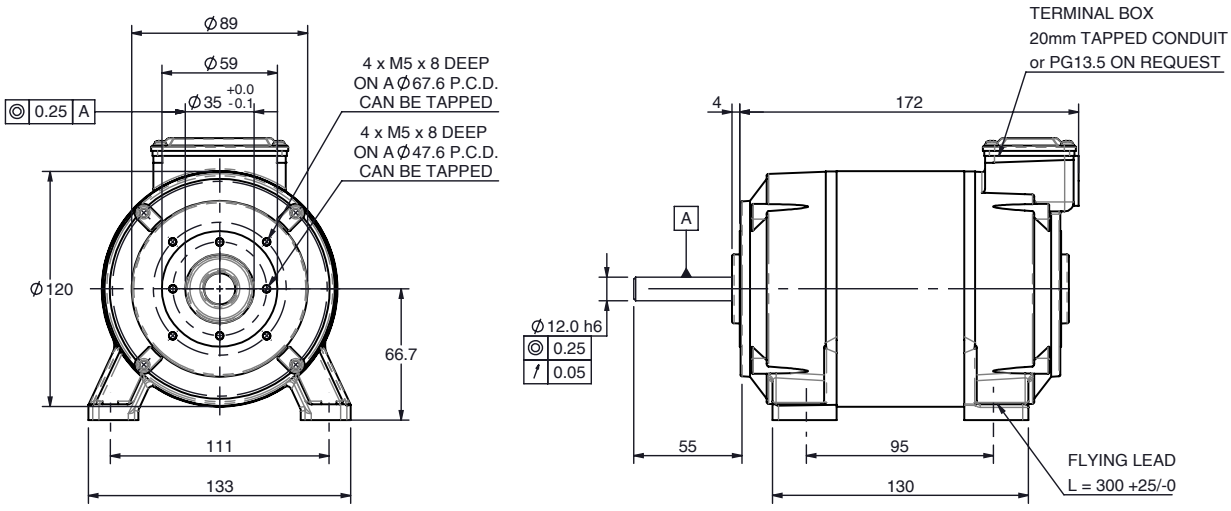
→ Technical data displayed above calculated based on **SD48 (2-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD48 (4-POLE) AC motor

Ø120 mm frame // 46 mm stack

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Phases		1	1	3	3
3	Frequency	Hz	50	60	50	60
4	Nominal voltage	V AC	230/115	230/115	400/230	400/230
5	Nominal power	W	150	55	190	190
6	Nominal speed	rpm	1400	1700	1400	1700
7	Nominal continuous torque (S1)	Nm	1.00	0.84	1.30	1.07
8	Nominal continuous current (S1)	A	1.70	-	0.50	-
9	Starting current	A	4.25	0	1.25	0
10	Input power	W	308	308	300	300
11	Capacitor Value	M.F.D	40.0/50.0	40.0/50.0	-	-
12	Starting torque full load	%	150	150	150	150
13	Stack length	mm	56	56	56	56
14	Number of poles		4	4	4	4
15	Rotor inertia	Kg/cm²	-	-	-	-

	Thermal data		
16	Ambient temperature	°C	40

	Mechanical data		
17	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
18	Weight	Kg	6.5
19	Enclosure		VENT/TEFC
20	IP Rating - Ventilated		IP20
21	IP Rating - TE/TEFC		IP54
22	Insulation Class		F
23	Type		Capacitor start, asynchronous
24	Direction		Reversible

Compatible products

Gearbox	Page #
M Box	222
L Box	224
MWS	230
LIW	242
PGx70	250
GB12	232
GB9	234
LIS	244
LWS	236
GB65	238

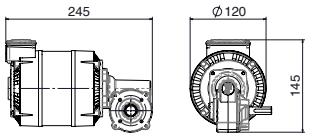
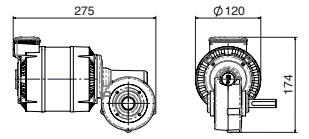
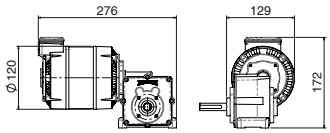
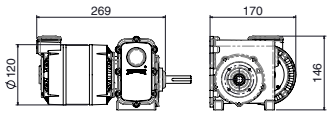
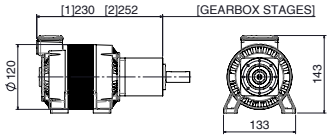
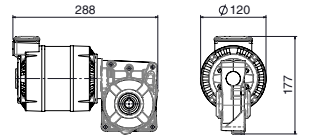
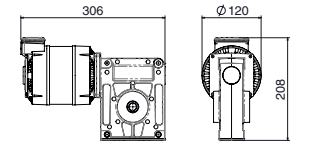
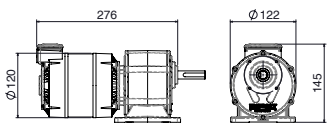
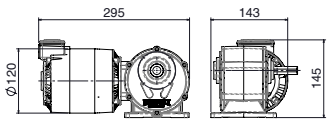
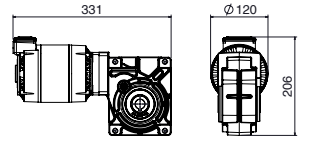
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD48 (4-POLE) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD48-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	425.0	56.7	23.6	425.0	56.7	23.6
		Nominal torque	Nm	3.6	8.0	5.0	3.2	12.0	8.0
SD48-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	340.0	56.7	28.3	340.0	56.7	28.3
		Nominal torque	Nm	4.8	15.0	15.0	4.5	19.0	19.0
SD48-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	70.8	14.2	1.2	-	-	-
		Nominal torque	Nm	9.0	22.0	45.0	-	-	-
SD48-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	47.2	4.3	1.4	47.2	4.3	1.4
		Nominal torque	Nm	28.0	28.0	28.0	28.5	45.0	45.0
SD48-PGx70		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [stages] [2]	:1	-	-	-	3.9 [1]	21 [2]	44 [2]
		Speed	rpm	-	-	-	435.9	81.0	38.6
		Nominal torque	Nm	-	-	-	4.0	20.7	30.0
SD48-GB12		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	136.0	56.7	22.7	136.0	56.7	22.7
		Nominal torque	Nm	11.4	20.0	18.0	10.7	20.9	27.0
SD48-GB9		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	12.5	30	75	12.5	30	75
		Speed	rpm	136.0	56.7	22.7	136.0	56.7	22.7
		Nominal torque	Nm	12.0	24.1	40.0	11.4	22.5	36.1
SD48-LJS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	283.3	34.0	14.8	-	-	-
		Nominal torque	Nm	4.9	41.2	74.0	-	-	-
SD48-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	35.4	2.5	0.5	-	-	-
		Nominal torque	Nm	34.9	100.0	100.0	-	-	-
SD48-GB65		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	-	-	-	20	80	160
		Speed	rpm	-	-	-	85.0	21.3	10.6
		Nominal torque	Nm	-	-	-	17.3	59.9	73.6

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

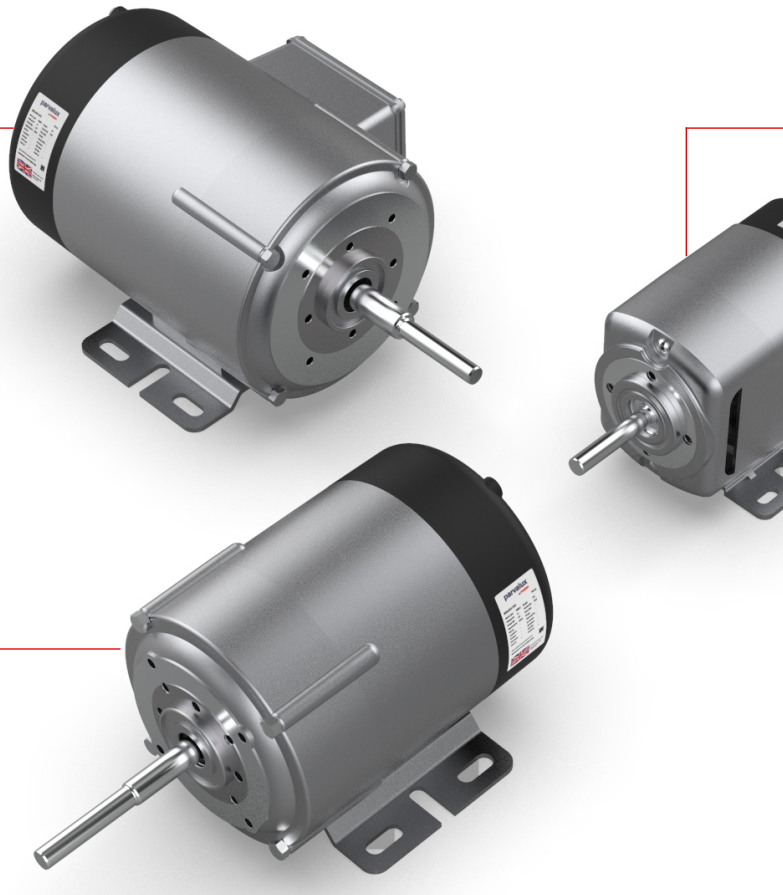
→ Technical data displayed above calculated based on **SD48 (4-POLE) 3 Phase 60Hz** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

Standard AC/DC mot

SD12

→ Ø112 mm frame
→ 2000 - 6000 rpm nominal speed
→ 0.40 Nm max continuous torque



SD11

→ Ø99 mm frame
→ 2000 - 6000 rpm nominal speed
→ 0.30 Nm max continuous torque

ors

Series wound motors can be wound for either AC or DC supply, when units are wound for AC supply, they will have an approximate 15% increase in output compared to a DC wound unit running at similar voltage.

Our series motors are designed for reversing as standard with 4 leads out of the motor casing (two armature and two field), with a 3-lead reversing (split field) option also available. In a split field operation, the motor runs on one field coil at a time with approximately 30% power loss, with a change of direction being affected by a single pole switch.

As shown in the graph above speed varies inversely with the load. Consequently, series wound motors should not be oversized for their application as this will result in the motor running at much higher speeds than required. It is possible to control the speed of this type of motor by means of a variable resistance transformer in a ratio of 5:1, although this can vary depending on the application.

DC shunt motors have constant speed characteristics, the difference between no load and full load speed being between 10% and 20% of the rated speed.

Suitable for reversing as standard with 4 leads brought out of the motor casing (two armature and two field). Speed can be controlled by means of a variable resistance in series with the armature by a ratio of approximately 6:1, however this can vary considerably depending on the application. Alternatively, if an AC supply is available a speed range of up to 25:1 can be obtained by means of a D.C. thyristor controller.

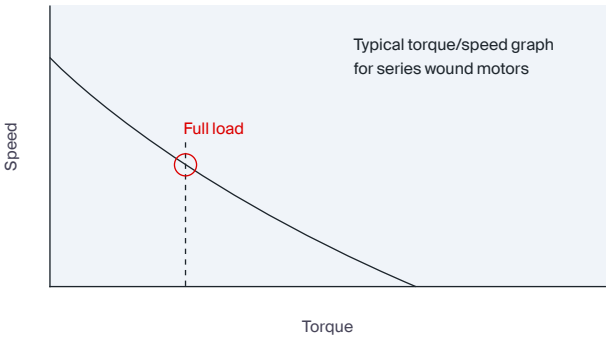
Important: It must be noted, when reducing the motor speed, the armature cooling fan efficiency drops and therefore it is recommended to reduce the rating or load of the motor by 30–40% over a speed range of 10:1 and by 50% for a speed range of 25:1.

SD1

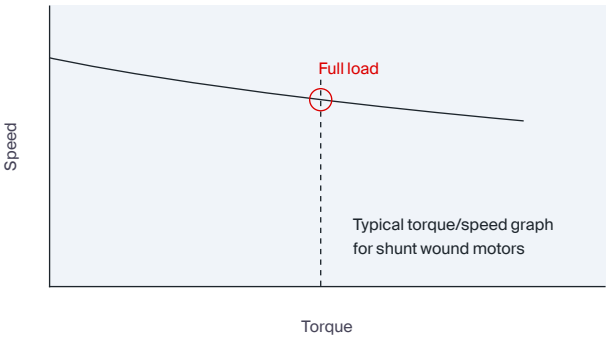


- 80 mm x 64 mm frame
- 2000 - 6500 rpm nominal speed
- 0.14 Nm max continuous torque

Series wound motors



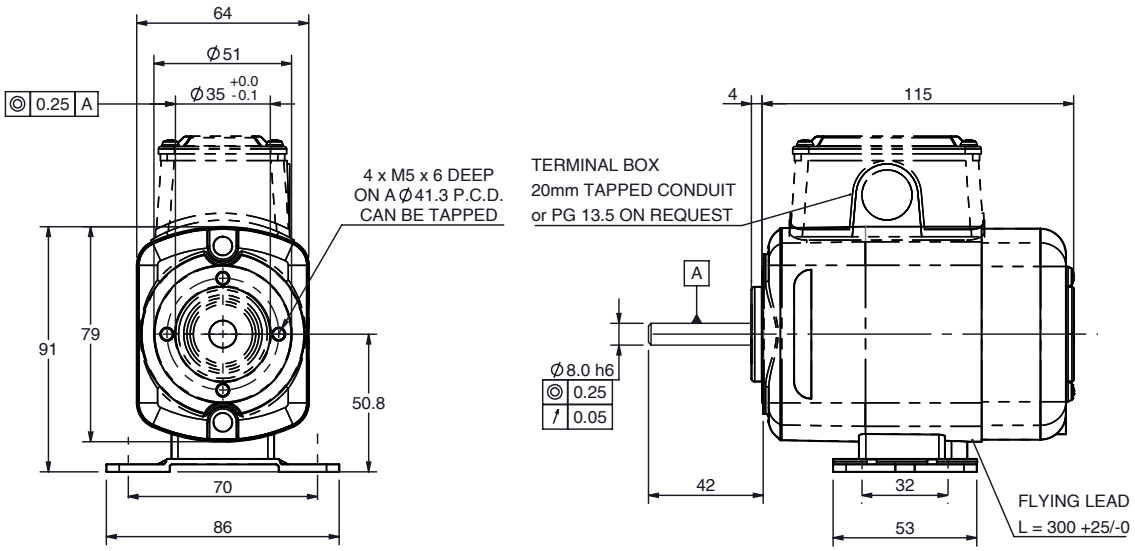
Shunt wound motors



SD1 (SERIES) AC/DC motor

80 x 64 mm frame

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.

	Technical data									
1	Part number		-	-	-	-	-	-	-	-
2	Minimum voltage available	V	12	12	12	12	24	24	24	24
3	Nominal power	W	10	15	25	38	38	50	63	75
4	Nominal speed	rpm	2000	2500	3000	3000	4000	4000	5500	6500
5	Nominal continuous torque (S1)	Nm	0.05	0.06	0.08	0.12	0.09	0.12	0.11	0.11
6	Input current 240 V AC	A	0.23	0.25	0.27	0.60	0.45	0.65	0.68	0.80
7	Input current 220 V AC	A	0.25	0.30	0.30	0.65	0.50	0.70	0.75	0.95
8	Approximate starting current [1]	A	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.
9	Input power	W	37	40	40	110	90	125	130	160

[1] 3 x F.L. = 3 x Full Load

	Thermal data		
10	Ambient temperature	°C	40

	Mechanical data		
11	Radial load [distance from flange]	N [mm]	110 [15]

	Other data		
12	Weight	Kg	1.22
13	Enclosure		VENT/TENC
14	IP Rating - Ventilated		IP20
15	IP Rating - TENC [with terminal box]		IP50 [IP54]
16	Insulation Class		F
17	Type		Series wound
18	Direction		Reversible

Compatible products

Gearbox	Page
S Box	216
SWS	220
M Box	222
MWS	230
LWS	236

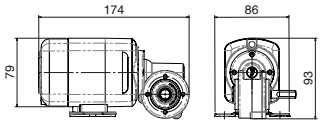
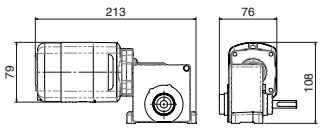
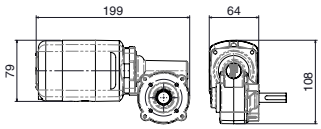
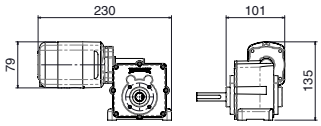
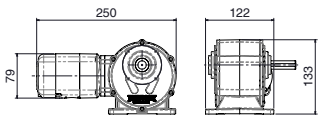
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD1 (SERIES) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD1-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	1625.0	216.7	92.9	1625.0	216.7	92.9
		Nominal torque	Nm	0.4	2.1	2.0	0.3	1.9	2.7
SD1-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	180.6	31.4	4.8	-	-	-
		Nominal torque	Nm	2.8	11.0	11.0	-	-	-
SD1-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	1625.0	216.7	90.3	1625.0	216.7	90.3
		Nominal torque	Nm	0.4	2.3	3.6	0.3	2.0	3.2
SD1-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	270.8	54.2	4.6	-	-	-
		Nominal torque	Nm	2.0	9.8	45.0	-	-	-
SD1-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	135.4	9.7	1.9	-	-	-
		Nominal torque	Nm	3.6	48.0	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

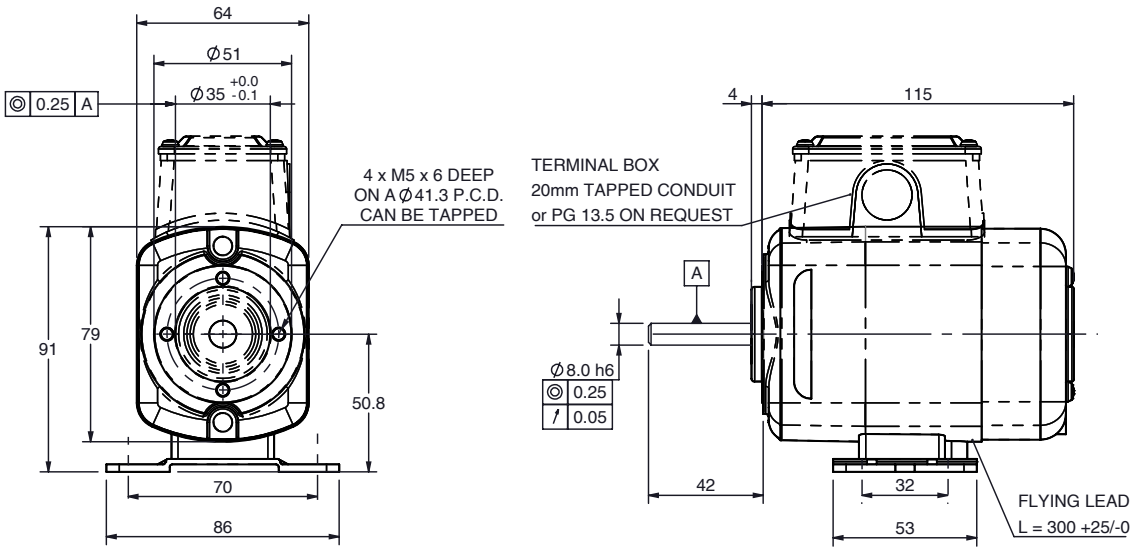
→ Technical data displayed above calculated based on **SD1 (SERIES) 24V 6500 rpm** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD1 (SHUNT) AC/DC motor

80 x 64 mm frame

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.

	Technical data						
1	Part number		-	-	-	-	-
2	Minimum voltage available	V	12	12	12	12	24
3	Nominal power	W	10	15	38	50	75
4	Nominal speed	rpm	2000	2500	3000	4000	5000
5	Nominal continuous torque (S1)	Nm	0.05	0.06	0.12	0.12	0.14
6	Input current 240 V AC	A	0.23 [1]	0.25	0.36	0.44	0.60
7	Input current 220 V AC	A	0.25 [2]	0.30	0.41	0.50	0.70
8	Approximate starting current [3]	A	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.
9	Input power	W	37	40	80	100	140

[1] 120 V DC not 240 V DC [2] 110 V DC not 220 V DC [3] 3 x F.L. = 3 x Full Load

	Thermal data		
10	Ambient temperature	°C	40

	Mechanical data		
11	Radial load [distance from flange]	N [mm]	110 [15]

	Other data		
12	Weight	Kg	1.22
13	Enclosure		VENT/TENC
14	IP Rating - Ventilated		IP20
15	IP Rating - TENC [with terminal box]		IP50 [IP54]
16	Insulation Class		F
17	Type		Shunt wound
18	Direction		Reversible

Compatible products

Gearbox	Page
S Box	216
SWS	220
M Box	222
MWS	230
LWS	236

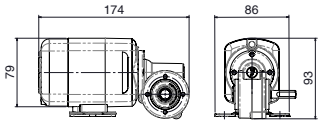
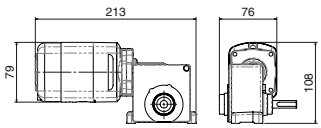
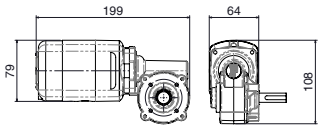
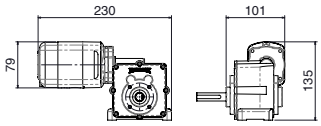
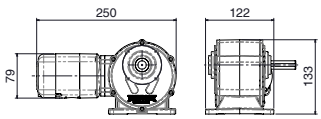
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD1 (SHUNT) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD1-S Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	70	4	30	70
		Speed	rpm	1250.0	166.7	71.4	1250.0	166.7	71.4
		Nominal torque	Nm	0.4	2.7	2.0	0.4	2.4	3.0
SD1-SWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	207	1364	-	-	-
		Speed	rpm	138.9	24.2	3.7	-	-	-
		Nominal torque	Nm	3.6	11.0	11.0	-	-	-
SD1-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	1250.0	166.7	69.4	1250.0	166.7	69.4
		Nominal torque	Nm	0.5	2.9	4.6	0.4	2.6	4.0
SD1-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	208.3	41.7	3.6	-	-	-
		Nominal torque	Nm	2.6	12.4	45.0	-	-	-
SD1-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	104.2	7.4	1.4	-	-	-
		Nominal torque	Nm	4.6	61.2	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

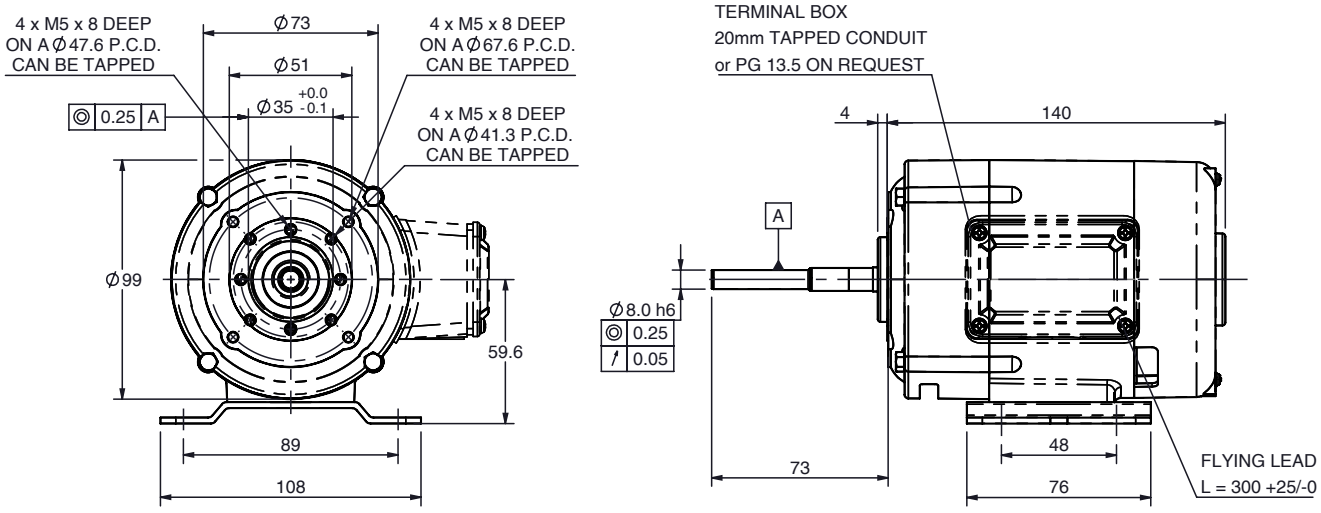
→ Technical data displayed above calculated based on **SD1 (SHUNT) 24V 5500 rpm** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD11 (SERIES) AC/DC motor

Ø99 mm frame

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.

	Technical data									
1	Part number		-	-	-	-	-	-	-	-
2	Minimum voltage available	V	12	12	12	12	12	12	24	36
3	Nominal power	W	15	30	18.5	30	75	95	125	150
4	Nominal speed	rpm	2000	2000	3000	3000	3000	4000	5000	6000
5	Nominal continuous torque (S1)	Nm	0.07	0.14	0.06	0.10	0.24	0.23	0.24	0.24
6	Input current 240 V AC	A	0.19	0.60	0.24	0.27	1.00	1.10	1.15	1.30
7	Input current 220 V AC	A	0.20	0.65	0.25	0.30	1.10	1.20	1.40	1.60
8	Approximate starting current [1]	A	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.
9	Input power	W	40	70	50	60	160	190	220	290

[1] 3 x F.L. = 3 x Full Load

	Thermal data		
10	Ambient temperature	°C	40

	Mechanical data		
11	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
12	Weight	Kg	2.5
13	Enclosure		VENT/TENC
14	IP Rating - Ventilated		IP23
15	IP Rating - TENC [with terminal box]		IP50 [IP54]
16	Insulation Class		F
17	Type		Series wound
18	Direction		Reversible

Compatible products

Gearbox	Page
M Box	222
L Box	226
MWS	230
LIW	242
LIS	244
LWS	236

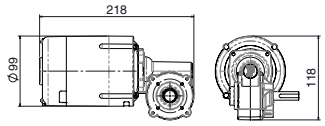
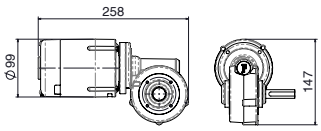
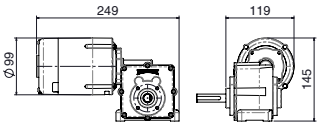
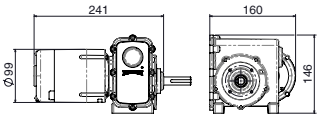
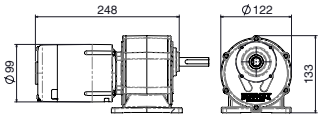
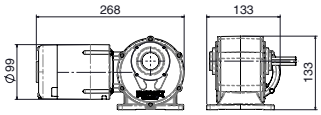
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD11 (SERIES) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD11-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	1500.0	200.0	83.3	1500.0	200.0	83.3
		Nominal torque	Nm	0.8	5.0	5.0	0.7	4.4	6.9
SD11-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	1200.0	200.0	100.0	1200.0	200.0	100.0
		Nominal torque	Nm	1.1	5.2	7.9	1.0	4.7	6.5
SD11-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	250.0	50.0	4.3	-	-	-
		Nominal torque	Nm	4.4	21.3	45.0	-	-	-
SD11-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	166.7	15.0	5.0	166.7	15.0	5.0
		Nominal torque	Nm	6.4	28.0	28.0	6.4	45.0	45.0
SD11-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	1000.0	120.0	52.2	-	-	-
		Nominal torque	Nm	1.1	9.2	21.3	-	-	-
SD11-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	125.0	8.9	1.7	-	-	-
		Nominal torque	Nm	7.8	100.0	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

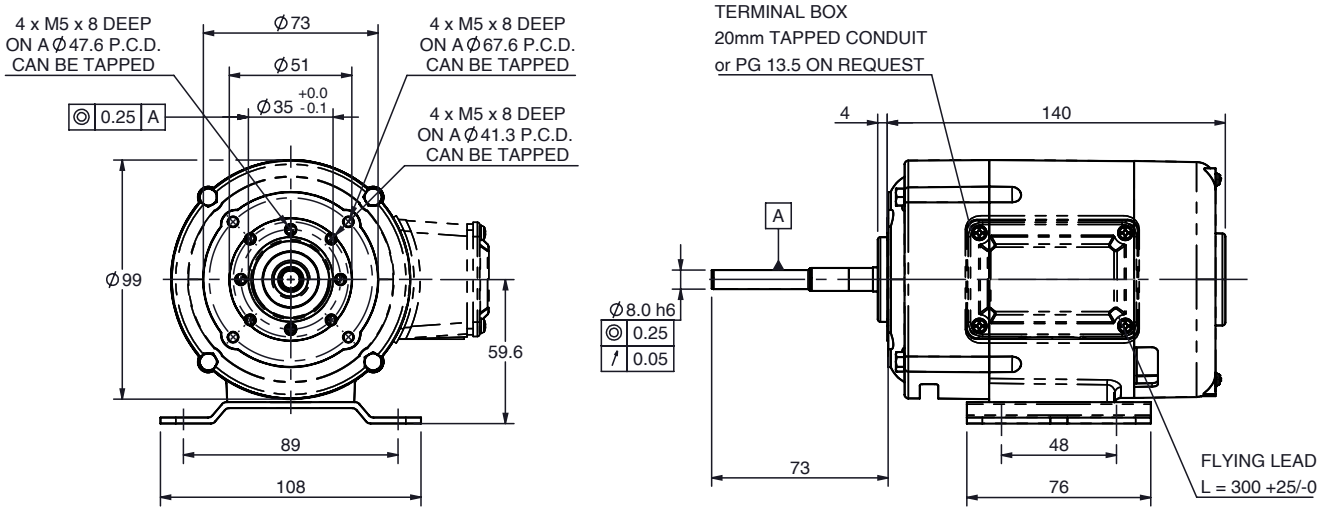
→ Technical data displayed above calculated based on **SD11 (SERIES) 36V 6000 rpm** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD11 (SHUNT) AC/DC motor

Ø99 mm frame

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.

	Technical data				
1	Part number		-	-	-
2	Minimum voltage available	V	12	12	12
3	Nominal power	W	50	95	125
4	Nominal speed	rpm	2000	3000	4000
5	Nominal continuous torque (S1)	Nm	0.24	0.30	0.30
6	Input current 240 V AC	A	0.40	0.70	0.90
7	Input current 220 V AC	A	0.45	0.75	1.00
8	Approximate starting current [1]	A	3 x F.L.	3 x F.L.	3 x F.L.
9	Input power	W	96	168	216

[1] 3 x F.L. = 3 x Full Load

	Thermal data		
10	Ambient temperature	°C	40

	Mechanical data		
11	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
12	Weight	Kg	2.5
13	Enclosure		VENT/TENC
14	IP Rating - Ventilated		IP23
15	IP Rating - TENC [with terminal box]		IP50 [IP54]
16	Insulation Class		F
17	Type		Shunt wound
18	Direction		Reversible

Compatible products

Gearbox	Page
M Box	222
L Box	226
MWS	230
LIW	242
LIS	244
LWS	236

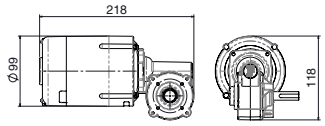
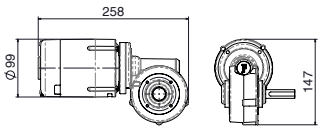
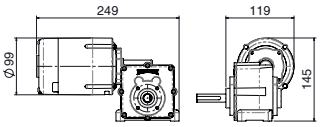
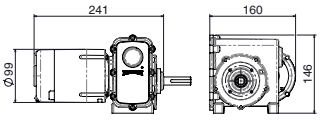
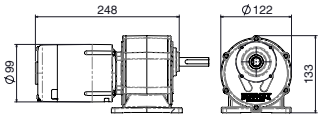
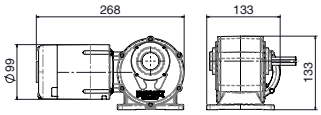
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD11 (SHUNT) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD11-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	1000.0	133.3	55.6	1000.0	133.3	55.6
		Nominal torque	Nm	1.0	6.3	5.0	0.9	5.5	8.0
SD11-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	800.0	133.3	66.7	800.0	133.3	66.7
		Nominal torque	Nm	1.4	6.5	9.9	1.3	5.9	8.1
SD11-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	166.7	33.3	2.9	-	-	-
		Nominal torque	Nm	5.5	22.0	45.0	-	-	-
SD11-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	111.1	10.0	3.3	111.1	10.0	3.3
		Nominal torque	Nm	8.0	28.0	28.0	8.0	45.0	45.0
SD11-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	666.7	80.0	34.8	-	-	-
		Nominal torque	Nm	1.4	11.6	26.6	-	-	-
SD11-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	83.3	6.0	1.2	-	-	-
		Nominal torque	Nm	9.8	100.0	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

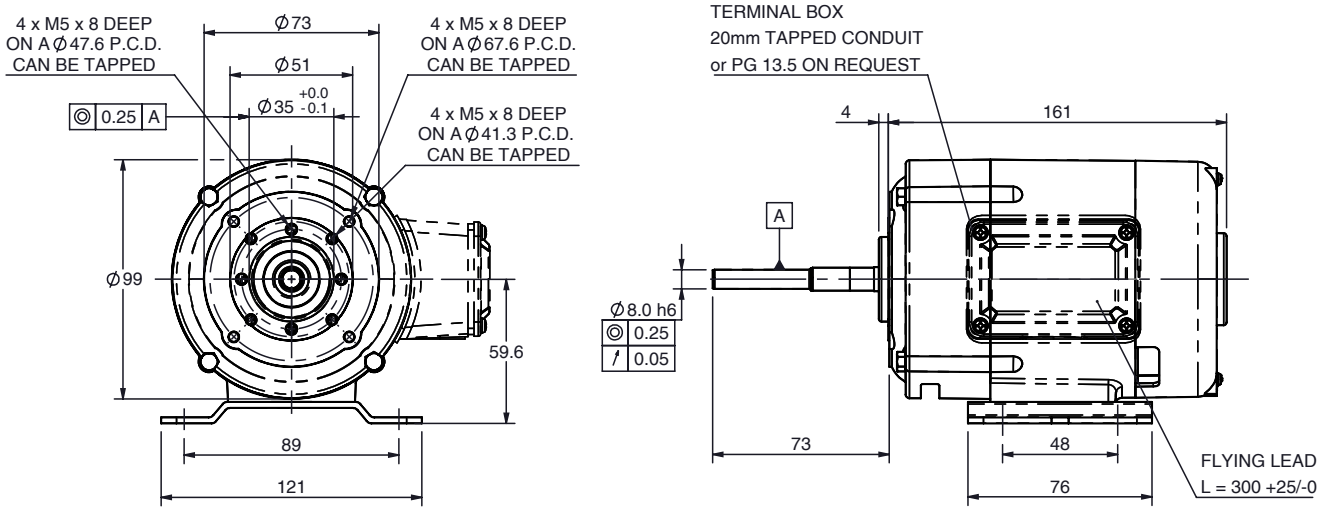
→ Technical data displayed above calculated based on **SD11 (SHUNT) 12V 4000 rpm** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD12 (SERIES) AC/DC motor

Ø111 mm frame

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.

