

Elcometer 501 Pencil Hardness Tester



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The pencil hardness test, also referred to as the Wolff-Wilborn test, uses the varying hardness values of graphite pencils to evaluate a coating's hardness.

The Elcometer 501 has been designed to ensure that the cylindrical pencil lead is maintained at a constant angle of 45° and exerts a force of 7.5N (1.68lbF).

The pencil lead, prepared beforehand using the special sharpener and abrasive paper, is inserted into the Elcometer 501 and pushed over the smooth, flat coated surface. The lowest hardness value of the pencil which marks the coating determines the coating's hardness rating.

Hardness Testing

Hardness can be defined as a material's resistance to permanent deformation.

In the coatings industry, hardness measurement can be used to determine the resistance of the coating to scratching from general wear and tear and also if a coating is fully cured.

The term "Hardness" is used to refer to different properties of material, specifically:

- Resistance to scratch and wear
- Resistance to penetration

Depending on the requirements, there are various methods for testing hardness. Some are dedicated to characterise coatings and others are more suitable for testing bulk materials such as metals, plastics, rubber or elastomers.

Can be used in accordance with:

- ASTM D 3363
- BS 3900-E19
- ECCA T4
- EN 13523-4
- ISO 15184
- JIS K 5600-5-4

Standards in grey have been superceded but are still recognised in some industries.

TECHNICAL SPECIFICATION	
Dimensions (with Pencils)	130 x 130 x 50mm (5 x 5 x 2")
Weight	2.1kg (4lb)
Part Number	H501----1 Elcometer 501 Pencil Hardness Tester
Packing List	Elcometer 501 Pencil Hardness Tester, pencil set (14 pencils, grades 6B - 6H), positioning block, x2 pencil sharpener, abrasive paper block, carry case and operating instructions

ACCESSORIES			
Pencil Sharpener (6H to 2B)		T99923040-1	
Pencil Sharpener (3B to 6B)		T99923040-2	
Set of 14 Pencils (6B to 6H)		T99923039	
12 Hardness Pencils (6B)	T99923042-1	12 Hardness Pencils (F)	T99923042-8
12 Hardness Pencils (5B)	T99923042-2	12 Hardness Pencils (H)	T99923042-9
12 Hardness Pencils (4B)	T99923042-3	12 Hardness Pencils (2H)	T99923042-10
12 Hardness Pencils (3B)	T99923042-4	12 Hardness Pencils (3H)	T99923042-11
12 Hardness Pencils (2B)	T99923042-5	12 Hardness Pencils (4H)	T99923042-12
12 Hardness Pencils (B)	T99923042-6	12 Hardness Pencils (5H)	T99923042-13
12 Hardness Pencils (HB)	T99923042-7	12 Hardness Pencils (6H)	T99923042-14

Related Products



Elcometer 3092

Elcometer 3092 Sclerometer Hardness Tester

The Elcometer 3092 tests the hardness of a coating by moving a Tungsten Carbide Tip over the coating with predetermined force.



Elcometer 3086

Elcometer 3086 Motorised Pencil Hardness Tester

Traditional pencil hardness testers can be limited in their reproducibility and repeatability by two key factors; the uniformity of the carriage speed and the variation of the applied force by the user as the manual tester is moved across the coating.

The Elcometer 3086 Motorised Pencil Hardness Tester, using the same test methods and principles as the Elcometer 501 pencil hardness tester, removes both of these variables by being fully independent.