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Instruction Manual

version 1.0 dated 24.06.2009

ZCT 2160 Cross-cut templet



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Enclosures:

- Certificate of manufacturer

Exclusion of liability

Illustrations, descriptions as well as the technical specification conform to the instruction manual at hand at the time of printing. All changes resulting from technical progress, modified construction or similar are reserved.

The instruction manual has been drafted with the utmost care. Nevertheless, errors cannot be entirely excluded. The manufacturer will not be liable for errors in this instruction manual or for damages resulting from any errors.

The manufacturer will be grateful at any time for suggestions, proposals for improvement and references to errors.

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1. Safety precautions and warnings

1.1 Dangers



Caution !

You will find this caution symbol throughout this instruction manual, where you may run the risk of minor or fatal injury caused by the inappropriate operation of this instrument.

Please observe these regulations and use caution in these cases. Pass on all safety precautions to other users. Besides the safety indications in this manual the user must have consideration for general safety precautions.



Note

This symbol marks instructions you should take notice of in order to follow directions, specifications and the correct working process as well as to avoid damage or destruction of the instrument.

1.2 Notes regarding safety work



The cuttings of the NT-Cutter are sharpened and could cause injuries by incorrect handling! Operators need to achieve an appropriate security instruction.



The ZCT 2160 is solely for the determination of the adhesion of single or multi-coat systems. Any other application is not in accordance with the regulations. The manufacturer is not liable for damage resulting from inappropriate application. The user bears the full responsibility.



Only spare parts and optional components provided by the manufacturer may be used in combination with the ZCT 2160. If components other than provided by ZEHNTNER are used with the ZCT 2160, there is no guarantee by ZEHNTNER for resulting damages, defects or malfunctions.



Unauthorised modifications and changes of the ZCT 2160 are not allowed. These will invalidate the guarantee. The manufacturer is not liable for damages resulting from unauthorised modifications; the user bears the full responsibility.

2. Delivery of apparatus

2.1 Damages during carriage

During carriage the ZCT 2160 is to be handled with the usual care. To ensure carriage without damages the device is to be transported in the original packaging and under normal freight conditions. Pushes during carriage are to be avoided.

At the receipt of the goods, you have to check if there are any visible damages at the outer packaging. If the packing is alright, you can sign the receipt documents. If you even suspect by your visual impression that damage has occurred, make a note of the suspected damage on the delivery receipt or freight papers and get the carrier to sign it. Moreover, the forwarding agent/courier service must be held responsible for the damage in writing.

If a hidden damage is discovered while unpacking, you have to inform and must held the forwarding agent / courier service immediately in the following way: "When opening the parcel we had to notice that etc. etc." This superficial checking of the goods has to be done before the time limit of the forwarding agent / courier service expires which is normally within 7 days. However, the period could be less. Hence, it is recommended to check the exact time limit when receiving the goods.

If there are any damages inform also immediately your authorized ZEHNTNER trader or Zehntner GmbH Testing Instruments directly.

2.2 Standard delivery

The following parts are included in the delivery:

Article No.: 2160.123K:

- 3 Cross-cut templets with 1 mm, 2 mm and 3 mm cut spacing
- 1 NT-cutter with 9 mm width of edge
- 1 Roll adhesive tape (length: 22 m, width: 25 mm)
- 1 Certificate of manufacturer
- 1 Carrying case

Article No.: 2160.123G:

- 3 Cross-cut templets with 1 mm, 2 mm and 3 mm cut spacing
- 1 NT-cutter with 9 mm width of edge
- 1 Brush
- 1 Magnifier
- 1 Roll adhesive tape (length: 22 m, width: 25 mm)
- 1 Certificate of manufacturer
- 1 Carrying case



The cuttings of the NT-Cutter are sharpened and could cause injuries by incorrect handling! Operators need to achieve an appropriate security instruction.

2.3 Options

- ACC041 Magnifier
- ACC042 Brush
- ACC163 Adhesive tape (1 roll of 22 m, width 50 mm)
- ACC183 Adhesive tape (1 roll of 65 m, width 25 mm)

3. Handling

- Place the templet on the substrate under test and hold the templet in such way that the cuts always are executed away from the body and from the hand holding the templet! Never hold the templet at the sides of the slits!



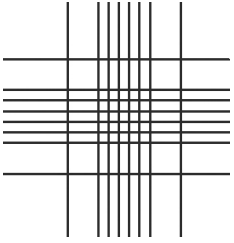
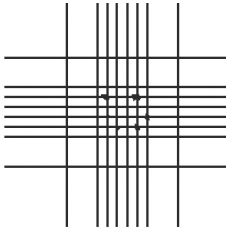
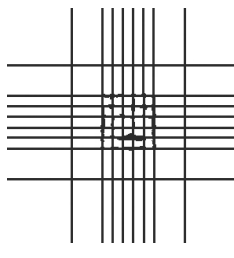
Do not to put the fingers directly at the cuts and pay attention not to cut yourself. The cuttings of the NT-Cutter are sharpened and could cause injuries by incorrect handling! Operators need to achieve an appropriate security instruction.

