

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

A NEW ENTRANCE AT THE HEAD OFFICE OF AEM SPA

(Un nuovo ingresso per la sede dell'AEM SpA)

A tangible demonstration of the growth of AEM (Azienda Elettrica Municipale) as a company is represented by the renovation of the entrance hall at the historical head office in Corso di Porta Vittoria, 4, in Milan.

The work summarises the history, innovation and progress of the Company.

The plastic nature of the shape and the choice of technological materials such as stainless steel and glass, integrated into 1950^s architecture, aim to convey the concept of the modernisation of AEM.

Fig. 1 – The structure comprises long, straight bars of EN 1.4301 (AISI 304) stainless steel tubes.

Fig. 2 – Detail of the satin finish and the welding.

Fig. 3 – The curve of these elements is an optical illusion.

Fig. 4 – The plugging glass, with “diamond-effect” shape.

Fig. 5 – The structural design remind us of the essential and rigorous design of electricity pylons and the arched entrance evokes the architecture used in the entrance-ways of historical and imposing hydro-electrical plants in the Valtellina.

Fig. 6 – The light source represents the “sun”, a symbol that has been long-present in AEM's logo.

Customer: AEM SpA - Corso di Porta Vittoria 4 - I-20122 Milano / Design: Arch. Takashi Shimura / Collaborators: Arch. Luca Capolongo for AEM SpA; Arch. Arturo Maiocchi / Static audit of designs and executive drawings: Ing. Andrea Borinelli, I-23030 Chiuro SO and p.i. Nicola Poletti for Della Cagnoletta Srl / Building: Della Cagnoletta Srl - Via Gerone 4 - I-23030 Albosaggia SO, phone +39 0342 510190, fax +39 0342 511501, info@dellacagnoletta.com, www.dellacagnoletta.com / Supply and installation of glass: Vetreria Valfon Srl - I-23017 Morbegno SO / Lighting designer: A. Castiglioni / Revolving door: Kaba Porte Automatiche SpA, I-40013 Castel Maggiore BO

PAGE 5

STAINLESS STEEL IN CONSTRUCTION: A BUILDING MATERIAL... THAT ALSO RESISTS CORROSION. The state of affairs at a convention in Terni

(L'acciaio inossidabile in edilizia: un materiale da costruzione ... che in più resiste alla corrosione. Il punto della situazione in un convegno a Terni)

Since its creation in 1962, the Centro Inox has never stopped focussing its efforts to develop applications that use stainless steel in the construction field. After years of patient work, stainless steel is now starting to be considered a real structural building material with specific mechanical, fire-resistant and anti-seismic characteristics. In the period from 1990 to 2004 the market share pertaining to the use of stainless steel in the building and infrastructure sectors doubled from 5 to 10%.

The importance of this trend was at the centre of the successful convention held on the 5th May 2006 that attracted more than 180 guests, organised by the Marketing and External Relations offices of ThyssenKrupp Acciai Speciali Terni, that was entitled “Terni, città dell'inossidabile” to identify the close connection that exists between the city and the steel industry.

The introduction and the presentation of the global situation was the task of the Managing Director of ThyssenKrupp Acciai Speciali Terni, Dr. Harald Espenhahn, who explained the scenario in which the company operates and the development prospects that regard both the plant and the commercial side of the business. The presentation given by Sales Director Marco Pucci underlined the need to increase the interest in stainless steel amongst building companies and professionals. Fausto Capelli, Managing Director of the Centro Inox, gave a general view of all the aspects of stainless steel in construction.

Prof. Mario Antonio Arnaboldi described his work, amongst which is the façade produced in Italy and installed in Australia in 1970. Prof. Massimo Majowiecki showed the latest

structural solutions that can be made with stainless steel, and pausing to examine his design for the new Fiera di Roma. Dr. Massimo Barteri from the CSM demonstrated the usefulness of the Design Manual for Structural Stainless Steel.

