

Energy saving measures from the air conditioning equipment itself
Insulation paint to outdoor machine to reduce work of air conditioning



For Outdoor Unit and the surrounding
Outdoor Unit Cove Paint

Application
Manual



Field survey・Preparation in advance



As details to be confirmed to the customer, if you can obtain details of electricity charges before application and electricity charges After application , you can calculate energy saving effect and depreciation period for customer.

| ※ Items to be checked on the site survey | |
|---|--|
| 1 | Confirmation of application area ・ Photo shoot |
| 2 | Confirmation of lift facility |
| 3 | Confirmation of electricity, water, faucet, toilet, lunch area |
| 4 | Parking area |
| 5 | Size, Unit number, Rust status of outdoor unit, manufacturer warranty period |
| 6 | Application area of the floor surface / wall surface (roughly 3 times the height of the outdoor unit is a standard) |
| 7 | Confirmation of scheduled date ・ start and end time |
| 8 | Confirmation of equipment materials storage site |
| 9 | Confirmation of security facilities |
| ※ Application Process; Each picture and infrared photographs before and after | |
| 1 | Car parking ・ Installation tools carried in ・ Secure luggage storage |
| 2 | Morning Meeting; confirmation of schedule, notes |
| 3 | Washing ・ Washer, Brush, Water hose |
| 4 | surface preparation by blasting/Rust prevention / curing |
| 5 | MK Sealer application ・ ・ Mixing in advance |
| 6 | Outdoor Unit Cover Paint application ; Mixing in advance |
| 8 | Self inspection ・ Cleaning after application |
| 9 | Confirmation by customer |

| ※ Required Equipment | |
|------------------------|--|
| Camera/Infrared camera | |
| Compass | |
| Writing instrument | |
| Measure | |
| helmet | |
| Safety belt | |
| Clean shoes | |
| | |
| | |
| | |

| ※ Application Demo Required Equipment | |
|---------------------------------------|-----------------------|
| blue tarp ・ Work gloves | Brush, garbage bags |
| Masking tape | Security material |
| Cleaning machine ・ deck brush | Car wash brush |
| hose ・ empty can ・ brush | painting liquid |
| Broom, dustpan, packing tape | Unloading rope |
| screwdriver ・ scraper | stepladder |
| Roller ・ Sponge ・ long handle | Paint thinner ・ waste |
| Tray ・ Cover | Anticorrosive |
| Utility knife ・ Cissors | |

※ When the outdoor unit is within the manufacturer's warranty period, if the machine breakdown occurs after painting, obtain permission from the owner in advance that the painting company will not guarantee the breakdown. If acceptance cannot be obtained, painting with only the floor and the outer wall shall be carried out.

The application target



◆Equipment on the roof・・・ The Operation guarantee temperature is usually less than 40℃ within 3years warranty of manufacture after installation. But, actual temperature in summer is 50℃~60℃~, So Warranty is not covered under malfunction. This is actual situation.

①Outdoor unit (Refrigerating outdoor unit ・ Air conditioning outdoor unit)

