

# INOSSIDABILE

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## Summary

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

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#### STAINLESS STEEL AND SPECIAL ALLOYS FOR AERONAUTICAL APPLICATIONS (Inox e leghe speciali per applicazioni aeronautiche)

The rings for aircraft and helicopter engines are made starting from extruded sections. Depending on required specifications, these elements can be supplied whether unprocessed or processed. These rings are used for the motors of Boeing 737, Airbus A320, Boeing 777 and 787 airplanes. In addition, similar rings are mounted on the motors of military aircrafts, such as Mirage and Rafale. Another application concerns the structural parts of aircrafts, ranging from the profile of the seat rails to the profile of the aircraft structure, and the hinges of the doors. The most commonly used alloys in the construction of the engine rings are the precipitation-hardening stainless steel grades 17-4 PH (630), nickel alloys (625, 718), or titanium alloys (TA6V). The structural sections are mostly made of precipitation-hardening 15-5 PH stainless steel or titanium (TA6V) alloys. Stainless steels are processed to obtain an alloy capable to combine high mechanical properties with an effective resistance to corrosion. Titanium alloys are instead chosen when low specific weight is required, as lightness is an extremely important parameter in the aeronautical industry. In addition, titanium alloys are chosen because of their excellent performance in case of the high temperatures that develop in the combustion chamber. The dimensions of the stainless steel profiles, as well as those made of special alloys, which are produced using extrusion technologies, depend on the weight per meter of each shape, and range from 2kg/m to 80 kg/m.

**Manufacturing company:** Siderval/Cefival-Calvi Holding Group – Via Chini Battista 60 – I-23018 Talamona SO, phone +39 0342 674130, fax +39 0342 670400, siderval@siderval.it, www.siderval.it

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#### BIO-DECONTAMINATION IN THE PHARMACEUTICAL INDUSTRY (La bio-decontaminazione nell'industria farmaceutica)

This article is focused on a manufacturing company, which designed and produced an innovative range of VPHP (Vapor Phase Hydrogen Peroxide) pass boxes made in compliance with the FDA and GaMP guidelines. These machines are equipped with a double-door inner chamber in which the bio-decontamination cycles are carried out. The constructional and process characteristics of the pass boxes described in this article provide unquestionable competitive advantages to these machines compared to the traditional systems currently available in the market. From a constructional point of view, the pass boxes are supplied on skids consisting of EN 1.4301 (AISI 304) stainless steel tubes and sheets, which are satin-finished in the exposed parts. The inner chamber is completely made of EN 1.4401 (AISI 316) stainless steel sheets, which are supplied in BA finish with  $\leq 3 \mu\text{m}$  roughness. The inner chamber is internally welded to form a single body without joints, and all inner edges have a bent radius in order to prevent the build-up of any kind of waste. The VPHP generator and the air treatment unit are built-in inside the skid of the machine. The generator, too, is entirely made

of EN 1.4404 (AISI 316 L) stainless steel.

**Manufacturing company:** Senna Inox – Viale G. Marcora 15 – I-26813 Graffignana LO, phone +39 02 48020407, fax +39 02 4980614, pharma@division@sennainox.it, www.sennainox.it

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#### FROM OUR MEMBERS

#### APERAM: PASSION, AGILITY, INGENUITY HAVE THE POWER TO CHANGE OUR WORLD

**(Aperam: la Passione, l'Agilità e l'Ingegno hanno il potere di cambiare il nostro mondo)**

The Aperam Group operates in more than 40 foreign countries, and is one of the most important global actors in the field of stainless steel. The Group has a staff of about 10,000 persons all over the world, and its six production facilities based in France, Belgium, and Brazil have jointly a production capacity of 2.5 Mt of flat sheets. In addition, Aperam is a leading manufacturer of special high added-value products, which include electrical steel and nickel alloys. The structure of Aperam includes three divisions: **Stainless & Electrical Steel, Services & Solutions, Alloys & Specialities. Aperam in Italy - Aperam Stainless & Solutions Italy**, the Italian branch of the Aperam Group, markets the flat products of the steel mills of Genk, Gueugnon, Isbergues, the welded tubes, and the thin thickness (starting from 0.06 mm) precision strips produced at Pont-De-Roide. Through its **Direct Sales Division**, it guarantees an extremely widespread service by means of the two **Service Centres of Massalengo (Lodi) and Podenzano (Piacenza)**. These cutting and finishing centres are equipped to process both *hot-rolled and cold-rolled* sheets up to 2000 mm width, in thickness ranging from 0.3 mm to 14 mm, strips starting from 5 mm width, and edge strips up to 3 mm thickness, and are supported by an efficient and widespread sales network, and by a technical assistance team that is in a position to help and counsel customers about the products to be developed, and provide technical consulting services. **Excellence in quality and services for our customers** - The wide range of products offered by **Aperam Stainless & Solutions Italy** meets all customers' requirements in terms of aesthetical characteristics, thanks to different finishing options, which include **"High-end BA"** to replace mechanical polishing processes, satin finishing, among which our **Scotch-Brite® finish**, and **floor plate finish** (for thickness ranging from 3 to 10 mm). In addition, through the registered brand **UGINOX®**, we can offer wider, complete, and innovative range of surface finishing options to meet all architectural requirements and styles. **Safety and quality system** - The culture of safety is a fundamental principle for Aperam, which pays its utmost attention to the pursuit of the "zero accidents" objective for the safety of all its staff.

