

HTV 5DT / HTV 10DT /
HTV 30DT / HTV 50DT

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Digital Vickers Hardness Tester

- Automatic Vickers hardness tester adopts the integrated design of panel computer with Windows 7 operating system. CCD image acquisition system, show the indentation image directly on the touch screen and automatically detect the Vickers hardness value.
- All testing parameters can be selected on the side panel computer. User friendly with touch screen.
- CCD image acquisition system, shows the image clearly and detects the hardness value by touching the screen.
- Automatic recognition and shifting between the objective and the indenter, automatically get the Vickers hardness value.
- Hardness scale conversion function.
- With USB, VGA and LAN interfaces, the hardness measurement can be print out by USB interface printer.

- Automatic data save, generate the hardness-depth curve and save as WORD or EXCEL document.
- With motorized X-Y test table, automatic focusing and automatic measuring, it is the fully automation of Vickers hardness testing.

Application

- Suitable for ferrous metal, non-ferrous metals, IC thin sections, coatings, ply-metals, glass, ceramics, agate, precious stones, thin plastic sections etc.

Reference standard

- ISO 6507, ASTM E92, JIS Z2244



Table 1

Standard hardness range	Displayed value repeatability %		
	HV5~HV100	HV0.2~ <HV5	>HV0.2
≤225HV	≤3	≤6	≤9
>225HV	≤2	≤4	≤5

Table 2

Hardness	Displayed value tolerance %															
	Hardness HV															
	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	1500
HV 0.01																
HV 0.015	10															
HV 0.02	8															
HV 0.025	8	10														
HV 0.05	6	8	9	10												
HV 0.1	5	6	7	8	8	9	10	10	11							
HV 0.2		4		6		8		9		10	11	11	12	12		
HV 0.3		4		5		6		7		8	9	10	10	11	11	
HV 0.5		3		5		5		6		6	7	7	8	8	9	11
HV 1		3		4		4		4		5	5	5	6	6	6	8
HV 2		3		3		3		4		4	4	4	4	5	5	6
HV 3		3		3		3		3		3	4	4	4	4	4	5
HV 5		3		3		3		3		3	3	3	3	3	4	4
HV 10		3		3		3		3		3	3	3	3	3	3	3
HV 20		3		3		3		3		3	3	3	3	3	3	3
HV 30		3		3		2		2		2	2	2	2	2	2	2
HV 50		3		3		2		2		2	2	2	2	2	2	2
HV 100				3		2		2		2	2	2	2	2	2	2

1) When the indentation diagonal length is less than 0.020 mm, the table does not display the value.

2) For intermediate values, the maximum allowable error can be obtained by interpolation.

3) About the Micro Hardness Tester value in the table is 0.001mm or indentation diagonal length of the average of 2% of the maximum permissible error given, please select the bigger.



Model	HTV 5DT / HTV 10DT / HTV 30DT / HTV 50DT
Test force control	Load cell closed loop - Load electronic controlled
Load selection	Touch screen control panel
Main loads	HTV 5DT: 0.2kgf, 0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf HTV 10DT: 0.2kgf, 0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf HTV 30DT: 0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf HTV 50DT: 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf, 50kgf
dwel time	0~60s
Loading time	0.2kgf~5kgf: 8s, 10kgf~50kgf: 10s
Load applying speed (indenter descending speed)	0.04mm/s
Test force tolerance	±1%
Test cycle type	Semi-automatic type: Manual - focus Automatic - load, dwell, unload, show of the hardness value
Hardness scales	HTV 5DT: HV0.2, HV0.3, HV0.5, HV1, HV2, HV2.5, HV3, HV5 HTV 10DT: HV0.2, HV0.3, HV0.5, HV1, HV2, HV2.5, HV3, HV5, HV10 HTV 30DT: HV0.3, HV0.5, HV1, HV2, HV2.5, HV3, HV5, HV10, HV20, HV30 HTV 50DT: HV0.5, HV1, HV2, HV2.5, HV3, HV5, HV10, HV20, HV30, HV50
Hardness test range	1HV~2967HV
Hardness resolution	0.1HV
Repeatability hef/%	Table 1
Scale conversion	HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS, HBW - According to ASTM E140
Turret type	Automatic
CCD camera pixel	1.30 Million
Microscope Eyepiece	10X
Objectives	10x, 20x, 40x
Optical path	2 ways eyepiece
Optical function	Optical diaphragm / field aperture / color filter
Illumination	Halogen lamp
CCD min. measuring unit	0.25µm, 0.125µm, 0.0625µm

