



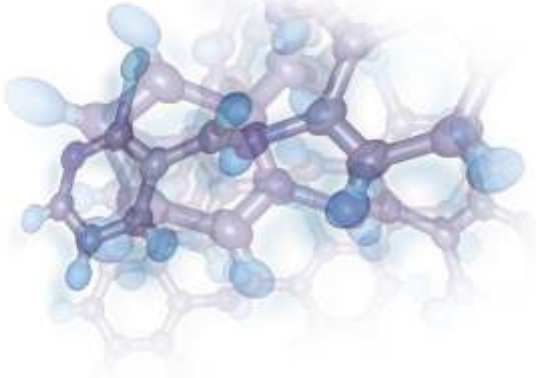
# Rittal India - commissions new state-of-the-art paint plant



## HIGHLIGHTS

- Enhanced corrosion protection
- Better long-term protection of enclosures
- Eco-friendly, free from phosphates, solvents and toxic heavy metals

# Top quality from Rittal – with triple protection!



## Rittal nanoceramic surface priming.

As one of the world's leading enclosure manufacturers, Rittal is now further enhancing its international product range with a primer-coating technology guaranteeing optimum performance right down into the very last corner:

### Nano technology.

Innovative pre-treatment techniques based on nano technology offer benefits which can only be described as revolutionary.

### Higher quality

- Significantly improved corrosion protection from a closed and high-density inorganic coating into which nano particles have been incorporated
- Enlarged surface provides for optimum final-coating adhesion

- + Better long-term protection of enclosures
- + Enhanced corrosion protection
- + Improved value retention
- + Eco -friendly

## Maximum quality in three steps

1. New: Nanoceramic coating (replacing previous iron phosphating)
2. Electrophoretic dipcoat priming
3. Textured powder coating

## Convincing corrosion protection

After 168 hours of salt spray testing to DIN ISO 7253

- A Conventional coating (e.g. plain powder coating)
- B The high Rittal standard for 26 years
- C New: The new optimised Rittal standard (RiNano)

## Improved ecological compatibility

- Free from phosphates, solvents and toxic heavy metals
- Minimum energy input, as no heating is required for application

## Longer lifetime

- Better long-term equipment protection
- Significantly reduced maintenance

The nanoceramic coating for the surfaces of our products replaces the conventional technology of iron phosphating.

As a genuine innovation in surface engineering, this technology is a perfect solution for the priming of steel, zinc and aluminium surfaces. It permits extremely even coatings and significantly improved corrosion protection for steel metal surfaces.

Rittal India has commissioned a new state-of-art paint plant at its Doddaballapur factory near Bangalore. The paint plant has been built on turn key basis by M/s. Eisenmann, Germany according to Rittal's specifications and global requirements. With this new plant Rittal India now has exactly an identical surface treatment and coating process identical to all other Rittal plants world- wide. Furthermore the capacity of the painting line has been increased to over 1000 standard enclosure units per day.

### **Paint plant process :**

The components are loaded on a Wagon of a Power & Free Conveyor System continuously moving at a pre determined speed of 5.0 meters/minute. No manual handling takes place after the loading station right till the unloading station and the entire process is computer controlled and tracked .

The whole process is designed for energy efficient and low effluent causing operation with maximum recycling of chemicals. Further more the process conserves water a valuable natural resource.



### **Loading of Components :**

Components will be either in form of large enclosure frames of PS / TS, compact enclosures such as AE, KL, EB range, Flat parts (Doors, Rear panels, Top & Bottom Covers, Gland Plates, Side Panels etc.),) are loaded at this stage. All sheet steels used are of CRCA "D" Grade / Galvanized, which have a protective layer of anti-rust oil solution. The components during the loading are checked for any rust or scaling marks. Simple marks are first removed by emery before the parts travel to the pretreatment tunnel, unlike the conventional 7 - tank process.

### **Pre-treatment – Stage I :**

In this zone, all the oil, grease and foreign impurities are cleaned by high-pressure (1 bar) warm (50°C) multidirectional jets using a chemical, which is mixture of Alkali (degreaser), additives and surfactant. The jets impinge the components, which are fully cleaned of oil, grease and any other impurities due to chemicals and dynamic force.

