

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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A NEW TRAIN SPEEDS ALONG THE UNDERGROUND RAILWAY LINES OF MILAN (Un nuovo treno sfreccia lungo le linee metropolitane milanesi)

Thirty new trains have been built a few months ago for the underground lines 1 and 2 of Milan. These ultramodern and functional transport means include six completely intercommunicating wagons having 107 m total length and a capacity of 1.232 passengers. These trains had to meet several specific requirements, especially as regards their total weight and the need to travel on railway lines that had been conceived for the transport requirements of underground trains and lines that dated back to the early 1960s. In particular, the pneumatic systems, which up to now had always been made of copper, were submitted to specific studies and research aimed at reducing the weight of the pipes used in them as much as possible, and at ensuring, at the same time, the required performance and safety levels. The pneumatic system of the train is placed under the body and is consequently subject both to the strains caused by the vibrations generated by cross- and vertical-sectional accelerations, and to corrosion attacks. Due to these specific requirements, the designers decided to choose laser electro-welded annealed EN 1.4301 (AISI 304) stainless steel tubes in 14, 18, 20, 25, and 30 mm outer diameter and 1 mm thickness. Special attention was paid to the overall design of the train, and in particular to the train interiors, which are all "made in Italy". Stainless steel tubes in 35 mm diameter and 2 mm thickness were used for the handrails and the handles, to ensure the absence of maintenance requirements and greater flexibility as regards the overall aesthetic characteristics of the train, and to improve in general its brightness.

Manufacturer: AnsaldoBreda Spa – Via Argine 425 – I-80147 Napoli, info@ansaldobreda.it, www.ansaldobreda.it - **External and Institutional Relations:** Dr. Alessio De Sio – We would like to thank for this article the engineers: Fabrizio Gherardi and Alberto Caruso / **Customer:** ATM S.p.A. – Foro Buonaparte 61 – I-20121 Milano

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PRESSFITTING FOR THE FOOTBRIDGE OF EXPO 2015

(Pressfitting per la passerella pedonale di EXPO 2015)

The opening of Expo 2015 in Milan in the month of May 2015, "baptized" also the pressfitting system designed to ensure pedestrian protection and the passage of electrical cables. This system is located next to the overhead footbridge connecting the entrance of Expo with the underground station. The completion of this work required using 7,000 m of tubes made of EN 1.4301 (AISI 304) stainless steel and 2,100 joints made of EN 1.4404 (AISI 316 L) stainless steel in diameters 108 and 76.1 mm, and 2 mm thickness. The footbridge, which is 520 m long, was tested to withstand the strains produced by the passage of thousands of persons. It was estimated that, depending on the workload, the structure may swing sideways by approximately 4 cm. This is the reason why the joints were fitted and pressed only

next to the junction boxes. In addition, some special joints were designed to act as "expansion joints" in the non-pressed sections of the plant.

The choice to use stainless steel proved to be an elegant solution of strong aesthetic impact, but above all, it represents a guarantee of solidity and resistance, which ensures easy installation.

Assembly: Grisenti srl – Via di Campotrentino 124 – I-38121 Trento, grisenti@grisenti.it, www.grisenti.it / Vimoter spa – Via Alcide de Gasperi 22 – I-20834 Nova Milanese MB, info@vimoter.it, www.vimoter.it / **Tubes and joints:** Eurotubi Europa Spa – Via Croce Rossa Italiana 12 – I-20834 Nova Milanese MB, info@eurotubieuropa.it, www.eurotubieuropa.it / **Stainless steel tubes manufacturer:** Aperam Stainless Services & Solutions Tubes Europe – F-55170 Ancerville (Francia) – 1, rue de Prêle - **Supplier:** Aperam Stainless Services & Solutions Italy S.r.l. – Divisione Massalengo – I-26815 Massalengo LO – Loc. Priora, phone +39 0371 49041, fax +39 0371 490475, leonardo.frosali@aperam.com, www.aperam.com

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FROM OUR MEMBERS

PADANA TUBI. MANUFACTURING WELDED TUBES FOR OVER 40 YEARS

(Padana Tubi. Da oltre 40 anni produttore di tubi saldati)

Padana Tubi is a company founded in 1970 at Guastalla by the family Alfieri, which operated on a built area of about 3,000 m² and the support of a staff of twenty employees, for the initial purpose of producing welded carbon steel tubes. Over the years, the company has continuously grown and developed, and several other plants were added to enlarge its production range with diversified raw material qualities and a considerable enrichment in finished product shapes. Today, the activity is carried out by a staff including about 600 persons working on an overall covered area of 350,000 m² entirely based in the municipality of Guastalla, with an output of about 800,000 tons of carbon steel and 150,000 tons of stainless steel. Supported by a strong patrimonial and financial position, Padana Tubi can rely on a large stock of raw materials and finished products, and is in a position to ensure a well-timed and flexible response to any customer request. Thanks to its sales, marketing, and logistic services, the company can reach all European and non-European countries, ensuring its consolidated and reliable presence in many service centres and steel product distributors. Padana Tubi produces and sells stainless steel hollow section tubes of the following grades: 304 / 304L / 316L / 316Ti. The available sizes of round tubes range from 6 mm to 323.9 mm, while those of the square tubes range from 10x10 to 200x200, and the rectangular ones from 20x10 to 300x100. Depending on the section, thicknesses range from 1 to 6 mm. Continuous welding processes are carried out through TIG, LASER, HF (High Frequency) technologies. In addition to the usual visual and dimensional controls, all tubes are submitted to on-line controls during the production stage through the Eddy Current system. Furthermore, all mechanical tests, chemical composition analyses, and macrographic examinations through optical microscope, are

