

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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ROAD TRANSPORT MOVES AROUND WITH STAINLESS STEEL

(Il trasporto su gomma viaggia con l'inox)

INOXTIP 36 (36 cubic metres being the semi-trailer capacity) is a tipping semi-trailer equipped with a body completely made of stainless steel. This dump vehicle is therefore particularly suitable for transporting corrosive materials, toxic and harmful products, and exhausted electric batteries. The plates used for the sides, the head, and the door of the body are made of 2B brushed circular finish EN 1.4401 (AISI 316) stainless steel. Internal sheet welds are made of a 316 filler material. Also the plates forming the floor are made of AISI 316 1.5 mm thick steel sheets, while the external frame and the profiles are made of EN 1.4301 (AISI 304) stainless steel. In addition, stainless steel has been used for several accessories, as for example, the two ball valves fitted to the back of the floor sheet for the toolbox, for the two or three internal steps which allow the operator getting and moving into the vehicle body, etc. Finally, the shaped support profile of the head of the body is also made of AISI 316 stainless steel.

Planning, design, production and marketing: Adamoli Truck s.r.l. - I-46014 Castelluccio MN - Via Rivona 26, phone +39 0376 438567, fax +39 0376 438511, info@adamoli.it, www.adamoli.it

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"C.A.M. SYSTEM": THE POTENTIALITIES OF STAINLESS STEEL IN ANTI-SEISMIC REINFORCEMENT WORK

("Sistema C.A.M.": le potenzialità dell'acciaio inossidabile negli interventi di rafforzamento antisismico)

The "C.A.M. System" (Cuciture Attive Murarie - Cerchiaggio Attivo dei Manufatti) (Active wall seams - Active artefact encircling) is a significant evidence of the possibility to use stainless steel also as a specifically structural material. This system, developed and patented by a company based in Rome, aims at re-establishing the continuity, and at supporting and joining crumbling and loose masonry parts, in order to make a building "work" not as a set on individual elements, but rather as a single body, thus maximizing its resistance capacity. This system basically consists in a "seam", which by means of thin pre-tensioned stainless steel strips exalts the strength of a load bearing wall by pre-compressing and consolidating it, thereby improving its basic compressive and shear strength. The installation operations consist in drilling a relatively reduced number of holes (0.8-1.0 holes/sq. m) of 3 or 4 cm diameter, in which a stainless steel strip (0.8-0.9 mm thickness, 18-20 mm width) EN 1.4301 (AISI 304) is introduced. Each strip is mechanically tightened and closed to form a single mesh. These meshes are placed in succession to form a continuous grid, and are applied to the wall in order to co-act with it. Through appropriate tools, the traction of each encircling device is adjusted so as to conform to the project parameters. This system also includes special funnel-shaped stainless steel plates, to be placed at the inlet of the hole, for the purpose of distributing the strip contact forces.

System produced by: Edil CAM Sistemi - I-00128 (Zona Spinaceto) Roma - Viale dei Caduti per la Resistenza 79, phone +39 06 5073602, fax +39 06 5070046, info@edilcam SISTEMI.com - **Planner and President of Edil CAM Sistemi:** Arch. Gianluigi Palmieri / **Stainless steel produced by:** ThyssenKrupp Acciai Speciali Terni - I-05100 Terni - Viale B. Brin 218, phone +39 0744 490282, fax +39 0744 490879, marketing.ast@thyssenkrupp.com, www.acciaitermi.it

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FROM OUR MEMBERS

SIDERVAL IS WORKING HARD FOR THE LONDON 2012 OLYMPICS

(Siderval lavora per le olimpiadi di Londra 2012)

The ever-growing leadership achieved by Siderval is undisputed in all industrial areas, and particularly in the building industry. The company has recently undertaken the task of supplying a special profile to the winner of a tender for the London 2012