Dr. Valeria Fontana from ThyssenKrupp Acciai Speciali Terni talked about the study and promotional activities that support operators that choose stainless steel for their building-work, with innovative products amongst which the pre-painted Vivinox[®] stood out.

The convention was closed by Architect Paolo Brescia, expert in the use of colour in construction and who demonstrated the most innovative frontiers in building and restructuring work.

The meeting concluded with a final debate and a visit to the steelworks.

PAGES 6/7

FROM OUR MEMBERS

UGINE & ALZ ITALIA - A RANGE OF PRODUCTS, INDUSTRIAL TOOLS, ORGANISATION, QUALITY AND INNOVATION TO HELP THE ITALIAN STAINLESS STEEL MARKET

(Dalle Associate: Ugine & Alz Italia. Gamma di prodotti, mezzi industriali, organizzazione, qualità e innovazione al servizio del mercato italiano dell'inossidabile)

Four years after the merge between the French company Ugine and the Belgian Alz, Ugine & Alz, a company that belongs to the stainless steel sector of the Arcelor Group, has undergone major changes in its organisation and industrial structure that comprises four divisions

The Up-stream Division: steel-works and hot-rolling (steel foundry at Genk and the new Carinox integrated unit at Charleroi). The combined production capacity is two million tonnes.

The Speciality Division, in Gueugnon (F) manage production, marketing, development and technical assistance for domestic and thermal applications, in catering, construction, and general decoration. They produce the whole range of thin ferritic, martensitic and austenitic steels in both 2B and 2R finishes as well as other non-conventional finishes, obtained with rolling or with other treatments.

The Industrial and Automotive Division in Genk (B) and Isbergues (F): the former operates on the first transformation, transport and general industrial applications markets. They mainly produce cold- and hot-rolled austenitic steel with a range of thicknesses up to 14 mm and widths up to 2 m. The second site operates on the exhaust system market as well as that of structural applications. The products offered are mainly cold-rolled, in particular ferritics.

The Services Division manages the European distribution network, comprising a widespread network of branches and 8 service centres.

U&A Products and markets - In particular we should underline a strong specialisation in the ferritic steel sector.

UGINE & ALZ ITALIA - This is the Italian branch of U&A; the offices are in Milan, with a service centre in Massalengo (Lodi). It employs around 160 people for a sales volume that approaches 300k. U&A Italia also controls Alinox, with head offices in Podenzano, specialised in the production of narrow strips.

The Service Centre at Massalengo - In Spring 2006 the Service Centre doubled their covered space (25,000 m²), and a strapping line came on line. The hot- and cold-rolled activity of large thicknesses began thanks to the installation of a flattener and a slitter that can work on thicknesses up to 14 mm and widths up to 2 m. The Centre covers a total surface of 60,000 m² and employs around 110 people, with a production capacity that is well above 100k.

The plants - Two SB finishing lines and one that is combined SB + satinizing line - Two slitter lines for cold-rolling and one for both hot- and cold-rolling of large thicknesses; catering for thickness of strips from 0.4 up to 14 mm; width up to 2 m.

- Three flattening lines for cold-rolling and a fourth for hot-rolling allow us to obtain widths up to 2 m and lengths up to 13

m. The plant-wide implementation of the TPM method allows us to ensure efficiency and quality of performance over time. An automatic camera-driven system identifies defects.

Quality system - At U&A Italia the attention that we pay to our customers' needs, the efficiency of the organisation and the reliability of our processes are overseen together with other values regarding employee safety and care for the environment, which are all part of our company culture and govern the activities of the Arcelor group. This is all guaranteed by an integrated quality system that complies with UNI EN ISO 9001 v 2000, OHSAS 18001 and ISO 14000 standards.

