

### Key Features

- High stiffness and machinability
- High heat capacity
- High thermal conductivity

### Common Applications

- Internal combustion engine cylinder blocks
- Flywheels
- Gearbox cases
- Manifolds
- Disk brake rotors
- Cookware

### Material Description

Cast iron is renowned for its excellent castability, thermal conductivity, and damping properties. There are several types of cast iron, including gray iron, ductile iron, and white iron, each with distinct properties and applications. Gray iron, the most common type, is valued for its good machinability, wear resistance, and ability to dampen vibrations, making it suitable for applications such as engine blocks, machine bases, and pipe fittings. Ductile iron, also known as nodular or spheroidal graphite iron, offers improved ductility and toughness compared to gray iron, making it suitable for components subjected to higher mechanical stresses, such as automotive parts, gears, and hydraulic components. White iron, characterized by its white fracture surface due to the presence of carbides, is prized for its exceptional hardness and abrasion resistance, making it suitable for applications requiring wear resistance, such as grinding balls, mill liners, and crusher parts.

### Chemical Composition (%)

	Al	C	Cr	Cu	Fe	Mn	Mo	Ni	P	Si	V
<b>Min.</b>	0.05	0.4	0.03	0	49	0.1	0	0	0.002	0.3	0.1
<b>Max.</b>	25.0	4.1	35	10	96.3	4.5	16	43	1	17	2

### Mechanical Properties

<b>Ultimate Tensile Strength</b>	13,100 – 240,000 PSI
<b>Tensile Yield Strength</b>	9,500 – 210,000 PSI
<b>Hardness</b>	Rockwell B40 – 97
<b>Elongation at Break</b>	0.2 – 40%

### Physical Properties

<b>Density</b>	0.2–0.3 lb/in <sup>3</sup> (5.5–7.8 g/cm <sup>3</sup> )
<b>Thermal Conductivity</b>	8.50 – 53.3W/m.K
<b>Modulus of elasticity</b>	9,000–36,300KSI(62–250 GPa)
<b>Melting Point</b>	2,050–2,610°F (1,120–1,430 °C)

### Technical Assistance

Our knowledgeable staff, supported by our in-house team of expert metallurgists and engineers, is ready to assist you with any technical inquiries.

### InstaVoxel™ – On-Demand Manufacturing Expert

859 Willard Street Suite 400, Quincy MA 02169 USA  
 +1 (617) 302-1629 | [info@instavoxel.com](mailto:info@instavoxel.com)  
[www.instavoxel.com](http://www.instavoxel.com)



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