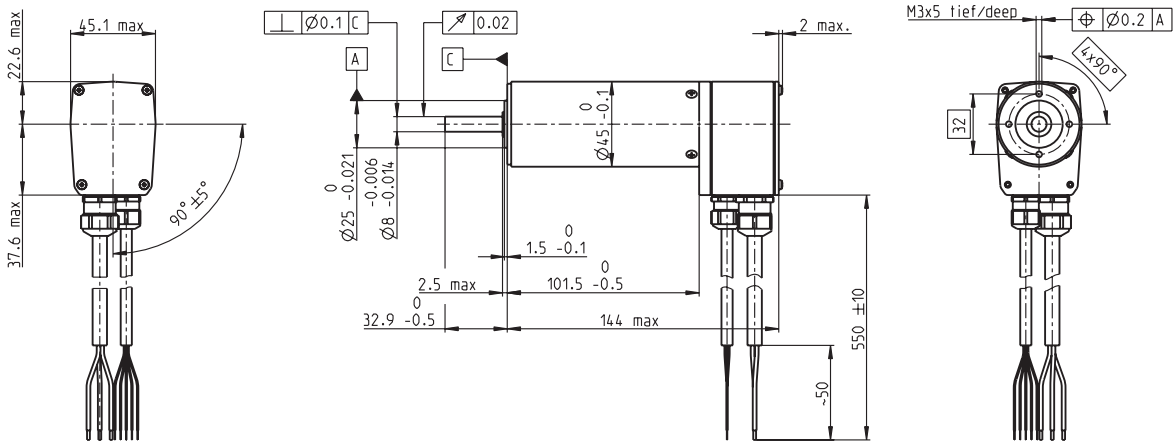
EC 45 ∅45 mm, brushless, 250 Watt, CE approved



M 1:4

Stock program
Standard program
Special program (on request)

Order Number	136210	136207	136211	136208	136212	136209
Motor Data						
Values at nominal voltage						
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	6470
3 No load current mA	1140	435	1060	397	830	311
4 Nominal speed rpm	8380	4520	10200	5590	10500	5770
5 Nominal torque (max. continuous torque) mNm	285	310	283	318	286	323
6 Nominal current (max. continuous current) A	12.3	7.47	9.95	6.16	7.74	4.82
7 Stall torque mNm	4180	2420	5470	3160	5810	3360
8 Starting current A	167	55.8	175	58.3	143	47.7
9 Max. efficiency %	85	84	85	85	86	85
Characteristics						
10 Terminal resistance phase to phase Ω	0.143	0.430	0.206	0.617	0.336	1.01
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	1.94	1.94
15 Mechanical time constant ms	4.80	4.80	4.40	4.40	4.25	4.25
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	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)		182 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 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

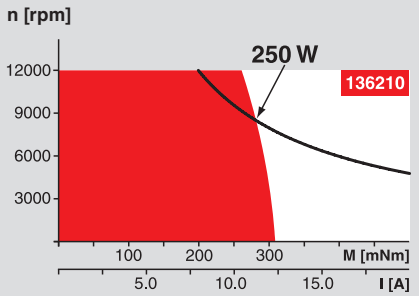
Wiring diagram for Hall sensors see p. 27

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

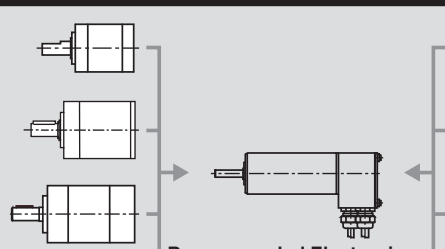
maxon Modular System

Overview on page 16 - 21

Planetary Gearhead
∅42 mm
3 - 15 Nm
Page 239

Planetary Gearhead
∅52 mm
4 - 30 Nm
Page 241

Planetary Gearhead
∅62 mm
8 - 50 Nm
Page 243



Recommended Electronics:

DECS 50/5	Page 289
DEC 50/5	291
DEC Module 50/5	291
DEC 70/10	297
DES 50/5	298
DES 70/10	298
EPOS2 50/5	305
EPOS 70/10	305
Notes	**20**

Encoder HEDL 9140
500 Imp.,
3 channels
Page 271

Resolver Res 26
∅26 mm
10 V
Page 277

Brake AB 28
24 VDC
0.4 Nm
Page 319