Measuring wheel system

Performance-Line | **Measuring wheel system MWE61** | **With spring arm, contact force max. 40 N**

With incremental or absolute encoder with clamping flange ø 58 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 robust MWE61 measuring wheel system offers maximum spring deflection at maximum contact force to compensate for tolerances vertical to the transport movement of the material to be measured.

Push-Pull HTL | RS422 TTL | Open Collector NPN | Analog output | SSI

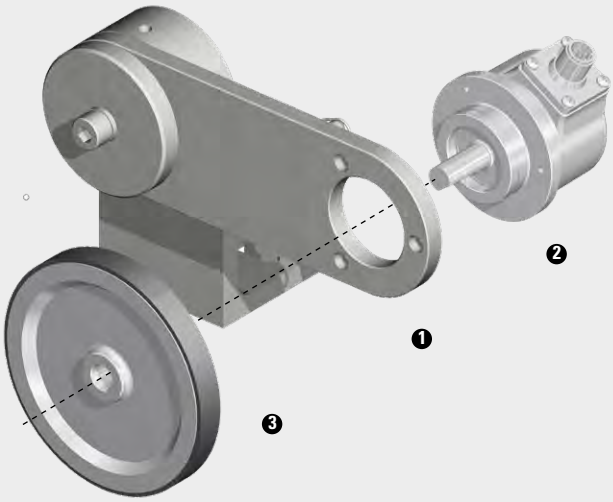
CANopen | IO-Link | EtherNet/IP | PROFINET | PROFIBUS

Features

- **Robust design**
  With flexible mounting options: vertical, horizontal or overhead. Encoder can be mounted on the spring arm in 120° steps.
- **Wide range of encoders**
  Incremental Sendix encoders with a max. resolution of up to 36,000 pulses/revolution as well as absolute encoders for different communication interfaces such as IO-Link or Profinet for integration in Industry 4.0 concepts.
- **Suitable measuring wheels for all measuring surfaces**
  Circumferences 300 mm or 12“ – measuring wheel coating available with O-ring or double O-Ring, smooth or corrugated plastic, diamond knurl surface and tufted rubber.
- **Contact force up to max. 40 N**
  With stepless adjustable preload. To compensate for tolerances, the integrated spring ensures a working range of the measuring wheel up to a maximum of 80 mm vertical to the measuring surface.

Construction

❶	Spring arm:	MWE60
❷	Encoder:	Clamping flange ø 58 mm
❸	Measuring wheel:	Circumference 300 mm or 12“ (Circumference 200 mm or 500 mm on request)



Performance-Line | **Measuring wheel system MWE61** | **With spring arm, contact force max. 40 N**

Order code with incremental encoder

8.MWE61 . 1 2 1 . XX ❶ . XX ❷ X ❸ X ❹ . XXXX ❺

Type

❶ *Measuring wheel, circumference / coating*

31 = 300 mm / diamond knurl (aluminum)
34 = 300 mm / plastic smooth (PU)
36 = 300 mm / tufted rubber (PU)
37 = 300 mm / O-ring (NBR)
38 = 300 mm / double O-ring (NBR)
39 = 300 mm / plastic corrugated (PU)

71 = 12" / diamond knurl (aluminum)
74 = 12" / plastic smooth (PU)
76 = 12" / tufted rubber (PU)
77 = 12" / O-Ring (NBR)
78 = 12" / double O-ring (NBR)
79 = 12" / plastic corrugated (PU)

(Measuring wheels with circumference 200 mm and 500 mm on request)

❷ *Mounted encoder* [1]

50	= KIS50	incremental	to the datasheet >
05	= 5805	incremental	to the datasheet >

(other encoders on request)

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

❹ *Type of connection*
see data sheet encoder

❺ *Pulse rate*
see data sheet encoder

Order code with absolute encoder

8.MWE61 . 1 2 1 . XX ❶ . XX ❷ X ❸ X ❹ . XXXX ❺ ⓕ ⓖ

Type

❶ *Measuring wheel, circumference / coating*

31 = 300 mm / diamond knurl (aluminum)
34 = 300 mm / plastic smooth (PU)
36 = 300 mm / tufted rubber (PU)
37 = 300 mm / O-ring (NBR)
38 = 300 mm / double O-ring (NBR)
39 = 300 mm / plastic corrugated (PU)

