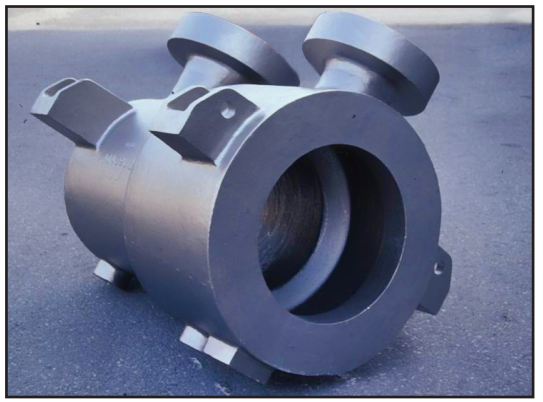
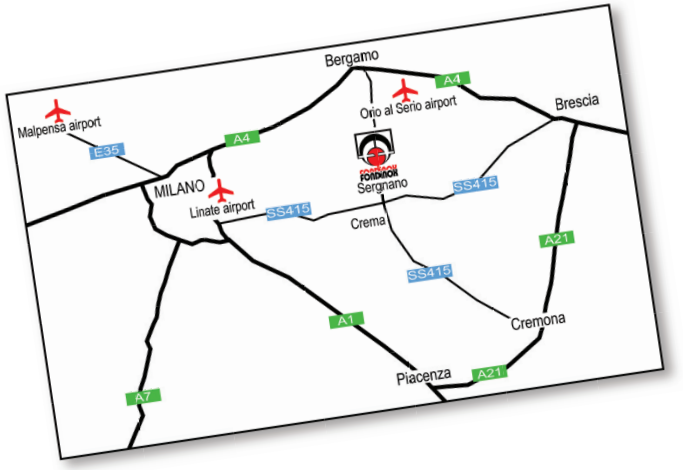
PRODUCTION RANGE

FONDINOX is a typical job foundry, specialized in the production of static castings in stainless alloys, from 13% Cr martensitic grades up to all corrosion resistant Ni base alloys. In SANDVIK SAF 2507 castings ranging from 0.5 Kg up to 6000 Kgs single finished weight can be produced. Centrispun tubes with OD up to 1500 mm, lenght up to 5.5 mts, thickness up to 150 mm and vertical centricast products (ball valve items, shaped rings, cones) with OD up to 1400 mm and length up to 880 mm are also produced. They can be considered for many applications in the valve and pump industries as the ideal substitutes for static castings, owing to their outstanding rnetallurgical cleanliness. The utilization of various high frequency induction furnaces, also with srnall capacities, confers to this special alloy production an high flexibility degree, with absolutely no problems of minimum melting quantities and consequent delayed deliveries to customers.
Castings are produced under written procedures, determined by internal quality assurance department and not destructive controls are performed by qualified personnel. Technical and production engineers are at continuous full disposition of customers for consulting work and project development.



Barrel pump (3500 Kgs net weight)



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Stainless steel and nickel base alloys

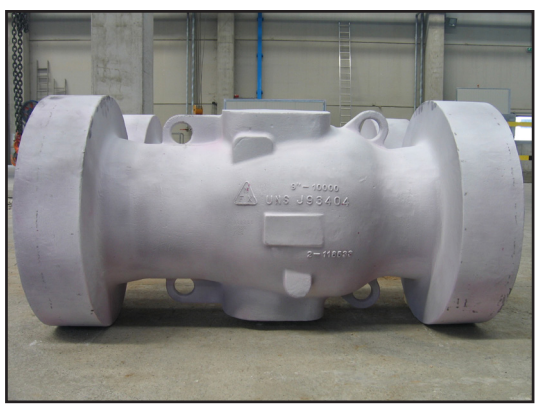
SANDVIK SAF 2507

CASTINGS FOR OFFSHORE,
CHEMICAL AND PETROCHEMICAL
INDUSTRIES

www.fondinox.com

SANDVIK SAF 2507, produced by foundry FONDINOX under official agreement and technical assistance of SANDVIK STEEL AB Sweden, can be considered one of the latest developments in the production of superduplex cast alloys. This alloy gives an answer to many of the most demanding environments, encountered in offshore and chemical technologies. Its main advantages are:

- high resistance to stress corrosion cracking in chloride or hydrogen sulphide bearing media;
- excellent resistance to general, pitting and crevice corrosion;
- superior mechanical strength, more than twice the yield strength of austenitic grades;
- good resistance to erosion corrosion and corrosion fatigue;
- good weldability.



Axial valve body (850 Kgs)

CHEMICAL COMPOSITION (TYPICAL FOR CASTINGS)			
C	0.022	Cr	25.00
Si	0.50	Ni	7.4
Mn	0.60	Mo	4.20
P	0.020	N	0.27
S	0.005	Cu	0.30

MECHANICAL PROPERTIES AT 20°C (TYPICAL)			
		Min. (castings)	Min. (wrought)
0.2% Yield stress	MPa	515	550
1% Yield stress	MPa	530	640
Tensile strength	MPa	700	800
Elongation	%	25	25
Hardness	HV	<270	<305
Hardness (typical)	HV	250	290
Impact value KV 20°C	J/cm^2	160	160
Impact value -45°C	J/cm^2	120	120

PHYSICAL PROPERTIES AT 20°C		
Modulus of elasticity	200	GPa
Thermal conductivity	16	W/m°C
Specific heat capacity	470	J/Kg°C
Density	7.8	Kg/dm^3
Electrical resistivity	0.80	µΩm
Melting temperature (liquidus)	1445	°C
Patternmaker's shrinkage	2.5	%

CORROSION RESISTANCE

Corrosion resistance of duplex cast alloys is determined by several factors, among which the phase balance austenite\ ferrite and the chemical composition of the respective phases assume a decisive role. The best results are obtained with 40/50% delta ferrite contents, which can be reached only through a careful control of an optimized chemical composition and solution treatment.
In these conditions the cast alloy shows an high degree of refractoriness against all forms of localized attack (pitting, crevice, stress corrosion) also in the most demanding environments encountered in sour gas wells. Rotating components (centrifugal impellers) can then take advantage by the optimum resistance of SAF 2507 against erosion corrosion and cavitation. Corrosion resistance of well produced castings can be assumed roughly equivalent to that of wrought or forged products.

WELDABILITY

SAF 2507 castings are readily weldable. The cast base structure should be presented to the welding operations in a solution treated condition, to avoid the coexistence of embrittling sigma phase. Heat input shall be controlled between 0.2-1.5 J\mm, to avoid either intermetallic precipitation or ferritization in the heat affected zone, with an interpass temperature not exceeding 150 °C. It will be recommended to utilize for any welding operation as filler metals in gas-shielded arc welding SANDVIK grade 25.10.4.L. and for manual arc welding the covered electrode SANDVIK 25.1 0.4.LR.

MACHINABILITY

Compared with the standard cast grade A351 CF8M (AISI 316) cutting speeds have to be reduced by up to 50% when machining SAF 2507 with cemented carbide tools. Much the same applies to other operations, where cemented carbide tools are used. If high speed steel tools are used, cutting speeds reduced by 30% as with AISI 316.