

Chemical analysis

	C	Si	Mn	S	P	Cr	Ni	Mo	Cu	N
Min.						26.0	30.0	3.0	0.7	
Max.	0.02	0.7	2.0	0.01	0.03	28.0	32.0	4.0	1.5	0.10

PRE>38.0

Microstructure

S4563 is a high alloyed austenitic stainless steel.

Comparable standard

Standard	Designation/Type
DIN	X1NiCrMoCu31-27-4
UNS	N08028
EN	1.4563

Applications

General areas of application are all sectors involving corrosive environments, like oil and gas industry equipment.

The application areas take advantage of:

- High resistance to stress and intergranular corrosion cracking in various environments.
- High resistance to general corrosion, pitting and crevice corrosion.
- High mechanical strength in cold worked condition.

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. Solution annealed

Yield strength Rp _{0.2} [MPa]	Tensile strength Rm [MPa]	Fracture Elongation A [%]	Hardness [HB]
Min. 220	550-750	40	Max. 180

Minimum mechanical properties at room temperature. Cold worked

Yield strength Rp _{0.2} [MPa]	Tensile strength Rm [MPa]	Fracture Elongation A [%]	Hardness [HRC]
758-965	Min. 793	11	Max. 33

Heat treatment

Solution annealing is generally carried out at minimum 1100 °C followed by quenching in water.

Weldability

S4563 belongs to group 8.2 Austenitic (stainless steel Cr>19%) according to ISO/TR 15608:2013. The weldability of S4563 is good.

Physical properties at room temperature (typical values)

Density, 20 °C [kg/m ³]	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]
8000	Range [°C]	Coefficient [K ⁻¹]	460	10	0.98	195
	20 - 100	16.5·10 ⁻⁶				
	20 - 200	17.5·10 ⁻⁶				
	20 - 300	17.5·10 ⁻⁶				
	20 - 400	18.5·10 ⁻⁶				