

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.%
C	0.43-0.50	Si	≤ 1.0	Mn	≤ 1.0
P	≤ 0.04	S	≤ 0.03	Cr	12.5-14.5

Mechanical properties

State	annealed
Density	7.7 g/cm³
Hardness, Vickers	680 HV
Tensile strength, ultimate	615-625 MPa
0.2% Yield stress	≥ 300 MPa
Modulus of elasticity	215 GPa

Thermal properties

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

Electrical properties

Resistivity	0.55 E-4 Ohm.cm
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