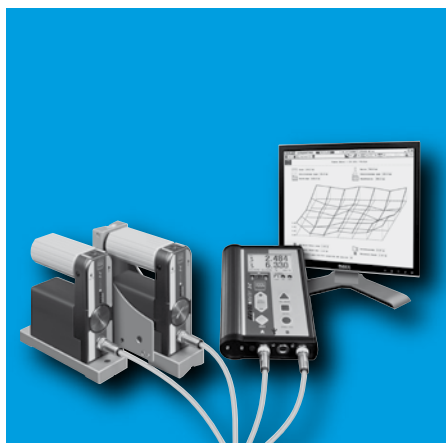


## **TESA Service Sets 2-C and 2-W**

Electronic  
Inclination  
Measuring  
Systems



Wireless model

- **COMPACT AND PLEASANT DESIGN**
- **DIFFERENT SENSITIVITIES AVAILABLE**
- **SEVERAL UNITS AVAILABLE**
- **LINEARITY ACCORDING TO DIN 2276**
- **IN COMPLIANCE WITH EC REGULATIONS**

## INCLINATION MEASURING SYSTEMS WITH CABLES OR WIRELESS CONNECTION

### Continuous enhancements

As their predecessors, the high precision electronic inclinometers of the new generation are particularly suitable for precision measurement of small angles. Typical applications include flatness measurement on surface plates or measurement of a machine tool geometry. The sensor itself, the heart of every precision measuring instrument, has been

further developed as well, thus allowing accurate measurements even in critical environmental conditions.

TESA Service Set 2-W, last development resides in the wireless data transmission between each instrument within the set as well as the possibility to measure large-size machines.

### TESA Service Set 2-C Typical Configuration

- 1 Plastic box with foam inserts
- 1 BEVELtronic 2-C, horizontal model, hardened steel, precision lapped flat measuring faces, also with dust grooves, base length 150 mm.
- 1 BEVELtronic 2-C, cast iron square model, hand scraped measuring faces, prismatic horizontal and vertical bases, base length 150 mm.
- 1 BEVELmeter 2-C operating with cables
- 1 Infrared remote control
- 2 Cables to connect BEVELmeter 2-W to BEVELtronic 2-W, cable length 2,5 m
- 9 Batteries for all inclinometers
- 1 Instruction manual and declaration of conformity

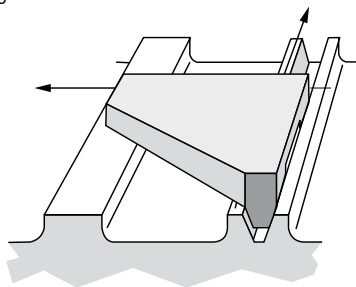
### TESA Service Set 2-W Typical Configuration

- 1 Plastic box with foam inserts
- 1 BEVELtronic 2-W, horizontal model, hardened steel, precision lapped measuring faces, also with dust grooves and radio transmission, base length 150 mm.
- 1 BEVELtronic 2-W, square model made from cast iron, hand scraped measuring faces, prismatic horizontal and vertical bases, base length 150 mm, radio transmission.
- 1 BEVELmeter 2-W operating with cables and radio transmission
- 1 Infrared zapper
- 2 Cables to connect BEVELmeter 2-W to BEVELtronic 2-W, cable length 2,5 m
- 9 Batteries for all inclinometers
- 1 Instruction manual and declaration of conformity

## TESA SERVICE SET 2-C AND SERVICE SET 2-W MAIN APPLICATIONS

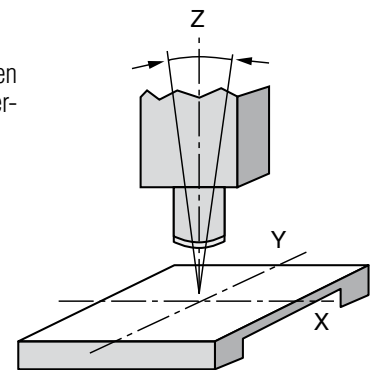
### Guideways

Measurement of guideways using inclinometers



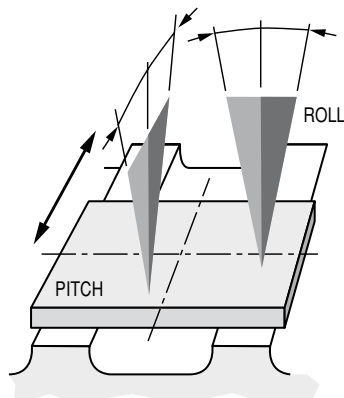
### Rotation angle

Definition of rectangularity between the surface of the table and the vertical tool axis.



