DC-Micromotors

Precious Metal Commutation

0,7 mNm

1,2 W

Series 0816 ... SR

Values at 22°C and nominal voltage		0816 K		003 SR	006 SR	009 SR	012 SR	
1	Nominal voltage	U_N		3	6	9	12	V
2	Terminal resistance	R		5,4	21,2	47	101,8	Ω
3	Efficiency, max.	$\eta_{max.}$		69	69	69	67	%
4	No-load speed	n_0		13 250	13 500	13 500	12 600	min⁻¹
5	No-load current, typ. (with shaft ø 1 mm)	I_0		0,016	0,0083	0,0057	0,0039	A
6	Stall torque	M_H		1,15	1,13	1,15	1	mNm
7	Friction torque	M_R		0,034	0,034	0,035	0,034	mNm
8	Speed constant	k_n		4 526	2 318	1 543	1 085	min⁻¹/V
9	Back-EMF constant	k_E		0,221	0,431	0,648	0,922	mV/min⁻¹
10	Torque constant	k_M		2,11	4,12	6,19	8,8	mNm/A
11	Current constant	k_I		0,474	0,243	0,162	0,114	A/mNm
12	Slope of n-M curve	$\Delta n/\Delta M$		11 475	11 904	11 714	12 553	min⁻¹/mNm
13	Rotor inductance	L		53	217	507	1 033	µH
14	Mechanical time constant	τ_m		6,1	6,5	6,2	6,5	ms
15	Rotor inertia	J		0,051	0,052	0,051	0,049	gcm²
16	Angular acceleration	$\alpha_{max.}$		229	219	227	203	$\cdot 10^3$rad/s²
17	Thermal resistance	R_{th1} / R_{th2}		20 / 48				K/W
18	Thermal time constant	τ_{w1} / τ_{w2}		4,2 / 242				s
19	Operating temperature range:							
	– motor			-30 ... +85 (optional version -30 ... +125)				°C
	– winding, max. permissible			+85 (optional version +125)				°C
20	Shaft bearings			sintered bearings				
21	Shaft load max.:							
	– with shaft diameter			1				mm
	– radial at 3 000 min⁻¹ (1,5 mm from bearing)			0,7				N
	– axial at 3 000 min⁻¹			0,1				N
	– axial at standstill			20				N
22	Shaft play:							
	– radial	≤		0,02				mm
	– axial	≤		0,2				mm
23	Housing material			steel, nickel plated				
24	Mass			4,5				g
25	Direction of rotation			clockwise, viewed from the front face				
26	Speed up to	$n_{max.}$		16 000				min⁻¹
27	Number of pole pairs			1				
28	Magnet material			NdFeB				
Rated values for continuous operation								
29	Rated torque	M_N		0,7	0,69	0,69	0,61	mNm
30	Rated current (thermal limit)	I_N		0,37	0,19	0,13	0,077	A
31	Rated speed	n_N		2 540	2 660	2 790	2 500	min⁻¹

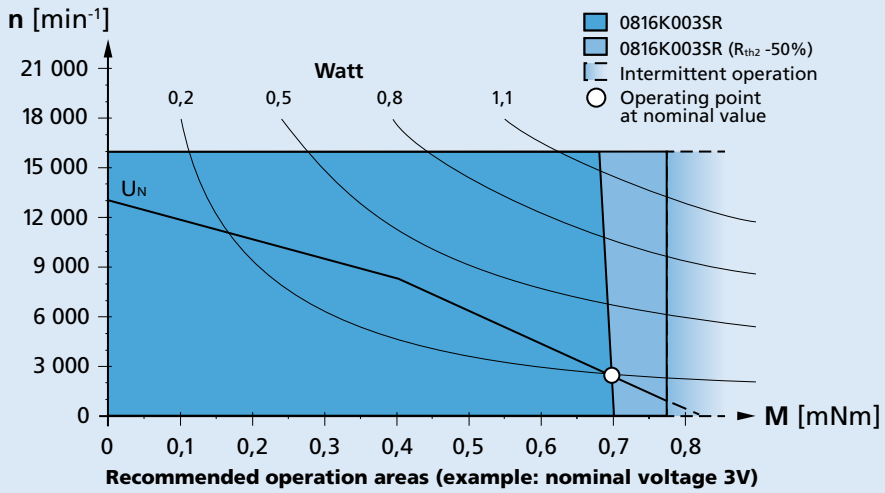
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

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).

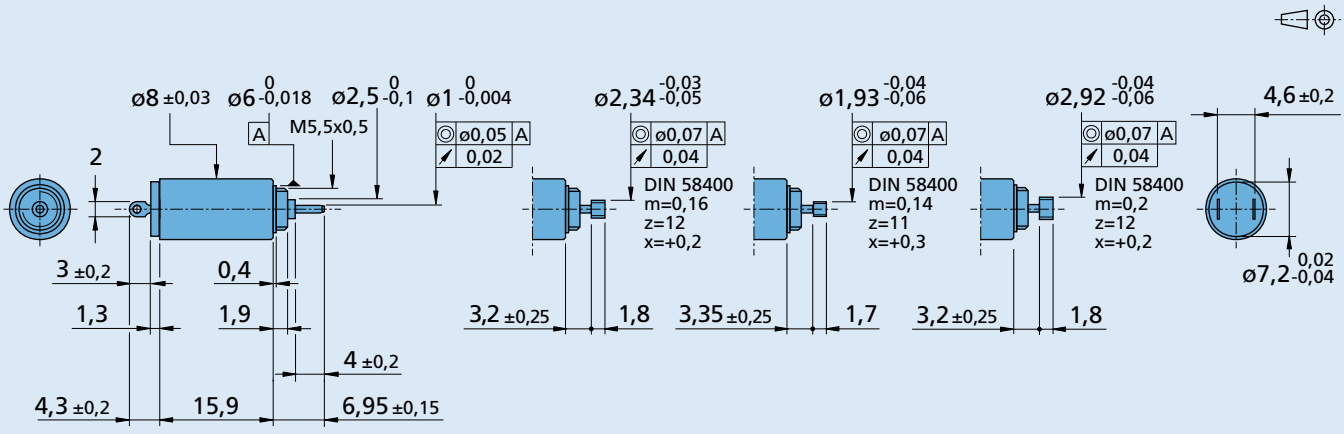
The nominal voltage (U_N) curve shows the operating point at nominal voltage in the insulated and thermally coupled condition. Any points of operation above the curve at nominal voltage will require a higher operating voltage. Any points below the nominal voltage curve will require less voltage.



Recommended operation areas (example: nominal voltage 3V)

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

Dimensional drawing



0816 K ... SR

0816 P ... SR
for Gearhead 08/1

0816 D ... SR
for Gearheads 08/2, 08/3

0816 M ... SR
for Gearhead 10/1

Options

Example product designation: **0816K012SR-K2565**

Option	Type	Description
K2565	Encoder combination	Motor with rear end shaft for combination with Encoder PA2-50
K2566	Encoder combination	Motor with rear end shaft for combination with Encoder HEM3
K2567	Bearing	Front ball bearing
K2568	Temperature range	Extended temperature range (-30…+125°C)
K2570	Bearing lubrication	For vacuum of 10^{-5} Pa @ 22°C
K2571	Second shaft end	Ø 1 mm x 4,5 mm

Product combination

Precision Gearheads / Lead Screws	Encoders	Drive Electronics	Cables / Accessories
08/1 08/2 08/3 10/1	PA2-50 HEM3-256 W	SC 1801 P SC 1801 S MCDC 3002 P MCDC 3002 S	To view our large range of accessory parts, please refer to the “Accessories” chapter.