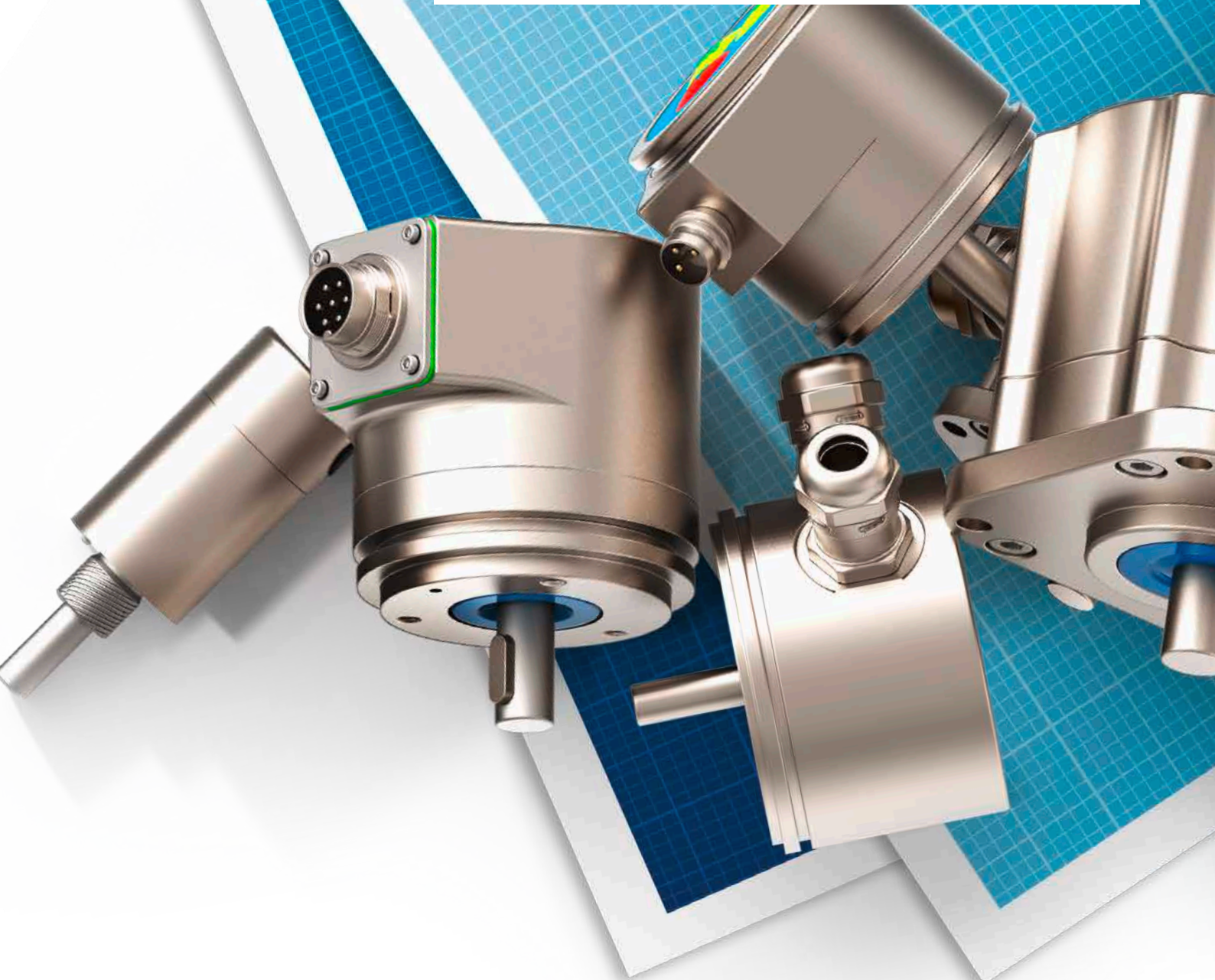




ROTARY ENCODERS

SERIES AND SPECIAL SOLUTIONS



MAXIMUM PERFORMANCE IN SERIES

OUR ROTARY ENCODER PORTFOLIO

is characterized by its versatile and flexible use in a variety of applications. It proves its special capabilities even under difficult operating conditions. FSG encoders are manufactured with the highest precision and quality – **Made in Germany.**

2 MAXIMUM FLEXIBILITY

- Housing diameter: 22–100 mm
- Housing: anodized aluminum / stainless steel
- Plug or cable connection

3 MAXIMUM RELIABILITY

- Functional safety PLd / SIL2
- ATEX / IECEx / DNV
- Degree of protection: up to IP66 / IP68 / IP69K

4 MAXIMUM COMPATIBILITY

- 4–20 mA
- 0,5 V–4,5 V / 0–10 V
- CAN / CANopen / CANopen-safety
- Profinet
- HART-protocol