71 = 12" / diamond knurl (aluminum)
74 = 12" / plastic smooth (PU)
76 = 12" / tufted rubber (PU)
77 = 12" / O-Ring (NBR)
78 = 12" / double O-ring (NBR)
79 = 12" / plastic corrugated (PU)

(Measuring wheels with circumference 200 mm and 500 mm on request)

❷ *Mounted encoder* [1]

M1	= M5861	Analog output	to the datasheet >
M3	= M5863	SSI	to the datasheet >
M8	= M5868	CANopen	to the datasheet >
M8	= M5868	IO-Link	to the datasheet >
F8	= F5868	EtherNet/IP	to the datasheet >
F8	= F5868	PROFINET	to the datasheet >
68	= 5868	PROFIBUS	to the datasheet >

(other encoders on request)

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

❹ *Type of connection*
see data sheet encoder

❺ + ⓕ + ⓖ *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 = 300 mm Pulse number encoder = 3000 ppr	$\frac{300\text{ mm}}{3000\text{ ppr}}$	=	0.1 mm / puls	$\frac{3000\text{ ppr}}{300\text{ mm}}$	=	10 pulses / mm
Example 2 Measuring wheel circumference = 12" Pulse number encoder = 1200 ppr	$\frac{12\text{ inch}}{1200\text{ ppr}}$	=	0.01 inch / puls	$\frac{1200\text{ ppr}}{12\text{ inch}}$	=	100 pulses / inch

1) Clamping flange 58 mm / shaft ø 10 mm - only relevant for ordering an encoder as a single component.

Performance-Line | **Measuring wheel system MWE61** | **With spring arm, contact force max. 40 N**

Single components

Order no.

Spring arm MWE60

combinable with Kübler encoders:

clamping flange ø 58 mm
incremental: Sendix Base KIS50, 5805
absolute: Sendix F58xx, M58xx, 58xx

8.MWE60.121.00.0000.0000

Details s. datasheet >

Measuring wheels

Option ❶	circumference / coating	
31	300 mm / diamond knurl (aluminum)	**8.0000.3317.0010**
34	300 mm / plastic smooth (PU)	**8.0000.3347.0010**
36	300 mm / tufted rubber (PU)	**8.0000.3367.0010**
37	300 mm / O-ring (NBR70)	**8.0000.3377.0010**
38	300 mm / double O-ring (NBR70)	**8.0000.3387.0010**
39	300 mm / plastic corrugated (PU)	**8.0000.3397.0010**
71	12“ / diamond knurl (aluminum)	**8.0000.3717.0010**
74	12“ / plastic smooth (PU)	**8.0000.3747.0010**
76	12“ / tufted rubber (PU)	**8.0000.3767.0010**
77	12“ / O-ring (NBR70)	**8.0000.3777.0010**
78	12“ / double O-ring (NBR70)	**8.0000.3787.0010**
79	12“ / plastic corrugated (PU)	**8.0000.3797.0010**

(Measuring wheels with circumference 200 mm and 500 mm 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.

O-rings

For measuring wheels with O-ring:	
Measuring wheel circumference 300 mm, ❶ = 37	**8.0000.7000.0074**
Measuring wheel circumference 12“, ❶ = 77	**8.0000.7000.0075**
For measuring wheels with double O-ring:	
Measuring wheel circumference 300 mm, ❶ = 38	**8.0000.7000.0077**
Measuring wheel circumference 12“, ❶ = 78	**8.0000.7000.0078**

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

Performance-Line | **Measuring wheel system MWE61** | **With spring arm, contact force max. 40 N**

Technology in detail

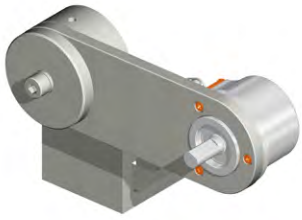
Mounting options encoder on spring arm

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

For a flexible outlet direction of the cable or connector, the encoder can additionally be mounted in 120° steps.