Ugine & Alz Italia Srl - Viale Brenta, 27/29 - I-20139 Milano, phone +39 02 566041, fax +39 02 56604257, www.ugine-alz.com / Sales branches: Roma: phone +39 06 59292301, Vicenza: phone +39 0444 341602

PAGES 8/9

ELECTROLYTIC POLISHING ON STAINLESS STEEL COMPONENTS

(La lucidatura elettrolitica su componenti di acciaio inossidabile)

Electrocleaning, also defined as “electrochemical polishing”, “buffing” and “electrochemical cleaning” is a “reversed” galvanising procedure (fig. 1). In fact the element to be treated is connected electrically to the positive pole of a source of constant current. The electrochemical activity slowly erodes a thin layer from the surface of the element to be treated, typically between 20 and 30 microns (this can last from a few minutes up to several hours).

This erosion is also called micro-burring. The micro-burrs and peaks on the surface are removed: the roughness normally improves by a percentage ranging from around 10% to 40% compared to the initial conditions.

Fig. 2 - The surface of a hot-rolled pickled tube, before and after electrolytic polishing.

Fig. 3 - A surface that has been sand-blasted with glass-spheres, before and after electrocleaning.

Fig. 4 - Equipment made with AISI 304 (EN 1.4301) stainless steel and used to produce ice-cream.

Fig. 5 - Process tank for the pharmaceutical industry, made from EN 1.4401 (AISI 316) stainless steel. It was pre-satinized with 240-grain and then electropolished internally with final roughness of R_a 0.40 µm.

Fig. 6 - Electropolished austenitic stainless steel stent: this is used to keep blocked arteries open and to release anti-thrombosis medication. (courtesy of Anopol Ltd - www.anopol.co.uk)

Fig. 7 - Four-position collector (dosage device) made from EN 1.4401 (AISI 316) stainless steel and used in the pharmaceutical industry. The treatment followed was: mechanical pre-polishing and subsequent internal and external electropolishing, with final roughness R_a of less than 0.10 µm. Reference documents: ASTM B-912: “Standard Specification for Passivation of Stainless Steel using Electropolishing”; ISO 15730 “Metallic and other inorganic coatings - Electropolishing as a means of smoothing and passivating stainless steel”.

Electropolishing of components in figures 5 e 7 made by: Delmet Srl - Via Bergamo 6 - I-20064 Gorgonzola MI - phone +39 02 9517504, fax +39 02 9513276, info@delmet.it, www.delmet.it / Manufacture of components: Fig. 5 - Vianello Inox SpA - Via Mantovana 104 - I-45014 Porto Viro RO - phone +39 0426 321900, fax +39 0426 320314, info@vianelloinox.com, www.vianelloinox.it / Fig. 7 - InterApp Italiana Srl - Via Gramsci 18 - I-20016 Pero MI, phone +39 02 339371, fax +39 02 33937200, info@it.interapp.net, www.interapp.net/IAIT

PAGES 10/11

A STAINLESS STEEL FISHING BOAT CHALLENGES BOTH THE WAVES AND CORROSION

(Un peschereccio inox sfida le onde e la corrosione)

This is a motor-fishing boat that is ideal for trawling, and weighs 4 tonnes. It is 18.50 metres long, 5.30 metres wide



and 2.40 metres high, and is suitable for off-shore navigation up to 20 miles. It has a 400-horsepower motor and will travel at a maximum speed of 11 knots. It is delivered complete and "ready to sail".

The construction of this boat required sheet steel, tubes, full rods and screws in austenitic molybdenum EN 1.4401 (AISI 316) stainless steel weighing around 35 tonnes. The surfaces were then sand-blasted to ease the application of the epoxy paints.

The choice of stainless steel for the plating and the structural strengthening elements was driven by the need for greater resistance and duration than that allowed by wood, easier maintenance and above all a lighter product.

Inside the boat even the galley area and wash-basin are made of stainless steel.

This boat is a real jewel, and provides numerous advantages in terms of safety, comfort and practicality.

