

2205 Duplex

STAINLESS STEEL



A combination of high strength, low thermal expansion and high stress resistance make 2205 stainless steel useful in a variety of applications that include heat exchangers, pipe, pressure vessels, tanks, fans, pulp and paper production equipment, oilfield equipment and press rolls.

PRODUCT DESCRIPTION

AK Steel 2205 is a ferritic-austenitic duplex stainless steel. It provides a valuable combination of high strength, excellent corrosion resistance and stress-corrosion cracking resistance as well as very good pitting resistance. In addition, it is highly resistant to stress and provides a low level of thermal expansion.

TYPICAL COMPOSITION

	%
Carbon	0.02
Chromium	22.0
Nickel	6.0
Molybdenum	3.1
Nitrogen	0.17
Iron	Balance

MECHANICAL PROPERTIES

Typical Room Temperature Mechanical Properties

UTS ksi (MPa)	0.2% YS ksi (MPa)	Elongation % in 2" (50.8 mm)	Hardness Rockwell C
109 (750)	74 (510)	35	22

IMPACT RESISTANCE

Charpy V-Notch Impact*

Direction	W/A, in-lb/in ² (mm•N/mm ²)
Longitudinal	7,486 (1310)
Transverse	4,825 (844)

*0.06" (1.5 mm) thickness, -40°F (-40°C)

CORROSION RESISTANCE

The general level of corrosion resistance of AK Steel 2205 Stainless Steel is superior to Types 304 and 316 stainless steels in most media. Pitting resistance is also superior to that provided by Types 304 and 316 stainless steels. Stress-corrosion cracking resistance is superior to the austenitic grades of stainless steel.

FABRICATION

Formability of 2205 stainless steel is better than that of the ferritic grades, especially in heavy sections, but not quite as good as the austenitic stainless steels.

WELDABILITY

AK Steel 2205 Stainless Steel can be readily welded with the GTAW, GMAW, plasma, SMAW and submerged-arc welding methods. The alloy should be welded without preheating, followed by cooling to at least 300°F (150°C) between each pass.

METRIC CONVERSION

Data in this publication are presented in U.S. customary units. Approximate metric equivalents may be obtained by performing the following calculations:

Length (inches to millimeters) –
Multiply by 25.4

Strength (ksi to megapascals or
meganewtons per square meter) –
Multiply by 6.8948

Temperature (Fahrenheit to Celsius) –
(°Fahrenheit - 32) – Multiply by 0.5556

Density (pounds per cubic inch to
kilograms per cubic meter) –
Multiply by 27,670

The information and data in this product data bulletin are accurate to the best of our knowledge and belief, but are intended for general information only. Applications suggested for the materials are described only to help readers make their own evaluations and decisions, and are neither guarantees nor to be construed as express or implied warranties of suitability for these or other applications.

Data referring to mechanical properties and chemical analyses are the result of tests performed on specimens obtained from specific locations of the products in accordance with prescribed sampling procedures; any warranty thereof is limited to the values obtained at such locations and by such procedures. There is no warranty with respect to values of the materials at other locations.

This document or any any part therein may not be reproduced without the written permission of AK Steel Corporation. AK Steel and the AK Steel logo are registered trademarks of AK Steel Corporation.



Customer Service 800-331-5050

AK Steel Corporation
9227 Centre Pointe Drive
West Chester, OH 45069

www.aksteel.com