DC-Micromotors

Graphite Commutation

41,6 mNm

25,3 W

Series 3242 ... CR

Values at 22°C and nominal voltage	3242 G		012 CR	018 CR	024 CR	036 CR	048 CR	
Nominal voltage	U_N		12	18	24	36	48	V
Terminal resistance	R		1,27	2,73	5,03	10,5	19,7	Ω
Rotor inductance	L		136	312	542	1 220	2 170	µH
Efficiency, max.	$\eta_{max.}$		68	70	69	71	70	%
No-load current, typ.	I_0		0,238	0,156	0,119	0,0792	0,0594	A
No-load speed	n_0		5 270	5 290	5 390	5 440	5 450	min^{-1}
Stall torque	M_H		185	199	191	208	197	mNm
Rotor inertia	J		25	27	26	27	26	gcm²
Friction torque	M_R		4,8	4,8	4,8	4,8	4,8	mNm
Torque constant	k_M		21	31,9	42	63	84	mNm/A
Speed constant	k_n		455	300	228	152	114	min^{-1}/V
Slope of n-M curve	$\Delta n/\Delta M$		27,6	25,7	27,3	25,3	26,7	min^{-1}/mNm
Thermal resistance:								
– winding to housing	R_{th1}	4,1						K/W
– housing to ambient (external plastic flange)	$R_{th2\,p}$	12						K/W
– housing to ambient (external metal flange)	$R_{th2\,m}$	1,3						K/W
Thermal time constant:								
– winding	τ_{w1}	30						s
– housing (external plastic flange)	$\tau_{w2\,p}$	850						s
– housing (external metal flange)	$\tau_{w2\,m}$	95						s
Operating temperature range:								
– motor		-30 ... +125						°C
– winding, max. permissible		+155						°C
Shaft bearings		ball bearings, preloaded						
Shaft diameter		5						mm
Radial shaft load max.:								
– dynamic at 3 000 min^{-1} (3 mm from bearing)		50						N
Axial shaft load max.:								
– dynamic at 3 000 min^{-1}		5						N
– static (shaft unsupported)		50						N
– static (shaft supported)		2 000						N
Shaft play, max.:								
– radial		0,015						mm
– axial		0						mm
Speed up to	$n_{max.}$	6 000						min^{-1}
Number of pole pairs		1						
Mass		175						g
Housing material		steel, nickel plated						
Magnet material		NdFeB						
Rated values for continuous operation								
Rated torque	M_N		38,9	40,9	39,7	41,6	40,5	mNm
Rated current (thermal limit)	I_N		2,44	1,68	1,24	0,863	0,632	A
Rated speed	n_N		3 610	3 690	3 730	3 860	3 800	min^{-1}

Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The $R_{th2\,p}$ value has been reduced by 50%.

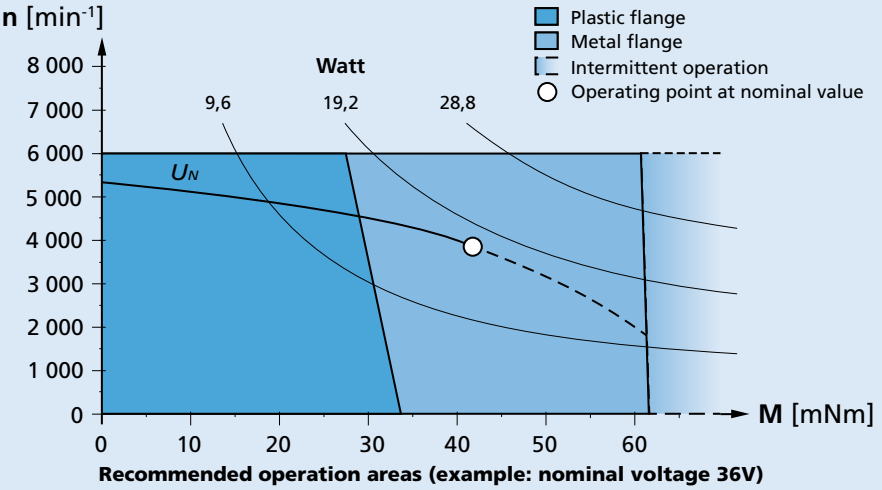
Note:

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.

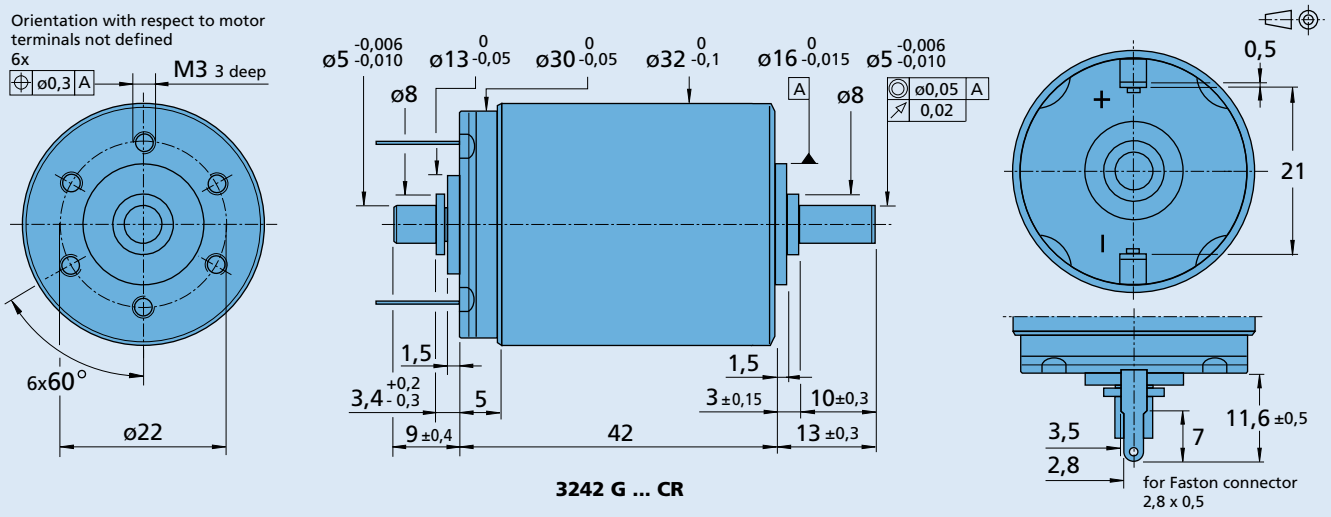
Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



Recommended operation areas (example: nominal voltage 36V)

For notes on technical data and lifetime performance refer to "Technical Information".

Dimensional drawing



3242 G ... CR

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.