

HOG 86

Insulated blind hollow shaft $\varnothing 12 \dots 16$ mm, cone shaft $\varnothing 17$ mm
500...5000 pulses per revolution

Overview

- Robust, compact housing
- Two bearings with large distance, one at each end
- High shaft load up to 450 N
- Shaft insulation up to 2.8 kV
- Highest operating speed 10000 rpm
- Terminal box, turn by 180°



Technical data

Technical data - electrical ratings

Voltage supply	9...30 VDC 5 VDC ± 5 %
Consumption w/o load	≤ 100 mA
Pulses per revolution	500 ... 5000
Phase shift	$90^\circ \pm 20^\circ$
Duty cycle	45...55 % 40...60 % (>3072 pulses)
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	≤ 120 kHz ≤ 300 kHz (on request)
Output signals	K1, K2, K0 + inverted Error output (option EMS)
Output stages	HTL-P (power linedriver) TTL/RS422
Shaft insulation	Suitable up to 2.8 kV
Transmission length	≤ 350 m at 100 kHz (HTL-P) ≤ 550 m at 100 kHz (TTL)
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE UL approval / E217823

Technical data - mechanical design

Size (flange)	$\varnothing 99$ mm
Shaft type	$\varnothing 12 \dots 16$ mm (blind hollow shaft) $\varnothing 17$ mm (cone shaft 1:10)

Technical data - mechanical design

Admitted shaft load	≤ 350 N axial ≤ 450 N radial
Motor shaft tolerance	0.2 mm radial
Protection EN 60529	IP 66
Operating speed	≤ 10000 rpm (mechanical)
Operating torque	≤ 6 Ncm
Rotor moment of inertia	160 gcm ²
Material	Housing: aluminium, coated Shaft: stainless steel
Operating temperature	-40...+100 °C -40...+90 °C (fixed cable) -25...+100 °C (>3072 pulses)
Resistance	IEC 60068-2-6 Vibration 20 g, 10-2000 Hz IEC 60068-2-27 Shock 250 g, 6 ms
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions C4 according to ISO 12944-2
Explosion protection	II 3 G Ex ec IIC T4 Gc (gas) II 3 D Ex tc IIIC T135°C Dc (dust) (only with option ATEX)
Connection	Terminal box Flange connector M23, 12-pin Cable 1 m
Weight approx.	1.3 kg

Optional

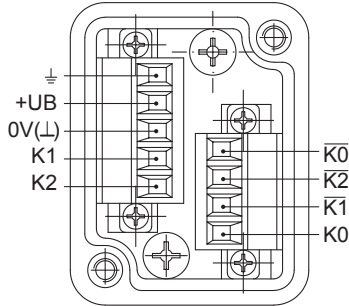
- Hybrid bearing for extended service life
- Function control with EMS (Enhanced Monitoring System)

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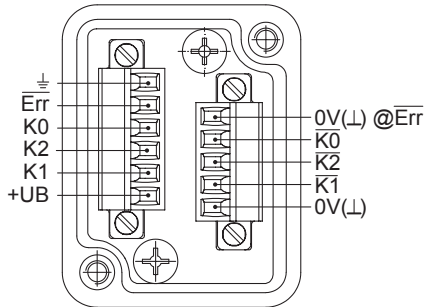
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Terminal assignment

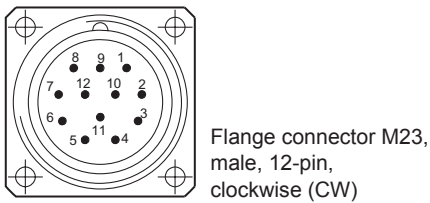
View A (see dimension)
Connecting terminal terminal box



Option EMS: View A (see dimension)
Connecting terminal terminal box



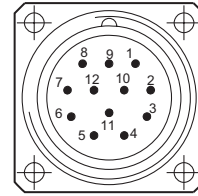
View B (see dimension)
Assignment flange connector



Pin	Assignment
1	$\overline{K2}$
2	dnu
3	K0
4	$\overline{K0}$
5	K1
6	$\overline{K1}$
7	dnu
8	K2
9	dnu
10	0V (\perp)
11	dnu
12	+UB

Terminal assignment

Option EMS: View B (see dimension)
Assignment flange connector



Flange connector M23, male, 12-pin, clockwise (CW)

Pin	Assignment
1	$\overline{K2}$
2	dnu
3	K0
4	$\overline{K0}$
5	K1
6	$\overline{K1}$
7	\overline{Err}
8	K2
9	0V (\perp) @ \overline{Err}
10	0V (\perp)
11	dnu
12	+UB

Assignment connecting cable

For the version with connection cable no EMS output is possible.

