Compact-Line | **Measuring wheel system MWE21** | **With spring arm, contact force max. 20 N**

With incremental or absolute encoder with clamping flange ø 36 mm or ø 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 measuring wheel system MWE21 with adjustable preload can be integrated very flexibly even in the tightest installation spaces.

Push-Pull HTL | RS422 TTL | Open Collector NPN

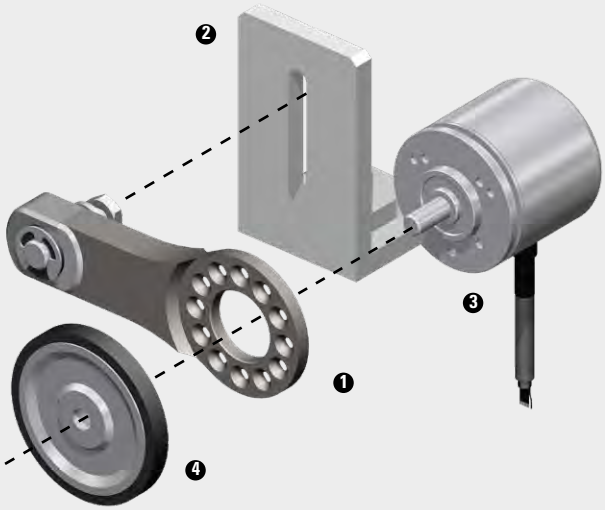
RoHS | Analog output | SSI | CANopen | IO-Link

Features

- **Compact measuring wheel system**
  For the tightest installation spaces with flexible mounting options: vertical, horizontal or overhead. Encoders can be mounted on both sides of the spring arm 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 or 6“ - measuring wheel coating available with O-ring, smooth plastic or diamond knurl surface.
- **Contact force up to max. 20 N**
  With adjustable preload and mechanical spring deflection limitation for a long service life. The integrated spring ensures a working range of the measuring wheel of up to 16 mm vertical to the measuring surface to compensate for tolerances.

Construction

❶	Spring arm:	MWE20
❷	Mounting bracket:	optional
❸	Encoder:	Clamping flange ø 36 mm or ø 40 mm
❹	Measuring wheel:	Circumference 200 mm or 6“



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Order code with incremental encoder

8.MWE21 . 1 X 1 . XX . 40 X X . XXXX
Type — ❶ ❷ — ❸ — ❹ — ⓒ ⓓ — ⓔ

❶ *Encoder version*
1 = incremental

❷ *Mounting bracket*
1 = without mounting bracket
2 = with mounting bracket

❸ *Measuring wheel, circumference / coating*
21 = 200 mm / diamond knurl (aluminum)
24 = 200 mm / plastic smooth (PU)
27 = 200 mm / O-ring (NBR)

61 = 6" / diamond knurl (aluminum)
64 = 6" / plastic smooth (PU)
67 = 6" / O-ring (NBR)

(other measuring wheels on request)

❹ *Mounted encoder* [1]

40	= KIS40	incremental	to the datasheet >

(other encoders on request)

ⓒ *Output circuit / supply voltage encoder*
see data sheet encoder

ⓓ *Type of connection*
see data sheet encoder

ⓔ *Pulse rate*
see data sheet encoder

Order code with absolute encoder

8.MWE21 . 2 X 1 . XX . XX X X . XXXX
Type — ❶ ❷ — ❸ — ❹ — ⓒ ⓓ — ⓔ ⓕ ⓖ

❶ *Encoder version*
1 = absolute

❷ *Mounting bracket*
1 = without mounting bracket
2 = with mounting bracket

❸ *Measuring wheel, circumference / coating*
21 = 200 mm / diamond knurl (aluminum)
24 = 200 mm / plastic smooth (PU)
27 = 200 mm / O-ring (NBR)

61 = 6" / diamond knurl (aluminum)
64 = 6" / plastic smooth (PU)
67 = 6" / O-ring (NBR)

(other measuring wheels on request)

❹ *Mounted encoder* [1]

