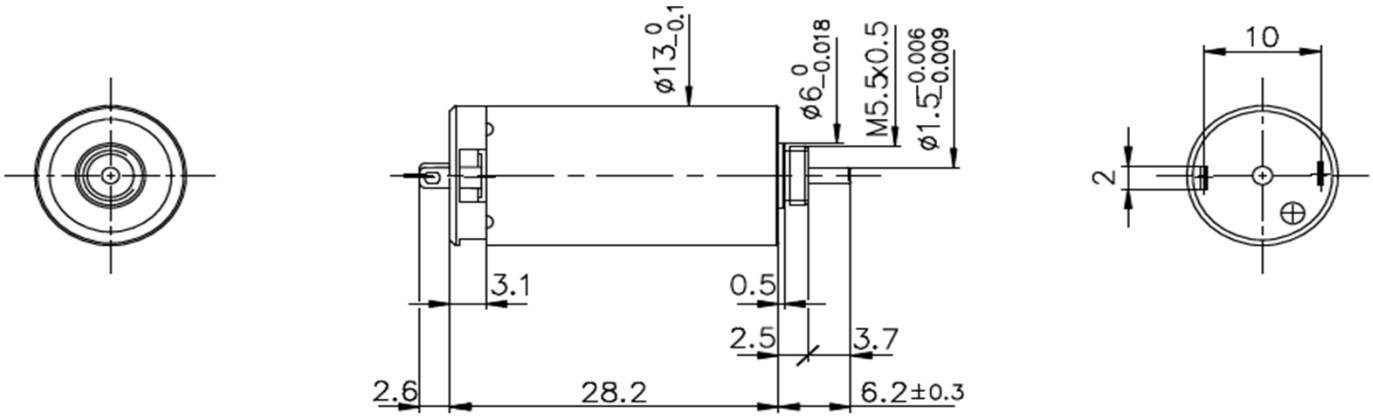
13N88 Precious metal commutation Ø13mm 3.3 mNm



13N88 ** .1**

Electrical Data	****	213E	110	107	
1 Nominal Voltage	V	6	12	24	Volt
2 No-Load Speed	n_0	12,290	12,400	14,150	rpm
3 No-Load Current	I_0	25.6	13.6	8.8	mA
4 Terminal Resistance	R	4.2	13.7	47.4	Ω
5 Output Power	$P_{2max.}$	2.4	2.6	2.5	W
6 Stall Torque	mNm	6.5 (0.93)	8 (1.14)	8.2 (1.17)	mNm (oz-in)
7 Efficiency	$\eta_{max.}$	75	77	75	%
8 Max continuous speed	$n_{e\ max.}$	9,000	9,000	9,000	rpm
9 Max continuous torque	$M_{e\ max.}$	3 (0.47)	3.3 (0.47)	3.2 (0.46)	mNm (oz-in)
10 Max continuous current	$I_{e\ max.}$	0.69	0.38	0.21	A
11 Back-EMF Constant	k_E	0.48	0.95	1.67	mV/rpm
12 Torque Constant	k_M	4.58	9.10	15.90	mNm/A
13 Motor Regulation	R/k^2	200.0	165.0	185.0	10^3/Nms
14 Friction Torque	T_F	0.12 (0.02)	0.12 (0.02)	0.14 (0.02)	mNm (oz-in)
15 Rotor Inductance	L	0.07	0.25	0.80	mH
16 Mechanical Time Constant	τ_m	5.6	5.5	5.3	ms
17 Rotor Inertia	J	0.28	0.33	0.29	$g.cm^2$
18 Thermal Resistance (rotor/body)	R_{th1} / R_{th2}	10/40	10/40	10/40	°C/W
19 Thermal Time Constant (rotor/stator)	τ_{w1}/t_{w2}	6/300	6/300	5/300	°C/W
20 Operating Temperature Range:	motor	-30°C to 85°C (-22°F to 185°F)			°C (°F)
	rotor	100°C (212°F)			°C (°F)
21 Shaft Load max.:		With sleeve bearings			
at 3,000 rpm (5mm from bearing)	-radial	1.5 (5.4)			N (oz)
at 3,000 rpm	-axial	150 (539.5)			N (oz)
22 Shaft play:	-radial	<0.03 (0.0012)			mm (inch)
	-axial	0.15 (0.0059)			mm (inch)
23 Weight	g	18 (0.64)			g (oz)

Execution			
Gearbox	**13N88**	**13N88D12**	**MR2**
R13	1	3	Contact Us
R10	Contact Us	Contact Us	Contact Us