0° (delivery state)

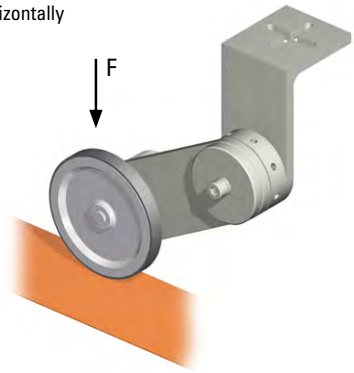
120°



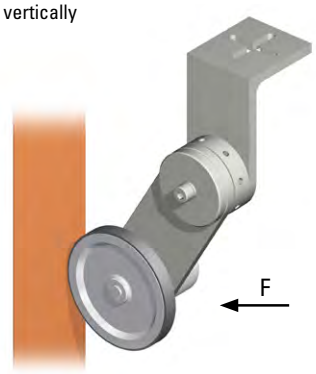
240°

Various mounting options

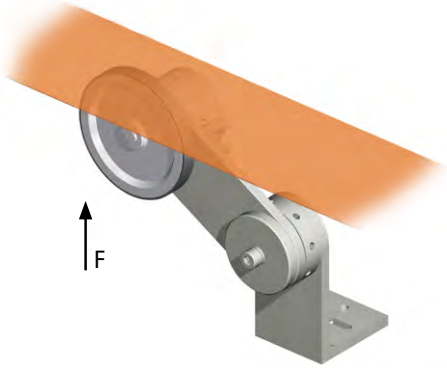
horizontally



vertically



overhead

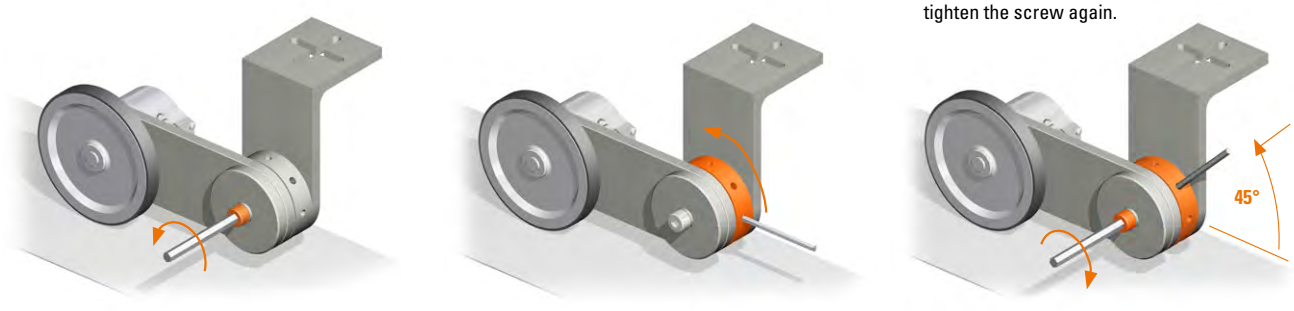


Performance-Line | **Measuring wheel system MWE61** | **With spring arm, contact force max. 40 N**

