23G - S316L

Chemical analysis

	C	Si	Mn	S	P	Cr	Ni	Mo	N
Min.						16.5	10.0	2.0	
Max.	0.03	1.0	2.0	0.03	0.04	18.0	13.0	2.5	0.1

Microstructure

Molybdenum-containing austenitic stainless steel.

Comparable standard

Standard	Designation/Type
DIN	X2CrNiMo17-12-2
UNS	S31603
EN	1.4404
BS	316S11
SS	14 23 48

Applications

General areas of application:

- Power generation: pump bodies, impellers.
- Petrochemical industry: Piping, heat exchangers.

The application areas take advantage of:

- Good corrosion resistance.
- Good weldability.

Process

Produced from scrap and alloys. Melting process: Electric Arc Furnace + AOD.
Forged on a free-form 1600 t hydraulic press.

Minimum mechanical properties at room temperature

Yield strength $Rp_{0.2}$ [MPa]	Tensile strength Rm [MPa]	Fracture Elongation A [%]	Reduction of area Z [%]	Hardness [HB]
205	515	40	50	<200

Heat treatment

Solution annealing at 1050 °C followed by quenching in water.

Weldability

S316L belongs to group 8.1 Austenitic (stainless steel Cr≤19%) according to ISO/TR 15608:2013. Excellent weldability.

Physical properties at room temperature (typical values)

Density, 20 °C [kg/m^3]	Relative magnetic permeability	Coefficient of thermal expansion		Specific heat, 20°C [J/(kg °C)]	Thermal conductivity [W/m °C]	Electrical resistivity [Ωmm^2/m]	Young's modulus, 20 °C [GPa]
		Range [°C]	Coefficient [K^{-1}]				
7900	-	20 - 100	$16.5 \cdot 10^{-6}$	500	15	0.75	200
		20 - 200	$17.5 \cdot 10^{-6}$				
		20 - 300	$17.5 \cdot 10^{-6}$				
		20 - 400	$18.5 \cdot 10^{-6}$				