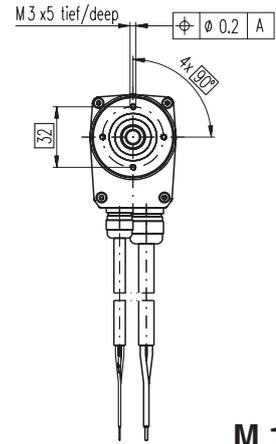
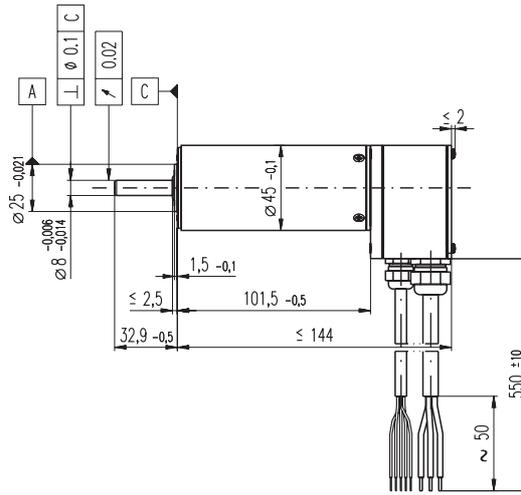
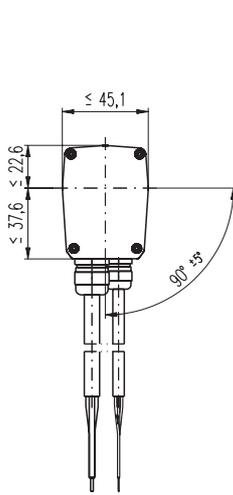


EC 45 Ø45 mm, brushless, 250 Watt, CE approved



M 1:4

- Stock program
- Standard program
- Special program (on request)

Order Number

136210	136207	136211	136208	136212	136209
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Motor Data

Values at nominal voltage			136210	136207	136211	136208	136212	136209
1	Nominal voltage	V	24.0	24.0	36.0	36.0	48.0	48.0
2	No load speed	rpm	9090	5250	10900	6300	11200	6460
3	No load current	mA	1140	435	1060	397	830	311
4	Nominal speed	rpm	8380	4520	10200	5590	10500	5760
5	Nominal torque (max. continuous torque)	mNm	285	310	283	318	280	316
6	Nominal current (max. continuous current)	A	12.3	7.47	9.95	6.16	7.59	4.72
7	Stall torque	mNm	4180	2420	5470	3160	5580	3220
8	Starting current	A	167	55.8	175	58.3	137	45.8
9	Max. efficiency	%	85	84	85	85	85	85
Characteristics								
10	Terminal resistance phase to phase	Ω	0.143	0.430	0.206	0.617	0.350	1.05
11	Terminal inductance phase to phase	mH	0.0565	0.170	0.0883	0.265	0.149	0.448
12	Torque constant	mNm / A	25.0	43.3	31.2	54.1	40.6	70.4
13	Speed constant	rpm / V	382	221	306	176	235	136
14	Speed / torque gradient	rpm / mNm	2.19	2.19	2.01	2.01	2.02	2.02
15	Mechanical time constant	ms	4.80	4.80	4.40	4.40	4.43	4.43
16	Rotor inertia	gcm ²	209	209	209	209	209	209

Specifications

Thermal data		
17	Thermal resistance housing-ambient	1.7 K / W
18	Thermal resistance winding-housing	1.1 K / W
19	Thermal time constant winding	30.8 s
20	Thermal time constant motor	1570 s
21	Ambient temperature	-20 ... +100°C
22	Max. permissible winding temperature	+125°C
Mechanical data (preloaded ball bearings)		
23	Max. permissible speed	12000 rpm
24	Axial play at axial load < 20 N	0 mm
	> 20 N	max. 0.14 mm
25	Radial play	preloaded
26	Max. axial load (dynamic)	20 N
27	Max. force for press fits (static)	170 N
	(static, shaft supported)	5000 N
28	Max. radial loading, 5 mm from flange	180 N

Other specifications		
29	Number of pole pairs	1
30	Number of phases	3
31	Weight of motor	1150 g
	Protection	IP54

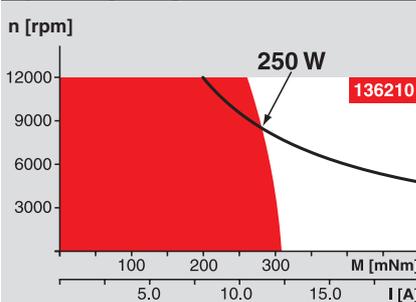
Values listed in the table are nominal.

Connection Motor (Cable AWG 16)
 Cable 1 Motor winding 1
 Cable 2 Motor winding 2
 Cable 3 Motor winding 3

Connection Sensors (Cable AWG 24)
 white Hall sensor 3
 brown Hall sensor 2
 green Hall sensor 1
 yellow GND
 grey V_{Hall} 4.5 ... 24 VDC
 Wiring diagram for Hall sensors see p. 26

Option
 Temperature monitoring, PTC resistance Micropille
 110°C, R 25°C < 0.5 kΩ, R 105°C = 1.2 ... 1.5 kΩ,
 R 115°C = 7 ... 13 kΩ, R 120°C = 18 ... 35 kΩ
 Motor connection with plug

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

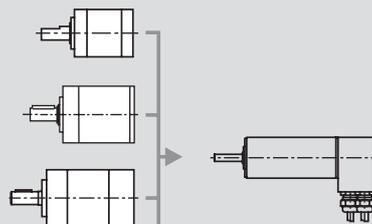
maxon Modular System

Overview on page 17 - 21

Planetary Gearhead
 Ø42 mm
 3 - 15 Nm
 Page 233

Planetary Gearhead
 Ø52 mm
 4 - 30 Nm
 Page 235

Planetary Gearhead
 Ø62 mm
 8 - 50 Nm
 Page 237



Recommended Electronics:

DEC 50/5	271
DEC 70/10	271
DES 50/5	272
DES 70/10	272
EPOS 70/10	279
MIP 50	281
MIP 100	281
Notes	17

Encoder HEDL 9140
 500 CPT,
 3 channels
 Page 255

Resolver Res 26
 Ø26 mm
 10 V
 Page 260

Brake AB 28
 Ø28 mm, 24 VDC
 0.4 Nm
 Page 288