

Martensitic Stainless Steel 15-5PH



Metal Alloys

for Additive
Manufacturing

ALTERNATIVE NAMES:

1.4545
ASTM A564

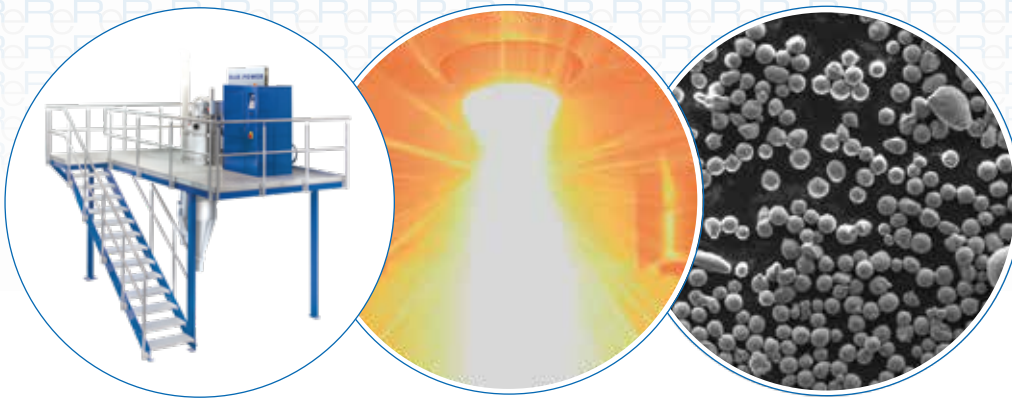
Properties	Unit	As built ¹⁾	Heat-treated ²⁾
Tensile Strength R_m	MPa	1220 ±30	1450 ±30
Yield Strength $R_{p0,2}$	MPa	850 ±20	1280 ±30
Elongation at Break A_5	%	16 ±2	13 ±2
Young's Modulus E	GPa	180 ±5	200 ±10
Hardness	HV	370 ±5	460 ±5

Rosswag Engineering offers a holistic and fully integrated process chain for Additive Manufacturing services. Our portfolio ranges from manufacturing of your prototypes, tools and small serial products to an individual consulting and engineering process for the choice of material, parameters and process chain.



ALL PROCESSES IN ONE COMPANY





Material

characteristics 15-5PH is a stainless, martensitic, and hardenable Cr-Ni-Cu Steel with high strength and ductility as well as good weldability and forgeability. Typical fields of application are in medical, automotive, and aerospace areas. Through solution annealing and subsequent ageing, an increase in strength occurs. 15-5PH is applicable in a temperature range from - 200 °C to 300 °C.

CHEMICAL COMPOSITION

Element	Mass Fraction [%]
Ni	3,5 - 5,5
Cr	14,5 - 15,5
Cu	2,5 - 4,5
Nb + Ta	0,15 - 0,45
Mn	1,0
Si	1,0
C	0,07
P	≤ 0,04
S	≤ 0,03
Fe	Balance

- 1) The specified material properties were determined at room temperature. They are multi-dimensionally dependent on many different machine and process parameters. Without further investigation, the material properties do not constitute a sufficient basis for component dimensioning.
- 2) Specific heat treatment processes lead to optimized mechanical-technological properties to meet the component requirements.

