

316LS/316LVM surgical steel is an electro-slag remelted (ESR) or vacuum arc remelted (VAR), low carbon, high nickel and molybdenum version of 316 stainless. The secondary premium melting step imparts improved cleanliness. The chemistry modifications are designed to maximize the corrosion resistance of this alloy and provide a ferrite-free microstructure. The alloy is nonmagnetic even after severe cold forming operations.

Nominal Composition %

C	Carbon – 0.38 – 0.43%
P	Phosphorous – 0.03%
Si	Silicon – 0.75%
Ni	Nickel – 13 – 15%
Cu	Copper – 0.05%
Mn	Manganese – 2.00%
S	Sulfur – 0.01%
Cr	Chromium – 17 – 19%
Mo	Molybdenum – 2.25 – 3%
N	Nitrogen – 0.10%
Fe	Iron - Balance

Percent by weight, maximum unless a range is listed.

Standard Inventory Specifications

- ASTM F138

Forms Stocked

- 316LS / 316LVM Bar

Thickness Stocked

- 0.1875" – 0.4375" thick

Applications

- Fracture Fixation Devices
- Bone Plates
- Screws
- Intramedullary Nails
- Surgical Implant Devices
- Surgical Instruments



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Physical Properties

Property	Value
Density	0.2870 lb/in ³
Specific Gravity	7.95
Mean Specific Heat 32-212°F	1200 Btu/lb/°F
Electrical Resistivity 70°	445.0 Ohm-cir-mil/ft

Mechanical Properties

Property		Value	
In.	Mm	Ksi	MPa
Up to 0.250	Up to 6.3	175	1207
0.251-0.500	6.31-12.7	165	1138
0.501-1.000	12.71-25.4	155	1069
1.001-1.500	25.4-38.1	125	862
1.501-1.750	38.11-44.5	95	655
Over 1.750	Over 44.5	85	586

Condition	%Cold Worked	0.2% Yield Strength		Ultimate Tensile Strength		% Elongation in 4D	% Reduction of Area	HRC Hardness
		Ksi	Mpa	Ksi	Mpa			
Annealed	N/A	36	248	85	586	57	88	88HRB
Cold Worked	35	115	793	125	862	18	72	26
	48	120	827	145	1000	16	69	32
	52	123	848	150	1035	16	65	34
	60	128	883	160	1103	16	62	36
	70	130	896	170	1172	15	60	38
	80	137	945	180	1241	13	57	40