GENERAL INDICATIONS AND RECOMMENDED USE

The indications given in this document refer to products supplied by Pastore & Lombardi. They help our Customers, either Manufacturers or Dealers, selecting the product which suits their needs best.

Standard principles should be applied for all those products which are not included in the following notes:

1. Select a product and product quantity according to the specifications and application of the finished product or industrial product.
2. Contact Pastore & Lombardi for any technical information which may help in the selection of the product

Pastore & Lombardi products are usually installed onto industrial products, either means of transportation or different systems, which have been designed and owned by Pastore & Lombardi customers or final customers.

Pastore & Lombardi has no knowledge on these projects, their needs and specifications.

Pastore & Lombardi shall not select any part and disclaim all responsibility. The installer shall be fully responsible for the selection of the parts which best suit to customer's needs.

Pastore & Lombardi is not responsible for any troubles caused by incorrect or improper installation of their products onto the final product.

For an easier product selection, test reports by certified institutions are available at Pastore & Lombardi's. Tests details are not included in the catalogue but are available on request.

The customer shall inform Pastore & Lombardi formally on special projects, applications or use when ordering the product so that proper co-operation along with indications are given. Given information by the customer shall not be binding to Pastore & Lombardi who reserve to accept.

On customer's request and subject to prior approval by Pastore & Lombardi, tests can be carried out to check suitability to the specified application. Even though tests are carried out, Pastore & Lombardi is not responsible for actual suitability of the product to the specified use. Even though tests are carried out, this does not mean that projects, applications or special uses have been authorized.

Pastore & Lombardi will accept complaints on their products only if referred to defects due to Pastore & Lombardi already existing when the product has been delivered to the customer.

STEELS AND TREATMENTS

STAINLESS STEEL PRODUCTS

Austenitic steel AISI 304 is the kind of stainless steel used for all our products.
This grade of steel features excellent resistance to corrosion and its mechanical characteristics are ideal for cold-forming, the typical process used to manufacture most of our products.
Austenitic steel is classified as stainless steel thanks to its ability to develop a protective film on the surface when it comes in contact with the oxygen released in air, thus barring the way to corrosion and rust. It is nonmagnetic, and will retain its antioxidizing performance even when partially magnetized in the course of work hardening.
To reproduce the conditions leading to optimum corrosion resistance, our products undergo a number of surface finish processes, such as electropolishing, brushing, shot-peening, that improve weatherability as well as the appearance of the product.
These are preceded by the usual pickling and passivation processes to recreate the protective film.
The user is advised to follow some precautions regarding their installation and use so that the characteristics of the stainless steel products are maintained.

Welding

Austenitic steel is easily welded. Recommended filler metal for welding, arc welding, welding rod or MIG welding is AISI308L.
TIG welding, where the base metal is melted to join the weld edges, requires no special precautions.
Note that all welding processes involve high temperatures, which lead to loss of corrosion resistance.
For this reason, the heated areas should be quenched in water and then pickled to recreate the surface film.
Contact the Manufacturer of the welding machine for further information.

Fastening

We recommend to use stainless steel fasteners only (screws, bolts, rivets, etc.). The combination with iron or other non noble metals leads to electrolytic corrosion that may damage both the stainless steel part and the fasteners.
The Customer shall select the fastener type according to the project and needed capacity and strength, which are data unknown to Pastore & Lombardi.

Assembly

During the assembly procedures, iron particles may stick to the surface of stainless steel parts and trigger electrochemical reactions that eventually lead to corrosion.
We recommend not to use any tools that have been used to work plain metals.
In the event that our stainless steel products are somehow contaminated by iron particles, remove such contaminants and pickle the concerned areas.

Steel components with electrolytic and passivation coating

The two final products with electrolytic zinc plating for surface treating will be available in two different passivation types:
1ª - Fe/Zn 7 II (Electrolytic Zinc Coating, thickness 7µm + clear passivation Cr3), indicated in catalogue with text "Z.PL."
This kind of surface treatment gives the products a nice external feature and a protection for the stocking and movement of the material.
2ª - Fe/Zn 7 IV (Electrolytic Zinc Coating, thickness 7µm + iridescent passivation Cr3) , indicated in catalogue with text "IRID. ZINC-PLATED".
This kind of surface treatment, compared with the previous one, a higher resistance against the agents of the atmosphere.
A painting is recommended to provide an optimal protection for the usage of the components.
In case of welding of our zinc plated components, the supplier of the welding machine should be informed accordingly regarding the material provided.

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ORDINARY MAINTENANCE OF STAINLESS STEEL

The factor determining the frequency and therefore the attention to be given to normal maintenance is the kind of climate/environment which the generic component will withstand.

The table hereunder (an extract from norm UNI EN ISO 12944-2) classifies the environment conditions according to their starkness. From C1 which identifies a NON problematic environment to C5 where the environment is particularly aggressive.

