

INOSSIDABILE

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Summary

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

COVER/PAGES 3/4

A "STAINLESS" GREEN SKIN (Una inossidabile pelle verde)

The new Business Centre "Forum" of Rimini, also called "Ex Ducati" (as formerly the area was the headquarters of the motorcycle manufacturer Ducati), is an example of ventilated façade that makes use of plants and green. In this case, the "green skin" screens and shields from sunbeams the façades, which are entirely made of glass. The problem of possible damages usually caused by plants to the façades has been widely and effectively overcome by using a stainless steel mesh formed by 50x50 mm satinized square tubes, placed at a 45° angle in relation to the façade vertical, which provides a strong support to the fragrant climbing plants (Jasmine *Rin-cosperma*) and does not require any maintenance.

For many years now, stainless steel has been used in agriculture for vine supports, without producing any interference with the organoleptic properties of the product. Basing on this experience, the architect Mario Cucinella identified in EN 1.4301 (AISI 304) stainless steel the ideal solution for this building, also in virtue of its complete recyclability and its moderate environmental impact. **Architectural design:** Mario Cucinella Architects Srl - Via De' Carracci 6/M - I-40129 Bologna, phone +39 051 6313381, fax +39 051 6313316, mca@mcarchitects.it, www.mcarchitects.it - **Team:** Mario Cucinella, Elizabeth Francis, Davide Paolini, Enrico Iascone / **Structures:** Gilberto Sarti, Fabio Bombardini / **Work supervision and coordination:** Massimo Morandi - **Stainless steel structures:** S.A.I.V. snc - Via Bourges 2 - I-47100 Vecchiazano-Forli FC, phone +39 0543 86433, fax +39 0543 84003, info@saisvnc.it, www.saisvnc.it / **Photographer:** Daniele Domenicali, Imola BO

PAGE 5

MUSEUM OF CYCLING "MADONNA DEL GHISALLO"

(Museo del ciclismo "Madonna del Ghisallo")

At the mountain pass Ghisallo, in the province of Como, it is possible to visit a Sanctuary full of memories of the cycling champions, and from there have access to a very modern museum in which tokens and memories of the cycling fans and of the story of this sport are kept.

The internal visitors' walk has been conceived as a footbridge, also suitable for disabled persons (Fig. 1), which from the entrance slopes down to the large exhibition hall. The parapets of the footbridge (Fig. 2) give the whole assembly a modern, reliable, neat and elegant aspect. The handrails are made of 42 cm diameter tubes, while the infill is made of 21 cm diameter tubes, for a total length of almost 2,400 m of satinized EN 1.4301 (AISI 304) stainless steel tubes, supported by stainless steel forms and plates, fitted to 240 laser-cut 60x10 cm uprights. All working process stages required the utmost attention and particular competence in that: all materials were bought already satinized; each part was made to measure; thanks to laser-cutting, uprights could be perfectly fitted to the tubes and welded without any material addition; tube cutting, carried out through an orbital shearing machine, allowed obtaining perfect sections without edges and burrs; welding operations were made through TIG welding by certified professional engineers; welding cleaning was carried out by means of scarcely aggressive brushes; parts were tightened through EN 1.4301 (AISI 304) stainless steel threaded bars and blind-end nuts. Stainless steel was chosen also for different applications: internal lining and external covering of the lift cage (satinized sheets), glass structure supporting edges; handrail; lamps (Fig. 3); the visible distribution tubes of the technical systems (alarm, energy) are made of EN 1.4301 (AISI 304), EN 1.4541 (AISI 321) and EN 1.4305 (AISI 303) stainless steel parts; visible parts of the bar counter. **Customer:** Fondazione Museo del Ciclismo "Madonna del Ghisallo", Presidente Fiorenzo Magni, www.museodelghisallo.it / **Designer and Work Supervisor:** Dr. Arch. Davide Bergna - Via Lazzaretto 34 - I-23848 Oggiono LC, phone and fax +39 0341 575163, info@bergna.it, www.bergna.it / **Museum setting and arrangement:** Dr. Arch. PierFederico Caliarì - Via Capranica 18 - I-20131 Milano, phone and fax +39 0287 395433, caliarì.caliarì@tiscali.it / **Parapet**

