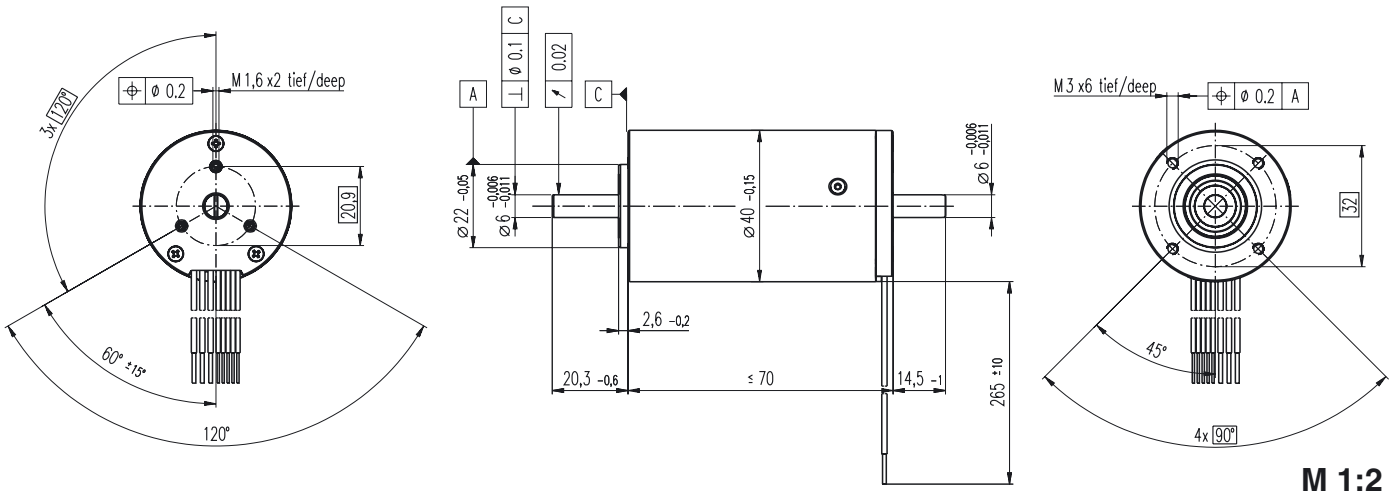
EC 40 ∅40 mm, brushless, 120 Watt, CE approved



M 1:2

Stock program
Standard program
Special program (on request!)

			Order Number													
			167176	118894	167177	118895	167178	118896	167179	118897	167180	118898	167181	167183	118899	118901
Motor Data																
1	Assigned power rating	W	120	120	120	120	120	120	120	120	120	120	120	120	120	120
2	Nominal voltage	Volt	12.0	12.0	18.0	18.0	24.0	24.0	36.0	36.0	48.0	48.0	48.0	48.0	48.0	48.0
3	No load speed	rpm	10600	5900	12300	6900	10600	5900	10100	5700	10600	5900	5600	3600	3100	2000
4	Stall torque	mNm	1019	606	1353	803	1188	705	1159	687	1224	726	612	392	363	232
5	Speed / torque gradient	rpm / mNm	10.5	9.9	9.2	8.7	9.0	8.5	8.8	8.3	8.7	8.3	9.2	9.4	8.7	8.9
6	No load current	mA	889	390	765	325	444	195	274	122	222	98	81	43	41	24
7	Terminal resistance phase to phase	Ohm	0.13	0.38	0.18	0.55	0.43	1.30	1.05	3.15	1.69	5.06	6.39	15.23	19.16	45.69
8	Max. permissible speed	rpm	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000	18000
9	Max. continuous current at 5000 rpm	A	10.50	6.00	8.70	5.00	5.70	3.20	3.60	2.10	2.90	1.60	1.50	1.00	0.80	0.50
10	Max. continuous torque at 5000 rpm	mNm	100.5	100.7	107.9	108.9	110.2	108.4	109.2	112.2	112.3	108.4	109.7	112.0	101.8	96.6
11	Max. efficiency	%	82	79	84	81	83	81	83	81	84	81	81	78	76	72
12	Torque constant	mNm / A	10.8	19.1	13.8	24.6	21.5	38.2	33.8	60.1	43.0	76.4	81.4	124	145	221
13	Speed constant	rpm / V	888	500	691	389	444	250	283	159	222	125	117	77	66	43
14	Mechanical time constant	ms	9	9	8	8	8	8	8	7	8	7	8	8	8	8
15	Rotor inertia	gcm²	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0	85.0
16	Terminal inductance phase to phase	mH	0.030	0.090	0.050	0.140	0.110	0.340	0.280	0.840	0.460	1.360	1.630	3.810	4.880	11.390
17	Thermal resistance housing-ambient	K / W	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
18	Thermal resistance winding-housing	K / W	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
19	Thermal time constant winding	s	16	16	16	16	16	16	16	16	16	16	16	16	16	16
20	Thermal time constant stator	s	530	530	530	530	530	530	530	530	530	530	530	530	530	530

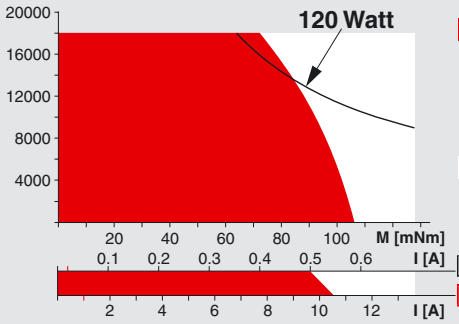
Specifications

- Axial play at axial load < 8 N: 0 mm; > 8 N: max. 0.14 mm
- Preloaded **ball bearings**
  Preload strength min. 8 N
- Max. **ball bearing** loads
  axial (dynamic) 7 N
  radial (5 mm from flange) 70 N
  Force for press fits (static) 170 N
  (static, shaft supported) 5000 N
- Radial play **ball bearing** 0.03 mm
- Ambient temperature range -20 ... +125°C
- Max. permissible winding temperature +125°C
- Weight of motor 390 g
- 2 pole permanent magnet
- Values listed in the table are nominal.
- **Connection** (Cable AWG 22)
  black Motor winding 2
  white Motor winding 3
  red Motor winding 1
  Connection (Cable AWG 26)
  white / grey Hall sensor 3
  black / grey Hall sensor 2
  blue GND
  green V_{Hall} 4.5 ... 24 VDC
  red / grey Hall sensor 1
- For wiring diagram for Hall sensors, see p. 26

Operating Range

Comments

Details on page 149



Curve of constant assigned power rating

Continuous operation
In observation of above listed thermal resistances (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).

118901 Motor with high resistance winding
167176 Motor with low resistance winding

maxon Modular System

Overview on page 17 - 21

Planetary Gearhead
∅42 mm
3 - 15 Nm
Details page 224

Planetary Gearhead
∅52 mm
4 - 30 Nm
Details page 227

Recommended Electronics:

DECV 50/5	page 265
DEC 50/5, 70/10	264, 266
DES 50/5, 70/10	267, 268
EPOS 24/5, 70/10	271
MIP 50, MIP 100	273
Notes	**17**

Encoder HEDS 5540
500 CPT,
3 channels
Details page 243

Encoder HEDL 5540
500 CPT,
3 channels
Details page 245

Resolver Res
∅26 mm
10 V
Details page 253

Brake AB
∅40 mm
24 VDC, 0.4 Nm
Details page 279

April 2005 edition / subject to change