

# INOSSIDABILE

Edited and published by Centro Inox



## Summary

For more detailed information please contact directly the names indicated at the end of each notification

### COVER/PAGES 3/4

#### THE NEW CENTRAL DAIRY OF MILAN (La nuova Centrale del Latte di Milano)

The historical Central Dairy of Milan lately moved its plants to the completely renewed premises formerly owned by the dairy company Yomo situated in Pasturago (in the surroundings of Milan).

41 new tanks have been installed in the factory: 11 for raw milk (of a capacity of over 130,000 kg), 8 for pasteurized milk (of a capacity of 60,000 l each), 5 for milk cream, 3 for the recovery of production residuals, and 14 for the CIP (Cleaning In Place) stations.

The large tanks reserved to milk storage must keep internally the utmost hygienic conditions, temperatures slightly exceeding 0°C, very scarce thermal dispersion, and a liquid stirring system. These tanks consist of two separate and independent containers for allowing thermal expansions. The external tank protects the mineral wool insulation, while the internal one contains the product. The tanks are in fact washed every day at temperatures that reach 85/90°C and then cooled down to 3°C, under external environmental conditions ranging from -10° to +40°C (and even up to 75°C in summer).

The tanks are made of EN 1.4301 (AISI 304) stainless steel sheets, in thicknesses ranging from 1,5 to 4 mm, 2B finishing, protected by a plastic film, and have a total weight of about 100 tons. Joints are TIG butt-welded with inert gas protection. On the whole, these plants have required a considerable quantity of stainless steel in the form of sheets, high-thickness plates, square and round tubes, used for building tanks, process lines and accessories (staircases, platforms, etc.).

The following steel grades have been used: EN 1.4301 (AISI 304) for the tanks; EN 1.4401 (AISI 316) or EN 1.4404 (AISI 316L) for the 800 valves and the 70 pumps; EN 1.4306 (AISI 304L) for the 10,000 metres of tubes and EN 1.4401 (AISI 316) for further 300 metres of tubes.

**Cover picture:** pasteurized milk storage. **Figures 1 and 3:** raw milk storage. **Figure 2:** milk cream storage. **Figures 4 and 5:** cleaning systems.

**Client:** Centrale del Latte di Milano – Gruppo Granarolo / **Tanks:** Azzini SpA – Via IV Novembre 58 – I-26015 Soresina CR, phone +39 0374 343952, fax +39 0374 343505, info@azzini.it, www.azzini.it / **Plant engineering:** Tetra Pak Food Engineering SpA – Via Saragat 4 - I-20054 Nova Milanese MI, phone +39 0362 4951, fax +39 0362 495300

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#### WHEN A HOTEL HAS AN ADDITIONAL PLUS: ART

(Quando un hotel ha qualcosa in più: l'arte)

The Tulli family, proprietor of the Albornoz Palace Hotel of Spoleto and the Arthotel of Perugia, wished that the two hotels may house some outstanding artistic expressions, among which two large sculptures placed in the outdoor areas.

The authors of the two works are artists of international renown: Nicola Carrino, born in Taranto in 1932, lives in Rome, and makes sculptures conceived as modular, transformable bodies. Itaru Mishiku, born in Shizuoka, Japan, in 1949, lives in Rome as well, and joins his anarchic fancy with geometrical strictness, using the most varied materials.

**Figure 1** - "Decostruttivo progetto Albornoz" 2005, by Nicola Carrino, situated in the hotel with the same name. The sculpture consists of three tubular AISI 304 stainless steel squares, cut, TIG welded and ground by hand.

**Figures 2 and 3** - "Rondò" 2006, by Itaru Mishiku, is also situated in the garden of the Albornoz Hotel of Spoleto. The sculpture echoes the Japanese word "Wa", which means round, but also "the sun rising in the morning". It is formed by 12 tubular stainless steel bends with 3 mm thickness and 50 cm diameter.

**Figure 4** - "Decostruttivo progetto Arthotel", 2006, by Nicola Carrino. Situated at the Arthotel of Perugia, the sculpture is formed by AISI 304, TIG welded, stainless steel tubes.

