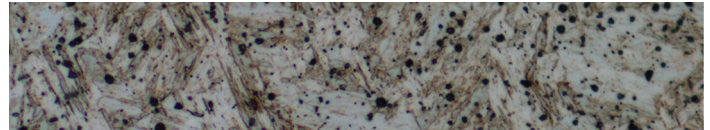
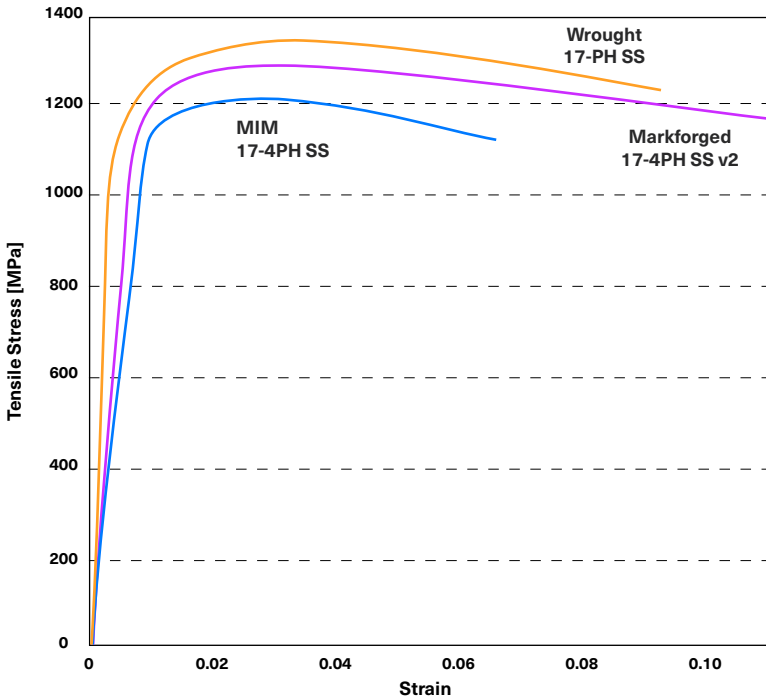


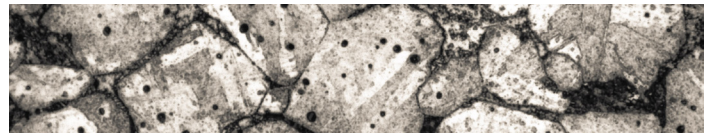
17-4PH_{v2}

STAINLESS STEEL V2

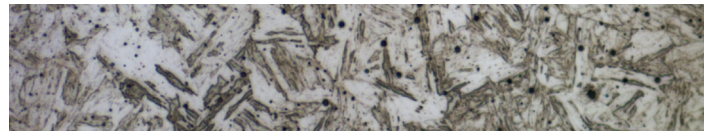
17-4PH Stainless Steel is a multipurpose steel used for industrial applications. Heat-treatable to 36 HRC and possessing 95% wrought strength, Markforged 17-4PH enables you to print high-strength, robust metal parts for a wide variety of applications.



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.

Physical Properties	Test	Markforged H900	MIM H900	ASTM A564 H900	Composition	Weight%
Ultimate tensile strength [MPa]	ASTM E8	1230	1190	1310	Iron	Balance
0.2% Yield strength [MPa]	ASTM E8	1050	1090	1170	Carbon	0.07 max
Elongation at Break [%]	ASTM E8	13	6	10	Chromium	15 - 17.5
Tensile Modulus [GPa]	ASTM E8	170	190	190	Manganese	1.0 max
Hardness [HRC]	ASTM E18	38	33	40	Niobium	0.15 - 0.45
Corrosion	ASTM F1089	Pass	Pass	Pass	Silicon	1.0 max
Relative density [%]	ASTM B923	96.4	95.5	100	Phosphorus	0.04
					Sulfur	Balance
					Nickel	3-5
					Copper	3-5

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

17-4PH_{v2}

STAINLESS STEEL

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

Physical Properties	Test	As Sintered	H900	H1150
Ultimate tensile strength [MPa]	ASTM E8	1180	1230	950
0.2% Yield strength [MPa]	ASTM E8	710	1050	880
Elongation at Break [%]	ASTM E8	7	13	15
Tensile Modulus [GPa]	ASTM E8	152	170	160
Hardness [HRC]	ASTM E18	36	38	31
Corrosion	ASTM F1089	Pass	Pass	Pass
Relative density [%]	ASTM B923	96.4	96.4	96.4

These representative data were tested, measured, or calculated using standard methods and are subject to change without notice. Markforged makes no warranties of any kind, express or implied, including, but not limited to, the warranties of merchantability, fitness for a particular use, or warranty against patent infringement; and assumes no liability in connection with the use of this information. The data listed here should not be used to establish design, quality control, or specification limits, and are not intended to substitute for your own testing to determine suitability for your particular application. Nothing in this sheet is to be construed as a license to operate under or a recommendation to infringe upon any intellectual property right.