

# Stainless steel type SA

## General notes:

- » **Low carbon austenitic steel** (Material number 1.4435, DIN X2CrNiMo18-14-3, AISI number 316L)
- » contains from 16.5 to 18.5 wt% chromium and has important quantities of nickel and molybdenum as additional alloying elements
- » non-magnetizable (80%)
- » good corrosion resistance to most chemicals, salts and acids
- » generally used where corrosion resistance and toughness are primary requirements
- » typical applications include tweezers for the electronic industry, watch-makers, jewelers and laboratory and medical applications in moderately aggressive chemical environments

## Composition

Component	Wt.%	Component	Wt.%	Component	Wt.%
<b>C</b>	≤0.03	<b>Si</b>	≤1.0	<b>Mn</b>	≤2.0
<b>P</b>	≤0.045	<b>S</b>	≤0.03	<b>Cr</b>	17.0-19.0
<b>Mo</b>	2.5-3.0	<b>Ni</b>	12.5-15.0		

## Mechanical properties

State	<b>annealed</b>
Density	<b>8.0 g/cm<sup>3</sup></b>
Hardness, Vickers	<b>230 HV</b>
Tensile strength, ultimate	<b>500-700 MPa</b>
Tensile strength, yield	<b>290</b>
0.2% Yield stress	<b>≥ 200 MPa</b>
Elongation, break	<b>40%</b>
Modulus of elasticity	<b>200 GPa</b>

## Thermal properties

Coef. of lin. therm expansion	<b>16.0 E-6/°C</b>	20°C-100°C
Coef. of lin. therm expansion	<b>17.0 E-6/°C</b>	20°C-300°C
Specific heat capacity	<b>0.50 J/(g·K)</b>	
Thermal conductivity	<b>15 W/(m·K)</b>	
Continuous use temperature	<b>350°C</b>	
Max service temperature, air	<b>925°C</b>	

## Electrical properties

Resistivity	<b>0.75 E-4 Ohm.cm</b>
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