

# 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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#### MULTIPLE DIVERTERS FOR PRESSED GRAPES

##### (Deviatori multipli per uve pigiate)

Most of the modern systems for the vinification don't work continuously and so a suitable number of diverter valves have to be inserted. In order to reduce their number, it's expedient to use multiple diverter units, so the plant can be more compact and be characterized by a lower pressure drop.

The system showed in the article is composed by EN 1.4301 (AISI 304) and EN 1.4401 (AISI 316) stainless steel welded tubes having diameters of DN 100 or DN 125, with a low surface roughness that contributes to guarantee an excellent corrosion resistance. Furthermore, other components are present, such as large-radius elbows and pinch valves and all of them are TIG welded.

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#### EXHAUST SILENCERS FOR EVERY TASTE (Marmitte per tutti i gusti)

In the motorcycle exhaust system production, stainless steel is one of the most employed materials, because of its excellent aesthetic aspect, its corrosion resistant towards exhaust gas and the many natural elements and, above all, its very good resistance to sudden temperature changes.

The exhaust systems presented in the article are made of EN 1.4301 (AISI 304) stainless steel. This material is used both for the final part of the exhaust system (the silencer) and for the many connection tubes and manifolds. The envelope of the silencer is produced by the company itself: it is manufactured starting from a stainless steel sheet, that is laser cut, bended and longitudinally TIG welded. The silencers can be characterized by different finishes, according to the requested surface appearance.

**Manufacturer:** Exan – I-20035 Lissone MB – Piazzale Giotto 1 – phone: +39 039 2782799 – infoexan@exan.it – www.exan.it / **Photographer (for Fig. 2):** Carlo Flaminio

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#### FROM OUR MEMBERS PADANA TUBI. MANUFACTURING

#### WELDED TUBES FOR 50 YEARS

##### (PADANA TUBI: 50 anni nella produzione di tubi saldati)

Padana Tubi is a company founded in 1970 at Guastalla by the family Alfieri, for the initial purpose of producing carbon steel welded tubes. Starting from 1989, also stainless steel welded tubes were manufactured. 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 700 persons working on an overall covered area of 400,000 m<sup>2</sup> 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. 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 mm to 200x200 mm, and the rectangular ones from 20x10 mm to 300x100 mm. 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 2014/68/UE (PED). The company is certified in compliance with UNI EN ISO 9001 and OHSAS 18001:2007 standards.

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#### HEAT TREATMENTS FOR SUPERAUSTENITIC STAINLESS STEELS AND NICKEL ALLOYS

##### (I trattamenti termici per gli acciai inossidabili superaustenitici e per le leghe di nichel)

The heat treatment is a technological process that implies the heating of the material up to a given temperature, the maintaining at that temperature for a certain time and a final cooling. The heating and the cooling rates shall be adjusted depending on the material and on the required heat treatment. *Superaustenitic stainless steels* represent an alloy family characterized by an excellent corrosion resistance and remarkable mechanical properties, due to the high content of Mo and N. These stainless steels cannot be hardened by heat treatment, but they can be annealed. Because of their chemical composition, superaustenitic stainless steels are subject to the formation of deleterious phases if they are not quickly cooled, such as  $\chi$  (chi) phases,  $\sigma$  (sigma) phases, Laves phases and carbides.

*Nickel alloys* are a particular family of non-ferrous metallic materials having an austenitic structure. The reasons of heat treating these metals can be summarized as follows:

- Modification of the mechanical properties and of the microstructure;
- Dissolution of undesired second phases (e.g.  $\delta$  phases (Ni<sub>3</sub>Nb) and carbides);
- Reinforcement: solid solution hardening, controlled precipitation of carbides, ageing with the formation of intermetallic precipitates such as  $\gamma'$  (fcc) and  $\gamma''$  (bct).

However, an extended exposition to the ageing temperatures (over-ageing) can cause the formation of  $\delta$  phases (Ni<sub>3</sub>Nb) at the expense of the already precipitated  $\gamma''$  phases. The presence of  $\delta$  phases is usually harmful because it leads to a significant loss in mechanical properties.

*Edited by Alessio Malandrucolo e Alessandro Norberti - Acciaierie Valbruna*

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#### WHEN SEISMIC PROTECTION ASKS STAINLESS STEEL FOR HELP

##### (Quando la protezione sismica chiede aiuto all'acciaio inox)

Italy is well known to be a country of high seismic hazard. As far as the industrial buildings are

concerned, a patented seismic device, recently introduced onto the market, allows to decouple the ground motion from that of the shelving, with consequent drastic reduction of the risks caused by the earthquake towards both people and stored goods. Among its many components, the dissipator (the "CANDLE"), that controls the resonance phenomena induced by the earthquakes, has to be characterized by specific levels of mechanical properties, corrosion resistance and hygiene. These requirements are fulfilled by using EN 1.4301 (AISI 304) stainless steel, in the form of a round bar with a diameter of 16 mm.

