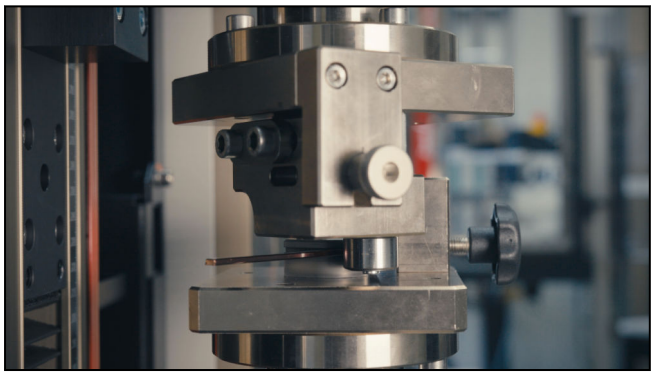
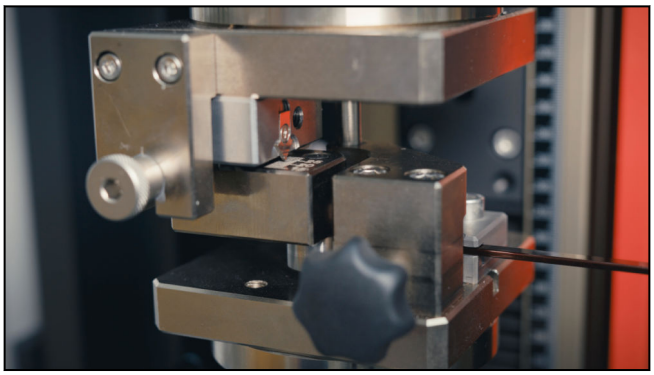
Zwick / Roell

Product Information

Fixture for Tests on Rectangular Coated Copper Wires (Hairpins)

CTA: 336141 336142





Rectangular copper wires referred to as hairpins are often used in windings in electrical machines such as motors and transformers. They enable a compact design and efficient energy density, since they save space and at the same time offer good electrical conductivity. A torsion testing machine can be used to simulate the winding technology and evaluate both the mechanical properties of the wires and the influence of process parameters.

Advantages and features

- Maximum stiffness ensures very accurate high rotation angle measurement resolution over the entire torque range.
- High resolution of high rotation angle measurement resolution
- Fully integrated and easily adaptable test sequence. This minimizes error influences and saves on both time and costs.
- Large parameter space to be analyzed, which includes both the torsion/bending process and the elastic recovery of the wire
- Safety device with electromechanical guard locking (CE compliant)

The hairpins are formed until a defined angle of rotation is reached. The rotational speed is variable and can be adjusted to the real process. The torque is measured continuously during rotation. Subsequently, a rotation in the opposite direction is performed to measure the elastic recovery.

The fixture for tests on hairpins is characterized by the following technical data:

Lower mount

- Mounting of hairpin via die and clamping screw
- Bending radius is specified by the die (variable)
- Die can be adjusted via spacer plates depending on the hairpin cross-section (min. 2.5x2.2 mm; max. 6x4.2 mm; WxH)
- Mount for mandrel via support block

Upper test tool

- Roller Ø19 mm, adjustable in the radius of the test tool in the range of 16...28 mm (distance between the axes) via adjustment screw
- Design distance: 23 mm

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The following machine configuration is recommended as a basis for testing hairpins (zwickiLine 2.5 kN)

Description	ArticleNumber
zwickiline Z2.5 TN+, tC II, 3000mm/min	**1039527**
Enlarged base for zwickiLine with torsion drive	**1041715**
Ethernet switch for 10/100/1000 Mbit (RJ45)	**1026425**
Emergency stop link, tC II	**1023870**
Safety door link tCII	**1041273**
Alignment fixture for axial offset and angle correction, 5 kN	**3006208**
Adjustment rod for alignment fixture	**3006211**
Fixture for tests on hairpins	**3023423**
Safety device, zwicki TN, TORSION, swivelable, electrical interlock, guard lock	**1118445**
Option for increasing rotational speed for torsion drive	**063785**
Xforce HP, nominal force 2.5kN, torsion	**069532**
Torque transducer 20 Nm	**069542**
tXp III basic program	**1035153**
tXp III Master test program Axial/Axial/Torsion	**1042145**
tXp III test program correction curve/calibration, torsion	**1042159**
CE marking and declaration of conformity (UP)	**039477**
Documentation	**347186**