METROTEC

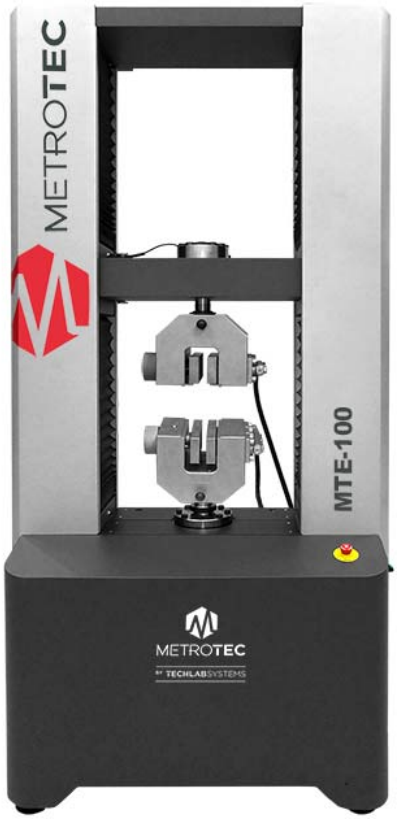
LONGITUDINAL EXTENSOMETERS "Clip-On" MFI 20/40/100 models

The MFI series extensometers are suitable for measuring the deformation of samples with a large initial test length (**"Lo" up to 1000 mm**), for example wire cables, chains, construction steel rods, belts, etc.

TECHLABSYSTEMS

AREA OF APPLICATION

The extensometer MFI is suitable for testing deformation of samples with a large gauge length (Lo up to 1000 mm), for example wire cables, chains, construction steel rods, belts etc. **The instrument is manufactured with three standard gauge lengths of 20, 40 and 100 mm**. It can be **operated in horizontal and vertical** test machines. Despite its sturdy construction and the large Lo variation, it is easy to operate due to its low weight.



DESIGN AND FUNCTION

The MFI consists of a tubular design that extends like a telescope. The measuring system, a well-protected inductive transducer, is mounted at its center. The clamping elements are arranged at the ends of the instrument, so that L0 can be utilized to almost the grips of the testing machine.

On the clamping elements five knife edges are arranged in a circular arc, which attach firmly to round, twisted or plaited samples from 3 to 35 mm diameter. The edges are circular and can be rotated. A long life is achieved by using the whole perimeter. For fine adjustment of clamping a spindle with a spring-loaded pressure plate is arranged facing the knife edges. A combination of different extension tubes allows the extension of the basic L0 to any length up to 1 m.

OPERATION

Before a tensile test no adjustment or unbolting on the MFI is needed. By setting the MFI to the gauge length, the clamping elements centre themselves in such a way that during clamping the instrument aligns itself parallel to the sample axis. The centering device opens by itself with increasing extension and the MFI can follow the torsion movements of twisted test samples during a tensile test. The extension tubes can be easily screwed in between the basic body and the clamping elements without any tool. To dismantle firmly fitted parts a socket head wrench is provided.

CALIBRATION

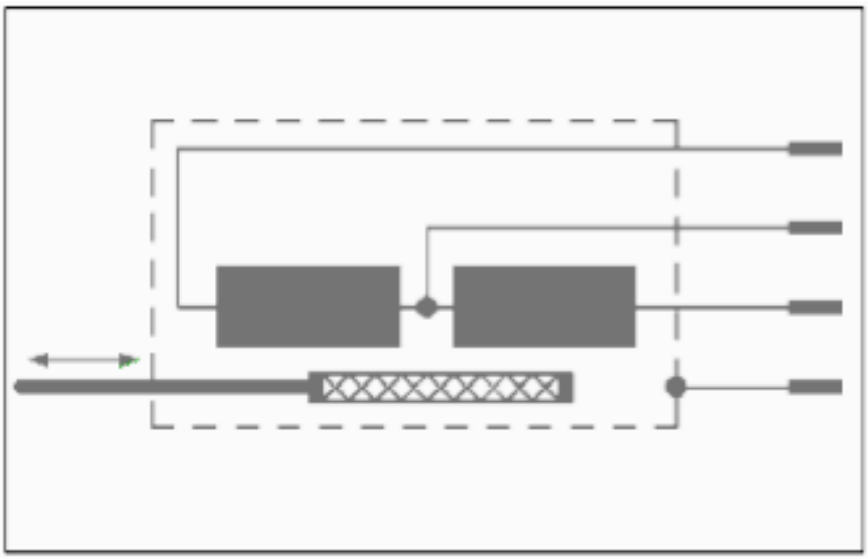
The gauge length steps of the MFI are most suitable for sensitivity calibration of the amplifier, because of its precise parallel path with firm stoppers. The gauge length is adjusted to ± 0.2% and can be checked exactly with an accurate Vernier calipers or dial gauge.

