Product Information

Displacement Transducers F15, F25 and F50 for Compression and Flexure Tests

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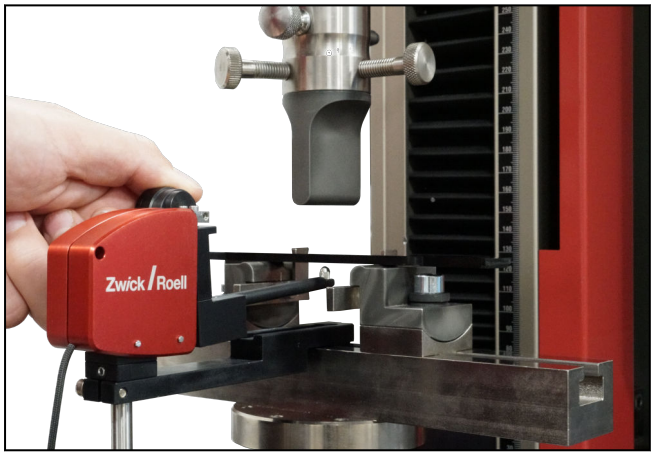
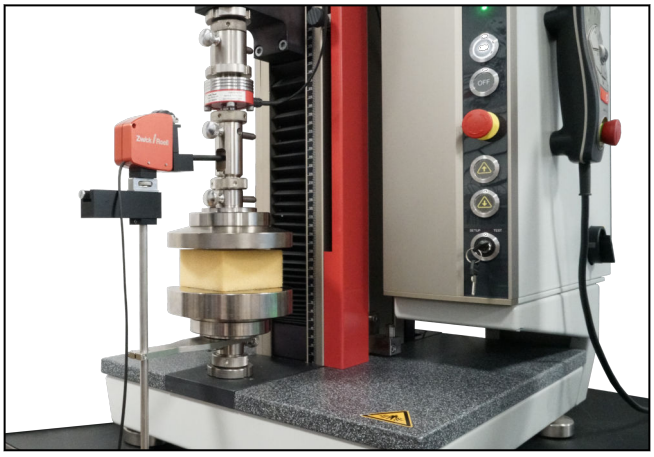


ZwickRoell displacement transducer, 3-point flexure test



ZwickRoell displacement transducer with compression test

Determine deflection, deformation and setting behavior with reliability and accuracy

A very important factor in obtaining reliable test results is to ensure minimum influence of the displacement transducer on the test. The ZwickRoell displacement transducer ensures reliable test results through secure attachment, precise axial alignment and tracking, and a small increase in contact force that does not affect the test process or the test results.

The displacement transducer measures with high accuracy, independent of the test temperature. All temperature-related accuracy deviations are automatically compensated in every ZwickRoell testing machine.

Advantages and features

Reliable test results based on application-oriented design

- Accuracy class 1 to ISO 9513 (guaranteed accuracy of ± 1% of the measured value) and accuracy class B2 to ASTM E83 (based on 50 mm gauge length).
- The ZwickRoell displacement transducers meet these accuracy requirements for tests at ambient temperature and in an expanded temperature range.
- Reproducible test results through an exact, identical measuring position after the sensor arm has been locked, therefore preventing unnoticed measurement errors.
- The change in contact force during the test is minimal.
- Deformation effects from the load frame and load cell are excluded. The displacement transducer is directly mounted onto the flexure table or the compression platen.
- High accuracy in the temperature chamber: temperature-related accuracy deviations are compensated.

Easy handling and overload protection

- Easy attachment and detachment, minimal operator influence.
- In the event of an overload, the sensor arm mechanically releases, protecting the displacement transducer from possible damage.

The displacement transducers cover a variety of applications

- 3- and 4-point flexure tests: The displacement transducers can be combined and retrofitted with any ZwickRoell flexure table. When combined with the ProLine, you have an economical and efficient system for standard-compliant testing.
- Compression tests (only F15) such as deformation testing on seals and components and setting behavior on rubber and elastomers: The deformation and the setting behavior are measured exactly in the test axis (without parasitic deformation influences), based on the use of special connectors with measurement opening.

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- Component testing: With a mechanical interface, the displacement transducers can, for example, be attached to a measuring tripod—even in upside down position—in order to perform component tests.
- Tests at temperature: In combination with the AllroundLine, all displacement transducers can be used in the temperature chamber (-70 ... + 200 °C). Easy handling and high accuracy are guaranteed.

Applications

- Flexure test on
  Plastics: to ISO 178, ASTM D790
  Fiber-reinforced composites: ISO 14125, EN 2562, ASTM D7264, ASTM D4476, ASTM D6272
  Sandwich composites: ASTM D7249
  Wood: DIN 52186 (3- or 4-point flexure test), ISO 3133, EN 310, ASTM D3043
- Compression test
  Setting behavior on rubber and elastomers: to ASTM D575, ISO 7743, ISO 815, ASTM D395, ASTM D1229
  Testing of components such as seals or dampers

Three versions: Displacement transducer F15, F25, F50

The analog displacement transducer measures on the basis of strain gauges and is available in versions F15, F25 and F50 with different measurement displacement ranges: 15, 25 or 50 mm.

The F15 displacement transducer is primarily used for flexure tests on plastics and compression tests on rubber or elastomers. For flexure tests on fiber-reinforced composites, sandwich composites, or wood, the F25 and F50 displacement transducers are more commonly used. All three versions can be used when testing components for which the displacement transducer is set on a measuring tripod.

