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 computercentered 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.

6-1: Frame 6-2: Support screws 6-3: Lower handle 6-4: Reset button 6-5: Adjusting nut 6-6: Pressure cylinder 6-7: Load spring 6-8: Press the needle 6-9: Anvil 6-10: Reset spring 6-11: Lower the handle 6-12: Display screen 6-13: Max/Rise key 6-14:MenuKey/PowerKey 6-15:Average/Drop key 6-16:Unit conversion key

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.

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.

Hardness block: The standard hardness block is tested by the standard hardness machine. High quality: fine parts processing, precision machine assembly, strict quality inspection. Good stability: full degree point stability, correction

Easy conversion: Wechsler hardness value can be converted into Vickers, Rockwell, Brinell and other hardness values.

7. Operation method

7-1 Correction Press the handle down and press the button MENU 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.

7-2.1Unit conversion
Press and hold the key (MENU) 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 ±0.5HW, for the AW-B75+, AW-B75B+, AW B92+ Wechth hardness tester, the reading should be 5HW±0.5HW,AW-BB75B+,AW-BB75+ Wechth hardness tester. The reading should be 17HW±0.5HW. 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

3. Technical parameters

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

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deviation is found, it should be corrected in time. When testing the hardness block, only the positive surface of

If you cannot read to 20 by adjusting the adjusting

screw, the pressure needle is worn and should be

Turn the needle support screw, remove the lower

nut with the special wrench equipped with the

handle from the frame, and then remove the meter from

the pressure cylinder, the pressure cylinder remains in

the frame. At this time, a slotted adjusting nut can be

seen in the pressure cylinder. Take out the adjusting

instrument, then take out the pressure needle and

replace it with a new pressure needle. Then you can

correct it. After replacing the pressure pin, adjust the

tightened once (according to the standard Wechsler

or loosen the nut.) During the initial setting, the

pressure of the load spring is too high, which will

9. Maintenance and maintenance

This instrument is a precision instrument, and its

service life depends on whether the use method is

correct and whether the maintenance is timely and

appropriate. Pay attention to anti-fouling, anti-rust.

anti-fall, do not disassemble. Remove the battery when

pressure of the load spring with the adjusting nut. After feeling the resistance of the load spring, the nut can be

hardness block, if there is any deviation, tighten the nut

4. Accessories

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

the hardness block should be used.

8. Replace the pressure pin

replaced with a new pressure needle.

Pressure needle replacement method:

Optional accessories	
Spare presser	
Standard Wechsler hardness bloc	k

Instrument model table

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

significantly reduced in the range below 4HW and above 17HW, and the measurement accuracy is also in the above range.

between the measuring point and the sample edge should be greater than 5mm, and close to the sample edge will affect the measurement accuracy.

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

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

10-2 Sensitivity: The sensitivity of the instrument is reduced. Other hardness gauges should be considered

10-3 Sample edge: During the test, the distance

10-4 Adjacent indentation: When testing, it should be

the hardness measurement value higher by 0.5~1HW.

measurement.

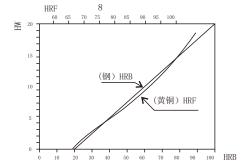
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not in use.

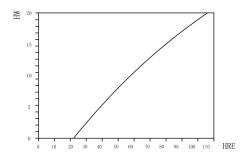
damage the pressor tip.

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		



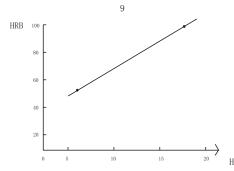
AW-B75+ series hardness conversion curve



AW-BB75+ series hardness conversion curve

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



AW-B92+ 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".

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

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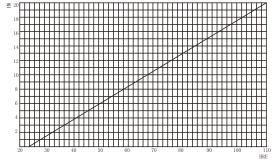
Note: The data in Table II and III are based on the following information:

- "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

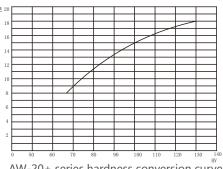
11. Needle change method



① Unscrew the handle nut



AW-20+ series hardness conversion curve



AW-20+ series hardness conversion curve



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