

IS 2062 : 2006

Table 2 Mechanical Properties
(Minimum R_{m} and R_{eH})

| Grade | Quality | Yield strength R_{eH} (MPa) | Tensile strength R_{m} (MPa) | Percentage elongation $A_{5.65}$ (%) | Impact Charpy V-notch energy K_{CV} (J) | Charpy V-notch transition temperature T_{CV} (°C) |
|-------|---------|-------------------------------|--------------------------------|--------------------------------------|---|---|
| E165 | A | 165 | 235 | 22 | 27 | 20 |
| E250 | A, B, C | 250 | 355 | 22 | 27 | 20 |
| E300 | A, B, C | 300 | 430 | 22 | 27 | 20 |
| E350 | A, B, C | 350 | 475 | 22 | 27 | 20 |
| E410 | A, B, C | 410 | 530 | 22 | 27 | 20 |
| E450 | A, B, C | 450 | 570/590 | 22 | 27 | 20 |

Table 3 Permissible Variations for Product Analysis
(Clause 8.2)

| Characteristic | Permissible Variation from the nominal value (%) |
|----------------|--|
| Carbon | ±0.02 |
| Manganese | ±0.03 |
| Silicon | ±0.03 |
| Copper | ±0.03 |
| Nickel | ±0.03 |
| Phosphorus | ±0.005 |

IS 2062:2006 Steel Grades - Complete Comparison Guide

Description

IS 2062:2006 is the Indian Standard governing **hot-rolled structural steel**, superseding IS 1977:1996 and IS 8500:1991. This guide compares all 9 grades (E165-E650) and their sub-qualities to help:

- Select the optimal grade for structural projects
- Understand chemical and mechanical property differences
- Identify suitable applications for each variant

Steelmet Industries manufactures all IS 2062:2006 grades as:

- Steel plates (3-100mm thickness)
- Structural sections (beams, channels, angles)
- Round/square/flat bars (5-300mm)

Grade Classification System

| Grade | Old Designation | Yield Strength (MPa) | Sub-Qualities | Key Characteristics |
|-------|-----------------|----------------------|---------------|-----------------------------------|
| E165 | Fe 290 | 165 | â?? | Basic structural grade |
| E250 | Fe 410 W | 250 | A, B, C | Improved weldability in Quality C |
| E300 | Fe 440 | 300 | â?? | Medium strength |
| E350 | Fe 490 | 350 | â?? | Common construction grade |
| E410 | Fe 540 | 410 | â?? | High strength |
| E450 | Fe 570/590 | 450 | D, E | Micro-alloyed variants |

Sub-Quality Explanation:

- **A:** Standard quality (semi-killed/killed)
- **B:** Killed steel with room temp impact test
- **C:** Killed steel with -20°C impact test
- **D/E:** Micro-alloyed high-strength versions

Key Comparison Tables

1. Chemical Composition (Selected Grades)

| Element | E165 | E250B | E350 | E450E |
|----------|-------|-------|-------|-------|
| C (max) | 0.25 | 0.22 | 0.20 | 0.22 |
| Mn (min) | 1.25 | 1.50 | 1.50 | 1.80 |
| P (max) | 0.045 | 0.045 | 0.045 | 0.045 |
| S (max) | 0.045 | 0.045 | 0.045 | 0.045 |
| CE (max) | â?? | 0.41 | 0.42 | 0.48 |

Note: Quality C has stricter limits (P/S â??0.040%)

2. Mechanical Properties

| Grade | Tensile (MPa) | Yield (MPa) | Elongation (%) | Impact Test |
|-------|---------------|-------------|----------------|--------------|
| E165 | 290 | 165 | 23 | Not required |
| E250B | 410 | 250 | 23 | 27J @ RT |
| E350 | 490 | 350 | 22 | â?? |
| E450E | 590 | 450 | 20 | 20J @ RT |

Applications Guide

| Grade | Best For | Form Available |
|---------|---------------------------|--------------------------|
| E165 | Light structures, roofing | Plates, bars |
| E250C | Welded bridges, cryogenic | Plates, sections |
| E350 | Building frames, cranes | All forms |
| E450D/E | Heavy mining equipment | Plates, special sections |

Why Choose Steelmet Industries?

We provide:

- Full range of IS 2062:2006 grades
- Custom processing (cutting, drilling, bending)
- Mill test certificates (MTC) per EN 10204 3.1
- Just-in-time delivery across India

Request samples of any IS 2062 grade for your project testing!

FAQ Section

Q: Can E250A be used for welded structures?

A: Yes, but E250C is recommended for critical welds due to its -20°C impact toughness.

Q: Difference between E450D and E450E?

A: E450E has higher manganese (1.80% vs 1.60%) for improved strength.

Conclusion

Understanding IS 2062:2006 grade differences ensures optimal material selection for structural integrity. **Steelmet Industries** stocks all grades from E165 to E650 • contact our technical team today for project-specific recommendations.

Categoria

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Data

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