



SINOXX 4571

Designation by Standards

Brand Name	Ravne	Mat. No.	DIN	EN	AISI/SAE
SINOXX 4571	PK12SP	1.4571	-	X6CrNiMoTi17-12-2	316 Ti

Chemical Composition (in weight %)

C	Si	Mn	Cr	Mo	Ni	V	W	Others
max. 0.08	max. 1.00	max. 2.00	17.50	2.25	12.00	-	-	Min Ti=5 x C x 0.8

Description

This austenitic stainless steel has an increased molybdenum and titanium contents to increase its resistance to corrosion when compared to other 300 series alloys. It will resist scaling at higher temperatures and maintains good mechanical properties and ductility.

Applications

SINOXX 4571 is used in the construction of apparatus for the chemical and pharmaceutical industries, and for textile finishing. Component parts for the cellulose, paper, textile, paint, rubber and meat processing industry and for pump components. Steel grade with lower polishability.

Physical properties (average values) at ambient temperature

Modulus of elasticity [$10^3 \times \text{N/mm}^2$]: 200, 186 (200°C), 172(400°C)

Density [g/cm^3]: 7.98

Thermal conductivity [W/m.K]: 15.0

Electric resistivity [$\text{Ohm mm}^2/\text{m}$]: 0.75

Specific heat capacity [J/g.K]: 0.50

Coefficient of Linear Thermal Expansion $10^{-6} \text{ } ^\circ\text{C}^{-1}$

20-100°C	20-200°C	20-300°C	20-400°C	20-500°C
16.5	17.5	18.5	18.5	19.0

Hardening

Harden from a temperature of 1020-1120°C followed by water or air quenching. Structure is austenite with small ferrite component.

Mechanical properties in solution-annealed condition and resistance to intercrystalline corrosion

0.2 % proof stress: 200 N/mm^2 (for $d \leq 160$, $160 < d \leq 250$)

1.0 % proof stress: 235 N/mm^2 (for $d \leq 160$, $160 < d \leq 250$)

Tensile strength: 500-700 N/mm^2

Elongation: 40% (for $d \leq 160$, longit.), 30% (for $160 < d \leq 250$, transv.)

Notch impact energy (ISO-V): 100 J (for $d \leq 160$, longit.), 60 J (for $160 < d \leq 250$, transv.) Resistance to intercrystalline corrosion: yes (in as delivered condition), yes (in sensitised condition)

Note: Sensitisation treatment for 15 min at 700°C with subsequent cooling in air.

Mechanical Properties At Elevated Temperatures

Temperature	100°C	150°C	200°C	250°C	300°C	350 °C	400 °C	450° C	500 °C	550° C
0.2 % proof stress in N/mm ²	185	175	165	155	145	140	135	131	129	127
1.0 % proof stress in N/mm ²	215	205	192	183	175	169	164	160	158	157

Forging

Hot forming temperature: 1200-900°C.

Machinability

Low speeds and constant feeds will minimize this alloy's tendency to work harden. Tougher than 304 stainless with a long stringy chip, the use of chip breakers is recommended.

Corrosion Resistance

Resistant to a wide variety of marine environments, salts, dilute nitric, acetic and sulfuric acids. Owing to the addition of Ti as carbide former, PK12SP is resistant to intercrystalline corrosion, regardless of thickness and cross-section. Owing to the Mo content, steel displays good resistance to media containing chloride and to non-oxidising acids.

Welding

Good weldability using all processes (except gas welding).

Cold working

Shearing, stamping, heading and drawing can be successfully performed. To remove internal stresses, a post-work annealing is recommended.

Forms manufactured: Please see the [Dimensional Sales Program](#).

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