and banister manufacture: Carpenteria Milani Romano & C. - Via N. Sauro 61 - I-23893 Cassago Brianza LC, phone +39 039 9272263, fax +39 039 9210755 / **Lift supply, laying and maintenance:** Curti Srl - Via al Pascolo 4 - I-23842 Bosio Parini LC, phone +39 031 876161, fax +39 031 876155, info@curtisrl.com / **Lighting design:** Voltaire Sas del Dr. Arch. Jacopo Acciaro - Via Brioschi 32 - I-20136 Milano, phone +39 02 8358349, fax +39 02 83200311, info@voltairedesign.it / **Lamp supply and laying:** Comiluce Srl - Piazza Firenze 19 - I-20149 Milano, phone +39 02 324853, fax +39 02 324865, info@comiluce.com

PAGES 6-7

FROM OUR MEMBERS TECNOFAR - DRAWN AND TIG-WELDED PRECISION TUBES

(Dalle Associate: Tecnofar - Tubi di precisione trafilati e saldati a TIG)

History - Tecnofar SpA was established as a family firm in 1974 at Delebio (Sondrio), and from the beginning specialized in the production of stainless steel and high nickel content alloys tubes. A long and continuous activity of experimentation and research, and the achievement and implementation of new technologies have allowed Tecnofar SpA reaching a forefront position in its production area. All working operations are carried out through processes that fully meet the most demanding and strict quality standards. Since 2005, Tecnofar has added to the main production plant another factory situated at Gordona (Sondrio), which covers an overall surface of 7,000 sq. m. The staff currently includes about 90 employees and workers. **Products** - Tecnofar SpA is a manufacturer of drawn precision tubes, both in coils and in bars, and in welding processes avails itself exclusively of the TIG technology. The company includes also a tube cutting department, which allows supplying cut tubes also in lengths of few millimetres without burrs or edges.

Stainless steels and nickel alloys - AISI 304 - AISI 304L - AISI 316 Ti - AISI 316 L - AISI 316 SL - AISI 321 - CUPRONICHEL 70/30 - NILO 48 - INCONEL 600.

Quality - Tecnofar SpA makes use of stainless steels produced exclusively by the most qualified steel mills and guaranteed by them. The company supplies high-quality products, whose technical properties are continuously monitored all over the production process. The corporate quality system is certified by Italcert according to the international ISO 9001:2000 standards. In addition, Tecnofar SpA has achieved the RINA certification for its welding process and its heat treatment in the following production range: OD 6 - 19 mm; Th. 0.40 - 1,10 mm.

Inspections and tests - All over the production process, tubes are carefully submitted to visual, dimensional and tightness inspections and tests. Tubes are subsequently 100% controlled through the Eddy Current test. In addition, Tecnofar SpA is also equipped for carrying out, on demand, further mechanical and roughness tests. All tubes can be supplied and provided with a 31.B Certificate, according to EN 10204 standards. **Size tolerances** - Precision tubes - On demand, tubes can be supplied in compliance with particular size tolerance specifications. Otherwise, Tecnofar standard tolerances are supplied. In any case, the company is in the position to manufacture any diameter ranging from 0.30 to 20.00 mm., any thickness ranging from 0.10 to 2.00 mm., as well as special tolerances. - **TIG-welded tubes** - Tubes are supplied according to the size tolerances specified by standards. Stricter tolerances can be studied on demand.

Tecnofar S.p.A. - Via della Battaglia 17/20 - I-23014 Delebio SO, phone +39 0342 684115, fax +39 0342 684500, info@tecnofar.it - www.tecnofar.it

PAGES 8-9

DLC, OR WHEN CARBON BECOMES AS HARD AS A DIAMOND. ADVANCED TECHNOLOGY WALKS ARM IN ARM WITH BEAUTY AND DESIGN

(DLC (Diamond-Like Carbon) ovvero il carbonio come diamante. Quando la tecnologia avanzata va a braccetto con l'estetica)

Introduction - DLC coatings are very thin and consist essentially of amorphous carbon with the addition of other elements (metals, hydrogen) that allow reducing

internal mechanical stresses. These coatings are similar to traditional PVD (Physical Vapour Deposition) coatings. The main difference consisting in that they have a coefficient of friction that is by 5 to 10 times lower than that of traditional PVD coatings, and are able to support even higher pressure loads.

