

Measuring wheel systems

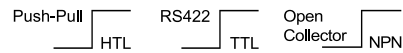
Compact-Line	Measuring wheel system MWE31	With spring bracket, contact force max. 15 N
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With incremental or absolute encoder with clamping flange \varnothing 36 mm or \varnothing 40 mm.

Measuring wheel systems from Kübler are the ideal solution for reliable speed measurement, position detection and length measurement in applications with linear movements. These are recorded rotationally via the measuring wheel with attached encoder directly on the surface of the material to be measured and converted into linear data.

The compact MWE31 measuring wheel system with internal springs can be quickly and easily integrated into even the tightest installation spaces.



Analog output



CANopen

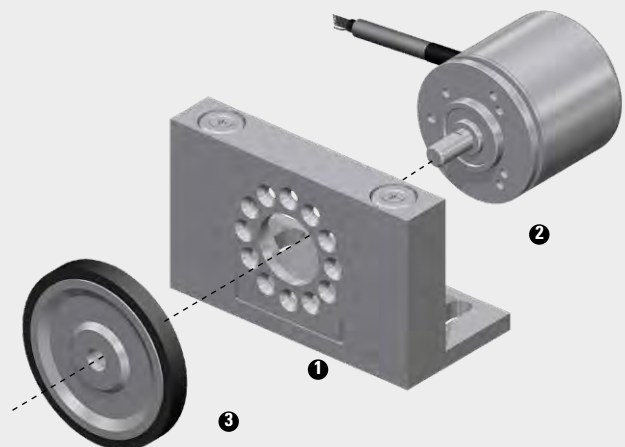


Features

- **Simple and safe assembly**
Measuring wheel system with internal springs to protect against unwanted influences for and by the springs. Encoder can be mounted on the spring bracket in 30° steps.
- **Wide range of encoders**
Incremental Sendix encoder with a max. resolution of up to 2500 pulses/revolution as well as absolute encoders for different communication interfaces such as IO-Link for integration in Industry 4.0 concepts.
- **Suitable measuring wheels for all measuring surfaces**
Circumference 200 mm - measuring wheel coating available with O-ring, smooth plastic or diamond knurl surface.
- **Contact force up to max. 15 N**
The integrated spring ensures a working range of the measuring wheel of up to 10 mm vertical to the measuring surface to compensate for tolerances.

Construction

- ❶ Spring bracket: MWE30
- ❷ Encoder: Clamping flange \varnothing 36 mm or \varnothing 40 mm
- ❸ Measuring wheel: Circumference 200 mm



Measuring wheel systems

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Order code with incremental encoder **8.MWE31 . 1 2 1 . XX . 40 XX . XXXX**

Type ① ② ③ ④ ⑤

① Encoder version
1 = incremental

② Measuring wheel, circumference / coating
21 = 200 mm / diamond knurl (aluminum)
24 = 200 mm / plastic smooth (PU)
27 = 200 mm / O-ring (NBR)
(other measuring wheels on request)

③ Mounted encoder ¹⁾
40 = KIS40 incremental
(other encoders on request)

④ Output circuit / supply voltage encoder
see data sheet encoder

⑤ Type of connection
see data sheet encoder

⑥ Pulse rate
see data sheet encoder

Order code with absolute encoder **8.MWE31 . 2 2 1 . XX . XXXX . XXXX**

Type ① ② ③ ④ ⑤

① Encoder version
2 = absolute

② Measuring wheel, circumference / coating
21 = 200 mm / diamond knurl (aluminum)
24 = 200 mm / plastic smooth (PU)
27 = 200 mm / O-ring (NBR)
(other measuring wheels on request)

③ Mounted encoder ¹⁾
M1 = M3661 Analog output
M3 = M3663
M8 = M3668
M8 = M3668
(other encoders on request)

④ Output circuit / supply voltage encoder
see data sheet encoder

⑤ Type of connection
see data sheet encoder

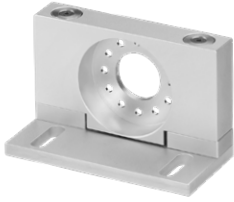



⑥ + ⑦ + ⑧ Interface specifications
see data sheet encoder

Calculation of the linear resolution

	Measuring step (distance/pulse)	Resolution (pulses/distance)
Calculation	$\frac{\text{distance}}{\text{ppr}} = \frac{\text{Measuring wheel circumference}}{\text{Pulse number encoder}}$	$\frac{\text{ppr}}{\text{distance}} = \frac{\text{Pulse number encoder}}{\text{Measuring wheel circumference}}$
Example Measuring wheel circumference = 200 mm Pulse number encoder = 1000 ppr	$\frac{200 \text{ mm}}{1000 \text{ ppr}} = 0.2 \text{ mm / puls}$	$\frac{1000 \text{ ppr}}{200 \text{ mm}} = 5 \text{ pulses / mm}$

1) Clamping flange 36 or 40 mm / shaft ø 6 mm - only relevant for ordering an encoder as a single component.

