equotip®

Proceq's Market Leading Test Block Range

Don't take Chances – use genuine Equotip Test Blocks for best Metal Hardness Testing Results according to Leeb

Using the Genuine Leeb Scales (HL)

The Leeb rebound method was invented in 1975 by Proceq scientist Dietmar Leeb. Since then, Proceq has maintained the genuine Leeb standard HL. That means, a measurement of a sample showing a result of 750 HLD by Proceq in 1975, done with the first generation Equotip, would still deliver the exact same result today, done with the most recent generation. With Equotip test blocks, end users can check if their testers conform with this hardness unit, similarly to using a ruler for length measurements.

During a Leeb hardness measurement, an impact body with a hard ball indenter is launched by spring energy against the sample, and then rebounds. The ratio of the rebound velocity v_r to the impact velocity v_i multiplied by 1000 yields the hardness value HL (Leeb hardness).

Application

The metal industries work with various materials that are subject to special treatments, leading to a specific hardness. E.g., engine blocks made from aluminium typically hold a relatively low metal hardness often measured in Leeb HL, Brinell HB or Rockwell HRB. In contrast, rollers used in steel rolling hold a hardness that can easily exceed 800 HLD ~60 HRC ~750 HV.

In order to verify that the Equotip tester is calibrated, the user is meant to conduct test impacts on a HL reference test block that is close to the hardness of the sample.

Equotip test blocks are available in 4 hardness ranges, placing users in the unique position where they can compare the readings of their instruments with the genuine HL calibration value marked on the test block.

Benefits to the Customer

Genuineness: Equotip is the original Leeb rebound hardness tester, invented by Mr Dietmar Leeb and Dr Marco Brandestini at Proceq SA in 1975.

Authority: Proceq's Equotip is aligned with the Leeb scales of the major national institutes.

Accuracy: In accordance with the standards, the test blocks are calibrated using the impact device type later used in the application – without any conversion errors.

Versatility: Equotip test blocks cover a greater hardness range than any other manufacturers' Leeb blocks.

Price / performance: Verifying instruments on test blocks can prevent expensive product recalls.

Citations from national standards

"Prior to each shift, the Leeb instrument shall be verified."
"Multiple block calibration verification is strongly advised."
"Any Leeb instrument not meeting the requirements shall not be employed for the acceptance testing of product."
ASTM A956, American Society for Testing and Materials

"The user shall conduct device verification in each HL hardness range that is concerned."
"The test block only is valid for the impact device type that was used for its calibration."
DIN 50156 (2007), German Institute for Standardization

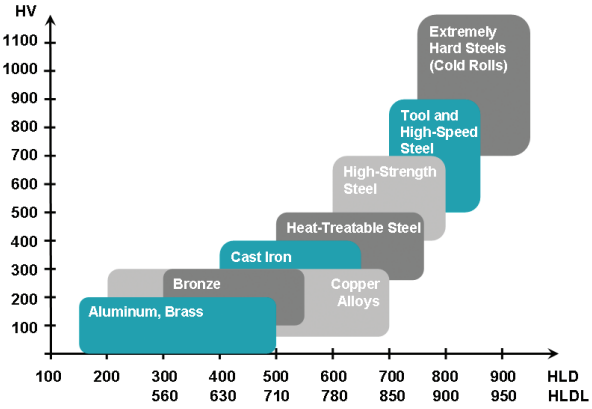
proceq

Made in Switzerland

... more than 50 years of know-how you can measure!

The Right Block for the Application

To match the needs of user applications, Proceq offers a range of impact devices, which differ by accessibility to the test location, impact energy and impact body. Similarly to the various Rockwell units, e.g. HRC and HRB, one distinguishes the HLD, HLDL, HLC, HLG, HLS and HLE units. With the range of >15 blocks plus additional calibrations, Equotip test blocks address every user's needs, for any impact device:



For example, a user who has a D and an E impact device can make avail of the test block D at approx. 56 HRC and add an extra calibration type E.

The increased impact energy of the G device requires more solid samples, such as the 6.3 kg test block G of block diameter 120mm.

As another example, users may have the need to hold certified test material, which Proceq can take care of through its collaborations with accredited institutes.

Ordering Information

Part No.	Description
357 11 100 357 12 100 357 13 100 357 13 105	Equotip test blocks D/DC (Ø 90mm) <500 HLD / <225 HV / <220 HB ~600 HLD / ~335 HV / ~325 HB / ~35 HRC ~775 HLD / ~630 HV / ~56 HRC ~775 HLD, calibrated one-sided only
357 11 120 357 12 120 357 13 120	Equotip test blocks DL (Ø 90mm) <710 HLDL / <225 HV / <220 HB ~780 HLDL / ~335 HV /~325 HB / ~35 HRC ~890 HLDL / ~630 HV / ~56 HRC
357 13 200 357 14 200	Equotip test blocks S (Ø 90mm) ~815 HLS / ~630 HV / ~56 HRC ~875 HLS / ~800 HV / ~63 HRC
357 13 400 357 14 400	Equotip test blocks E (Ø 90mm) ~740 HLE / ~630 HV / ~56 HRC ~810 HLE / ~800 HV / ~63 HRC
357 11 500 357 12 500 357 13 500	Equotip test blocks C (Ø 90mm) <565 HLC / <225 HV / <220 HB ~665 HLC / ~335 HV / ~325 HB / ~35 HRC ~835 HLC / ~630 HV / ~56 HRC

Part No.	Description
357 31 300 357 32 300	Equotip test blocks G (Ø 120mm) <450 HLG / <200 HB ~570 HLG / ~340 HB
	Equotip test block extra calibrations, calibrated by Proceq:
357 10 109	additional calibration with impact device D/DC
357 10 129	additional calibration with impact device DL
357 10 209	additional calibration with impact device S
357 10 409	additional calibration with impact device E
357 10 509	additional calibration with impact device C
357 30 309	additional calibration with impact device G
	Equotip test block extra calibrations, calibrated by an accredited institute:
357 90 909	additional calibration in HL (DIN 50156-3)
357 90 919	additional calibration in HB (ISO 6506-3)
357 90 929	additional calibration in HV (ISO 6507-3)
357 90 939	additional calibration in HR (ISO 6508-3)

Standards and Guidelines applied

- ASTM A956 (2006)
- DIN 50156-3 (2007)
- DGZfP Guideline MC 1 (2008)
- VDI / VDE Guideline 2616 Paper 1 (2002)
- JJG 747 (1999)

Service Information

Proceq is committed to providing complete support for the Equotip test blocks by means of global service and support facilities.

Details are available on www.equotip.com.

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  ...more than 50 years of know-how you can measure!