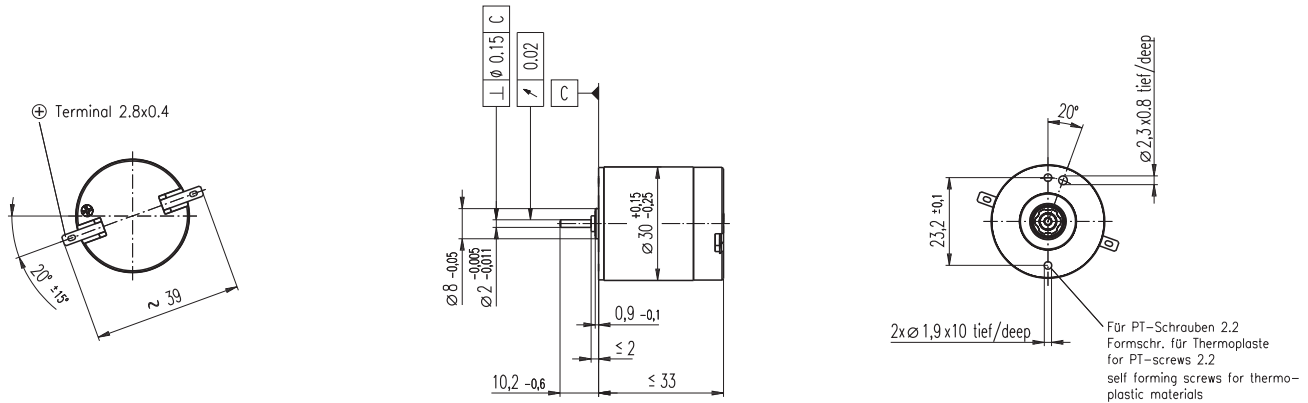


# F 2130 Ø30 mm, Graphite Brushes, 3 Watt

**NRND** See page 13  
Not recommended for New Design



**M 1:2**

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

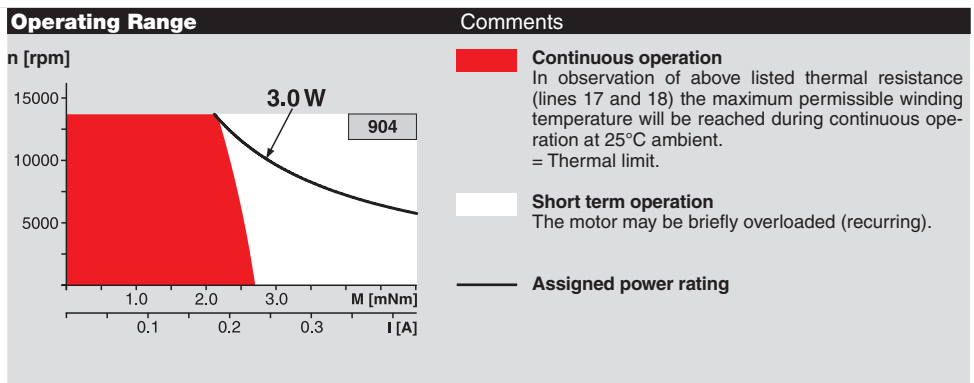
Part Numbers	
2130. ... -22.116-050 (Insert winding number)	
Winding number	900 903 904 905 906 907 908 910

Motor Data															
Values at nominal voltage															
1 Nominal voltage	V	3	6	6	9	12	12	15	24						
2 No load speed	rpm	4220	5260	4190	5470	6050	4920	4990	5140						
3 No load current	mA	56.5	31.2	23.5	20.9	17.5	13.5	10.9	6.96						
4 Nominal speed	rpm	987	2020	929	2200	2780	1600	1650	1760						
5 Nominal torque (max. continuous torque)	mNm	2.41	2.84	2.98	2.97	3.00	3.07	3.08	3.11						
6 Nominal current (max. continuous current)	A	0.544	0.332	0.276	0.230	0.189	0.157	0.127	0.0809						
7 Stall torque	mNm	3.52	5.01	4.10	5.31	5.87	4.81	4.85	4.96						
8 Starting current	A	0.725	0.540	0.353	0.380	0.341	0.228	0.185	0.120						
9 Max. efficiency	%	37	51	49	54	57	55	56	57						
Characteristics															
10 Terminal resistance	Ω	4.14	11.1	17.0	23.7	35.2	52.5	80.9	200						
11 Terminal inductance	mH	0.136	0.496	0.780	1.13	1.71	2.56	3.96	9.87						
12 Torque constant	mNm/A	4.85	9.27	11.6	14.0	17.2	21.0	26.2	41.3						
13 Speed constant	rpm/V	1970	1030	822	683	555	454	365	231						
14 Speed/torque gradient	rpm/mNm	1680	1230	1200	1160	1130	1130	1130	1120						
15 Mechanical time constant	ms	72.6	50.6	49.2	46.1	44.5	44.1	43.3	42.1						
16 Rotor inertia	gcm <sup>2</sup>	4.13	3.91	3.91	3.80	3.75	3.71	3.67	3.60						

Specifications	
Thermal data	
17 Thermal resistance housing-ambient	23.1 K/W
18 Thermal resistance winding-housing	13.3 K/W
19 Thermal time constant winding	22.1 s
20 Thermal time constant motor	728 s
21 Ambient temperature	-20...+65°C
22 Max. permissible winding temperature	+85°C
Mechanical data (sleeve bearings)	
23 Max. permissible speed	13600 rpm
24 Axial play	0.15 - 0.25 mm
25 Radial play	0.014 mm
26 Max. axial load (dynamic)	0.4 N
27 Max. force for press fits (static)	50 N
28 Max. radial loading, 5 mm from flange	2.0 N
Mechanical data (ball bearings)	
23 Max. permissible speed	13600 rpm
24 Axial play	0.15 - 0.25 mm
25 Radial play	0.025 mm
26 Max. axial load (dynamic)	1.0 N
27 Max. force for press fits (static)	24 N
28 Max. radial loading, 5 mm from flange	5 N
Other specifications	
29 Number of pole pairs	1
30 Number of commutator segments	7
31 Weight of motor	63 g

Values listed in the table are nominal.  
Explanation of the figures on page 71.

**Option**  
Ball bearings in place of sleeve bearings



**maxon Modular System**

**Spur Gearhead**  
Ø30 mm  
0.07 - 0.2 Nm  
Page 258

Overview on page 20 - 25

**Recommended Electronics:**  
ESCON 36/2 DC Page 320  
ESCON 50/5 321

**Notes** 22