

CATALOG OF COATINGS



NanTec

CISER



CORROSION PROCESS

Fasteners are used in a wide range of internal and external applications, and metal corrosion occurs everywhere, regardless of application. The corrosion process is divided into two categories: general corrosion and galvanic corrosion.



GENERAL CORROSION

Caused by air and moisture and can be accelerated by salt and harsh chemicals.

GALVANIC CORROSION

Caused when two different metals are in contact with each other, even if both are resistant to corrosion on their own, exposed to moisture, galvanic corrosion can occur.

PROTECTION AGAINST CORROSION

In the fastener industry, technology allows the production of parts with a higher quality finish and superior aesthetics, in addition to reducing impacts on the environment. The largest manufacturer of fasteners in Brazil, Ciser is recognized in the market for innovation and reference in its segment. Therefore, it invested in Research and Development to launch, in 2013, **Nanotec**, the first company in the world to launch fasteners with nanotechnological coating with corrosion resistance of up to 4,000hrs (ASTM B-117).

This is the Top Coat sealant, which when applied, results in a high-performance surface finish against corrosion, due to the formation of thin ceramic films. Due to its chemical characteristics, the coated material has excellent performance in corrosion tests, extending the useful life of the metal even in aggressive environments.

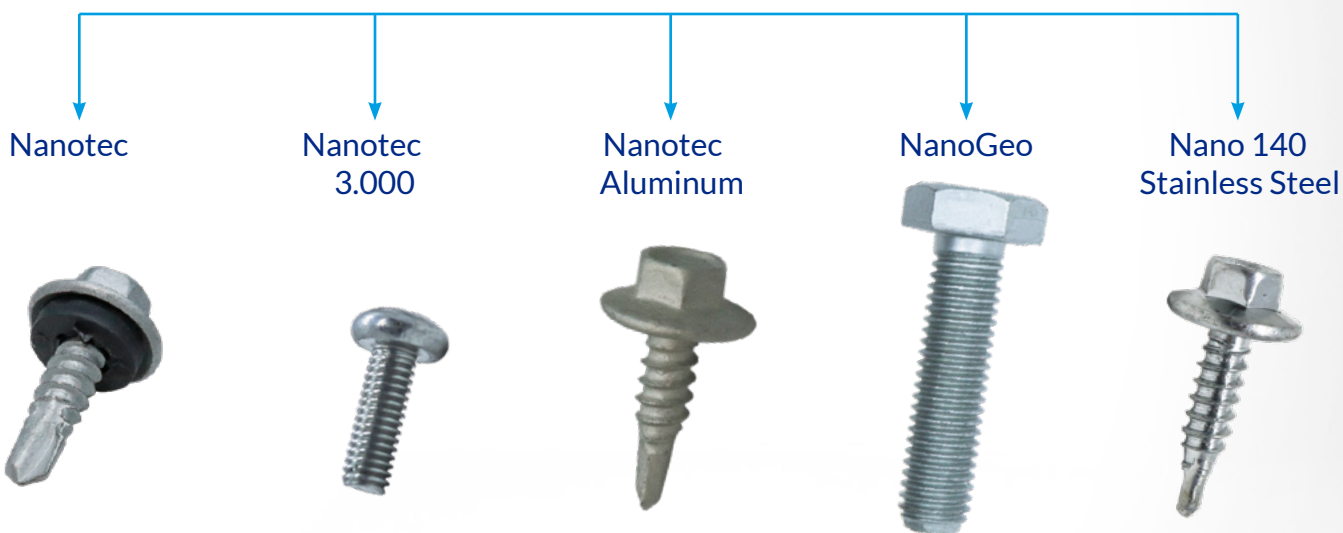
Nanotec does not generate toxic waste, it can be used in a huge range of applications - from the white line, automotive industry, aeronautics, civil construction, among others.