**APERAM STAINLESS SERVICES & SOLUTIONS ITALY SRL** – Loc. Priora 4 – I-26185 Massalengo LO, phone +39 0371 490456, fax +39 0371 490475, www.aperam.com

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#### STAINLESS STEEL: THE IDEAL PARTNER FOR THE NEW "CIRCULAR ECONOMY" (Inox: il partner ideale per la nuova "circular economy")

The European environmental policies are focusing on the new model of "circular economy", which is the natural continuation of "sustainable development" and "green economy". The new system is conceived as just the opposite of the so-called "linear" system we inherited from 19th century, which starting from "raw materials" arrives to the waste to be disposed. This new model is focused on the sustainability of the system, in which there are no waste products and all materials are continuously re-used. Stainless steel is put forward as one of the leading materials in this new economic model. Its complete recyclability (100%) is the characteristic makes stainless steel an intrinsically sustainable material. Every steel object and product includes an average content of 60% recycled material, a part of which (35%) originates from production and process scraps, and another part (25%) is formed by objects that have come to the end of their life cycle. None of the physical properties of this material gets lost during the recycling processes. According to what the Bureau of International Recycling (BIR) reports, about 90% of the stainless steel products currently manufactured by the different industrial areas is collected and recycled, thus feeding as raw material the production chain of new stainless steel products. With the help of the Environmental Managing Systems (Sistemi di Gestione Ambientali-SGA) certified under UNI EN ISO 14001 standard, it has been possible to comply with the most stringent current requirements as regards both industrial emissions and pollution preventions.

**Photo 3:** from Inossidabile 185

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#### STAINLESS STEEL GIVES LIFE AND MOTION TO THE FORMS OF NATURE (L'acciaio anima le forme della natura)

Among the most representative works of the Tuscan artist Andrea Salvetti, born in Lucca, we would like to mention the "Cavallo a specchio" (Mirror steel horse) exhibited in piazza San Giovanni in Lucca. It is a big sculpture of over 4 m height, completely made of mirror-finish polished stainless steel. It shows the schematized features of a horse pawing the ground while raising up on its rear paws, but the shape of the sculpture has been studied to allow the horse also moving and standing on its four paws, thus making it possible to change its position and provide it with a dynamic motion similar to a natural process in progress. The motion is provided by the movement of the water that is contained inside the sculpture: when water concentrates in the rear part it keeps the horse lifted up, while when it distributes inside the body it keeps the horse standing on its four paws. The tubular cavity inside the body of the sculpture can be compared to a tank, since through a system that connects it to the water supply network, it can be used also as a water reservoir having a capacity of approx. 22,000 l. All Salvetti's stainless steel sculptures have been produced making use of the mirror-finish polished EN 1.4301 (AISI 304) grade.

**The artist:** Andrea Salvetti – Via Nazionale 180 – I-55100 Saltocchio LU, phone +39 0583 327480, fax +39 0583 327480, info@andreasalvetti.eu, www.andreasalvetti.eu

**STAINLESS STEEL IS A LEADING ACTOR IN THE FOOD & BEVERAGE INDUSTRY****(L'acciaio inox protagonista del food & beverage)**

The company this article deals with has specialized in the production of stainless steel storage tanks and process plants designed for the dairy, food, beverage, wine, and chemical-pharmaceutical industries. During the different production stages, all incoming raw materials, and the semi-finished and finished products are submitted to careful manual and visual inspections and checks. The company's choice to use stainless steel for the collection tanks was dictated by the need to ensure absolute quality levels. The company makes use of several stainless steel grades, including the austenitic EN 1.4301 (AISI 304) and EN 1.4401 (AISI 316) steels, available in different surface finishing options, such as 2B, BA, brushed circular finish, satin-finished, Scotch-Brite, etc. Stainless steel is the ideal material for the production of parts and products assigned to come into contact with food, in compliance with the Ministerial Decree of March 21st, 1973 and subsequent modifications. Thanks to its corrosion resistance and its almost eternal duration, stainless steel ensures maximum hygiene and pureness to the substances stocked in the containers. In addition, it resists to high and low temperatures, it is absolutely unalterable over time, and 100% recyclable. To produce in harmony with man and environment is the challenge this company has always set itself since its establishment.

