

Stainless Steel 303 / 1.4305 / X10CrNiS18-9

Alternative Designations

X10CrNiS18-9; X8CrNiS18-9 (ISO) | 303 (AISI) | 303 (SAE) | S30300 (UNS) | Z8CNF18-09 (AFNOR) | 303S31 (BS) | 2346 (SIS) | SUS303 (JIS)

Key Features

High strength • Good machinability • Ductility • Low corrosion resistance

Description

It is an austenitic chromium-nickel stainless steel with sulfur added to its composition. The result is a material with improved machinability, but with reduced corrosion resistance. This material is therefore ideal for use in environments where corrosion is not a major concern, such as in the food processing industry. In terms of its mechanical properties, X10CrNiS18-9 is a fairly tough material. It is also quite ductile, with an elongation at break of around 31%.

Mechanical Properties

Yield strength	351 MPa
Tensile strength	398 MPa
Elongation at break	31%
Hardness	234
Module of elasticity	562 GPa

Physical Properties

Density	8.03 g/cm ³
Electrical conductivity	3.22 m/Ω · mm ²
Coefficient of thermal expansion	42 K ⁻¹ · 10 ⁻⁶
Thermal conductivity	13.3 – 31.2 W/m · K
Specific heat capacity	434 J/kg · K

Chemical Composition

Al	-	N	0.11%
Bi	-	Nb	-
C	0.12%	Ni	8 – 10%
Cd	-	O	-
Co	-	P	0.06%
Cr	17 – 19%	Pb	-
Cu	1%	S	0.15%
Fe	-	Si	1%
H	-	Sn	-
Mg	-	Ti	-
Mn	2%	V	-
Mo	-	Zn	-

Reference

Datasheets provided by Xometry contain materials sourced through trusted OEMs, material distributors, and databases. Please visit Materialdatacenter.com for further information on this material.