1 MAXIMUM FUNCTIONALITY

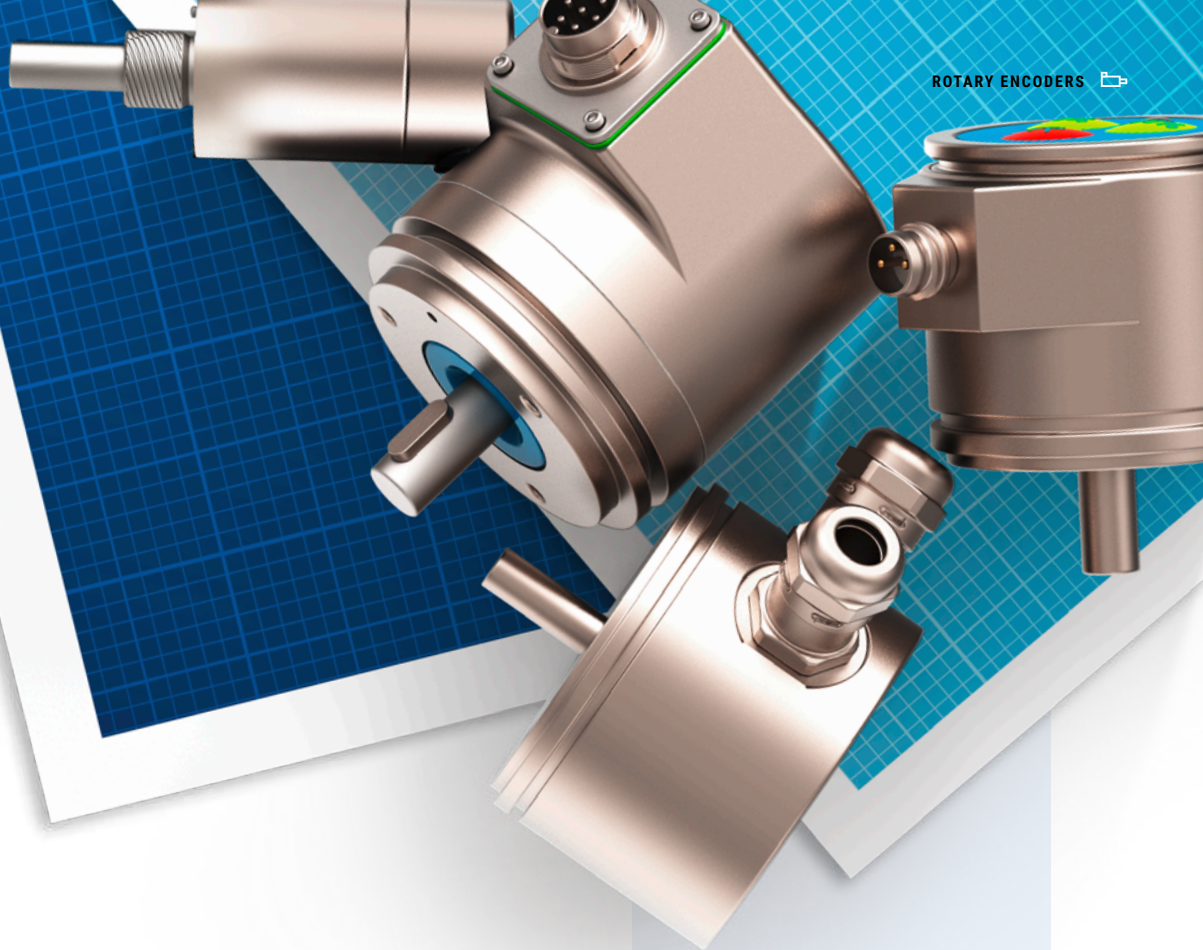
- Absolute single and multi-turn encoders
- Measuring system magnetic, contactless
- Shaft diameter 6 / 10 mm



Electrical and mechanical adaptations are also possible for **small quantities** at any time on request.



info@fsg-sensors.de



ROTARY ENCODERS SERIES

MH609
MH613
MH620
MH1023
MH1023-MU-EX
MH-II-GS60



COMPATIBLE
Analogue & Digital



TYPE OF
CONSTRUCTION
Ø 22-100 mm



STANDARD-FUNCTION
Single- / Multiturn

SINGLETURN DIAMETER 22 mm

MH609

Redundant Miniature Encoder Series

The miniature encoder of series MH609 has a redundant Hall sensor and can detect angular ranges of 0–360°. The signal output is optionally via a 4–20 mA or CAN bus interface.

Due to its small design, the sensor is especially suitable for use in very confined installation spaces, such as for position detection in joysticks, control levers for ships or in starter switches.

- 2 x 4–20 mA or 2 x CANopen
- Small design for limited installation situations
- Suitable for joysticks, starter switches, control levers, controllers



TECHNICAL DATA

Housing diameter	22.2 mm	Connection	cable
Housing material	aluminum, anodized	Fastening	central fixing / clamp fixing
Housing length	about 41 mm	Electronics	redundant
IP code of housing up to	IP65	Maximum load current	600 Ω
Shaft diameter	6 mm	Accuracy typical	± 0.3°
Shaft material	stainless steel	Resolution	12 bit
Angle of rotation max.	360°	Supply	18V–35 V
Revolution max.	1	Current consumption	< 50 mA
Temperature range	- 40 °C to + 85 °C	Temperature coefficient	0.1° / 10 K
Shock	25 g, 6 ms	EMC immunity	EN 61 000-6-2
Vibration	4 g Sinus, 5–100 Hz	EMC interference	EN 61 000-6-4

CE – conform

available in following VERSIONS



Type designation	Versions:
MH609-II-MU-i	2 x 4–20 mA / Clamp fixing via synchro flange
MH609-II-MU-u	2 x 0.5–4.5 V / Clamp fixing via synchro flange
MH609y-II-CAN	2 x CANopen / Central fixing M10 x 0.75
MH609-II-CAN	2 x CANopen / Clamp fixing via synchro flange

You can find all data sheets on www.fsg-sensors.de



SINGLE-/ MULTITURN DIAMETER 36 mm

MH613

Programmable Rotary Encoder Series of the Compact Class

The MH613 rotary encoder series is characterized by a compact housing structure. Due to its variety of models and a simple signal setting via the membrane keyboard on the back, it offers great flexibility and a wide range of possible applications.

The MH613 series has a non-contact, magnetic measuring system and can be used as a single or multi-turn encoder version for up to 16 revolutions.



- Available as single and multi-turn encoder
- Current output is programmable via membrane keypad
- Compact, robust design

TECHNICAL DATA

Housing diameter	36.5 mm	Connection	plug / cable / solder-type terminals
Housing material	aluminum	Fastening	clamp fixing / threaded
Housing length	about 37 mm	Electronics	single-gang
IP code of housing up to	IP65	Maximum load current	600 Ω
Shaft diameter	6 mm	Accuracy typical	± 0.1 %
Shaft material	stainless steel	Resolution	14 bit + 2 bit
Angle of rotation max.	360° / 5760°	Supply	18 V–33 V
Revolution max.	1 / 16	Current consumption	< 50 mA
Temperature range	- 30 °C to + 70 °C	Temperature coefficient	0.1° / 10 K
Shock	50 g, 6 ms	EMC immunity	EN 61 000-6-2
Vibration	4 g Sinus, 5–100 Hz	EMC interference	EN 61 000-6-4

CE – conform

available in following
VERSIONS



Type designation	Signal output	Revolution max.	Type designation	Signal output	Revolution max.
MH613-MU-i	4 – 20 mA	1	MH16-613-MU-i	4 – 20 mA	16
MH613-MU-u	0 – 10 V	1	MH16-613-MU-u	0 – 10 V	16

You can find all data sheets on www.fsg-sensors.de.

