

# Q M SYSTEMS CORP. \*

Factory: 2077 N. E. 154 Street  
North Miami Beach, Florida 33162

## Certificate of Verification

This is to certify that: STANDARDIZED AND CERTIFIED BRINELL TEST BAR NO. 3471 has been calibrated in the Standardizing Laboratory of Q M SYSTEMS \* in accordance with Part C of Standard Method Test for Brinell Hardness of Metallic Materials, A. S. T. M. Designation E - 10, Sections 13 through 21 and has been found to have a hardness of 250

The average diameter size of the five (5) calibrated impressions was found to be .....3.83m.m.  
10.0 / 3000

The applied loads were verified with Morehouse Proving Ring No. 2683 and SERVICE Proving Ring No 70044. The measurement of diameter of impression was read with a measuring microscope graduated to read .002mm and verified by Bausch & Lomb Micrometer Stage No. 311699 traceable to the Nacional Bureau of Standards and by Optical Grating No. 25142 manufactured and verified by the Nobel Institute of Sweden.

Each test impression was checked by two observers. All "SERVICE" test bars are manufactured by Q M SYSTEMS \* and calibrated in strict accordance with ASTM - E10 Standard Methods of Test for BRINELL HARDNESS at the SERVICE STANDARDIZING LABORATORY in Miami, Florida .

Special "SERVICE" standardizing hardness testing machine have verification tolerance considerably more rigorous than for machines used for referee , laboratory, routine , or everyday production inspection Brinell testing.

There is no absolute Standard of hardness and there is no metal perfectly homogeneous. Bars shall never be reground after being used. Tests should be made at a regular spacing but not too close together or erratic reading due to work hardening will result. These special STANDARDIZING machines used for manufacturing "SERVICE" test bars provide separete verification of load application , penetrator , and the diameter measuring device followed by a performance test. The applied loads are checked by the use of an elastic proving device in the manner described in ASTM Methods E-4 , Verification of Testing Machines , with procedures traceable to National Bureau of Standards.

Each "SERVICE" test bar is specially prepared and heat treated to give the necessary homogeneity and stability of structure ; and the surfaces have a fine ground finish. Each "SERVICE" test bar is marked with the arithmetic mean of the hardness values found in the standardization test ; stamped with the name "QMS" and serial number.

Date: 06 - 15 - 97  
Miami, Florida

Q M SYSTEMS CORP. \*

ATTEST:

  
ENGINEER PAUL THOMPSON