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Technical data

Displacement transducer for the ProLine, AllroundLine or zwickiLine materials testing machine

Type Item No.	Displacement transducer F15 1090621	Displacement transducer F25 1091765	Displacement transducer F50 1091766	
Dimensions				
Height	116	221	311	mm
Width	65	65	65	mm
Depth	37	37	37	mm
Measurement displacement	15	25	50	mm
Contact force, min.	0.06	0.18	0.09	N
Spring rate	0.0106	0.0057	0.0024	N/mm
Accuracy class				
To ISO 9513	1	1	1 from 0.5 mm	
To ASTM E83 (based on: 50 mm gauge length)	B2	B2	B2	
Ambient temperature	-70 ... +200	-70 ... +200	-70 ... +200	°C
Minimum version	testXpert III V 1.6	testXpert III V 1.6	testXpert III V 1.6	
Weight	120	126	126	g
Compression test option	Available	Not available	Not available	
Scope of delivery				
Displacement transducer	1	1	1	piece(s)
Storage case	1	1	1	piece(s)

The displacement transducers can be used in the 600 mm wide temperature chamber; the F15 and F25 displacement transducers can also be used in the 400 mm wide temperature chamber.

Here you need either a USC or DCSC module.

Attachment options: The flexure transducers can be attached to the flexure table via a holder, onto the compression platens with a connection set, or directly to a measuring tripod when testing components.

Accessories required

Only required for attachment to the flexure table when performing flexure tests.

Holder for ZwickRoell displacement transducer

Description	ArticleNumber
Holder for displacement transducer F15	**1098737**
Holder for displacement transducer F25	**1098738**
Holder for displacement transducer F50	**1098739**

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Optional accessories

Compression test option: deformation measurement on components and determination of the setting behavior

By using a compression platen connection set with measurement opening, the F15 displacement transducer can be centrally inserted in the measurement axis for compression tests.

Applications: compression test, for example, deformation measurement on components and determination of the setting behavior on rubber and elastomers to ASTM D575, ISO 7743, ISO 815, ASTM D395 and ASTM D1229.

These connection sets are used to connect the F15 displacement transducer to compression platens. It includes a connector with a measurement opening, which allows measurements to be centered in the test axis. With this measurement arrangement, deformations of the load frame and the load cell are excluded from the measurement. Additionally included are the attachment and a carriage with which the displacement transducer is safely guided to the exact measuring position.

Description	ArticleNumber
Ø 20 mm connection set for compression tests	**1090622**
Ø 36 mm connection set for compression tests	**1090623**
Ø 60 mm connection set for compression tests	**1090624**

Suitable for round standard compression platens, Ø 90 mm, Ø 136 mm, Ø 150 mm and Ø 200 mm.

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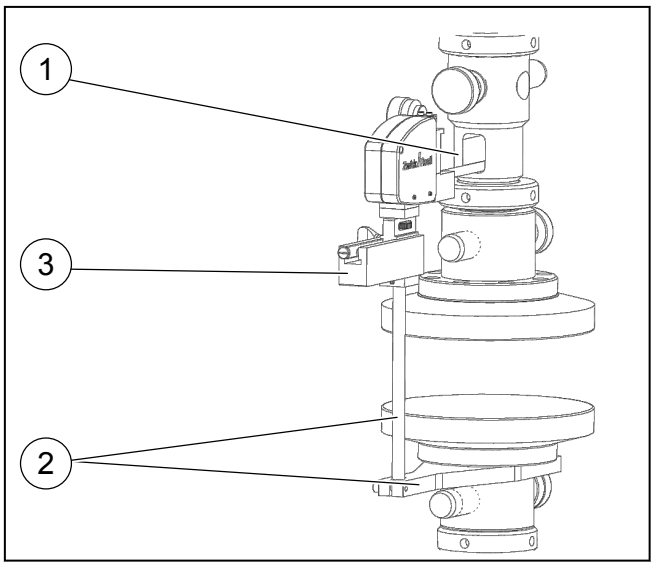

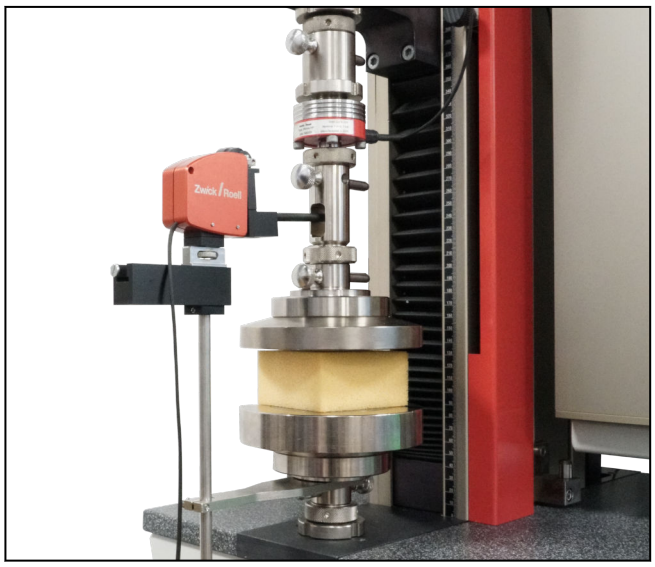

Each connection set contains three elements:

1 Connector with measurement opening for insertion of F15 displacement transducer

2 Attachment, to secure to the test axis

3 Carriage, with which the displacement transducer is guided to the measuring position.

All data at ambient temperature.

Subject to change in the course of further development.