

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

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THE NEW FRONTIER OF STAINLESS STEEL SURFACE FINISHING

(La nuova frontiera delle finiture superficiali dell'acciaio inossidabile)

The electro-colouring method for stainless steel is by now a well-known process. The desire to provide the market with new and innovative proposals, join today to the electro-colouring process, also an alternative surface treatment, derived from PVD technology, based on the physical deposit of titanium compounds. All the elements shown in this article are produced, through this exclusive process, by a well-known company based in the district of Cremona, specialized in the supply of surface finishing treatments for metal products. As well as ensuring all the characteristics of the electro-colouring method, this new process offers extremely high surface resistance, fully homogeneous colours, and easy repeatability. The characteristic of colour homogeneity and its repeatability - especially in the range of green and red, which are rather "hard to treat" colours - represents one of the main advantages of this process, which is particularly appreciated by planners and designers.

"TSteel" Manufacturing Company: Steel Color S.P.A. - Via per Pieve Terzagni 15 - I-26033 Pescarolo Ed Uniti CR, phone +39 0372 834311, fax +39 0372 834015, info@steelcolor.it, www.steelcolor.com / **Pict. 1:** "TSteel Nero SM" - **Installation:** Saporiti Italia on the occasion of the Milano Design Week 2013 - **Project by:** Park Associati, a cura di Cloe Piccoli - **Photos:** Franco Garbin / **Pict. 3 Shading elements:** "TSteel Verde SM" - **Project:** AE Architecture Studio BVBA, Belgio / **Pict. 4 Stands designed and produced by:** Form Srl, www.formsr.it

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PLANTS... ALL BEER AND SKITTLES! (A tutta Birra!)

A company which has been working for more than ten years in the production of stainless steel tanks and in the planning and development of turnkey plants, recently began producing special plants designed for small breweries, completely made of stainless steel. The metal sheets used for the tanks are made of EN 1.4301 and 1.4401 (AISI 304 and 316) grade stainless steel, in thicknesses ranging from 2 to 5 mm. These plants are entirely positioned on stainless steel platforms. Depending on plant structure and size, the production capacity can vary from 100 to 3000 lt for each production cycle, which normally lasts from 6 to 8 hours. Stainless steel plays an essential role in these plants, due to its basic characteristics: chemical inertia to the corrosive agents; stainless steel is flavourless and odourless; incrustations and scales can be easily removed; it is an easily and safely washable material; there is practically no bacteria retention due to its smooth surface; and it is particularly resistant against environmental corrosion. The tank external finish may be either brushed circular or satin-finished. All welding operations are carried out by means of TIG processes. All fittings, such as flanges, tubes, etc., are also made of AISI 304 and AISI 316 stainless steel.

Manufacturing Company: Toscana Inox srl - Via Catalani 45 - I-50050 Cerreto Guidi FI, phone +39 0571 580101, fax +39 0571 581779, www.toscanainox.com / **Stainless steel supplied by:** Aperam Stainless Services & Solutions Italy S.r.l. - Divisione Massalengo - Località Priora - I-26815 Massalengo LO, phone +39 0371 49041, www.aperam.com

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FROM OUR MEMBERS

ACCIAI SPECIALI TERNI: THE IRON AND STEEL POLE AT THE CENTRE OF ECONOMIC, SOCIAL AND INDUSTRIAL DEVELOPMENT

(Acciai Speciali Terni: il polo siderurgico al centro dello sviluppo economico, sociale ed industriale)

Acciai Speciali Terni is considered today one of the world leaders in the production of stainless steel flat rolled products, and represents one of the most important integrated iron and steel production sites all over the world.

Plants - The production site is equipped with electric arc furnaces, converters (AOD / VOD), slab continuous casters, a hot-rolling mill, cold-rolling mill areas including annealing and picking lines for hot-rolled coils, Sendzimir rolling mills, annealing and pickling lines for cold-rolled coils and sheets, and BA (bright annealing) lines. In addition, the Finishing Centre is equipped with cross- and longitudinal-cutting lines, as well as surface finishing lines.

