BULLETIN NO. 659

Webster hardness tester

MODELS
B, B-75, BB-75

A PORTABLE, FAST, ACCURATE INSTRUMENT AVAILABLE IN SEVERAL MODELS FOR TESTING MATERIALS SUCH AS ALUMINUM, BRASS, COPPER AND MILD STEEL.

A ROUND ANVIL PERMITS THE TESTING OF A GREAT VARIETY OF SHAPES: TUBING, EXTRUSIONS AND FLAT STOCK THAT OTHER TESTERS CANNOT CHECK.

USES AND APPLICATIONS

- **Used widely by manufacturers employing aluminum extrusions to separate tempers for proper fabrication procedures.**
- **For identifying heat-treated from non-heat-treated materials.**
- **Provides correlation between bench-mounted hardness testing equipment and the production line.**
- **For recognizing parts made from improper or substandard alloys.**
- **For differentiating between soft or work-hardened materials.**
- **For checking proper heat-treatment response.**
- **May be used in conjunction with stationary laboratory hardness testers to give a rapid 100% check on parts which would consume many man-hours with slower operating test equipment.**
- **Can be used on assemblies which cannot be brought to the laboratory.**
- **For segregating materials in stock.**

FEATURES

- One hand operation and portability.
- Round 3/8 inch diameter anvil permits testing a great variety of shapes.
- Simple and rugged operation and construction permit readings independent of the operator's skill.
- Ability to test materials up to 1/4 inch in thickness.
- Test is made by simply applying pressure to the handles until "bottom" is felt; that is, until the housing contacts the material being tested which is placed between the anvil and housing.
- Easy-to-read dial indicator with 20 graduations permits use of the tester as "go" and "no-go" gauge, or values can be converted to other hardness scales.

HARDNESS Webster GAUGES

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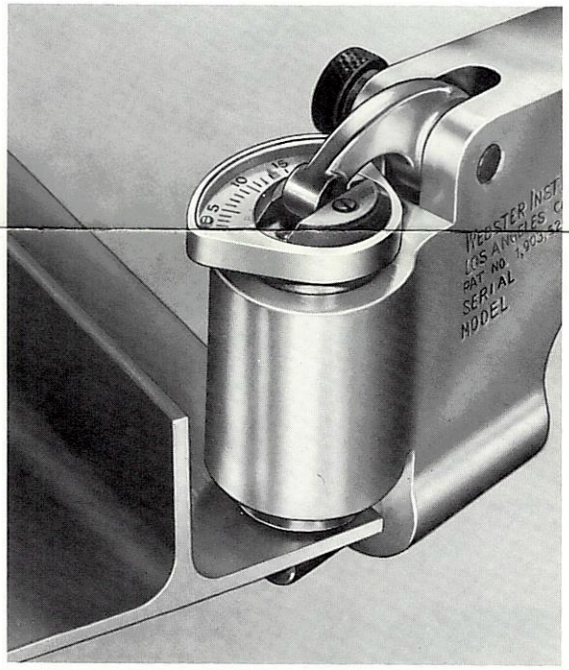
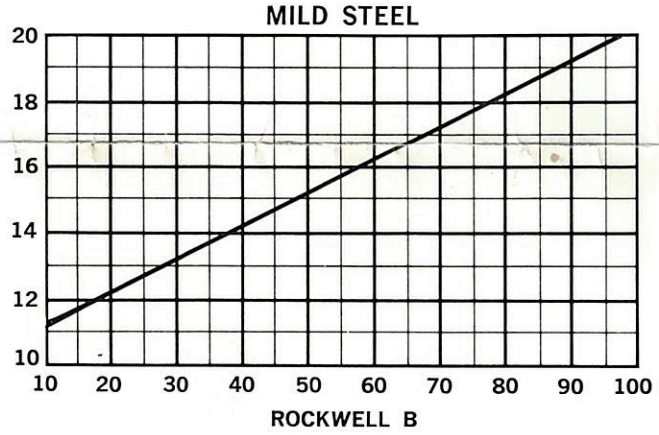
Webster hardness tester

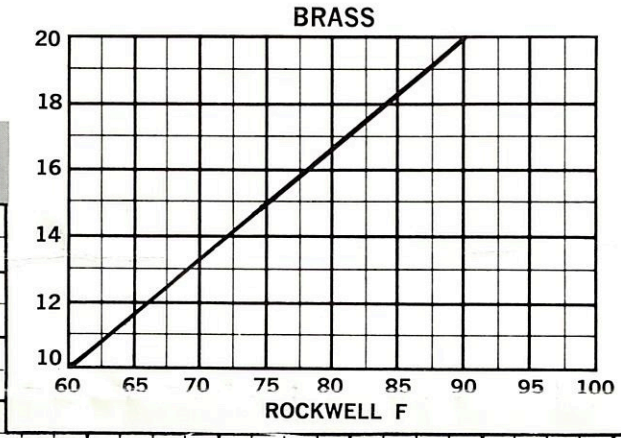
MODEL B

The Model B Tester was designed to cover the hardness of aluminum alloys from the 1100 to the 2024 series in 20 graduations of the dial indicator. This range lies between the Rockwell values of E 25 and E 110.

