


**SINOXX<sup>...</sup> 4462**

# COMMERCIAL DUPLEX STAINLESS STEEL

Due to its high content of chromium, nitrogen and molybdenum, this commercial duplex steel offers good resistance to localized and uniform corrosion. The duplex microstructure contributes to high resistance to stress corrosion and high strength. Duplex steels have good weldability and can be welded using most of welding methods.

## APPLICATIONS

- cargo tanks and pipe systems
- high strength, corrosion resistant parts
- heat exchangers
- desalination plants
- oil and gas industry equipment

## SPECIFICATIONS

Duplex stainless steel is designated as AISI 2205, UNS S32205 and EN 1.4462, and conforms to the following standards:

- ASTM A240/A240M
- ASME SA240/SA240M
- EN 10088-2, EN 10088-4, EN 10028-7

## CHEMICAL COMPOSITION

Typical values [wt. %]

	C	Mn	P	S	Si	Cr	Ni	Mo	N	Al
<b>Min.</b>	-	-	-	-	-	22.20	5.1	3.10	0.16	-
<b>Max.</b>	0.030	1.80	0.030	0.0007	0.50	22.50	5.3	3.30	0.18	0.015

$PREN = (Cr\%) + 3.3 (Mo\%) + 16 (N\%) \geq 35$

## PHYSICAL PROPERTIES

Density	Specific heat	Thermal conductivity	Electrical resistivity
7.8 g/cm <sup>3</sup>	500 J/kgK*	15 W/mK*	0.8 Ωmm/m*

\* values at 20 °C according to EN 10088-1

## MECHANICAL PROPERTIES

Minimum guaranteed values of mechanical test requirements, for the specified thickness range.

Thickness [mm]	0.2 % Yield strength min. [MPa]	Tensile strength min. [MPa]	Elongation min. [%]	Hardness max. [HB]	Impact Charpy V, 20 °C [J]*
9.0–80.0	480	655	25	293	150–300

\* typical value

## MICROSTRUCTURE

The microstructure of SINOXX 4462 is ferritic-austenitic with a ratio close to 50:50. The typical microstructure is shown in *Figure 1*.

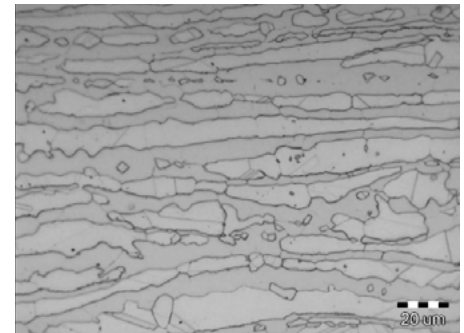


Figure 1: Ferritic-austenitic microstructure, ratio approx. 50:50

## CORROSION RESISTANCE

Corrosion resistance is characterized by a uniform attack on the steel surface and is generally considered good if the corrosion rate is less than 0.1 mm/year. Duplex steel grades offer excellent corrosion resistance in many media.

The resistance to pitting and crevice corrosion relates to the content of chromium, molybdenum and nitrogen in the steel. This is often illustrated by pitting resistance equivalent number PREN  $\geq 35$ .

## HOT FORMING

The hot forming temperature range is between 950 °C and 1200 °C (1742–2192 °F).

## HEAT TREATMENT

Solution annealing at 1080 °C (1976 °F), followed by rapid cooling.

## PICKLING

Plates are supplied in pickled condition (bright surface).

## DIMENSIONS

SINOXX 4462	Thickness [mm]	Width [mm]	Length [mm]	Max. weight [kg]
Quarto plates	9.0–12.7 (0.35–0.5 in.)	2000 (78.74 in.)	12000 (472.44 in.)	9600 (21164 lbs)
Quarto plates	12.7–80.0 (0.5–3.15 in.)	2500 (98.43 in.)	12000 (472.44 in.)	9600 (21164 lbs)

Dimensional tolerances are in accordance with:

- ASTM A480/A480M
- ASME SA480/SA480M
- EN ISO 18286

The information and data in this product data sheet are intended for informative purpose only and may be revised at any time without notice. Presented typical properties of the materials are described only to help readers make their own evaluations and decisions. They are not guaranteed.