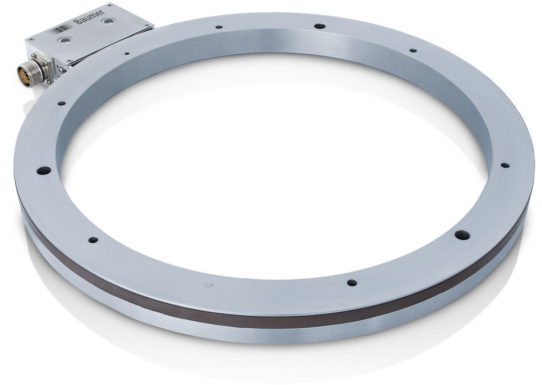


MHGE 400

Magnetic sensing / Through hollow shaft max. $\varnothing 340$ mm
256...16384 pulses or 256 sinewave cycles per turn

Overview

- Robust and wearless
- High protection through fully encapsulated electronics
- Large tolerances: axial ± 3 mm, radial max. 2.2 mm
- Very compact dimensions
- Simple mounting, easy adaptation



Technical data

Technical data - electrical ratings

Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE UL approval / E217823 Option: DNV approval

Technical data - electrical ratings (square-wave)

Voltage supply	4.75...30 VDC
Consumption w/o load	≤ 70 mA
Pulses per revolution	256 ... 16384
Phase shift	$90^\circ \pm 10^\circ$
Duty cycle	40...60 %
Reference signal	Zero pulse, width 90°
Sensing method	Magnetic
Output frequency	≤ 300 kHz
Output signals	A+, B+, R+, A-, B-, R-
Output stages	HTL TTL/RS422

Technical data - electrical ratings (SinCos)

Voltage supply	5 VDC
Consumption w/o load	≤ 70 mA
Sinewave cycles per revolution	256
Phase shift	$90^\circ \pm 5^\circ$
Reference signal	Zero pulse, width 90°
Sensing method	Magnetic

Technical data - electrical ratings (SinCos)

Output signals	A+, B+, R+, A-, B-, R-
Output stages	SinCos 1 Vpp
Difference of SinCos amplitude	≤ 20 mV
Harmonics typ.	-40 dB
DC offset	≤ 20 mV

Technical data - mechanical design

Sensor head	Standard signal processing
Size (flange)	$\varnothing 405.4$ mm
Shaft type	$\varnothing 70...340$ mm (through hollow shaft)
Axial tolerance	± 3 mm (wheel/head)
Radial tolerance	0.1...2.2 mm (wheel/head)
Protection EN 60529	IP 67 (head) IP 68 (wheel)
Operating speed	≤ 2000 rpm
Material	Housing sensing head: aluminium alloy Wheel: stainless steel (1.4104, option DNV: 1.4313)
Operating temperature	$-40...+100^\circ\text{C}$
Resistance	IEC 60068-2-6 Vibration 30 g, 55-2000 Hz IEC 60068-2-27 Shock 300 g, 2 ms
Accuracy of magnetic measure	$\pm 75^\circ$
Connection	Flange connector M23, 12-pin Terminal box

Optional

- DNV approval on request
- Redundant sensing head on request
- Increased operating speed through triple-bandage
- Offshore version

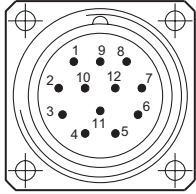
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Terminal assignment

View A (see dimension)

Assignment flange connector

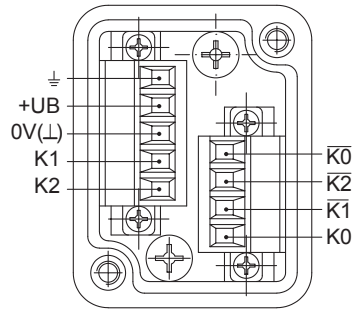


Flange connector M23,
male, 12-pin,
counter-clockwise (CCW)

Pin	Assignment
1	B-
2	dnu
3	R+
4	R-
5	A+
6	A-
7	dnu
8	B+
9	dnu
10	0V (\perp)
11	dnu
12	+UB

View B (see dimension)

Connecting terminal terminal box



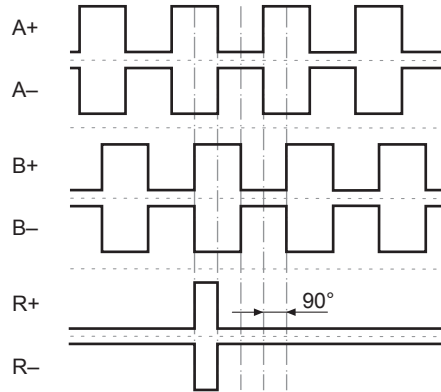
Terminal significance

+UB	Voltage supply
0V (\perp)	Ground
\perp	Earth ground (housing)
A+, K1	Output signal channel 1
A-, $\overline{K1}$	Output signal channel 1 inverted
B+, K2	Output signal channel 2 (offset by 90° to channel 1)
B-, $\overline{K2}$	Output signal channel 2 inverted
R+, K0	Zero pulse (reference signal)
R-, $\overline{K0}$	Zero pulse inverted
dnu	Do not use