Delivery scope

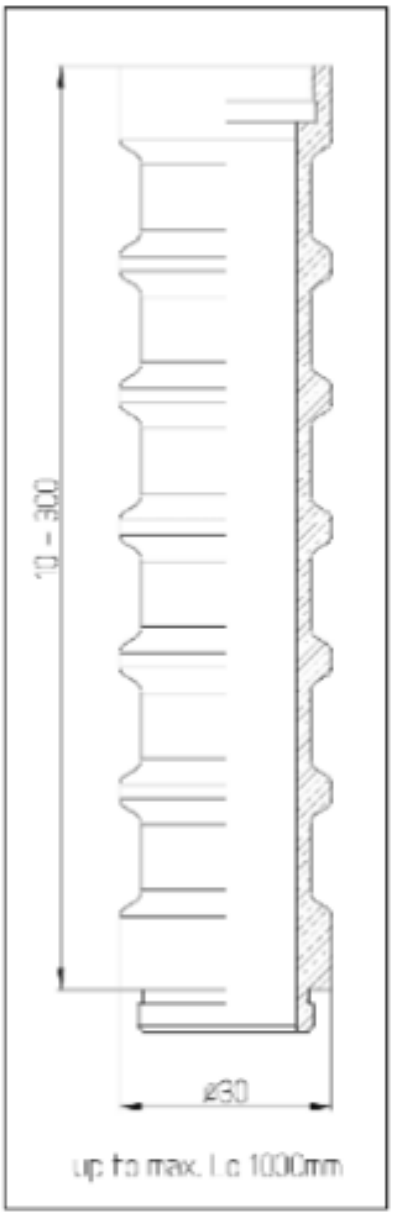
* Extension tube 10 - 99 mm in any required length (not adjustable)
* Extension tube 50 mm
* Extension tube 75 mm
* Extension tube 100 mm
* Extension tube 200 mm
* Extension tube 300 mm
* Clamping elements for sample up t0 Ø 80 mm
* Spare knife edge Ø 9 mm
* Knife edge fastening screws M3x8 Torx T10

