

... from development to
implementation



Production of materials testing equipment and automation

Extensometers with limited deformation

Extensometers with limited deformation

Main features

Hanging extensometers are the simplest and most economical solution for measuring the deformation of test specimens. They are used where lower so-called random testing frequency is performed. Although these extensometers are among the simpler devices, they are widely used to detect **lateral elongation, longitudinal narrowing, contraction, crack expansion in dynamic fatigue testing, high temperature tests**, etc. Despite their simplicity, these extensometers are characterized by very high accuracy, durability and usability. They meet the EN ISO 9513 standard in accuracy class 0.2.

Extensometers with limited deformation can be divided into the following groups:

Longitudinal (axial)

Transverse

Biaxial

Dynamic (crack expansion)

Axial-torsion

High temperature

Measuring probe

Our sales manager and application engineers will be pleased to advise you on how to choose the right strain gauge to meet your.

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Extensometers Longitudial - axial

Main features Mini MFA2

Accuracy class according EN ISO 9513: 0.5

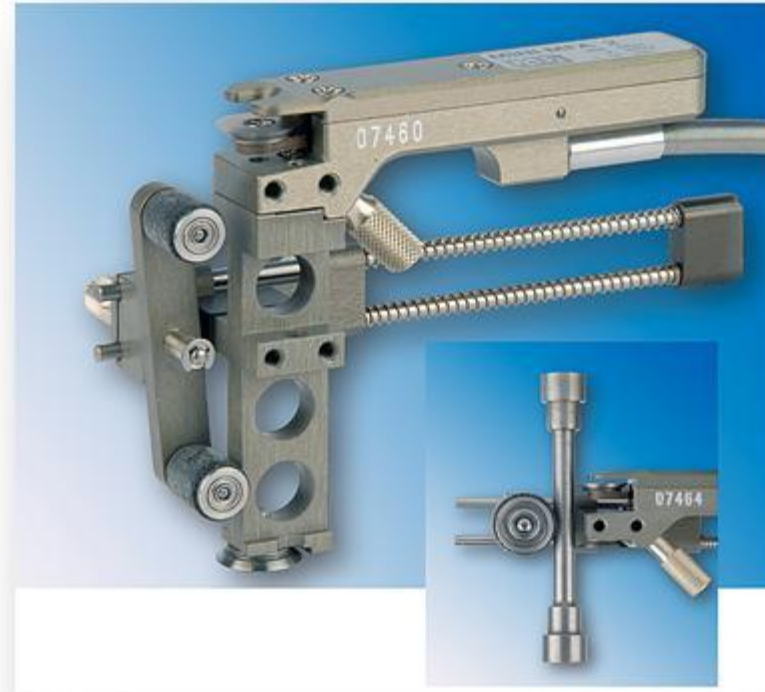
Standard gauge length: 10 mm

Optional gauge length: 50/100 mm

Measuring range: +2/-1 mm

Linearity error including hysteresis : 0,05%

Dimensions range for flat/ round specimens: 0 - 25 x 25 mm / 0 - 25 mm



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Extensometers longitudinal - axial

Main features MFA2/0.5

Accuracy class according EN ISO 9513: 0.2

Standard initial gauge length: 30(25) and 50 mm

Optional initial gauge length: 30 - 300 mm

Measuring range: 2(3) mm / 0.5 mm

Linearity error including hysteresis: 0.05 %

Dimensions range for flat specimens: 0 - 30 x 30 mm / 0 - 60 x 60 mm with adjustable

Dimensions for round specimens: 0 - 30 mm / 0 - 60 mm with adjustable



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Extensometers longitudinal - axial

Main features MFA2/0.5

Accuracy class according to EN ISO 9513: 0.5

Standard initial gauge length : 50 - 100 mm (in steps 10 (5) mm)

Optional initial gauge length : od 40 mm / up to 200 mm

Measuring range: + 20 mm

Linearity error including hysteresis: 0.2%

Dimensions range for flat specimens: 15 x 1 up to 30 x 30 mm (60 x 60 mm)

Dimensions for round specimens: 4 - 30 mm (60 mm)



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Extensometers longitudinal - axial

Main features MFA25/12

Accuracy class according to EN ISO 9513: 0.5 / 0.2

Standard initial gauge length: 25 and 50 mm (20 mm)

Optional initial gauge length: 30, 80 and 100 mm

Measuring range: + 25 mm / + 12 mm

Linearity error including hysteresis: 0.25 % / 0.10 %

Dimensions range for flat specimens: 0 - 28 x 30 mm / 0 - 50 x 50 mm with adjustable

Dimensions for round specimens: 0 - 28 mm / 0 - 50 mm with adjustable



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Extensometers longitudinal - axial

Main features MFI 20/40/100

Accuracy class according to EN ISO 9513: 1

Standard initial gauge length: 225 mm, 250 mm, 300 mm

Optional initial gauge length: 226 - 1000 mm / 251 - 1000 mm / 301 - 1000 mm

Measuring range: + 20 mm / + 40 mm / + 100 mm

Linearity error including hysteresis: 0.2 %

Dimensions for round specimens: 3 - 35 mm



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Extensometers longitudinal - axial