SINGLETURN DIAMETER 50 mm

MH620

Redundant Encoder Eeries of the Compact Class

The encoders of the MH620 series are designed as redundant single-turn encoders in a compact design.

With a contactless, magnetic measuring system as well as analogue and digital interfaces, which are galvanically isolated from the sensor supply, many application possibilities are offered. A signal adjustment, in case of angle range changes for versions with analogue output, can be carried out by the user at any time via connecting cables.

In the „Z“ version, the angular position can also be obtained via a scale with pointer on the rear.



- **Redundant, magnetic measuring system**
- **Galvanic separation between supply and signal output**
- **Variant „Z“ with additional scale and pointer for angle display**

TECHNICAL DATA

Housing diameter	50.8 mm	Connection	cable
Housing material	aluminum, anodized	Fastening	clamp fixing / threaded
Housing length	about 34 mm	Electronics	redundant
IP code of housing up to	IP67	Maximum load current	600 Ω
Shaft diameter	6 mm	Accuracy typical	± 0.2 %
Shaft material	stainless steel	Resolution	14 bit
Angle of rotation max.	360°	Supply	18 V–33 V
Revolutions max.	1	Current consumption	< 80 mA
Temperature range	- 30 °C to + 80 °C	Temperature coefficient	0.1° / 10 K
Shock	50 g, 6 ms	EMC immunity	EN 61 000-6-2
Vibration	4 g Sinus, 5–100 Hz	EMC interference	EN 61 000-6-4

CE – conform

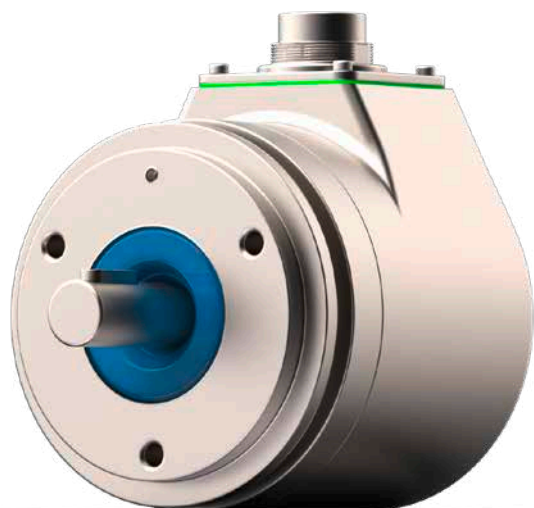


available in following
VERSIONS



Type designation	Signal output	Dnv	Type designation	Signal output	Dnv
MH620-MU-i	4–20 mA	–	MH620-II-CAN	2 x CANopen	–
MH620-II-MU-i	2 x 4–20 mA	–	MH620-II-i-CAN	2 x 4–20 mA 2 x CANopen	✓
MH620-MU-u	0–10 V	–	MH620-II-MU-i-Z	2 x 4–20 mA	✓
MH620-II-MU-u	2 x 0–10 V	–	MH620-II-MU-CAN-Z	2 x CANopen	✓
MH620-CAN	CANopen	–			

You can find all data sheets on www.fsg-sensors.de.



SINGLE-/ MULTITURN DIAMETER 60 mm

MH1023

Robust All-in-one Encoder Series

The concept for the robust rotary encoders of the MH1023 series is designed for maximum flexibility. This means that the series can be supplied with all of the analogue and digital interfaces commonly used by FSG and equipped with almost any desired plug or cable connection. The MH1023 can be used as a single-turn or multi-turn encoder in an aluminum or optionally in a stainless steel housing for up to 4096 revolutions. With its membrane keyboard on the back for analogue interfaces, the signal output can be reprogrammed by the user at any time if required.

A variant with DNV approval is available for use in maritime applications.

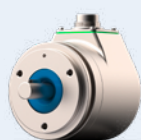


- Redundant, magnetic measuring system optional
- DNV-approval
- Signal programming via membrane keypad

TECHNICAL DATA

Housing diameter	60 mm	Connection	plug / cable
Housing material	aluminum / stainless steel	Fastening	central fixing
Housing length	about 67 mm	Electronics	single-gang / redundant
IP code of housing up to	to IP67	Maximum load current	600 Ω
Shaft diameter	6 / 10 mm	Accuracy typical	± 0.1 %
Shaft material	stainless steel	Resolution	14 bit /360°
Angle of rotation	360°	Supply	18 V–33 V DC
Revolutions	1 / 64 / 4096	Current consumption	< 80 mA
Temperature range	-30 °C to +70 °C	Temperature coefficient	0.1° / 10 K
Shock	50 g, 6 ms	EMC immunity	EN 61 000-6-2
Vibration	4 g Sinus, 5–100 Hz	EMC interference	EN 61 000-6-4

CE – conform


 available in following
VERSIONS


Type designation	Signal output	DNV	SIL / PL	Max. rotation
MH1023-MU-i	4–20 mA	–	–	1
MH1023-II-MU-i	2 x 4–20 mA; sin-, cos-characteristic curve	✓	–	1
MH1023-CAN	CANopen	–	✓	1
MH4096-1023-CAN	CANopen	–	–	4096
MH64-1023-MU-i	4–20 mA	–	–	64
MH64-1023-CAN	CANopen	–	✓	64

You can find all data sheets on www.fsg-sensors.de.

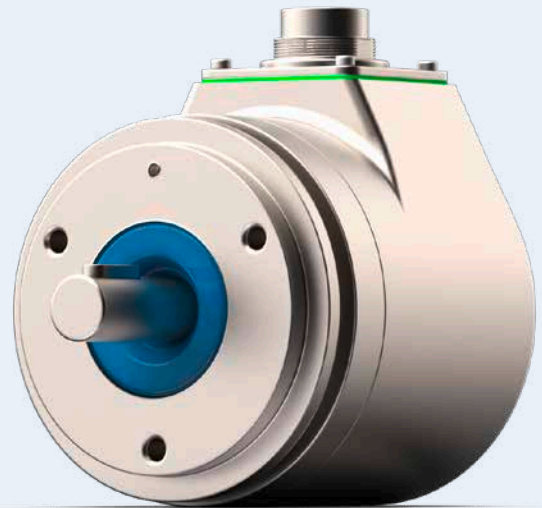
SINGLETURN DIAMETER 60 mm

MH1023-Ex

Robust All-in-one Encoder Series for Explosion-proof Applications

The MH1023-Ex series is available as explosion-proof versions with ATEX or IECEx approval in singleturn design.

