MULTIAlloys

ADDING VALUE THROUGH EXPERIENCE

ALLOY 446

ALLOY INFORMATION SHEET

UNS S44600 (WNr 1.4762)

HEAT AND/OR CREEP RESISTANT CORROSION RESISTANT OTHER

Alloy 446 is a ferritic stainless steel intended for a wide range of general purpose high temperature applications. The oxidation resistance of the alloy, a function of its high chromium content, may be compromised in cyclical conditions as the protective oxide scale may not be as adherent as that of some other heat resisting grades. The absence of nickel makes the 446 very useful in applications in which sulphur compounds are present ; sulphur may combine with the nickel and give rise to sulphidation. Unlike the nickel containing grades, 446 resists intergranular corrosion in molten copper alloys.

As is the case with other high chromium ferritic grades, Alloy 446 may suffer 475 deg C and sigma phase embrittlement.

1.4762 is a similar grade, often more readily available and is thus may be offered as an alternative. Pipe stock is Sandvik 4C54

NOTE: Elevated temperature mechanical property data available on request

NOMINAL COMPOSITION (%)					
	Cr	Fe	Si	C	Other
ALLOY 446	25	74	1 Max	0,15 Max	N – 0,25% max
1.4762	24,5	73	1	0,12Max	Al - 1,5

APPLICABLE SPECIFICATIONS	
PLATE, SHEET & STRIP	ASTM A 176
PIPE, TUBE	ASTM A 268
BAR	ASTM A 276
FASTENERS	
FORGINGS	
FITTINGS	
WELDING PRODUCTS	

TYPICAL MECHANICAL PROPERTIES #	
TENSILE STRENGTH (MPa)	550
YIELD STRESS (MPa)	345
ELONGATION (% in 50mm)	20
HARDNESS (Brinell)	159

TYPICAL PHYSICAL PROPERTIES #	
DENSITY (kg / cu m.)	7800
YOUNGS MODULUS (GPa)	200
THERMAL CONDUCTIVITY (W/m.C)	21.6
THERMAL EXPANSION (per Deg C)	0.0000103

 # - At room temperature

FABRICATION

446 can be welded using most conventional welding processes. Austenitic fillers (308, 309) are suggested in order to achieve a ductile weld. However in applications in which nickel cannot be tolerated, a matching filler should be used. Notch sensitivity in the parent metal, the weld heat affected zone or in a matching filler bead may arise and this needs to be taken in to account in forming.

When machining, rigid tooling is recommended as are slow speeds, deep cuts and sharp cutting tools. Forging may be carried out in the range 1150-870 deg C. Although the last 10% of working should be below 870 deg C for grain refining purposes.

Please call for details of availability and price

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.

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