

Measuring wheel systems

Performance-Line **Double measuring wheel system MWE52** **With spring arm, contact force max. 32.5 N**



Push-Pull HTL RS422 TTL Open Collector NPN

With incremental encoder Sendix KIS50.

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.

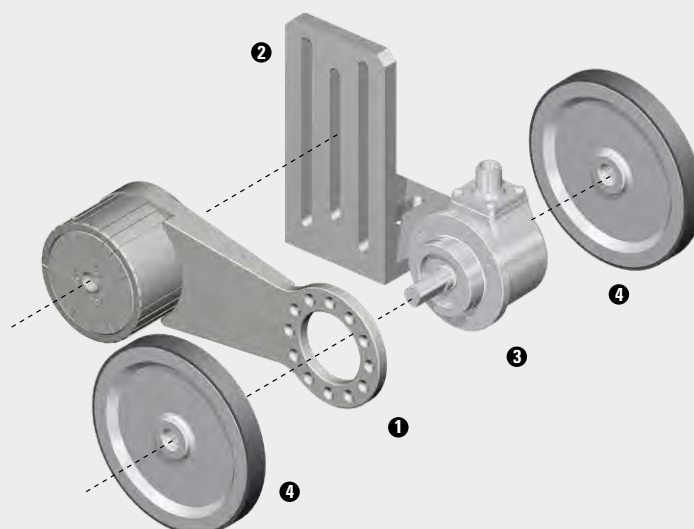
The double measuring wheel system MWE52 impresses with its versatile installation options and high ease of use. The use of 2 measuring wheels always guarantees optimum contact with the material to be measured, even under difficult conditions.

Features

- Flexible mounting options**
 The measuring wheel system can be installed vertically, horizontally or overhead. The encoder can be mounted on both sides of the spring arm in 30° steps.
- High contact reliability to the measured material**
 By using a second measuring wheel on the encoder, contact with the measuring surface is guaranteed to a high degree even under difficult conditions - high vibrations or unevenness.
- 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. 32.5 N**
 With manually adjustable preload in 6 steps from 5 to 30 N. To compensate for tolerances, the integrated spring ensures a working range of the measuring wheel of ±10 mm vertical to the measuring surface (at ±2.5 N in relation to the respectively set preload). For maintenance, the spring can also be manually brought into a stress-free state.

Aufbau

- ❶ Spring arm: MWE50
- ❷ Mounting bracket: optional
- ❸ Encoder: Clamping flange ø 58 mm
- ❹ Measuring wheel: Circumference 300 mm or 12" (Circumference 200 mm or 500 mm on request)



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Order code with incremental encoder	8.MWE52 . 1 X 1 . XX . 50 XX . XXXX
Type	<div style="display: flex; justify-content: space-around; font-size: small;"> ① ② ③ ④ ⑤ </div>






<p>① Mounting bracket 1 = without mounting bracket 2 = with mounting bracket</p> <p>② 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)</p> <p>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)</p> <p style="font-size: x-small;">(Measuring wheels with circumference 200 mm and 500 mm on request)</p>	<p>③ Mounted encoder ¹⁾ 50 = KIS50 incremental (other encoders on request)</p> <p>④ Output circuit / supply voltage encoder 4 = RS422 / 5 V DC 1 = RS422 / 5 ... 30 V DC 2 = push-pull / 5 ... 30 V DC 5 = push-pull / 10 ... 30 V DC 3 = open collector / 5 ... 30 V DC</p> <p>⑤ Type of connection 2 = radial cable, 1 m [3.28'] PVC R = radial M12 connector, 5-pin 4 = radial M12 connector, 8-pin 8 = radial M23 connector, 12-pin</p> <p>⑥ Pulse rate 100, 120, 200, 250, 256, 300, 360, 500, 512, 600, 1000, 1024, 1200, 2000, 2048, 2500, 3000, 3600, 4096, 5000 (z.B. 100 Impulse => 0100)</p>
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Calculation of the linear resolution

