

# 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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#### WASHING EQUIPMENT FOR THE PHARMACEUTICAL INDUSTRY (Apparecchiature di lavaggio per l'industria farmaceutica)

The article presents washing and drying machines for components intended for sterile departments in the pharmaceutical industry. The washing and drying machines are produced starting from 2.5 mm thick cold rolled stainless steel sheets, which are laser cut, bent and finally welded.

All the internal parts, in contact with the washing fluids, are made of EN 1.4404 (AISI 316L) stainless steel with a very low surface roughness (less than 0.3 µm). The piping is also made of EN 1.4404 stainless steel.

All the external carpentry, which unlike the internal components is not intended to come into contact with the washing fluids, is made of EN 1.4301 (AISI 304) stainless steel.

The design of the machines has been carried out in accordance with ASME BPE (American Society of Mechanical Engineers: Bioprocessing Equipment).

**Realization:** Senna Inox Srl - I-26813 Graffignana LO - Viale Marcora 15, phone: +39 0371 209193, info@sennainox.it, www.sennainox.it

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#### HYDROFORMED STAINLESS STEEL FOR AUTOMOTIVE COMPONENTS (Inox idroformato per componenti auto)

Stainless steel has important applications in the "heart" of the car engine. In the automotive field, there are, although not obvious and very well known, several applications in the endothermic engine part. The article presents a component, more precisely a valve, of the EGR (Exhaust Gas Recirculation) circuit, which is located between the intake and exhaust manifolds.

Thanks to the high elongation after fracture of austenitic stainless steels, which allows very high cold deformations, the component is obtained using the hydroforming technique, starting from an EN 1.4541 (AISI 321) stainless steel welded tube, which can have different starting diameters depending on the power unit on which it is assembled.

**Realization:** T.Erre Europe Srl - I-10032 Brandizzo TO - Via N. Cena 65, phone: +39 011 9179011, info@t-erreurope.com, www.gruppoborghini.it

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#### FROM OUR MEMBERS MARCEGAGLIA SPECIALTIES, THE GLOBAL PARTNER FOR STAINLESS STEEL (Marcegaglia Specialties, il partner globale per l'acciaio inossidabile)

Marcegaglia Specialties is the Marcegaglia Group company dedicated to the production and transformation of stainless steel flat products (coils, strips and sheets) and long products (welded tubes, flat bars and drawn bars). The company has a global turnover of 1.3 billion euros.

The company aims to become the leading player in the sector by offering the most complete range through a worldwide presence.

Marcegaglia Specialties factories are at the forefront of plant technology and they are at the centre of a continuous investment programme to increase and improve the skills, production range and quality of their processes, as well as worker safety, environmental protection and energy sustainability. Indeed, in recent years there have been many investments and expansions in both Italian and foreign plants, as described in the article.

Thanks to the know-how acquired over time and a special focus on research and development of new grades and welding technologies, Marcegaglia Specialties has achieved a leading position in the stainless steel welded tube market, establishing itself as the world's leading producer. With 40 welding plants, the Italian plant in Forlì (FC) is the largest in the world for this specific product.

Marcegaglia Specialties is also an important player in the production of flat products: austenitic and ferritic stainless steel coils, strips and sheets, with excellent quality levels both in terms of surface appearance and mechanical properties. Stainless steel flat products are processed in the Gazoldo degli Ippoliti (MN) plant.

Finally, speed and efficiency are the cornerstones of the customer service offered by Marcegaglia Specialties: with a view to further improving

the service offered, new investments have been made in Information Technology (IT), through the creation of a web platform that allows customers to check product availability online and proceed directly with the selection of the material of interest, ordering it automatically.

**MARCEGAGLIA SPECIALTIES** – I-46040 Gazoldo degli Ippoliti MN - via Bresciani 16, phone: +39 0376 6851, info.specialties@marcegaglia.com, www.marcegaglia.com

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#### CUTTING-EDGE TECHNOLOGY FOR "SUPER MIRROR" AND COLOURED STAINLESS STEEL

(Tecnologia d'avanguardia per l'acciaio inossidabile "Super Mirror" e colorato)

*A visit to the facilities of a well-known Italian company, leader in the production of coloured stainless steel sheets.*

The article discusses the Super Mirror finish and the PVD (Physical Vapour Deposition) colouring, two of the delivery conditions offered by the company, which uses, as starting material, austenitic stainless steel flat products (EN 1.4301/AISI 304 and EN 1.4401/AISI 316, also in their "low carbon" versions) with BA finish (2R according to European standards).

Super Mirror is one of the main finishes used by architects and designers and lends itself very well to PVD colouring.

Super Mirror is a non-directional mirror polish that makes the steel reflective. It is obtained by polishing with abrasives of increasingly fine grain size.

The PVD technique defines an atomic deposition process in which the material evaporated from a solid source, reacting with various process gases, is transported through the plasma to the substrate where it condenses, allowing the synthesis of nano-structured thin film coatings.

There are two types of PVD techniques: Arc-PVD and Sputtering. The technology used by the company visited is the latter. The nanometric thickness of the coating depends strictly on the deposition time, it is perfectly adherent to the stainless steel substrate and does not change the appearance of the base metal finish. In general, it is less than 300 nm. It is therefore possible to

obtain as many products as there are different colours and finishes.

