APWORKS

by Airbus Group

Design. Materials. Serial Production.

Material Data Sheet - Stainless steel 1.4404 (316L)

Material Description

The 1.4404 steel from Airbus APWorks belongs to the group of stainless steels and is a corrosion resistant, fully austenitic, chromium, nickel, molybdenum, and iron based alloy. Parts built from Airbus APWorks' 1.4404 steel have a chemical composition corresponding to ASTM F138 "Standard Specification for Wrought 18Cr-14Ni-2.5Mo Stainless Steel Bar and Wire for Surgical Implants (UNS S31673)."

This material is ideal for the automotive industry and shipbuilding industry for welding components, for aerospace for fastening components, for equipment for the food industry with regard to corrosion resistant pipes and containers, chemical/pharmaceutical industry, as well as the oil and gas industry. Built parts can be machined, shot peened, and polished in as built or stress relieved (AMS2759) states if required.

General Properties

Properties	Values
Density (g/cm^3)	7.9
Typical tolerance (µm)	± 100
Smallest wall thickness (mm)	1.0
Surface roughness, as built (µm) *	Ra 15 / Rz 90 *

Mechanical Properties

Properties	Values
Young's Modulus (GPa)	180
Yield Strength (MPa)	470
Ultimate Tensile Strength (MPa)	540
Elongation at Break (%)	40
Hardness (HRC)	15

Values stated in the datasheet refer to the minimum properties that are reached using Additive Layer Manufacturing in the least strong direction of the material.

The values of the mechanical properties are generated from tests conducted at room temperature, according to DIN EN 2002-001 standards, from specimens that have been machined.

* The surface roughness values depend on the measurement method used and the orientation of the surface. The values quoted here give an indication of what can be achieved for certain surfaces.

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