

DC-Micromotors

2 mNm

Precious Metal Commutation

For combination with

Gearheads:

15/10, 15A, 16/5, 16/5 S, 16/7, 16/8, 16A, 17/1

Series 1624 ... S

Values at 22°C and nominal voltage	1624 T	003 S	006 S	009 S	012 S	018 S	024 S	
1 Nominal voltage	U_N	3	6	9	12	18	24	V
2 Terminal resistance	R	1,6	9,1	14,5	24	42	75	Ω
3 Output power	$P_{2nom.}$	1,36	0,93	1,34	1,44	1,87	1,85	W
4 Efficiency, max.	$\eta_{max.}$	78	71	75	75	77	76	%
5 No-load speed	n_0	12 000	10 500	11 500	13 000	13 800	14 400	rpm
6 No-load current, typ. (with shaft \varnothing 1,5 mm)	I_0	0,03	0,019	0,012	0,01	0,007	0,006	A
7 Stall torque	M_H	4,33	3,39	4,46	4,23	5,16	4,91	mNm
8 Friction torque	M_R	0,07	0,1	0,09	0,09	0,09	0,09	mNm
9 Speed constant	k_n	4 070	1 800	1 300	1 110	779	611	rpm/V
10 Back-EMF constant	k_E	0,246	0,555	0,767	0,905	1,28	1,64	mV/rpm
11 Torque constant	k_M	2,35	5,3	7,33	8,64	12,3	15,6	mNm/A
12 Current constant	k_I	0,426	0,189	0,136	0,116	0,082	0,064	A/mNm
13 Slope of n-M curve	$\Delta n/\Delta M$	2 770	3 100	2 580	3 070	2 670	2 930	rpm/mNm
14 Rotor inductance	L	85	200	400	750	1 200	3 000	μH
15 Mechanical time constant	τ_m	19	22	19	19	19	24	ms
16 Rotor inertia	J	0,65	0,68	0,7	0,59	0,68	0,78	gcm ²
17 Angular acceleration	$\alpha_{max.}$	66	50	63	72	76	63	$\cdot 10^3 \text{rad/s}^2$
18 Thermal resistance	R_{th1} / R_{th2}	8 / 39						K/W
19 Thermal time constant	τ_{w1} / τ_{w2}	4 / 335						s
20 Operating temperature range:								
– motor		-30 ... +85 (optional version -55 ... +125)						°C
– winding, max. permissible		+125						°C
21 Shaft bearings		sintered bearings		ball bearings		ball bearings, preloaded		
22 Shaft load max.:		(standard)		(optional version)		(optional version)		
– with shaft diameter		1,5		1,5		1,5		mm
– radial at 3 000 rpm (3 mm from bearing)		1,2		5		5		N
– axial at 3 000 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 Mass		21						g
26 Direction of rotation		clockwise, viewed from the front face						
27 Speed up to	$n_{max.}$	17 000						rpm
28 Number of pole pairs		1						
29 Magnet material		AlNiCo						
Rated values for continuous operation								
30 Rated torque	M_N	1,6	1,8	2	1,8	2	1,9	mNm
31 Rated current (thermal limit)	I_N	0,7	0,37	0,29	0,22	0,17	0,13	A
32 Rated speed	n_N	6 860	3 050	4 680	5 620	6 890	7 240	rpm

Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

Note:

The diagram indicates the recommended speed in relation to the available torque at the output shaft for a given ambient temperature of 22°C.

The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

The nominal voltage (U_N) curve shows the operating point at nominal voltage in the insulated and thermally coupled condition. Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



