

Rittal – The System.

Faster – better – everywhere.

► State-of-the-art paint plant



ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

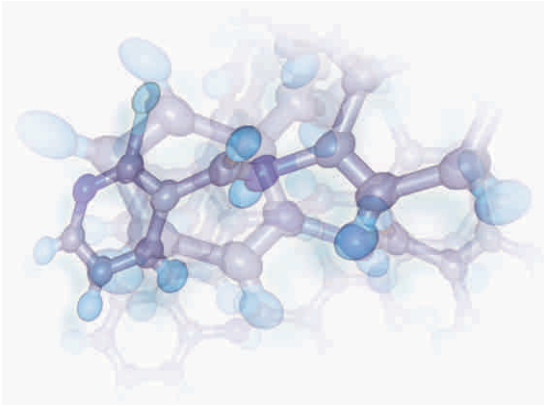
IT INFRASTRUCTURE

SOFTWARE & SERVICES

FRIEDHELM LOH GROUP



Commissions new state-of-the-art paint plant



Optimal surface protection

The triple surface treatment provides optimal corrosion protection and is resistant to mineral oils, lubricants, machining emulsions and solvents, which are used during cleaning.

Quality is assured through continuous process monitoring.

First phase: nano ceramic coating

Instead of the iron phosphating Rittal now uses a new method for the treatment of diving-priming: the **nano-ceramic coating**. This method is applied to all manufactured in-house and powder-coated.

The advantages of nano-ceramic coating at a glance:

- Better long-term-only devices
- Enhanced corrosion protection
- Increased value of conservation
- Environmentally friendly

Convincing corrosion protection

After 168 hours salt spray test according to DIN ISO 7253



Conventional coating (eg. Power coated)



Rittal high standard since 1981



Improved standard (RiNano)

Second phase: electrophoretic dip priming

- Heavy metals, chromate-free and silicone-polyester resins, water-based paint
- RAL 7035
- Causes uniform layer formation of the surfaces, edges and cavities, providing complete cavity sealing
- Layer thickness about 20 microns
- Burn



Third phase: the structure powder coating

- Electrostatic, environmentally friendly heavy metals, chromate and silicone-free powder coating based on polyester resin with high mechanical resistance
- Standard color RAL 7035
- Good chemical, temperature and weather resistance
- Decontaminated
- Layer thickness about 80 microns
- Burn



Fourth phase: protective surface finishing

Recoatability the primer and powder coating:

Our enclosures can be painted after careful cleaning. Are suitable for this DD coatings, 1 and 2 component paints, automotive refinishing, powder coatings, water-based paints and varnishes intro.

If in doubt, a compatibility test will be performed. The instructions supplied with the paint manufacturer's instructions.



Upon request, the following special coatings are available:

- **Tropical coating**
for high corrosion resistance in hot and humid climates, including foreign and long-term use.
- **Chemical paint**
for best achievable with paint resistance to inorganic and organic substances.

I. RiNano

Innovative surface protection

Shiny surfaces for hours

The lotus plant is a religious symbol of purity. Because of her beads from liquids, dust remains on her stick. "Blame" for this turn Nanoparticles: Tiny papillae repel water. In nanotechnology, it becomes a self-cleaning ceramic. Materials which are coated with nanoparticles possess special properties: To prepare scratch-resistant lenses nanoparticles are applied to the surface. Such glasses can be cleaned with steel wool, without getting a scratch. Here, the tiny particles are so small that they diffract light nor break, but let through unhindered.



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Nanotechnology is used as standard in-cabinet air conditioners. The condenser of the cooling units TopTherm is equipped with a nano-coating. This consists of nanoparticles of ceramic, which provided the condenser with a dirt-repellent layer. It creates a permanent seal the pores. This can not be liable contaminants and the surface properties remain preserved. In "dirty" environments we can thus extend the maintenance intervals significantly. The pretreatment with innovative nanotechnology offers benefits that can be seen in the truest sense of the word.



RiNano

Rittal is one of the leading cabinet manufacturer in the world to painting, to a technology that guarantees optimal performance in every detail: the nano-technology. The pretreatment with innovative nanotechnology offers benefits that can be seen in the truest sense of the word:

Higher quality

- Significantly improved corrosion protection by a closed, inorganic layer of high density, are incorporated into the nanoparticles
- Paint adhesion by increased surface Improved ecological compatibility
- Free from phosphates, solvents and toxic heavy metals
- Reduced energy requirements, since no heating is necessary when applying Longer Life
- Better long-term equipment protection
- Significantly reduced maintenance

The nano-ceramic coating surfaces of our product replaces the conventional iron phosphating.

As a true innovation in the surface treatment technique that is perfect for use on steel, zinc and aluminum surfaces. It allows a very uniform coating with a significantly improved corrosion protection of painted surfaces.



How does it work?