Main features EXA

Accuracy class according EN ISO 9513: 0.5 - 1

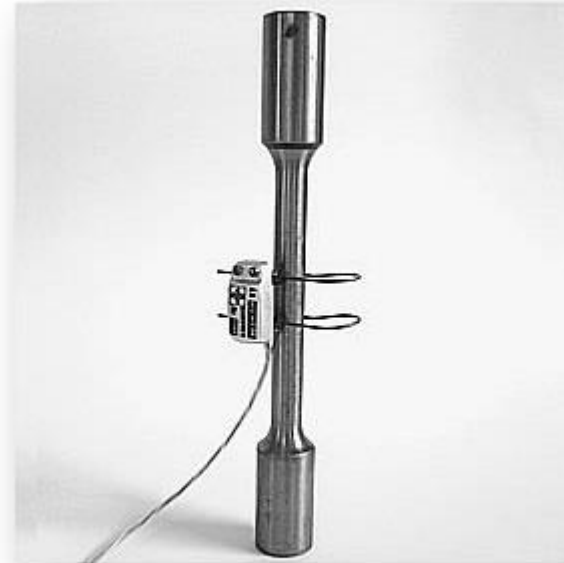
Standard initial gauge length: 10 - 100 mm (in steps 5 / 10 mm)

Measuring range: 0.25 - 10 mm

Linearity error including hysteresis: 0.1 - 0.3 %

Operating temperature: - 80°C - +120°C or -270°C - +220°C

Dimensions flat / round specimens: 1 - 18 mm / 1 - 18 mm



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Extensometers longitudinal - axial

Main features 3542

Accuracy class according to EN ISO 9513: 0.5

Standard initial gauge length: 10, 12.5, 25, 50 mm

Measuring range: ± 5 , ± 10 , ± 20 , $\pm 25\%$, ± 50 / $\pm 10\%$, ± 100 / $\pm 5\%$

Linearity error including hysteresis: 0.10 % (for ± 5 a 10%), 0.15 % (standby mode)

Temperature range: -265°C up to $+175^{\circ}\text{C}$

Dimensions flat / round specimens: 0 - 12 x 31 mm / 0 - 25 mm



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Extensometers longitudinal - axial

Main features 3542

Accuracy class according to EN ISO 9513: 0.5

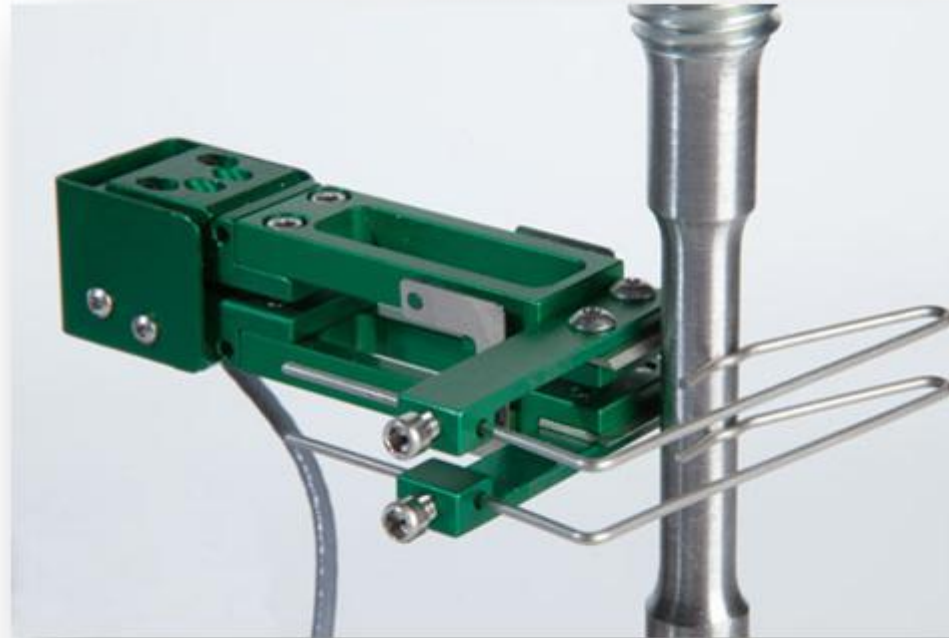
Standard initial gauge length: 3, 4, 5, 6, 8, 10, 12 mm

Measuring range: +5, +10, +20 / - 10%, +50 / - 5%, +100 / - 5 %

Linearity error including hysteresis: 0.10 % (for +5 and +10%), 0.15 % (standby mode)

Temperature range: -265°C up to +175°C

Dimensions flat / round specimens: 0 - 12 x 25 mm / 0 - 12 mm



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Extensometers longitudinal - axial

