



17-4 PH

Steel 17-4 PH can be used for manufacturing functional components or medical instruments.

Data in this document represents material built with 50 µm layer thickness and in an Argon atmosphere on an M2 /M2 Multilaser machine. Values listed are typical.

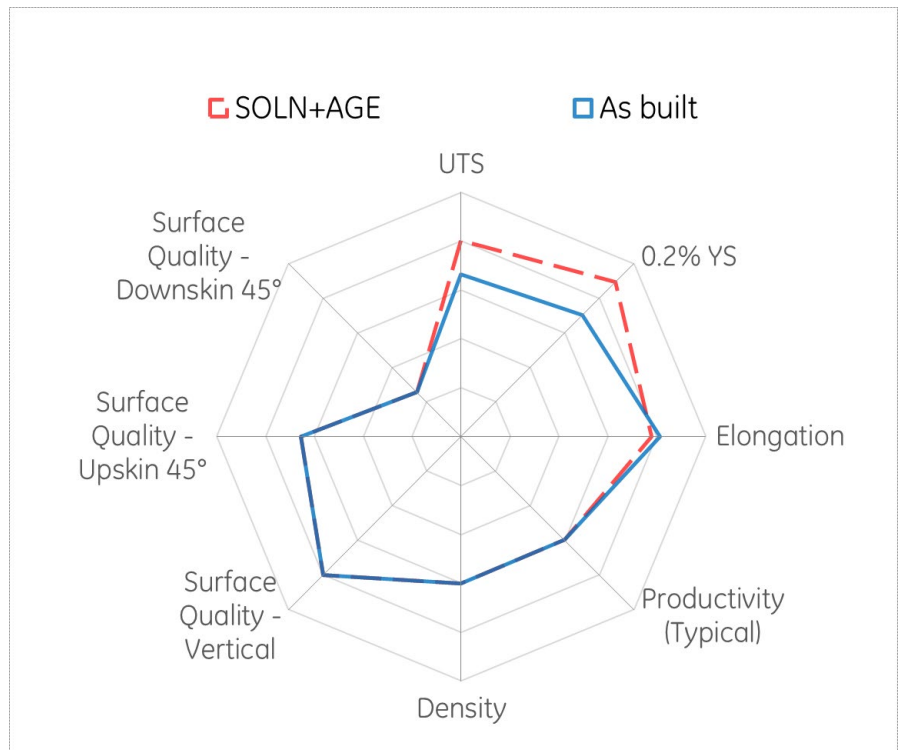
26
Fe

POWDER CHEMISTRY

Element	Indicative value (wt%)
Cr	15.0-17.5
Ni	3.0-5.0
Cu	3.0-5.0
Ta+Nb	0.15-0.45
Mo	0-1.0
Si	0-1.0
Mn	0-1.0
C	0-0.07
S	0-0.03
P	0-0.04
Fe	Balance

17-4 PH (powder) chemical composition et al. according to ASTM A564 / A564M - 13 UNS S17400 / SUS 630

SPIDER PLOT



MACHINE CONFIGURATION

- M2 / M2 Multilaser
- Argon Gas
- Rubber blade/Hard recoater
- Layer thickness 50µm
- Build rate dual laser w/ coating * [cm/h³]: 17.9
- Max. Build rate per Laser** [cm/h³]: 18.7

*Measured by using Factory Acceptance Test layout
**Calculated (layer thickness x scan velocity x hatch distance)

THERMAL STATES

1. AS BUILT
2. SOLN+H900 Heat treatment procedure per ASTM A564: Solution Anneal at 1040 °C for 1 hour; Water Quench; Aging treatment at 480 °C for 1 hours; Water Quench

PHYSICAL DATA AT ROOM TEMPERATURE

	Surface Roughness - Overhang (μm)			Surface Roughness (μm)	
	45°	60°	75°	H	V
	Upskin	17	12	10	9
Downskin	31	16	10	12	

	Porosity (% Density)		Hardness (HV10)		Poisson's Ratio	
	H	V	H	V	H	V
	As-Built	99.6	99.6	320	--	--
SOLN+AGE	99.6	99.6	385	--	--	--

Thermal State

TENSILE DATA

Tensile testing done in accordance with ASTM E8 and ASTM E21

Temperature: RT

	Modulus of Elasticity (GPa)		0.2% YS (MPa)		UTS (MPa)		Elongation (%)		Reduction of Area (%)	
	H	V	H	V	H	V	H	V	H	V
	As-Built	180	178	850	835	1020	975	16.6	15.2	--
SOLN+AGE	185	179	1090	1055	1230	1180	13.6	14.6	--	--

Thermal State

H: HORIZONTAL (XY) orientation
V: VERTICAL (Z) orientation

* All of the figures contained herein are approximate only. The figures provided are dependent on a number of factors, including but not limited to, process and machine parameters, and the approval is brand specific and/or application specific. The information provided on this material data sheet is illustrative only and cannot be relied on as binding.