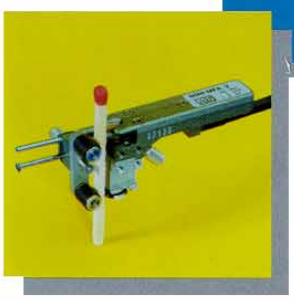
Extensometers Series MF

w+b **Axial Extensometers**

w+b **Transverse Extensometers**

w+b **Calibration Devices**

... for Universal Material Testing



- **Quick exchange of the initial instrument gauge length (L_0)**
- **Simple adjustment to the diameter of test pieces**
- **Single step exchange of measuring blades**
- **Easy clamping by means of a bearing application of counter rollers**
- **Extensive accessories**
- **Fulfilment to the requirements of the standard EN 10002 through a high measurement accuracy**

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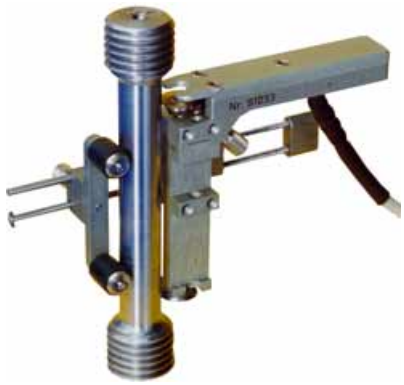
Axial Extensometers

for the determination of the module of elasticity and the restrictions of proof stress and ultimate strain.

Extensometers are suitable for nearly all test pieces above an initial instrument gauge length (L_0) of 10 mm. Simple handling creates the conditions for rational testing of a large number of pieces. Highly precise measurement with an accuracy up to 0.2 % of the indicated value is guaranteed. Double-side linear strain gauges are available for the MINI-MFA and the MFA 2.

Hand-Clamped Extensometers:



MINI MFA 2

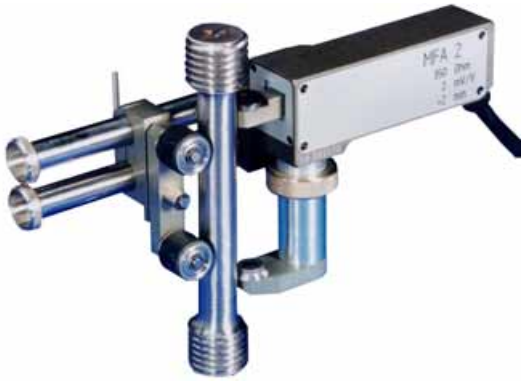
This small and light extensometer which has a high accuracy is especially suitable for small and sensitive specimens.

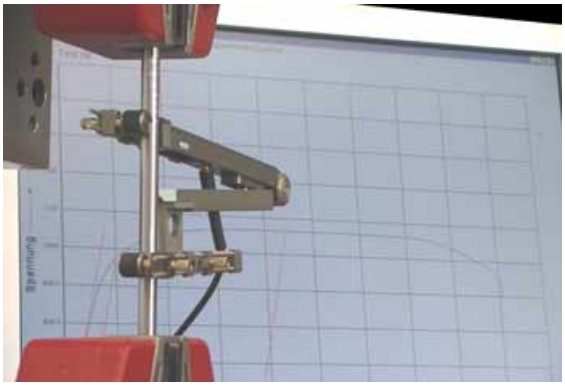
Travel +2 mm / -1 mm
L_0 10 - 100 mm
Class of accuracy 0.2
(standard EN 10002)

MFA 2 / MFA 05

This extensometer guarantees a high level of reliability and a long service life, even under difficult operating conditions.

Travel 2 mm / 0.5 mm
L_0 25 - 100 mm
Class of accuracy 0.2
(standard EN 10002)





MFA 25 / MFA 12

The MFA 25 / MFA 12 which enables a travel of 25 or 12 mm by means of a rotation point system is suitable for plastic and metal test pieces.

Travel 25 mm / 12 mm
L_0 25 - 100 mm
Class of accuracy 0.5 / 0.2
(standard EN 10002)

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Automated Axial Extensometers Computer-Controlled

MFN

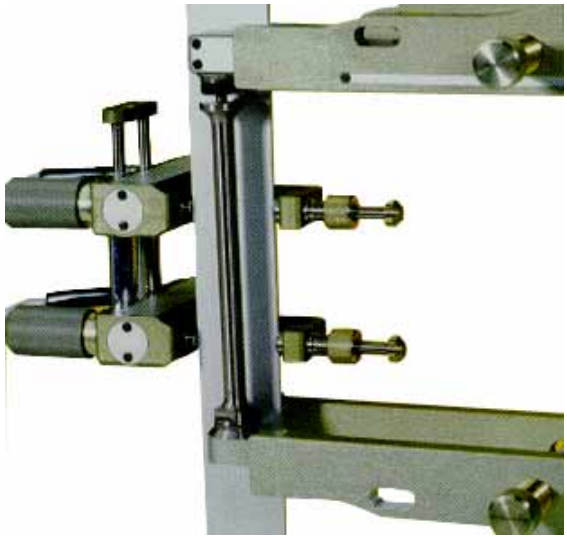
The extensometer MFN is available in 14 models and is based upon a modular design. Options include manual, automated and climatic chamber arms.
The MFN-A offers both a small (4 mm) and a large range. It is suitable for determining the E-module from very short gauge lengths and for recording fracture elongation of $L_0 + \Delta L$ = 800 mm.
The MFN-B is available as the large measuring range device.
The MFN-C is available as the small measuring range device.

