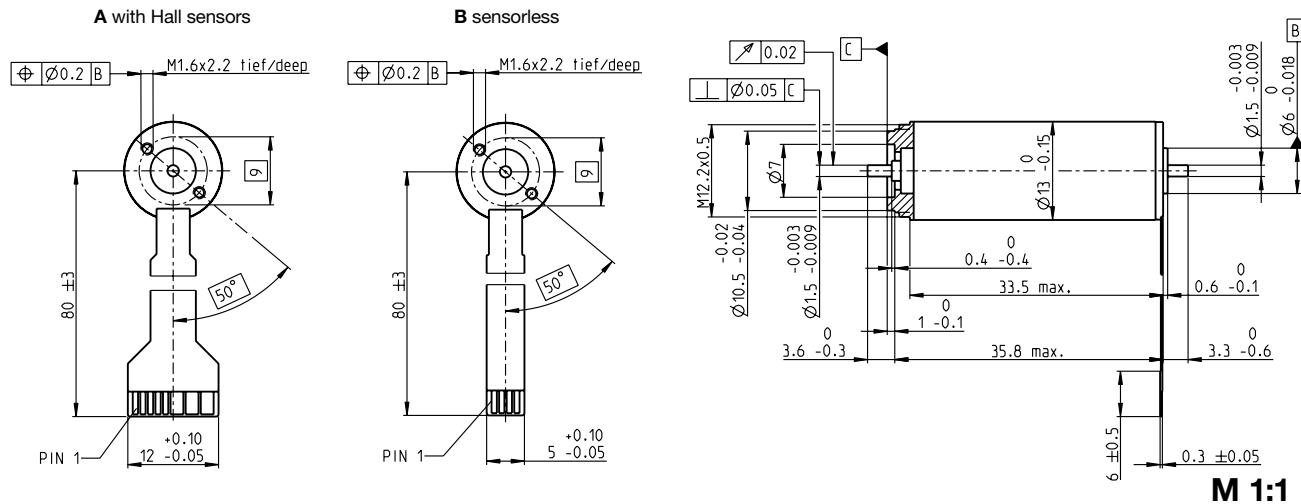


# EC 13 Ø13 mm, brushless, 12 Watt

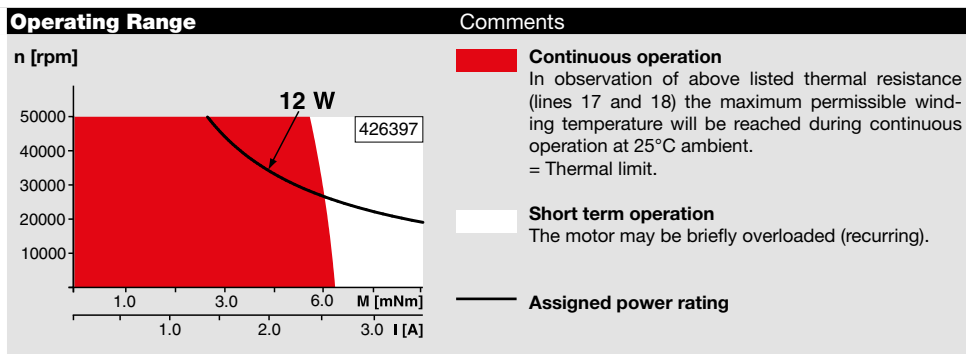


- Stock program
- Standard program
- Special program (on request)

		Part Numbers					
	A with Hall sensors	426397	430160	430161	430162	430163	430164
	B sensorless	426576	430166	430167	430168	430169	430170

Motor Data								
Values at nominal voltage								
1 Nominal voltage	V	6	9	12	18	24	36	
2 No load speed	rpm	24100	24200	24100	24900	24100	26600	
3 No load current	mA	198	132	98.9	68.9	49.5	38.2	
4 Nominal speed	rpm	18200	19100	18800	20000	19000	21700	
5 Nominal torque (max. continuous torque)	mNm	5.15	5.64	5.13	5.53	5.18	5.38	
6 Nominal current (max. continuous current)	A	2.37	1.72	1.18	0.871	0.598	0.456	
7 Stall torque	mNm	21.7	27.4	23.8	28.8	24.8	30.3	
8 Stall current	A	9.31	7.85	5.1	4.24	2.67	2.38	
9 Max. efficiency	%	74	76	75	77	75	77	
Characteristics								
10 Terminal resistance phase to phase	Ω	0.644	1.15	2.35	4.24	9	15.1	
11 Terminal inductance phase to phase	mH	0.0103	0.0233	0.0413	0.0879	0.165	0.308	
12 Torque constant	mNm/A	2.33	3.49	4.66	6.8	9.32	12.7	
13 Speed constant	rpm/V	4100	2730	2050	1410	1020	751	
14 Speed/torque gradient	rpm/mNm	1130	896	1030	877	990	893	
15 Mechanical time constant	ms	3.86	3.05	3.52	2.99	3.37	3.04	
16 Rotor inertia	gcm <sup>2</sup>	0.325	0.325	0.325	0.325	0.325	0.325	

Specifications	
Thermal data	
17 Thermal resistance housing-ambient	23.9 K/W
18 Thermal resistance winding-housing	1.26 K/W
19 Thermal time constant winding	0.603 s
20 Thermal time constant motor	263 s
21 Ambient temperature	-40...+100°C
22 Max. winding temperature	+155°C
Mechanical data (preloaded ball bearings)	
23 Max. speed	50000 rpm
24 Axial play at axial load < 1.8 N	0 mm
> 1.8 N	max. 0.05 mm
25 Radial play	preloaded
26 Max. axial load (dynamic)	1.5 N
27 Max. force for press fits (static)	18 N
(static, shaft supported)	250 N
28 Max. radial load, 5 mm from flange	4 N



Other specifications		
29 Number of pole pairs	1	
30 Number of phases	3	
31 Weight of motor	29 g	
Connection		
Pin 1	with Hall sensors	sensorless
Pin 2	V <sub>Hall</sub> 4.5...24 VDC	Motor winding 1
Pin 3	Hall sensor 3	Motor winding 2
Pin 4	Hall sensor 1	Motor winding 3
Pin 5	Hall sensor 2	N.C.
Pin 6	GND	
Pin 7	Motor winding 3	
Pin 8	Motor winding 2	
Pin 9	Motor winding 1	
Adapter		
see p. 471	Part number	Part number
	220300	220310
Connector		
	Part number	Part number
Tyco	1-84953-1	84953-4
Molex	52207-1133	52207-0433
Molex	52089-1119	52089-0419
Pin for design with Hall sensors: FPC, 11-pol, Pitch 1.0 mm, top contact style Wiring diagram for Hall sensors see page 41		

**maxon Modular System** Overview on page 28-36

**Planetary Gearhead**  
 Ø13 mm  
 0.2 - 0.35 Nm  
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**Recommended Electronics:**

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ESCON 36/3 EC	445
ESCON Mod. 50/4 EC-S	445
ESCON Module 50/5	445
ESCON 50/5	447
DEC Module 24/2	449
DEC Module 50/5	449