

DC-Micromotors

1,5 Watt

Precious Metal Commutation

For combination with:
 Gearheads:
 14/1, 15/3, 15/5, 15/8
 Encoders:
 30B, 20/21B

Series 1319 ... S

	1319 T	003 S	006 S	012 S	015 S	024 S		
1 Nominal voltage	U_N	3	6	12	15	24	Volt	
2 Terminal resistance	R	1,8	6,0	22,0	35,0	120	Ω	
3 Output power	$P_{2 \max.}$	1,18	1,41	1,55	1,50	1,12	W	
4 Efficiency	$\eta_{\max.}$	72	71	71	69	68	%	
5 No-load speed	n_o	14 900	16 300	17 100	16 100	15 500	rpm	
6 No-load current (with shaft \varnothing 1,5 mm)	I_o	0,045	0,030	0,015	0,014	0,007	A	
7 Stall torque	M_H	3,04	3,31	3,45	3,57	2,75	mNm	
8 Friction torque	M_R	0,08	0,10	0,10	0,12	0,10	mNm	
9 Speed constant	k_n	5 100	2 800	1 470	1 110	669	rpm/V	
10 Back-EMF constant	k_E	0,196	0,357	0,682	0,901	1,490	mV/rpm	
11 Torque constant	k_M	1,87	3,41	6,52	8,61	14,30	mNm/A	
12 Current constant	k_I	0,535	0,293	0,153	0,116	0,070	A/mNm	
13 Slope of n-M curve	$\Delta n/\Delta M$	4 900	4 920	4 960	4 510	5 640	rpm/mNm	
14 Rotor inductance	L	40	130	470	745	2 055	μH	
15 Mechanical time constant	τ_m	14	14	14	14	14	ms	
16 Rotor inertia	J	0,27	0,27	0,27	0,30	0,24	gcm ²	
17 Angular acceleration	$\alpha_{\max.}$	110	120	130	120	120	$\cdot 10^3 \text{rad/s}^2$	
18 Thermal resistance	$R_{th 1} / R_{th 2}$	10 / 54						K/W
19 Thermal time constant	τ_{w1} / τ_{w2}	4,5 / 215						s
20 Operating temperature range:								
- motor		- 30 ... + 85 (optional - 55 ... + 125)						$^{\circ}C$
- rotor, max. permissible		+ 125						$^{\circ}C$
21 Shaft bearings		sintered bronze sleeves	ball bearings	ball bearings, preloaded				
22 Shaft load max.:		(standard)	(optional)	(optional)				
- with shaft diameter		1,5	1,5	1,5			mm	
- radial at 3000 rpm (3 mm from bearing)		1,2	5	5			N	
- axial at 3000 rpm		0,2	0,5	0,5			N	
- axial at standstill		20	10	10			N	
23 Shaft play:								
- radial	\leq	0,03	0,015	0,015			mm	
- axial	\leq	0,2	0,2	0			mm	
24 Housing material		steel, zinc galvanized and passivated						
25 Weight		11					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	$M_e \max.$		1,2	1,2	1,2	1,2	1,2	mNm
29 Current up to (thermal limits)	$I_e \max.$		0,790	0,430	0,220	0,180	0,090	A

