

INOSSIDABILE

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Summary

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COVER/PAGES 3/4

STAINLESS STEEL IN MODERN URBAN ENVIRONMENTS

(L'ambiente urbano moderno è inox)

Shaded by the "Palazzo Lombardia", the building in which the government of the Lombardy Region is based, a new urban park has been built. This urban space is characterized by high traffic concentration, and due to its characteristics of corrosion resistance and durability over time, stainless steel was considered the most appropriate material. The "Triade" gazebo is made of EN 1.4401 (AISI 316), 50x2 mm mirror-polished tubes. This gazebo has only three legs: this peculiarity allows it remaining stable on uneven grounds. The bicycle rack "Topazio" is made of satin-finish EN 1.4307 (AISI 304L) stainless steel, and consists of a continuous spiral-shaped curved tube. The stainless steel bollards are made of a 2 mm thick tube having 102 mm outer diameter, 800 mm ground elevation, and a slightly convex upper end. They are entirely made of polish- or satin-finish EN 1.4301 (AISI 304) stainless steel. The waste containers "J Hyde Park", too, are made of EN 1.4307 (AISI 304L) stainless steel.

Street furniture: Peverelli S.r.l. – Via Oberdan 2, – I-22073 Fino Mornasco CO, phone +39 031 880320, fax +39 031 880400, info@peverelli.it, www.peverelli.it

PAGE 5

AISI 316L STAINLESS STEEL IS USED FOR CHIMNEYS

(L'impiego dell'acciaio inox AISI 316L nelle canne fumarie)

Chimneys made of EN 1.4404 (AISI 316L) austenitic stainless steel prove to effectively resist against the corrosive effects of acid condensations, they offer little resistance to fumes flow and are capable to reach and exceed, in an extremely short time, the dew-point (i.e. the temperature value the condensation phenomenon originates from). In particular, the use of 316L, BA-finish, stainless steel prevents the deterioration of the walls and the parts that come into contact with fumes depending on the effects of heat and on thermal-mechanical strains, which may cause malfunction and even damages to things and persons. The use of EN 1.4404 (AISI 316L) austenitic stainless steel for the modular elements produced by this company, ensures the highest resistance levels against the attack of extremely corrosive components. The production range of this company is characterized by a quick clutching system. A silicone gasket ensures perfect sealing between the different individual elements in which a positive pressure functioning is foreseen, or in conditions of high condensation levels. The outer connection clamps ensure clutch stability even if they are submitted to mechanical strains.

Manufacturing company: Roccheggiani S.p.A. –

Via I° Maggio 10 – I-60021 Camerano AN, phone +39 071 7300023, fax +39 071 7304005, info@roccheggiani.it, www.roccheggiani.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@thyssenkrupp.com, www.acciaiterni.it

PAGES 6-7

FROM OUR MEMBERS

TECNOFAR S.P.A. – DRAWN AND TIG-WELDED PRECISION TUBES & PIPES

(Tecnofar S.p.A. - tubi di precisione trafilati e saldati a TIG)

Tecnofar is a dynamic and flexible company established in 1974, based at Delebio and Gordona (Sondrio), it is considered today one of the leading manufacturers of welded and drawn stainless steel tubes. **PRODUCTION** - The company's production is ensured by 11 TIG welding lines equipped with heat treatment in line, which are capable to produce round welded tubes and pipes with outer diameters ranging from 3.00 to 76.00 mm, and thicknesses ranging from 0.12 to 3.00 mm. A part of this production is processed by drawing with floating spindle in reduced diameter and thickness tubes, both in coils and in bars. Tecnofar own a tube cutting department with circular saws and a modern finishes and deburring department. The company supplies tubes cut to length even of few millimetres. **MATERIALS** - Austenitic stainless steels: 200 Series – 300 Series; ferritic stainless steels: 400 Series; duplex; nickel alloys. **QUALITY POLICY** - The quality system of the company is certified by the certification body ITALCERT in compliance with UNI EN ISO 9001:2008 and UNI CEI EN ISO 13485:2012 standards. **REFERENCE STANDARDS** - EN 10217/7, ASTM A312, ASTM A249, ASTM A269, DIN 17455, DIN 17457. **TESTING ACTIVITIES** - The product is checked in the processing stages to verify the compliance with the required characteristics: dimensional, mechanical seal and pressure load, aesthetical aspect. The internal laboratory is equipped to perform all the tests and measurements about the processing: tensile, hardness, roughness and micrographic tests.

