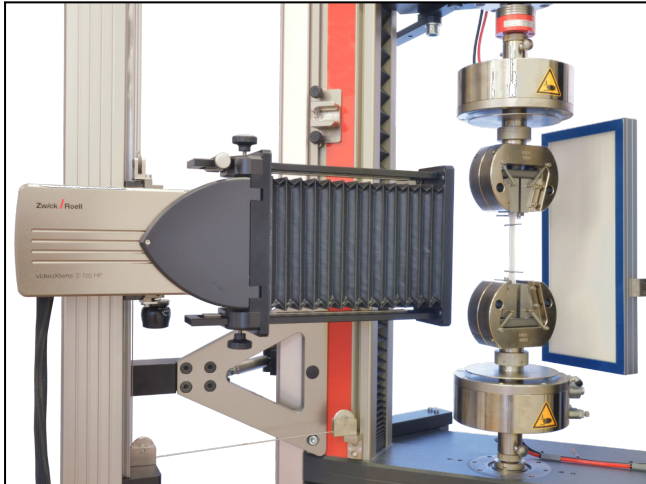


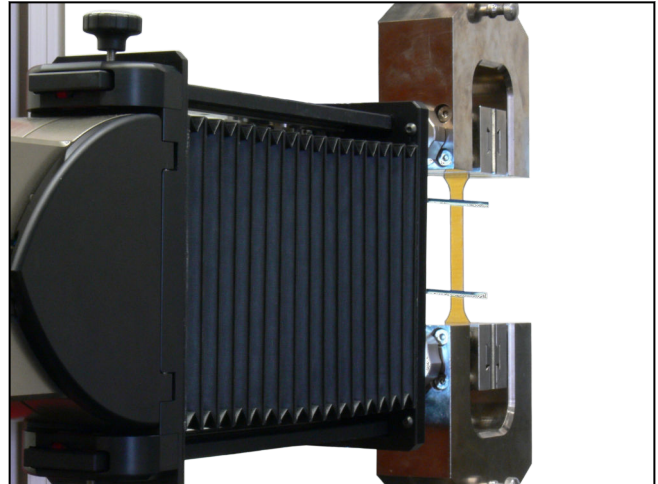
## Product Information

### videoXtens 2-120 HP

CTA: 208183 195877



videoXtens 2-120 HP



videoXtens 2-120 HP, tunnel

#### **videoXtens HP sets new standards in accuracy and reproducibility**

videoXtens HP is the perfect solution where international standards require high accuracy. Operator influence is virtually eliminated and consistent test results are assured.

videoXtens HP is a non-contact, high-resolution extensometer developed for tests which require maximum precision. Particular focus is on the following applications:

#### **Plastics applications**

- Testing on plastics to ISO 527-1, or ASTM D638 Compliance with the strict requirements for tensile modulus values to ISO 527-1, Annex C including exact measurement of the tensile modulus values (see representation on the next page)

#### **Fiber composites applications**

- Tensile tests on filament strands and laminates of fiber composites, e.g. to ISO 527-4/-5, ASTM D3039, ASTM D4018
- In-plane shear tests ( $\pm 45^\circ$  method)
- Tests up to break possible with no damage to extensometer, even with brittle-fracturing specimens

#### **High resolution and measurement accuracy**

- Calibration requirements for tensile modulus values to ISO 527-1, Annex C
- Accuracy class B1 to ASTM E83 from a gauge mark distance of 15 mm

- Accuracy class 0.5 to EN ISO 9513. ZwickRoell extensometers exceed the requirements of the standards and are calibrated over the entire measurement range to ISO 9513 in accuracy class 0.5.
- Highly accurate testing with ZwickRoell temperature chamber, even for determination of the tensile modulus to ISO 527-1

Since the system employs non-contact measurement, there is no influence on the material characteristic values. Operator influence is also minimized, ensuring consistent test results.

