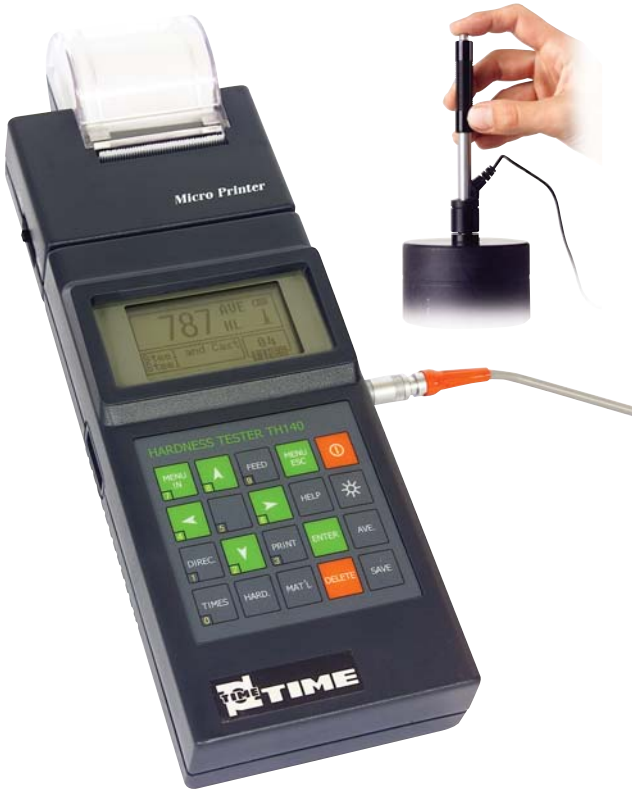
UNIVERSAL HARDNESS TESTER TH-140B ™

Portable dynamic metal hardness tester

- Dynamic rapid hardness test procedure
- Wide measuring range
- Direct display of hardness scales Rockwell HRB, HRC, Vickers HV, Brinell HB, Shore HS, Leebs HL
- Conversion to tensile strength σß (U.T.S.)
- For all metallic materials
- Impact device provides testing at any angle, even upside down
- Integral and removable printer included
- Simple handling and low test expenditure
- High accuracy ±6HLD
- Conforms to ASTM A 956
- Six impact devices available for special applications (see next pages)
- Clear LCD display showing all functions and parameters



Material	HL	HRB	HRC	HB	HV	HS
Steel and cast steel	300-900	38-100	20-68	81-654	81-955	32-100
Cold work tool steel	300-840	-	20-68	-	80-898	-
Stainless steel	300-800	46-101	-	85-655	85-802	-
Grey cast iron	360-650	-	-	93-334	-	-
Nodular cast iron	400-660	-	-	131-387	-	-
Cast aluminium alloys	200-570	23-84	-	19-164	-	-
Brass	200-550	13-95	-	40-173	-	-
Bronze	300-700	-	-	60-290	-	-
Copper	200-690	-	-	45-315	-	-

The ranges are stipulated by the application limits of the relevant static procedure

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)	σß from 374 to 2652 mPa
Accuracy	Within ±6HLD
Memory	48-350 groups of data
Impact device	D (standard)
Optional impact devices	DC/D+15/DL/G/C/E (see next page)
Data output	RS232
Workpiece max. hardness value	996HV
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 batteries NiCd 1.25V (5 pcs)
Charger	12V, 600mA (1.8VA)
Charging time	8 hours
Operating temperature	0°C to 40°C
Overall dimensions	268mm x 86mm x 50mm
Weight	530gr (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 parameters
- Support rings for convex and concave surfaces
- Dataview software TH-140

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

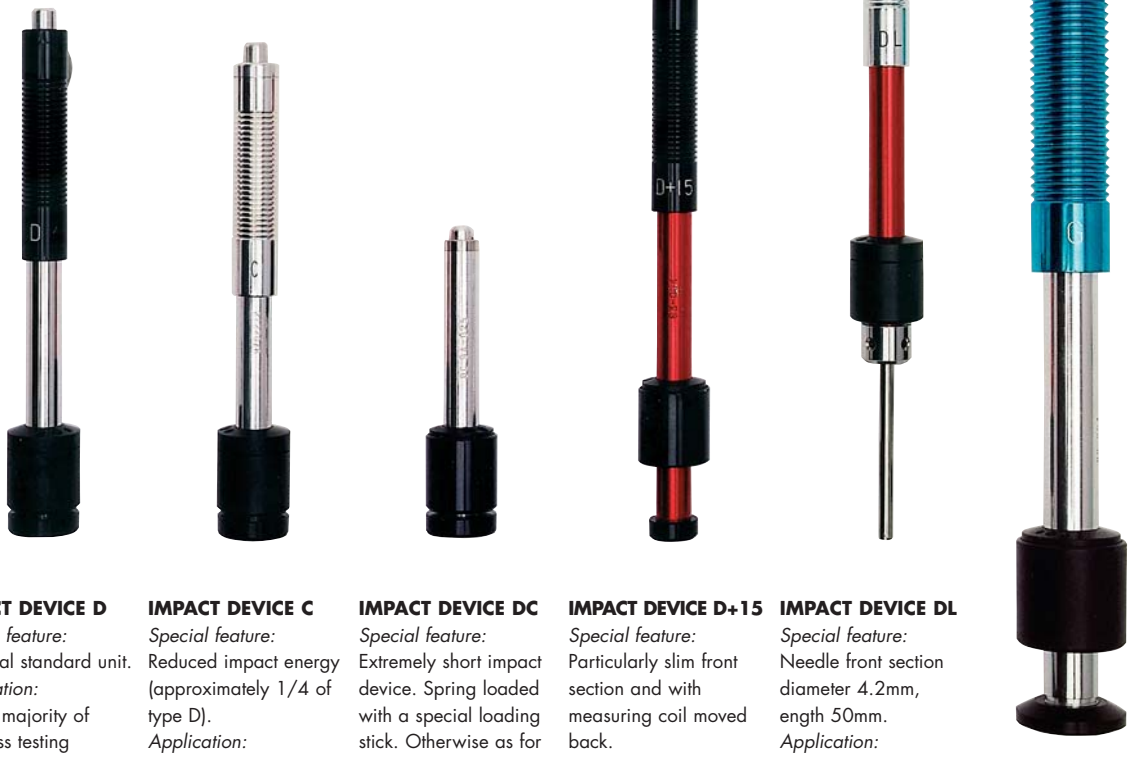
Impact devices:	**D/DC/DL**	**D+15**	**C**	**G**	**E**
With 300 HV					
■ Diameter	0.54mm	0.54mm	0.38mm	1.03mm	0.54mm
■ Depth	24µm	24µm	12µm	53µm	24µm
With 600 HV					
■ Diameter	0.45mm	0.45mm	0.32mm	0.90mm	0.45mm
■ Depth	17µm	17µm	8µm	41µm	17µm
With 800 HV					
■ Diameter	0.35mm	0.35mm	0.30mm	-	0.35mm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

IMPACT DEVICES FOR SPECIAL APPLICATIONS

Hardness testing devices for models TH-140/160

Impact body D

Impact body G



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 (approxmately 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, ength 50mm.
Application:
Measurements in extremely confined spaces

Impact Device G