

904L N08904 1.4539 X1NiCrMoCu25-20-5 Super Austenitic**Stainless steel****Properties**

Austenitic chromium-nickel-molybdenum-copper with low carbon content which resists intergranular corrosion in the temperature range up to 400 °C.

No post-weld heat treatment required.

Possesses a very good resistance to sulphuric acid of any concentration up to about 60° C, as well as to phosphoric acid and organic acids.

Excellent resistance to stress corrosion cracking, and pitting and crevice corrosion in media containing chloride ions.

For optimum resistance, surfaces should be pickled.

Application

Production of sulphuric, phosphoric and acetic acids. petrochemical industry, artificial fertilizers, food processing and pharmaceutical industries, seawater desalinization plants.

Chemical composition(WT %)

C	Cr	Cu	Mn	Mo	Ni	P	S	N	Si
Max			Max			Max	Max	Max	Max
0.02	19.0-23.0	1.0-2.0	2.0	4.0-5.0	23.0-28.0	0.045	0.035	0.06	1.0

Standards

DIN	AFNOR	UNS	SIS
1.4539 X1NiCrMoCu25-20-5	Z2NCDU25-20	N08904	2562

Hot forming

Forging:

1200 to 900°C

Air cooling

Heat treatment

1050 to 1100°C

Water, air cooling (thickness below 2 mm)

Structure Austenite

Welding

Weldability is good.

Thin electrode and wire diameters and low amperage should be used to keep heat input below.

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Avoid weaving.

Cool bead to at temperature below 100°C prior to depositing the next pass.

No post-weld treatment required.

Mechanical properties at room temperature

Condition: solution quenched

Product	Dimensions	0.2% proof stress	1% proof stress	Tensile strength	Elongation A5			Impact strength (ISO-V)		
	mm	N/mm ² min	N/mm ² min	N/mm ²	L	Q	T	L	Q	T
BI	< 30				—	35	—	—	55	—
St.Sch	< 160	220	250	520-720	40	—	—	85	—	—

St = Bars Sch = Forgings

BI = Sheet or Plate

L = Longitudinal Q = Transverse

T = Tangential

The values for others products and dimensions shall be established in accordance with relevant specifications by agreement.

High - Temperature properties

Temperature	50°C	100°C	150°C	200°C	250°C	300°C	350°C	400 °C
0.2% proof stress N/mm ² min	190	175	165	155	145	135	130	125
1% proof stress N/mm ² min	220	205	195	185	175	165	160	155

Physical properties

Density at	20°C	8.00 g/dm
Thermal conductivity at	20°C	12 W/(mK)
Specific heat at	20°C	0.45 J/(gK)
Electric resistivity at	20°C	1.00 Ohm mm/m
Modulus of elasticity at	20°C	197 x 10 N/mm
Magnetic properties	Can be slightly magnetic	

Thermal expansion	Temperature	10 m/(mK)
between 20°C e ...°C 10	100°C	15.8
m/(mK)	200°C	16.1
	300°C	16.5

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	400°C	16.9
	500°C	17.3

Modulus of elasticity, 10 N/mm at	Temperature	10 N/mm
	20°C	197
	100°C	191
	200°C	184
	300°C	177
	400°C	170
	500°C	163

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