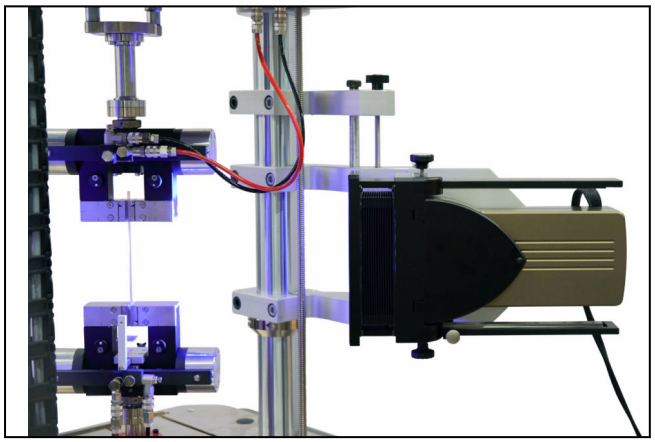
Zwick / Roell

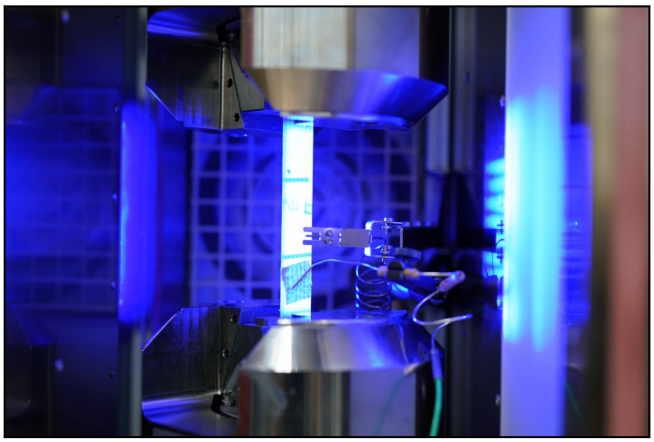
# Product Information

## videoXtens dynamic

CTA: 286900 286901



videoXtens dynamic 1-90 HP mounted on an LTM for testing films



videoXtens dynamic 1-90 HP testing composites in a temperature chamber.

**The videoXtens dynamic extensometer is best in class**

When testing fiber-reinforced composites, plastics and metals, conventional clip-on extensometers with knife edges can pre-damage the surface and thus influence the test results. The videoXtens dynamic is a non-contact, high-resolution measuring system that was developed for tests requiring the highest level of precision, even with low strain, and supports strain controlled testing up to 30 Hz and speeds of up to 1500 mm/s.

**Applications for fiber-reinforced composites**

Fatigue tests on fiber-reinforced composites to ISO 13003 and ASTM D3479 according to method B with constant strain amplitude.

**Applications for metals**

Strain controlled low cycle fatigue tests on metals to ASTM E606. Since specimens for these tests are often machined from components, specimen sizes can vary significantly. The freely adjustable L0 value of the videoXtens dynamic therefore provides a great advantage. Also strain controlled fatigue tests acc. to SEP 1240 with anti-buckling support is easy to perform, since there is no contact strain measurement interfering with the anti-buckling support on the specimen.

**Advantages and features**

- **The videoXtens dynamic leaves the specimen undamaged and enables sensitive specimens to be tested.** Strains on very soft specimens, such as films and foils, can also be determined in dynamic tests, since there is no influence of knife edges on the specimen surface.
- **Due to the high accuracy of the videoXtens dynamic, even applications with low strains or high frequencies can be measured reliably.** This enables low-cycle fatigue or composite tests to be performed in compliance with standards.
- **The videoXtens dynamic minimizes operator influence.** User errors are eliminated when positioning the extensometer and setting the initial gauge length.
- **Significantly shorter test times due to higher test frequencies.** The test time can be minimized because test frequencies of up to 30 Hz are possible for full acquisition of the strain hysteresis and up to 100 Hz for the acquisition of peak values.
- **Using one measuring system for both dynamic and static tests reduces conversion, calibration and training efforts.** The videoXtens dynamic can be used for dynamic and static tests on specimens with widely different initial gauge lengths.

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# Product Information

videoXtens dynamic

- **Can be used with all testing machines.** The videoXtens dynamic can be either fully integrated with ZwickRoell machines or it can be operated with third-party machines via an analog signal.
- **Mark-free measurement:** 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 CFRP. If these requirements are not met, measurement can be performed using markings.