Main features 3543

Accuracy class according to EN ISO 9513: 0.5

Standard initial gauge length: 50, 100, 150, 200 or 250 mm

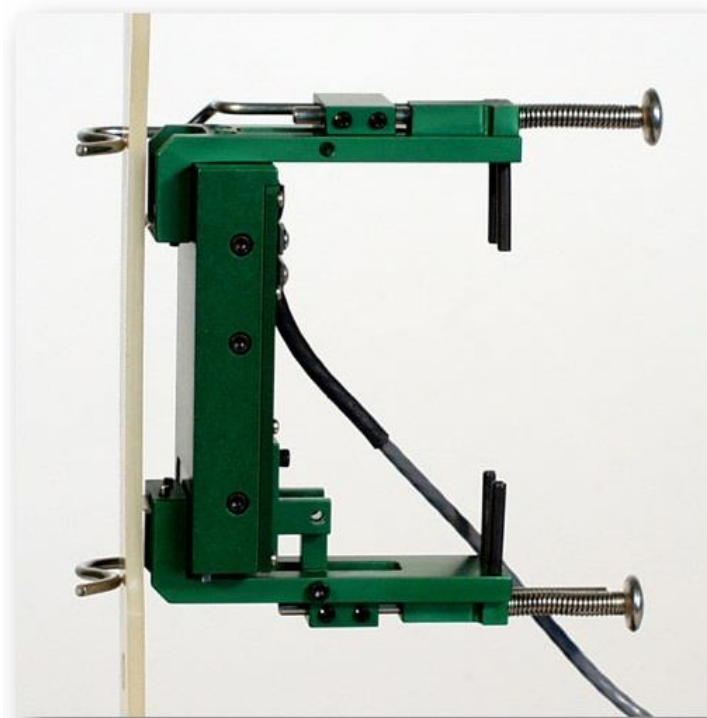
Measuring range: +25, +50, or +100 mm

Linearity error including hysteresis: <0.15%

Dimensions flat / round specimens: 0 - 12 x 31 mm / 0 - 25 mm

Temperature range: ST -40°C - +100°C or HT -40°C - +1500°C

Typical operating force: 125 g

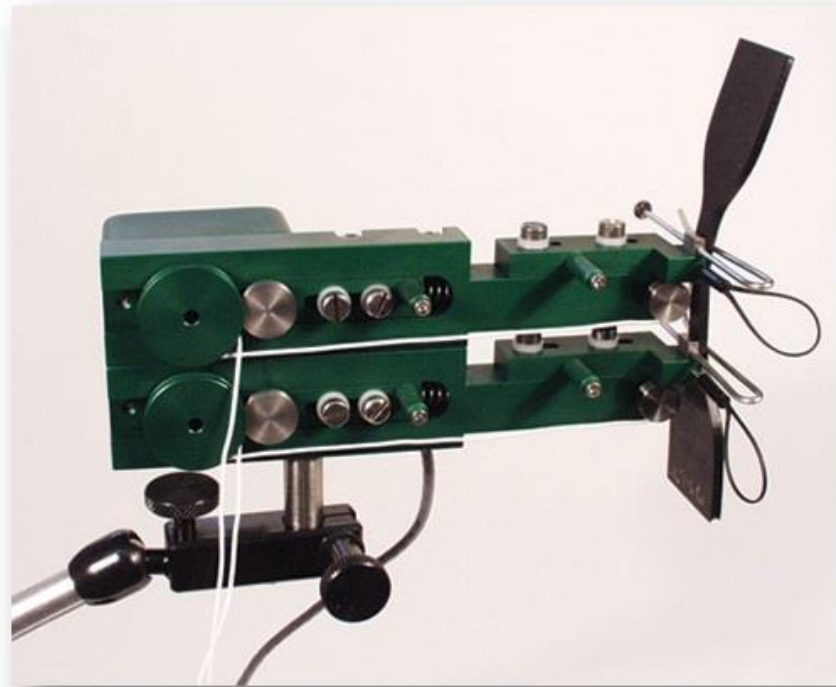


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Extensometers longitudinal - axial

Main features 3800

Accuracy class according EN ISO 9513: 0.5
Standard initial gauge length: 25 or 50 mm
Measuring range: +125, +250 or +500 mm
Linearity error including hysteresis: <0.15%
Typical operating force: 20 g



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Transverse Extensometers

Main features MFQ

Accuracy class according EN ISO 9513: 0.2

Measuring range: 4 mm (6 mm)

Linearity error including hysteresis: 0.05 %

Measuring range: 300 mm minus L_0 / 490 mm minus L_0

Thickness of flat specimens: 0.4 - 30 mm

Width of flat specimens: 13, 20, 25, 30 mm / 4 - 25 mm (50 mm)

Diameter of round specimens: - 4 - 25 mm (4 - 50 mm)



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Transverse Extensometers

Main features of type 3575

Accuracy class according to EN ISO 9513: 0.5
Measuring range: ± 0.5 , ± 1 , ± 2.5 , ± 3 or ± 5 mm
Linearity error including hysteresis: < 0.15 mm
Operating temperature: $- 265$ °C up to $+175$ °C
Dimensions range for flat specimens: 0 - 25 mm
Dimensions range for round specimens: 0 - 25 mm



