

# INOSSIDABILE

Edited and published by Centro Inox Servizi S.r.l.

## Summary

For more detailed information please contact directly the names indicated at the end of each notification

### COVER/PAGE 3

#### HOW STAINLESS STEEL STIMULATES THE FANTASY

(Come l'inox stimola la fantasia creativa)

The article presents what was born from the creative imagination of a young sculptress living in Milan who chose stainless steel as the ideal material to represent, almost in impressionist style, some scenes of what has become a true passion for her: horses and, in particular, the sport of polo.

These are bas-reliefs, made of stainless steel wire (diameter ranging from 0.4 to 0.8 mm). The players' meshes are made from nets with very dense meshes (1x1 mm), cut and adapted to make them even more realistic.

**Artist:** Beatrice Di Bitetto - I-20123 Milano MI - phone: +39 331 4127810, autorilievi@gmail.com, www.autorilievi.com

### PAGES 4/5

#### TECHNOLOGICALLY ADVANCED STAINLESS STEEL BOWLS

(Bocce inox tecnologicamente avanzate)

Many would not imagine that even in the game of team bowls, precisely for the construction of certain types of balls, stainless steel has found its way in, precisely to ensure that the objects themselves can respond adequately to new technologies and guarantee durability.

The article describes the various production stages of a particular ball made entirely of EN 1.4006 (AISI 410) martensitic stainless steel and approved by the FIB (Italian Bowls Federation). It has about 200 holes from which a coloured synthetic material emerges on the surface, necessary to obtain an appropriate contrast both between the bowls themselves and between the bowls and the playing fields.

**Realization:** Data F. Srl - I-10060 Pinasco TO - Via Sestriere 14, phone: +39 0121 803418, info@dataf.it, www.dataf srl.com / **Stainless steel supplied by:** Nord Est Metalli Srl - I-33078 San Vito al Tagliamento PN - Via Clauzetto 26, phone: +39 0434 85236, info@nordestmetalli.it, www.nordestmetalli.it

### PAGES 6/7

#### FROM OUR MEMBERS

**APERAM: DRIVING THE FUTURE.**

**LEADER IN STAINLESS STEEL FLAT PRODUCTS WITH LOW CO<sub>2</sub> IMPACT AND IN CIRCULAR ECONOMY**

(Aperam: Driving the Future)

The Aperam group, a leading manufacturer of stainless, flat-rolled and special products, is one of the most important global players in stainless steel, with about 10,000 employees worldwide and a production capacity of 2.5 Mt concentrated in six production facilities (France, Belgium and Brazil).

The ability to use biomass for its production is an important distinguishing feature for Aperam's sustainability, with the goal of significantly reducing its environmental impact by 2030 and the ambition to become Carbon Neutral by 2050. Aperam's commitment has been recognised by EcoVadis, which awarded the Aperam Group a Gold rating in 2022.

The structure of Aperam includes four divisions: Stainless & Electrical Steel, Services & Solutions, Alloys & Specialities and Recycling and Renewables.

**Aperam in Italy** - Aperam Stainless Services & Solutions Italy is the Italian branch of the group that markets flat products mainly from its own steel mills and precision/thin strip from 0.06 mm. It is present through its two Service Centres in Massalengo (LO) and Podenzano (PC).

**Excellence in quality and service for our customers** - The wide range of products offered by Aperam Stainless & Solutions Italy, responds to the multiple needs of customers in terms of aesthetic requirements, thanks to the different finishes offered including: 'BA high range', satin and floor plate finishes.

**In step with the times: e-Aperam** - For several years now, Aperam has been leading the e-Commerce world of stainless steel with e-Aperam, a platform designed for customers, created to provide a fast and punctual service in line with what today's supply chains require.

**Safety and quality system** - The culture of safety is a fundamental cornerstone for Aperam, which places the utmost emphasis on pursuing the primary objective for the safety of its

personnel: 'zero accidents'. Equally ingrained in Aperam's culture are concern for the environment, customer needs, organisational effectiveness and process reliability.

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### PAGES 8/9/10

#### STAINLESS STEEL IN PURIFICATION AND DESALINATION OF WATER

(L'acciaio inox nella depurazione e dissalazione dell'acqua)

In recent years, stainless steel is regarded as one of the most suitable materials for water purification and desalination, precisely because of its corrosion resistance and easy processing characteristics.

What are the stainless steels used for desalination? - Whereas in the last century, carbon steels were used, today duplex or austenitic steels are preferred. In particularly aggressive environments, however, superduplex, superaustenitic or superferritic steels are chosen.

**The desalination plant inside the Saras refinery in Sarroch (CA)** - The plant produces demineralised water (conductivity < 0.1 µS/cm) used to produce steam for the power generation turbines and to service some of the boilers in the crude oil refining plant. The proximity and effects of the sea, the aggressiveness of the air, the extremely saline fluid, the pressures involved and the operating conditions constitute a special context where the choice of materials is fundamental to guarantee reliability, durability and efficiency.

The piping and valves used - The piping used in the raw water pressurisation section is manufactured in "type" 2205 (UNS S32205) duplex stainless steel. Special care is taken in the manufacture of the manifolds: during the various manufacturing stages, all precautions are taken to avoid any defects that could lead to corrosion problems during operation.

The equipment used - The main equipment of a desalination plant are the raw water

pressurisation pumps (duplex and superduplex) and the energy recuperators (superduplex). The bolts and couplings are made of duplex or the superaustenitic “type” 904L. As the salts contained in the solution progressively decrease along the reverse osmosis plant treatment chain, it is possible to use materials with lower corrosion resistance in the later stages of the plant. To conclude, it is essential to make a careful choice of the various types of materials to be used, depending on the aggressive characteristics of the fluid being treated and the operating conditions.