	Technical data							
1	Part number		-	-	-	-	-	-
2	Minimum voltage available	V	12	24	24	24	24	24
3	Nominal power	W	50	75	95	125	150	190
4	Nominal speed	rpm	2000	2500	3000	4000	4000	6000
5	Nominal continuous torque (S1)	Nm	0.24	0.29	0.30	0.30	0.36	0.30
6	Input current 240 V AC	A	1.20	1.30	1.10	1.20	1.80	1.50
7	Input current 220 V AC	A	1.30	1.40	1.20	1.30	1.80	1.60
8	Approximate starting current [1]	A	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.
9	Input power	W	160	200	200	240	350	340

[1] 3 x F.L. = 3 x Full Load

	Thermal data		
10	Ambient temperature	°C	40

	Mechanical data		
11	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
12	Weight	Kg	3.57
13	Enclosure		VENT/TENC
14	IP Rating - Ventilated		IP23
15	IP Rating - TENC [with terminal box]		IP50 [IP54]
16	Insulation Class		F
17	Type		Series wound
18	Direction		Reversible

Compatible products

Gearbox	Page
M Box	222
L Box	226
MWS	230
LIW	242
LIS	244
LWS	236

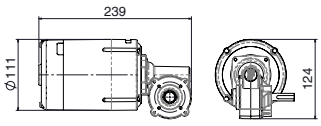
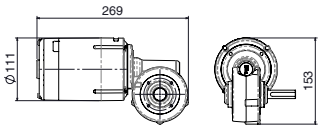
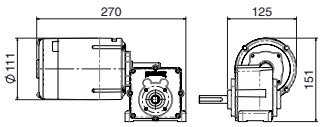
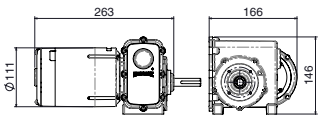
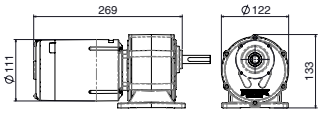
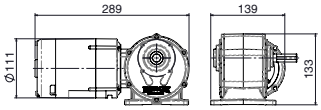
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD12 (SERIES) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD12-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	1500.0	200.0	83.3	1500.0	200.0	83.3
		Nominal torque	Nm	1.0	6.3	5.0	0.9	5.5	8.0
SD12-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	1200.0	200.0	100.0	1200.0	200.0	100.0
		Nominal torque	Nm	1.4	6.5	9.9	1.3	5.9	8.1
SD12-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	250.0	50.0	4.3	-	-	-
		Nominal torque	Nm	5.5	22.0	45.0	-	-	-
SD12-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	166.7	15.0	5.0	166.7	15.0	5.0
		Nominal torque	Nm	8.0	28.0	28.0	8.0	45.0	45.0
SD12-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	1000.0	120.0	52.2	-	-	-
		Nominal torque	Nm	1.4	11.6	26.6	-	-	-
SD12-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	125.0	8.9	1.7	-	-	-
		Nominal torque	Nm	9.8	100.0	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

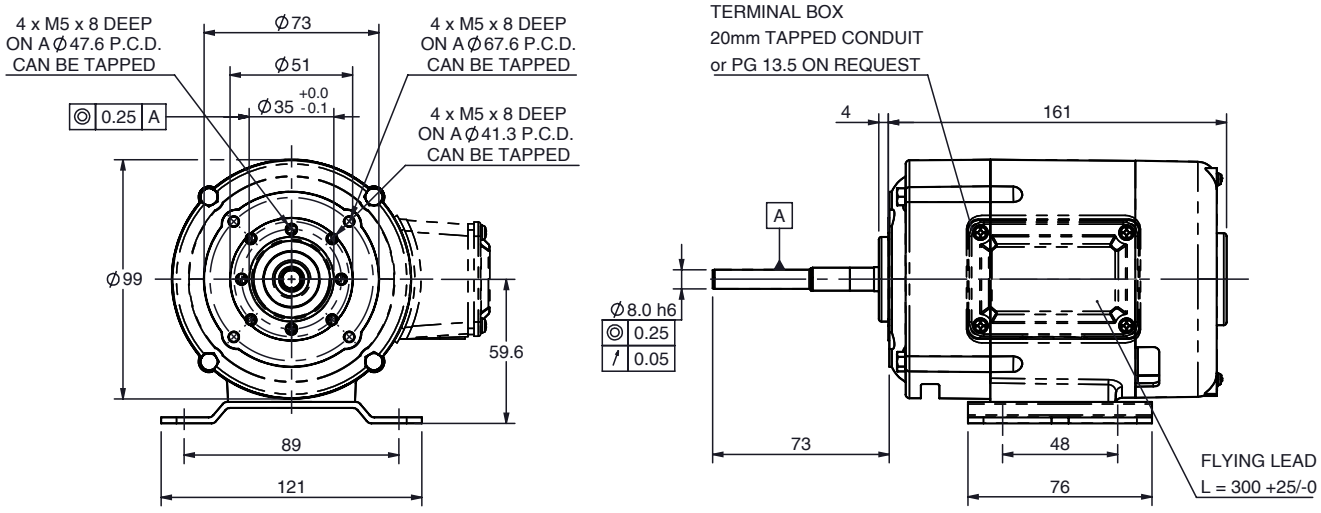
→ Technical data displayed above calculated based on **SD12 (SERIES) 24V 6000 rpm** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

SD12 (SHUNT) AC/DC motor

Ø111 mm frame

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Note: Terminal box and feet optional on this motor - please contact your local sales engineer for more information.

	Technical data					
1	Part number		-	-	-	-
2	Minimum voltage available	V	12	12	24	24
3	Nominal power	W	60	75	125	150
4	Nominal speed	rpm	2000	2500	3000	4000
5	Nominal continuous torque (S1)	Nm	0.29	0.29	0.40	0.36
6	Input current 240 V AC	A	0.40	0.60	0.82	1.00
7	Input current 220 V AC	A	0.46	0.65	0.90	1.10
8	Approximate starting current [1]	A	3 x F.L.	3 x F.L.	3 x F.L.	3 x F.L.
9	Input power	W	115	140	200	265

[1] 3 x F.L. = 3 x Full Load

	Thermal data		
10	Ambient temperature	°C	40

	Mechanical data		
11	Radial load [distance from flange]	N [mm]	200 [15]

	Other data		
12	Weight	Kg	3.57
13	Enclosure		VENT/TENC
14	IP Rating - Ventilated		IP23
15	IP Rating - TENC [with terminal box]		IP50 [IP54]
16	Insulation Class		F
17	Type		Shunt wound
18	Direction		Reversible

Compatible products

Gearbox	Page
M Box	222
L Box	226
MWS	230
LIW	242
LIS	244
LWS	236

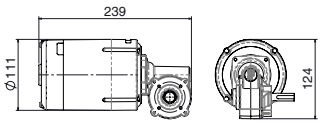
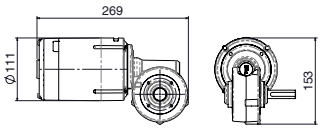
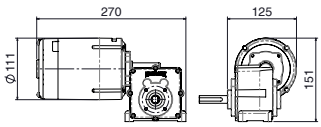
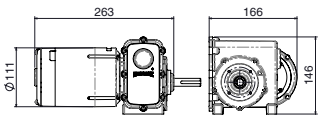
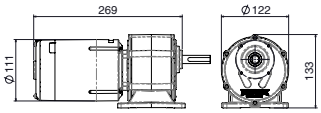
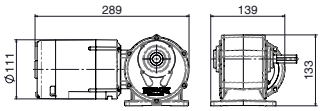
Brake	Page #
1.5 Nm	258
2.0 Nm	259

Encoder	Page #
On request	-

Key
Standard combination
Modular combination

SD12 (SHUNT) combinations

Quickview - combination drawing and technical data

	Combination drawing	Technical data						
SD12-M Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	4	30	72	4	30	72
		Speed	rpm	1000.0	133.3	55.6	1000.0	133.3	55.6
		Nominal torque	Nm	1.2	7.6	5.0	1.1	6.6	8.0
SD12-L Box		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	5	30	60	5	30	60
		Speed	rpm	800.0	133.3	66.7	800.0	133.3	66.7
		Nominal torque	Nm	1.6	7.8	11.9	1.5	7.0	9.7
SD12-MWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	24	120	1400	-	-	-
		Speed	rpm	166.7	33.3	2.9	-	-	-
		Nominal torque	Nm	6.6	22.0	45.0	-	-	-
SD12-LIW		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	36	400	1200	36	400	1200
		Speed	rpm	111.1	10.0	3.3	111.1	10.0	3.3
		Nominal torque	Nm	9.6	28.0	28.0	9.6	45.0	45.0
SD12-LIS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	6	50	115	-	-	-
		Speed	rpm	666.7	80.0	34.8	-	-	-
		Nominal torque	Nm	1.7	13.9	31.9	-	-	-
SD12-LWS		Gear material [1]		Comp.	Comp.	Comp.	Bronze	Bronze	Bronze
		Gear ratio [2]	:1	48	672	3450	-	-	-
		Speed	rpm	83.3	6.0	1.2	-	-	-
		Nominal torque	Nm	11.8	100.0	100.0	-	-	-

Key
Standard combination / standard gear ratio
Modular combination / modular gear ratio

Notes

[1] Comp. = Composite gears

[2] Full gear ratio options displayed on individual gearbox datasheets

→ Technical data displayed above calculated based on **SD12 (SHUNT) 24V 4000 rpm** motor.

→ Simplified drawings displayed above show overall envelope size of the combination. Please see individual motor and gearbox datasheets for detailed technical drawings.

Standard rig gearboxes

GB9

→ 12.5:1 - 75:1 worm gear ratio

GB12

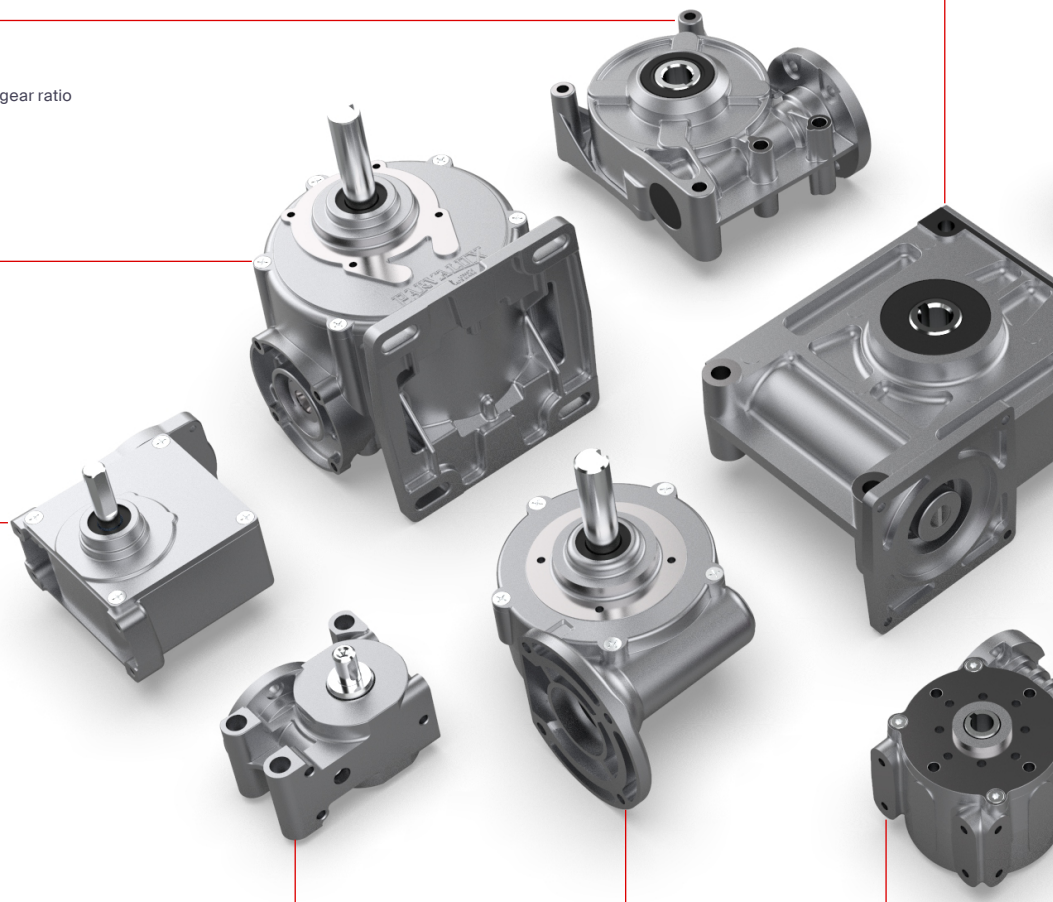
→ 12.5:1 - 75:1 worm gear ratio

LWS

→ 6:1 - 115:1 spur gear ratio
→ 6:1 - 30:1 worm gear ratio

SWS

→ 9:1 - 31:1 spur gear ratio
→ 4:1 - 44:1 worm gear ratio



GB58

→ 4:1 - 25:1 worm gear ratio

L Box

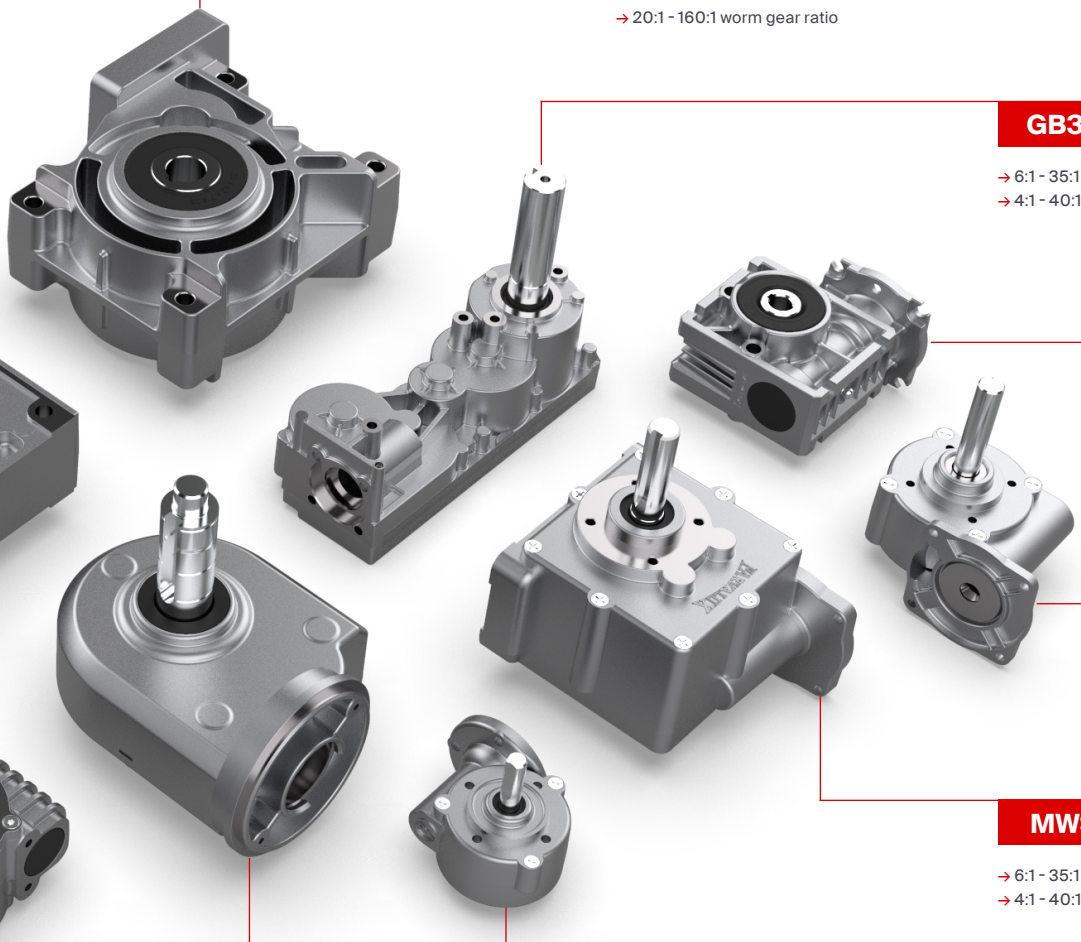
→ 5:1 - 60:1 worm gear ratio

GB80

→ 4:1 - 72:1 worm gear ratio

ght-angle

Our range of right-angle gearboxes includes options for worm-wheel and spur gear, bronze or composite gears, and a range of shaft modifications to suit your application.



GB65

→ 20:1 - 160:1 worm gear ratio

GB36

→ 6:1 - 35:1 spur gear ratio
→ 4:1 - 40:1 worm gear ratio

GB28

→ 15:1 - 60:1 worm gear ratio

M Box

→ 4:1 - 72:1 worm gear ratio

MWS

→ 6:1 - 35:1 spur gear ratio
→ 4:1 - 40:1 worm gear ratio

GB14

→ 20:1 - 160:1 worm gear ratio

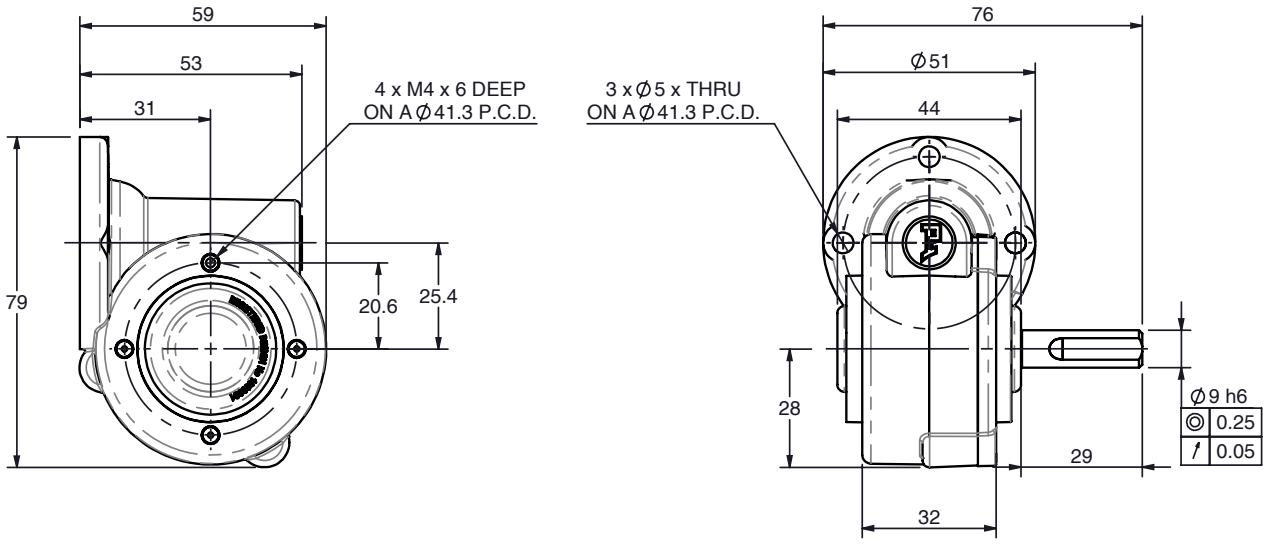
S Box

→ 4:1 - 70:1 worm gear ratio

S Box Right-angle gearbox // Composite gears

4:1 - 70:1 ratio // 4.8 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data										
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio [1]	:1	4	5	10	15	20	30	40	48	60	70
3	Stages		1	1	1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [2 3]	Nm	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.5	2.2	2.0
5	Max. intermittent torque [3]	Nm	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.0	3.5	3.2
6	Efficiency	%	80	80	80	75	70	65	60	55	48	40
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	150	150	150	150	150	150	150	150	150	150
9	Max. radial load, 12 mm from flange	N	250	250	250	250	250	250	250	250	250	250
10	Weight	Kg	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] Other ratios available on request **(:1)**: 6, 7, 8, 9, 11, 12, 13, 14, 16, 18, 22, 25, 27, 36, 44, 54, 66 [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

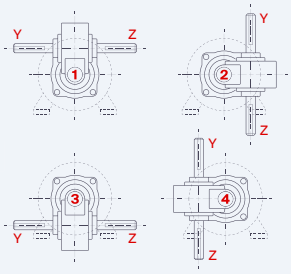
Compatible products

BLDC	Page #
PBL42-15	88
PBL42-30	90
PBL60-50	92
PBL60-70	94

PMDC	Page #
BRx42-25	44
BRx42-40	46
BRx52-30	48
BRx52-58	50
BRx63-25	52
BRx63-55	54
PM7	106
PM8	108
PM9	110
PM10	112
PM11	114

AC	Page #
SD21	164
SD41	168
SD8	172
SD38	176
SD28	180
SD29	184
SD1	202

Gearbox output position

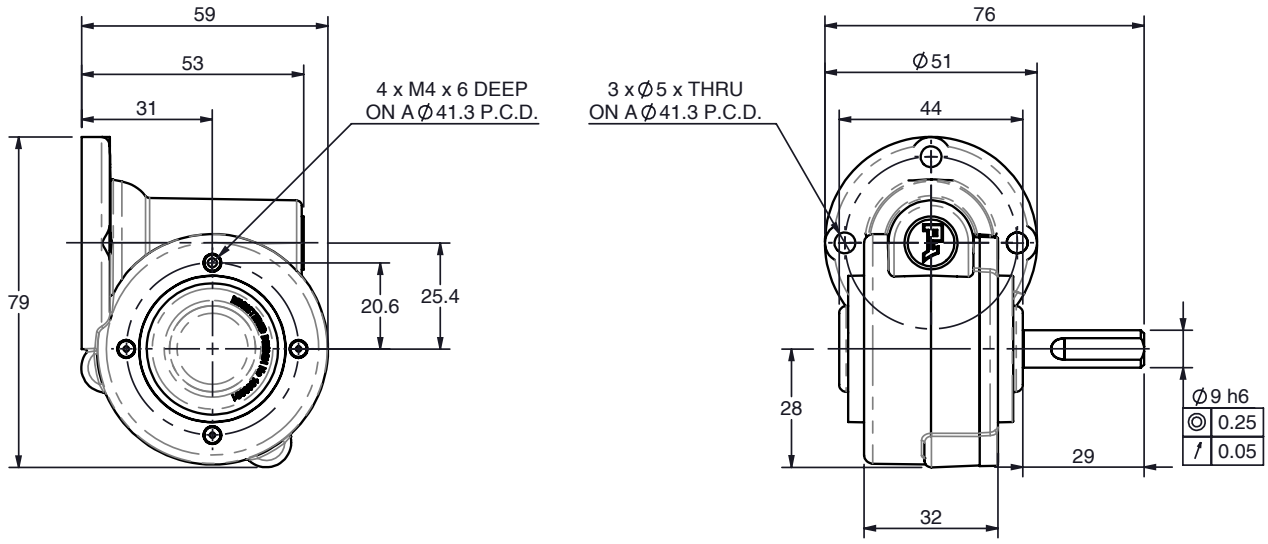


Key
Standard combination
Modular combination

S Box Right-angle gearbox // Bronze gears

4:1 - 70:1 ratio // 7.2 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data										
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio [1]	:1	4	5	10	15	20	30	40	48	60	70
3	Stages		1	1	1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [2 3]	Nm	4.5	4.5	4.5	4.5	4.5	4.5	4.5	3.8	3.3	3.0
5	Max. intermittent torque [3]	Nm	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.0	5.3	4.8
6	Efficiency	%	70	70	70	65	61	57	52	48	42	35
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	150	150	150	150	150	150	150	150	150	150
9	Max. radial load, 12 mm from flange	N	250	250	250	250	250	250	250	250	250	250
10	Weight	Kg	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
11	Gear material		Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze

[1] Other ratios available on request **(:1)**: 6, 7, 8, 9, 11, 12, 13, 14, 16, 18, 22, 25, 27, 36, 44, 54, 66 [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

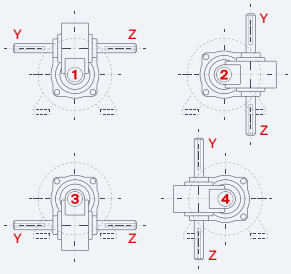
Compatible products

BLDC	Page #
PBL42-15	88
PBL42-30	90
PBL60-50	92
PBL60-70	94

PMDC	Page #
BRx42-25	44
BRx42-40	46
BRx52-30	48
BRx52-58	50
BRx63-25	52
BRx63-55	54
PM7	106
PM8	108
PM9	110
PM10	112
PM11	114

AC	Page #
SD21	164
SD41	168
SD8	172
SD38	176
SD28	180
SD29	184
SD1	202

Gearbox output position

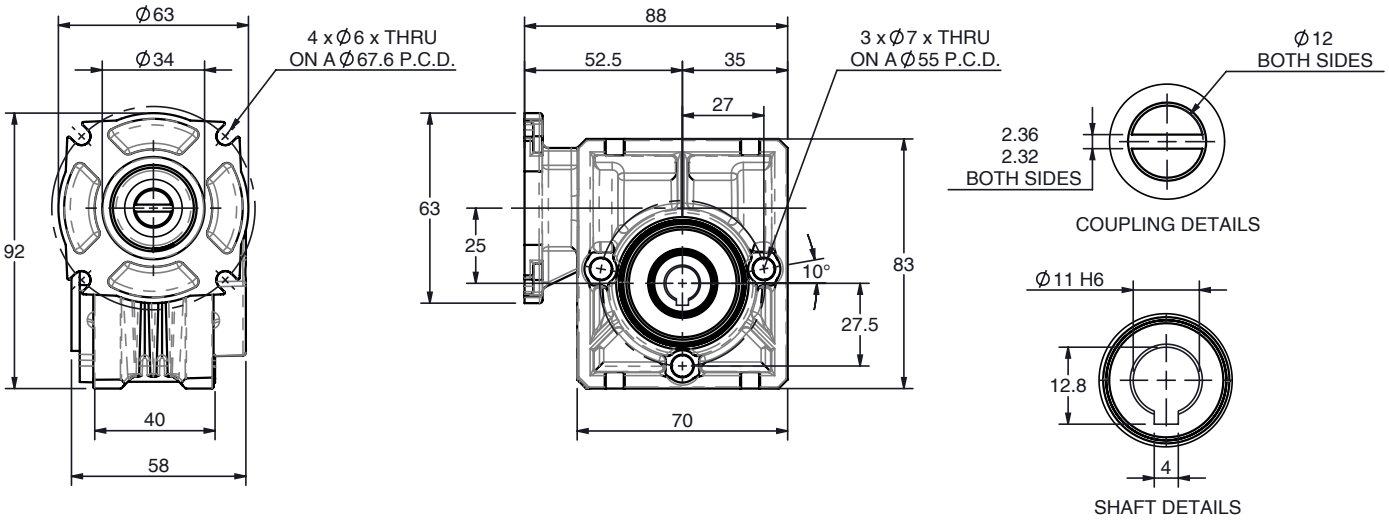


Key
Standard combination
Modular combination

GB28 Right-angle gearbox // Bronze gears

15:1 - 60:1 ratio // 8.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data						
1	Part number		735904	-	735906	-	735907
2	Gear ratio	:1	15	25	30	50	60
3	Stages		1	1	1	1	1
4	Max. continuous torque (S1) [1] [2]	Nm	5.0	5.0	5.0	5.0	5.0
5	Max. intermittent torque [2]	Nm	8.0	8.0	8.0	8.0	8.0
6	Efficiency	%	75	70	65	50	45
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	300	300	300	300	300
9	Max. radial load, 12 mm from flange	N	400	400	400	400	400
10	Weight	Kg	0.83	0.83	0.83	0.83	0.83
11	Gear material		Bronze	Bronze	Bronze	Bronze	Bronze

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255

Compatible products

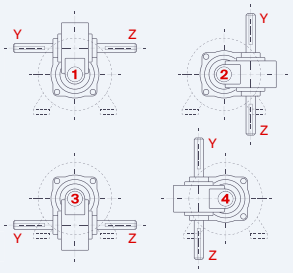
BLDC	Page #
PBL42-15	88
PBL42-30	90
PBL60-50	92
PBL60-70	94

PMDC	Page #
BRx52-30	48
BRx52-58	50
BRx63-25	52
BRx63-55	54
PM7	106
PM8	108
PM9	110
PM10	112
PM11	114

AC	Page #
SD21	164
SD41	168
SD8	172
SD38	176
SD28	180
SD29	184

Shaft extension	Page #
735908	84

Gearbox output position



Key

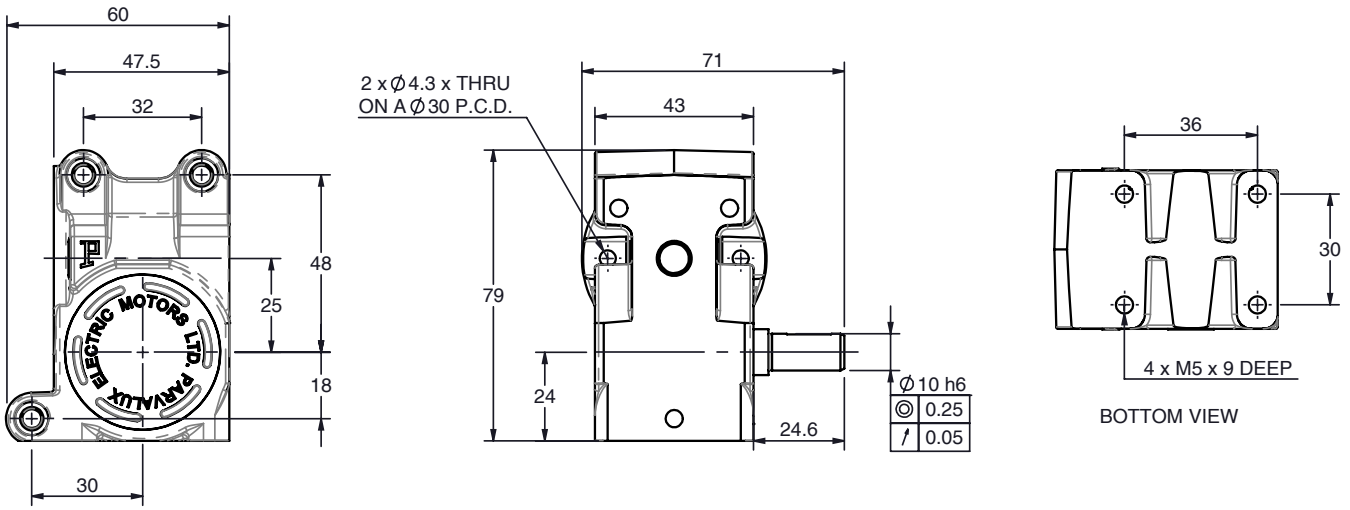
Standard combination

Modular combination

GB58 Right-angle gearbox // Composite gears

4:1 - 25:1 ratio // 8.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data										
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio [1]	:1	4	5	7	9	10	14	15	18	20	25
3	Stages		1	1	1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [2 3]	Nm	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
5	Max. intermittent torque [3]	Nm	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
6	Efficiency	%	85	84	82	80	80	76	75	73	72	68
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	300	300	300	300	300	300	300	300	300	300
9	Max. radial load, 12 mm from flange	N	400	400	400	400	400	400	400	400	400	400
10	Weight	Kg	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] Other ratios available on request (:1): 6, 8, 11, 12, 13, 16, 22 [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

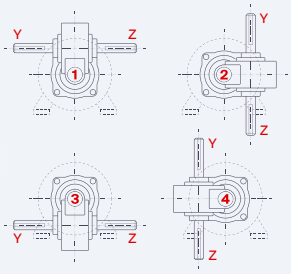
Compatible products

BLDC	Page #
PBL60-50	92
PBL60-70	94

PMDC	Page #
BRx42-25	44
BRx42-40	46
BRx52-30	48
BRx52-58	50
BRx63-25	52
BRx63-55	54
PM7	106
PM8	108
PM9	110
PM10	112
PM11	114

AC	Page #
SD21	164
SD41	168
SD8	172
SD38	176
SD28	180
SD29	184
SD1	202

Gearbox output position

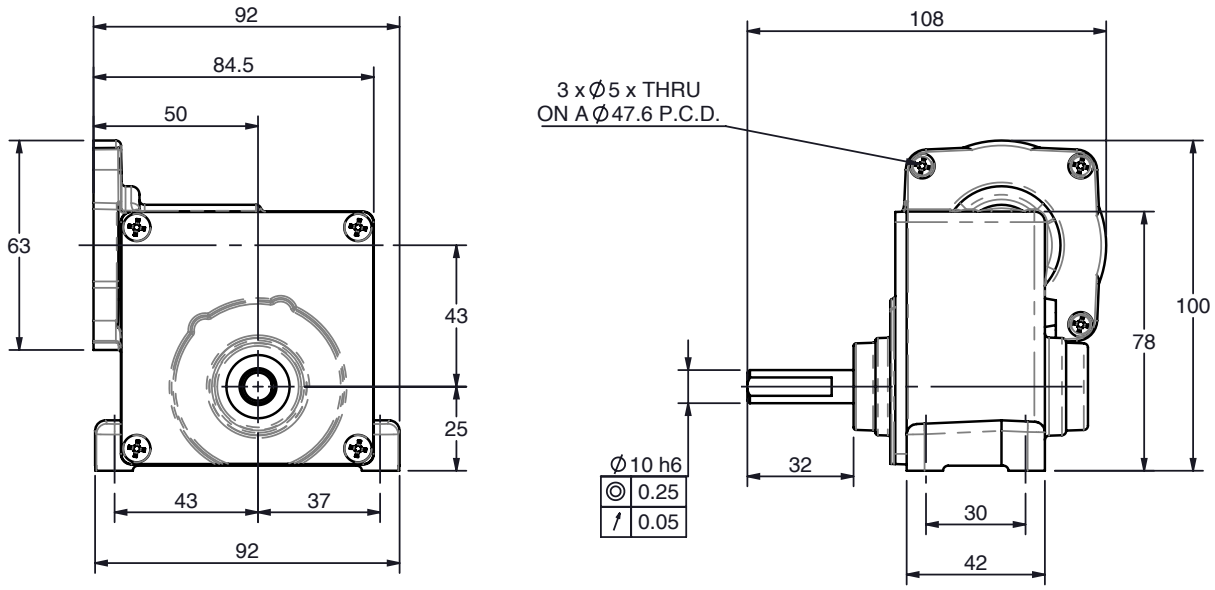


Key
Standard combination
Modular combination

SWS Right-angle gearbox // Composite gears

9:1 - 31:1 spur ratio // 4:1 - 44:1 worm ratio // 11.0 Nm

all dimensions in mm



Part number key		
Modular	######	**Please see our customisation options page for details on the modifications available on our products.** Advice and guidance on these options are available from your local sales engineer.
Standard	######	
Calculated data	######	

	Technical data										
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio - spur	:1	9	9	9	9	23	23	31	31	31	31
3	Gear ratio - worm	:1	4	5	9	12	6	9	9	12	22	44
4	Max. continuous torque (S1) [1] [2]	Nm	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
5	Max. intermittent torque [2]	Nm	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
6	Efficiency	%	71	71	71	70	71	71	70	65	61	57
7	Backlash	arc.min	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75
8	Max. axial load (dynamic)	N	112	112	112	112	112	112	112	112	112	112
9	Max. radial load, 12 mm from flange	N	177	177	177	177	177	177	177	177	177	177
10	Weight	Kg	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255

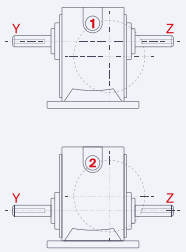
Compatible products

BLDC	Page #
PBL42-15	88
PBL42-30	90

PMDC	Page #
PM7	106
PM8	108
PM9	110

AC	Page #
SD21	164
SD41	168
SD1	202

Gearbox output position



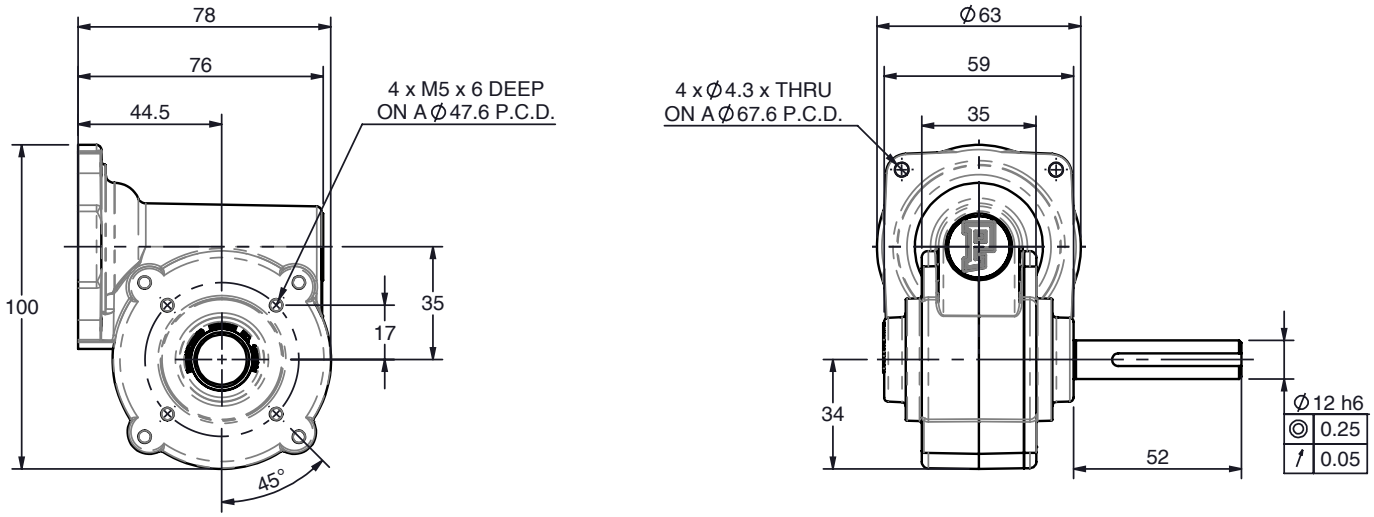
Key
Standard combination
Modular combination

Notes

M Box Right-angle gearbox // Composite gears

4:1 - 72:1 ratio // 13.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data										
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio [1]	:1	4	5	10	16	20	30	40	48	60	72
3	Stages		1	1	1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [2 3]	Nm	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	6.0	5.0
5	Max. intermittent torque [3]	Nm	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	10.0	8.0
6	Efficiency	%	85	85	82	77	74	70	65	58	54	46
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	300	300	300	300	300	300	300	300	300	300
9	Max. radial load, 12 mm from flange	N	350	350	350	350	350	350	350	350	350	350
10	Weight	Kg	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] Other ratios available on request (:1): 6, 8, 9, 12, 13, 14, 18, 25, 33, 44, 54, 66 [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

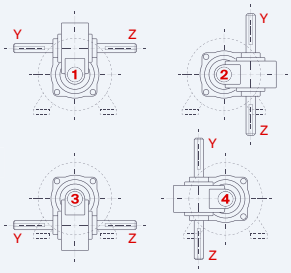
Compatible products

BLDC	+L mm
PBL60-50	92
PBL60-70	94

PMDC	+L mm
BRx63-25	52
BRx63-55	54
PM10	112
PM11	114
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126
PM50	128
PM60	130

