

HTV 5DT / HTV 10DT /  
HTV 30DT / HTV 50DT V3.0

**HTV 5DT / HTV 10DT / HTV 30DT / HTV 50DT V3.0**

**Fully Automatic 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 indenter.
- > 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 V3.0
Test force control	Load cell closed loop - Load electronic controlled
Load selection	Touch screen control panel
Main loads	HTV 5DT V3.0: 0.2kgf, 0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf HTV 10DT V3.0: 0.2kgf, 0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf HTV 30DT V3.0: 0.3kgf, 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf HTV 50DT V3.0: 0.5kgf, 1kgf, 2kgf, 2.5kgf, 3kgf, 5kgf, 10kgf, 20kgf, 30kgf, 50kgf
dwelt 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	Fully-automatic type: focus, load, dwell, unload, show of the hardness value
Hardness scales	HTV 5DT V3.0: HV0.2, HV0.3, HV0.5, HV1, HV2, HV2.5, HV3, HV5 HTV 10DT V3.0: HV0.2, HV0.3, HV0.5, HV1, HV2, HV2.5, HV3, HV5, HV10 HTV 30DT V3.0: HV0.3, HV0.5, HV1, HV2, HV2.5, HV3, HV5, HV10, HV20, HV30 HTV 50DT V3.0: 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 objectives
Optical path	2 ways eyepiece
Optical function	Optical diaphragm / field aperture / color filter
Illumination	Halogen lamp
CCD min. measuring unit	0.1µm (10x objective) 0.05µm (20x objective) 0.025µm (40x objective)
CCD max. measurement length	680µm (10x objective) 340µm (20x objective) 170µm (40x objective)

Model	HTV 5DT/HTV 10DT/HTV 30DT/HTV 50DT V3.0
Measurable. indent/indentation	10µm
Auto-focus time	3s
Total enlargement resolution	0.06µm, 0.03µm, 0.015µm
Indenters	Diamond Vickers indenter
N. of indenters	1
Nose cone support diameter	6.35mm
Indent measure algorithms	Automatic
Auto reading time	0.3 sec/1 indent
Specimen detection	Yes
Movement program patterns	Zigzag, circle, arc, straight line, random, teaching etc.
Vertical test capacity	185mm
Horizontal test capacity	130mm
Anvils dimensions	Motorized cross test table, size: 110x110mm
Max. weight on anvil	50kg
X-Y travel	50x50mm
X axis speed	High: 1mm/s, low: 0.25mm/s
X axis resolution	0.002mm
Y axis speed	High: 1mm/s, low: 0.25mm/s
Y axis resolution	0.002mm
Z axis movement	Motorized
Z axis resolution	0.00125mm
Z axis speed	High: 1mm/s, low: 0.0625mm/s
Display type	Touch screen
Display dimensions	External touch pad 15"   Internal touch screen 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	2x USB, 1x VGA, 1x LAN, 1x RS232 (15pin)
Safety device	Emergency switch
Operation temperature	23±5 °C
Operation rel. humidity	≤65%
Weight	52kg
Dimensions	560x335x675mm
Power supply	230V, 50Hz
Voltage variance	±10%
Absorbed power	500W

**Standard accessories**

Model	Description	Q.ty
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-MCTT110	Motorized cross test table 110x110mm	1 pc
HB-400500HV5	Hardness block 400-500 HV5	1 pc
HB-700800HV1	Hardness block 700-800 HV1	1 pc
VT-EXTCSC	External touch screen	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-CTT100100	Cross test table 100x100mm
VT-DCTT120120	Digital cross test table 120x120mm
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 V3.0, HTV 10DT V3.0)
HB-V0.3/200-750	200-750 HV0.3 (HTV 5DT V3.0, HTV 10DT V3.0, HTV 30DT V3.0)
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 V3.0, HTV 30DT V3.0, HTV 50DT V3.0)
HB-V20/175-750	175-750 HV20 (HTV 30DT V3.0, HTV 50DT V3.0)
HB-V30/175-750	175-750 HV30 (HTV 30DT V3.0, HTV 50DT V3.0)
HB-V50/175-750	175-750 HV50 (HTV 50DT V3.0)



**DEVCO S.r.l.**

Via Marzabotto, 59 20037 Paderno Dugnano (MI)  
Tel +39 0283591153 - Fax. +39 0295441300  
[www.devcosrl.it](http://www.devcosrl.it) - e-mail: [info@devcosrl.it](mailto:info@devcosrl.it)

[www.echo-lab.it](http://www.echo-lab.it)