Direct Metal Laser Sintering (DMLS)

Stainless Steel 17-4PH / 1.4542

Alternative Designations

X5CrNiCuNb16-4

Key Features

Stiffness • Corrosion resistance • Chemical resistance • Properties can be enhanced with heat treatment (annealing)

Product Description

Stainless Steel 17-4PH is an iron-based alloy known for its corrosion resistance and strength. It can be machined, shot-peened, and polished in both as-built and heat-treated states. Achieving optimal hardness and mechanical properties requires solution annealing and aging treatment, following ASTM A564-13 standards. Typical applications include acid and corrosion-resistant engineering parts and medical instruments such as surgical tools and orthopedic instrumentation.

Properties*

Yield strength (xy/z)	860.6 / 861.3 MPa
Tensile strength (xy/z)	886 / 924.2 MPa
Elongation at break (xy/z)	19.9 / 20.1%
Coefficient of thermal expansion (25 – 100°C)	10.4 10-6/K
Density	7.79 g/cm^3
Hardness	23.9 HRC
Corrosion resistance	5/5

*As manufactured, 40 µm layer thickness

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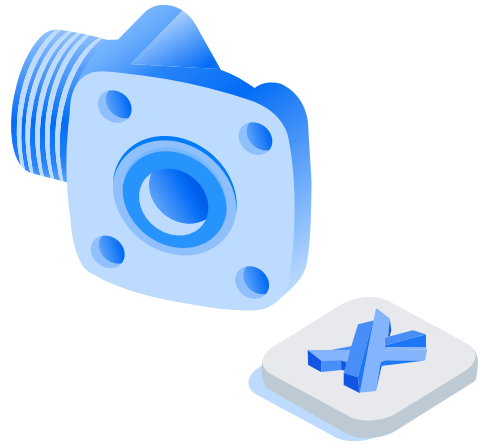
Applications

Engineering
Machine building
Medicine, dentistry
End-use parts



Chemical Composition

C	0.07	S	0.03
Cr	15 - 17.5	Si	1
Cu	3 - 5		
Mn	1		
Nb	3 - 5		
Nb + Ta	0.15 - 0.45		
P	0.04		

Reference

For more detailed source information, please consult the original document linked here. We encourage users to verify the data's relevance and suitability for their specific needs.