Output signals

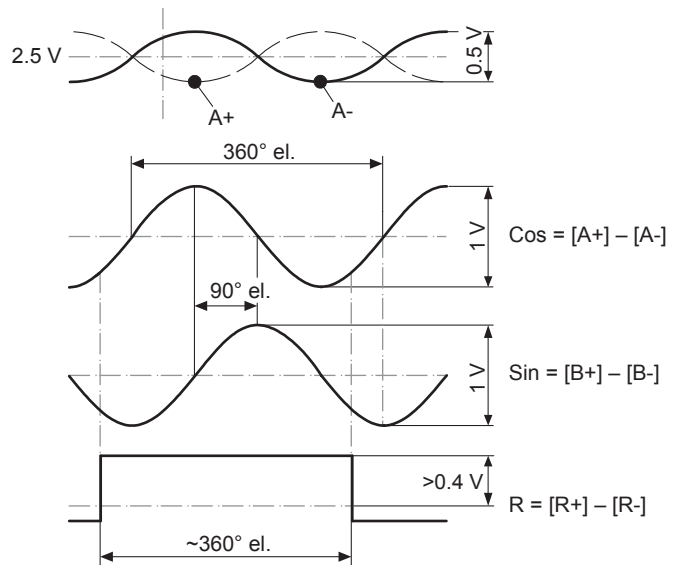
HTL/TTL

At positive rotating direction (see dimension)



SinCos

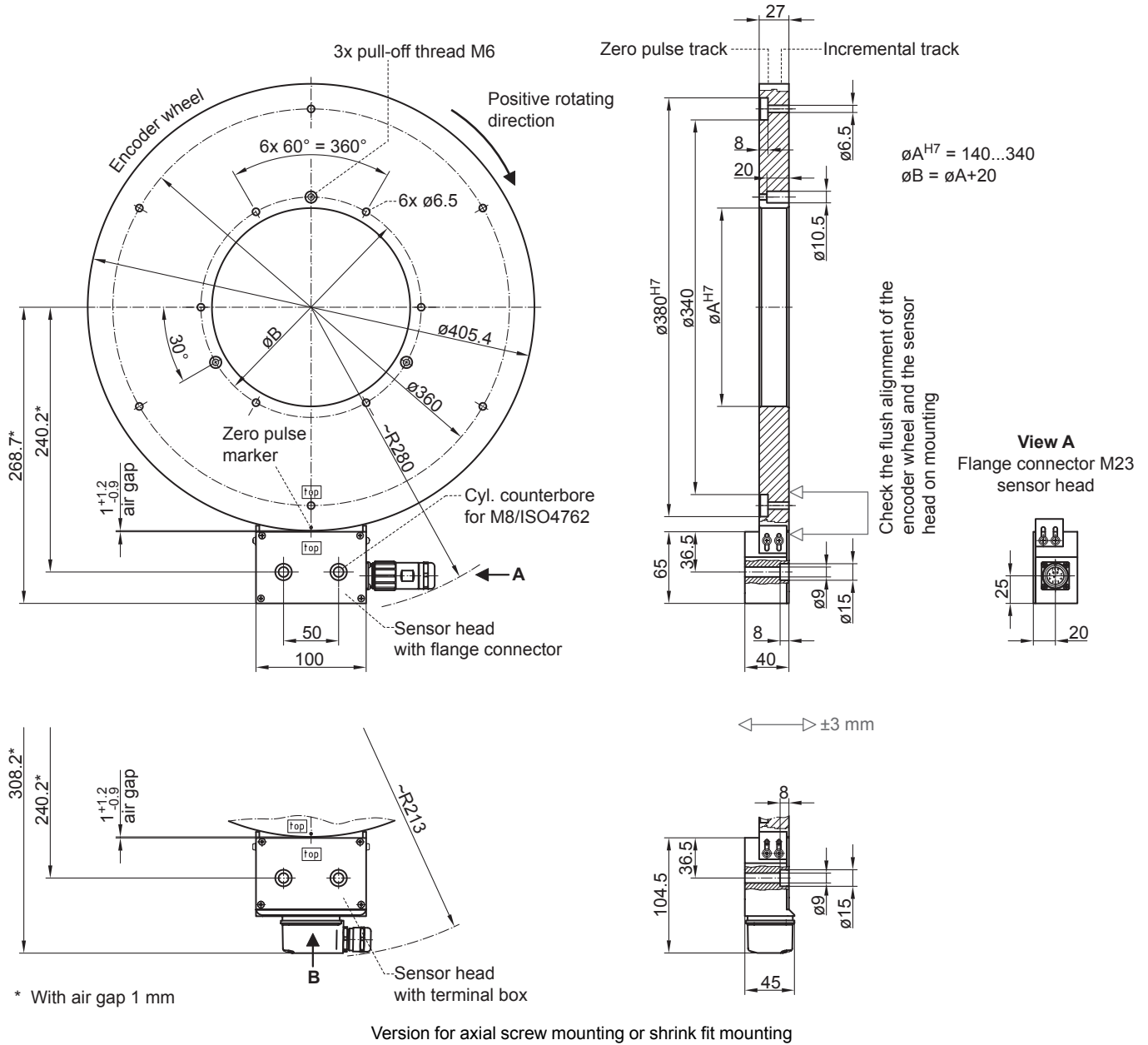
At positive rotating direction (see dimension)



