



16MnCr5 Steel | Properties, Equivalents, Applications | Steelmet Industries

Description

16MnCr5 is a low-carbon case-hardening steel known for its excellent wear resistance, high surface hardness after carburizing, and good toughness in the core. It is widely used in the manufacture of components requiring a hard surface and strong core. At **Steelmet Industries**, we manufacture and supply **16MnCr5 steel bars** in **hot rolled, bright, and custom-profiled** forms, made from tested and traceable material to meet the most demanding applications.

Chemical Composition of 16MnCr5 Steel

Element	Composition (%)
Carbon (C)	0.14 – 0.19
Manganese (Mn)	1.00 – 1.30
Chromium (Cr)	0.80 – 1.10
Silicon (Si)	0.10 – 0.40
Sulphur (S)	≤ 0.035
Phosphorus (P)	≤ 0.035

Mechanical Properties (Typical After Case Hardening)

Property	Value
Core Tensile Strength	650 – 850 MPa
Case Hardness	58 – 62 HRC
Core Hardness	~28–34 HRC
Elongation	10 – 15%
Impact Resistance	Good (after proper heat treatment)

Properties vary depending on heat treatment and case depth.

Equivalent Grades of 16MnCr5

Standard Equivalent Grade

AISI / SAE 5115

DIN / EN 1.7131

IS (India) 16MnCr5 (IS 5517)

JIS SCM415 (similar)

BS 590M17 (similar)

Applications of 16MnCr5 Steel

16MnCr5 is a preferred steel for parts that undergo carburizing and require a combination of:

- High wear resistance at the surface
- Good core toughness and fatigue strength

Common applications include:

- Transmission gears and shafts
- Gearbox components
- Bushings and sprockets
- Pinions and rings
- Timing gear components
- Construction and agricultural machinery parts
- Automotive driveline components

Machinability, Weldability & Heat Treatment

- **Machinability:** Good in soft-annealed or normalized state
- **Weldability:** Moderate. Preheating is recommended for thick sections
- **Heat Treatment Options:**
 - Carburizing: 870-950°C
 - Hardening: 800-820°C followed by oil quenching
 - Tempering: 150-200°C (to relieve stresses post-hardening)
 - Annealing: ~680-710°C
 - Normalizing: ~870-900°C

The steel responds well to **deep case hardening**, making it suitable for wear-critical components.

± 16MnCr5 Steel Bars from Steelmet Industries

We supply **16MnCr5** steel in:

- **Bright Bars:** Drawn, Peeled, Ground for precision components
- **Hot Rolled Bars:** Rounds, Flats, Squares for forging and machining
- **Custom Profiles:** Hexagons, Round Corner Squares, D-shaped bars
- **Size Range:**
 - Rounds: 12 mm to 90 mm
 - Flats and Profiles: As per customer requirements
- **Tolerances:** ISO H9/H10 or as per specification

- **Supply Condition:** Annealed, Normalized, or Case-Hardened

Every bar is produced with **strict dimensional control, low decarburization, and verified mechanical and chemical properties.**

• Why Choose Steelmet Industries for 16MnCr5?

- Manufactured from quality billets (VD route available on request)
- Available in ready stock or custom mill-made lots
- Supplied with material test certificates and full traceability
- Reliable partner for automotive OEMs, gear manufacturers, and machinery builders
- Option for third-party inspection and NABL-certified lab reports
- On-time delivery and responsive technical support

• Certifications & Compliance

- Supplied with **Manufacturer Test Certificate (MTC)**
- Conforms to EN 10084 / IS 5517 and customer specifications
- Optional UT (Ultrasonic Testing), mechanical test reports, and NABL lab tie-ups available

• Request a Quote

Looking for a reliable supplier of 16MnCr5 steel bars in India?

• Contact **Steelmet Industries** today.

• Website: <https://www.steelmet.in>

• © Enquiry form available online for fast response

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