

**PENCIL HARDNESS TEST ACCORDING WOLFF WILBORN**

VF2377, VF2378, VF2379

MANUAL

**1 PRODUCT DESCRIPTION**

The TQC Pencil Hardness Test according Wolff Wilborn provides in a simple method to test the scratch hardness of coatings. In this test, pencils in a range of 8B to 10H hardness-grade are used. The pencil is moved scratching over the surface under a 45° angle with a constant pressure. Then an optical assessment is carried out to see which pencil hardness damages the surface. Delivered with a set of 20 Koh-i-noor pencils and a pencil sharpener.

**2 STANDARDS**

VF2377 TQC Pencil Hardness Test according Wolff Wilborn dual weight (750g & 1000g) complies with: ISO 15184, ASTM D3363, JIS K-5400, JIS K-5600, ECCA-T4-1, BS 3900-E19, SNV 37113, SIS 184187, NEN 5350, MIL C 27 227

VF2378 TQC Pencil Hardness Test according Wolff Wilborn (750g) complies with: ISO 15184, ASTM D3363, JIS K-5600, ECCA-T4-1, BS 3900-E19, SNV 37113, SIS 184187, NEN 5350, MIL C 27 227

VF2379 TQC Pencil Hardness Test according Wolff Wilborn (500g) There is no standard applicable however the film industry and the LCD industry have their own standard (regulation) to inspect with the load of 500g based on the text of JIS-K5600 ISO 15184

Look up the appropriate standard for a correct execution of the test.

**3 WHAT'S IN THE BOX?**

- TQC Pencil Hardness Test according Wolff Wilborn :
  - VF2377 TQC Pencil Hardness Test according Wolff Wilborn dual weight (750g & 1000g)
  - VF2378 TQC Pencil Hardness Test according Wolff Wilborn (750g)
  - VF2379 TQC Pencil Hardness Test according Wolff Wilborn (500g)
- 20 Koh-I-Noor pencils in an aluminum metal case. The pencils vary in hardness from 8B to 10H. (8B, 7B, 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, 10H).
- Pencil sharpener
- Calibration Certificate
- Manual

**3.1 Spares / Optional items**

VF1000 Pencil set for Wolff-Wilborn in alu box, 20 pcs 8B - 10H.

VF1003 Pencil sharpener for Wolff-Wilborn

## 4 PREPARATIONS

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- The pencil of a desired hardness is sharpened to a 5 mm sharp point with the included sharpener.
- Hold the pencil vertically with the point down and rub it lightly over a piece of abrasive paper with a grit size of around 400 so that a plain blunt arises.
- Clamp the pencil at an angle of 45 degrees in the instrument and set it off so it is level.
- Carefully place the instrument on the substrate under test. The test weight depends on the model: 5 Newton (500g), 7.5Newton (750g), 10Newton (1000g).

## 5 PERFORM A MEASUREMENT

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- Take the instrument between thumb and pointing finger at the wheels and push the whole with a speed of 10cm/s forwards.
- The exact hardness of the pencil is determined by taking several tests.
- It is advised to start with a medium soft or medium hard pencil and work back to the right value. Don't rub any left graphite parts into the coating.
- Clean the surface with a damp sponge or soft cloth. The two found harnesses are registered as pencil hardness. As example, a hardness of 3H – 4H means a pencil of 3H is still writing on the surface where 4H the shows a light scratch in the coating

## 6 CALIBRATIONS

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The instrument comes with a Certificate of Calibration.

Certification and verification should only be performed by certified laboratories having the necessary certified tools for this job. We recommend annual calibration. For calibration, send the instrument, together with a RMA form\* to TQC, Molenbaan 19, 2908LL Capelle aan den IJssel, NL.

\*You can download the RMA form here: <http://www.tqc.eu/en/service/repairs-calibrations/>

## 7 MAINTENANCE

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- 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.
- Always keep the instrument in its case when not in use.
- We recommend annual calibration

## 8 DISCLAIMER

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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.