

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 \pm 3 mm, radial max. 2.2 mm
- Very compact dimensions
- Simple mounting, easy adaptation
- Magnetic rotor included in delivery



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 | \leq 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 | \leq 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 | \leq 70 mA |
| Sinewave cycles per revolution | 256 |
| Phase shift | $90^\circ \pm 5^\circ$ |
| Reference signal | Zero pulse, width 90° |
| Sensing method | Magnetic |

Optional

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

Technical data - electrical ratings (SinCos)

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

Technical data - mechanical design

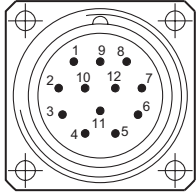
| | |
|------------------------------|---|
| Sensor head | Standard signal processing |
| Size (flange) | \varnothing 405.4 mm |
| Shaft type | \varnothing 70...340 mm (through hollow shaft) |
| Axial tolerance | \pm 3 mm (wheel/head) |
| Radial tolerance | 0.1...2.2 mm (wheel/head) |
| Protection EN 60529 | IP 67 |
| Operating speed | \leq 2000 rpm |
| Material | Housing sensing head: aluminium alloy Wheel: stainless steel 1.4104 (option DNV: 1.4313) |
| Operating temperature | -40...+100 °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 | $\pm 75''$ |
| Connection | Flange connector M23, 12-pin Terminal box |

MHGE 400

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

Terminal assignment

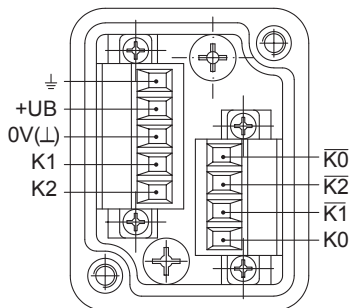
View A (see dimension)
Assignment flange connector



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



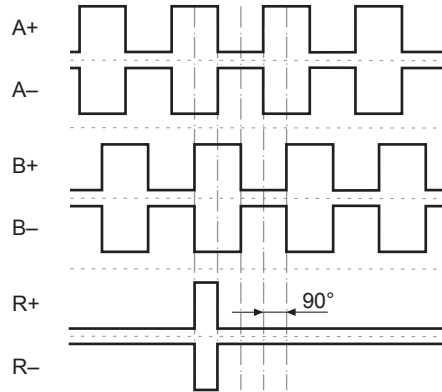
Terminal significance

| | |
|---------------------|--|
| +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

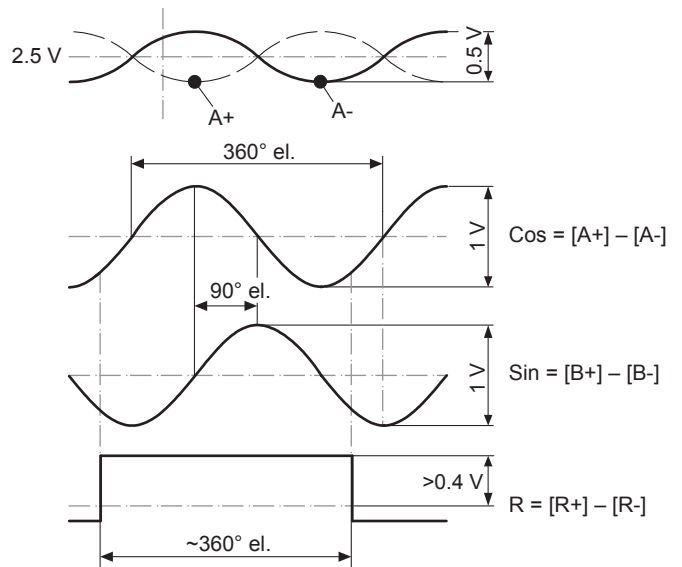
HTL/TTL

At positive rotating direction (see dimension)