DLC coatings can be deposited by making use of different technologies: cathode arc (CA), magnetron sputtering (MS), chemical vapour deposition (CVD) or plasma-assisted chemical vapour deposition (PACVD). Independently of the process used, there is always an interlayer between the substrate and the DLC coating to ensure an effective coating adhesion.

DLC coating peculiarities consist in high resistance to abrasion and high pressures, low coefficient of friction and chemical inertia. These characteristics allow using them successfully in all the following areas: engines; bearings; gears; pumps and compressors; textile machines; systems without lubricants; plastic moulding; plastic material processing with fibre or compound materials reinforcements; coatings for critical materials (aluminium, titanium, copper, graphite, stainless steel).

DLC technology applied to watch cases - Some of our readers surely remember the watch line called TCM - Terra Cielo Mare (Earth Sky Sea), developed as a homage to the military corps of the Army, the Air Force, and the Navy, published in one of the past issues of Inossidabile (n° 165, September 2006). For the 2008 collection, Terra Cielo Mare decided to choose the model that mostly represents the company's philosophy and spirit, called "Mancino" (left-handed), dedicated to the "Sorci Verdi" (Green Mice) squadron, as the protagonist of a restyling process that will allow this brand presenting innovative and technologically advanced solutions. In fact, RTM Breda and Centro Inox carried out specific evaluation tests on the non-allergic, mechanical and corrosion resistance properties of the watch cases manufactured in EN 1.4404 (AISI 316L) DLC stainless steel, with the following results: nickel release presents values that are by about 10 times lower than those provided for by the related European directive, thereby ensuring that the material is non-allergic; EDX micro-analysis confirmed the strong anchorage of carbon on stainless steel; "Pitting Corrosion", that is to say, an over-120 hour exposure to chemical and natural agents did not reveal any significant signs of corrosion making; surface micro-hardness tests, carried out through the Vickers method, confirmed the overall hardness of this treatment.

Fig. 1 - A stainless steel watch case after having been submitted to the DLC coating treatment.

Fig. 2 and 3 - The "Mancino" Steel Series watch, dedicated to the legendary aircraft SM 79 of the 12th Flight, with an EN 1.4404 (AISI 316L) stainless steel case, and the "Mancino" Solo Tempo watch, in the new "High Tech" version with a DLC-coated stainless steel case.

Fig. 4 - The "Vertical Date" model, dedicated to the "Sea Harrier" aircraft, which can vertically take-off and land. This watch, too, has a DLC-coated EN 1.4404 (AISI 316L) stainless steel case.

Experimental laboratory for DLC tests: RTM Breda - Via Po 84 - I-20032 Cornano MI, phone +39 02 61543911, fax +39 02 61543900, info@rtmbreda.it, www.rtmbreda.it / **T.C.M. Terra Cielo Mare watch production:** La.Fo.Ce. snc di Lattuada e Fontana - Via Victor Hugo 3 - I-20123 Milano, phone +39 02 804352, fax +39 02 809804, lafoce@lafoce.it, www.lafoce.it

PAGES 10-11

STAINLESS STEEL FOR TAPS: A LONG-LASTING, DURABLE SOLUTION, AND INNOVATION IN DESIGN

(Acciaio inossidabile per i rubinetti: una soluzione per la durata, un'innovazione nel design)

The processing of stainless steel and that of the materials generally used in the area of home taps and fittings is obviously different, both in terms of operational parameters, and in terms of productivity. For this reason, some well-known manufacturers of traditional home taps and fittings, which want to go into the stainless steel tap market, usually decide to entrust the working process to external machine shops, specialized in stainless steel processing. The manufacturer of the parts shown in this article joins its competence in stainless steel processing with an in-depth knowledge of the sector of taps and fit-



tings. The types of steel used for these products are EN 1.4301 (AISI 304) and EN 1.4401 (AISI 316). The choice to use stainless steel allows maintaining the most classical lines by resorting to roughcast parts, but can also stimulate the development of a totally new design resulting from a basically different production process. The models presented here have been developed thanks to the close cooperation established by the manufacturing company and a firm specialized in planning taps and fittings with an innovative and pleasant design.