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Transverse Extensometers

Main features of type 3475

Accuracy class according to EN ISO 9513: 0.5

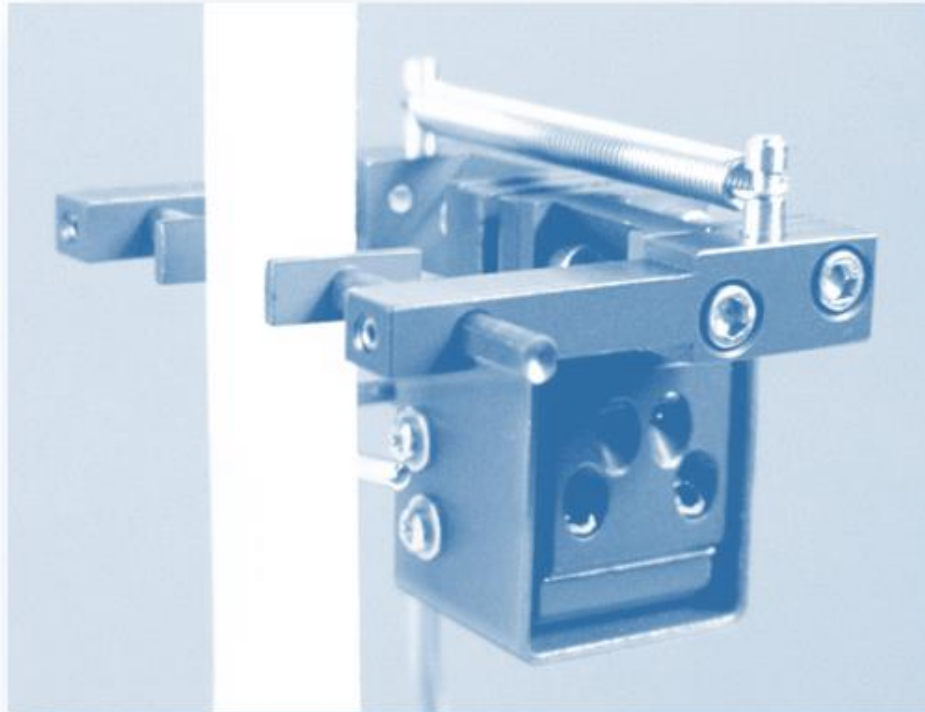
Measuring range: ± 0.25 , ± 0.50 , ± 1.00 , ± 1.25 mm

Linearity error including hysteresis: 0.15 % (± 1.25 mm 0.20 %)

Operating temperature: $- 265$ °C up to $+175$ °C

Dimensions range for flat specimens: 0 - 25 mm

Dimensions range for round specimens: 0 - 25 mm



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Transverse Extensometers

Main features of type 3575 AVG

Accuracy class according to EN ISO 9513: 0.5

Measuring range: 2 mm

Linearity error including hysteresis: < 0.15 %

Operating temperature - 265 °C up to +175 °C

Dimensions range for flat specimens: 9.5 - 25 mm



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Transverse Extensometers

Main features of type EXD

Accuracy class according to EN ISO 9513: 0.5

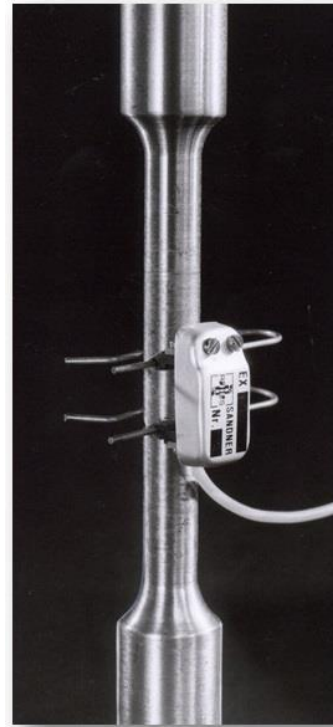
Measuring range: $\pm 0,25$ mm, ... ± 4 mm

Linearity error including hysteresis: $< 0.35\%$

Operating temperature: $- 80$ °C up to $+300$ °C, 1200 °C

Dimensions range for flat specimens: 1 - 45 mm

Dimensions range for round specimens: \varnothing 1 - 45 mm



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Extensometers
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Biaxial extensometers

Main features of type 3560

Accuracy class according EN ISO 9513: 0.5

Standard initial gauge length: 10, 25, 50 mm

Measuring range: ± 5 , ± 10 ,

Linearity error including hysteresis: ± 0.15 %

Operating temperature: -265°C up to $+175^{\circ}\text{C}$

Dimensions range for flat specimens: 2,5 x 25 mm

Dimensions range for round specimens: $\varnothing 2,5 - 25$ mm



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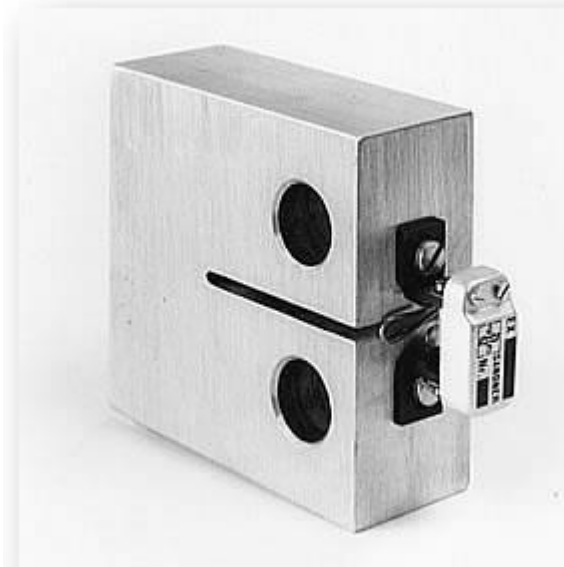
Dynamic extensometers – crack expansion

Main features EXR

Standard initial gauge length: 5 - 30 mm (by steps about 5 mm)

Measuring range: 0.25 - 10 mm

Linearity error including hysteresis: 0.25 - 0.3%



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Dynamic extensometers – crack expansion

Main features EXRC

Standard initial gauge length: 2,3,4,5 mm

Measuring range: 3,4,5,6 mm

Linearity error including hysteresis: 0.1%



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Dynamic extensometers – crack expansion

