

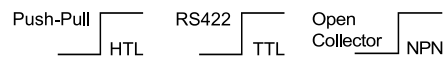
# Linear measuring technology

<b>Measuring wheel system</b>	<b>MWE21</b>	<b>Compact</b>
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The MWE21 measuring wheel system is the ideal solution for reliable speed, position and distance measurement in applications with linear movements. These are recorded rotationally via the measuring wheel with attached encoder and converted into measurement data.

An integrated spring ensures the contact pressure of the measuring wheel on the measuring surface required for reliable measured value acquisition. Due to its compact design, the system is also suitable for the tightest installation spaces and can be installed quickly and easily horizontally, vertically or overhead.

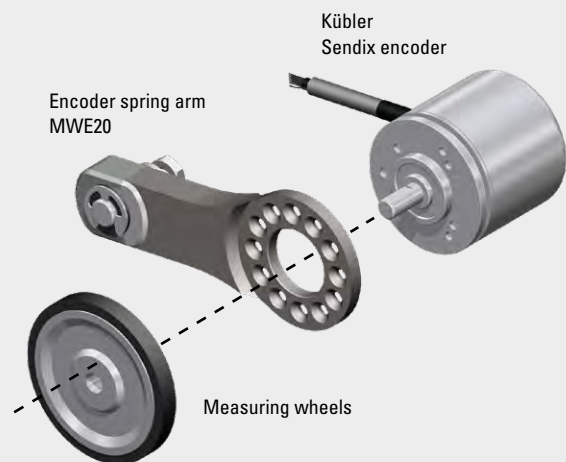


## Features

- Compact measuring system with flexible mounting options: vertical, horizontal or overhead. Encoder can be mounted on both sides in 30° steps on the encoder spring arm.
- Integrated spring for optimum contact pressure of the measuring wheel on the measuring surface and as compensation for unevenness.
- Robust incremental or absolute Sendix encoders size 36 mm with a max. resolution up to 2500 pulses/revolution and max. speed up to 4500 min<sup>-1</sup>.
- Measuring wheels for different measuring surfaces: Available with O-ring NBR70, smooth plastic (polyurethane) or diamond knurled (aluminum) coating in 200 mm and 6" circumferences.
- Integrated mechanical spring travel limitation.

## Benefits

- Simple and fast mounting even for the tightest installation spaces.
- Direct and reliable measurement on the measuring surface for precise speed, position and distance measurement.
- Accurate measurement values for efficient production operation.
- Matching measuring wheels for any measuring surface.
- Spring overload protection ensures long service life.



## Single components

Encoder spring arm MWE20



Kübler Sendix encoders size 36 mm



Measuring wheels with circumference 200 mm and 6"

The right measuring wheel coating for every surface of the material to be measured:

Diamond knurl



Plastic, smooth



O-ring



# Linear measuring technology

## Measuring wheel system MWE21 Compact

**Order code** 8.MWE21 . 1 1 1 . XX . 40 XX . XXXX

Type ① ② ③ ④ ⑤

**① Measuring wheel, circumference / coating**

- 21 = 200 mm / diamond knurl
- 24 = 200 mm / plastic (polyurethane)
- 27 = 200 mm / O-ring NBR
- 61 = 6" / diamond knurl
- 64 = 6" / plastic (polyurethane)
- 67 = 6" / O-ring NBR

**② Mounted encoder**

**40** = KIS40 incremental

Other encoders on request. In addition to incremental encoders, absolute encoders, e.g. with IO-Link interface, can also be mounted.