**Does the “anti-fingerprint” stainless steel exist?** – Yes, it does! Given the continuous evolution of design and the use of steel in different environments, a new technique has been adopted that makes it possible to “anti-fingerprint” stainless steel sheets. The system has been recently installed and consists of a coating machine, which spreads a transparent film, and a drying oven. Any untreated, PVD or interference coloured, or Super Mirror product can be subjected to the “anti-fingerprint” process.  
*Edited with the contribution of Steel Color SpA*

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**PORTABLE EQUIPMENT FOR ELECTROCHEMICAL PICKLING (Macchine portatili per il decapaggio elettrochimico)**

The state-of-the-art carbon fibre brush portable systems for electrochemical pickling of welds and heat-affected zones on stainless steel represent a real technological evolution for effective, thorough and long-lasting pickling. Why should electrochemical pickling be preferred to chemical pickling and passivation? First of all, because electrochemical pickling with the latest generation of portable systems means: saving time and money, ensuring flexibility and ease of use thanks to the versatility of applications.

Then, because it effectively replaces pickling and passivating gels, eliminating the problem of acidic wastes and the disposal of rinse water containing hazardous environmental pollutants. The ease of use of these machines has become proverbial, for use both on the bench and on the construction site, for the well-known qualities of portability and insulation safety, for the reduced consumption of electrolyte and energy, for the absence of moving parts and unnecessary cooling, blowing or suction systems. These machines also carry out electropolishing of localised areas, such as welds and the heat-affected zones.

**Supplier:** Delmet Srl - I-20060 Gessate MI - Via Gera 76, phone: +39 02 9517504, info@delmet.it, www.delmet.it

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**STAINLESS STEEL WITH “WICKER” EFFECT (Inox effetto “vimini”)**

The concept of “wicker” can be used when the components that make up the generic element are assembled in such a way as to form a “weave”. This is the case with the sliding gate presented in the article.

The “wicker” effect of this gate comes from the way the gate has been obtained, namely

the “weaving” of the various components: strips (100 mm high and 0.8 mm thick) and tubes (diameter of 20 mm and 1.5 mm thick). The structure is completed by 2 mm thick rectangular section tubes (150x50 mm and 100x50 mm).

For the gate, the company chose EN 1.4301 (AISI 304) stainless steel with a brushed finish, with the exception of the caps installed at the top of the gate, which are made of EN 1.4401 (AISI 316) stainless steel.

**Realization:** SVM di Spaziani Massimo - I-20090 Buccinasco MI - Via della Resistenza 37 C/D, phone: +39 02 45700241, carpenteria.svm@gmail.com, www.carpenteriasvm.wordpress.com

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**INTERNATIONAL STAINLESS & SPECIAL STEEL CONFERENCE 2021 (International Stainless & Special Steel Conference 2021)**

**Como – 28 ÷ 30 September 2021**

At the end of September, the international conference organised by SMR EVENTS and dedicated to stainless and special steels took place in Como, at the Sheraton Hotel, where Centro Inox gave its support and where it was present with a stand.

The event took place over three days, preceded by a visit to the Marcegaglia plant (Platinum sponsor of the event) in Gazoldo degli Ippoliti (MN).

The main theme of the meeting was “Green & Digital”. The papers presented in the session on the first day were all dedicated to the “sustainable” solutions that stainless steel offers in the various application sectors. On the second day, the presentations focused mainly on raw materials and scrap, always with an eye on the Green Economy and sustainability. On the third day, the technical presentations focused on digitalisation and artificial intelligence.

The event was attended by more than 150 delegates, mainly from the European area.

**SPECIFIC TECHNICAL ADVICE SERVICE**

**(Servizio consulenze tecniche specifiche)**

Interested companies can request the service, provided by the company Centro Inox Servizi Srl, of technical consultancy on specific problems.

The technical advice will be based mainly on the analysis of the issue/problem, identification of the causes that generate the problem and subsequent evaluation of possible solutions.

If necessary, Centro Inox Servizi Srl will also direct the customer towards trusted analysis laboratories.

**For further information:**

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**ON DEMAND RECORDING OF STAINLESS STEEL WEBINARS (Registrazioni “on demand” delle lezioni webinar sugli acciai inossidabili)**

Are you interested in following one or more technical webinars on stainless steels? Would you like to follow them comfortably? Centro Inox offers you this possibility! Purchase recordings of the webinars and follow them at your convenience.

The list of on demand recordings, in Italian, currently available can be found in the article and will be expanded periodically. We therefore invite you to keep up to date via the Centro Inox website and social networks.

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**A “FRAGMENTED GLOW” THANKS TO PVD**

**(Un “bagliore frammentato” grazie al PVD)**

In Melsele, Belgium, there is a state-of-the-art retirement home specialising in the care of elderly people with particular illnesses, including dementia. In order to cheer up the patients as well as visiting relatives, an art installation called “Fragmented Glow” was created in the gardens of the home, which would further adorn and enhance the retirement home. The work of art consists of a series of geometrically shaped stems of different heights and hollow on the inside, covered with sheets of EN 1.4401 (AISI 316) stainless steel, characterised by a special finish (called “TSteel Oro Super Mirror”), which combines the reflectivity of a “Super Mirror” with the gold colouring obtained through a PVD process.

**Stainless steel sheets produced and furnished by:** Steel Color SpA - I-26033 Pescarolo ed Uniti CR - Via Per Pieve Terzagni 15, phone: +39 0372 834311, fax: +39 0372 834015, info@steelcolor.it, www.steelcolor.it

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