**Clients:** Albornoz Palace Hotel, Spoleto, www.albornozpalace.com / Arte Hotel, Perugia, www.artehotelperugia.com / **Author of sculptures in figures 1 e 4:** Nicola Carrino, Roma / **Author of the sculpture in figures 2 e 3:** Itaru Mishiku, Roma / **Realization of sculptures:** Inox Style Srl – Via Ferreria 17 - I-06089 Torgiano PG, phone +39 075 394849, fax +39 075 398229 – **Sales Responsible:** Sig. Fabrizio Pezzanera, info@inox-style.it, www.inox-style.it.

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#### FROM OUR MEMBERS

#### MANNESMANN DMV STAINLESS: A GLOBAL PLAYER IN SEAMLESS TUBES

(Mannesmann DMV Stainless: un global player nel tubo senza saldatura)

Mannesmann DMV Stainless Italia belongs to the German company with the same name, and is a member of the Salzgitter Group.

Established in 1994 through a joint venture among Dalmine, Mannesmann and Vallourec (from which the abbreviation DMV), the company became 100% Mannesmann-owned in 2003.

Its production range includes seamless tubes made of stainless steel, nickel alloys and other special materials (**figure 1**).

**Figures 2 and 3** show the product size range and the major applications.

In 2006, DMV sales totalled 35.000 tons and a value of about 360 million Euros.

Production is carried out in three different European plants (in Italy, France and Germany) and in a U.S. factory, while the headquarters of the company are based in Mülheim, Germany (**figure 4**).

Production consists mainly in hot extrusion and in rolled sections made by cold pilgering (**figure 5**).

The Italian plant, located in Costa Volpino (Bergamo) (**figure 6**) produces cold-rolled tubes ranging from 6 to 90 mm external diameter size.

Specialization plays a role of the utmost importance, particularly in the area of power generation, where there are extremely critical plants requiring the use of special grades, such as DMV 347HFG - 310 N - 304 HCU.

A further advanced development in this area consists in the "shot-peening" process applied to the internal surfaces of the tubes, which increases their hardness and, consequently, their resistance to corrosion (**figures 7 and 8**). In order to carry out this process, the DMV factory of Costa Volpino has been lately equipped with a special plant. The tubes submitted to this process can be therefore used at high temperatures and have a long life, thereby representing an effective alternative to the more expensive nickel alloys.

Mannesmann DMV Stainless products are characterized by their high safety and reliability levels, which are ensured by a strict application of advanced and certified management, quality and environmental control systems, and therefore cannot be obviously compared with those produced in some

"exotic" countries.

**Mannesmann DMV Stainless Italia Srl** – Via Piò 30 – I-24062 Costa Volpino BG, phone +39 035 975611, fax +39 035 975803, www.mannesmann-dmv.com

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#### LASER CUT AND DESIGN

(Taglio LASER e design)

The concentrated luminous ray of a CO<sub>2</sub> LASER (Light Amplification by the Stimulated Emission of Radiation) began being used as a cutting tool in the '70s, but succeeded in imposing itself only some years later, as soon as it became possible to guide the laser ray with millimetric precision.

During the cutting process, the material is heated, melted, and partly evaporated. Both during material penetration and cutting operations it is possible to improve the process by the addition of a gas: whether nitrogen or argon (cutting by melting).

The cutting process may be carried out also through oxygen (flame cut), which allows greater cutting speed and working thicker materials than by nitrogen cut.

As the laser power grows, the maximum thickness of the material to be worked grows accordingly, while the cutting speed decreases as the thickness grows.

Compared with some alternative separation processes (such as plasma cut, punching and nibbling, Electrical Discharging Machining), laser cut provides the following advantages: there is no contact with the piece, possibility to obtain different shapes without changing the tools, as well as large or small and complicate outlines; cutting precision; high cutting speed; minimum deformation of the piece; low roughness of the piece (less than 100 µm); a cheaper alternative.

