

dimensions in mm  
mass : 85 g / 170 g / 255 g

**B09.. - [ ]**

### Connections

- hall sensors:**
- 1 red Vcc
  - 2 black GND
  - 3 yellow S1
  - 4 orange S2
  - 5 white S3
- motor:**
- 6 blue phase A
  - 7 brown phase B
  - 8 violet phase C

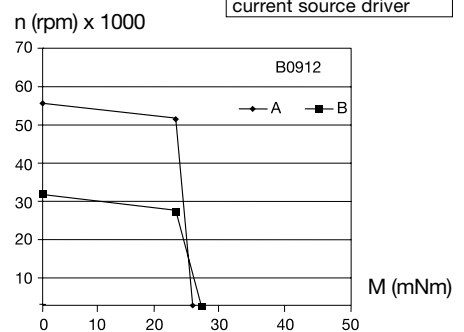
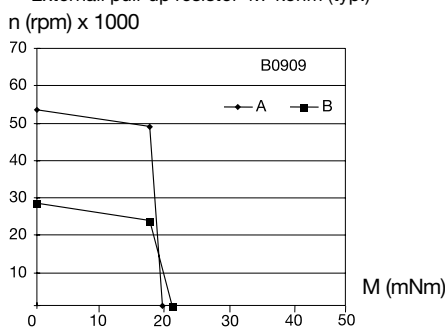
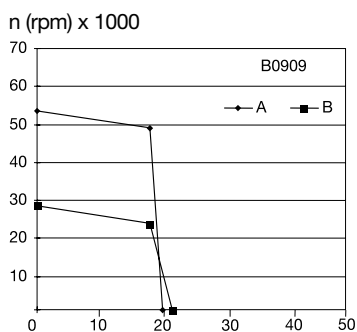
Motor type		B0906		B0909		B0912	
Coil dependent parameters/Winding type	[ ]	050A	050B	050A	050B	050A	050B
1 Phase resistance	ohm	1.7	6.5	1.0	3.4	0.7	2.25
2 Phase inductance	mH	0.30	1.09	0.19	0.65	0.15	0.50
3 Back-EMF constant	V/1000 rpm	0.87	1.67	0.90	1.68	0.86	1.57
4 Torque constant	mNm/A (oz-in/A)	8.3 (1.2)	16 (2.26)	8.5 (1.21)	16 (2.26)	8.2 (1.16)	15 (2.13)
5 Max. continuous current	A	1.85	0.95	2.50	1.35	3.15	1.70
<b>Coil independent parameters</b>							
6 Friction torque	mNm (oz-in)	0.71 (0.1)		0.88 (0.13)		1.06 (0.15)	
7 Viscous torque (losses)	mNm/1000 rpm	0.0042		0.0079		0.01	
8 Max. continuous torque (up to 10'000 rpm)	mNm(oz-in)	15.3 (2.17)		21.5 (3.05)		25.8 (3.65)	
9 Max. recommended speed	rpm	55000		55000		55000	
<b>Mechanical parameters</b>							
10 Rotor inertia	kgm <sup>2</sup> · 10 <sup>-7</sup>	2.5		3		3.6	
11 Mechanical time constant	ms	6		4.2		3.7	
<b>Dynamic performances with BL 5010</b>							
12 Rated voltage	V	50		50		50	
13 No load current	mA	235	175	330	240	425	305
14 No load speed	rpm	54500	28000	53000	28000	56000	30000
15 Peak speed	rpm	55000	28700	54000	28500	56000	30500
16 Peak torque	mNm (oz-in)	232 (33)	118 (17)	423 (60)	227.5 (32.2)	597 (84.5)	321 (45.5)
Length L1	mm	45.1		53.5		61.9	
Thermal time constant	s	330		365		401	
Thermal resistance rotor-ambient	°C/W	14.8		14.0		13.2	
Axial play	µm	112		112		112	
Radial play (2.5N rad.load)	µm	20		20		20	
Axial load (static)	N	180		180		180	
Radial load (static) @ 10.5 mm	N	105		110		113	

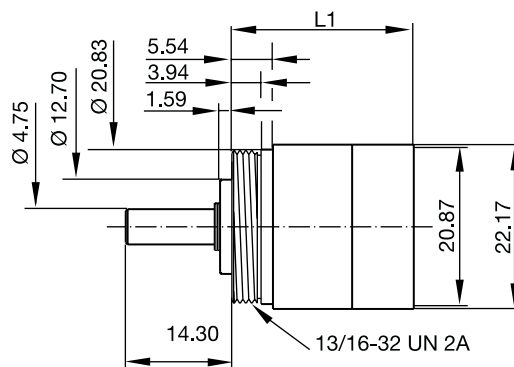
- Motor with preloaded ball bearings.
- Shaft must be supported for press-fitting a pulley or pinion.

- The B09 is a three phase motor with wye connections of the coils.
- Hall sensors: supply voltage 4.5 V to 24 V<sub>DC</sub>. External pull-up resistor 4.7 kohm (typ.)

- Gearbox option: planetary RS09
- An autoclavable version of this motor series is also available

Curves with 50V<sub>DC</sub> current source driver





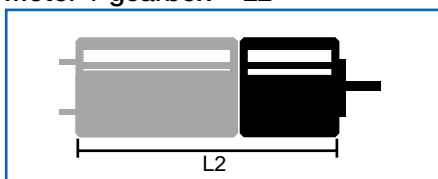
scale 1:1  
dimensions in mm

**RS09** • [ ]

Ratio	[ ]	4	5	7	12	15	16	20	21	25	28	35	49
1 No. of gear stages		1	1	1	2	2	2	2	2	2	2	2	2
2 Dir. of rotation		=	=	=	=	=	=	=	=	=	=	=	=
3 Efficiency (%)		90-95	90-95	90-95	75-90	75-90	75-90	75-90	75-90	75-90	75-90	75-90	75-90
4 L1 (mm)		24.5	24.5	24.5	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8
5 Mass (g)		47	47	47	66	66	66	66	66	66	66	66	66
6 Available with motor		L2- length with motor (mm)											
<b>B0906</b>		64.1	64.1	64.1	72.4	72.4	72.4	72.4	72.4	72.4	72.4	72.4	72.4
<b>B0909</b>		72.5	72.5	72.5	80.8	80.8	80.8	80.8	80.8	80.8	80.8	80.8	80.8
<b>B0912</b>		80.9	80.9	80.9	89.2	89.2	89.2	89.2	89.2	89.2	89.2	89.2	89.2

Availability: see enclosed document at the of the catalogue

### Motor + gearbox = L2



### Characteristics

### RS09

7 Bearing type		ball bearings
8 Max. static torque	Nm (oz-in)	6 (849.6)
9 Max. radial force at 8 mm from mounting face	N (lb)	108 (24.3)
10 Max. axial force	N (lb)	398 (89.55)
11 Force for press-fit	N (lb)	--
12 Average backlash at no-load		45' - 60'
13 Average backlash at 0,1 Nm		--
14 Radial play	µm	7
15 Axial play	µm	19
16 Max. recom. input speed	rpm	40'000
17 Operating temperature range	°C (°F)	0...155 (+32...+311)