Model	HTV 5DT / HTV 10DT / HTV 30DT / HTV 50DT
CCD max. measurement length	1.2mm, 600µm, 300µm
Measurable min. indent/indentation	0.01mm
Indenters	Diamond Vickers indenter
N. of indenters	1
Nose cone support diameter	6.35mm
CCD camera Pixel	1.30 Million
Auto reading time	0.3 sec/1 indent
Indent measure algorithms	Automatic
Vertical test capacity	185mm
Horizontal test capacity	130mm
Test anvil dimensions	Digital cross test table size: 120x120mm
Max. weight on anvil	50kg
X-Y travel	25x25mm
X axis speed	Manual
X axis resolution	0.003mm
Y axis speed	Manual
Y axis resolution	0.003mm
Z axis movement	Manual
Z axis resolution	Manual
Z axis speed	Manual
Display type	Touch screen
Display dimensions	8"
Input mode	By tap touch
Displayed data	Hardness value, D1, D2, dwell time, test number, conversion scale, test force, date and time, indentation, objective
Statistics or functions	Max, min, average value, report, hardness curve
Data storage	SSD 64GB
Data output	Word, Excel format
Energy saving mode	Yes
Interfaces	3x USB, 1x VGA, 1x LAN
Safety devices	Emergency switch
Operation temperature	23±5 °C
Operation rel. humidity	≤65%
Weight	48 kg
Dimensions	560x335x675mm
Power supply	230V, 50Hz
Voltage variance	±10%
Absorbed power	500W

Standard accessories

Model	Description	Q.ty
VT-RM10X	10x reading microscope	1 pc
VT-10XOB	10x objective	1 pc
VT-20XOB	20x objective	1 pc
VT-40XOB	40x objective	1 pc
VI-136	Diamond Vickers indenter	1 pc
VT-DCTT120120	Digital cross test table 120x120mm	1 pc
HB-400500HV5	Hardness block 400-500 HV5	1 pc
HB-700800HV1	Hardness block 700-800 HV1	1 pc
VT-HL1520	Halogen lamp 12V, 15-20W	1 pc
VT-4RS	Horizontal regulating screw	4 pcs
VT-LV	Spirit level	1 pc
VT-TSRC	Touch screen remote control	1 pc
VT-TP	Touch pen	1 pc
VT-MSE	Mouse	1 pc
VT-SKUSB	USB storage key	1 pc
VT-PC	Power cable	1 pc
VT-SK	Service keys	1 set
VT-ADC	Anti-dust cover	1 pc

Optional accessories

Model	Description
VT-FLCTT7680	Flat clamping test table 76x80mm
VT-TSTT76	Thin specimen test table ø 76mm
VT-FICTT60	Filament clamping test table ø 60mm
VT-LTT108	Large plane test table ø 108mm
VT-VTT40	V-shaped test table ø 40mm
VT-WB	Work bench
VT-EXPR	External printer
Vickers hardness blocks	
Model	Range
HB-V0.2/200-750	200-750 HV0.2 (HTV 5DT, HTV 10DT)
HB-V0.3/200-750	200-750 HV0.3 (HTV 5DT, HTV 10DT, HTV 30DT)
HB-V0.5/200-750	200-750 HV0.5
HB-V1/200-750	200-750 HV1
HB-V2/175-750	175-750 HV2
HB-V3/175-750	175-750 HV3
HB-V5/175-750	175-750 HV5
HB-V10/175-750	175-750 HV10 (HTV 10DT, HTV 30DT, HTV 50DT)
HB-V20/175-750	175-750 HV20 (HTV 30DT, HTV 50DT)
HB-V30/175-750	175-750 HV30 (HTV 30DT, HTV 50DT)
HB-V50/175-750	175-750 HV50 (HTV 50DT)



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