carried out in the company's in-house laboratory. Stainless steel tubes are produced in compliance with the following standards and directives: EN 10296-2 / EN 10217-7 / Directive 97/23/EC (PED). The company is certified in compliance with UNI EN ISO 9001 standards.

PADANA TUBI & Profilati Acciaio SpA – Via Portamurata 8/A – I-42016 Guastalla RE, phone +39 0522 836 561, fax +39 0522 836 576, info@padanatubi.it, www.padanatubi.it

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HYGIENIC DESIGN: A DUTY AND AN OPPORTUNITY FOR MANUFACTURERS AND USERS OF FOOD PROCESSING EQUIPMENT

(Hygienic Design: un obbligo e un'opportunità per costruttori e utilizzatori di apparecchiature alimentari)

Hygienic planning and construction of equipment and plants – which is identified by the term "Hygienic Design" – is one of the main requirements food, pharmaceutical and cosmetic products manufacturers have to put into effect to ensure safe and suitable products. Users and builders, as well as inspection authorities, must become familiar with the hygienic design standards, and must be conscious of the importance of their role as regards the effectiveness (and hence, the safety), the efficiency, and the sustainability of the production processes. According to the European law in force (EC/852/2004), hygiene and easy cleaning of any equipment destined to the production of food is a compulsory requirement. People often believe that the only obligations constructors have to comply with are those concerning the choice of materials, and that the only further standard they have to meet is an appropriate average roughness of the surfaces that come into contact with food. Though stainless steel is the material par excellence for large surfaces coming into contact with food products, the construction of an equipment of AISI 316 grade with Ra<0.8 μm, is not sufficient to guarantee its hygienic properties. It has been proved, for example, that different surfaces having the same Ra surface finishing, show different cleaning levels depending on the surface topography, and on the finishing method that was used. Concerning their impact, different bibliographical sources report that unhygienic and not properly cleaned food processing equipment is considered one of the major causes of food contamination. In the most serious cases, microbiological studies have proved that the most critical parts of some machines show, after washing, a microbial charge that may even exceed the one detected during their running. EHEDG (European Hygienic Engineering and Design Group) is a European consortium - the members of which are food processing companies, equipment manufacturers, research institutes and public health authorities - which was established in 1989 for the purpose of increasing people's awareness towards Food Hygiene, contributing to the prevention of problems related to food safety, and supporting and promoting the image of the food industry among consumers. Being a legal obligation, the achievement of complete and easy cleaning represents an economic opportunity for the food processing industry. Disregarding compliance

with the related legal requirements, to improve the hygienic design of food processing appliances would allow making cleaning and sanitizing operation more sustainable and less expensive, thus reducing consumption of chemical products and production standstills.

IN CONCLUSION: WHY HYGIENIC DESIGN?

- ✓ Because it allows a more effective and easier management of product safety.
- ✓ Because it cuts and streamlines washing, sanitizing, and maintenance times, and increases plant availability.
- ✓ Because it allows reducing washing and sanitizing costs, as well as waste water disposal costs.
- ✓ Because it allows full compliance with European and U.S. legal standards.
- ✓ Because it is consistent with the global aims of innovation, efficiency, and sustainability.

We wish to thank for this contribution: Giampaolo Betta, Università di Parma

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FURNISHING AND DECORATING WITH STAINLESS STEEL TRANSPARENCIES (Arredare con trasparenze inossidabili)

The "Made in Italy" style is universally recognized and appreciated, and there is a number of products and applications in which we have got used to see stainless steel playing the role of an undisputed leading actor. The characteristics of stainless steel are well known everywhere, but the enhancement from all points of view of this material through the use of transparency is a new and unique feature.

A new arrival: a line of dining tables and desks, lamps and pedestals, all made of plexiglass combined with decorated and embossed EN 1.4301 (AISI 304), BA finish, stainless steel.

Manufacturing company: Italy Steel Project srl - Via Diaz, 80/C - I-26845 Codogno LO, phone +39 0377 33104, info@italysteelproject.it, www.italysteelproject.com

THE RIGHT LIGHT

(La luce giusta)

"Capri" is a new line of cube or parallelepiped shaped outdoor lamps. An entirely Italian production, in a position to meet any design requirement in terms of outdoor lightening appliance types, from post to recess, in order to provide the environment with a consistent and uniform style, along with high performance and durability over time.

"Capri" makes use of the LED technology and is available as a ceiling lamp, wall lamp, and floor lamp, in different colours. The "Capri" line is made of EN 1.4404 (AISI 316 L) stainless steel, the ideal material in case of exposure to corrosive agents and applications in environments with aggressive atmosphere. The manufacturing company takes also care of the electro-polishing process.

