

Product Information

Zwick 3140...46/3347..49 Digital Shore hardness testers/Densimeters



Range of application

The digital Zwick hardness testers are used to determine the hardness of plastics and rubber. Prerequisite for tests to test standard are specimen with plane parallel contact areas of at least 35 mm dia. and a minimum thickness of 6 mm.

Advantages of the products

- Hardness tests can be carried out in horizontal and vertical positions on site and stationary. Test data determination after different durations (DIN, ISO requirements) can be determined and entered with digital hand held hardness testers.
- The digital hardness testers consist of a handy, cylindrically shaped measurement head with indentors for the different Shore hardness scales and a digital electronics unit; a storage case and a power connection unit belong to the scope of supply.
- The low weight, the handy dimensions and the accumulator operation enable mobile use as well as laboratory operation (test stand as an option).
- The pressure spring is integrated in the measurement head so that the contact ring enables the hardness tester to be applied exactly parallel to the specimen, this excludes measurement error.

- Measurement heads
 - to Shore A or Shore D (DIN 53505, ISO R 868, NFT 51109, ASTM D 2240 and BS 903, part A26);
 - to Shore B, Shore C, Shore 0, Shore 00, or Shore D0 (ASTM D 2240);
 - for densimeters with dia. 2.5 and dia. 5 mm (not to standard).
- The micro-computer controlled digital electronics unit (BH04.3150.000) is equipped with a serial interface. The software permits buffer storage of up to 2000 values, acceptance of measurement rows as well as further processing of the test data and statistics via a printer or PC. Further processing and archiving of test data is available in test program *testXpert*[®] (069020.0x.x0). The 2-line LC display provides information on the measurement procedure, the measurement row, the test result and the number of saved measured values. All changeable, and the most important statistical parameters are shown on the display.
- The easy to understand soft touch keyboard enables simple test parameter setting, e.g. measurement row, Shore range, tolerance limits, baud rate, data transmission, language (e,f,g) and the shut down time. The test report output, statistics output, adjustment of the measurement heads and deletion of the test data memory can be easily altered.
- The Zwick 7206 test stand with loading weight (option) is suitable for digital Shore hardness testers (Zwick 3140/41). It guarantees exact, right-angled positioning of the hardness tester with respect to the specimen surface and thus results in a considerably lower scatter of test data for the hardness tests. Test stands are recommended for use in laboratories as the repeatability of the test method is considerably increased by elimination of operator influence.
- The Zwick 7507 control device (option) serves to monitor the spring characteristics of hardness testers to Shore A and D (Zwick 3140/41) testers as required by test standards. The spring characteristics and friction values of the Shore A hardness tester can be checked in steps of 10 Shore hardness units. Supplementary weights are available for monitoring Shore D hardness testers.

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Description	Value	Order item
Measurement head		
Dimensions	109 x dia. 38 mm	
Weight (inclusive of cable)	300 g	
Electronics unit		H04.3150.000
Scale value, display accuracy	1, ± 0.5 Shore hardness units	
LC Display	2-Line	
Measurement duration, memory capacity	0 ... 99 s, 2000 values	
Accumulator, operating duration, power consumption	6 V, 8 h, max. 10 VA	
Data output	V 24 RS232 C/600 ... 9600 Baud	
Dimensions (height x width x depth), weight	185 x 100 x 47 mm, 510 g	
Total dimensions (h x w x d) and weight (with storage case)	320 x 290 x 115 mm, 1850 g	

Display of the individual test devices

Device	Indentor	Contact force	Spring force	Range of application	Order item
Zwick 3140 (Shore A)	Truncated cone Opening angle 35°	12.5 N	8.065 N	Soft rubber, elastomers, Natural rubber, PVC soft	H04.3140.000
Zwick 3141 (Shore D)	Cone Opening angle 30°	50 N	44.5 N	Hard rubber, acrylic glass, polystyrene, rigid thermo-plasts	H04.3141.000
Zwick 3143 (Shore B)	Cone Opening angle 30°	1 kg	8.065 N	Elastomers harder than Shore A	H04.3143.000
Zwick 3144 (Shore C)	Truncated cone Opening angle 35°	5 kg	44.5 N	Middle hard elastomers and rubber materials	H04.3144.000
Zwick 3146 (Shore D0)	Ball dia. 3/32 inch	5 kg	44.5 N	High strength textile fabrics	H04.3146.000
Zwick 3145 (Shore 0)	Ball dia. 3/32 inch	1 kg	8.065 N	Soft elastomers and textile fabrics	H04.3145.000
Zwick 3142 (Shore 00)	Ball dia. 3/32 inch	0.4 kg	1.10853 N	Foam, sponge and cellular rubber	H04.3142.000
Densimeter:					
Zwick 3347	Ball dia. 2,5 mm	(12.5 N)	8.065 N	Yarn, thread bobbins, foam,	H04.3347.000
Zwick 3348	Ball dia. 5 mm	(12.5 N)	8.065 N	Sponge rubber, steering wheels	H04.3348.000
Zwick 3349	Cylinder dia. 5 mm	(12.5 N)	8.065 N		H04.3349.000

Accessories

Description	Order item
Zwick 7206 test stand with loading weight for Shore A; Test table dia. 90 mm, throat 70 mm, specimen thickness max. 120 mm, contact force 10 N/12.5 N, dimensions (H x W x D) 410 x 190 x 200 mm, weight net approx. 5.2 kg, gross approx. 7.9 kg	7206.100
Supplementary weight for Shore D; applied load 50 N in total, nett weight approx. 3.7 kg	7206.110
Control device Zwick 7507 with slide weights for Shore A, dimensions (H x W x D) 265 x 360 x 200 mm, weight net approx. 3.2 kg, gross approx. 5.5 kg	H04.7507.002
Supplementary weight for Shore D, net weight approx. 2.2 kg	H04.7507.010
Control ring for Shore hardness testers (indentor travel at 40 Shore)	H04.7507.081

Software *testXpert*[®]

Description	Order item
Master test program for accepting test data from different devices via an RS232 C interface	German 069020.00.00 English 069020.00.10
Standard test program for accepting test data from different devices via an RS232 C interface	German 069020.01.00 English 069020.01.10