M1	= M3661	Analog output	to the datasheet >
M3	= M3663	SSI	to the datasheet >
M8	= M3668	CANopen	to the datasheet >
M8	= M3668	IO-Link	to the datasheet >

(other encoders on request)

ⓒ *Output circuit / supply voltage encoder*
see data sheet encoder

ⓓ *Type of connection*
see data sheet encoder

ⓔ + ⓕ + ⓖ *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 1 Measuring wheel circumference = 200 mm Pulse number encoder = 1000 ppr	$\frac{200\text{ mm}}{1000\text{ ppr}}$	=	0.2 mm / puls	$\frac{1000\text{ ppr}}{200\text{ mm}}$	=	5 pulses / mm
Example 2 Measuring wheel circumference = 6 inch Pulse number encoder = 600 ppr	$\frac{6\text{ inch}}{600\text{ ppr}}$	=	0.01 inch / puls	$\frac{600\text{ ppr}}{6\text{ inch}}$	=	100 pulses / inch

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 arm MWE20

combinable with Kübler encoders:

incremental:	Sendix Base KIS40, 3610	**8.MWE20.111.00.0000.0000**
absolute:	Sendix F36xx, M36xx	**8.MWE20.211.00.0000.0000**

Details s. datasheet

Measuring wheels

Option ❸	circumference / coating	
21	200 mm / diamond knurl (aluminum)	**8.0000.3215.0006**
24	200 mm / plastic smooth (PU)	**8.0000.3245.0006**
27	200 mm / O-ring (NBR70)	**8.0000.3275.0006**
61	6“ / diamond knurl (aluminum)	**8.0000.3615.0006**
64	6“ / plastic smooth (PU)	**8.0000.3645.0006**
67	6“ / O-ring (NBR70)	**8.0000.3675.0006**

(other measuring wheels on request)

Details s. datasheet

Evaluation

Order no.

Preset counter Codix 924

Multifunction device:
- Tachometer with limit values
- Position indicators with limit values
- Time preset counter

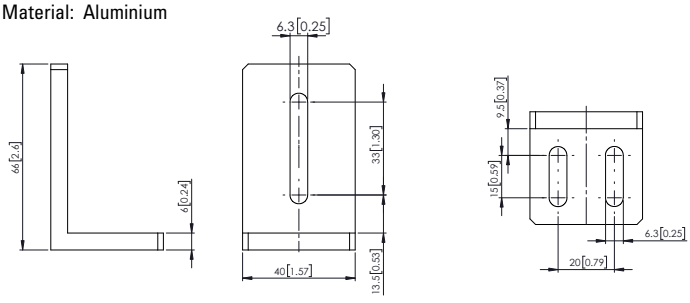
6.924.01XX.XXX

Accessories

Order no.

Mounting bracket

Material: Aluminium



8.0000.7000.0065

O-rings

For measuring wheel circumference 200 mm	**8.0000.7000.0067**
For measuring wheel circumference 6“	**8.0000.7000.0066**

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 arm

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

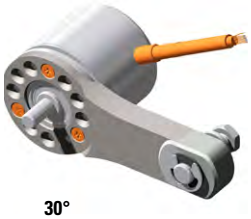
The fastening points are designed in such a way that mounting on both sides of the spring arm is possible.

Mounting left (delivery state)

Mounting right

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

0° (delivery state)



