Technical Information

產品描述 Product Description	Nanoflow 是一種抗菌防塵的納米塗料，它能夠應用於通風管道內的表面，以減少灰塵聚集，防止微生物、黴菌和霉菌的生長所引致在通風管道內出現的污漬和氣味， Nanoflow is an anti-bacterial and anti-dust nano-coating, applied on the inner surface of air ducting to reduce dust aggregation and to prevent the growth of microbes, mold and mildew that can cause stains and odors inside air ducting,
典型用途 Typical Uses	可用於通風管道內和固體金屬表面，此產品不含任何樹脂或疏水塗層 For use inside air duct and on solid metal surfaces without any resin or hydrophobic coating
顏色和表面質地 Colour & Finish	白色和光滑 White color & glossy
特性 Features	• 防塵 Anti-dust • 防菌 Anti-bacteria • 防水 Water resistant • 耐酸鹼 Acid and alkali resistant • 耐刮擦 Scratch resistant • 不易燃 Non-flammable • 遵從 RoHs 要求 RoHs compliance • 超低 VOC Extreme low VOC • 環保 Eco-friendly • 折彎測試結果 1T 1T at Bend Test • 容易應用 Easy application • 無需稀釋，直接使用 Ready to use
容量 Pack size	1L, 5L, 10L & 20L
成份 (公稱的)Composition (Nominal)	• 丙烯酸共聚物乳液 Acrylic copolymer emulsion • 添加劑 Additives • 水 Water
固體含量% Solids Content %	48.88%
乾固時間 Drying Time	指觸乾燥: 3 小時 Touch dry: 3 hours 完全固化: 168 小時 Fully cured: 168 hours
理論薄膜厚度 Theoretical Film Thickness Range	70 μm

理論覆蓋率 Theoretical Coverage	以 70 μm 的厚度標準，覆蓋率會是 9.5 m^2/L [1] (比如 1 升 NanoFlow 可以應用在 9.5m^2的表面) Base on the coating thickness of 70 μm , the coverage would be 9.5 m^2/L [2](e.g. 1L NanoFlow can apply on surface with 9.5 m^2)
存放方法 Storage	儲存在陰涼，乾燥及良好通風處。溫度介乎 20℃至 40 ℃ 遠離高溫及火種。開口向上，防止溢漏。 Store in cool, dry and well-ventilated place at temperature between 20℃ to 40 ℃ away from heat and sources of ignition and keep right up to prevent leakage
建議用法 (附錄壹)Application (see appendix 1)	• 噴灑 Spray • 滾筒式刷髹 Rolling • 刷髹 Brushing
注意事項 Precaution	• 使用前先搖勻 Shake well before use • 如用髹掃和滾筒刷，每次盡少蘸漆料時間 Minimize paint soaking time by brush or roller • 任何時候不可稀釋漆料 No thinning at anytime • 當周圍環境和工件多塵和濕度高的時候，不要進行塗漆工作 Do not apply the coating in dusty and high humidity environment • 在塗層完全固化前，不建議加工 Machining is not recommended before the coating is fully cured
建議配用 Recommended equipment	• 噴槍 (可對應高粘度漆料) Spray gun (For high viscosity) • 滾筒刷 (一般款式) Roller for general painting use • 油掃 (一般款式) Brush for general painting use
清潔方法(作業後) Cleaning up (after use)	• 作業後，立即把所有工具用清水洗滌 Clean all equipment with clean water immediately after use • 避免將未用完的漆料倒回原來的包裝中 Avoid pouring unused paint back into the original packaging • 儘快把已開的漆料用完 Use up the opened paint as soon as possible
工件表面處理 Surface preparation	• 必須把油脂、污垢、樹脂及疏水塗層從工件表面移除 The surface must be clean and free from any grease, dirt, resin or hydrophobic coating
安全、健康及環境資料 Safety,	• 使用適當的個人防護裝備 Use appropriate personal

[1] 應用工藝和作業環境會影響油漆覆蓋率 [1] The coverage may vary depending on application methods and condition

health and Environmental information	protective equipment. • 請將漆料放在兒童不能觸及的地方 Keep out of reach of children. • 小心處理容器。緩慢地打開以控制壓力釋放 Handle containers with care. Open slowly in order to control possible pressure release. • 請勿對容器加壓 Do not pressurize container. • 不要吞嚥。不要吸入氣體/煙霧/蒸氣。避免與皮膚和眼睛接觸 Do not ingest. Do not breathe in gas/fumes/vapor. Avoid contact with skin and eyes. • 個人保護措施，請閱附錄貳(For personal protection, please see Appendix II) • 只能在沒有明火及火種的情況下使用 Use only in areas from which all naked lights and other sources of ignition have been excluded. • 使用前估量靜電釋放 Take precautionary measures against static discharge. • 若在霜凍或極端溫度情況下，需對漆料作出良好的保護 Protect from frost and extremes of temperature.

附錄壹 Appendix I

噴塗工作說明 Working Instruction of spraying

一般用途 General purpose

1. 用特定或等效的清潔劑清潔工件，之後用水徹底沖洗，確保清潔劑沒有殘留在工件表面 Clean the part(s) with particular cleanser or equivalent. Rinse thoroughly with water and ensure that no residual cleanser is left on the surface.
2. 把 NanoFlow 包裝強烈地搖晃至少一分鐘 Shake NanoFlow packaging bag strongly for at least 1 minute.
3. 將所需的 NanoFlow 從袋中直接倒入噴槍容器中（作業前，建議使用 300-400 微米尼龍濾網濾紙過濾） 參閱圖 1Pour needed NanoFlow from bag directly into the container of spray gun (Filtering with 300-400 micron nylon mesh filter paper cone is advised prior to applying). See Figure 1.

