

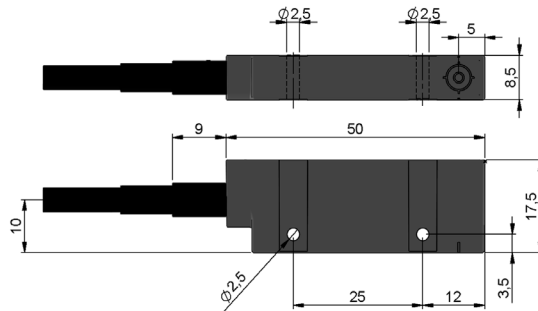
# SERIE MSF-INC

## OFF-AXIS BEARINGLESS INCREMENTAL ENCODER

- Resolution up to 16384 pulses per turn
- Non-contacting measuring system
- Easy assembly
- Compact dimensions
- For applications under possible adverse ambient conditions (vibrations, humidity, dust, etc.)

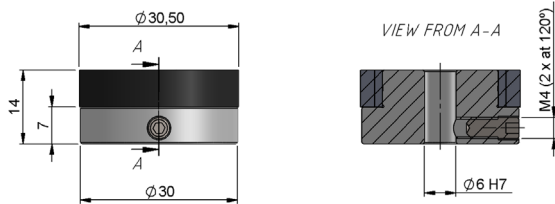


Magnetic Encoder	Incremental Encoder	Vibration and shock resistant	Compact	IP67	Express Delivery

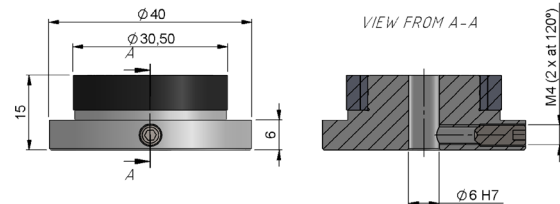


Drawing Sensor MSF-INC connection type 1

### Magnetic wheel CRI30 (32 and 36 poles)

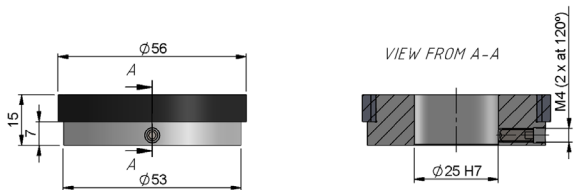


Drawing Magnetic wheel CRI30 without reference magnet

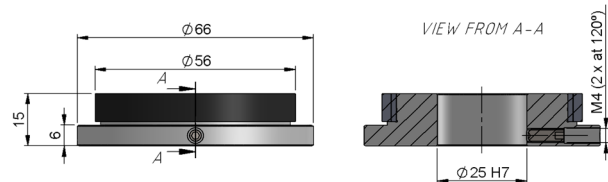


Drawing Magnetic wheel CRI30 with reference magnet

### Magnetic wheel CRI56 (50 and 64 poles)



Drawing Magnetic wheel CRI56 without reference magnet



Drawing Magnetic wheel CRI56 with reference magnet

# SERIE MSF-INC

## OFF-AXIS BEARINGLESS INCREMENTAL ENCODER

### SENSOR REFERENCE

Reference example: MSF-INC-512-32-112

Serie	Pulses number	Magnet poles	Output signals	Power supply	Connection	Special Customer
MSF-INC-	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	- <input type="checkbox"/> <input type="checkbox"/>	- <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	(*)	32. 32 poles 36. 36 poles 50. 50 poles 64. 64 poles	1. AB 2. AB, $\overline{AB}$ 3. ABZ 4. ABZ, $\overline{ABZ}$	1. 5...30 VDC / Line driver differential Push-Pull 5...30 VDC	1. Radial cable 2. Radial M8 4p (**)	

Order your reference Step file 3D

info@encoderhohner.com  
service available in 24 h

(\*) See the table below for available resolutions depending on magnet wheel.

(\*\*) Only available for Output signals option 1.