AC	+L mm
SD21	164
SD41	168
SD8	172
SD38	176
SD28	180
SD29	184
SD13	188
SD18	192
SD48	196
SD1	202
SD11	206
SD12	210

Gearbox output position

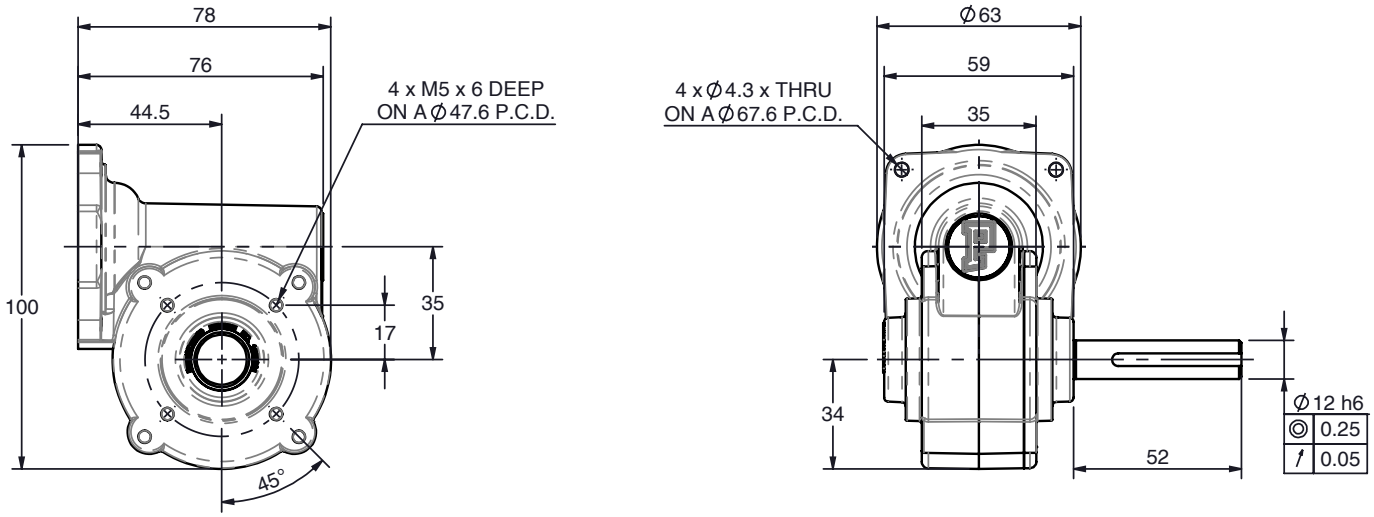


Key
Standard combination
Modular combination

M Box Right-angle gearbox // Bronze gears

4:1 - 72:1 ratio // 19.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data										
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio [1]	:1	4	5	10	16	20	30	40	48	60	72
3	Stages		1	1	1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [2 3]	Nm	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	9.0	8.0
5	Max. intermittent torque [3]	Nm	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	14.0	12.0
6	Efficiency	%	74	74	71	67	64	61	57	50	47	40
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	300	300	300	300	300	300	300	300	300	300
9	Max. radial load, 12 mm from flange	N	350	350	350	350	350	350	350	350	350	350
10	Weight	Kg	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
11	Gear material		Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze

[1] Other ratios available on request (:1): 6, 8, 9, 12, 13, 14, 18, 25, 33, 44, 54, 66 [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

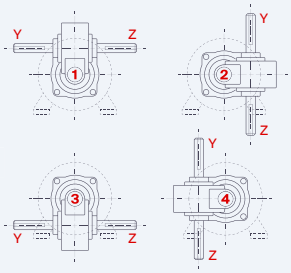
Compatible products

BLDC	+L mm
PBL60-50	92
PBL60-70	94

PMDC	+L mm
BRx63-25	52
BRx63-55	54
PM10	112
PM11	114
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126
PM50	128
PM60	130

AC	+L mm
SD21	164
SD41	168
SD8	172
SD38	176
SD28	180
SD29	184
SD13	188
SD18	192
SD48	196
SD1	202
SD11	206
SD12	210

Gearbox output position

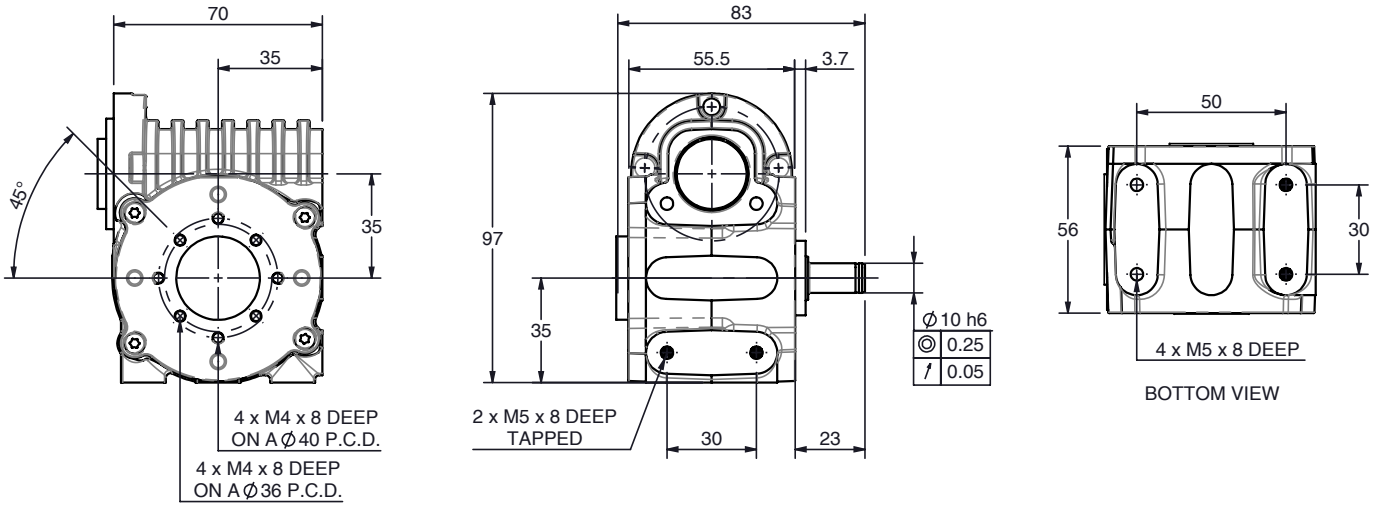


Key
Standard combination
Modular combination

GB80 Right-angle gearbox // Composite gears

4:1 - 72:1 ratio // 13.0 Nm

all dimensions in mm



Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Technical data											
1	Part number		-	-	-	888018	-	888020	-	-	888021	-
2	Gear ratio [1]	:1	4	6	10	15	20	30	40	54	60	72
3	Stages		1	1	1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [2 3]	Nm	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.0	6.0	5.0
5	Max. intermittent torque [3]	Nm	13.0	13.0	13.0	13.0	13.0	13.0	13.0	11.0	10.0	8.0
6	Efficiency	%	85	85	82	77	74	70	65	56	54	46
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	300	300	300	300	300	300	300	300	300	300
9	Max. radial load, 12 mm from flange	N	350	350	350	350	350	350	350	350	350	350
10	Weight	Kg	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] Other standard ratios available on request (:1): 5, 8, 9, 12, 13, 14, 18, 25, 33, 44, 48, 66 [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

Compatible products

BLDC	Page #
PBL60-50	92
PBL60-70	94
PBL70-70	96
PBL70-80	98

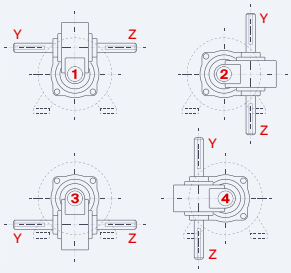
PMDC	Page #
BRx52-30	48
BRx52-58	50
BRx63-25	52
BRx63-55	54
BRx70-25	56
BRx70-60	58
BRx90-50	60
BRx90-75	62
PM10	112
PM11	114
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126

PMDC	Page #
PM50	128
PM60	130
PM70-125	132
PM70-146	134
PM90-150	136
PM90-180	138
EPM50-25	142
EPM50-38	144
EPM50-50	146
EPM50-63	148
EPM63-50	150
EPM63-50 (V)	152
EPM63-75	154
EPM63-75 (V)	156
EPM63-100	158
EPM63-100 (V)	160

(V) = ventilated

Shaft extension	Page #
860809	84

Gearbox output position



Key

Standard combination

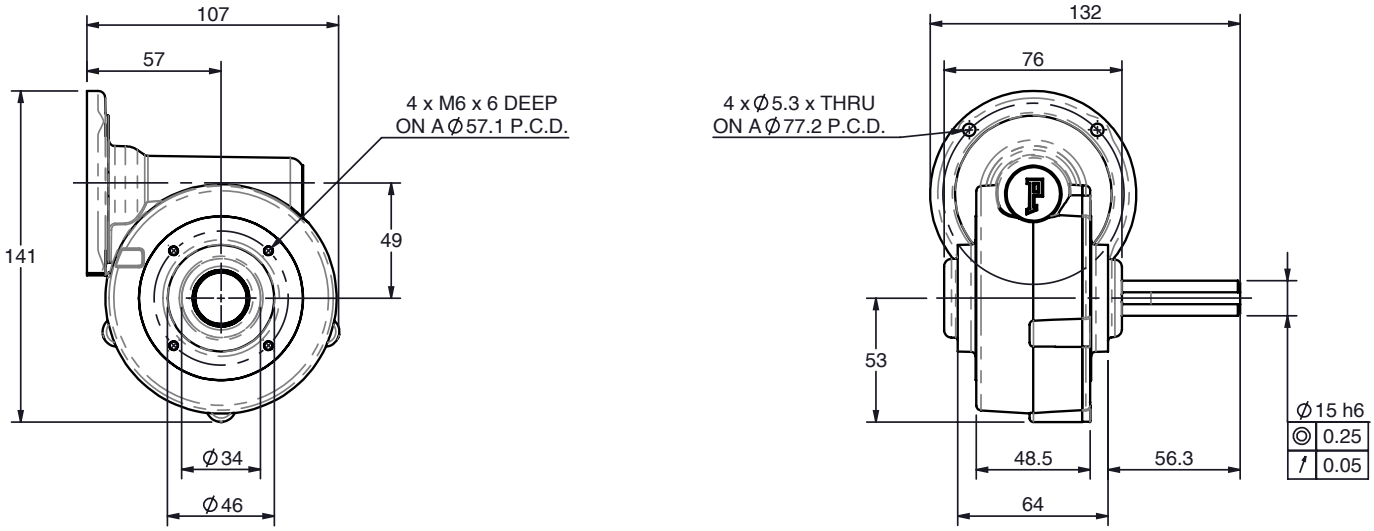
Modular combination

Notes

L Box Right-angle gearbox // Composite gears

5:1 - 60:1 ratio // 15.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data									
1	Part number		-	-	-	-	-	-	-	-
2	Gear ratio [1]	:1	5	12	15	20	25	30	40	60
3	Stages		1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [2 3]	Nm	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
5	Max. intermittent torque [3]	Nm	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
6	Efficiency	%	90	85	83	79	75	72	67	55
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	132	132	132	132	132	132	132	132
9	Max. radial load, 12 mm from flange	N	177	177	177	177	177	177	177	177
10	Weight	Kg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] Other ratios available on request (:1): 7, 9 [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

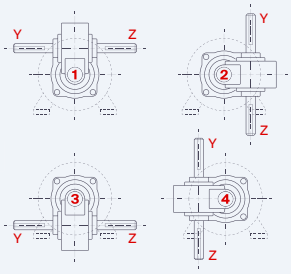
Compatible products

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PM90-180	138

AC	Page #
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Gearbox output position

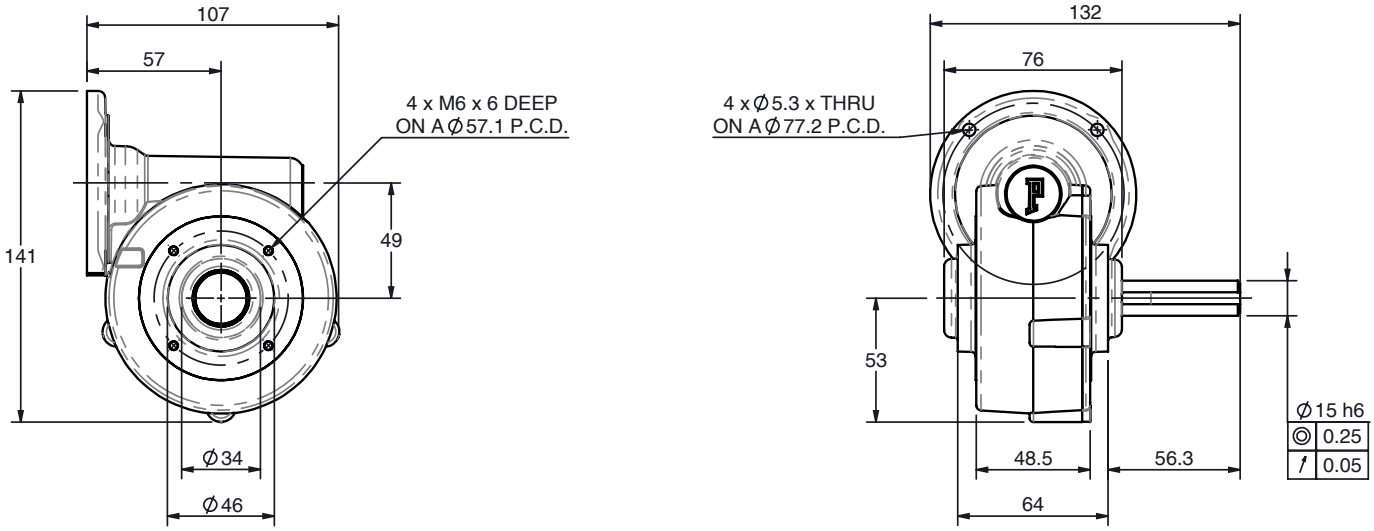


Key
Standard combination
Modular combination

L Box Right-angle gearbox // Bronze gears

5:1 - 60:1 ratio // 22.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data									
1	Part number		-	-	-	-	-	-	-	-
2	Gear ratio [1]	:1	5	12	15	20	25	30	40	60
3	Stages		1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [2 3]	Nm	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
5	Max. intermittent torque [3]	Nm	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
6	Efficiency	%	84	80	75	73	72	65	60	45
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	132	132	132	132	132	132	132	132
9	Max. radial load, 12 mm from flange	N	177	177	177	177	177	177	177	177
10	Weight	Kg	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
11	Gear material		Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze

[1] Other ratios available on request (:1): 7, 9 [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

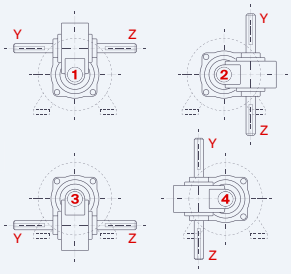
Compatible products

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SD12	210

Gearbox output position

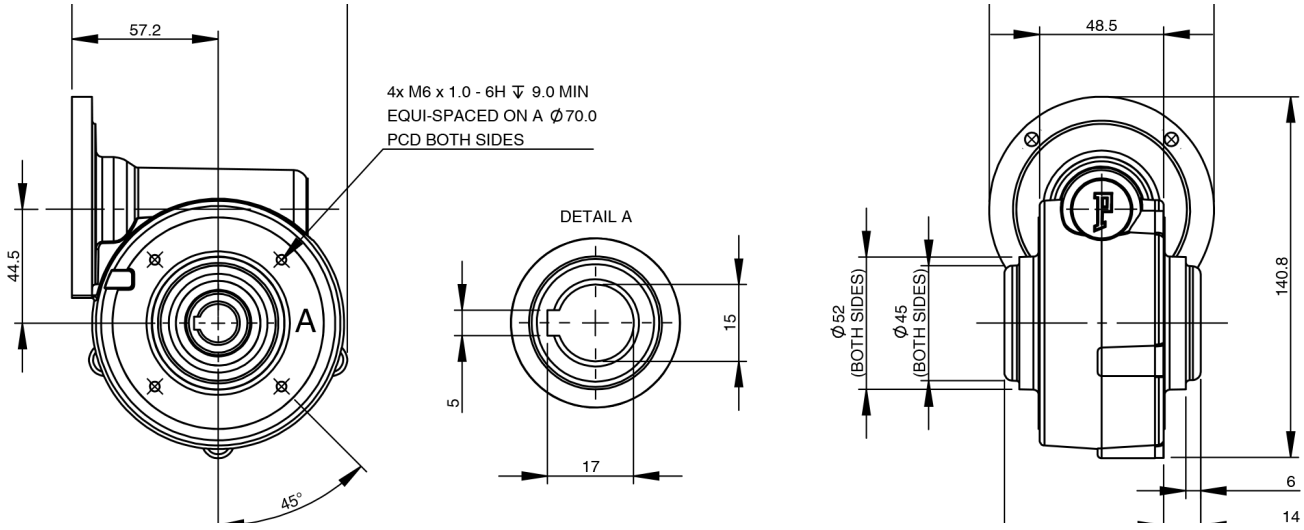


Key
Standard combination
Modular combination

LH Box Right-angle gearbox // Composite gears

5:1 - 60:1 ratio // 15.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data									
1	Part number		-	-	-	-	-	-	-	-
2	Gear ratio [1]	:1	5	12	15	20	25	30	40	60
3	Stages		1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [2 3]	Nm	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
5	Max. intermittent torque [3]	Nm	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
6	Efficiency	%	90	85	83	79	75	72	67	55
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	132	132	132	132	132	132	132	132
9	Max. radial load, 12 mm from flange	N	177	177	177	177	177	177	177	177
10	Weight	Kg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] Other ratios available on request (:1): 7, 9 [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

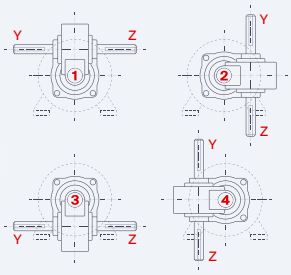
Compatible products

BLDC	Page #
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PBL70-80	98

PMDC	Page #
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PM4	122
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PM90-180	138

AC	Page #
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SD12	210

Gearbox output position

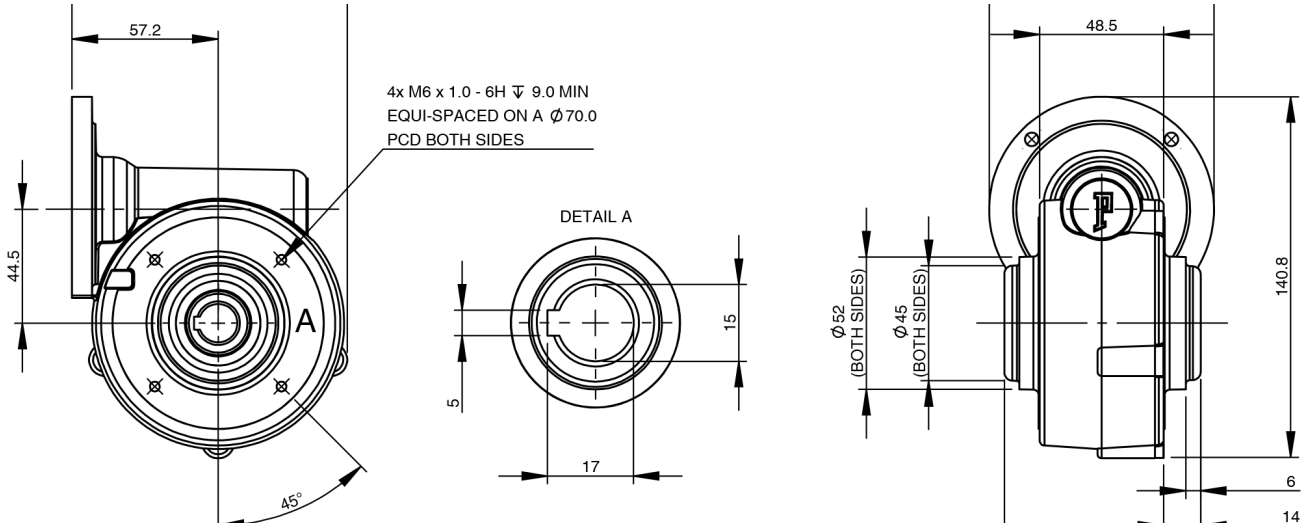


Key
Standard combination
Modular combination

LH Box Right-angle gearbox // Bronze gears

5:1 - 60:1 ratio // 22.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data									
1	Part number		-	-	-	-	-	-	-	-
2	Gear ratio [1]	:1	5	12	15	20	25	30	40	60
3	Stages		1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [2 3]	Nm	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
5	Max. intermittent torque [3]	Nm	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
6	Efficiency	%	84	80	75	73	72	65	60	45
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	132	132	132	132	132	132	132	132
9	Max. radial load, 12 mm from flange	N	177	177	177	177	177	177	177	177
10	Weight	Kg	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
11	Gear material		Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze

[1] Other ratios available on request (:1): 7, 9 [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

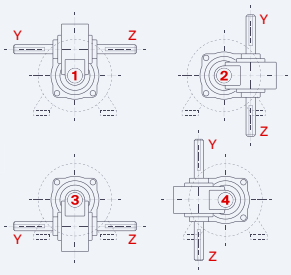
Compatible products

BLDC	Page #
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PMDC	Page #
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AC	Page #
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Gearbox output position

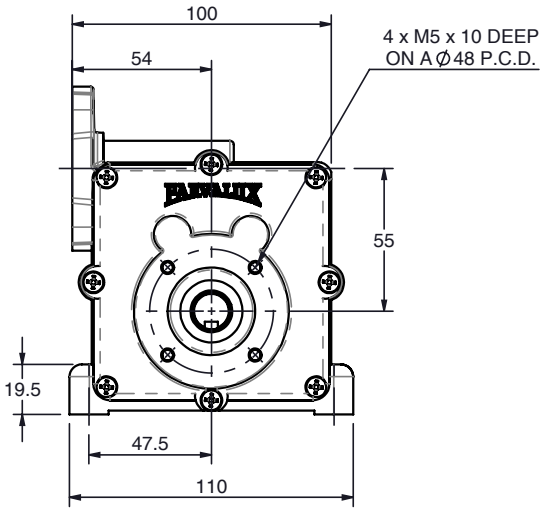


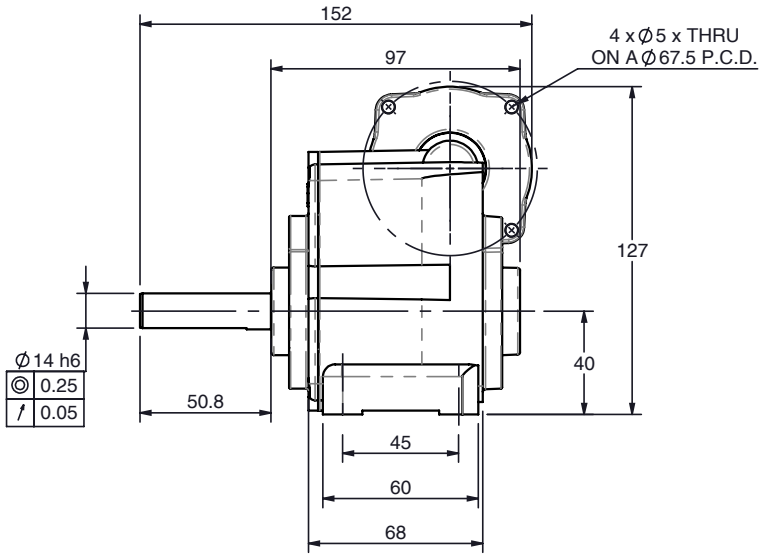
Key
Standard combination
Modular combination

MWS Right-angle gearbox // Composite gears

6:1 - 35:1 spur ratio // 4:1 - 40:1 worm ratio // 45.0 Nm

all dimensions in mm





Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data											
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio - spur	:1	6	6	6	15	15	15	35	35	35	35
3	Gear ratio - worm [1]	:1	4	6	8	4	7	8	4	12	27	40
4	Max. continuous torque (S1) [2 3]	Nm	9.0	9.0	9.0	22.0	22.0	22.0	45.0	45.0	45.0	45.0
5	Max. intermittent torque [3]	Nm	9.0	9.0	9.0	22.0	22.0	22.0	45.0	45.0	45.0	45.0
6	Efficiency	%	76	76	76	74	74	74	72	68	59	54
7	Backlash	arc.min	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75
8	Max. axial load (dynamic)	N	177	177	177	177	177	177	177	177	177	177
9	Max. radial load, midpoint of flange	N	353	353	353	353	353	353	353	353	353	353
10	Weight	Kg	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] Other worm ratios available on request [spur ratio] (:1): 5[6], 7[6], 6[15], 5[35], 7[35], 9[35], 18[35] [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

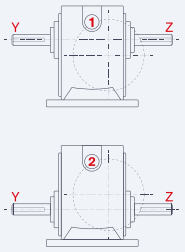
Compatible products

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AC	Page #
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SD38	176
SD28	180
SD29	184
SD13	188
SD18	192
SD48	196
SD1	202
SD11	206
SD12	210

Gearbox output position

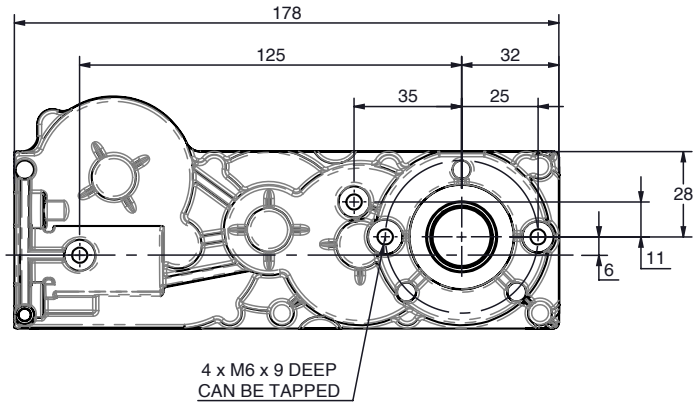


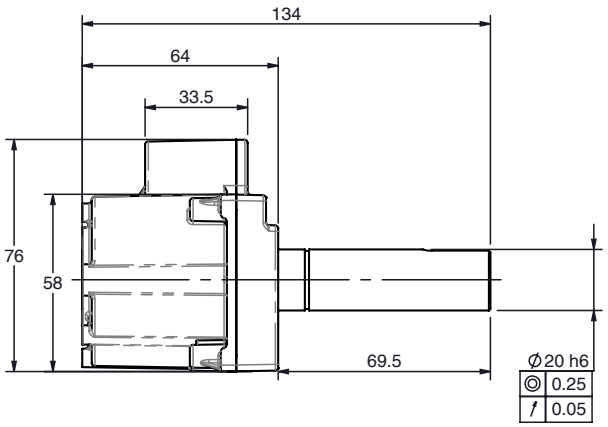
Key
Standard combination
Modular combination

GB36 Right-angle gearbox // Composite gears

6:1 - 35:1 spur ratio // 4:1 - 40:1 worm ratio // 45.0 Nm

all dimensions in mm





Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data										
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio - spur	:1	6	6	6	15	15	15	35	35	35	35
3	Gear ratio - worm [1]	:1	4	6	8	4	7	8	4	12	27	40
4	Max. continuous torque (S1) [2 3]	Nm	9.0	9.0	9.0	22.0	22.0	22.0	45.0	45.0	45.0	45.0
5	Max. intermittent torque [3]	Nm	9.0	9.0	9.0	22.0	22.0	22.0	45.0	45.0	45.0	45.0
6	Efficiency	%	76	76	76	74	74	74	72	68	59	54
7	Backlash	arc.min	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75
8	Max. axial load (dynamic)	N	177	177	177	177	177	177	177	177	177	177
9	Max. radial load, midpoint of flange	N	353	353	353	353	353	353	353	353	353	353
10	Weight	Kg	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] Other worm ratios available on request [spur ratio] (:1): 5[6], 7[6], 6[15], 5[35], 7[35], 9[35], 18[35] [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

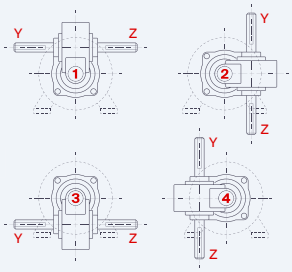
Compatible products

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BRx52-30	48
BRx52-58	50
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PM11	114

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SD29	184

Gearbox output position

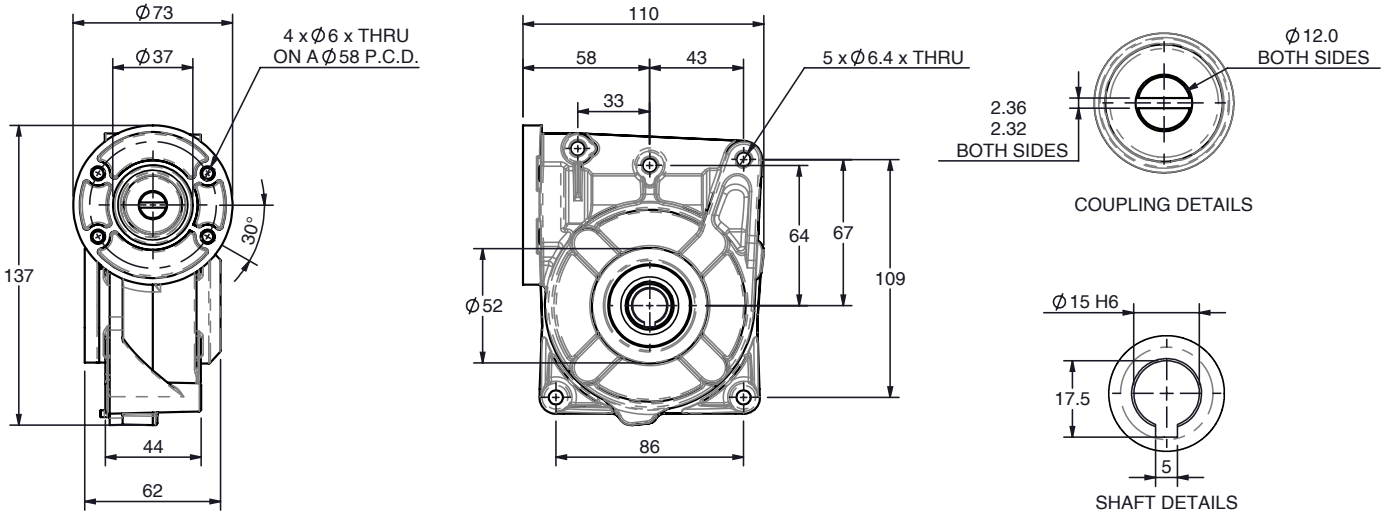


Key
Standard combination
Modular combination

GB12 Right-angle gearbox // Composite gears

12.5:1 - 75:1 ratio // 32.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data										
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio	:1	12.5	14	15	19	21	25	30	50	60	75
3	Stages		1	1	1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [1] [2]	Nm	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	18.0
5	Max. intermittent torque [2]	Nm	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	29.0
6	Efficiency	%	85	83	83	80	78	75	72	60	55	50
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	300	300	300	300	300	300	300	300	300	300
9	Max. radial load, 12 mm from flange	N	500	500	500	500	500	500	500	500	500	500
10	Weight	Kg	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255

Compatible products

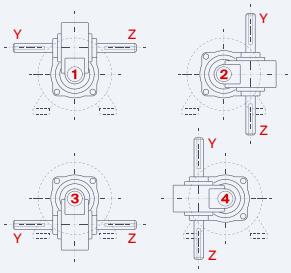
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PBL70-70	96
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PBL86-80	102

PMDC	Page #
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BRx70-60	58
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BRx90-75	62
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PM4	122
PM5	124
PM6	126
PM50	128
PM60	130
PM70-125	132

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EPM50-25	142
EPM50-38	144
EPM50-50	146
EPM50-63	148
EPM63-50	150
EPM63-50 (V)	152
EPM63-75	154
EPM63-75 (V)	156
EPM63-100	158
EPM63-100 (V)	160

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Gearbox output position



Key
Standard combination
Modular combination

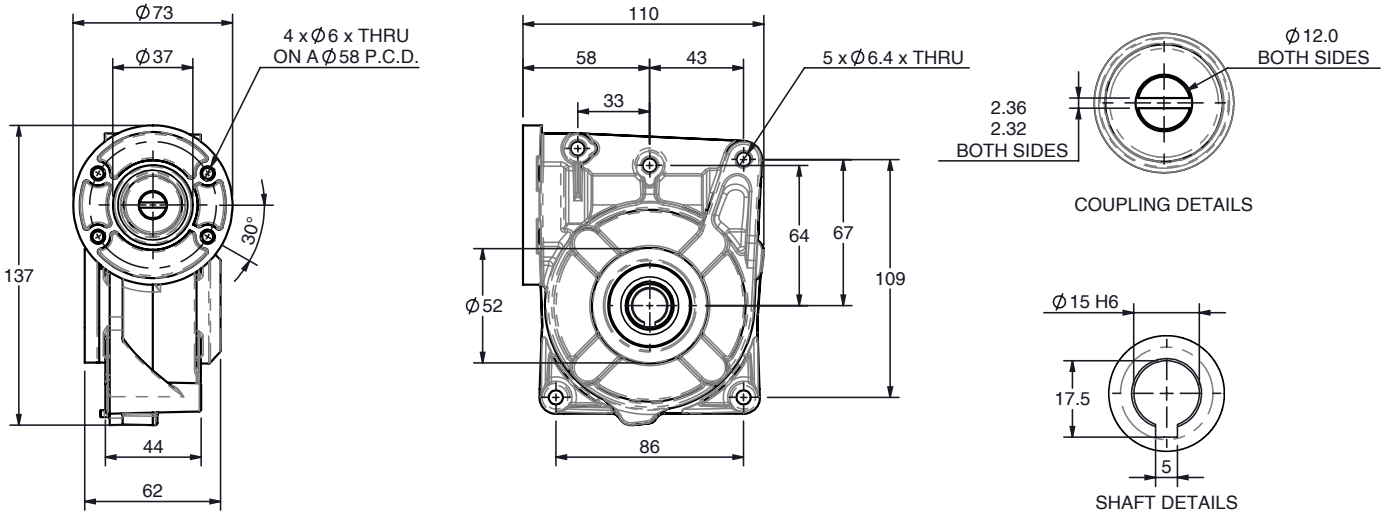
(V) = ventilated

*additional length may also be required for mounting flange between components

GB12 Right-angle gearbox // Bronze gears

12.5:1 - 75:1 ratio // 48.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data											
1	Part number		-	-	735900	-	-	-	735901	-	735902	-
2	Gear ratio	:1	12.5	14	15	19	21	25	30	50	60	75
3	Stages		1	1	1	1	1	1	1	1	1	1
4	Max. continuous torque (S1) [1,2]	Nm	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	27.0
5	Max. intermittent torque [2]	Nm	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	43.0
6	Efficiency	%	80	75	75	73	73	72	65	55	50	45
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	600	600	600	600	600	600	600	600	600	600
9	Max. radial load, 12 mm from flange	N	800	800	800	800	800	800	800	800	800	800
10	Weight	Kg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
11	Gear material		Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255

Compatible products

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PBL60-50	92
PBL60-70	94
PBL70-70	96
PBL70-80	98
PBL86-55	100
PBL86-80	102

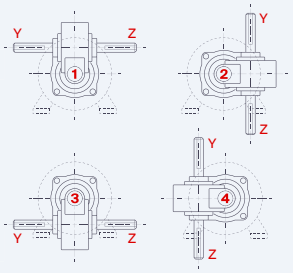
PMDC	Page #
BRx70-40	56
BRx70-60	58
BRx90-50	60
BRx90-75	62
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126
PM50	128
PM60	130
PM70-125	132

PMDC	Page #
PM70-146	134
PM90-150	136
PM90-180	138
EPM50-25	142
EPM50-38	144
EPM50-50	146
EPM63-50	148
EPM63-50 (V)	150
EPM63-75	152
EPM63-75 (V)	154
EPM63-100	156
EPM63-100 (V)	158

AC	Page #
SD13	188
SD18	192
SD48	196

Shaft extension	Page #
735903	84

Gearbox output position



Key

Standard combination

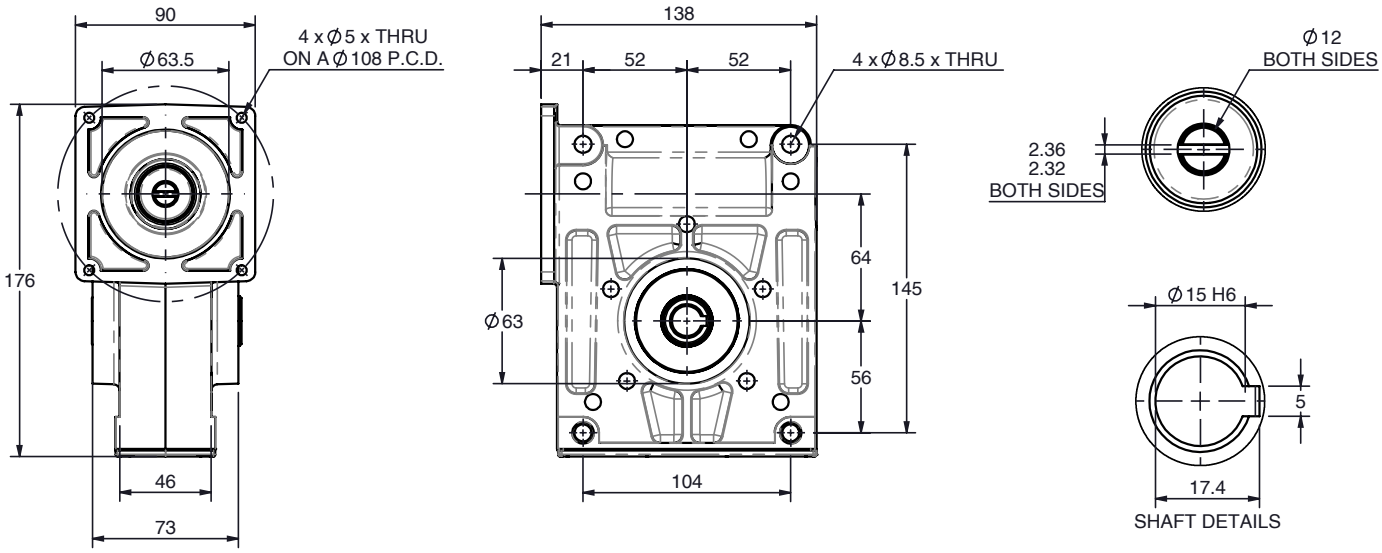
Modular combination

(V) = ventilated

GB9 Right-angle gearbox // Composite gears

12.5:1 - 75:1 ratio // 80.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data								
1	Part number		-	735894	-	735895	-	735896	-
2	Gear ratio	:1	12.5	15	25	30	40	60	75
3	Stages		1	1	1	1	1	1	1
4	Max. continuous torque (S1) [1 2]	Nm	50.0	50.0	50.0	50.0	50.0	50.0	40.0
5	Max. intermittent torque [2]	Nm	80.0	80.0	80.0	80.0	80.0	80.0	70.0
6	Efficiency	%	90	85	80	75	70	65	50
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	600	600	600	600	600	600	600
9	Max. radial load, 12 mm from flange	N	800	800	800	800	800	800	800
10	Weight	Kg	2.3	2.3	2.3	2.3	2.3	2.3	2.3
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255

