

# Brushless DC-Gearmotors

penny-motor® Technology

## 5 mNm

For combination with  
Drive Electronics:  
BLD 05002 S, SC 1801  
each with adapter board

### Series 1307 ... BH

Integrated Motor	1307 C	004 BH	006 BH	
Nominal voltage	$U_N$	4	6	V
Terminal resistance, phase-phase	R	16	70	$\Omega$
Output power <sup>1)</sup>	$P_{2 \max}$	0,206	0,157	W
Efficiency	$\eta_{\max}$	52	43	%
No-load speed	$n_0$	37 630	34 770	rpm
No-load current	$I_0$	0,026	0,015	A
Stall torque	$M_H$	0,249	0,136	mNm
Speed constant	$k_n$	9 502	5 902	rpm/V
Back-EMF constant	$k_E$	0,105	0,169	mV/rpm
Torque constant	$k_M$	1,005	1,618	mNm/A
Current constant	$k_I$	0,995	0,618	A/mNm
Slope of n-M curve	$\Delta n/\Delta M$	151 272	255 336	rpm/mNm
Rotor inertia	J	0,16	0,16	gcm <sup>2</sup>

Drive system				
Housing material / Geartrain material	plastic / metal			
Shaft bearing	combination ball bearings + sleeve bearings			
Shaft load max.:				
– radial at 10 000 rpm (1,5 mm from bearing)	$\leq$	0,5		N
– axial at 10 000 rpm	$\leq$	0,1		N
– axial at standstill	$\leq$	5		N
Shaft play:				
– radial (3 mm from bearing face)	$\leq$	0,12		mm
– axial	$\leq$	0,2		mm
Operating temperature range		0 ... + 85		°C

Recommended values - mathematically independent of each other					
Speed up to	$n_{e \max}$		10 000	10 000	min <sup>-1</sup>
Current up to (thermal limits) <sup>2) 3)</sup>	$I_{e \max}$		0,205	0,098	A

<sup>1)</sup> at 10 000 min<sup>-1</sup> <sup>2)</sup> thermal resistance  $R_{th2}$  not reduced <sup>3)</sup> at standstill

reduction ratio (rounded)	output speed up to $n_{\max}$ rpm	weight with motor g	004 BH		006 BH		direction of rotation (reversible)	efficiency %
			output torque continuous operation	output torque intermittent operation	output torque continuous operation	output torque intermittent operation		
			$M_{\max}$ mNm	$M_{\max}$ mNm	$M_{\max}$ mNm	$M_{\max}$ mNm		
6 : 1	1 639	2,1	1,0	1,9	0,8	1,5	=	88
11 : 1	893	2,2	1,6	3,3	1,3	2,6	≠	82
32 : 1	310	2,3	4,4	8,9	3,5	7,1	=	77
93 : 1	107	2,4	5,0	15,0	5,0	15,0	≠	72
270 : 1	37	2,5	5,0	15,0	5,0	15,0	=	68
659 : 1	15	3,5	5,0	15,0	5,0	15,0	≠	64

Scale enlarged

