

Alloy Information Sheet

Alloy 904 L / 1.4539

UNS N08904
W Nr 1,4539

ALLOY 904L is a multipurpose high corrosion resistant stainless steel. The chromium, nickel, molybdenum and copper content of the alloy renders it suitable for many applications dealing with medium to corrosive environments.

It is particularly useful in sulphuric acid applications where the range of concentrations and temperatures in which it can be used, is wider than that for grades such as 317L and duplex grade ALLOY 2205. This is in part due to the copper content of the alloy. In industrial grade phosphoric acid environments, the performance of ALLOY 904L / 1.4539 is again superior to that of 317L stainless steel and, at higher temperatures, duplex grade ALLOY 2205 as well.

Performance in phosphoric acid is strongly influenced by the level of impurities present. The Alloy also has useful resistance to organic acids such as formic and oxalic acids. With respect to localised corrosion, the high nickel content of ALLOY 904L / 1.4539 makes it more resistant to stress corrosion cracking than other common austenitic stainless steels whilst the levels of chromium, molybdenum and nitrogen impart excellent resistance to pitting and crevice corrosion.

NOMINAL COMPOSITION (%)

Ni	Cr	Mo	Cu	Mn	Si	N	C	Fe	Other
25	20	4,3	1,5	1,5	0,5	,13	,02	Rem	

APPLICABLE SPECIFICATIONS

PLATE, SHEET	ASTM B 625
PIPE, TUBE	ASTM B 673 / 674 / 677
BAR	ASTM B 649
FASTENERS	
FORGINGS	ASTM A 182 / ANSI B 16.5 *
FITTINGS	ASTM A 403 / ANSI B 16.9 *
WELDING PRODUCTS	

* In applicable parts

FABRICATION

ALLOY 904L / 1.4539 can be welded by the processes commonly used for austenitic stainless steel using a matching filler metal or a nickel based alloy. Heat input should be minimised and proper cleaning after welding is essential. Like other austenitic stainless steels, this alloy will be tough to machine and will work harden. However, with the correct choice of tool and machining parameters, very good results can be obtained. Hot working can be carried out in the temperature range 1050 – 850 deg C with the last heating operation being followed by quenching from this temperature.

Please call for details of Stock
Delivery and Price

TYPICAL MECHANICAL PROPERTIES

U T S	(MPa)	550
0.2% PROOF STRENGTH	(MPa)	245
ELONGATION		40%
HARDNESS	(HV10)	160 – 210

TYPICAL PHYSICAL PROPERTIES

DENSITY	(kg / cu m.)	8050
YOUNGS MODULUS	(GPa)	200
THERMAL CONDUCTIVITY	(w/ m.C)	12
THERMAL EXPANSION	(per Deg C)	0,000015

- At room temperature

Detailed technical data available
upon request

Note: Data shown are typical and full research should be done to determine the usefulness in any application or design. No warranty is expressed or implied and we assume no responsibility for the accuracy, completeness or usefulness of the content.