Compatible products

BLDC	Page #
PBL86-55	100
PBL86-80	102

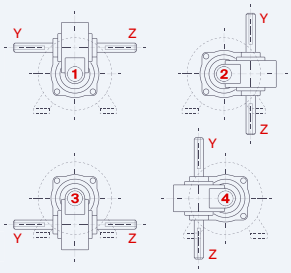
PMDC	Page #
BRx90-50	60
BRx90-75	62
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126
PM50	128
PM60	130
PM90-150	136

PMDC	Page #
PM90-180	138
EPM50-25	142
EPM50-38	144
EPM50-50	146
EPM50-63	148
EPM63-50	150
EPM63-50 (V)	152
EPM63-75	154
EPM63-75 (V)	156
EPM63-100	158
EPM63-100 (V)	160

AC	Page #
SD13	188
SD18	192
SD48	196

Shaft extension	Page #
735898	84

Gearbox output position



Key

Standard combination

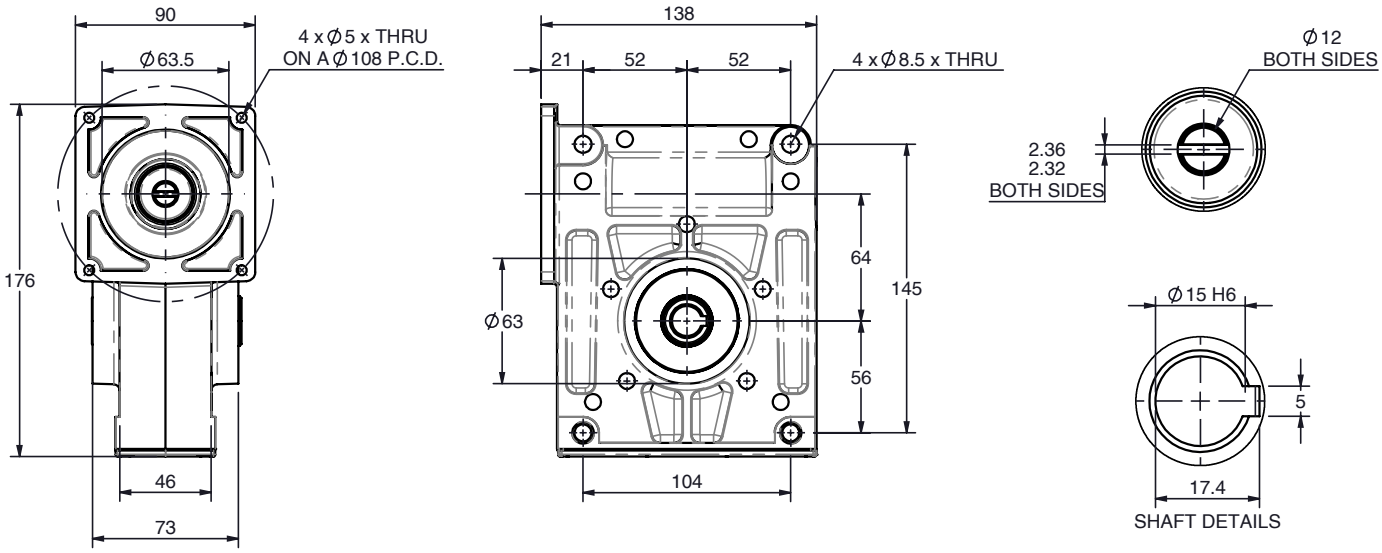
Modular combination

(V) = ventilated

GB9 Right-angle gearbox // Bronze gears

12.5:1 - 75:1 ratio // 120.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data								
1	Part number		-	-	-	-	-	-	-
2	Gear ratio	:1	12.5	15	25	30	40	60	75
3	Stages		1	1	1	1	1	1	1
4	Max. continuous torque (S1) [1] [2]	Nm	75.0	75.0	75.0	75.0	75.0	75.0	60.0
5	Max. intermittent torque [2]	Nm	120.0	120.0	120.0	120.0	120.0	120.0	96.0
6	Efficiency	%	85	80	75	70	65	55	45
7	Backlash	arc.min	10-25	10-25	10-25	10-25	10-25	10-25	10-25
8	Max. axial load (dynamic)	N	600	600	600	600	600	600	600
9	Max. radial load, 12 mm from flange	N	800	800	800	800	800	800	800
10	Weight	Kg	3.4	3.4	3.4	3.4	3.4	3.4	3.4
11	Gear material		Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255

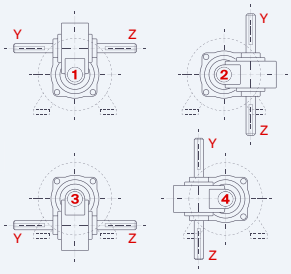
Compatible products

BLDC	Page #
PBL86-55	100
PBL86-80	102

PMDC	Page #	PMDC	Page #
BRx90-50	60	PM90-180	138
BRx90-75	62	EPM50-25	142
PM1	116	EPM50-38	144
PM2	118	EPM50-50	146
PM3	120	EPM50-63	148
PM4	122	EPM63-50	150
PM5	124	EPM63-50 (V)	152
PM6	126	EPM63-75	154
PM50	128	EPM63-75 (V)	156
PM60	130	EPM63-100	158
PM90-150	136	EPM63-100 (V)	160

AC	Page #
SD13	188
SD18	192
SD48	196

Gearbox output position



Key

Standard combination

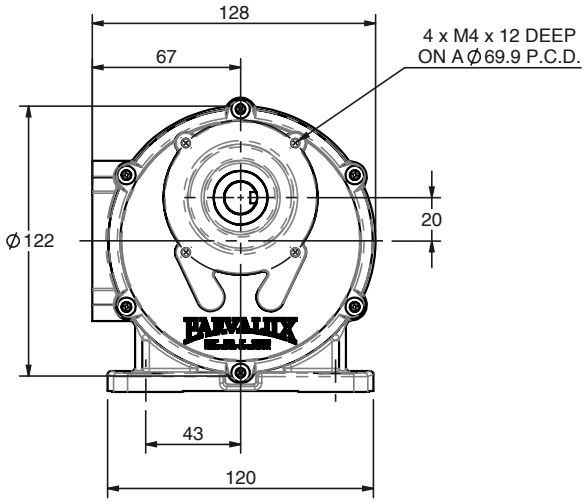
Modular combination

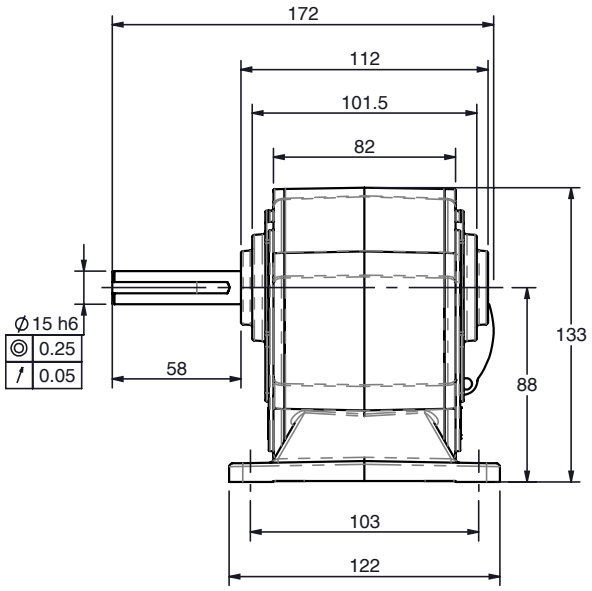
(V) = ventilated

LWS Right-angle gearbox // Composite gears

6:1 - 115:1 spur ratio // 6:1 - 30:1 worm ratio // 100.0 Nm

all dimensions in mm





Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data											
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio - spur	:1	6	6	25	25	25	56	56	115	115	115
3	Gear ratio - worm [1]	:1	8	16	6	12	13	6	12	7	16	30
4	Max. continuous torque (S1) [2 3]	Nm	45.0	45.0	62.0	62.0	62.0	100.0	100.0	100.0	100.0	100.0
5	Max. intermittent torque [3]	Nm	45.0	45.0	62.0	62.0	62.0	100.0	100.0	100.0	100.0	100.0
6	Efficiency	%	68	68	68	64	64	68	65	68	64	55
7	Backlash	arc.min	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75
8	Max. axial load (dynamic)	N	226	226	226	226	226	226	226	226	226	226
9	Max. radial load, 12 mm from flange	N	446	446	446	446	446	446	446	446	446	446
10	Weight	Kg	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] Other worm ratios available on request [spur ratio] (:1): 9[6], 11[6], 13[6], 8[25], 9[25], 10[25], 7[56], 8[56], 9[56], 10[56], 8[115] [2] S1 duty cycle based on 3000 RPM input speed [3] Please refer to the thermal rating limits of the gearbox found on page 255

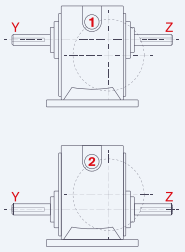
Compatible products

BLDC	Page #
PBL70-70	96
PBL70-80	98

PMDC	Page #	PMDC	Page #
PM10	112	PM60	130
PM11	114	PM90-150	136
PM1	116	PM90-180	138
PM2	118	EPM63-50	150
PM3	120	EPM63-50 (V)	152
PM4	122	EPM63-75	154
PM5	124	EPM63-75 (V)	156
PM6	126	EPM63-100	158
PM50	128	EPM63-100 (V)	160

AC	Page #
SD21	164
SD41	168
SD8	172
SD38	176
SD28	180
SD29	184
SD13	188
SD18	192
SD48	196
SD1	202
SD11	206
SD12	210

Gearbox output position

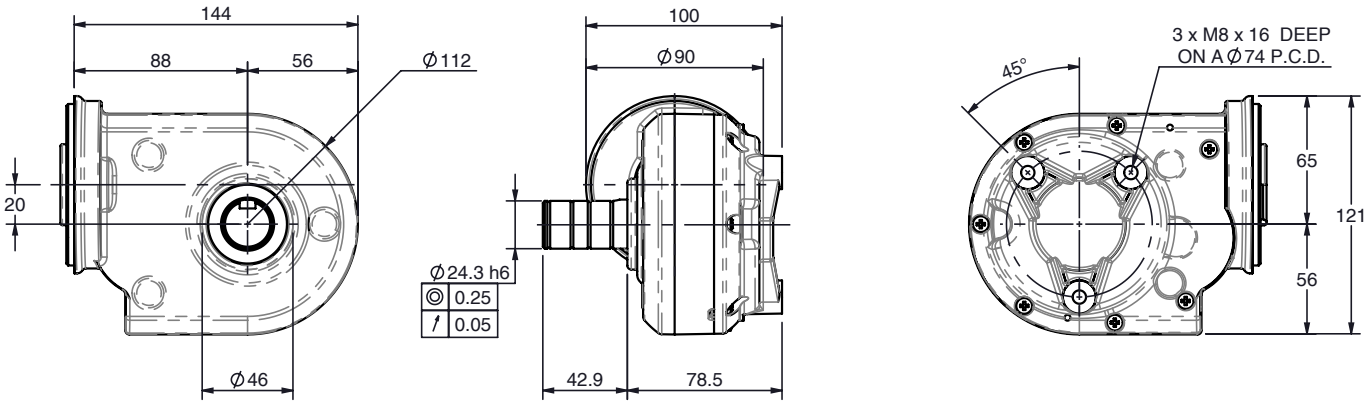


Key
Standard combination
Modular combination

GB14 Right-angle gearbox // Steel / bronze gears

20:1 - 160:1 ratio // 300.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

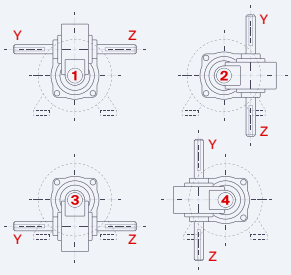
	Technical data								
1	Part number	-	-	-	-	-	-	-	-
2	Gear ratio	:1	20	40	60	80	100	120	160
3	Stages		2	2	2	2	2	2	2
4	Max. continuous torque (S1) [1] [2]	Nm	120.0	120.0	120.0	120.0	120.0	120.0	120.0
5	Max. intermittent torque [2]	Nm	300.0	300.0	300.0	300.0	300.0	300.0	300.0
6	Efficiency	%	81	76	75	70	65	60	55
7	Backlash	arc.min	35-65	35-65	35-65	35-65	35-65	35-65	35-65
8	Max. axial load (dynamic)	N	1750	1750	1750	1750	1750	1750	1750
9	Max. radial load, 12 mm from flange	N	2335	2335	2335	2335	2335	2335	2335
10	Weight	Kg	3.5	3.5	3.5	3.5	3.5	3.5	3.5
11	Gear material [2]		S / B	S / B	S / B	S / B	S / B	S / B	S / B

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255

Compatible products

PMDC	Page #
PM90-150	136
PM90-180	138

Gearbox output position



Key

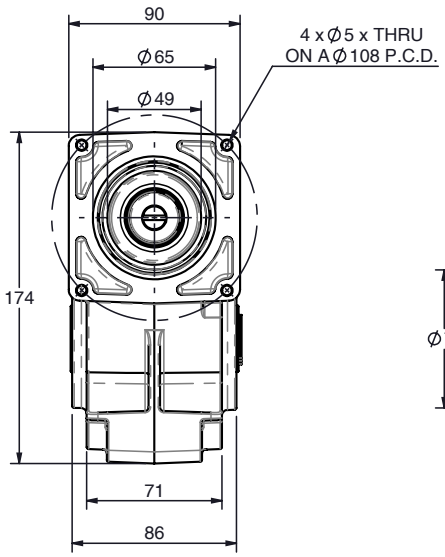
Standard combination

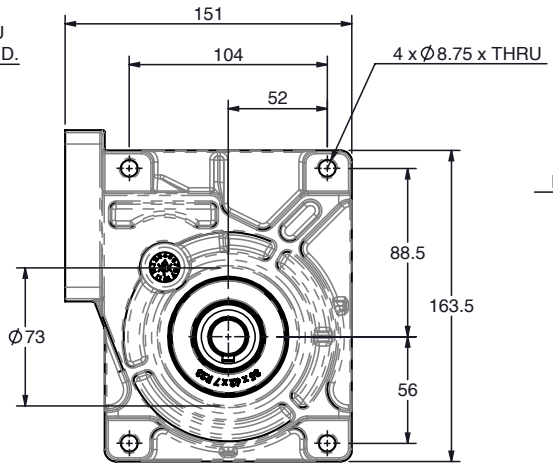
Modular combination

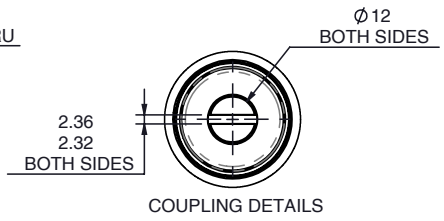
GB65 Right-angle gearbox // Steel / bronze gears

20:1 - 160:1 ratio // 300.0 Nm

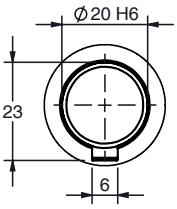
all dimensions in mm







COUPLING DETAILS



SHAFT DETAILS

Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Technical data									
1	Part number		854060	853270	-	827936	-	827934	827943
2	Gear ratio	:1	20	40	60	80	100	120	160
3	Stages		2	2	2	2	2	2	2
4	Max. continuous torque (S1) [1] [2]	Nm	120.0	120.0	120.0	120.0	120.0	120.0	120.0
5	Max. intermittent torque [2]	Nm	300.0	300.0	300.0	300.0	300.0	300.0	300.0
6	Efficiency	%	81	76	75	70	65	60	43
7	Backlash	arc.min	35-65	35-65	35-65	35-65	35-65	35-65	35-65
8	Max. axial load (dynamic)	N	1750	1750	1750	1750	1750	1750	1750
9	Max. radial load, 12 mm from flange	N	2335	2335	2335	2335	2335	2335	2335
10	Weight	Kg	3.5	3.5	3.5	3.5	3.5	3.5	3.5
11	Gear material [3]		S / B	S / B	S / B	S / B	S / B	S / B	S / B

[1] S1 duty cycle based on 3000 RPM input speed [2] Please refer to the thermal rating limits of the gearbox found on page 255 [3] S / B = Steel / Bronze

Compatible products

BLDC	Page #
PBL86-55	100
PBL86-80	102

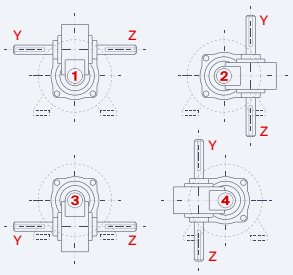
PMDC	Page #
BRx90-50	60
BRx90-75	62
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126
PM50	128
PM60	130
PM90-150	136

PMDC	Page #
PM90-180	138
EPM50-25	142
EPM50-38	144
EPM50-50	146
EPM50-63	148
EPM63-50	150
EPM63-50 (V)	152
EPM63-75	154
EPM63-75 (V)	156
EPM63-100	158
EPM63-100 (V)	160

AC	Page #
SD13	188
SD18	192
SD48	196

Shaft extension	Page #
854742	84

Gearbox output position



Key

Standard combination

Modular combination

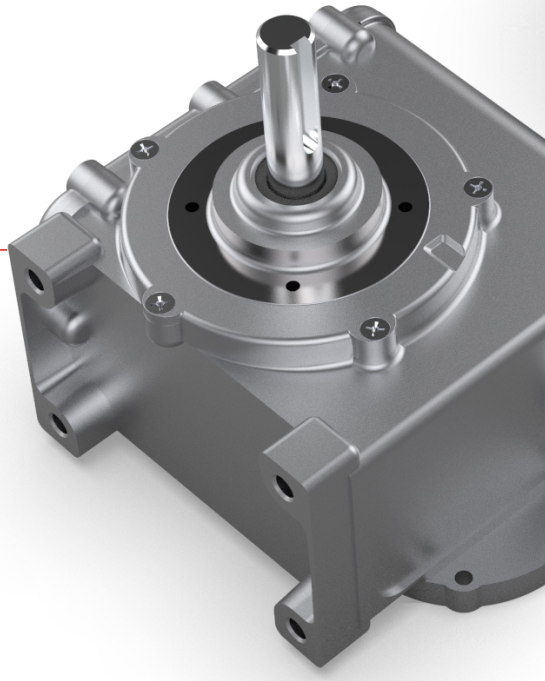
(V) = ventilated

Notes

Standard in gearboxes

LIW

→ 6:1 - 115:1 final gear ratio



line

With options for spur and worm gear, a range of gear ratios and material, and modifications to the output shaft, your inline gearbox solution can be customised to meet your exact specification.



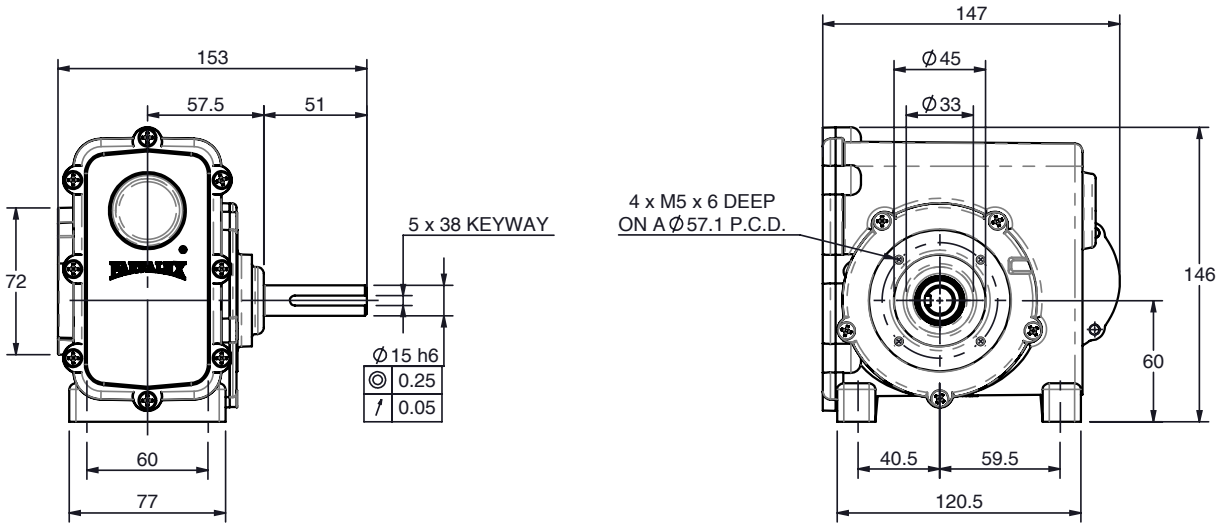
LIS

→ 9:1 - 20:1 final gear ratio

LIW Inline gearbox // Composite gears

9:1 - 20:1 final ratio // 4:1 - 60:1 INT ratio // 28.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data											
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio - final	:1	9	9	9	20	20	20	20	20	20	20
3	Gear ratio - INT [1]	:1	4	7	10	5	12	20	27	36	44	60
4	Max. continuous torque (S1) [2]	Nm	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
5	Max. intermittent torque	Nm	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0	28.0
6	Efficiency	%	74	74	71	67	64	59	57	52	49	43
7	Backlash	arc.min	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75
8	Max. axial load (dynamic)	N	196	196	196	196	196	196	196	196	196	196
9	Max. radial load, 12 mm from flange	N	353	353	353	353	353	353	353	353	353	353
10	Weight	Kg	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] Other INT ratios available on request [final ratio] (:1): 5[9], 8[9], 7[20], 8[20], 16[20] [2] S1 duty cycle based on 3000 RPM input speed

Compatible products

BLDC	Page #
PBL70-70	96
PBL70-80	98

PMDC	Page #
PM10	112
PM11	114
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126
PM50	128

PMDC	Page #
PM60	130
PM90-150	136
PM90-180	138
EPM63-50	150
EPM63-50 (V)	152
EPM63-75	154
EPM63-75 (V)	156
EPM63-100	158
EPM63-100 (V)	160

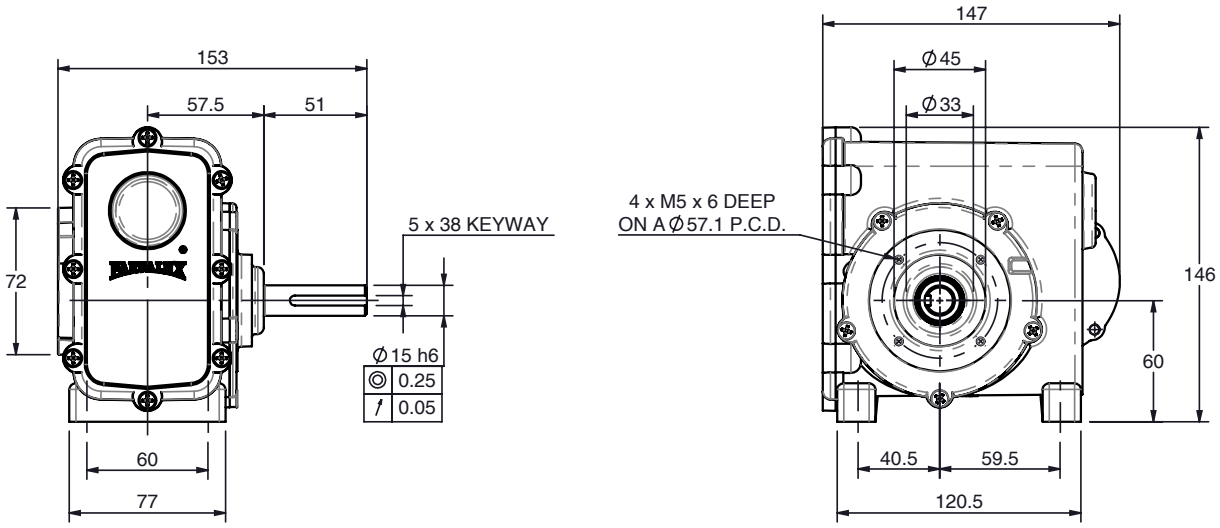
AC	Page #
SD8	172
SD38	176
SD28	180
SD29	184
SD13	188
SD18	192
SD48	196
SD11	206
SD12	210

Key
Standard combination
Modular combination

LIW Inline gearbox // Bronze gears

9:1 - 20:1 final ratio // 4:1 - 60:1 INT ratio // 28.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

	Technical data										
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio - final	:1	9	9	9	20	20	20	20	20	20	20
3	Gear ratio - INT [1]	:1	4	7	10	5	12	20	27	36	44	60
4	Max. continuous torque (S1) [2]	Nm	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
5	Max. intermittent torque	Nm	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0
6	Efficiency	%	70	70	67	62	59	54	53	50	45	39
7	Backlash	arc.min	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75
8	Max. axial load (dynamic)	N	196	196	196	196	196	196	196	196	196	196
9	Max. radial load, 12 mm from flange	N	353	353	353	353	353	353	353	353	353	353
10	Weight	Kg	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
11	Gear material		Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze

[1] Other INT ratios available on request [final ratio] (:1): 5[9], 8[9], 7[20], 8[20], 16[20] [2] S1 duty cycle based on 3000 RPM input speed

Compatible products

BLDC	Page #
PBL70-70	96
PBL70-80	98

PMDC	Page #	PMDC	Page #
PM10	112	PM60	130
PM11	114	PM90-150	136
PM1	116	PM90-180	138
PM2	118	EPM63-50	150
PM3	120	EPM63-50 (V)	152
PM4	122	EPM63-75	154
PM5	124	EPM63-75 (V)	156
PM6	126	EPM63-100	158
PM50	128	EPM63-100 (V)	160

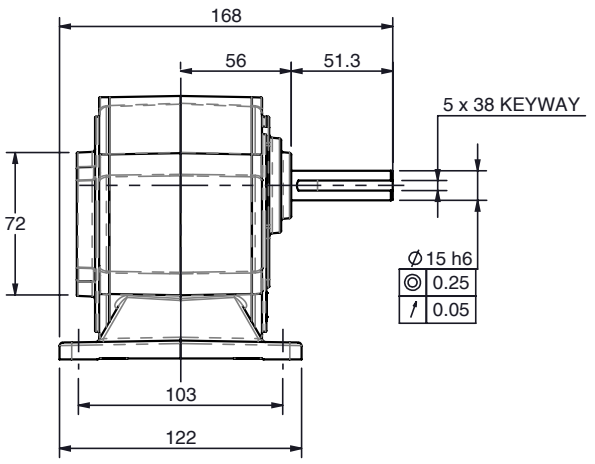
AC	Page #
SD8	172
SD38	176
SD28	180
SD29	184
SD13	188
SD18	192
SD48	196
SD11	206
SD12	210

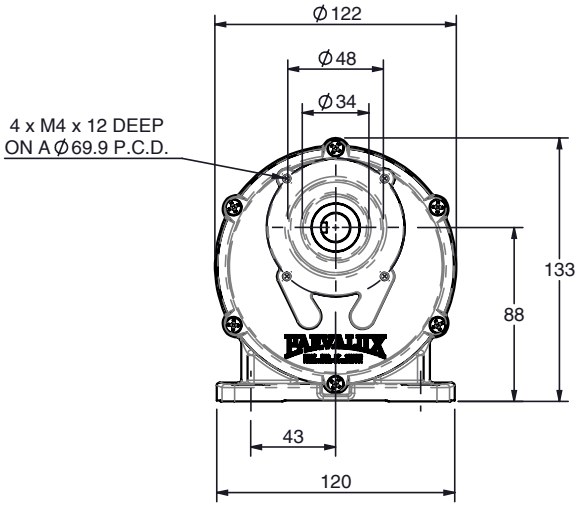
Key
Standard combination
Modular combination

LIS Inline gearbox // Composite gears

6:1 - 115:1 spur ratio // 1:1 - 3:1 pinion ratio // 100.0 Nm

all dimensions in mm





Part number key		
Modular	######	
Standard	######	
Calculated data	######	

Please see our customisation options page for details on the modifications available on our products.
Advice and guidance on these options are available from your local sales engineer.

Technical data										
1	Part number		-	-	-	-	-	-	-	-	-
2	Gear ratio - spur	:1	6	6	6	25	25	25	56	56	115
3	Gear ratio - pinion	:1	1	2	3	1	2	3	1	3	1
4	Max. continuous torque (S1) [1]	Nm	23.0	23.0	23.0	51.0	51.0	51.0	74.0	74.0	74.0
5	Max. intermittent torque	Nm	23.0	23.0	23.0	51.0	51.0	51.0	100.0	100.0	100.0
6	Efficiency	%	77	77	77	77	77	77	77	77	77
7	Backlash	arc.min	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75	50-75
8	Max. axial load (dynamic)	N	177	177	177	177	177	177	177	177	177
9	Max. radial load, 12 mm from flange	N	265	265	265	265	265	265	265	265	265
10	Weight	Kg	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
11	Gear material		Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite	Composite

[1] S1 duty cycle based on 3000 RPM input speed

Compatible products

BLDC	Page #
PBL70-70	96
PBL70-80	98

PMDC	Page #
PM10	112
PM11	114
PM1	116
PM2	118
PM3	120
PM4	122
PM5	124
PM6	126
PM50	128

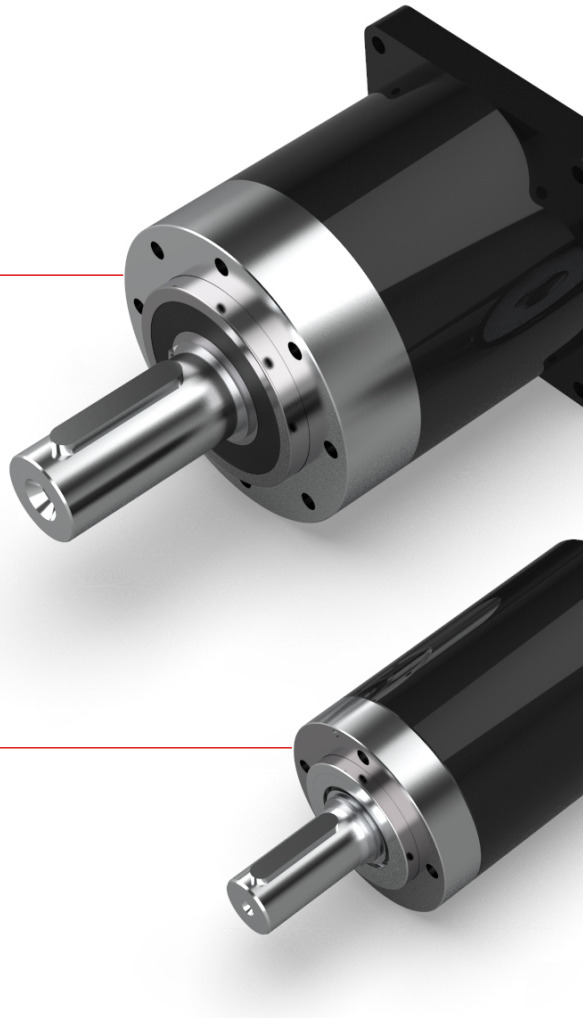
PMDC	Page #
PM60	130
PM90-150	136
PM90-180	138
EPM63-50	150
EPM63-50 (V)	152
EPM63-75	154
EPM63-75 (V)	156
EPM63-100	158
EPM63-100 (V)	160

AC	Page #
SD8	172
SD38	176
SD28	180
SD29	184
SD13	188
SD18	192
SD48	196
SD11	206
SD12	210

Key
Standard combination
Modular combination

Notes

Standard pl
gearboxes



PGx70

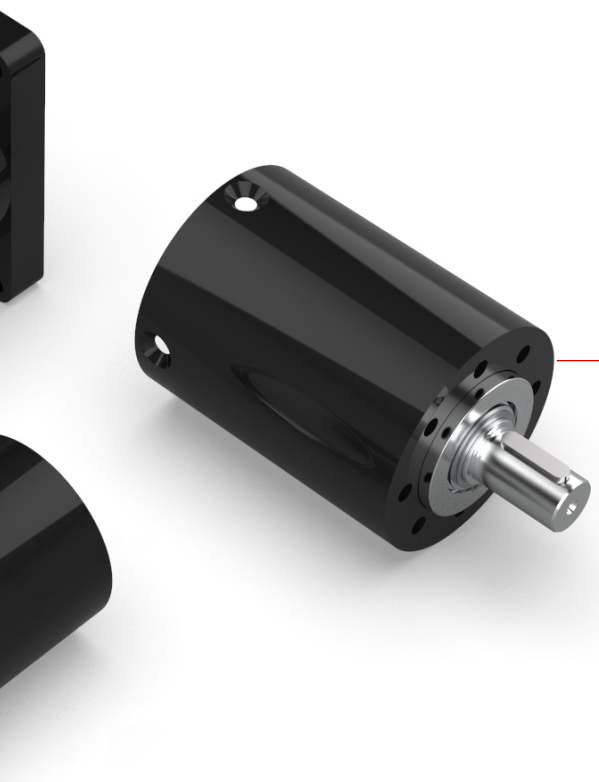
- 1 - 2 stage
- 3.9:1 - 44:1 gear ratio
- Steel gears

PGx42

- 1 - 4 stage
- 3.5:1 - 936:1 gear ratio
- Steel gears

lanetary

Our range of planetary gearboxes currently includes three options; the PGx42, PGx52 and PGx70 - each compatible with a range of Parvalux motors and offering a wide selection of gear ratios to choose from.