Construction: Carpentinox Sas di Valente Giuseppe e Luigi & C. - Cala Fontanelle 31 - I-70043 Monopoli BA - phone and fax +39 080 9301382, valente@carpentinox.it, www.carpentinox.it

FOLDING STAINLESS STEEL MOPEDS AND BICYCLES: BOTH PRACTICAL AND ROBUST (Moto e bici inox pieghevoli: pratiche e robuste)

Folding mopeds and bicycles, ideal as supplementary vehicles also because they fit in the boot of your car, always ready to be unfolded, used and folded together again in a simple way.

The quality of the construction is also thanks to the use of stainless steel, which allows their use in sea-side locations, where corrosion is a constant danger for those made with carbon steel. In particular, the grade of stainless steel used are as follows: for the frames: EN 1.4301 (AISI 304); for the welding wires: EN 19 9 L (AISI ER 308L); for the nuts and bolts: Class A2; for the other small items: EN 1.4305 (AISI 303) and EN 1.4301 (AISI 304).

All models respect European standards.

Production: Di Blasi Industriale Srl - C.da Risicone - I-95049 Vizzini CT - (postal address P.O. Box 41 - I-96015 Francofonte SR), phone +39 095 7842406, fax +39 095 940384, mail@diblasii.it, www.diblasii.it

A STAINLESS STEEL WATCH TO CHEAT TIME AND TRY YOUR LUCK

(Un orologio inox per ingannare il tempo tentando la fortuna)

It is called "Roulette" and, as well as being a timepiece that is both elegant and precise, its face depicts a coloured scale with numbers that are the same as those found on a roulette wheel (from 1 to 36 and the 0).

By pressing a button on the "carrure", a flywheel on a bearing moves the red ball (on the edge of the central disc) which then stops on a number after 8-10 seconds.

The case was made from EN 1.4401 (AISI 316) stainless steel, in both satin and shiny versions, with a very particular design: in fact the watch-bottom has the anatomical shape to suit your wrist and is fixed to the "carrure" with five screws. It is all protected with packing to isolate the movement from dust and water. The button and the winding crown are also made of stainless steel. The initial production will be limited to 100 watches.

Customer: Spada Watch Srl - I-52100 Arezzo - Via Madonna del Prato 116

Design and production: Project and manufacture: Manufacture d'Horlogerie Gabriele Ribolini - Via Bassi 12 - I-26866 Sant'Angelo Lodigiano LO - phone +39 0371 92917, grib@interfree.it

Collaborators: Gianmario Bossi e Franco Furioli

PAGES 12/13

STAINLESS STEEL WIRE IN TEXTILES: PROTECTION AND FASHION

(Il filo inox nei tessuti: protezione e moda)

For more than a decade special threads made of cotton, wool, linen, polyamide, etc. have been produced, combined with extremely thin stainless steel wires (\varnothing between 35 and 50 μ m) of types EN 1.4301 (AISI 304), EN 1.4401 (AISI 316) and above all EN 1.4404 (AISI 316L), that are sometimes visible, and sometimes not.

Initially the production concerned textiles for clothing with anti-static characteristics for work-environments or with high resistance to friction and bursting. But in the last five years the demand for these textiles has grown and brought the "fashion" content of these clothes to the forefront. Initially the only request was that the thread be made of stainless steel, but now qualified requests aim at products containing threads made of austenitic stainless steel, with molybdenum and a low carbon content, EN 1.4404 (AISI 316L), with a perfect circular section, well annealed and with excellent dynamometric resistance.

The advantages offered by filaments made from 1.4404 (AISI 316L) stainless steel in clothing are as follows:

- **Characteristics of shielding (Faraday cage)** against electromagnetic fields, radiofrequencies and microwaves.

- **Characteristics of an anti-static and bacteriostatic nature:** dust and bacteria are not attracted. It follows that this is ideal in the prevention of the spread of bacteria, often the cause of allergies.

- **Improved resistance to traction** of technical textiles.

- **Characteristics of thermoregulation.** The steel filament in the clothing creates a sensation of warmth in the winter and coolness in the summer.

- **Aesthetic qualities (fashion).** A high metal content in clothing textiles allows you to create the finished clothing then shape it and crease it, giving the clothing a crumpled and wrinkly look. Moreover, it also allows unique chromatic effects.