Wire colour	Assignment
Red	+UB
Blue	0V (\perp)
White	K1
Brown	$\overline{K1}$
Green	K2
Yellow	$\overline{K2}$
Grey	K0
Pink	$\overline{K0}$

Terminal significance

+UB	Voltage supply
0V (\perp)	Ground
\perp	Earth ground (housing)
K1	Output signal channel 1
$\overline{K1}$	Output signal channel 1 inverted
K2	Output signal channel 2 (offset by 90° to channel 1)
$\overline{K2}$	Output signal channel 2 inverted
K0	Zero pulse (reference signal)
$\overline{K0}$	Zero pulse inverted
\overline{Err}	Error output (option EMS)
dnu	Do not use

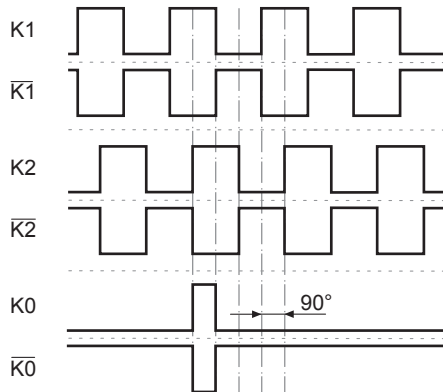
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Output signals

HTL/TTL

At positive rotating direction (see dimension)



Option EMS: Status LED / error output

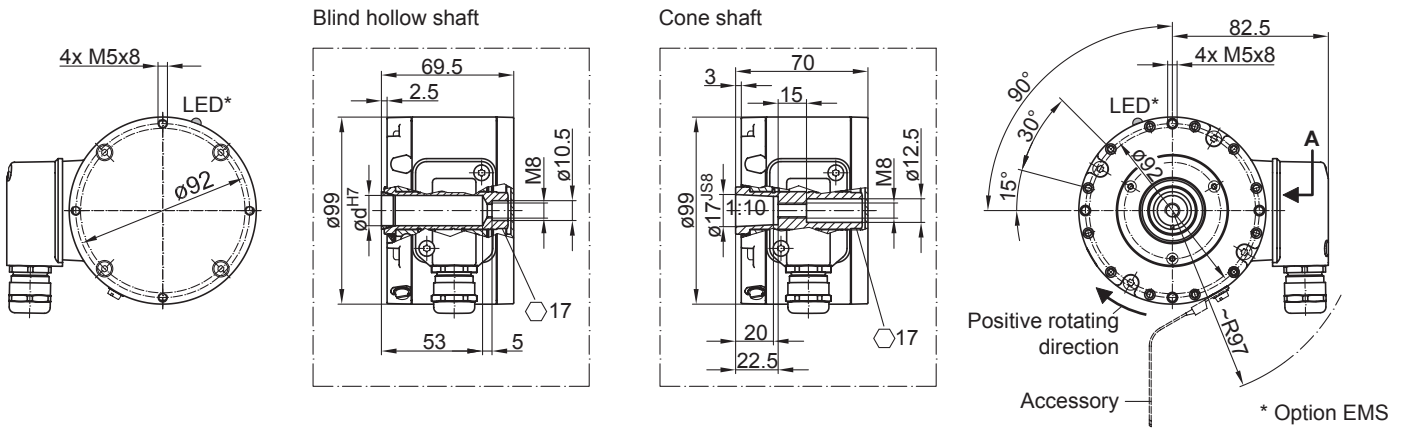
Flash light red*	Error of signal sequence, zero pulse or pulses (Error output = HIGH-LOW alternation)
Red	Overload output transistors (Error output = LOW)
Flash light green	Device o.k., rotating (Error output = HIGH)
Green	Device o.k., stopped (Error output = HIGH)
No light	No voltage supply connection or wrong connection (Error output = LOW)