### **Pre-treatment – Stage II :**

This is done in different stages using water jets, which flush down all chemicals from stage I on the surface or the edges.

### **Pre-treatment – Stage III :**

This is done in different stages using fresh DM water jets, which flush down all chemicals from stage II on the surface or the edges. No carryover of previous stage chemicals to next stage.

### **Pre-treatment – Stage IV :**

Here the components are uniformly coated with a special Nano-ceramic coating Bonderite NT-1 (replacing the commonly used phosphating process) applied by high-pressure jets. This technology is used to achieve better long term protection of enclosures and ensuring an eco-friendly result, which acts as a corrosion protection and provides an excellent base for dip / powder coating. This coating is environment-friendly as it is Phosphorous- and COD/BOD-free with no regulated or toxic heavy metals ( Fe & Zn remnants in phosphating) and has very good quality aspects like high performance better forming properties after painting. There is no chipping thereafter since the nano-ceramic layer is less brittle than phosphates and the coating are uniform.

### **Pre-treatment – Stage V :**

This is done in different stages using DM water jets, which flush down all dissolved salts on the surface or the edges.

### **Pre-treatment – Stage VI :**

In this final pre-treatment stage fresh de-mineral water jets are used which acts as a passivation and frees the surface of any residual salts etc. which can cause creep age corrosion later. The whole pre-treatment process provides the excellent base for the subsequent coatings which follow.



### **Electrophoretic Dip -coating:**

In this process, the parts on the conveyor after pre-treatment, are immersed in a liquid bath containing a special EC paint as solid particles mixed with de-mineralised and ozonized (bacteria-free) pure water. The paint is then electrolytically applied on the entire metal surface immersed in the bath. This process is termed as electro-phoresis. Formation of an even layer on all surfaces, edges and cavities is ensured with this process creating a high degree of corrosion protection. The coating is approximately 20 +/- 5 microns thick. On this surface over-painting is possible. The EC coating is free from any heavy metals, chromates and silicone thereby ensuring that RoHS standards compliance is achieved.



### **Baking:**

The dip-coated component is then sent through an oven for baking at 180°C for 10 minutes thereby achieving the required coating thickness. This EC coating is highly corrosion resistant as well as has very good inherent mechanical properties. This process is only used by Rittal amongst enclosure manufacturers. EC dip coating is the commonly used painting process in the automobile industry where automobiles are required to stand outdoors all the time. Although EC coating by itself is good, Rittal uses this layer as a primer for the final powder coating for the external surfaces of the enclosures. The ovens use an automatic burner system set for LPG gas which is used as the fuel because it has a high calorific value and is very environment-friendly due to the very low emissions after combustion. An automatic and accurate oven-temperature control is provided by controlling the gas flow in the burner system.

### **Powder Coating:**

After EC dip coating and baking the conveyor with the parts can move into either of two automatic powder coating booths. The automatic booth 1 has powder-spraying guns to spray the positively charged powder on to the component. The guns have the facility of adjusting their distance from the object as well as the spray velocity to control the thickness of the coating. The automatic spray mechanism ensures that the paint thickness, texture and gloss level on the component are uniform.

Powder coating is applied only on the outside surfaces of the flat parts since only these are exposed to the external environment and manual handling.

The second automatic booth 2 is similar as the first one but is used for special, customer specific colors. The wagons are double-sided and carry the flat-parts such as doors, side panels etc vertically on the conveyor throughout the entire pre-treatment, EC dip-coating and powder coating processes.

### **Baking:**

The powder-coated components are then finally sent for oven baking at 180°C for 10 minutes and achieved a required coating thickness in microns. This oven is also similar to the EC oven described earlier. Powder coating ensures high mechanical strength, very good corrosion protection and good resistance to contact with Mineral oils, Lubricants, Machining emulsions, Temporary cleaning solvents, weak acids and alkalis etc. The powder coating also ensures good resistance to temperature variations and all types of weather. The coating is approximately 80 microns thick. The overall thickness thus achieved in Rittal's painting process is approximately 100 microns.

**NOTE:** The Technical specifications may change without any prior information. Please refer latest handbook and flyers of Rittal for revisions and updates on the technological improvements implemented time to time.