Manufacturing company: Stral, Palazzoli Group - Via Federico Palazzoli 31 - I-25128 Brescia, phone +39 030 2015299, fax +39 030 2015283, www.stral.it

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35 WAYS TO SAY DESIGN

(35 modi di dire design)

"Diametro 35 Inox" formally inherits the tradition of the "Diametro 35" line of bathroom and kitchen fittings, designed by Davide Vercelli. The choice of stainless steel attests a careful evaluation of materials, which should not be intended only as inspiration and flair, but also and above all, as a reason to combine a tactile and visual experience with the peculiar characteristics of a corrosion-resistance, hygienic, environment-friendly, and completely recyclable material. The eco-friendly approach determined by the choice of stainless steel and by a flow rate below 9 l/min is another

important characteristic of this line. Tubes in diameters ranging from 18 to 50 mm, 2 mm thick steel sheets, and bars in diameters from 4 to 50 mm, are used, all made of EN 1.4301 and EN 1.4404 (AISI 304 and AISI 316 L) stainless steel. The line is only available in brushed finish. This choice depends on the designer's choice to keep the steel with a rough surface in order to fully take advantage of the ability of this material to shape light. All welding operations are made through laser technology.

Manufacturing company: Rubinetterie Ritmonio S.r.l. - Via Indren, 4 - Z.I. Roccapietra - I-13019 Varallo VC, phone +39 0163 560000, fax +39 0163 560100, info@ritmonio.it, www.ritmonio.it

BEAUTIFUL AND FUNCTIONAL KITCHENS SHAPED IN STAINLESS STEEL

(Cucine belle e funzionali plasmate nell'acciaio)

The kitchens shown in this article are unique pieces shaped in stainless steel and rigorously made in Italy. The appliance is entirely made of 1.4301 (AISI 304) and AISI 441 stainless steel in BA and Scotch Brite finish and 0.8 mm thickness. Thanks to these materials, the particularly high strength of these products combines with easy cleaning properties. These kitchens are available in three different lines, completely made of stainless steel, from the inner level of the oven to complements and accessories. On request, the surfaces can be painted. They are available in four sizes and can be supplied with different top options. It is worth mentioning the built-in ovens, which are equipped with an EN 1.4301 (AISI 304) stainless steel inner chamber in Uginox Linen finish. The same finishing solution has been used for the muffle of the pizza/bread oven, which allows reaching very high temperatures (up to 315° C). The same material (AISI 304) is used for the production of all the oven accessories, such as baking pans, grills, and drip pans.

Manufacturing company: Steel srl - Via Agricoltura 21 - I-41012 Carpi MO, phone +39 059 645180, fax +39 059 6220804, steel@steel-cucine.com / *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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CENTRO INOX SERVIZI S.R.L.

Centro Inox was established in 1962 as a no-profit association devised by some Italian steel mills for the main purpose of creating a link between material producers and end users. Later on, to better meet the increasing number of different and specific requirements expressed by end users, the company Centro Inox Servizi S.r.l. was established in 1995 as a separate section of the association, which allows member companies to benefit from "dedicated" services at different levels. In particular, affiliation does not only allow a company to obtain specific technical services (advice, training courses, etc.) but also promotional services on the occasion of the events organized by the association. *Further information and details on the services offered to the affiliated companies can be found at:* www.centroinox.it/affiliazione

14TH INTERNATIONAL STAINLESS AND SPECIAL STEEL SUMMIT

Vienna (Austria) - October 6 ÷ 8, 2015

The fourteenth edition of this event, which is an international platform dedicated to flat and long products, raw materials and special steels, will be focused on the 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.metallbulletin.com/Events

16° BIENNAIL AIPND CONFERENCE PND-MD EXHIBITION

Milan, October 21÷ 23, 2015

After eight years, the National Conference on Non-destructive Testing arrives again in Milan, the nerve centre of the Italian industrial activities, and the location of the ongoing Universal Exposition EXPO 2015.

For additional information: www.aipnd.it

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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 event of 2015 in this area, bringing together corrosion and material 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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THE GEOMETRICAL SHAPES OF STAINLESS STEEL BECOME ART

(Le forme geometriche dell'inox diventano arte)

These sculptures, made by an artist from Turin, offer a remarkable example of how stainless steel can be used for works of art. This material, indeed, has allowed the author to create some works of great visual impact characterized by geometrical shapes. Stainless steel represents an optimal choice by virtue of its corrosion resistance, which allows these monumental works not to be submitted to the damages caused by the corrosive action of the surrounding atmosphere and, in general, by bad weather. The mainly used stainless steel grade is EN 1.4301 (AISI 304), and the products the artist makes use of are tubes, sheets, and fasteners in satin or brushed finishes. The different parts are assembled through filler wire welding, TIG, and tightened flanges.

Sculptor: Massimo Ghiotti - Via Accademia Albertina 3 bis - I-10123 Torino, ghiotti@massimoghiotti.it / "Acropoli" sculpture made by: Officina Mantino - Via A. Meucci 29/A - I-10040 Leimi TO

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