SINOXX 4311, 4315

AUSTENITIC STAINLESS STEELS

SINOXX 4311 and **SINOXX 4315** are nitrogen alloyed austenitic stainless steels. Due to nitrogen addition, they are less susceptible to martensitic transformation than cold formed SINOXX 4307. They contain a small amount of ferrite. The steel is less machinable than some martensitic steels (13% Cr) due to its cold work hardening. These grades are non-magnetic. Their use usually contributes to weight savings in most structural or high-pressure applications.

APPLICATIONS

- liquid gas production and storage
- pressure vessels
- parts with high strength and excellent ductility
- petrochemical industry
- tanks and containers

SPECIFICATIONS

High nitrogen alloyed austenitic stainless steels are designated as AISI 304LN and 304N, UNS S30453 and UNS S30451, EN 1.4311 and 1.4315, respectively. They conform to the following standards:

- ASTM A 240/A240M - 16
- EN 10088-2: 2014
- EN 10088-4: 2009
- EN 10028-7: 20016

CHEMICAL COMPOSITION

Typical values [wt. %]

	C*	Mn	P	S	Si	Cr	Ni	Al	N
SINOXX 4311, 4315	0.020	1.40	0.035	0.0010	0.50	19.00	8.50	0.008	0.15

* Higher carbon contents can be available on request (specific mechanical properties)

PHYSICAL PROPERTIES

Density	Specific heat	Thermal conductivity	Electrical resistivity
7.9 g/cm^3	500 J/kgK*	15 W/mK*	0.73 Ωmm^2/m*

* values at 20 °C according with EN 10088-1

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MECHANICAL PROPERTIES

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

0.2 % Yield strength min. [MPa]	Tensile strength min. [MPa]	Elongation min. [%]	Hardness max. [HB]	Impact Charpy V, 20 °C [J]*
270	550	40	217	250–350

* typical value

MICROSTRUCTURE

The microstructure of SINOXX 4311 and SINOXX 4315 is typically austenitic. The average grain size is No. 5, according to ASTM E112. Typical microstructure is shown in *Figure 1*.

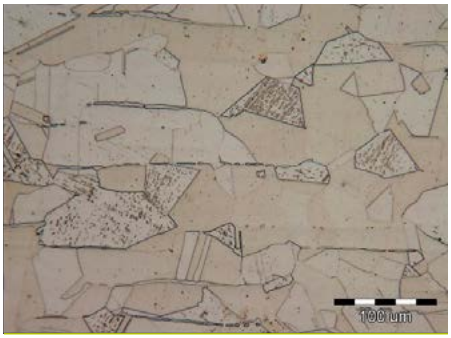

Figure 1: Austenitic microstructure

HOT FORMING

The hot forming temperature range is between 850 °C and 1200 °C (1562–2192 °F).

HEAT TREATMENT

Solution annealing at 1050°C (1922°F), followed by rapid cooling.

PICKLING

Plates are supplied in pickled condition (bright surface).

DIMENSIONS

SINOXX 4311 and SINOXX 4315 are supplied in plates of dimensions:

SINOXX 4311, 4315	Thickness [mm]	Max. width [mm]	Max. length [mm]	Max. weight [kg]
Quarto plates	8–10.0 (0.31–0.39 in.)	2000 (78.74 in.)	12000 (472.4 in.)	9600 (21164 lbs)
Quarto plates	10.0–130.0 (0.39–5.11 in.)	2500 (98.43 in.)	12000 (472.4 in.)	9600 (21164 lbs)

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