TIRARD & BURGAUD

Technical specificities

Dimensions

The dimensions specified in this catalog are expressed in millimeters. Our tolerances are within 1 mm less in width, 0.3 mm less in thickness, and +/- 5 mm in length.

Materials and Properties

Stainless Steel 304 : stainless steel providing good corrosion resistance.

Stainless Steel 316L : stainless steel offering excellent corrosion resistance in acidic environments or those containing chlorides (marine applications, use in particularly harsh corrosion conditions).

Steel : our mild steel materials are either hot-rolled or cold-rolled. This type of material requires surface treatment to provide a minimum level of resistance to external conditions.

Aluminum : silver-colored metal with low density (3 times lighter than steel), offering good resistance to oxidation and corrosion with additional surface treatment such as anodization.

Cupro-Aluminum : copper and aluminum alloy characterized by good corrosion resistance and high mechanical properties.

Composite : generic term used for thermoplastic materials such as polyamide (filled or unfilled with glass fiber), or polypropylene or ABS.

Zamak : predominantly zinc-based material, injected into a casting mold with mechanical characteristics similar to aluminum (density falls between steel and aluminum). Its technical features allow for the production of thin-walled parts with a polished surface appearance.

Surface Treatments

The companies within the Tirard et Burgaud group are committed to environmental issues and sustainable development. In response to the evolution of European directives and regulations (Reach and ROHS) concerning exposure to hazardous substances, we eliminated the use of hexavalent chromium in our processes and products (chrome 6) in 2015.

This pertains to the electrolytic zinc coating that protects our products from corrosion. The former hexavalent chromate zinc plating (chrome 6) has been replaced by a thick-layer zinc plating (chrome 3) denoted as Zn in our documents, ensuring the same level of corrosion protection.

The white or black zinc plating remains unchanged. Electrolytic zinc coating can be additionally applied with a polyester powder coating finish (Zn+powder-coated).

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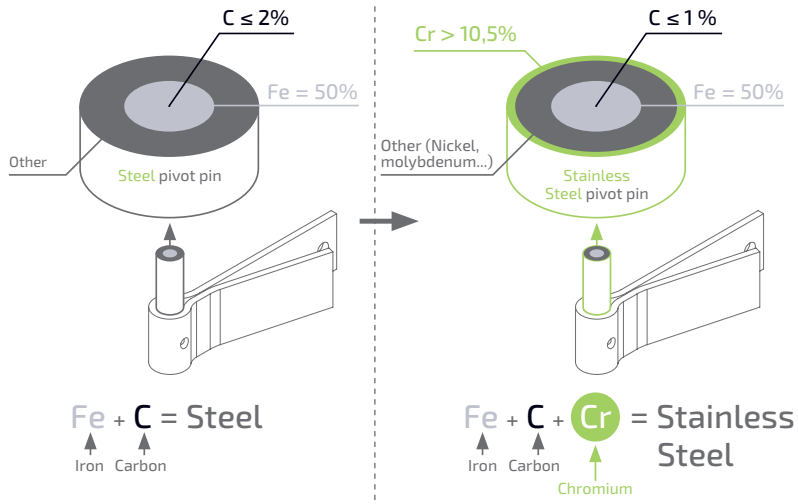
INOX Concerning stainless steel:

> Comparison between steel and stainless steel



> Stainless Steel 304 and 316L : what's the difference?

Stainless steel 304 (A2)

EN 10027 (European) : X5CrNi18-10 1.4301Afnor
NF A 35573 (France) : Z7CN18-09
AISI (United States) : 304

Application : indoor and outdoor recommendation
Recommendation : should not be installed in a polluted atmosphere (industrial zone, port area, swimming pool, chemical industry, stable, etc.). Your project location should be more than 5 km away from the coast, and the humidity level should remain low.

Stainless steel 316 (A4)

EN 10027 (European) : X2CrNiMo17-12-02 1.4404
Afnor NF A 35573 (France) : Z2CND17-12
AISI (United States) : 316 L

"Unlike stainless steel 304, stainless steel 316L contains 2 to 2.5% molybdenum to enhance its resistance in corrosive environments, such as acidic, phosphoric, or sulfurous environments. The percentages of other metals present are: 0.02% carbon, 1% silicon, 0.03% sulfur, 16 to 18% chromium, 2% manganese, 10.5 to 13% nickel, 0.04% phosphorus."

Application : in aggressive environments (seaside, pool, etc)
Recommendation : the use of this type of stainless steel does not exclude the possibility of some rust spots if it is not regularly maintained, especially in chlorinated and iodized environments or when exposed to severe weather conditions.

We remind you that within the coastal strip (-5 km from the shore: ocean, sea, river, lake, pool...), it is imperative to consult with us so that we can advise you on products that are compatible and corrosion-resistant in this very aggressive environment.

