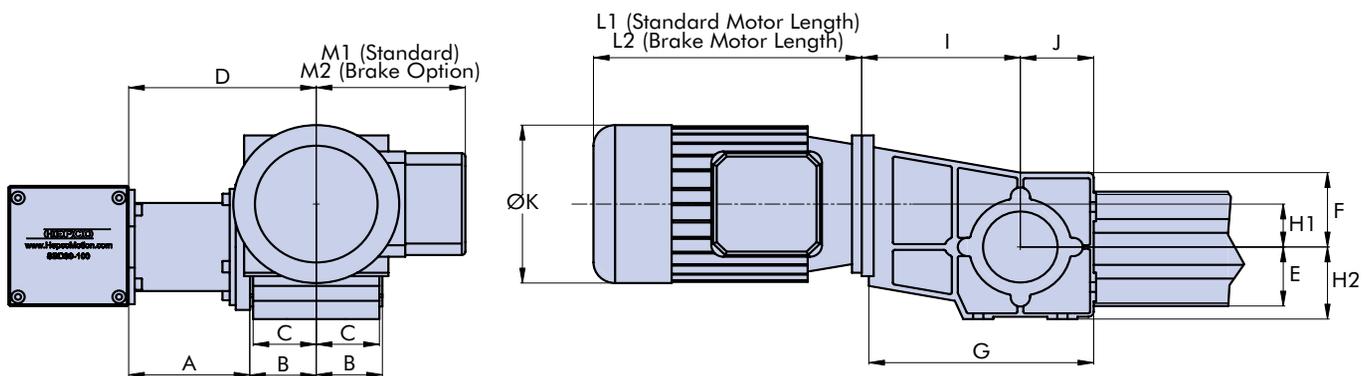


SBD Motor Connections

AC Geared Motor Option

The optional AC geared motor will be the preferred choice for many applications as it provides an excellent combination of power, accuracy, flexibility and value. HepcoMotion have selected a range of AC bevel geared motors and worm geared motors that will cover the vast majority of applications. Geared motors are protected to IP55 and are finished in silver grey paint as standard. Motors are 3 phased offered in 2 and 4 pole and comply with IEC34-VDE530, DIN5730 and 42677. Motors in 4 IEC frame sizes from 63 to 90 are offered, each with the choice of short (S), long (L) or extra long (XL) field windings. Motor powers from 60W to 2.2kW are available and gearbox ratios from 3.6:1 to 62:1. A precision jaw coupling transmits drive from the geared motor to the SBD unit and attachment of the geared motor is quick and simple using a compact tubular flange.

SBD with bevel geared motor option



Gearbox Dimensions & Data

Gearbox	Use with	A	B	C	D	E	F	G	H1	H2	I	J	Weight kg <small>see note 1</small>	Rated Torque	Available Ratios
B03	SBD20-80 SBD30-100	90 101	48	45	138 149	42.4 51.6	48	142	29	50	92	50	5.8	45Nm	5.4 - 62:1
B04	SBD20-80 SBD30-100	90 101	58	52.5	148 159	42.4 51.6	63	189	36	63	126	63	8.1 - 12.3	90Nm	5.2 - 60.6:1
B05	SBD30-100	123	67.5	57.5	190.5	42.4 51.6	82	251	40	80	171	80	14 - 22	240Nm	3.6 - 59.6:1

The rated torque is a typical value, the exact figure depends on the chosen ratio. The backlash is between 3 and 35 minutes of arc depending on ratio. The efficiency of the gearbox is dependant on both input speed and the ratio, with efficiency being greater for higher speeds and smaller ratios. Typical efficiencies are in the range 50-90%, please contact HepcoMotion for full details on your selection for torque, backlash and efficiency.

Motor Dimensions & Data

Frame Size	Use with	ØK	L1	L2	M1	M2	Weight kg <small>see note 2</small>			Power				
							'S' Type	'L' Type	'XL' Type	2 Pole 'S'	2 Pole 'L'	4 Pole 'S'	4 Pole 'L'	4 Pole 'XL'
63	B03, 04 & 05	123	188	228	100	107	3.6 - 6.1	4.1 - 7.2	4.2 - 7.3	180W	250W	60, 90 & 120W	180W	250W
71	B03, 04 & 05	138	207	259	109	116	5.8 - 9.2	6.2 - 8.6	6.5 - 8.9	370W	550W	-	370W	550W
80	B04 & 05	156	225	298	141	130	9.2 - 13	9.6 - 13.4	11 - 14.8	750W	1100W	-	750W	1100W
90	B05	176	276	346	146	135	14 - 19.7	17 - 22.7	-	1500W	2200W	-	1500W	-

