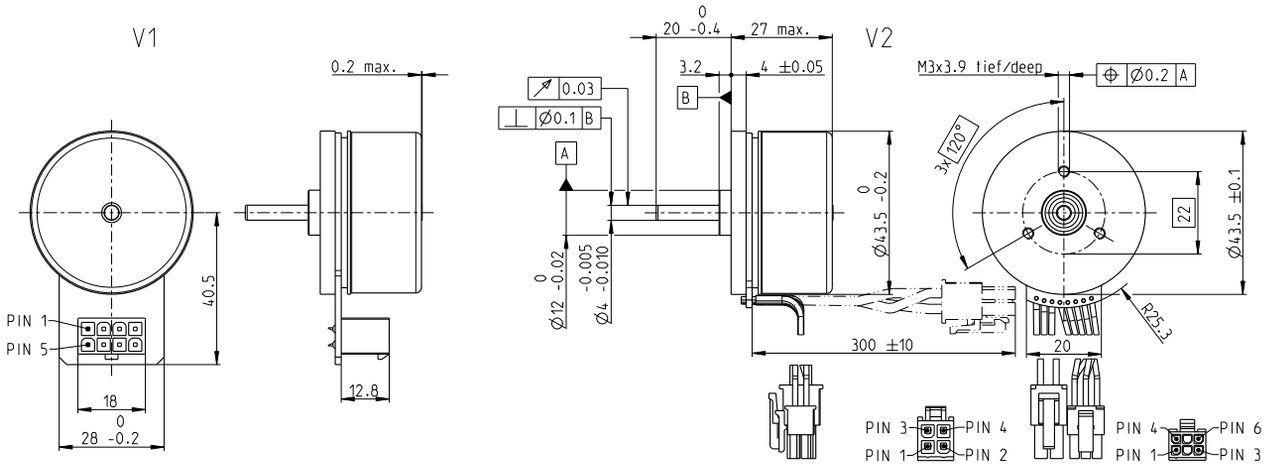
EC 45 flat ∅43.5 mm, brushless, 70 watt



M 1:2

Stock program
Standard program
Special program (on request)

Part Numbers

V1 with Hall sensors	**651614**	651615	651616	**651617**
V2 with Hall sensors and cables	651618	651619	651620	651621

Motor Data (provisional)									
	Values at nominal voltage								
1	Nominal voltage	V	24	36	48	60			
2	No load speed	rpm	5600	5930	5580	3720			
3	No load current	mA	270	198	135	57			
4	Nominal speed	rpm	4750	5080	4750	3010			
5	Nominal torque (max. continuous torque)	mNm	134	110	112	143			
6	Nominal current (max. continuous current)	A	3.29	1.97	1.41	0.92			
7	Stall torque[1]	mNm	1690	1320	1260	1240			
8	Stall current	A	42	23	16	8			
9	Max. efficiency	%	84.9	82.7	82.6	84.2			
	Characteristics								
10	Terminal resistance phase to phase	Ω	0.573	1.560	3.070	7.370			
11	Terminal inductance phase to phase	mH	0.301	0.601	1.210	4.270			
12	Torque constant	mNm / A	40.4	57	80.8	152			
13	Speed constant	rpm / V	236	167	118	62.8			
14	Speed / torque gradient	rpm / mNm	3.350	4.580	4.490	3.040			
15	Mechanical time constant	ms	6.350	8.680	8.510	5.770			
16	Rotor inertia	gcm²	181	181	181	181			

Specifications

Thermal data

17	Thermal resistance housing-ambient	2.55 K/W
18	Thermal resistance winding-housing	6.64 K/W
19	Thermal time constant winding	43.1 s
20	Thermal time constant motor	127 s
21	Ambient temperature	-40...+100°C
22	Max. winding temperature	+125°C

Mechanical data (preloaded ball bearings)

23	Max. speed	10 000 rpm
24	Axial play at axial load < 8.0 N	0 mm
	> 8.0 N	0.14 mm
25	Radial play	preloaded
26	Max. axial load (dynamic)	7.2 N
27	Max. force for press fits (static)	53 N
	(static, shaft supported)	1000 N
28	Max. radial load, 5 mm from flange	15.1 N

Other specifications

29	Number of pole pairs	8
30	Number of phases	3
31	Weight of motor	150.4 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} 3.5...24 VDC	Hall sensor 3*
Pin 4	Motor winding 3	GND
Pin 5	Hall sensor 3*	V_{Hall} 3.5...24 VDC
Pin 6	GND	N.C.
Pin 7	Motor winding 1	
Pin 8	Motor winding 2	

	V2 (motor, AWG 22)
Pin 1	Motor winding 1
Pin 2	Motor winding 2
Pin 3	Motor winding 3
Pin 4	N.C.

*Internal pull-up (7 ... 13 kΩ) on V_{Hall}

Wiring diagram for Hall sensors see p. 59

Connector	**Part number**	**Part number**
Molex	39-28-1083	43025-0600
Molex		39-01-2040

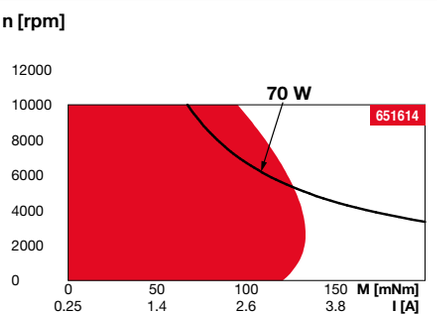
Connection cable for V1

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

21 **V2** Ambient temperature -20 ... +100°C

[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

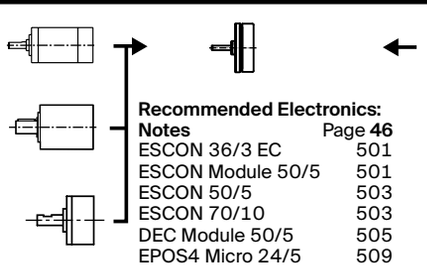
maxon Modular System

Details on catalog page 46

Planetary Gearhead
∅32 mm
0.75 - 6.0 Nm
Page 394/398

Planetary Gearhead
∅42 mm
3.0 - 15.0 Nm
Page 407

Spur Gearhead
∅45 mm
0.5 - 2.0 Nm
Page 409



Recommended Electronics:

Notes	Page **46**
ESCON 36/3 EC	501
ESCON Module 50/5	501
ESCON 50/5	503
ESCON 70/10	503
DEC Module 50/5	505
EPOS4 Micro 24/5	509
EPOS4 Mod./Comp. 50/5	510
EPOS4 50/5	515
EPOS4 Disk 60/8	516
EPOS2 P 24/5	520

Encoder MILE
256 - 2048 CPT,
2 channels
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