Abbreviation	EN Norm	ASTM / AISI	AFNOR	DIN Abbreviation	ISO	Other
X14CrMoS17	1.4104	430F	Z13CF17	1.4104	X14CrMoS17	

1.4104 Wire

Chemical analysis by European Norm EN 10088-1 in mass percent

C	Si	Mn	P	S	Cr	Mo	Fe
0.10-0.17	≤ 1.00	≤ 1.00	0.040	0.15-0.35	15.5-17.5	0.20-0.60	Remainder

Diameter 0.02 – 4.00 mm

Application
1.4104 is categorized as a martensitic, stainless, chrome steel containing 15.5 – 17.5% chrome. After soft annealing, 1.4104 has an average mechanical strength of approximately 550N/mm^2 – 650N/mm^2. By drawing the material the mechanical strength can be increased considerably. Due to the level of its sulfur content, 1.4104 is ideally suited to processing through machining. This material is chiefly used in the manufacturing of small parts: screws, nuts, axles, plugs, and other machine components which don't require exceptional corrosive resistance. These small parts in turn are used in the automotive industry, control equipment, gas and water meters, and in agricultural engineering.

Resistance to Corrosion
Despite a high portion of chrome (approximately 17%), the sulfur portion causes 1.4104 to only be partially resistant to corrosion. Specifically chloride-heavy environments should be avoided. As with all sulfur-containing stainless steels, the PREN should be carefully examined, as sulfur content is not taken into consideration when this number is assigned.

Thermal Treatment
1.4104 is soft annealed at 800°C and then cooled slowly. Hardening is performed between 950°C and 1050°C with subsequent quenching in an oil or polymer bath. The tempering temperatures range from 550°C to 650°C to achieve the tempering QT650.

Weldability
Welding should be avoided if possible as it usually causes hardening cracks to form.

Surface Finish

Drawn	Chemically purged	0.020 – 3.499 mm
Surface Ground	Chemically purged	3.500 – 4.000 mm

Delivery mode

As a ring

On assorted spools

Straightened

Axles

Diameter Tolerances

Diameter (mm)	Tolerance (%)	Tolerance (µ)
0.020 – 0.249		± 1.0
0.250 – 0.399		± 1.5
0.400 – 1.500		± 2.0
1.500 – 4.000		± 2.5

Mechanical Properties

Condition at Delivery (mm)	Ultimate Tensile Strength in cold-twisted delivery condition (N/mm^2)
0.005 – 0.019	Upon request
0.020 – 0.199	650 - 1100
0.200 – 0.499	650 - 1050
0.500 – 0.999	650 - 1000
1.000 – 1.999	650 - 950
2.000 – 4.000	650 - 950

Physical Properties

Density		8.50	g/cm^3
Coefficient of Thermal Expansion	20 ºC – 200 ºC	10.50	$10^{-6}/K$
Specific Heat Capacity	20 ºC	460.00	J/kgK
Thermal Conductivity	20 ºC	25.00	W/mK
Specific Electric Resistance	20 ºC	0.70	$\Omega\ mm^2/m$
Young's Modulus	20 ºC	216.00	GPa