Travel max. 790 mm
smallest L_0 10 mm
Class depending on model
0.2 or 1 (standard EN 10002)

MFL 300 or 500

The extensometer MFL is available for total instrument gauge length $L_0 + \Delta L$ = 300 or 500 mm. All functions are computer - controlled by one or more interfaces. Its low clamping forces make it highly suitable even for small and notch sensitive test samples.

Position travel 200 / 400 mm
smallest gauge length L_0 = 10 mm
Class 1 (standard EN 10002)



MFQ

The transverse extensometer MFQ is designed to work together with the extensometer MFL or MFN-A to determine the r-value (vertical anisotropy) of thin metal sheets.

Travel 4 mm / 6 mm
Accuracy 0.2 % of actual reading

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MFHT

The MFHT has been developed as a highly accurate, sturdy measuring device for hot tensile tests in a folding furnace (up to 1700 °C).

Travel 8 mm / 10 mm
L_0 10 - 100 mm
Class 0.2 (standard EN 10002)

Elongation Measurements on Concrete and Steel Rods:

MFA 20

The parallel-guided roller-bearing design is extremely robust and has been developed of the measurements of elongation on samples, such as concrete, steel and rough samples with scale.

Travel 20 mm
L_0 50 - 200 mm
Class of accuracy 1 or 0.5
(standard EN 10002)

MFI

As the MFI is parallel-guided as well it is suitable for large initial gauge lengths, e.g. of steel rods, chains, concrete steel rods and belts.

Travel 20 mm / 40 mm / 100 mm
L_0 200 - 1000 mm
Class of accuracy 1
(standard EN 10002)

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Transverse Extensometers

to determine the r-value of thin sheets as well as the Possion's ratio on round specimens.

The simple adjustment to different sample widths ensures a high flexibility.

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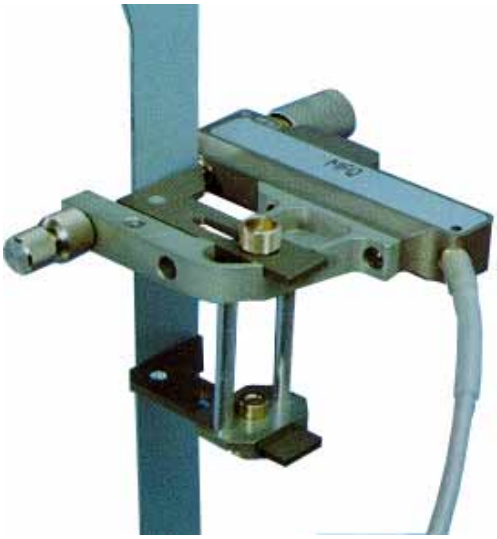

MFQ-H

Because of its low clamping forces the MFQ-H is also suitable for the operation on thin sheets.

Travel 4 mm
Accuracy 0.2 % of actual reading

MFQ-H2

The MFQ-H2 is equipped with two measurement brackets which average the measured values from two separate measuring points.

Travel 4 mm
Accuracy 0.2 % of actual reading

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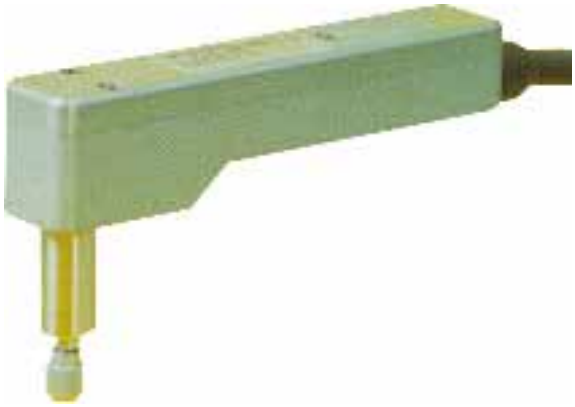
Calibration Devices



MFT

B The MFT is a gauge head with highest accuracy based on a full bridge strain gauge. Having a travel of 1 mm or 4 mm it is suited for many measuring tasks. Its accuracy is ± 0.2 μm for 1 mm travel and ± 0.4 μm for 4 mm travel.

w+b

MFHP

The measuring instrument MFHP is used for the control of hardness testers. With suitable instruments like the HMB / DK 38 it meets all requirements of the standard EN 10109 part 2 (travel 1 mm with an accuracy of 0.2 μm). With the MFHP tests are carried out easily and quickly.

