

Brushless DC-Gearmotors

penny-motor® Technology

5 mNm

For combination with
Drive Electronics:
Speed controller 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	Ω
Output power ¹⁾	$P_{2 \max}$		0,206	0,157	W
Efficiency	η_{\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 ²

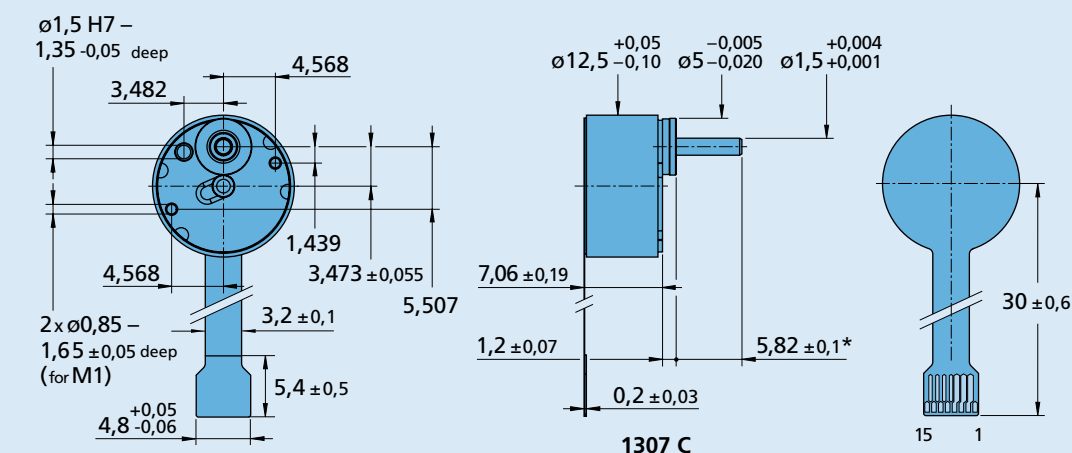
Drive system				
Housing material / Geartrain material		plastic / metal		
Shaft bearing		combination ball bearings + sleeve bearings		
Shaft load max.:				
– radial at 10 000 rpm (1,5 mm from bearing)	≤	0,5		N
– axial at 10 000 rpm	≤	0,1		N
– axial at standstill	≤	5		N
Shaft play:				
– radial (3 mm from bearing face)	≤	0,12		mm
– axial	≤	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 ⁻¹
Current up to (thermal limits) ^{2) 3)}	$I_{e \max}$		0,205	0,098	A

¹⁾ at 10 000 min⁻¹ ²⁾ thermal resistance R_{th2} not reduced ³⁾ 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		output torque			
			continuous operation M_{\max} mNm	intermittent operation M_{\max} mNm	continuous operation M_{\max} mNm	intermittent operation 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



Connection

No.	Function
1	Star point
2	Phase A
3	Phase A
4	Phase B
5	Phase B
6	Phase C
7	Phase C
8	Hall sensor In+
9	Hall sensor In-
10	analog Hall A Out+
11	analog Hall A Out-
12	analog Hall B Out+
13	analog Hall B Out-
14	analog Hall C Out+
15	analog Hall C Out-

Connectors

15-pole; 0,3 mm pitch; e.g.: Hirose: FH23-15S-0.3SHAW (05)