

# Stainless Steel 17-4PH / 1.4542

## / X5CrNiCuNb16-4

### Alternative Designations

X5CrNiCuNb16-4 (ISO) | 630 (AISI/SAE) | S17400 (UNS) | Z7 CNU 16-04 (AFNOR) | SUS630 (JIS)

### Key Features

High strength • Excellent toughness • Corrosion resistant • Durable

### Description

This is chromium-nickel copper steel with high strength and excellent toughness. It has a maximum tensile strength of 1200 N/mm<sup>2</sup>. It has good corrosion resistance. Due to its high strength, it is heavily employed in the aerospace and high-technology driven industries in components such as gears, turbine blades, shafts, and molding dies. The most notable feature of this alloy is its high strength-to-weight ratio. It is also known for its excellent resistance to wear and tear, making it an ideal choice for many applications.

### Mechanical Properties

Yield strength	520 – 1000 MPa
Tensile strength	800 – 1200 MPa
Elongation at break	10 – 18%
Hardness	35
Module of elasticity	200 GPa

### Physical Properties

Density	7.8 g/cm <sup>3</sup>
Electrical conductivity	1.41 m/Ω · mm <sup>2</sup>
Coefficient of thermal expansion	10.8 K <sup>-1</sup> · 10 <sup>-6</sup>
Thermal conductivity	14 W/m · K
Specific heat capacity	500 J/kg · K

### Chemical Composition

Al	-	N	-
Bi	-	Nb	5 x C – 0.70%
C	0.07%	Ni	3 – 5%
Cd	-	O	-
Co	-	P	0.04%
Cr	15 – 17.5%	Pb	-
Cu	3 – 5%	S	0.015%
Fe	-	Si	0.07%
H	-	Sn	-
Mg	-	Ti	-
Mn	1.5%	V	-
Mo	-	Zn	-

### Reference

Datasheets provided by Xometry contain materials sourced through trusted OEMs, material distributors, and databases. Please visit [Materialdatacenter.com](https://Materialdatacenter.com) for further information on this material.