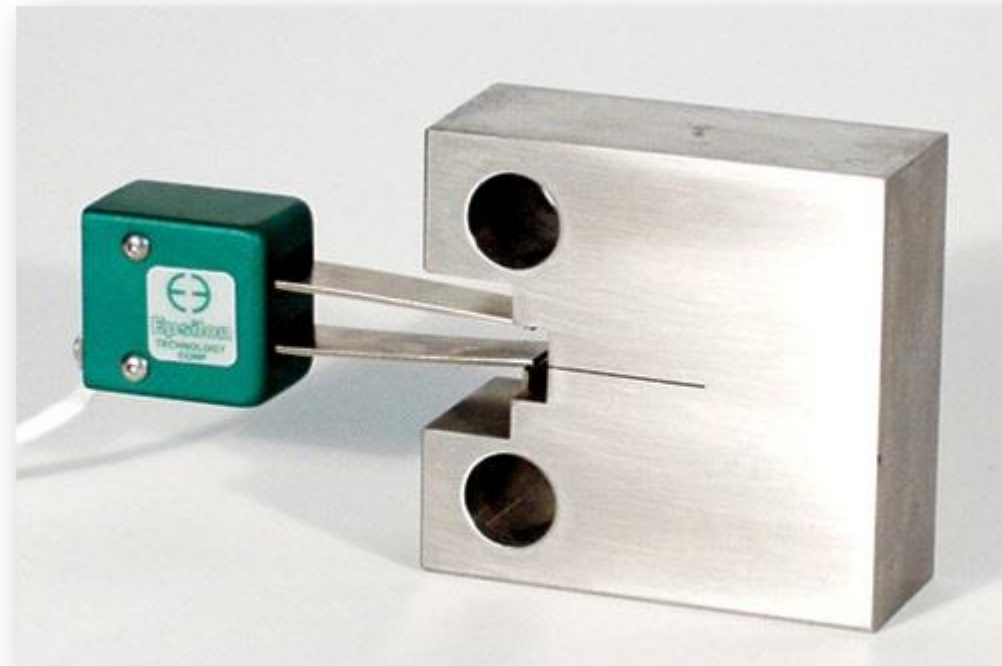
Main features of type 3541

Standard initial gauge length: 3, 5, 8, 10, 12 or 20 mm

Measuring range: +2.5/-1, +4/-1, +7/-1, +10/-1, +12/-2 mm

Linearity error including hysteresis: 0.15 (for < 6 mm), 0.20 (stand by mode)

Operating temperature: -265°C up to +175°C



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Axial – torsion extensometers

Main features of type 3550(10-05-04/12-20-02/25-05-02/25-05-03/25-10-02)

Accuracy class according to EN ISO 9513: 0.5

Axial gauge length: 10 mm / 12.5 mm / 25 mm / 25 mm / 25 mm

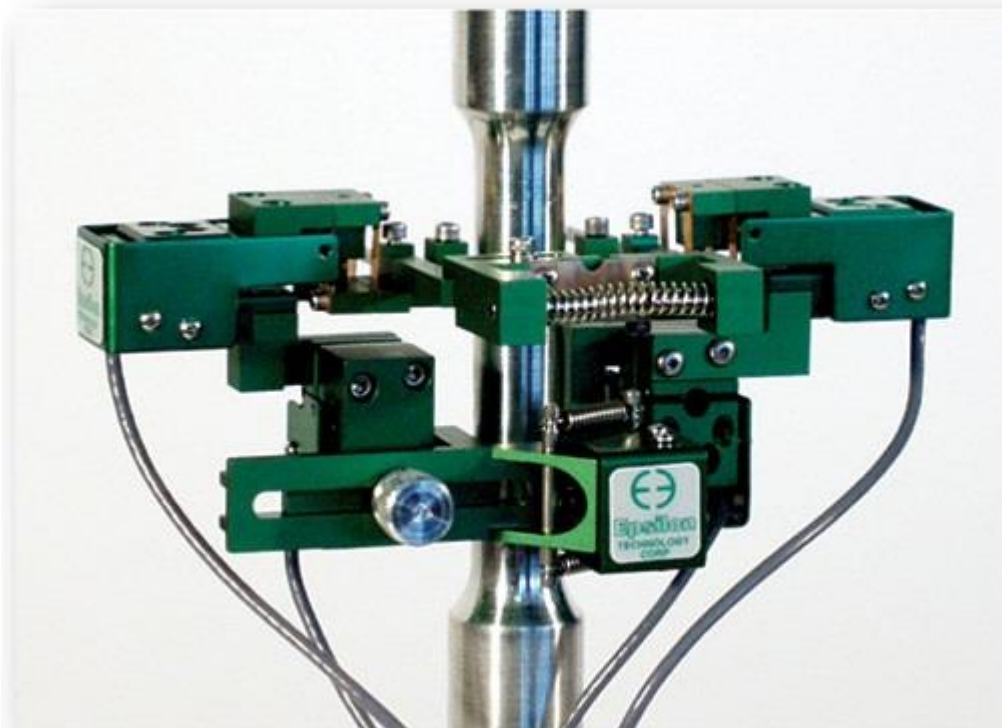
Axial measuring range: +5% / +20% / +5% / +5% / +10%

Torsion shear deformation angle: +4° +2° +2° +3° +2°

Linearity error including hysteresis: <0.15

Operating temperature: -40°C up to +100°C or - 265 °C up to +175°C

Dimensions range for round specimens: 9.5 - 25.4 mm



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Extensometers
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High temperature extensometers

