

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

MILAN RESTYLING BEGINS WITH "VALTELLINA 2"

(Con il "Valtellina 2" comincia il restyling di Milano)

In no. 151 of Inossidabile (March 2003) we published the first part on this complex, an existing 1960s eight floor building in Via Valtellina, destined to be renovated and become the new Torno Spa offices. A feature of this building was the North side where a micro-perforated stainless steel shield protected the piping letting light filter through to the rooms behind it.

The second block of this new construction was placed on the South side of the first building, with its floors laid out in pyramid fashion to minimize the volume impact (figs. 1 and 2). The top, joining point of the two buildings, was the starting point of the large, sail type stainless steel roofing, covering a 1.200 m² surface, which, despite weighing 35 tons (just the covering), makes the building look like a spinnaker.

To avoid reflection effects, the choice went to an EN 1.4404 (AISI 316L) type stainless steel with special mat rolling finishing, which does not alter the mechanical characteristics, called Ugitech[®], already used for Charles De Gaulle Airport in Paris and for the roof of the University of Sassari, in Sardinia.

Like the "Valtellina One" shield, this sail is micro-perforated, but only in the middle part where it is broken up by glass inserts corresponding to where the windows are. The top part, the ground floor and shelter are full plating, acting as a roof which, like a tear in the sail, starting from the height of the fifth floor, goes up and down like a wave (figs. 3 and 4), till it covers, pulling it into the complex, a small two floor building. The triangular top weighs 26 tons with a 320 m² surface.

Further support comes from the large oblique, tubular elements, like ship masts, on the Western side (fig. 5).

The joining point for the two buildings is highlighted by a cylindrical reinforced concrete body, 40 meters high, covered in Ugitech[®] stainless steel sheet, which is the lift well (front cover).

Client and General contractor: Torno Internazionale Spa
Project: Dante O. Benini & Partners Architects - Via Fioravanti 5 - I-20154 Milano, phone +39 02 33611663, fax +39 02 33611667, info@dantebeniniarchitects.com

Structural engineering consultant: Arup Italia Srl - Ing. Gabriele Del Mese - Corso Italia 13 - I-20122 Milano, phone +39 02 85979301, fax +39 02 8053984, www.arup.com

Metallic cladding of the sail and window frames: Metalsigma Tunesi Spa - Strada Vic. Della Galdina - I-20010 Arluno MI, phone +39 02 9015763, fax +39 02 90376550, metalsigma@metalsigma.it, www.metalsigma.it

UGITOP[®] sheets supply: Ugine & Alz - Gruppo Arcelor - Viale Brenta 27/29 - I-20139 Milano, phone +39 02 56604.1, fax +39 02 56604.257, www.ugine-alz.com

PAGE 5

CAMPIONE TUNNEL (Galleria di Campione)

The Campione Tunnel, about 400 m long, on the Swiss border, was opened at the end of June.

For the exit and entrance mouths, the designing architect Mr Baldi chose pre-varnished Vernest[®] EN 1.4301 (AISI 304) stainless steel 0.5 mm thick: besides being easy to work and all its other well known qualities, the choice was due to its greater resistance to atmospheric agents.

The chosen colour was RAL 7045 grey.

During building, thanks to the above mentioned thinness and to the typical stainless steel features that make it easily adaptable to the underlying structure, the sheet was just glued to the underlying vault with no need for further

mechanical process.

The use of pre-varnished Vernest[®] simplified the manufacturing cycle: there was no need to prepare the surface or varnish it afterwards with considerable advantages in reduction of logistic costs and in the elimination of polluting elements. About 2 tons of stainless steel were used.

VERNEST[®] materials are supplied by: Thyssenkrupp Acciai Speciali Terni Spa - Viale B. Brin 218 - I-05100 Terni - Sales: Ing. Moriconi, phone +39 335 7296256, marco.moriconi@thyssenkrupp.com - Marketing: Dr.ssa V. Fontana, phone +39 0744 490867, fax +39 0744 490879, valeria.fontana@thyssenkrupp.com, www.acciaitermi.it

Realisation: S.P.A.I. Srl - Via Guido d'Arezzo 15 - I-20145 Milano / Technical Spa - Via Ugo La Malfa 76 - I-25050 Provaglio d' Iseo BS, phone +39 030 9883191, fax +39 030 9882599, protec@numerica.it

PAGES 6/7

FROM OUR MEMBERS

UGITECH: UGINE-SAVOIE ITALIA AND TRAFILERIE BEDINI

(Dalle Associate, Ugitech: Ugine-Savoie Italia e Trafilerie Bedini)

Ever since December 2003, all the Arcelor Group Companies operating in the long product sector, (Ugine-Savoie Imphy and its commercial branches, Trafilerie Bedini, Sprint Metal) have become Ugitech. Product specificity has remained the same: Ugitech (ex Ugine-Savoie Imphy) remains, at world level, a main producer of semi-products, bars and rods in stainless steel and alloys; the Trafilerie Bedini manufacturing unit is still a factory specialised in the production of drawn, ground bars; Sprint Metal (now Ugitech) remains a leader in the production of drawn wires.

