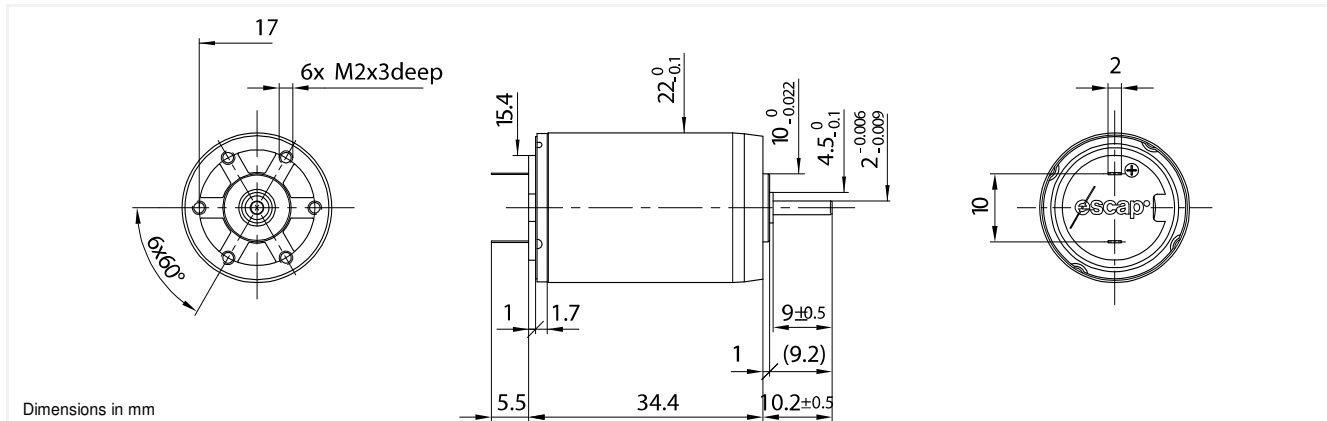


## 22V28

Precious metal commutation

Ø22mm

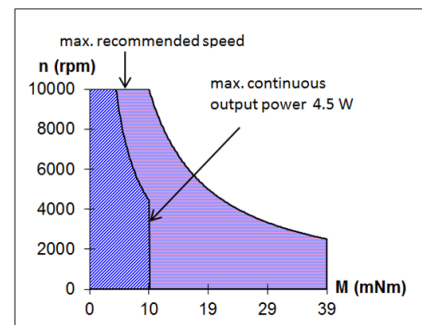
9.7 mNm



**22V28 \*\*\*\* .201**

Electrical Data	****	213P	216E	213E	210E	208E	
1 Nominal Voltage	V	6	9	12	15	24	Volt
2 No-Load Speed	$n_0$	7,100	6,725	7,630	7,550	6,340	rpm
3 No-Load Current	$I_0$	15.0	9.0	7.6	6.0	3.2	mA
4 Terminal Resistance	R	3.0	6.7	11.9	24.5	75.0	$\Omega$
5 Output Power	$P_{2max.}$	4.1	4.4	3.8	3.3	3.6	W
6 Stall Torque	mNm	16 (2.27)	17.1 (2.43)	15 (2.13)	11.5 (1.63)	11.5 (1.63)	mNm (oz-in)
7 Efficiency	$\eta_{max.}$	83	84	83	81	81	%
8 Max Continuous Speed	$n_{e max.}$	10,000	10,000	10,000	10,000	10,000	rpm
9 Max Continuous Torque	$M_{e max.}$	9.1 (1.38)	9.7 (1.38)	8.5 (1.21)	7.4 (1.05)	8.1 (1.15)	mNm (oz-in)
10 Max Continuous Current	$I_{e max.}$	1.15	0.77	0.58	0.40	0.23	A
11 Back-EMF Constant	$k_E$	0.84	1.33	1.56	1.97	3.75	mV/rpm
12 Torque Constant	$k_M$	8.00	12.70	14.90	18.80	35.80	mNm/A
13 Motor Regulation	$R/k^2$	47.0	42.0	54.0	69.00	58.00	$10^3/Nms$
14 Friction Torque	$T_F$	0.12 (0.02)	0.12 (0.02)	0.11 (0.02)	0.11 (0.02)	0.11 (0.02)	mNm (oz-in)
15 Rotor Inductance	L	0.15	0.50	0.55	0.80	3.30	mH
16 Mechanical Time Constant	$t_m$	15.0	16.4	17.3	20.0	13.9	ms
17 Rotor Inertia	J	3.20	3.90	3.20	2.90	2.40	$g.cm^2$
<b>General Data</b>							
18 Thermal Resistance (rotor/body)	$R_{th1} / R_{th2}$			7/16			$^{\circ}C/W$
19 Thermal Time Constant (rotor/stator)	$t_{w1}/t_{w2}$			8/460			S
20 Operating Temperature Range:	motor			-30 $^{\circ}C$ to 85 $^{\circ}C$ (-22 $^{\circ}F$ to 185 $^{\circ}F$ )			$^{\circ}C$ ( $^{\circ}F$ )
	rotor			100 $^{\circ}C$ (212 $^{\circ}F$ )			$^{\circ}C$ ( $^{\circ}F$ )
21 Shaft Load Max.:				With sleeve bearings			
(5mm from bearing)	-radial			3.0 (10.8)			N (oz)
	-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			68 (2.4)			g (oz)

Execution Table				
Gearbox	Single Shaft	F16	E9	MR2
R22	202	202	225	Upon Request
M22	201	201	204	Upon Request
K24	202	202	225	Upon Request
K27	202	202	225	Upon Request



— Continuous working range  
— Temporary working range

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