SinCos

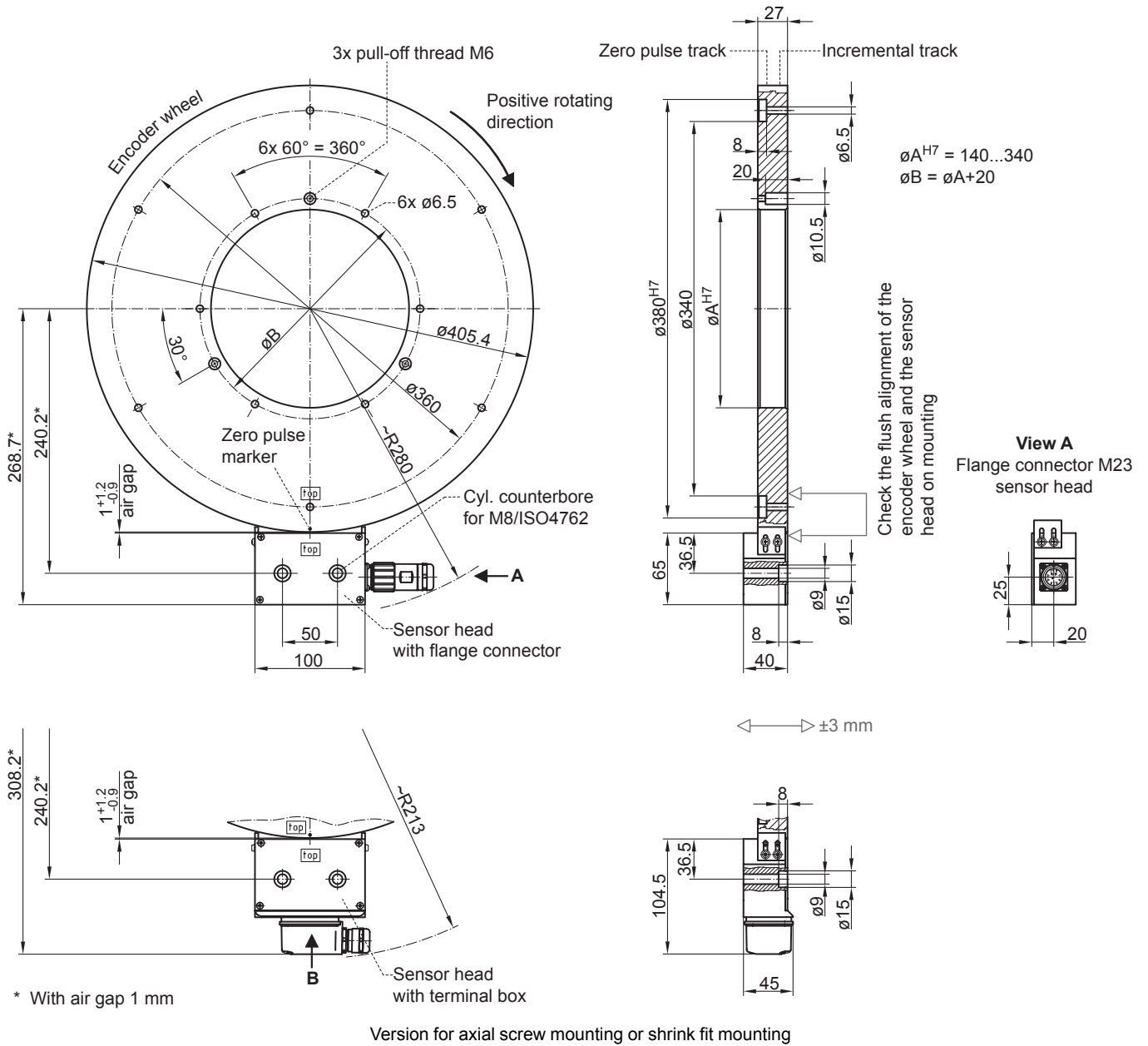
At positive rotating direction (see dimension)