Main features EXH

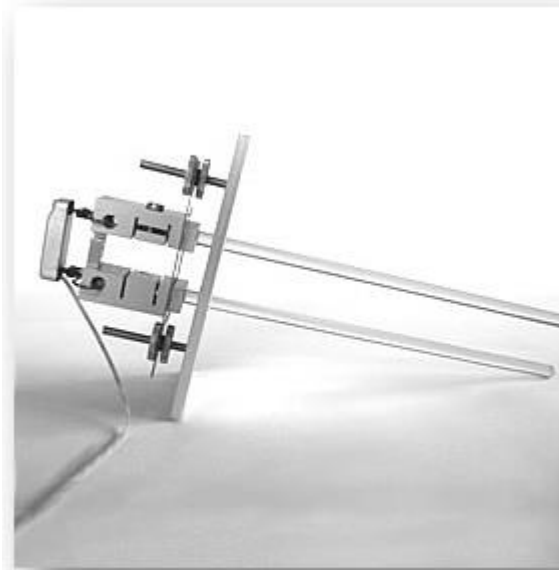
Accuracy class according EN ISO 9513: 1

Standard initial gauge length: 15, 20, 25, 30 or 50 mm (1.25 - 10 mm)

Measuring range: 0.75 - 10 mm

Linearity error including hysteresis: 0.25 %

Operating temperature: up to 1200°C (optional up to 1800°C)



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High temperature extensometers

Main temperature of type 3548

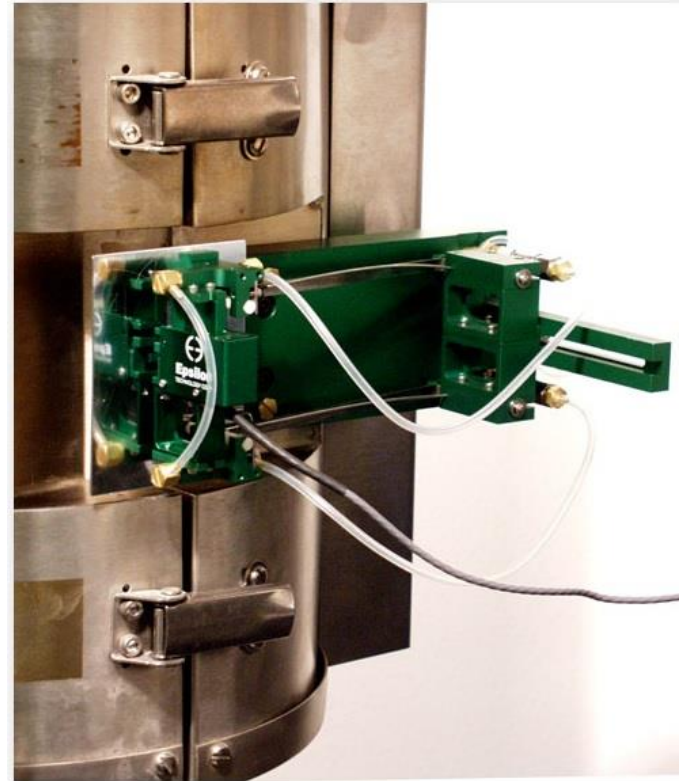
Accuracy class according EN ISO 9513: 0.5

Standard initial gauge length: 10, 25 or 50 mm

Measuring range: $\pm 10\%$, $\pm 20\%$, $+ 50\%$ / $- 25\%$, $+ 100\%$ / $- 5\%$

Linearity error including hysteresis: $< 0.15\text{ mm}$

Operating temperature: Standard ST up to 1200°C , optional up to 1600°C



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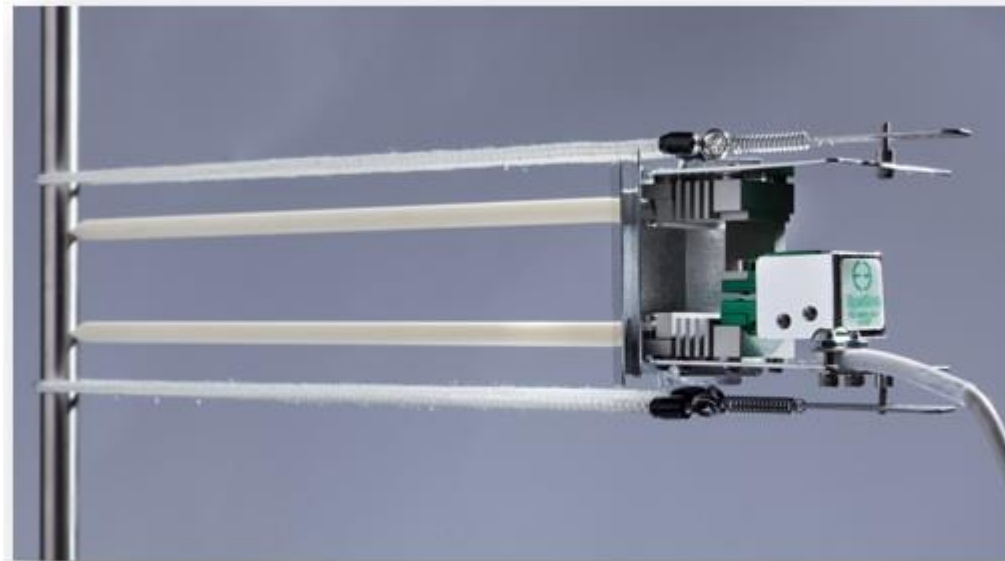
Extensometers
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High temperature extensometers

