NIROSTA® 4303

Material no.	1.4303 to EN 10 088-2		
Code names	D	(DIN/EN)	X 4 CrNi 18-12
	USA	(ASTM)	(305)
	Japan		SUS 305
	CIS		06 Ch 18 N 11

Chemical composition (in % by weight)[1)]

	C	Cr	Ni	Mn
min.	–	17.0	11.0	–
max.	0.06	19.0	13.0	2.0

[1)] Special arrangements may be made within the analysis limits depending on the properties required.

Product forms Cold-rolled wide strip, slit strip, precision strip

Mechanical properties (transverse samples) at room temp. to EN 10 088-2

Dimensions range	$R_{p\,0.2}$ (0.2% yield strength) min. N/mm²	$R_{p\,1.0}$ (1% yield strength) min. N/mm²	R_m (tensile strength) N/mm²	A_{80} (elongation) min. %
Cold-rolled strip s ≤ 8	220	250	500 to 650	45

Minimum properties at elevated temperatures

Temperature °C	100	150	200	250	300	350	400	450	500	550
$R_{p\,0.2}$ (0.2 % yield strength) min. N/mm²	155	142	127	118	110	104	98	95	92	90
$R_{p\,1.0}$ (1.0 % yield strength) min. N/mm²	188	172	157	145	135	129	125	122	120	120

Heat treatment

Hot forming °C	Cooling	Heat treatment °C	Cooling	Microstructure
1150 to 850	Air	1000 to 1100	Water/air sufficiently fast	Austenite

Physical properties

Density at 20 °C kg/dm³	Modulus of elasticity in kN/mm² at 20 °C	200 °C	400 °C	Thermal conductivity at 20 °C W · m⁻¹ K⁻¹	Specific heat at 20 °C J · kg⁻¹ K⁻¹	Spec. electrical resistivity at 20 °C Ω · mm²/m
7.9	200	186	172	15	500	0.73

Thermal expansion in $10^{-6} \cdot K^{-1}$ between 20 °C and

100 °C	200 °C	300 °C	400 °C	500 °
16.0	16.5	17.0	17.5	18.0

Surface finish 1 D (II a), 2 B (III c), 2 R (III d)

Edge finish Untrimmed, cut edges, dressed edges on request

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Chemical resistance

Our publication “Chemical Resistance of NIROSTA® Steels” contains tables giving some guide to chemical resistance.

Processing

The nickel content of this steel is approx. 2% higher than NIROSTA® 4301, resulting in greater austenite stability. This reduces strain hardening and significantly improves cold formability, e.g. by deep drawing with redrawing.

Heat tints or scale from hot forming or welding reduce corrosion resistance and should be removed chemically or mechanically.

Machining must be carried out with tools made of good quality high-speed steel or, better still, with carbide tools.

NIROSTA® 4303 can be polished.

Welding

Weldability:
NIROSTA® 4303 can be readily welded by all methods (except gas welding).

Filler materials:

Material no.	1.4316
THERMANIT®	JE

Max. working temperature (interpass temperature): 150 °C
Heat treatment after welding: not necessary

Applications

The main use of NIROSTA® 4303 is in the manufacture of precision deep-drawn parts involving multiple draws because this steel is particularly suitable for heavier percent reductions.