> Properties of various elements that can constitute stainless Steel

Iron (Fe)

- Strength
- Ease of Alloying

Molybdenum (Mo)

Facilitates the stability of the passivation film in most corrosive environments, as well as in acidic, phosphoric, sulfurous, etc., environments.

The higher the molybdenum content in stainless steel, the greater the corrosion resistance in chlorinated environments.

Manganese (Mn)

It is a substitute for nickel. Some series of austenitic alloys have been developed to address nickel supply uncertainties.

Carbon (C)

Enables the fixation of chromium, increases tensile strength, improves hardness, and reduces elongation at fracture.

Silicon (Si)

Enhances resistance to oxidation, especially against highly oxidizing acids (concentrated nitric acid or hot concentrated sulfuric acid).

Sulfur (S)

Increases quenchability significantly. Enhances corrosion resistance.

Phosphorus (P)

Increases quenchability significantly. Enhances corrosion resistance.

Chromium (Cr)

Enables the formation of a protective (passive) anticorrosive film.

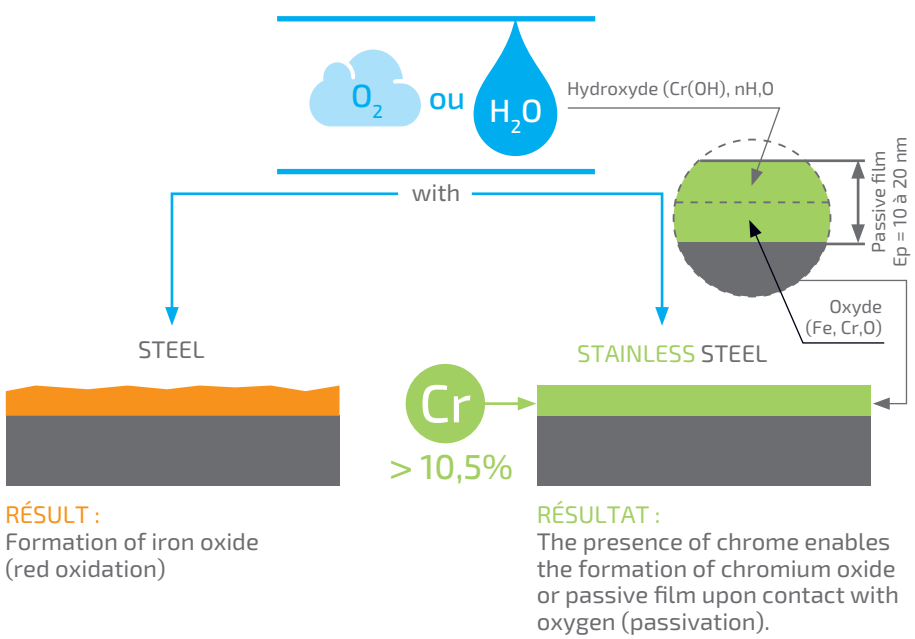
Enables the formation of a protective (passive) anticorrosive film.

Nickel (Ni)

Enables stainless steel to be ductile (ability of a material to undergo plastic deformation without breaking) and malleable (cutting, rolling, etc.).

The higher the nickel content in stainless steel, the greater its resistance to general corrosion

> Role of chromium and formation of the anticorrosion Film



RÉSULT :
Formation of iron oxide (red oxidation)

RÉSULTAT :
The presence of chrome enables the formation of chromium oxide or passive film upon contact with oxygen (passivation).

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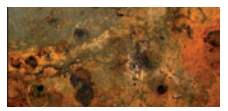
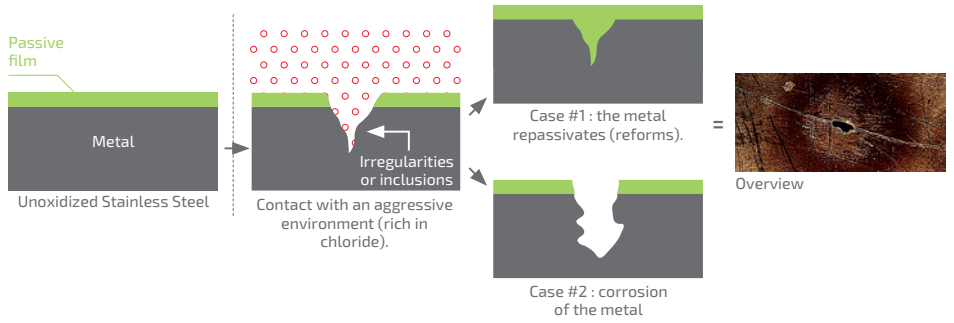
> Generalized corrosion

Cause : Environment with a strong acid.
When the passive film is destroyed by the environment, the entire surface corrodes uniformly.