Notes

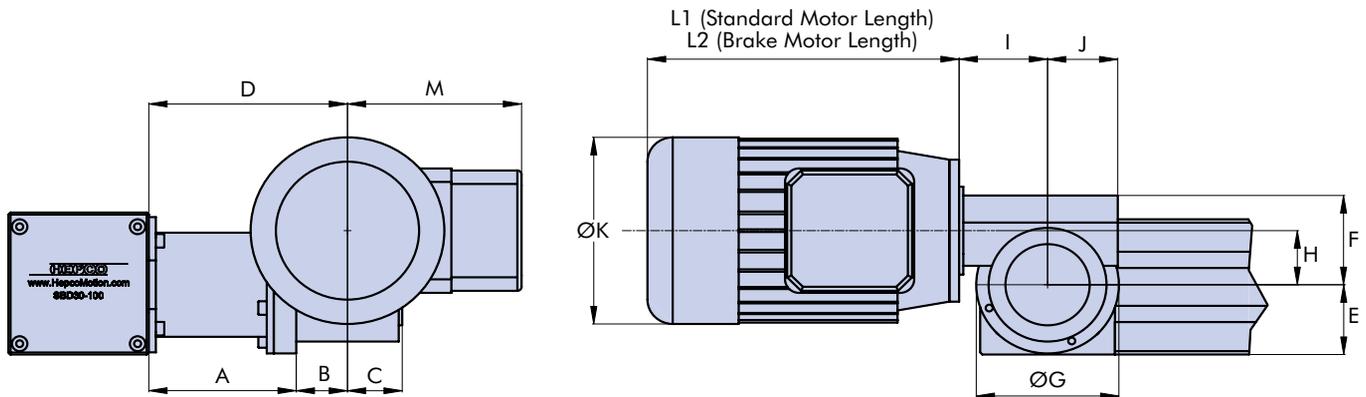
1. Weight of gearbox will vary depending on motor mounting flange size.
2. Weight of motor will vary depending on motor configuration.

SBD Motor Connections

AC Geared Motor Option

The SW worm geared motors are available in 3 sizes of gearbox and 4 IEC motor frame sizes from 56 to 80 each with the choice of short (S), long (L) or extra long (XL) field windings. Motor powers from 90W to 1.1kW and gearboxes in ratios from 5:1 to 60:1. Motors are protected to IP55 and finished in silver grey paint as standard. The gearbox construction comprises of a hardened and ground worm shaft running with a cast bronze wheel in a sealed for life oil bath. This makes the gearbox strong, accurate, quiet and long lasting. The smooth aluminium gearbox casing is light and minimises dirt traps.

SBD with SW worm geared motor option



Gearbox Dimensions & Data

Gearbox	Use with	A	B	C	D	E	F	ØG	H	I	J	Weight	Rated Torque	Available Ratios
SW3	SBD20-80 SBD30-100	94 105	29	31.5	123 134	42.4 51.6	57	102	30	55	40	1.1kg	18Nm	5,7.5,10,20,30:1
SW4	SBD20-80 SBD30-100	94 105	36.5	39	130.5 141.5	42.4 51.6	70	102	40	70	50	2.1kg	40Nm	5,7.5,10,20,30, 40,50:1
SW5	SBD2080 SBD30-100	104 115	43.5	46	147.5 158.5	42.4 51.6	84	114	50	80	60	3.0kg	70Nm	5,7.5,10,20,30, 40,50,60:1

The rated torque is a typical value, the exact figure depends on the chosen ratio. The backlash is between 12 and 20 minutes of arc depending on ratio. The efficiency of the gearbox is dependant on both input speed and the ratio, with efficiency being greater for higher speeds and smaller ratios. Typical efficiencies are in the range 75-90%, please contact HepcoMotion for full details on your selection for torque, backlash and efficiency.