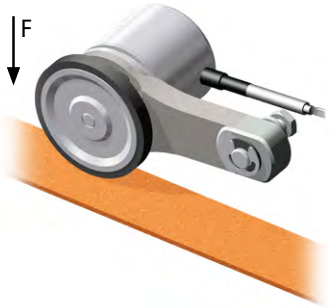
30°

60°

90°

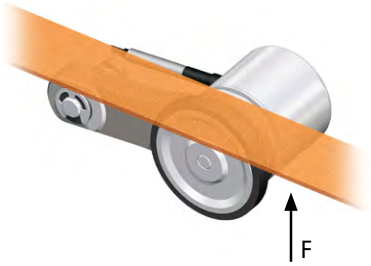
Various mounting options

horizontally

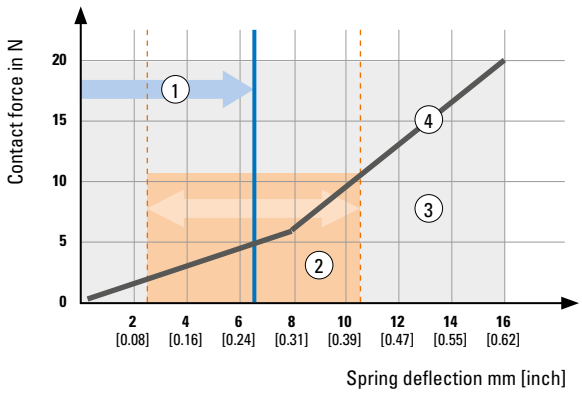


vertically

overhead



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



1	Preload, example:	5 N (approx. 6,5 mm defection)
2	Operating travel, recommended:	± 4 mm (from the preload set)
3	Spring deflection, max.:	16 mm
4	Contact force in relation to spring deflection (Functional principle based on 2 integrated springs)	

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Technical data

Mechanical characteristics spring arm MWE21

Materials	spring spring arm	spring steel aluminum
Weight		37 g
Contact force, max.		20 N
Spring deflection, max.		16 mm
Preload, recommended		5 N (approx. 6,5 mm spring deflection)
Operating travel, recommended (continuous)		±4 mm [1] (from the recommended preload)
Spring operating life		2.0 Mio. cycles [2]

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

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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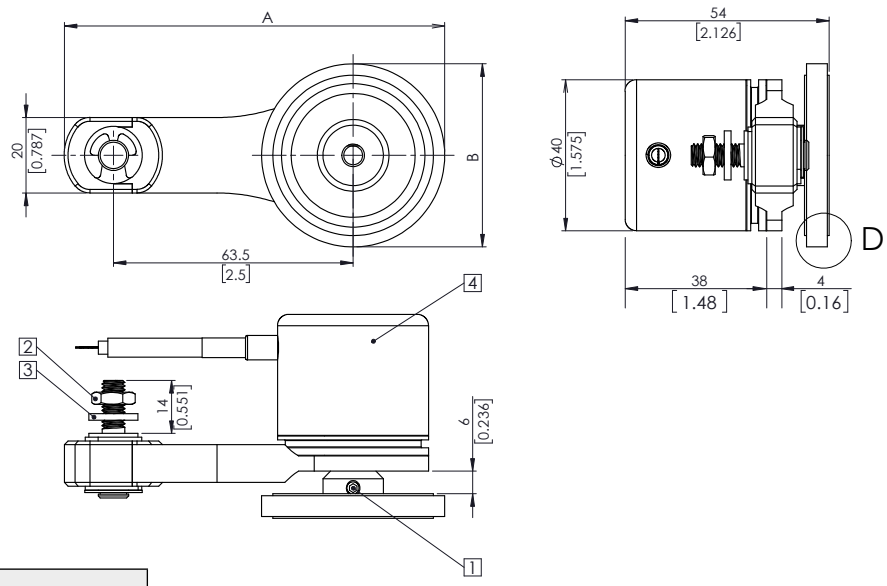
Dimensions

Dimensions in mm [inch]

Spring arm MWE20 in combination with meeasuring wheel and encoder KIS40

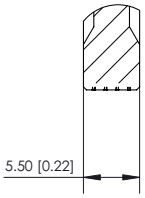
1 Fixing screw M4 x 6 for measuring wheel
2 Hexagon nut M6
3 Toothed washer
4 Encoder



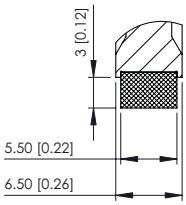
Measuring wheel circumference	A mm [inch]	ø B mm [inch]
200 mm	108.4 [4.27]	63.7 [2.52]
6“	100.8 [3.97]	48.5 [1.91]

D for measuring wheel with coating:

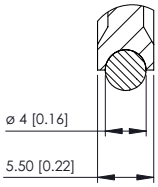
Diamond knurl (aluminum)



Plastic smooth (PU)



O-ring (NBR)



Mountig bracket