

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 STERILE ENVIRONMENT TO PROTECT HEALTH (Un ambiente sterile a garanzia della salute)

A pharmaceutical industry of international renown, which has been working in the pharmaceutical area for sixty years, in cooperation with a company specialized in stainless steel processing based at Graffignana (Lodi), recently installed two laminar flow tunnels. These tunnels are intended for creating a sterile environment in which the air is continuously controlled and does not show any contamination. These laminar flow tunnels for sterile environments are used to store freeze-dried pharmaceutical products.

Both tunnels consist of two identical modules made of mirror-finish polished EN 1.4301 (AISI 304) stainless steel sheet. Each tunnel is equipped with hinged doors completely made - both internally and externally - of mirror - finish polished EN 1.4301 (AISI 304) stainless steel sheet. To ensure perfect seal, each door is provided with an inflatable gasket. In addition, the trolley-racks containing the vial-holding trays are entirely made of EN 1.4301 (AISI 304) steel. These trolley-racks have a tubular structure with eight flat horizontal angle-support crossbars, four pairs of stainless steel angle bars on each shelf, and are completed by four mirror-finish polished non-marking wheels equipped with a stainless steel support. The L.A.F. (Laminar Air Flowing) bottom of the trolley-racks, too, is made of polished AISI 304 with external and internal mirror finish.

Pharmaceutical industry: Alfa Wassermann SpA - Via Enrico Fermi 1 - I-65020 Alanno PE, phone +39 085 85711, fax +39 085 8541625, info@alfawassermann.it, www.alfawassermann.it / **Laminar flow tunnels:** Senna Inox - Sales Office: Via Filippo Carcano, 2 - I-20149 Milano, phone +39 02 48020407, fax +39 02 4980614, pharmadivision@sennainox.it - **Head Office:** Graffignana LO

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STAINLESS STEEL REFRIGERATED CABINETS: AN IDEAL SHOWCASE FOR FOOD PRODUCTS LAYOUT (I banchi inox in acciaio inox: la "vetrina" ideale per l'esposizione dei prodotti alimentari)

Refrigerated cabinets and counters are used in general in supermarkets, in dedicated or thematic areas in large points of sale, such as butcher's departments, delicatessen counters, fish departments, bars and specialized shops, for food layout, preservation and storage.

Stainless steel proves to be the ideal material for this kind of applications, and is preferred because of its capability to meet both functional and aesthetical requirements, playing therefore a decisive role in the refrigeration industry due to its hygienic properties.

Several stainless steel types are included in the Ministerial Decree of March 21st, 1973, which makes a positive list of the admitted materials to be used for manufacturing objects and parts destined to come into contact with food. Among the manufacturers of refrigerated cabinets, a company based at Solesino, in the district of Padua, makes extensively use of stainless steel, both for the exposed parts of the plant, and for the manufacture of the substructures. The stainless steel type used by the company is EN 1.4301 (AISI 304). Along with an ever-growing consumption of traditional austenitic stainless steels, due to the unpredictability of raw material prices in the last few years, many manufacturers are now trying to replace, in some parts of their plants, AISI 304 with other products belonging to the family of ferritic stainless steels. The manufacturer of these refrigerated cabinets, too, is paying the utmost attention to new stainless steel products to be used as an alternative to traditional austenitic steels.

Manufacturer: EuroCryor SpA - Viale delle Industrie - I-35047 Solesino PD, phone +39 0429 707311, fax +39 0429 706000, info@eurocryor.it, www.eurocryor.com / **Stainless steel supplied by:** ThyssenKrupp Acciai Speciali Terni SpA - Viale B. Brin 218 - I-05100 Terni, phone +39 0744 490282, fax +39 0744 490879, marketing.ast@thyssenkrupp.com, www.acciaiterni.it

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FROM OUR MEMBERS

ARINOX SPA - ARVEDI GROUP

ULTRA - THIN STEELS WITH HIGH TECHNOLOGICAL CONTENT

(Arinox Spa - Gruppo Arvedi)