Products - The range of products includes austenitic and ferritic hot- and cold flat rolled products. The product line includes hot-rolled (1U) coils and sheets; hot-rolled (1D) annealed and pickled coils and sheets; floor plates; cold-rolled work hardened, annealed, pickled, skinpassed (2D/2B), bright-annealed (BA), decorated, satin finished and brushed coils, sheets, strips, and bands; cold-rolled pre-painted coils and sheets. In particular, pre-painted stainless steel sheets are available under the registered name of **Vivinox®**. The range of Vivinox® products includes **Silver Ice®** (transparent pre-painted stainless steel); **Vernest®** (coloured pre-painted stainless steel), and **Primerinox®**. A continuous activity in the area of **Research & Development** has further increased the levels of competitiveness of the company, and in the current difficult economic and historical phase, Acciai Speciali Terni has particularly focused on the research and the development of innovative ferritic steel products. Thanks to the investments made in the **VOD (Vacuum Oxygen Decarburization)** plant, the company succeeded in developing and producing **super-ferritic steels (470LI)** with 24% chrome content, and mixed Titanium and Niobium stabilization. In the range of these new ferritic steels we can also find the **stabilized steel grades with improved formability** (as, for example, **441PS** and **439PS**) and the new ferritic steel grades especially developed for the automotive industry (as, for example, **429S** and **441M**). **Subsidiaries** - The Acciai Speciali Terni Group, which employs on the whole about 2800 persons, includes also: **Terninox; Società delle Fucine; Tubificio di Terni and Aspasiel.**

ACCIAI SPECIALI TERNI S.P.A.

Viale B. Brin 218 - I-05100 Terni TR - phone +39 0744 490282, fax +39 0744 490879, marketing.ast@acciaiarni.it, www acciaiarni.it

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STAINLESS STEEL CORROSION: AN UNUSUAL APPROACH FOR A SELECTED AND TECHNICALLY EXPERT PUBLIC

(La corrosione degli acciai inossidabili: un approccio insolito per un pubblico tecnico selezionato)

The Phenomenon of Corrosion - Centro Inox has been carrying out for more than fifty years its activity focused on the promotion and study of stainless steel applications. This

activity expresses itself in the provision of technical advice on specific application cases in all industrial areas, standards and specifications, organization of training courses, etc. When a technical support is requested to the "databank" of our association, it concerns, in most cases, the issue of corrosion onset in all its aspects. **Training Activities** - In order to effectively meet in the most exhaustive and complete way an increasing number and variety of requests concerning these issues we considered it worthwhile to organize a training course focused on this subject, not only from a theoretical but also from a practical point of view. This training course was held in the month of May 2013, in partnership with PoliLaPP - Laboratorio di Corrosione dei Materiali "Pietro Pedferri" - Politecnico di Milano - Dipartimento Chimica, Materiali e Ingegneria Chimica "G. Natta", at the university premises of the Polytechnic of Milan. This advanced training course provided for four full teaching days, in which the morning hours were devoted to participants' theoretical training, while the afternoon hours were devoted to practice, applications, and laboratory tests. The course focused on some general themes, such as basic metallurgy, presentation of stainless steels, including the next-generation ones, from the point of view of designation, standards and specifications, thermal treatments, and surface finishing. The general theme of corrosion was then dealt with, considering both the thermodynamic and the kinetic aspects, as well as potential measurements. Considering that a considerable number of applications addressed to our association could not be fulfilled, since the course provided for a limited number of participants, we are considering the opportunity to repeat the seminar in the near future, basing also on the suggestions received by the participants themselves, in order to be as close as possible to the solution of the real and practical problems expressed by those who work "in the field".