**Figures 1, 2 and 3** – Examples of trays and fruit dishes produced with laser cut (courtesy of Alessi, Omegna VB, www.alessi.com)

**Figures 4, 5 and 6** – Examples of baskets and trays produced with bi-dimensional and tri-dimensional laser cut (courtesy of Serafino Zani, Lumezzane Gazzolo BS, www.serafinozani.it)

**Top page 8:** detail of the cutting process of a curved element and **bottom page 9:** a candlestick produced with laser-cut and welded elements (courtesy of Trumpf-Homberger, Buccinasco MI, www.it.trumpf.com).

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#### FOOTBRIDGE COVER AT THE FAIR OF ROME (Copertura della passerella alla Fiera di Roma)

The cover of the footbridge crossing the new Fair of Rome meets all contemporary ethical planning and building standards, based on constructive simplicity, inexpensiveness and simple feasibility. Nonetheless, it is a structure with a striking look obtained through an original way of using stainless steel strips that reflect, thanks to their bright finish, the image of visitors.

The footbridge consists of a tensile structure made of several hanging bays, in which the structural function is performed by coils, that is to say, by stainless steel strips which, due to their own weight and to permanent loads, arrange themselves following the profile of a natural catenary with an overlapping waterproof polyester membrane covered with PVDF (**figures 1, 2, 3 and 4**).

The footbridge cover is formed by seven parallel EN 1.4301 (AISI 304) strips with Ugibright BA (Bright Annealed) finishing. The stainless steel strips (weighing in total 120 tons) have a thickness of 1.2 mm and a width of 1,250 mm each. Modules (**figure 5**) have alternatively a 48 m and 53.6 m. clear



span.

The pedestrian footbridge, which is 1.9 km long, about 10 m wide, and is 6 m suspended from the ground level, connects one another all the buildings of the fair. From a technological point of view, the cover surely represents the most interesting architectural element of the new Fair of Rome.

**Project:** Prof. Arch. Tommaso Valle / Prof. Ing. Massimo Majowiecki / *Structures of exhibition buildings and footbridge cover:* CDI - Consorzio Carpenterie d'Italia (Cometal SpA - BIT SpA - M.B.M. SpA) / *Ugibright® stainless steel coils:* Ugine & Alz Italia Srl - Gruppo Arcelor - Viale Brenta 27/29 - I-20139 Milano, phone +39 02 56604.1, fax +39 02 56604.257, www.ugine-alz.com

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### NEW BARBEQUES SHAPES (Nuove forme per i barbecue)

It is quite important to make the right choice among the different barbecue equipment types existing on the market in order to meet one's dimensional and cooking requirements.

The models shown in the pictures are generally made of ferritic EN 1.4016 (AISI 430) stainless steel but can be also made of austenitic EN 1.4301 (AISI 304) stainless steel. The elements are formed using steel strips and squares in thicknesses ranging from 0.8 to 2 mm, finished through a deburring and polishing process.

**Figure 1** - "Marsupio inox", operating with charcoal.

**Figure 2** - "Stereo inox", called in this way because it has two independent covers. It operates with gas.

**Figure 3** - "Cuocispiedini", built with a narrow shape for cooking skewers, which allows the skewer handles sticking out, thus preventing them to become red-hot.

**Figure 4** - "Brescia inox", electrically or charcoal-operated roasting-jack

**Production:** Ferraboli & C. Snc - Via Industriale 27 - I-25080 Prevalle BS, phone +39 030 603821, fax +39 030 6801171, info@ferraboli.it, www.ferraboli.it

### STAINLESS STEEL ACCESSORIES FOR PLEASURE BOATING

#### (Accessori inox per nautica da diporto) CATALYST AND EXHAUST SYSTEMS (Catalizzatori e impianti di scarico)

Stainless steel plays a role of the utmost importance in the construction of sea engines in order to guarantee their performance over time, considering the particularly aggressive environmental conditions in which they have to run, and avoid in particular corrosion.

EN 1.4301 (AISI 304) stainless steel is generally used for the areas where only exhaust gas travels through, while EN 1.4404 (AISI 316L) stainless steel is exclusively used for the area (riser) in which exhaust gas is mixed with sea water. Welds, which are extremely critical in this area, are made by TIG with weld material, and are protected by inert gas.

All these products are manufactured using stainless steel sheets and tubes in thicknesses ranging from 3 to 12 mm, and diameters ranging from 12 to 400 mm. All parts undergo pickling and passivation processes.