The signal is output via an intrinsically safe 4–20 mA current interface in the 2-wire system, whereby the output signal can be adjusted to new angle ranges by the user at any time using a membrane keyboard on the back.



- Atex, IECEx approved
- Magnetic measuring system
- Robust housing design

TECHNICAL DATA

Housing diameter	60 mm	Vibration	10 g Sinus, 5–200 Hz
Housing material	aluminum, anodized / stainless steel	Connection	plug / cable
Housing length	about 34 mm	Fastening	central fixing threaded holes
IP code of housing up to	IP65	Electronics	2-wire system
Shaft diameter	10 mm	Maximum load current	600 Ω
Shaft material	stainless steel	Accuracy typical	< ± 0.2 %
Angle of rotation max.	360°	Resolution	12 bit, 14 bit
Revolutions max.	1	Supply	8 V–26 V
Temperature classes	T6: -30 to +60 °C, T4: -30 to +80 °C, with 2 channels: T6: -30 to +54 °C	Current consumption	4–22 mA
Shock	50 g, 6 ms	Temperature coefficient	0.1° / 10 K
		EMC immunity	EN 61 000-6-2
		EMC interference	EN 61 000-6-4

CE – conform



available in following
VERSIONS



Type designation	Signal output	IECEx	ATEX
MH1023-MU-Ex-IECEx	4–20 mA	✓	
MH1023-MU-Ex-ATEX	4–20 mA		✓

You can find all data sheets on www.fsg-sensors.de



SINGLE-/ MULTITURN DIAMETER 60 mm

MH-II-GS60

Low-cost Safety Rotary Encoder Series

The compact safety rotary encoder of the MH-II-GS60 series is designed with a redundant measuring system and as a single-turn or multi-turn rotary encoder for angle detection of up to 64 revolutions. The signals are output either via CAN-open or CANopen safety, which makes the sensor particularly suitable for safety-related applications in the PLd category.

Alternatively, a 4–20 mA current interface is also available.

In safety-relevant applications, the sensor thus achieves the PLc category.



- PLd- or SIL2-compliant
- Available as singleturn and multiturn encoder
- Standard encoder for draw-wire sensors

TECHNICAL DATA

Housing diameter	59.5 mm	Connection	plug / cable
Housing material	aluminum, anodized	Fastening	clamp fixing / threaded holes
Housing length	about 42 mm	Electronics	redundant
IP code of housing up to	IP67	Maximum load current	250 Ω / 500 Ω
Shaft diameter	6 mm	Accuracy typical	± 0.2 %
Shaft material	stainless steel	Resolution	14 bit
Angle of rotation max.	360°	Supply	6 V–35 V DC
Revolutions max.	1 / 8 / 16 / 32 / 64	Current consumption	< 50 mA
Temperature range	-30 °C to +70 °C	Temperature coefficient	0.1° / 10 K
Shock	25 g, 11 ms	EMC immunity	EN 61 000-6-2
Vibration	4 g Sinus, 5–100 Hz	EMC interference	EN 61 000-6-4

CE – conform



available in following
VERSIONS



Type designation	Signal output	Max. revolutions	SIL / PL (optional)
MH-II-MU-i-GS60	4–20 mA	1	✓
MH-II-CAN-GS60	CAN-Bus	1	✓
MH64-II-MU-i-GS60	4–20 mA	64	✓
MH64-II-CAN-GS60	CAN-Bus	64	✓







You can find all data sheets on www.fsg-sensors.de.

OVERVIEW

ROTARY ENCODER SERIES

FSG Encoder Series at a glance.

For further specifications in comparison, please feel free to contact us.

Series	Housing diameter / mm	Degree of IP protection max.	Type designation	Singleturn	Multiturn	Revolutions max.	Current output	Voltage output	Bus output	SIL / PL	ATEX	IECEx	DNV	
	Ø 22.2	65	MH609y-II-CAN	•	1			•						
			MH609-II-CAN	•	1			•						
			MH609-II-MU-i	•	1	•								
	Ø 36.5	65	MH613-MU-i	•	1	•								
			MH613-MU-u	•	1		•							
			MH16-613-MU-i		•	16	•							
			MH16-613-MU-u		•	16		•						
	Ø 50.8	67	MH620-MU-i	•	1	•								
			MH620-II-MU-i	•	1	•								
			MH620-MU-u	•	1		•							
			MH620-II-MU-u	•	1		•							
			MH620-CAN	•	1			•						
			MH620-II-CAN	•	1			•						
		65	MH620-II-i-CAN	•	1			•					•	
		65	MH620-II-MU-i-Z	•	1	•								•
65	MH620-II-MU-CAN-Z	•	1			•						•		
	Ø 59.5	67	MH-II-MU-i-GS60	•	1	•			•					
			MH-II-CAN-GS60	•	1			•	•					
			MH64-II-MU-i-GS60		•	64	•			•				
			MH64-II-CAN-GS60		•	64				•	•			
	Ø 60.0	67	MH1023-II-MU-i	•	1	•							•	
			MH1023-MU-i	•	1	•								
			MH1023-CAN	•	1			•						
			MH4096-1023-CAN		•				•					
			MH64-1023-MU-i		•	64	•							
			MH64-1023-CAN		•	64				•				
	Ø 60.0	65	MH1023-MU-Ex-Atex	•	1						•			
			MH1023-MU-Ex-IETEx	•	1								•	



ROTARY ENCODERS

SPECIAL VERSIONS



COMPATIBLE
Analogue & Digital



TYPE OF
CONSTRUCTION
Ø 13–125 mm



STANDARD-FUNCTION
Single- / Multiturn

- MH605-II-MU
- MH-II-CAN-MEMS-GS60
- MH8-II-MU-i-GS63
- MH670-MU-i
- MH680-III-MU-i
- MH-II-MU-GS100
- MH14-12-CAN-GS125

SINGLETURN DIAMETER 13 mm

MH605-II-MU

Redundant Miniature Rotary Encoder

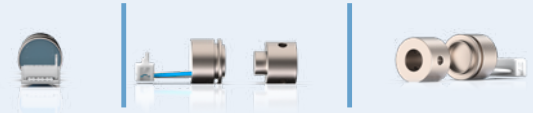
The miniature rotary encoder of series MH605-II-MU has a redundant, magnetic measuring system.