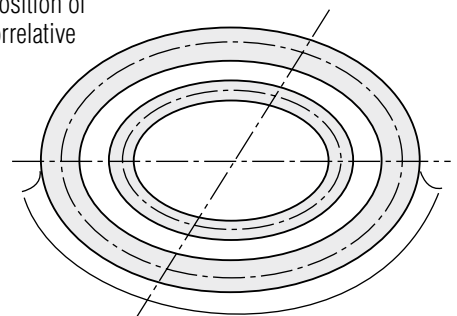
### Rotation of machine tool elements

Measurement on a machine tools moving horizontally and definition of the pitch errors of the table due to the machine's geometry.



### Circles

Flatness measurement and definition of the spatial position of circles as well as their correlative flatness.



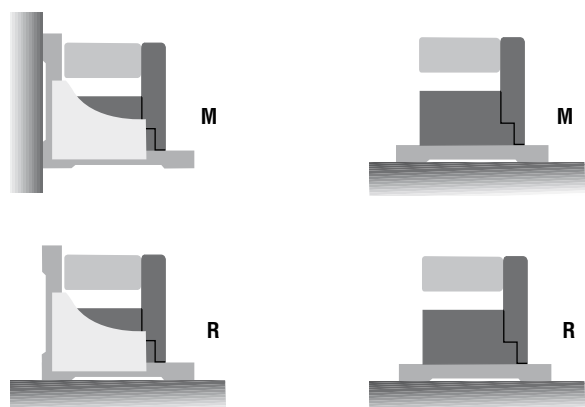
## COMPARATIVE MEASUREMENT USING SERVICE SET 2-C OR SERVICE SET 2-W

### Rectangularity and parallelism of a machine

For precise angle measurements, the square model with vertical base fitted with magnets will be used. (Eliminates any distortion due to manual pressure).

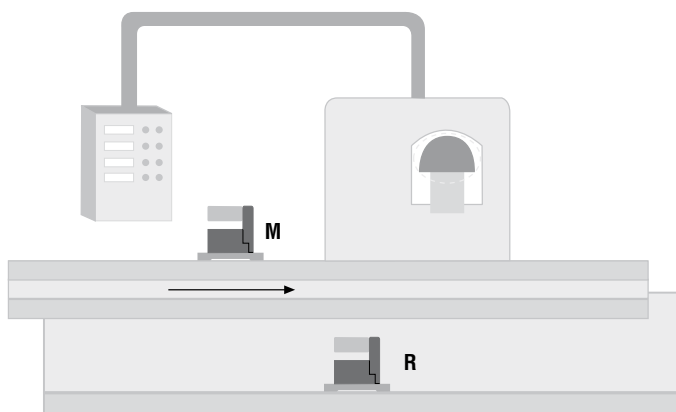
**M**  
Measuring instrument  
connected to port A

**R**  
Reference inclinometer  
connected to port B



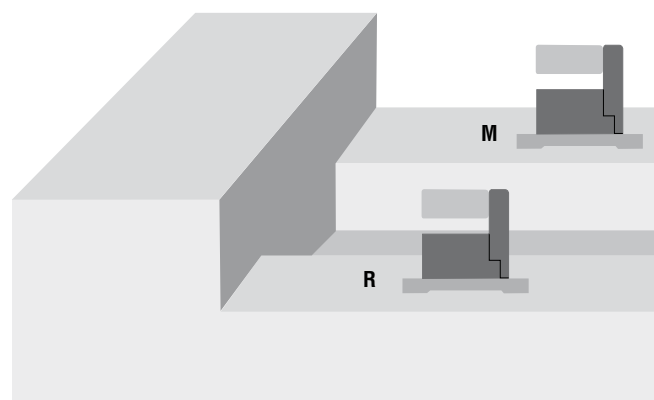
### Straightness of a moving table

Each measurement is taken against the machine's base. The table is moved step by step and the value measured at each step is written down or stored, but only once displayed value has stabilised.