**Production:** Bersy Srl - Via A. Pitentino 24 - I-46010 Curtatone MN, phone +39 0376 290122, fax +39 0376 478778, bersy@bersy.it, www.bersy.com

### NAUTICAL BOILERS

#### (Boiler nautici)

Heat exchangers for the production of warm water on boats and crafts have to conform to limited spaces, and resist to corrosion in environments heavily impregnated by salty dampness. The "Compact inox" model is equipped with an internal boiler and a gaiter housing the thermostat made of EN 1.4401 (AISI 316) stainless steel with 12 mm. thickness, while the heat exchanger, the pipe fittings and the metal ring of the resistor are made of EN 1.4404 (AISI 316L) stainless steel.

These boilers are available in different sizes (from 20 to 80 l capacity) and have a compact, strong and elegant look.

They can be adapted to any space, since they can be installed whether vertically on a wall (with stainless steel hangers) or horizontally on the floor, or hanging from the ceiling. The boilers are covered with a plastic shell against shocks and scratches and have no sharp edges and burrs.

**Production:** Quick Srl - Via Piangipane 120/A - I-48100 Piangipane RA, phone +39 0544 415061, fax +39 0544 415047, quick@quickitaly.com, www.quickitaly.com

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### PRE-PAINTED STAINLESS STEEL ATTRACTS MORE AND MORE

#### (L'acciaio inox preverniciato attira sempre di più)

The painted stainless steel Vernest® was chosen for renovating the external walls of the new premises of Ge Progetti & 3i Srl (a company operating in the area of renewable energy sources), situated in the industrial area of Nera Montoro (Terni). Produced by ThyssenKrupp Acciai Speciali Terni, Vernest® has the typical characteristics of stainless steel, such as resistance to corrosion, almost no maintenance requirements, strength and recyclability. The base consists of EN 1.4301 (AISI 304) stainless steel, 0.7 mm thick, while for the painted surface the pastel turquoise RAL 6234 colour was chosen for covering an overall surface of 500 sq. m. Vernest® belongs to the Vivinox® product range and, thanks to its special polyester coatings, allows meeting a variety of different planning and design requirements, as it keeps its aesthetical characteristics unchanged over time.

**Client:** Ge Progetti & 3i Srl - Strada di Vagno 15 - I-05027 Nera Montoro-Narni TR, phone +39 0744 742310, fax +39 0744 793310, ingegneria@geprogetti3i.it, www.geprogetti3i.it  
**Vernest® stainless sheets supplied by:** ThyssenKrupp Acciai Speciali Terni SpA - Viale B. Brin 218 - I-05100 Terni, info.ast@thyssenkruupp.com - **Marketing:** Dr.ssa V. Fontana, phone +39 0744 490867, fax +39 0744 490879, valeria.fontana@thyssenkruupp.com, www acciaitemi.it / **Shaping of panels:** Pulsoni Group - Zona industriale Amelia - I-05022 Amelia TR, phone +39 0744 989621, fax. 0744.989624, segreteria@pulsonigroup.com, www.pulsonigroup.com / **Installation:** La.Co.Inox - Strada di Vagno 15 - I-05027 Nera Montoro-Narni TR, phone +39 0744 793033, fax +39 0744 793034, info@lacoinox.it, www.lacoinox.it

### STAINLESS STEEL TAPS AND FITTINGS: NEW SHARP, CLEAR AND REFINED SHAPES FOR THE BATHROOM

#### (Rubinetteria inox: nuove linee decise e raffinate per il bagno)

The T45 line for the bathroom is characterized by a strong and clear design. Sophisticated engineering solutions joined with high-precision mechanical properties characterize a company that has embraced the use of stainless steel for enhancing the properties of this material from an aesthetical, technological and functional point of view. Each part is finished, glazed, or polished by hand.

Stainless steel resistance to wear and corrosion allows installing these products also outdoors.