Acciai extrasottili ad elevato contenuto tecnologico)

Advanced technology, flexibility towards market requirements, and continuous commitment to quality: these are the driving forces of Arinox S.p.A. With a production capacity exceeding 50,000 tons/year, the industrial centre of Sestri Levante is the only Italian manufacturer, and one of the few all over the world, operating in the area of precision stainless steel strip rolling for the automotive, mechanical, plant, parts and accessories, and electronic industries, and the only one supplying precision strips up to 1,270 mm width. With its cold-rolling lines, bright annealing, levelling, and precision cut plants, and the innovative and exclusive SUT® (Surface Ultracleaning Treatment) line, Arinox is able to meet the most diverse application requirements, and to offer also customized and innovative solutions. Its three precision cold-rolling plants, together with the three bright annealing lines and the stretch levelling plant, guarantee the production of stainless steel strips of rare and unparalleled dimensional precision.

The large production range includes strips, which can reach 0.03 mm thickness in the case of hardened strips, and 0.05 mm in the case of annealed strips, in widths up to 1,270 mm. The product range is enriched with different kinds of finishing, and the strips can be supplied either annealed or treated with a calibrated hardening process. These processes are particularly appreciated by customers, who can avail themselves of a wide range of application options as regards both the mechanical and the dimensional characteristics of the end product.

The patented SUT® (Surface Ultracleaning Treatment) line represents for Arinox the cutting edge in stainless steel processing and treatment for the drawing market. After the levelling and cutting stages, several slitting machines, two of which available on a 1,270 mm-wide table, carry out very high precision cuts to measure with the highest operating flexibility. Two fully automated packing lines complete the operating stages at the end of the narrow and large strip production and processing cycle.

□ Product Quality, Service Quality, and Efficiency

The production of stainless steel precision strips requires an extremely delicate and complex industrial approach. Flexibility is the strong point of the company, and competition is an additional spur, which turn into considerable advantages for the end users, by 30 per cent represented by the Italian market, and by 70 per cent by the European and international markets.

□ Technical Characteristics of Our Products

Arinox production range is divided into three main categories:

- ultra-thin annealed strips (thicknesses: 0.05 - 0.35 mm)
- precision annealed strips (thicknesses: 0.35 - 1.50 mm)
- cold-rolled work-hardened strips (thickness range: 0.03-1.00 mm)

Our materials comply with the major international standards: ASTM, BS, DIN, EN, ISO, AFNOR, SIS.

Finish and surface types:

2R (BA) - Bright Annealed finish - A standard finish suitable to subsequent forming processes

2H - Cold-rolled work-hardened finish for obtaining higher mechanical resistance levels

SUT® - Standard annealing and surface treatment suitable to strips destined to deep drawing processes.

□ Application range

Automotive, processing and petrochemical industries, heat exchangers and finned tubes, precision forming, flexible tubes and chimneys, cold-rolled work-hardened strips.

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STAINLESS STEEL CHROME PLATING

(La cromatura degli acciai inossidabili)

Though it might seem at first a contradiction in terms, in some cases stainless steel is submitted to chrome plating processes, depending on either FUNCTIONAL or AESTHETICAL reasons.

Functional chrome plating

The chrome "coating" thicknesses may vary from 2.5 to 250 µm. These deposited layers allow to obtain significant advantages in terms of average life for all kinds of metal parts subject to wear and tear, friction and corrosion, not only in the case of new produced parts, but also in the case of recycled or reconditioned parts. With these functions, chrome plating is also used in some cases for the moving parts of engines, pumps, compressors, pneumatic rods, and so on, that is to say, for any application requiring protection against corrosion. This kind of coating allows obtaining surface hardness values ranging from 56 to 74 HRC. Obviously, the higher the hardness degree, the longer the estimated life of the chrome-plated part. The preparation of the stainless steel surface to be submitted to the chrome-plating process is extremely important. The electro-galvanic chrome-plating process is carried out through different stages, and includes the following steps:

- Chemical degreasing;
- Electrolytic degreasing;
- Acid neutralization and de-mineralized water wash;
- Hand-cleaning;
- Preliminary treatments of the substrate (if necessary);
- Immersion of the part in a chrome bath until an appropriate temperature is reached;
- Application of current for a sufficient time to allow the deposit of the required coating layer;
- Final washes;

The most commonly used stainless steel types are: EN 1.4305 (AISI 303), EN 1.4307 (AISI 304L), EN 1.4057 (AISI 431), EN 1.4021 (AISI 420), EN 1.4404 (AISI 316L), EN 1.4460 (AISI 329), EN 1.4462. **Pictures 1, 2, 3 and 4** report some typical application examples, concerning respectively the food, wind power, earthmoving equipment, and petrochemical industries.

Aesthetic chrome plating

considering now the application process used for merely aesthetic purposes, in which, as well as the chrome layer stability over time, also its resistance against corrosion phenomena are of paramount importance, the deposited layer thickness usually ranges between 0.25 and 0.75 µm, and in some particular cases, a maximum thickness of 1.25 µm can be reached. Usually, the surface is prepared through a stainless steel "de-passivation" process to be gradually carried out using first coarse, and then increasingly fine abrasive strips. An abrasive paste is then applied by cloth wheels, which polish the part. The ultrasound cleaning process is carried out in special tanks. The part is degreased in a soda bath, and rinsed out in running water. After this stage, the part is coated with a copper layer and polished again.

In the following stage, the part is first dipped into a nickel bath and then polished, and then dipped again into the nickel bath to remove any trace or mark left by the cloth. Finally, the part is chrome plated in an electrolytic bath. The most commonly used stainless steel types for this kind of application are AISI 430, AISI 434, and AISI 304. **Pictures 5 and 6** show the tanks used in the different preparation and chrome-plating stages, while **pictures 7 and 8** refer to some chrome-plated parts (classic car bumpers).

Pictures 1, 2, 3 and 4, courtesy of: Novacciai SpA - Via Verdi 26, - I-28060 S. Pietro Mosezzo NO, phone +39 0321 530611, fax +39 0321 530627, info@novacciai.it, www.novacciai.it / **Pictures 5, 6, 7 and 8, courtesy of:** Special Chrome - Via delle industrie 7/9 - I-26016 Spino d'Adda CR, phone +39 0373 980951, fax +39 0373 966900, info@specialchrome.it

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TRADITION AND TECHNOLOGY: TOGETHER FOR A "DI...WINE" UNION

(Tradizione e tecnologia: unite per un connubio "di-vino")

In the solution proposed in this article, stainless steel and French oak wood combine to build a comfortable bed for wine. This wine

fermenter is made of a special combination, covered by patent, of oak wood and stainless steel. The oak wood comes directly from the French forests of Nièvre and Allier, and the building technology of the "barrique" (the barrel) makes use of a special wood cutting process, which allows to obtain timber sawn exclusively along the vein of the oldest – and most valuable – part of the tree. The conical roof made of EN 1.4401 (AISI 316), and the cylindrical body made of EN 1.4301 (AISI 304), complete, with all the other accessories, this 80 hl-capacity fermenter. The care placed in welding – each weld is polished and brushed – and the kind of surface finish that has been chosen – BA inside the barrel for technical reasons, and an external satin and brushed circular finish for aesthetic purposes, contribute to optimize the performance of stainless steel, which guarantees the necessary hygienic properties and inertia towards this precious nectar. The oak wood, in turn, interacts and plays a primary role, by transferring to the wine its typical nuances and flavours the most refined palates will be able to immediately identify.

Project and manufacture: Di Zio Costruzioni Meccaniche SpA – Via Maiella 73 – Fraz. S. Teresa – I-65010 Spoltore PE, phone +39 085 497521, fax +39 085 4971713, info@dizio.it, www.dizio.it / **Patent:** Di Zio Costruzioni Meccaniche SpA and Fabbrica Botti Gamba Srl, Castell'Alfero AT

STAINLESS STEEL GRIDS

(I grigliati inox)

Stainless steel grids are made of narrow strips obtained from coils, which are worked on special shearing lines. The most commonly used stainless steel types are EN 1.4301 (AISI 304), EN 1.4307 (AISI 304L), EN 1.4401 (AISI 316), EN 1.4404 (AISI 316L) and EN 1.4541 (AISI 321).