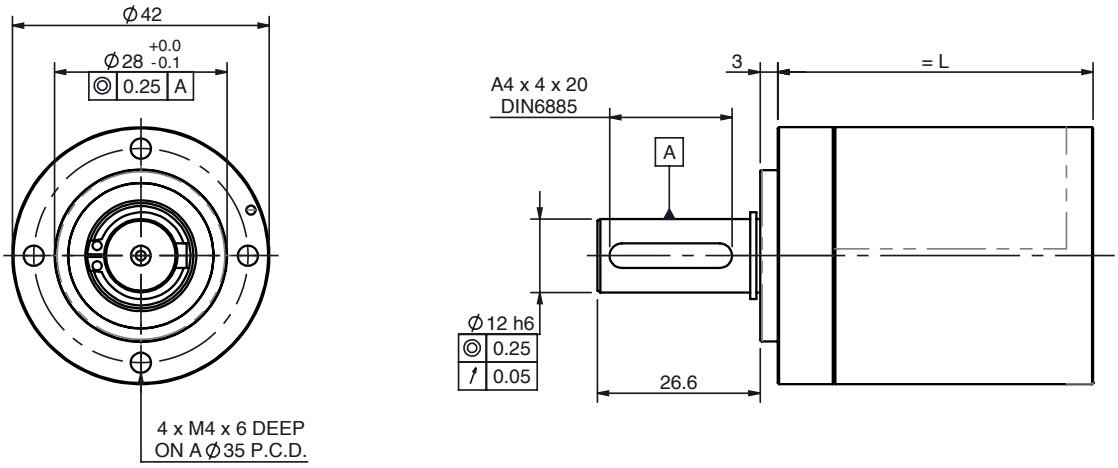
PGx52

- 1 - 3 stage
- 3.9:1 - 172:1 gear ratio
- Steel gears

PGx42 Inline planetary gearbox // Steel gears

3.5:1 - 936:1 ratio // 16.9 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Planetary gearboxes are only available as part of a motor-gearbox combination and cannot be purchased as a gearbox-only unit. Please contact your local sales engineer to discuss your combination options

	Technical data											
1	Part number		-	891037	-	891038	891039	-	891040	891041	-	-
2	Gear ratio [1]	:1	3.5	4.3	12	19	66	126	150	353	676	936
3	Stages		1	1	2	2	3	3	4	4	4	4
4	Max. continuous torque (S1) [2]	Nm	2.3	2.3	5.6	5.6	11.3	11.3	11.3	11.3	11.3	11.3
5	Max. intermittent torque	Nm	3.4	3.4	8.5	8.5	16.9	16.9	16.9	16.9	16.9	16.9
6	Efficiency	%	90	90	81	81	72	72	64	64	64	64
7	Backlash	arc.min	36	36	48	48	60	60	60	60	60	60
8	Max. axial load (dynamic)	N	150	150	150	150	150	150	150	150	150	150
9	Max. radial load, 12 mm from flange	N	120	120	240	240	360	360	360	360	360	360
10	Weight	Kg	0.26	0.26	0.36	0.36	0.46	0.46	0.56	0.56	0.56	0.56
11	Gear material		Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
12	Max. continuous input speed	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
13	Max. intermittent input speed	rpm	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
14	Ambient temperature	°C	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100
15	Max. transmissable power	W	580	580	580	580	580	580	580	580	580	580
16	Length	mm	37.3	37.3	51.8	51.8	66.3	66.3	80.8	80.8	80.8	80.8

[1] Other standard ratios available on request (:1): 15, 21, 26, 43, 53, 74, 81, 113, 156, 186, 230, 257, 285, 319, 394, 441, 488, 546, 756 [2] S1 duty cycle based on 3000 RPM input speed

Compatible products

BLDC	Page #
PBL42-15	88
PBL42-35	90

PMDC	Page #
RE38-25	40
RE38-40	42
BRx42-25	44
BRx42-40	46
PM7	106
PM8	108
PM9	110

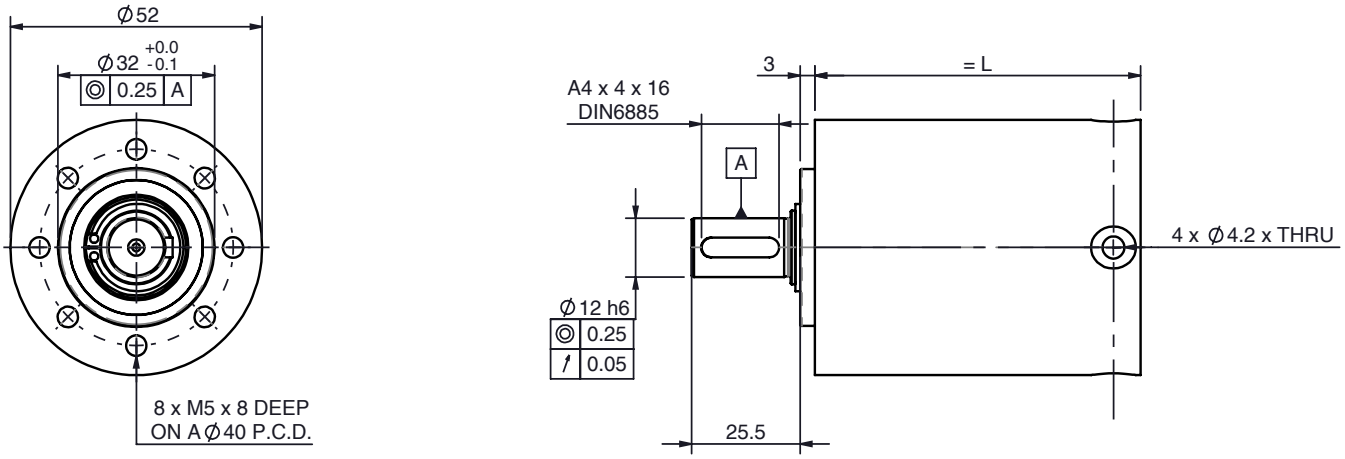
AC	Page #
SD21	164
SD41	168

Key
Standard combination
Modular combination

PGx52 Inline planetary gearbox // Steel gears

3.9:1 - 172:1 ratio // 45.0 Nm

all dimensions in mm



Part number key	
Modular	######
Standard	######
Calculated data	######

Planetary gearboxes are only available as part of a motor-gearbox combination and cannot be purchased as a gearbox-only unit. Please contact your local sales engineer to discuss your combination options

	Technical data											
1	Part number		-	-	-	-	-	-	-	-	-	-
2	Gear ratio [1]	:1	3.9	5.3	16	28	44	62	83	111	138	172
3	Stages		1	1	2	2	2	3	3	3	3	3
4	Max. continuous torque (S1) [2]	Nm	5.0	5.0	15.0	15.0	15.0	30.0	30.0	30.0	30.0	30.0
5	Max. intermittent torque	Nm	7.0	7.0	23.0	23.0	23.0	45.0	45.0	45.0	45.0	45.0
6	Efficiency	%	95	95	92	92	92	89	89	89	89	89
7	Backlash	arc.min	30	30	36	36	36	48	48	48	48	48
8	Max. axial load (dynamic)	N	200	200	200	200	200	200	200	200	200	200
9	Max. radial load, 10 mm from flange	N	420	420	630	630	630	900	900	900	900	900
10	Weight	Kg	0.69	0.69	0.86	0.86	0.86	1.08	1.08	1.08	1.08	1.08
11	Gear material		Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
12	Max. continuous input speed	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
13	Max. intermittent input speed	rpm	7500	7500	7500	7500	7500	7500	7500	7500	7500	7500
14	Ambient temperature	°C	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100	-40...100
15	Max. transmissable power	W	400	400	200	200	200	100	100	100	100	100
16	Length	mm	50.4	50.4	67.5	67.5	67.5	84.4	84.4	84.4	84.4	84.4

[1] Other ratios available on request (:1): 6.6, 21, 26, 35, 103 [2] S1 duty cycle based on 3000 RPM input speed

Compatible products

BLDC	Page #
PBL60-50	92
PBL60-70	94

PMDC	Page #
BRx52-30	48
BRx52-58	50
BRx63-25	52
BRx63-55	54
BRx70-40	56
BRx70-60	58
PM10	112
PM11	114

AC	Page #
SD8	172
SD38	176
SD28	180
SD29	184

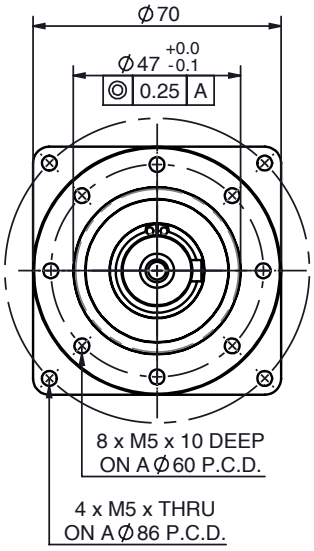
Key
Standard combination
Modular combination

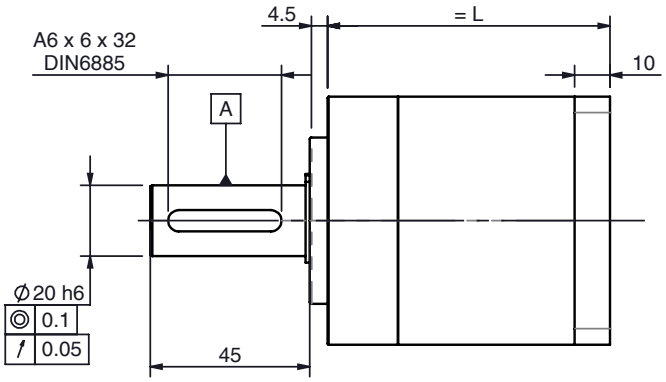
PGx70

Inline planetary gearbox // Steel gears

3.9:1 - 44:1 ratio // 37.5 Nm

all dimensions in mm





Part number key	
Modular	######
Standard	######
Calculated data	######

Planetary gearboxes are only available as part of a motor-gearbox combination and cannot be purchased as a gearbox-only unit. Please contact your local sales engineer to discuss your combination options

	Technical data									
1	Part number		-	-	-	-	-	-	-	-	-
2	Gear ratio	:1	3.9	5.3	6.6	16	21	26	28	35	44
3	Stages		1	1	1	2	2	2	2	2	2
4	Max. continuous torque (S1) [1]	Nm	10.0	10.0	10.0	30.0	30.0	30.0	30.0	30.0	30.0
5	Max. intermittent torque	Nm	12.5	12.5	12.5	37.5	37.5	37.5	37.5	37.5	37.5
6	Efficiency	%	95	95	95	92	92	92	92	92	92
7	Backlash	arc.min	30	30	30	30	30	30	30	30	30
8	Max. axial load (dynamic)	N	825	825	825	825	825	825	825	825	825
9	Max. radial load, 10 mm from flange	N	1000	1000	1000	1000	1000	1000	1000	1000	1000
10	Weight	Kg	1.11	1.11	1.11	1.45	1.45	1.45	1.45	1.45	1.45
11	Gear material		Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
12	Max. continuous input speed	rpm	4000	4000	4000	4000	4000	4000	4000	4000	4000
13	Max. intermittent input speed	rpm	6000	6000	6000	6000	6000	6000	6000	6000	6000
14	Ambient temperature	°C	-20...100	-20...100	-20...100	-20...100	-20...100	-20...100	-20...100	-20...100	-20...100
15	Max. transmissable power	W	850	850	850	850	850	850	850	850	850
16	Length	mm	58.0	58.0	58.0	79.9	79.9	79.9	79.9	79.9	79.9

[1] S1 duty cycle based on 3000 RPM input speed

Modular system

BLDC	Page #
PBL70-70	96
PBL70-80	98
PBL86-55	100
PBL86-80	102

PMDC	Page #	PMDC	Page #	PMDC	Page #
BRx70-40	56	PM6	126	EPM50-50	146
BRx70-60	58	PM50	128	EPM50-63	148
BRx90-50	60	PM60	130	EPM63-50	150
BRx90-75	62	PM70-125	132	EPM63-50 (V)	152
PM1	116	PM70-146	134	EPM63-75	154
PM2	118	PM90-150	136	EPM63-75 (V)	156
PM3	120	PM90-180	138	EPM63-100	158
PM4	122	EPM50-25	142	EPM63-100 (V)	160
PM5	124	EPM50-38	144		

AC	Page #
SD13	188
SD18	192
SD48	196

Key
Standard combination
Modular combination

Notes

Standard accessories

SC 50/15 controller

→ Part number 738590

maxon

We also specify a number of maxon controllers for our motors. Options include the EPOS, ESCON, MiniMAC, and MicroMAC ranges - contact your local sales engineer for more information



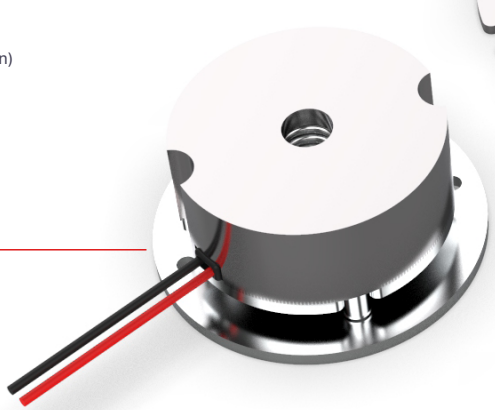
4.0 Nm manual release brake

→ Part number BRA1005936 (left-hand version) / BRA1005937 (right-hand version)



2.0 Nm brake

→ Part number 014087



S

Fine tune your selection by adding a brake, encoder, or controller to your motor and ensure your geared motor solution meets the exact requirements of your specification.



1.5 Nm brake

→ Part number 735914

Power-on brake

→ Part number BRA1004702

Differential encoder

→ Part number 919388

Magnetic encoder

→ Part number ENC1004916

Incremental encoder

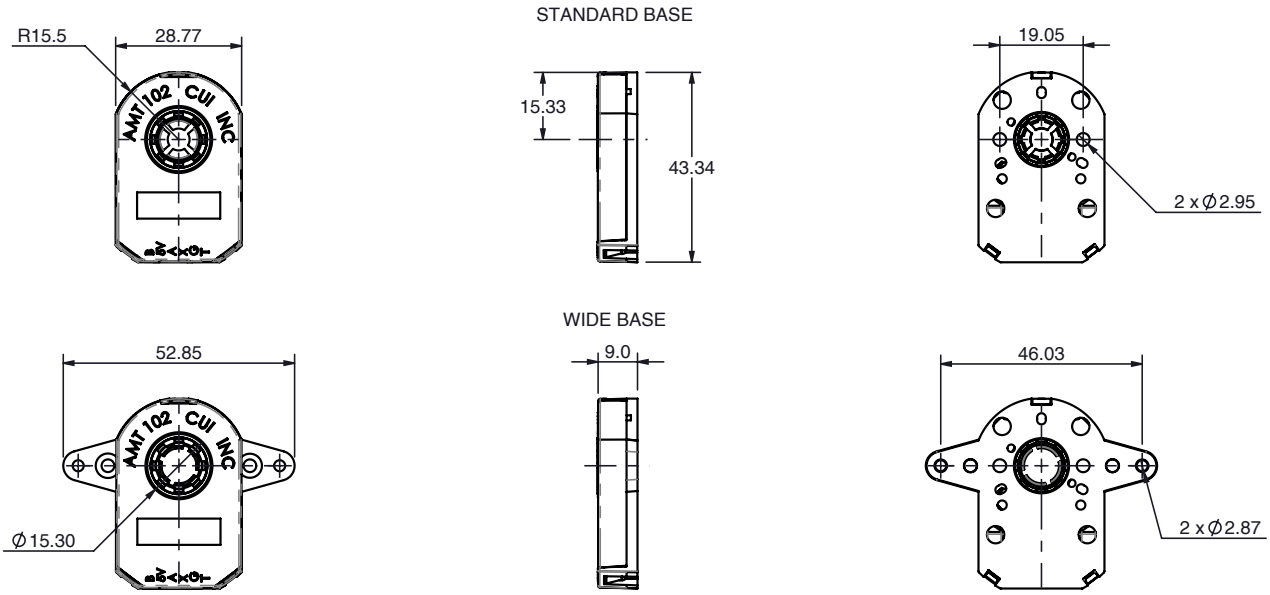
→ Part number 735912 (5-pin) / 919386 (10-pin)

Incremental encoder

Incremental encoder 5-pin 735912 // **Incremental encoder 10-pin** 919386

all dimensions in mm

wiring details available on request



	Electrical data	Conditions / description		min	typ	max
1	Power supply (VDD)	VDD	V	3.6	5.0	5.5
2	Current consumption [1]	with unloaded output	mA		6.0	
3	Output high level		V	VDD 0.8		
4	Output low level		V			0.4
5	Output current [2]	CMOS sink / source per channel	mA			2.0
6	Rise / fall time		ns		30	

	Incremental characteristics	Conditions / description		min	typ	max
1	Channels	Quadrature A, B, and X index				
2	Waveform	CMOS voltage square wave				
3	Phase difference	A leads B for CCW rotation (viewed from the front)	°		90	
4	Quadrature resolutions [1]	48, 96, 100, 125, 192, 200, 250, 256, 384, 400, 500, 512, 800, 1000, 1024, 2048	PPR			
5	Index [2]	one pulse per 360° rotation				
6	Accuracy		°		0.25	
7	Quadrature duty cycle (at each resolution)	256, 512, 1024, 2048	%	49	50	51
		48, 96, 100, 125, 192, 200, 250, 384, 400, 500	%	47	50	53
		800, 1000	%	43	50	56

[1] Resolution selected via adjustable DIP switch, pre-set to 2048 PPR. All resolutions are listed as pre-quadrature, meaning the final number of counts is PPR x 4

[2] Some stepper motors may leak a magnetic field causing the index pulse to not function properly (non-magnetic version available with 8 pulses per revolution)

	Mechanical data	Conditions / description		min	typ	max
1	Motor shaft length		mm	9		
2	Weight		g		20.5	
3	Axial play		mm			±0.3
4	Rotational speed (at each resolution)	192, 284, 400, 500, 800, 1000, 1024, 2048	rpm			7500
		48, 96, 100, 125, 200, 250, 256, 512	rpm			15000

	Environmental	Conditions / description		min	typ	max
1	Operating temperature [1]		°C	-40		100
2	Humidity	non-condensing	%			95
3	Vibration	20~500 Hz, 1 hour each XYZ	G			10
4	Shock	11 ms, ±XYZ direction	G			50
5	RoHS	2011 / 65 / EU				

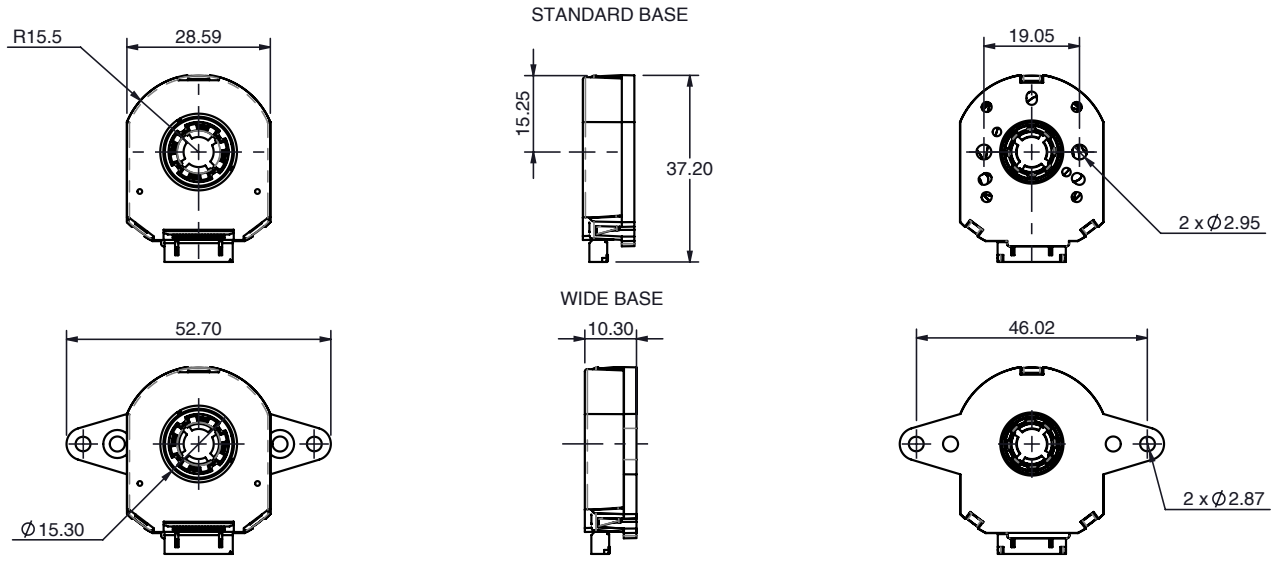
1 Encoders with operating temperature of -40 - 125°C are available as a custom order

Differential encoder

919388

all dimensions in mm

wiring details available on request



	Electrical data	Conditions / description		min	typ	max
1	Power supply (VDD)	VDD	V	4.5	5.0	5.5
2	Start-up time [1]		ms		200	
3	Current consumption	with unloaded output	mA		16	
4	Single ended channels	output high level	V	VDD 0.1		
		output low level	V			0.1
		output current (per channel)	mA			15
		rise/fall time	ns		8	
5	Differential RS-422 channels	output high level	V	3		
		output low level	V			0.1
		output current (per channel)	mA			25
		rise/fall time	ns	7	11	20

[1] Encoder must be stationary during start-up

	Incremental characteristics	Conditions / description		min	typ	max
1	Channels	CMOS voltage (S) - A, B, Z / Quadrature line driver (Q) - A, A, B, B, Z, Z				
2	Waveform	CMOS voltage square wave				
3	Phase difference	A leads B for CCW rotation (viewed from the front)				
4	Quadrature resolutions [1]	48, 96, 100, 125, 192, 200, 250, 256, 384, 400, 500, 512, 800, 1000, 1024, 2048	PPR			
5	Index [2]	one pulse per 360° rotation				
6	Accuracy		°		0.2	
7	Quadrature duty cycle (at each resolution)	256, 512, 1024, 2048	%	49	50	51
		48, 96, 100, 125, 192, 200, 250, 384, 400, 500	%	47	50	53
		800, 1000	%	43	50	56

[1] Resolution selected via adjustable DIP switch, pre-set to 2048 PPR. All resolutions are listed as pre-quadrature, meaning the final number of counts is PPR x 4

[2] Some stepper motors may leak a magnetic field causing the index pulse to not function properly (non-magnetic version available with 8 pulses per revolution)

	Mechanical data	Conditions / description		min	typ	max
1	Motor shaft length		mm	9		
2	Weight	Weight varies by configuration	g		15.7	
3	Axial play		mm			±0.3
4	Rotational speed (at each resolution)	48, 96, 100, 125, 182, 200, 250, 256, 384, 400, 500, 512, 800, 1000, 1024, 2048	rpm			8000
		360, 768, 1600, 2000, 4096	rpm			4000
		2500	rpm			2500

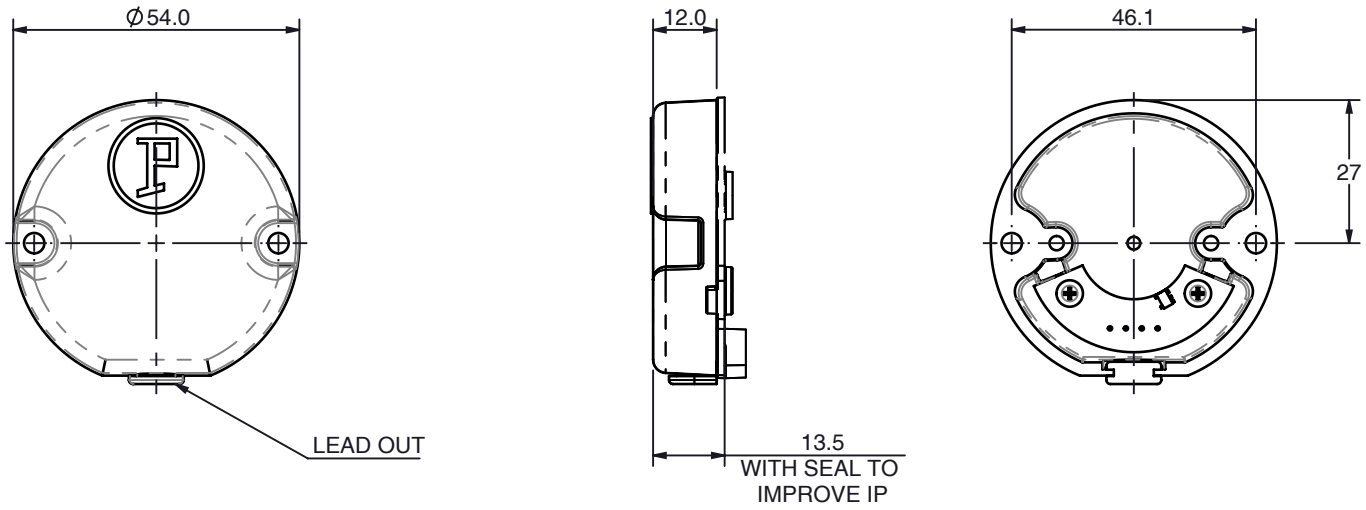
	Environmental	Conditions / description		min	typ	max
1	Operating temperature		°C	-40		100
2	Humidity	non-condensing	%			85
3	Vibration	20~500 Hz, 1 hour each XYZ	G			5
4	Shock	11 ms, ±XYZ direction	G			200
5	RoHS	2011 / 65 / EU				

Magnetic encoder

ENC1004916

all dimensions in mm

wiring details available on request



	Electrical data		
1	Forward supply voltage	V	2.6 - 35.0
2	Power on-time	µs	100
3	Supply typ	mA	3.0
4	Maximum current	mA	4.5
5	Output count per revolution	CPR	2 / 4 / 6 / 12
6	Output configuration		2 channel quadrature signal output
7	Output on-voltage	mV	180
8	Current	mA	5
9	Output rise time	µs	0.2
10	Power on-time	µs	100

	Mechanical data		
1	Operating temperature	°C	-40 to +125
2	Storage temperature	°C	-40 to +150
3	EMC protection		Yes
4	Dimensions	mm	Ø54 x 12 deep
5	For shaft diameter	mm	5 +0.00 / -0.25
6	IP rating		IP54 (IP66 available on request)

	Part numbers	
1	Encoder +300 mm cable	ENC1004916
2	Encoder +1000 mm cable	ENC1004930
3	Magnet - 12 CPR	MAG1004658
4	Magnet - 6 CPR	MAG1004419
5	Magnet - 4 CPR	MAG1004418
6	Magnet - 2 CPR	MAG1004417

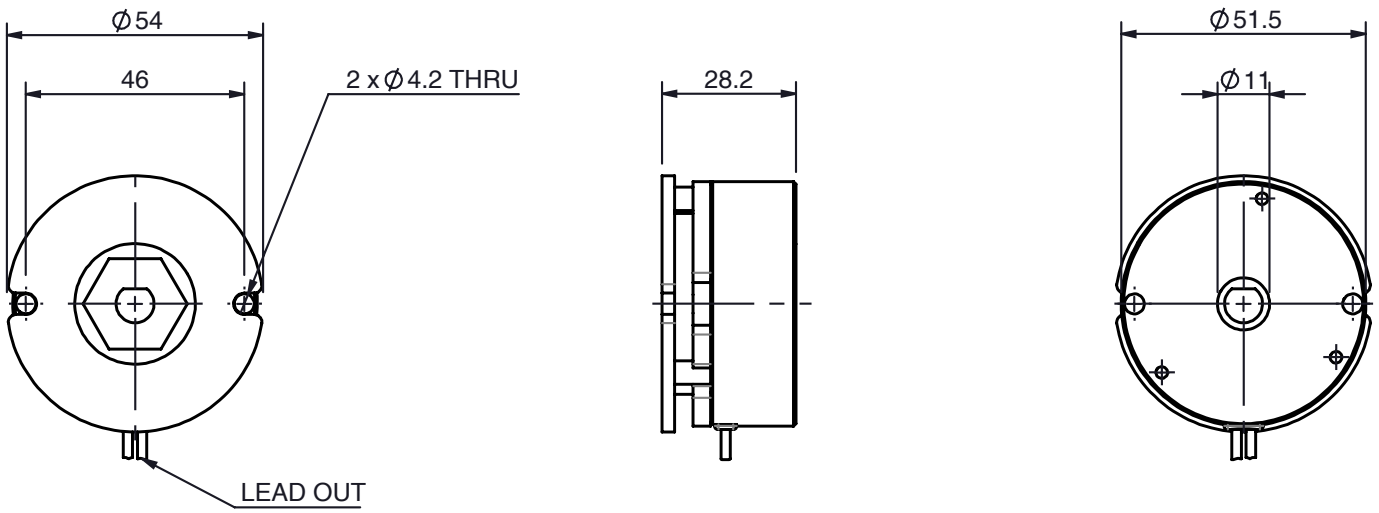
	Wiring details	
1	Multi-core	Cable - PVC sleve
2	Vcc	Red
3	Gnd	Black
4	Ch A	Green
5	Ch B	White

Notes

1.5 Nm Brake

735914

all dimensions in mm



	Technical data		
1	Static torque	**Nm**	1.5
2	Ambient temperature	**°C**	-20 to +40
3	Voltage	**V**	12 - 24
4	Power	**W**	11.0

	Mounting		
	Flange mount		
1	End plate outer diameter	**mm**	75.0
2	Mounting PCD	**mm**	68.0
3	Number of holes		2, 3 or 4
4	Hub diameter	**mm**	8.0

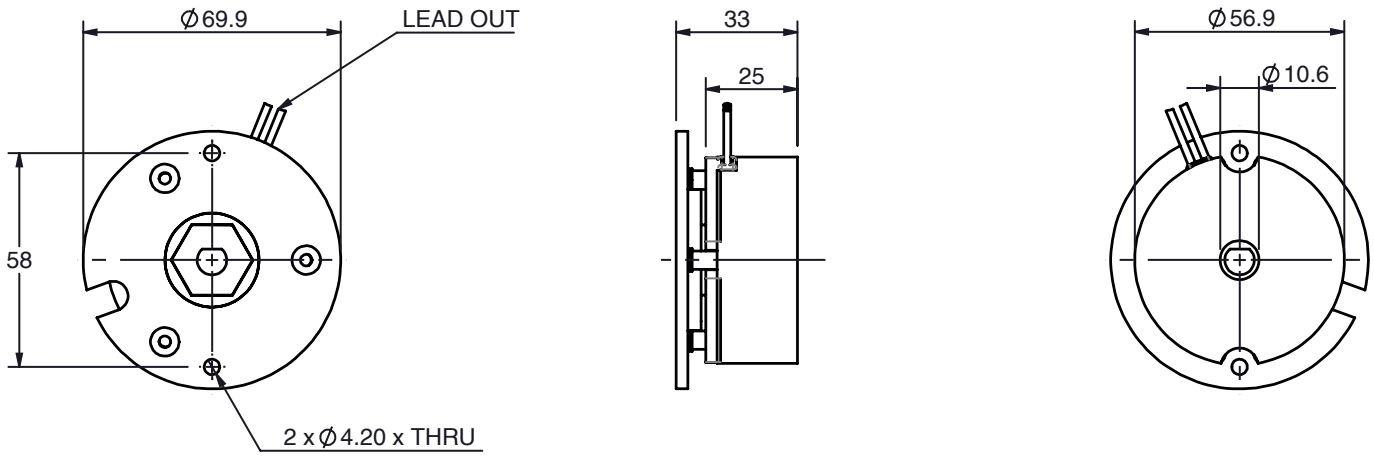
Notes

→ Manual-release, micro-switch, and other voltage options available on request. Please contact your local sales engineer for further guidance.

2.0 Nm Brake

014087

all dimensions in mm



	Technical data		
1	Static torque	**Nm**	2.0
2	Ambient temperature	**°C**	-20 to +40
3	Voltage	**V**	24
4	Power	**W**	9.5

	Mounting		
	Flange mount		
1	End plate outer diameter	**mm**	69.7
2	Mounting PCD	**mm**	58.0
3	Number of holes		2
4	Hub diameter	**mm**	8.0

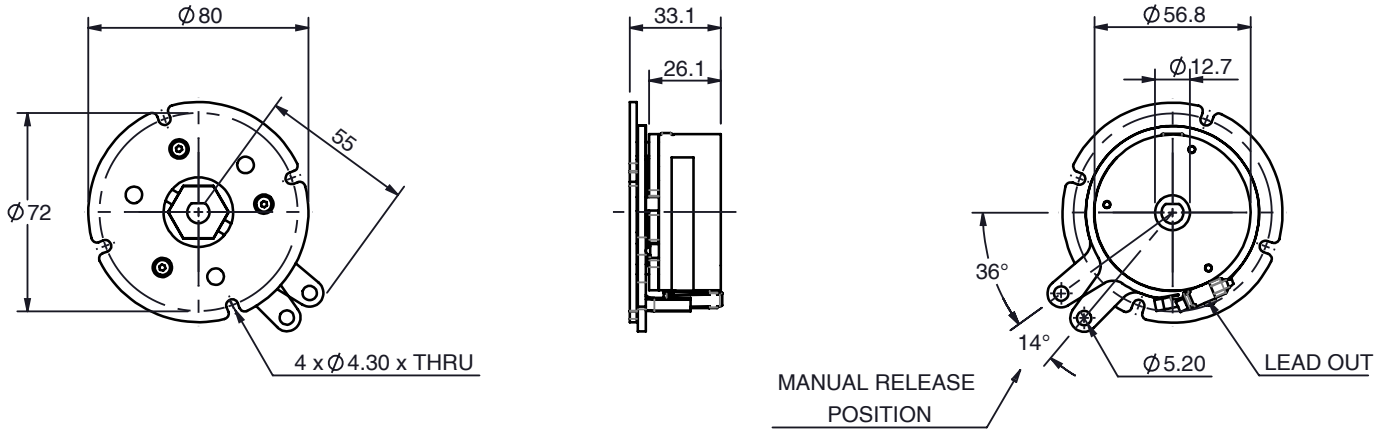
Notes

→ Manual-release, micro-switch, and other voltage options available on request. Please contact your local sales engineer for further guidance.

4.0 Nm manual-release brake

all dimensions in mm

Left-hand version BRA1005936 // **Right-hand version** BRA1005937



	Technical data		
1	Static torque	**Nm**	4.0
2	Ambient temperature	**°C**	-20 to +40
3	Voltage	**V**	24
4	Power	**W**	12.0

	Mounting		
	Flange mount		
1	End plate outer diameter	**mm**	76.8
2	Mounting PCD	**mm**	68.0
3	Number of holes		3
4	Hub diameter	**mm**	8.0

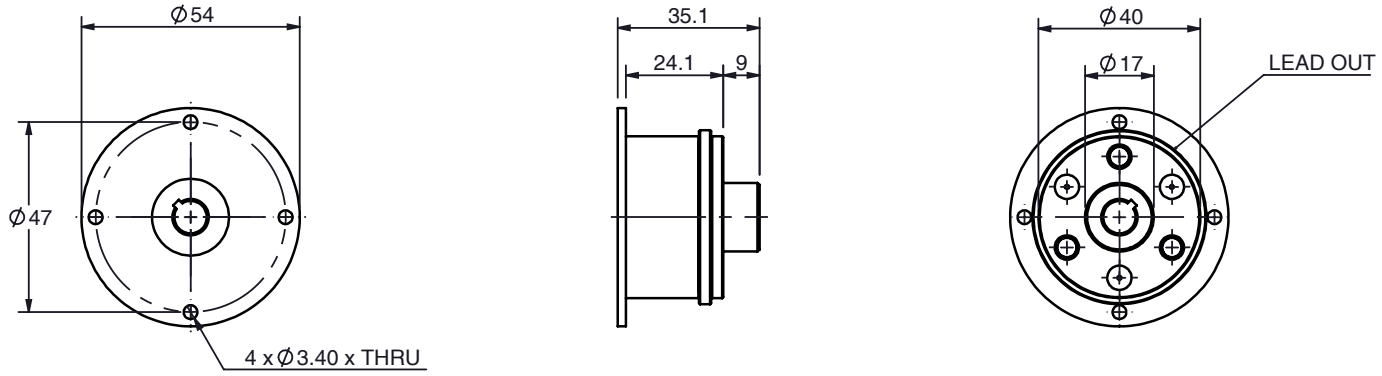
Notes

→ Manual-release, micro-switch, and other voltage options available on request. Please contact your local sales engineer for further guidance.

Power-on Brake

BRA1004702

all dimensions in mm



	Technical data		
1	Static torque	**Nm**	1.5
2	Ambient temperature	**°C**	-20 to +40
3	Voltage	**V**	24
4	Power	**W**	8.1
5			

	Mounting		
	Flange mount		
1	End plate outer diameter	**mm**	54.0
2	Mounting PCD	**mm**	47.0
3	Number of holes		4
4	Hub diameter	**mm**	8.0

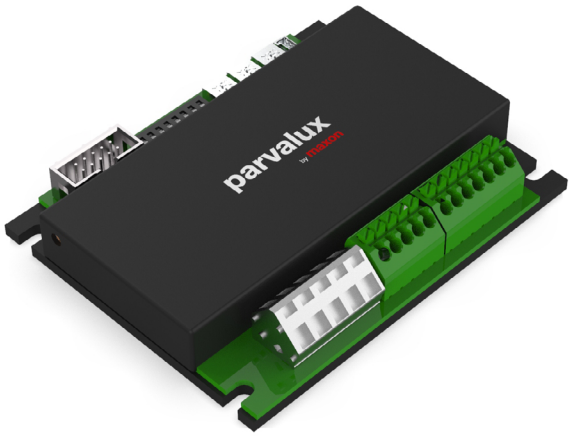
Notes

→ Manual-release, micro-switch, and other voltage options available on request. Please contact your local sales engineer for further guidance.

SC 50/15 BLDC / PMDC controller

738590

Hardware reference document available at parvalux.com



	Electrical rating		
1	Nominal power supply voltage $+V_{cc}$	**VDC**	12 - 50
2	Absolute supply voltage $+V_{min}$ / $+V_{max}$	**VDC**	10 / 56
3	Output voltage (max.)	**V**	0.98 x $+V_{cc}$
4	Output current I_{cont} / I_{max} (< 10 s)	**A**	15 / 30
5	Pulse width modulation frequency	**kHz**	53.6
6	Sampling rate PI speed controller	**kHz**	5.36
7	Max. efficency	**%**	98
8	Max. speed - PMDC motor		Open loop: limited by max. permissable speed (motor) and max. output voltage (controller) Closed loop: 5000 to 15,000 rpm, dependent on configuration
9	Max. speed - BLDC motor		2500 ... 30,000 rpm, dependent on configuration
10	Built-in filter choke	**nH; A**	3 x 200; 15

	Inputs and outputs	
1	Digital input - «Enable»	Logic +2.1 ... +30 VDC
2	Digital input - «Direction»	Logic +2.1 ... +30 VDC
3	Digital input - «Stop»	Logic +2.1 ... +30 VDC
4	Digital output - «Ready»	Logic signal output, 3.3 VDC, Ri: 2.2 kΩ, Push-Pull
5	Analog input - «Speed set value»	PWM signal (fixed amplitude 0 ... 5 VDC, 1 kHz ... 10 kHz)
6	Digital hall sensors H1, H2, H3	+2.0 ... +24 VDC (internal pull-up)
7	Digital incremental encoder signals A, A\, B, B\	EIA RS422, max. 1 MHz, max. 100 kHz (single-ended)

	Voltage outputs	
1	Sensor supply voltage V_{sensor}	+5 VDC / I_L ≤100 mA

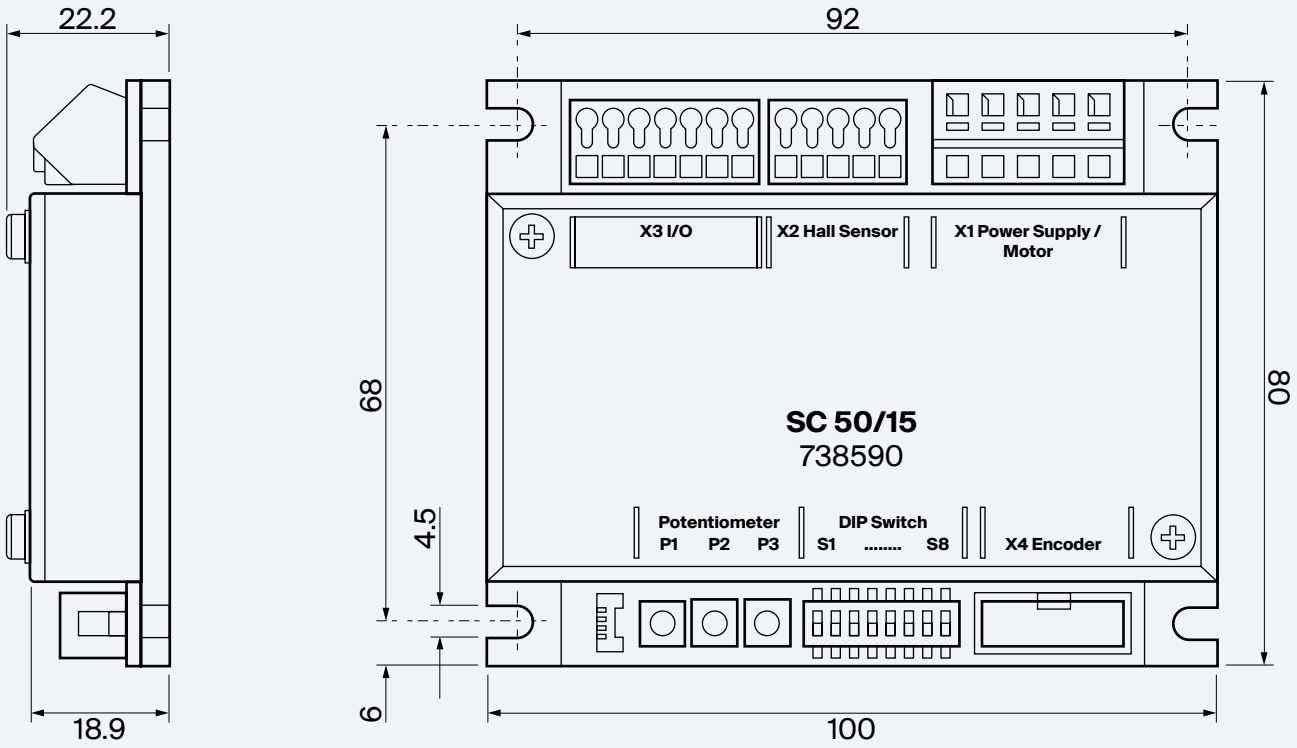
	Motor connections	
1	PMDC motor	+ motor, - motor
2	BLDC motor	Motor winding 1, motor winding 2, motor winding 3

	Configuration	
1	DIP switch	SMD type, 8 position for the setting of: • Motor Type • Control Mode • Speed Set Value Source • Speed Sensor Selection / Encoder Resolution • Hall Sensor Polarity • Speed Range Selection
2	Potentiometers	3 x angular type 210° for the setting of: • Speed Ramp/Speed Set Value • Continuous/Maximum Current Limit • Controller Gain

	Status indicators	
1	Device status - Operation	Green LED
2	Device status - Error	Red LED

Physical

1	Weight	g	151
2	Dimensions (L x W x H)	mm	100.0 x 80.0 x 22.2
3	Mounting		Slotted flange for M4 screws



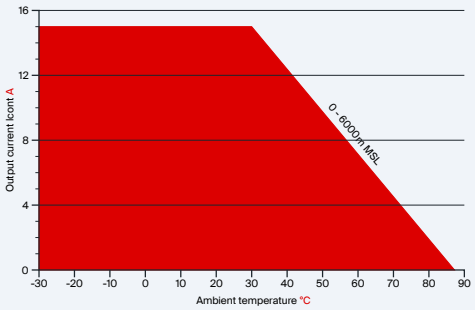
Environment

1	Temperature - Operation	°C	-30 ... +30
2	Temperature - Extended range [a]	°C	+30 ... +84; Derating: -0.278 A/°C
3	Temperature - Storage	°C	-30 ... +85
4	Altitude [b]	m	0 ... 6000 MSL
5	Humidity	%	5 ... 90 (condensation not permitted)

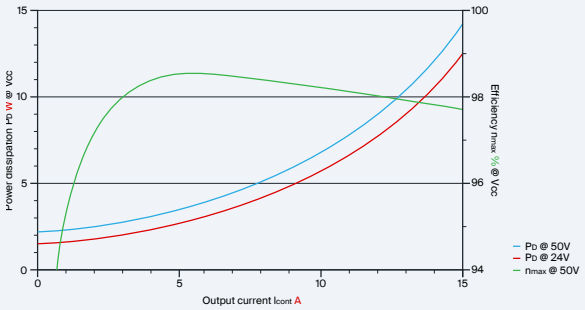
[a] Operation within the extended range is permitted. However, a respective derating (declination of output current I_{cont}) as to the stated values will apply. [b] Operating altitude in meters above Mean Sea Level, MSL.