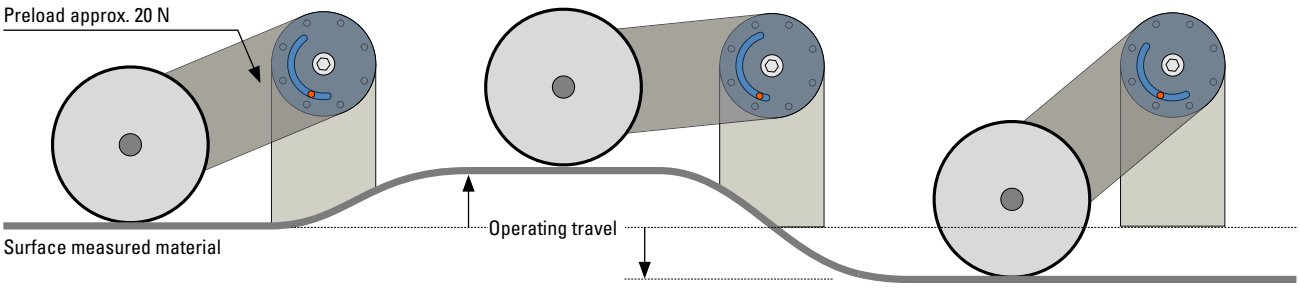
Technology in detail

Setting the preload

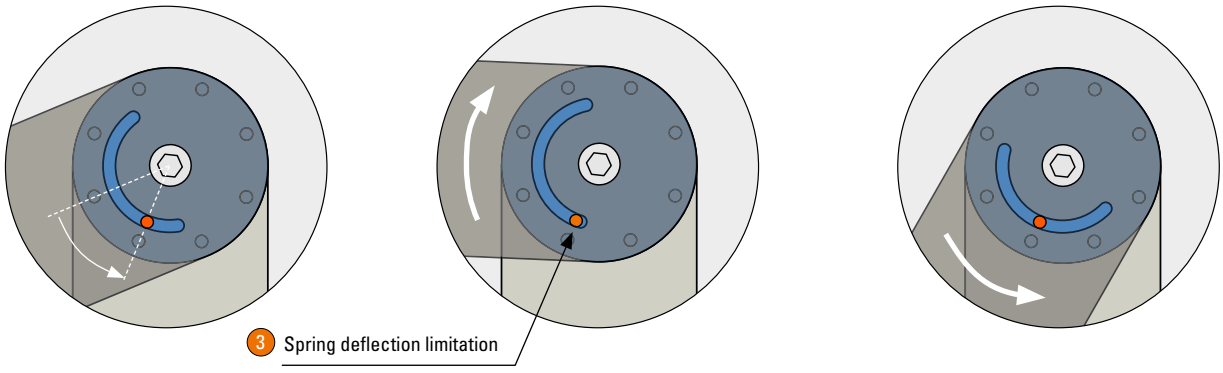
1. Mount the measuring wheel system on the application and release screw.
2. Turn the adjustment ring with a thin allen key or screwdriver until the desired preload is reached.
3. As a guide: Internal detent points in 45° steps correspond to approx. 20 N.
   Hold the position of the adjustment ring and tighten the screw again.



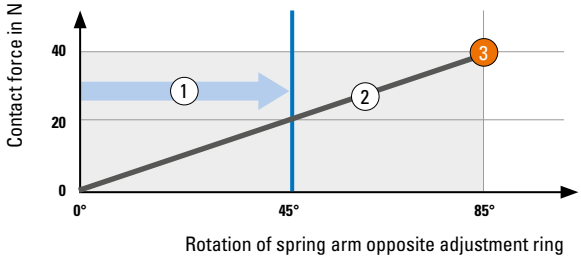
Installation example



Preload | **Contact force max.** | **Contact force min.**



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



1 Preload (example): 20 N
by turning the setting wheel by approx. 45°
- corresponds to a detent point

2 Contact force

3 Spring deflection limitation to protect against overload

Performance-Line | **Measuring wheel system MWE61** | **With spring arm, contact force max. 40 N**

Technical data

Mechanical characteristics spring arm MWE60

Materials	spring spring bracket	spring steel aluminum
Weight		670 g
Contact force, max.		40 N
Operating travel, max.		80 mm
Working temperature range		-20 °C ... +70°C [-40 °F ... +176 °F]
Shock resistance acc. EN 60068-2-27		1000 m/s², 6 ms
Vibration resistance acc. EN 60068-2-6		100 m/s², 55 ... 2000 Hz