Olympics, the Austrian company Waagner Biro. It consists in a triangular hollow section to be used for the construction of the guard rail of the Olympic Park Bridge of London. This pedestrian bridge is included in an already existing structure connecting the different areas of the Olympic Village with the Central Park of London during the Olympic Games of 2012. This section, made through a hot extrusion process, has a simple shape, which however is difficult to obtain through steel extrusion processes. And all the more reason in the case of EN 1.4462 stainless steel, also known as duplex. One need only to consider that the shape of the triangular hollow profile is obtained from a round 180 mm diameter solid block of this steel quality, which is thrust through a matrix that warps the steel. This profile, supplied in bars of different lengths, is used as an architectural element of the guard rail of the pedestrian bridge. These worked and partly calendered bars form the structure of the connection elements (upper and lower transom) of the guard rail. The structure is then finished by panels provided with a stainless steel protection mesh mechanically locked onto both the upper and lower transoms of the structure. The structure is completely pre-assembled and placed on the two sides of the bridge. The characteristics of EN 1.4462 stainless steel fully meet all the required strict standards established for the more than 5,000 supplied modules.

SIDERVAL S.p.A - Special hot-extruded profiles - Via Chini Battista, 60 C.P. 43 - I-23018 Talamona SO - Phone +39 0342 6741 11, Fax + 39 0342 6704 00 - www.siderval.it

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PROJECT OF A FOOTBRIDGE WITH A FUNICULAR GLASS ARCH AND A STAINLESS STEEL DEPRESSED SUPPORTING ARCH

(Progetto di una passerella pedonale con arco funicolare in vetro e arco ribassato collaborante in acciaio inox)

The Idea at the Root of the Project The idea proposed in this article originates from an almost intention to build a completely transparent bridge using almost exclusively glass as building material. (Pict. 1). The static conception consisted in coupling in parallel a funicular glass arch with a slightly curved stainless steel girder to be restrained at the ends by fixed hinges. The funicular arch consists in a series of glass rods, the ends of which are connected with one another through articulated hinged joints made of stainless steel (Pict. 2). External loads are transmitted by the metal girder to the articulations of the glass arch through glass rods-struts. The rods of the arch are only subject to axial compression stress. Furthermore, the funicular arch can keep its balance only if the forces transmitted by the struts are placed symmetrically to the vertical middle-line of the footbridge. The metallic girder is connected to the reticular arch, as well as by the glass rods-struts, also by a system of diagonal pre-tensioned stainless steel cables (Pict. 6).

Construction Elements This footbridge is 30.4 m long, and all the metal elements are made of EN 1.4462 duplex stainless steel. The floor is made of a 10 mm thick three-layer thermally tempered glass plates with a PVB interlayer. The panels are provided with a satin anti-skid upper surface, and are supported by a steel girder consisting of two external Ø 323.9/16 mm tubular secondary beams and two internal Ø 168.3/12 mm tubular secondary beams connected by crosspieces which are welded at a distance of 1900 mm from each other. The scaffolding lattice is horizontally stiffened by a steel bracing made of Ø 12.2 mm spiroidal cables arranged as a St-Andrew cross (Pict. 3). The scaffolding has been divided into three 10 m long sections, which will be assembled by means of front flanged joints tightened by bolts (Pict. 5). The rods forming the lower arch are obtained by coupling two glass panels by means of stiffening brackets. The stiffening brackets connecting each couple of panels forming a rod are fastened to the glass panels through screw clamps (Pict. 4). All glass-steel interfacing areas are equipped with aluminium sheets. The total length of each beam is 3,800 mm, including the hinged connection devices on which also two Ø 20.1 mm cables are fitted.

Fail-Safe Design To ensure suitable static safety levels, it is necessary to guarantee an appropriate structural strength, that is to consider in planning and design the typical "fail-safe"

principles employed in aeronautical structures. The first critical scenario we considered was the event of the complete collapse of a supporting rod of the funicular arch. This simulation revealed the need to make sure that the metal girder were slightly bent and fastened at the ends by fixed hinges. In this way, an extremely depressed metallic arch can be made, which "insists" on the shoulders, thereby considerably relieving the weight of the glass arch, should one of its rod be lacking (Pict. 7). In addition to this critical scenario, also ten likely hypotheses of a supporting structure collapse have been considered revealing that in no event a progressive collapse would occur, thus facilitating evacuation from the structure and its subsequent restoration. In the event of the breakage of a support strut of the bridge deck, some junctions of the funicular arch would be imbalanced and the structure would degenerate into a weak pattern (Pict. 8). The remedy consists in blocking the relative rotation between the rods of the glass arch through mechanical stroke-stops transforming the mutual constraints of the hinges into unilateral joints (Pict. 9).