Innovation is a constant, basic objective for Ugitech.

Ugima[®] is an important "trump" for all products destined for the mechanical workings to remove chips. Today, there are about 20 makes available, among which Ugima[®] 4057 (EN 1.4057) and Ugima[®] 4104 (EN 1.4104). Even since 2002, Ugitech has been developing the second free machining steel generation, Ugima[®] 2, now available with the trademarks 4305HM (EN 1.4305), 4301HM (EN 1.4301), 4307HM (EN 1.4307), 4401HM (EN 1.4401) and 4404HM (EN 1.4404).

To promote the use of stainless steel in those sectors where materials without high corrosion resistance levels were used (for example carbon steel, etc.), Ugitech has successfully marketed new types of stainless steels.

Automotive: at the service of a demanding, constantly evolving market

In the automotive market, the use of components coming from long stainless steel products is growing constantly. Recent technological innovations and safety, consumption and pollution norms mean that every new model contains more stainless components: from braking (EN 1.4105, 1.4029, 1.4035) to exhaust (EN 1.4104, 1.4301); from the airbag system (EN 1.4307, 1.4418) to diesel and petrol injection (EN 1.4105, 1.4104).

A super-technical team for a customer dedicated structure operating in the most demanding use areas.

The Special Applications Service aims at increasing the Ugitech commercial offer by adding complementary services. The main markets the Service operates in are: the nuclear and energy ones in general (stock available in accordance with RCC.M, RCC.MR, ASME, etc.), the aeronautical and aerospace ones (stock in accordance with ASNA, AECMA, IGC, AMS, AIR 9160C, MIL, etc.), the petrochemical one (stock in accordance with NACE, API 6[°], Statoil, etc.), the marine one (stock in accordance with GAM, ESM, etc.).

To satisfy the expectations of the more demanding sectors, non-destructive controls, non standard thermal treatments, metal-working controls and special "custom made" workings

are carried out.

Stainless steel and reinforced concrete: Ugitech becomes decidedly involved in building

In the building sector, concrete becomes more "noble" with the growing use of stainless steel as a reinforcing element.

The front row position that stainless steel is now filling in the sector is obvious. Mechanical features, resistance to fire, anti-seismic, no need for maintenance, make it irreplaceable in the building of bridges, tunnels, underground car-parks, swimming pools, sea-shore buildings and numerous other applications.

Ugitech, acknowledged leader in the field of stainless steel, is present on the European market with Ugigrip[®], which is awaiting approval by the Ministry for Infrastructures and Transport to increase sales on the Italian market.

Ugitech is also part of the European norm commission.

Ugitech - Trafilerie Bedini - Via Giuseppe Di Vittorio 34/36 - I-20068 Peschiera Borromeo MI, phone +39 02 54743.1, fax +39 02 5473483, info@bedini@bedini.arcelor.com

Ugitech - Ugine-Savoie Italia: Via Giuseppe Di Vittorio 32 - I - 20068 Peschiera Borromeo MI, Tel. +39 02.51.685.1 - Fax +39 02.51.685.340

PAGES 8/9

STAINLESS STEEL FOR BUSES: A CONSOLIDATED FACT

(Acciaio inox per gli autobus: una realtà consolidata)

Use of stainless steel to build buses began about 15-20 years ago, when manufactures were looking for a suitable metal material to build the lower parts of the vehicle, created in carbon steel thus really subject to corrosion due to contact with salt, water, gravel etc. The most corroded parts were the "wheelhouses" and the lower part of the frame (figs. 1 and 2). Every 3÷6 years, the vehicles had to be taken off the road for repairs and/or replacements.

After that, satisfied by the positive results had for the duration of the stainless steel parts, some bus builders, both Italian and from the rest of Europe, experimented building some vehicles with the entire structure in stainless steel.

The starting point was a self-supporting structure in square and rectangular section stainless steel EN 1.4301 (AISI 304) tubes. This building "philosophy" was then followed by other companies and nowadays stainless steel, though "not visible", is an important reference point for all manufacturers.