Magnetic wheel	Number of poles	Pulses (*)
CRI30-	32 poles	32, 64, 96, 128, 160, 192, 224, 256... in steps of 32 pulses up to 8192
CRI30-	36 poles	36, 72, 108, 144, 180, 216, 252, 288... in steps of 36 pulses up to 9216
CRI56-	50 poles	50, 100, 150, 200, 250, 300, 350, 400 ... in steps of 50 pulses up to 12800
CRI56-	64 poles	64, 128, 192, 256, 320, 384, 448, 512... in steps of 64 pulses up to 16384

(\*) Other resolutions available, upon request.

### MAGNETIC WHEEL REFERENCE

Reference example: CRI30-32-06-1

Serie	Number of poles	Shaft diameter	Reference	Special Customer
CRI30-	<input type="checkbox"/> <input type="checkbox"/>	- <input type="checkbox"/> <input type="checkbox"/>	- <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	32. 32 poles 36. 36 poles (**)	06. 6 mm 08. 8 mm 10. 10 mm	12. 12 mm 15. 15 mm 17. 17 mm (*)	1. without reference magnet 2. with reference magnet (***)

(\*) Other bore diameter on request (max. 17.5 mm).

(\*\*) The number of poles must be the same as magnet poles in MSF-INC reference.

(\*\*\*) Option without reference magnet only available for output signals options 1 and 2. Option with reference magnet only available for output signals options 3 and 4.

### MAGNETIC WHEEL REFERENCE

Reference example: CRI56-64-25-1

Serie	Number of poles	Shaft diameter	Reference	Special Customer
CRI56-	<input type="checkbox"/> <input type="checkbox"/>	- <input type="checkbox"/> <input type="checkbox"/>	- <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	50. 50 poles 64. 64 poles (**)	18. 18 mm 20. 20 mm	25. 25 mm 30. 30 mm (*)	1. without reference magnet 2. with reference magnet (***)

(\*) Other bore diameter on request (max. 43.5 mm).

(\*\*) The number of poles must be the same as magnet poles in MSF-INC reference.

(\*\*\*) Option without reference magnet only available for output signals options 1 and 2. Option with reference magnet only available for output signals options 3 and 4.

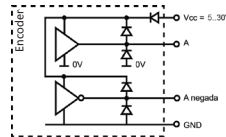
# SERIE MSF-INC

## OFF-AXIS BEARINGLESS INCREMENTAL ENCODER

### MECHANICAL SPECIFICATIONS

Materials	Housing: PC Magnet support: Aluminium Magnet: Samarium plastic-bonded
Housing fixing	2 holes
Runout radial motor shaft	0.05 mm
Maximum speed	6000 rpm
Working distance	See "Sensor alignment tolerances" drawings
Fastening torque	1.5 Nm (M4 Magnetic wheel CRI)
Protection against dust and splashes according to DIN EN 60529	IP67
Weight aprox.	0.15 Kg
Operating temperature range	-25°C to +85°C
Vibration according to DIN EN 60068-2-6	100 m/s <sup>2</sup> (10Hz...2000Hz)
Shock according to DIN EN 60068-2-27	1000 m/s <sup>2</sup> (6ms)
Radial connection	2 meters cable or industrial connector (other cable lengths available on order) Female connector not included

### OUTPUT SIGNALS



<b>OUTPUT CIRCUIT</b>	<b>Push-Pull Differential (TTL compatible (*))</b>
Reference code	1
Electronic Output voltage	5...30 VDC
“High” signal level	> VCC - 3 VDC
“Low” signal level	< 2.5 VDC
Consumption	Loaded < 120 mA@30V
Frequency	≤ 100 kHz
Max. load capability / channel	40 mA
Short circuit protection	Yes
Protection polarity inversion	Yes

Channel A leads (90° electric) channel B, view from the shaft, shaft rotating clockwise.  
(\*) TTL/RS422 available if encoder supply is 5 VDC.