The signal is output via two 0.5 V to 4.5 V voltage signals running in the same or in opposite directions. The output signal is adjusted to the required angle range at the factory.

With an additional programming device and suitable software, the sensor can also be adjusted by the user to any angle range up to 360°.



- Redundant miniature analogue rotary encoder
- Two-channel signal output
- Angle range user programmable



TECHNICAL DATA

Housing diameter	13 mm	Fastening	clamp fixing
Housing material	aluminum, anodized	Electronics	redundant
Housing length	about 9 mm	Maximum load current	min. 10 KΩ
IP code of housing up to	IP68 (without plug)	Accuracy typical	< ± 0.3°
Shaft diameter	without shaft	Resolution	12 bit
Angle of rotation max.	360°	Voltage output	2 x 0.5 – 4.5 V
Revolutions max.	1	Supply	2 x 5 V DC
Temperature range	- 40 °C to +105 °C	Current consumption	< 10 mA
Shock	50 g, 6 ms	Temperature coefficient	0.1° / 10 K
Vibration	4 g Sinus, 5–100 Hz	EMC immunity	EN 61 000-6-2
Connection	cable	EMC interference	EN 61 000-6-4



CE – conform

You can find all data sheets on www.fsg-sensors.de.

SINGLE-/ MULTITURN DIAMETER 65 mm

MH-II-CAN-MEMS-GS60

Compact Safety Encoder with additional Inclination Measurement

The special encoder of series MH-II-CAN-MEMS-GS60 has a redundant hall sensor for angle detection of a maximum of 64 revolutions. Without its internal gear, it can also be used as a single-turn encoder. In addition, the encoder is equipped with a redundant single-axis tilt sensor that can detect a tilt angle of 0–360°.

Signal output is via a CAN bus interface using CANopen or CANopen-safety protocol and is thus also suitable for safety-relevant applications. The special encoder is mainly intended for use on wire rope hoist systems and cable drums and can be used for simultaneous length and inclination measurement in construction machinery, reach stackers, mobile elevating work platforms as well as ship and harbor cranes.

- Robust single-/ multiturn encoder
- With tilt angle detection from 0°–360°
- Redundant signal acquisition for angle and inclination



TECHNICAL DATA

Housing diameter	65 mm	Fastening	clamp fixing via synchro flange or 3 x M4 of TK 42 mm
Housing material	aluminum, anodized	Electronics	redundant
Housing length	about 76 mm	Maximum load current	min. 10 KΩ
IP code of housing up to	IP67	Accuracy typical	± 0.2 %
Shaft diameter	6 mm	Resolution	14 bit
Shaft material	stainless steel	Bus output	CANopen / CANopen-safety
Angle of rotation max.	23040°	Supply	9 V–42 V DC
Revolutions max.	1 / 64	Current consumption	< 100 mA
Temperature range	- 30 °C to + 70 °C	Temperature coefficient	0.1° / 10 K
Shock	25 g, 11 ms	EMC immunity	EN 61 000-6-2
Vibration	4 g Sinus, 5–100 Hz	EMC interference	EN 61 000-6-4
Connection	cable		



CE – conform

You can find all data sheets on www.fsg-sensors.de.

MULTITURN

DIAMETER 63 mm

MH8-II-MU-i-GS63

Robust Safety Encoder for hazardous areas

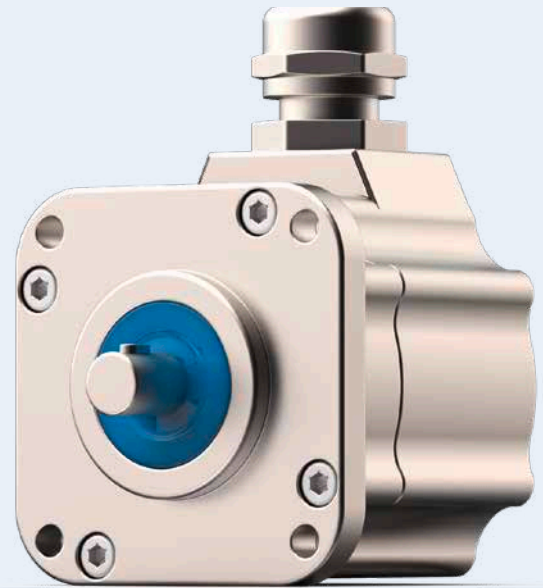
The intrinsically safe encoder of series MH8-II-MU-i-GS63 has a magnetic redundant measuring system and is designed for angle measurement up to 2880°.

Signal output is via a single-channel 4–20 mA current interface in 2-wire system.

With its IECEx approval and SIL2 functionality, the encoder is primarily intended for safety-related applications in potentially explosive atmospheres.

The robust stainless steel housing is designed for particularly demanding environmental conditions as well as against temporary submersion.

- **SIL2-Certification**
- **IECEx-Approval**
- **Stainless steel housing IP67**



TECHNICAL DATA

Housing diameter	63 mm	Connection	cable
Housing material	stainless steel	Fastening	4 drill-holes Ø 5.2 mm
Housing length	about 60 mm	Electronics	redundant
IP code of housing up to	IP67	Maximum load current	500 Ω
Shaft diameter	10 mm	Accuracy typical	< ± 3°
Shaft material	stainless steel	Resolution	14 bit
Angle of rotation max.	2880°	Current output	4–20 mA, 2-wire system
Revolutions max.	8	Supply	9 V–26 V DC
Temperature range	- 20 °C to + 60 °C	Current consumption	4–20 mA
Shock	25 g, 6 ms	Temperature coefficient	> 0.1° / 10K
Vibration	2 g Sinus, 5–150 Hz	EMC immunity	EN 61 000-6-2
		EMC interference	EN 61 000-6-4

CE –conform



You can find all data sheets
on www.fsg-sensors.de.



