

# DC-Micromotor

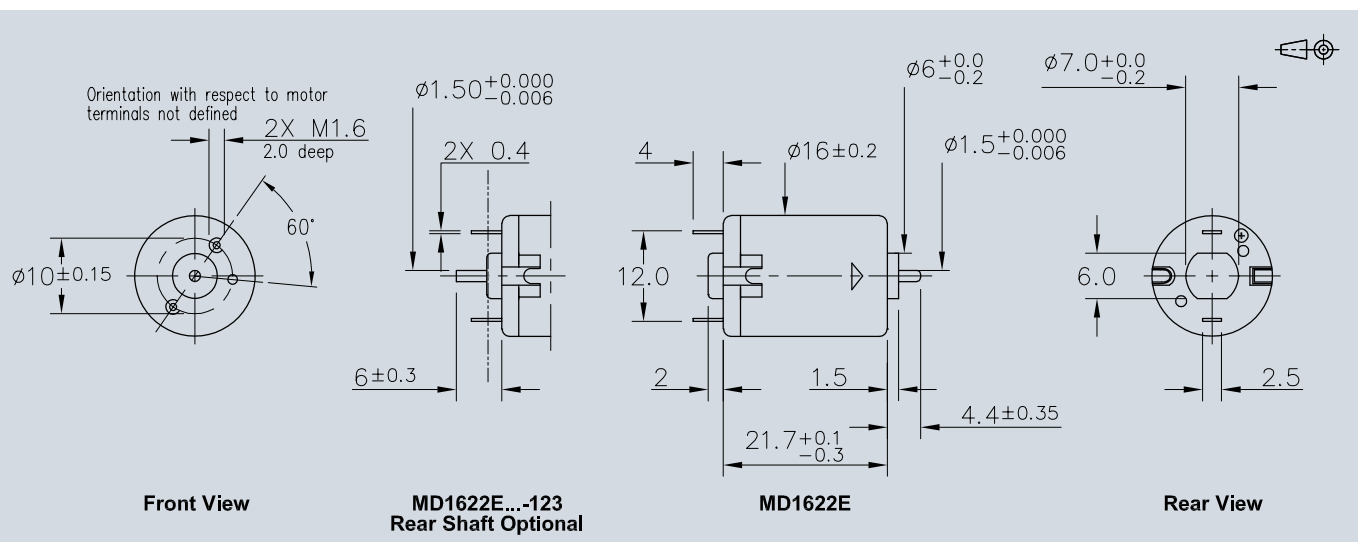
## Precious Metal Commutation

1.35 mNm

For combination with:  
Gearheads: MD15P  
Encoder: ME2-16

### Series MD1622

		MD1622E	4.5V	007V	012V		
1	Nominal voltage	$U_N$	4.5	7	18	Volt	
2	Winding resistance	R	± 10%	5.50	8.20	75	$\Omega$
3	Output power	$P_{2 \text{ max.}}$	0.79	1.29	0.80	W	
4	Efficiency	$\eta_{\text{ max.}}$	53	54	39	%	
5	No-load speed	$n_o$	± 10%	10,400	12,900	11,050	rpm
6	No-load current max. (shaft $\varnothing$ 1.5 mm)	$I_o$	± 50%	0.062	0.06	0.034	A
7	Stall torque	$M_H$	3.12	4.11	3.20	mNm	
8	Friction torque	$M_R$	0.24	0.29	0.45	mNm	
9	Speed constant	$k_n$	2,501	1,982	715	rpm/V	
10	Back-EMF constant	$k_E$	0.40	0.50	1.40	mV/rpm	
11	Torque constant	$k_M$	3.82	4.82	13.35	mNm/A	
12	Current constant	$k_I$	0.262	0.208	0.075	A/mNm	
13	Slope of n-M curve	$\Delta n / \Delta M$	3,329	3,137	3,448	rpm/mNm	
14	Rotor inductance	L	1,600	2,500	14,844	$\mu\text{H}$	
15	Mechanical time constant	$\tau_m$	24	19	23	ms	
16	Rotor inertia	J	0.63	0.54	0.54	$\text{gcm}^2$	
17	Angular acceleration	$\alpha_{\text{ max.}}$	50	76	59	$\cdot 10^3 \text{ rad/s}^2$	
18	Thermal resistance	$R_{\text{th } 1} / R_{\text{th } 2}$	30 / 41			$^{\circ}\text{C/W}$	
19	Thermal time constant	$\tau_{w1}$	295			s	
20	Operating temperature range:						
	- motor		- 10 to + 50			$^{\circ}\text{C}$	
	- rotor, max. permissible		+ 120			$^{\circ}\text{C}$	
21	Shaft bearing		sintered bronze sleeves				
22	Shaft load max.:						
	- with shaft diameter		1.5			mm	
	- radial at 3,000 rpm (3 mm from bearing)		1.67			N	
	- axial at 3,000 rpm		1			N	
	- axial at standstill (shaft supported)		98			N	
23	Shaft play						
	- radial (4 mm from motor face)	$\leq$	0.03			mm	
	- axial	$\leq$	0.05 to 0.45			mm	
24	Housing material		steel, nickel plating				
25	Weight		14.25			g	
26	Direction of rotation		clockwise, viewed from the front face				
27	Speed up to	$n_{e \text{ max.}}$	10,000	10,000	10,000	rpm	
28	Torque up to	$M_{e \text{ max.}}$	1.242	1.351	1.238	mNm	
29	Current up to (thermal limits)	$I_{e \text{ max.}}$	0.404	0.349	0.115	A	



## How to Order a MD1622

Part number	Voltage	Description
MD1622E4.5V	4.5	Standard motor
MD1622E4.5V-123	4.5	Standard motor with rear shaft
MD1622E007V	7	Standard motor
MD1622E007V-123	7	Standard motor with rear shaft
MD1622E012V	18	Standard motor
MD1622E012V-123	18	Standard motor with rear shaft