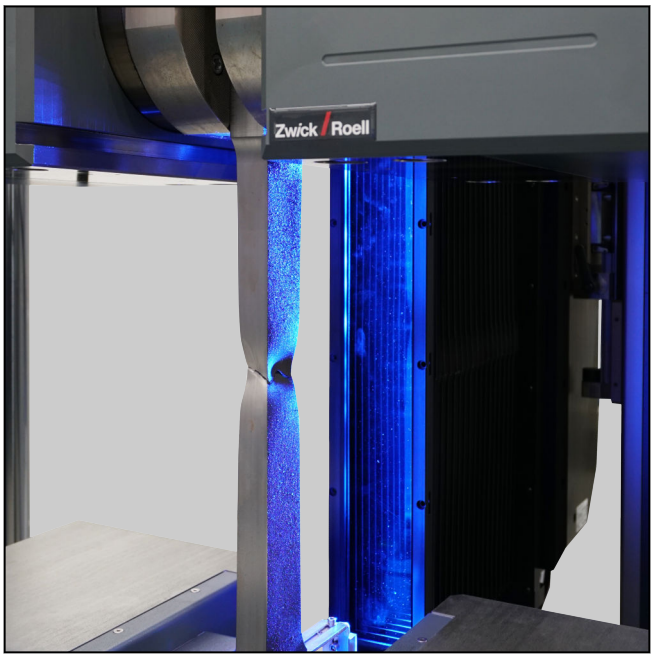
Product Information

videoXtens Array Systems: videoXtens L 3-320 P / HP, videoXtens L 4-460 P / HP, videoXtens L 6-680 P / HP

CTA: 267467 267468

videoXtens L 6-680 HP on Z2000E



Non-contact measurement without gauge marks: patented blue pattern technology

Applications

ZwickRoell's array technology is our versatile solution for high resolution in a wide measurement range.

By combining the patented array technology with blue contrast lighting, tests are achieved with 100% validity. The gauge length is automatically or manually shifted along the entire free specimen length into the area of the specimen break. Invalid tests, especially when the gauge length is signif icantly smaller than the grip-to-grip separation, are thereby eliminated.

Typical applications

videoXtens L 3-320 P

- Tensile tests on threaded fasteners to ISO 898-1 and ISO 6892-1

videoXtens L 3-320 HP

- Tensile tests on thin sheet metal to ISO 6892-1 A1 (strain rate control method) with change in width measurement
  Requirements: Class 0.5; Method A1; r-value
  Large specimens e.g. Le0 100 mm + 60% elongation

videoXtens L 4-460 P

- Tensile tests on concrete-reinforcing steel to ISO 15630-1
  Requirements: Class 1.0; Le0 = 5*d to 10*d
  Range of specimens from d = Ø 6 ... 40 mm
  Le0 from 30 mm … 400 mm (5 x Ø 6 … 10 x Ø 40)

videoXtens L 4-460 HP

- Tensile tests on heavy plate to ISO 6892-1 Method A1
  Requirements: Class 0.5 ; Method A1
  Large specimens e.g. Le0 205 mm + 50% elongation

videoXtens L 6-680 P

- Tensile tests on stranded wire to ISO 15630-3
  Requirements: Class 1.0
  Specimens Le0 500 mm + 13% elongation

videoXtens L 6-680 HP

- Tensile tests on stranded wire to ASTM A1061
  Requirements: Class 0.5 ; Method A1
  Specimens Le0 610 mm + 13% elongation
- Can also be used for tensile tests on single wires to ISO 6892-1 Method A1

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Specific benefits provided by a combination of ZwickRoell's array and blue pattern technologies

