

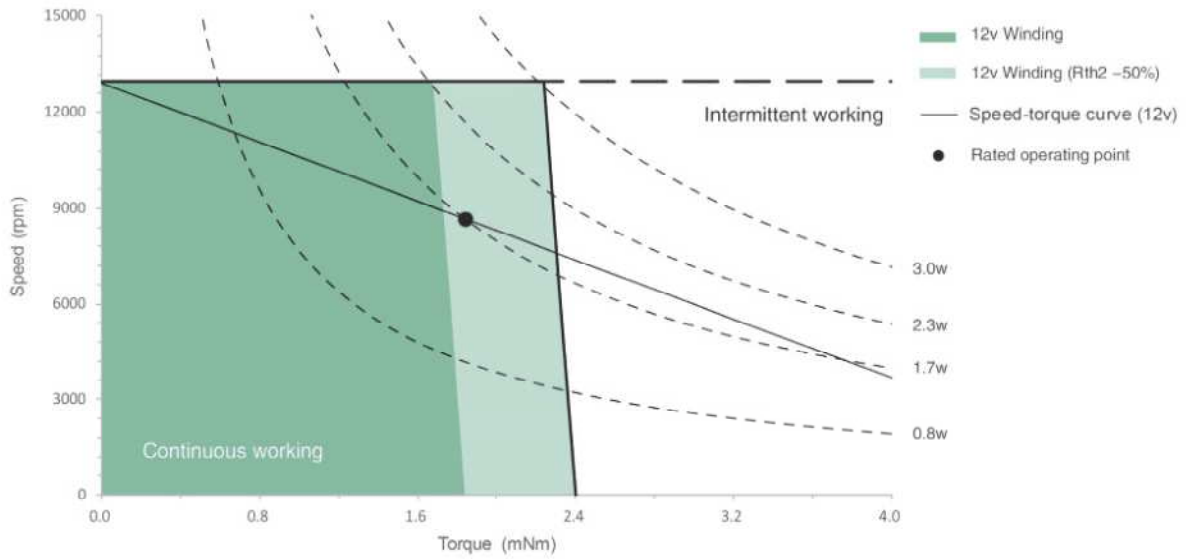
# TCU13020 Ø13mm Precious Metal Brushes 1.7/2.3W

Motor Data		Part Numbers				
		TCU13020P03	TCU13020P06	TCU13020P09	TCU13020P12	TCU13020P15
Nominal voltage	V	3	6	9	12	15
No load speed	rpm	9800	12100	12400	12900	12400
No load current	mA	23.3	23.0	11.7	8.0	7.1
Nominal speed	rpm	5030	8100	7940	8630	8110
Max. continuous torque	mNm	1.64	1.74	1.85	1.83	1.81
Max. continuous current	A	0.596	0.409	0.275	0.218	0.167
Stall torque	mNm	3.44	5.12	5.36	5.62	5.33
Stall current	A	1.20	1.13	0.77	0.65	0.47
Max efficiency	%	74	73	79	78	77
Terminal Resistance	Ohm	2.5	5.3	11.7	18.6	32.0
Terminal Inductance	mH	0.041	0.099	0.246	0.402	0.688
Torque constant	mNm / A	2.87	4.53	6.97	8.76	11.37
Speed constant	rpm / V	3330	2110	1370	1090	840
Speed/torque gradient	rpm / mNm	2903	2471	2300	2327	2364
Mechanical time constant	ms	8.33	9.19	7.68	7.77	7.82
Rotor inertia	gcm <sup>2</sup>	0.274	0.355	0.319	0.319	0.316

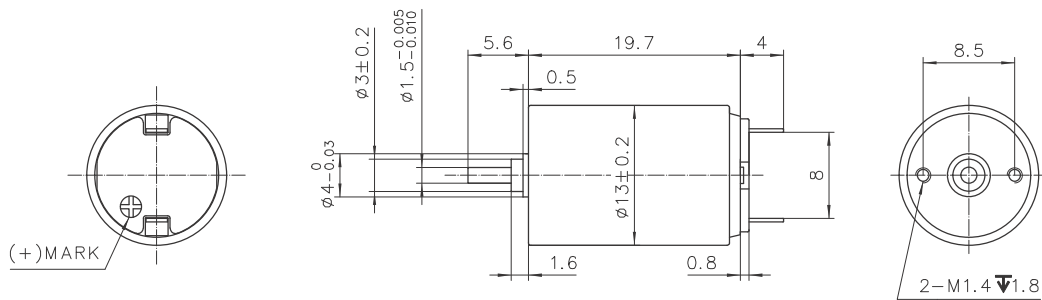
Specification		
Bearing	Sleeve bearing	
Max speed	rpm	13000
Axial play	mm	≤0.3
Number of commutator segments	5	
Ambient temperature	° C	-20~+65
Max winding temperature	° C	100
Thermal resistance		
Housing - Ambient	° C/ W	50.6
Winding - Housing	° C/ W	16.8
Thermal time constant		
Motor	s	76
Winding	s	4.14
Number of pole pairs	1	
Weight	g	13.6

Combination	
<b>Gearbox</b>	
PG13C	
Ø13mm	0.3 Nm 16:1-425:1
Page 43	
<b>Encoder</b>	
R13	
Ø13mm	256 Lines 3 Channels
Page 48	
<b>Option</b>	
Precious Metal Brushes / Graphite Brushes	

## Operating Range



## Dimension



TCU13020Pxx-S001