

CROSS CUT ADHESION TEST KIT CC2000

SP1690, SP1691, SP1692, SP1699, SP1700

MANUAL

1 SAFETY PRECAUTIONS

- Avoid humidity
- A knife is a sharp object. Be careful when using it.

2 PRODUCT DESCRIPTION

The TQC CC2000 Cross Cut Adhesion Test KIT is used to test the adhesion of dry coats of paint on their substrate by means of a series of cuts through the coating.

Two series of parallel cuts cross angled to each other to obtain a pattern of 25 or 100 similar squares. The ruled area is evaluated by using a table chart after a short treatment with a stiff brush, or adhesive tape for hard substrates.

The cutting knife of the TQC Cross Cut Adhesion Test CC2000 is easy to exchange without the use of extra tools. The self positioning knife bracket of the TQC Cross Cut Adhesion Test CC2000 ensures equal pressure on the cutting knife.



3 STANDARDS

EN-ISO 2409, ASTM D3359. Look up the appropriate standard for a correct execution of the test.

4 WHAT'S IN THE BOX?

Each TQC Cross Cut Adhesion Test KIT CC2000 contains a grip with cutter (type varies), a brush, an illuminated loupe and a roll of adhesive tape acc. EN-ISO 2409.

4.1 Spare parts

All parts of the CC2000 can be ordered separately:

- SP3007 Adhesion tape, single roll, adhesion to steel 4.3 N/cm
- SP3010 Adhesion tape, set of 3 rolls, adhesion to steel 4.3 N/cm
- SP3020 Adhesion tape, single roll, adhesion to steel 7.6 N/cm
- SP1710 Nylon Brush for Cross Cut Adhesion Test
- SP9700 Lighted Magnifier 2.5x



| Art-Nr. | SP1690 | SP1691 | SP1692 | SP1699 | SP1700 | SP1693 | |
|---|---------------------|-------------------|-------------------------|-----------------------|--------------------------|--------------------|-----------------------|
| Blades | 6 | 6 | 6 | 11 | 11 | No knife, kit only | |
| Teeth distance | 1mm / 0,039 inch | | 2mm / 0,079 inch | | 3mm / 0,12 inch | 1mm / 0,039 inch | 1,5mm / 0,059 inch |
| Acc. To | ISO 2409 | ASTM D3359 | ISO 2409 | ASTM D3359 | ISO2409 | ASTM D3359 <2009 | ASTM D3359 <2009 |
| Coating thickness on hard substrates | 0-60µm / 0-2,4 mils | 0-50µm / 0-2 mils | 61-120µm / 2,4-4,8 mils | 50-125µm / 2-4,9 mils | 121-250µm / 4,8-9,8 mils | 0-50µm / 0-2 mils | 50-125µm / 2-4,9 mils |
| Coating thickness on soft substrates | - | - | 0-60µm / 0-2,4 mils | - | - | - | - |
| Spare knives | SP1702 | SP1703 | SP1704 | SP1705 | SP1706 | | |

5 PREPARATIONS

1. Make sure the surface to be tested is rigid and firm
2. Choose the right cutter:

| | | |
|-------------|--------|---|
| ISO 2409: | 1 mm | spacing for coatings up to 60 μm on hard substrates |
| | 2 mm | spacing for coatings up to 60 μm on soft substrates |
| | 2 mm | spacing for coatings from 61 to 120 μm on both hard and soft substrates |
| | 3 mm | spacing for coatings from 121 μm to 250 μm on both hard / soft substrates |
| ASTM D3359: | 1 mm | spacing for coatings up to 50 μm |
| | 1,5 mm | spacing for coatings from 50 to 125 μm |
3. Always make sure the cutter is sharp and undamaged. The ISO-standard advises replacement of the cutter when the top of the cutting teeth has flattened with 0,1 mm.
4. Place the cutter as indicated on the picture.



Correct



Incorrect

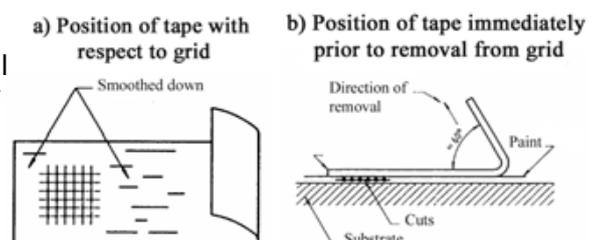
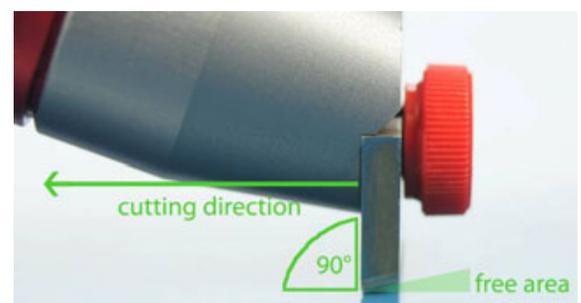
6 PERFORM A MEASUREMENT

6.1 Measuring method

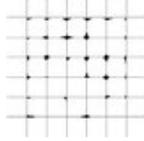
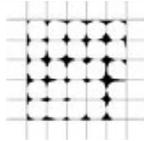
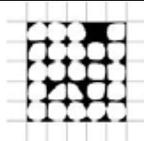
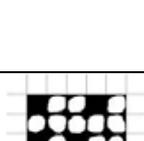
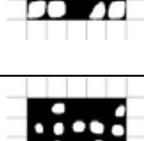
A right-angle lattice pattern is cut into the coating penetrating through to the substrate. The resistance of the coating to separation of the substrate is classified using the table.

6.2 Working method

1. Make two cuts/scratch, perpendicular to each other, drawing the handle with the appropriate cutter (depending on coating thickness and substrate) through the coating into the substrate thus making the lattice pattern. The picture indicates the correct position of the cutter and cutting direction.
2. Brush the pattern lightly with the supplied brush several times back and forth along each of the diagonal lines of the lattice pattern.



3. For hard substrates only the test can be extended by applying the adhesive tape parallel to one set of cuts over the lattice pattern and pull it off steadily in 0.5 to 1 sec. at a 60° angle within 5 minutes after applying acc. to ISO. Acc. to ASTM within 90s ±30s at a 180° angle.
4. Carefully examine the cut area, if required using the magnifier and classify the test area according the table

| Classification | | Description | Appearance of surface of cross-cut area from which flaking has occurred (Example for six parallel cuts) |
|----------------|------|--|--|
| ISO | ASTM | | |
| 0 | 5B | The edges of the cuts are completely smooth; none of the squares of the lattice is detached. |  |
| 1 | 4B | Detachment of small flakes of the coating at the intersections of the cuts. A cross-cut area not significantly greater than 5% is affected. |  |
| 2 | 3B | The coating has flaked along the edges and/or at the intersections of the cuts. A cross-cut area significantly greater than 5%, but not significantly greater than 15%, is affected. |  |
| 3 | 2B | 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 significantly greater than 15%, but not significantly greater than 35%, is affected. |  |
| 4 | 1B | 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 significantly greater than 35%, but not significantly greater than 65%, is affected. |  |
| 5 | 0B | Any degree of flaking that cannot even be classified by classification 4. |  |

7 REPLACING BATTERIES AND LIGHT BULB



1. Push and lift to unlock the back lid.



2. Place battery with + / - as indicated. Unlock the light bulb by sliding the knob upwards. Turn the bulb to loosen / tighten it.

8 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.
- Do not use compressed air to clean the instrument.
- Always keep the parts in the case when not in use.

9 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.