Main reference standards: Norme Tecniche per le Costruzioni (NTC - Technical construction laws), Ministerial Decree 14 January 2008; Eurocodes 1, 2, 3, 4 e 8.

This article was written with the contribution of: prof. ing. Maurizio Froli, ing. Gerardo Masiello, ing. Massimiliano Poli - University of Pisa

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A STAINLESS STEEL CURTAIN BETWEEN LIGHT AND SHADE

(Un sipario inox, tra luci ed ombre)

In Milan, the headquarters of a firm producing power converters have been recently completed. The planning concept at the base of this project provided for using standard products normally available on the market, such as expanded metal and perforated sheets, in order to create an architectural solution specifically devised for conveying the idea of a "diversified" lining both from a structural and an aesthetical point of view. The choice of the lining material to be used fell obviously on stainless steel, and in particular on scotch-brite finish EN 1.4301 (AISI 304) panels. The front of the building is entirely lined with AISI 304 stainless steel panels. Perforated panels are 2 mm thick, while the other panels are 1.5 mm thick in heights ranging from 3,000 to 4,500 mm. The panels of the front of the building are assembled to a sub-structure formed by horizontal 2B-finish AISI 304, 4 mm thick rails. The suspended ceilings as well as the terrace lining are also made of 1.5 mm thick scotch-brite finish AISI 304 steel sheets, while the underlying structure consists of aluminium rails and AISI 304 stainless steel tubes. The steel plates which form the enclosure are 1.5 mm thick and 2,650 mm high, and are tightened through stainless steel mechanical bolted joints.

Customer: Friem Spa / **Project design:** Angelo Lunati, Luca Varesi - ONSITESTUDIO, phone +39 02 3451591, www.onsitestudio.it / **Building enterprise:** STAHLBAU PICHLER - Bolzano, phone +39 0471 065000, www.stahlbaupichler.com / **Panels and substructure:** METALLTECH - Seriate BG, phone +39 035 4236778, www.metalltech.it / **Stainless steel supplied by:** Terminox, phone +39 02 969821, marketing.ast@thyssenkrupp.com, www.terminox.it

"PUERTA DE LA ILUSTRACION"

("Porta d'illustrazione")

In order to improve the overall aspect of the main square of the Avenida de la Ilustración, the city of Madrid entrusted the sculptor Andreu Alfaro with the task of creating a new and more impressive environment. Both for the need to ensure durability, corrosion resistance, and an unaltered aspect over time, and for the purpose of obtaining quite peculiar shapes with very critical deformation values, the choice fell on stainless steel. To build this structure, EN 1.4301 (AISI 304) welded tubes of different diameters up to 50.8 cm, and thicknesses ranging from 3 to 5 mm, were used. These tubes were bent in curvatures differing from one another to form angles simulating the vault of a large "town gate". These 26 arches consist of two equal modules each, each module being made with a different radius of curvature. The main arch has a 42.4 m diameter, while the



other arches gradually decrease up to reach a 12.5 m diameter. This work intends to convey the idea that our century aims at knocking down any barrier and at leaving the doors open so as to invite visitors gradually entering the city.

Project carried out by: Grupo Cuñado – E-28806 Alcalá de Henares – Madrid – Ctra. de Daganzo, Km. 2,4 , phone. +34 918878700, fax +34 918878733, www.grupocunado.com

WHEN THE STREET FURNITURE JOINS CIVIL FUNCTIONS WITH AESTHETIC QUALITY (Quando l'arredo urbano associa la funzione civile all'estetica)

