Fine (Mirashi) Calibration and Testing Laboratories LLP
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Date of Calibration	†Recommended date for next calibration	Date of Issue	Page	Certificate Number
23 June 2025	22 June 2028	28 June 2025	1 of 2	ULR-CC442925000100054F

Customer:	Fine (Mirashi) Calibration and Testing Laboratories LLP B-7/12, MIDC Area, Miraj, Dist. Sangli, Maharashtra 416 410

Mean Hardness Value:	**40.60 HRBW**
Reference Block Serial Number:	R3729/2025
Reference Block Make:	FMI
Reference Block Type:	AL ALLOY

Reference Hardness Block Scale: HRBW

Reference Hardness block Thikness: 13.91 mm

Shape: Circular

Temperature: (25.1 ± 1)° C

Humidity: (59 ± 10)%

Standard used and Traceability: The above Reference Hardness Block is calibrated on a standardising machine at Fine (mirashi) calibration and Testing laboratories LLP. The standardising machine is directy calibrated as per the requirements of ISO 6508-3:2023 and ASTM E18-24 annex A2. The standardising machine is calibrated using devices traceable to SI system of units realised at NPL-India, NPL-UK, IMGC, NIST or PTB either directly or through NABL, UKAS, NVALP, A2LA or DAkkS

Validity: ISO 6508-3:2023 Clause 10: The hardness Reference Block is only valid for the scale for which it was calibrated. The duration of the calibration validity should be limited to 5 years. Attention is drawn to the fact that, for Al- and Cu-alloys, the calibration validity could be reduced to two years to three years.

Calibration Method: FMCTL/SOP/Rockwell based on ASTM E18-24 annex A4, ISO 6508-3:2023 and IS 1586 (Part 3):2018

Approved Signatory:

A K Mirashi K S Mirashi

FORMAT: FMCTL/F/C01

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Results

After the preliminary visual inspection of the test surface and supporting surface of the block, at least one impression was taken on the block for seating purpose and its hardness value was ignored. Then the hardness was measured at five different places uniformly distributed throughout the test surface of the block.

Observations	**Mean Hardness Value (H_{mean}):**	40.60 HRBW
	Maximum Hardness Value (H_{max}):	41.39 HRBW
	Minimum Hardness Value (H_{min}):	40.03 HRBW
	Indentation 1:	40.69 HRBW
	Indentation 2:	40.03 HRBW
	Indentation 3:	40.44 HRBW
	Indentation 4:	40.46 HRBW
	Indentation 5:	41.39 HRBW
	Non-uniformity of the Block (R):	1.36 HRBW
Magnitude	**Preliminary Test force:**	98.07 N
	Total Test Force:	980.70 N
Dwell Time	**Preliminary Test force:**	3.0 secs
	Total Test Force:	5.0 secs
	Elastic Recovery:	4.0 secs

Expanded Uncertainty of Measurement: ± 1.01 HRBW (k = 2.01)
Thickness: ± 0.0077 mm
Dwell Time: ± 0.3 secs

Remarks:

1) The reported expanded uncertainty of calibration of the hardness block includes the standard uncertainty due to non-uniformity of the block and the CMC of the standardising machine. The reported expanded uncertainty is based on combined standard uncertainty multiplied by coverage factor k (as reported above) providing a level of confidence of approximately 95%
2) **The above Reference Hardness Block was found to comply with the requirements of ISO 6508-3 clause 7, IS 1586 (Part 3) clause 7 and ASTM E18 Table A4.2**

Note:
1) This certificate refers only to the particular item submitted for calibration.
2) This certificate shall not be reproduced, except in full, unless prior written permission from CEO, FMCTL. This certificate is invalid without signature.
3) †The recommended date of next calibration is computed on the basis of validity clause of ISO 6508-3. The customer may select different date as per their own requirements.

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