An important Company in the sector, Carrozzeria Luigi Dalla Via of Schio (Vicenza), which is 100 years old this year, began business in 1905 with horse-drawn carriages. Then, with the arrival of motor vehicles, they built the first "buses", very like diligences (fig. 3), followed by others more similar to the present ones (fig. 4). Till today where buses (fig. 5), have all the necessary comforts for travellers. Since at least 7/8 years ago they have moved almost completely to using stainless steel tubing and plating. This for a product which does not deform, weighs less compared to one in carbon steel and withstands corrosion practically for ever.

The Dalla Via buses' supporting structure is entirely in welded EN 1.4301 (AISI 304) stainless steel tubes, with square and rectangular sections and EN 1.4016 (AISI 430) stainless steel sheet (fig. 6). The amount used, for example, in the inter-city model, is 1,050 kg in all, with tubing (about 600 kg) and plating (450 kg) (fig. 7).

The buses' self-supporting structure is the sum of various different structures built singly with MIG type welding, with EN 23 12 L Si (ER 309L Si) 1 or 1.2 mm section wire.

The rollover tests carried out "in the field" by said company is really interesting, done to satisfy the specific request of the European 2001/85 EC norm. With stainless steel, the test is passed brilliantly: in figure 8 and 9 you can see the bus



after the test with the stainless structure bent, but this does not affect the passenger "seating area".

Besides this important feature, the users say that the entire vehicle is more comfortable compared to the same structure built in carbon steel.

■ Realization: Carrozzeria Luigi Dalla Via SpA - Via Veneto 10 - I-36015 Schio VI, phone +39 0445 575622, fax +39 0445 575615, info@dallavia.com, www.dallavia.com

PAGE 10

A FOOTBRIDGE FOR SKIERS IN SELVA DI VAL GARDENA

(Un ponte pedonale per sciatori a Selva di Val Gardena) A footbridge permitting skiers (about 8,000 people/day in the winter season) to reach the chairlift without crossing the main road has been installed in Selva di Val Gardena (Bolzano). To reduce environmental impact, they chose a "light", "transparent" structure using stainless steel and polycarbonate panels.

The stairs - To access the skiers' footbridge, they installed a stainless steel, helicoidal staircase, 2.20 m wide, covered in polycarbonate, formed by a Neville type spatial, reticular structure. They used 300x100x4 rectangular profiles for the lower runners, Ø108 s=4 mm tubing for the upper runners, Ø 88,9 s=4 mm tubing for the diagonal wall parts and Ø 60 s=3 mm for the diagonal roof parts and along the walkway. The joints between the different elements are in s=12 mm, rectangular or semi-circular plates. To avoid sideways movement, at the base of the stairs they have put Ø 300 s=4 mm tubular profiles linked to the stairs horizontally.

The footbridge - Above the main road the footbridge is in stainless steel, about 2.20 m wide, about 17.50 m long and about 2.60 m high, also covered in a reticulated structure. In this case, the following tubing profiles were chosen: Ø 168,3 s=3 mm for the upper and lower stringers, Ø 88,9 s=4 mm for the wall braces and under the walkway and Ø 50 s=3 mm for the roof braces. The joints between the different elements are in s=12 mm rectangular and trapezoidal plates. On one side the walkway is supported by a stainless steel portal made up of Ø 219,1, s=6,3 mm pillars, joined horizontally by a 120x200, s=6,3 mm rectangular profile and diagonally by full Ø 30 mm profiles that form a "St Andrews" cross.

The entire walkway is in AISI 304 L (EN 1.4307) stainless steel. The tubes were welded in TIG with Scotch Brite surface finishing. The welded joints were also done in TIG, with pure Argon gas protection and EN 19 12 3 Si (AISI ER 316 LSi) weld material.

The weight of the finished walkway and the staircase is approx. 11 tons.

The Ø 168.3x3 mm tubes were butt welded, with an internal strengthening tube.

■ Client: Municipality of Selva di Valgardena

■ Design engineer: Dr. Ing. Flavio Mussner - Via Brennero 20 - I-39100 Bolzano, phone +39 0471 980940, fax +39 0471 327644, ing@mussnerflavio.191.it

■ Project team: Dr. Ing. Giuliana Goss, Dr. Ing. Roberto Carraro, Dr. Ing. Andrea Triggiani

■ Constructor: Calinox Sas - Via degli Artigiani 2 - I-39040 Cortina Strada Vino BZ, phone +39 0471 817395, fax +39 0471 817720, calinox@brennercom.net

PAGE 11

LET'S LIGHT UP ENVIRONMENTAL DESIGN (Facciamo luce sul design d'ambiente)

The lamps lighting up towns are nearly always a result of the study of their specific night function. The "Obelisco" lamp is a result of the need to guarantee harmonic presence both at night and in daytime. That's why it's in stainless steel, so that during the day the post reflects the variable inclination of the sun. It has a stellar shaft contrasting the lit parts to those in the shade. Night lighting is guaranteed by revolving reflectors giving off guided lighting while the upper glass globe, if not lit up from inside, reflects the lights on in the surrounding area.