Motor Dimensions & Data

Frame Size	Use with	ØK	L1	L2	M	Weight kg <small>see note 3</small>			Power				
						'S' Type	'L' Type	'XL' Type	2 Pole 'S'	2 Pole 'L'	4 Pole 'S'	4 Pole 'L'	4 Pole 'XL'
56	SW3	110	167	193	110	-	-	3.2 - 5.0	-	-	-	-	90W
63	SW3	123	193	215	115	4.0 - 4.8	4.2 - 5.3	4.2 - 5.4	180W	250W	120W	180W	250W
71	SW4 SW5	138	215	246	124	6.2 - 7.3	6.5 - 7.3	-	370W	550W	250W	370W	-
80	SW5	156	235	277	145	9.9 - 10.4	11.3 - 12.7	-	750W	1100W	550W	750W	-

Notes

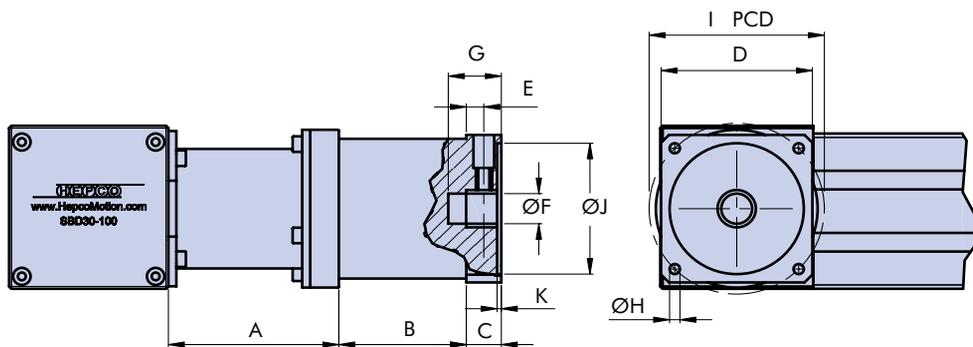
- For worm gearboxes with ratios of 30:1 and higher, a load will not back-drive a stationary gearbox (although the load may sustain movement in a gearbox which is already running). Ratios of 40:1 or greater will not back-drive dynamically.
- Geared motors which will not back-drive can provide a useful element of safety (for instance in vertical applications), but in many duties the brake motor option should be selected. The brake option conveniently fits on the end of the standard motor under an extended fan cowl, refer to dimension L2.
- Weight of motor will vary depending on motor configuration.

SBD Motor Connections

Precision Planetary Gearbox Option

The inline LP gearbox is a high performance and cost effective planetary gearbox suited to a broad range of applications. The high accuracy, torque capacity and low inertia makes the LP gearbox ideally suited to servo motor and other demanding applications. LP gearboxes are available in 4 sizes and in ratios from 3:1 to 100:1. The gearbox is protected to IP64 and finished in blue (RAL 5002) paint as standard. The high precision planetary gearbox construction restricts torsional backlash to less than 12 minutes of arc on the single stage option and less than 15 minutes of arc on the two stage option. Full load efficiency typically 97% depending on gearbox option. A clamping hub allows connection of the motor shaft to the input shaft of the gearbox. A precision jaw coupling transmits drive from the LP gearbox to the SBD unit and attachment of the gearbox is quick and simple using a compact tubular flange.

SBD with LP planetary gearbox option



Gearbox Dimensions & Data

Gearbox	Use with	A	B		C	D min	E	ØF max F7	G see note 1		ØH	I	ØJ	K	Weight	
			1-stage	2-stage					min	max					1-stage	2-stage
LP050	SBD20-80	86	49	64.5	14	50	6	11	13	20	see note 2			0.75kg	0.95kg	
LP070	SBD20-80 SBD30-100	94 105	68	88	15	70	5.6	16	15	23	see note 2			2.0kg	2.4kg	
LP090	SBD20-80 SBD30-100	96 107	80	106.5	22	90	8.5	24	21	30	see note 2			4.0kg	5.0kg	
LP120	SBD30-100	129	102	134.5	28	120	10	32	28	40	see note 2			8.6kg	11.0kg	

Gearbox	Available Ratios		Nominal Output Torque		Max Input Speed (rpm)	Mass Moment of Inertia kgcm ²	Backlash arcmin		Efficiency at Full Load %	
	1-stage	2-stage	1-stage	2-stage			1-stage	2-stage	1-stage	2-stage
LP050	5,10:1	25,50,100:1	5.2Nm	5.7Nm	8000	0.055	<12'	<15'	>97	>95
LP070	3,5,7,10:1	15,25,30,50,100:1	16.5Nm	18Nm	6000	0.28	<12'	<15'	>97	>95
LP090	3,5,7,10:1	15,25,30,50,100:1	40Nm	45Nm	6000	1.77	<12'	<15'	>97	>95
LP120	3,5,7,10:1	15,25,30,50,100:1	100Nm	110Nm	4800	5.42	<12'	<15'	>97	>95