Main features Type 3448

Accuracy class according to EN ISO 9513: 0.5
Standard initial gauge length: 10, 25 or 50 mm
Measuring range: +5, +10, +20, +50 / - 20%
Linearity error including hysteresis: < 0.15 %
Operating temperature: optional up to 1200°C



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High temperature extensometers

Main features MFHT

- Accuracy class according to EN ISO 9513: 0.2
- Standard initial gauge length: 15, 20, 25, 30 or 50 mm
- Measuring range: 10 or 8 mm
- Linearity error including hysteresis: 0.05 %
- Operating temperature: up to 1700°C



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High temperature extensometers

Main features EXAE

Accuracy class according EN ISO 9513: 0.5

Standard initial gauge length: 25 - 152.4 mm

Measuring range: 5, 10, 15, 20, or 25 mm

Linearity error including hysteresis: 0.10 %

Operating temperature: 1000°C, 1100°C or 1200°C

Dimensions range for flat specimens: 1 - 45 mm

Dimensions range for round specimens: 1 - 45 mm



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High temperature extensometers

Main features of type 3555

Accuracy class according to EN ISO 9513: 0.5

Standard initial gauge length: 10, 25 or 50 mm

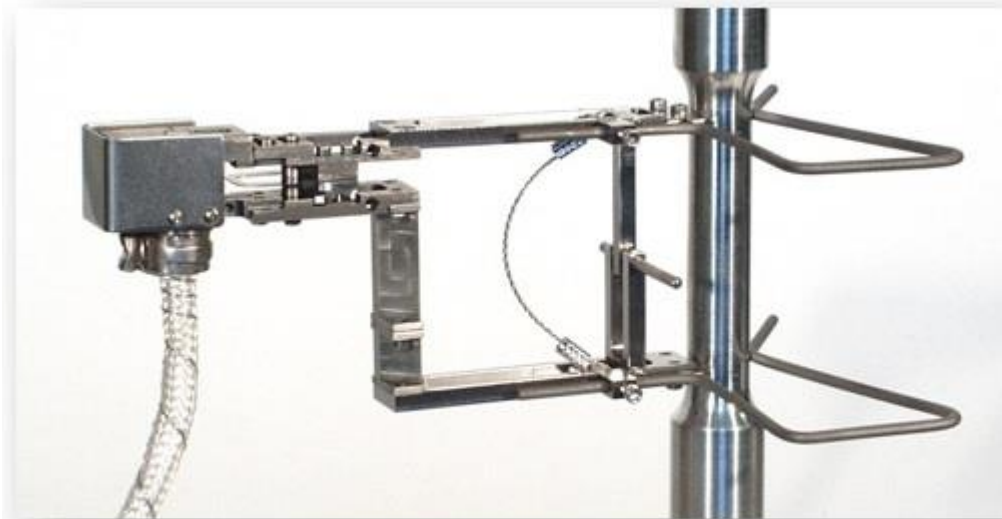
Measuring range: : $\pm 5\%$, $\pm 10\%$ / $\pm 5\%$, $\pm 20\%$ / $\pm 10\%$, $\pm 50\%$ / $\pm 10\%$

Linearity error including hysteresis: 0.10 %

Operating temperature: Surroundings up to 540°C

Dimensions range for flat specimens: 0 - 12 x 19 mm

Dimensions range for round specimens: 0 - 12 mm



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High temperature extensometers

Main features of type 3648

Accuracy class according EN ISO 9513: 0.5

Standard initial gauge length: 10 or 25 mm

Measuring range: between +0.25 a 2.5 mm on demand!

Linearity error including hysteresis: 0.10 %

Operating temperature: Standard up to 1200°C. HT- Optional up to 1600°C.



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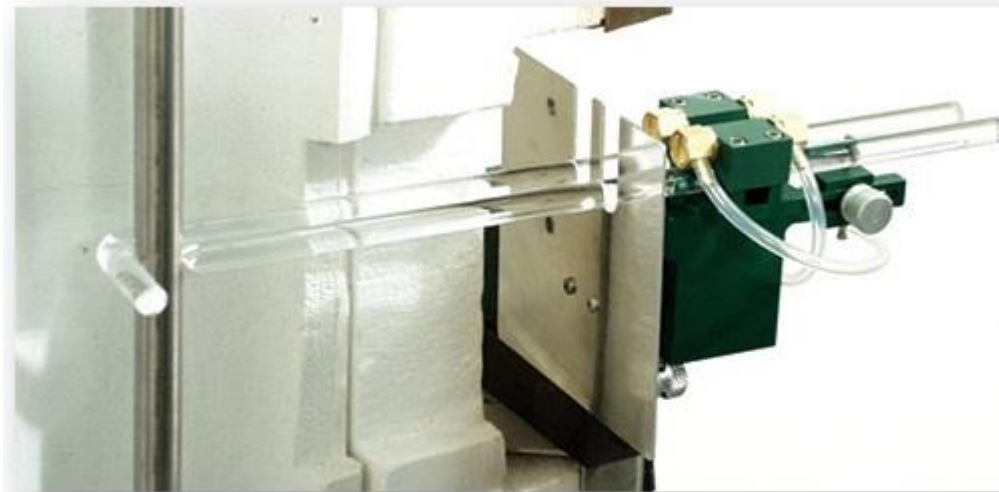
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High temperature extensometers