ENVIRONMENTALLY FRIENDLY

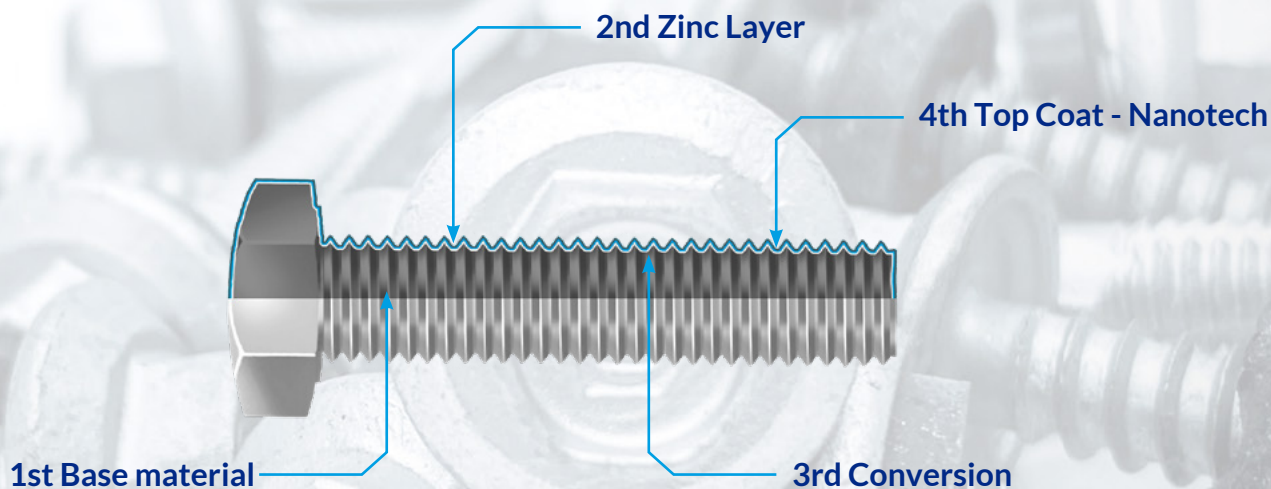
The coating is free of chromium VI and other heavy metals, it is environmentally friendly, without generating waste or aggressive agents.

The coating complies with the REACH regulation.