Notes

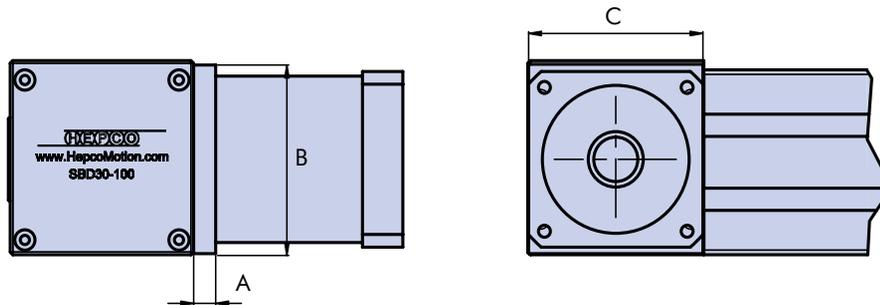
1. Dimension G, min/max permissible motor shaft length, longer motor shafts are possible on request, please contact Hepco.
2. Motor mounting interface will vary depending on motor size, customer to provide Hepco with details of motor.
3. Size of motor adaptor plate, see dimension D, and motor shaft bushing, see dimension F, will vary depending on motor size.
4. Gearboxes can be mounted right-hand (as shown) or left-hand see 5.

SBD Motor Connections

Hollow Shaft Drive Option

The hollow shaft drive option allows the motor and/or gearbox to be attached to the side face of the SBD drive box using an appropriate adaptor plate. This arrangement can offer a more compact means of retro-fitting a motor and/or gearbox onto an SBD unit. This direct drive is particularly suited to applications where high torsional rigidity is important. The motor and/or gearbox output shaft is located into a hollow drive shaft in the SBD drive box and attaches to the side face of SBD drive box using a motor/gearbox adaptor plate. Depending on the motor/gearbox size a two piece adaptor plate may be required. Special adaptor plates can be supplied for customers who wish to mount their own motor or gearbox, please contact Hepco with your requirements.

SBD with hollow shaft and LP planetary gearbox option



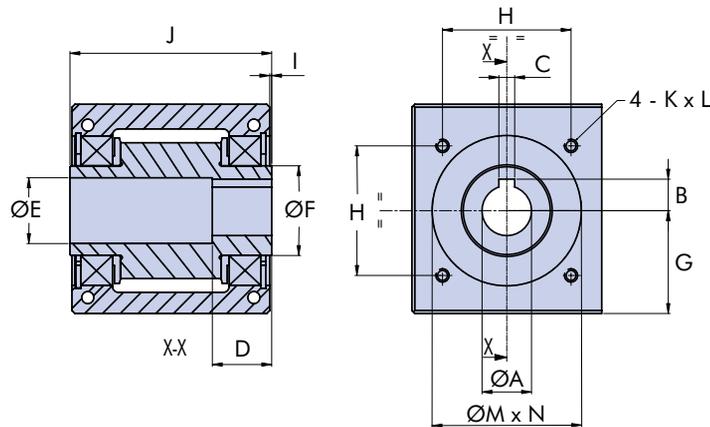
Adaptor Plate Dimensions

Gearbox	Use with	A	B	C
LP050	SBD20-80	8	84	71
LP070	SBD20-80	18	84	75
	SBD30-100	12	102	95
LP090	SBD30-100	22	102	95
LP120	SBD30-100	32	130	130

Notes

1. For gearbox dimensions see Gearbox Dimensions & Data table shown on 3.
2. Gearboxes can be mounted right-hand (as shown) or left-hand, see 5.
3. Depending on gearbox type the adaptor plate may comprise of two pieces.
4. Hepco can provide special adaptor plates to suit customers own motor and/or gearbox, please contact Hepco with your requirements.