②Cooling tower



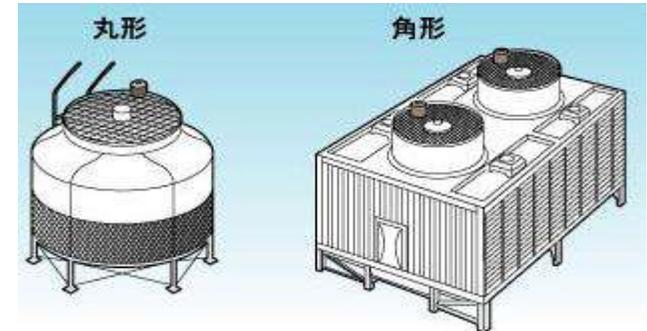
Slim type
Discharge opening



Slim type
Suction opening



Big type



③ cubicle type high voltage receiving equipment



Important Notes



◆ For application ◆

- ① In the case of rain, Please stop to apply same as other water-based paint
- ② Please stop to apply in the case of 5°C or less of temperature, 85% or more of humidity.
(In the case of winter season, the indicate of application time is from 10am~3pm.
Please apply after condensation is already dry on the surface of the outdoor unit.
- ③ In the case of curing into the delivery route, please bring necessary amount such as blue sheeting, masking tape, cardboard etc beforehand.
- ④ In order to prepare a application completion report, it is necessary to record multiple on-site photographs before application, record on-site photographs at the same angle after application, Please photograph so that you can clearly understand before and after. Likewise, please take a picture to compare the outdoor unit temperature and floor surface temperature before and after application.
- ⑤ Before use, please use the electric energy stir cover fully using the outdoor unit cover paint. (Please be aware that bubbles will form if stirring more than necessary.) In order to stir just before use, you need to borrow the power in the rooftop. If power can not be borrowed, a generator is required.
- ⑥ If paint remains, seal it tightly so that there is no volatilization of moisture. Please use sealed paint as soon as possible.
※ To prevent volatilization, use a plastic sheet to cover the cap and tightly close it.
- ⑥ Basic paint instructions, temperature / humidity conditions, cleaning of road tools are the same as general water paint.
- ⑦ Please do not freeze when paint is stored.



Types of tools used



◆ Types of rollers ◆

①The width of the roller is around 100 mm · 180 mm · around 230 mm, there is no standard, there are some differences depending on the manufacturer. Basically, when painting a wide surface, use a roller with a large width, when using a narrow part, use a narrow roller.

※Please choose a type that is easy to use.

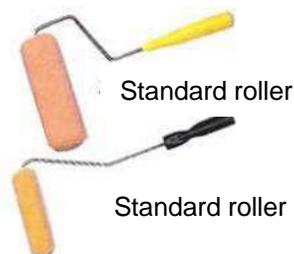
②There are also kinds of diameter of the roller. A standard roller with a roller inner diameter of about 38 mm is commonly used. Those with an inner diameter of 23 to 26 mm are called middle rollers, and those with inner diameter of 15 mm are called small rollers or slim rollers.

The thicker one can contain a lot of paint, so it is suitable for painting a wide surface, but if you put on paint it becomes considerably heavy. Because we do not apply the entire roof this time, considering convenience, slim roller is suitable for use.

③There are also three kinds of hair length of the roller.

The common type is a medium bristle type, the length of hair is about 10 ~ 15 mm, it is a versatile type such as wall, concrete and plywood, and it is almost used. A long hair type with a hair length of 20 mm or more can easily paint a surface with intense irregularities such as a block. A short hair type with a hair length of 9 mm or less is used for finishing a smooth surface clean. Roller marks are not so conspicuous.

Application with long hair is suitable because the paint for maintaining aesthetic feeling of the roof is not main.



◆ long hair (For roughened surface) ◆



◆ Middle hair (For universal use) ◆



◆ Short Hair (For smooth surface) ◆



◆ Urethane (for unevenness) ◆



Sponge rollers such as urethane are used to apply a smooth surface with an aqueous paint. Roller like coarse mesh is paint for aqueous outer wall

When painting elastic paint with aggregate (a kind of sand), when painting with this, unevenness surface will be beautiful.

Removal of dirt (base adjustment)



◆ Washing ◆

Rinse off moss, dirt, etc. on the rooftop and outdoor machine with brush and high pressure washer. (It will be an important task to improve the adhesion of newly painted paint.)

The types of cleaning are as follows.

① normal type ② tornader type ③ bio wash type

We adopt ① normal type or ② tornader type and use water pressure at 80 ~ 150 atm.

If the oil is very dirty, moistened with neutral detergent, please repeat the oil washed as previous step.

It is necessary to check beforehand where to borrow water, and if you can not borrow it, you need to raise the water to the roof with a bucket.

◆ Working time of cleaning ◆

If it is around the roof-top outdoor unit (50 m²), it will be half-day work.

◆ Dirt and rust removal work

If rust is generated, after high-pressure washing, perform dirt / rust removal work as necessary, then apply a rust preventive.

