



Indian Standard IS 14331:1995 - Specification for Steels for High-Temperature Bolting Applications

Bolting materials for high-temperature applications must endure extreme conditions, providing **strength, durability, and resistance** to thermal stress. The choice of steel for fasteners in such critical environments ensures operational safety and reliability.

The Indian Standard **IS 14331:1995**, established by the Bureau of Indian Standards (BIS), specifies the **chemical, mechanical, and thermal properties** of steels used for fasteners in high-temperature applications. This standard applies to steels used at temperatures ranging from **300°C to 650°C**, ensuring optimal performance and durability in demanding industrial settings.

Key specifications include precise **chemical compositions**, with strict limits on carbon, chromium, molybdenum, and other essential elements. The **mechanical properties** are tailored to ensure high tensile strength, elongation, and impact resistance, meeting operational demands even under extreme thermal conditions. The material must pass rigorous testing, including **macroetch tests, ultrasonic inspections**, and evaluations of **stress rupture and relaxation properties** to confirm internal and surface integrity.

The standard also outlines specific **packaging and marking requirements**, ensuring proper identification and traceability of materials. BIS certification further validates compliance with national standards, offering confidence to manufacturers and users alike.

This standard incorporates advanced methodologies derived from international benchmarks like ASTM and DIN standards, ensuring alignment with global practices. **IS 14331:1995** provides a robust framework for selecting steels that meet the stringent demands of high-temperature bolting applications, ensuring safety, reliability, and efficiency in critical operations.