MHGE 400

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

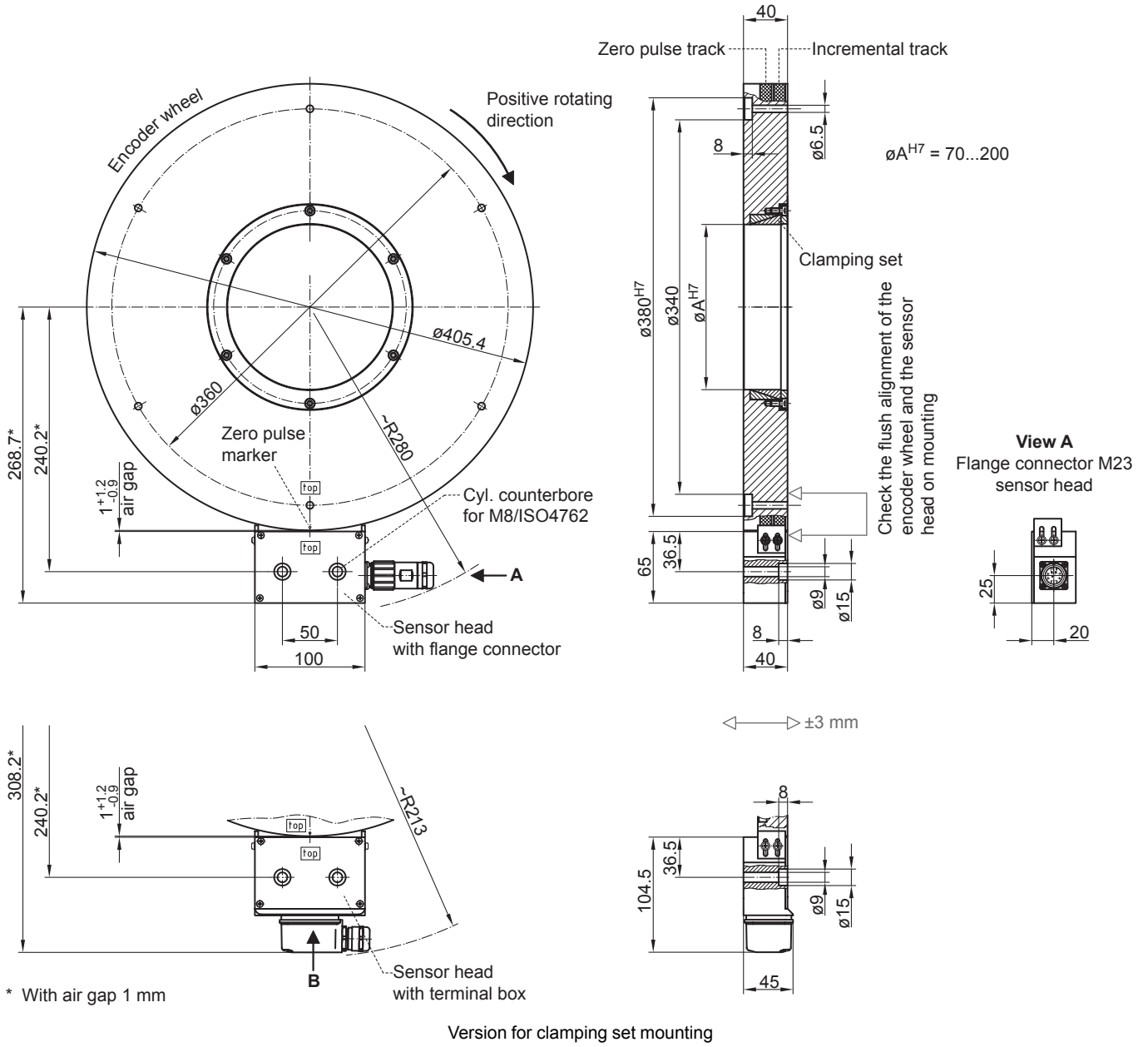
Dimensions



MHGE 400

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

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 | MHGE400 | | | | | | | |
| Encoder without bearings - incremental | MHGE400 | | | | | | | |
| Bandaging | | | | | | | | |
| Encoder wheel standard bandage | | | | | B | | | |
| Encoder wheel with triple-bandage (optional) | | | | | T | | | |
| Pole width | | | | | | | | |
| 1 pole = 5 mm | | | | | | | | 5 |
| Mounting type / hollow shaft (\varnothing mm)⁽¹⁾ | | | | | | | | |
| Screw or shrink fit mounting / \varnothing 190 mm | | | | | | | | G190 |
| Screw or shrink fit mounting / \varnothing 230 mm | | | | | | | | G230 |
| Screw or shrink fit mounting / \varnothing 340 mm | | | | | | | | G340 |
| Clamping set mounting / \varnothing 160 mm | | | | | | | | Z160 |
| Clamping set mounting / \varnothing 200 mm | | | | | | | | Z200 |
| Voltage supply / output stage⁽¹⁾ | | | | | | | | |
| 5 VDC / SinCos | | | | | | | | S |
| 4.75...30 VDC / TTL | | | | | | | | R |
| 5...30 VDC / 5 VDC = TTL, 10...30 VDC = HTL universal | | | | | | | | U |
| Zero pulse | | | | | | | | |
| With zero pulse | | | | | | | | N |
| Pulse number/sinewave cycles⁽¹⁾ | | | | | | | | |
| 256 (SinCos output) | | | | | | | | 256 |
| 1024 | | | | | | | | 1024 |
| 2048 | | | | | | | | 2048 |
| 4096 | | | | | | | | 4096 |
| 8192 | | | | | | | | 8192 |
| 16384 | | | | | | | | 16384 |
| Connection | | | | | | | | |
| 1x flange connector M23, tangential 12-pin, male, CCW | | | | | | | | C |
| 1x terminal box with cable gland M20, radial | | | | | | | | B |

(1) Other versions on request.