In the case of a foldable roof, please also rust prevent bolts.

High pressure washing on the roof



High pressure washing for the outdoor unit



Outdoor unit brush cleaning



Oil washing on the Floor surface



Outdoor Unit Cover Paint Procedure



Product composition



| composition | Product | capacity | Coated amount | Feature |
|---------------------|--------------------------|----------|-----------------------|--|
| Surface preparation | Mk Sealer | 15L | 0.1kg/m ² | -Aqueous Sealer- Concrete surface strengthening, penetration inhibitor, antifungal function |
| Paint | Outdoor Unit Cover Paint | 12kg | 0.33kg/m ² | -Aqueous, Acrylic resin paint Thermal paint |



| composition | Product | capacity | Coated amount | 特性 |
|-------------|---------------------|----------|------------------------|--|
| Final Paint | Super Glass Barrier | 20L | 10~20ml/m ² | Dangerous goods (Methanol base) Self cleaning of dirt adhered with rainwater by antistatic super hydrophilic effect |

* For roller application, 10 ml / m² For spray installation, 20 ml / m²

Substrate preparation · Painting · Top coating



✳️ First paint as undercoat (MK Sealer) = Penetration inhibitor and adhesion enhancer primer

It is used for preventing water penetration against water-absorbing base materials (RC · ALC · brick · concrete · mortar etc.). For base materials (such as metals) that are not water-absorbing, sufficient adhesion can be obtained even by directly applying energy-saving cover coat, but by applying MK sealer, it is possible to further increase the adhesion to the substrate I can do it.

※ However, in the case of metal etc., there is no rust inhibiting effect. Be sure to use a commercially available rust preventive.

Application : Brush · Roller

The number of applications : 1time, No dilution

Curing guideline: summer 2 hours, spring Autumn 3 hours, winter 4 hours

Notes : Please confirm whether it can stick or not on the outdoor unit cover.

Please do not apply the bolt of the installation base of the outdoor unit, the manufacturer seal stuck on the outdoor unit, the standard No., the fin inside, do not apply paint before curing.



✳️ Second · Final Paint (Outdoor Unit Cover Paint)

• When opening the can, hollow beads with a light weight are floating on the top, please stir well like the picture below.

Stirring time : about 3 minutes ※ It also depends on the horsepower of the electric stirrer.

Application : Brush/Roller

The number of applications : 0.35kg/m²

Dilution amount : White color is 500 to 800 cc

Number of applications: Floor / outer wall twice,
Outdoor unit · Refrigerant refrigerant tube painted three times. When insulation performance in winter is to be enhanced, also floor and outer walls are painted three times

Coating interval: 0.5 to 1 hour in summer 2 to 3 hours in winter

Notes: After applying primer, change to indoor shoes, so as not to stick dirt.



Since it will be an important task to prolong the uniformity and life span of the insulation effect, be sure to mix the top and bottom of the paint well with an electric stirrer.

※ Absolutely do not mix with bars.

✳️ Final coating (Super Glass Barrier)

• In The next day After application of outdoor unit cover paint, Please apply Super Glass Barrier

Application : Roller

The number of applications : 1time, No dilution

Drying standard: Although it is quick drying, please be careful not to catch rain, snow, etc. for 24 hours.



Application method by roller for paint



◆ It puts paint into roller sponge. ◆

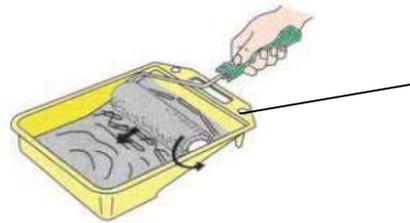
It needs Paint tray. Please prepare Paint tray to fit the width of the roller

After stirring paint, When you put the paint on the roller, put the mix well the paint to the recessed part of the tray, you put the paint on the sponge hair. Attach the rollers to the paint put in the concave part. Rolling downward in one direction while putting a little effort at the convex part of the tray so that the paint sticks to the roller uniformly.