KMF 1 / KMF 01

The universal design allows to test the linearity of a variety of extensometers easily and rapidly with the highest accuracy. The accuracy exceeds the requirements of the best class of the European standard EN 10002.

Resolution possible up to 0.01 μm
System accuracy up to 0.1 μm

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KMF 3

The KMF 3 is an economical and universal instrument for checking a large variety of extensometers and for setting the gain of their measuring amplifiers.

Resolution 1 μm
System accuracy 4 μm

KMF 20

The extensometer calibrator KMF 20 is an universal instrument for large spans of up to 300 / 600 mm travel. With an optical accessory the distance between two knife edges is to be determined.

Resolution 10 μm
System accuracy 20 μm

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Series MF

Type	L	Cl.	IE	Res.	Lo	MM	Description
MFA 2	+ 2 mm (+3 mm)	0.2	0.6 µm	A	30-100 mm (300 mm)	Strain	Rugged short travel accuracy extensometers to be mounted manually on specimen. Fast and easy operation. Different gauge lengths easily exchangeable.
MFA 0.5	+0.5 mm (± 0.25 mm)	0.2	0.6 µm	A	30 -100 mm (300 mm)	Strain	
Mini-MFA 2	+2 mm - 1 mm (+ 3 mm)	0.2	0.6 µm	A	10 - 100 mm	Strain	Light weight version of MFA 2/0.5. Best suited for small specimen and short gauge lengths.
MFA 25 MFA 12	+ 25 mm + 12 mm	0.5 0.2	1.5 µm 0.6 µm	A	25 - 100 mm	Strain	Extensometer for manual clamping, light weight, with large travel, measuring arms guided in pivot bearings.
MFA 20	+20 mm	1 0.5	3 µm 1.5 µm	A	50 - 200 mm (5 mm Steps)	Ind.	Extensometer for manual clamping, rugged design. Fast and easy clamping. For example, steel rods used in reinforced concrete to be tested..
MFI	+ 20 mm + 40 mm +100 mm	1	3 µm	A	200-1000 mm	Ind.	Extensometer for manual clamping. Especially for large gauge lengths. Suitable for steel rods, etc.
MFHT	+8 mm +10 mm	0.2	0.6 µm	A	10 - 100 mm	Strain	High temperature extensometer for hot oven tests in a folding furnace up to 1700°C.
MFN-A-D MFN-A MFN-A	300 mm 500 mm 800 mm	1	0.6 µm	A	10 - 100 mm	Pot.	A combination of long travel and short travel extensometer for manual clamping or fully automatic clamping to the sprecimen. Short travel 4,, (fully bridge strain gauge), long travel 300 / 500 / 800 mm.
MFN-C	4 mm	0.2	0.3 µm	A	10 -100 mm	Strain	Short travel extensometer for manuall for fully automatic clamping to the specimen. Wide positioning range. All MFN types are also fit for use in temperature up to 250°C.
MFL	165 mm 265 mm 365 mm 515 mm	1	3 µm	1 µm	10-500 mm	Opt.	Servo-controlled extensometer. Automatic calibration and zeroing. Computer controlled positioning and gauge length setting as well as clamping to the specimen. Very low clamping forces. Proven in automated material testing systems for years.
MFQ	4 mm 6 mm	0.2	0.6 µm	A	12.5-30 mm	Strain	Transverse Extensometers. Two measuring points. Useful in combination with MFL to record r- and n-values. Proven in deep drawing metal sheets from thickness of 0.1 mm up to 6 mm.
MFT 1 MFT 4	1 mm 4 mm		0.2 µm 0.4 µm	A		Strain	Gauge head. Small, light weight and rugged construction with high accuracy.
KMF 20	50 mm up to 600 mm		20 µm	10 µm		Opt.	Extensometer calibration device for long travel and accurate measuring of gauge length.
KMF 1	60 mm		0.5 µm > 2 mm 2µm	0.5 µm		Opt.	Highest accuracy calibrators to extensometer calibration and linearity of almost all types of extensometers up to 60 mm travel.
KMF 0.1	60 mm		0.1 µm > 2 mm 1 µm	0.01 µm		Opt.	
MFHP	1mm		0,2 µm	A		DMS	Control measuring device for hardness testers.

Legend:

L	Travel	MM	Measuring Method
Cl.	Class	Ind.	Inductive
IE	Indication Error	Mag.	Magnet-inductive, potentiometrically
Res.	Resolution	Pot.	Potentiometrically
Lo	Gauge Length	Opt.	Opto-incrementally
A	Analogue		

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