

IMPACT TEST

SP1880, SP1890, SP1891, SP1895

MANUAL

1 SAFETY PRECAUTIONS

The TQC Impact tester has been designed to be as safe as possible. However as with all equipment the user needs to follow the required safety instructions. Always ensure yourself that local health and safety regulations do not include any extra specifications.

To ensure safe operation please follow the following guidelines:

- Never put your hands under the tube when the weight is raised.
- Always have a stamp in place when testing.
- Make sure the TQC impact tester is positioned fully level.

**2 PRODUCT DESCRIPTION**

The TQC Impact Test is used to determine the impact resistivity and flexibility of coatings. The dual scale instrument is equipped with a special guidance which assures that the distance between each impact is always according to the standard. For correct positioning a spirit-level is built-in. Each Impact test comes as a complete set (instrument and accessoires) to perform a test according DIN/ISO 6272, ASTM D2794 and ASTM G14

Mandatory test in Qualicoat, QIB and GSB accredited laboratories.

3 STANDARDS

Below mentioned standards are a list of the possible standards. If the required standard is not listed below please contact TQC to check if adoption of this standard is possible*:

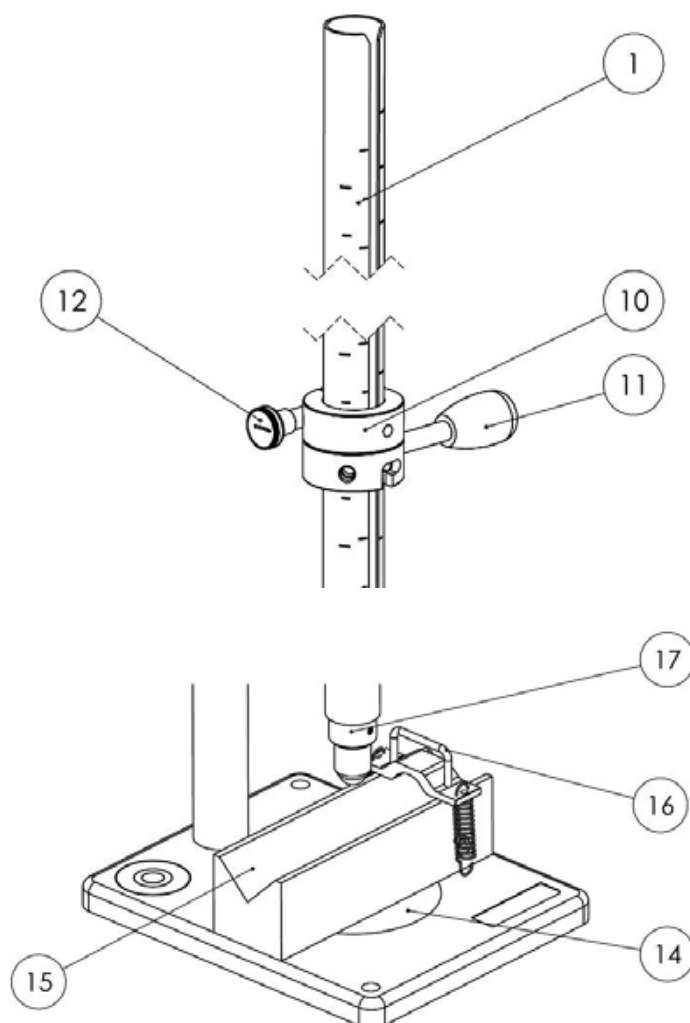
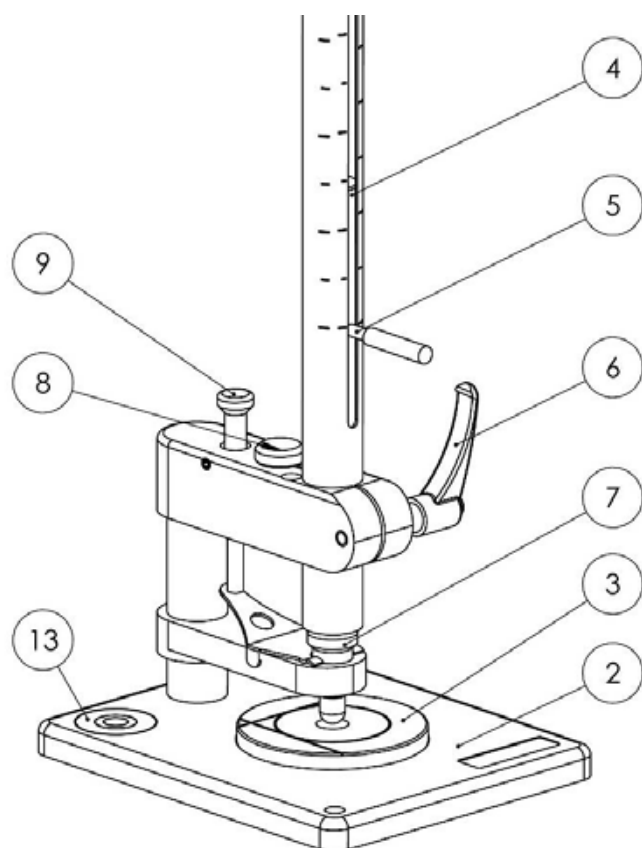
	SP1880	SP1890	SP1891	SP1895
Type of Impact	Indirect	Direct	Direct	Direct
ISO 6272-1:2002		•		
ISO 6272-2:2002	•			
ISO 6272:1993			•	
ASTM D 2794:2004	•			
ASTM G14-04				•
JIS K 5600-5-3:1989	•	•		
EN 12206-1:2004	•		•	•
EN 13523-5:2001	•	•		
AAMA 2605-05	•		•	
Qualicoat 2006	•		•	
Qualisteelcoat 2008	•		•	