	Measuring step (mm/pulse)	Resolution (pulses/mm)
Calculation	$\frac{\text{mm}}{\text{ppr}} = \frac{\text{Measuring wheel circumference}}{\text{Pulse number encoder}}$	$\frac{\text{ppr}}{\text{mm}} = \frac{\text{Pulse number encoder}}{\text{Measuring wheel circumference}}$
Example Measuring wheel circumference = 300 mm Pulse number encoder = 3000 ppr	$\frac{300 \text{ mm}}{3000 \text{ ppr}} = 0.1 \text{ mm / puls}$	$\frac{3000 \text{ ppr}}{300 \text{ mm}} = 10 \text{ pulses / mm}$

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

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Single components			Order no.
Spring arm MWE50		combinable with Kübler encoders: clamping flange \varnothing 58 mm incremental: Sendix Base KIS50, 5805 absolute: Sendix F58xx, M58xx, 58xx	8.MWE50.121.00.0000.0000
			
Measuring wheels		Option ❶ 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 (NBR70) 38 300 mm / double O-ring (NBR70) 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 (NBR70) 78 12" / double O-ring (NBR70) 79 12" / plastic corrugated (PU) (Measuring wheels with circumference 200 mm and 500 mm on request)	8.0000.3317.0010 8.0000.3347.0010 8.0000.3367.0010 8.0000.3377.0010 8.0000.3387.0010 8.0000.3397.0010 8.0000.3717.0010 8.0000.3747.0010 8.0000.3767.0010 8.0000.3777.0010 8.0000.3787.0010 8.0000.3797.0010
			
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	8.0000.7000.0072
			
O-rings		For measuring wheels with O-ring: Measuring wheel circumference 300 mm, ❶ = 37 Measuring wheel circumference 12", ❶ = 77 For measuring wheels with double O-ring: Measuring wheel circumference 300 mm, ❶ = 38 Measuring wheel circumference 12", ❶ = 78	8.0000.7000.0074 8.0000.7000.0075 8.0000.7000.0077 8.0000.7000.0078
			

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

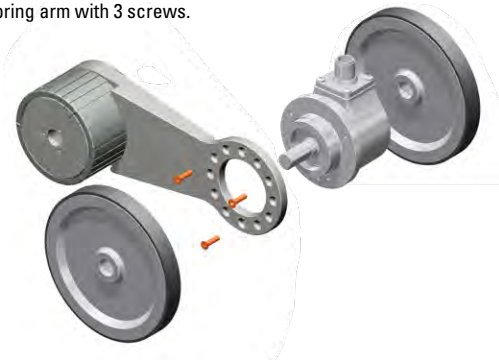
Measuring wheel systems

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Technology in detail

Mounting options encoder on spring arm

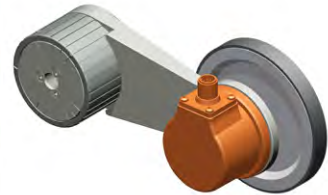
The encoder is attached to the spring arm with 3 screws.



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°



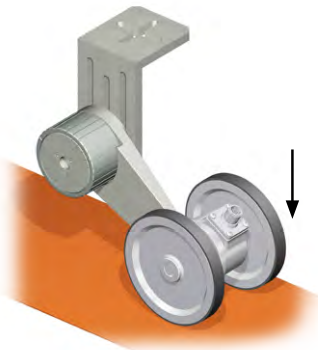
60°



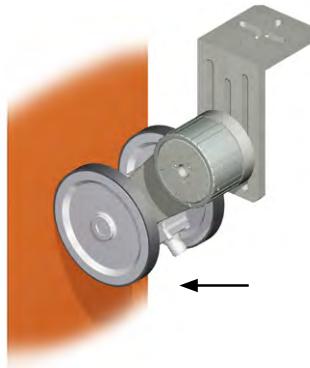
90°

Various mounting options

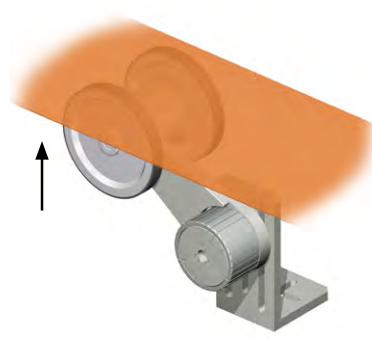
downwards



sideways



upwards (overhead)



