

Product Information

Vickers hardness tester Zwick/ZHV10



Range of application

- Can be used for all hardness test methods that evaluate via optical measurement of the indentation:
 - Vickers hardness to DIN EN ISO 6507
 - Knoop hardness to ASTM E 9385
 - Brinell hardness to DIN EN ISO 6506
 - case hardening, hardening and nitride hardening depth,
 - as well as the scratch hardness (3212001).
- Low-load range's test loads (HV0.2 ... HV10) are achieved via dead weights.

Advantages/Features

- Two variants are available:
 - Analogue tester 3212001 with evaluation via the enclosed hardness tables
 - PC Tester 3212003 with automatic evaluation (indentation measurement on a PC monitor)
- Simple operation
- Flexible test area height, can be swivelled by 180°
- Direct mass (weight) loading with low friction guided indenter

- Hand crank for starting the loading procedure at generation of an indentation, as well as for load removal
- Microscope with a series revolver head for up to 4 objective lenses
- Different objective lenses for a wide range of magnifications and picture ranges
- The PC model works in conjunction with the test software *testXpert*®. This software is highlighted especially by its simple operation and adaption to changing test conditions.
- A master test program for Vickers, Knoop and Brinell hardness tests for series measurements is available. Hardness sequence measurements and automatic indentation measurement is possible as an option.
- Manual, manual with data transmission or motorised moving compound table variants are available
- Prisms, clamping devices and parallel vice are optional extras

Product Information

Vickers hardness tester Zwick/ZHV10

Order no.	3212001 Value	3212003 Value	3212003 Units
Measurement method	analogue	digital	
Test data evaluation	manual	automatic	
Loading assembly	with direct mass (weight) loading		
Test table's support surface	300 x 230	300 x 230	mm
Test height	0 ... 300	0 ... 300	mm
Throat	135	135	mm
Test load stages	1.96/2.94/4.9/9.8/19.6/29.4/49/98/(294)		N
Indentation time	0 ... 10	0 ... 10	s
Optical indentation measurement device	Microscope with optional monocular/binocular (bright field illumination system)	Microscope with CCD camera and digitalisation card (bright field illumination system)	
Electrical connections	110/220 A.C.	110/220 A.C.	V
Dimensions (height x width x depth)	600 x 400 x 350	600 x 400 x 350	mm
Mass (weight)	approx. 50 nett / 90 gross	approx. 50 nett / 90 gross	kg

Objective lens for the Vickers hardness testers Zwick ZHV/10

Order item	3212.02	3212.03	3212.04/.07 ³	3212.05	3212.06
Inherent magnification	5:1	10:1	20:1	40:1	60:1
Equipment for 3212001					
Total magnification	50:1	100:1	200:1	400:1	600:1
measurement range	0 ... 2.4 mm	0 ... 1.2 mm	0 ... 0.6 mm	0 ... 0.3 mm	0 ... 0.18 mm
Equipment for 3212003¹					
Total magnification ¹ (for 17" monitor)	approx. 136-x	approx. 275-x	approx. 550-x	approx. 1100-x	approx. 1600-x
Field of view ² horizontal	1760 µm	880 µm	440 µm	220 µm	147 µm
vertical	1320 µm	660 µm	330 µm	165 µm	110 µm
Picture resolution	2.3 µm/Pixel	1.2 µm/Pixel	0.6 µm/Pixel	0.3 µm/Pixel	0.2 µm/Pixel

¹ This equipment includes a video adapter with a high inherent magnification (approx. 40 fold) is integrated in the measurement microscope in front of the CCD camera.

² The permissible measurement ranges are described in detail in the corresponding test standards. A Vickers indentation should be at least 1/3 of the vertical field of view to be able to achieve a resolution of 0.2 µm (d < 40 µm) or 0.5% of d (d ≥ 40 µm) to, for example, DIN EN ISO 6507-2.

³ 3212.07: objective extended

Indenters

Description	Order no.
Indenter (Vickers pyramide 136°)	065240.01.00
Indenter (diamond pyramide to Knoop)	065240.03.00
Indenter (hard metal ball dia. 1 mm)	065240.18.00
Indenter (diamond cone 120°) for scratch tests	065240.10.00
Vickers indenter, long (for use with order no. 3212.07, objective 200 fold, extended)	3212.11

Compound tables

Description	Order no.
Compound table with Fmax 1 kN (Table size 200 x 200 mm) - travel 25 x 25 mm, manual micrometer	3212.34
Compound table with Fmax 500 N (Table size 135 x 135 mm) - travel 50 x 50 mm, manual micrometer	065243.05.00
- travel 25 x 25 mm, digital micrometer, digital display and transmission of the position	065243.06.00
Adapter plate for compound tables at the materials testing machine, fixing direct to the base crosshead	3212.34.01