CATEGORY	CORROSIVITY	ENVIRONMENT CHARACTERISTICS
C1	VERY LOW	Dry and hot zones with a very low pollution rate
C2	LOW	Temperate zones, low pollution (rural areas, small towns) [SO2<12µg/mq]
C3	AVERAGE	Temperate zones, average pollution (urban, industrial areas, coast zones with low salinity) [SO2 12-40µg/mq]
C4	HIGH	Temperate and polluted zones (industrial areas and coast zones with moderate salinity) [SO2 >40µg/mq]
C5-I	VERY HIGH	Temperate zones, high pollution (industrial areas with high humidity and aggressive atmosphere) [SO2>80µg/mq]
C5-M	VERY HIGH	Temperate zones, high pollution (coast zones and offshore areas with high salinity)

In cold zones or during winter periods the presence of salt used to melt the ice on the roads can represent a problem. In this case the environment becomes more aggressive and a more frequent cleaning of the component is recommended.

In a climatic condition with starkness rate corresponding to C1-C2 a routine cleaning every 3-6 months is sufficient.

As conditions become more critical, maintenance interventions must be more frequent.

Ordinary maintenance consists in simple washing with fresh water using a clean cloth or a nylon sponge (Scotch Brite); normal detergents or neutral degreasers (car shampoo) can also be used. It is very important to rinse carefully after cleaning /use of the detergents, particularly in those critical areas such as narrow gaps or dead holes which – for their nature – keep more easily the substances with which they get in contact, thus creating a stagnating and aggressive environment for the material.

In the table hereunder some suggestions are given on the use of suitable or NON suitable products for the cleaning and maintenance of stainless steel products.

CLEANING PRODUCT	USE	SUGGESTIONS
FRESH WATER	YES	If calcareous, spots can appear on the surface. To be rinsed carefully
DEIONIZED WATER	YES	It avoids the appearance of calcareous spots.
DETERGENTS/NEUTRAL DEGREASERS	YES	It is very important to rinse carefully
ABRASIVE POWDER DETERGENTS	CAUTION	They can spoil the aesthetic appearance of the surface finishing
MURIATIC ACID	NO	If these products incidentally get in contact with the material it is important to allow very short contact times, to rinse abundantly and pay thorough attention that narrow gaps and dead holes /stagnating areas are clean
HYDROCHLORIC ACID BASED SOLUTIONS	NO	
CHLORINE WATER	NO	
HALIDES	NO	
PRODUCTS FOR SILVER CLEANING	NO	
CLEAN CLOTH	YES	It must be made sure that there are no previous dust particles which may scratch the surface
NYLON SPONGE	YES	
STAINLESS STEEL WOOL	CAUTION	It does not contaminate the surface but can spoil the aesthetic aspect
NON-STAINLESS STEEL WOOL	NO	May lead to iron contamination

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EXTRAORDINARY MAINTENANCE OF STAINLESS STEEL

Despite the attention to be paid on routine maintenance, there is always the possibility of unforeseen events which can spoil – particularly if the intervention is not carried out in the right time– the integrity of the component, affecting not only the surface.

In these cases, especially if the level of damage is in an advanced phase, it is always advisable to contact an expert for surface treatments on stainless steels, who will give the correct suggestions on the products to be used and the application procedures. As a completion, the table hereunder is indicating some of the most usual inconveniences which may occur to the component and the remedies to solve or improve the problem.

PROBLEM	DESCRIPTIONS	SOLUTION
FERROUS CONTAMINATION	Iron particles which may remain trapped on the surface of the stainless steel product in a direct way, such as using brushes or sponges with non-stainless steel wires, or in an indirect way such as grinding carried out on a simple steel located close to the stainless steel product. The iron particle in contact with the stainless one will oxidize very quickly (rust) causing spotting on the surface, which – in some cases – can lead to localized corrosion	If still in a starting phase, an intervention can be made through simple washings possibly using also nylon sponges. On the contrary, if the event is more evident, especially in cases where the surface already shows marks of localized corrosive activity (pitting), it is necessary to contact an expert of surface treatments for stainless steel
GENERIC CONTAMINATION	Non-iron particles or tenacious dirt, glue remnants or other exogenous materials	In case of contamination with other metals such as aluminum, copper, etc., the procedures for the treatment are the same as for ferrous. In case of glue remnants or tenacious dirt, degreasers or solvents such as acetone can be used. It is essential to rinse abundantly after their use. On the contrary, if the contamination has developed into localized corrosion of the material, an expert must be contacted as described in the above point
SURFACE SCRATCHES	Accidental scratches on the surface of stainless steel	If it is certain that a ferrous contamination has not taken place (tool previously working on simple steels) a detergent/polish suitable for stainless steel can be applied using a soft cloth
OILS AND GREASE REMNANTS	Accidental spatters or imprints	These can be removed using alcohol based products, or in some cases acetone. The application must be carried out with a soft cloth, so as not to scratch the surface. After that, it is necessary to rinse with water
PAINTS OR GRAFFITI	Accidental spatters or vandalistic acts	To remove these surface signs, specific products must be used, generally alkaline or solvent paint removing products, then carefully rinse possibly with hot water (60°C).Mechanical removal (i.e. through a scraper or knives) must be avoided, because it would scratch the surface
CEMENT, MORTAR,PLASTER	Accidental splatters or imprints	These can be removed with water in solution with small percentages of phosphoric acid . After that a careful rinse with water and mop

A more aggressive climate condition will increase the possibility to have serious consequences on the integrity of the product (please refer to the table in the previous paragraph for the classification of environment starkness).