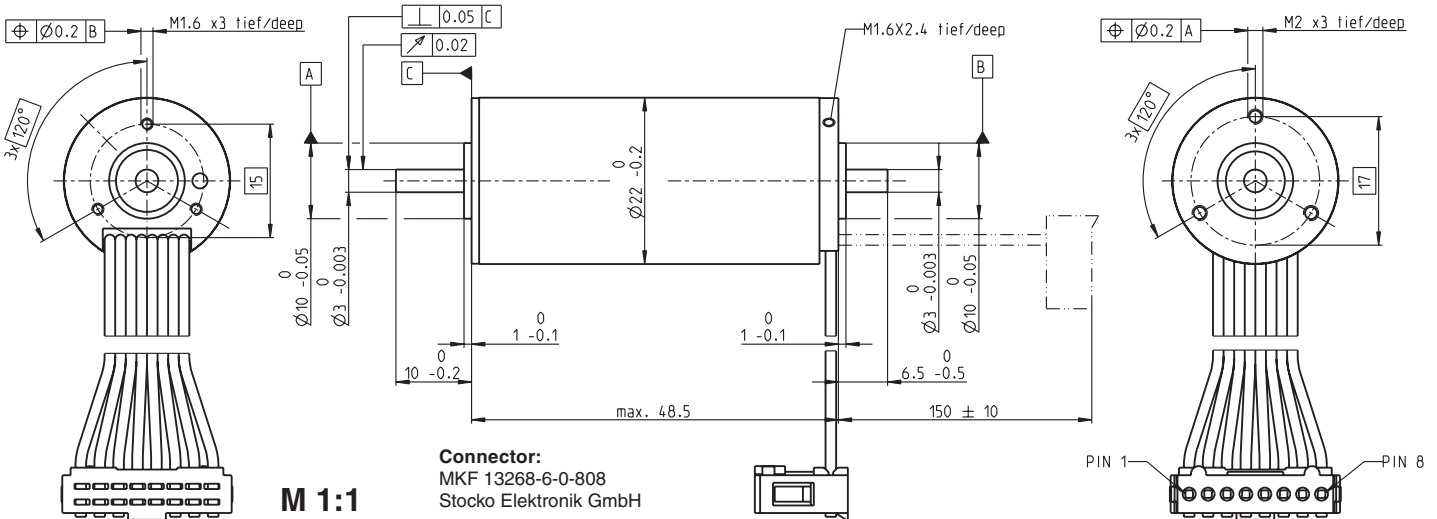


# EC-max 22 Ø22 mm, brushless, 25 Watt

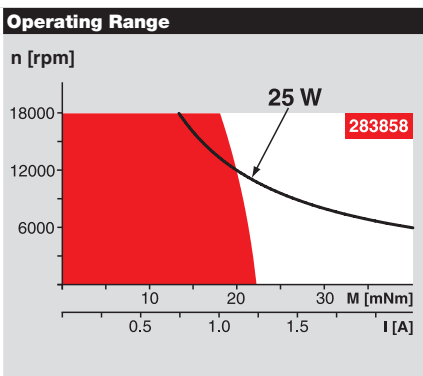


- Stock program
- Standard program
- Special program (on request)

Order Number					
283856	283857	283858	283859	283860	

Motor Data						
<b>Values at nominal voltage</b>						
1 Nominal voltage	V	12.0	18.0	24.0	36.0	48.0
2 No load speed	rpm	12400	12900	12900	12200	13000
3 No load current	mA	214	153	115	69.7	57.6
4 Nominal speed	rpm	9820	10300	10400	9610	10500
5 Nominal torque (max. continuous torque)	mNm	22.9	21.9	22.9	22.7	23.4
6 Nominal current (max. continuous current)	A	2.69	1.80	1.41	0.877	0.720
7 Stall torque	mNm	114	112	121	111	127
8 Starting current	A	12.6	8.55	6.97	4.00	3.66
9 Max. efficiency	%	76	76	77	76	77
<b>Characteristics</b>						
10 Terminal resistance phase to phase	Ω	0.955	2.10	3.44	9.01	13.1
11 Terminal inductance phase to phase	mH	0.0499	0.103	0.182	0.462	0.730
12 Torque constant	mNm / A	9.10	13.0	17.4	27.7	34.8
13 Speed constant	rpm / V	1050	732	549	345	274
14 Speed / torque gradient	rpm / mNm	110	118	109	112	103
15 Mechanical time constant	ms	5.14	5.50	5.06	5.23	4.82
16 Rotor inertia	gcm <sup>2</sup>	4.45	4.45	4.45	4.45	4.45

Specifications	
<b>Thermal data</b>	
17 Thermal resistance housing-ambient	10.2 K / W
18 Thermal resistance winding-housing	1.02 K / W
19 Thermal time constant winding	1.97 s
20 Thermal time constant motor	628 s
21 Ambient temperature	-40 ... +100°C
22 Max. permissible winding temperature	+155°C
<b>Mechanical data (preloaded ball bearings)</b>	
23 Max. permissible speed	18000 rpm
24 Axial play at axial load < 5.0 N	0 mm
	> 5.0 N
	0.14 mm
25 Radial play preloaded	
26 Max. axial load (dynamic)	4.5 N
27 Max. force for press fits (static) (static, shaft supported)	53 N
	1000 N
28 Max. radial loading, 5 mm from flange	16 N
<b>Other specifications</b>	
29 Number of pole pairs	1
30 Number of phases	3
31 Weight of motor	124 g



**maxon Modular System** Overview on page 16 - 21

<p><b>Planetary Gearhead</b> Ø22 mm 2.0 - 3.4 Nm Page 225</p>	<p><b>Encoder MR</b> 128 / 256 / 512 Imp., 2 / 3 channels Page 261</p>																		
<p><b>Planetary Gearhead</b> Ø32 mm 1.0 - 6.0 Nm Page 234</p>	<p><b>Brake AB 20</b> 24 VDC 0.1 Nm Page 316</p>																		
<p><b>Koaxdrive</b> Ø32 mm 1.0 - 4.5 Nm Page 236</p>	<p><b>Recommended Electronics:</b></p> <table border="0"> <tr><td>DECS 50/5</td><td>Page 289</td></tr> <tr><td>DEC 24/3, Module 24/2</td><td>290</td></tr> <tr><td>DEC 50/5, Module 50/5</td><td>291</td></tr> <tr><td>DECV 50/5</td><td>297</td></tr> <tr><td>DES 50/5</td><td>298</td></tr> <tr><td>EPOS2 24/5</td><td>305</td></tr> <tr><td>EPOS2 50/5</td><td>305</td></tr> <tr><td>EPOS P 24/5</td><td>308</td></tr> <tr><td>Notes</td><td>20</td></tr> </table>	DECS 50/5	Page 289	DEC 24/3, Module 24/2	290	DEC 50/5, Module 50/5	291	DECV 50/5	297	DES 50/5	298	EPOS2 24/5	305	EPOS2 50/5	305	EPOS P 24/5	308	Notes	20
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<p><b>Spindle Drive</b> Ø32 mm Page 249 / 250 / 251</p>																			

Values listed in the table are nominal.

**Connection (Cable AWG 24)**

brown	Motor winding 1	Pin 1
red	Motor winding 2	Pin 2
orange	Motor winding 3	Pin 3
yellow	V <sub>Hall</sub> 4.5 ... 24 VDC	Pin 4
green	GND	Pin 5
blue	Hall sensor 1	Pin 6
violet	Hall sensor 2	Pin 7
grey	Hall sensor 3	Pin 8

Wiring diagram for Hall sensors see p. 27