# SERIE MSF-INC

## OFF-AXIS BEARINGLESS INCREMENTAL ENCODER

### CONNECTION

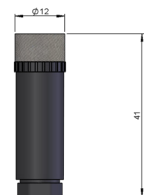
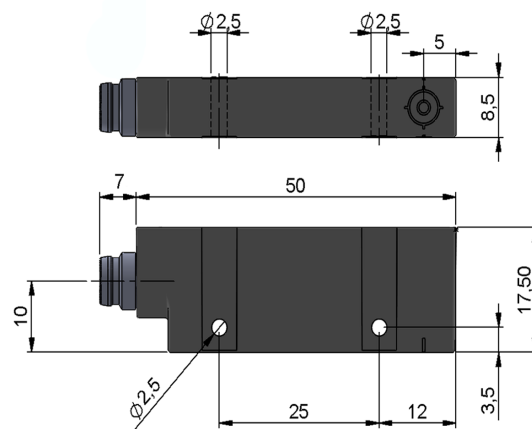


	Cable 5x0.14 95.0008051	Cable 8x0.14 95.0008052	Connector M8 4p CCW
GND	White (WH)	White (WH)	3
+UB	Brown (BN)	Brown (BN)	1
A	Green (GN)	Green (GN)	4
B	Yellow (YE)	Grey (GY)	2
$\bar{A}$	-	Yellow (YE)	-
$\bar{B}$	-	Pink (PK)	-
Z	Grey (GY)	Blue (BU)	-
$\bar{Z}$	-	Red (RD)	-

### CONNECTION DIMENSIONS

Female connector not included

Connection 2  
Radial



Female connector  
95.0007168

Pre-assembled cable  
89.007.018.154.XX  
Length in meters

# SERIE MSF-INC

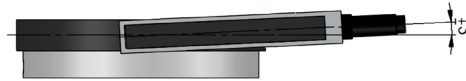
OFF-AXIS BEARINGLESS INCREMENTAL ENCODER

