

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.	η_{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 \varnothing 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	μ H
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	gcm ²
16 Angular acceleration	α_{max}		229	219	227	203	$\cdot 10^3$ rad/s ²
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					°C
– winding, max. permissible		+85					°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	\leq	0,02					mm
– axial	\leq	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

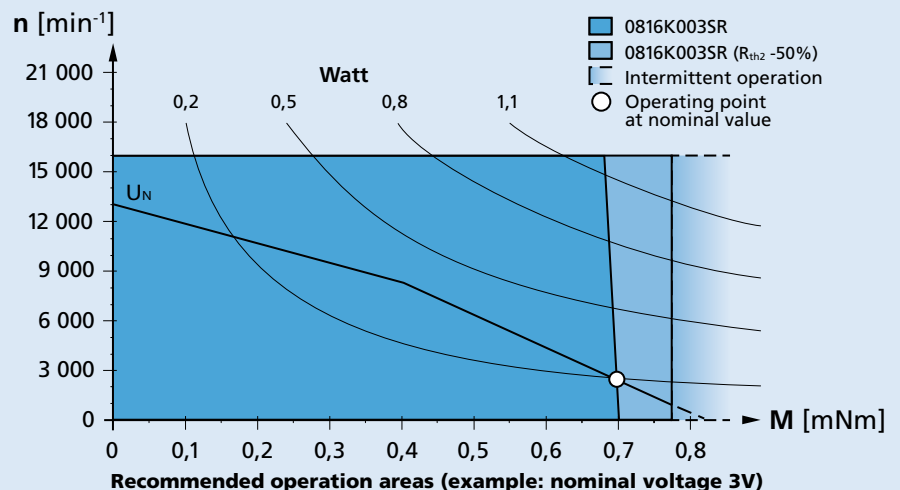
Note: Rated values are calculated with nominal voltage and at a 22°C ambient temperature. The R_{th2} value has been reduced by 0%.

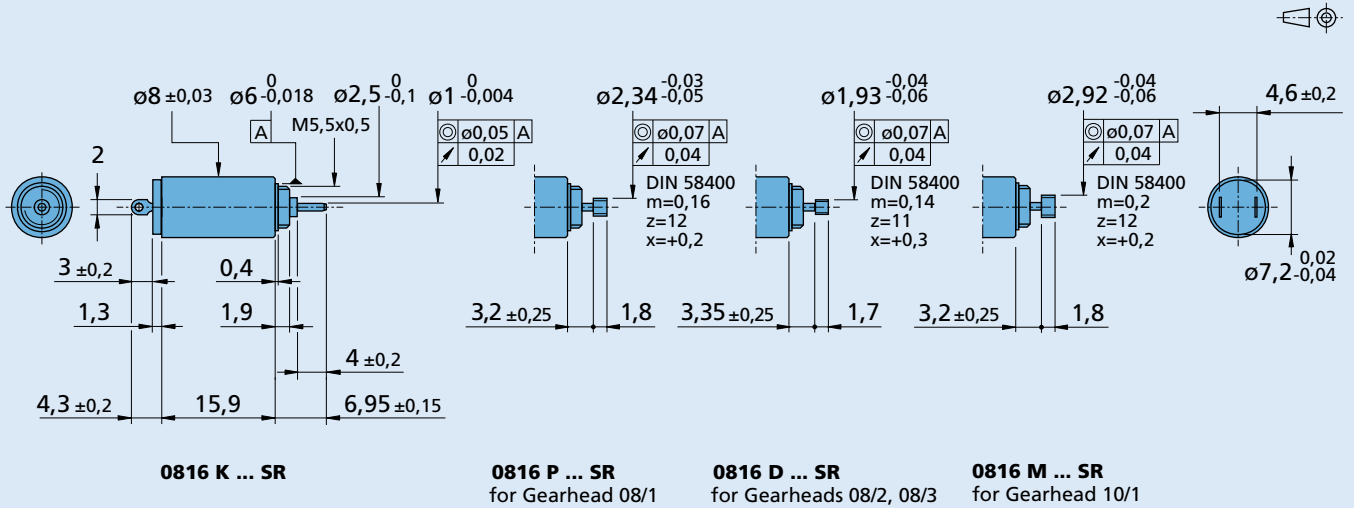
Note:

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.



Dimensional drawing

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 MCDC 3002	To view our large range of accessory parts, please refer to the "Accessories" chapter.