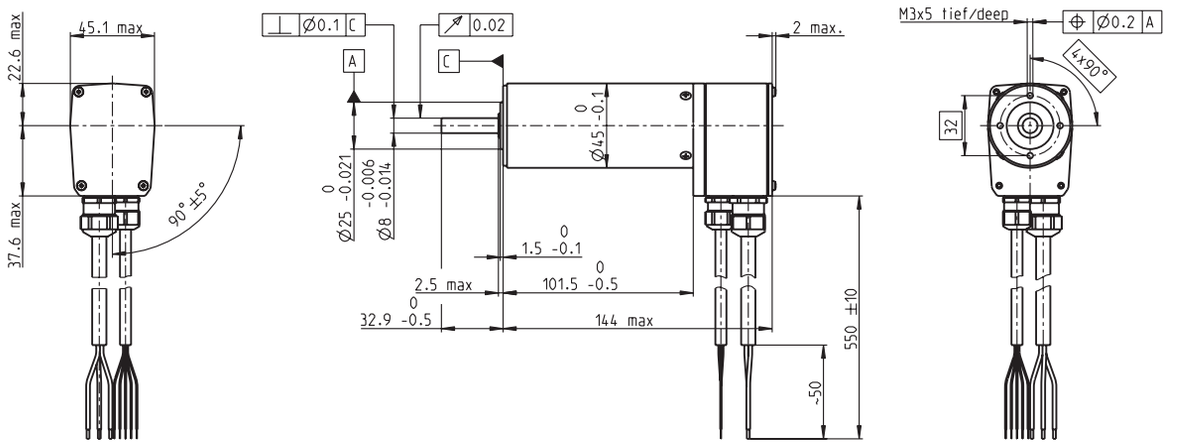
EC 45 ∅45 mm, brushless, 250 Watt



M 1:4

Stock program
Standard program
Special program (on request)

Part Numbers

		136210	136207	136211	136208	136212	136209
Motor Data							
	Values at nominal voltage						
1	Nominal voltage	V	24	24	36	36	48	48
2	No load speed	rpm	8670	5000	10400	6010	10700	6160
3	No load current	mA	897	341	834	312	656	244
4	Nominal speed	rpm	7970	4300	9730	5320	10000	5490
5	Nominal torque (max. continuous torque)	mNm	311	331	312	341	316	347
6	Nominal current (max. continuous current)	A	12.5	7.51	10.2	6.21	7.94	4.86
7	Stall torque	mNm	4400	2540	5750	3320	6110	3530
8	Stall current	A	167	55.8	175	58.3	143	47.7
9	Max. efficiency	%	86	85	87	86	87	87
	Characteristics							
10	Terminal resistance phase to phase	Ω	0.143	0.43	0.206	0.617	0.336	1.01
11	Terminal inductance phase to phase	mH	0.0565	0.17	0.0883	0.265	0.149	0.448
12	Torque constant	mNm/A	26.3	45.5	32.8	56.9	42.7	73.9
13	Speed constant	rpm/V	364	210	291	168	224	129
14	Speed/torque gradient	rpm/mNm	1.98	1.98	1.82	1.82	1.76	1.76
15	Mechanical time constant	ms	4.34	4.34	3.99	3.99	3.85	3.85
16	Rotor inertia	gcm²	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	31 s
20	Thermal time constant motor	1570 s
21	Ambient temperature	-20…+100°C
22	Max. winding temperature	+125°C

Mechanical data (preloaded ball bearings)

23	Max. speed		12000 rpm
24	Axial play at axial load	< 20 N	0 mm
		> 20 N	max. 0.15 mm
25	Radial play		preloaded
26	Max. axial load (dynamic)		16 N
27	Max. force for press fits (static)		182 N
	(static, shaft supported)		5000 N
28	Max. radial load, 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 to	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)[1)]

white	Hall sensor 3
brown	Hall sensor 2
green	Hall sensor 1
yellow	GND
grey	V_{Hall} 4.5…24 VDC

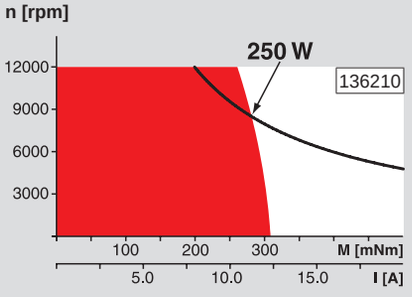
Wiring diagram for Hall sensors see p. 33

[1)] Not lead through in combination with resolver.

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

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

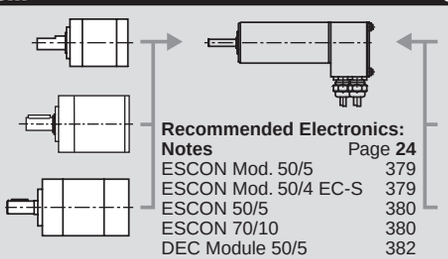
maxon Modular System

Overview on page 20–25

Planetary Gearhead
∅42 mm
3 - 15 Nm
Page 314

Planetary Gearhead
∅52 mm
4 - 30 Nm
Page 319

Planetary Gearhead
∅62 mm
8 - 50 Nm
Page 320



Recommended Electronics:

Notes	Page **24**
ESCON Mod. 50/5	379
ESCON Mod. 50/4 EC-S	379
ESCON 50/5	380
ESCON 70/10	380
DEC Module 50/5	382
EPOS2 50/5, 70/10	387
EPOS3 70/10 EtherCAT	393
MAXPOS 50/5	396

Encoder HEDL 9140
500 CPT,
3 channels
Page 368

Resolver Res 26
∅26 mm
10 V
Page 374

Brake AB 28
24 VDC
0.4 Nm
Page 409

*Protection level only when installed with flange-side seal.