Stainless steel supply: Ugitech Srl – Via G. Di Vittorio 32 – I-20068 Peschiera Borromeo MI, phone +39 02 516851, fax +39 02 685340, info.it@ugitech.com / **Stainless steel part processing:** Vema Srl – Via Insorte 33 – I-28024 Gozzano NO, phone +39 0322 912018, fax +39 0322 953497, info@vemacnc.it, www.vemacnc.it / **Tap design:** Aesstech – Via Roma 54 – I-28010 Briga Novarese NO, phone +39 347 7101515, info@aessstech.it, www.aessstech.it

THE REVERSE OSMOSIS DESALINATOR OF REGGIO CALABRIA

(Il dissalatore ad Osmosi Inversa di Reggio Calabria)
The territory of the municipality of Reggio Calabria has a system of aqueducts that draw water from the ground water table through wells, many of which are situated near the coast and are therefore characterized by high salt concentrations. The city of Reggio, which gathers 68% of the resident population, is fed by two parallel adduction lines, which transport the water from the well field of Calopinace. In this area a Reverse Osmosis Desalination plant has been lately built. This plant can treat 180 l/sec of salty water having an average Chloride concentration of 5,000 mg/l, the threshold limit imposed by the regulations in force (Law Decree n° 31, "Part C", of February 2, 2001) being 250 mg/l.

Hereafter, we report the major characteristics of this plant: Number of lines: 4 - Desalinized water discharge: 135 l/sec - TDS incoming water: 9.800 mg/l - TDS outgoing water: 200 mg/l - Incoming water chlorides: 5.400 mg/l - Outgoing water chlorides: 67 mg/l - Treatment cost: € 0,159/m³.

The process chain includes several filtration, pressurization, chemical conditioning, lifting and store stages, to be carried out before the treated water reaches the distribution network to over 40,000 users. In each one of the process stages, particularly in the case of pumps and tubes, stainless steels of the types that are more resistant and suited to the foreseen severe use conditions are used. For example, in the salty water pressurization pumps used during the sand filtering stage, and in the treated water pressurization pumps we can find parts made of the super-austenitic EN 1.4539 steel (also known as 904L) and EN 1.4593 cast stainless steel. While in high-pressure pressurization pumps, the duplex-type EN 1.4462 steel and EN 1.4517 cast-steel are used, and in the chemical washing pumps we find austenitic titanium EN 1.4571 (AISI 316Ti) steel and EN 1.4408 cast steel. Today, development, building and management costs of these Reverse Osmosis Desalination plants have considerably dropped, and consequently, in many coastal regions, this solution represents a valid alternative to more conventional and old-fashioned water purifying processes.

Customer: Municipality of Reggio Calabria / **Plant constructor:** Acciona Agua S.A. – Viale Coni Zugna 71 – I-20144 Milano, phone +39 02 83121111, fax +39 02 83121137, www.acciona-agua.es

PAGES 12-13

TECHNOLOGY FOR SAFETY IN THE TUNNEL MARTIGNANO IN VALSUGANA

(Tecnologia per la sicurezza nella galleria Martignano in Valsugana)

In the stretch of the State Road n° 47, which connects Trento to Pergine Valsugana, a double, 2,500 m long tunnel has been built with several technological solutions aimed at increasing safety, such as control systems, communication by-passes between the two tunnels every 500 m, four powerful exhaust fans, which convey fumes (purified from PM10 residuals) outside the tunnel. In addition, to eliminate the dangerous water drips that come out of the vault and make the asphalt slippery, a draining lining consisting of EN 1.4301 (AISI 304) stainless steel fretted sheets has been fitted.

Steel sheets are tightened to an underlying structure made of omega-shaped aluminium section bars through AISI 304 (A2) stainless steel self-tapping screws and washers. In turn, the underlying structure is fixed to the walls by means of continuous thread bars made of AISI 304 steel and having 12 mm diameter, which are anchored to the tunnel surface by means of A2 stainless steel percussion anchors. To improve visibility, the concrete slabs of the side walls have been covered with lighting panels fitted to an underlying structure of omega-shaped aluminium sections bars anchored to the slabs of the tunnel through continuous thread bars, double nuts and washers in AISI 304 (A2) stainless steel tightened to the walls of the tunnel by means of mechanical anchors. Finishing consists of vertical aluminium butt straps tightened to the bearing structure by means of self-piercing AISI 304 (A2) stainless steel screws.

