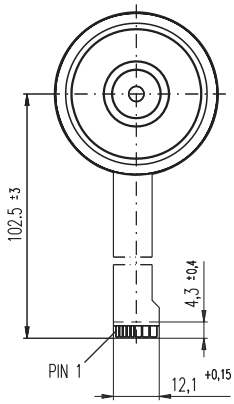
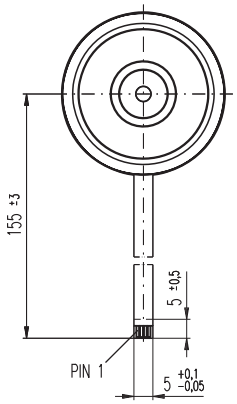
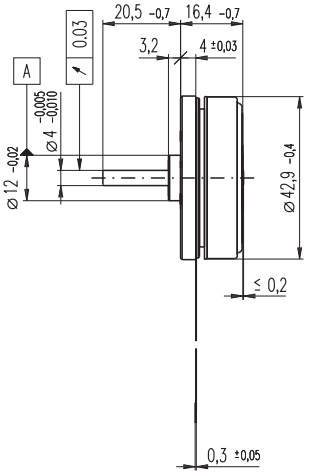
EC 45 flat ∅45 mm, brushless, 30 Watt

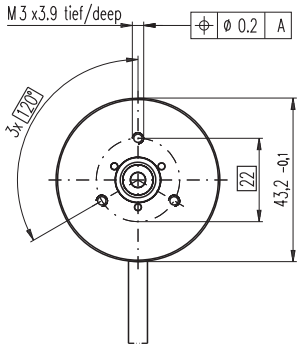
A with hall sensors



B sensorless







M 1:2

Stock program
Standard program
Special program (on request)

			Order Number							
	A with Hall sensors		200142		339281		339282			
	B sensorless			200189		339283		339284		
Motor Data										
	Values at nominal voltage									
1	Nominal voltage	V	12.0	12.0	24.0	24.0	36.0	36.0		
2	No load speed	rpm	4370	4360	4370	4370	4760	4760		
3	No load current	mA	151	150	75.3	75.2	56.9	56.9		
4	Nominal speed	rpm	2860	2820	2850	2840	3210	3210		
5	Nominal torque (max. continuous torque)	mNm	59.0	54.3	58.8	57.5	70.6	69.5		
6	Nominal current (max. continuous current)	A	2.14	2.00	1.07	1.05	0.893	0.882		
7	Stall torque	mNm	255	219	253	243	380	369		
8	Starting current	A	10.0	8.57	4.96	4.77	5.38	5.22		
9	Max. efficiency	%	77	76	77	77	81	81		
	Characteristics									
10	Terminal resistance phase to phase	Ω	1.20	1.40	4.84	5.04	6.70	6.9		
11	Terminal inductance phase to phase	mH	0.560	0.560	2.24	2.24	4.29	4.29		
12	Torque constant	mNm / A	25.5	25.5	51.0	51.0	70.6	70.6		
13	Speed constant	rpm / V	374	374	187	187	135	135		
14	Speed / torque gradient	rpm / mNm	17.6	20.6	17.8	18.5	12.8	13.2		
15	Mechanical time constant	ms	17.1	19.9	17.2	17.9	12.4	12.8		
16	Rotor inertia	gcm²	92.5	92.5	92.5	92.5	92.5	92.5		

Specifications

Thermal data

17	Thermal resistance housing-ambient	4.23 K / W
18	Thermal resistance winding-housing	4.57 K / W
19	Thermal time constant winding	13.2 s
20	Thermal time constant motor	186 s
21	Ambient temperature	-40 ... +100°C
22	Max. permissible winding temperature	+125°C

Mechanical data (preloaded ball bearings)

23	Max. permissible speed		10000 rpm
24	Axial play at axial load	< 5.0 N	0 mm
		> 5.0 N	typ. 0.14 mm
25	Radial play		preloaded
26	Max. axial load (dynamic)		4.8 N
27	Max. force for press fits (static)		50 N
	(static, shaft supported)		1000 N
28	Max. radial loading, 7.5 mm from flange		5.5 N

Other specifications

29	Number of pole pairs	8
30	Number of phases	3
31	Weight of motor	88 g

Values listed in the table are nominal.

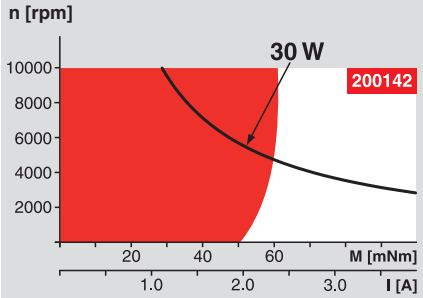
Connection	with hall sensors	sensorless
Pin 1	4.5 ... 18 VDC	Motor winding 1
Pin 2	Hall sensor 3*	Motor winding 2
Pin 3	Hall sensor 1*	Motor winding 3
Pin 4	Hall sensor 2*	neutral point
Pin 5	GND	
Pin 6	Motor winding 3	
Pin 7	Motor winding 2	
Pin 8	Motor winding 1	

*internal pull-up (7 … 13 kΩ) on pin 1
Wiring diagram for Hall sensors see page 29

Adapter	Order Number	Order Number
see p. 308	220300	220310
Connector	**Article number**	**Article number**
AMP	1-487951-1	487951-4
MOLEX	52207-1190	52207-0490
MOLEX	52089-1110	52089-0410

Pin for design with Hall sensors:
FPC, 11 pole, pitch 1.0 mm, top contact style

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).

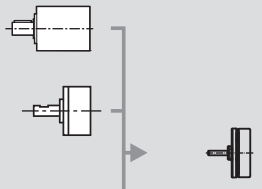
Assigned power rating

maxon Modular System

Overview on page 16 - 21

Planetary Gearhead
∅42 mm
3 - 15 Nm
Page 240

Spur Gearhead
∅45 mm
0.5 - 2.0 Nm
Page 242



Recommended Electronics:

DECS 50/5	Page 288
DEC 24/3	289
DEC 50/5	289
DEC Module 24/2	289
DECV 50/5	295
EPOS2 Module 36/2	302
EPOS 24/1	302
EPOS2 24/5	303
EPOS P 24/5	306
Notes	**20**