TECNOFAR s.p.a.

Via della battaglia 17/20 – I-23014 Delebio SO, phone +39 0342 684115, Fax +39 0342 684500, info@tecnofar.it, www.tecnofar.it

PAGES 8-9-10

SANITATION OF SURFACES COMING INTO CONTACT WITH FOODS: GENERAL RULES AND COMPARATIVE TESTS

(Sanificazione delle superfici alimentari: generalità e test comparativi)

Concerning products, objects and machinery that come into contact with food, the issue of **surface**

sanitation possibilities was dealt with in a degree thesis. **PERFORMED TEST PROGRAMME** - This comparative study provided for the use of the different kinds of materials commonly used in the food industry: 2R (BA) and 2J (Scotch Brite-SB) finish EN 1.4301 (AISI 304) stainless steel; 2R (BA) and 2J (Scotch Brite-SB) finish EN 1.4016 (AISI 430) stainless steel; Polypropylene; Ceramic; Glass. The adherence capacity of microorganisms (Pseudomonas Fluorescens, quality indicator, and Staphylococcus Aureus, safety indicator), whether in presence or in the absence of rinse, was checked. Once the roughness of surfaces was determined and characterized, the test tried to establish its correlation with the microbial adherence capacity. Subsequently, the conveniently contaminated test materials were treated with different sanitation agents (chlorine base, peracetic acid base, and quaternary ammonium salt base) in order to check their effectiveness on microorganisms also in relation with the kind of substrate. **SUMMARY OF TEST RESULTS - Microbial Adherence (Pict. 1 and 2):** ■ Adherence takes place in different ways on the substrates, especially during the first 30 minutes, while differences cancel out after approximately 60 minutes; ■ The most akin material to microorganisms resulted to be polypropylene; ■ 2J finish AISI 430, followed by AISI 304 with the same finish, proved to be the materials reporting the lowest microbial charge after 60 minutes; ■ On 2J finish AISI 304, glass and polypropylene, adherence becomes considerably strong only after 15 minutes; ■ Except for 2J finish AISI 430, a rinse after 60 minutes does not allow to completely remove a high number of microorganisms. Note: No microbial adherence test was performed on 2R (BA) finish stainless steel. It resulted lower than that concerning 2J finish steels in the contamination stage during the disinfection tests. **Disinfection Tests (Pict. 3 and 4):** ■ The initial bacterial charges confirmed the data achieved during the adherence tests; ■ In general, the material capable to keep the highest number of microorganisms on its surface after the first wash was polypropylene; ■ In the case of 2R (BA) finish stainless steels, regardless of the type of disinfectant used, a single wash proved enough to wipe out the contaminating charge; ■ In all the other cases, in general, depending on the kind of substrate, on the type of disinfectant, and on the kind of bacterium, the number of washes needed for wiping out the bacterial charge was variable; ■ The disinfectant containing a quaternary ammonium base resulted, in general, the most effective one. **Roughness Influence (Pict. 5):** ■ Glass, ceramic and 2R (BA) finish stainless steel proved to be materials quite similar to one another in terms of average roughness R_a and reported the lowest values; ■ The difference in bacterial adherence depending on the detected average roughness value, was not remarkable; ■ During the disinfection stage, the materials reporting the lowest average roughness value, revealed instead a better behaviour. Note: Only EN 1.4016 (AISI

430) stainless steel underwent a corrosive attack, due in particular to the effect of the sanitizing agent with a chlorine base.