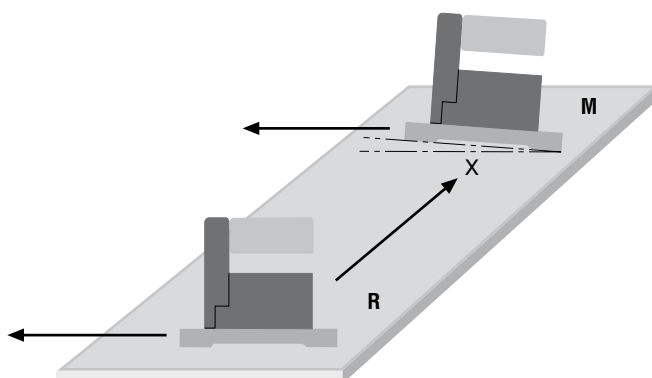
### High precision measurement of parallelism

The reference inclinometer (R) will compensate for all changes in the objects orientation while measurements are being taken. Using a varying sensitivity up to 1 µm/m, this method allows the true shape of guideways to be determined.



### Twisted guideways and workpieces

The measuring instrument (M) is moved step by step towards X. Displayed value at each step is then written down once the time necessary for the tool to stabilised is over. This way of proceeding also applies when fixing a workpiece in order to measure all possible tensions.



## TESA Service Sets

Order No.	Designation	Sensitivity
<b>05330304</b>	TESA Service Set 2-C	1 µm/m
<b>05330305</b>	TESA Service Set 2-C	5 µm/m
<b>05330310</b>	TESA Service Set 2-W	1 µm/m
<b>05330311</b>	TESA Service Set 2-W	5 µm/m

## Technical data

	<b>05330304 / 05330310</b>	<b>05330305 / 05330311</b>
TESA Service Sets 2-C and 2-W	1 µm/m	5 µm/m
Sensitivity	1 µm/m, 0,2 Arcsec	5 µm/m, 1 Arcsec
Display range	±20 mm/m	± 100 mm/m
Limit of error <0,5 full-scale	Maximum 1% of the measured value	Maximum 1% of the measured value
Limit of error >0,5 full-scale	Maximum 1% x (2x measured value – 0,5x full-scale)	Maximum 1% x (2x measured value – 0,5x full-scale)
Temperature variation per °C	Up to 2000 µm/m: maximum 2 µm/m	Up to 10000 µm/m: maximum 10 µm/m
Temperature coefficient per °C	Up to 2000 µm/m: maximum 20 µm/m	Up to 10000 µm/m: maximum 100 µm/m
Display time	3 seconds	3 seconds
Digital output	RS485, asynchron, 9600 Baud, 2 stopbits, no parity	RS485, asynchron, 9600 Baud, 2 stopbits, no parity
External power supply	BEVELtronic 2: +5 V DC, maximum 450 mW BEVELmeter 2: 8 ÷ 28 V DC	BEVELtronic 2: +5 V DC, maximum 450 mW BEVELmeter 2: 8 ÷ 28 V DC
Working temperature range	0°C to 40°C	0°C to 40°C
Storage temperature range	-20°C to 70°C	-20°C to 70°C
Net weight, without measuring base	BEVELtronic 2-C / BEVELtronic 2-W: 1200 g BEVELmeter 2-C / BEVELmeter 2-W: 775 g	BEVELtronic 2-C / BEVELtronic 2-W: 1200 g BEVELmeter 2-C / BEVELmeter 2-W: 775 g
Batteries	BEVELtronic 2-C: 2 x 1,5V Alkaline, size C BEVELmeter 2-C: 3 x 1,5V Alkaline, size C BEVELtronic 2-W: 2 x 1,5V Alkaline, size C BEVELmeter 2-W: 3 x 1,5V Alkaline, size C	BEVELtronic 2-C: 2 x 1,5V Alkaline, size C BEVELmeter 2-C: 3 x 1,5V Alkaline, size C BEVELtronic 2-W: 2 x 1,5V Alkaline, size C BEVELmeter 2-W: 3 x 1,5V Alkaline, size C

## Technical Data – Wireless data transfer

Frequency	ISM band / 2,4000 – 2,4835 GHz	ISM band / 2,4000 – 2,4835 GHz
Modulation	FHSS (Frequency Hopping Spread Spectrum)	FHSS (Frequency Hopping Spread Spectrum)
Network structure	Point to point / Point to multipoint	Point to point / Point to multipoint
Output power RF	Maximum +17dBm / Class 1	Maximum +17dBm / Class 1
Receptor sensitivity	Minimum -80 dBm	Minimum -80 dBm

## WHEN YOU NEED TO BE SURE

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