* Conformation to a required standard depends on the impact tester type. The combination of items can change to comply with another standard.

4 WHAT'S IN THE BOX?

1	Guide tube
2, 6, 13	Base plate assembly with bubble level
3	Die 16.3 mm
3	Die 27.0 mm
4	Weight 1 kg
5	Weight Lifting Pin
7	Punch 15.9 mm
8	Punch 12.7 mm
9	Lifting pin to release punch
10, 11, 12	Release collar
14, 15, 16	V shaped notch vise with spring clamp
17	Weight

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5 PREPARATIONS

5.1 Unpacking your impact test

Your impact tester has been packed and shipped with the greatest care; however there is always the possibility that the package is damaged during transport. Please check if your package is complete and without physical damage. When there are any signs of damage please record this by making photo's and report it to the delivery company. Make sure they sign for acknowledgement of the damage.

5.2 Disposal

The package consists of cardboard and foam, please dispose of these in an environmental sensitive manner. Your local Environmental Authority can help with the disposal.

5.3 Assembling and placing your impact tester

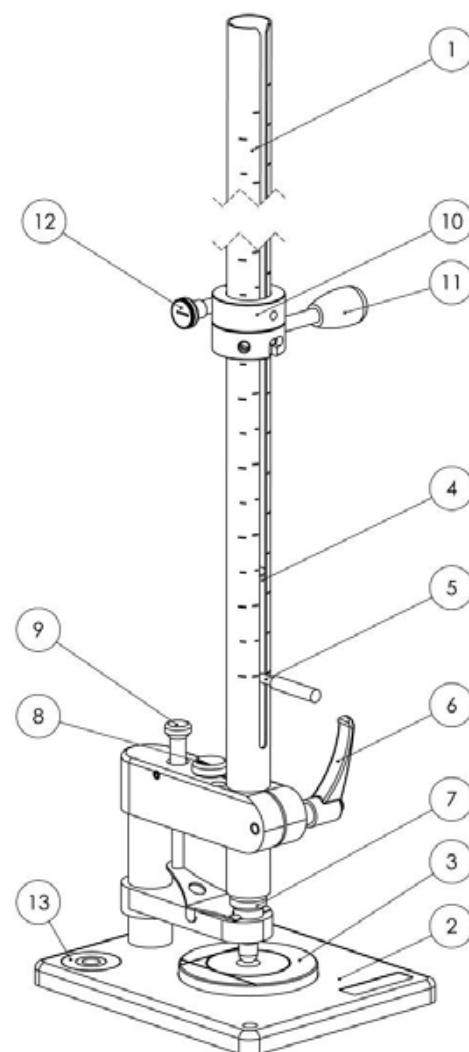
To get the most benefit from the TQC impact tester it is important that it is not only assembled the correct way but also placed on a suitable location. The height is the guide tube posts limitations to where it can be placed but also the force created at impact limits the amount of suitable surfaces. Please read following instructions and confirm the check list.

Ease of use of the impact tester mainly depends on the placement of the instrument. Placing it on a table limits the accessible height and placing it on the floor causes the operator to bend to place the specimens.

Placement check list:

- ☐ Surface must be level
- ☐ Free height above the work surface must be 2.2 meters
- ☐ Test surface may not flex under test conditions
- ☐ Temperature and humidity should be in accordance with the selected standard
- ☐ Check local health and safety regulations to ensure placement and intended use is accordance with local demands
- ☐ Mount the impact tester to the surface

1. Select the desired punch [7] to perform the test with.
2. Place the punch [7] in the holder above the ground plate.
3. Mount the weight [4] in the guide tube [1].
4. Shove the release collar [10] over the guide tube [1].
5. Pull the release collar [10] and weight [4] completely down, and block the weight by turning the release collar lever [11].
6. Tighten the fixing knob [12] to fix the release collar [10].
7. Place the guide tube [1] with the locked release collar [10] and weight [4] in the base plate assembly.
8. While holding the weight [4] unlock the release collar [10] by turning the lever [11] back and lift the release collar [10] up to the height that the drop test needs to start from.
9. Press the red button [9] to lift the punch and shove the panel under it. Zero the instrument on the sample that is the test object (test sample with coating layer downwards).
10. Hold the guide tube while releasing it by turning the handle [6]. Move the guide tube until the weight lifter lines with 0 on the scale of the guide tube.
11. The Impact tester is now ready to perform the test (see 5.)



