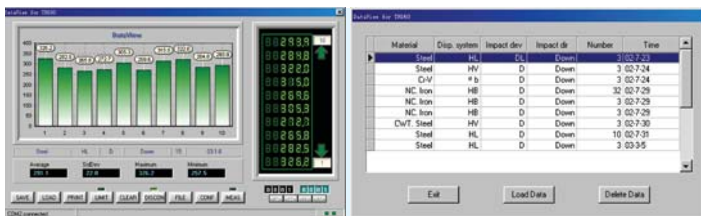


UNIVERSAL HARDNESS TESTER TH-160™

Portable dynamic metal hardness tester with thermal printer, statistics and RS-232 output

New model featuring:

- Large memory for 1000 tests
- Auto-recognition of connected Impact Device
- Auto-recognition of Impact Device test direction
- Statistical data and upper-lower limit setting
- Prints all test results and histogram
- RS-232 interface (to hyperterminal or dataview software)
- Time and date setting; auto-clock
- Back-light LCD
- Direct display of hardness scales Rockwell HRB, HRC, Vickers HV, Brinell HB, Shore HS, Leeb's HL
- Conversion to tensile strength σ_b (U.T.S.)
- For all metallic materials
- Impact device provides testing at any angle, even upside down
- Integral thermal printer
- High accuracy $\pm 6\text{HLD}$ and conforms to ASTM A 956
- Six impact devices are available for special applications (see next pages)



Dataview for TH-160

Very user friendly Windows operated software package



Technical specifications

Hardness parameter	HL, HRC, HRB, HV, HB, HS
Measuring range / metallic materials	See table above
Tensile strength U.T.S. range (steel only)	σ_b from 374 to 2652
Accuracy	Within $\pm 6\text{HLD}$
Functions	Auto-recognition of connected probe and probe test direction, auto-conversion to other hardness scales
Memory	1000 test maximum
Data-output	RS-232 to hyperterminal (MS) and dataview TH-160
Printer	Thermal printer showing all test results, settings and histogram
Statistics	Average value, min-max, upper-lower limits
Impact device	D (standard)
Optional impact devices	DC/D+15/DL/G/C/E (see next page)
Workpiece max. hardness value	900HLD
Workpiece radius (convex/concave)	Rmin = 50mm (with support ring Rmin= 10mm)
Min. Workpiece weight	2~5kg on stable support 0.05~2kg with compact coupling
Workpiece min. thickness coupled	5mm (except with impact device G: 10mm, C: 1mm)
Workpiece min. case hardened depth	0.8mm
Indentation depth	See next page: Impact devices data
Power	Rechargeable Li battery, 6V (1 pc)
Charger	6V, 500mA (1.8VA)
Charging time	2.5 - 4 hours
Operating temperature	0 to 40°C
Overall dimensions	230mm x 90mm x 47mm
Weight	420 gr (including impact device and printer)

Standard delivery

- Main unit with impact device type D
- Printer (on top)
- Test block with HLD-value
- Charger
- Cleaning brush
- Coupling paste
- Table support for main unit
- Communication cable
- Certificate
- Manual
- Plastic carrying case

Optional accessories

- Special impact devices (see overview on next page)
- Test blocks UKAS certified in any hardness parameter
- Support rings for convex and concave surfaces
- Dataview software TH-160

IMPACT DEVICES FOR SPECIAL APPLICATIONS

Hardness testing devices for models TH-140/160

Technical specifications

Impact devices:	D/DC/DL	D+15	C	G	E
Impact energy:	11 Nmm	11 Nmm	3 Nmm	90 Nmm	11 Nmm
Mass of impact body:	5.5 gr DL: 7.3	7.8 gr	3.0 gr	20 gr	5.5gr
Test tip					
■ Hardness	1600HV	1600HV	1600HV	1600HV	5000HV
■ Diameter	3mm	3mm	3mm	5mm	3mm
■ Material			Tungsten carbide		Diamond
Impact body					
■ Diameter	20mm	20mm	20mm	30mm	20mm
■ Length	147/86mm	162mm	141mm	254mm	155mm
■ Weight	75/50gr	80gr	75g	250g	80g
Max. hardness of sample:	940 HV	940HV	1000HV	650HB	1200HV
Preparation of surface					
■ Roughness class ISO	N7	N7	N5	N9	N7
■ Max. roughness depth Rt	10µm	10µm	2.5µm	30µm	10µm
■ Average roughness Ra	2µm	2µm	0.4µm	7µm	2µm
Min. weight of sample					
■ Of compact shape	5kg	5kg	1.5kg	15kg	5kg
■ On solid support	2kg	2kg	0.5kg	5kg	2kg
■ Coupled on plate	0.1kg	0.1kg	0.02kg	0.5kg	0.1kg
Min. thickness of sample					
■ Coupled	3mm	3mm	1mm	10mm	3mm
■ Min. thickness of hardened layers	0.8mm	0.8mm	0.2mm	-	0.8mm

Indentation of test tip

Impact devices:	D/DC/DL	D+15	C	G	E
With 300 HV					
■ Diameter	0.54mm	0.54mm	0.38mm	1.03mm	0.54mm
■ Depth	24µm	24µm	12µm	53µm	24µm
With 600 HV					
■ Diameter	0.45mm	0.45mm	0.32mm	0.90mm	0.45mm
■ Depth	17µm	17µm	8µm	41µm	17µm
With 800 HV					
■ Diameter	0.35mm	0.35mm	0.30mm	-	0.35mm
■ Depth	10µm	10µm	7µm	-	10µm

IMPACT DEVICES FOR SPECIAL APPLICATIONS

Hardness testing devices for models TH-140/160



IMPACT DEVICE E

Special feature: Synthetic diamond test tip (approximately 5000 HV).

Application: For measurements in the extremely high hardness range (always in excess of 50 HRC/650 HV). Tool steels with high carbide content inclusions. For measurements up to 1200 HV.



IMPACT DEVICE G

Special feature: Enlarged test tip, increased impact energy (approximately 9 times that of type D) Low demands on measuring surface finish. For measurements in the Brinell range only (max. 650 HB)

Application: Solid components, e.g. heavy castings and forgings.

IMPACT DEVICE D

Special feature: Universal standard unit.

Application: For the majority of hardness testing assignments.

IMPACT DEVICE C

Special feature: Reduced impact energy (approximately 1/4 of type D).

Application: Surface hardened components, coatings, thin walled or impact sensitive components (small measuring indentation).

IMPACT DEVICE DC

Special feature: Extremely short impact device. Spring loaded with a special loading stick. Otherwise as for type D.

Application: Use in very confined spaces, e.g. in holes, cylinders or for internal measurements on assembled machines.

IMPACT DEVICE D+15

Special feature: Particularly slim front section and with measuring coil moved back.

Application: Hardness measurements in grooves and on recessed surfaces.

IMPACT DEVICE DL

Special feature: Needle front section diameter 4.2mm, length 50mm.

Application: Measurements in extremely confined spaces

Impact Device G

