

DC-Micromotors

0,45 mNm

Precious Metal Commutation

For combination with:
Gearheads: 16A, 16/3, 16/5, 16/8
Encoders: 20/21B, 03B

Series 1616 E ... S

	1616 E	003 S	004 S	006 S	012 S	018 S	
1 Nominal voltage	U_N	3	4	6	12	18	Volt
2 Terminal resistance	R	4,4	8,6	24,3	85,4	208	Ω
3 Output power	$P_{2 \max.}$	0,47	0,42	0,33	0,37	0,35	W
4 Efficiency	$\eta_{\max.}$	66	63	62	62	62	%
5 No-load speed	n_o	15 800	16 900	14 700	16 500	15 800	rpm
6 No-load current (with shaft \varnothing 1,0 mm)	I_o	0,029	0,023	0,014	0,008	0,005	A
7 Stall torque	M_H	1,13	0,95	0,86	0,87	0,84	mNm
8 Friction torque	M_R	0,05	0,05	0,05	0,05	0,05	mNm
9 Speed constant	k_n	5 500	4 400	2 600	1 460	932	rpm/V
10 Back-EMF constant	k_E	0,182	0,225	0,385	0,686	1,070	mV/rpm
11 Torque constant	k_M	1,74	2,15	3,68	6,55	10,30	mNm/A
12 Current constant	k_I	0,576	0,465	0,272	0,153	0,098	A/mNm
13 Slope of n-M curve	$\Delta n / \Delta M$	14 000	17 800	17 100	19 000	18 900	rpm/mNm
14 Rotor inductance	L	70	120	320	1 100	2 600	μH
15 Mechanical time constant	τ_m	53	53	53	53	53	ms
16 Rotor inertia	J	0,36	0,28	0,30	0,27	0,27	gcm^2
17 Angular acceleration	$\alpha_{\max.}$	31	33	29	33	31	$\cdot 10^3 rad/s^2$
18 Thermal resistance	R_{th1} / R_{th2}	13 / 48					K/W
19 Thermal time constant	τ_{w1} / τ_{w2}	4,1 / 233					s
20 Operating temperature range:							
- motor		- 30 ... + 65 (optional - 55 ... + 125)					$^{\circ}C$
- rotor, max. permissible		+ 65 (optional + 125)					$^{\circ}C$
21 Shaft bearings		sintered bronze sleeves					
22 Shaft load max.:		(standard)					
- with shaft diameter		1,0					mm
- radial at 3000 rpm (3 mm from bearing)		0,6					N
- axial at 3000 rpm		0,1					N
- axial at standstill		20					N
23 Shaft play:							
- radial	\leq	0,03					mm
- axial	\leq	0,2					mm
24 Housing material		steel, zinc galvanized and passivated					
25 Weight		12					g
26 Direction of rotation		clockwise, viewed from the front face					
Recommended values							
27 Speed up to	$n_{e \max.}$	12 000	12 000	12 000	12 000	12 000	rpm
28 Torque up to ¹⁾	$M_{e \max.}$	0,45	0,45	0,45	0,45	0,45	mNm
29 Current up to (thermal limits)	$I_{e \max.}$	0,370	0,260	0,150	0,080	0,052	A

¹⁾ Only with option + 125°C