6 PERFORM A MEASUREMENT

6.1 Validation

If required a validation has to be performed prior to use. The validation procedure may vary depending on the used standard. Please note the results of this initial validation and store these results together with this manual.

6.2 Performing your test

The test procedure used depends on the required standard. Not only a difference between ISO and ASTM has to be taken in account, but also if it is an impact resistance determination or a pass/fail test. Please check what applies before using your impact tester. The following procedure is only a guideline to ensure safe use during testing. Please always follow the complete protocol as given in the used standard.

6.3 Indirect impact

When working with the indirect impact method please note that the impact tester produces high forces. To ensure safe operation please follow below instructions.

1. Check if the impact tester is positioned level, all parts are assembled correctly and the right punch is chosen.
2. Raise the punch by pushing the red button and place the test specimen.
3. Lower the falling weight gently onto the punch and adjust the guide tube. The zero mark on the guide tube should be level with the weight lifter of the falling weight.
4. Make sure the punch still can be lifted by pushing the red button, and the falling weight can be moved freely through the guide tube.
5. Set the release collar to the desired height by putting the slit for the weight lifter pin exactly over the guide tube ruler height mark.
6. Raise the falling weight and lock it into the release clamp.
7. When it is safe, release the falling weight from the release clamp.
8. Unlock the test panel by pushing the red button
9. Rate the test panel.
10. Repeat the test if required
11. Check if the impact tester is positioned level and all parts are assembled correctly, and the punch is chosen correctly
12. Rate the test panel.
13. Repeat the test if required.



6.4 Direct impact

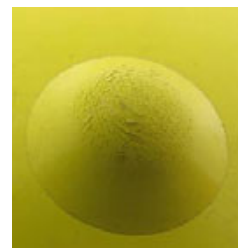
When working with the direct impact method please note that the impact tester produces high forces. To ensure safe operation please follow below instructions.

1. Check if the impact tester is positioned level, all parts are assembled correctly and the right punch is chosen.
2. Clamp the test panel with the correct side hand tight.
3. Lower the falling weight gently onto the panel and adjust the guide tube. The zero mark on the guide tube should be level with the weight lifter of the falling weight.
4. Make sure the punch still can be lifted by pushing the red button, and the falling weight can be moved freely through the guide tube.
5. Set the release collar to the desired height by putting the slit for the weight lifter pin exactly over the guide tube ruler height mark.
6. Raise the falling weight and lock it into the release clamp.
7. When it is safe, release the falling weight from the release clamp.
8. Release the falling weight and after the fall bring it back in its starting position.
9. Rate the test panel.
10. Repeat the test if required.
11. Check if the impact tester is positioned level and all parts are assembled correctly, and the punch is chosen correctly.
12. Rate the test panel.
13. Repeat the test if required.



6.5 Assessment and evaluation

Inspection of the test surface can be performed using several methods. Please note the used standard and check available methods. Below given methods are often used for assessment:



- 10x Magnifying loupe: A magnifying loupe is the basic method for evaluation. Visual checking for elongation, peeling and cracking of the coating. Please note that visual assessment produces different results between different operators.
- Chemical testing: Several test standards allow the use of chemically testing for cracking. These tests use chemicals that react with the ferrous substrate of the test panel. These tests are less prone to be influenced by differences between different operators.
- Voltage testing: Voltage testing is only possible on a fully closed coating surface. To ensure accurate interpretation a reference panel has to be tested prior to performing the impact test. Check if this method is allowed according to the standard.

7 MAINTENANCE

- Though robust in design, this instrument is precision-machined. Never drop it or knock it over
- Always clean the instrument after use.
- Clean the instrument using a soft dry cloth. Never clean the instrument by any mechanical means such as a wire brush or abrasive paper. This may cause, just like the use of aggressive cleaning agents, permanent damage.

8 DISCLAIMER

The right of technical modifications is reserved.

The information given in this manual is not intended to be exhaustive and any person using the product for any purpose other than that specifically recommended in this manual without first obtaining written confirmation from us as to the suitability of the product for the intended purpose does so at his own risk. Whilst we endeavour to ensure that all advice we give about the product (whether in this manual or otherwise) is correct we have no control over either the quality or condition of the product or the many factors affecting the use and application of the product. Therefore, unless we specifically agree in writing to do so, we do not accept any liability whatsoever or howsoever arising for the performance of the product or for any loss or damage (other than death or personal injury resulting from our negligence) arising out of the use of the product. The information contained in this manual is liable to modification from time to time in the light of experience and our policy of continuous product development.