

DC-Micromotors

Graphite Commutation

41 mNm
30 W

Series 3242 ... CR

Values at 22°C and nominal voltage	3242 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		1,27	2,73	5	10,5	19,7	Ω
3 Efficiency, max.	η_{max}		72	70	73	71	73	%
4 No-load speed	n_0		5 200	5 300	5 300	5 500	5 400	min ⁻¹
5 No-load current, typ. (with shaft \varnothing 5 mm)	I_0		0,234	0,157	0,117	0,081	0,058	A
6 Stall torque	M_H		181	196	189	202	193	mNm
7 Friction torque	M_R		4,8	4,8	4,8	4,8	4,8	mNm
8 Speed constant	k_n		464	304	231	156	116	min ⁻¹ /V
9 Back-EMF constant	k_E		2,15	3,29	4,33	6,42	8,58	mV/min ⁻¹
10 Torque constant	k_M		20,6	31,4	41,3	61,3	82	mNm/A
11 Current constant	k_I		0,049	0,032	0,024	0,016	0,012	A/mNm
12 Slope of n-M curve	$\Delta n / \Delta M$		28,7	26,4	28	26,7	28	min ⁻¹ /mNm
13 Rotor inductance	L		135	310	540	1 220	2 200	μ H
14 Mechanical time constant	τ_m		7,5	7,5	7,5	7,5	7,5	ms
15 Rotor inertia	J		25	27	26	27	26	gcm ²
16 Angular acceleration	α_{max}		73	73	74	75	75	$\cdot 10^3$ rad/s ²
17 Thermal resistance	R_{th1} / R_{th2}	2,5 / 9						K/W
18 Thermal time constant	τ_{w1} / τ_{w2}	17 / 660						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			175					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		40	41	41	41,7	41	mNm
30 Rated current (thermal limit)	I_N		2,5	1,7	1,3	0,89	0,65	A
31 Rated speed	n_N		3 580	3 690	3 690	3 900	3 780	min ⁻¹

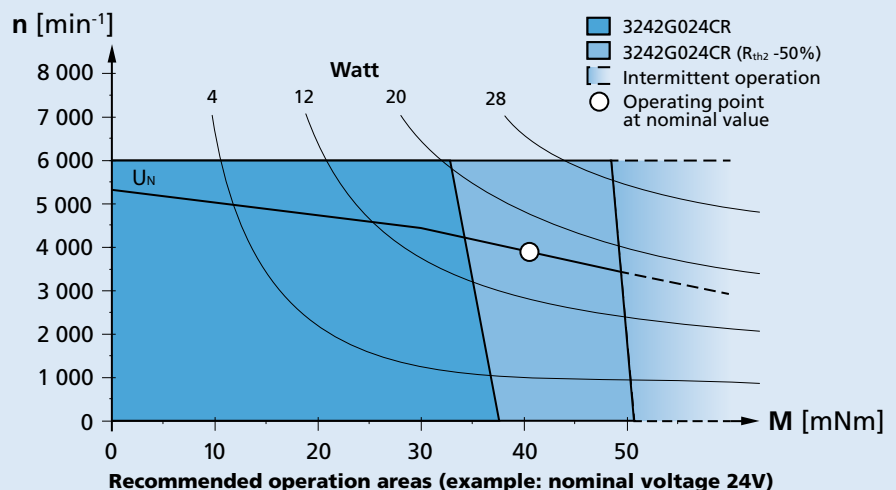
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

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.

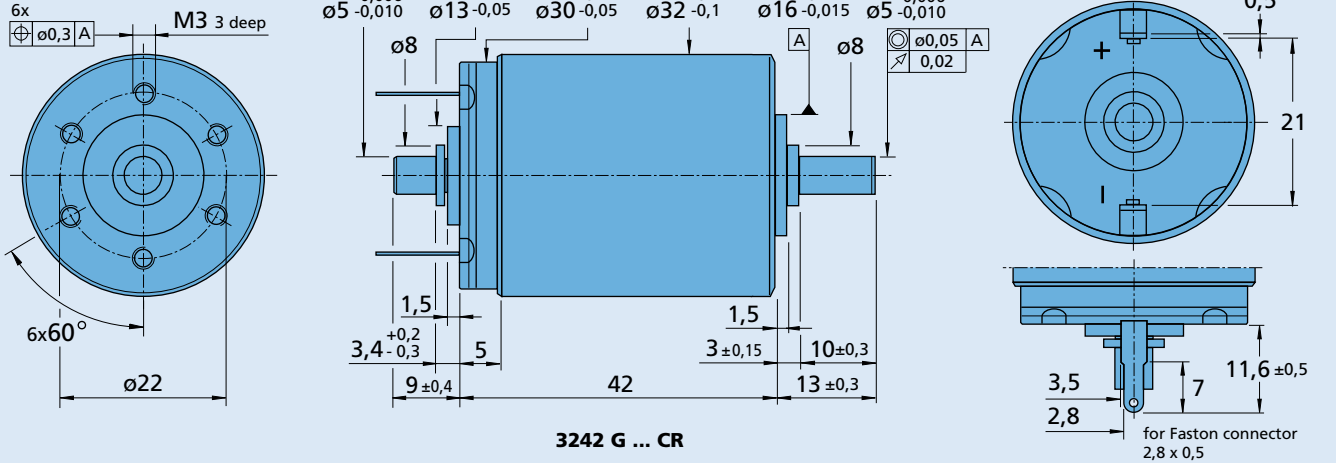
The diagram shows the motor in a completely insulated as well as thermally coupled condition (R_{th2} 50% reduced).

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

Orientation with respect to motor terminals not defined



Options

Example product designation: **3242G012CR-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 32/3R 38/1 38/1 S 38/2 38/2 S 42GPT 32L ... TL 32L ... ML 32L ... SB 32L ... PB	IE3-1024 IE3-1024 L IERS3-500 IERS3-500 L IER3-10000 IER3-10000 L	SC 2402 P SC 2804 S SC 5004 P SC 5008 S MC 3603 S MC 5004 P MC 5005 S MC 5010 S	MBZ To view our large range of accessory parts, please refer to the "Accessories" chapter.