Just by moving the roller back and forth in the up and down direction at the convex portion of the tray, it will not attach uniformly.

Particularly, the thick standard roller has heavy paint, so if you lift it, the part with paint will face downward.

Even though you thought that it rolled in one direction towards the bottom and you thought that it was pretty uniform, paint on the opposite side with paint was sometimes thin, so please apply paint to that part as well.



Once put paint roller, it rolled in one direction towards the lower part of the convex of the tray, so that the paint is evenly attached.

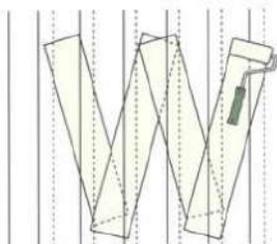


◆ Roller Bucket ◆

When painting a large area such as a wall, a roller bucket is convenient. It also comes in plenty of paint, you can easily apply paint evenly, so it may be easier to use than a tray.

Also, because there is a bucket net, It will remove extra paint.

Since bucket net can be removed, it can be washed easily.



◆ Painting by roller ◆

When painting a wide part such as a wall surface, when applying it to the vertical, the film thickness becomes thicker at the beginning of the coating, and the film thickness becomes thinner at the end of the coating. Therefore, it can not be applied uniformly. The point is to first move the roller to W shape and paint it at an interval of about 70 cm width. After that, It will paint while slowly rolling the rollers vertically. It is a trick to make one third of the width of the roller overlap, and then press it lightly at first, and finish it cleanly to roll gradually as the paint on the roller decreases.

※ Please move the roller slowly. Please be careful as paint scatters as you move the roller quickly.

Notes for Super Glass Barrier application

● Notes / Temperature

Optimal substrate temperature is less than 30 C degrees.

- 1) When the temperature or the glass surface is hot, slightly increase the amount of coating
 - 2) Put the coating liquid to cooler box with ice, it will be better finish and cool the liquid itself.
- ※Store in the refrigerator is also possible, in the field, it should put in a cooler box and store in the shade.

Purpose : By cooling the solution, delay the volatilization order to promote the densification of the coating film.

● Notes / Application

Please avoid the application under direct sunlight. Since volatility is fast, better to intercept the solar radiation so as not to be exposed to direct sunlight will be well to both finish and performance.

- 1) Even without the direct sunlight, in order to promote volatile liquid by wind, you might need to consider the windshield.

※Problem of temperature and substrate temperature and wind, in order to influence the volatilization rate of all coating liquid, the surface of coating may becomes poor (plaque comes out).

Reason: The substrate surface temperature is too high, then volatilized before forming. Also it can be a cavity on the coating surface, then the coating film will be white because of the diffused reflection effect of silica.

For the above reasons, please avoid the application, especially during the hot season in summer and the strong winds.

● Notes / After application

- 1) In the case of rain or snow on the application date or next day, it does not recommend to apply.
Reason: This product will take 12 hours or more to complete cure. When it's rain and water sprayed, it drops the adhesion and the durability of the coating film.
- 2) In the case of application to the glass and mirrors, maintenance is only to wash by water, please do not use detergent.
- 3) When the oil of the surfactant contained in the detergent remains, the persistence of ultra-hydrophilic effect will be reduced.

Roller application for Super Glass Barrier

● Application tool



Roller and sponge



Tray

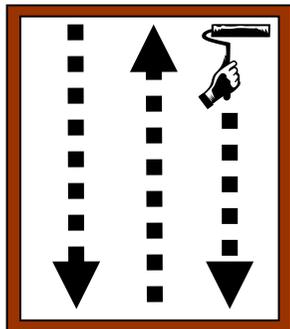
◆ Usable container ◆

It is made of polypropylene or polyethylene.

Place the liquid in a container made of polypropylene or polyethylene and apply it with middle hair.

Since the liquid is transparent, be careful so as not to leave the paint, make the vertical and horizontal painted.

※ Please apply in a state that the liquid attached to the roller is volatile and does not dry.



