

ITASA

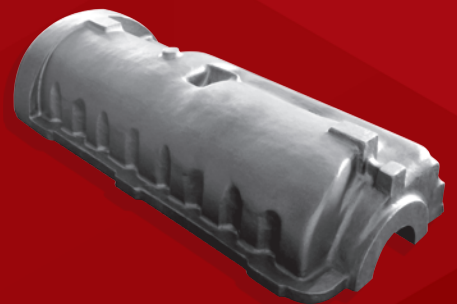
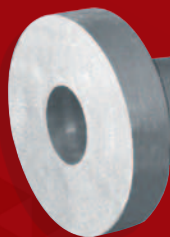
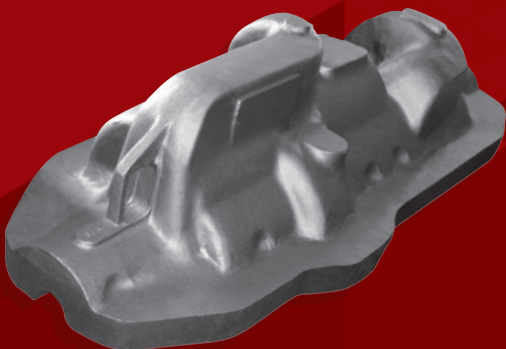
Steel Foundry

Leaders in the Oil and Gas industry, custom designs



Special developments for
MINING and NUCLEAR industry

Carbon Steel / Stainless Steel Austenitic
Stainless Steel Martenistic / Duplex



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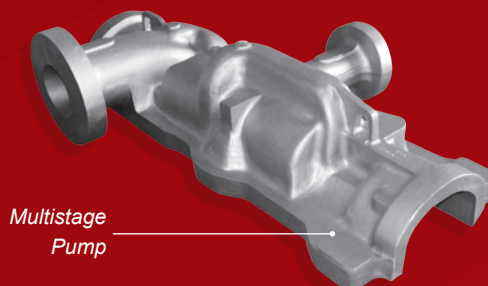
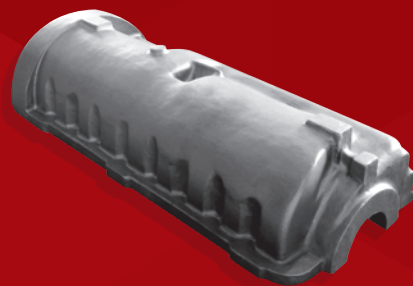
Steels developed for extreme conditions of service

Shortly after having successfully included the production of modern **DUPLEX** stainless steel among its products, **ITASA** has become a LATIN AMERICAN LEADING MANUFACTURER of cast parts.

Over the last years, the use of **DUPLEX** two phase stainless steel has increased due to its multiple applications. The “**Standard**” **DUPLEX** of a composition of about 22 % chromium, 5 % nickel, 3 % molybdenum and 0.15 % nitrogen, has a corrosion strength clearly superior to austenitic steels from the AISI 300 (A351 CF-CFM) series. It is followed by “**Superalloy DUPLEX**” which contains approximately 25% chromium,

7 % nickel, 4.5 % molybdenum and 0.18 nitrogen. It has a corrosion strength quite higher than that of “**Standard**” **DUPLEX**, and PRE > 41.

We can highlight **A890-4A** among “**Standard**” **DUPLEX** steels under ASTM norm; whereas **A890-5A** is outstanding among “**Superalloy DUPLEX**” steels.



STATE-OF-THE-ART TECHNOLOGY

Outstanding Characteristics

Excellent resistance to cracking by stress corrosion. High mechanical resistance and resistance to abrasion. Excellent pitting resistance. High general corrosion resistance in different environments. Reduced thermal expansion. High resistance to erosion-corrosion and fatigue corrosion. Good weldability. Lower cost of life cycle.

Applications

The use of these steels has increased significantly over the last years mainly in refineries and petrochemical plants, the oil and gas industries, sea water applications, the paper industry, the naval industry among others.