Overview

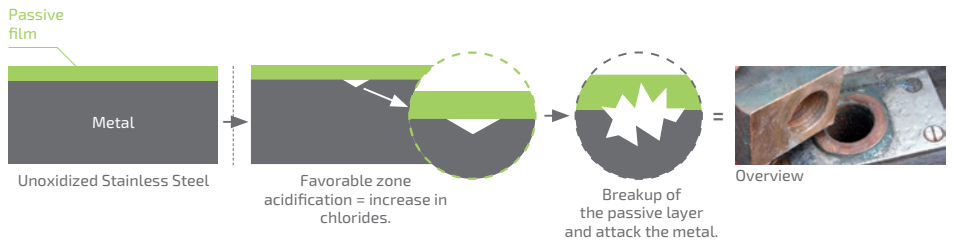
> Pitting Corrosion

Cause : Environment rich in chlorides and/or sulfides



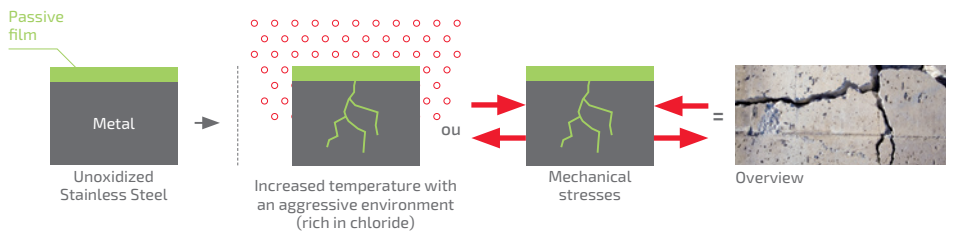
> Cavernous Corrosion

Cause : assembly promoting the accumulation of chlorides in a confined area.



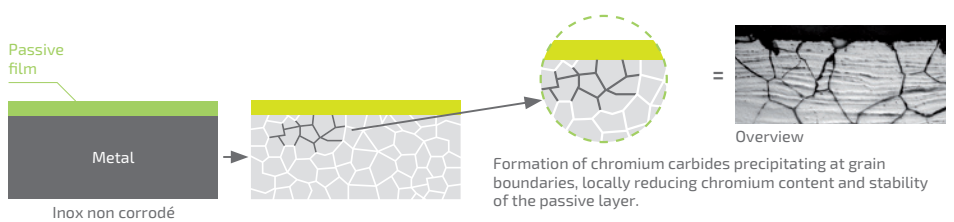
> Stress Corrosion

Cause : increased temperature (≥50°C) or mechanical stresses + corrosive environment.



> Intergranular Corrosion

Cause : temperature exceeding 1035°C.



> The maintenance of stainless steel

The maintenance of stainless steel varies depending on the environment.
If the products are located :

- Outdoors, rainfall should clean off deposits. This is effective depending on exposure and height.
- indoors, an intervention should be carried out to remove airborne contaminants. In marine and industrial environments, clusters of chloride or sulfur oxide present in the air can induce corrosion if not effectively removed.

Cleaning products

Cleaning can be done according to the degree of soiling.

- Fingerprints and other marks : you can use soapy water and a mild detergent. To prevent these marks from reappearing, use an aerosol finishing product.
- Stubborn stains : against water stains and certain discolorations, we recommend using non-abrasive cleaning gels. After applying this product, you can remove residues with demineralized water and let it dry.
- Grease and oil stains : you can remove them with solvents (white spirit, acetone) that do not corrode stainless steel. We recommend applying the solution several times with a soft, clean cloth until the grease mark disappears.
- Paint and graffiti marks : use an alkaline paint stripper or solvent-based remover. You can also use a special stainless steel cleaner containing phosphoric acid, then rinse with demineralized water and dry.

DO NOT USE

- **Cleaners containing chlorine, especially hydrochloric acid.**
- **Bleaching products that contain bleach.**
- **Silver cleaning products.**

If any of these products are accidentally used, rinse thoroughly with water.

Cleaning tools

- For normal dirt and fingerprints : damp cloth or chamois leather.
- For stubborn dirt : nylon sponge like "Scotch-Brite".

To avoid the formation of streaks, it is recommended to dry the surface and use demineralized water.

The frequency of cleanings

The cleaning frequency depends on the environment.

If your product is exposed:

- Inside buildings : cleaning should be done before any visible dirt accumulates.
- Outside buildings : exposed to more aggressive environments (marine, industrial...), where brown stains may appear. Depending on the degree of soiling, it is recommended to perform cleanings every 6 to 12 months. In less severe cases, every 3 to 6 months in the case of heavy soiling or under the circumstances described on this page.

