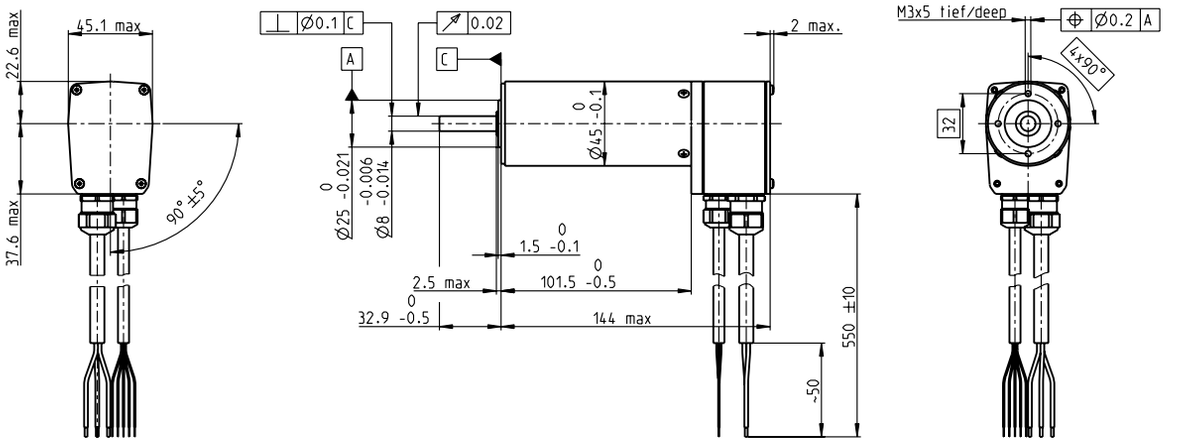
EC 45 ∅45 mm, brushless, 250 Watt



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)]

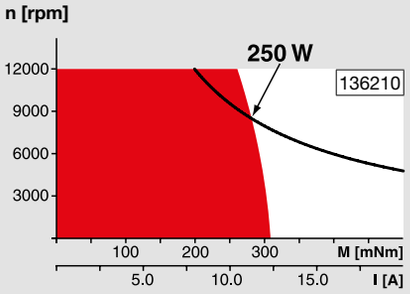
white	Hall sensor 3
brown	Hall sensor 2
green	Hall sensor 1
yellow	GND
grey	V_{Hall} 4.5…24 VDC

Wiring diagram for Hall sensors see p. 45

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

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

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

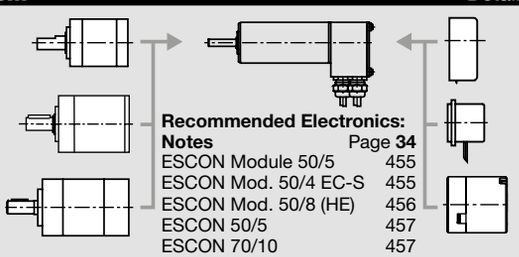
maxon Modular System

Details on catalog page 34

Planetary Gearhead
∅42 mm
3 - 15 Nm
Page 361

Planetary Gearhead
∅52 mm
4 - 30 Nm
Page 367

Planetary Gearhead
∅62 mm
8 - 50 Nm
Page 368



Recommended Electronics:

Notes	Page **34**
ESCON Module 50/5	455
ESCON Mod. 50/4 EC-S	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

Encoder HEDL 9140
500 CPT,
3 channels
Page 447

Resolver Res 26
∅26 mm
10 V
Page 450

Brake AB 28
24 VDC
0.4 Nm
Page 492