The advantages resulting from the use of stainless steel for this kind of products are related, above all, to its anti-corrosion properties, and partly to its resistance against wear and tear, and to the possibility to easily wash the surfaces, especially in the case of pickled or electrically polished grids. Continuous wire welds join the flat side of the edge strips with the bearing and connecting strips. Welding operations are robotized in mass production, and hand-made in the case of special products. The in-between knots, instead, are not welded, because the strips fit in by heavy pressure. These grids are put on the market either unfinished or electrically polished or pickled. The company which owns these photographs manufactures since 1970 stainless steel "pressed" grids with pedestrian and vehicle capacity complying with UNI 11002 standards for a number of different applications in the food, chemical and pharmaceutical industries, and in the areas of water treatment, drainage channels, sea-port quays and docks, silos, cooling towers, continuous façades and fences for the building industry.

Manufacturing company: Conte Srl – Via delle Industrie 4 – I-20054 Nova Milanese MB, phone +39 0362 450810, fax +39 0362 450778, conte@conte-af.it, www.conte-af.it

AN INGENIOUS PLAY OF JOINTS COMING FROM THE BUILDING INDUSTRY

(Un ingegnoso gioco di incastri dal mondo dell'edilizia)

The covering of a gatekeeper's lodge placed at the entrance of a company operating in the area of electro-mechanical constructions is entirely made of stainless steel. This solution was made possible by using a set of 45x45 cm square, 0.8 mm thick, modular panels made of EN 1.4301 (AISI 304) stainless steel. Each panel is shaped as a stave by folding up the ends to facilitate its installation, and by connecting and framing it up to the contiguous panel. As soon as they are installed, these panels can be easily fastened to an underlying EN 1.4301 stainless steel structure by means of concealed rivets. For aesthetic purposes, a satin finish (finish n° 6) was chosen, which perfectly matches the surrounding non-industrial urban environment.

Project designer: arch. Corvi Mariapaola – Via Gramsci 18 – I-25121 Brescia, phone +39 030 3754498 / **Customer:** Cembre Spa – Via Serenissima 9 – I-25135 Brescia, phone +39 030 36921 / **Manufacturer:** Lattneria Bresciana di Ghidini Angelo & C. Snc – Via De Gasperi 11/B – I-25060 Collebeato BS, phone/fax +39 030 2511349, www.lattneriabresciana.it / **Material supplier:** ArcelorMittal Stainless Service Italy – Viale Brenta 27/29 – I-20139 Milano, phone +39 02 566041, fax +39 02 56604257, www.arcelormittal.com/stainless/italy

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DINNER IS SERVED... AND OBVIOUSLY COOKED IN STAINLESS STEEL!

(Il pranzo è servito! Naturalmente...cotto nell'inossidabile)

A company based in the outskirts of Milan, which operates on the market since the end of World War II, employs today for its product range "18/10 steel", namely EN 1.4301 (AISI 304), by 18 per cent composed of Chrome and by about 10 per cent of Nickel. Both Chrome and Nickel are essential elements for ensuring product indestructibility as well as hygienic and stainlessness properties. 18/10 steel is not only suitable for food cooking, but also for food conservation. This material can be easily washed and stands up to the attack of most acids. Another important characteristic is that stainless steel is 100 per cent recyclable. Thanks to the characteristics of this metal alloy, it

is possible to guarantee the basic product for many years, provided it is correctly used following the instructions. The product range of this company is divided into three main production lines: Teknika®, Ekologa® and Eurosilga®. Their common characteristic consists in the possibility to cook food without adding water and fats, thanks to the special "Technoterm" thermal bottom, which accumulates the heat and uniformly diffuses it in the bottom of the pan. These different product lines distinguish themselves by their design and construction solutions. Thanks to the use of stainless steel, these pans can be supplied also with customized surface finish, material thickness, and details. The three lines share the characteristic of a thermal diffusion bottom applied through an aluminium, high-thickness, "Bonding System" sealed by a capsule of magnetic EN 1.4016 (AISI 430) stainless steel, which allows cooking the food also on induction hobs.