**Preferred numbers of pulses in relation to the measuring wheel circumference 200 mm**

Pulse rate	Resolution	Measurement steps
200 ppr	1 pulse / mm	1 mm / pulse
500 ppr	2.5 pulses / mm	0.4 mm / pulse
1000 ppr	5 pulses / mm	0.2 mm / pulse
2000 ppr	10 pulses / mm	0.1 mm / pulse

**Preferred numbers of pulses in relation to the measuring wheel circumference 6"**

Pulse rate	Resolution	Measurement steps
600 ppr	100 pulses / inch	0.01 inch / pulse

**③ Output circuit / supply voltage**

- 3 = open collector NPN (with inverted signal) / 10 ... 30 V DC
- 4 = push-pull (with inverted signal) / 10 ... 30 V DC
- 6 = RS422 (with inverted signal) / 5 V DC
- 7 = open collector NPN (without inverted signal) / 10 ... 30 V DC
- 8 = push-pull (without inverted signal) / 10 ... 30 V DC
- A = open collector NPN (with inverted signal) / 5 ... 30 V DC
- B = push-pull (with inverted signal) / 5 ... 30 V DC
- C = RS422 (with inverted signal) / 5 ... 30 V DC

**④ Type of connection**

- 1 = axial cable, 2 m [6.56'] PVC
- 2 = radial cable, 2 m [6.56'] PVC
- A = axial cable, special length PVC \*)
- B = radial cable, special length PVC \*)

\*) Available special lengths (connection types A, B):  
 3, 5, 8, 10, 15 m [9.84, 16.40, 26.25, 32.80, 49.21']  
 order code expansion .XXXX = length in dm  
 z. B.: 8.MWE21.111.24.404A.2000.0050 (bei 5 m Kabellänge)

**⑤ Pulse rate**

25, 50, 60, 100, 200, 360, 500, 512, 600, 1000, 1024, 2000, 2048, 2500  
 (e.g. 500 pulses => 0500)


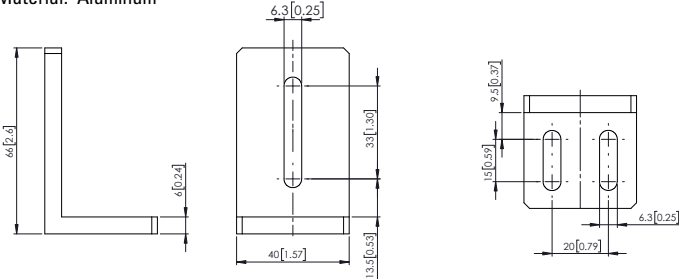

**Stock types**

- 8.MWE21.111.24.4042.2000 = measuring wheel circumf. 200 mm, PU
- 8.MWE21.111.27.4042.2000 = measuring wheel circumf. 200 mm, O-ring
- 8.MWE21.111.64.4042.0600 = measuring wheel circumf. 6", PU
- 8.MWE21.111.67.4042.0600 = measuring wheel circumf. 6", O-ring

### Single components Order no.

<p><b>Encoder</b></p>	<p>Option <b>②</b></p> <p><b>40</b>      <b>KIS40</b> incremental</p>	
<p><b>Encoder spring arm MWE20</b></p>	<p>combinable with Kübler encoders:</p> <p>incremental: Sendix Base KIS40, 3610</p> <p>absolut: Sendix F36xx, M36xx</p>	<p><b>8.MWE20.111.00.0000.0000</b></p> <p><b>8.MWE20.211.00.0000.0000</b></p>
<p><b>Measuring wheels</b></p>	<p>Option <b>①</b>      <i>circumference / coating</i></p> <p><b>21</b>      200 mm / diamond knurl (aluminum)</p> <p><b>24</b>      200 mm / plastic, smooth (PU)</p> <p><b>27</b>      200 mm / O-ring (NBR70)</p> <p><b>61</b>      6" / diamond knurl (aluminum)</p> <p><b>64</b>      6" / plastic, smooth (PU)</p> <p><b>67</b>      6" / O-ring (NBR70)</p>	<p><b>8.0000.3215.0006</b></p> <p><b>8.0000.3245.0006</b></p> <p><b>8.0000.3275.0006</b></p> <p><b>8.0000.3615.0006</b></p> <p><b>8.0000.3645.0006</b></p> <p><b>8.0000.3675.0006</b></p>

