

## Ductile Iron grade 65-45-12

Categories: [Metal](#); [Ferrous Metal](#); [Cast Iron](#); [Alloy Cast Iron](#); [Ductile Iron](#)

**Material Notes:** Carbon represents the total carbon in the above composition. Cerium is an optional constituent in ductile iron. Most ductile irons are specified based on mechanical properties and have loosely defined compositions. For example, 65-45-12 ductile iron is specified to have a minimum tensile strength of 65 ksi (448 MPa), a yield strength of 45 ksi (310 MPa) and an elongation of 12%. Mostly ferritic, as cast or annealed. Applications include machine components subject to shock and fatigue loads. Hardness and machinability data provided by manufacturer/supplier, Siltin Industries, Inc.

**Key Words:** UNS F33100, ASTM A536, ferritic, shock loading, fatigue loading

**Vendors:** [Click here to view all available suppliers for this material.](#)

Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	131 - 220	131 - 220	for 65-45-12 T-3 ductile iron.
Hardness, Knoop	195	195	Converted from Brinell hardness.
Hardness, Vickers	183	183	Converted from Brinell hardness.
Tensile Strength, Ultimate	>= 448 MPa	>= 65000 psi	
Tensile Strength, Yield	>= 310 MPa	>= 45000 psi	
Elongation at Break	12.0 %	12.0 %	In 50 mm.
Machinability	0.0 %	0.0 %	Good machinability. No numerical rating available.

Material Components Properties	Metric	English	Comments
Carbon, C	3.60 - 3.80 %	3.60 - 3.80 %	
Cerium, Ce	0.0050 - 0.20 %	0.0050 - 0.20 %	
Chromium, Cr	0.030 - 0.070 %	0.030 - 0.070 %	
Copper, Cu	0.15 - 1.0 %	0.15 - 1.0 %	
Iron, Fe	90.738 - 94.175 %	90.738 - 94.175 %	
Magnesium, Mg	0.030 - 0.060 %	0.030 - 0.060 %	
Manganese, Mn	0.15 - 1.0 %	0.15 - 1.0 %	
Molybdenum, Mo	0.010 - 0.10 %	0.010 - 0.10 %	
Nickel, Ni	0.050 - 0.20 %	0.050 - 0.20 %	
Phosphorous, P	<= 0.030 %	<= 0.030 %	
Silicon, Si	1.80 - 2.80 %	1.80 - 2.80 %	
Sulfur, S	<= 0.0020 %	<= 0.0020 %	

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. We also ask that you refer to MatWeb's disclaimer and terms of use regarding this information. [Click here](#) to view all the property values for this datasheet as they were originally entered into MatWeb.