#### **Comprehensive range of functions**

- Automatic gauge-mark recognition and acquisition of initial gauge-length  $L_0$ .
- Exact synchronization of all measurement channels.
- Environmental influences (e.g. air currents, variations in lighting) minimized by the flexible bellows tunnel.
- Optimum, uniform specimen illumination by LEDs incorporated into the tunnel.
- Strain-controlled tests are possible.
- Specimens with structured surfaces can be measured via pattern recognition with no need for additional marks.
- The entire test sequence can be followed on-screen.
- Video capturing: Test recording synchronized with the measured curve for retrospective viewing of the test.
- Wear-free, and therefore low-maintenance system.

## Product Information

### videoXtens 2-120 HP

#### Large field of view through innovative technology

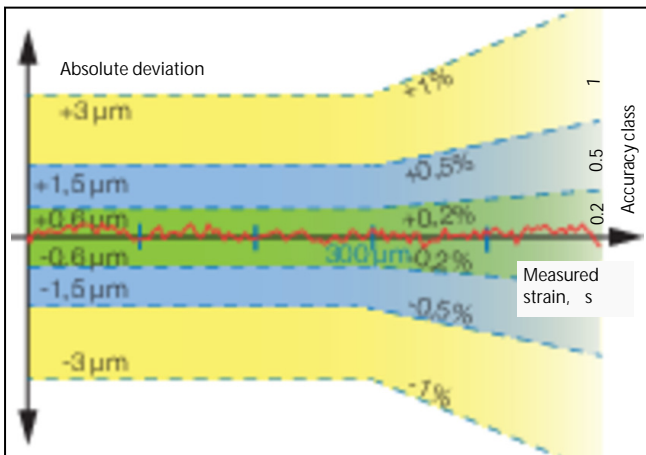
videoXtens HP includes two high-resolution cameras. Their overlapping fields of view are combined into one large field via ZwickRoell array technology. Markings leaving the field of view of one camera are automatically transferred to that of the next camera. This provides a greater field of view with high resolution.

The flexible tunnel can be extended or retracted to suit individual requirements. By minimizing environmental influences it creates the conditions required for a low-noise signal.

#### Maximum accuracy measurement of tensile modulus only to ISO 527-1 on plastics

ISO 527 initially requires accuracy class 1 to ISO 9513 for the extensometer. This is satisfied when a relative display deviation of  $\pm 1\%$  or an absolute display deviation of  $\pm 3 \mu\text{m}$  is achieved, depending on which value is greater (see graph).

CTA: 195791



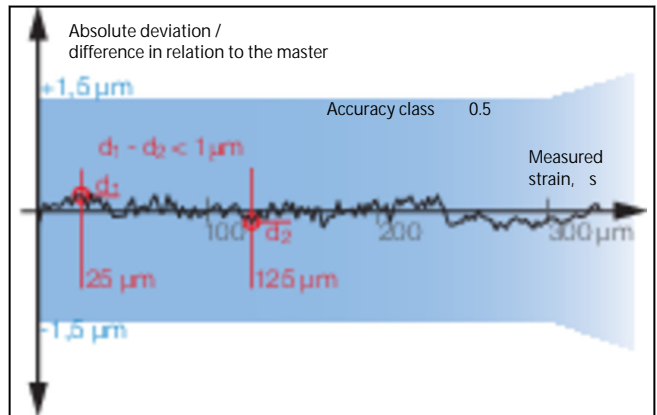
In accuracy class 0.5 the display deviations must fall within the blue funnel, in accuracy class 1 in the yellow

To comply with ISO 527-1, including the determination of the tensile modulus, significantly higher requirements apply. These are fully met by the videoXtens 2-120 HP: The tensile modulus is determined at strains of 0.05% and 0.25% of the initial gauge length. According to the standard this change in gauge length must be measured to an accuracy of 1%.