- Brittle-fracturing metal specimens can be tested up to the highest break forces without damaging the extensometer.
- The dust-proof housing protects against dust and flaking scale and cinder, and prevents misalignment.
- With the large, fully illuminated field of view, every point of fracture can be recorded. Therefore, when combined with the rerun or strain distribution function, no tests have to be discarded, even if the break occurs outside the original gauge length. This means: 100% of the tests are valid.
- The rerun function enables manual, subsequent shifting of the gauge length to the area of the break.
- The strain distribution function enables automatic live shifting of the gauge length around the area of the largest strain and thereby into the area of the break.
- The integrated blue contrast light provides optimal and homogeneous illumination of the entire specimen.
- Significant time and cost savings, especially when using the rerun or strain distribution function, since these allow the videoXtens to test the full specimen without using gauge marks.
- The videoXtens is fully integrated in testXpert III. The extensometer and the materials testing machine are controlled with a single software solution.

Benefits of the HP version

- Accuracy Class 0.5 to EN ISO 9513
- Strain rate control to ISO 6892-1 A

Function description

The videoXtens Array series contains 3, 4, or 6 high-resolution cameras for the measurement of axial extension. Their overlapping fields of view are combined into one large field of view via ZwickRoell's array technology. Markings leaving the field of view of one camera are automatically transferred to that of the next camera. This results in one large field of view with high resolution. The integrated blue contrast light illuminates the entire specimen.

The videoXtens Array HP series is equipped with an additional tunnel, which can be independently extended or retracted. By minimizing environmental influences, it creates the right conditions required for a low-noise measurement signal.

Measuring without gauge marks

Metal specimens have a surface texture or roughness. With the blue contrast light the texture of the specimen becomes visible enough to provide virtual gauge marks. A virtual gauge mark is an area on the specimen surface that is defined by the software. The pattern within this defined area is tracked during the test, which makes manual specimen marking unnecessary.

One of the prerequisites for measuring without gauge marks is a non-transparent specimen as well as a specific surface texture, such as milling grooves or cold or hot rolled surfaces. If these requirements are not met, measurement can be performed using markings. Distinct patterns on a specimen, such as ribs on concrete-reinforcing steel can be used as markings. An artificial pattern can also be easily applied with a pattern spray, which is optimal for strain distribution measurements.

r-value measurement option[1)]

- The additional camera for change-in-width measurement, including r-value determination (optional), always faces the center of the field of view, and therefore the center of the specimen.
- More precise determination of the change in width: the width is measured on the specimen exactly where it is initially set via the measuring lines, e.g. centered between the gauge marks. Up to ten measuring lines can be defined for the change-in-width measurement.

ISO 6892-1 Method A1

The videoXtens Array HP series has been released for closed loop strain rate control according to ISO 6892-1 Method A1 for gauge lengths from Le0 50 mm or 100 mm.

Mounting the videoXtens Array onto a high capacity machine

Stand-alone holder:

- Height-adjustable
- Low vibration, brittle-fracture protected through separate installation
- Two versions: with or without crosshead connection

1) r-value measurements can be carried out with the videoXtens 3-320 and the videoXtens 3-320 HP.

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Technical Data

videoXtens L	3-320 P	4-460 P	6-680 P	3-320 HP	4-460 HP	6-680 HP	
Item No.	3014494	3014499	3014501	3014498	3014500	3014502	
Resolution at ambient temperature	0.6	0.6	0.6	0.4	0.4	0.4	µm
Accuracy class							
To EN ISO 9513	1.0	1.0	1.0	0.5	0.5	0.5	
To ASTM E83	C	C	C	B1[1)]	B1[1)]	B1[1)]	