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Single components			Order no.
Spring bracket MWE30		combinable with Kübler encoders: incremental: Sendix Base KIS40, 3610 absolute: Sendix F36xx, M36xx	8.MWE30.121.00.0000.0000 8.MWE30.221.00.0000.0000
			
Measuring wheels		Option ② circumference / coating	
		21 200 mm / diamond knurl (aluminum) 24 200 mm / plastic smooth (PU) 27 200 mm / O-ring (NBR70)	8.0000.3215.0006 8.0000.3245.0006 8.0000.3275.0006
		(other measuring wheels on request)	
Evaluation			Order no.
Preset counter Codix 924		Multifunction device: - Tachometer with limit values - Position indicators with limit values - Time preset counter	6.924.01XX.XXX
			
Accessories			Order no.
O-rings		For measuring wheel circumference 200 mm	8.0000.7000.0067
			

Further accessories can be found at: kuebler.com/accessories
Cables and connectors can be found at: kuebler.com/connection-technology

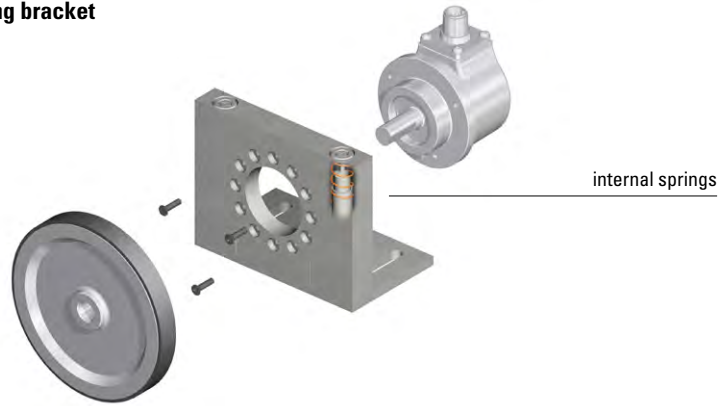
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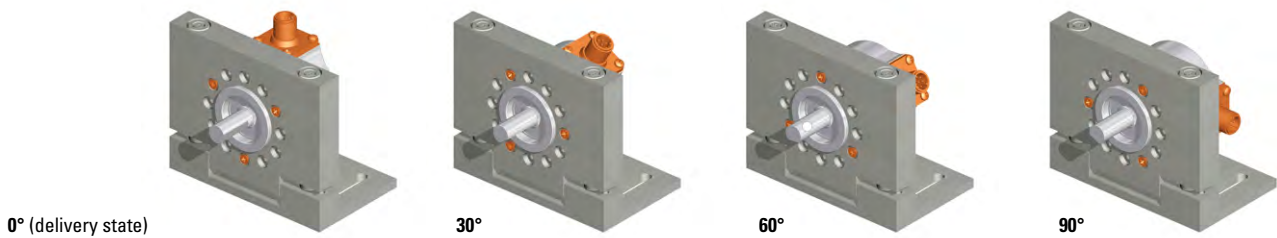
Technology in detail

Mounting options encoder on spring bracket

The encoder is attached to the spring bracket with 3 screws.



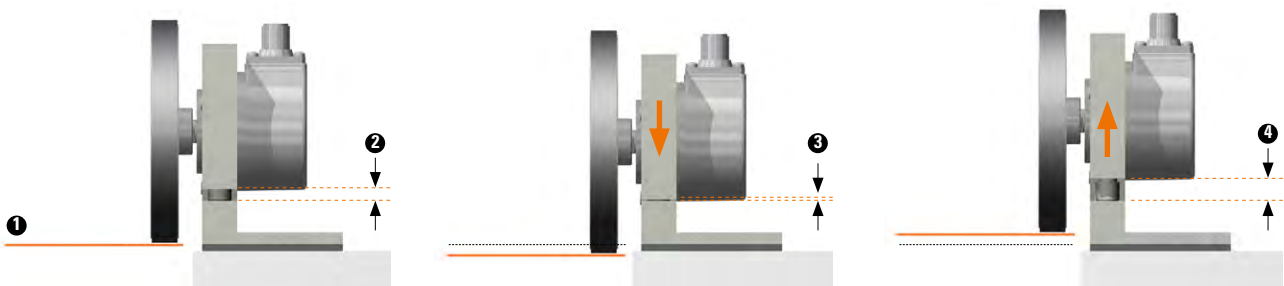
For a flexible outlet direction of the cable or connector, the encoder can additionally be mounted in 30° steps.



