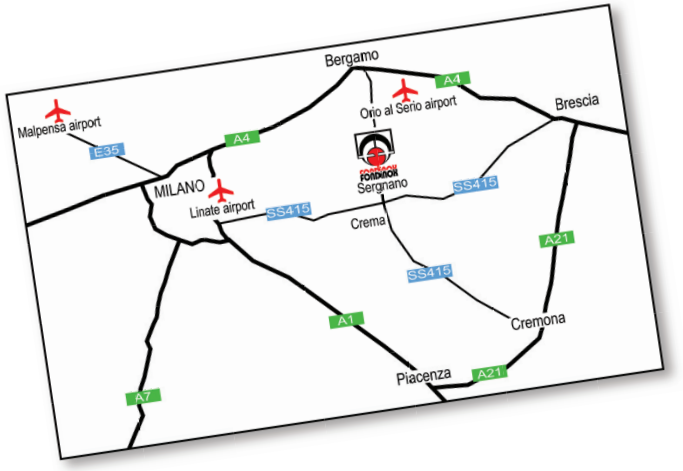
PRODUCTION RANGE

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 SANICRO 28 castings ranging from 0.5 Kg up to 6000 Kgs single finished weight can be produced. Centrispun tubes with OD up to 1500 mm, length up to 5.5 mts, thickness up to 150 mm are also produced. Vertically shaped centricast products are also produced, with max OD up to 1400 mm and max length up to 880 mm. Both such products can be considered for many applications in the valve and pump industries as the ideal substitutes for static castings, owing to their outstanding metallurgical cleanliness. The utilization of various high frequency induction furnaces, also with small capacities, confers to this special alloy production an high flexibility degree, with absolutely no problems of minimum melting quantities and consequent delayed deliveries to cutomers. Castings are produced under written procedures, determined by internal QA 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.

Centricast tube (100 mm thickness)



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Stainless steel and nickel base alloys

SANICRO 28

CASTINGS FOR OFFSHORE,
CHEMICAL AND PETROCHEMICAL
INDUSTRIES

www.fondinox.com

SANDVIK SANICRO 28 castings produced by FONDINOX foundry under official agreement and technical assistance of SANDVIK STEEL AB Sweden, represent a decisive improvement in the production of castings in the Alloy 20 family (ASTM A351 CN7M). Main fields of application for this stainless grade are:

- coolers
- condensers
- pipelines in oil production platforms, in power plants, in chemical processes (phosphoric and sulphuric acids production) and metallurgical industries

In all these environments SANICRO 28 offers a reliable and economic alternative to nickel base alloys and other more sophisticated materials. Its high resistance to pitting and crevice corrosion makes SANICRO 28 a very suitable material for handling seawater and chloride bearing media.

Rough centricast pipes

CHEMICAL COMPOSITION (TYPICAL FOR CASTINGS)					
C	0.020		Cr	27.00	
Si	0.50		Ni	31.00	
Mn	1.75		Mo	3.50	
P	0.020		Cu	1.00	
S	0.020				

MECHANICAL PROPERTIES AT 20°C		
0.2% Yield stress	MPa	>220
1% Proof stress	MPa	>250
Tensile strength	MPa	>500
Elongation	%	>30
Hardness (typical)	HV	>160
Due to its austenitic structure SANICRO 28 has an high impact strength (toughness) both at room temperature and down to -196°C		

PHYSICAL PROPERTIES AT 20°C		
Modulus of elasticity	200	GPa
Thermal conductivity	11.4	W/m°C
Specific heat capacity	450	J/Kg°C
Density	8.0	Kg/dm^3
Electical resistivity	0.99	μΩm
Magnetic permeability (1000 Oe)	1.01	-
Melting temperature (liquidus)	1385	°C
Patternmaker's shrinkage	2.7	%

CORROSION RESISTANCE

The outstanding corrosion resistance of castings in SANICRO 28 in many environments (seawater, chloride and fluoride bearing media, sulphuric and phosphoric acids) can be reached only after a careful solution treatment at very high temperatures (more than 1180°C) with long holding times, followed by water quench. This treatment not only prevents from the precipitation of intermetallic sigma phase, but reduces also remarkably by means of diffusion processes the microsegregation, typical of any dendritic solidification structure, responsible for the slight lower corrosion resistance of cast austenitic compositions, compared with wrought or forged equivalents.

WELDABILITY

SANICRO 28 possesses a good weldability. Welding should be undertaken without preheating, with low heat input and low interpass temperature (less than 150°C), to prevent precipitation of intermetallic compounds in the heat affected zone. All castings are subjected as final productive stage to a complete solution treatment, to restore full corrosion resistance and to improve the weldability in machining shop. As filler metal for TIG welding, SANDVIK 27.31.4.L Cu wire is recommended. For manual metal arc welding, covered electrodes of type SANDVIK 27.31.4.L Cu R are recommended. Further advices and welding procedures con be obtained by FONDINOX foundry engineers.

MACHINABILITY

The chip-forming machining of SANICRO 28 like other stainless steels, requires an adjustment of tooling data and machining methods, in order to achieve satisfactory results.
Compared to the standard grade A351 CF8M (AISI 316) the cutting speed must be reduced by 60%, when turning quench annealed material with cemented carbide tools. Much the same applies to other operations.