Mechanical Properties

General **DUPLEX** stainless steels have a very high mechanical strength (tensile strength of almost more than 50% and yield strength twice the value of the most well-known austenitic stainless steels). They also have lower thermal expansion.

Erosion / Corrosion

Tests performed in environments which contain sand have shown that A890-4A and A890-5A have a much higher resistance to erosion-corrosion than austenitic stainless steels.

Fatigue Corrosion

Stainless steels have a high resistance to fatigue and fatigue corrosion thanks to their good mechanical properties and their high resistance to corrosion.

PRE= %Cr + 3.3 % MO+16N

“PRE” minimum values for stainless steels are 20, austenitic steels reach values ranging from 20 to 30; whereas **DUPLEX** steels have values very close to 40. Superalloy **DUPLEX** go beyond 41.

Comparison: Yield strength, Thermal Expansion and Resistance.

Yield strength comparison
(Duplex Steels - Stainless Steels)

580Mpa	SUPERALLOY DUPLEX 5A
525Mpa	DUPLEX 4A
250Mpa	AISI 316L
240Mpa	AISI 316

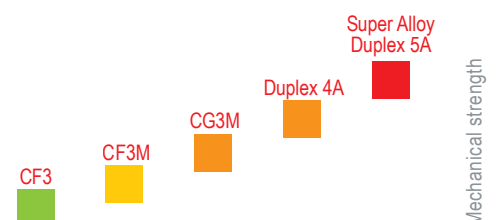
0 100 200 300 400 500 600 700
Rp 0.2 - Mpa

Thermal expansion comparison
(30° C - 100° C)

15 C°	DUPLEX steel
14 C°	Carbon Steel
20 C°	AISI 316L

0 5 10 15 20 25
°C

Resistance Vs.
Corrosion



Corrosion Strength

Mechanical strength

A890-4A

A890-4A is **DUPLEX** stainless steel of a medium alloy, highly resistant to corrosion. It is one of the most widely used due to its good cost/benefit ratios.

A890-5A

A890-5A is called **Superalloy DUPLEX** stainless steel of a high alloy, for applications in environments of an extreme corrosion. It was mainly developed for its use in environments with a high content of chloride, such as sea water, and therefore it contains high quantities of chromium, molybdenum and nitrogen. Under certain working conditions, they are practically irreplaceable. They offer an excellent cost/benefit ratio.

General corrosion resistance

A890-4A has a better resistance to general corrosion than those of the AISI 300 series (A351 CF-CFM) in most environments. Also, as 5A, it has very high mechanical resistance and abrasion strength.

Among **DUPLEX** steels, **A890-5A (Superalloy DUPLEX)** is the one which shows a higher resistance to corrosion in most environments, thanks to its high content of alloy elements. In organic acids such as formic and acetic acids A890-5A is a competitive alternative in front of the highly alloyed austenitic steels and the nickel based alloys.

Resistance to localized corrosion

"PREN" (Pitting resistance equivalent number), a clearly technological parameter, has been introduced with the aim of quantifying such property. It is very useful in practical terms and it is currently widely used. "PREN" is calculated on the basis of the following formula: $PRE = \% Cr + 3.3 \% MO + 16N$.

Stress corrosion cracking

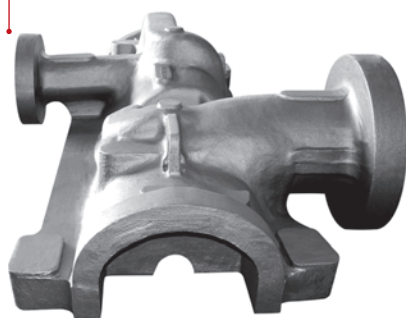
Standard austenitic steels type AISI 300 series (A351 CF CFM) are susceptible to stress corrosion cracking (SCC) in solutions containing chloride at temperatures above 60°C. **DUPLEX** stainless steels are far less susceptible to this type of corrosion. Practical experience and laboratory tests have shown a good tensile strength and a good corrosion strength.