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# Product Information

videoXtens dynamic

**Technical data**

basing in a test distance of 410 mm

| **Type** | **videoXtens dynamic 1-90 HP** | **videoXtens dynamic 1-45 HP** | |
|---|---|---|---|
| **Item No.** | **1121306** | **3015232** | |
| Typical applications | Composites, elastomers, films/foils, wires, … | Metals (low cycle fatigue) | |
| Field of view (FOV) | 90 | 45 | mm |
| Lens | 25 | 50 | mm |
| Initial gauge length (L0) | 5 … 85 | 5 … 40 | mm |
| Measurement travel, max. | FOV - L0 | FOV - L0 | mm |
| Specimen thickness | 0 … 20 | 0 … 20 | mm |
| Mark tracking speed | 1500 | 1500 | mm/s |
| Measuring frequency max. | | | |
| At ambient temperature and with gauge marks | 4000 | 4000 | Hz |
| At ambient temperature and without marks | 2000 | 2000 | Hz |
| with temperature chamber | 1000 | 1000 | Hz |
| Resolution at ambient temperature | | | |
| With a measuring frequency of 300 Hz | 0.15 | 0.07 | µm |
| With a measuring frequency of 2000 Hz | 0.49 | 0.43 | µm |
| Resolution with chamber from 25°C | | | |
| With a measuring frequency of 300 Hz | 0.2 + 0.02 / 10°C | 0.2 + 0.02 / 10°C | µm |
| With a measuring frequency of 1000 Hz | 0.45 + 0.05 / 10°C | 0.45 + 0.05 / 10°C | µm |
| Testing frequency, max. | | | |
| For strain control | 30 | 30 | Hz |
| For peak value measurement | 100 | 100 | Hz |
| With use of a temperature chamber | 10 | 10 | Hz |
| Initial gauge length to comply with ISO 527 | 25 | 20 | mm |
| Latency | <1 | <1 | ms |
| **Accuracy class to EN ISO 9513:2012** | | | |
| With a measuring frequency of < 2000 Hz | Class 0.5 | Class 0.5 | |
| **Accuracy class to ASTM E83-10** | | | |
| With a measuring frequency of < 2000 Hz | Class B1 | Class B1 | |
| **Additional information** | | | |
| testXpert R minimum version for dynamic tests | testXpert R V6.0.0 | testXpert R V6.0.0 | |
| testXpert III minimum version for static tests | testXpert III V1.8 | testXpert III V1.9 | |
| Weight, incl. tunnel | 10 | 10 | kg |

All data at ambient temperature.

Subject to change in the course of further development.

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videoXtens dynamic

| Type | videoXtens dynamic 1-90 HP | videoXtens dynamic 1-45 HP | |
|---|---|---|---|
| **Item No.** | **1121306** | **3015232** | |
| **Dimensions** | | | |
| Height | 250 | 250 | mm |
| Width | 375 … 625 | 375 … 625 | mm |
| Depth | 91 | 91 | mm |
| Tunnel length, starting at reference plane | 90 … 340 | 90 … 340 | mm |
| **Scope of delivery** | Measuring head incl. lens<br>Tunnel for minimizing negative environmental conditions (e.g. air currents) with integrated LED illumination<br>ncXtens R software license<br>Accessory case with alignment and marking aids | | |

**Accessories required**

**PC station (required)**

To install ncXtens R software and operate the videoXtens dynamic, you need a basic PC package:

If a computer is already being used to operate testXpert R and/or testXpert III software, it can also be used for ncXtens R and a second computer is not required.

| Description | ArticleNumber |
|---|---|
| HP ELITEDESK 800 G9, Win 11 Pro 64-bit | **1130954** |

**Mounting (required)**

For mounting purposes, a bracket is used for connection to the machine columns:

- Mounting to the column of the test frame at 45°
- Standard mounting position rear left
- The test distance described below applies with or without ZwickRoell temperature chamber

| Description | ArticleNumber |
|---|---|
| Mounting to HC10/25 and LTM1 up to 10<br>Test distance: 410 mm | **3004847** |
| Mounting to HC50/100<br>Test distance: 410 mm | **3009604** |
| Mounting to HA/HB 50 and 100<br>Test distance: 410 mm | **3007079** |
| Mounting to HA/HB 250<br>Test distance: 570 mm | **3007076** |
| Mounting to HA/HB 500<br>Test distance: 570 mm | **3007077** |
| Mounting with stand / Decoupled from testing machine | **3015233** |

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# Product Information
videoXtens dynamic

## Optional accessories
### Marking (optional)

| Description | ArticleNumber |
|---|---|
| Gauge marks (strips) for ambient temperature +10 ... + 35 °C, self-adhesive, 100 pieces | **353379** |
| Gauge marks (strips) for temperature range (-55 ... +250 °C, self-adhesive, 100 pieces | **077061** |
| Gauge marks (black dot on white background) for temperature range -55 ... +250 °C, self-adhesive, 100 pieces | **1015510** |
| Marker for temperature range -40 ... +250 °C | **077062** |
| Marking template for plastic specimens | **010406** |
| Marking template for metal specimens | **010407** |

### Additional lens (optional)
The videoXtens dynamic is already supplied with an lens as standard: the model 1-45 HP with the lens for FOV=45mm and the model 1-90 HP with the lens for FOV=90 mm.

One lens can be exchanged with the other, e.g. the lens with FOV=90 mm can be installed in the videoXtens dynamic 1-45 HP to be able to measure longer samples. For this, the objective must be purchased additionally and it must be ensured that the videoXtens dynamic has been calibrated for the respective objective.

| Description | ArticleNumber |
|---|---|
| Lens FOV=45 mm for videoXtens dynamic 1-90HP<br>Testing distance 410 mm | **1123647** |
| Lens FOV=90 mm for videoXtens dynamic 1-45HP<br>Testing distance 410 mm | **1123648** |

### Testing with temperature chamber (optional)
A tunnel adapter is required for testing with a ZwickRoell temperature chamber:

| Description | ArticleNumber |
|---|---|
| Magnetic tunnel adapter for connecting videoXtens dynamic to ZwickRoell temperature chamber glass module (viewing window). | **1047285** |

### Retrofitting a videoXtens dynamic on an existing testing machine
### a) Retrofitting on a ZwickRoell machine

To retrofit a ZwickRoell machine, you will need a videoXtens dynamic device including the standard scope of delivery and the required accessories (mount and PC station). On the machine side, you must ensure that the minimum compatible software versions testXpert III V1.9 and testXpert Research V6.0.0 as well as testControl II electronics are used.

### b) Retrofitting on third-party machines

The videoXtens dynamic is connected to a third-party machine via an analog signal. An additional DA converter is required for this. The resulting increase in latency is negligible. If required, we offer a stand mount for attaching the videoXtens dynamic to the external machine.

| Description | ArticleNumber |
|---|---|
| DA converter for videoXtens dynamic | **1123649** |
| Mount with stand / decoupled from testing machine | **3015233** |