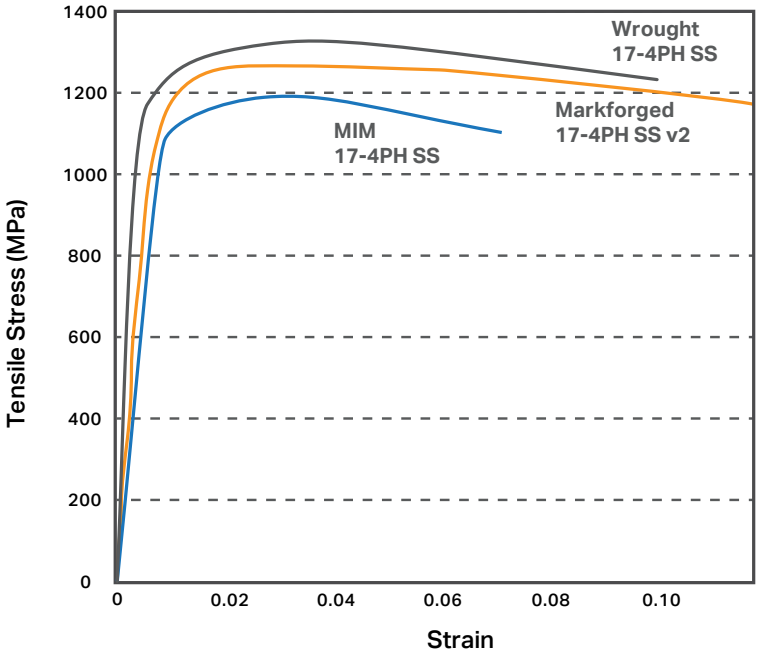
Core Additive | Markforged

MATERIAL DATASHEET

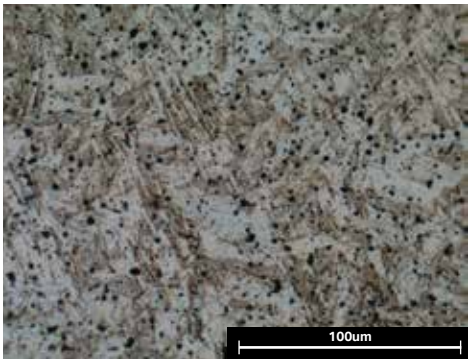
17-4PH Stainless Steel v2

Composition	Amount
Chromium	15-17.5%
Nickel	3-5%
Copper	3-5%
Silicon	1% max
Manganese	1% max
Niobium	0.15-0.45%
Carbon	0.07% max
Phosphorous	0.04% max
Sulfur	0.03% max
Iron	bal



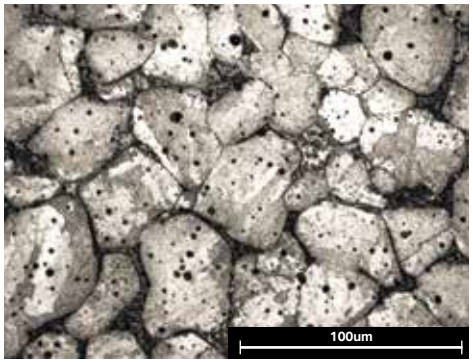
Markforged H900 Heat Treated

17-4PH Stainless Steel v2 printed on the Metal X system heat treated to H900 specification.



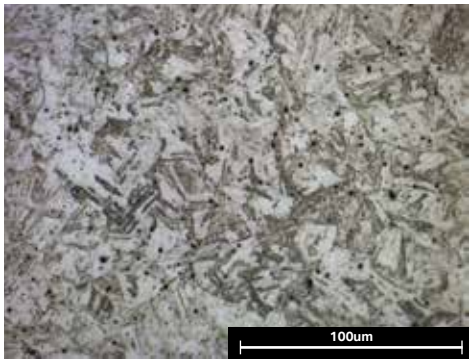
MIM H900 Heat Treated

17-4PH MIM standard stainless steel heat treated to H900 specification.



ASTM A564 H900 Heat Treated

ASTM A564 17-4PH stainless steel heat treated to H900 specification.



Typical Mechanical Properties	Standard	Markforged H900	MIM H900	ASTM A564 H900
Ultimate Tensile Strength	ASTM E8	1230 MPa	1190 MPa	1310 MPa
0.2% Yield Strength	ASTM E8	1050 MPa	1090 MPa	1170 MPa
Elongation at Break	ASTM E8	13%	6%	10%
Tensile Modulus	ASTM E8	170 GPa	190 GPa	190 GPa
Hardness	ASTM E18	38 HRC	33 HRC	40 HRC
Corrosion	ASTM F1089	Pass	Pass	Pass
Relative Density	ASTM B923	96.4%	95.5%	100%

Material performance and composition is impacted by certain factors including but not limited to part geometry.

All data and graphs on front page reflect values of H900 heat treated 17-4 PH SS. Markforged represent typical tested values of solid fill parts, while MIM H900 and Wrought H900 represent typical reference values from MPIF Standard 35. Density and Hardness tests performed by Markforged —all other tests were conducted by 3rd party. All microstructure images etched and photographed at Markforged.

ADDITIONAL DATA

17-4PH Stainless Steel v2

Values listed below compare Markforged samples processed in three different ways: As-Sintered, heat treated to H900 standard, and heat treated to H1150 standard.

Typical Mechanical Properties	Standard	As Sintered	H900	H1150
Ultimate Tensile Strength	ASTM E8	1180 MPa	1230 MPa	950 MPa
0.2% Yield Strength	ASTM E8	710 MPa	1050 MPa	880 MPa
Elongation at Break	ASTM E8	7%	13%	15%
Tensile Modulus	ASTM E8	152 GPa	170 GPa	160 GPa
Hardness	ASTM E18	36 HRC	38 HRC	31 HRC
Corrosion	ASTM F1089	Pass	Pass	Pass
Relative Density	ASTM B923	96.4%	96.4%	96.4%