

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.

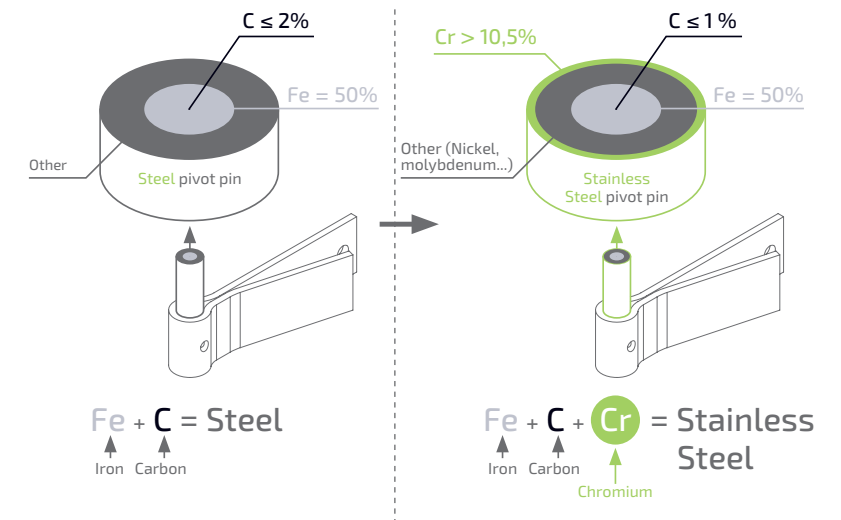
This pertains to the electrolytic zinc coating that protects our products from corrosion. The former hexavalent chromate zinc plating (chrome 6) has been replaced by a thick-layer zinc plating (chrome 3) denoted as Zn in our documents, ensuring the same level of corrosion protection.

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



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

- Strength
- Ease of Alloying

Carbon (C)

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

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

Silicon (Si)

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

Sulfur (S)

Increases quenchability significantly. Enhances corrosion resistance.

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

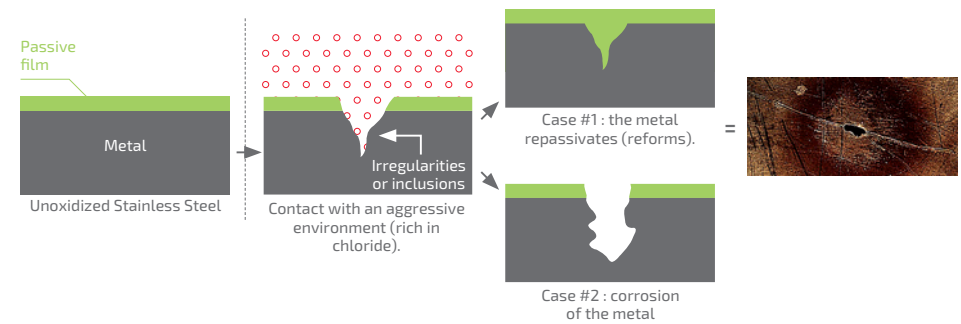
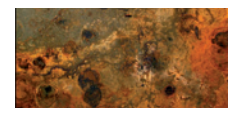
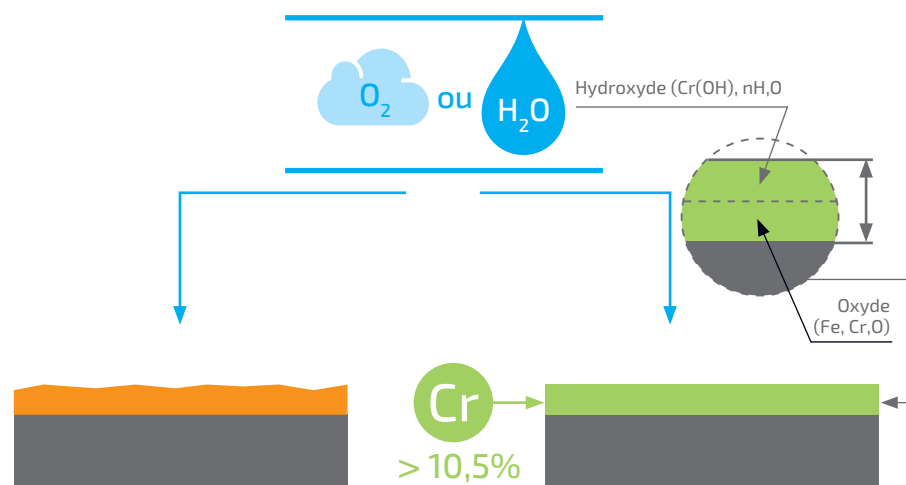
Phosphorus (P)

Increases quenchability significantly. Enhances corrosion resistance.

Manganese (Mn)

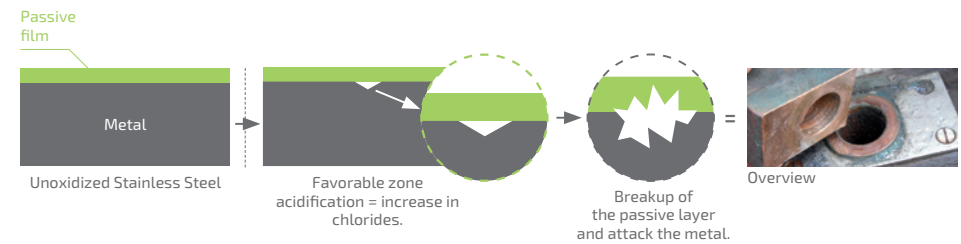
It is a substitute for nickel. Some series of austenitic alloys have been developed to address nickel supply uncertainties.