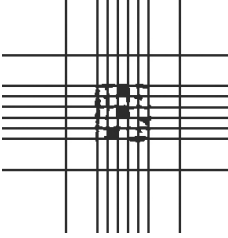
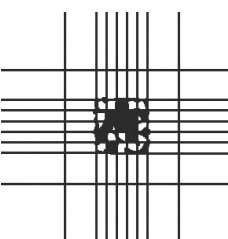
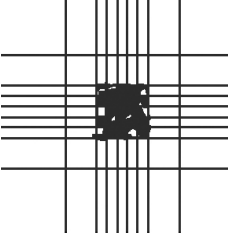
- Carry out six (ASTM 1 mm: 11 cuts) parallel cuts with the desired spacing by cutting through the film to the substrate in one steady motion.
- Turn the templet for 90° and make the same number of cuts with the same spacing again that a lattice pattern is formed.
- Brushing lightly back and forth with the brush (ASTM: or cloth) along the diagonal of the cross-cut a couple of times.

Additional adhesive tape test (not for smooth substrates for DIN EN ISO):

- Remove two complete laps of tape and discard.
- Remove an additional length at a steady rate and cut a piece about 75 mm long. Stick the piece adhesive tape on the cut area. Rub the tape firmly by finger.
- Within 5 minutes (ASTM: 90 s ± 30 s) remove the adhesive tape carefully and steady by seizing the free end and pulling it rapidly back upon itself within approx. 0,5 to 1 s in an angle of 60° (ASTM: as near as 180° as possible) in the pulling direction.
- (DIN EN ISO: keep the adhesive tape for comparative purposes, e.g. by sticking it on a transparent film.
- Check the results with the chapter “4 Overview - Cross-cut classification” on page 7.

4. Overview - Cross-cut classification

cross-cut	according to EN ISO 2409	according to ASTM D 3359
	<p>0: The edges of the cuts are completely smooth, none of the squares of the lattice is detached.</p>	<p>5B: The edges of the cuts are completely smooth; none of the squares of the lattice is detached.</p>
	<p>1: Detachment of small flakes of the coating at the intersections of the cuts. A cross-cut area not greater than 5% is affected.</p>	<p>4B: Small flakes of the coating are detached at intersections; less than 5% of the area is affected.</p>
	<p>2: The coating has flaked along the edges and/or at the intersections of the cuts. A cross-cut area greater than 5% but not greater than 15% is affected.</p>	<p>3B: Small flakes of the coating are detached along edges and at intersections of cuts. The area affected is 5% to 15% of the lattice</p>

cross-cut	according to EN ISO 2409	according to ASTM D 3359
	<p>3: The coating has flaked along the edges of the cuts partly or wholly in large ribbons, and/or it has flaked partly or wholly on different parts of the squares. A cross-cut area greater than 30% but not greater than 50% is affected.</p>	<p>2B: The coating has flaked along the edges and on parts of the squares. The area affected is 15% to 35% of the lattice.</p>
	<p>4: The coating has flaked along the edges of the cuts in large ribbons and/or some squares have detached partly or wholly. A cross-cut area greater than 35%, but not greater than 65% is affected.</p>	<p>1B: The coating has flaked along the edges of cuts in large ribbons and whole squares have detached. The area affected is 35% to 65% of the lattice.</p>
	<p>5: Any degree of flaking that cannot even be classified by classification 4.</p>	<p>0B: Flaking and detachment worse than grade 1B.</p>

5. Technical specification

Versions:	see scope of delivery
Material:	stainless steel
Dimensions:	1-mm-templet (0.04"): 82 mm x 9.5 mm x 1 mm (3.23" x 0.37" x 0.04") 2-mm-templet (0.08"): 82 mm x 14.5 mm x 1 mm (3.23" x 0.57" x 0.04") 3-mm-templet (0.12"): 82 mm x 19.5 mm x 1 mm (3.23" x 0.77" x 0.04") minimum size of support: (it is assumed that the cuts are each 2 mm (0.08") longer than the lattice pattern): 1-mm-templet (0.04"): 12 mm x 12 mm (0.47" x 0.47") 2-mm-templet (0.08"): 18 mm x 18 mm (0.71" x 0.71") 3-mm-templet (0.12"): 24 mm x 24 mm (0.94" x 0.94")
Weight:	1-mm-templet (0.04"): 5.6 g (0.012 lbs) 2-mm-templet (0.08"): 8.8 g (0.019 lbs) 3-mm-templet (0.12"): 11.8 g (0.026 lbs)
Standards:	EN DIN 2409, ASTM D 3359
Warranty:	2 years