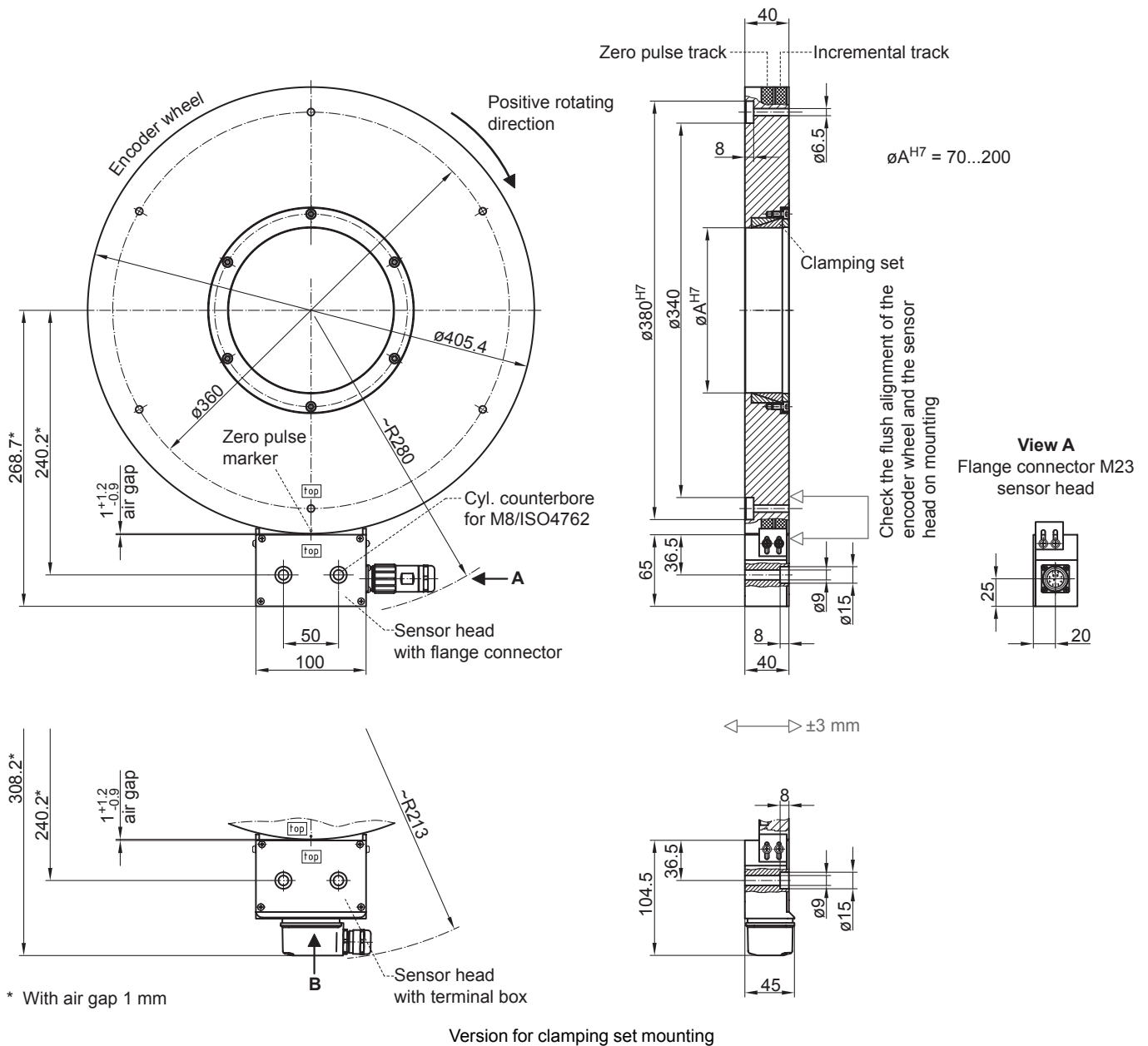
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Dimensions