**Figure 1** - Bathtub group with hand-shower.

**Figure 2** - Mixer for wall washbasin.

**Figure 3** - Shower and bathtub assembly with coaxial thermostatic controls.

**Production:** MGS Progetti Srl - Corso Milano 189 - I-28883 Gravellona Toce VB, phone +39 0323 865218, fax +39 0323 865215, info@mgsprogetti.com, www.mgsprogetti.com

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### TECHNICAL AND REGULATORY ASPECTS OF STAINLESS STEEL IN THE FOOD INDUSTRY -

#### Cibus Tec - Fiere di Parma - Sala dei 100

October 18<sup>th</sup> 2007 - 9.30 a.m.

#### (Aspetti tecnici e normativi dell'acciaio inossidabile nell'industria alimentare)

The convention is organized jointly by Centro Inox, Fiere di Parma and Federacciai within "Cibus Tec", the exhibition on food processing technologies that will take place October 17-20, 2007, in Parma, the city nominated in 2005 as headquarters of EFSA (European Food Safe Authority) by the European Union. A common theme of the presentation will be the reference to the application of stainless steels as an answer to the current legislation.

### Programme

#### Registration

#### Welcome addresses and opening remarks

Ernesto Amenduni, President of Centro Inox, Milano  
Giuseppe Pasini, President of Federacciai, Milano  
Ugo Calzoni, Managing Director of Fiere di Parma

#### The food chain following ISO 22000: prospects and opportunities for manufacturers of stainless steel equipment and components

Marzio Quassolo - CSQA Certificazioni Srl, Parma

#### Food security: HACCP and legal aspects

Afro Ambanelli, Studio Ambanelli, Parma

#### The activity of the EHEDG (European Hygienic Equipment Design Group)

Luciano Fassina - Nickel Institute, Toronto/Bruxelles/Milano

#### The Ministerial Decree 21/03/73 and the 1935/04 ECC regulation

Maria Rosaria Milana - Istituto Superiore di Sanità, Roma

#### The American regulatory system (FDA - ANSI/NSF 51-61)

Laura Cazzola - NSF International, Bruxelles

#### Discussion

Chairman: Roberto Massini, University of Parma

#### Sponsor: CSF Inox Group

Also part of the Cibus Tec exhibition will be an area dedicated to stainless steel, called "Pianeta inox". For information and registrations, contact: Fiere di Parma SpA - Phone +39 0521 9961, fax +39 0521 996235, tecno@fiereparma.it, www.fiereparma.it

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### THE NECTAR OF THE GODS GROWS ON... STAINLESS STEEL CLIFFS

#### (Il nettare degli Dei nasce sui dirupi di acciaio... inox)

The winegrowing tradition of Valtellina has always obstinately exploited even the steepest slopes of its mountains, the so-called "dirupi" (cliffs).

Thanks to the cooperation established by the local wine company just named Dirupi with Centro Inox, an experimental vineyard has been created in the mountain resort of Treviso (Sondrio). This vineyard is intended for the production of the "sforzato" (literally, "forced"), a selected and rare choice wine.

The stainless steel components (stakes, wires, wire-tighteners, and other accessories), besides ensuring inertia toward the fruit, allows easy installation, considering the limited weight of the stakes. Durability meets the requirements of the vine, which needs a considerable amount of time for reaching its highest (qualitative) expressions.

The choice of stainless steel results from previous studies carried out by Centro Inox, which require to be further confirmed from other experimental tests, such as the one presented here.

Grape cultivation cycle thus definitely combines with stainless steel along a path that starts from the rows of vines and ends in the stainless steel tanks of the wine cellars.

**Vineyard:** Dirupi s.s.- Località Madonna di Campagna - I-23026 Ponte in Valtellina SO - info@dirupi.com, www.dirupi.com / **Stainless steel stakes and accessories:** Consortium SpA - Via dell'Industria - I-37038 Soave VR, phone +39 045 6102888, fax +39 045.6102877, +39 045 6105021, consortium@consortiumspa.net, www.consortiumspa.com

## CENTRO INOX

The Italian Stainless Steel Development Association  
Piazza Velasca, 10 - 20122 Milano - Italy

Telephone 02.86.45.05.59 - 02.86.45.05.69

Fax 02.86.09.86

info@centroinox.it - www.centroinox.it

