

# DC-Micromotors

## Precious Metal Commutation

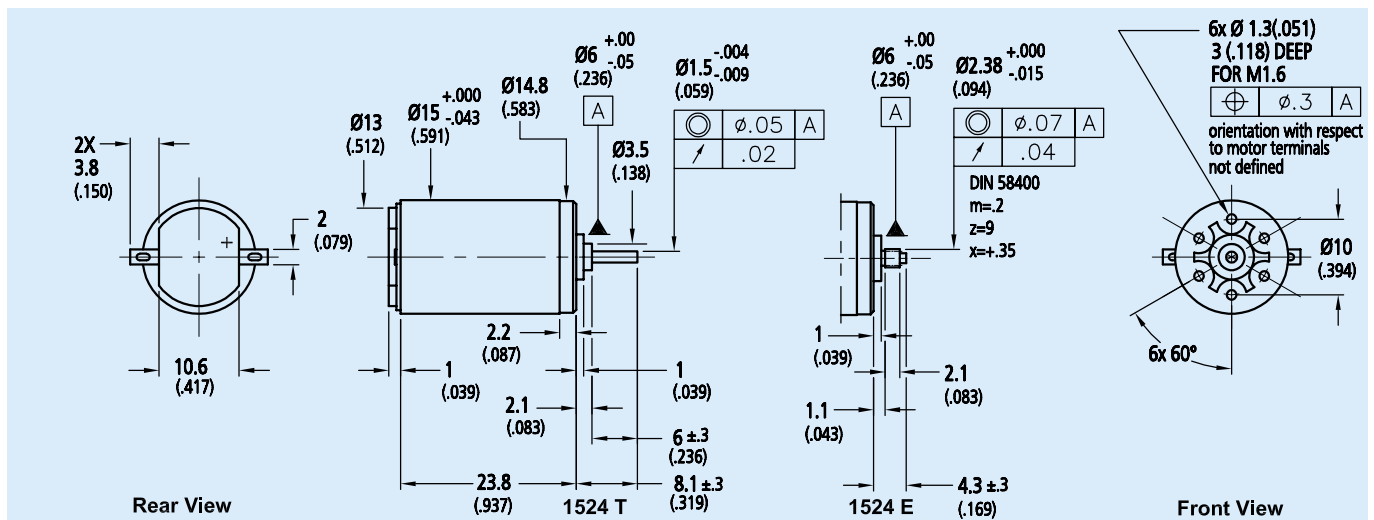
# 1.25 Watt

For combination with:  
 Gearheads: 15A, 15/3, 15/4, 15/5, 15/8,  
 16A, 16/7  
 Encoder: HE

### Series 1524 ... S

See beginning of the Motor Section for Ordering Information

	1524 E	006 S	009 S	012 S	018 S		
1 Nominal voltage	$U_N$		6	9	12	18	Volt
2 Terminal resistance	R	± 12%	11.0	19.0	48.0	90.0	Ω
3 Output power	$P_{2 \text{ max.}}$		0.78	1.03	0.72	0.86	W
4 Efficiency	$\eta_{\text{ max.}}$		74	78	76	76	%
5 No-load speed	$n_o$	± 12%	13,400	15,000	12,500	12,600	rpm
6 No-load current (with shaft $\varnothing$ 0.04 in)	$I_o$	± 50%	0.012	0.007	0.005	0.004	A
7 Stall torque	$M_H$		0.316	0.372	0.313	0.371	oz-in
8 Friction torque	$M_R$		0.007	0.006	0.006	0.007	oz-in
9 Speed constant	$k_n$		2,280	1,690	1,060	714	rpm/V
10 Back-EMF constant	$k_E$		0.438	0.591	0.941	1.400	mV/rpm
11 Torque constant	$k_M$		0.592	0.799	1.272	1.898	oz-in/A
12 Current constant	$k_I$		1.689	1.252	0.786	0.527	A/oz-in
13 Slope of n-M curve	$\Delta n/\Delta M$		42,405	40,323	39,936	33,962	rpm/oz-in
14 Rotor inductance	L		150	350	850	1,400	μH
15 Mechanical time constant	$\tau_m$		27	28	26	27	ms
16 Rotor inertia	J		$6.089 \cdot 10^{-6}$	$6.656 \cdot 10^{-6}$	$6.231 \cdot 10^{-6}$	$7.647 \cdot 10^{-6}$	oz-in-sec <sup>2</sup>
17 Angular acceleration	$\alpha_{\text{ max.}}$		52	56	50	49	$\cdot 10^3 \text{ rad/s}^2$
18 Thermal resistance	$R_{th1} / R_{th2}$	8 / 43					°C/W
19 Thermal time constant	$\tau_{w1} / \tau_{w2}$	2.1 / 300					s
20 Operating temperature range:							
– motor			– 30 to +85 (– 22 to +185)				°C (°F)
– rotor, max. permissible			+125 (+257)				°C (°F)
Note: Special operating temperature models for			–55°C to +125°C (– 67°F to +257°F) available on request.				
21 Shaft bearings		sintered bronze sleeves	ball bearings	ball bearings, preloaded			
22 Shaft load max.:		(standard)	(optional)	(optional)			
– with shaft diameter		0.0394	0.0591	0.0591			in
– radial at 3,000 rpm (0.12 in from bearing)		2.16	18	18			oz
– axial at 3,000 rpm		0.36	1.8	1.8			oz
– axial at standstill		72	36	36			oz
23 Shaft play:							
– radial	≤	0.0012	0.0006	0.0006			in
– axial	≤	0.0079	0.0079	0			in
24 Housing material		steel, zinc galvanized and passivated					
25 Weight		0.64					oz
26 Direction of rotation		clockwise, viewed from the front face					
<b>Recommended values</b>							
27 Speed up to	$n_e \text{ max.}$		12,000	12,000	12,000	12,000	rpm
28 Torque up to	$M_e \text{ max.}$		0.142	0.142	0.142	0.142	oz-in
29 Current up to (thermal limits)	$I_e \text{ max.}$		0.360	0.270	0.170	0.120	A



For notes on technical data refer to "Technical Information". Specifications subject to change without notice. MIME0402