



CORROSION PROTECTION SYSTEMS

FOR ANY APPLICATION

Perfect technology for perfect corrosion protection



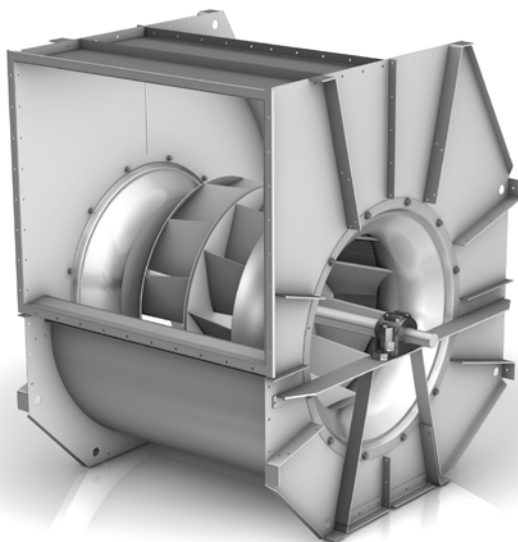
Fans need an excellent atmosphere or an excellent protection layer

To prevent them from corrosion, we provide extra layers

Fans are not always exposed to a gentle atmosphere over their lifetime. Damage to the surface can occur caused by high temperatures, UV radiation, contact to abrasive material, or by mechanical impacts. We provide our products with layer by layer a protection against perishable actions.

The higher the corrosion load, the more important is the protection layer

Especially high corrosion loads occur in the chemical industry or in coastal areas. A good corrosion protection will be essential in these places. But even in less aggressive areas corrosion may occur – e.g. in places with air pollution.



In any case a class of its own

We adapt solutions for different applications. Besides selecting corrosion-resistant construction materials (galvanised sheet steel, aluminium, stainless steel, or plastics) we offer systems consisting of 4 applicable aggressiveness classes of special corrosion protection based on different coating ranges.

This system confirms: Nicotra Gebhardt® Regal® fans are in a class of its own.

Every fan you receive from us provided with corrosion protection

All fans in standard execution are already equipped with a basic corrosion protection by either using corrosionresistant materials or by receiving a basic layer of coating. This corrosion protection satisfies the need for longlasting material lifetime in most fan applications. If stronger requirements are demanded, an increased corrosion protection will be applied.

Step-by-step corrosion-protected Nicotra Gebhardt fan

Any corrosion protection system is only as good as the quality of the pretreatment!

For this reason, all parts to be coated are submitted to the following pretreatment processes:

Zone 1: Intensive washing and degreasing, then full iron thicklayer full iron phosphating

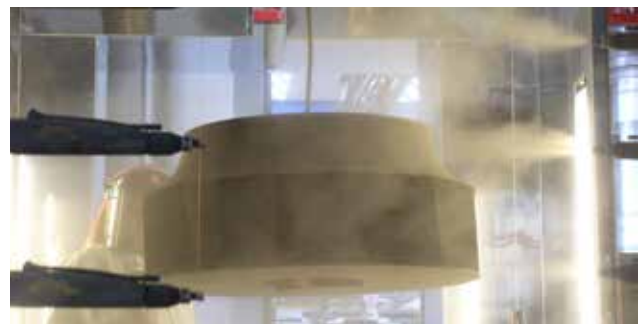
Zone 2: Rinsing process

Zone 3: Clear rinsing with VE water

Zone 4: Drying

After this, the coating process is made. One of two different procedures may be applied:

- The electrostatic powder coating
- The wet lacquering unit



The electrostatic powder coating

The corrosion-inhibiting epoxy-polyester mixed powder coating combines the features of epoxy and polyester.

Excellent mechanical and chemical resistance with improved edge buildup are the advantages of this combination.

The wet lacquering unit

One component synthetic enamel (1K)

The 1K synthetic enamel provides an excellent chemical resistance. The mechanical stress resistance is high because the material keeps a certain flexibility when hardened.

Two components acrylic lacquer (2K)

The 2K acrylic lacquer exhibits high hardness and provides an excellent resistance against UV radiation. It resists against water, specifically condensate, and also against diluted acids and alkaline solutions.

Environmental control by optimised water and energy management

Test procedures

In order to assure the quality of the corrosion protection of our fans, they are submitted to special load checks.

- The salt-water spray test to DIN EN ISO 9227 evaluates the layer quality in regard to the corrosion-inhibiting effect.
- The grid cutting method to DIN ISO 2409 evaluates the adhesive capacity of the coating.
- The impact test finally evaluates the resistance against mechanical shocks as they may occur during transport.

Further options

Welding seams

As a standard, the welding on a fan casing and impeller is made discontinuously (stitch-welded). In order to increase the corrosion resistance and to avoid intergranular corrosion under the action of wet or slightly aggressive media, the weld can be executed continuously (seam-welded).

Detachable fixing elements of the shaft

As a standard, all fan fixing elements (screws, nuts and bolts, washers) in Nicotra Gebhardt are made of galvanised steel. Fan shafts are made of steel and protected by a Tectyle coating. For increased protection requirements, these elements can be made with increased corrosion protection – as an option.



Which corrosion protection class do you need?