SINGLETURN DIAMETER 70 mm

MH670-MU-i

Magnetic Encoder in 2-Wire System

The robust rotary encoder of the MH670-MU-i series has a magnetic measuring system and is designed for an angle measurement of max. 360°. The signal is output via a 4–20 mA interface, which is designed in 2-wire technology. The output signal can be freely programmed by the user using the 0 % and 100 % keys.



- Current output in 2-wire system
- Signal programming via keys
- Angle measurement from 0°–360°

TECHNICAL DATA

Housing diameter	70 mm
Housing material	aluminum, anodized
Housing length	about 45 mm
IP code of housing up to	IP65 (housing)
Shaft diameter	6 mm
Shaft material	stainless steel
Angle of rotation max.	360°
Revolutions max.	1
Temperature range	- 25 °C to + 80 °C
Shock	50 g, 6 ms
Vibration	10 g Sinus, 5–200 Hz

Connection	connector strip
Fastening	4 drill-holes 4,5 mm on TK 80 mm
Electronics	single-gang
Maximum load current	500 Ω
Accuracy typical	< ± 0.3°
Resolution	12 bit
Current output	4–20 mA, 2-wire system
Supply	18 V–33 V DC
Current consumption	4–20 mA
Temperature coefficient	0.1° / 10 K
EMC immunity	EN 61 000-6-2
EMC interference	EN 61 000-6-4



CE – conform

You can find all data sheets on www.fsg-sensors.de.

SINGLETURN DIAMETER 85 mm

MH680-III-MU-i

Robust Triple Rotary Encoder with additional angle display over scale + pointer on the back

The MH680-III-MU-i is a robust triple singleturn encoder that has three electrically separated measuring systems.

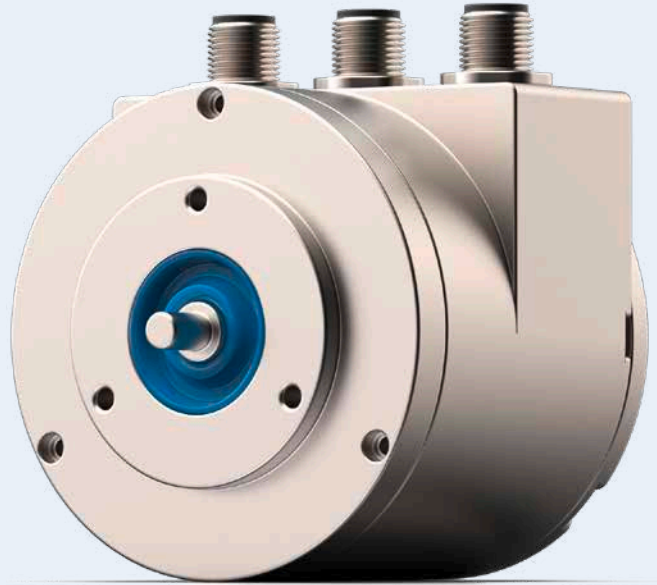
The signals are output via a 4–20 mA current interface for each channel.

The signal setting can be made by the user via connecting cables.

In addition, the device is equipped with a rear scale with pointer to display the angular position.

This special version is DNV approved.

Alternatively, the user can set the angle using a programming membrane on the back for each channel. This version has no back scale and DNV approval.



- Triple analogue rotary encoder
- Signal programming via connecting cable
- DNV-approval
- With scale and pointer on the reverse



CE – conform



TECHNICAL DATA

Housing diameter	80 mm	Connection	3 x M12-plug
Housing material	aluminum, hard-coat or anodized	Fastening	3 x M4 on TK 42 mm
Housing length	about 68 mm	Electronics	triple
IP code of housing up to	IP67	Maximum load current	600 Ω
Shaft diameter	10 mm	Accuracy typical	± 0.1 %
Shaft material	stainless steel	Resolution	14 bit
Angle of rotation max.	360°	Current output	3 x 4–20 mA
Revolutions max.	1	Supply	3 x 18 V–33 V DC
Temperature range	- 30 °C to + 70 °C	Current consumption	< 50 mA, per channel
Shock	25 g, 11 ms	Temperature coefficient	0.1° / 10 K
Vibration	4 g Sinus, 5–100 Hz	EMC immunity	EN 61 000-6-2
		EMC interference	EN 61 000-6-4

You can find all data sheets on www.fsg-sensors.de



SINGLETURN DIAMETER 100 mm

MH-II-MU-GS100

Heavy-Duty Rotary Encoders in Flat Design

The robust rotary encoder of series MH-II-MU-i-GS100 has a flat steel housing with protection class IP69K.

The two opposing 4–20 mA current output signals are recorded by means of redundant hall sensors.

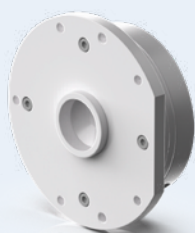
- Flat design for application as joint angle encoder
- IP code of housing up to: IP69K, IP68
- Redundant signal acquisition



TECHNICAL DATA

Housing diameter	100 mm
Housing material	steel, galvanized, lacquered
Housing length	about 38 mm
IP code of housing up to	IP69K, IP68
Angle of rotation max.	360°
Revolutions max.	1
Temperature range	-40 °C to +80 °C
Shock	50 g, 6 ms
Vibration	4 g Sinus, 5–100 Hz
Connection	cable

Fastening	4 x M6 on TK 80 mm
Electronics	redundant
Maximum load current	600 Ω
Accuracy typical	< ± 0.15°
Resolution	14 bit
Current output	2 x 4–20 mA
Supply	2 x 18 V–36 V DC
Current consumption	< 70 mA
Temperature coefficient	0.1° / 10 K
EMC immunity	EN 61 000-6-2
EMC interference	EN 61 000-6-4



CE – conform

SIL
IEC 61508

PL
EN 13849

You can find all data sheets on www.fsg-sensors.de.

