

DC-Micromotors

Graphite Commutation

8,8 mNm
9 W

Series 1741 ... CXR

Values at 22°C and nominal voltage		1741 U	006 CXR	012 CXR	018 CXR	024 CXR	
1	Nominal voltage	U_N	6	12	18	24	V
2	Terminal resistance	R	1,3	5,8	15	26,9	Ω
3	Output power	$P_{2nom.}$	5,67	5,54	4,95	4,8	W
4	Efficiency, max.	$\eta_{max.}$	72	74	75	75	%
5	No-load speed	n_0	7 100	7 600	7 300	7 300	min ⁻¹
6	No-load current, typ. (with shaft \varnothing 2 mm)	I_0	0,055	0,028	0,017	0,013	A
7	Stall torque	M_H	30,6	27,9	26,1	26,2	mNm
8	Friction torque	M_R	0,4	0,4	0,4	0,4	mNm
9	Speed constant	k_n	1 303	668	420	314	min ⁻¹ /V
10	Back-EMF constant	k_E	0,768	1,496	2,378	3,185	mV/min ⁻¹
11	Torque constant	k_M	7,33	14,29	22,71	30,41	mNm/A
12	Current constant	k_I	0,136	0,07	0,044	0,033	A/mNm
13	Slope of n-M curve	$\Delta n / \Delta M$	231	271	278	278	min ⁻¹ /mNm
14	Rotor inductance	L	35	135	340	600	μ H
15	Mechanical time constant	τ_m	4,3	4,5	4,4	4,4	ms
16	Rotor inertia	J	1,8	1,6	1,5	1,5	gcm ²
17	Angular acceleration	$\alpha_{max.}$	170	175	174	174	$\cdot 10^3$ rad/s ²
18	Thermal resistance	R_{th1} / R_{th2}	7 / 23				K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	8 / 440				s
20	Operating temperature range:						
	– motor		-30 ... +100				°C
	– winding, max. permissible		+125				°C
21	Shaft bearings		ball bearings, preloaded				
22	Shaft load max.:						
	– with shaft diameter		2				mm
	– radial at 3 000 min ⁻¹ (3 mm from bearing)		8				N
	– axial at 3 000 min ⁻¹		0,8				N
	– axial at standstill		10				N
23	Shaft play:						
	– radial	\leq	0,015				mm
	– axial	$=$	0				mm
24	Housing material		steel, zinc galvanized and passivated				
25	Mass		45				g
26	Direction of rotation		clockwise, viewed from the front face				
27	Speed up to	$n_{max.}$	9 000				min ⁻¹
28	Number of pole pairs		1				
29	Magnet material		NdFeB				
Rated values for continuous operation							
30	Rated torque	M_N	8,8	8,4	8,4	8,4	mNm
31	Rated current (thermal limit)	I_N	1,4	0,69	0,43	0,33	A
32	Rated speed	n_N	4 280	4 410	3 940	3 940	min ⁻¹

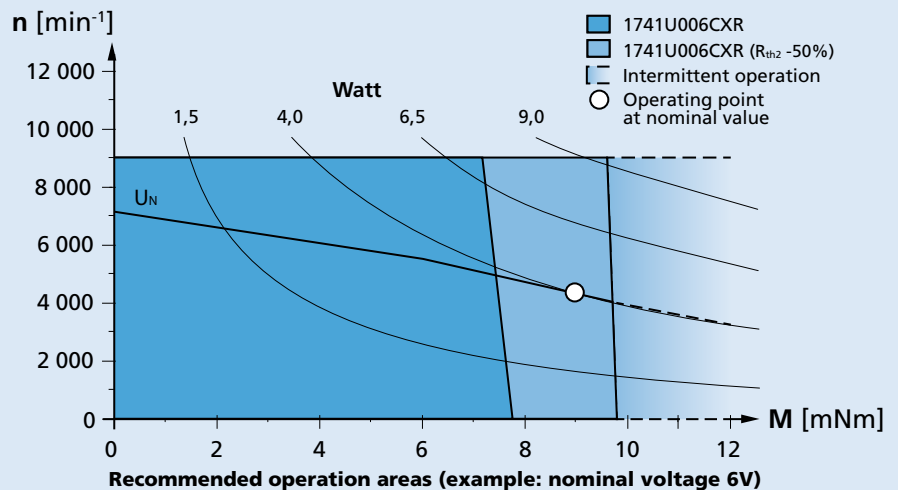
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

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.



Planetary Gearheads

0,55 Nm

For combination with
DC-Micromotors
Brushless DC-Motors
Stepper Motors

Series 17/1

	17/1	17/1 K
Housing material	stainless steel	stainless steel
Geartrain material	steel	steel
Recommended max. input speed for:		
– continuous operation	8 000 min ⁻¹	8 000 min ⁻¹
Backlash, at no-load	≤ 2 °	≤ 2 °
Bearings on output shaft	sintered bearings	ball bearings, preloaded
Shaft load, max.:		
– radial (6,5 mm from mounting face)	≤ 5 N	≤ 75 N
– axial	≤ 3 N	≤ 12 N
Shaft press fit force, max.	≤ 100 N	≤ 35 N
Shaft play		
– radial (6,5 mm from mounting face)	≤ 0,06 mm	≤ 0,03 mm
– axial	≤ 0,1 mm	= 0 mm
Operating temperature range	- 30 ... + 100 °C	- 30 ... + 100 °C

Specifications

	1	2	3	4	5
Number of gear stages					
Continuous torque	mNm 550	550	550	550	550
Intermittent torque	mNm 800	800	800	800	800
Mass without motor, ca.	g 28	35	42	49	56
Efficiency, max.	% 90	80	70	60	50
Direction of rotation, drive to output	=	=	=	=	=
Reduction ratio ¹⁾ (rounded)	3,33:1 4,5:1	11:1 15:1 20:1	37:1 44:1 50:1 68:1 81:1 91:1	123:1 148:1 167:1 178:1 200:1 240:1 270:1 304:1 365:1	412:1 494:1 593:1 667:1 750:1 800:1 900:1 1 013:1 1 367:1
L2 [mm] = length without motor	18,6	23,7	28,8	33,9	39,1
L1 [mm] = length with motor					
1624T...S	42,4	47,5	52,6	57,7	62,9
1717T...SR	35,6	40,7	45,8	50,9	56,1
1724T...SR	42,6	47,7	52,8	57,9	63,1
1727U...CXR	45,8	50,9	56,0	61,1	66,3
1741U...CXR	59,8	64,9	70,0	75,1	80,3
1628T...B	46,6	51,7	56,8	61,9	67,1
AM1524...-55	35,0	40,1	45,2	50,3	55,5

¹⁾ The reduction ratios are rounded, the exact values are available on request or at www.faulhaber.com.