The posts are got through brake forming of EN 1.4301 (AISI 304) sheet, 1.2 mm thick, with Scotch Brite finishing; they are made up of six pyramidal elements joined together in pairs. The size at the base is within a 340 mm diameter circle and at the top in a 70 mm diameter circle. They are 5 m high.

The projector holder is a prism in EN 1.4301 (AISI 304) stainless steel sheet, 3 mm thick, placed 4 metres up.

At the base there is an EN 1.4301 (AISI 304) stainless steel covering plate, 5 mm thick, 500 mm in diameter.

These lamps have been used both in private spaces and in public areas of special environmental interest like in the

Town of Abano Terme (Padova).

■ Design and project: Prof. Arch. Paolo Portoghesi - Via Morgi s.n.c. - I-01030 Calcata VT, phone +39 0761 596059, fax +39 0761 596450, paoporto@tin.it

■ Collaborators: Arch. Antonio Posabella, Ing. Silvio Montin - Via A. Vespucci 5/A - I-35031 Abano Terme PD, phone +39 049 8669199, fax +39 049 8668520, studiomontin.at@libero.it

■ Construction: Astec Srl - Via dell'Artigianato 30 - I-31030 Dosson di Casier TV, phone +39 0422 490183, fax +39 0422 383120, astec@astec.it, www.astec.it

PAGE 12

SPECIAL STAINLESS STEELS FOR AN OIL PLATFORM IN THE CASPIAN SEA

(Acciai inossidabili speciali per una piattaforma petrolifera nel Mar Caspio)

Modern offshore oil platforms are using more and more special stainless steels: super-austenitic, duplex and superduplex.

The plants function in conditions that are more and more extreme for temperature and pressure, to improve their yield. For some components this means an increase in thickness.

Confirmation of this can be found in the AIOC project (Azerbaijan International Operating Company) which has important partners in BP, Exxon/Mobil and Statoil, where, for the first time in the world, they have used welded pipes in UNS S 32750 superduplex quality of the following sizes: 20" x 50.8 mm, 18" x 46.05 mm, 16" x 41.30 mm.

This specific type of stainless steel has the following chemical composition (% average in weight): C = 0.02; Cr = 25; Ni = 7; Mo = 3.5; N = 0.25 and a Pitting Resistant Equivalent Number (PREN) > 41.

Besides high resistance to corrosion, this steel has decidedly high mechanical properties (minimum yield point 550 MPa) which is about 2.5 times higher than the EN 1.4301 (AISI 304) one. To produce the pipes, they used a 4000 ton press.

Finally, as far as the UNS S 32750 superduplex steel welding is concerned, despite it being metallurgically more complex, it is also possible to weld high thicknesses with the classical SMAW, GTAW, GMAW techniques, getting good values even in heat affected zone (HAZ).

■ Tube producer: Inotech Spa - Via A. Moro 10/C - I-45026 Lendinara RO, phone +39 0425 605400, fax +39 0425 605499, info@inotech.com, www.inotech.it

■ Superduplex plate: Industeel Italia Srl - Gruppo Arcelor - Piazza S. Ambrogio 8/A - I-20123 Milano, phone +39 02 72000544, fax +39 02 72022380, industeelitalia@libero.it

PAGE 13

LIVE YOUR FUNCTIONAL COUNTRY, OR TOWN, HOUSE WITH STYLE

(Vivere la casa di campagna, o di città, con praticità e stile)

The pleasures to be lived in your holiday or town house, suitably big and well equipped, include barbecues with friends and chats round the fireside.

Using stainless steel here too means that you have suitable equipment in the most practical, hygienic and elegant way.

Fig. 1 - This elegant, practical barbecue in EN 1.4301 (AISI 304), with BA or satin finishing for the lower shelf, and 2B finishing for the grill, tubes and embers container.

Fig. 2 - "WOW", Wood On Wheels, a wood-carrying trolley in EN 1.4301 (AISI 304) stainless steel.