**Products manufactured by:** Zorzi Inox Srl – Via dell'Artigianato 18 – I-35012 Rustega di Camposampiero PD, phone +39 049 9303357, fax +39 049.9303390, commerciale@zorziinox.it, www.zorziinox.it / **Stainless steel produced by:** Acciai Speciali Terni S.p.A. – Viale B. Brin 218 – I-05100 Terni, phone +39 0744 490282, fax +39 0744 490907, marketing.ast@acciaitermi.it, www acciaitermi.it

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**OUR BRAND IS SYNONYMOUS WITH EXCELLENCE IN THE KITCHEN (Il nostro marchio: sinonimo di eccellenza in cucina)**

Among the companies that are proud holders of our brand created in 2003, we would like to mention a manufacturer of kitchen sinks and tops characterized by modern and functional shapes, and by 100% Italian design and construction quality. The "INOX" brand guarantees that a product is completely made of stainless steel. In this case, the steel grade used for these products is EN 1.4301 (AISI 304), a material suitable for typically moist environments, subject to wear, as those that can be found inside a kitchen (especially in the sink and cooktop area). Basins and sinks are manufactured starting from stainless steel sheets (in thickness ranging from 0.5 to 1.5 mm), which are submitted to different processes, i.e. cutting, forming, bending welding (roll welding for the sinks, and TIG welding for the tops), satin-finishing and grinding. The finishing options of the surface have great aesthetic impact, and the products can be supplied with a satin, anti-scratch, "vintage" or a micro-decorated finishes.

**Manufacturing company:** CM SPA – Via delle Industrie 133 – I-36050 Cartigliano VI, phone +39 0424 592030, fax +39 0424 598980, info@cm-spa.it, www.cm-spa.it

**FRYING IN STAINLESS STEEL (La frittura...inossidabile)**

The large production range of an Italian company, established in 1968 and women-managed since 10 years, includes a series of electric fryers (table top and free standing models) with a capacity of 6, 9, 12, 15, 18 e 26 litres and with single or double frying tanks. The choice to use stainless steel was an imperative requirement in order to comply with the hygienic regulations in force, since these machines have to come into contact with food. These deep fryers are entirely made

of EN 1.4016 (AISI 430) stainless steel sheets of different thickness and finishing options. Sheets of 0.8 mm thickness and Scotch-Brite finish for the body and the control panel, 1 mm thickness and Scotch-Brite finish for the tank frame, 0.6 mm thickness and polished finish for the internal tank, and 0.4 mm thickness and polished finish for the filter. The production process of the sheets for these fryers includes several stages, i.e. cutting, forming, punching, and bending. The bending and welding processes, which are carried out through a robot and hand-operated spot welders, are the final steps preceding the assembly of the structure, which is completed by the assembly of the electric components and the run test. All these machines are made in compliance with the specifications of the European Low Voltage Directive 2006/95/CE and the Directive 2004/108/CE on Electromagnetic Compatibility, completed with the CE marking, and subject to compliance with the European Regulation 1935/2004 concerning food contact materials.

**Manufacturing company:** Stilfer s.r.l. – Via Tre Pini – I-16133 Genova 52/a, phone +39 010 381307 - fax +39 010 390729, mail@stilfer.it, www.stilfer.it / **Stainless steel produced by:** Aperam Stainless Services & Solutions Italy S.r.l. – Divisione Massalengo – Loc. Priora – I-26815 Massalengo LO, phone +39 0371 49041, fax +39 0371 490475, leonardo.frosali@aperam.com, www.aperam.com

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**14TH INTERNATIONAL STAINLESS AND SPECIAL STEEL SUMMIT****Vienna (Austria) – October 6 ÷ 8, 2015**

The fourteenth edition of this event, that is an international platform dedicated to flat and long products, raw materials and special steels, will have as main theme "The renaissance of the old world". The conference, which will be held in Vienna, is organized by SMR – Steel & Metal Research and Metal Bulletin.