Thermal data

Derating of output current



Power dissipation and efficiency



maxon Controllers

BLDC / PMDC motor controller

EPOS	
638328	638328 EPOS4 Micro 24/5 CAN
654731	654731 EPOS4 Micro 24/5 EtherCAT
536630	EPOS4 Module 24/1.5
534130	EPOS4 Module 50/5
504384	EPOS4 Module 50/8
504383	EPOS4 Module 50/15
684519	EPOS4 Compact 24/5 EtherCAT 3-axes
546714	EPOS4 Compact 24/1.5 CAN
628092	EPOS4 Compact 24/1.5 EtherCAT
541718	EPOS4 Compact 50/5 CAN
628094	EPOS4 Compact 50/5 EtherCAT
520885	EPOS4 Compact 50/8 CAN
605298	EPOS4 Compact 50/8 EtherCAT
520886	EPOS4 Compact 50/15 CAN
605299	EPOS4 Compact 50/15 EtherCAT
546047	EPOS4 50/5
594385	EPOS4 70/15
688770	EPOS4 Disk 60/8 CAN
688772	EPOS4 Disk 60/8 EtherCAT
688775	EPOS4 60/12 CAN
709859	EPOS4 60/12 CAN SSC
688777	EPOS4 Disk 60/12 EtherCAT
709862	EPOS4 Disk 60/12 EtherCAT SSC

ESCON	
466023	ESCON Module 24/2
403112	ESCON 36/2 DC
414533	ESCON 36/3 EC
446925	ESCON Module 50/4 EC-S
438725	ESCON Module 50/5
532872	ESCON Module 50/8
586137	ESCON Module 50/8 HE
409510	ESCON 50/5
422969	ESCON 70/10

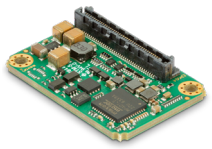
ESCON2	
809635	ESCON2 Nano 24/2
809631	ESCON2 Micro 60/5
854796	ESCON2 Module 60/12
783722	ESCON2 Module 60/30
854801	ESCON2 Compact 60/12
783734	ESCON2 Compact 60/30

MicroMAC	
001794	MicroMACS6

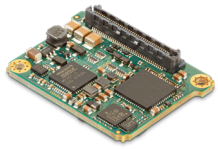
MicroMAC	
001607	MiniMACS DIN mounting 3ax
001586	MiniMACS Compact housing 3ax

maxon EPOS

BLDC / PMDC positioning controller



EPOS4 Micro 24/5 CAN
Miniaturized OEM positioning controller module, designed for use with brushed DC motors with encoders and brushless EC motors (BLDC) with Hall sensors and encoders up to 120 W/360 W.



EPOS4 Micro 24/5 EtherCAT
Miniaturized OEM positioning controller module, designed for use with brushed DC motors with encoders and brushless EC motors (BLDC) with Hall sensors and encoders up to 120 W/360 W.

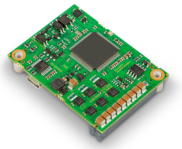
	Controller		
		CANopen Slave	**EtherCAT Slave**
	Electrical		
1	Operating voltage V_{CC}	10 - 24 VDC	10 - 24 VDC
2	Logic supply voltage V_C (optional)	10 - 24 VDC	10 - 24 VDC
3	Max. output voltage	0.9 x V_{CC}	0.9 x V_{CC}
4	Max. output current I_{max}	15 A (<10 s)	15 A (<10 s)
5	Continuous output current I_{cont}	5 A	5 A
6	Switching frequency of power stage	50 kHz	50 kHz
7	Sampling rate of PI current controller	25 kHz (40 µs)	25 kHz (40 µs)
8	Sampling rate of PI speed controller	2.5 kHz (400 µs)	2.5 kHz (400 µs)
9	Sampling rate of PID position controller	2.5 kHz (400 µs)	2.5 kHz (400 µs)
10	Max. speed (1 pole pair)	50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)
11	Built-in motor choke per phase	–	–
	Inputs		
12	Hall sensor signals	H1, H2, H3	H1, H2, H3
13	Encoder signals	A, A\, B, B\, I, I\ (max. 6.25 MHz)	A, A\, B, B\, I, I\ (max. 6.25 MHz)
14	Sensor signals	Clock, Data	Clock, Data
15	Digital inputs	4 (logic level)	4 (logic level)
16	Digital inputs “High-speed”	1	1
17	Analog inputs	2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)
18	CAN ID / DEV ID	configurable with external wiring	–
	Outputs		
19	Digital outputs	2	2
20	Digital outputs “High-speed”	1	1
21	Analog outputs	1 (12-bit resolution, -4...+4 V, max. 1 mA)	1 (12-bit resolution, -4...+4 V, max. 1 mA)
22	Encoder voltage output	+5 VDC, max. 115 mA	+5 VDC, max. 115 mA
23	Hall sensor voltage output	+5 VDC, max. 30 mA	+5 VDC, max. 30 mA
24	Auxiliary voltage output	–	–
	Interfaces		
25	RS232	RxD; TxD (max. 115 200 bit/s)	–
26	CAN	high; low (max. 1 Mbit/s)	–
27	USB 2.0/3.0	Data+; Data- (Full Speed)	Data+; Data- (Full Speed)
28	EtherCAT	–	100 Mbit/s (Full Duplex)
	Indicator		
29	LED green = READY, red= ERROR	Green LED, red LED	Green LED, red LED
	Environmental		
30	Temperatrue – Operation	-30...+45°C	-30...+40°C
31	Temperature – Extended Range	+45...+70°C; Derating: -0.200 A/°C	+40...+60°C; Derating: -0.25 A/°C
32	Temperature – Storage	-40...+85°C	-40...+85°C
33	Humidity (condensation not permitted)	5...90%	5...90%
	Mechanical data		
34	Weight	approx. 6 g	approx. 7 g
35	Dimensions (L x W x H)	32.0 x 22.0 x 7.0 mm	36.5 x 27.0 x 7.0 mm
36	Mounting	M2 screws	M2 screws
	Part numbers		
37		638328 EPOS4 Micro 24/5 CAN	654731 EPOS4 Micro 24/5 EtherCAT
	Accessories		
38		309687 DSR 50/5 Shunt regulator	309687 DSR 50/5 Shunt regulator

maxon EPOS

BLDC / PMDC positioning controller



EPOS4 Module 24/1.5
OEM position control module, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 36/108 Watt.

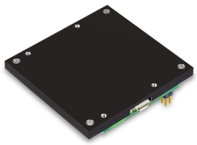


EPOS4 Module 50/5
OEM position control module, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 250/750 Watt.

	Controller		
		CANopen Slave with EtherCAT option	**EtherCAT Slave**
	Electrical		
1	Operating voltage V_{CC}	10 - 24 VDC	10 - 50 VDC
2	Logic supply voltage V_C (optional)	10 - 24 VDC	10 - 50 VDC
3	Max. output voltage	0.9 x V_{CC}	0.9 x V_{CC}
4	Max. output current I_{max}	4.5 A (<30 s)	15 A (<3 s)
5	Continuous output current I_{cont}	1.5 A	5 A
6	Switching frequency of power stage	100 kHz	50 kHz
7	Sampling rate of PI current controller	25 kHz (40 µs)	25 kHz (40 µs)
8	Sampling rate of PI speed controller	2.5 kHz (400 µs)	2.5 kHz (400 µs)
9	Sampling rate of PID position controller	2.5 kHz (400 µs)	2.5 kHz (400 µs)
10	Max. speed (1 pole pair)	50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)
11	Built-in motor choke per phase	–	–
	Inputs		
12	Hall sensor signals	H1, H2, H3	H1, H2, H3
13	Encoder signals	A, A\, B, B\, I, I\ (max. 6.25 MHz)	A, A\, B, B\, I, I\ (max. 6.25 MHz)
14	Sensor signals	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\
15	Digital inputs	4 (logic level)	4 (logic level)
16	Digital inputs “High-speed”	4, differential	4, differential
17	Analog inputs	2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)
18	CAN ID / DEV ID	configurable with external wiring	configurable with external wiring
	Outputs		
19	Digital outputs	2	2
20	Digital outputs “High-speed”	1, differential	1, differential
21	Analog outputs	2 (12-bit resolution, -4...+4 V, max. 1 mA)	2 (12-bit resolution, -4...+4 V, max. 1 mA)
22	Encoder voltage output	+5 VDC, max. 70 mA	+5 VDC, max. 70 mA
23	Hall sensor voltage output	+5 VDC, max. 30 mA	+5 VDC, max. 30 mA
24	Auxiliary voltage output	+5 VDC, max. 145 mA	+5 VDC, max. 145 mA
	Interfaces		
25	RS232	RxD; TxD (max. 115 200 bit/s)	RxD; TxD (max. 115 200 bit/s)
26	CAN	high; low (max. 1 Mbit/s)	high; low (max. 1 Mbit/s)
27	USB 2.0/3.0	Data+; Data- (Full Speed)	Data+; Data- (Full Speed)
28	EtherCAT	Optional 581245 EPOS4 EtherCAT Card available	Optional 581245 EPOS4 EtherCAT Card available
	Indicator		
29	LED green = READY, red= ERROR	Green LED, red LED	Green LED, red LED
	Environmental		
30	Temperatrue – Operation	-30...+60°C	-30...+45°C
31	Temperature – Extended Range	+60...+73°C; Derating: -0.115 A/°C	+45...+75°C; Derating: -0.167 A/°C
32	Temperature – Storage	-40...+85°C	-40...+85°C
33	Humidity (condensation not permitted)	5...90%	5...90%
	Mechanical data		
34	Weight	approx. 17 g	approx. 17 g
35	Dimensions (L x W x H)	53.8 x 38.8 x 11.1 mm	53.8 x 38.8 x 11.1 mm
36	Mounting	Socket header 1.27 mm or M2.5 screws	Socket header 1.27 mm or M2.5 screws
	Part numbers		
37		536630 EPOS4 Module 24/1.5	534130 EPOS4 Module 50/5
	Accessories		
38		309687 DSR 50/5 Shunt regulator	309687 DSR 50/5 Shunt regulator



EPOS4 Module 50/8
OEM position control module, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 400/1500 Watt.



EPOS4 Module 50/15
OEM position control module, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 750/1500 Watt.

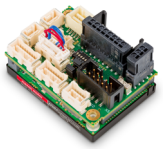


EPOS4 Compact 24/5 EtherCAT 3-axes
Ready-to-install 3-axis compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 120/360 W per axis.

Controller version		
CANopen Slave with EtherCAT option	**CANopen Slave with EtherCAT option**	**EtherCAT Slave**
Electrical data		
10 - 50 VDC	10 - 50 VDC	10 - 24 VDC
10 - 50 VDC	10 - 50 VDC	10 - 24 VDC
0.9 x V_{CC}	0.9 x V_{CC}	0.9 x V_{CC}
30 A (<5 s)	30 A (<60 s)	15 A (<10 s) per axis
8 A	15 A	5 A per axis
50 kHz	50 kHz	50 kHz
25 kHz (40 µs)	25 kHz (40 µs)	25 kHz (40 µs)
2.5 kHz (400 µs)	2.5 kHz (400 µs)	2.5 kHz (400 µs)
2.5 kHz (400 µs)	2.5 kHz (400 µs)	2.5 kHz (400 µs)
50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)
–	–	–
Inputs		
H1, H2, H3	H1, H2, H3	H1, H2, H3 per axis
A, A\, B, B\, I, I\ (max. 6.25 MHz)	A, A\, B, B\, I, I\ (max. 6.25 MHz)	
A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\ per axis
4 (logic level)	4 (logic level)	4 (level switchable: logic/PLC) per axis
4, differential	4, differential	–
2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V) per axis
configurable with external wiring	configurable with external wiring	–
Outputs		
2	2	2 per axis
1, differential	1, differential	–
2 (12-bit resolution, -4...+4 V, max. 1 mA)	2 (12-bit resolution, -4...+4 V, max. 1 mA)	1 (12-bit resolution, -4...+4 V, max. 1 mA) per axis
+5 VDC, max. 70 mA	+5 VDC, max. 70 mA	+5 VDC, max. 100 mA per axis
+5 VDC, max. 30 mA	+5 VDC, max. 30 mA	+5 VDC, max. 30 mA per axis
+5 VDC, max. 145 mA	+5 VDC, max. 145 mA	
Interfaces		
RxD; TxD (max. 115 200 bit/s)	RxD; TxD (max. 115 200 bit/s)	–
high; low (max. 1 Mbit/s)	high; low (max. 1 Mbit/s)	–
Data+; Data- (Full Speed)	Data+; Data- (Full Speed)	Data+; Data- (Full Speed) per axis
Optional 581245 EPOS4 EtherCAT Card available	Optional 581245 EPOS4 EtherCAT Card available	100 Mbit/s (Full Duplex)
Indicator		
Green LED, red LED	Green LED, red LED	Green LED, red LED
Environmental conditions		
-30...+45°C	-30...+25°C	-30...+25°C
+45...+77°C; Derating: -0.250 A/°C	+25...+77°C; Derating: -0.288 A/°C	+25...+50°C; Derating: -0.200 A/°C
-40...+85°C	-40...+85°C	-40...+85°C
5...90%	5...90%	5...90%
Mechanical data		
approx. 23 g	approx. 70 g	approx. 85 g
59.5 x 46.0 x 14.1 mm	59.5 x 62.0 x 16.4 mm	90.0 x 56.0 x 29.0 mm
Socket header 2.54 mm or M2.5 screws	Socket header 2.54 mm or M3 screws	M2.5 screws
Part numbers		
504384 EPOS4 Module 50/8	504383 EPOS4 Module 50/15	684519 EPOS4 Compact 24/5 EtherCAT 3-axes
Accessories		
235811 DSR 70/30 Shunt regulator	235811 DSR 70/30 Shunt regulator	235811 DSR 70/30 Shunt regulator

maxon EPOS

BLDC / PMDC positioning controller



EPOS4 Compact 24/1.5 CAN
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 36/108 Watt.



EPOS4 Compact 24/1.5 EtherCAT
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 36/108 Watt.

	Controller		
		CANopen Slave	EtherCAT Slave
	Electrical		
1	Operating voltage V_{CC}	10 - 24 VDC	10 - 24 VDC
2	Logic supply voltage V_C (optional)	10 - 24 VDC	10 - 24 VDC
3	Max. output voltage	0.9 x V_{CC}	0.9 x V_{CC}
4	Max. output current I_{max}	4.5 A (<30 s)	4.5 A (<30 s)
5	Continuous output current I_{cont}	1.5 A	1.5 A
6	Switching frequency of power stage	100 kHz	100 kHz
7	Sampling rate of PI current controller	25 kHz (40 µs)	25 kHz (40 µs)
8	Sampling rate of PI speed controller	2.5 kHz (400 µs)	2.5 kHz (400 µs)
9	Sampling rate of PID position controller	2.5 kHz (400 µs)	2.5 kHz (400 µs)
10	Max. speed (1 pole pair)	50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)
11	Built-in motor choke per phase	94 µH / 1.5 A	100 µH / 1.5 A
	Inputs		
12	Hall sensor signals	H1, H2, H3	H1, H2, H3
13	Encoder signals	A, A\, B, B\, I, I\ (max. 6.25 MHz)	A, A\, B, B\, I, I\ (max. 6.25 MHz)
14	Sensor signals	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\
15	Digital inputs	4 (level switchable: logic/PLC)	4 (level switchable: logic/PLC)
16	Digital inputs “High-speed”	4, differential	4, differential
17	Analog inputs	2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)
18	CAN ID / DEV ID	configurable with DIP switch 1...5	configurable with DIP switch 1...5
	Outputs		
19	Digital outputs	2	2
20	Digital outputs “High-speed”	1, differential	1, differential
21	Analog outputs	2 (12-bit resolution, -4...+4 V, max. 1 mA)	2 (12-bit resolution, -4...+4 V, max. 1 mA)
22	Encoder voltage output	+5 VDC, max. 70 mA	+5 VDC, max. 70 mA
23	Hall sensor voltage output	+5 VDC, max. 30 mA	+5 VDC, max. 30 mA
24	Auxiliary voltage output	+5 VDC, max. 145 mA	+5 VDC, max. 145 mA
	Interfaces		
25	RS232	RxD; TxD (max. 115 200 bit/s)	–
26	CAN	high; low (max. 1 Mbit/s)	–
27	USB 2.0/3.0	Data+; Data- (Full Speed)	Data+; Data- (Full Speed)
28	EtherCAT	–	100 Mbit/s (Full Duplex)
	Indicator		
29	LED green = READY, red= ERROR	Green LED, red LED	Green LED, red LED
	Environmental		
30	Temperatrue – Operation	-30...+45°C	-30...+45°C
31	Temperature – Extended Range	+45...+70°C; Derating: -0.060 A/°C	+45...+70°C; Derating: -0.060 A/°C
32	Temperature – Storage	-40...+85°C	-40...+85°C
33	Humidity (condensation not permitted)	5...90%	5...90%
	Mechanical data		
34	Weight	approx. 58 g	approx. 78 g
35	Dimensions (L x W x H)	55.0 x 40.0 x 31.1 mm	55.0 x 56.5 x 31.7 mm
36	Mounting	M2.5 screws	M2.5 screws
	Part numbers		
37		546714 EPOS4 Compact 24/1.5 CAN	628092 EPOS4 Compact 24/1.5 EtherCAT
	Accessories		
38		309687 DSR 50/5 Shunt regulator	309687 DSR 50/5 Shunt regulator



EPOS4 Compact 50/5 CAN
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 250/750 W per axis.



EPOS4 Compact 50/5 EtherCAT
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 250/750 W per axis.



EPOS4 Compact 50/8 CAN
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 400/1500 W per axis.

Controller version		
CANopen Slave	EtherCAT Slave	CANopen Slave
Electrical data		
10 - 50 VDC	10 - 50 VDC	10 - 50 VDC
10 - 50 VDC	10 - 50 VDC	10 - 50 VDC
0.9 x V_{CC}	0.9 x V_{CC}	0.9 x V_{CC}
15 A (<3 s)	15 A (<3 s)	30 A (<5 s)
5 A	5 A	8 A
50 kHz	50 kHz	50 kHz
25 kHz (40 µs)	25 kHz (40 µs)	25 kHz (40 µs)
2.5 kHz (400 µs)	2.5 kHz (400 µs)	2.5 kHz (400 µs)
2.5 kHz (400 µs)	2.5 kHz (400 µs)	2.5 kHz (400 µs)
50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)
9.4 µH / 5 A	10 µH / 5 A	2.2 µH / 15 A
Inputs		
H1, H2, H3	H1, H2, H3	H1, H2, H3
A, A\, B, B\, I, I\ (max. 6.25 MHz)	A, A\, B, B\, I, I\ (max. 6.25 MHz)	A, A\, B, B\, I, I\ (max. 6.25 MHz)
A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\
4 (level switchable: logic/PLC)	4 (level switchable: logic/PLC)	4 (level switchable: logic/PLC)
4, differential	4, differential	4, differential
2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)
configurable with DIP switch 1...5	configurable with DIP switch 1...5	configurable with DIP switch 1...5
Outputs		
2	2	2
1, differential	1, differential	1, differential
2 (12-bit resolution, -4...+4 V, max. 1 mA)	2 (12-bit resolution, -4...+4 V, max. 1 mA)	2 (12-bit resolution, -4...+4 V, max. 1 mA)
+5 VDC, max. 70 mA	+5 VDC, max. 70 mA	+5 VDC, max. 70 mA
+5 VDC, max. 30 mA	+5 VDC, max. 30 mA	+5 VDC, max. 30 mA
+5 VDC, max. 145 mA	+5 VDC, max. 145 mA	+5 VDC, max. 145 mA
Interfaces		
RxD; TxD (max. 115 200 bit/s)	–	RxD; TxD (max. 115 200 bit/s)
high; low (max. 1 Mbit/s)	–	high; low (max. 1 Mbit/s)
Data+; Data- (Full Speed)	Data+; Data- (Full Speed)	Data+; Data- (Full Speed)
–	100 Mbit/s (Full Duplex)	–
Indicator		
Green LED, red LED	Green LED, red LED	Green LED, red LED
Environmental conditions		
-30...+25°C	-30...+25°C	-30...+45°C
+25...+70°C; Derating: -0.111 A/°C	+25...+70°C; Derating: -0.111 A/°C	+45...+77°C; Derating: -0.250 A/°C
-40...+85°C	-40...+85°C	-40...+85°C
5...90%	5...90%	5...90%
Mechanical data		
approx. 58 g	approx. 76 g	approx. 86 g
55.0 x 40.0 x 31.1 mm	55.0 x 56.5 x 31.7 mm	59.5 x 58.5 x 33.0 mm
M2.5 screws	M2.5 screws	M2.5 screws
Part numbers		
541718 EPOS4 Compact 50/5 CAN	628094 EPOS4 Compact 50/5 EtherCAT	520885 EPOS4 Compact 50/8 CAN
Accessories		
309687 DSR 50/5 Shunt regulator	309687 DSR 50/5 Shunt regulator	235811 DSR 70/30 Shunt regulator

maxon EPOS

BLDC / PMDC positioning controller



EPOS4 Compact 50/8 EtherCAT
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 400/1500 Watt.



EPOS4 Compact 50/15 CAN
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 750/1500 Watt.

	Controller version		
		EtherCAT Slave	CANopen Slave
	Electrical		
1	Operating voltage V_{CC}	10 - 50 VDC	10 - 50 VDC
2	Logic supply voltage V_C (optional)	10 - 50 VDC	10 - 50 VDC
3	Max. output voltage	0.9 x V_{CC}	0.9 x V_{CC}
4	Max. output current I_{max}	30 A (<5 s)	30 A (<60 s)
5	Continuous output current I_{cont}	8 A	15 A
6	Switching frequency of power stage	50 kHz	50 kHz
7	Sampling rate of PI current controller	25 kHz (40 µs)	25 kHz (40 µs)
8	Sampling rate of PI speed controller	2.5 kHz (400 µs)	2.5 kHz (400 µs)
9	Sampling rate of PID position controller	2.5 kHz (400 µs)	2.5 kHz (400 µs)
10	Max. speed (1 pole pair)	50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)
11	Built-in motor choke per phase	2.2 µH / 15 A	2.2 µH / 15 A
	Inputs		
12	Hall sensor signals	H1, H2, H3	H1, H2, H3
13	Encoder signals	A, A\, B, B\, I, I\ (max. 6.25 MHz)	A, A\, B, B\, I, I\ (max. 6.25 MHz)
14	Sensor signals	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\
15	Digital inputs	4 (level switchable: logic/PLC)	4 (level switchable: logic/PLC)
16	Digital inputs “High-speed”	4, differential	4, differential
17	Analog inputs	2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)
18	CAN ID / DEV ID	configurable with DIP switch 1...5	configurable with DIP switch 1...5
	Outputs		
19	Digital outputs	2	2
20	Digital outputs “High-speed”	1, differential	1, differential
21	Analog outputs	2 (12-bit resolution, -4...+4 V, max. 1 mA)	2 (12-bit resolution, -4...+4 V, max. 1 mA)
22	Encoder voltage output	+5 VDC, max. 70 mA	+5 VDC, max. 70 mA
23	Hall sensor voltage output	+5 VDC, max. 30 mA	+5 VDC, max. 30 mA
24	Auxiliary voltage output	+5 VDC, max. 145 mA	+5 VDC, max. 145 mA
	Interfaces		
25	RS232	–	RxD; TxD (max. 115 200 bit/s)
26	CAN	–	high; low (max. 1 Mbit/s)
27	USB 2.0/3.0	Data+; Data- (Full Speed)	Data+; Data- (Full Speed)
28	EtherCAT	100 Mbit/s (Full Duplex)	–
	Indicator		
29	LED green = READY, red= ERROR	Green LED, red LED	Green LED, red LED
	Environmental		
30	Temperatrue – Operation	-30...+45°C	-30...+25°C
31	Temperature – Extended Range	+45...+77°C; Derating: -0.250 A/°C	+25...+77°C; Derating: -0.288 A/°C
32	Temperature – Storage	-40...+85°C	-40...+85°C
33	Humidity (condensation not permitted)	5...90%	5...90%
	Mechanical data		
34	Weight	approx. 100 g	approx. 126 g
35	Dimensions (L x W x H)	59.5 x 79.5 x 35.7 mm	59.5 x 65.5 x 35.1 mm
36	Mounting	M2.5 screws	M3 screws
	Part numbers		
37		605298 EPOS4 Compact 50/8 EtherCAT	520886 EPOS4 Compact 50/15 CAN
	Accessories		
38		235811 DSR 70/30 Shunt regulator	235811 DSR 70/30 Shunt regulator



EPOS4 Compact 50/15 EtherCAT
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 750/1500 Watt.



EPOS4 50/5
Positioning controller in a robust housing, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 250/750 Watt.



EPOS4 70/15
Positioning controller in a robust housing, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 1050/2100 Watt.

Controller version		
EtherCAT Slave	**CANopen Slave with EtherCAT option**	**CANopen Slave with EtherCAT option**
Electrical data		
10 - 50 VDC	10 - 50 VDC	10 - 70 VDC
10 - 50 VDC	10 - 50 VDC	10 - 70 VDC
0.9 x V_{CC}	0.9 x V_{CC}	0.9 x V_{CC}
30 A (<60 s)	15 A (<15 s)	30 A (<60 s)
15 A	5 A	15 A
50 kHz	50 kHz	50 kHz
25 kHz (40 µs)	25 kHz (40 µs)	25 kHz (40 µs)
2.5 kHz (400 µs)	2.5 kHz (400 µs)	2.5 kHz (400 µs)
2.5 kHz (400 µs)	2.5 kHz (400 µs)	2.5 kHz (400 µs)
50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)
2.2 µH / 15 A	15 µH / 5 A	15 µH / 15 A
Inputs		
H1, H2, H3	H1, H2, H3	H1, H2, H3
A, A\, B, B\, I, I\ (max. 6.25 MHz)	A, A\, B, B\, I, I\ (max. 6.25 MHz)	A, A\, B, B\, I, I\ (max. 6.25 MHz)
A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\	A, A\, B, B\, I, I\, Clock, Clock\, Data, Data\
4 (level switchable: logic/PLC)	4 (level switchable: logic/PLC)	4 (level switchable: logic/PLC)
4, differential	4, differential	4, differential
2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)
configurable with DIP switch 1...5	configurable with DIP switch 1...5	configurable with DIP switch 1...5
Outputs		
2	2	2
1, differential	1, differential	1, differential
2 (12-bit resolution, -4...+4 V, max. 1 mA)	2 (12-bit resolution, -4...+4 V, max. 1 mA)	2 (12-bit resolution, -4...+4 V, max. 1 mA)
+5 VDC, max. 70 mA	+5 VDC, max. 70 mA	+5 VDC, max. 70 mA
+5 VDC, max. 30 mA	+5 VDC, max. 30 mA	+5 VDC, max. 30 mA
+5 VDC, max. 145 mA	+5 VDC, max. 145 mA	+5 VDC, max. 145 mA
Interfaces		
–	RxD; TxD (max. 115 200 bit/s)	RxD; TxD (max. 115 200 bit/s)
–	high; low (max. 1 Mbit/s)	high; low (max. 1 Mbit/s)
Data+; Data- (Full Speed)	Data+; Data- (Full Speed)	Data+; Data- (Full Speed)
100 Mbit/s (Full Duplex)	Optional 581245 EPOS4 EtherCAT Card available	Optional 581245 EPOS4 EtherCAT Card available
Indicator		
Green LED, red LED	Green LED, red LED	Green LED, red LED
Environmental conditions		
-30...+25°C	-30...+50°C	-30...+50°C
+25...+77°C; Derating: -0.288 A/°C	+50...+80°C; Derating: -0.167 A/°C	+50...+85°C; Derating: -0.429 A/°C
-40...+85°C	-40...+85°C	-40...+85°C
5...90%	5...90%	5...90%
Mechanical data		
approx. 140 g	approx. 206 g	approx. 372 g
59.5 x 79.5 x 37.8 mm	105.0 x 83.0 x 38.7 mm	125.0 x 94.5 x 38.7 mm
M3 screws	Flange for M4-screws	Flange for M4-screws
Part numbers		
605299 EPOS4 Compact 50/15 EtherCAT	546047 EPOS4 50/5	594385 EPOS4 70/15
Accessories		
235811 DSR 70/30 Shunt regulator	309687 DSR 50/5 Shunt regulator	235811 DSR 70/30 Shunt regulator

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BLDC / PMDC positioning controller



EPOS4 Disk 60/8 CAN
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 480/1440 Watt.



EPOS4 Disk 60/8 EtherCAT
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 480/1440 Watt.

	Controller version		
		CANopen Slave	EtherCAT Slave
	Electrical		
1	Operating voltage V_{cc}	12 - 60 VDC	12 - 60 VDC
2	Logic supply voltage V_c (optional)	12 - 60 VDC	12 - 60 VDC
3	Max. output voltage	0.9 x V_{cc}	0.9 x V_{cc}
4	Max. output current I_{max}	24 A (<10 s)	24 A (<10 s)
5	Continuous output current I_{cont}	8 A	8 A
6	Switching frequency of power stage	50 kHz	50 kHz
7	Sampling rate of PI current controller	25 kHz (40 µs)	25 kHz (40 µs)
8	Sampling rate of PI speed controller	2.5 kHz (400 µs)	2.5 kHz (400 µs)
9	Sampling rate of PID position controller	2.5 kHz (400 µs)	2.5 kHz (400 µs)
10	Max. speed (1 pole pair)	50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)
11	Built-in motor choke per phase	–	–
	Inputs		
12	Hall sensor signals	H1, H2, H3	H1, H2, H3
13	Encoder signals	A, A\, B, B\, I, I\ (max. 6.25 MHz)	A, A\, B, B\, I, I\ (max. 6.25 MHz)
14	Sensor signals	Clock, Clock\, Data, Data\	Clock, Clock\, Data, Data\
15	Digital inputs	4 (logic level)	4 (logic level)
16	Digital inputs “High-speed”	1, differential	1, differential
17	Analog inputs	2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)
18	CAN ID / DEV ID	Configurable with DIP switch 1...4	Configurable with DIP switch 1...4
	Outputs		
19	Digital outputs	2	2
20	Digital outputs “High-speed”	1, differential	1, differential
21	Analog outputs	1 (12-bit resolution, -4...+4 V, max. 1 mA)	1 (12-bit resolution, -4...+4 V, max. 1 mA)
22	Encoder voltage output	+5 VDC, max. 70 mA	+5 VDC, max. 70 mA
23	Hall sensor voltage output	+5 VDC, max. 30 mA	+5 VDC, max. 30 mA
24	Auxiliary voltage output	+5 VDC, max. 145 mA	+5 VDC, max. 145 mA
	Interfaces		
25	RS232	–	–
26	CAN	high; low (max. 1 Mbit/s)	–
27	USB 2.0/3.0	Data+; Data- (Full Speed)	Data+; Data- (Full Speed)
28	EtherCAT	–	100 Mbit/s (Full Duplex)
	Indicator		
29	LED green = READY, red= ERROR	Green LED, red LED	Green LED, red LED
	Environmental conditions		
30	Temperatrue – Operation	-30...+45°C	-30...+35°C
31	Temperature – Extended Range	+45...+75°C; Derating: -0.267 A/°C	+35...+65°C; Derating: -0.267 A/°C
32	Temperature – Storage	-40...+85°C	-40...+85°C
33	Humidity (condensation not permitted)	5...90%	5...90%
	Mechanical data		
34	Weight	approx. 24 g	approx. 26 g
35	Dimensions (L x W x H)	60.0 x 60.0 x 22.0 mm	60.0 x 60.0 x 22.0 mm
36	Mounting	M2 screws	M2 screws
	Part numbers		
37		688770 EPOS4 Disk 60/8 CAN	688772 EPOS4 Disk 60/8 EtherCAT
	Accessories		
38		235811 DSR 70/30 Shunt regulator	235811 DSR 70/30 Shunt regulator



EPOS4 Disk 60/12 CAN
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 720/2160 Watt.

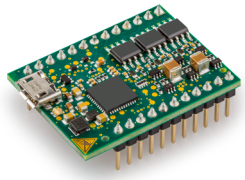


EPOS4 Disk 60/12 EtherCAT
Ready-to-install compact solution, designed for use with brushed DC motors with encoders or brushless EC motors with Hall sensors and encoders up to 720/2160 Watt.