DIFFERENT TYPES OF CORROSION PROTECTION

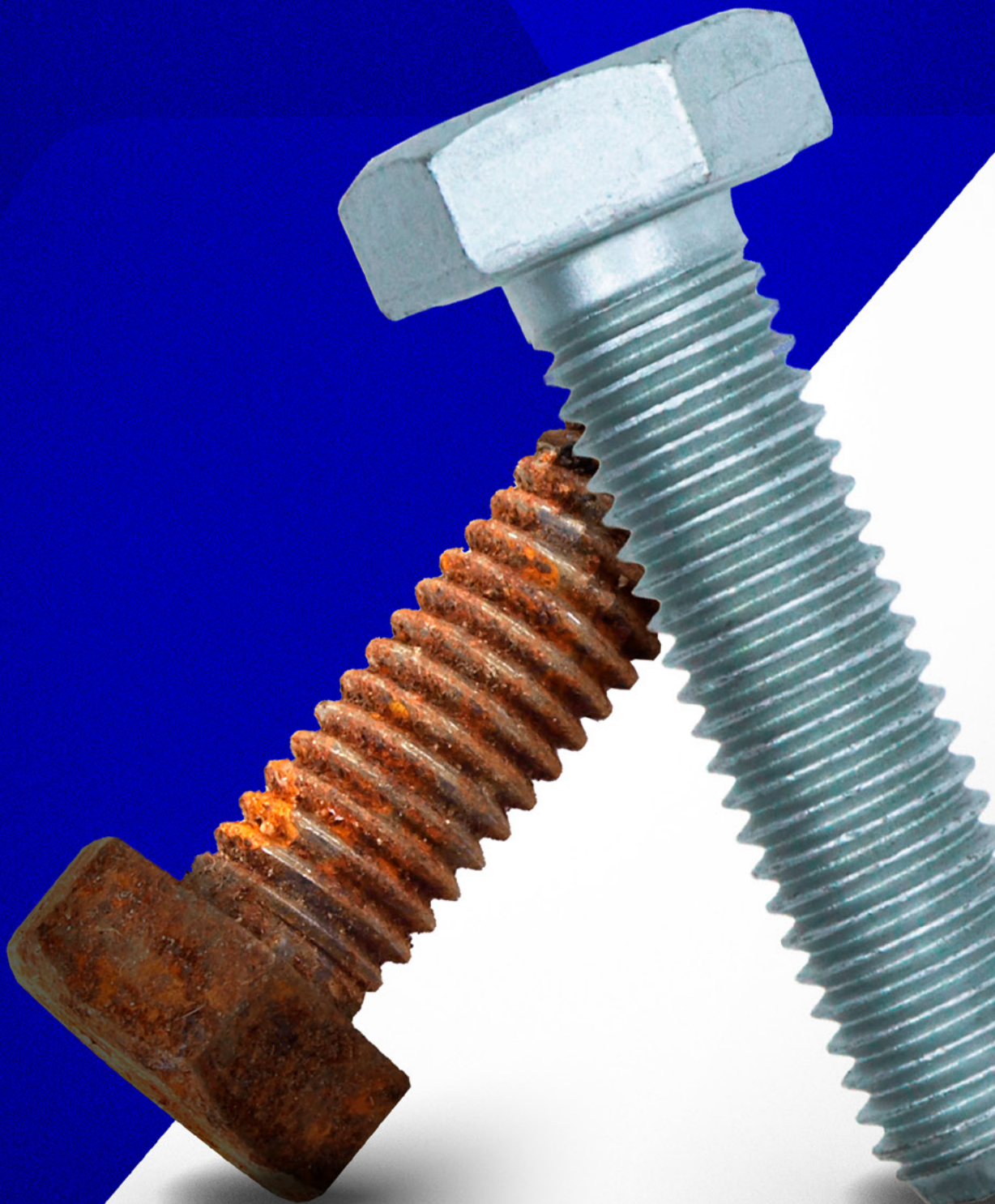


LAYERS OF THE COATING





NanTec



TECHNOLOGY THAT WITHSTANDS THE TEST OF TIME



Nanotec consists of a Top Coat that contains, among other chemical compounds, ceramic nanoparticles in its composition where **corrosion resistance can reach up to 20 times more compared to other similar items**. It has excellent adhesion to the base coating, whether it is an electrolytic zinc, zinc alloy or organometallic.

It is used on metal fasteners, providing friction control in industrial processes and attributing aesthetics superior to those of similar existing coatings.

RESISTANCE AGAINST ABRASION

High hardness and excellent wear performance.

GREAT ADHESION

It results in chemical interaction with the surface, generating high density and adhesion of the coating.

ENVIRONMENTALLY FRIENDLY

Free of chromium VI and other heavy metals.

EXCELLENT FINISH

Perfect finish and thin layer.

ANTI-CORROSIVE

Even in environments of high corrosivity, it prolongs the useful life of the metal, due to the excellent performance in corrosion tests - according to ASTM B-117.

VERSATILE

It can be applied to different types of bases, metal alloys and screw geometries.

	BASE COAT + 1 NANOTEC LAYER							
	Trivalent Zinc			Iron Black Zinc		Organometallic		
Salt Spray - White corrosion	144hrs	240hrs	400hrs	240hrs	400hrs	-	-	
Salt Spray - Red corrosion	500hrs	1.000hrs	2.000hrs	2.000hrs	+ 2.000hrs	1.000hrs	2.000hrs	

** Value referring to Salt Spray test according to ASTM B-117 standard.

NanTec Aluminum



The **Nanotec Aluminum** coating relies on a combination of nanoparticles to minimize the galvanic stack effect of fasteners mounted on aluminum profiles and structures. The result is increased longevity of the materials on which it can be applied.

The technology offers important characteristics to the fastener market. Due to its anti-corrosive nature, **Nanotec Aluminum** prolongs the life of metal components in environments of high corrosivity.

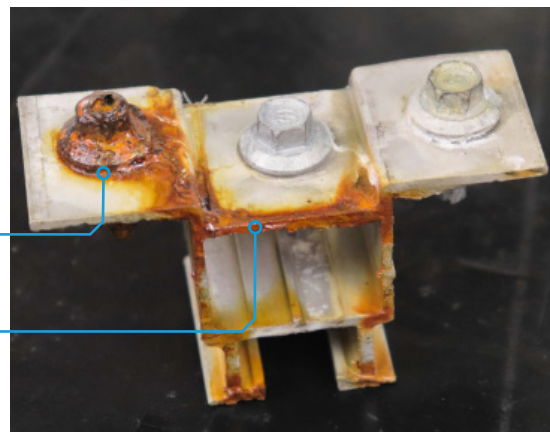
While products with Nanotec are able to withstand, in isolation, more than 2,000hrs* without presenting corrosion, products with **Nanotec Aluminum** are able to overcome this resistance time even in direct contact with aluminum.

COMPARATIVE

SCREWS APPLIED TO ALUMINUM SUBSTRATES AFTER 2,000 HOURS IN SALT SPRAY TEST.

Screw without Nanotec Aluminum

Screw with Nanotec Aluminum



	BASE COAT + 1 NANOTEC ALUMINUM LAYER	BASE COAT + 2 NANOTEC ALUMINUM LAYERS
Salt Spray - White corrosion	168hrs	240hrs
Salt Spray - Red corrosion	2,000hrs	4,000hrs

* Valor referente a teste de Salt Spray conforme norma ASTM B-117/ISO 9227. Atende a norma ABNT NBR 10.821-2:2017.



The 3,000 version is an enhanced version of the Nanotec line. It has an electrolytic base coat (zinc or zinc alloys) and two layers of sealant for corrosion resistance in neutral Salt Spray (accelerated corrosion, according to ASTM B-117) greater than 3,000hrs.

This technology is also available in clear and black versions. Ciser is the only company in the world that offers a line of fasteners with electrolytic zinc-based coatings with corrosion resistance of 3,000hrs.



+ RESISTANCE

Most resistant white zinc-based coating on the market, presenting a minimum layer of 12 µm.

