



Mess- & Feinwerktechnik GmbH



## Mini MFA 2

Clip-On high precision extensometer

## Area of application

The Mini MFA 2 extensometer is suitable for almost all samples up to Ø 25 mm (25 x 25 mm) and Le 100 mm. Highest resolution and accuracy allow the elastic modulus to be determined as well as the strain limits and technical yield point. Its measuring accuracy exceeds all requirements of the European standard EN ISO 9513.

The measuring device enables quick and easy testing of even large quantities. Due to its low weight and minimal activating force, it is also highly suitable for small and notch-sensitive samples. The measuring travel is 2 mm in the tensile direction and 1 mm in the compression direction. The large adjustment range of the contact force allows optimum adaptation to the specimen material and dimension. Low-wear knife edges that can be utilised several times by rotating increases the service life.

## Construction and function

The measuring spring is located in a housing made of high-strength aluminium. The measuring spring is applied with a temperature-compensated strain gauge full bridge, which is calibrated to 2 mV/V for the measuring travel. Mechanical stops protect against accidental overload, even if the specimen breaks early with the extensometer attached. The extensometer has a gauge length of 10 mm. The basic version includes an extension arm for an GL of 50 mm. Further extension arms for a GL of 10 to 100 mm in any intermediate dimensions are available. The clamping device of the Mini MFA 2 allows quick and easy attachment and detachment. The distance between the standard counter rollers is 30 mm. Special holders with the required roller distance are available for very sensitive and short samples. With the two-sided clamping device, two Mini MFAs can be attached on the sample for measurements with averaging.

The rectangular knife edges are particularly recommended for the double-sided Mini MFA 2 and thin round samples.

## Operation

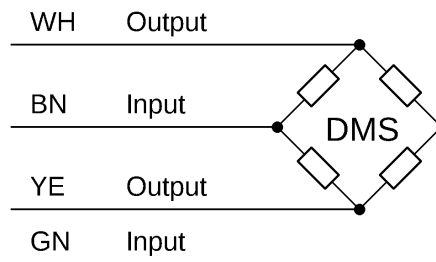
1. Tighten the stop screw slightly.
2. Open the clamping device with your thumb and forefinger and place the lower measuring blade on the sample first.
3. Carefully loosen the stop screw (1/8 turn is sufficient) without displacing the Mini-MFA on the sample.
4. Start the measurement. For measurements in the compression direction, the stop screw must be screwed back more than the expected distance after clamping.

The enclosed TORX screwdriver can be used to loosen the knife edges, the gauge length elongation and the clamping device.

## Climatic chamber

A special version of the Mini MFA 2 is available for climatic chamber applications from + 1 °C to + 200 °C (-70 to 280).

## Wiring system



## Scope of delivery

1	Mini MFA 2 basic unit
1	Clamping device till Ø25 mm
1	Extension arm GL 50 mm
2	Knife edges
1	Grip screwdriver T8
5	Torx counterscrew M2,5x6 MF
1	Torx counterscrew M2,5x2,5 MF
1	Gauge block 1,6 mm
1	Mini MFA 2 storage case

## Spare parts and accessories

Extension arms from 10 bis 100 mm (not adjustable)

Carrier with cylindrical or prismatic counter rollers from 10 to 100 mm centre distance (not adjustable)

