

DC-Micromotors

Graphite Commutation

120 mNm
85 W

Series 3272 ... CR

Values at 22°C and nominal voltage	3272 G	012 CR	018 CR	024 CR	036 CR	048 CR			
1 Nominal voltage	U_N		12	18	24	36	48	V	
2 Terminal resistance	R		0,2	0,42	0,82	1,67	3,35	Ω	
3 Efficiency, max.	η_{max}		85	87	87	88	88	%	
4 No-load speed	n_0		5 400	5 700	5 500	5 800	5 500	min ⁻¹	
5 No-load current, typ. (with shaft \varnothing 5 mm)	I_0		0,191	0,135	0,095	0,069	0,048	A	
6 Stall torque	M_H		1 192	1 225	1 188	1 250	1 177	mNm	
7 Friction torque	M_R		3,9	3,9	3,9	4	3,9	mNm	
8 Speed constant	k_n		459	324	230	162	115	min ⁻¹ /V	
9 Back-EMF constant	k_E		2,18	3,09	4,35	6,18	8,7	mV/min ⁻¹	
10 Torque constant	k_M		20,8	29,5	41,6	59	83,3	mNm/A	
11 Current constant	k_I		0,048	0,034	0,024	0,017	0,012	A/mNm	
12 Slope of n-M curve	$\Delta n / \Delta M$		4,4	4,6	4,5	4,6	4,6	min ⁻¹ /mNm	
13 Rotor inductance	L		45	95	185	370	740	μ H	
14 Mechanical time constant	τ_m		3,1	3	3	3	2,9	ms	
15 Rotor inertia	J		67	60	63	62	60	gcm ²	
16 Angular acceleration	α_{max}		178	204	189	202	196	$\cdot 10^3$ rad/s ²	
17 Thermal resistance	R_{th1} / R_{th2}		2,3 / 7					K/W	
18 Thermal time constant	τ_{w1} / τ_{w2}		40 / 850					s	
19 Operating temperature range:									
– motor			-30 ... +125					°C	
– winding, max. permissible			+155					°C	
20 Shaft bearings			ball bearings, preloaded						
21 Shaft load max.:									
– with shaft diameter			5					mm	
– radial at 3 000 min ⁻¹ (3 mm from bearing)			50					N	
– axial at 3 000 min ⁻¹			5					N	
– axial at standstill			50					N	
22 Shaft play:									
– radial	\leq		0,015					mm	
– axial	$=$		0					mm	
23 Housing material			steel, black coated						
24 Mass			312					g	
25 Direction of rotation			clockwise, viewed from the front face						
26 Speed up to	n_{max}		6 000					min ⁻¹	
27 Number of pole pairs			1						
28 Magnet material			NdFeB						
Rated values for continuous operation									
29 Rated torque	M_N		75	102	119	119	120	mNm	
30 Rated current (thermal limit)	I_N		4	4	3,5	2,4	1,7	A	
31 Rated speed	n_N		5 110	5 470	5 150	5 560	5 180	min ⁻¹	

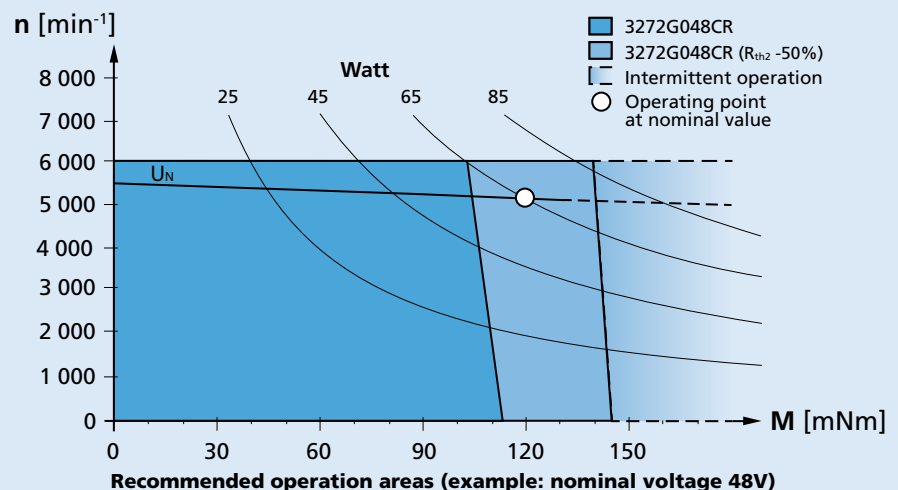
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

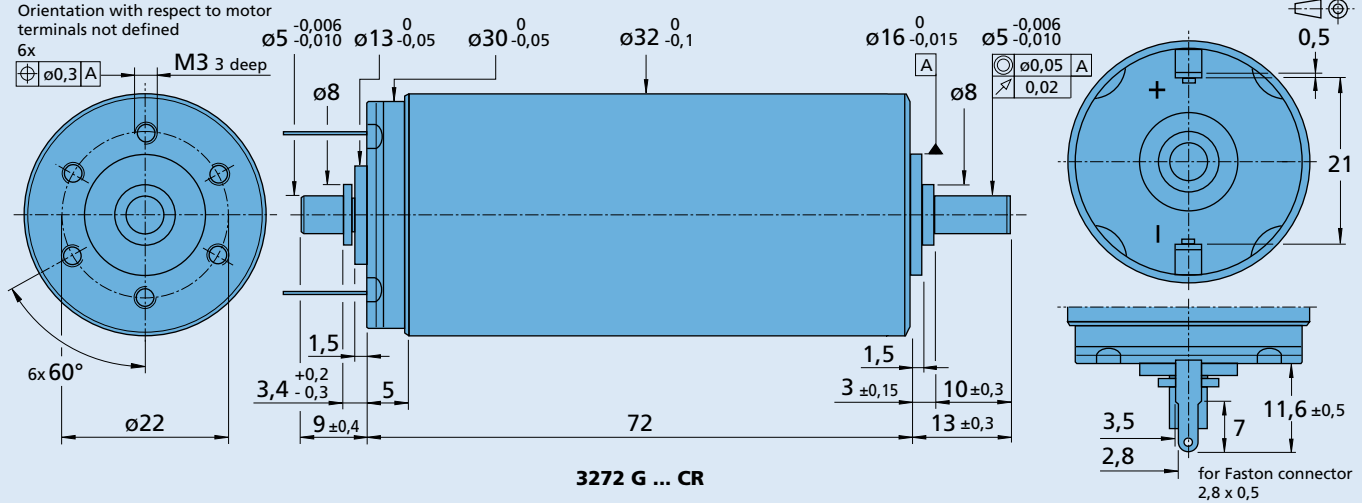
Note:

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.



Dimensional drawing

Options

Example product designation: **3272G012CR-158**

Option	Type	Description
U	Single Leads	For motors with single leads (PTFE), length 160 mm, red (+) / black (-)
158	Shaft end	No second shaft end

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
32GPT	IE3-1024	SC 2402 P	MBZ
32/3	IE3-1024 L	SC 2804 S	To view our large range of accessory parts, please refer to the "Accessories" chapter.
32/3R	IER53-500	SC 5004 P	
38A	IER53-500 L	SC 5008 S	
38/1	IER3-10000	MCDC 3003 P	
38/1 S	IER3-10000 L	MCDC 3006 S	
38/2		MC 5004 P	
38/2 S		MC 5005 S	
42GPT		MC 5010 S	