

DC-Micromotors

Graphite Commutation

50 mNm

For combination with

Gearheads:
30/1, 30/1 S, 32/3, 32/3 S, 38/1, 38/1 S, 38/2,
38/2 S, 38A

Encoders:
HEDL 5540, HEDM 5500, HEDS 5500, HEDS 5540

Series 3557 ... CS

	3557 K	009 CS	012 CS	020 CS	024 CS	048 CS	
1 Nominal voltage	U_N	9	12	20	24	48	V
2 Terminal resistance	R	0,7	1,34	4	5,5	23	Ω
3 Output power	$P_{2 \text{ max.}}$	28,1	26,1	24,3	25,4	24,1	W
4 Efficiency, max.	$\eta_{\text{ max.}}$	78	79	79	78	76	%
5 No-load speed	n_0	5 700	5 400	5 500	5 500	5 200	rpm
6 No-load current (with shaft \varnothing 4 mm)	I_0	0,19	0,125	0,07	0,065	0,04	A
7 Stall torque	M_H	188	185	169	176	177	mNm
8 Friction torque	M_R	2,8	2,6	2,4	2,7	3,5	mNm
9 Speed constant	k_n	643	456	279	233	110	rpm/V
10 Back-EMF constant	k_E	1,56	2,19	3,59	4,3	9,05	mV/rpm
11 Torque constant	k_M	14,9	20,9	34,2	41	86,5	mNm/A
12 Current constant	k_i	0,067	0,048	0,029	0,024	0,012	A/mNm
13 Slope of n-M curve	$\Delta n / \Delta M$	30,3	29,2	32,5	31,3	29,4	rpm/mNm
14 Rotor inductance	L	100	220	630	850	3 400	μH
15 Mechanical time constant	τ_m	16	16	16	16	16	ms
16 Rotor inertia	J	50	52	47	49	52	gcm^2
17 Angular acceleration	$\alpha_{\text{ max.}}$	37	35	36	36	34	$\cdot 10^3 \text{ rad/s}^2$
18 Thermal resistance	$R_{\text{th} 1} / R_{\text{th} 2}$	1,5 / 9					K/W
19 Thermal time constant	τ_{w1} / τ_{w2}	15 / 900					s
20 Operating temperature range:							
– motor		-30 ... +125					$^{\circ}\text{C}$
– rotor, max. permissible		+125					$^{\circ}\text{C}$
21 Shaft bearings		ball bearings, preloaded					
22 Shaft load max.:							
– with shaft diameter		4					mm
– radial at 3 000 rpm (3 mm from bearing)		30					N
– axial at 3 000 rpm		5					N
– axial at standstill		50					N
23 Shaft play							
– radial	Δ	0,015					mm
– axial	\parallel	0					mm
24 Housing material		steel, zinc galvanized and passivated					
25 Weight		275					g
26 Direction of rotation		clockwise, viewed from the front face					

Recommended values - mathematically independent of each other

27 Speed up to	$n_{e \text{ max.}}$	5 000	5 000	5 000	5 000	5 000	rpm
28 Torque up to ¹⁾	$M_{e \text{ max.}}$	50	50	50	50	50	mNm
29 Current up to (thermal limits)	$I_{e \text{ max.}}$	3,15	2,26	1,3	1,1	0,54	A

¹⁾ thermal resistance $R_{\text{th} 2}$ by 40% reduced