The patented waste bins presented in this article, include in a special compartment set apart from garbage, an anticoagulant-based rodenticidal kit. The innovative features of these waste bins consist in the continuity of the ground, as the bins has not an individual bottom. This design peculiarity facilitates the entry of the rodents - which do not fall into suspicion - into the poisoning station. "Ecobait", made of BA finish EN 1.4301 (AISI 304) stainless steel, perfectly matches with the aesthetic characteristics of the surrounding urban environment and performs an important public hygiene function. Furthermore, the rat poison included in the strong stainless steel compartment is totally inaccessible and can in no way be tampered, removed or swallowed by unaware persons (children) or animals different from rodents (dogs, cats, etc.). All the elements of the rat poison compartment are made of 1.2 mm thick scotch-brite finish EN 1.4301 (AISI 304) steel, except the shaped lock and the fastening shaped profile, which are 2 mm thick. The bait-holding pins are made of AISI 304, 5 mm diameter stainless steel wire.

"Ecobait" waste bins manufactured by: Ecobait snc - I-35012 Caposampiero PD - Via Bellini 3, phone +39 049 9303136, fax +39 049 9303610, info@ecobait.it, www.ecobait.it

QUENCHING THIRST WHILE RESPECTING THE ENVIRONMENT: STAINLESS STEEL WATER REFRIGERATORS (Dissetarsi rispettando l'ambiente: refrigeratori d'acqua in acciaio inox)

Following an environment-friendly philosophy, a firm based at Castelfidardo, near Ancona, has chosen to use stainless steel for manufacturing its water refrigerators destined to the lodging/accommodation industry. Water refrigerators are connected to the water network and can supply large quantities of refrigerated water (up to 150 l/h). All the elements coming into contact with water are made of EN 1.4301 (AISI 304) stainless steel. The tubes in which the water flows are made instead of 8 mm diameter, 0.5 mm thick EN.1.4401 (AISI 316) stainless steel. Finally, all the remaining structural parts, as well as those installed for aesthetic purposes, are made of EN 1.4016 (AISI 430) stainless steel. The steel plates used for building these water refrigerators are 1 mm thick and the welded junctions to assemble the equipment have been made through the TIG technology and have been subsequently finished. Depending on the kind of element, a BA or scotch-brite finish has been used.

Manufacturer: Blupura srl - I-60022 Castelfidardo AN - Via Aldo Moro snc, phone +39 071 9710080, fax +39 071 9710084, info@blupura.com, www.blupura.com / **Steel plate processing:** SIFER S.r.l. - I-60022 Castelfidardo AN - Via O. Romero 15, phone +39 071 7822364, fax +39 071 7822539, info@sifersrl.com

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THE PRIVATE HOUSING ESTATE "LE TORRI"; STAINLESS STEEL, A WINNING CHOICE FOR THE BUILDING INDUSTRY (Il complesso residenziale "Le Torri": l'acciaio inox, la scelta vincente nell'edilizia)

The new private housing estate "Le Torri" (The Towers) built in Terni, represents a further evidence of the role played by stainless steel in architectural design. For all handrails of the balconies, as well as for the railings horizontally placed below the handrails, round section stainless steel tubes have been used. All these tubes are 2 mm thick and their diameter is respectively 42.4 and 26.9 mm. The handrails of the staircases located outside the buildings, too, are made of round section stainless steel tubes of the same sizes. The mouldings winding round each building consist of stainless steel square section tubes. On the south-west front of the structure, the central parapets of the balconies have been lined with white Vernest® pre-painted EN 1.4301 (AISI 304) stainless steel sheet, which as well as ensuring corrosion resistance and durability to the artefact, perform an important aesthetic function. EN 1.4509 (441L) stainless steel has been used in conjunction with austenitic steel, due to its extremely high performances in terms of corrosion resistance and mechanical characteristics.