**Manufacturer:** Girardini Srl – I-38079 Tione di Trento TN – Via Fabbrica 90/92 – phone: +39 0465 339111 – girardini@girardini.it – www.girardini.it

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**WHEN STREET FURNITURE AIMS FOR DURABILITY AND QUALITY (Quando l'arredo urbano punta sulla durata e la qualità)**

As far as the street furniture is concerned, the material choice plays a key role, especially in presence of an aggressive environment, such as the marine one. That's why the municipality of Recco (province of Genoa, Italy) opted for stainless steel, in combination with concrete, for the manufacturing of the benches installed in the proximity of its promenade. The seat is made in concrete, while EN 1.4301 (AISI 304) stainless steel is used for the other components of the bench: the two cylindrical supports and the backrest. These metallic elements, in order to assure a proper corrosion resistance, are electropolished.

**Manufacturer:** Vasart Urban Design Srl – I-42020 Puianello RE – Via Giuseppe di Vittorio 47/A – phone: +39 0522 885640 – vasart@vasart.it – www.vasart.it

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**ADVANCED COURSE ON STAINLESS STEELS. THEORY – PRACTICE – EXPERIENCES. II EDITION (Corso completo sugli acciai inossidabili. Teoria – Pratica – Esperienze. IIª EDIZIONE)**

**6 – 7 – 13 – 14 – 20 – 21 November 2019**  
**Location: AQM Srl, via Edison 18, Provaglio d'Iseo (BS)**

Centro Inox organized, in collaboration with AQM (Technical Services Center for Companies) and with the sponsorship of Federacciai, the Italian Institute of Welding and Politecnico di Milano, the second edition of the Advanced Course on Stainless Steel. The aim of this six-day course is to provide a detailed technical preparation on these materials. Centro Inox and AQM have tried to give space to practical and theoretical applications with some scheduled visits to the AQM laboratories. A visit to a leading company in the sector is also planned (**Fiav Mazzacchera Spa** – Agrate Brianza MB).

**Days and topics covered:**

**6 November 2019** - FROM METALLURGY TO MECHANICAL AND PHYSICAL PROPERTIES

**7 November 2019** – REGULATORY AND LEGISLATIVE REFERENCES, CLASSIFICATION AND CERTIFICATION

**13 November 2019** - PROCESSING, HEAT TREATMENTS, SURFACE FINISHES. MARKET NOTES: PRODUCTION, CONSUMPTION, IMPORT AND EXPORT AND RELATED ISSUES

**14 November 2019** - JOINTS METHODS. WELDING: TRADITION AND INNOVATION COMPARED

**20 November 2019** - PRACTICAL APPLICATIONS IN LABORATORY

**21 November 2019** - CORROSION: CAUSES, TYPICAL MORPHOLOGIES, OPTIMAL CHOICE CRITERIA

The complete programme and the registration form are available on Centro Inox website: www.centroinox.it

**For further information and registration: Centro Inox**

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**AQM Srl**

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**WEB SEMINAR: FCMs (FOOD CONTACT MATERIALS) AND STAINLESS STEELS**

**(Web seminar: M.O.C.A. (Materiali ed Oggetti a Contatto con gli Alimenti) e acciai inossidabili)**

**18 July 2019 - 9.00÷12.30**

As a follow-up to the study day held by Centro Inox on 26 November 2018 on "FCMs (Food Contact Materials) and stainless steel" e due to the increasing interest in this topic, the Association will organize a web seminar on 18 July 2019. Its intention is to furnish to the stainless steel supply chain involved in the food sector a complete picture of the requirements of the existing legislations in order to comply with their obligations as far as FCMs are concerned. The complete programme and the registration form are available on Centro Inox website: www.centroinox.it

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**FLASH COURSE**

**HOW TO CORRECTLY ORDER STEEL PRODUCTS: NORMATIVE REFERENCES, CERTIFICATES AND ADDITIONAL DOCUMENTS**

**(Come ordinare correttamente i prodotti siderurgici: riferimenti normativi, certificati e documenti aggiuntivi)**

**25 September 2019 - 9.00÷13.00**

**Location: Hotel Ascot – Via Lentasio 3 - Milan**  
 Centro Inox organized, in collaboration with IGQ (Italian Institute of Quality Assurance),

a flash course directed to the operators of the supply chain that usually deal with the purchase, the commercialization and/or the transformation of steel products without a detailed knowledge of the normative references, necessary for a correct order.

The complete programme and the registration form are available on Centro Inox website: www.centroinox.it

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**FLASH COURSE**

**THE COLD FORMING OF STAINLESS STEEL**

**(La formatura a freddo degli acciai inossidabili)**

**25 October 2019 - 9.00÷13.00**

**Location: Hotel Ascot – Via Lentasio 3 - Milan**

The flash course is directed to all users/transformers dealing with stainless steel in the principal industrial sectors, traders, service centres and subcontracting companies.

The aim is to furnish the necessary information for a detailed knowledge on the cold forming characteristics of the many stainless steel families, with a particular focus on forming and drawing processes, on deep-drawing materials and on the main defects that can be found in the finished products.

The complete programme and the registration form will soon be available on Centro Inox website: www.centroinox.it

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**INDUSTRIAL FENCINGS (Recinzioni industriali)**

The properties of stainless steel are well known in the food and pharmaceutical sectors: that's why a company involved in these fields decided to adopt this material not only for its plants but also for the fencings surrounding the factory. EN 1.4301 (AISI 304) stainless steel was used to obtain these wide fencings, starting from common steel products: sheets (3 mm of diameter) and rectangular tubes (100x50x2 mm), with different finishes. The whole structure appears "slim" to the eye, also thanks to the perforated sheets.

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**CENTRO INOX**

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