The charts on this page show the ranges covered by the Model B Tester on several of the common metals. Production lots of a given alloy will vary somewhat in work-hardening characteristics which may result in instances where readings being taken do not fall precisely on these curves. Results were derived from many samples and show the average curve. All tests were conducted with the Model B Tester set to read 16 on a standard test block of 6061-T6 aluminum alloy of Rockwell E 90-92 hardness.







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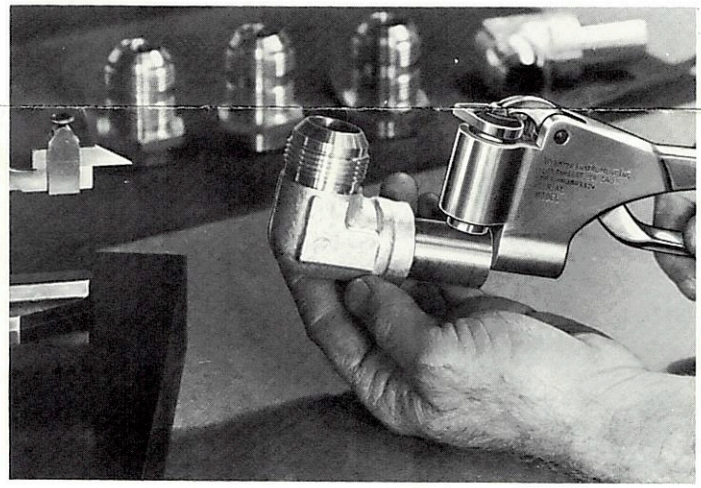
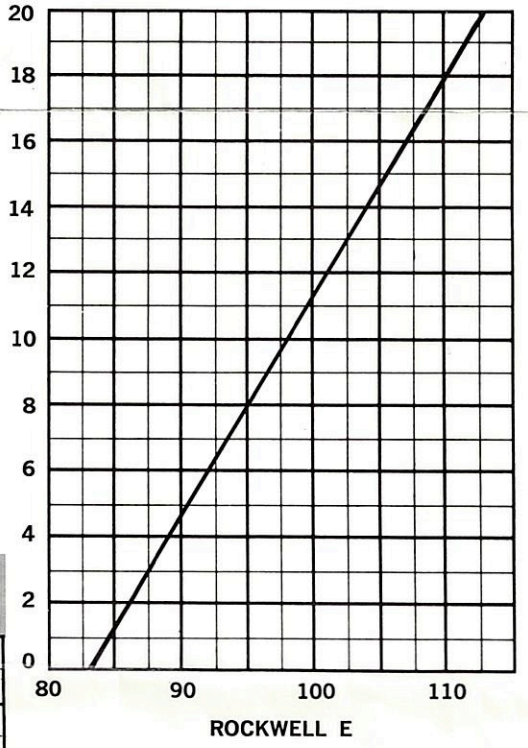
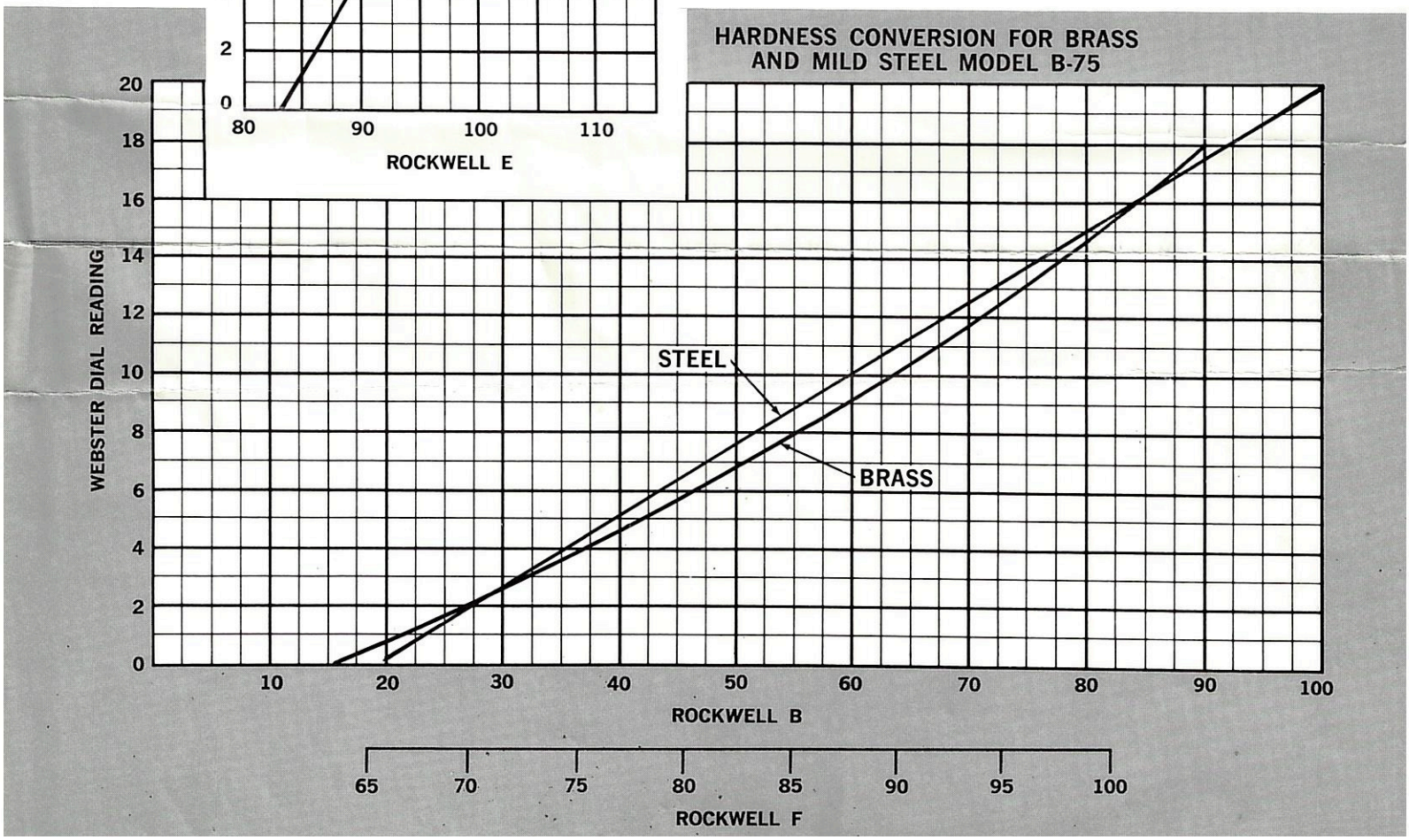
MODEL B-75