Intergranular corrosion in welded joints

The chemical composition of modern **DUPLEX** stainless steel is balanced in such a way that the transformation of austenite at the heat affected zone when welding occurs fast. This results in a microstructure showing properties of strength and corrosion almost equal to the parent metal. Welded joints in **DUPLEX** steels successfully pass the intergranular corrosion tests according to the E ASTM A262 Practice (Strauss Test).

Some of our products

Multistage pumps, Carbon Steel, Duplex and Stainless.



Impellers and multistage centrifugal pumps in Stainless Steel, Duplex and Super Duplex.



Ball valves from 1/2" to 30" in various types of Carbon Steel and Stainless Steel.





Company

With over 25 years ITASA Argentina is the leading company in cast carbon steel parts, stainless steel, Duplex and Super Duplex. It is a supplier to the leading manufacturers of valves and pumps for the petrochemical, oil, gas, chemical, nuclear, naval and mining among others. It has a production capacity of 1500 tons / year, with a nominal load of 5600 kg

furnaces, allowing to get castings up to 3500 kg. Its industrial plant, with more than 23.000 m², is located in Parana, Entre Rios province, Argentina, 470km from Buenos Aires to "Parque Industrial General Belgrano".

Products

We specialize in merging bodies (casting corps), parts of valves and pumps in all types for the petrochemical, oil, gas, chemical and others industries. We supply castings to major manufacturers in the country as well as foreign clients.

Austenitic Stainless Steels

Our experience supported by the high technology used, has transformed us in the main producer of Argentina of secured parts in the line of austenitic stainless steels with high resistance to corrosion.

Martensitic Stainless Steels

In this line, CA6NM steel stands out for its good corrosion resistance and high mechanical strength. This steel, is considered as part of the new generation of martensitic steels, is superior to CA15, because it improves the conditions of weldability, resilience and tendency to crack.

Duplex Steels

Developed for extreme conditions of service.

These steels, commonly known as biphasic (ferric/austenitic), to which nitrogen is added to improve the weldability and greater stability between the two phases, are virtually irreplaceable in environments where high strength is required to degradation by corrosion and abrasion . The use of these steels has increased significantly in recent years in places where you need a very good corrosion resistance combined with high mechanical strength, as in refineries and petrochemical plants, offshore platforms, oil industries and sea water applications.

Carbon Steel

Normalized or quenched and tempered.

Features of our foundries

Stainless Steel Austenitic	
ASTM-A351 CF3 (AISI 304L)	ASTM-A351 CF3M (AISI 316L)
ASTM-A351 CF3MN (AISI 316LN)	ASTM-A351 CF8 (AISI 304)
ASTM-A351 CF8C (AISI 347)	ASTM-A351 CK20 (AISI 310)
ASTM-A351 CF8M (AISI 316)	ASTM A747 Gr. CB7Cu-1
Others	

Martensitic	
ASTM A217 C12	ASTM A743 CA40
ASTM-A487 CA15 (AISI 410)	ASTM-A487 CA6NM

Duplex Steel	
ASTM-A890-1B - 25Cr-5Ni-Mo-Cu (CD4MCu)	
ASTM-A890-3A - 25Cr-5Ni-Mo-Cu (CD6MCu)	
ASTM-A890-4A - 22Cr-5Ni-Mo-Cu (CD3MCu)	

Superalloy Duplex	
ASTM-A890-5A - 25Cr-7Ni-Mo-N (CE3MN)	

Carbon Steel	
ASTM-A216 WCA	ASTM-A216 WCB
ASTM-A216 WCC	ASTM-A217 WC6
ASTM-A217 C5	ASTM-A217 WC9
ASTM-A352 LC2	ASTM-A352 LCB
ASTM-A352 LCC	ASTM-A148
ASTM-A487 2C	ASTM-A487 4C
ASTM-A915 SC 4140	API-36K
API-60K	Others

