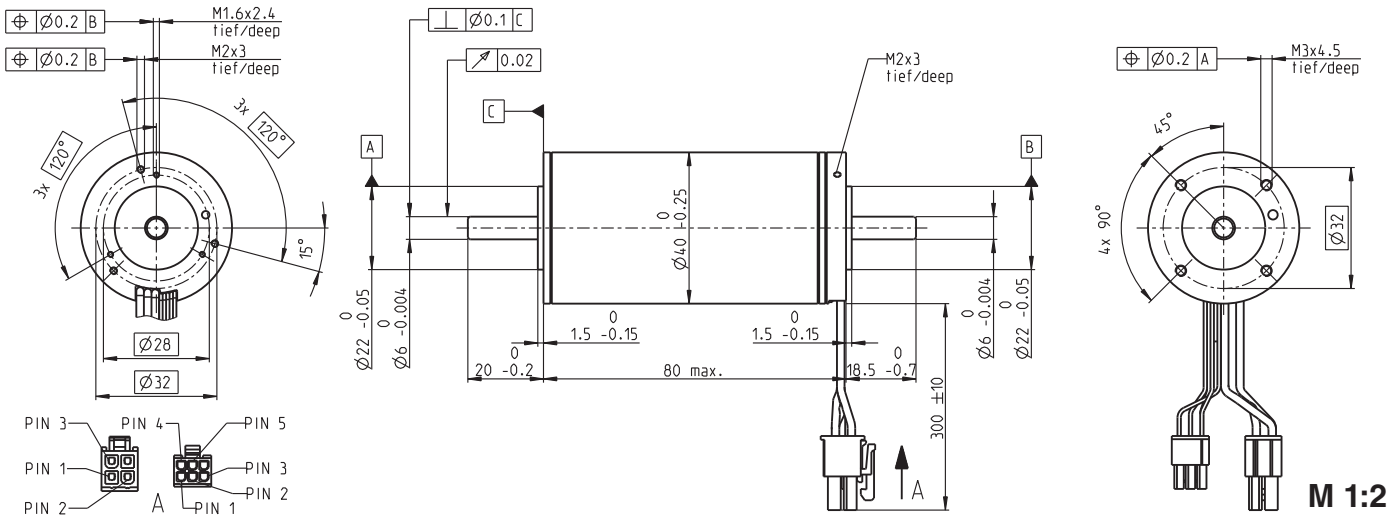
EC 40 ∅40 mm, brushless, 170 Watt

NEW



M 1:2

Stock program
Standard program
Special program (on request)

Order Number

		369146	393023	393024	393025
Motor Data (provisional)					
	Values at nominal voltage				
1	Nominal voltage	V	15	24	42	48
2	No load speed	rpm	9840	9840	10100	9840
3	No load current	mA	617	386	230	193
4	Nominal speed	rpm	9140	9140	9390	9150
5	Nominal torque (max. continuous torque)	mNm	159	161	160	164
6	Nominal current (max. continuous current)	A	11.4	7.21	4.2	3.67
7	Stall torque	mNm	2620	2660	2740	2760
8	Starting current	A	181	115	69.1	59.6
9	Max. efficiency	%	89	89	89	89
	Characteristics					
10	Terminal resistance phase to phase	Ω	0.0829	0.209	0.608	0.806
11	Terminal inductance phase to phase	mH	0.0329	0.0843	0.246	0.337
12	Torque constant	mNm / A	14.5	23.2	39.6	46.4
13	Speed constant	rpm / V	659	412	241	206
14	Speed / torque gradient	rpm / mNm	3.77	3.71	3.7	3.57
15	Mechanical time constant	ms	2.12	2.09	2.08	2.01
16	Rotor inertia	gcm²	53.8	53.8	53.8	53.8

Specifications

Thermal data

17	Thermal resistance housing-ambient	5.21 K / W
18	Thermal resistance winding-housing	1.05 K / W
19	Thermal time constant winding	17.6 s
20	Thermal time constant motor	1910 s
21	Ambient temperature	-40 ... +100°C
22	Max. permissible winding temperature	+155°C

Mechanical data (preloaded ball bearings)

23	Max. permissible speed		18000 rpm
24	Axial play at axial load	< 9 N	0 mm
		> 9 N	max. 0.14 mm
25	Radial play		preloaded
26	Max. axial load (dynamic)		23 N
27	Max. force for press fits (static)		106 N
	(static, shaft supported)		5500 N
28	Max. radial loading, 5 mm from flange		75 N

Other specifications

29	Number of pole pairs	1
30	Number of phases	3
31	Weight of motor	580 g

Values listed in the table are nominal.