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A 470LI STAINLESS STEEL LOAD-BEARING STRUCTURE FOR SWIMMING POOLS

(La struttura portante delle piscine in acciaio inox 470LI)

The company this article is focused on, makes use of one of the most exclusive and state-of-the-art technologies in the industry of swimming pools, the Myrtha Technology, which relies on stainless steel. This technology consists in a patented modular system which makes use of solid 2 mm thick ferritic stainless steel panels to form the walls of the swimming pool. A high-resistance PVC layer is then hot-laminated on the steel panel at high temperature. Subsequently, the panels are submitted to punching and bending processes, and are finally connected and tightened through bolts between them and to the base frame. No welding points are used in order to avoid any potential corrosion onset and weak areas. Strong stainless steel reinforcement buttresses placed on the joints between the panels give the structure stiffness and strength. This structure is strong and elastic at the same time, and is ideal for applications in critical or broken grounds, in seismic areas, or in made grounds. For the construction of the bearing structure of the pools, the company makes use of 470LI stainless steel, a highly performing material that, in terms of corrosion resistance, can be compared to AISI 316. The metal structural work has thicknesses ranging from 2 to 5 mm depending on applied loads, and in particular, on the positive buoyancy, which is proportional to the pool depth.



Manufacturing Company: A&T Europe S.p.A Piscine Castiglione – Via Solferino, 27 – C.P. 7 – I-46043 Castiglione delle Stiviere MN, phone +39 0376 94261, fax +39 0376 631482, info@piscinecastiglione.it / **Stainless steel produced by:** Acciai Speciali Terni S.p.A.– Viale B. Brin 218 – I-05100 Terni TR, phone +39 0744 490282, fax +39 0744 490879, marketing.ast@acciaiatermi.it, www.acciaiatermi.it

A STAINLESS STEEL SHELL FOR TEMPERATURE “UNDER CONTROL”

(Un involucro inossidabile per una temperatura “sotto controllo”)

Thermal insulation is a method developed to insulate two systems having different environmental and thermal conditions, so that no heat exchange occurs between them. The materials used for this purpose are the so-called “thermally insulating” ones, i.e. materials characterized by low thermal conductivity. Austenitic stainless steel has in its “DNA” this important physical characteristic, which allows it playing a co-star role on the scene of this specific industrial branch. The food, chemical and petrochemical, zootechnic, building, and energy industries are the main application areas for civil and industrial thermal insulation. We report in this article some application examples produced by a company based in the province of Bergamo, which is a leader in this area and boasts an over 40 year-long experience: **Pict. 1** - The thermal insulation of this glycol transport system inside a wine cellar is made using polyurethane foam and AISI 304 sheet with a special brushed circular finish; **Pict. 2** - Overall view of a part of the channels of an air-conditioning system insulated with elastomeric rubber and AISI 304; **Pict. 3** - Detail of the inlet of an air-conditioning system; **Pict. 4** - The thermal insulation of these steam, condensation, and process water transport pipes, is obtained by combining elastomeric rubber, AISI 304, and glass wool with concentric fibres, which is incombustible and non-corrosive.

Manufacturing Company: Coifer srl – Via Leonardo da Vinci 47 – I-24043 Caravaggio BG, phone +39 0363 51597, fax +39 0363 53011, info@coifer.it, www.coifer.it

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THE “STAINLESS” IDEA OF A DESIGNER (L'idea inossidabile di un designer)

To celebrate the 50th anniversary of “Giulietta”, one of the icons of the Italian automotive industry, a designer has created a particular object, which symbolically reflects not only this car as an end product, but also its design and construction process. Starting from a typical 1:10 scale model similar to those made by the designers of the 1950s, and taking the cue from their application practice, which provided for preparing and mounting only one half of the model, since for the presentations a mirror was positioned along its centre line to complete the image of the car, the designer created a “Half a Giulietta for Half a Century”. The problems of limited mechanical and chemical resistance arisen using aluminium and brass for the reflecting surface, could be successfully overcome by choosing to use stainless steel. A special 1.6 mm thick EN 1.4301 (AISI 304) 450 x 150 mm stainless steel sheet, “Supermirror” finish, was therefore used. This sheet is mechanically mirror-polished through felt pads, and is subsequently laser cut and punched. **Designer:** Arch. Zbigniew Maurer, zbnigniew.maurer@gmail.com, www.alfamodellini.com / **Stainless steel mirror:** Steel Color – Via per Pieve Terzagni 15 – I-26033 Pescarolo Ed Uniti CR, phone +39 0372 834311, fax +39 0372 834015, info@steelcolor.it, www.steelcolor.com

