

DC-Micromotors

Precious Metal Commutation

4,13 mNm
5,68 W

Series 1724 ... SR

Values at 22°C and nominal voltage	1724 T	003 SR	006 SR	012 SR	018 SR	024 SR		
Nominal voltage	U_N	3	6	12	18	24	V	
Terminal resistance	R	0,775	3,4	16,1	31,9	54,4	Ω	
Rotor inductance	L	20,7	75,6	360	712	1 210	μH	
Efficiency, max.	η_{max}	81	80	79	80	80	%	
No-load current, typ.	I_0	0,0379	0,0198	0,0091	0,006	0,005	A	
No-load speed	n_0	8 270	8 630	7 900	8 450	8 630	min^{-1}	
Stall torque	M_H	13,2	11,5	10,6	11,3	11,5	mNm	
Rotor inertia	J	1,2	1	1	1	1	gcm^2	
Friction torque	M_R	0,13	0,13	0,13	0,12	0,13	mNm	
Torque constant	k_M	3,44	6,58	14,4	20,2	26,3	mNm/A	
Speed constant	k_n	2 770	1 450	665	473	363	min^{-1}/V	
Slope of n-M curve	$\Delta n/\Delta M$	624	749	745	747	748	$\text{min}^{-1}/\text{mNm}$	
Thermal resistance:								
- winding to housing	R_{th1}	10					K/W	
- housing to ambient (external plastic flange)	R_{th2p}	27					K/W	
- housing to ambient (external metal flange)	R_{th2m}	3,1					K/W	
Thermal time constant:								
- winding	τ_{w1}	7,2					s	
- housing (external plastic flange)	τ_{w2p}	310					s	
- housing (external metal flange)	τ_{w2m}	36					s	
Operating temperature range:								
- motor		-30 ... +85 (optional version -30 ... +125)						$^{\circ}\text{C}$
- winding, max. permissible		+125						$^{\circ}\text{C}$
Shaft bearings		sintered bearings		ball bearings, preloaded				
Shaft diameter		1,5		1,5			mm	
Radial shaft load max.:								
- dynamic at 3 000 min^{-1} (3 mm from bearing)		1,2		5			N	
Axial shaft load max.:								
- dynamic at 3 000 min^{-1}		0,2		0,5			N	
- static (shaft unsupported)		20		10			N	
Shaft play, max.:								
- radial		0,03		0,015			mm	
- axial		0,2		0			mm	
Speed up to	n_{max}	10 000					min^{-1}	
Number of pole pairs		1						
Mass		27					g	
Housing material		steel, nickel plated						
Magnet material		NdFeB						

Rated values for continuous operation

Rated torque	M_N	2,23	4,06	4,13	4,13	4,12	mNm
Rated current (thermal limit)	I_N	0,7	0,7	0,328	0,233	0,178	A
Rated speed	n_N	6 850	4 540	3 610	4 200	4 420	min^{-1}

Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2p} value has been reduced by 0%.

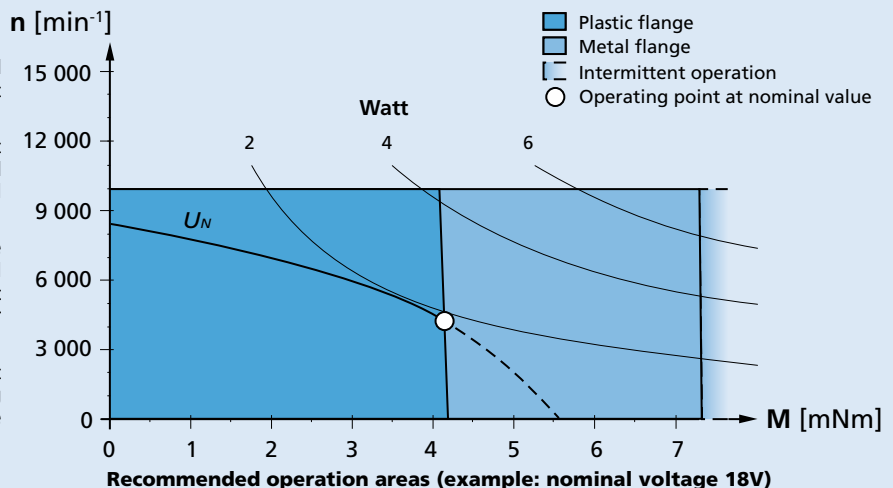
Note:

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 different conditions of thermal coupling, i.e. mounted respectively on a plastic flange and a metal flange.

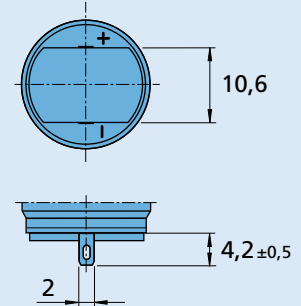
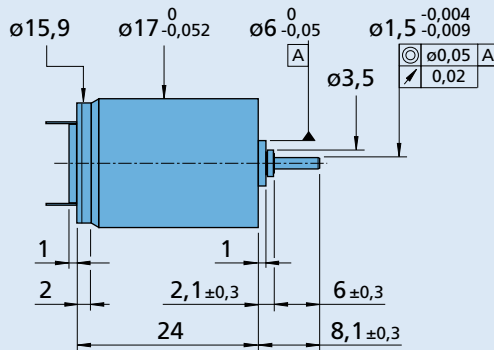
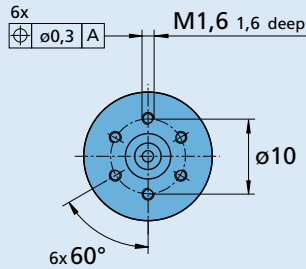
The nominal voltage (U_N) curve shows, up to the thermal limit, the operating point at nominal voltage for the motor mounted on a plastic flange. Higher torque can be achieved by further reducing the thermal resistance.

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.



Dimensional drawing

Orientation with respect to motor terminals not defined



1724 T ... SR

Options

Example product designation: **1724T012SR-277**

Option	Type	Description
L	Twin Leads	For motors with twin leads (PVC), length 150 mm, red (+) / black (-)
4924	Twin Leads	For motors with twin leads (PVC), length 300 mm, red (+) / black (-)
X4924	Twin Leads	For motors with twin leads (PVC), length 600 mm, red (+) / black (-)
4925	Twin Leads	For motors with twin leads (PVC), length 150 mm, red (+) / black (-), with connector AMP 179228-2
X4925	Twin Leads	For motors with twin leads (PVC), length 300 mm, red (+) / black (-), with connector AMP 179228-2
Y4925	Twin Leads	For motors with twin leads (PVC), length 600 mm, red (+) / black (-), with connector AMP 179228-2
F	Single Leads	For motors with single leads (PTFE), length 150 mm, red (+) / black (-)
277	Bearings	2 preloaded ball bearings

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
15A 15/10 16A 16/7 17/1	IE2-1024 IEH2-4096 IEH3-4096 IEH3-4096L	SC 1801 P SC 1801 S MC 3001 B MC 3001 P MC 3603 S MC 5004 P	To view our large range of accessory parts, please refer to the "Accessories" chapter.