Building enterprise: Castellani & Gelosi Srl - I-05100 Terni - Via Roma 102, phone +39 0744 402403, fax +39 0744 407260, info@castellanigelosi.com - **Architect:** Castellani Michele / **Stainless steel produced by:** ThyssenKrupp Acciai Speciali Terni - 05100 Terni - Viale B. Brin, 218, tel. 0744.490282, fax 0744.490879, marketing.ast@thyssenkrupp.com, www.acciaitermi.it

A STAINLESS STEEL MEDAL IN THE MEMORY OF PROF. ING. GABRIELE DI CAPRIO

(Prof. ing. Gabriele Di Caprio - una medaglia inox alla memoria)

On the occasion of the 33rd AIM National Convention held in November, a decoration in memory of Prof. Gabriele Di Caprio was presented and awarded. The choice of the material of the medal obviously fell on stainless steel due to its noble characteristics. Quite interesting is the process which led to develop this particular and unusual solution. Everything commenced with a sketch in pencil, through which first a plaster model and then a resin one were made (Pict. 1 and 2). The following step consisted in the pantographic reduction of the resin model on the minting die (Pict. 3) to prepare the coin (Pict. 4). The subsequent operation consisted in the engraving (Pict. 5). Then it is necessary to proceed with the preparation of protection masks made through a cut trim EDM wire process to allow carrying out the bright and glazed finish of the medal. The trial coining was made on lead (Pict. 6 and 7). If the test is passed the medal can be coined and tempered on both sides on an 800 ton press upon the preparation of the plachet. This process consisted in the preparation of the 50 mm diameter plachet obtained from a 5 mm thick EN 1.4404 (AISI 316L) stainless steel plate, which was followed by an annealing process in a controlled atmosphere furnace. This is the final result (Pict. 8).

Medal design: Centro Inox and AIM - Associazione Italiana di Metallurgia / **Produced by:** Verres Spa - I-11029 Verres AO - Via Glair 36, phone +39 0125 929323, fax +39 0125 929145

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MADE IN STEEL 2011 - MARCH 23-25

(Made in Steel, a marzo 2011 la quarta edizione)

Made in Steel, the event which since 2005 gathers the steel industry in Brescia, is moving closer to its fourth edition, which will take place on 23 - 25 March 2011. Manufacturers, distributors, users and the whole service sector of the steel industry will meet at Made in Steel. These are four main pillars Made in Steel 2011 will rest on: traditional and emerging markets, knowledge, orientation to exhibitors and visitors, focus on relationships. This is the reason why Made in Steel represents a balancing factor between a significant and prestigious exhibition "showcase" (more than 8,000 square metres in 2009 and 187 exhibitors) and a cultural centre which, through conferences, forums and round tables aims at promoting knowledge and information flows across the board. The programme of this event includes also two important conferences focused on the stainless steel industry. In the morning of the 24th March will take place a conference organized by Siderweb and Made in Steel "Stainless Steel Market Outlook" (www.madeinsteel.it). Centro Inox, which granted its support also for the next edition of this event will attend the event, as in the past edition, with its own stand (C28), for the purpose of representing all its members and distributing technical-scientific brochures and promotional materials to the public. Furthermore, Centro Inox in close cooperation with Made in Steel will organise the conference:

THE NEW FRONTIERS OF STAINLESS STEEL Brescia, Thursday 24th March 2011

2h30 p.m.-4h30 p.m. Conference room: Brixia Expo
Introduction and welcome address to participants, Fausto Capelli - CENTRO INOX, Milan

Raw materials and stainless steels, Salvatore Pinizzotto - XIDA MARKET RESEARCH, Civitavecchia RM

The new generation of ferritic stainless steels and their market potentialities, Gianvincenzo Salamone - THYSSENKRUPP ACCIAI SPECIALI TERNI, Terni

The iron-chrome market in Italy, Luca Giorgetti/Carlo Ghezzi - SINECO, Ceparana SP

Efficiency and safety in stainless steel products handling and storage, Giorgio Zattera - MATTER - GRUPPO LUCEFIN, Reggio Emilia

Debate

The official language of the event will be Italian.

For further information: www.centroinox.it; www.madeinsteel.it

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ONE-DAY SEMINAR IN MEMORY OF PROF. GABRIELE DI CAPRIO STAINLESS STEELS, TRADITION AND INNOVATION

(Giornata di Studio dedicata alla memoria del Prof. Gabriele Di Caprio "Acciai Inossidabili, Tradizione & Innovazione")

Ancona, 7 April 2011 - Università Politecnica delle Marche - Faculty of Engineering - Aula Magna, Via Breccia Bianche 12

This one-day seminar of study has been organized by AIM-Associazione Italiana di Metallurgia, Centro Inox and Università Politecnica delle Marche. The purpose of this event is to pointing out some innovative aspects in connection with stainless steel processing and application, and aims at spreading as much as possible information and knowledge on

the performances of these materials, on what is currently being done in the area of scientific research, which in turn is closely linked to industrial innovation, and why not, on today's market situation and prospects. The official language will be Italian.