Example: With an initial gauge length of 50 mm the strain is measured at 0.05% = 25  $\mu\text{m}$  and 0.25% = 125  $\mu\text{m}$ . The change in gauge length from 125  $\mu\text{m}$  – 25  $\mu\text{m}$  = 100  $\mu\text{m}$  must be measured to an accuracy of 1% = 1  $\mu\text{m}$ .

The videoXtens 2-120HP also meets this requirement in the ZwickRoell temperature chamber.

CTA: 195798



Example with videoXtens 2-120 HP: Measured strain: 124.8  $\mu\text{m}$  – 25.3  $\mu\text{m}$  = 99.5  $\mu\text{m}$  deviation 0.5  $\mu\text{m}$  / 100  $\mu\text{m}$  = 0.5% of the target strain conclusion: the standard requirement is met.

Type	videoXtens 2-120 HP	
Item No.	1034953	
Field of view (FOV)		
With test area width 440 mm [AllroundLine] and zwickiLine	Min. 120 x 50	mm
With test area width 640 / 1040 mm [AllroundLine]	Min. 140 x 60	mm
Initial gauge length		
With test area width 440 mm [AllroundLine] and zwickiLine	5 ... 100	mm
With test area width 640 / 1040 mm [AllroundLine]	5 ... 110	mm
Measurement displacement, max.		
With test area width 440 mm [AllroundLine] and zwickiLine	110 - initial gauge length	mm
With test area width 640 / 1040 mm [AllroundLine]	130 - initial gauge length	mm
Measurement travel, max. at 50 mm initial gauge length		
With test area width 440 mm [AllroundLine] and zwickiLine	60 (120 % strain)	mm
With test area width 640 / 1040 mm [AllroundLine]	80 (160 % strain)	mm

All data at ambient temperature.

Subject to change in the course of further development.

## Product Information

### videoXtens 2-120 HP

Type	videoXtens 2-120 HP	
Item No.	1034953	
Measurement travel, max. at 75 mm initial gauge length		
With test area width 440 mm [AllroundLine] and zwickiLine	35 (45 % strain)	mm
With test area width 640 / 1040 mm [AllroundLine]	55 (75 % strain)	mm
Resolution at ambient temperature	0.15	µm
Resolution to ISO 9513 in the ZwickRoell temperature chamber		
At -40 ... +250 °C	Max. 0.4	µm
At -55 °C	Max. 0.6	µm
At > +250 ... +360 °C	Max. 0.5	µm
Frame rate / measured-value acquisition rate, max.	500	fps / Hz
Test speed, max.	1000	mm/min
Dimensions		
Height	250	mm
Width	375 ... 625	mm
Depth	91	mm
Tunnel length, starting at reference plane	90 ... 340	mm
Specimen thickness	0 ... 20	mm
Weight, incl. tunnel, approx.	10	kg
Accuracy class		
To EN ISO 9513	0.5	
To ASTM E83	B1 from gauge length 15 mm	
Scope of delivery		
Measuring head with 2 digital cameras including 2 lenses		
Tunnel for minimizing negative environmental conditions (e.g. air currents) with integrated LED illumination		
Software for image acquisition and evaluation		
accessory case with alignment and marking aids		
INC module (for tC: RS module)		

#### Accessories required

##### Basic packages (1x required)

A basic package is required for the installation of testXpert III and operation of the laserXtens or videoXtens. When working with testXpert III, we recommend a second monitor.

Description	ArticleNumber
Basic package Windows 10 / 64 bit quad-core, includes multilingual PC workstation with Windows 10 / 64 bit quad-core processor, 23" TFT monitor, graphics card for support of two monitors, USB expansion card, RS232; testXpert III installation incl. software for laserXtens / videoXtens	<b>1097528</b>

##### Mounting (1x required)

Mounting involves connection to the crosshead. This allows videoXtens to track at half crosshead speed, keeping the testing operation automatically in focus and making optimum use of the measuring range.

