Identification of finest Tendencies in the change of Scratch Hardness

SCRATCH HARDNESS TESTER 413

Possibility of Surface Quality Description in Numerical Values

Fine graduation of the Scratch Load Adjustment (0.01 N!)

testing equipment for quality management

ERICHSEN
since 1910

Technical Description

Several different Scratching Tools available

BOSCH
VAN LAAR
CLEMEN

ISO 4586-2
DIN EN 438-2

Test principle

All test methods applicable for this instrument are in principle based on the same test procedure: The specimen is clamped on a turntable (number of revolutions of the standard version is 5 min^{-1}). The test tool is fixed on a load arm also equipped with an adjustable weight so that the pressure exerted onto the specimen material can be regulated (load range 0 – 10 N in 0.1 N steps and load range 0 – 1 N in 0.01 N steps).
The resistance of the specimen against this action is visually evaluated from the score mark (detailed information on the evaluation are given in the Operating Instructions).

Technical Data

Dimensions: (W x L x H)	220 x 450 x 210 mm
Weight (net):	approx. 3.8 kg
Number of revolutions:	5 min^{-1} at 50 Hz or
	6 min^{-1} at 60 Hz
	(please specify when ordering)
Power supply:	230 V/50-60 Hz or
	110 V/50-60 Hz
Specimen size:	max. 100 x 100 x 22 mm or
	140 ø x 22 mm

Reference Class:
The SCRATCH HARDNESS TESTER 413 is supplied with a Manufacturer's Certificate M in accordance with DIN 55 350-18 that includes among others the following information:

Actual and setting values of rotational speed and test load, product identification, test equipments used with calibration status, date, name of inspector.

For both load ranges (1 N/10 N) the test load is compared with the specific setting value in 10 graduations.

Order Information	
Ord.-No.	**Product Description**
0102.01.31	**SCRATCH HARDNESS TESTER 413 - Basic instrument**

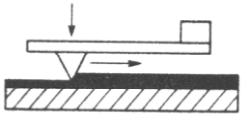
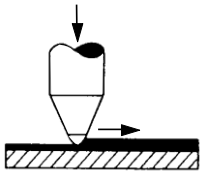
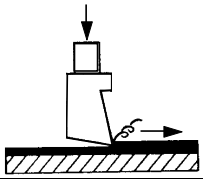
The scope of supply includes:

- load arm for fixing the test tool
- 2 weights for the load ranges 1 N and 10 N
- 1 counter weight with spirit level
- box level
- magnifying glass
- screw driver
- carrying case
- instructions manual

Accessories	
Ord.-No.	**Product Description**
0218.01.32	Diamond test tip (90° included angle, 90 µm radius on the point)
0218.02.32	Test tip acc. to Clemen
0539.02.32	Test tip acc. to Bosch (Ø 0.75 mm)
0539.03.32	Test tip technically equivalent to ISO 1518, BS 3900:E2 and DEF 1053 (Ø 1 mm)
0539.01.32	Test tip acc. to van Laar (Ø 0.5 mm)

Subject to technical modifications.
Gr. 14 - TBE 413 – VIII/2007

In the following table the essential test parameters are indicated:

Sketch	Field of application	Method	Measuring Range/Accuracy	Test Tool	Test Principle
	Decorative laminated sheets (HPL)	Micro scratch hardness acc. to specifications of the plastics industry - ISO 4586-2 DIN EN 438-2	0 - 10 ± 0.1 N	Diamond test tip, angle 90°, radius on the point 90 µm Ord.-No. *0218.01.32*	Advent of a visible score mark
	Paints and similar coating materials	Scratch hardness in acc. with - ISO 1518 - Bosch, Opel, van Laar	0 - 10 ± 0.1 N	Test tip equivalent to ISO: 1 mm ø *Ord.-No. 0539.03.32* Test tip acc. to Bosch: 0.75 mm ø *Ord.-No.: 0539.02.32* Test tip acc. to van Laar: 0.5 mm ø *Ord.-No.:0539.01.32*	Advent of a visible score mark
	Paints and similar coating materials	Scratch hardness acc. to Clemen	0 - 10 ± 0.1 N	Test tip acc. to Clemen at 2° angle *Ord.-No.: 0218.02.32*	Advent of a visible score mark

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