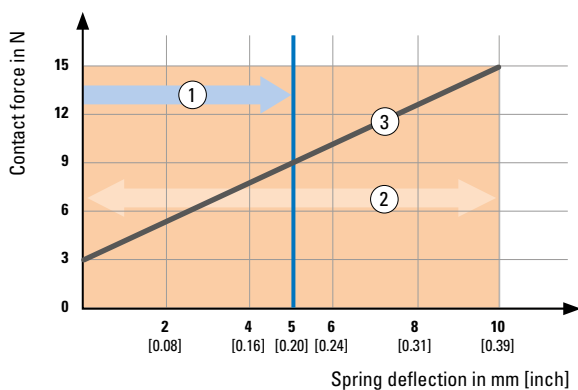
Mounting on the application

Install the MWE31 on the material to be measured ❶ in such a way that the requested preload is obtained. (ideally approx. 5 mm of the spring deflection ❷)

The working range is from 0 mm ❸ (equivalent to 3 N) to 10 mm ❹ (equivalent to 15 N)



Contact force of the measuring wheel on the material to be measured



- ❶ Preload, recommended : 9 N (approx. 5 mm deflection)
- ❷ Operating travel, max. : 10 mm
- ❸ Contact force in relation to spring deflection (Functional principle based on 2 integrated springs)

Measuring wheel systems

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Technical data

Mechanical characteristics spring bracket MWE30	
Materials	spring steel spring bracket aluminum
Weight	160 g
Contact force, max.	15 N
Operating travel, max.	10 mm
Preload, recommended	9 N (at 5 mm spring deflection)
Working temperature range	-20 °C ... +70 °C [-40 °F ... +176 °F]
Shock resistance acc. EN 60068-2-27	1000 m/s ² , 6 ms
Vibration resistance acc. EN 60068-2-6	100 m/s ² , 55 ... 2000 Hz

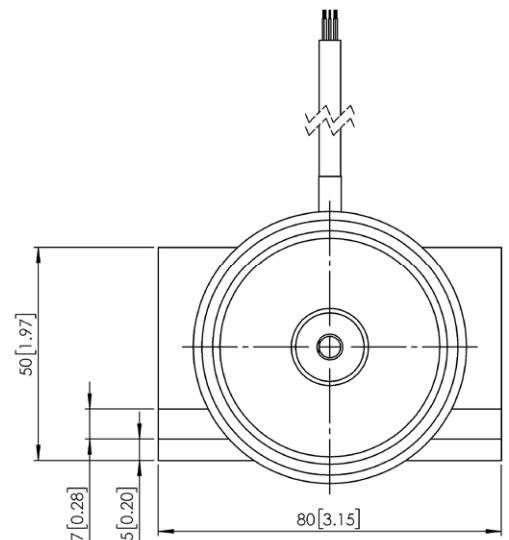
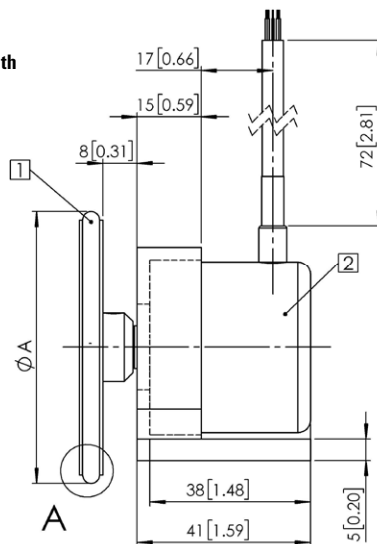
Approvals	
UL compliant in accordance with	File no. E224618
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
UKCA compliant in accordance with	
EMC Regulations	S.I. 2016/1091
RoHS Regulations	S.I. 2012/3032

Dimensions

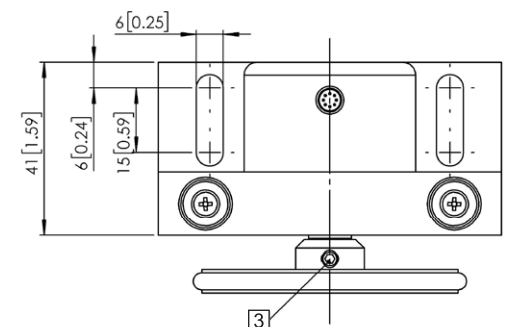
Dimensions in mm [inch]

Spring bracket MWE30 in combination with measuring wheel and encoder KIS40

- 1 Measuring wheel
- 2 Encoder
- 3 Fixing screw M4 x 6 for measuring wheel

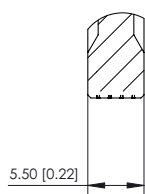


Measuring wheel circumference	ø A mm [inch]
200 mm	63.7 [2.52]
6"	48.5 [1.91]

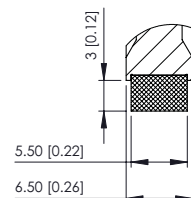


D for measuring wheel with coating:

Diamond knurl (aluminum)



Plastic smooth (PU)



O-ring (NBR)

