

# DC-Micromotors

## Precious Metal Commutation

# 0,11 mNm

For combination with  
Gearheads:  
06/1  
Encoders:  
HXM3-64, PA2-50

### Series 0615 ... S

	0615 N	1,5 S	003 S	4,5 S	
1 Nominal voltage	$U_N$	1,5	3	4,5	V
2 Terminal resistance	R	3,9	16,2	37,7	$\Omega$
3 Output power	$P_{2 \max}$	0,12	0,12	0,11	W
4 Efficiency, max.	$\eta_{\max}$	52	50	48	%
5 No-load speed	$n_0$	19 100	20 200	20 000	rpm
6 No-load current (with shaft $\varnothing$ 0,8 mm)	$I_0$	0,03	0,016	0,012	A
7 Stall torque	$M_H$	0,24	0,22	0,21	mNm
8 Friction torque	$M_R$	0,02	0,02	0,02	mNm
9 Speed constant	$k_n$	13 840	7 346	4 872	rpm/V
10 Back-EMF constant	$k_E$	0,072	0,136	0,205	mV/rpm
11 Torque constant	$k_M$	0,69	1,3	1,96	mNm/A
12 Current constant	$k_I$	1,449	0,769	0,51	A/mNm
13 Slope of n-M curve	$\Delta n / \Delta M$	78 224	91 538	93 713	rpm/mNm
14 Rotor inductance	L	12	39	95	$\mu$ H
15 Mechanical time constant	$\tau_m$	8	10	10	ms
16 Rotor inertia	J	0,01	0,01	0,01	gcm <sup>2</sup>
17 Angular acceleration	$\alpha_{\max}$	244	221	213	$\cdot 10^3$ rad/s <sup>2</sup>
18 Thermal resistance	$R_{th 1} / R_{th 2}$	35 / 76			K/W
19 Thermal time constant	$\tau_{w1} / \tau_{w2}$	2,6 / 110			s
20 Operating temperature range:					
– motor		-30 ... +85 (optional version	-30 ... +125)		°C
– rotor, max. permissible		+85 (optional version	+125)		°C
21 Shaft bearings		sintered bearings			
22 Shaft load max.:					
– with shaft diameter		0,8			mm
– radial at 3 000 rpm (1,5 mm from bearing)		0,5			N
– axial at 3 000 rpm		0,1			N
– axial at standstill		20			N
23 Shaft play					
– radial	$\leq$	0,03			mm
– axial	$\leq$	0,15			mm
24 Housing material		steel, black coated			
25 Weight		2			g
26 Direction of rotation		clockwise, viewed from the front face			
<b>Recommended values - mathematically independent of each other</b>					
27 Speed up to	$n_{e \max}$	13 000	13 000	13 000	rpm
28 Torque up to	$M_{e \max}$	0,11	0,11	0,11	mNm
29 Current up to (thermal limits)	$I_{e \max}$	0,341	0,167	0,11	A