“FAST” STAINLESS STEEL FOR FOOD (Fast inox in the food)

Talking about the food industry, we cannot neglect the material that is mainly used in this area: stainless steel. The potentialities of this material go beyond all limits, and one of them, in particular, is widely applied to the main elements of food packaging machines. All the parts coming into contact with food are made of special steel sheets, such as those made of EN 1.4301 (AISI 304) embossed steel. The main element of these machines is a “forming collar”, which

intervenes in the critical final stage of the product packaging process. The products to be packed can safely slide and be easily oriented thanks to the smoothness of stainless steel. The exclusive surface finishes allow a continuous and orderly flow of both the product into the tray, and of the cling film along the forming collar, to avoid that in an automatic equipment of this kind operators are obliged to directly intervene, and to avoid any risk of slow down or disorderly flow of the product.

Embossed stainless steel versions 7GM and 13SD, registered trademarks and exclusive production: Rimex Metals UK, sole distributor for Italy: **Production Service** Srl – Via A. Diaz 80/c – I-26845 Codogno LO, phone +39 0377 379821, fax +39 0377 400818, steel-service@aol.it, www.inoxcolorato.com / **Manufacturing Company:** MD Bag Forming Sets – Viale Giovanni Falcone 7 – I-31037 Loria TV, phone +39 0423 455111, www.mdbagformingsets.com

AN INNOVATIVE SELF-SERVICE CAR WASH: ENCOUNTERING HIGH TECHNOLOGY WHILE RESPECTING THE ENVIRONMENT

(Autolavaggio self-service innovativo: incontro con alta tecnologia e rispetto per l'ambiente)

The stainless steel products shown in this article are made by a company manufacturing self-service accessories and equipment for car wash systems, which has an attached carpenters' workshop. All products are made of EN 1.4301 (AISI 304) stainless steel sheet in 0.8 – 1.2 – 1.5 – 2 and 3 mm thicknesses. The choice to use stainless steel depends on the properties and peculiarities of this kind of material, which offers excellent resistance properties in rural and urban environments, combined with high mechanical and corrosion resistance. Available surface finish: satin- and ScotchBrite finish. All welding operations are made through a TIG process.

Production: A.D. Produzione Srl – Via Darwin 18 – I-20019 Settimo M.se MI, phone +39 02 33502497, fax +39 02 33503984, info@adproduzione.it, www.adproduzione.it

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WELDING STAINLESS STEEL: NEWS AND EXPERIENCES

Milan, Università degli Studi, 27 November 2013

Palazzo Greppi – Sala Napoleonica – Via S. Antonio 10 - 9.00 a.m. - 5.30 p.m.

(La saldatura degli acciai inossidabili: esperienze e novità)

The event is organized by Centro Inox and Istituto Italiano della Saldatura and supported by Fondazione Promozione Acciaio. The official language will be Italian.

Programme:

Welcome address: R. Guidetti, Università degli Studi di Milano

Introduction to workshop activities: S. Trasatti, Università degli Studi di Milano; R. Molino, Istituto Italiano della Saldatura; F. Capelli, Centro Inox

Welding: 1. “Super-austenitic stainless steel: welding, production, and welded joint properties” – S. Sorrentino, Centro Sviluppo Materiali / **2. “Metallurgical characteristics and weldability of new generation martensitic stainless steels: a case study”** – M. Mandina, IIS Service srl; M. Magnasco, Nuovo Pignone srl / **3. “Austeno-ferritic (duplex and super-duplex) steel welding: latest developments, progress, and experiences”** – D. Calcagno, IIS Service srl / **4. “Ferritic stainless steels: welding of the new stabilized grades”** – F. Ruffini, Centro Sviluppo Materiali; S. Sorrentino, Centro Sviluppo Materiali