1) From Le0 15 mm

videoXtens L	3-320 P	4-460 P	6-680 P	3-320 HP	4-460 HP	6-680 HP	
Field of view (FOV)	320	460	680	320	460	680	mm
Number of cameras	3	4	6	3	4	6	
Initial gauge length (Le0)	5 ... 250	5 ... 400	5 ... 610	5 ... 250	5 ... 400	5 ... 610	mm
Measurement displacement, max.	FOV - Le0						
Frame rate / measured-value acquisition rate, max.	500						fps/Hz
Test speed, max.	500						mm/min
Specimen width or diameter	0 ... 90						mm
Dimensions							
Height	350	700	700	465	820	820	mm
Width	161	161	161	161	171	171	mm
Depth incl. tunnel	415	415	415		485 … 735		mm
Length of tunnel	-	-	-		50 … 300		mm
Weight	16	31	31	16	31	31	kg
testXpert minimum version	testXpert III v1.61						
r-value measurement	Option	-	-	Option	-	-	
Strain rate control							
0.00025 1/sec	-	-	-	Le0 > 50	Le0 > 50	Le0 > 50	
0.00007 1/sec	-	-	-	Le0 > 100	Le0 > 100	Le0 > 100	

Scope of delivery

Description
videoXtens Array series Measuring heads with digital cameras, lenses and blue contrast lighting Software for image acquisition and evaluation Accessories set for spray marking
videoXtens Array HP series See scope of delivery for videoXtens Array series Additional: Tunnel for minimizing negative environmental conditions (e.g. air currents)

1) The blue contrast light is guided through the tunnel. When used with a temperature chamber, the blue contrast light illuminates through the temperature chamber slot in the test area.

All data at ambient temperature.

Subject to change in the course of further development.

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Accessories required

Basic package (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 hexa-core Contains a multilingual workstation, incl. installation of testXpert III and software for laserXtens/videoXtens, 23" TFT monitor, graphics card for supporting two monitors, expansion card RS232 for testControl and Ethernet for testControl II	**1097527**

Stand-alone holder (1x required)

Mounted either with or without connection to the crosshead.

Description	ArticleNumber
Stand-alone holder incl. crosshead connection for ZwickRoell high-capacity testing machine With this connection the videoXtens tracks at half crosshead speed, automatically keeping the testing operation in focus and making optimum use of the measuring range.	**3014493**
Stand-alone holder without crosshead connection for ZwickRoell high-capacity testing machine The height of the extensometer is adjusted via a moving plate guided along the support leg.	**3014492**

Software (1x required)

Description	ArticleNumber
Test rerun and strain distribution testXpert II Version 3.4 or higher is required, for which a testXpert II master test program or the Export Editor (Item No. 374042) option is needed.	**325932**

Optional accessories

Software options

Description	ArticleNumber
2D digital image correlation option 2D DIC module fully integrated in testXpert III, for display and evaluation of strain conditions	**1018509**
2D dot matrix software option 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 multiple cameras, only one of the cameras is used for this function.	**077059**
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 backlight is required. Note: For videoXtens systems with multiple cameras, only one of the cameras is used for this function.	**077060**
videoXtens software package; applicable with videoXtens, not with ProLine videoXtens. Includes the software options: transverse strain software option, test rerun and strain distribution, 2D dot matrix, flexure test	**1028367**

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Hardware option

Description	ArticleNumber
Transverse strain camera hardware option for videoXtens 3-320 and videoXtens 3-320 HP Separate camera for highly accurate determination of change in width on the specimen edge, determination of the r value or of the transverse strain on the specimen surface, incl.: Software Field of view, (width x height): 65 x 80 mm at a system distance of 450 mm Field of view, (width x height): 80 x 100 mm at a system distance of 570 mm Scope of delivery: camera (mounting in videoXtens housing), lens (50 mm focal distance), installation kit and transverse strain software option. Accuracy class 1 Please note: backlight required for measurement on the specimen edge	**1043971**

Backlight

Backlight is used for flexure tests or for measuring change in width directly at the specimen edge.

Description	ArticleNumber
Backlight, 840 x 190 mm, incl. mounting arm, required for measurement at specimen edge	**013596**

SSD hard drive (1x required for test re-run option or 2D DIC in connection with multi-camera system)

Description	ArticleNumber
Additional SSD hard drive with very high lifespan and fast write speed for the 2D DIC option and the test re-run option	**1097529**