* Only at rotating device

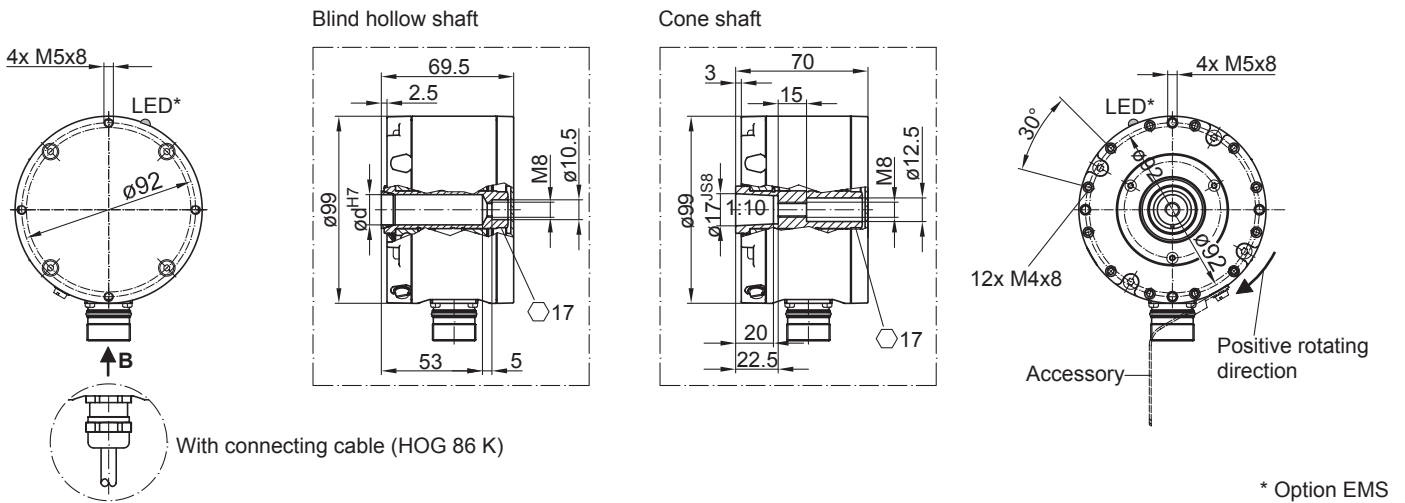
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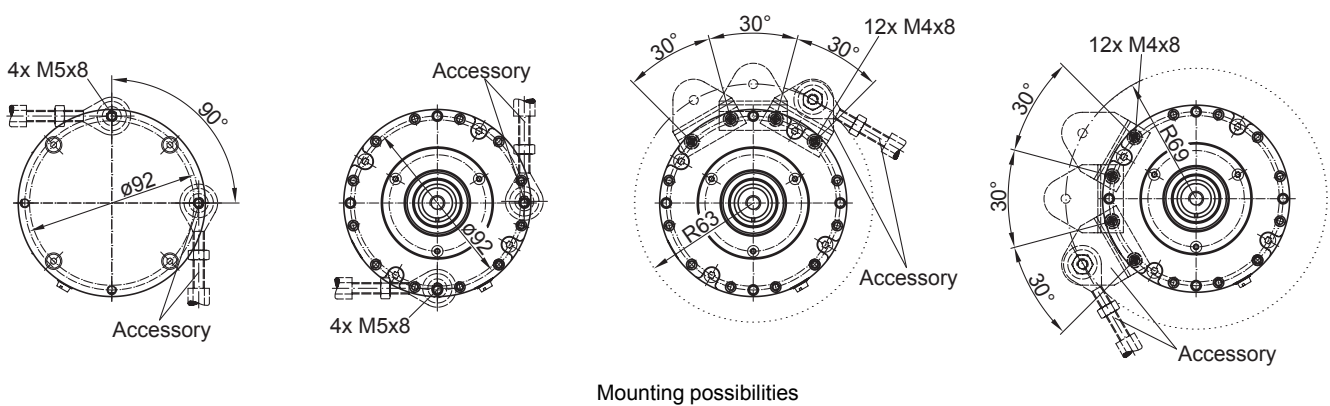
Dimensions



HOG 86 T - Version with radial terminal box



HOG 86 F - Version with radial flange connector M23, HOG 86 K - Version with radial connecting cable



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Ordering reference

	HOG86	##	#	#	#	DN	####	###
Product								
Incremental encoder	HOG86							
EMS - Enhanced Monitoring System								
Without EMS								
With EMS		.2						
Connection								
1x terminal box, radial						T		
1x flange connector M23, radial						F		
Cable 1 m, radial ⁽¹⁾						K		
Insulation								
Hybrid bearing							H	
PA insulated								P
Shaft diameter								
Blind hollow shaft $\varnothing 12$ mm, fit H7								2
Blind hollow shaft $\varnothing 16$ mm, fit H7								6
Cone shaft $\varnothing 17$ mm (1:10)								7
Blind hollow shaft $\varnothing 16$ mm, fit G7								8
Blind hollow shaft $\varnothing 12$ mm, fit F6								9
Output signals								
K1, K2, K0 + inverted							DN	
Pulse number⁽²⁾								
500								500
512								512
1000								1000
1024								1024
1250								1250
2048								2048
2500								2500
3072								3072
4096								4096
5000								5000
Voltage supply / output stage								
9...30 VDC / output stage HTL with inverted signals								I
5 VDC / output stage TTL with inverted signals								T
9...30 VDC / output stage TTL with inverted signals								R

(1) No EMS possible

(2) Other pulse numbers on request.

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Accessories

Mounting accessories

11071906	Mounting kit earthing strap
11077087	Mounting and dismounting set
11071850	Support plate mounting kit R63 for torque arm size M6
11082676	Support plate mounting kit R69 for torque arm size M6
11072076	Screw mounting kit for torque arm size M6
11043628	Torque arm M6, length 67...70 mm
11004078	Torque arm M6, length 120...130 mm (≥ 71 mm)
11002915	Torque arm M6, length 425...460 mm (≥ 131 mm)
11054917	Torque arm M6 insulated, length 67...70 mm
11072795	Torque arm M6 insulated, length 120...130 mm (≥ 71 mm)
11082677	Torque arm M6 insulated, length 425...460 mm (≥ 131 mm)
11071904	Mounting kit for torque arm size M6