Spare parts and accessories

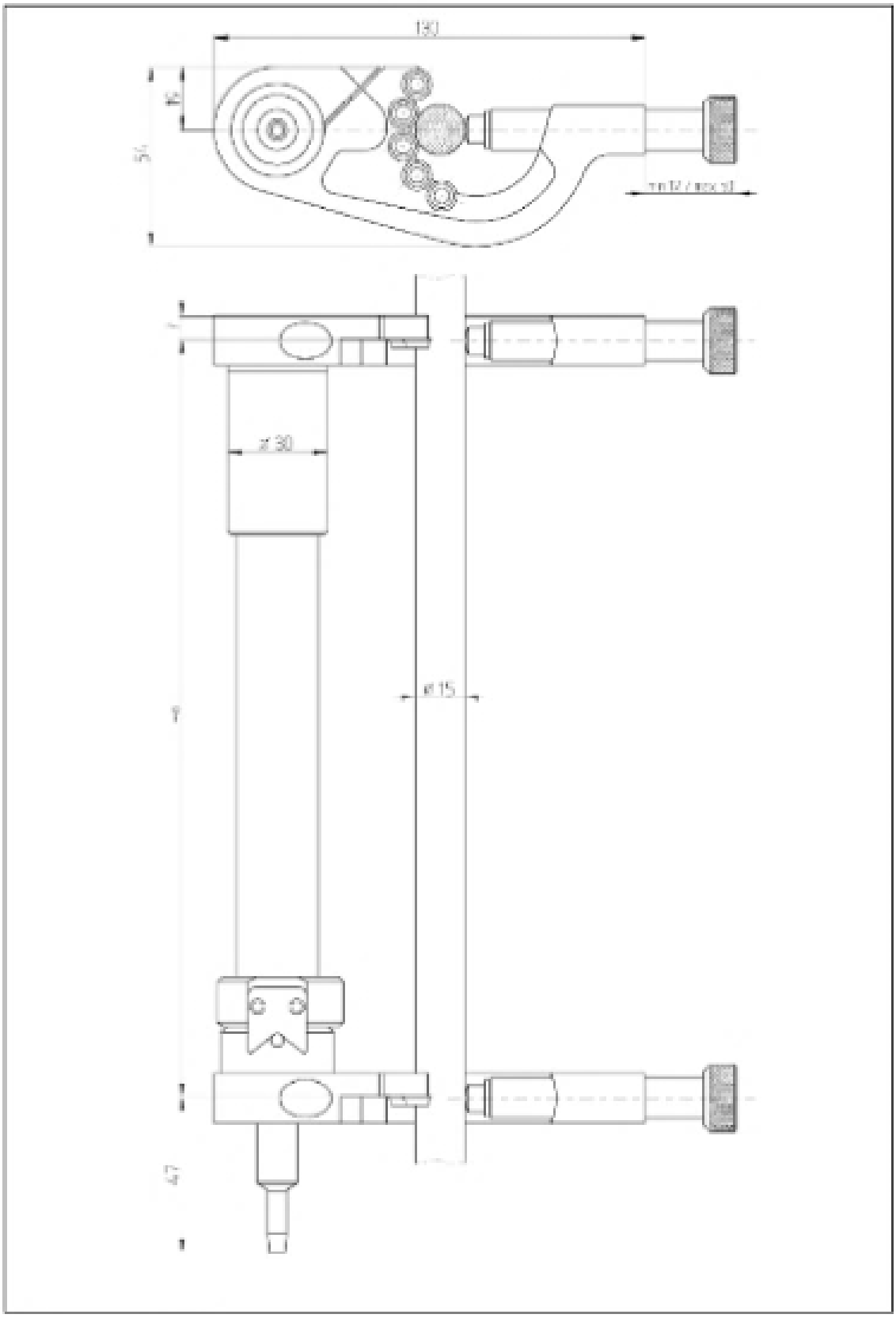
✓ 1 MFI 20 (20 mm travel, Lo 225 mm) (or)
✓ 1 MFI 40 (40 mm travel, Lo 250 mm) (or)
✓ 1 MFI 100 (100 mm travel, Lo 300 mm)
✓ 1 Cable 5 m
✓ 2 Spare screws TORX M3 x 8 T10
✓ 1 Allen key for adjustment or hanging of the LVDT
✓ 2 TORX screw driver T10
✓ 1 Protective casing



Picture 1: MFI - Connection diagram



Picture 2: Extension tube



Picture 3: MF1 - Dimensions

TECHNICAL DATA	MFI 20	MFI 40	MFI 100
Accuracy class EN ISO 9513	1	1	1
Measurement principle	inductive	inductive	inductive
Measurement range for tensile test	+ 20 mm	+ 40 mm	+ 100 mm
Gauge length tolerance	50 µm	50 µm	100 µm
Gauge length tolerance	0.2 %	0.2 %	0.2 %
Linearity error including hysteresis	0.2 %	0.2 %	0.2 %
Indication error* (rel.)	1 %	1 %	1 %
Indication error* (abs.)	3 µm	3 µm	3 µm
Error in gauge length (Lo)	0.2 %	0.2 %	0.2 %
Error in gauge length (Lo)	0.4 mm	0.5 mm	0.5 mm
Activating force	100 cN	100 cN	100 cN
Standard gauge length (Lo)	225 mm	250 mm	300 mm
Gauge length (Lo) with accessory	226 - 1000 mm	251 - 1000 mm	301 - 1000 mm
Operation temperature	0 - 70 °C	0 - 70 °C	0 - 70 °C
Weight	700 g	800 g	1000 g
Sample Cross section round	3 to 35 mm	3 to 35 mm	3 to 35 mm
		(up to 80 mm with special accessories)	
Length of connection cable	5 m	5 m	5 m

* The larger value is admissible

LVDT

Sensitivity	350 mV/V	364 mV/V	570 mV/V
Resístance	135	155	135
Voltage input	2 - 4 V	2 - 4 V	2 - 4 V
CLK frequency	5 kHz	5 kHz	5 kHz