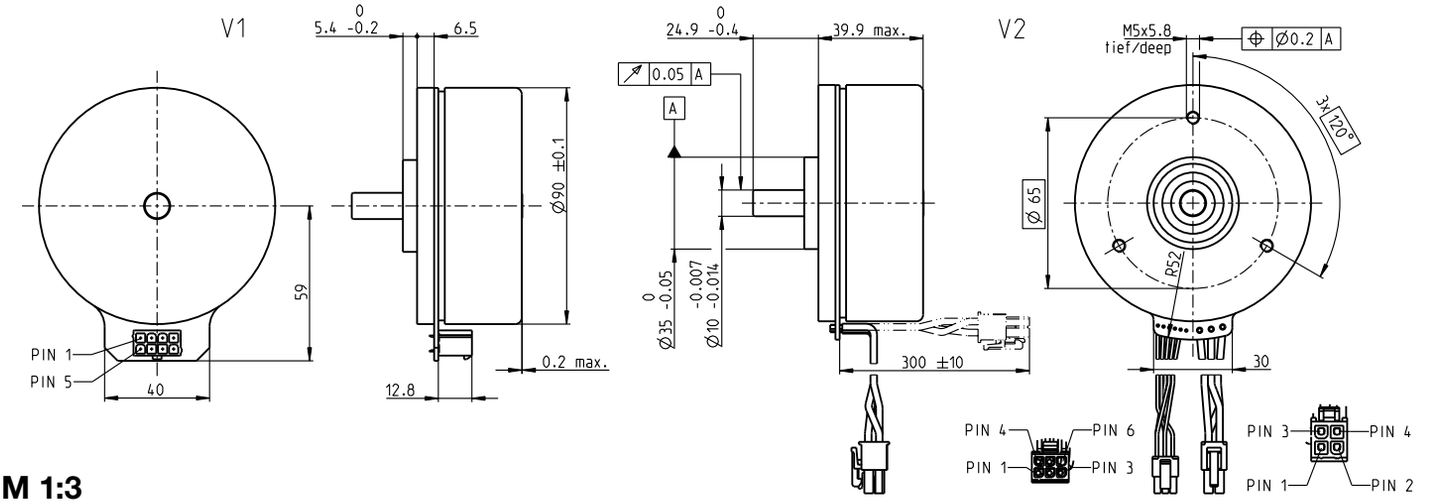
EC 90 flat ∅90 mm, brushless, 260 Watt



Stock program
Standard program
Special program (on request)

Part Numbers

V1 with Hall sensors	**500269**	500266	**500267**	500268
V2 with Hall sensors and cables	607325	607326	607327	607328

Motor Data								
	Values at nominal voltage							
1	Nominal voltage	V	18	30	48	60		
2	No load speed	rpm	2110	2080	1960	1980		
3	No load current	mA	830	490	278	227		
4	Nominal speed	rpm	1790	1780	1670	1690		
5	Nominal torque (max. continuous torque)	mNm	1010	988	964	963		
6	Nominal current (max. continuous current)	A	12.1	7.06	4.06	3.28		
7	Stall torque[1]	mNm	14800	14600	13100	13300		
8	Stall current	A	183	107	56.9	46.7		
9	Max. efficiency	%	87	87	86	87		
	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	80.7	136	231	286		
13	Speed constant	rpm/V	118	70.2	41.3	33.4		
14	Speed/torque gradient	rpm/mNm	0.144	0.144	0.151	0.15		
15	Mechanical time constant	ms	7.63	7.66	7.99	7.97		
16	Rotor inertia	gcm²	5060	5060	5060	5060		

Specifications

Thermal data

17	Thermal resistance housing-ambient	1.74 K/W
18	Thermal resistance winding-housing	1.82 K/W
19	Thermal time constant winding	57 s
20	Thermal time constant motor	258 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)	440 N
	(static, shaft supported)	8000 N
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	980 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 16)
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. 47

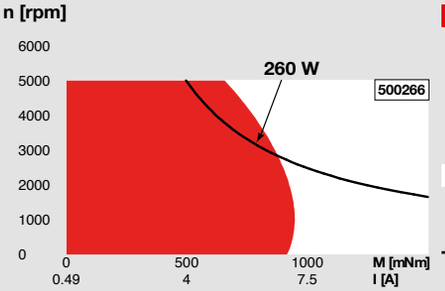
Connector		**Part number**
Molex	46015-0806	43025-0600
Molex		39-01-2040

Connection cable for V1

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

[1]Calculation does not include saturation effect (p. 57/162)

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

maxon Modular System

Details on catalog page 36

Encoder MILE
512 - 6400 CPT,
2 channels
Page 414

Recommended Electronics:

Notes	Page **36**
ESCON Mod. 50/4 EC-S	455
ESCON Mod. 50/5	455
ESCON Mod. 50/8 (HE)	456
ESCON 50/5	457
ESCON 70/10	457
DEC Module 50/5	459
EPOS4 50/5	463
EPOS4 Mod./Comp. 50/5	463
EPOS4 Mod./Comp. 50/8	465
EPOS4 Mod./Comp. 50/15	466
EPOS4 70/15	467
MAXPOS 50/5	473