

Webster hardness tester

AW-20+ series

When you buy this instrument, you are taking a step forward in the field of precision measurement. The watch is a computer-centered test tool that, if properly operated, is robust enough to last for many years. Please read this manual carefully before use and keep it in an easily accessible place.

1. Product application


AW-20+ series Wechsler hardness tester is an instrument that can quickly test the hardness of aluminum alloy in the field. Wechsler hardness tester is easy to use, One card can, hardness value directly read. Used for rapid detection of aluminum alloy profiles, pipes, plates, aluminum workpieces and other soft The hardness of the metal. It is especially suitable for fast and non-destructive batch products at the production site, sales site or construction site Item by item inspection.

2. Product features


Press needle: new material, new process manufacturing of press needle, high hardness, long life, good interchangeability.
 Handle: forged material, surface anodized upper handle, beautiful, wear resistant, pollution resistant.
 Hardness block: The standard hardness block is tested by the standard hardness machine.
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 High quality: fine parts processing, precision machine assembly, strict quality inspection.
 Good stability: full degree point stability, correction point stability,
 Easy conversion: Wechsler hardness value can be converted into Vickers, Rockwell, Brinell and other hardness values.

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7. Operation method

7-1. Correction
 Press the handle down and press the button  straight Until "CAL" appears on the display. Note: Model AW-20A+ is fitted with anvil seat cover before calibration.

7-2 Operations
 Place the sample between the anvil and the pressor and check the handle until it feels pressed to the bottom. The display appears A reading, this reading is the measured hardness value. Excessive pressure beyond this limit will not hurt Bad hardness tester, however, this is not necessary. When the reading is number should still grip the handle, during the test either Any twist or movement will make the reading inaccurate.

7-2.1 Unit conversion
 Press and hold the key  twice to select the appropriate unit. (Note: When HB and HV lights on at the same time, the unit is: HRF)

7-3 Hardness block test
 Test standard Wechsler hardness blocks with a durometer. For the AW 20+ series Wechth hardness tester, the reading is the hardness value labeled on the hardness block, the maximum allowable error is $\pm 0.5\text{HW}$, for the AW-B75+, AW-B75B+, AW B92+ Wechth hardness tester, the reading should be $5\text{HW} \pm 0.5\text{HW}$, AW-BB75B+, AW-BB75+ Wechth hardness tester. The reading should be $17\text{HW} \pm 0.5\text{HW}$. If the test readings do not meet the requirements, the operator should frequently use the Wechsler hardness block to check the accuracy of the instrument. If any

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3. Technical parameters

range	0~20HW
precision	0.5HW
weight	625g
dimension	220*160*30mm
battery	2*1.5AAA
measuring range	Figure 1

4. Accessories

Standard Accessories		Optional accessories
Host machine	Anvil seat cover (AW-20A+)	Spare presser
Standard Wechsler hardness block	specification	Standard Wechsler hardness block
Spare presser	Portable instrument case	
Special wrench		
Small screwdriver		

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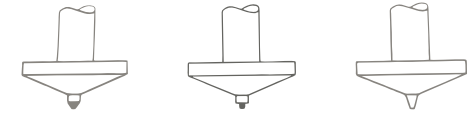
5. Instrument model table

model	Applicable material	hardness range	specimensize/mm
AW-20+	aluminium alloy	25~110HRE 58~131HV	thick0.6-6 inner diameter>10
AW-20A+			thick0.6-13 inner diameter>10
AW-20B+			thick0.6-8 inner diameter>6
AW-B75+	Hard or semi-hard brass, superduralumin	63~105HRF	thick0.6-6 inner diameter>10
AW-B75B+			thick0.6-8 inner diameter>6
AW-BB75+	Soft brass, red copper	18~100HRE	thick0.6-6 inner diameter>10
AW-BB75B+			thick0.6-8 inner diameter>6
AW-B92+	Cold rolled steel plate, stainless steel	50~92HRB	thick0.6-6 inner diameter>10

Figure 1

6. Instrument structure diagram

The pressure needle of different models of Wechsler hardness tester is different, as shown in the figure:



AW-20+type AW-B75+ AW-BB75+type AW-B92+type

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10. Factors affecting measurement accuracy

10-1 Sample: The surface of the sample should be cleaned. Dirt on the sample, especially fine sand particles, may affect it.

10-2 Sensitivity: The sensitivity of the instrument is significantly reduced in the range below 4HW and above 17HW, and the measurement accuracy is also reduced. Other hardness gauges should be considered in the above range.

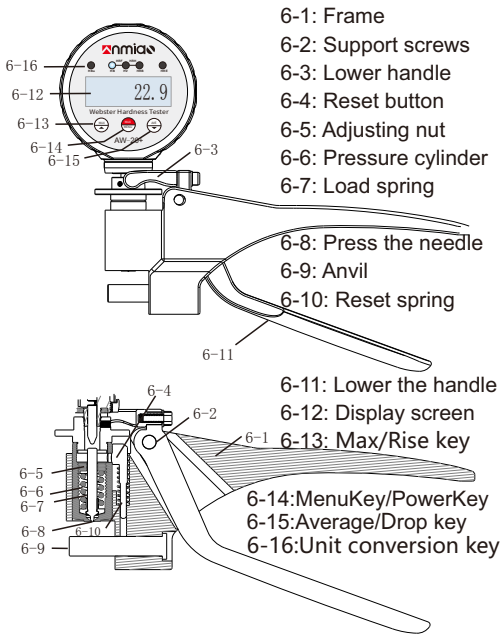
10-3 Sample edge: During the test, the distance between the measuring point and the sample edge should be greater than 5mm, and close to the sample edge will affect the measurement accuracy.