MULTITURN

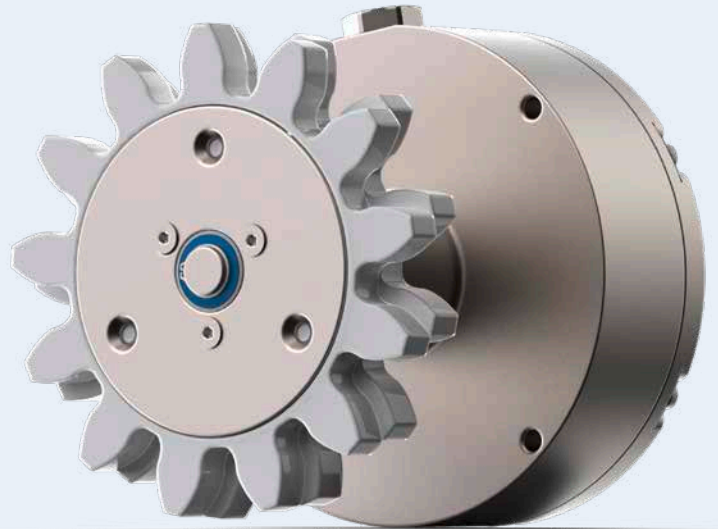
DIAMETER 125 mm

MH14-12-CAN-GS125

Slewing Ring Encoder with programmable gear

The slewing ring encoder is used to record the swivel angle and swivel speed on construction machines and aerial work platforms.

The sensor is equipped with a redundant multiturn measuring system. The signals are output via a CAN bus interface using either the CANopen or CANopen safety protocol. This means that the sensor is designed for safety-related applications. The encoder is supplied with a spring-loaded, backlash-free plastic gear wheel for connection to the slewing ring. The transmission ratio resulting from the gear wheel and slewing ring can be entered by the user so that the correct 360° slewing ring angle position can be determined at any time, even with continuous spinning operation in one direction.



- **Redundant signal acquisition**
- **Programmable multiturn gear for 360° signal output**
- **Suitable for use in safety-related applications**



TECHNICAL DATA

Housing diameter	125 mm	Connection	plug
Housing material	aluminum, anodized	Fastening	on request
Housing length	about 58 mm	Electronics	redundant
IP code of housing up to	IP67	Maximum load current	600 Ω
Shaft diameter	12 mm	Accuracy typical	0.20 %
Shaft material	stainless steel	Resolution	0.1°
Angle of rotation	360°	Bus output	CANopen / CANopen-safety
Revolutions max.	programmable	Supply	9 V–42 V DC
Temperature range	-30 °C to +80 °C	Current consumption	< 80 mA
Shock	50 g, 6 ms	Temperature coefficient	0.1° / 10 K
Vibration	4 g Sinus, 5–100 Hz	EMC immunity	500 V, 50 Hz, 1 min
		EMC interference	EN 61 000-6-4

CE – conform




You can find all data sheets
on www.fsg-sensors.de

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QUALITY & RELIABILITY 

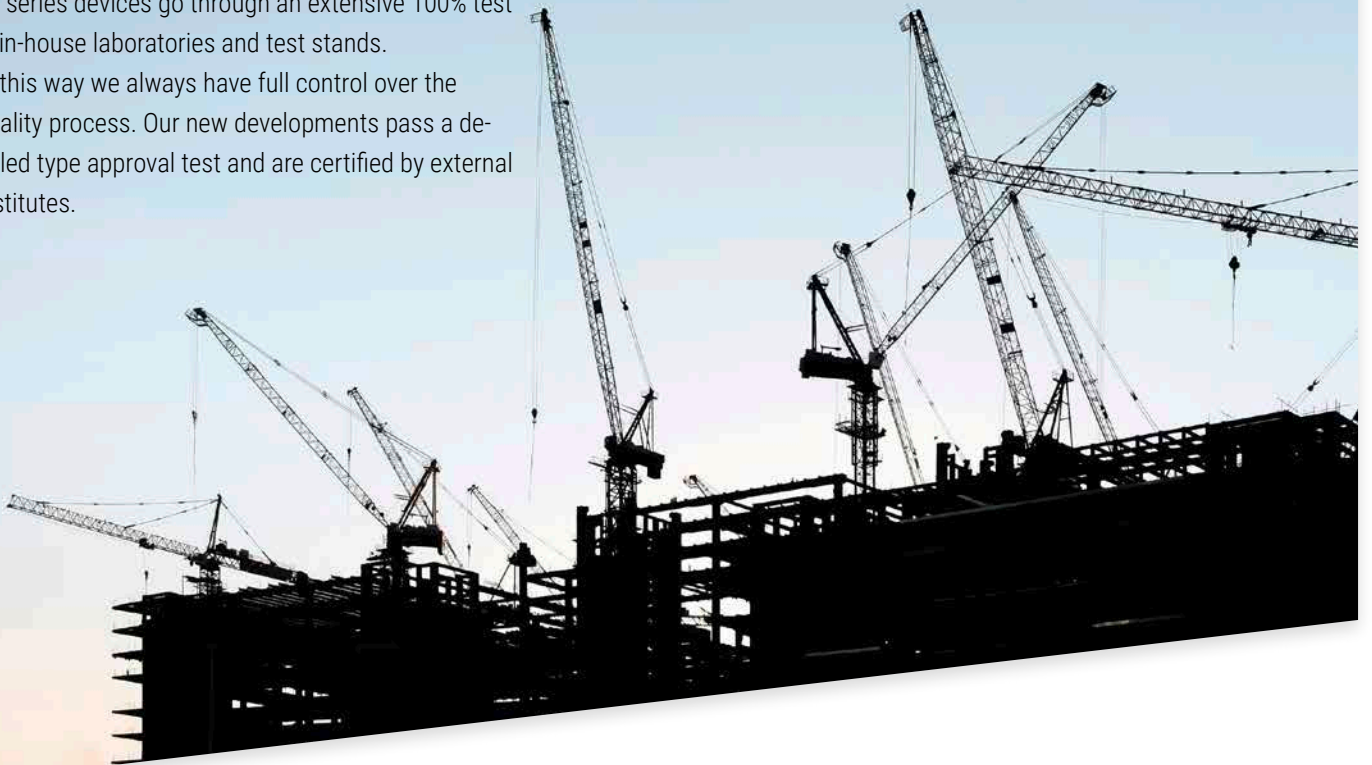
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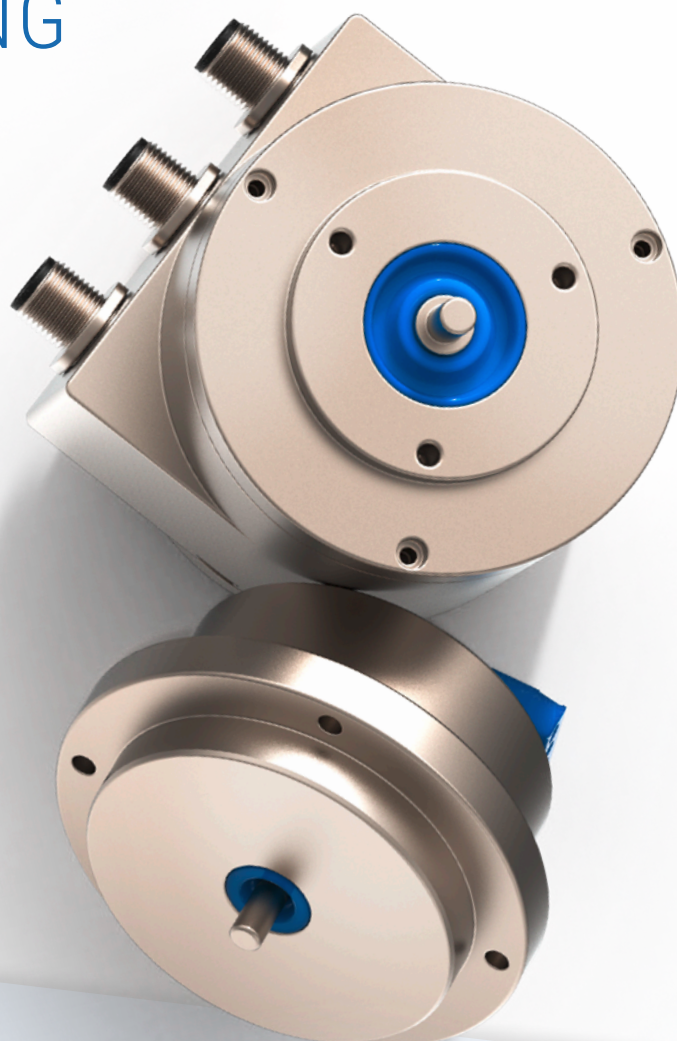