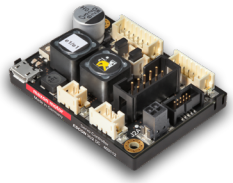
Controller version	
CANopen Slave	EtherCAT Slave
Electrical	
12 - 60 VDC	12 - 60 VDC
12 - 60 VDC	12 - 60 VDC
0.9 x V_{CC}	0.9 x V_{CC}
36 A (<5 s)	36 A (<5 s)
12 A	12 A
50 kHz	50 kHz
25 kHz (40 µs)	25 kHz (40 µs)
2.5 kHz (400 µs)	2.5 kHz (400 µs)
2.5 kHz (400 µs)	2.5 kHz (400 µs)
50 000 rpm (sinusoidal), 100 000 rpm (block)	50 000 rpm (sinusoidal), 100 000 rpm (block)
–	–
Inputs	
H1, H2, H3	H1, H2, H3
A, A\, B, B\, I, I\ (max. 6.25 MHz)	A, A\, B, B\, I, I\ (max. 6.25 MHz)
Clock, Clock\, Data, Data\	Clock, Clock\, Data, Data\
4 (logic level)	4 (logic level)
1, differential	1, differential
2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)
Configurable with DIP switch 1...4	Configurable with DIP switch 1...4
Outputs	
2	2
1, differential	1, differential
1 (12-bit resolution, -4...+4 V, max. 1 mA)	1 (12-bit resolution, -4...+4 V, max. 1 mA)
+5 VDC, max. 70 mA	+5 VDC, max. 70 mA
+5 VDC, max. 30 mA	+5 VDC, max. 30 mA
+5 VDC, max. 145 mA	+5 VDC, max. 145 mA
Interfaces	
–	–
high; low (max. 1 Mbit/s)	–
Data+; Data- (Full Speed)	Data+; Data- (Full Speed)
–	100 Mbit/s (Full Duplex)
Indicator	
Green LED, red LED	Green LED, red LED
Environmental conditions	
-30...+50°C	-30...+45°C
+50...+75°C; Derating: -0.480 A/°C	+45...+70°C; Derating: -0.480 A/°C
-40...+85°C	-40...+85°C
5...90%	5...90%
Mechanical data	
approx. 43 g	approx. 45 g
90.0 x 90.0 x 27.6 mm	90.0 x 90.0 x 27.6 mm
M3 screws	M3 screws
Part numbers	
688775 EPOS4 60/12 CAN / 709859 EPOS4 60/12 CAN SSC	688777 EPOS4 Disk 60/12 EtherCAT / 709862 EPOS4 Disk 60/12 EtherCAT SSC
Accessories	
235811 DSR 70/30 Shunt regulator	235811 DSR 70/30 Shunt regulator

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BLDC / PMDC servo controller

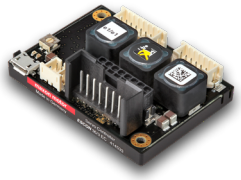


ESCON Module 24/2

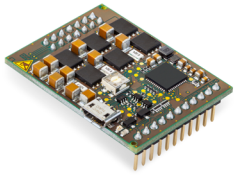


ESCON 36/2 DC

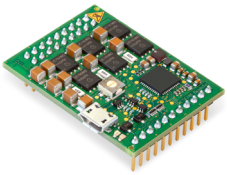
	Controller version		
1	DC motors up to (continuous / maximum)	48 W / 144 W	72 W / 144 W
2	BLDC motors up to (continuous / maximum)	48 W / 144 W	–
	Sensors		
3		Digital Incremental Encoder	Digital Incremental Encoder
4		(2 channel with or without Line Driver)	(2 channel with or without Line Driver)
5		DC Tacho	DC Tacho
6		Without sensor (DC motors)	Without sensor (DC motors)
7		Digital Hall Sensors (BLDC motors)	–
	Operating mode		
8		Current controller (torque control)	Current controller (torque control)
9		Speed controller (closed and open loop)	Speed controller (closed and open loop)
	Electrical data		
10	Nominal operating voltage V_{cc}	10 - 24 VDC	10 - 36 VDC
11	Max. output voltage	0.98 x V_{cc}	0.98 x V_{cc}
12	Max. output current	6 A (<4 s)	4 A (<60 s)
13	Continuous output current	2 A	2 A
14	Pulse width modulation frequency	53.6 kHz	53.6 kHz
15	Sampling rate PI current controller	53.6 kHz	53.6 kHz
16	Sampling rate PI speed controller	5.36 kHz	5.36 kHz
17	Max. efficiency	92%	95%
18	Max. speed (DC)	limited by max. speed (motor) and max. output V (controller)	limited by max. speed (motor) and max. output V (controller)
19	Max. speed (EC; 1 pole pair)	150 000 rpm	–
20	Built-in motor choke	–	300 µH / 2 A
	Inputs/Outputs		
21	Hall sensor signals	H1, H2, H3	–
22	Encoder signals	A, A\, B, B\	A, A\, B, B\
23	Max. encoder input frequency differential [single-ended]	1 MHz [100 kHz]	1 MHz [100 kHz]
24	Potentiometers	–	1
25	Digital inputs	2	2
26	Digital inputs/outputs	2	2
27	Analog inputs (Resolution, Range, Circuit)	2 [12-bit, -10...+10 V, differential]	2 [12-bit, -10...+10 V, differential]
28	Analog outputs [Resolution, Range, Max. output current]	2 [12-bit, -4...+4 V, 1 mA]	2 [12-bit, -4...+4 V, 1 mA]
29	Auxiliary voltage output	+5 VDC (IL ≤10 mA)	+5 VDC (IL ≤10 mA)
30	Hall sensor supply voltage	+5 VDC (IL ≤30 mA)	–
31	Encoder supply voltage	+5 VDC (IL ≤70 mA)	+5 VDC (IL ≤70 mA)
32	Status Indicators	Operation: green LED / Error: red LED	Operation: green LED / Error: red LED
	Environmental conditions		
33	Temperature – Operation	-30...+60°C	-30...+45°C
34	Temperature – Extended range	+60...+80°C; Derating: -0.100 A/°C	+45...+81°C; Derating: -0.056 A/°C
35	Temperature – Storage	-40...+85°C	-40...+85°C
36	Humidity (condensation not permitted)	5...90%	5...90%
	Mechanical data		
37	Weight	Approx. 7 g	Approx. 30 g
38	Dimensions (L x W x H)	35.6 x 26.7 x 12.7 mm	55.0 x 40.0 x 16.1 mm
39	Mounting holes	Pluggable (socket headers with 2.54 mm pitch)	for screws M2.5
	Part numbers		
40		466023 ESCON Module 24/2	403112 ESCON 36/2 DC



ESCON 36/3 EC



ESCON Module 50/4 EC-S

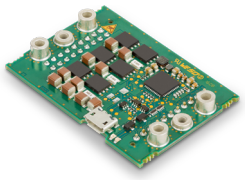


ESCON Module 50/5

	–	250 W / 750 W
97 W / 324 W	200 W / 600 W	250 W / 750 W
Sensors		
–	–	Digital Incremental Encoder
–	–	(2 channel with or without Line Driver)
–	–	DC Tacho
–	Without sensor (EC motors)	Without sensor (DC motors)
Digital Hall Sensors (BLDC motors)	–	Digital Hall Sensors (EC motors)
Operating mode		
Current controller (torque control)	-	Current controller (torque control)
Speed controller (closed and open loop)	Speed controller (closed and open loop)	Speed controller (closed and open loop)
Electrical data		
10 - 36 VDC	10 - 50 VDC	10 - 50 VDC
0.98 x V_{cc}	0.96 x V_{cc}	0.98 x V_{cc}
9 A (<4 s)	12 A (<30 s)	15 A (<20 s)
2.7 A	4 A	5 A
53.6 kHz	53.6 kHz	53.6 kHz
53.6 kHz	–	53.6 kHz
5.36 kHz	5.36 kHz	5.36 kHz
95%	97%	98%
–	–	limited by max. speed (motor) and max. output V (controller)
150 000 rpm	120 000 rpm	150 000 rpm
3 x 47 µH / 2.7 A	–	–
Inputs/Outputs		
H1, H2, H3	–	H1, H2, H3
–	–	A, A\, B, B\
–	–	1 MHz [100 kHz)
1	1	1
2	2	2
2	2	2
2 [12-bit, -10...+10 V, differential]	2 [12-bit, -10...+10 V, differential]	2 [12-bit, -10...+10 V, differential]
2 [12-bit, -4...+4 V, 1 mA]	2 [12-bit, -4...+4 V, 1 mA]	2 [12-bit, -4...+4 V, 1 mA]
+5 VDC (IL ≤10 mA)	+5 VDC (IL ≤110 mA)	+5 VDC (IL ≤10 mA)
+5 VDC (IL ≤30 mA)	–	+5 VDC (IL ≤30 mA)
–	–	+5 VDC (IL ≤70 mA)
Operation: green LED / Error: red LED	Operation: green LED / Error: red LED	Operation: green LED / Error: red LED
Environmental conditions		
-30...+45°C	-30...+45°C	-30...+45°C
+45...+78°C; Derating: -0.082 A/°C	+45...+65°C; Derating: -0.200 A/°C	+45...+75°C; Derating: -0.167 A/°C
-40...+85°C	-40...+85°C	-40...+85°C
5...90%	5...90%	5...90%
Mechanical data		
Approx. 36 g	Approx. 11 g	Approx. 12 g
55.0 x 40.0 x 19.8 mm	43.2 x 31.8 x 12.7 mm	43.2 x 31.8 x 12.7 mm
for screws M2.5	Pluggable (socket headers with 2.54 mm pitch)	Pluggable (socket headers with 2.54 mm pitch)
Part numbers		
414533 ESCON 36/3 EC	446925 ESCON Module 50/4 EC-S	438725 ESCON Module 50/5

maxon ESCON

BLDC / PMDC servo controller



ESCON Module 50/8



ESCON Module 50/8 HE

	Controller version		
1	DC motors up to (continuous / maximum)	400 W / 750 W	400 W / 750 W
2	BLDC motors up to (continuous / maximum)	400 W / 750 W	400 W / 750 W
	Sensors		
3		Digital Incremental Encoder	Digital Incremental Encoder
4		(2 channel with or without Line Driver)	(2 channel with or without Line Driver)
5		DC Tacho	DC Tacho
6		Without sensor (DC motors)	Without sensor (DC motors)
7		Digital Hall Sensors (BLDC motors)	Digital Hall Sensors (BLDC motors)
	Operating mode		
8		Current controller (torque control)	Current controller (torque control)
9		Speed controller (closed and open loop)	Speed controller (closed and open loop)
	Electrical data		
10	Nominal operating voltage V_{cc}	10 - 50 VDC	10 - 50 VDC
11	Max. output voltage	0.98 x V_{cc}	0.98 x V_{cc}
12	Max. output current	15 A (<20 s)	15 A (<20 s)
13	Continuous output current	8 A	8 A
14	Pulse width modulation frequency	53.6 kHz	53.6 kHz
15	Sampling rate PI current controller	53.6 kHz	53.6 kHz
16	Sampling rate PI speed controller	5.36 kHz	5.36 kHz
17	Max. efficiency	99%	99%
18	Max. speed (DC)	limited by max. speed (motor) and max. output V (controller)	limited by max. speed (motor) and max. output V (controller)
19	Max. speed (EC; 1 pole pair)	150 000 min^{-1}	150 000 min^{-1}
20	Built-in motor choke	–	–
	Inputs/Outputs		
21	Hall sensor signals	H1, H2, H3	H1, H2, H3
22	Encoder signals	A, A\, B, B\	A, A\, B, B\
23	Max. encoder input frequency differential [single-ended]	1 MHz [100 kHz]	1 MHz [100 kHz]
24	Potentiometers	–	–
25	Digital inputs	2	2
26	Digital inputs/outputs	2	2
27	Analog inputs (Resolution, Range, Circuit)	2 [12-bit, -10...+10 V, differential]	2 [12-bit, -10...+10 V, differential]
28	Analog outputs [Resolution, Range, Max. output current]	2 [12-bit, -4...+4 V, 1 mA]	2 [12-bit, -4...+4 V, 1 mA]
29	Auxiliary voltage output	+5 VDC (IL ≤10 mA)	+5 VDC (IL ≤10 mA)
30	Hall sensor supply voltage	+5 VDC (IL ≤30 mA)	+5 VDC (IL ≤30 mA)
31	Encoder supply voltage	+5 VDC (IL ≤70 mA)	+5 VDC (IL ≤70 mA)
32	Status Indicators	Operation: green LED / Error: red LED	Operation: green LED / Error: red LED
	Environmental conditions		
33	Temperature – Operation	-40...+45°C	-40...+65°C
34	Temperature – Extended range	+45...+85°C; Derating: please contact sales	+65...+92°C; Derating: please contact sales
35	Temperature – Storage	-40...+85°C	-40...+85°C
36	Humidity (condensation not permitted)	5...90%	5...90%
	Mechanical data		
37	Weight	Approx. 16 g	Approx. 84 g
38	Dimensions (L x W x H)	53.3 x 37.5 x 14.5 mm	53.3 x 37.5 x 30.6 mm
39	Mounting holes	Pluggable (socket headers with 2.54 mm pitch)	Pluggable (socket headers with 2.54 mm pitch)
	Part numbers		
40		532872 ESCON Module 50/8	586137 ESCON Module 50/8 HE



ESCON 50/5

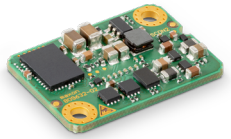


ESCON 70/10

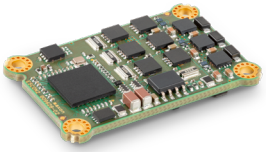
Controller version	
250 W / 750 W	700 W / 2100 W
250 W / 750 W	700 W / 2100 W
Sensors	
Digital Incremental Encoder	Digital Incremental Encoder
(2 channel with or without Line Driver)	(2 channel with or without Line Driver)
DC Tacho	DC Tacho
Without sensor (DC motors)	Without sensor (DC motors)
Digital Hall Sensors (BLDC motors)	Digital Hall Sensors (BLDC motors)
Operating mode	
Current controller (torque control)	Current controller (torque control)
Speed controller (closed and open loop)	Speed controller (closed and open loop)
Electrical data	
10 - 50 VDC	10 - 70 VDC
0.98 x V_{CC}	0.95 x V_{CC}
15 A (<20 s)	30 A (<20 s)
5 A	10 A
53.6 kHz	53.6 kHz
53.6 kHz	53.6 kHz
5.36 kHz	5.36 kHz
95%	98%
limited by max. speed (motor) and max. output V (controller)	limited by max. speed (motor) and max. output V (controller)
150 000 rpm	150 000 rpm
3 x 30 µH / 5 A	3 x 15 µH / 10 A
Inputs/Outputs	
H1, H2, H3	H1, H2, H3
A, A\, B, B\	A, A\, B, B\
1 MHz [100 kHz]	1 MHz [100 kHz]
2	2
2	2
2	2
2 [12-bit, -10...+10 V, differential]	2 [12-bit, -10...+10 V, differential]
2 [12-bit, -4...+4 V, 1 mA]	2 [12-bit, -4...+4 V, 1 mA]
+5 VDC (IL ≤10 mA)	+5 VDC (IL ≤10 mA)
+5 VDC (IL ≤30 mA)	+5 VDC (IL ≤30 mA)
+5 VDC (IL ≤70 mA)	+5 VDC (IL ≤70 mA)
Operation: green LED / Error: red LED	Operation: green LED / Error: red LED
Environmental conditions	
-30...+45°C	-30...+45°C
+45...+85°C; Derating: -0.111 A/°C	+45...+82°C; Derating: -0.270 A/°C
-40...+85°C	-40...+85°C
5...90%	5...90%
Mechanical data	
Approx. 204 g	Approx. 259 g
115 x 75.5 x 24 mm	125 x 78.5 x 27 mm
for screws M4	for screws M4
Part numbers	
409510 ESCON 50/5	422969 ESCON 70/10

maxon ESCON2

BLDC / PMDC servo controller

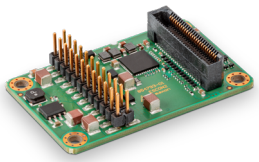


ESCON2 Nano 24/2

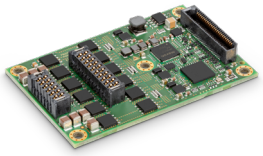


ESCON2 Micro 60/5

	Controller version		
1		Commands via I/O or CANopen Slave	Commands via I/O or CANopen Slave
	Electrical data		
2	Operating voltage V_{CC}	5 - 24 VDC	10 - 60 VDC
3	Logic supply voltage V_C (optional)	-	10 - 60 VDC
4	Max. output voltage	0.90 x V_{CC}	0.95 x V_{CC}
5	Max. output current I_{max}	6 A (<6.5 s)	15 A (<4 s)
6	Continuous output current I_{cont}	2 A	5 A
7	Switching frequency of power stage	50 kHz	50 kHz
8	Sampling rate of PI current controller	50 kHZ (20µs)	50 kHZ (20µs)
9	Sampling rate of PI speed controller	10 kHZ (20µs)	10 kHZ (20µs)
10	Max. speed (1 pole pair)	120,000 rpm (sinusoidal)	120,000 rpm (sinusoidal)
11	Built-in motor choke per phase	-	-
	Inputs/Outputs		
	Inputs		
12	Hall sensor signals	H1, H2, H3	H1, H2, H3
13	Encoder signals	A, B (max. 6.25 MHz)	A, A\, B, B\ (max. 6.67 MHz)
14	Sensor signals	Clock[1], Data[1]	Clock[1], Data[1]
15	Digital inputs	4	4
16	Digital inputs 'high speed'	4	4
17	Analog inputs	2 (12-bit resolution, 0...+5 V)	2 (12-bit resolution, -10...+10 V)
18	CAN ID	configurable with external wiring	configurable with external wiring
	Outputs		
19	Digital outputs	2	2
20	Digital outputs 'high speed'	1	1
21	Analog outputs	2 (12-bit resolution, 0...+3.3 V, max. 1 mA)	2 (12-bit resolution, -4...+4 V, max. 1 mA)
22	Encoder voltage output	5 VDC, max. 145 mA	5 VDC, max. 145 mA
23	Hall sensor voltage output	5 VDC, max. 145 mA	5 VDC, max. 145 mA
24	Auxiliary voltage output	3.3 VDC, max. 20 mA	3.3 VDC, max. 20 mA
	Communication interfaces		
25	CAN	yes (ext. transceiver)	yes
26	SCI (RS232 ext. transceiver)	yes	yes
27	USB	yes	yes
	Indicator		
28	LED green = READY, red = ERROR	External LEDs required	External LEDs required
	Environmental conditions		
29	Temperature - Operation	-30...+45°C	-30...+50°C
30	Temperature - Extended Range	45...70°C; Derating: -0.077 A/°C	50...70°C; Derating: -0.277 A/°C
31	Temperature - Storage	-40...+85°C	-40...+85°C
32	Humidity (condensation not permitted)	5...90%	5...90%
	Mechanical data		
33	Weight	Approx. 2.5 g	Approx. 6.0 g
34	Dimensions (L x W x H)	23.0 x 16.0 x 4.5 mm	36.8 x 23.8 x 6.5 mm
35	Mounting holes	Pluggable and M2 screws	Pluggable and M2 screws
	Part numbers		
36		809635 ESCON2 Nano 24/2	809631 ESCON2 Micro 60/5
	Accessories		
37		309687 DSR 50/5 Shunt regulator	235811 DSR 70/30 Shunt regulator
38		Order accessories separately (contact sales)	Order accessories separately (contact sales)



ESCON2 Module 60/12

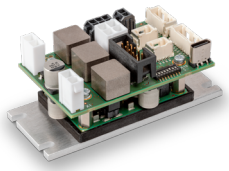


ESCON2 Module 60/30

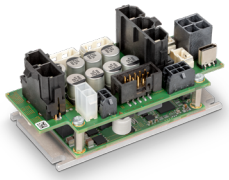
Commands via I/O or CANopen Slave	Commands via I/O or CANopen Slave
10 - 60 VDC	10 - 60 VDC
10 - 60 VDC	10 - 60 VDC
0.90 x V_{CC}	0.95 x V_{CC}
24 A (<5 s)	60 A (<4 s)
12 A	30 A
100 kHz	50 kHz
50 kHZ (20µs)	50 kHZ (20µs)
10 kHZ (100µs)	10 kHZ (100µs)
120,000 rpm (sinusoidal)	120,000 rpm (sinusoidal)
-	-
H1, H2, H3	H1, H2, H3
A, A\, B, B\ (max. 6.67 MHz)	A, A\, B, B\ (max. 6.67 MHz)
Clock[1], Data[1]	Clock[1], Data[1]
4	4
4	4
2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)
configurable with external wiring	configurable with external wiring
2	2
1	1
2 (12-bit resolution, -4...+4 V, max. 1 mA)	2 (12-bit resolution, -4...+4 V, max. 1 mA)
5 VDC, max. 145 mA	5 VDC, max. 145 mA
5 VDC, max. 145 mA	5 VDC, max. 145 mA
3.3 VDC, max. 20 mA	3.3 VDC, max. 20 mA
yes	yes
yes	yes
yes	yes
External LEDs required	External LEDs required
-30...+45°C	-30...+50°C
50...80°C; Derating: -0.400 A/°C	25...75°C; Derating: -0.506 A/°C
-40...+85°C	-40...+85°C
5...90%	5...90%
Approx. 12.0 g	Approx. 19.0 g
49.5 x 31.0 x 12.4 mm	67.0 x 43.0 x 7.8 mm
Pluggable and M2 screws	Pluggable and M2 screws
854796 ESCON2 Module 60/12	783722 ESCON2 Module 60/30
235811 DSR 70/30 Shunt regulator	235811 DSR 70/30 Shunt regulator
Order accessories separately (contact sales)	Order accessories separately (contact sales)

maxon ESCON2

BLDC / PMDC servo controller



ESCON2 Compact 60/12



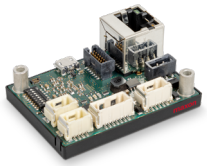
ESCON2 Compact 60/30

	Controller version		
1		Commands via I/O or CANopen Slave	Commands via I/O or CANopen Slave
	Electrical data		
2	Operating voltage V_{CC}	10 - 60 VDC	10 - 60 VDC
3	Logic supply voltage V_C (optional)	10 - 60 VDC	10 - 60 VDC
4	Max. output voltage	0.90 x V_{CC}	0.95 x V_{CC}
5	Max. output current I_{max}	24 A (<5 s)	60 A (<4 s)
6	Continuous output current I_{cont}	12 A	30 A
7	Switching frequency of power stage	100 kHz	50 kHz
8	Sampling rate of PI current controller	50 kHZ (20µs)	50 kHZ (20µs)
9	Sampling rate of PI speed controller	10 kHZ (100µs)	10 kHZ (100µs)
10	Max. speed (1 pole pair)	120,000 rpm (sinusoidal)	120,000 rpm (sinusoidal)
11	Built-in motor choke per phase	4.70 µH / 12 A	0.47 µH / 30 A
	Inputs/Outputs		
	Inputs		
12	Hall sensor signals	H1, H2, H3	H1, H2, H3
13	Encoder signals	A, A\, B, B\ (max. 6.67 MHz)	A, A\, B, B\ (max. 6.67 MHz)
14	Sensor signals	Clock[1], Data[1]	Clock[1], Data[1]
15	Digital inputs	4	4
16	Digital inputs 'high speed'	4	4
17	Analog inputs	2 (12-bit resolution, -10...+10 V)	2 (12-bit resolution, -10...+10 V)
18	CAN ID	configurable with DIP switch 1...5	configurable with DIP switch 1...5
	Outputs		
19	Digital outputs	2	2
20	Digital outputs 'high speed'	1	1
21	Analog outputs	2 (12-bit resolution, -4...+4 V, max. 1 mA)	2 (12-bit resolution, -4...+4 V, max. 1 mA)
22	Encoder voltage output	5 VDC, max. 145 mA	5 VDC, max. 145 mA
23	Hall sensor voltage output	5 VDC, max. 145 mA	5 VDC, max. 145 mA
24	Auxiliary voltage output	-	-
	Communication interfaces		
25	CAN	yes	yes
26	SCI (RS232 ext. transceiver)	-	-
27	USB	yes	yes
	Indicator		
28	LED green = READY, red = ERROR	yes	yes
	Environmental conditions		
29	Temperature - Operation	-30...50°C	-30...+25°C
30	Temperature - Extended Range	50...80°C; Derating: -0.400 A/°C	25...75°C; Derating: -0.506 A/°C
31	Temperature - Storage	-40...+85°C	-40...+85°C
32	Humidity (condensation not permitted)	5...90%	5...90%
	Mechanical data		
33	Weight	Approx. 90.0 g	Approx. 128.0 g
34	Dimensions (L x W x H)	81.0 x 41.0 x 33.5 mm	93.5 x 46.0 x 41.0 mm
35	Mounting holes	M3 screws	M3 screws
	Part numbers		
36		854801 ESCON2 Compact 60/12	783734 ESCON2 Compact 60/30
	Accessories		
37		235811 DSR 70/30 Shunt regulator	235811 DSR 70/30 Shunt regulator
38		Order accessories separately (contact sales)	Order accessories separately (contact sales)

Notes

maxon MicroMACS6

Programmable motion controller



MicroMACS6
Ultra-compact, freely programmable multi-axis controller with optional BLE (Bluetooth Low Energy) interface.

	Controller versions	
		CANopen Master/Slave, Ethernet, Standalone with APOSS® win
	Features	
1	Motion features	Trapezoidal, jerk limited, CAM, synchronous travel, path, kinematics
2	Profile generator cycle	1 kHz (1 ms)
3	Sampling rate of PID positioning controller with speed and acceleration feed-forward control	–
4	Maximum number of axes	6
5	Web server (visualization)	–
6	Expandable memory	–
	Electrical data	
7	Logic supply voltage V_c	8 - 28 VDC
	Inputs	
8	Digital inputs	6 (PLC 9.0...30 VDC or Logic 2.0...30 VDC)
9	Analog inputs	2 (12-bit resolution, 0...10 V, 1 kHz)
10	Hall sensor signals	–
11	CAN-ID (CAN node identification)	configurable with DIP switch
	Output	
12	Digital output	4 (24 VDC, 100 mA, max. 5 kHz PWM)
13	Analog output	–
14	Encoder voltage output	–
	Interfaces	
15	Profinet	–
16	CAN	2 high; low (max. 1 Mbit/s)
17	BLE (Bluetooth Low Energy)	optional (available soon)
18	EtherCAT-Master / EtherCAT-Slave	–
19	Ethernet	1 (TCP/IP, max. 100 Mbit/s)
20	USB 2.0	1 (Data+; Data-)
	Encoder inputs	
21	Digital incremental	–
22	SSI absolute	–
23	Analog incremental (sin/cos)	–
24	Hiperface/EnDat	–
	Encoder outputs	
25	Encoder TTL outputs	–
	Indicator	
26	LEDs	3 (status) / Ethernet
27	Display	–
	Environmental conditions	
28	Temperature – Operation	0...+40°C
29	Temperature – Storage	-20...+85°C
30	Humidity (condensation not permitted)	20...80%
	Mechanical data	
31	Weight	approx. 80 g
32	Dimensions (L x W x H)	55 x 40 x 21 mm
33	Mounting	Plastic shell, flange for M2.5 screws
	Part numbers	
34		001794 MicroMACS6

Compact and powerful

The MicroMACS6 is a high-performance, ultra-compact, freely programmable multi-axis controller without power output stages.

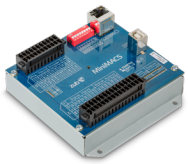
One Ethernet and two independent CAN interfaces are available for commanding up to 6 power stages. The axes can be set up individually or as a kinematics group. Four PWM outputs are available for use with ESCON controllers.

An optional BLE (Bluetooth Low Energy) board expands the controller, making it possible to communicate with the controller via a smartphone app.

Note: BLE option available soon

maxon MiniMACS

Programmable motion controller



MiniMACS
The MiniMACS controllers are fully programmable Motion Controllers. They are suitable for less complex applications that still require compact dimensions.

	Controller versions	
		CANopen Master/Slave, Ethernet, Standalone with APOSS® win
	Features	
1	Motion features	Trapezoidal, jerk limited, CAM, synchronous travel
2	Profile generator cycle	1 kHz (1 ms)
3	Sampling rate of PID positioning controller with speed and acceleration feed-forward control	1 kHz (1ms)
4	Maximum number of axes	3
5	Web server (visualization)	–
6	Expandable memory	–
	Electrical data	
7	Logic supply voltage V_c	18 - 30 VDC
	Inputs	
8	Digital inputs	16 (PLC level)
9	Analog inputs	6 (12-bit resolution, 0...10 V); alternative analog option IO1 or IO2 (see MACS5)
10	Hall sensor signals	–
11	CAN-ID (CAN node identification)	configurable with DIP switch
	Output	
12	Digital output	14 (max. 100 mA per output)
13	Analog output	option IO1
14	Encoder voltage output	+5 VDC, max. 200 mA
	Interfaces	
15	Profinet	–
16	CAN	1 high; low (max. 1 Mbit/s)
17	BLE (Bluetooth Low Energy)	–
18	EtherCAT-Master / EtherCAT-Slave	–
19	Ethernet	1
20	USB 2.0	1 Data+; Data- (Full Speed)
	Encoder inputs	1
21	Digital incremental	1 (differential, max. 5 MHz)
22	SSI absolute	–
23	Analog incremental (sin/cos)	
24	Hiperface/EnDat	–
	Encoder outputs	
25	Encoder TTL outputs	37 (status, USB, IO)
	Indicator	–
26	LEDs	3 (status) / Ethernet
27	Display	–
	Environmental conditions	
28	Temperature – Operation	0...+40°C
29	Temperature – Storage	-20...+85°C
30	Humidity (condensation not permitted)	20...80%
	Mechanical data	
31	Weight	500 / 300 g (DIN/compact housing)
32	Dimensions (L x W x H)	108 x 108 x 67 / 116 (98) x 98 x 42 mm
33	Mounting	DIN mounting / compact housing
	Part numbers	
34		001607 MiniMACS DIN mounting 3ax
35		001586 MiniMACS Compact housing 3ax

There is no drive challenge that can't be solved

Benefit from our expertise in control solutions for state-of-the-art drive technology in devices, machinery, and systems. With our products, complex challenges like highly dynamic multi-axis positioning or synchronization can be solved in a cost-effective and efficient manner. Our use of the licensefree APOSS® motion control programming language provides the versatility required to adapt our controllers perfectly to your needs.

In addition to standard products, we also offer the development of OEM custom solutions in the field of control technology and power electronics, as well as consulting and engineering services. Cost-optimized solutions and applicationspecific custom functions.

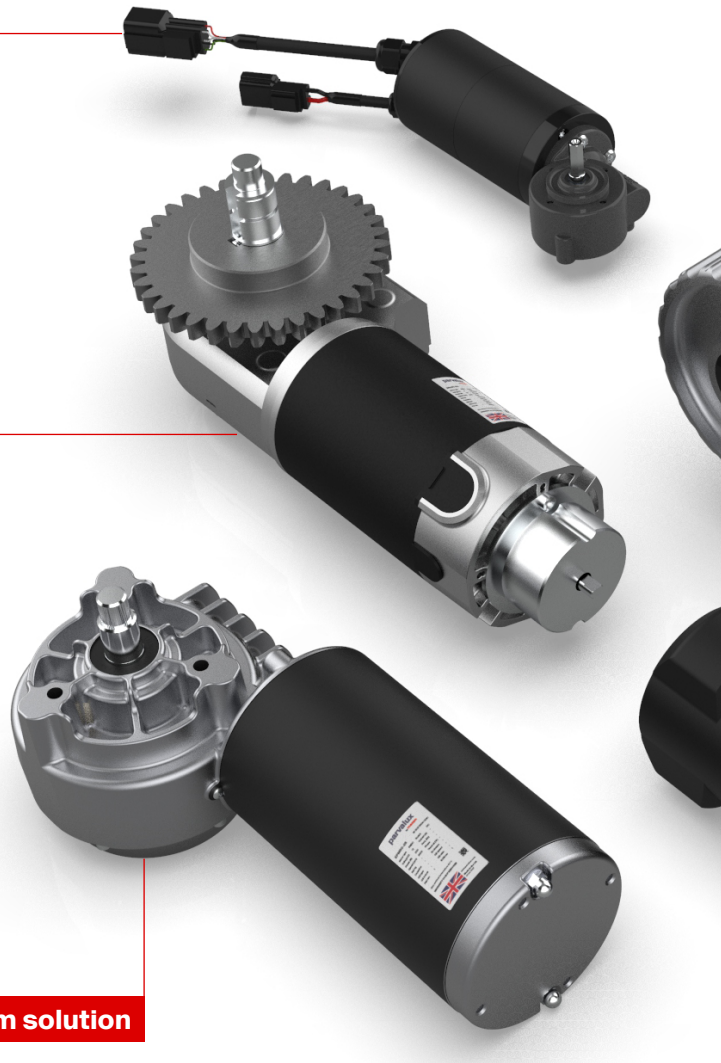
Custom driv solutions

IP67 solution

- IP67 rated
- Integrated electronics
- Custom corrosion-resistant paint finish

Stairlift solution

- Custom drive wheel
- High-performance synthetic oil
- Skewed armature design



Wiper system solution

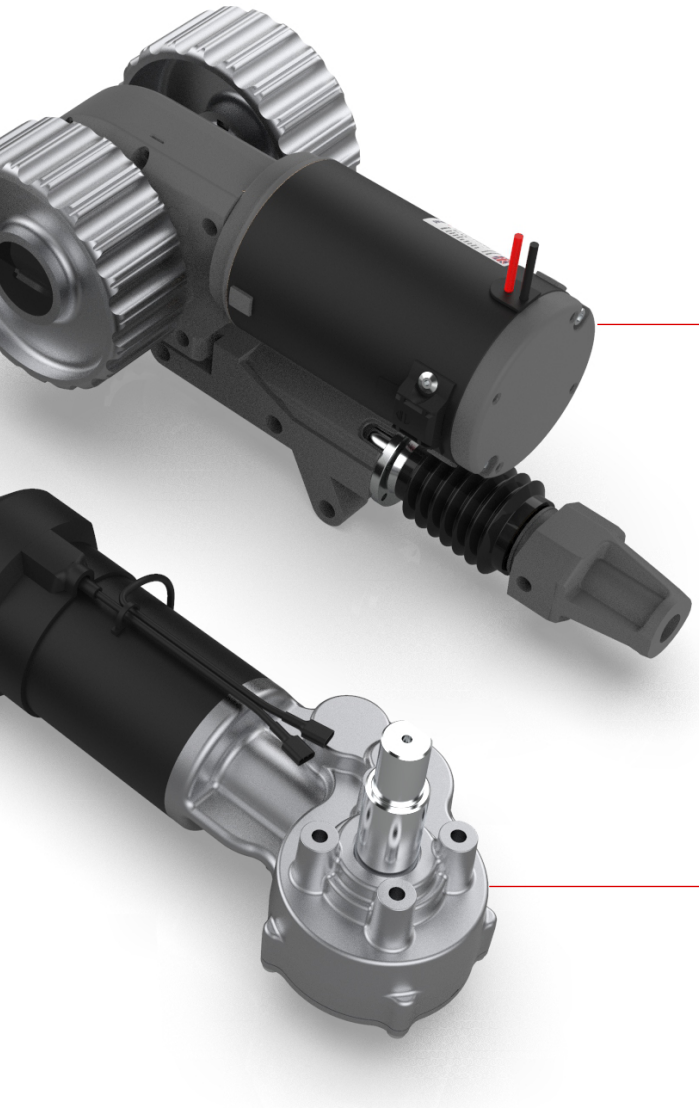
- IP67 rated
- Large brush design
- Adaptable mounting points

ve

Where possible, our sales team will always attempt to offer a standard solution, even if slightly customised, to meet your applications requirements. However, we recognise that sometimes a standard solution won't quite meet the expectations of your final product.

In times such as these, our experienced team of expert design engineers are on-hand to design and prototype a fully custom solution, from scratch, to meet your exact specification.

Get in touch with your local sales engineer, found on page 296, to find out more about your custom design options



Caravan mover solution

- → Custom motor-gearbox
- → Custom drive wheel
- → Manual and automatic engagement options

Patient hoist solution

- → High efficiency gearbox
- → Option of either bronze or composite gears
- → High-performance synthetic oil

We know how to move

wiper syste

Trusted to work reliably in the harshest conditions, the VIPER3 can comfortably operate when faced with dust, liquid, high & low temperatures, and wide variances in humidity, allowing it to integrate seamlessly into vehicles across the rail, marine, haulage, and transport sectors.

Equipped with multiple mounting options, the space conscious design of the VIPER3 enables seamless integration into your application. This, combined with internal wiring and an enclosed commutation brush design, makes this self-contained, IP67 rated, geared motor the ideal solution for use in your large wiper system.



Scan here to find out more

VIPER3 80 Series	**Nominal voltage** 24 - 220 V	**Nominal speed** 21 / 36 rpm
Nominal torque 9 / 6.5 Nm	**Breakaway torque** 80.0 Nm	**Output power** 51 / 56 W
IP rating IP67	**Mounting** 3xM8, Ø72 PCD	**Output shaft** ø12.9

ems





VIPER3 110 Series	**Nominal voltage** 24 - 220 V	**Nominal speed** 21 / 36 rpm
Nominal torque 15 / 10 Nm	**Breakaway torque** 110 Nm	**Output power** 86 / 86 W
IP rating IP67	**Mounting** 3xM10, Ø90 PCD	**Output shaft** Ø15.0

Improved IP rating
Improved ingress protection rating of IP67 ensures reliable operation in a variety of weathers and environments

Reduced gear wear
Reduced gear wear compared to other systems on the market, made possible through the use of composite materials, a larger diameter gear, and a one-piece worm spindle

Adaptable mounting
Adaptable mounting and added support structures offer excellent reliability and a quick and easy integration into your rail, marine, transport or haulage wiper system

Large brush design
The large brush design of the VIPER3 reduces wear on the brushes in the higher speed modes of the system, ensuring reliable operation hour after hour, day after day

Mode switching
Separate mode switch with internally routed wiring ensures a clean and minimal design

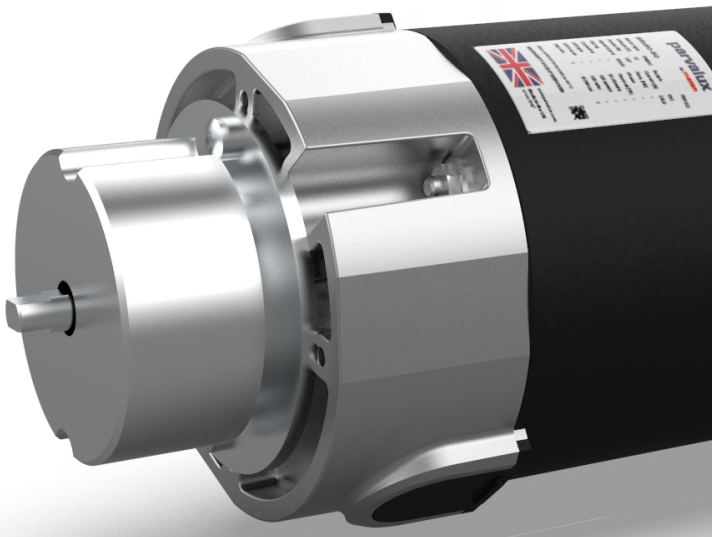
Compact design
Space conscious design means external measurements of just 280 x 126 x 145 mm

We know how to move

stairlift syst

Designed and engineered specifically for the stairlift market, the GB14 gearbox is a high efficiency 2-stage gearbox that is the perfect solution for any high-torque application.