Finitions

- Raw : product without specific treatment (finish of our raw material sheets and rolls). Finish that can be marketed as is or used as a basis for all our surface treatments.
- Chemical passivation : We create a protective passive layer (chromium oxide) that is more resistant than the natural layer of stainless steel. This layer is thicker and more compact. This operation is carried out in an acidic environment, either by immersion in a bath or by spraying, depending on the size and complexity of the parts. This process ensures superior corrosion resistance compared to untreated material.
- Electrolytic polishing : We remove the surface layer of stainless steel through a chemical dissolution reaction. The piece is immersed as an anode in an electrolyte bath through which a continuous electric current flows. This treatment makes the surface smooth, shiny, and easy to clean. This process ensures superior corrosion resistance compared to chemically passivated material.
- Mechanical polishing : The goal of this operation is to create different surface effects: deburring, brushing, bright polishing, mirror polishing, etc. The process is manual, using various tools and abrasives depending on the desired surface finish. This process ensures resistance equivalent to untreated material, without surface treatment.

Usage precautions

The choice and adaptation of our items for closure equipment are the responsibility of the specifier, based on the compatibility between the material, surface treatment, support material, and the geographical area of destination.

Certain materials or surface treatments used in the manufacture of our products are not compatible with various geographical environments. We would like to remind you that within the coastal zone (-5 km from the shore: ocean, sea, river, stream, pond, etc.), as well as near swimming pools or when used in specific environments (chemical, polluted, livestock farms, etc.), it is essential to consult us so that we can recommend products that are compatible and resistant to corrosion in highly aggressive environments.

All raw or treated steel products must be protected by a finishing paint to prevent corrosion. This finishing is the responsibility of installers or users. Before applying additional treatment or maintenance to our accessories, it is necessary to inquire about compatibility with the base treatment. We disclaim any responsibility for improper application of our products or supports and non-compliance with assembly instructions. This also applies to inappropriate uses of our accessories and their storage.

Delivery times

Lead time expressed in calendar days (7, 14, or 21) from the factory or on request (SD). For each reference, the lead times are indicated in the column with this icon 31 .

Substances chimiques

Our articles are not subject to registration. To comply with the REACH Regulation (Registration, Evaluation, Authorization, and Restriction of Chemicals), we ensure that our suppliers fulfill their registration obligations for raw materials and components for the uses that concern us.

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Lacquered Products

> Type of Paint

Our products are lacquered using a colour coding system known as RAL (Reichsausschuß für Lieferbedingungen).

The standard gloss levels for our lacquers are 30% (MATT) and 80% (GLOSSY). Other finishes are available, such as textured lacquers (FINE TEXTURE).

Please contact us for further information.

R A L

Reichsausschuß : National Committee

für : for

Lieferbedingungen : terms of delivery

> Our standard RAL

Our standard RAL colors are :

RAL 9005-**30%**

RAL 9005-**80%**

RAL 9016-**80%**

Standard gloss level (tolerance of +/- 5% permitted).

> Multi-RAL

The introduction of a second paint finishing line enables us to meet all your requirements for multi-RAL paint finishes or specific colours (subject to availability).

Items available in multi-RAL finishes are indicated by the pictogram .
The cost per item, the flat-rate paint finish charge and the lead time vary depending on the colour required; please contact us for further details.

If you have any specific requirements, please ensure you state the desired colour shade, as well as the brightness level or texture, the paint manufacturer and/or the reference number of the desired paint, on your order form.

It is very important that the information you provide is accurate. Whilst we can process your request with a minimum of information , **we recommend providing full details to ensure your order is processed smoothly.**

3ES92009RAL + RAL 5024 + 30% + _ + _ =

3ES92009RAL + RAL 7016 + Fine texture + _ + Axalta =

3ES92009RAL + RAL 7016 + Structura + YL316F + Akzo =

SKU	Color	Brightness level or Texture	Paint reference number	Manu-facturer	Quality of given information

> Class 2 (CL2) powder

Class 2 (CL2) powder meets stricter requirements than standard powders (for example, unclassified or Class 1 powders).

It is designed to last much longer when used outdoors. It offers better resistance to UV rays and the elements: better colour and gloss retention over time.

When placing your order, you must use the multi-RAL code (with the pictogram) and specify that you require Class 2.

3ES92009RAL + RAL 7016 + Structura + YL316F + Class 2 + Akzo =

SKU	Color	Brightness level or Texture	Paint reference number	Class	Manu-facturer	Quality of given information

www.tirard-burgaud.com

Made in France

TIRARD SAS
16, avenue du Vimeu Vert
Z.A. du Vimeu Industriel
80210 Feuquières-en-Vimeu
Tél : + 33 (0)3 22 20 74 20
Fax : + 33 (0)3 22 20 74 27

BURGAUD SAS
159, rue des Paludiers
Z.I. Les Mares
85270 Saint-Hilaire-de-Riez
Tél : + 33 (0)2 51 55 35 01
Fax : + 33 (0)2 51 54 62 01