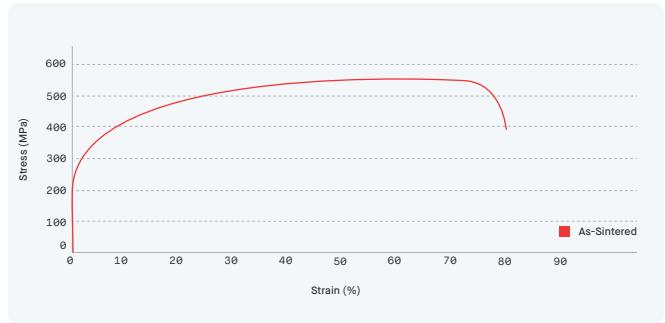


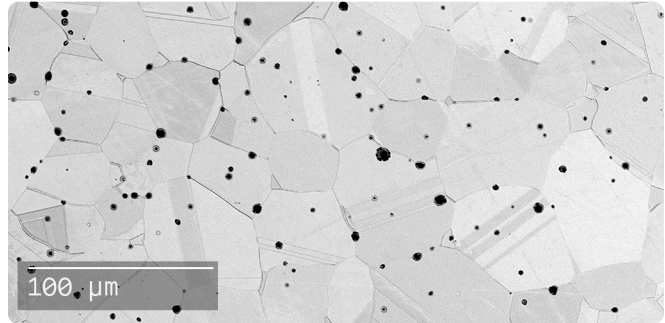
[Material Data Sheet]

316L Stainless Steel PureSinter Furnace



COMPOSITION %

C	0.03 (max)
Cr	16.0 - 18.0
Ni	10.0 - 14.0
Mo	2.0 - 3.0
Mn	2.0 (max)
Si	0.078
Fe	Balance



MECHANICAL PROPERTIES IN DESKTOP METAL PURESINTER FURNACE

	Standard	Production System™	ASTM B883 / MPIF 35
		As-Sintered	As-Sintered
Ultimate tensile strength ¹ (MPa)	ASTM E8/E8M	550 ± 9	520
Yield strength ¹ (MPa)	ASTM E8/E8M	189 ± 8	175
Elongation at break (%)	ASTM E8/E8M	81 ± 4	50
Young's modulus ² (GPa)	ASTM E111	200	190
Hardness (HRB)	ASTM E18	68.2 ± 1.0	67
Un-notched Charpy impact energy (J)	MPIF 59	245 ± 3	190
Density (g/cm ³)		7.88 ± 0.02	7.6

CORROSION PROPERTIES

	Standard	Production System™	ASTM B883 / MPIF 35
		As-Sintered	As-Sintered
Boil test	ASTM F1089	Pass	Pass
Copper sulfate test	ASTM F1089	Pass	Pass
Sulfuric acid test g/dm ² /day	MPIF Std 63	<0.001	<0.005

ATTRIBUTES & APPLICATIONS

- Corrosion resistant
- Low magnetic permeability
- Medical components for use in endoscopy & orthopedics
- Structural components (e.g. housings & frames)
- Jewelry & decorative items
- Fluid transfer components (e.g. manifolds)

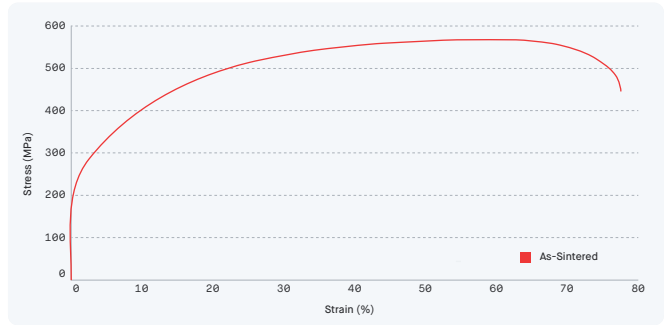
OTHER STANDARD DESIGNATIONS

- UNS S31673
- EN 1.4404

1. YS, UTS, Elongation, and Young's modulus properties noted represent Xy orientation
 2. Prior to corrosion resistance testing, all test samples were cleaned and passivated in accordance with ASTM A967.
 3. Listed designations are for reference purposes only. Composition and mechanical properties may vary.
 4. Per MPIF Standard 35, Materials Standards for Metal Injection Molded Parts (MPIF 35-MIM, 2018). End-use material performance is impacted (+/-) by certain factors including but not limited to part geometry and design, application and evaluation conditions, etc.

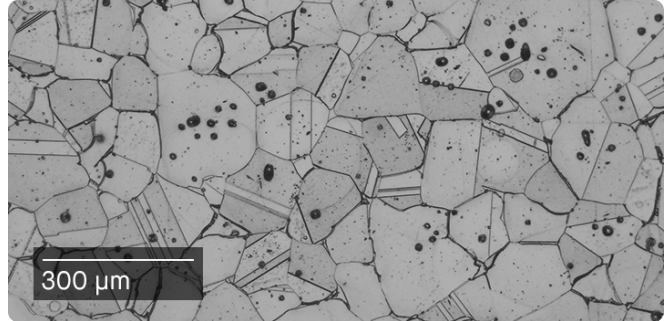
[Material Data Sheet]

316L Stainless Steel



COMPOSITION %

Fe	Balance
C	0.03 (max)
Cr	16.0 - 18.0
Ni	10.0 - 14.0
Mo	2.0 - 3.0
Mn	2.0 (max)
Si	1.0 (max)
N	0.078



MECHANICAL PROPERTIES SINTERED IN THIRD-PARTY COMMERCIAL FURNACE

	Standard	Production System™	ASTM B883 / MPIF 35
		As-Sintered	As-Sintered
Ultimate tensile strength ¹ (MPa)	ASTM E8	590 ± 4	450 - 520
Yield strength ¹ (MPa)	ASTM E8	220 ± 4	140 - 175
Elongation at break (%)	ASTM E8	75 ± 3	40 - 50
Young's modulus ² (GPa)	ASTM E8	-	190
Hardness (HRB)	ASTM E18	72 ± 1.0	67
Charpy Impact Strength (J)	ASTM E23	231 ± 5	-
Density	g/cm ³	7.89	7.6
Surface finish ³ (μm Ra)	ISO 4287	3 - 8	-

ATTRIBUTES & APPLICATIONS

- Corrosion resistant
- Medical components for use in endoscopy & orthopedics
- Structural components (e.g. housings & frames)
- Jewelry & decorative items
- Fluid transfer components (e.g. manifolds)

OTHER STANDARD DESIGNATIONS

- UNS S31673
- EN 1.4404

1. YS & UTS properties noted represent mean values across Xy & Yx orientations.
 2. Modulus available upon request.
 3. Surface roughness measured in Z direction after sintering & sand blasting.