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As a result, FSG has been able to develop trust and expertise in all key industries over the decades. Thanks to unconventional approaches, we have often been able to set standards that many industrial sectors cannot be imagined without to this day. Today our components are trademarks for quality and innovation in many branches of industry.



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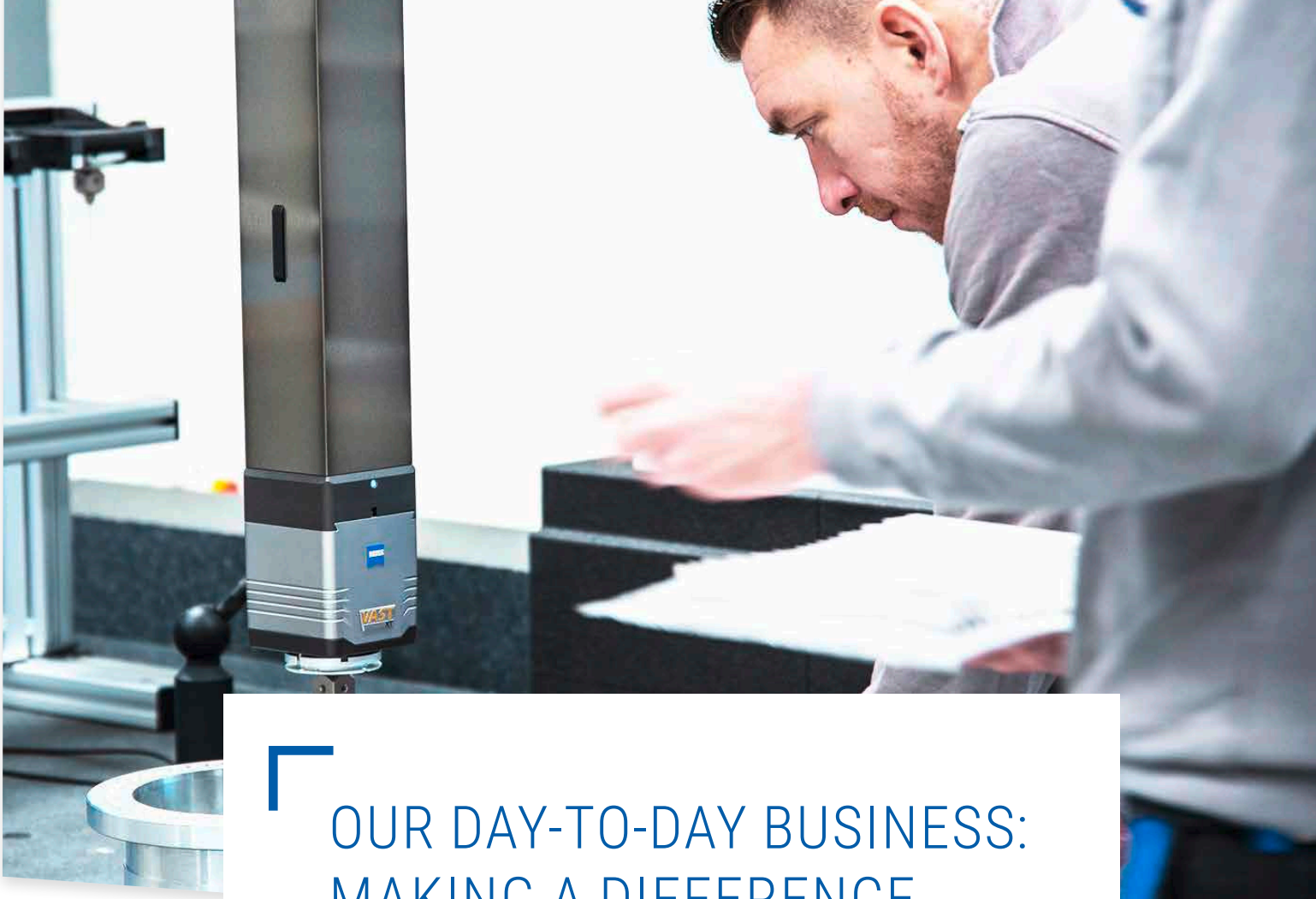
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