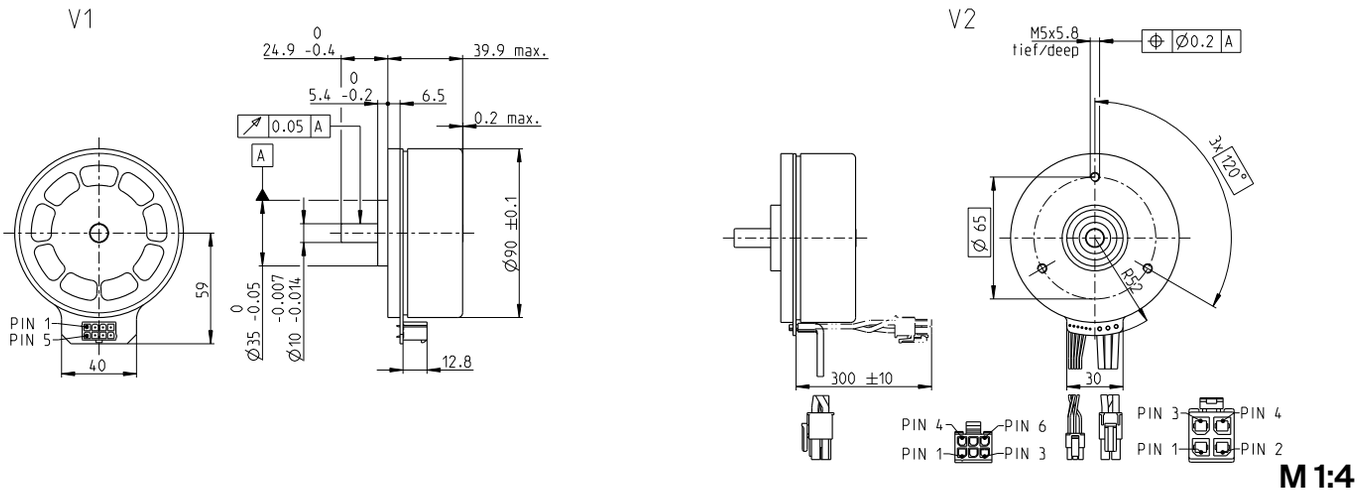
EC 90 flat ∅90 mm, brushless, 400 watt

Open Rotor



M 1:4

Stock program
Standard program
Special program (on request)

	Part numbers			
V1 with Hall sensors		607930	607931	607932
V2 with Hall sensors and cables	607933	607934	607935	607936
Motor data				
Values at nominal voltage				
1 Nominal voltage	V	18	30	48	60
2 No load speed	rpm	2080	2080	1960	1980
3 No load current	mA	792	475	272	221
4 Nominal speed	rpm	1700	1700	1600	1620
5 Nominal torque	mNm	1310	1270	1220	1230
6 Nominal current (max. continuous current)	A	15*	8.78	5	4.05
7 Stall torque	mNm	10200	10000	9490	9570
8 Stall current	A	186	109	57.8	47.5
9 Max. efficiency	%	87.3	87.1	86.6	86.7
Characteristics					
10 Terminal resistance phase to phase	Ω	0.0968	0.275	0.831	1.26
11 Terminal inductance phase to phase	mH	0.133	0.369	1.07	1.63
12 Torque constant	mNm/A	81.6	136	231	286
13 Speed constant	rpm/V	117	70.2	41.3	33.4
14 Speed/torque gradient	rpm/mNm	0.139	0.142	0.148	0.148
15 Mechanical time constant	ms	6.93	7.1	7.4	7.38
16 Rotor inertia	gcm²	4765	4765	4765	4765

Specifications

Thermal data

17	Thermal resistance housing-ambient	1.56 K/W
18	Thermal resistance winding-housing	1.09 K/W
19	Thermal time constant winding	34.2 s
20	Thermal time constant motor	232 s
21	Ambient temperature	-40...+100°C
22	Max. winding temperature	+125°C

Mechanical data (preloaded ball bearings)

23	Max. speed	5000 rpm
24	Axial play at axial load	0.14 mm
25	Radial play	preloaded
26	Max. axial load (dynamic)	34 N
27	Max. force for press fits (static) (static, shaft supported)	440 N 8000N
28	Max. radial load, 10 mm from flange	130 N

Other specifications

29	Number of pole pairs	11
30	Number of phases	3
31	Weight of motor	964 g

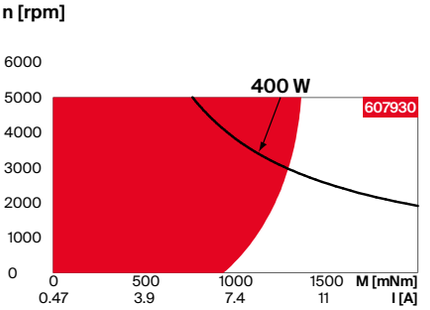
Values listed in the table are nominal.

Connection V1		**V2** (sensors, AWG 24)
Pin 1	Hall sensor 1	Hall sensor 1
Pin 2	Hall sensor 2	Hall sensor 2
Pin 3	V_{Hall} 4.5...24 VDC	Hall sensor 3
Pin 4	Motor winding 3	GND
Pin 5	Hall sensor 3	V_{Hall} 4.5...24 VDC
Pin 6	GND	N.C.
Pin 7	Motor winding 1	
Pin 8	Motor winding 2	
		V2 (motor, AWG 14)
Pin 1		Motor winding 1
Pin 2		Motor winding 2
Pin 3		Motor winding 3
Pin 4		N.C.

Wiring diagram for Hall sensors see p. 69

Connector		**Part number**
Molex	46015-0806	43025-0600
Molex		171692-0104
Connection cable for V1		
Universal, L = 500 mm		**339380**
to EPOS4, L = 500 mm		**354045**

Operating range



Comments

Continuous operation
In observation of above listed thermal resistance (lines 17 and 18) and an ambient temperature of 25°C, the maximum permissible winding temperature will be reached during continuous operation = thermal limit.

Short term operation
The motor may be briefly overloaded (recurring).

Assigned power rating

Note: The cable alignment relative to the mounting holes of the gearhead is not defined.
[1]on request
*607933 cannot be combined with the MILE encoder, because the current limit of the connectors of the MILE circuit board is 13 A.

Modular system

Details on catalog page 56

Gear
444_GP 52 C
458_GB 80[1]
459_GB 12[1]
460_GB 9[1]
461_GB 65[1]

Sensor
531_Encoder MILE

Motor Control
547_DEC Module 50/5
551_ESCON Module 50/5
552_ESCON Module 50/8 HE
553_ESCON 50/5
553_ESCON 70/10
557_ESCON2 Micro 60/5
558_ESCON2 Module 60/12
558_ESCON2 Module 60/30
559_ESCON2 Compact 60/12
559_ESCON2 Compact 60/30
564_EPOS4 Module 50/5
565_EPOS4 Module 50/8
565_EPOS4 Module 50/15
567_EPOS4 Compact 50/5
567_EPOS4 Compact 50/8
568_EPOS4 Compact 50/15
569_EPOS4 50/5
569_EPOS4 70/15
571_EPOS4 Disk 60/12