Nicotra Gebhardt fans are generally well protected against corrosion. For standard HVAC installations and AHU (air handling units) without special corrosion protection requirements, basic corrosion protection suffices. However, we generally recommend additional corrosion protection in standard execution C3. The coating systems here are based on the standard series DIN 55633/55634. The corrosion protection classes specified refer to the components coated by Nicotra Gebhardt. These product series include RZR, RER, REM, TEM, RZM, RLM, RLE, COPRA, RQM, RPM, P2M, P3M, P4, Q2M, RDA, RDM, RVM, FDM, RWM. Purchased parts such as motors, tensioning devices, belt drives, tensioning bushes/hubs, lubrication lines etc. are excluded from this. The choice of corrosion protection classes for individual fan series can be configured in the proSE-LECTA selection program.

For use in:

- **High-value air-conditioning installations in hygienic execution**
- **Laboratories, shelters; Air-conditioning installations in the chemical or pharmaceutical industry**
- **No Conditional UV resistance, for medium to high air humidity, non-condensing**

Corrosion protection Class C3 (standard execution)

Powder coating

For fan components with dimensions $\leq L\ 2000 \times W\ 1400 \times H\ 1600$ mm made of blank steel, galvanised steel, or aluminium

- Degreasing and thick-layer iron phosphating
- Corrosion-inhibiting epoxy-polyester mixed powder coating
- NDFT (nominal film thickness) 60 μm
- Colour RAL 7039

Wet lacquering

For fan components with dimensions

> L 2000 $\times$ W 1400 $\times$ H 1600 mm made of blank steel, galvanised steel, or aluminium

- Degreasing and thick-layer iron phosphating
- 1x2-component primer (polyacrylate/polyisocyanate)
- 1x2-component lacquer finish (polyurethane)
- NDFT (nominal film thickness) 140 μm
- Colour RAL 7039

An overview of the coating systems

NG designation	Basic execution	C3 (standard execution)	
Type of coating	Galvanised	Single layer powder	Multi layer wet lacquer
	or coated (C3)	EP-PE	2K
Colour (standard)	Galvanised or RAL 7039	RAL 7039	RAL 7039
NDFT (nominal film thickness)	> 10 μm or 60 μm	60 μm	140 μm
Duration level of protection	Low	Medium	
Cavities	Standard	Standard	
Pretreatment	Standard	Standard	
Corrosion load	Very low	Medium	
Application	Inside	Inside; outside without UV, non-condensing	

The specified application criteria can only provide a guide for possible applications. The final determination of the respective corrosion protection system must be checked and determined by the user depending on the specific application case. In corrosion protection class C3, the following corrosion protection-enhancing equipment variants can be optionally

For use in:

- Canal and tunnel construction
- Air conditioning
- Wet environments

**Corrosion protection
Class C4 (on request)**

Powder coating

For fan components with dimensions

≤ L 2000 × B 1400 × H 1600 mm made of blank steel, galvanised steel, or aluminium

- Degreasing and thick-layer iron phosphating
- Corrosion-inhibiting epoxy primer, weather-resistant polyester top powder coating
- NDFT (nominal film thickness) 120 µm
- Colour of top coat RAL 7001

Wet lacquering

For fan components with dimensions

> L 2000 × W 1400 × H 1600 mm made of blank steel, galvanised steel, or aluminium

- Degreasing and thick-layer iron phosphating
- 1x2-component primer (polyacrylate/polyisocyanate)
- 1x2-component lacquer finish (polyurethane)
- NDFT (nominal film thickness) 180 µm
- Colour of top coat RAL 7001

selected depending on the series (see technical documentation or price lists):

- Impeller blades welded continuously;
- Housing welded inside or inside and outside continuously
- Fan shaft made of stainless steel
- Mechanical connecting elements with increased corrosion protection

For use in:

- Ship building, on- and offshore
 - Canal and tunnel construction
- For highest corrosion protection**
- Wet environments

**Corrosion protection
Class C5 (on request)**

Powder coating

For fan components with dimensions

≤ L 2000 × B 1400 × H 1600 mm made of blank steel, galvanised steel, or aluminium

- Degreasing and thick-layer iron phosphating
- Corrosion-inhibiting epoxy primer, weather-resistant polyurethane top powder coating
- NDFT (nominal film thickness) 120 µm
- Colour of top coat RAL 7001

Wet lacquering

For fan components with dimensions

> L 2000 × W 1400 × H 1600 mm made of blank steel, galvanised steel, or aluminium

- Degreasing and thick-layer iron phosphating
- 2x2-component primer (zinciferous epoxy primer)
- 2x2-component intermediate coat (haematite)
- 1x2-component lacquer finish (polyurethane)
- NDFT (nominal film thickness) 350 µm
- Colour of top coat RAL 7001

C4		C5	
Multi layer powder	Multi layer wet lacquer	Multi layer powder	Multi layer wet lacquer
EP/ PE	2K	EP/ PE	2K
RAL 7001	RAL 7001	RAL 7001	RAL 7001
120 µm	180 µm	120 µm	350 µm
Medium		Medium	
Airtight welded		Airtight welded	
Standard		Blasted	
Medium to high		High to very high	
Inside; outside <u>with UV</u>		Inside; outside <u>with UV</u>	

*Subject to change

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