The seals are made of nanoparticles with nano components that connect firmly to the surface, and other components that cause the desired effect. These particles arrange themselves intelligently during application to: The binding components migrate to the surface, the anti-adhesive components are directed towards the air out. This "self-organization" is an ultra-thin, glassy layer that responds to the surface of a homogeneous connection and therefore guarantees extreme durability. This also protects the surface from aggressive environmental influences. This type of nano-coating is also used for Rittal enclosure cooling devices (condenser).

Rittal is a new technology for surface finishing. Obtained by nano-coating and zinc phosphate products, Rittal is already the highest possible corrosion and surface protection.

Continuously develop and test new methods for optimizing the Rittal durability, function and safety of its products. With the use of nano-zinc phosphate coating, and is the world leader in housing and enclosure technologies now setting new standards in surface engineering.

II. Phosphating

Optimum corrosion protection at moderate cost

Maximum safety protection

Galvanized steel, phosphated and powder coated. The high standards of the automotive industry are now also implemented for cost-effective solutions. The result: significant improvement in corrosion protection. Depending on the objectives be operating conditions can partially be substituted even with aluminum. Based on zinc phosphate it is hot-dip galvanized steel sheet, 275th Z With this combination of material selection, a maximum cathodic edge protection is achieved. The protective effect of zinc is thus considerably increased by the zinc phosphate. The subsequent high-quality powder coating offers additional protection and allows an individual color scheme. Optimum corrosion protection at a modest cost - studies in independent laboratories, to underline this new Rittal quality.



Extreme protection for outdoor enclosures



Best in standard, the impossible becomes possible

Our customers require that our outdoor enclosures resist the anticipated loads. No ifs and buts. From the basic requirements (humidity, temperature fluctuations, solar radiation) to extreme environmental stress (resistance to seawater, earthquakes, vandalism protection) Rittal has the solution. New to the extreme protection program: Galvanized sheet steel with zinc phosphate, known to you by the automotive industry, surface finishing.



Aluminium

AlMg3 aluminum - the material for all requirements in the field. With superior all-round capabilities, such as low weight and high load bearing capacity.

Stainless Steel

Stainless steel 1.4301 (AISI 304) or stainless steel 1.4571 (AISI 316 Ti), the material for maximum corrosion requirements, hygiene and for the robust mechanical protection.

III. Surfaces plus

Expanded testing of Rittal

With the extended test - Surface Protection Plus - the materials are tested at the system level. This means that the entire product, not only the item is subjected to the test procedure in the target range.

- Geometric effects are included
- Testing with real test media
- Optimal material selection and combination
- Test methods for corrosion protection (component-oriented and design-oriented)

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Test methods for corrosion protection

- According to current regulations such as EN, IEC, ASTM

Advantage: The same scale, comparable disadvantage purely component-oriented (eg, only sheets)

Structural corrosion protection

- Prevention and sealing of gaps
- Suitable material combinations
- Organic coating as far as possible

Advance testing (Rittal)

- Testing at the system level (complete product rather than just individual parts)
- Geometry effects are tested with (edges, columns, ..)
- Testing with real test media

Advantage: Practical, optimum material selection and combination (coated steel, stainless steel, aluminum, zinc) in the target range

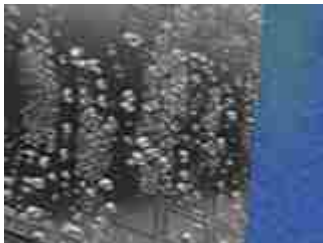
IV. Anti fingerprint / anti graffiti

Dirt has no chance

The ancient Greeks were certain. Our world is composed of tiny particles. Today, this knowledge will benefit the research. Because the nano-technology allows the penetration into the realm of atoms and thus the change in the material structures in the nanometer range.

Nano coatings create a dense surface, lie in the smallest particles together seamlessly. The advantages are obvious: Dirt has no chance. Gone are fingerprints on keyboards and touch screens. Dirt stick to hard, and if they do, they are easy to remove. Even graffiti can be easily moved to grips with a pressure washer. Attractive is the use of technology not only in outdoor areas, but also in the external circuit of heat exchangers, where the reduction of pollution in the long-term preservation of the performance results:

Turning a vision into a product



Principle

- Minimizing the free energy surface by chemical nano technology.
- Anti-adhesion structures.



Features

- Transparency, good adhesion to the substrate.
- Durable, inert surface protection with good mechanical and chemical resistance.



Effect

- Lasting hydro-and oleophobic, ie simply repelled from water and organic liquids.
- Anti-adhesive properties and thus lower Einschmutzung easier cleaning, graffiti can be removed with a pressure washer.

Applications

- Painted surfaces (including powder coated).
- Stainless steel surface.

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- Enclosures
- Power Distribution
- Climate Control
- IT Infrastructure
- Software & Services

Authorized Channel Partner.

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