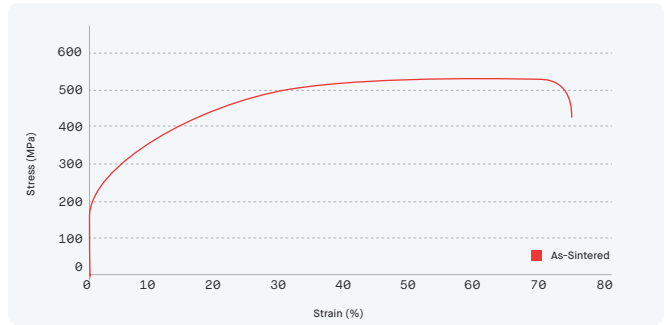


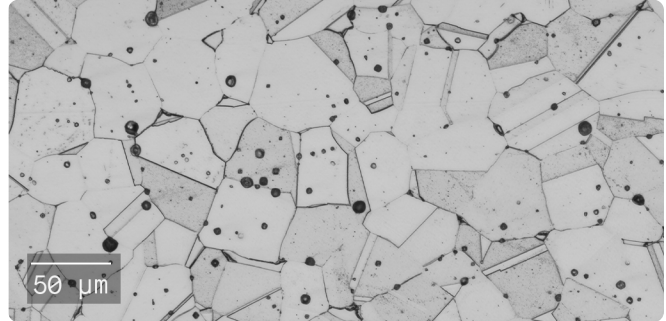
[Material Data Sheet]

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	1.0 (max)
Fe	Balance



MECHANICAL PROPERTIES IN DESKTOP METAL PURESINTER FURNACE

	Standard	X-Series™ As-Sintered	ASTM B883 / MPIF 35 As-Sintered
Ultimate tensile strength ¹ (MPa)	ASTM E8/E8M	530 ± 6	520
Yield strength ¹ (MPa)	ASTM E8/E8M	160 ± 6	175
Elongation at break (%)	ASTM E8/E8M	79 ± 3	50
Young's modulus ² (GPa)	ASTM E111	201	190
Hardness (HRB)	ASTM E18	65.1 ± 0.8	67
Un-notched Charpy impact energy (J)	MPIF 59	212 ± 4	190
Density (g/cm ³)		7.90 ± 0.01	7.6

CORROSION PROPERTIES

	Standard	X-Series™ As-Sintered	ASTM B883 / MPIF 35 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 X and Y orientations.
 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)

MECHANICAL PROPERTIES SINTERED IN THIRD-PARTY COMMERCIAL FURNACE

	Standard	X-Series™ As-Sintered	ASTM B883 / MPIF 35 As-Sintered
Ultimate tensile strength (MPa)	ASTM E8	450 - 580 (x & y) 450 - 520 (z)	450 - 520
Yield strength (MPa) (0.2% offset)	ASTM E8	140 - 220 (x & y) 140 - 220 (z)	140 - 175
Elongation at break (%)	ASTM E8	40 - 55 (x & y) 40 - 50 (z)	40 - 50
Young's modulus (GPa)	ASTM E8	190 - 200 (x & y) 180 - 190 (z)	190
Hardness (HRB)	ASTM E18	67 - 71	67
Charpy Impact Strength (J)	ASTM E23	55 - 75	
Poisson's ratio		0.28 - 0.30	
Relative Density (%)		96 - 99	
Density (g/cc)		7.6 - 7.9	7.6
Surface finish (µm Ra)		3 - 12	

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