Main features of type 3580

Accuracy class according to EN ISO 9513: 0.5
Measuring range: ± 0.5 , ± 0.75 , ± 1.5 , ± 2 or ± 5 mm
Linearity error including hysteresis: < 0.15 mm
Operating temperature: $- 40$ °C up to $+1000$ °C
Dimensions range for round specimens: 4.5 - 16 mm



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High temperature extensometers

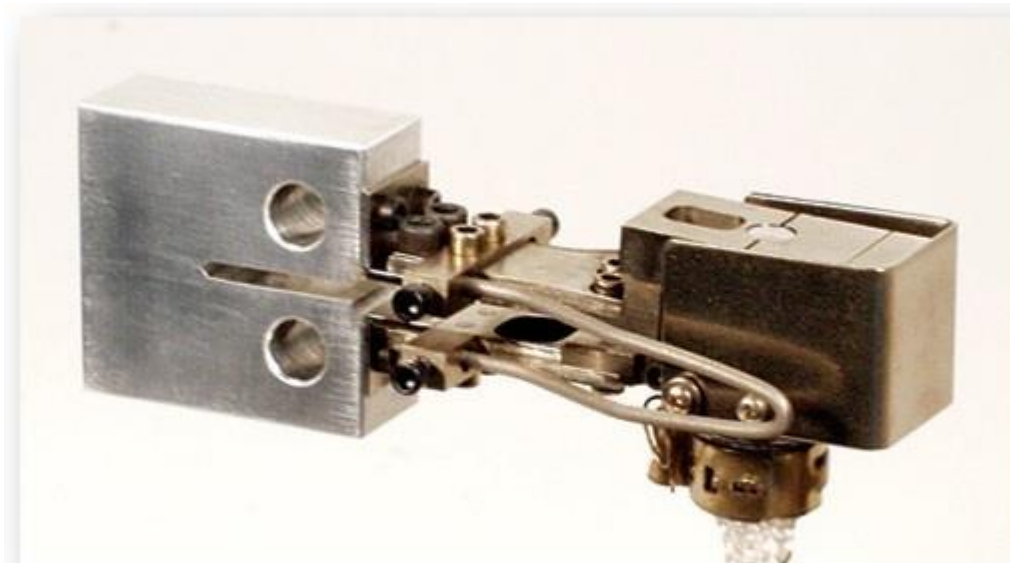
Main features of type 3641

Standard initial gauge length: 3, 6, 10, 12, 12.5 mm

Measuring range: +3, +6, +10, +12 or +12.5 mm

Linearity error including hysteresis : < 0.10%

Operating temperature: up to 540°C



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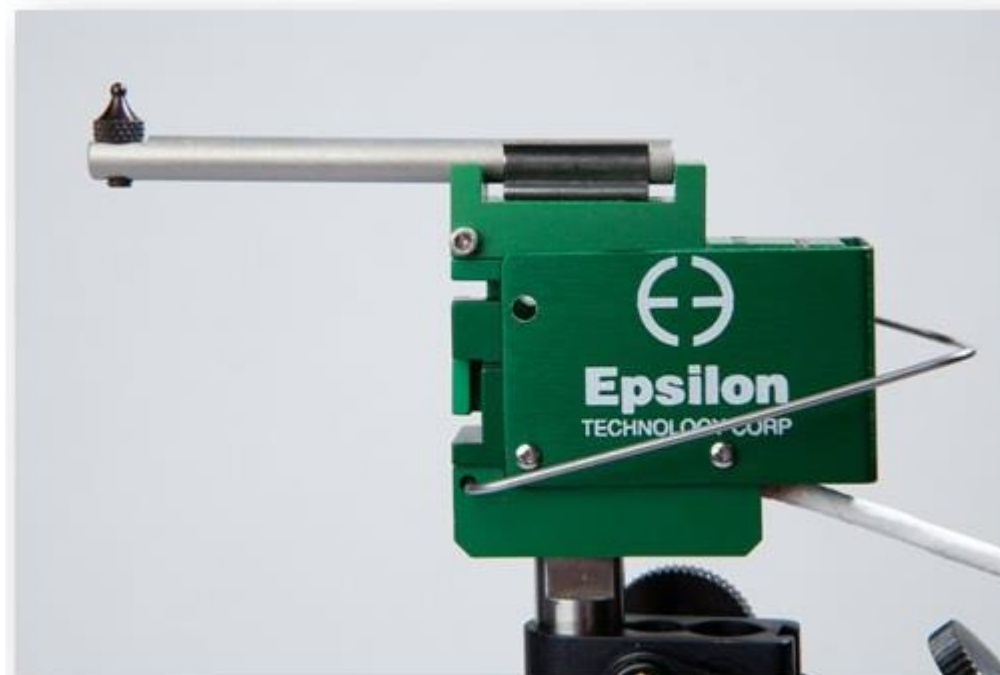
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Measuring probes

Main features of type 3540

Measuring range: 1, 4, 6, 12, 25, 50 mm
Linearity error including hysteresis: $< 0.25\%$
Operating temperature: -265°C up to $+200^{\circ}\text{C}$



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Measuring probes

Main features ESSA SM

Measuring range: 12,5; 30,5; 50,5 mm

Accuracy: $\pm 1 \mu\text{m}$

Degree of covering: IP40



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Measuring probes

Main features of Heidenhain CT

Measuring range: 12, 25, 30, 60, 100 mm

Accuracy: $\pm 0,1 \mu\text{m}$

Degree of covering : IP50



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Measuring probes

Main features of MFT

Measuring range: 4 mm

Linearity error including hysteresis: < 0.2%



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