# Linear measuring technology

Measuring wheel system		MWE21	Compact
<b>Accessories</b>			Order no.
<b>Mounting bracket</b>	Material: Aluminum	 	8.0000.7000.0065
<b>O-rings</b>		for measuring wheel circumf. 200 mm for measuring wheel circumf. 6"	8.0000.7000.0067 8.0000.7000.0066
<b>Evaluation</b>			Order no.
<b>Preset counter Codix 924</b>	Multifunction device: - Tachometer with limit values - Position display with limit values - Time preset counter		6.924.01XX.XXX
<b>Connection technology</b>			Order no.
<b>Connector, self-assembly</b>	M12 male connector with external thread, 8 pin, A coded, straight (metal)		05.CMBS 8181-0

Further accessories can be found in the accessories area of our website at: [kuebler.com/accessories](http://kuebler.com/accessories).  
Additional connection technology can be found in the connection technology area of our website at: [kuebler.com/connection\\_technology](http://kuebler.com/connection_technology).

Technical data						
Mechanical characteristics encoder spring arm			Mechanical characteristics measuring wheel			
<b>Materials</b>	spring spring arm	spring steel aluminum	measuring wheel coating	aluminum diam. knurl: aluminum	plastic: PU	O-ring: NBR70
<b>Weight</b>	37 g		<b>Bore diameter</b>	6 mm	6 mm	6 mm
<b>Total deflection</b>	16 mm		<b>Wide</b>	5,5 mm	6,5 mm	5,5 mm
<b>Recommended preload</b>	5 N (approx. 6,5 mm spring deflection)		<b>Weight</b>	circumference 200 mm	38,5 g	41,5 g
<b>Recommended operating travel (continuous)</b>	±4 mm <sup>1)</sup> (from the recommended preload)			circumference 6"	25,0 g	23,5 g
<b>Spring load max.</b>	20 N					36,0 g
<b>Spring operating life</b>	2.0 Mio. cycles <sup>2)</sup>					21,5 g

## Technical data encoder KIS40

1) Operating deflection is measured after preload applied and with/for continuous operations.  
2) Life of spring is measured with operating deflection at 1 Hz.

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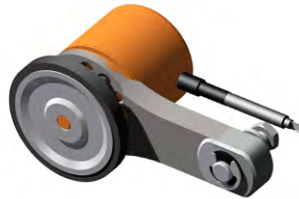
## Technology in detail

### Mounting options encoder on encoder spring arm

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



The fastening points are designed in such a way that mounting on both sides of the encoder spring arm is possible.



Mounting left (Delivery state)



Mounting right

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



0° (Delivery state)



30°



60°



90°

### Various mounting options

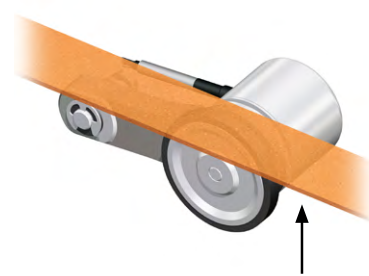
downwards



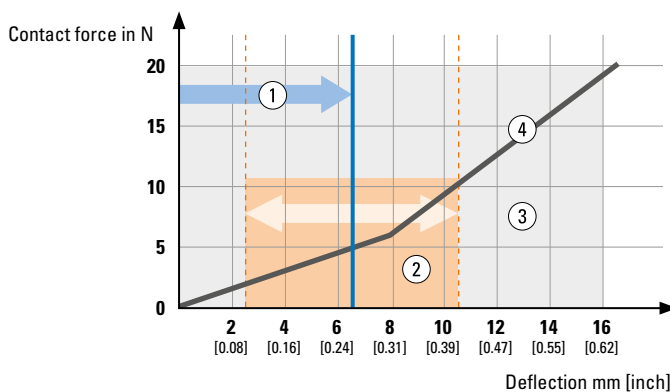
sideways



upwards (overhead)