**For additional information:** www.smr.at - www.metalbulletin.com/Events

**29TH STAINLESS & ITS ALLOYS CONFERENCE****Chicago (USA) – October 27 ÷ 28, 2015**

The 29th edition of this event focused on the stainless steel and steel alloy industry, will be held in Chicago. This event is organized by SMR – Steel & Metal Research and AMM – American Metal Market.

**For additional information:** www.smr.at - www.amm.com/events

**THE STAINLESS STEEL WORLD CONFERENCE & EXHIBITION 2015****Maastricht (The Netherlands) – November 17 ÷ 19, 2015**

The Stainless Steel World Conference & Exhibition 2015 promises to be the most important industry event of 2015 bringing together corrosion and materials professionals from the global market place. The MECC – Maastricht Exhibition and Congress Centre, in Maastricht is the venue. Centro Inox has granted its support to the conference.

**For additional information:** www.stainless-steel-world.net/ssw2015

**CORROSION: STAINLESS STEELS AND SUPER-ALLOYS****ADVANCED THEORETICAL AND PRACTICAL COURSE****Milan – November 25 ÷ 26 and December 2 ÷ 3, 2015****(Corrosione: acciai inossidabili e superleghe. Corso teorico-pratico avanzato)**

Considering the successful outcome of the previous editions, Centro Inox and the Polytechnic of Milan – Laboratorio di Corrosione dei Materiali (Material Corrosion Lab) "Pietro Pedeferrì" – Dipartimento di Chimica, Materiali e Ingegneria Chimica (Department of Chemistry, Material and Chemical Engineering) "G. Natta", decided to organize a third edition of this course.

This year, too, the course provides for a theoretical part and a laboratory practical activity, with the addition of an entire session devoted to the theme of corrosion in nickel alloys and titanium alloys.

**For additional information:** Centro Inox – phone +39 02 86450559/69, eventi@centroinox.it – www.centroinox.it

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**EXPO MILAN 2015 - STAINLESS STEEL: ECO-SUSTAINABILITY AND RECYCLABILITY****Civil Society Pavilion of Cascina Triulza – September 24, 2015****(“ACCIAIO INOSSIDABILE: ECO-SOSTENIBILITÀ E RICICLABILITÀ”)****PROGRAMME: h: 2.00 p.m. ÷ 6.00 p.m.**

- **Introduction** - Fausto Capelli – Centro Inox, Milano
- **The role of stainless steel in the field of eco-sustainability and recyclability** - John Rowe – ISSF, Bruxelles
- **Stainless steel scraps in the production cycle** - Daniela Abrate – B e D, Milano / Massimo Proietti Cerquoni – Acciai Speciali Terni, Terni
- **Slag: an example of eco-sustainability of stainless steel production** - Loredana Di Sante – Centro Sviluppo Materiali S.p.A., Roma
- **The art of recycling a recyclable material** - Armando Grandi – Inoxea, Brescia

Debate

Free participation\* until all available seats in the hall are taken.

\*After the purchase of Expo 2015 ticket

**Additional information:** Centro Inox – phone +39 02 86450559/69 – eventi@centroinox.it - www.centroinox.it; Cascina Triulza – www.cascinatriulzaexpo2015.org

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**STAINLESS STEEL AND WOOD. A MIX OF ELEGANCE****(Acciaio inox e legno: un mix di eleganza)**

The products shown in this article are manufactured with by a company that has gained over 40 years of experience in the production of stainless steel objects. The designer decided to use BA finish EN 1.4301 or EN 1.4401 (AISI 304 or 316) stainless steel sheets in thickness ranging from 1 to 3 mm, and stainless steel tubes of 22 mm diameter. Mordant-treated birch-wood slats and shelves have been combined with stainless steel in order to enhance the elegance and comfort of these products, and to increase their reliability over time, making them more solid, resistant to the ageing process and to bad weather. Each one of the 62 slats of the Radix bench is individually assembled within the tubular structure, and is spaced out by stainless steel spacers. The shelves of the Quadra bookcase can be assembled at an adjustable height in order to house a TV or a HI-FI set. Radix and Quadra can be supplied with a Scotch-Brite or coloured (on request) finish. The manufacturing process provides for laser cutting, bending and micro-plasma welding process of some parts and details.

**Project, design, and production:** INOXDESIGN a brand of Delinox s.r.l. – Viale Europa, 38 – I-26855 Lodi Vecchio (LO), info@delinox.it – www.inoxdesign.com / **Designer:** Davide Coppaloni

**CENTRO INOX****The Italian Stainless Steel Development Association**

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