Panel Q&A

Processes: 1. “Hybrid process applications in austenitic stainless steel welding” – G.B. Garbarino, IIS Progress srl

Tests and services: 1. “Welding Automated Ultrasonic Testing (AUT) in austenitic stainless steels” – F. Bresciani, IIS Service srl; P. Genocchio, IIS Service srl

Standards and Certifications: 1. “Case histories concerning the certification of stainless steel welding processes: IIS experience in the application of standards and reference contract technical specifications” – A. Pandolfo, IIS CERT srl

End of workshop activities, Panel Q&A and round table

For information e registration: Istituto Italiano della

Saldatura, Mrs Ivana Limardo, phone +39 010 8341373, fax +39 010 8341399, ivana.limardo@iis.it

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STAINLESS STEEL WORLD 2013 CONFERENCE & EXPO

Maastricht (The Netherlands), 12th ÷ 14th November 2013
Following a number of successful events around the globe since the 1990s, the Stainless Steel World Conference & Exhibition will be hosted again in Maastricht, the Netherlands, from 12th to 14th November, 2013. This international platform will provide a professional setting in which material experts can update their knowledge on the developments, specifications and applications of a range of corrosion-resistant alloys in key industries. The Stainless Steel World Exhibition will run again in parallel with the conference. By attracting suppliers and buyers from around the globe, the exhibition is a strong platform to showcase company products, services and activities.

For further information: www.stainless-steel-world.net

TABLE REFERRING TO THE CHEMICAL ANALYSIS OF THE MAIN STAINLESS STEEL GRADES, AND CORRESPONDENCE OF THEIR DIFFERENT DESIGNATIONS ACCORDING TO EN, AISI AND ASTM

(Tabella dell'analisi chimica dei principali acciai inossidabili e corrispondenza fra le designazioni secondo EN, AISI e ASTM)

This new table (in Italian language) has been conceived as a guidance for identifying both the chemical composition of the main stainless steel grades, and the approximate correspondence of their names according to EN European Standards, AISI Manual, and ASTM Standards and Specifications. **For further information and details:** Centro Inox Servizi – Piazza Velasca 10 – I-20122 Milan, phone +39 02 86450559/69, fax +39 02 860986, centroinoxservizi@centroinox.it, www.centroinox.it/prodotti

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FLEXY – A NEW DIMENSION IN DESIGN

(Flexy - La dimensione del design)

“Flexy” is a transformable grater manufactured using a 0.2 mm thick EN 1.4310 (AISI 301) work hardened (and harmonic, with shape memory) stainless steel sheet. A material provided with a “memory”, because, after having been used, “Flexy” can recover its original shape thanks to the peculiar characteristics of harmonic steel. In 2012, “Flexy” won the Red Dot Award, in the prestigious section “Best of the Best”. Such a thin stainless steel sheet, which is only 0.2 mm thick, had never been used before in the manufacture of a grater. The use of harmonic stainless steel allows saving material by 50%. In addition, the particular design of the grater allows easy cleaning operations, and savings in water consumption up to 80% compared to traditional graters.

Manufacture and design: Ely Rozenberg – Via Dei Sabelli 215 – I-00185 Roma, phone +39 06 93931433, elyrozenberg@gmail.com / **The grater is marketed by:** Viceversa spa – Via Isonzo 10 – I-22078 Turate CO, phone +39 02 33915356, fax +39 02 93661619, info@viceversa.it, www.viceversa.it

CENTRO INOX

The Italian Stainless Steel Development Association

Piazza Velasca, 10 - 20122 Milano - Italy
Telephone +39 02 86450559 - +39 02 86450569
Fax +39 02 860986

redazione.inossidabile@centroinox.it
www.centroinox.it

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