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



- 1 Recommended preload: 5 N (approx. 6,5 mm deflection)
- 2 Rec. operating travel: ± 4 mm (from the rec. preload)
- 3 Maximum spring deflection: 0 ... 16 mm
- 4 Contact force in relation to spring deflection (Functional principle based on 2 integrated springs)

# Linear measuring technology

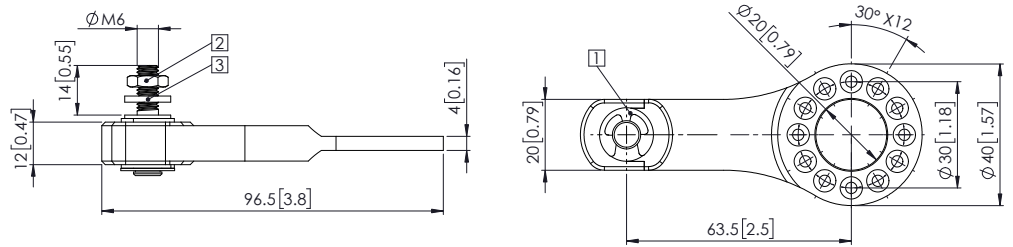
## Measuring wheel system MWE21 Compact

### Dimensions

Dimensions in mm [inch]

#### Encoder spring arm

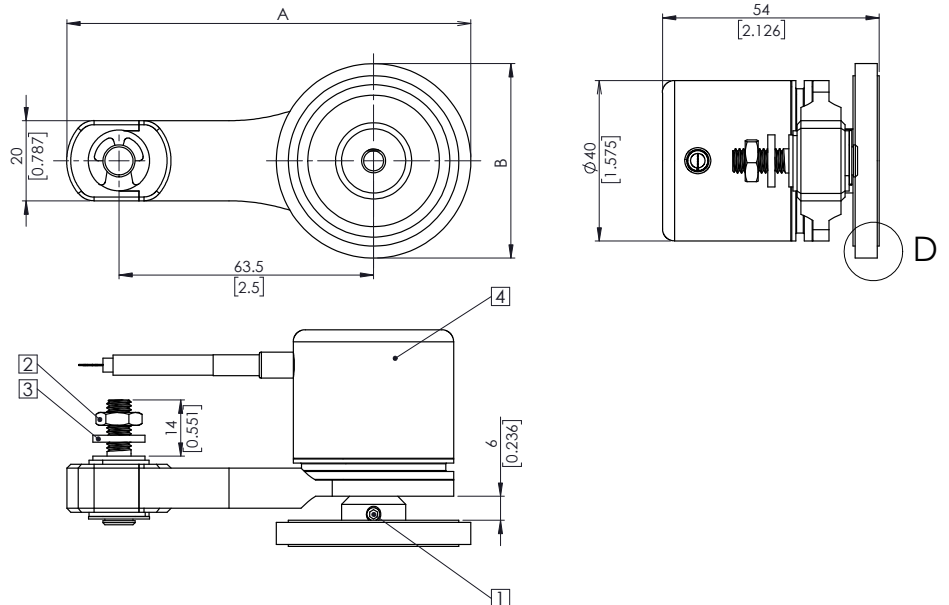
- 1 External retaining ring E type
- 2 Fixing nut M6
- 3 Toothed washer



#### MWE21 combination

- encoder spring arm MWE20
- measuring wheel
- encoder Sendix Base KIS40

- 1 Fixing screw M4 x 6 for meas. wheel
- 2 Hexagon nut M6
- 3 Toothed washer
- 4 Encoder



measuring wheel circumference	A	B
200 mm	108.4 [4.27]	63.7 [2.51]
6"	100.8 [3.97]	48.5 [1.91]

D for measuring wheel with coating:

