JOTAIN

**JOTAIN MATERIALS CO., LTD.**

MATERIALS TESTING
QUALITY CONTROL

# HARDNESS TEST REPORT

STEEL BAR - CROSS-SECTION HARDNESS PROFILE

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| REPORT NO. | JTN-HTR-20260715-01 |
| REVISION | 0 |
| ISSUE DATE | 15 Jul 2026 |
| PAGE | 1 of 1 |
| STATUS | ISSUED FOR REFERENCE |

## 01 MATERIAL AND SAMPLE IDENTIFICATION

| | | | |
|---|---|---|---|
| MATERIAL | 65Mn steel | MILL HEAT NO. | 92605-1034 |
| PRODUCT FORM | Round steel bar | DIMENSIONS | Dia. 110 mm x 2,950 mm |
| TEST DATE | 15 Jul 2026 | SAMPLE QUANTITY | 1 bar |
| CUSTOMER / PO REF. | Not provided | SAMPLE CONDITION | As submitted |

## 02 TEST INFORMATION

| | | | |
|---|---|---|---|
| TEST PROPERTY | Rockwell C hardness | REPORTED SCALE | HRC |
| TEST PATTERN | Cross-section hardness traverse | REPLICATES | 4 readings per depth; 1 center reading |
| PROCEDURE | Jotain internal hardness traverse procedure | INSTRUMENT | Rockwell hardness testing machine |

## 03 TEST RESULTS

| Test Position | Reading 1 | Reading 2 | Reading 3 | Reading 4 | Mean | Range |
|---|---|---|---|---|---|---|
| **Surface (0 mm)** | 52.3 | 52.8 | 53.1 | 52.6 | **52.7** | **0.8** |
| **7.0 mm** | 47.9 | 47.0 | 48.1 | 47.7 | **47.7** | **1.1** |
| **8.0 mm** | 42.4 | 44.8 | 42.3 | 44.3 | **43.5** | **2.5** |
| **9.0 mm** | 38.4 | 39.3 | 39.5 | 39.2 | **39.1** | **1.1** |
| **10.0 mm** | 38.2 | 37.4 | 38.4 | 38.1 | **38.0** | **1.0** |
| **12.5 mm** | 35.7 | 36.3 | 35.8 | 35.9 | **35.9** | **0.6** |
| **Center** | 36.6 | - | - | - | **36.6** | **-** |

Results are reported in HRC. The mean is the arithmetic mean of the four accepted readings. The center result is based on one reading; therefore, a range is not reported.

## 04 HARDNESS TRAVERSE

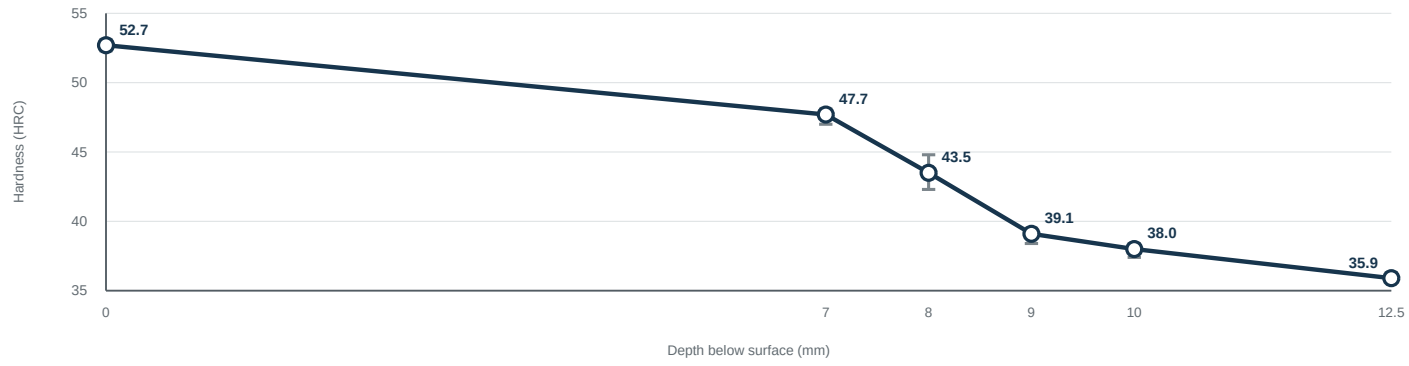



**Figure 1.** Mean Rockwell C hardness versus nominal depth below the bar surface. Vertical range bars represent the minimum-to-maximum values of the four readings. The center result (36.6 HRC) is reported separately because it is not part of the linear surface-depth sequence.

## 05 TEST OBSERVATIONS AND AUTHORIZATION

Measured hardness decreased from 52.7 HRC at the surface to 35.9 HRC at 12.5 mm below the surface. Four readings were recorded at each non-center position. The center result, 36.6 HRC, is based on one reading. At 7.0 mm, Reading 3 is the confirmed replacement value; the original 49.6 HRC entry was superseded by 48.1 HRC and excluded from the calculations. No acceptance criterion was provided; therefore, no conformity statement is made.

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|---|---|
| TESTED BY: Factory QC | DATE TESTED: 15 Jul 2026 |
| REVIEWED BY: | APPROVAL DATE: |

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