

DC-Micromotors

Graphite Commutation

73 mNm
60 W

Series 3257 ... CR

Values at 22°C and nominal voltage		3257 G	012 CR	024 CR	048 CR	
1	Nominal voltage	U_N	12	24	48	V
2	Terminal resistance	R	0,41	1,63	6,56	Ω
3	Output power	$P_{2nom.}$	79,2	83,2	84,5	W
4	Efficiency, max.	$\eta_{max.}$	83	83	83	%
5	No-load speed	n_0	5 700	5 900	5 900	min ⁻¹
6	No-load current, typ. (with shaft \varnothing 5 mm)	I_0	0,258	0,129	0,064	A
7	Stall torque	M_H	531	539	547	mNm
8	Friction torque	M_R	4,9	4,9	4,9	mNm
9	Speed constant	k_n	500	253	125	min ⁻¹ /V
10	Back-EMF constant	k_E	2	3,95	7,98	mV/min ⁻¹
11	Torque constant	k_M	19,1	37,7	76,2	mNm/A
12	Current constant	k_I	0,052	0,027	0,013	A/mNm
13	Slope of n-M curve	$\Delta n / \Delta M$	10,7	10,9	10,8	min ⁻¹ /mNm
14	Rotor inductance	L	70	270	1 100	μ H
15	Mechanical time constant	τ_m	4,7	4,7	4,7	ms
16	Rotor inertia	J	42	41	42	gcm ²
17	Angular acceleration	$\alpha_{max.}$	130	130	130	$\cdot 10^3$ rad/s ²
18	Thermal resistance	R_{th1} / R_{th2}	2 / 8			K/W
19	Thermal time constant	τ_{w1} / τ_{w2}	17 / 810			s
20	Operating temperature range:					
	– motor		-30 ... +125			°C
	– winding, max. permissible		+155			°C
21	Shaft bearings		ball bearings, preloaded			
22	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
23	Shaft play:					
	– radial	\leq	0,015			mm
	– axial	$=$	0			mm
24	Housing material		steel, black coated			
25	Mass		242			g
26	Direction of rotation		clockwise, viewed from the front face			
27	Speed up to	$n_{max.}$	7 000			min ⁻¹
28	Number of pole pairs		1			
29	Magnet material		NdFeB			
Rated values for continuous operation						
30	Rated torque	M_N	63	71	73	mNm
31	Rated current (thermal limit)	I_N	4	2,3	1,2	A
32	Rated speed	n_N	5 150	5 210	5 190	min ⁻¹

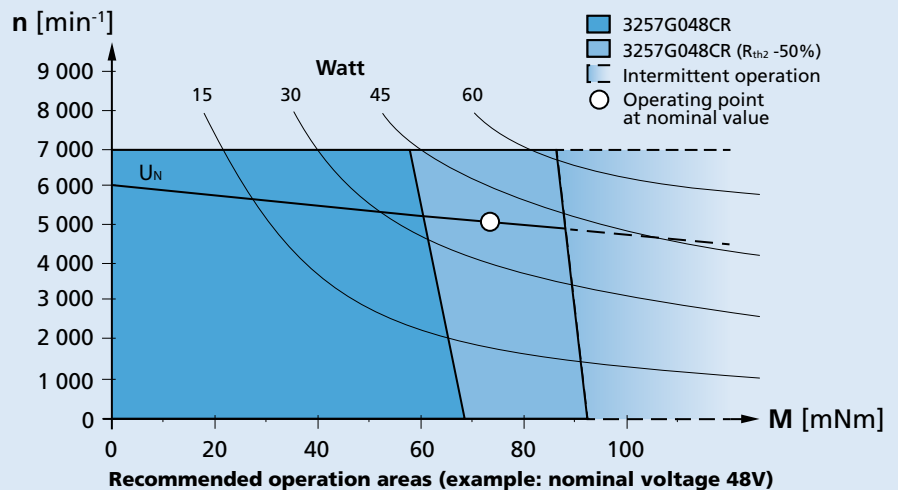
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 25%.

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

10 Nm

For combination with
DC-Micromotors
Brushless DC-Motors

Series 38/2 S

	38/2 S
Housing material	metal
Geartrain material	steel
Recommended max. input speed for:	
– continuous operation	4 000 min ⁻¹
Backlash, at no-load	≤ 1 °
Bearings on output shaft	ball bearings, preloaded
Shaft load, max.:	
– radial (10 mm from mounting face)	≤ 300 N
– axial	≤ 300 N
Shaft press fit force, max.	≤ 350 N
Shaft play	
– radial (10 mm from mounting face)	≤ 0,03 mm
– axial	≤ 0,15 mm
Operating temperature range	- 20 ... + 125 °C

Technical data

		2	3	4	5
Number of gear stages					
Continuous torque	Nm	10	10	10	10
Intermittent torque	Nm	15	15	15	15
Mass without motor, ca.	g	195	245	296	348
Efficiency, max.	%	80	70	60	55
Direction of rotation, drive to output		=	=	=	=
Reduction ratio ¹⁾ (rounded)		14:1	43:1 66:1	134:1 159:1 246:1	415:1 592:1 989:1 1 526:1
L2 [mm] = length without motor ²⁾		40,1	47,9	55,7	63,5
L1 [mm] = length with motor					
3242G...CR		81,3	89,1	96,9	104,7
3257G...CR		96,3	104,1	111,9	119,7
3272G...CR		111,3	119,1	126,9	134,7
3863A...CR		99,1	106,9	114,7	122,5
3890A...CR		125,1	132,9	140,7	148,5
3056K...B		96,1	103,9	111,7	119,5
3242G...BX4		83,5	91,3	99,1	106,9
3268G...BX4		109,5	117,3	125,1	132,9
3274G...BP4		114,1	121,9	129,7	137,5
3564K...B		104,1	111,9	119,7	127,5

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

²⁾ L2 - 0,8 mm, in combination with 3242G...CR, 3257G...CR, 3272G...CR, 3242G...BX4 and 3268G...BX4.

L2 - 5 mm, in combination with 3863A...CR and 3890A...CR.

Note: The gearheads as S-type have all steel gears and heavy duty lubricant for extended lifetime performance.