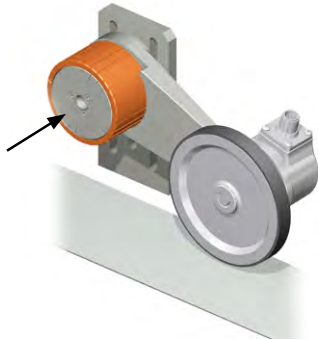
Measuring wheel systems

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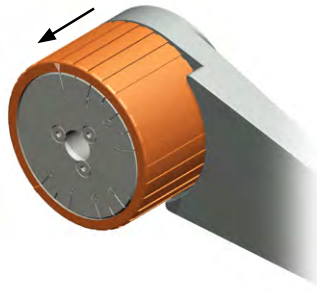
Technology in detail

Setting the preload

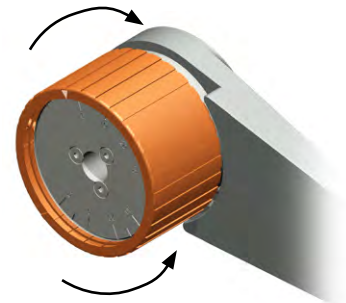
1. Position the measuring wheel system on the measuring surface and fix the corresponding screws in place.



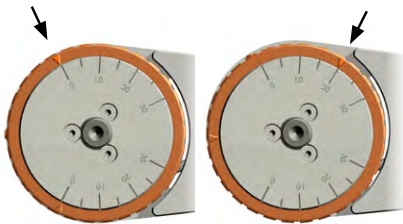
2. Pull off the setting wheel to the front



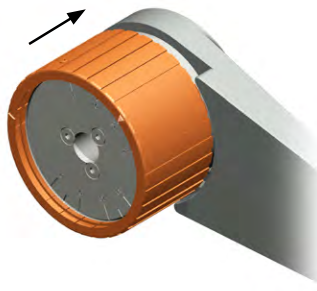
3. Turn to the desired position for the preload (possible in both directions)



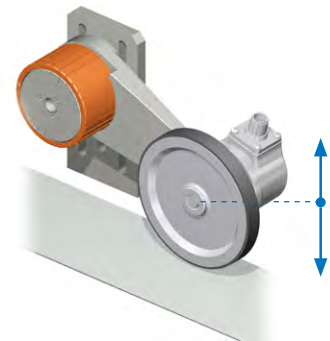
4. Arrow on the setting wheel points to the corresponding marking



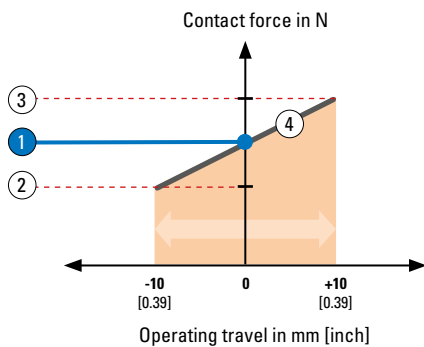
5. Engage the setting wheel



6. Starting from the set preload, this results in a working range of ± 10 mm at ± 2.5 N



Contact force of the measuring wheel on the



Contact force in relation to spring deflection

1	Preload in 6 steps ($\pm 20\%$)	2	Contact force min. Operating travel -10 mm	3	Contact force max. Operating travel +10 mm
	5 N		2.5 N		7.5 N
	10 N		7.5 N		10.5 N
	15 N		12.5 N		17.5 N
	20 N		17.5 N		22.5 N
	25 N		22.5 N		27.5 N
	30 N		27.5 N		32.5 N

