

# DC-Micromotors

## Graphite Commutation

# 16 Watt

For combination with:  
Gearheads: 30/1, 32PG, 38/1, 38/2  
Encoders: HE, 5500, 5540

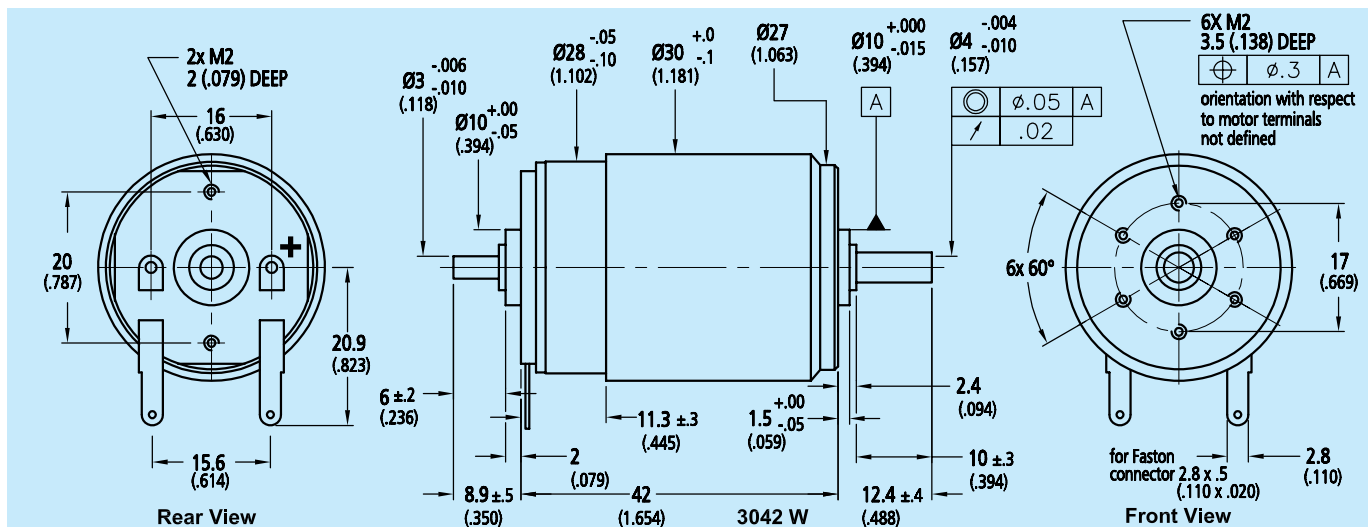
## Series 3042 ... C

	3042 W		006 C	012 C	018 C	024 C	036 C	
1 Nominal voltage	$U_N$		6	12	18	24	36	Volt
2 Terminal resistance	R	$\pm 12\%$	0.6	1.7	3.8	6.8	14.0	$\Omega$
3 Output power	$P_{2 \max.}$		14.5	20.6	20.7	20.6	22.5	W
4 Efficiency	$\eta_{\max.}$		76	80	78	79	79	%
5 No-load speed	$n_o$	$\pm 12\%$	5,100	5,400	5,600	5,700	5,500	rpm
6 No-load current (with shaft $\varnothing$ 0.16 in)	$I_o$	$\pm 50\%$	0.180	0.093	0.070	0.050	0.035	A
7 Stall torque	$M_H$		15.29	20.68	19.97	19.54	22.09	oz-in
8 Friction torque	$M_R$		0.283	0.269	0.297	0.283	0.312	oz-in
9 Speed constant	$k_n$		866	456	316	241	155	rpm/V
10 Back-EMF constant	$k_E$		1.16	2.19	3.17	4.15	6.46	mV/rpm
11 Torque constant	$k_M$		1.558	2.960	4.277	5.608	8.737	oz-in/A
12 Current constant	$k_I$		0.642	0.338	0.234	0.178	0.114	A/oz-in
13 Slope of n-M curve	$\Delta n / \Delta M$		334	261	280	292	249	rpm/oz-in
14 Rotor inductance	L		44	165	360	620	1,450	$\mu H$
15 Mechanical time constant	$\tau_m$		7	7	7	7	7	ms
16 Rotor inertia	J		$1.983 \cdot 10^{-4}$	$2.549 \cdot 10^{-4}$	$2.407 \cdot 10^{-4}$	$2.266 \cdot 10^{-4}$	$2.691 \cdot 10^{-4}$	oz-in-sec <sup>2</sup>
17 Angular acceleration	$\alpha_{\max.}$		76	81	84	85	82	$\cdot 10^3 \text{ rad/s}^2$
18 Thermal resistance	$R_{th1} / R_{th2}$	3 / 14						$^{\circ}C/W$
19 Thermal time constant	$\tau_{w1} / \tau_{w2}$	17.6 / 832						s
20 Operating temperature range:								
– motor			– 30 to +125 (– 22 to +257)					$^{\circ}C$ ( $^{\circ}F$ )
– rotor, max. permissible			+125 (+257)					$^{\circ}C$ ( $^{\circ}F$ )
21 Shaft bearings			ball bearings, preloaded					
22 Shaft load max.:								
– with shaft diameter			0.157					in
– radial at 3,000 rpm (0.12 in from bearing)			72					oz
– axial at 3,000 rpm			7.2					oz
– axial at standstill			72					oz
23 Shaft play:								
– radial	$\leq$	0.0006						in
– axial	$=$	0						in
24 Housing material			steel, zinc galvanized and passivated					
25 Weight			5.51					oz
26 Direction of rotation			clockwise, viewed from the front face					

### Recommended values

27 Speed up to	$n_{e \max.}$		5,000	5,000	5,000	5,000	5,000	rpm
28 Torque up to <sup>1)</sup>	$M_{e \max.}$		4.248	4.248	4.248	4.248	4.248	oz-in
29 Current up to (thermal limits)	$I_{e \max.}$		2.650	1.550	1.050	0.790	0.550	A

<sup>1)</sup> thermal resistance  $R_{th2}$  by 40% reduced



For notes on technical data refer to "Technical Information". Specifications subject to change without notice. MIMED402