Seminar coordinated by: Prof. Romeo Fratesi

PROGRAMME

9.00 Participant registration

9.30 Opening address

In memory of Prof. Gabriele Di Caprio: a life devoted to technology and teaching

Prof. Romeo Fratesi - Università Politecnica delle Marche and Associazione Italiana di Metallurgia
Ing. Fausto Capelli - Centro Inox, Milano

10.15 **Highlights on the market situation. Distribution systems. Emerging markets**

Ing. P. Viganò - Centro Inox, Milano

10.45 **Stainless steels: new generation alloys**

Performances and reference standards

Ing. V. Boneschi - Centro Inox, Milano

11.15 Coffee break

A comparison between ferritic and austenitic stainless steels

11.45 **Theoretical aspects and practical experience in replacing AISI 316 with 444 in boilers**

Prof. R. Fratesi - Università Politecnica delle Marche

12.15 **Corrosion resistance of ferritic and austenitic stainless steels in drinking water plants: case histories and experimental tests**

Prof. M. Boniardi, Ing. A. Ceppi, Ing. S. Cincera - Politecnico di Milano

12.45 **Cold forming of ferritic and austenitic stainless steels: deep drawing applications**

Ing. S. Barella, Ing. F. Besana, Prof. M. Boniardi - Politecnico di Milano

13.15 Lunch

14.15 **Hygienic properties: technical and regulatory aspects**

Dr.ssa E. Cecere - Ministero della Salute, Roma
Direzione Generale della Sicurezza degli Alimenti e della Nutrizione

Surface finishing: not only an aesthetic requirement

14.45 **Stainless steel electro-marking**

Dr. G. Orlando - Nitty-Gritty srl, Spilamberto (MO)

15.15 **Kolsterising surface treatment for austenitic stainless steels: mechanical and corrosion resistance performances**

Ing. V. Bordiga - Bodycote Trattamenti Termici SpA, Rodengo Saiano (BS)

15.45 **Electro-pickling of stainless steel TIG welds**

Ing. R. Giovanardi - Università di Modena e Reggio Emilia

16.15 Conclusions

Information and Admission Applications

Segreteria AIM - ASSOCIAZIONE ITALIANA DI METALLURGIA - Piazzale Rodolfo Morandi, 2 - I-20121 MILANO - phone +39 02 76021132 - Fax +39 02 76020551 - info.aim@aimnet.it, www.aimnet.it

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COMFORT AND PRESTIGE FOR MOVING FROM ONE FLOOR TO ANOTHER IN COMPLETE RELAX (Comfort e prestigio per spostarsi da un piano all'altro in completo relax)

"Easy Living" is an extremely versatile home elevator, which can be customized to users' needs or to a building structure requirements. It can be supplied in different versions and for different travel lengths (from two to five floors) and is an ideal plant both in the case of building renovations/restorations and in the case of new buildings, since it does not require any invasive masonry work. This elevator is electrically fed by 220V standard current with an overall 1.8 KW consumption, and has 400 Kg capacity and 0.15 m/sec speed. The "Inox" series provides for different kinds of stainless steel finish of the car walls, such as linen pattern finish, "austenit" pattern finish, elephant skin pattern finish, square pattern finish, etc. The elevator cars are made of EN 1.4301 (AISI 304). To further customize this product, it is possible to choose the doors and the lighting system of the car, as well as several fittings, such as the push-button panels placed inside the car and those placed outside at each floor, and the handrails, both available in stainless steel.

Project design and production: Vimec s.r.l. - I-42045 Luzzara RE - Via Parri 7, phone +39 0522 970666, fax +39 0522 970677, comm@vimec.biz, www.vimec.biz

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