*We thank Acciona Agua SA - Italian branch for the material provided.*

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#### PAGE 11

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### USE OF STAINLESS STEEL AT HIGH TEMPERATURES

#### (Impiego dell'inox “in temperatura”)

Presented in the article is an interesting Italian reality that produces components designed to work “at temperature”. In temperature applications where thermal energy is “produced” or “exchanged”, the use of stainless steel is imposed for its intrinsic properties of high-temperature oxidation resistance. The various types of material are chosen on a case-by-case basis according to the various parameters (operating temperatures, working times at temperature, etc.) characterising the system.

The photographs show some application examples, with indications of the materials used.

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#### PAGES 12/13

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### THE SUSA VALLEY GREAT AQUEDUCT: DESIGNED TO LAST (Il Grande Acquedotto per la Valle di Susa: progettato per durare)

The Susa Valley Great Aqueduct is a work of great importance for the Turin area: in order to improve the quality of the water distributed, more than a decade ago SMAT started the project to use water from the Rochemolles hydroelectric basin in the Upper Susa Valley and distribute it, through 96 km of pipelines, to the 27 municipalities of the Upper and Lower Susa Valley.

The material used for the main pipe was spheroidal graphite cast iron, while stainless steel was preferred for some specific applications. EN 1.4301 (AISI 304) was, indeed, employed for various “critical” uses such as various “under-floor” crossings (pipes with a diameter of 600-800 mm and a thickness of 12 mm) and the detachments from the main

pipe (pipes with a diameter of 100-400 mm and a thickness of 10 mm).

The superior characteristics and high-performance level of stainless steel have made it preferable to other types of material, especially in a water scheme with pressures of up to 28-30 bars and in mountainous and therefore extreme application conditions in many respects.

**Utility:** SMAT - Società Metropolitana Acque Torino SpA - I-10152 Torino TO - Corso XI Febbraio 14, phone: +39 011 4645111, fax: +39 011 4365575, [info@smatorino.it](mailto:info@smatorino.it), [www.smatorino.it](http://www.smatorino.it)

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#### PAGE 14

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### THE IMPORTANCE OF SURFACE FINISH

#### (L'importanza della finitura superficiale)

There are application sectors in which surface finishing is of particular importance, and this is not so much from an aesthetic point of view as in functional terms. One need only mention the food industry, chemicals, pharmaceuticals, textiles, etc.

Optimal results at tribological level can be achieved by chemical systems (pastes, baths), electrochemical systems (e.g., electropolishing), or mechanically.

To accompany the article, some phases of mechanical abrasion finishing are presented, carried out on components destined for the pharmaceutical and textile sectors, for which the company proceeded starting from base material consisting of EN 1.4404 (AISI 316L) austenitic stainless steel, both with a 2B and 2R (BA) finish.

**Realization:** C.m. Pulitura Metalli Srls - I-20030 Senago MI - Via del Lavoro 9, [cmpuliturametalli@libero.it](mailto:cmpuliturametalli@libero.it)

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#### PAGE 15

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### POTABLE WATER: AN IMPORTANT STAGE

#### (Acqua potabile: una tappa importante)

The drinking water sector represents a potential use for stainless steel that has not yet been fully expressed. Since the end of 2017, Centro Inox has systematically undertaken a promotional/training activity on the use of stainless steel in the integrated drinking water cycle at the major Italian “Utilities” involved in this sector.

The activity was developed by contacting various companies, presenting the potential of stainless steel, comparing it with more traditional materials.

The topics covered at the various meetings vary from operator to operator, but they are structured in a similar way and touch on topics such as the types of materials that can be used, durability characteristics, regulatory and legislative framework, laboratory experiences

and tests conducted on pressure drops, comparisons with other materials from an LCC perspective, and experiences in other countries (Tokyo and Taipei).

On 29 April 2022, continuing the dissemination programme, another important stage was marked at PADANIA ACQUE in Cremona.

Centro Inox will continue its promotional programme in this important sector in the coming months, and more meetings will be planned with utilities operating in the north, centre, and south of Italy.

### L'ACCIAIO INOX

#### (L'Acciaio inox)

“L'Acciaio Inox” (“Stainless Steel”) is now available, a practical compendium on stainless steels published by Centro Inox Servizi Srl and written by Eng. Fausto Capelli.

The 380-page book is available at a cover price of 39 Euros + postage. Discounts are available for Associated members of Centro Inox and Affiliated and Subscribed members of Centro Inox Servizi Srl

**For further information and for the purchase:** phone: +39 02 86450559  
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#### PAGE 16

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### CARS IN YOUR POCKET THANKS TO LASER CUTTING

#### (Automobili in tasca grazie al taglio laser)

The flexibility of laser cutting makes it possible to obtain objects even of limited dimensions with a high degree of precision, highlighting details that characterise the object itself.

A clear example of this is the application shown in the article: key rings and cap lifters in EN 1.4404 (AISI 316L) stainless steel, obtained by CO<sub>2</sub> laser cutting from 3 mm thick sheet metal. These objects represent the most iconic vintage and current cars, of Italian and foreign manufacture. Through this thermal process, not only the particular shapes are given to the object, but also the different details on the bodywork.

Using the same cutting technique, the company is also able to produce sculptures depicting cars.

**Production and distribution:** Borgese - BGEK Srl - I-20123 Milano MI - Via Dogana 3, [www.borgeseidea.com](http://www.borgeseidea.com)

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