## SENSOR ALIGNMENT TOLERANCES

Axial misalignment



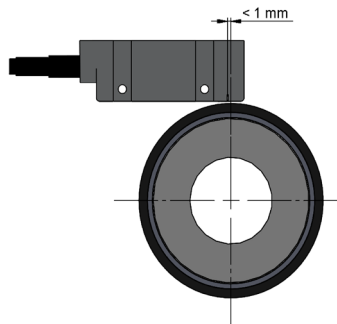
Torsional misalignment



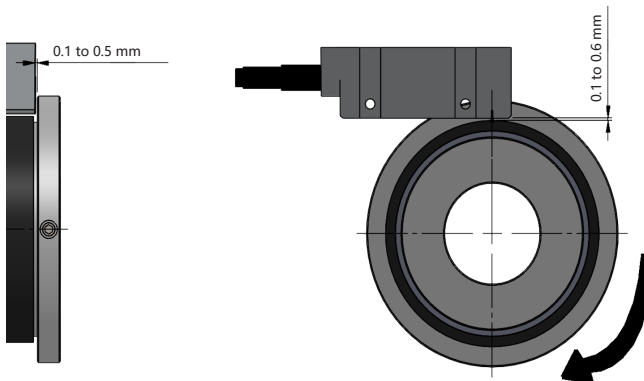
Angular misalignment



Position misalignment



Working distance



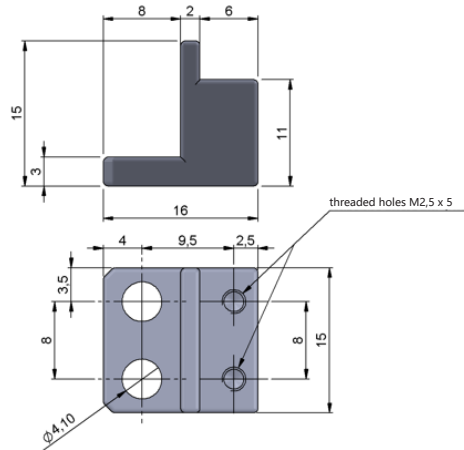
# SERIE MSF-INC

## OFF-AXIS BEARINGLESS INCREMENTAL ENCODER

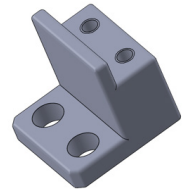
### ACCESSORIES

#### Mounting bracket

Only available with option  
with reference magnet

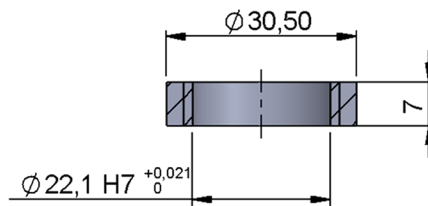


90.1138



#### Magnet

without magnet support

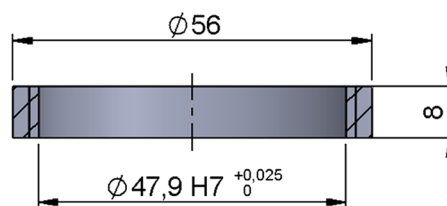


32 poles: 96.9990024  
36 poles: 96.9990025



#### Magnet

without magnet support



50 poles: 96.9990026  
64 poles: 96.9990027

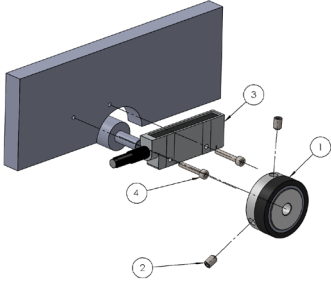
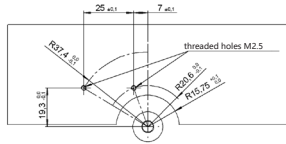


# SERIE MSF-INC

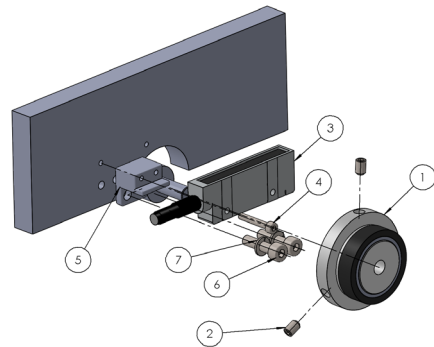
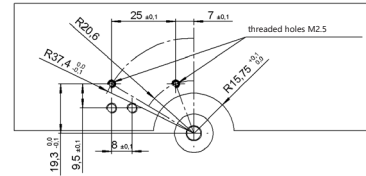
## OFF-AXIS BEARINGLESS INCREMENTAL ENCODER

### ASSEMBLY INSTRUCTIONS

#### Magnetic wheel CRI30 (32 and 36 poles)

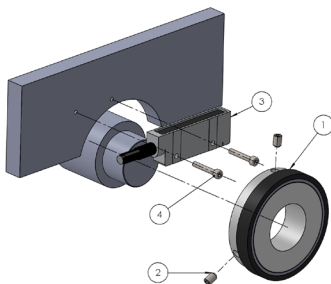
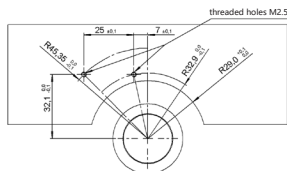


- 1) Magnet + Magnet support
- 2) Setscrew M4
- 3) Sensor
- 4) Screw M2.5

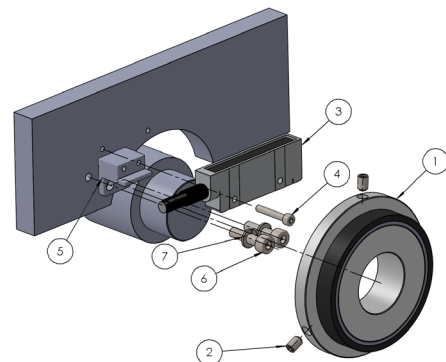
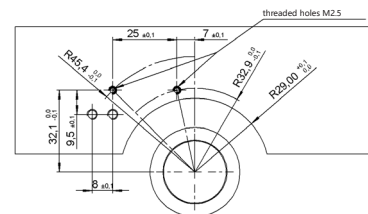


- 1) Magnet + Magnet support
- 2) Setscrew M4
- 3) Sensor
- 4) Screw M2.5
- 5) Mounting bracket
- 6) Screw M4 DIN912
- 7) washer DIN128 M4

#### Magnetic wheel CRI56 (50 and 64 poles)



- 1) Magnet + Magnet support
- 2) Setscrew M4
- 3) Sensor
- 4) Screw M2.5



- 1) Magnet + Magnet position
- 2) Setscrew M4
- 3) Sensor
- 4) Screw M2.5
- 5) Mounting bracket
- 6) Screw M4 DIN912
- 7) washer DIN128 M4