Clamping device till Ø50 mm

Round knife edges Ø9,5 mm

Rectangular knife edges 6 x 9,5 mm

Torx counterscrew M2,5x6 MF for lower knife edge

Torx counterscrew M2,5x2,5 MF for upper knife edge

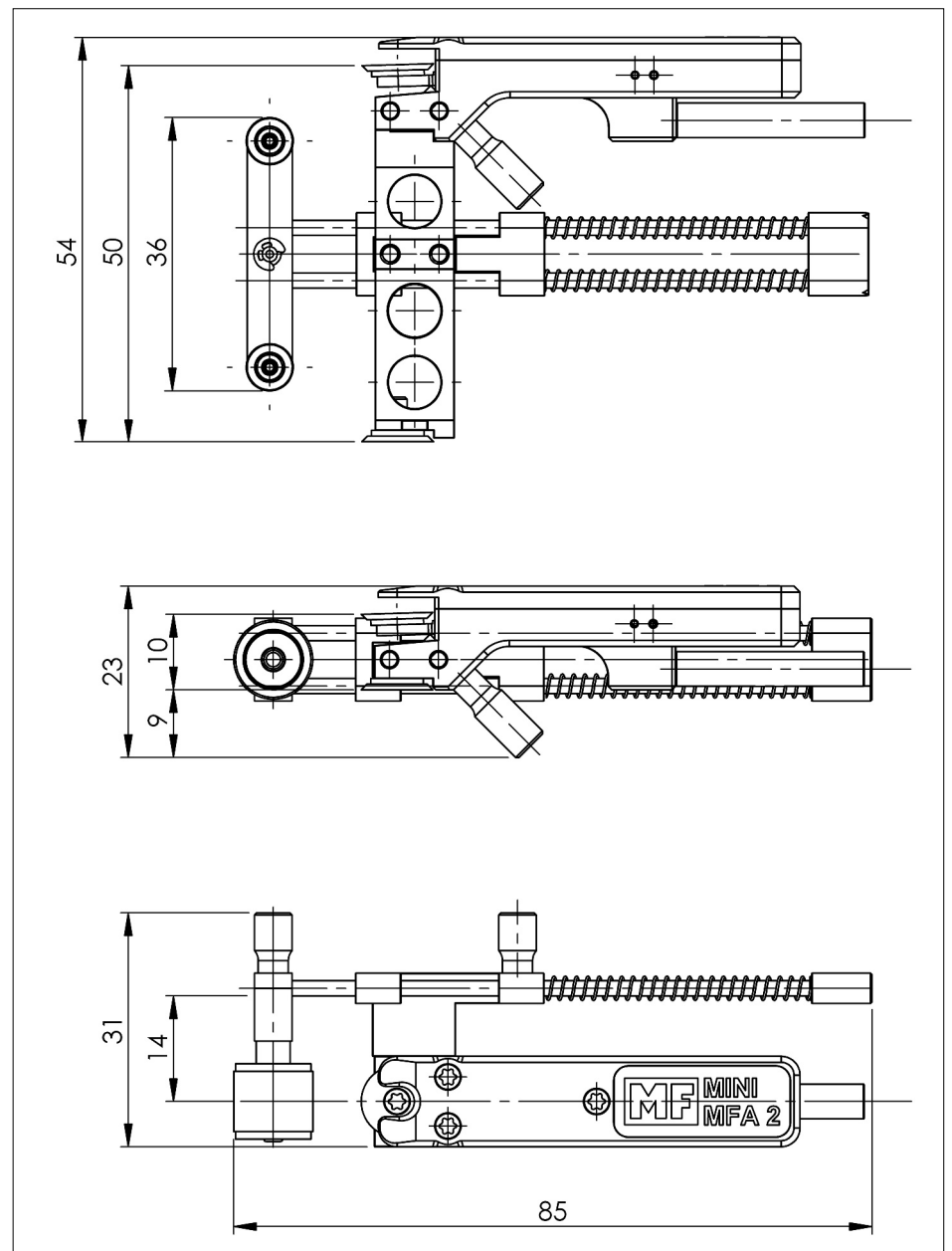


Image 1: Mini MFA 2 standard version and with GL 10 mm and counter roller Ø 10 mm

## Alignment with standard accessories (Mini MFA 2 only)

1. The measuring spring of the Mini MFA 2 must touch the slightly tightened stop screw.
2. In this position of the measuring spring, the measuring amplifier is set to 'zero'.
3. The 1.6 mm gauge block is inserted between the measuring spring and the stop screw. Make sure that the gauge block is flat against the measuring spring and does not touch the housing of the Mini MFA 2.
4. The sensitivity of the measuring amplifier is set in this position of the range spring. The exact value can be found in the measurement report supplied with each device. (Example: With the 1.6 mm gauge block between the measuring spring and the stop, the measuring travel is 2.0549 mm.
5. To be on the safe side, repeat points 1 to 4 and re-adjust the amplifier if necessary.

## Recommendation

For high requirements on the adjustment and for special versions such as the Mini MFA 3 as well as in the pressure direction, the sensitivity adjustment should be carried out on the respective measuring amplifier with a calibration device (KMF100).

## Scope of delivery (double-sided)

- |    |                                      |
|----|--------------------------------------|
| 2  | Mini MFA 2 basic unit with 5 m cable |
| 1  | Double-sided-clamping device         |
| 2  | Extension arm gauge length 50 mm     |
| 4  | Hardened steel knife edge            |
| 1  | Grip screwdriver T8                  |
| 10 | Torx countersunk screw M2,5x6 MF     |
| 2  | Torx countersunk screw M2,5x2,5 MF   |
| 2  | Gauge block 1.6 mm                   |
| 1  | Mini MFA 2 double-sided storage case |