Basic version with hollow shaft option only



SBD Hollow Shaft Dimensions

SBD Unit	ØA (H7) see note 1	B +0.2/0 see note 2	C (D10) see note 2	D	ØE	ØF	G	H	I	J	KxL	ØM (H7) x N depth
SBD20-80	14,16,19	9.3,10.3,12.3	5, 6	25	19.5, 21.5,25.5	30	42.4	50	1	82	M6x15	60 x 1.7
SBD30-100	25,30	15.8,18.3	8	30	33,37.5	45	51.6	65	1	102	M6x15	75 x 1.7

Notes

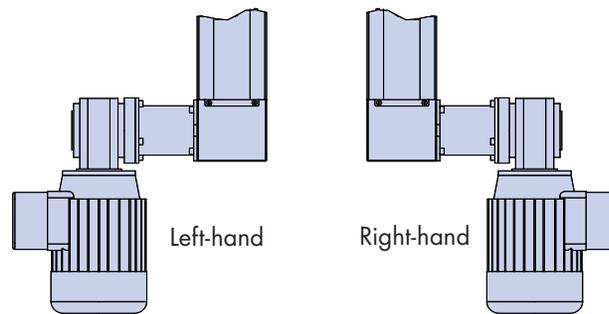
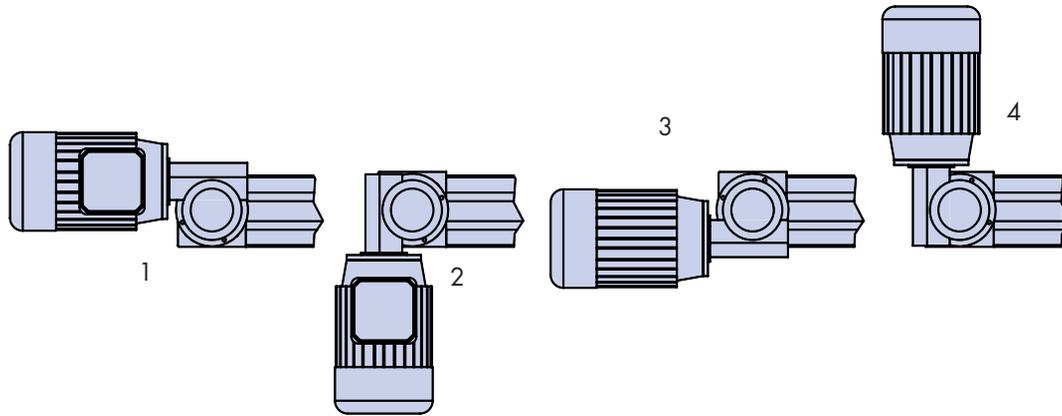
1. Hepco can supply hollow shaft to suit customers own motor and/or gearbox, please contact Hepco with details of motor/gearbox output shaft size.
2. Keyway sized in accordance with BS4235 (ISO 3912) to suit bore size ØA.
3. Hollow shaft can be supplied right-hand (as shown) or left-hand.

SBD Motor Connections

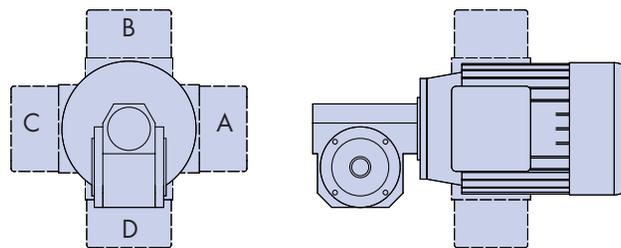
Geared Motor Mounting Options

The geared motor may be fixed onto the SBD in any of 4 positions in right or left hand. The terminal box on the motor may be located in one of 4 positions. These alternatives allow selection of the ideal configuration for the application. Please use the guide below when specifying the mounting configuration.

