FAULHABER

0,6 mNm
1,24 W

DC-Micromotors

Precious Metal Commutation

Series 0816 ... SR

Values at 22°C and nominal voltage	0816 K		003 SR	006 SR	009 SR	012 SR	
Nominal voltage	U_N		3	6	9	12	V
Terminal resistance	R		5,4	21,2	47	102	Ω
Rotor inductance	L		53	217	507	1 030	µH
Efficiency, max.	$\eta_{max.}$		69	69	69	67	%
No-load current, typ.	I_0		0,0162	0,0083	0,0057	0,0039	A
No-load speed	n_0		13 200	13 500	13 500	12 600	min⁻¹
Stall torque	M_H		1,14	1,13	1,15	1	mNm
Rotor inertia	J		0,051	0,052	0,051	0,049	gcm²
Friction torque	M_R		0,034	0,034	0,035	0,034	mNm
Torque constant	k_M		2,11	4,12	6,19	8,8	mNm/A
Speed constant	k_n		4 530	2 320	1 540	1 090	min⁻¹/V
Slope of n-M curve	$\Delta n/\Delta M$		11 600	11 900	11 700	12 600	min⁻¹/mNm
Thermal resistance:							
– winding to housing	R_{th1}	26					K/W
– housing to ambient (external plastic flange)	$R_{th2\,p}$	63					K/W
– housing to ambient (external metal flange)	$R_{th2\,m}$	11					K/W
Thermal time constant:							
– winding	τ_{w1}	5,5					s
– housing (external plastic flange)	$\tau_{w2\,p}$	110					s
– housing (external metal flange)	$\tau_{w2\,m}$	20					s
Operating temperature range:							
– motor		-30 ... +85 (optional version -30 ... +125)					°C
– winding, max. permissible		+85 (optional version +125)					°C
Shaft bearings		sintered bearings					
Shaft diameter		1					mm
Radial shaft load max.:							
– dynamic at 3 000 min⁻¹ (3,4 mm from mounting flange)		0,7					N
Axial shaft load max.:							
– dynamic at 3 000 min⁻¹		0,1					N
– static (shaft unsupported)		20					N
Shaft play, max.:							
– radial		0,02					mm
– axial		0,2					mm
Speed up to	$n_{max.}$	16 000					min⁻¹
Number of pole pairs		1					
Mass		4,5					g
Housing material		steel, nickel plated					
Magnet material		NdFeB					

Rated values for continuous operation						
Rated torque	M_N	0,6	0,591	0,595	0,576	mNm
Rated current (thermal limit)	I_N	0,323	0,163	0,109	0,0745	A
Rated speed	n_N	4 010	4 220	4 290	2 960	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 0%.

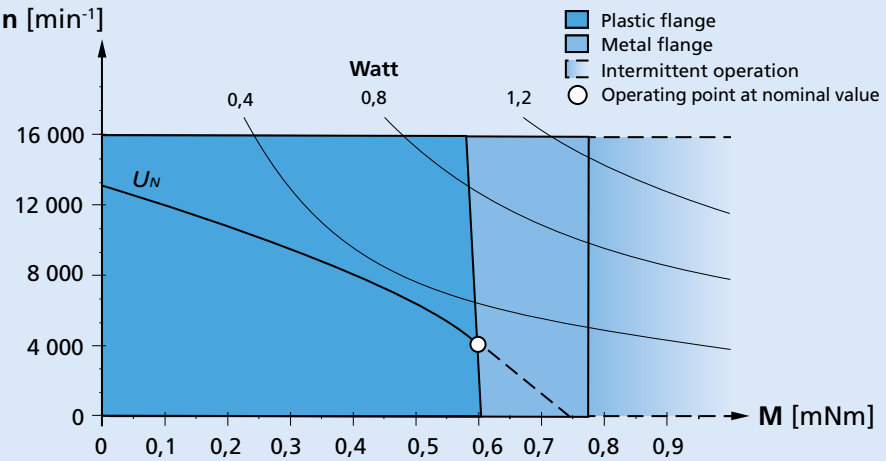
Note:

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 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 3V)

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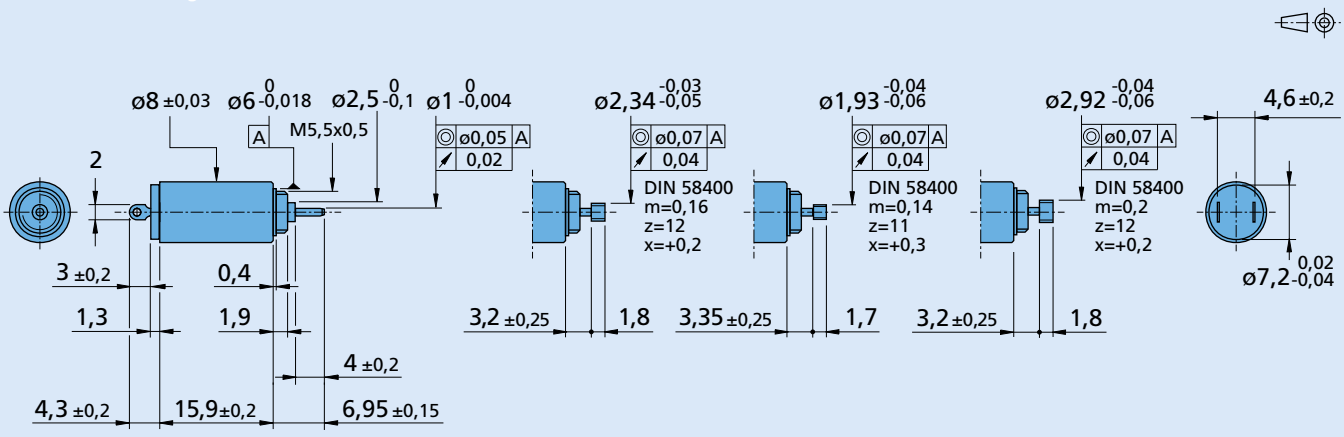
Dimensional drawing



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
K4180	Encoder combination	Motor with rear end shaft for combination with Encoder IEP3-4096, motor with single leads PVC, length 150 mm
K2565	Encoder combination	Motor with rear end shaft for combination with Encoder PA2-50
K4483	Encoder combination	Extended temperature range (-30...+125°C), motor for combination with Encoder IEP3-4096 with single leads PVC, length 150 mm
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 08L ... SL 08L ... HL 10L ... SL 10L ... HL	PA2-50 IEP3-4096	SC 1801 P SC 1801 S MC 3001 B MC 3001 P	To view our large range of accessory parts, please refer to the “Accessories” chapter.

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