Fig. 3 - Three compartment container to separate rubbish. In ferritic EN 1.4016 (AISI 430) stainless steel.

Fig. 4 - Multi-function stackable ferritic EN 1.4016 (AISI 430) stainless steel, polished container.

Fig. 5 - Extendible shelving/bookcase easy to assemble.

■ Production: Graepel Italiana Spa - Via Fondi 13 - I-46018 Sabbioneta MN, phone +39 0375 220101, fax +39 0375 220262, info@graepel.it, www.graepel.it

PAGES 14/15

ADVANCED MODULAR "STAINLESS STEELS" COURSE

(Corso modulare avanzato "Gli acciai inossidabili")

6th edition - Milan, Palazzo FAST, Piazzale R. Morandi 2 Organized by the Associazione Italiana di Metallurgia together with Centro Inox and sponsored by Assofond and Federacciai

1st module: metallurgy, properties, corrosion, production and market of stainless steels, 25-26 January and 1-2-8-9

February 2006

2nd module: machining, installation, selection and design criteria, applications of stainless steel, 7-8-14-15-21-22 June 2006. The detailed program of the second module lessons will be presented in issue 163 of Inossidabile (March 2006).

The course is held in Italian.

For information and registration:

Course Secretariat - Associazione Italiana di Metallurgia (AIM) Piazzale Rodolfo Morandi 2 - I-20121 MILANO - phone +39 02 76021132 / 76397770 / 76397763, fax +39 02 76020551, aim@aimnet.it, www.aimnet.it

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USE OF STAINLESS STEEL IN STRUCTURES

(L'uso dell'acciaio inossidabile nelle strutture)

Convent of San Bernardino di Rossano (CS) - Thursday 10 November 2005, 16:00

Meeting Room of the Order of Engineers, Cosenza, via Massaua 25 - Friday 11 November 2005, 9:30

Meeting organized by Centro Inox, Milan and by Inarsind, Cosenza sponsored by Rossano Municipality

All participants will receive the meeting papers and the technical documentation of Centro Inox and its Members.

The meeting will be in Italian

Programme:

Welcoming speech and introduction to works - Ing. Raffaele Agrippino - President of Inarsind, Cosenza - Ing. Fausto Capelli - Managing Director Centro Inox, Milan

Panorama of stainless steels in building: types and features - Ing. Paolo Viganò - Centro Inox, Milano

Stainless steel in reinforced concrete structures. Applications and norms - Ing. Vittorio Boneschi - Centro Inox, Milano

Application examples of the use of stainless steel for consolidation in seismic areas - Ing. Roberto Marnetto - TIS Tecniche Idraulico Stradali, Roma

Presentation of the design manual for structural stainless steels. Resistance to fire and anti-seismic potentiality - Ing. Vittorio Boneschi - Centro Inox, Milano

Debate

Participation at the meeting will be free till all places available have been filled. Please send your registration via fax or e-mail by Friday 4 November 2005 to fax +39 0984 790366 /0984 392969 or to e-mail: angelapapaanni@tiscalinet.it or antoniotrimboli@fastwebnet.it

PAGE 16

THE LAST IGLOO OF MARIO MERZ IS IN STAINLESS STEEL

(E' inox l'ultimo igloo di Mario Merz)

Green porphyry slabs, weighing up to 1 ton on a semi-spherical structure placed in the center of a large 82 x 19 m tank: this is the last work of Mario Merz, world famous sculptor who died in October 2003. The igloo, a symbol of home and refuge, was a recurring theme in the artistic life of Merz: he built several of them with various materials.

The sculpture/fountain is a semi-spherical dome measuring 12 m in diameter, supported at the basin bottom by bearings protected by stainless steel box-type sheathing.

The dome is made up of round, satin finished, EN 1.4301 (AISI 304) stainless tubes: the one at the base has a diameter of 219.1 mm and is 5 mm thick, while the 12 semi-circles have a diameter of 114 mm and are 4 mm thick.

Fixed along the semi-circles you find stainless steel tie rods and band couplings, with revolving joints, still in stainless steel, which solidly support, thanks to the stainless jaws, both the heavy stone slabs and glass surfaces which, placed at the four cardinal points, highlight the name written by neon tubes.

The water jets out of seventeen stainless tubes covered in treated copper and inserted, at the base, between white marble blocks.

■ Client: Municipality of Torino

■ Sculptor: Mario Merz

■ Realisation: Stramandinoli Srl - Via Massimo d'Antona 16 - I-10040 Rivalta TO, phone +39 011 9063904, fax +39 011 9040738, info@stramandinoli.com, www.stramandinoli.com

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