10-4 Adjacent indentation: When testing, it should be noted that the distance between the two adjacent indentations should be no less than 6mm, otherwise, the former indentation will affect the accuracy of the following measurement.

10-5 oxide film: Although the hard oxide film is very thin, the accuracy of the hardness measurement of aluminum profiles will also be affected, experience shows that the thickness of 10μm oxide film will make the hardness measurement value higher by 0.5~1HW.

10-6 coating: Various coatings will seriously affect the measurement accuracy, so it is required to remove the coating with sandpaper or solvent before hardness measurement.

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Table 1: AW-20+ series hardness tester hardness conversion table

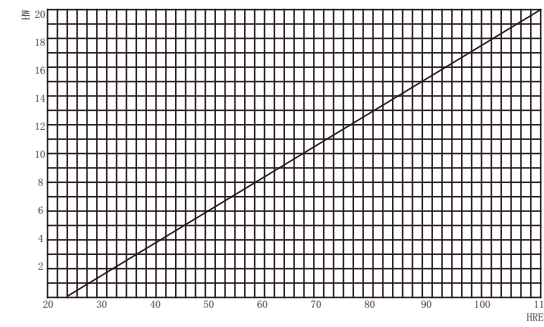
HW	HRE	HRF	HV
18	101	98.5	131
17	97	95	119
16	92.5	91	108
15	88	87.2	99
14	84	83	91
13	79.5	78	83
12	75	74	78
11	71	70	73
10	67	66	69
9	62.5	62.5	65
8	58	58	61
7	54	54	58
6	49.5	50	
5	45	46.5	
4	41		

Table 2: AW-B75+ series hardness tester hardness conversion table

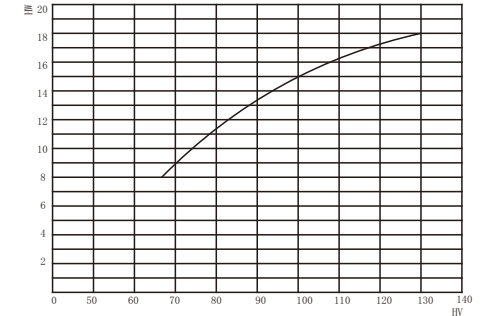
HW	HRB
4	53.0
5	53.3
6	54.1
7	54.8
8	56.7
9	58.5
10	60.8
11	63.4
12	66.4
13	69.7
14	73.5
15	77.9
16	82.1
17	86.9
18	92.2

Table 3: AW-BB75+ series hardness tester hardness conversion table

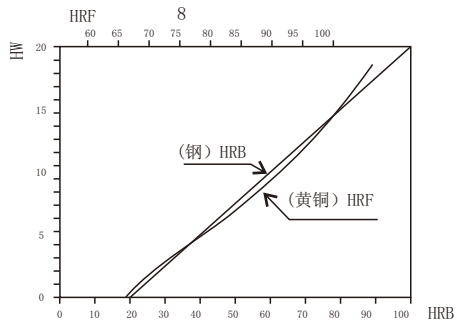
HW	HRF
4	30.2
5	34.9
6	39.6
7	44.3
8	49.0
9	53.7
10	58.4
11	63.1
12	67.8
13	72.5
14	77.3
15	82.0
16	86.7
17	91.4
18	96.1



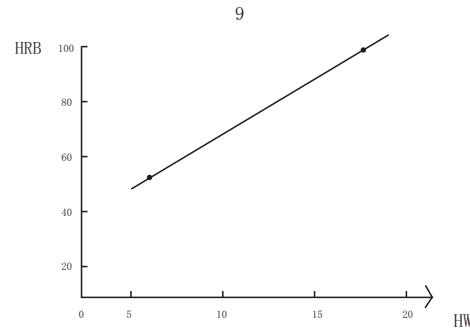
AW-20+ series hardness conversion curve



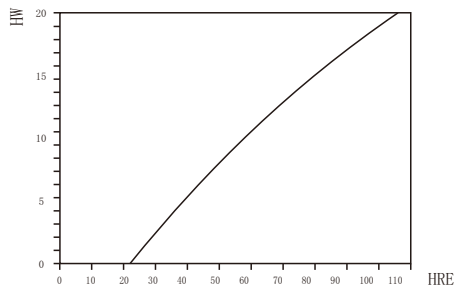
AW-20+ series hardness conversion curve



AW-B75+ series hardness conversion curve



AW-B92+ series hardness conversion curve



AW-BB75+ series hardness conversion curve

Note: The data in Table 1 are based on the following information:

1. Hw-hre relationship: According to the hardness conversion chart of Webster Company's instruction manual.
2. HRE-HRF relationship: According to Webster Company's technical data "Soft Metal hardness value conversion table"
3. HRFHV relationship: according to Chinese standard GBn166 "Aluminum alloy hardness and strength conversion value".

Note: The data in Table II and III are based on the following information:

1. "Wechsler Hardness Tester Test Summary Report" China Nonferrous Metals Industry Standard Metrology Research Institute 2002.12.20
2. "Wechsler Hardness Test Second Summary Report" China Nonferrous Metals Industry Standard Metrology Research Institute 2003.7

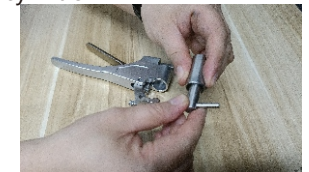
11. Needle change method



① Unscrew the handle nut



② Remove the pressure cylinder



③ Twist the pressure cylinder with the configuration wrench



④ Take out the pressure needle and replace it with a new needle