When combined with our BRx90 brushed motor, the GB14 provides up to 500 W of power, a maximum output speed of 40 rpm, and up to 220 Nm of torque in intermittent operation (S2 - 15 minutes) - all contained within a compact, slimline design.

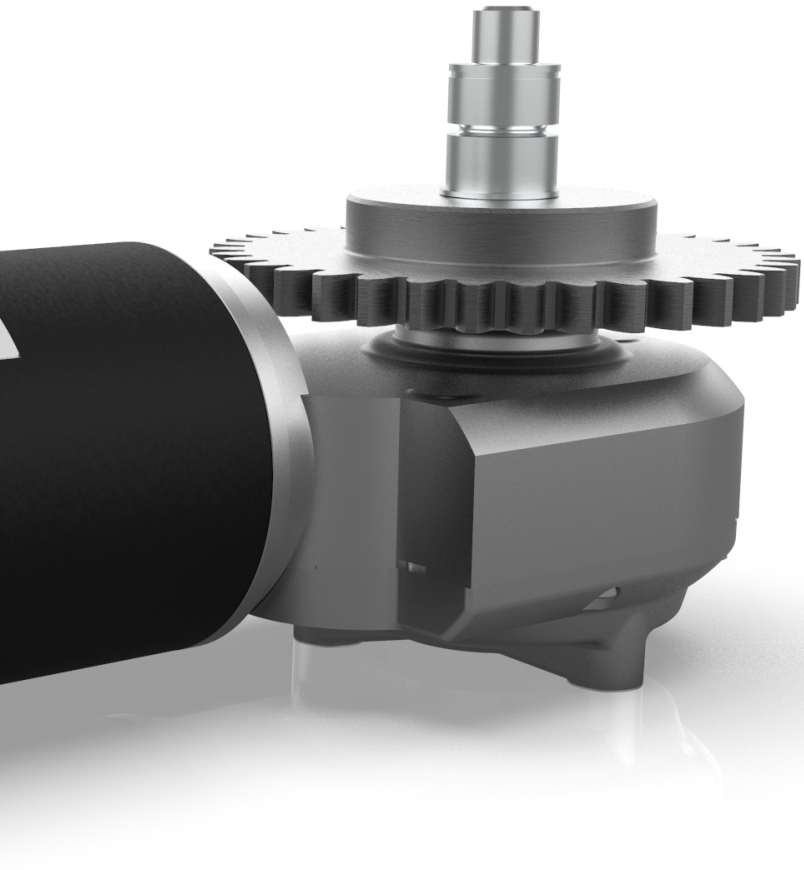


Scan here to find out more

BRx90-50-GB14	**Gear ratio** 120:1	**Voltage** 24 - 48V
Nominal power 210 W	**Intermittent power** 368 W	**Nominal speed** 25 rpm
Nominal torque 50 Nm	**Intermittent torque** 87 Nm	**Motor + GB length** 289 mm

tems





BRx90-75-GB14	**Gear ratio** 120:1	**Voltage** 24 - 48V
Nominal power 283 W	**Intermittent power** 471 W	**Nominal speed** 25 rpm
Nominal torque 67 Nm	**Intermittent torque** 111 Nm	**Motor + GB length** 319 mm

2-stage gearbox
The GB14 is a 2-stage gearbox offering high torque, high efficiency, and self-locking capabilities, ensuring a reliable and safe operation.

Custom drive wheels
Our in-house design team are well versed in designing custom external gears and pulleys to further adapt the GB14 to meet your requirements.

High static torque
The high static torque of the GB14 ensures a reliable operation and maximises the operational life of the geared-motor system.

Overhung design
The overhung design of the GB14 minimises system backlash, ensuring reliable operation even when pushed to its limit.

High-performance synthetic oil
The use of high-performance synthetic oil maximises efficiency and reduces gear wear within the gearbox.

Skewed armature design
The PMDC BRx90 motor features a skewed armature design that reduces cogging within the system and ensures a smooth operation.

Additional motor options
The BRx90 motor is available in both high and low voltages and is also compatible with a range of accessories such as brakes and encoders, allowing you to add improved safety and positional accuracy to your system

We know how to move

caravan mo

The ability to provide smooth power delivery on corners, bends, and gradients ensures our GB50 and GB51 caravan mover units enable you to position your caravan in the perfect spot, on any terrain, in any weather.

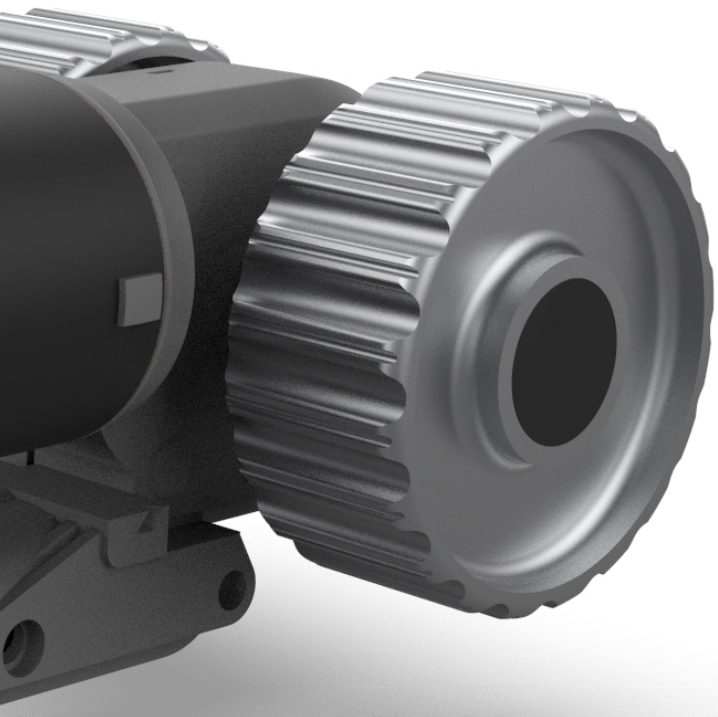
With extensive experience working with the leading manufacturers of caravan movers on the market today, we understand the challenges often faced when building your own caravan mover and are on-hand to offer our expertise to get your project moving.



Scan here to find out more

overs





Custom motor
Our caravan mover units usually utilise a modified EPM63 brushed motor. This motor offers 2 or 4-pole options, skewed or straight armature designs, and the addition of integrated electronics, ensuring the unit meets your exact specification.

Engagement options
Across our range of caravan mover units, we have experience in designing in both manual and automatic engagement options for seamless integration with the caravan units of all shapes and sizes.

Custom gearbox
Our caravan mover gearboxes comprise of a bronze worm wheel connected to a 2-stage hardened steel spur wheel gearbox, enabling high torque and shock load capabilities ensuring a consistent, smooth power delivery.

Custom drive wheels
As shown by these two models, our in-house design team are well versed in designing custom drive wheels to meet the requirements of your caravan mover system.

Overhung design
The overhung design of the gearbox minimises system backlash, ensuring reliable operation even when pushed to its limit.

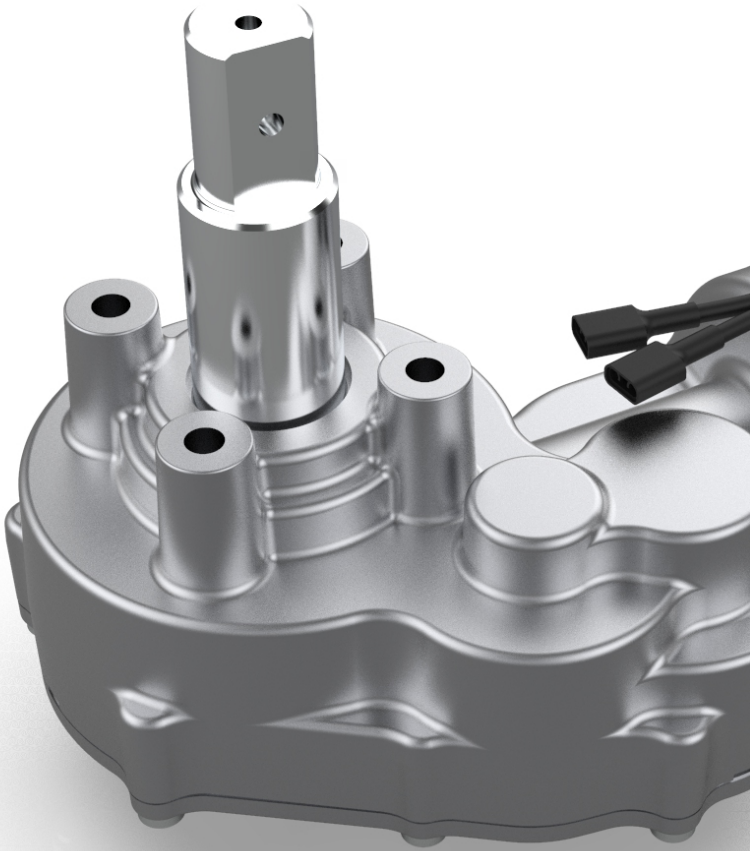
Ingress protection
Our caravan mover units are IP55 rated as standard and are also covered with salt spray level 5 protection finish.

We know how to move

patient hois

Offering high torque in a compact design, the EPM50-GB54 range is the perfect solution for a multitude of hoist and platform lift applications.

With bronze and composite gears available for use within the gearbox, you have the option of specifying this geared-motor combination in favour of either high torque or low noise, enabling it to provide the ideal power required for both heavy duty and domestic applications.



Scan here to find out more

sts





Worm ratio 40:1	**Spur ratio** 3:1	**Voltage** 12 - 48V
Nominal power 116 W	**Intermittent power** 193 W	**Nominal speed** 24 rpm
Nominal torque 29 Nm	**Intermittent torque** 49 Nm	**Motor + GB length** 287 mm

2-stage gearbox
The GB54 is a 2-stage gearbox offering high torque, high efficiency, and self-locking capabilities, ensuring a reliable and safe operation.

Overhung design
The overhung design of the GB54 minimises system backlash, ensuring reliable operation even when pushed to its limit.

High-performance synthetic oil
The use of high-performance synthetic oil maximises efficiency and reduces gear wear within the gearbox.

Gear material
Choose between bronze gears for high strength and torque or composite gears for high efficiency and low noise.

Ingress protection
Option to improve ingress protection to an IP56 standard ensures reliable operation in a variety of weathers and environments.

Additional motor options
The EPM50 motor is available in both high and low voltages and is also compatible with a range of accessories such as brakes and encoders, allowing you to add improved safety and positional accuracy to your system

We know how to move

in any envi

This motor-gearbox combination utilises a PM10 PMDC motor that has been customised to provide a higher IP rating, custom wiring connectors, and is available in voltages of 12 - 220 V. This has been combined with our S Box, right-angle, worm wheel gearbox that has been covered with a corrosion resistant paint finish.

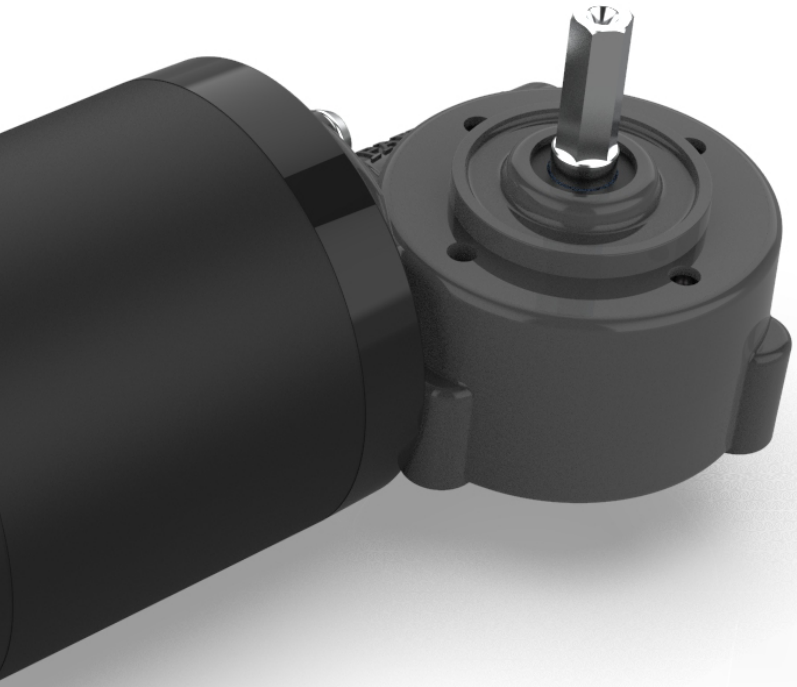
Featuring low noise, an operating temperature of -40°C to +85°C, and automotive connectors, the development of the product provides a reliable and easy-to-fit solution for any application that requires a compact, high IP rated drive solution.

Scan here to find out more





ronment







Improved IP rating
Improved ingress protection rating of IP67 ensures reliable operation in a variety of weathers and environments

Custom finish
The addition of anodized automotive corrosion protection ensures operation even in the harshest conditions.

Integrated electronics
Custom motor with integrated electronics including encoder, thermal cutouts, and EMI suppression aids to a compact design.

Overhung design
The overhung design of the S Box minimises system backlash, ensuring reliable operation even when pushed to its limit.

Automotive connectors
Our standard flying leads have been replaced with automotive connectors to meet the exact requirements of our customer's specification.

Additional motor options
The motor is available in both high and low voltages, a skewed armature design, and is also compatible with a range of accessories such as brakes and encoders, allowing you to add improved safety and positional accuracy to your system.

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[1] Kwapil & Co GmbH also offer sales support to Hungary, Slovenia, Romania, Croatia, Serbia, and Bulgaria

maxon

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Product range Naming guide

Modular range

The Parvalux modular range is available to configure and purchase online at www.parvalux.com. It includes a number of motors, gearboxes, and accessories that are available at a shorter lead time in quantities of up to 10 pieces.

Geared-motor notation:

BRx90-50 12V 3000RPM - GB9 30:1 Composite

1 2 3 4

1. This is the main section of the motor name. The 'BRx' denotes a brushed (PMDC) motor, which is replaced by BLx / PBL when the motor is Brushless (BLDC). The '90' shown in this example signifies the diameter of the motor, or the square dimensions where a brushless motor is signified. The '50' shown after the hyphen signifies the stack length of the motor, used on both brushed and brushless motors.

2. The numbers and words shown after the motor name denote significant specifications of the motor; in this case, the voltage and output speed of the motor. These numbers are only used when a specific variation of the motor is being displayed, whereas, in this catalogue these variances are shown in the technical data tables on the datasheet pages.

3. This is the name of the gearbox, signified by GB. The number that follows the GB holds no significance to the size of the gearbox, but has been used based upon the order the gearbox was designed historically. Currently, the gearboxes available in the modular range are the GB28, GB12, GB9, and GB65 in size order, from smallest to largest.

4. Again, the numbers and letters shown after the gearbox name denote specific specifications of the gearbox; in this case the gear ratio and gear material. There are 3 ratios available for each gearbox in the modular range, with the gear material being either bronze or composite. There are datasheets for either composite or bronze gear versions of the gearbox within the modular range shown in this catalogue, with the variances in gear ratios shown in the technical data tables on each datasheet page.

Equivalent motors

There are a few instances where there are equivalent motors between the modular and standard range. This means that two motors share the same construction and output characteristics but exist under different names. The main difference between the different naming systems is the difference in the product range they sit within.

A modular range motor is kept in stock so they can be delivered at a turn around than a standard motor. However, these are only available in a select number of voltages and can only be combined with a set selection of modular gearboxes. The standard version of these motors will be available in a larger number of voltages and may also allow for a greater number of gearbox combinations.

The following is a list of modular motors and their equivalent standard motor versions:

- BRx90-50 > PM90-150
- BRx90-75 > PM90-180
- BRx70-40 > PM70-125
- BRx70-60 > PM70-146

Standard motor range

Our range of standard motors include PMDC, BLDC and AC motors, and use the following naming conventions throughout the range;

PM - This denotes 'permanent magnet' a common term used for PMDC motors. PM will be followed by a number, which is selected based upon the order in which the motor in question was designed chronologically. The standard PMDC motors shown in this catalogue are displayed in size order, from smallest to largest.

EPM - This is another term used for a selection of our PMDC motors. Parvalux acquired it's main competitor, EMD drive systems, in 2008 - we then integrated a selection of products from their range into our own, with the resulting products adopting the EPM notation.

PBL - This abbreviation stands for 'parvalux brushless', used for our brushless range of motors. Although this is also used for our modular range of brushless motors, some combinations of these motors with our standard range of gearboxes fall outside of the modular range system, and would therefore be considered standard in this case. The numbers that follow PBL signify the sqaure dimensions of the gearbox.

SD - This stands for 'standard design' and denotes our AC range and AC/DC range of motors. As our first range of motor products, the 'standard design' name was used when these products were first designed and manufactured over 75 years ago. Again, the numbers that follow SD are used based upon the order in which this motors were designed chronologically. The standard range of AC motors shown in this catalogue are displayed in size order, from smallest to largest.

Standard gearbox range

Our range of standard gearboxes include both inline and right-angle options, and use the following naming conventions throughout the range;

GB - This abbreviation stands for gearbox, and is followed by a number based on the order in which the gearbox was design historically. Within this catalogue, only right-angle variants of the GB range are shown, however, we also have a few inline gearboxes currently in development that may fall into the GB range.

S Box / M Box / L Box - These are our standard range right-angle gearboxes, with the S, M and L representing the small, medium and large variations respectively.

SWS / MWS / LWS - Small worm spur / medium worm spur / large worms spur (all right-angle gearboxes)

LIW / LIS - large inline worm / large inlnie spur

CE directive

CE marking

With the declaration of conformity and the CE mark on the product the manufacturer certifies that the product complies with the requirements of all relevant EC New Approach Directives. For each of the relevant New Approach Directives the manufacturer is to adopt an appropriate harmonised standard.

Machinery Directive 98/37/EC

The Machinery Directive describes a machine as; *'an assembly of linked parts or components, at least one of which moves, with the appropriate actuators, control and power circuits, etc., joined together for a specific application...'* Parvalux products as supplied do not have a specific application as they do not perform a complete mechanical function and must be installed by a competent person. As a result, compliance with the Machinery Directive is not required provided that a safety standard relevant to the type of equipment is adopted, for example the generic electrical safety standard EN60204-1.

Electromagnetic Compatibility Directive 89/336/EEC - 2004/108/EC

The Electromagnetic Compatibility (EMC) Directive exists to govern the radio frequency electromagnetic emissions from equipment such that in its intended use it does not disturb other equipment. The Directive also governs the immunity of electrical equipment containing electrical components to electromagnetic interference that may be produced by other electrical equipment. Parvalux products comply with the EMC Directive when installed in accordance with the manufacturer's instructions.

Low Voltage Directive 73/23/EEC - 2006/95/EC

The Low Voltage Directive exists to ensure that electrical equipment is safe in respect of all risks, electrical and otherwise. Parvalux chooses to adopt EN60204-1 for motors withing the scope of the Low Voltage Directive, and to comply with the safety aspects of this standard for motors with operating voltages below the scope of the Low Voltage Directive. Equipment with voltage ratings in the range 50 - 1000 Vac and 75 - 1500 Vdc is covered.

Standards for safe operation	
EN60034-1:2022	Rotating electrical machines. Rating and performance
EN60034-5:2020	Rotating electrical machines. Degrees of protection provided by the integral design of rotating electrical machines (IP code).
EN60034-6:1994	Rotating electrical machines. Methods of cooling (IC code)
EN60034-8:2007 +A1:2014	Rotating electrical machines. Terminal markings and direction of rotation.
EN60034-9:2024	Rotating electrical machines. Noise limits.
EN60034-11:2024	Rotating electrical machines. Thermal protection
EN60034-12:2024	Rotating electrical machines. Starting performance of single-speed three-phase cage induction motors.
EN60034-18-1:2023	Rotating electrical machines. Functional evaluation of insulation systems. General guidelines
EN60204-1:2018	Electrical equipment of machines. General requirements

Standards for compliance with EMC limit values	
EN55014-1:2021	Electromagnetic compatibility (EMC). Requirements for household appliances, electrical tools and similar apparatus. Emission.
EN61000-6-1:2019	Electromagnetic compatibility (EMC). Generic standards. Immunity for residential, commercial and light-industrial environments.
EN61000-6-2:2019	Electromagnetic compatibility (EMC). Generic standards. Immunity for industrial environments
EN61000-6-3:2021	Electromagnetic compatibility (EMC). Generic standards. Emission standard. Immunity for residential, commercial, and light-industrial environments.
EN61000-6-4:2019	Electromagnetic compatibility (EMC). Generic standards. Emission standard. Immunity for industrial environments.

IP ratings

Ingress protection

The degree of protection from ingress of foreign bodies and liquids, and the prevention of a person from touching live or moving parts, are indicated by the two digits in the IP code detailed below. For rotating electrical machines the classification is recognised internationally and is described in detail in EN60034-5:2001.

First IP number

Protection against foreign solid objects

IP	Protection of the machine from harmful ingress of solid foreign objects	Prevention of a person from touching live or moving parts
0	No protection	No prevention
1	Protected from solid objects greater than 50 mm diameter	No access for a part of the human body such as a hand
2	Protected from solid objects greater than 12 mm diameter	No access for a part of the human body such as a finger
3	Protected from solid objects greater than 2.5 mm diameter	No access for a hand-held object such as a small tool 2.5 mm diameter
4	Protected from solid objects greater than 1 mm diameter	No access for a hand-held object such as a wire 1mm diameter
5	Protected from dust (limited ingress with no harmful effects permitted)	No access to live or moving parts
6	Totally protected from ingress of dust	No access to live or moving parts

If an external fan is protected by a guard from sold objects greater than 12 mm diameter and the remainder of the motor meets a higher IP rating then the higher IP rating may be claimed. A smooth rotating shaft is not considered dangerous. It is the responsibility of the customer or machine builder to ensure that any exposed shafts or couplings which are intended to allow the machine to be integrated into an assembly or finished product are appropriately protected.

Second IP number

Protection of the machine from harmful ingress of water (limited ingress with no harmful effects is permitted)

IP	Requirements
0	No protection
1	Protected from vertically dripping water with machine mounted in normal position
2	Protected from dripping water from an angle up to 15 degrees from the vertical
3	Protected from spraying water falling from an angle up to 60 degrees from the vertical
4	Protected from splashing water from any direction
5	Protected from jets of water from any direction
6	Protected from powerful jets of water from any direction
7	Protected from powerful jets of water from any direction and from immersion under specific conditons of pressure and time
8	Protected from powerful jets of water from any direction and from continuous immersion under specific conditions of pressure

EMC guidelines

EMC

In order to meet the directive 2004/108/EC, an EMC filter is required in the power supply line of all motor types. The filter is selected according to voltage, speed, and current and with a large range of potential winding types we strongly recommend that you contact one of our technical advisors to ensure correct selection.

The table below provides a summary of recommended filters:

Recommended filters						
Motor		PM1 - PM60	PM90	PM90	PM90	PM90
Voltage	**V**	12 - 300	12	12	24	24
Speed	**rpm**	1500 - 5000	3000 - 4000	1500 - 2000	3000 - 4000	1500 - 2000
Filter	**A**	10 / 25 / 50	50	25	25	10
Standard		EN55014	EN61000-6-4 Class A[1]	EN61000-6-4 Class A[1]	EN61000-6-4 Class A[1]	EN61000-6-4 Class A[1]

[1] If EN61000-6-3 Class B is required (PM90 only), an additional ferrite sleeve and 2 capacitors are required

Accessories							
Accessory		10A filter	25A filter	50A filter	65A filter[2]	Capacitor[3]	Ferrite sleeve
Image							
Part number		50296	50297	50291	On application	50293	50292
Dimensions	**mm**	Ø40.0 x 75.0 long	Ø46.0 x 98.0 long	Ø64.0 x 75.0 long	On application	5.5 x 12.5 x 18.0[4]	Ø26.0 x 28.5 long[5]

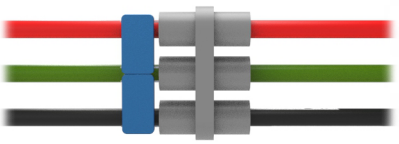
[2] Please check for availability // [3] Two capacitors required // [4] Lead pitch 15mm // [5] Placed 10cm from motor

EMC installation requirements

1. The maximum permitted lead length between the motor and filter is 600 mm.
   SUPPLY: brown, blue + earth
   MOTOR: Red, black + earth
2. The filter needs to be fitted as close to the motor as possible
3. The earth leads must be connected to the motor and firmly to an earth reference point (or negative terminal if a batter is used)

EMC installation requirements EN61000-6-3 Class B (PM90 only)

1. Carry out filter installation as described above
2. Ferrite to be placed 10cm from motor body
3. Two capacitors must be fitted, one between each motor supply lead and earth



Thermal ratings

Gearbox thermal ratings

The maximum continuous output power (S1 duty cycle) of a geared-motor combination is limited by the maximum thermal rating of the gearbox. Information and examples are listed below to aid in the calculation of your own geared-motor combination.

Table 1 - Maximum thermal rating (Watts)

Table 1											
Gearbox		S Box	SS	M Box	MM	MB	MF	MBM	L	LH	LB
Thermal rating - composite gears	W	20	25	38	45	40	40	47	60	60	60
Thermal rating - bronze gears	W	25	30	45	54	48	48	58	72	72	72
Gearbox		LF	LHB	GB28	GB58	GB80	GB12	GB9	SIW	MIW	LIW
Thermal rating - composite gears	W	60	60	20	20	38	60	100	28	50	80
Thermal rating - bronze gears	W	72	72	25	25	45	72	120	38	65	100

Continuous duty cycle (S1)

The thermal rating of the gearbox can be calculated using the following formula:

$$\text{Approx. thermal rating (W)} = \frac{\text{Final RPM x Torque Nm}}{9.55} \times \left(\frac{1}{n} - 1 \right)$$

n = efficiency of the gearbox (found on the individual gearbox datasheets)

Intermittent duty cycle

For intermittent duty the thermal rating of the gearbox is increased by multiplying the appropriate gearbox thermal by the factor x.

$$x = \sqrt{\left(\frac{100\%}{\text{Duty cycle \%}} \right)}$$

Example

PM7 4000rpm - S Box 70:1 ratio (composite gear). 57 rpm output speed, 1.2 Nm torque required.

$$\text{Approx. thermal rating (W)} = \frac{57 \times 1.2}{9.55} \times \left(\frac{1}{0.33} - 1 \right)$$

The equation above results in 7.16 x 2.03 = 14.5 W. As the thermal rating of the S Box is 20 W, this means that a maximum continuous torque of 1.2 Nm is acceptable with this motor and gearbox combination.

General information

Motor construction

Parvalux motor frames are constructed using either accurately positioned pressure die-castings or securely attached to the hydraulically riveted stator packs via machined spigots. This ensures a concentric air gap and precise bearing alignment.

The armature laminations or die-cast rotor are firmly pressed onto a high-precision steel shaft. Following the winding process, the armature undergoes impregnation and baking, as well as static and dynamic balancing. The stators and armatures are wound with top-quality synthetic covered copper wire that complies with B.S. Specification 2757 (IEC 85) Class “F.” They are subsequently impregnated and baked in our automatic plant, effectively providing tropical impregnation for all practical purposes.

Motor enclosures

Our motors are built to meet the specifications outlined in IEC 34-5, EN 60034: part 5, IEC 34-6, and B.S. EN 60034-6.

Induction Motors:

- Our standard ventilated internal fan cooled frame adheres to IP20

Commutator Motors:

- SD1 motors with a ventilated internal fan cooled frame also conform to IP20.
- SD11, SD12, PM1, PM2, PM6, and PM60 motors have a drip proof enclosure with internal fan cooling, conforming to IP21.
- Plain totally enclosed frames meet IP54 protection rating.
- TEFC (Totally Enclosed Fan Cooled) frames with a terminal box also conform to IP54.
- PM3, PM4, PM5, PM50, PM7, PM8, PM9, PM10, and PM11 motors are also designed to meet the IP54 protection rating.

Testing

All our products undergo rigorous testing in accordance with B.S. Specification 5000 Part II (IEC 72). Additionally, all our units are CE marked and fully comply with the latest regulations and directives in effect at the time of printing.

Brush gear (Commutator motors)

Our commutator motors are equipped with an adjustable rocker type brush gear, which is designed to optimize brush life and ensure efficient commutation. The brushes are easily accessible for maintenance purposes. To achieve maximum brush life, it is recommended to have a supply voltage with a form factor as close to 1 as possible.

Bearings

Parvalux products are equipped with shielded ball bearings that are spring loaded to ensure smooth and quiet operation. These bearings are designed to withstand temperature ranges from -30°C to +100°C/120°C. Extreme low temperature bearings for environments below -30°C are available on request.

Torque ratings

The provided torque figures for our gearboxes have been reproduced to accurately represent the output torques available in best-case scenarios. However, it is important to note that these figures may be influenced by tolerances introduced during production processes and the specific application conditions after the units are installed. Therefore, it is advisable to consider a margin of + or - 10% when selecting the appropriate unit for your application.

Temperature

All our motors are constructed with Class “F” insulation according to B.S. 2757 (IEC 85) standards, allowing for a temperature rise of 115°C based on an ambient temperature of 40°C. These temperature ratings are applicable when the motor is operating under normal working conditions in an open-air environment without any enclosure. It is important to note that under full load, the motor casing will generate significant heat and should not be touched for extended periods of time.

Braking

Where instantaneous stopping of a motor or geared unit is needed, where offer a wide selection of electromagnetic brakes, found in the accessories section of this brochure

Geared units

The motor incorporates shielded, spring-loaded ball bearings that effectively absorb worm thrust generated by the gearbox. The output shaft, equipped with flats or keyways, is supported by ball bearings pressed into gear wheels made of composite or phosphor bronze material, featuring hardened and polished steel worms.

Both the gearbox and ball bearings are filled with an appropriate grade of grease to ensure optimal lubrication. In the case of worm and multi-spur gear units, case-hardened steel spur gears are utilised, and they are lubricated through an oil bath system. All units are designed to operate in any position, providing versatile installation options.

Single and double reduction gearboxes

Although worm gearing typically exhibits lower efficiency compared to spur gearing, it offers the advantage of significantly reduced noise levels. Therefore, in applications where noise reduction is crucial, worm gear reduction should be given serious consideration.

To ensure reliable operation and prevent premature gear failure or excessive wear, it is important to consider the maximum gear loading and thermal rating specified for the specific gearbox. Failure to do so could result in tooth stripping or inadequate lubrication due to excessive gearbox temperature.

For more detailed information on this matter, we recommend consulting our experienced sales engineers. They will provide further insights and guidance tailored to your specific requirements.

Gearbox positions

We offer flexibility of our gearbox output shaft positions to accommodate the specific requirements of our customers. Detailed diagrams illustrating the available positions can be found on the gearbox datasheets. However, if no specific position is specified, the gearboxes will be supplied in the standard position as depicted in the individual drawings.

Lubrication

Single and double reduction worm gearboxes are pre-filled with a suitable semi-fluid grease, ensuring long-lasting performance without the need for additional lubrication. These gearboxes are sealed to prevent leakage and maintain optimum lubrication throughout their service life. In certain conditions, semi-fluid grease may be utilised for specific applications.

Worm and multi-spur gearboxes, as well as in-line spur gearboxes, are filled with high-performance synthetic oil, providing effective lubrication for smooth operation. Similar to the worm gearboxes, these units are also sealed to prevent oil leakage and maintain consistent lubrication. However, in certain situations, semi-fluid grease may be employed.

→ The working temperature ranges for our standard lubricants are as follows:

Grease	-20°C to 120°C
Oil	-36°C to 140°C

For units intended for use in extreme temperature conditions, such as temperatures below zero degrees centigrade, we recommend contacting your local sales department for further guidance and specialised solutions, such as special low temperature lubricants.

Wiring diagrams

Wiring diagrams are available for all motors within our range. Please request any desired wiring diagrams from your local sales engineer.

Motor leads / cables

As standard, all motor cables are 300mm flying leads. However, we offer a range of options for length, cores, colours and connectors.

If you have any questions about a Parvalux product please contact your local sales engineer.

Glossary of terms Motors

DC motors
Although tolerances and temperature influences have not been taken into account, the data and diagrams shown throughout this catalogue for Parvalux motor characteristics are sufficiently accurate to make approximate calculations for a large number of applications. However, it must be noted that the degree of protection quoted relates only to the motor housing and adequate sealing of the drive-end interface is the responsibility of the customer.

Nominal voltage (V)
Nominal voltage (V) refers to the voltage supplied to the motor as the system's power source. All the rated data in our catalogues are specified with respect to this voltage.

Rated current (A)
Rated current (A) represents the current consumed from a power source when the motor operates at its rated torque.

Rated torque (Nm)
Rated torque (Nm) refers to the maximum torque that the motor can generate while operating continuously in an ambient temperature of 40°C.

Rated speed (rpm)
Rated speed (rpm) refers to the rotational speed of the motor when it is operating at its rated torque.

No-load speed (rpm)
No-load speed (rpm) refers to the rotational speed achieved by the motor when it is powered by the corresponding nominal voltage without any mechanical load applied.

Rated power (W)
Nominal power (W) represents the mechanical output power that the motor is capable of producing in continuous operation. It is calculated based on the motor's rated speed and rated torque.

Torque constant (Nm/A)
Torque constant (Nm/A) signifies the relationship between the input current and the output torque of the motor. It quantifies how changes in current affect the generated torque.

Terminal resistance (Ω)
Terminal resistance (Ω) refers to the typical ohmic resistance phase to phase (for BLDC / brushless motors) or between the positive (+) and negative (-) terminals (for PMDC / brushed motors). It represents the resistance encountered in the motor's electrical connections.

Terminal inductance (mH)
Terminal inductance (mH) represents the typical inductance between phases for BLDC / brushless motors or between the positive (+) and negative (-) terminals for PMDC / brushed motors. It characterizes the inherent inductance in the motor's electrical connections

Stall current (A)
The stall current of a motor is how much current the motor will draw when power is applied but it is not spinning, producing maximum torque and minimum (zero) speed.

Stall torque (Nm)
Stall torque is the torque available from a motor when the output rotational speed is zero. Motors in a stalled condition may be prone to overheating and possible damage if the current flowing under these conditions becomes higher than the maximum continuous rating.

Rotor inertia (Kgm^2)
Rotor inertia (Kgm^2) plays a crucial role in defining the dynamic characteristics of a motor. It serves as a key factor in determining the motor's responsiveness and overall dynamic performance.

Weight (kg)
Weight (kg) refers to the weight of the motor itself, excluding any gearbox, accessories, or connecting cables.

Glossary of terms Gearboxes

Gearbox

When determining the motor-gearbox combination, it is crucial to ensure that the specified values are not exceeded. Exceeding these values may result in a reduced service life. If necessary, the motor torque must be limited through current regulation, and/or the unit must be mechanically safeguarded against overloading. Additionally, the service life of gearbox units can significantly vary depending on factors such as temperatures, acceleration torques and durations, vibrations, and external impact forces. If the application requires the use of different materials or lubricants, it can further influence the service life.

Gear ratio

Gear ratio represents the relationship between the input speed (motor speed) and the output speed of the gearbox. It is determined by dividing the gearbox input speed by the gearbox output speed.

Duty cycle

Duty cycles are denoted throughout the data tables in this catalogue using terms such as 'S1' and 'S2 - 15 minutes', for example. A full breakdown of duty cycle definitions are shown in our guide, found on our website **www.parvalux.com/resources/catalogues.**

Efficiency

Gearbox efficiency is the ratio of the output torque divided by the product of the input torque, multiplied by the overall gear ratio. The overall gear ratio is the total gear reduction in the gearbox — the number of motor revolutions required for one revolution of the stem nut.

Max. continuous torque (Nm)

Max. continuous torque (Nm) is the maximum torque that can be applied permanently to the output shaft of the gearbox.

Max. intermittent torque (Nm)

Max. intermittent torque (Nm) is the maximum torque that can be applied within a short time span (signified by the duty cycle) to the output shaft of the gearbox.

Backlash

Backlash represents the angle of rotation observed in the gearbox output shaft when the input shaft is blocked, and the output shaft is manually turned from one extreme stop position to the other. It's important to note that the maximum backlash value is applicable to a new gearbox in optimal condition..

Axial load

Axial load is a force on the output shaft into or out of the gearbox. Exceeding the allowable axial load for a motor or gearmotor will cause premature wear of output shaft bearings and gearing.

Radial load

Radial load is a force pushing or pulling the side of the output shaft. Exceeding the allowable radial load may cause the gearbox shaft to break. The radial load may be the result of a weight on the shaft, belt tension or torque transmitted through a belt, chain, gear, or certain flexible couplings. The permissible radial load is shown on the product datasheet for each gearbox within our range.

In calculating these values, the following assumptions were made:

- The radial load is in the worst case direction, i.e. pushing or pulling the shaft sideways
- The motor or gearmotor is delivering rated torque.
- The radial load was applied at specific distance from the hub or mounting surface

Higher radial loads may be applied closer in on the shaft. Lower radial loads are permitted further out on the shaft. Flexible couplings are often used to avoid radial load. Most flexible couplings are designed so that they do not transmit radial load, however this should be verified by the coupling manufacturer.

Lifetime

All Parvalux gearboxes are sealed for life and fitted with ball bearings, this can vary depending on operating conditions, temperature, and duty cycle. We recommend replacing a noisy bearing, as re-greasing is not possible. Prolonged storage can shorten the estimated life (in excess of 20,000 hours).

parvalux
by maxon

All products are built in accordance to performance tolerances from EN60034-1:2010. As continuous improvement, Parvalux periodically test their product range to ensure test results are as accurate as possible and are therefore subject to change. Please ensure you are using the latest datasheets found on our website

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