Description	ArticleNumber
<b>videoXtens mounting on AllroundLine testing machine</b>	

## Product Information

### videoXtens 2-120 HP

Description	ArticleNumber
Rigid mounting kit at <u>45° front left</u> on AllroundLine table-top & floor-standing testing machines with connection to crosshead	<b>1032724</b>
Rigid mounting kit at <u>45° rear left</u> on AllroundLine table-top & floor-standing testing machines with connection to crosshead Required for mounting with temperature chamber	<b>1032726</b>
<b>videoXtens mounting on zwickiLine testing machine</b>	
Rigid mounting kit at 90° left on zwickiLine, <u>with support on table</u> and connection to crosshead	<b>1047180</b>
Rigid mounting kit at 90° left on zwickiLine, <u>with support on floor</u> and connection to crosshead	<b>1071005</b>

### Optional accessories

#### Accessories for specimen marking

Description	ArticleNumber
Gauge marks (strips) for room temperature (+10 to +35°C), self-adhesive, 100 pieces	<b>353379</b>
Gauge marks (strips) for temperature range -55 to +250°C), self-adhesive, 100 pieces	<b>077061</b>
Gauge marks (black dot on white background) for temperature range -55 to +250°C), self-adhesive, 100 pieces	<b>1015510</b>
Marker pen for temperature range -40 to +250°C	<b>077062</b>
Stencil for marking plastic specimens	<b>010406</b>
Stencil for marking metal specimens	<b>010407</b>
Marking spray for applying a pattern to the specimen	<b>057317</b>

#### Testing in temperature chamber

Can only be used with the current temperature chamber for AllroundLine testing machines form the Series portfolio Tunnel plus tunnel adapter required for tests in the ZwickRoell temperature chamber.

Description	ArticleNumber
Tunnel adapter for attaching videoXtens to ZwickRoell temperature chamber Magnetic tunnel adapter with sealing lip for attaching videoXtens to the temperature chamber glass module (viewing port).	<b>1047285</b>

#### Measuring plunger for determining deflection

Description	ArticleNumber
Measuring plunger for videoXtens for determining deflection, i.e. on plastics, fiber-reinforced composites, wood. Installation in ZwickRoell flexure test kit; measurement of deflection by adhering strip gauge marks; maximum height from upper edge of flexure table 99 mm; maximum measurement displacement 25 mm; temperature range -70 ... +200 °C. For this flexure test, we recommend a FOV of at least 30 mm and deactivation of the connection to the crosshead. Additional information in PI 395.	<b>1090625</b>

#### Measurement of change in width or transverse strain

Description	ArticleNumber
Transverse strain software option for acquisition of transverse strain/change in width. If change in width is to be measured on the specimen edges, a backlight is required.	<b>013582</b>

#### Software options

Description	ArticleNumber
Test re-run and strain distribution	<b>325932</b>

## Product Information

### videoXtens 2-120 HP

Description	ArticleNumber
testXpert II Version 3.4 or higher is required, for which a testXpert II Master Test Program or the option Export Editor (Item No. 374042) is needed.	
Option 2D DIC - Digital Image Correlation 2D DIC module for display and evaluation of strain conditions, fully integrated in testXpert III	<b>1018509</b>
Software option 2D dot matrix, for determination of local strains and inhomogeneities of a level specimen surface in 2 axes (2D), requires testXpert II Version 3.5 or higher. Note: For videoXtens systems with various cameras, only one camera is used for this function.	<b>077059</b>
Flexure test software option: Measurement of deflection with 3- and 4-point flexure tests, requires testXpert II Version 3.4 or higher. If deflection is to be measured on the specimen edges, a back-light is required. Note: For videoXtens systems with various cameras, only one camera is used for this function.	<b>077060</b>
videoXtens software package; applicable with videoXtens, not with ProLine videoXtens. Includes the software options: transverse strain software option, test re-run and strain distribution, 2D dot matrix, flexure test	<b>1028367</b>