In the textile sector, on the other hand, the use of stainless steel is now so normal that it is easy to find it in the fashion shows of the most "trendy" clothing and, according to trade sources, the market has great potential and is growing rapidly.

We would like to thank the following thread producers for the technical notes: Enrico Meierhofer Srl - C.so Risorgimento 25 - I-28823 Ghiffa VB, phone + 39 0323 402225, fax +39 0323 402226, info@meierhofer.it, www.meierhofer.it / Milano Filati Srl - Via Socrate 25 - I-22070 Casnate con Bernate CO, phone + 39 031 451611, fax +39 031 451711 / Pinori Filati SpA (yarn "Recycled") - Via E. Gestri 19 - I-59100 Prato, phone + 39 0574 54911, fax +39 0574 630362, info@pinori.it, www.pinori.it / Tecnofilati Srl (fabric "Resistex[®]Inox") - Via Bergamo 42 - I-24030 Medolago BG, phone + 39 035.901138, fax +39 035 9017896, tecnofilati@tecnofilati.it, www.tecnofilati.it

We would like to thank the following for the pictures: Extè (pants) - Ripa di Porta Ticinese 75 - I-20143 Milano, phone + 39 02.5814091, fax +39 02 58140924, info_exte@ititierre.it, www.exte.it / Colombo Filtri e Guarnizioni Srl - Via Redipuglia - I-21055 Gorla Minore VA, phone + 39 0331 606840, fax +39 0331 6061131, info@colombosrl.com, www.colombosrl.com

Bobbin of stainless steel thread and photo of jacket supplied by: Ugitech-Trafflerie Bedini Srl - Gruppo Arcelor - Via G. Di Vittorio 34/36 - I-20068 Peschiera Borromeo MI, phone + 39 02 54734350, fax +39 02 5473430, dino.caselli@bedini.arcelor.com, www.sprintmetal.com

ELECTRONICALLY COMMANDED STAINLESS STEEL TAPS

(Rubinetti inox comandati elettronicamente)

Normally, electronic commands are used for taps in public areas but today there are smaller more elegant new models that are suited for domestic use.

Quiktronic[®] is the name of a range of chromed and stainless steel taps and fittings for wash-basins, showers and urinals, with electronic commands that can be programmed with a remote control that allows you to select the duration of the water supply, the start of its supply, its termination and that also blocks the tap.

The taps in this collection work with a low-consumption 6V battery, or can be run on the electricity supply with a transformer, and have the exclusive "Power Save Mode" (PSM). They are also fitted with the "Anti-Interference System (AIS)" and are screened by filters against any disturbances caused by sunlight and sources of infra-red rays (mobile phones and other remote controls).

The public is always more enthusiastic about stainless steel taps: apart from their aesthetic "appeal", the other aspects that most attract the consumer are the advantages offered by stainless steel in terms of hygiene and safety. In fact these taps, which do not need pre-treatment with nickel, (which is used in the more traditional brass ones before the final chroming), guarantee the total absence of the release of heavy metals.

Some models, like those in the "Quiktronic[®]" collection, are easy recognisable with the special mark on the products that is issued by the Centro Inox.

Production: Cristina Rubinetterie, Gruppo CRS SpA - Trade office - Via Fava 56 - I-28024 Gozzano NO, phone +39 0322 956340, fax +39 0322 956556, info@crs-group.it, www.crs-group.it

A FENCE FOR ... ETERNITY

(Una recinzione per ... l'eternità)

In the Parish of Santa Maria Madre della Chiesa, in Buccinasco (near Milan), they used stainless steel for a new enclosure, since higher initial expenditure would give a practically unlimited duration and therefore a saving.

The aim is to protect the basement entrance of the area used as meeting rooms and workshops and also to guarantee the safety of the children that frequent the parish youth club.