Approvals

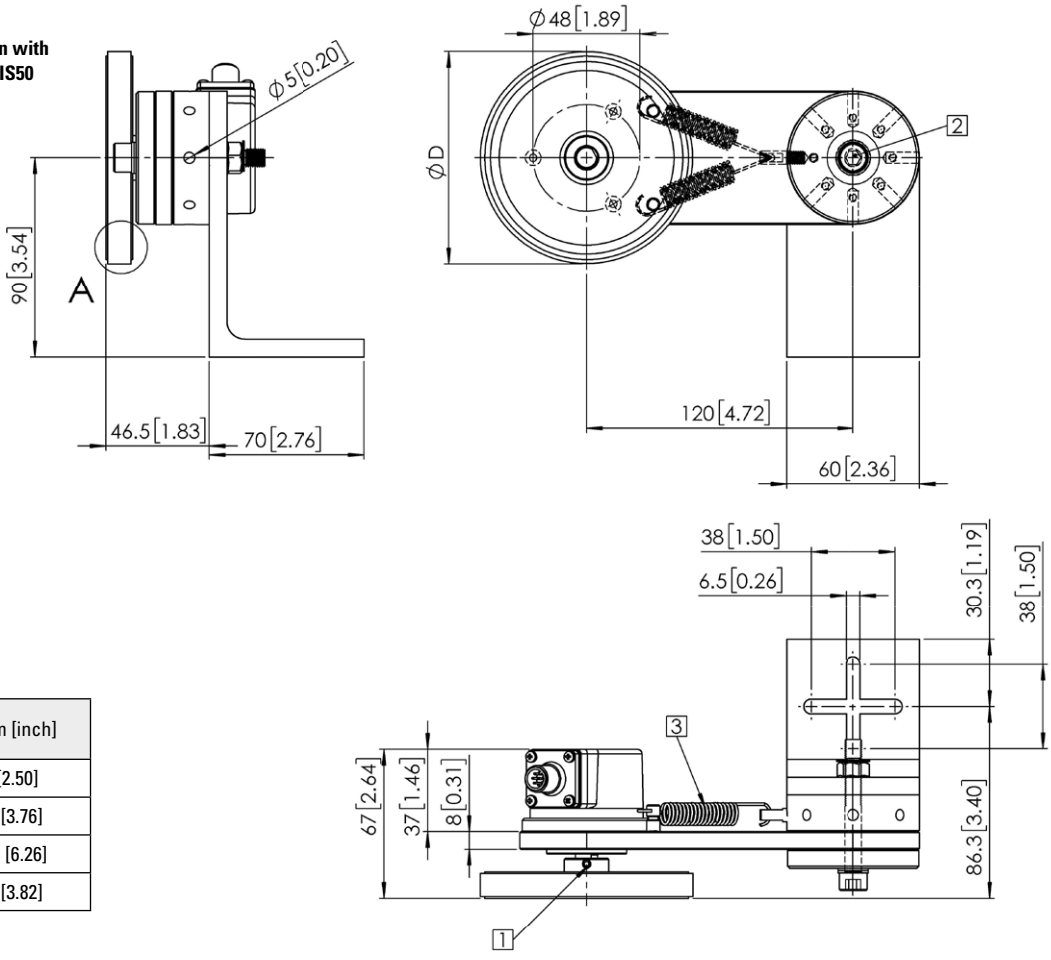
UL compliant in accordance with	File no. E224618
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
UKCA compliant in accordance with	
EMC Regulations	S.I. 2016/1091
RoHS Regulations	S.I. 2012/3032

Dimensions

Dimensions in mm [inch]

Spring arm MWE60 in combination with meeasuring wheel and encoder KIS50

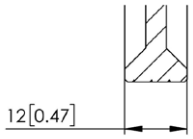
1 Fixing screw M4 x 6 for measuring wheel
2 SW5
3 Spring



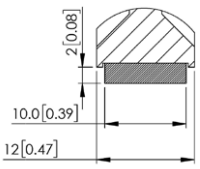
Measuring wheel circumference	ø D mm [inch]
200 mm	63.7 [2.50]
300 mm	95.54 [3.76]
500 mm	159.23 [6.26]
12"	97.07 [3.82]

A for measuring wheel with coating:

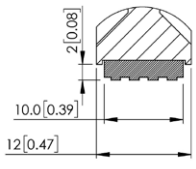
Diamond knurl (aluminum)



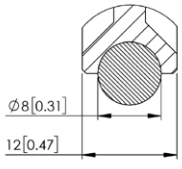
Plastic smooth (PU)



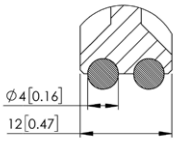
Tufted rubber (PU)



O-ring (NBR)



Double O-ring (NBR)



Plastic corrugated (PU)