Top coating (Preparation of Spray gun)

● Tools



Spray Gun



Regulator



Filter



Air compressor



Coating Agent

① Pattern



② If the compressor contains Oil or dust, please use a filter.

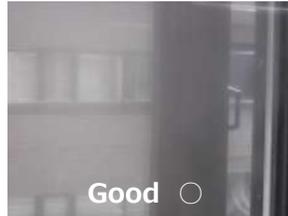
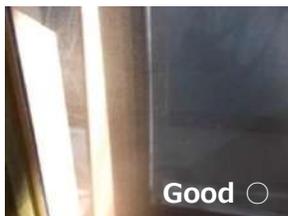


③ Air Pressure: 0.2~0.3Mpa



● Check the application and amount of coating liquid

① Put water in the cup and check sprayed amount. Adjust it if necessary.



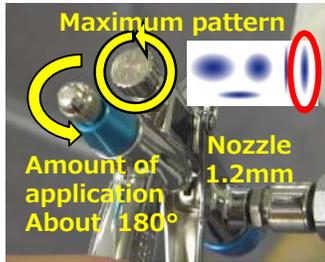
Note:

You see water droplets on the photo of the left side above. It was applied too much and has the risk of making a mottled appearance when it is dripped. It is seen a bit cloudy when you spray right amount to the substrate. It can't form a strong coating film when sprayed amount is too small. Make sure to apply evenly.

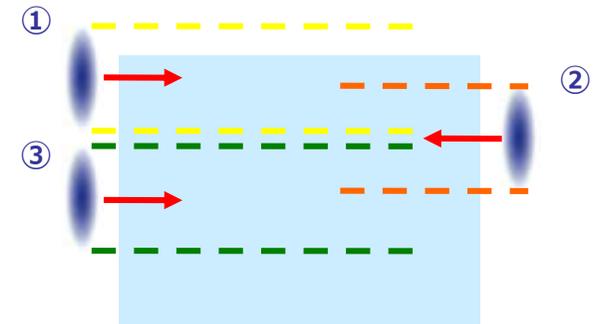
Top coating (Spray gun application for outer wall)

● Adjustment of Spray gun

① The distance from the substrate is within 10cm



Estimated amount of coating
The coating amount of the per square meter is 15g ~ 20g. (Standard)
Then move it to the left and right or up and down 30cm per a second.



Apply in parallel with little overlap.
(In the case of an elliptical pattern)

Important point:

- ① It's necessary to adjust the application distance from the substrate depending on the temperature, the wind and the substrate. When the distance between the base material is too far, the coating agent becomes powder because it volatilizes before the application. It does not appear the performance correctly.
- ② When the application of uneven surface such as diatomaceous earths are on it, please apply double amount of the coating liquid.
- ③ The caliber of the gun could be a 1.2 or higher
- ④ Because the solution is transparent, please apply evenly to avoid non coated spots.

Basic Cleaning (Spray gun)

Cleaning step after using Air Spray gun



1 The remaining liquid is disposed or pour in a separate container.



2 Put 50ml water to spray cup.



3 Tighten the lid of the cup. Hold the air holes in the cup during the shaking it.



4 Wash the inside of the cup with the supplied brush and discard the water. Please put the water about 50ml again.



5 Spray one-third of water.



6 Press the hole in the nozzle cap with your fingers. Gently pull the trigger. Water flows back you can wash in the nozzle. Repeat 4-5 times.

Note) Do not pull the trigger strongly.



7 Please spray to the rest of the water.



8 Please clean the silica or the like attached near air cap with the supplied brush



9 Wash the inside air cap with the supplied or special brush. Get rid of fine dust if air blow.



10 After attaching the air cap, cleaning it lightly with a supplied brush. Then wipe off with clean cloth.

Notes :

After application, make sure to clean up the spray gun that was used.

If the liquid dries in the spray gun, the silica in it makes harden. The coating pattern becomes narrow or non-uniform because nozzle is clogged, .

The basic cleaning uses the water (tap water), but use the pure water when it is available.

Application Photo



Application Photo