Customer: Provincia Autonoma di Trento / **Mandate holder of the Temporary Association of Firms:** Toto Spa, Chieti, www.gruppototo.it / **Execution of the technological cover of vault and slabs:** S.P.A.I. Srl – Via M. Gatti 5 – I-25040 Timoline di Cortefranca BS, +39 030 9884295-6, fax +39 030 9884688, info@spaisrl.it, www.spaisrl.it

STAINLESS STEEL FANS FOR TUNNELS (Ventilatori in acciaio inox per gallerie)

In Italy, Directive n° 7735 of 1999 issued by ANAS (the national road and motorway maintenance body) states that some particular tunnel fittings, such as ventilation equipment and lighting systems, must be made of stainless steel to ensure their performances as long as possible in case of fire for allowing evacuation and rescue operations. An example of application of this directive is the new tunnel of the "Gardesana occidentale" road that goes between Limone and Riva del Garda. Inside this 970 m long and 11 m wide tunnel, eight Jetfoil EN 1.4404 (AISI 316L) stainless steel fans have been installed. These fans can operate at a temperature of 400 °C for 90 minutes. Another example is the tunnel "Le Vigne" in the town of Cesena. It is a double tunnel with a total length of 1,580 m. The plant consists of 14 reversible-type induction fans for each way, made of EN 1.4404 (AISI 316L) stainless steel. 10 fans operate in normal conditions while the remaining four fans operate in fire emergency conditions. They are certified in compliance with EN 12101-3 standards to resist in fire emergency conditions at 400 °C for two hours. At each portal, in the vault of the tunnel, there is an opening of 64 m² with EN 1.4571 (AISI 316Ti) stainless steel fire dampers, certified to resist at a temperature of 400 °C for two hours (F400/2).

Fan production: Fläkt Woods SpA – Via Pacinotti 28 – I-20092 Cinisello Balsamo MI, phone +39 02 618609.1, fax +39 02 61860947, info.it@flaktwoods.com, www.flaktwoods.com/it

FRAUDS, NON-CONFORMITY AND RADIOACTIVITY. TECHNICAL SEMINARS IN GENOA AND VENICE FOR THE CUSTOMS AGENCY

(Frodi, non conformità e radioattività. A Genova e a Venezia seminari tecnici per l'Agenzia delle Dogane)
On March 13 in Genoa, and on March 20 in Venice, Centro Inox, in cooperation with Federacciai and the Central Customs Agency, organized two seminars aimed at training customs engineers (50 persons in total) and at providing them with basic notions on stainless steels, as well as information on imported product recognition methods in order to avoid, as much as possible, the recurrence of frauds and non-conformity especially in the goods originating from "Far East", and particularly from China and India. A practical demonstration on the use of chemical products in the position to distinguish the main families of stainless steel from the point of view of quality was given, which included also the presentation of a portable analyzer that is able to identify the chemical composition of stainless steels (NDT Italiana, Concorezzo MI - www.ndt.it / TQ Technologies for Quality, Genova - www.tqsr.com). In addition, the theme of radioactivity and the methods for identifying related anomalies and troubles were widely discussed, as the Italian media lately focused on the case of a cargo contaminated by cobalt 60 coming from China.

OPENING OF AN ANTI-DUMPING INQUIRY CONCERNING COLD-FORMED FLAT STAINLESS STEEL PRODUCTS AGAINST CHINA, SOUTH KOREA, AND TAIWAN

(Avvio indagine antidumping sui piani inox a freddo contro Cina, Corea del Sud e Taiwan)

The European Commission notified on February 1, 2008 the opening of an anti-dumping inquiry concerning cold-formed stainless steel flat products imported from China, South Korea, and Taiwan. This inquiry follows a complaint filed in October 2007, through Eurofer, by the European manufacturers, which presented a united front in the attempt of protecting themselves against the massive entry of products sold in dumping conditions by these three countries. Should this inquiry confirm the preliminary evaluation of the EU Commission on the existence of dumping premises to the detriment of the Community steel industry, it might lead to the imposition of an import levy on the products originating from the concerned countries imported in the EU.

