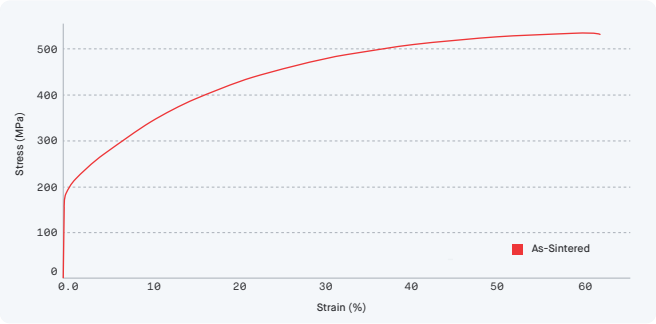
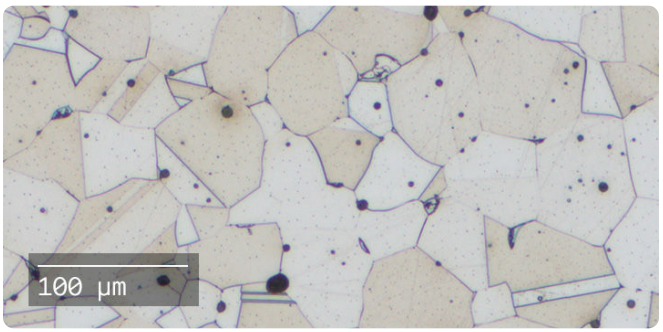
[Material Data Sheet]

316L
Stainless Steel



COMPOSITION %

Fe	Balance
Cr	16-18
Ni	10-14
Mo	2-3
Mn	2 (max)
Si	1 (max)
C	0.045 (max)



MECHANICAL PROPERTIES *

	Standard	Shop System™ As-Sintered	ASTM B883 / MPIF 35 ** As-Sintered
Ultimate tensile strength - xy (MPa)	ASTM E8M	**521 ± 28**	450-520
Yield strength - xy (MPa)	ASTM E8M	**181 ± 5**	140-175
Elongation - xy (%)	ASTM E8M	**59 ± 20**	40-50
Young's modulus - xy (GPa)	ASTM E111	**183 ± 14**	190 (typ)
Unnotched Charpy impact energy - xy (J)	MPIF 59	**208 ± 16**	190 (typ)
Hardness (HRB)	ASTM E18	**63 ± 2**	67 (typ)
Density (g/cc)	ASTM B311	**7.72 ± 0.1**	7.6

PERFORMANCE ***

Boil test (corrosion)	ASTM F1089	**Pass**	Pass
Copper sulfate test (corrosion)	ASTM F1089	**Pass**	Pass
Sulfuric acid test (corrosion)	MPIF 62	**<0.005 g/dm²/day**	<0.005 g/dm²/day

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)

High temperature applications

OTHER STANDARD DESIGNATIONS ****

UNS S31673

EN 1.4404

* Mechanical properties noted represent mean values +/- 1 standard deviation across Xy & Yz orientations for as-printed samples.
** Per ASTM B883 - 19, Standard Specification for Metal Injection Molded (MIM) Materials and MPIF Standard 35, Materials Standards for Metal Injection Molded Parts (MPIF 35-MIM, 2018)
*** Prior to corrosion resistance testing, all test samples were hand ground to remove surface oxidation and passivated in accordance with ASTM A967
**** Listed designations are for reference purposes only. Composition and mechanical properties may vary.
End-use material performance is impacted (+/-) by certain factors including but not limited to part geometry and design, application and evaluation conditions, etc.

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