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Technical data

Mechanical characteristics spring arm		
Materials	spring spring bracket	spring steel aluminum
Weight	480 g	
Contact force, max.	32.5 N	
Praload, adjustable	5, 10, 15, 20, 25, 30 N	
Operating travel, max.	± 10 mm	
Working temperature range	-20 °C ... +70°C [-40 °F ... +176 °F]	
Spring operating life	2.0 Mio. cycles ²⁾	
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 acc. to	File no. E224618
CE compliant acc. to	EMV guideline 2014/30/EU RoHS guideline 2011/65/EU
UKCA compliant acc. to	EMC Regulations S.I. 2016/1091 RoHS Regulations S.I. 2012/3032

Measuring wheel systems

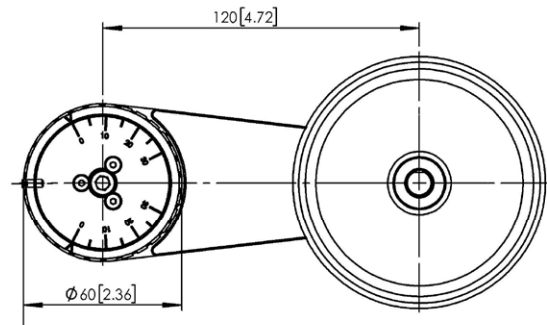
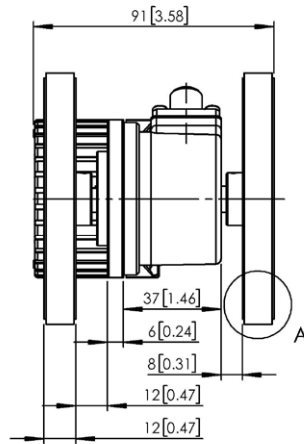
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Dimensions

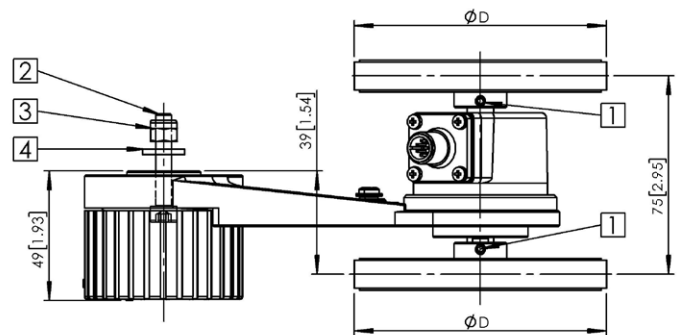
Dimensions in mm [inch]

Spring arm MWE50 in combination with measuring wheel and encoder KIS50

- 1 Fixing screw M4 x 6 for measuring wheel
- 2 M6 allen bolt
- 3 M6 nut with treath lock
- 4 Washer



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)

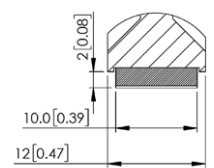
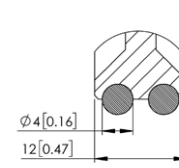
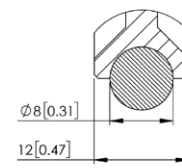
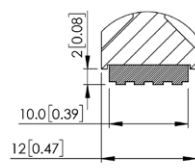
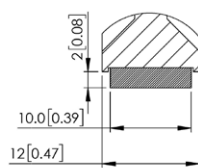
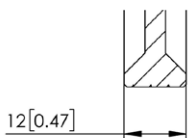
Plastic smooth (PU)

Tufted rubber (PU)

O-ring (NBR)

Double O-ring (NBR)

Plastic corrugated (PU)



Mounting bracket