Dimensions



MHGE 400

Magnetic sensing / Through hollow shaft max. $\varnothing 340$ mm
 256...16384 pulses or 256 sinewave cycles per turn

Ordering reference

	MHGE400	#	5	####	###	N	#####	#
Product								
Encoder without bearings - incremental	MHGE400							
Bandaging								
Encoder wheel standard bandage		B						
Encoder wheel with triple-bandage		T						
Pole width								
1 pole = 5 mm			5					
Mounting type / hollow shaft (\varnothing mm)								
Screw or shrink fit mounting / $\varnothing 140$ mm				G140				
Screw or shrink fit mounting / $\varnothing 160$ mm				G160				
Screw or shrink fit mounting / $\varnothing 170$ mm				G170				
Screw or shrink fit mounting / $\varnothing 180$ mm				G180				
Screw or shrink fit mounting / $\varnothing 190$ mm				G190				
Screw or shrink fit mounting / $\varnothing 210$ mm				G210				
Screw or shrink fit mounting / $\varnothing 230$ mm				G230				
Screw or shrink fit mounting / $\varnothing 250$ mm				G250				
Screw or shrink fit mounting / $\varnothing 300$ mm				G300				
Screw or shrink fit mounting / $\varnothing 310$ mm				G310				
Screw or shrink fit mounting / $\varnothing 340$ mm				G340				
Clamping set mounting / $\varnothing 70$ mm				Z70				
Clamping set mounting / $\varnothing 75$ mm				Z75				
Clamping set mounting / $\varnothing 80$ mm				Z80				
Clamping set mounting / $\varnothing 85$ mm				Z85				
Clamping set mounting / $\varnothing 90$ mm				Z90				
Clamping set mounting / $\varnothing 95$ mm				Z95				
Clamping set mounting / $\varnothing 100$ mm				Z100				
Clamping set mounting / $\varnothing 110$ mm				Z110				
Clamping set mounting / $\varnothing 120$ mm				Z120				
Clamping set mounting / $\varnothing 130$ mm				Z130				
Clamping set mounting / $\varnothing 140$ mm				Z140				
Clamping set mounting / $\varnothing 150$ mm				Z150				
Clamping set mounting / $\varnothing 160$ mm				Z160				
Clamping set mounting / $\varnothing 170$ mm				Z170				
Clamping set mounting / $\varnothing 200$ mm				Z200				
Clamping set mounting stainless / $\varnothing 70$ mm				Y70				
Clamping set mounting stainless / $\varnothing 75$ mm				Y75				
Clamping set mounting stainless / $\varnothing 80$ mm				Y80				
Clamping set mounting stainless / $\varnothing 85$ mm				Y85				
Clamping set mounting stainless / $\varnothing 90$ mm				Y90				
Clamping set mounting stainless / $\varnothing 95$ mm				Y95				
Clamping set mounting stainless / $\varnothing 100$ mm				Y100				
Clamping set mounting stainless / $\varnothing 110$ mm				Y110				
Clamping set mounting stainless / $\varnothing 120$ mm				Y120				
Clamping set mounting stainless / $\varnothing 130$ mm				Y130				
Clamping set mounting stainless / $\varnothing 140$ mm				Y140				
Clamping set mounting stainless / $\varnothing 150$ mm				Y150				
Clamping set mounting stainless / $\varnothing 160$ mm				Y160				
Clamping set mounting stainless / $\varnothing 170$ mm				Y170				
Clamping set mounting stainless / $\varnothing 200$ mm				Y200				

MHGE 400

Magnetic sensing / Through hollow shaft max. $\varnothing 340$ mm
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Ordering reference

	MHGE400	#	5	####	###	N	#####	#
Voltage supply / output stage								
5 VDC / SinCos						S		
4.75...30 VDC / TTL						R		
5 VDC ± 5 % / TTL						T		
10...30 VDC / HTL						H		
5...30 VDC / 5 VDC = TTL, 10...30 VDC = HTL universal						U		
Zero pulse								
With zero pulse						N		
Pulse number/sinewave cycles								
256							256	
512 ⁽¹⁾							512	
1024 ⁽¹⁾							1024	
2048 ⁽¹⁾							2048	
4096 ⁽¹⁾							4096	
8192 ⁽¹⁾							8192	
16384 ⁽¹⁾							16384	
Connection								
1x flange connector M23, tangential 12-pin, male, CCW								C
1x terminal box with cable gland M20, radial								B

(1) No SinCos output possible