The enclosure comprises modules, which are available in the shops, with heights of 1 and 1.50 metres. Each module is inserted from above then fixed with screws to the rectangular uprights (60x40cm), that are positioned with 2 metre spacing and soldered to supporting square bases. The cross-bars are 20 mm diameter tubes, with a spacing of 132 mm.

The stainless steel used is EN 1.4301 (AISI 304) with a satin finish. The enclosure will be completed by a stainless steel

gate.

Production of modules: Expo Inox SpA - Via Don Motti 36 - I-27027 Gropello Cairoli PV, phone +39 0382 814343, fax +39 0382 817223, expoinox@expoinox.com, www.expoinox.com
Installation: SVM - Via della Resistenza 37 - I-20090 Buccinasco MI, phone +39 02 45700241, fax +39 02 48844164, svmdispaziani@tiscali.it

PAGES 14/15

THE SUBTLE SILVER REFLECTIONS OF STAINLESS STEEL IN THE LIGHTS AND COLOURS OF THE NEW VULCANO SHOPPING CENTRE

(Gli argentei e discreti riflessi dell'inox tra le luci e i colori del nuovo Centro Commerciale Vulcano)

The new Vulcano Shopping Centre, located in Sesto San Giovanni (near Milan), was designed by Vittorio Gregotti and Carlo Fegiz. It covers a total surface of 50,000 m² and was built on an area that was the previous site of the Falck steelworks.

The stairs that connect the two floors are in the middle of the Centre in an empty space covered by a glass cupola. The banisters and side panelling of the ramps and landings are made of EN 1.4401 (AISI 316) stainless steel. The side panels, produced from strips that are 1.5 mm thick with a Scotch-Brite finish, were press-folded and satinized in the workshop and then finished on-site during installation. A special study during the work allowed the creation of elements that reflect the natural light from the cupola in the best way possible.

The banisters are made of 80 mm diameter stainless steel welded tubes and are attached to the uprights (which are covered with stainless steel shields) with milled stainless steel elements.

Production of banisters and side panelling: International Cartel Sign Srl - Via Piemonte 28 - I-20090 Opera MI, phone +39 02 57610027, fax +39 02 57619043, info@cartelsign.it, www.cartelsign.it.

PAGE 16

ELECTROPOLISHED STAINLESS STEEL FOR THE ALASSIO SEA-FRONT

(Inox elettrolucidato per il lungomare di Allassio)

Allassio is an ancient town that dates back to the Roman Empire and is a famous sea-side resort on the Ligurian west coast. On the western part of its sea-front they recently installed around 1.5 km of new railings. Considering the element's constant exposure to sea-salt, stainless steel with molybdenum EN 1.4401 (AISI 316) was chosen and, to give better resistance to corrosion, before installation the elements underwent pickling (conform to ASTM A380 standards) and electropolishing (conform to UNI EN 3769 standards) that leaves a higher concentration of chrome atoms on the surface.

There is a shiny 60.3 mm diameter tubular handrail on the top of the baluster, fixed onto uprights (with spacing of 1,200 mm) with stainless steel screws.

The flat satin electropolished uprights are 10 mm thick and 1,060 mm long.

The lower plate measures 180x150 mm, with a thickness of 15 mm. The material is fixed to the wall by threaded bars of EN 1.4401 (AISI 316) stainless steel and a chemical fixing agent, and completed by nuts made from stainless steel of the same type.

The infill cables have a diameter of 6 mm and comprise 19 EN 1.4401 (AISI 316) stainless steel wires. Every 25 metres, the cables are anchored to tensioners, made of the same sort of steel, positioned on the braced T-uprights.

Pickling and electropolishing: Bama Srl - Via Novara - I-20029 Turbigo MI, phone +39 0331 898460, fax +39 0331 898480, info@bama-technologies.com, www.bama-technologies.com

Building and installation: Metalmeccanica Vivaldi Snc - Regione Prati e Pescine - I-18011 Arma di Taggia IM, phone +39 0184 43083, fax +39 0184 43084, info@vivaldimetalmeccanica.it, www.vivaldimetalmeccanica.it

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