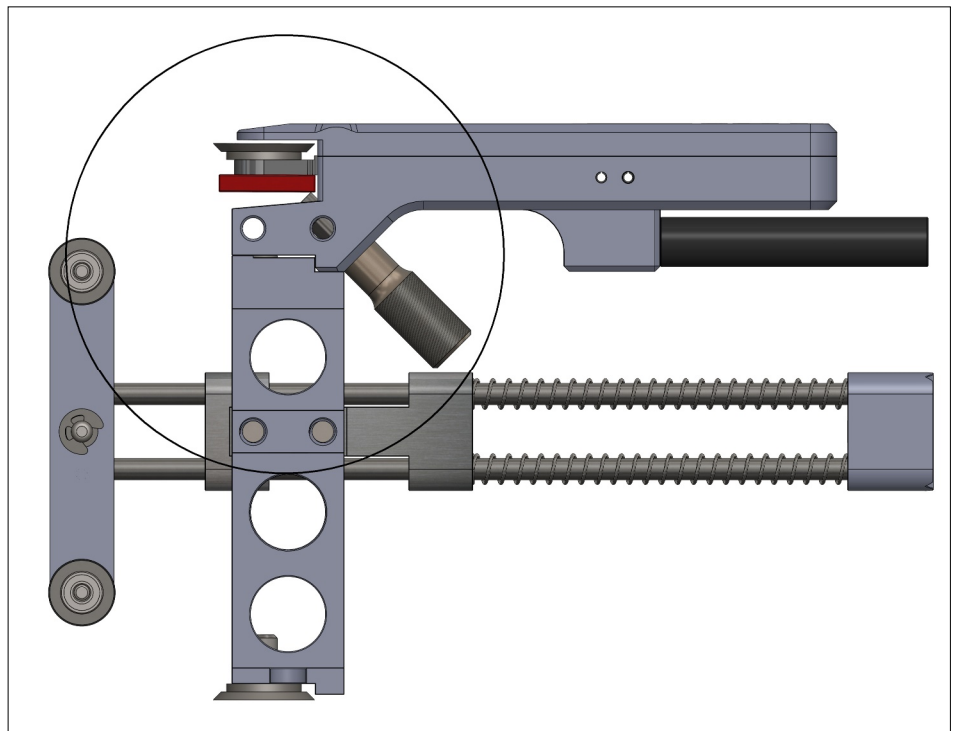


Image 2: Mini MFA 2 with gauge block

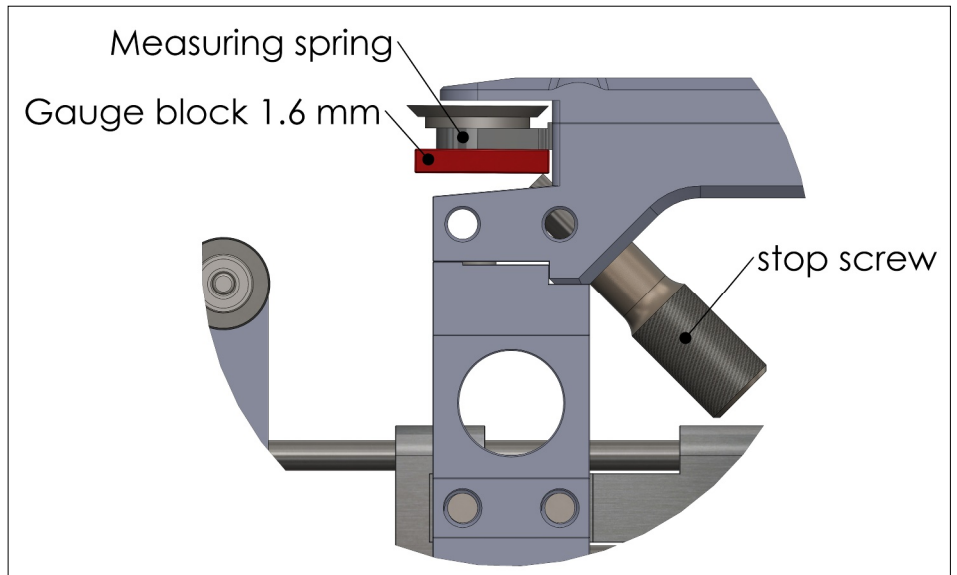


Image 3: Mini MFA 2 with gauge block in detailed view



Image 4: Mini MFA 2 double-sided

## Spare parts and accessories

### (Double-sided unit)

Extension arm pairs for double-sided Mini MFA 2

Mini MFA 2 double-sided clamping device till Ø50

Round knife edges Ø9,5 mm

Rectangular knife edges 6 x 9,5 mm

Torx countersunk screw M2,5x6 MF for lower knife edge

Torx countersunk screw M2,5x2,5 MF for upper knife edge

<b>Technical data</b>		<b>Mini MFA 2</b>
Accuracy class EN ISO 9513		0.2
Measurement principle		Strain gauge full bridge
Range in tensile direction		2 mm
Range in compressive direction		1 mm
Sensitivity		2 mV/V
Rated resistance of the bridge		350 Ohm
Max. voltage input		10 V
Activating force		10 - 60 cN
Standard gauge length		10 und 50 mm
Accessories for gauge length		10 bis 100 mm
Standard temperature range		20 bis 60 °C
Weight of the one sided Mini MFA 2		45 g
Weight of the double-sided Mini MFA 2		70 g

### Other device versions

Mini MFA 3 with 3 mm range	
Climatic version 200 °C	-55 °C bis +200 °C
Climatic version 280 °C	-70 °C bis +280 °C