Model 318 S with Accessories

Hardness Test Pencil Models 318/318 S

Rolling Head of Model 318 S

NEW

Model 318 with Accessories

testing equipment for quality management

ERICHSEN

Technical Description and Operating Instructions

3 Pressure Ranges:
0 - 3 N
0 - 10 N
0 - 20 N

4 Test Geometries:
0.75 mm (Bosch)
1.0 mm (ISO)
0.5 mm (van Laar)
0.5 mm (Opel)

For the Measurement of the Hardness of Protective Coatings

SAFETY INSTRUCTIONS

Proper Use

This instrument has been designed for the measurement of the hardness of protective coatings.

Risk of Injuries!

Danger

In contrast to the other test tip types, the test tip acc. to OPEL projects distinctly out of the Hardness Pencil's head.
This can cause, in case of handling malpractice of the Hardness Pencil, dangerous situations with stab or scratch injuries!

Purpose and Application

Modern manufacturing processes require efficient testing methods. Speedy, straightforward, accurate. Every time, everywhere.

This instrument has been designed for the measurement of the hardness of protective coatings. The degree of hardness of paint films, plastic coatings, etc. can be accurately measured and recorded with the **Hardness Test Pencil, Models 318** and **318 S**, no matter whether on a level or curved surface, small or large. The instrument is always ready for use and, because of it's small size easy transportable, an asset which will be appreciated by all concerned with hardness tests.
Uniform hardness and quality of the coating facilitate smooth-running manufacture. Deviation from a specified hardness causes rejects, delay in production and complaints. Developed by Robert Bosch GmbH of Stuttgart and manufactured by ERICHSEN, the instrument permits regular quality control of protective coatings, even during processing.

The **Hardness Test Pencil** provides the users with a test instrument that satisfies the requirements of smooth production runs.

Test Procedure using Test tips Nos. 1, 2 and 3

The handling of the **Hardness Test Pencil** is extremely simple. The estimated or known spring tension is set with the help of the slider. Holding the instrument upright and placing its point on the test surface one draws a 5 to 10 mm long line at a rate of approximately 10 mm/sec. The stylus should produce a scratch which is just visible with the naked eye. If the spring pressure is too high, the scratch is clearly visible; if too low, no scratch appears. The applied pressure, fixed by locking the slider, is marked in Newtons.

Three scales are engraved into the test pencil for the three pressure ranges:

0 - 3 N (blue marked)
0 - 10 N (red marked)
0 - 20 N (yellow marked).

The springs for each of the pressure ranges are colour coded and the corresponding scale is marked in the same colour.

A basic requirement to gain useful results is a sensitive guidance of the test pencil.
If the pressure exerted onto the surface is too high, it is possible that the outer edge of the test head produces a trace falsifying the results or rendering their interpretation difficult.
Especially when using imitations with an edge of the test head that is not sufficiently smooth, this effect sometimes led to inappropriate scepticism with regard to the test method in general.

Especially for tests on very scratch sensitive surfaces, the **Hardness Test Pencil 318 S** has been developed. The head is equipped with two little rubber hooped guide wheels. This ensures that even if the user exerts involuntarily too much pressure onto the test pencil only the test tip used will leave a trace on the test surface.

Test Procedure using Test tip No. 4

The test tip in accordance with "Opel" (0.5 mm dia.) has got a special tip geometry and a length that exceeds that of the other marking pins by approx. 15 mm. To ensure the desired test force, preset by the fixed slider's position, working on the test tip, the latter must be pressed into the test pencil by approx. 5 mm during the test.
If the "Opel" test tip is used in **Model 318 S**, it's pressing of approx. 5 mm into the head has to begin from the wheel's bottom level where the wheels normally get in contact with the surface to be tested.

Technical Data

Compression Springs:	spring steel
Test tips	
nos. 1, 2 and 3:	tungsten carbide spheres
no. 4	spring steel, with special tip geometry
Stylus point dia:	
no. 1	0.75 mm (Bosch)
no. 2	1.0 mm (technically equivalent to ISO 1518)
no. 3	0.5 mm (van Laar)
no. 4	0.5 mm (Opel)
Total length:	160 mm
Diameter:	16 mm
Weight, net:	approx. 250 g

Order Informations	
Ord.-No.	**Product-Description**
0020.01.31	**Hardness Test Pencil**, **Model 318**
0273.01.31	**Hardness Test Pencil, Model 318 S** with rolling head
Supplied with: ♦ 1 Test tip no. 1 (0.75 mm dia. - Bosch) ♦ 3 Springs (0 - 3 N; 0 - 10 N; 0 - 20 N) ♦ 1 Plastic carrying case	

Accessories and/or Spare Parts	
Ord.-No.	**Description**
0428.02.32	Test tip no. 1 (acc. to Bosch; 0.75 mm Ø)
0428.03.32	Test tip no. 2 (technically equivalent to ISO 1518; 1.0 mm Ø)
0428.04.32	Test tip no. 3 (acc. to von Laar; 0.5 mm Ø)
0428.01.32	Test tip no. 4 (acc. to Opel; 0.5 mm Ø)
0429.01.32	Spring 0 - 3 N
0429.02.32	Spring 0 - 10 N
0429.03.32	Spring 0 - 20 N
0712.01.32	Special head (for use of Model 318 in connection with film applicator COATMASTER 509 MC)

Subject to of technical modifications.
Gr. 14 - TBE/BAE 318/318 S - VI/2008

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