> Role of chromium and formation of the anticorrosion Film



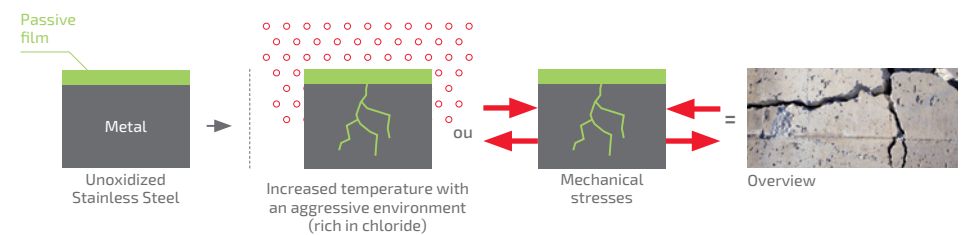
> Cavernous Corrosion

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



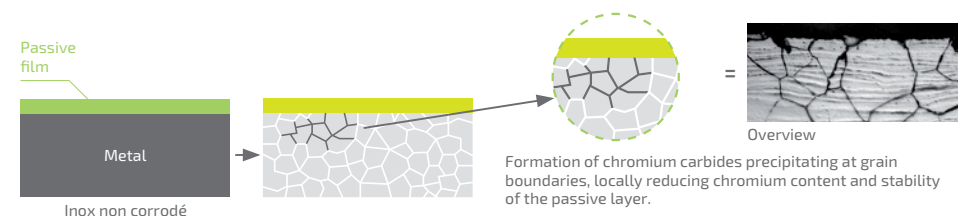
> Stress Corrosion

Cause : increased temperature ($\geq 50^\circ C$) or mechanical stresses + corrosive environment.



> Intergranular Corrosion

Cause : temperature exceeding $1035^\circ C$.



> 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.

Some materials or surface treatments used in the manufacture of our items may not be compatible with different geographical environments. 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.

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 .



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.

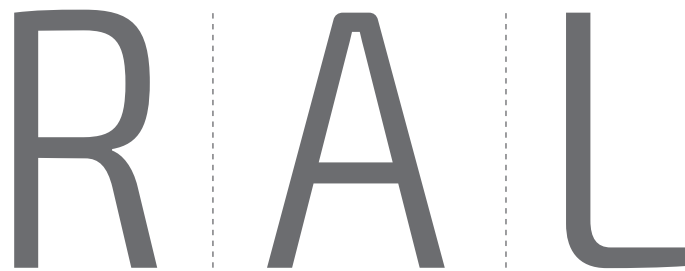


Lacquered Products

> Type of Paint

The lacquering of our products is carried out with a color coding system called RAL (Reichsausschuß für Lieferbedingungen).

The standard gloss levels of our lacquers are 30% (satin) and 80% (gloss). Other effects are possible, such as fine-textured lacquers, frosted finishes, or specific effects. Please consult us for more information.



Reichsausschuß :
National Committee

für : for

Lieferbedingungen :
delivery conditions

> RAL Distribution

There are three RAL systems: classic, design, and effect. The color chart we use for our products is the RAL Classic. Colors are divided into nine hues, and they are coded from 000 to 099 within each hue. Color codes are randomly distributed within their hue. There are 213 defined colors."

yellows	RAL 1000 to 1099
Oranges	RAL 2000 to 2099
Reds	RAL 3000 to 3099
pinks / purples	RAL 4000 to 4099
blues	RAL 5000 to 5099
greens	RAL 6000 to 6099
grays	RAL 7000 to 7099
browns	RAL 8000 to 8099
whites and blacks	RAL 9000 to 9099

> Our standard RAL

Our standard RAL colors are :

RAL 9005

RAL 9016

> The RAL 9010 : an exception


"The RAL 9010 is not considered a standard RAL and is therefore managed as a multi-RAL. However, some products with high demand are offered in the catalog in RAL 9010 (white)."

> Taux de brillance

COMPANY	TYPES OF OPENINGS	
	Gates, garage doors	Shutters
TIRARD	RAL9005 : 80% (glossy) RAL9016 : 80% (glossy) RAL 9010 : 30% (satin)	RAL9005 : 30% (satiné) RAL9016 : 80% (glossy) RAL 9010 : 30% (satin))
BURGAUD	-	RAL9005 : 30% (satin)) RAL9016 : 80% (glossy) RAL 9010 : 30% (satin))

Standard gloss level (variation +/- 5% accepted).

> The Multi-RAL

The creation of a second lacquering line allows us to meet all your requests for multi-RAL lacquering. Items available in multi-RAL are indicated by the symbol  in front .

Please also specify on your purchase order the desired RAL color and gloss level. Example: 3ES92009 RAL5024 30% gloss (satin). The cost of lacquering per piece, the lacquering package, and the lead time vary depending on the desired RAL color, please consult us.

> RAL stockés

"For logistical reasons, we cannot stock all RAL colors."

www.tirard-burgaud.com

Made in France

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