

**TECHNICAL DATA SHEET**

# Stainless steel type S

**General notes:**

- » **Martensitic higher carbon steel** (Material number 1.4034, DIN X46Cr13, AISI number 420)
- » contains from 12.5 to 14.5 wt% chromium
- » magnetizable
- » can be hardened by heat treatment, forming should be done in the annealed condition
- » less resistant to corrosion than the austenitic or ferritic grades
- » used where strength and/or hardness are of primary concern and where the environment is relatively mild from a corrosive standpoint
- » typical applications include tweezers and cutting tools for the electronic industry, watch-makers, jewelers and laboratory and medical applications in mild aggressive chemical environments

## Composition

Component	Wt. %	Component	Wt. %	Component	Wt. %
<b>C</b>	0.43-0.50	<b>Si</b>	≤1.0	<b>Mn</b>	≤1.0
<b>P</b>	≤0.04	<b>S</b>	≤0.03	<b>Cr</b>	12.5-14.5

## Mechanical properties

State	<b>annealed</b>
Density	<b>7.7 g/cm<sup>3</sup></b>
Hardness, Vickers	<b>680 HV</b>
Tensile strength, ultimate	<b>615-625 MPa</b>
0.2% Yield stress	<b>≥300 MPa</b>
Modulus of elasticity	<b>215 GPa</b>

## Thermal properties

Coef. of lin. therm expansion	<b>10.5 E-6/°C</b>	<b>20°C-100°C</b>
Coef. of lin. therm expansion	<b>11.5 E-6/°C</b>	<b>20°C-300°C</b>
Specific heat capacity	<b>0.46 J/(g K)</b>	
Thermal conductivity	<b>30 W/(m K)</b>	

## Electrical properties

Resistivity	<b>0.55 E-4 Ohm.cm</b>
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This document contains information based on average values as obtained from the results of laboratory tests and observations made on the material. Ideal-tek SA declines all responsibility from an improper use of the product described in this document.