Manufacturer: SILGA SpA – Via Veneto 15 – I-20090 Buccinasco MI, phone +39 02 48840579, fax +39 02 48841567, silga@silga.it, www.silga.it

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SUPPORT SYSTEMS FOR OUTDOOR CURTAINS: THE ADVANTAGES OF USING 470LI STAINLESS STEEL (Sistemi di supporto per tendaggi da esterno: i vantaggi di impiego dell'acciaio inox 470LI)

A company based at Fiumicello, in the district of Udine, lately wanted to test a new stainless steel type to be submitted to processes like punching, laser cutting, bending, and so on, for the production of supports and accessories. The knowledge and expertise achieved in the area of stainless steel, the know how of the personnel dealing with this kind of processes, and the ever-growing ups and downs of market trends, have urged this company to undertake the way to innovation in the direction of the new super-ferritic 470LI stainless steel. This material guarantees extremely high technical performances, and is particularly rich in Chrome (24 per cent) and capable to stand the dangerous risk of corrosion depending above all on atmospheric agents, as well as on the particular aggressiveness characterizing some specific environments. This material combines excellent technical performances, comparable to those provided by traditional austenitic steels, with definitely more competitive and, above all, stable costs. In the case we are examining, the stainless steel accessories produced by this company are used to manufacture outdoor curtains designed for sheltering interiors from sunlight and rain. The structures supporting the curtains, to be placed outdoor, are obviously made of 470LI stainless steel.

Manufacturer: Metalinox srl – Via G. di Vittorio, 14 - Località Papiariano - I-33050 Fiumicello UD, phone +39 0431 970140, fax +39 0431 970319, commerciale@metalinox.it, tech@metalinox.it, www.metalinox.it / **Stainless steel supplied by:** ThyssenKrupp Acciai Speciali Terni SpA – Viale B. Brin 218 – I-05100 Terni, phone +39 0744 490282, fax +39 0744 490879, marketing.ast@thyssenkrupp.com, www.acciaitermi.it

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FUN... LASTS OVER TIME

(Il divertimento...dura nel tempo)

The cover of issue 122 of INOSSIDABILE, published in December 1995, was dedicated to the summer bob run installed at Spiazzi di Gromo, a mountain resort in the district of Bergamo. Today, this 1,040 m long plant does not only look like not being already fifteen years old, but is still in perfect conditions. This plant consists of semi-cylindrical segments made of 2 mm thick EN 1.4301 (AISI 304) stainless steel sheets, welded and assembled on bearing cradles. The bob run is about 1 m wide and provides for thirteen parabolic curves and even for a tunnel.

Thanks to its characteristics of corrosion resistance and durability, stainless steel has allowed this bob run to keep its charm unchanged over time, to remain still today a local attraction, and to guarantee the thrill of a downhill race.

Customer: I.Ri.S. Srl, Spiazzi di Gromo BG / **Contractor:** Pris – Corso Martiri 222 – I-41013 Castelfranco Emilia MO, phone / fax +39 059 282389

A SINGLE REAGENT FOR METAL IDENTIFICATION

(Un reagente unico per l'identificazione dei metalli)

To distinguish and identify stainless steels in a simple and quick way, a company which boasts more than fifty years of activity in the area of chemical analyses and non-destructive testing has developed a single "Molybdenum and Manganese 23.101 DL 12" reagent. It is a highly reliable test kit suitable for all kinds of stainless steel alloys containing Molybdenum (Mo) (AISI 304/ AISI 316) and Manganese (Mn) (AISI 200/AISI 300). The test kit, which includes the two reagents, makes use of a 9V battery and allows performing up to 300 tests.

