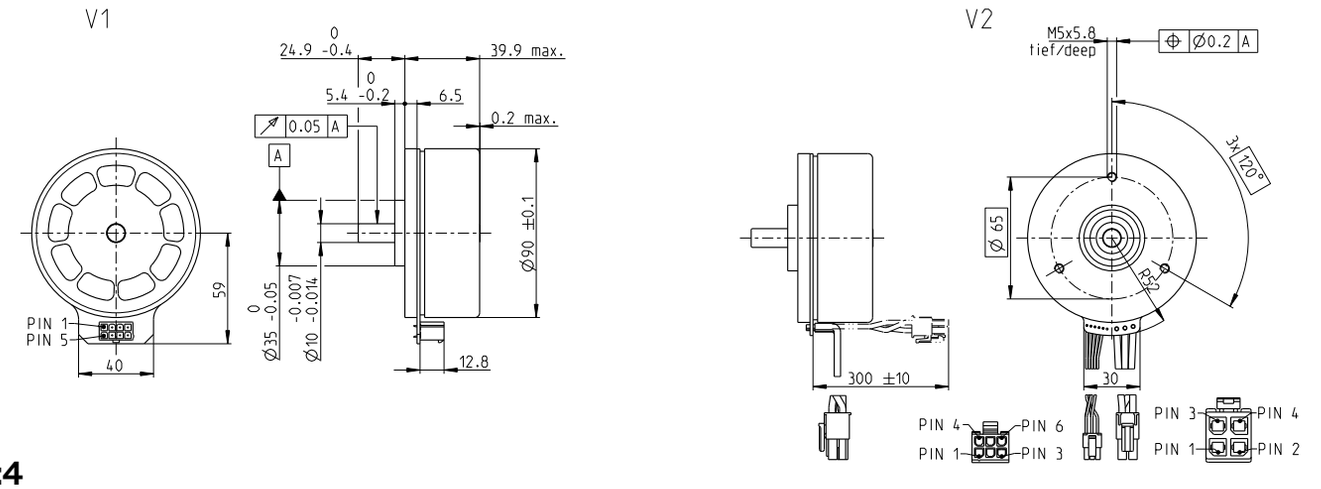
EC 90 flat ∅90 mm, brushless, 400 watt

Open Rotor



M 1:4

Stock program
Standard program
Special program (on request)

		Part Numbers							
V1 with Hall sensors		607929	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 (max. continuous torque)	mNm	1300	1260	1210	1220				
6 Nominal current (max. continuous current)	A	14.9*	8.73	4.96	4.03				
7 Stall torque[1]	mNm	14900	14600	13100	13300				
8 Stall current	A	183	107	56.9	46.7				
9 Max. efficiency	%	87.4	87.3	86.8	86.9				
Characteristics									
10 Terminal resistance phase to phase	Ω	0.0983	0.28	0.844	1.28				
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	0.141	0.144	0.151	0.15				
15 Mechanical time constant	ms	7.47	7.66	7.99	7.97				
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. 59

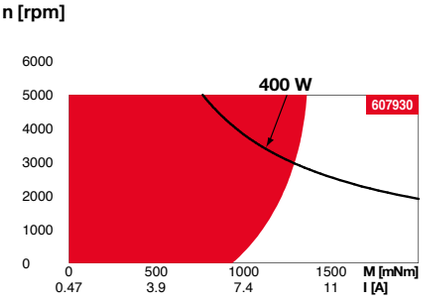
Connector		**Part number**
Molex	46015-0806	43025-0600
Molex		171692-0104

Connection cable for V1

Universal, L = 500 mm	**339380**
to EPOS4, L = 500 mm	**354045**

[1]Calculation does not include saturation effect (p. 71/178)

Operating Range



Comments

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

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

Assigned power rating

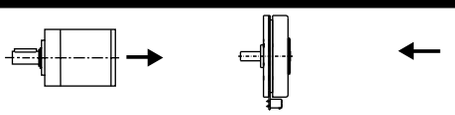
Note: The cable alignment relative to the mounting holes of the gearhead is not defined.

*607933 cannot be combined with the MILE encoder, because the current limit of the connectors of the MILE circuit board is 13 A.

maxon Modular System

Details on catalog page 46

Planetary Gearhead
∅52 mm
4 - 30 Nm
Page 411



Encoder MILE
512 - 6400 CPT,
2 channels
Page 463

Recommended Electronics:

Notes	Page **46**
ESCON Mod. 50/5	501
ESCON Mod. 50/8 (HE)	502
ESCON 50/5	503
ESCON 70/10	503
DEC Module 50/5	505
EPOS4 Mod./Comp. 50/5	510
EPOS4 Mod./Comp. 50/8	511
EPOS4 Mod./Comp. 50/15	514
EPOS4 50/5	515
EPOS4 70/15	515
EPOS4 Disk 60/12	517