

SINOXX^{...} 4713, 4724, 4742, 4746, 4762

HIGH TEMPERATURE FERRITIC STAINLESS STEEL

The lower alloyed ferritic grades are used for temperatures between 550 °C and 850 °C, where most of austenitic stainless steels are prone to form brittle phases. The higher alloyed grades are applied at temperatures up to 1150 °C.

The main alloying element in high temperature ferritic grades is chromium. The positive effect on scaling resistance is reinforced by silicon and aluminium. The ferritic high temperature steels are insensitive to sulphurous gases.

APPLICATIONS

High temperature ferritic stainless steels are mostly used in high temperature applications with sulphurous atmospheres and low tensile loads for:

- component parts for furnaces
- chemical industry
- power industry
- steam boiler parts

SPECIFICATIONS

Designations of high temperature ferritic stainless steels

SIJ Acroni designation	EN designation	EN number
SINOXX 4713	X10CrAl7	1.4713
SINOXX 4724	X10CrAl13	1.4724
SINOXX 4742	X10CrAl18	1.4742
SINOXX 4746	X8CrTi25	1.4746
SINOXX 4762	X10CrAl24	1.4762

They conform to the standard EN 10095.*

*Mechanical properties according to EN 10095 cannot be guaranteed for quarto plates.

DIMENSIONS

	Thickness [mm]	Max. width [mm]	Max. length [mm]	Max. weight [kg]
Quarto plates	8–30.0* (0.32–1.18 in.)	2000 (78.74 in.)	8000 (314.96 in.)	9600 (21164 lbs)
Hot-rolled strips/sheets	3.0–6.0 (0.19–0.2 in.)	1000 (39.37 in.)	2000–6000 (78.74–236.22 in.)	-
Cold-rolled strips/sheets	1.0–2.0 (0.039–0.079 in.)	1000 (39.37 in.)	2000–6000 (78.74–236.22 in.)	-

CHEMICAL COMPOSITION

Typical values [wt. %]

	C	Mn	P	S	Si	Cr	Al	Ti
SINOXX 4713	0.06	0.90	0.035	0.001	0.70	6.50	0.70	-
SINOXX 4724	0.06	0.90	0.035	0.001	0.80	12.50	0.90	-
SINOXX 4742	0.07	0.90	0.035	0.001	0.90	17.50	0.70	-
SINOXX 4746	0.05	0.90	0.035	0.001	0.70	24.50	-	min. 4×C
SINOXX 4762	0.07	0.70	0.035	0.001	0.90	23.50	1.30	-

PHYSICAL PROPERTIES

Density	Specific heat capacity	Thermal conductivity	Magnetizability	Electrical resistivity
7.7 g/cm ³	0.45–0.50 KJ (kg·K)*	17–23 W/mK*	Yes	0.7–1.1 Ωmm ² /m*

* values at 20 °C according to EN 10095

MECHANICAL PROPERTIES AT ROOM TEMPERATURE

	Proof strength R _{p0.2} min. [MPa]	Tensile strength min. [MPa]	Elongation trans. min. [%]	Hardness max. [HB]
SINOXX 4713	220	420–620	15	192
SINOXX 4724	250	450–650	11	192
SINOXX 4742*	270	500–700	9	212
SINOXX 4746	320	500–600	20	215
SINOXX 4762*	280	520–720	7	223

*The mechanical properties for SINOXX 4742 and SINOXX 4762 are guaranteed up to thickness 8.0 mm.

MICROSTRUCTURE

The microstructure is ferritic. The typical microstructure is shown in *Figure 1*.

HIGH TEMPERATURE CORROSION

Silicon and aluminium are both beneficial for good oxidation resistance in combination with low thermal expansion and high thermal conductivity of material. High temperature ferritic stainless steel is best utilized in reducing sulphur environments. Since industrial environments usually consist of a mixture of several aggressive gases, the chosen steel grade must be compromise.

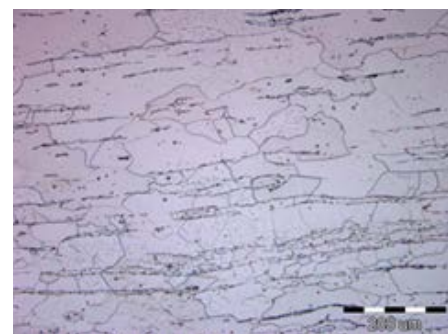


Figure 1: Ferritic microstructure

HOT FORMING

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

HEAT TREATMENT

Annealing at 840 °C (1544 °F), followed by rapid cooling.

SURFACE CONDITION

Plates are supplied in the 1E condition (shotblasted surface).

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.