The Model B-75 Tester was developed to obtain more sensitive response to slight changes in the upper range of hardness covered by the Model B. This sensitivity is particularly useful in testing the strong aluminum alloys such as 2024 and 7075. In brass, it also covers the range from annealed to full-hard. This added sensitivity is accomplished by incorporating a penetrator of slightly different contour and a heavier load spring than used in the Model B.

The charts on this page show the ranges covered by the Model B-75 Tester on several of the common metals. Results were derived from many samples and show the average curve. All tests were conducted with the Model B-75 Tester set to read 5 on a standard test block of 6061-T6 aluminum alloy of Rockwell E 90-92 hardness.







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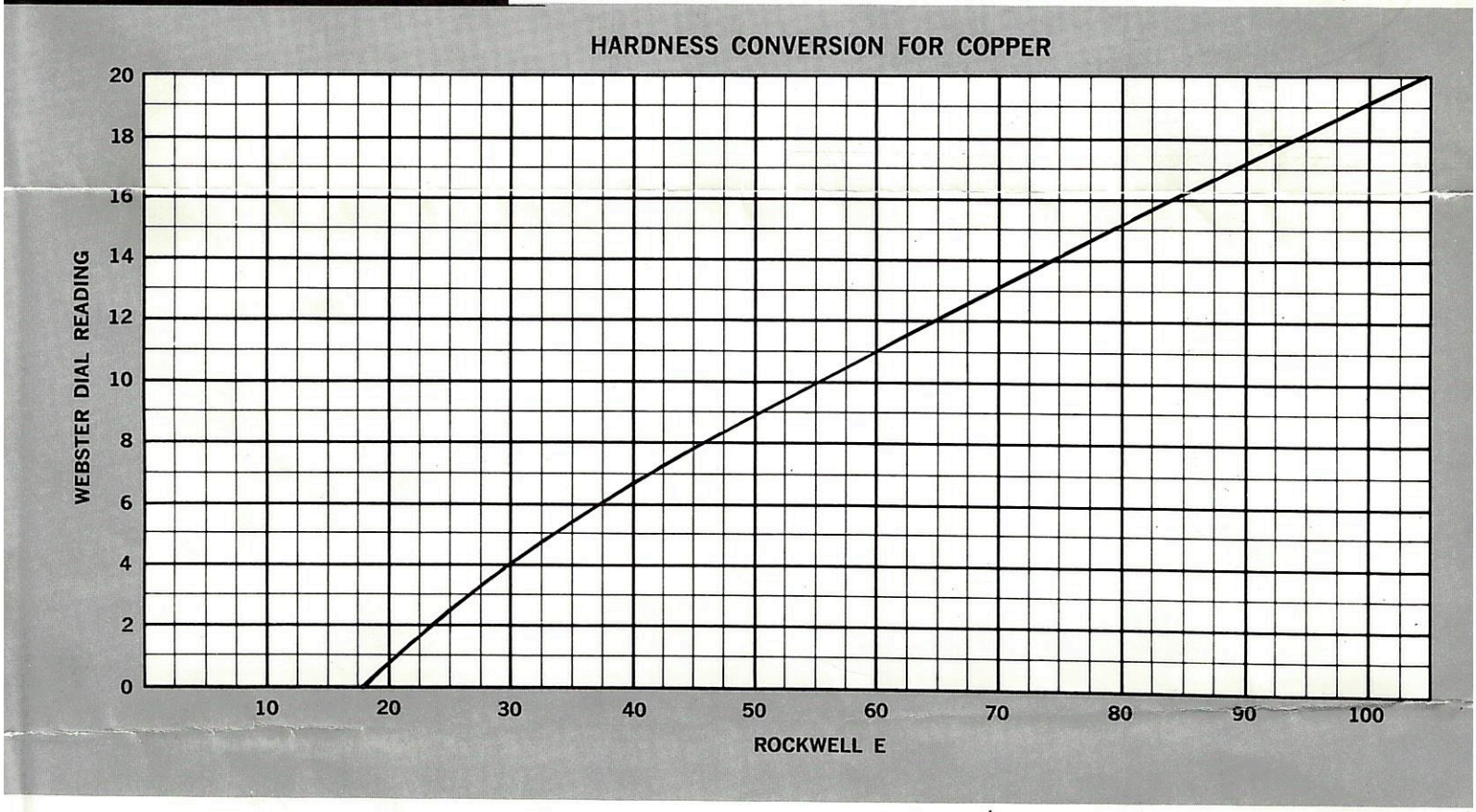
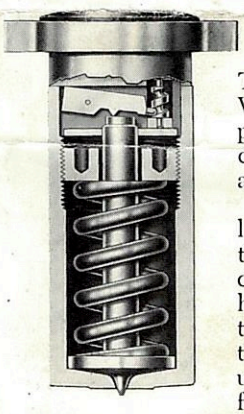
MODEL BB-75

The Model BB-75 was developed to answer the need of certain industries for a method of rapidly testing the hardness of electro-deposited copper and copper in the low hardness range. The B-75 penetrator is used to give sensitivity and the Model B load spring employed to give light pressures. This combination allows the user to test the soft range of many common materials. The chart below shows the range covered by the Model BB-75 on copper. All tests were conducted with the Model BB-75 set to read 17 on the standard test block of 6061-T6 aluminum alloy of Rockwell E 90-92 hardness.





OPERATION

This sectional view shows the basic design principle of the Webster Hardness Tester. The various models vary either in penetrator design or in the strength of the load spring. These combinations give the ability to test a wide range of hardnesses and metals.

The penetrator housing, which contains the penetrator and load spring, slides vertically in the frame of the tester. Gripping the handles depresses the entire housing assembly. Only sufficient pressure is needed to "bottom" the lower face of the housing against the work. Resistance of the work to the penetrator causes the penetrator to recede within the housing against the spring pressure. The load spring thereafter maintains a uniform force against the penetrator and toward the anvil, forming an impression upon any test piece gripped between the two members. Degree of penetration is indicated on the dial indicator resting atop the housing assembly. The load can be varied by adjusting the nut above the load spring, permitting the dial reading to be easily corrected against a test block of known hardness.

A penetration of .010 inch produces a full scale reading on the dial indicator. Therefore materials in the soft area of the curves shown should be of sufficient thickness so that the hard anvil will not influence the test and produce "anvil effect" or the appearance of penetration on the reverse side of the material. In general, soft materials under .025″-.030″ in thickness will not give true readings.

Each tester is shipped in a fitted case with a spare standby penetrator, adjusting wrench and standard test block.