Reagent production: NDT Italiana Srl – Via del Lavoro 28 – I-20049 Concorezzo MB, phone +39 039 647590, fax +39 039647799, info@ndt.it, www.ndt.it

A FAST TRACK FOR EXPORTS: THE "MODEL EUR.1" CERTIFICATE OF CIRCULATION

(Una corsia preferenziale per le esportazioni: il certificato di circolazione modello EUR.1)

The European Union has signed with some third countries some privileged mutual agreements providing for the grant of reduced customs duties for goods of EU origin imported by those countries. Goods supplied by EU-member countries can benefit from the import duty reductions provided for by these agreements, on condition such goods are shipped with a special certificate of circulation known as "Model EUR.1". This paper, which can be defined a "privileged certificate of origin", is issued by the customs authorities on exporters' specific request. For the exchanges with Turkey, the A.TR.1 certificate of circulation replaces the Model EUR.1.

In order to speed up the issue of this certificate and related documentation, the national customs authorities may request, to justify and support the bill of privileged origin the operators can obtain from the Community manufacturer of steel and iron products (sheets, coils, etc.), which is usually a European still mill, a statement conforming to the model provided for by the Community Regulation 1207/2001, called "long-term certificate", which is valid, provided it is specifically stated, for all exports made in the year such statement refers to.

METALLIC NICKEL AND NICKEL SULPHATE: REGISTERED ACCORDING TO REACH AHEAD OF PLANNED SCHEDULE

(Nichel metallico e solfato di nichel: registrati secondo REACH con rilevante anticipo sul programma)

On April 7, 2010, eight months in advance of the expiry date of December 1, 2010, the Nickel Institute announced nickel REACH registration, both as a metal and as a sulphate. The voluminous documentation concerning the safety and the references of both products had been submitted to the European Chemicals Agency-ECHA at the end of March 2010.

Source: Nickel Institute "Early REACH registration for nickel metal and nickel sulphate - April 7, 2010"

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EMBELLISHING, SUPPLEMENTING AND PROTECTING THE URBAN ENVIRONMENT WITH "APPROPRIATE" STREET FURNITURE

(Impreziosire, completare e proteggere l'ambiente con un "adeguato" arredo urbano)

The two street furniture lines we are presenting, though differing from one another, are extremely advanced. The "J System" line has the respect of the urban context as its main objective, to be pursued through simple and classic shapes, and clean and essential materials. The special seats of this line, called "Central Park" are made of EN 1.4307 (AISI 304L) stainless steel and are provided with a bearing structure consisting of J-shaped sheets, which are bent and reinforced with perpendicular sheets shaped as a half-moon, fitted to the external part of the main curve. This special outline allows to form seats either with backs or without backs, and to insert bearing plates and other fittings, as well as waste-paper baskets. The "Dialogo" (Dialogue) line is characterized by a coordinated and homogeneous design. This line includes the waste-paper basket "Smeraldo" (Emerald) and the bicycle rack "Topazio" (Topaz). Both elements are satin-finished and are made of EN 1.4307 (AISI 304L) stainless steel. The bearing structure of the waste-paper basket is formed by a curved tubular bar anchored to a triangular base plate with rounded-off angles. The basket is made of curved steel sheet provided with a row of holes on the bottom edge and a drilled sheet base. An ash-tray cover can be screwed on the structure. The "Topazio" bicycle rack is formed by a continuous-spiral bent tube, which creates the housings for the bicycles. The spiral is welded to a supporting structure consisting of two 160 mm diameter tubular piers anchored to rhomboidal base plates with rounded-off angles.

J System Line: Project: Studio Micheletti Associati – **Manufactured:** Peverelli Srl / **Dialogo Line, designed and manufactured by:** Peverelli Srl – Via Oberdan 2 – I-22073 Fino Mornasco CO, phone +39 031 880320, fax +39 031 880400, info@peverelli.it, www.peverelli.it

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