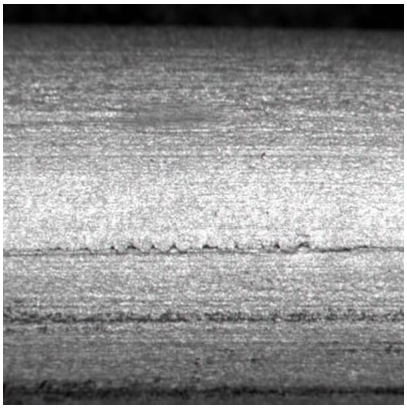


IS 9550: Surface Quality, Decarburization & Testing of Bright Steel Bars

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Steelmet Industries - Bright Bars, Alloy Steels, Free Cutting Steels, Stainless Steels

# IS 9550: Surface Quality, Decarburization & Testing of Bright Steel Bars

The **surface quality** and **integrity** of bright steel bars are critical for their performance in machining, forming, and engineering applications. IS 9550:2001 lays down clear standards for defects, decarburization, and testing.

At **Steelmet Industries**, we ensure our bright bars meet the highest surface and metallurgical standards in full compliance with IS 9550.

## Surface Quality Classes in IS 9550

IS 9550 classifies surface quality into four defect classes based on bar diameter and shape. These define the **maximum permissible defect depth** on the surface of bright bars.

**Table 1: Surface Defect Limits (Class-wise)**

| Nominal Size (d) | Class 1 | Class 2 | Class 3 | Class 4 |
|---|---|---|---|---|
| Up to 15 mm | 0.03 mm | 0.03 mm | 0.02 mm | Technically crack-free by testing |
| 15 â?? 20 mm | 0.02 Ã? d | 0.02 Ã? d | 0.02 mm | Technically crack-free |
| 20 â?? 75 mm | 0.02 Ã? d | 0.02 Ã? d | 0.01 Ã? d | |
| Above 75 mm | 0.11 mm | 0.50 mm | 0.75 mm | â?? |

*d = Nominal diameter or across-flats dimension*

## Additional Notes from IS 9550

- Drawn products may have minor imperfections like pores, pits, or scoring.
- Surface finish is generally better in round bars than in hexagonal or square sections.
- Crack-free bars are usually supplied in turned or turned and ground conditions only.
- Non-round sections do not carry surface finish class obligations as strict as round bars.

## Decarburization Control

Surface decarburization reduces the strength and hardness of steel. IS 9550 specifies limits:

- **Turned and ground bars:** No surface decarburization permitted.
- **Cold drawn bars:** Total decarburization not permitted. Limited partial decarburization allowed only up to defect depth specified for Class 2.

## Optional and Mandatory Tests

Steelmet Industries - Bright Bars, Alloy Steels, Free Cutting Steels, Stainless Steels

IS 9550 allows the purchaser and manufacturer to agree on additional tests beyond standard mechanical checks.

**Table 2: Tests Applicable Under IS 9550**

| Test Type | Reference Standard |
|---|---|
| Hardenability (Jominy Test) | IS 3848 |
| Inclusion Content | IS 4163 |
| Grain Size | IS 4748 |
| Microstructure Examination | IS 7739 |
| Crack Detection â?? Magnetic, Radiographic, Ultrasonic | IS 2595, IS 3658, IS 3664, IS 3703 |
| Decarburization Measurement | IS 6396 |
| Surface Roughness (if applicable) | As mutually agreed |

## Sampling Procedure for Testing

- For **turned or ground bars:** 1 sample per 20 tonnes (minimum 1 per cast)
- For **cold drawn bars:** 1 sample per cast
- For **annealed/processed bars:** 1 per batch of max 20 tonnes

Samples for mechanical testing are taken in the direction of the fibre (i.e., rolling direction).

## Retesting Clause

If a sample fails a test, two additional samples are taken. If both pass, the material is accepted. If either fails, the batch is rejected.

# Steelmet Industries â?? Bright Bars with Guaranteed Surface Integrity

We deliver crack-free, scale-free, and decarb-controlled bright bars ideal for machining, forging, and critical load-bearing use. Test certificates and full traceability are available on request.

Contact Steelmet Industries to order IS 9550-compliant bars with guaranteed test performance and surface control.

## FAQs on Surface Quality and Testing in IS 9550

What surface defects are allowed in IS 9550 bright bars?
Minor imperfections like pores and scoring may be present in drawn bars. IS 9550 limits surface defect depth by class, based on bar size.
Is decarburization allowed on IS 9550 bars?
No total decarburization is allowed. For turned and ground bars, surface decarburization is not permitted. Drawn bars may allow limited partial decarb.
Are test certificates required under IS 9550?
Test certificates are optional and provided if mutually agreed. Steelmet Industries offers MTCs for all major tests upon request.

Steelmet Industries – Bright Bars, Alloy Steels, Free Cutting Steels, Stainless Steels

*By Steelmet Industries Team â?? Experts in Special Steels*

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1. IS:9550-2001

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1. Bright Bar Testing
2. Crack Testing
3. Decarburization
4. Grain Size
5. IS 9550
6. Microstructure
7. Steel Standards
8. Steelmet Industries
9. Surface Quality

**Date**
30/10/2026
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admin