Connection motor (Cable AWG 16)

red	Motor winding 1	Pin 1
black	Motor winding 2	Pin 2
white	Motor winding 3	Pin 3
	N.C.	Pin 4

Connector	**Article number**
Molex	39-01-2040

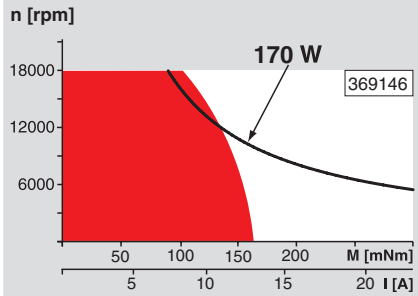
Connection Sensors (Cable AWG 26)

yellow	Hall sensor 1	Pin 1
brown	Hall sensor 2	Pin 2
grey	Hall sensor 3	Pin 3
blue	GND	Pin 4
green	V_{Hall} 3 … 24 VDC	Pin 5
	N.C.	Pin 6

Connector	**Article number**
Molex	430-25-0600

Wiring diagram for Hall sensors see p. 27

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).

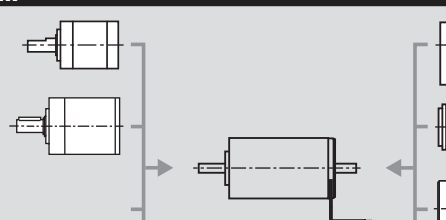
Assigned power rating

maxon Modular System

Overview on page 16 - 21

Planetary Gearhead
∅42 mm
3 - 15 Nm
Page 237

Planetary Gearhead
∅52 mm
4 - 30 Nm
Page 240



Encoder HED_5540
500 Imp.,
3 channels
Page 267 / 269

Resolver Res 26
∅26 mm
10 V
Page 277

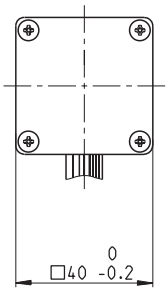
Brake AB 32
24 VDC
0.4 Nm
Page 320

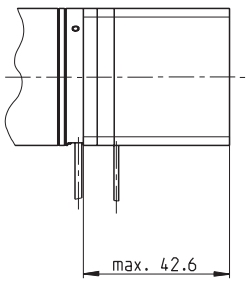
Recommended Electronics:

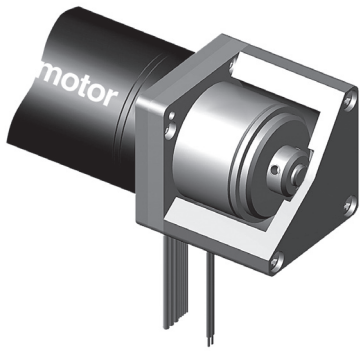
DECS 50/5	Page 289
DEC 50/5	291
DEC Module 50/5	291
DECV 50/5, DEC 70/10	297
DES 50/5, DES 70/10	298
EPOS2 24/5	305
EPOS2 50/5	305
EPOS2 70/10	305
EPOS2 P 24/5	308
Notes	**20**

Brake AB 32 24 VDC, 0.4 Nm

NEW







Important Information

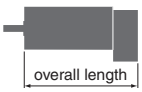
- Permanent magnet - single-face brake for DC (dry operation). Braking in unpowered condition.
- Holding brake, prevents rotation of the shaft at standstill or with turned off motor power.
- Not suitable for braking.
- It is possible to lower the voltage applied to the brake after it has been energized, for the purpose of reducing heat loss.

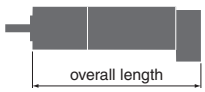
Stock program
Standard program
Special program (on request)

Order Number

392335

Type





maxon Modular System

+ Motor	Page	+ Gearhead	Page	+ Sensor	Page	Overall length [mm] / • see Gearhead
EC 40, 170 W	155					122.6
EC 40, 170 W	155	GP 42, 3 - 15 Nm	237			•
EC 40, 170 W	155	GP 52, 4 - 30 Nm	240			•
EC 40, 170 W	155			HED_ 5540	267/269	146.0
EC 40, 170 W	155	GP 42, 3 - 15 Nm	237	HED_ 5540	267/269	•
EC 40, 170 W	155	GP 52, 4 - 30 Nm	240	HED_ 5540	267/269	•

Technical Data

Max. permissible static torque at 20°C	0.4 Nm	Nominal voltage, smoothed		24 VDC ±10%	
Mass inertia	19 gcm²	Resistance		R_{20} = 100 Ω ±7%	
Max. permissible speed	10000 rpm	Duty cycle		100%	
Weight	0.1 kg	Reaction time	– Coupling time	≤ 13 ms	
Ambient temperature range	-40 … +100°C		– Opening time	≤ 24 ms	

Pin Allocation

Cable (AWG 24)	Designation
red	U_{Brake} + 24 VDC
blue	U_{Brake} GND
Min. cable length	350 mm