



SAE 1018 vs SAE 1010 Steel: Key Differences in Composition, Properties, and **Applications** 

Description

Cutting low-carbon steels, but it is comparison or SAE 1018 and SAE 1010 are widely used low-carbon steels, put their lead to distinct performance characteristics. This comparison covers: SAE 1018 and SAE 1010 are widely used low-carbon steels, but their subtle differences in composition

- Mechanical properties
- · Machinability and weldability
- Typical applications

Steelmet Industries stocks both grades in round bars, flat bars, and sheets and available in standard and custom sizes.

# **Chemical Composition Comparison**

**SAE 1010** Element (%) **SAE 1018** 

Carbon (C) 0.15 â?? 0.20 0.08 â?? 0.13

Manganese (Mn) 0.60 â?? 0.90 0.30 â?? 0.60

Phosphorus (P) â?¤ 0.04 â?¤ 0.04

Sulfur (S) â?¤ 0.05 â?¤ 0.05



ð??¹ **Key Difference:** SAE 1018 has **higher carbon and manganese** content, giving it better strength.

# **Mechanical Properties**

Property SAE 1018 SAE 1010

Tensile Strength 440 â?? 640 MPa 365 â?? 460 MPa Yield Strength 370 MPa 305 MPa

Yield Strength370 MPa305 MElongation (%)15%20%Hardness (BHN)12695

â? SAE 1018 offers 20-30% higher strength but slightly less ductility than 1010.

# **Key Differences & Applications**

- 1. Machinability & Weldability
  - SAE 1010: Excellent for deep drawing and cold forming due to higher ductility
  - SAE 1018: Better machinability in cold drawn condition (higher Mn content improves chip breaking)
- 2. Strength vs. Formability
  - Choose SAE 1010 for:
    - Automotive panels
    - Wire products
    - Applications requiring extensive forming
  - Choose SAE 1018 for:
    - o Shafts and pins



- Machinery parts
- Fasteners requiring more strength

### 3. Cost & Availability

Both grades are economical, with **SAE 1010** being slightly cheaper due to lower alloy content.

# **Equivalents & Alternatives**

- SAE 1018 a?? EN 1.0401 (Europe), C15E (ISO)
- SAE 1010 â?? EN 1.0301 (Europe), DCOT (...)

   For better machinability: SAE 12L14 (leaded steel)

   SAE 1010 â?? EN 1.0301 (Europe), DCOT (...)

### Which Grade Should You Choose?

- Maximum formability â?? SAE 1010
- Balanced strength and machinability a?? SAE 1018

#### **Steelmet Industries provides:**

ð??<sup>1</sup> 1018/1010 cold drawn bars / wires (precision tolerances)

ŏ??¹ Rounds, Wire Rods, Sheets & Plates

ŏ??¹ Custom cutting and processing

ð??? Contact us for technical specifications or volume pricing.

# Conclusion

While similar as low-carbon steels, **SAE 1018â??s higher carbon/manganese** makes it stronger, while **SAE 1010** excels in formability. Understanding these differences ensures optimal material selection.

Steelmet Industries supplies both grades in ready-to-ship and custom-processed forms a?? inquire today for your project needs.



### Category

- 1. SAE:1018
- 2. Posts

## **Tags**

- 1. carbon steel comparison
- 2. cold drawing steel
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