Geared motor mounting options



Terminal box mounting options

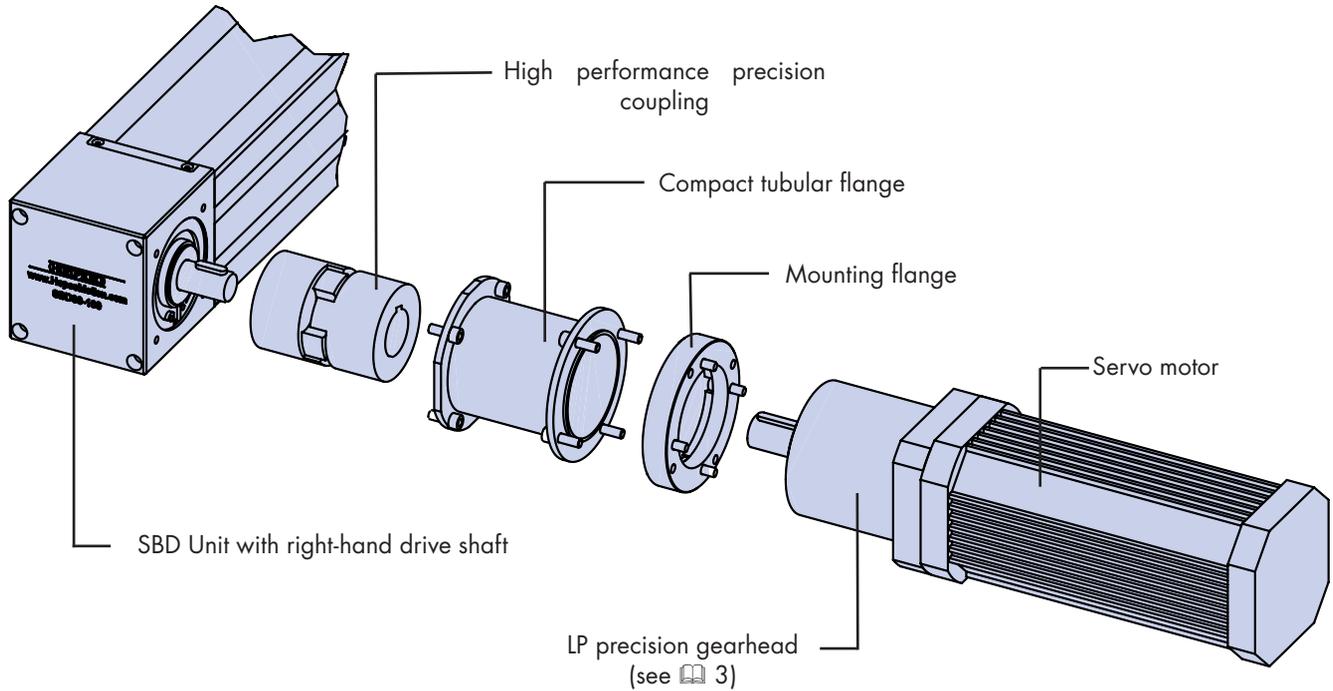


There are 4 terminal box mounting options A - D

SBD Motor Connections

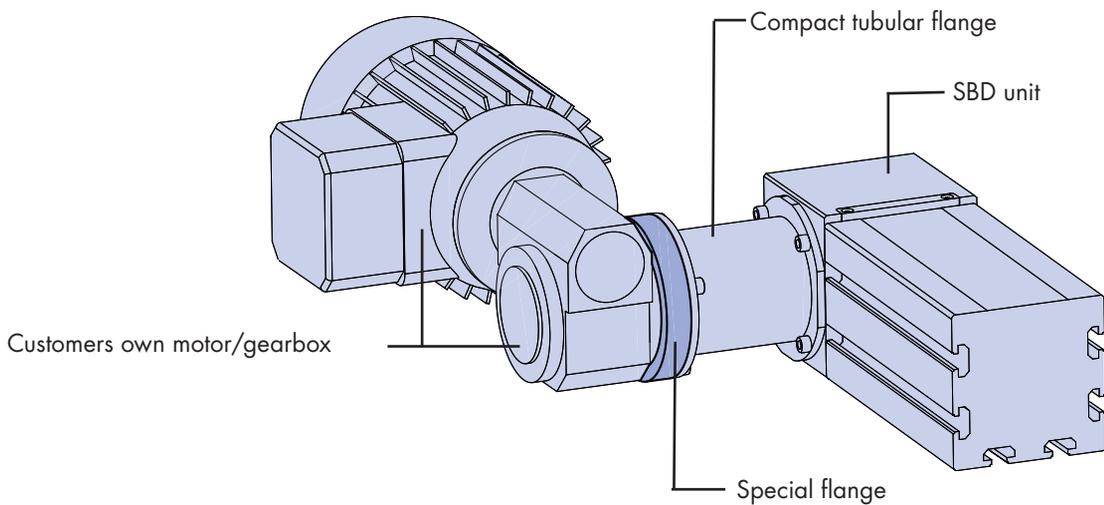
Additional Motor Options

Where more sophisticated motion control is required Hepco can supply stepper and servo systems including braked motors, encoders and inverter drives, please contact Hepco to discuss your requirements. A typical servo motor arrangement is shown in the illustration below.



Special Flange Option

Hepco can supply special flanges for customers who wish to mount their own gearbox or motor directly to the SBD, contact Hepco with your requirements.



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