VERSATILE

Can be applied to self-tapping threaded screws and machine threaded screws.**

EXCELLENT VALUE FOR YOUR MONEY

Perfect finish and thin layer.

BASE COAT + 2 NANOTEC LAYERS

Salt Spray - White corrosion	400hrs
Salt Spray - Red corrosion	3,000hrs

* Value referring to Salt Spray test according to ASTM B-117 standard;
 ** Specific cases, contact Ciser's Product Development team.



PATENT
REQUESTED

NanoGeo is an innovative and unique Ciser organometallic coating. Its application in hexagonal or slotted fasteners offers **greater surface hardness of the protective film** in relation to other organometallic coatings on the market.

The coating **ensures up to 4x more* corrosion resistance** in THE Salt Spray test, carried out according to ASTM B-117, exceeding 4,000 hours (see table), being indicated for application in the Automotive Industry, Wind Energy, Civil Construction and Industry in general.

RESISTANCE AGAINST PEELING

Offers 2x more* resistance against peeling in the coating in fastener assembly.

RESISTANCE AGAINST ABRASION

Good resistance to abrasion, solvents and weak alkaline and acidic solutions.

ELIMINATES HYDROGEN FRAGILITY

PROVIDES CONTROLLED COEFFICIENT OF FRICTION

MEETS THE ROHS AND REACH GUIDELINES

2 NANOGEO LAYERS

1 NANOGEO LAYER + 1 NANOTEC
LAYER

Salt Spray - Red corrosion

2,000hrs

4,000hrs

* Value referring to Salt Spray test according to ASTM B-117/ISO 9227 standard.
Meets the ABNT NBR 10.821-2:2017 standard.





Nanolnox 410



PATENT
REQUESTED

Nanolnox 410 is a high-tech transparent Top Coat composed of organo-ceramic nanomaterials and stainless steel microparticles for increased corrosion resistance for coated metal materials.

The coating ensures up to **1,500 hours of corrosion resistance** in the Salt Spray test*, surpassing the strength of 410 stainless steel by 70%.

GREAT VALUE FOR YOUR MONEY

Alternative to stainless steel for low and medium aggressive environments.

GOOD APPEARANCE

Better appearance than organometallics, zinc nickel and zinc fired.

VERSATILE

It can be applied to screws with self-tapping thread or wood thread with drill bit. Fasteners or special parts that do not have a machine thread.

MEETS THE NBR ABNT 10821 STANDARD



BASE COAT + 1 NANOINOX LAYER

Salt Spray - White corrosion

240hrs - 400hrs

Salt Spray - Red corrosion

1,500hrs

* Value referring to Salt Spray test according to ASTM B-117 standard;
** Specific cases, contact Ciser's Product Development team.



CAN BE USED ON ALL TYPE OF FASTENERS

Metal fasteners for general use – white line, civil construction, power tools, among others.

GOOD RESISTANCE TO SALT SPRAY
up to 2,000hrs*

EXCELLENT RESISTANCE AGAINST ABRASION

GOOD VALUE FOR YOUR MONEY



APPLICATION ON FASTENERS USED TO ASSEMBLE ALUMINUM PARTS

Metal fasteners in direct contact with aluminum parts or components.

HIGH RESISTANCE TO SALT SPRAY
available in two versions: 2,000hrs and 4,000hrs with fastener mounted/applied

GALVANIC COMPATIBILITY

POSSIBILITY OF APPLICATION ON VARIOUS TYPES OF SCREWS (UPON REQUEST)



APPLICATION ON SELF-TAPPING THREAD

Applicable on self-tapping thread screws and machine thread screws (above M10) applied on steel substrates.

EXCEEDS 3,000 HOURS IN SALT SPRAY

EXCELLENT RESISTANCE AGAINST ABRASION

EXCELLENT VALUE FOR YOUR MONEY



APPLICATION ON HEXAGONAL AND SLOTTED FASTENERS

Applicable in automobile industry, solar energy, civil construction and general industry.

HIGH RESISTANCE TO SALT SPRAY
up to 4,000hrs*

GOOD RESISTANCE AGAINST ABRASION

RESISTANCE AGAINST PEELING
in the coating in fastener assembly

FREE FROM HYDROGEN EMBRITTLEMENT



APPLICATION ON CARBON STEEL FASTENERS

Applicable in roof installation and maintenance companies, as well as building materials.

GOOD RESISTANCE TO SALT SPRAY
up to 1,500hrs*

RESISTANCE AGAINST WEATHERING

EXCELLENT VALUE FOR YOUR MONEY
Replaces 410 stainless steel fasteners

SELF-TAPPING OR WOOD THREADED SCREWS OF GENERAL APPLICATION, INCLUDING ITEMS WITH DRILL BIT

*Value referring to Salt Spray test according to ASTM B-117 standard.



www.ciser.com.br