

Introduction



WARNING

Read this manual thoroughly prior to use in order to fully understand all of the functions of the product and use the product properly. Furthermore, keep this manual at hand after reading it. The specifications of the product or/and the contents of this manual may be subject to change without notice. If a defect due to our production and distribution is identified in the product within one year from the date of purchase, we offer free-of-charge repair. In this case, contact your dealer or a Mitutoyo sales office nearest to you.

Precautions on Use

- Do not use the instrument for any purpose other than testing the hardness of rubbers or plastics.
 - Do not hit anything against the instrument or drop the instrument.
 - Do not apply excessive force (torsion or tension) to the instrument.
 - Do not push the instrument against a specimen with spring force substantially exceeding its own hardness reading range; otherwise, measurement errors or damage to the instrument may result.
 - Do not push the instrument against a specimen with drastic pressure, and do not displace the instrument transversely keeping it pushed against a specimen.
 - Do not push the instrument against hard materials (such as metal or glass) for any purpose other than hardness testing or inspection.
 - Do not disassemble or make alterations to the instrument or loosen its screws, etc.
 - Do not injure yourself or damage anything with the pressure foot or indenter of the instrument.
 - Do not clean the instrument with organic solvent such as benzene or thinner.
 - Do not use the instrument in a place where it is exposed to water or oil.
 - Correctly Push the instrument against a specimen to the downward direction.
- Measurement errors result if the instrument is pushed against a specimen to the sidling, transverse and upward direction.
- It is recommended to experimentally push the instrument against a specimen (approx.10 times) before actual hardness testing.

Warning Related to Overseas Transfer

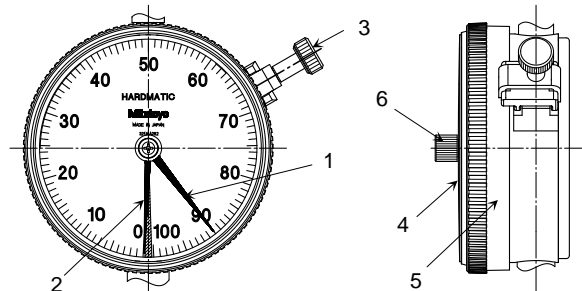
The product is controlled by the Foreign Exchange and Foreign Trade Act. Contact Mitutoyo before transferring the product and/or the technologies involving it overseas.

1. Part Names and Operating Procedures

1. Tightly grip the instrument, and push it against a specimen.
2. Make sure that the pressure foot of the instrument securely contacts the specimen, and read the indicated value.
3. The indicated value is the hardness value of the specimen.

NOTE

The biggest hardness value can be held in Step 2 if the peak retaining hand is turned (with the knob located in the center of the display) counterclockwise to the limit in advance.



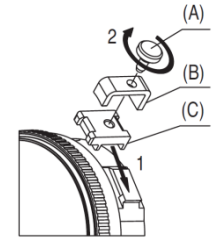
1. Long hand
2. Peak retaining hand
3. Bezel clamp
4. Crystal
5. Bezel
6. Peak retaining hand knob

2. Attaching the Bezel Clamp

1. Set the clamp bracket (C) in the dovetail groove of the bezel.
2. Retain the clamp bracket with the clamping plate (B), and then fix them with the clamping screw (A).

NOTE

If the instrument is used in the horizontal position, the clamping parts may come loose and then fall off because of vibration, etc.



3. Specifications

Code No.	811-329-10	811-331-10	811-333-10	811-335-10	811-337-10	811-335-11	811-337-11
Model	HH-329	HH-331	HH-333	HH-335	HH-337	HH-335-01	HH-337-01
Appearance configuration							
Nose geometry	Type E	Type A	Type D	Type A	Type D	Type A	Type D
Display system	Dial	Dial	Dial	Dial	Dial	Dial	Dial
Indenter	b	φ5mm	φ1.25mm	φ1.25mm	φ1.25mm	φ1.25mm	φ1.25mm
	d	-	φ0.79mm	-	φ0.79mm	-	φ0.79mm
	r	-	-	R0.1	-	R0.1	-
	θ	-	35°	35°	35°	30°	35°
Pressure foot	a	φ5.4mm	φ3mm	φ3mm	φ3mm	φ3mm	φ3mm
	f	44x18mm	φ18mm	φ18mm	44x18mm	44x18mm	φ18mm
Indenter protrusion	2.5mm	2.5mm	2.5mm	2.5mm	2.5mm	2.5mm	2.5mm
Hardness	HE	HA	HD	HA	HD	HA	HD
Spring force WE, WA, WD	WE=550+75HE [mN]	WA=550+75HA [mN]	WD=444.5HD [mN]	WA=550+75HA [mN]	WD=444.5HD [mN]	WA=550+75HA [mN]	WD=444.5HD [mN]
Accuracy of spring force	±68.6 mN	±68.6 mN	±392.3 mN	±68.6 mN	±392.3 mN	±68.6 mN	-
Functions	Peak retaining hand	Peak retaining hand	Peak retaining hand	Peak retaining hand	Peak retaining hand	Peak retaining hand	Peak retaining hand
Output	-	-	-	-	-	-	-
Mass	0.3kg	0.32kg	0.32kg	0.3kg	0.3kg	0.27kg	0.27kg
Dimensions	144x56x33.5	186x56x34.5	186x56x34.5	144x56x33.5	144x56x33.5	144x56x33.5	144x56x33.5