This article is based on the degree thesis of Dr. Luca Vasone "Materials Coming into Contact with Food: Microbial Adherence and Disinfectant Action on Surfaces" defended at the Faculty of Agricultural and Dietary Science of the State University of Milan. Thesis Director: Prof. Riccardo Guidetti, Assistant Supervisors: Prof. Laura Franzetti and Prof. Angela Vecchio, Academic Year 2010-2011.

PAGE 11

STAINLESS STEEL HOODS FOR FUMES AND SOOT EXHAUSTION

(Abbattitori in acciaio inox per il trattamento di fumi e fuligine)

Manufacturers producing hoods for the treatment of fumes and soot usually choose materials capable to ensure maximum resistance levels while requesting minimum maintenance interventions over time. Among these materials, stainless steel is particularly effective, since it is capable to guarantee, at the same time, extremely high mechanical resistance properties, as well as resistance to even very high thermal loads, and above all, high resistance and seal to corrosive gases.

For all these reasons, the company this article deals with, has exclusively chosen austenitic stainless steel for the production of its hoods for the treatment of fumes and soot. The hoods produced by this company are particularly suggested for all those who need to eliminate the problems related to the onset of soot, and need to treat the fumes and the smells produced by firewood and biomass combustion. They represent the most effective solution for all the restaurants, pizza houses, bakeries and cake & bread-making shops, which need to conform to the new anti-pollution regulations. The company has therefore chosen to use Scotch Brite-finish, 1.5 mm thick, EN 1.4404 (AISI 316L) stainless steel. The cross-mesh filters, the automatic electro-mechanical ball cock gauge, and the high-pressure water pump, too, are all made of stainless steel.

Manufacturing Company: Metaltecnica Produzioni S.r.l. – Via Vivaldi 13 – I-47814 Bellaria RN, phone +39 0541 347852, fax +39 0541 347660, info@metal-tecnica.com, www.metal-tecnica.com / **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@thyssenkrupp.com, www.acciaiterni.it

PAGES 12-13

THE MARK FOR STAINLESS STEEL PRODUCTS: A USER'S ACCOUNT

(Marchio per i prodotti di acciaio inossidabile: la testimonianza di un utilizzatore)

The "Mark for Stainless Steel Products". This article collects the account of one of the first manufacturing companies (of home taps and fitting) which has made use of the "Mark for stainless steel products".

"The idea of a mark distinguishing stainless steel products in an area that has always been the privilege of chromium-plated brass, seemed, from the very beginning, an absolutely reasonable choice. The characterization of our products, entirely made of stainless steel, and all the properties of this material, have certainly facilitated its introduction in an extremely competitive market.

Manufacturing Company: A.P.M. – Via Cirila 38 – I-28883 Gravelona Toce VB, phone +39 0323 865900, fax +39 0323 865219, info@apm-inox.com, www.apm-inox.com / **Stainless steel mark:** issued by Centro Inox, www.centroinox.it/marchio

ENERGY-SAVING EFFECTIVENESS AND ENVIRONMENTAL SUSTAINABILITY

(Efficienza energetica e sostenibilità ambientale)

"Aerotop G" is a new heat pump, especially designed and developed for outdoor installation in residential areas, which can be supplied in two sizes of 7 and 10 kW heating power. "Aerotop G" distinguishes itself by its design; stainless steel is a material provided with a strong personality. Its EN 1.4301 (AISI 304) stainless steel panels ensure long product life and performance, as well as low maintenance costs, and environmental sustainability. It offers high comfort levels, and is the ideal heat pump for heating residential areas. In addition, it is absolutely noiseless, which represents a considerable advantage in residential areas, thus enhancing and improving the quality of the environment.

