Abbreviation	EN Norm	ASTM / AISI	AFNOR	DIN Abbreviation	ISO	Other
	1.4197	420F		1.4197		

1.4197 Wire

Chemical analysis by European norm EN 10088-1 in mass percent:

C	Si	Mn	S	Cr	Ni	Mo
0.22	0.60	1.60	0.20	13.00	0.80	1.20

Diameter 0.02 – 4.00 mm

Use and application
1.4197 is categorized as stainless, temperable, martensitic chromium steel. It has a large chromium share that amounts to about 13% and the approximately 0.2% sulphur allows it to be easily machined. The molybdenum and nickel meanwhile, give the material a high resistance to corrosion. Primary uses are in the medical sector, where 1.4197 is used in the production of needles, scissors, mills, drill bits, screws and even blades.

Resistance to corrosion
Once hardened and tempered, the approx. 13% chromium gives good protection from corrosion. With high surface quality the resistance can be increased even more.

Thermal treatment
For hardening, 1.4197 is solution heat treated between 1000°C and 1100°C, and then quenched in oil. Annealing temperatures lie between 400°C and 600°C, after which the material is cooled in air.

Weldability
As with all temperable chrome steels, welding should be avoided.

Surface finish

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

Delivery condition

As a ring

On assorted spools

Straightened

Axles

Diameter tolerance

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 (N/mm^2)
0.005 – 0.019	750 – 1900
0.020 – 0.199	
0.200 – 0.499	
0.500 – 0.999	
1.000 – 1.999	
2.000 – 4.000	

Physical properties

Density		7.80	g/cm^3
Coefficient of thermal expansion	20 ºC – 200 ºC	11.00	$10^{-6}/K$
Specific heat capacity	20 ºC	430.00	J/kgK
Thermal conductivity	20 ºC	15.00	W/mK
Specific electric resistance	20 ºC	0.60	Ω mm^2/m
Young's modulus	20 ºC	215.00	GPa