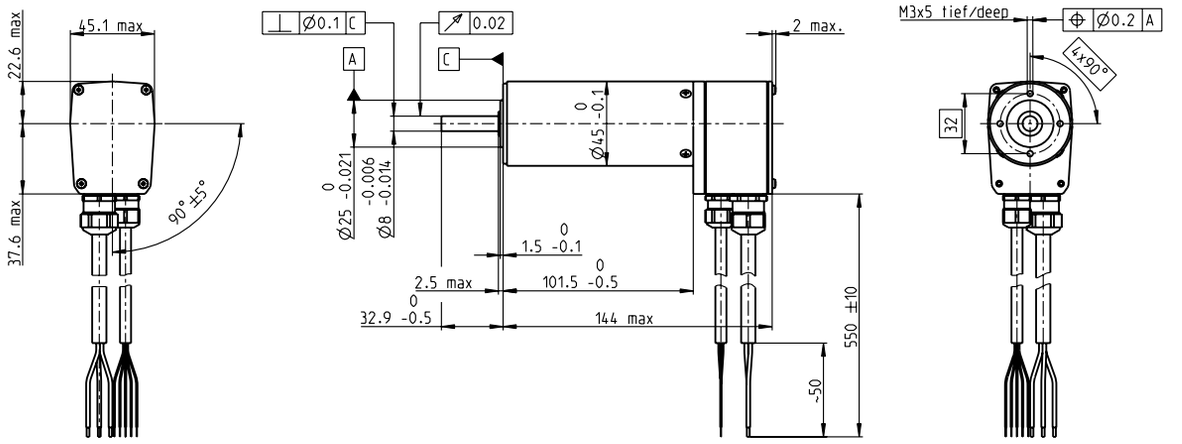
EC 45 ∅45 mm, brushless, 250 watt



M 1:4

EC

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 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	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)]

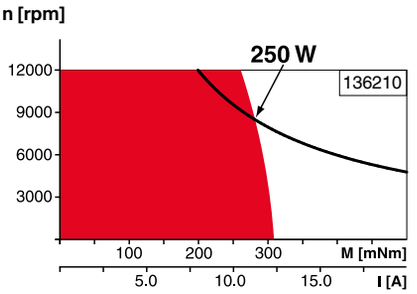
white	Hall sensor 3
brown	Hall sensor 2
green	Hall sensor 1
yellow	GND
grey	V_{Hall} 4.5...24 VDC

Wiring diagram for Hall sensors see p. 57

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

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

Operating Range



Comments

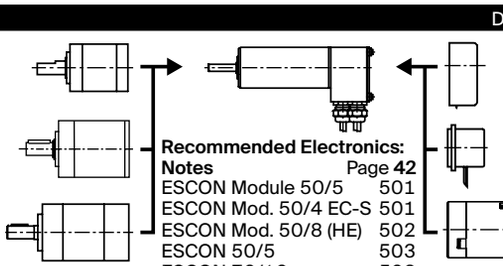
Continuous operation
In observation of above listed thermal resistance (lines 17 and 18) the maximum permissible winding temperature will be reached during continuous operation at 25°C ambient.
= Thermal limit.

Short term operation
The motor may be briefly overloaded (recurring).

Assigned power rating

maxon Modular System

Details on catalog page 42



Planetary Gearhead
∅42 mm
3-15 Nm
Page 405

Planetary Gearhead
∅52 mm
4-30 Nm
Page 411

Planetary Gearhead
∅62 mm
6.2-38.5 Nm
Page 412

Recommended Electronics:

Notes	Page 42
ESCON Module 50/5	501
ESCON Mod. 50/4 EC-S	501
ESCON Mod. 50/8 (HE)	502
ESCON 50/5	503
ESCON 70/10	503
DEC Module 24/2	505
EPOS4 Mod./Comp. 50/5	510
EPOS4 Mod./Comp. 50/8	511
EPOS4 Mod./Comp. 50/15	511
EPOS4 50/5	515
EPOS4 70/15	515
EPOS4 Disk 60/8	516
EPOS4 Disk 60/12	517

Encoder HEDL 9140
500 CPT,
3 channels
Page 493

Resolver Res 26
∅26 mm
10 V
Page 496

Brake AB 28
24 VDC
0.4 Nm
Page 536