Manufacturing Company: Elco Italia S.p.A. – Via Roma 64 – I-31023 Resana TV, phone +39 0423 7160, fax +39 0423 716380, info@it.elco.net, www.elco-risparmioenergetico.it, www.aerotop-g.com

STAINLESS STEEL SHEET TURNING: A VERSATILE, QUALITY FORMING PROCESS

(Tornitura in lastra dell'acciaio inox: un processo di formatura versatile e di qualità)

Drawing is undoubtedly the major and most popular cold-forming process for stainless steel sheets. Less known is instead the forming process called sheet turning. A company established in Venice more than fifty years ago, has made of this particular process its core business. Sheet turning is a special cold-forming process. It consists in progressively forming a metal sheet disc, which rotates at high speed on a lathe, and through a special tool, is pressed against a mould that gives the processed part a particular shape. The sheet-turned end product, which depending on requirements has a conical, spherical or semi-spherical shape, comes out with an excellent surface finishing. This process is mainly used for the production of parts and objects destined to the aeronautical, furniture and restaurant/catering industries. The most used stainless grades are the traditional ones, such as AISI 304 (EN 1.4301), AISI 430 (EN 1.4016) and AISI 316 (EN 1.4401), purchased in standard 1,000x2,000 mm size sheets with thicknesses ranging between 0.8 and 2.00 mm.

Manufacturing Company: Piccoli S.r.l. – Via Einstein 6 Z.I. – I-30033 Noale VE, phone +39 041 440895, fax +39 041 4433912, info@piccolisrl.it, www.piccolisrl.it

PAGE 14

MADE IN STEEL – Milan, April 3 ÷ 5, 2013

The fifth Made in Steel, the conference and exhibition of the steel industry, will be held for the first time at the Fieramilanocity halls. Iron and steel producers, along with distributors and users, will play the leading role in this event, considering in particular its double aim of being an exhibition place, and a venue for exchanging know-how and opinions. Being a prestigious showcase that hosts the most important international iron and steel companies, this event effectively combines the business and the conference sides, focusing on a full agenda of meetings, forums and panel discussions with the participation of top experts, a characteristic that makes Made in Steel an event apart. Three topics will be analysed during the conference and exhibition: construction, power and utilities, and automotive. As in the past, however, a careful eye will be turned to the stainless steel industry. This

will also be possible thanks to the confirmation of our partnership with Centro Inox.

For additional information: www.madeinsteel.it

PAGE 15

STOP TO PLASTIC CONTAINERS IN THE SCHOOL DINING HALLS, THE MUNICIPALITY OF MILAN SAID. THEY WILL BE REPLACED BY STAINLESS STEEL CONTAINERS

(Via i contenitori di plastica dalle mense scolastiche. Il Comune di Milano: saranno sostituiti da vaschette in acciaio inox)

Further to the information we gave on issue n° 188 of Inossidabile, June 2012, we come back to this subject to inform that in the month of September, the new environment-friendly "gastronorm" stainless steel containers were supplied to Milano Ristorazione (the company belonging to the Municipality of Milan, in charge of school meal supply and delivery).

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 Standard 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

PAGE 16

STAINLESS STEEL TO PROMOTE AND ENHANCE THE "MADE IN ITALY" BRAND

(Acciaio inox per valorizzare il made in Italy)

An Italian company specialized in the production of outdoor recreational equipment for children, has chosen to lay the foundations of its activity by relying exclusively on quality and respect of the environment. Stainless steel plays a primary role, due to its characteristics of high corrosion resistance, its hygienic properties, and its 100% recyclability. The choice fell on EN 1.4301 (AISI 304) for the production of structural elements perfectly integrated with the rest of the structure and the other materials used in it.

Manufacturing Company: Pozza S.r.l. – Operating Office: Via F. Filzi 4 – I-36078 S. Quirico di Valdarno VI – Registered Office: Via Margherita 8 – I-36076 Recoaro Terme VI, phone +39 0445 473920, fax +39 0445 473930, info@pozza.it, www.pozza.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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