PAGE 14

VENTILATED WALLS AND FLOATING FLOORS BECOME RUSTPROOF

(Le pareti ventilate ed i pavimenti flottanti diventano inossidabili)

Ventilated walls require an underlying structure responding to specific standards and regulations, in the position to facilitate their installation and minimize inspection and maintenance interventions. The company that manufactures the anchoring devices appearing in the pictures makes use, for the underlying structure (Fig. 1) of the ventilated walls, exclusively of austenitic AISI 304 – AISI 316 (EN 1.4301 - 1.4401) stainless steels or, depending on the environment surrounding the structure to be built, of ferritic stainless steels. A new production

line provides for using stainless steel also as a cover (Fig. 2), taking advantage of the aesthetic properties offered by its decorated and micro-decorated finishing possibilities (Fig. 3a and 3b). The examples show some tiles, whose application is particularly recommended for covering walls and floating floors. The latter, too, require an underlying structure consisting of adjustable legs (in AISI 441LI - EN 1.4509) and supporting sections (Fig. 4). A further advantages of stainless steel surfaces consists in that they can be easily cleaned. In addition, the decorated surface used for floors has anti-slip properties. The additional advantages of these tiles are: extremely long operating life; higher aesthetic "appeal" and anti-vandalism properties, resistance against corrosion, high mechanical performances, and greater safety in critical situations (for instance, in the case of fire).

Stainless steel supplied by: Terminox SpA – Via Petrosa 15 – I-50019 Sesto Fiorentino FI, phone +39 055 4491212, fax +39 055 4491231, info@terminox.com, www.terminox.it - **Marketing:** Dr. F. Ricci Feliziani, ThyssenKrupp Acciai Speciali Terni SpA – Viale B. Brin 218 – I-05100 Terni, phone +39 0744 490275, fax +39 0744 490879, fabrizio.ricci-feliziani@thyssenkruupp.com, www.acciaitemi.it / **Anchor bolt production:** Docipa Srl – Via Celia, 2 Loc. Codupino - Aurelia Ovset – I-54100 Massa, phone +39 0585 831142, fax +39 0585 831781, info@docipa.com, www.docipa.com

PAGE 15

STAINLESS STEELS: CORROSION-PROOF ALLOYS FOR DESALINATION PLANTS

(Gli acciai inossidabili: leghe resistenti alla corrosione per gli impianti di dissalazione)

H₂O Exhibition, Ferrara Fairground - Wednesday, 21st May 2008 - 9.30 ÷ 13.00 h - Room E

Centro Inox, Milan, in partnership with IMOA (International Molybdenum Association), Brussels, and Nickel Institute – European offices of Brussels, is organizing a meeting to be held within H₂O, the international exhibition of technologies for the treatment and distribution of drinking water and waste water treatment. **The meeting is open and entry is free until all available seats are taken. The official language of the meeting is Italian.**

Programme

Welcome address – Introduction

Fausto Capelli, Centro Inox – Nicole Kinsman, IMOA – Peter Cutler, Nickel Institute

The corrosion resistance of stainless steels in water

Luciano Fassina - Nickel Institute, Toronto/Brussels/Milan

Application of stainless steels in the first Italian reverse osmosis plant

Luigi Patimo, Pietro Tota – Acciona Agua, Milano

The use of stainless steels in MSF desalination plants

Andrea Baghino, Ugo Volpato – Fisia Italimpianti, Genova

The experience of a manufacturer of pumping systems

Andrea Casera – ITT Lowara, Montecchio Maggiore VI

Debate

For additional information: Centro Inox – Piazza Velasca 10 - I-20122 Milano, Phone +39 02 86450559 – 02 86450569, fax +39 02 860986, eventi@centroinox.it, www.centroinox.it

PAGE 16

VESPA LX, OR HOW A MYTH CAN BE REVIVED

(Vespa LX, ovvero come rivivere un mito)

The myth experienced in the by now far-away 1950s and 1960s continues to be enjoyed again still today thanks to this new Vespa, which keeps its charm unchanged with the addition of modern technology. In fact, behind its design, which recalls the models of the past, an extremely advanced and environment-friendly motorization is concealed. In particular, the different elements of the silencer of the models LX 125cc and 151cc 4T are almost completely made of stainless steel.

Inside the silencer we can find EN 1.4301 (AISI 304) austenitic stainless steel, with a total weight of 1,654 kg, while for the outer parts 2,710 kg of ferritic EN 1.4512 (AISI 409) stainless steel have been used. Studies and tests are currently being carried out in order to make this delicate component increasingly efficient, strong and in line with today's requirements to eliminate polluting substances as much as possible.

Production: Piaggio & C. SpA – Via R. Piaggio 25 – I-56025 Pontedera PI, phone +39 0587 272111, fax +39 0587 273344, www.it.piaggio.com/it_IT/

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