Technical datasheet

Alloy 825 / W-Nr. 2.4858

A nickel-iron-chromium alloy with additions of molybdenum and copper for enhanced corrosion resistance this grade is especially resistance to sulphuric and phosphoric acid.

Available products

Product form	Size range from	Size range to
Sheet/plate	0.5 mm thickness	15.0 mm thickness
Bar	8.0 mm diameter	80.0 mm diameter
Tube/pipe	6.0 mm outside diameter	219.1 mm outside diameter

Chemical composition (%)

Ni	Fe	Cr	Mo	Cu	Ti	Mn	C
38.0-46.0	22.0 min	19.5-23.5	2.5-3.5	1.5-3.0	0.6-1.2	1.0 max	0.05 max

Major specifications

ASTM B163, B423, B424, B425, B564, B829 B906 BS 3072, 3073, 3074, 3076	UNS N08825 DIN 17744,17750, 17751, 17752, 17754

Physical properties

Density	8.14 g/cm^3
Melting range	1370-1400°C

Mechanical properties – typical room temperature properties

Yield strength	310 MPa
Tensile strength	690 MPa
Elongation	45 %

Key attributes

Alloy 825 has exceptional resistance to a wide range of highly corrosive environments thanks to its nickel-iron-chromium composition with additions of molybdenum, copper and titanium. This grade has excellent resistance to both reducing and oxidising acids, resists stress corrosion cracking and is also resistant to localised forms of attack such as pitting and crevice corrosion. It is resistant to nitric acid and is especially resistant to sulphuric and phosphoric acids. Alloy 825 has good mechanical properties from cryogenic temperatures to moderately high temperatures.

Alloy 825 has excellent forming and welding characteristics and can be readily formed by cold working. Please contact us for further details on forming, fabrication and welding consumables.

Applications

Chemical processing equipment- heat exchangers, evaporators, vessels, tanks
Sulphuric acid production and pickling equipment
Pollution control equipment
Oil and gas extraction – heat exchangers, evaporators, offshore piping
Food processing industry

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