圖 1. Figure 1. 尼龍濾網濾紙 Nylon mesh filter paper

4. 為獲得更好的效果，請採用高粘度噴槍或同等設備。調節空氣供應到適當的壓力（請參考噴槍的工作氣壓）。從低流量開始調整漆料流速。為避免噴嘴堵塞，建議首先縮窄噴塗扇形的扇幅。 For better result, please adopt high viscosity spray guy or equivalent equipment. Tweak air supply to appropriate

pressure (Please refer to your spray gun working air pressure). Tweak paint flow rate starting from a low rate. To avoid nozzle clogging, narrowing the fan shape of spraying is suggested initially.

5. 噴槍與工件的距離應為 20-30cm Spray distance from substrate should be at 20-30cm.
6. 初始施工後，可以對未固化的塗層進行重噴，直到達到所需的塗層厚度 After initial application, recoating may be carried out on non-cured coating until required thickness of coating is achieved.
7. 一般來說，塗層應有的厚度範圍是 60um-80um。如果塗層的厚度超過以上建議的數值，也不會減少 NanoFlow 的功能。為達到最佳的防塵效果，塗層表面應盡量光滑。In general, coating should be formed with about thickness of 60um-80um. There is no reduction about the performance of NanoFlow if coating thickness is above recommended values. To maximize anti-dust performance, the coating surface should be smooth.
8. 把完成的工件置於陰涼、低濕度的環境下風乾。一般情況下，塗層應在 3 小時後達到「指觸乾燥」。Place finished part(s) to dry under shaded, low humidity zone. The coating should achieve ''touch-dried'' after 3 hours in general case.
9. 如不小心刮傷塗層，可以使用 NanoFlow 漆料進行修補。Touch-up could be carried out with NanoFlow liquid if any unwanted scratch on coating was made.
10. 對於用剩的 NanoFlow 漆料，先把包裝袋擠壓，盡可能排出所有空氣，最後旋緊蓋子。For un-used NanoFlow coating, squeeze the packaging bag to expel any air as much as possible. Close and screw down the cover tightly.

通風管道由“L”形部件組裝而成 Air ducts assembled from “L” shaped parts

1. 先把 GI 屈折成"L"字形的通風管道部件，並把所有鑽孔或機械性加工完成，才塗上 NanoFlow 漆料。(見圖 2) Prepare ducting part(s) made from GI with “L” shaped and complete any needed drilling or machining process prior to NanoFlow application (see figure 2.)

圖 2 Figure 2. 方形通風管道的’’L’’字部件 “L” shaped parts of rectangular air ducts

2. 請參考「一般用途」步驟 1-6。 Please refer to step 1-6 in “General Purpose”.
3. 塗層如在建議厚度範圍(60um-80um)，在這足夠的燈光下，可見到淡淡的 GI 特別鋅花紋在塗層中顯現。(見圖 3) 如果塗層的厚度超過以上建議的數值，也不會減少 NanoFlow 的功能。為達到最佳的防塵效果，塗層表面應盡量光滑。The recommended coating thickness should be applied in the range of 60um-80um. Under such conditions, a particular spangle pattern on GI would be barely visible through the coating under sufficient lighting. (See Figure 3.). There is no reduction in the performance of NanoFlow if coating thickness is above

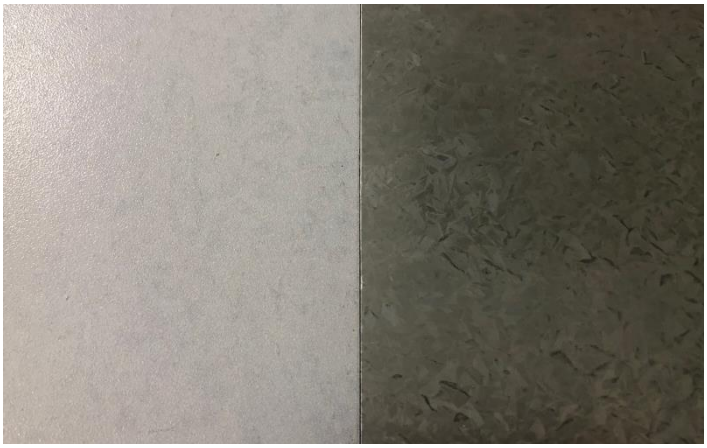

圖 3. Figure 3. 建議塗層的厚度(左) vs GI 表面(右) Coating with recommended thickness (Left) vs naked

recommended values. To maximize anti-dust performance, the coating surface should be smooth.

4. 請參考「一般用途」步驟 8。Please refer to step 8 in “General Purpose”.
5. 恢復餘下通風管道的組裝工作。除非塗層達到完全乾固(噴塗後 7 天)，否則不建議進行鑽孔或機械加工。Resume the rest of process of air duct assembling procedure. Drilling and other machining are not advised unless the coating is fully cured (after 7 days of spraying).
6. 請參考「一般用途」步驟 9-10 Please refer to step 9-10 in “General Purpose”

刷髹/滾筒式刷髹的工作說明 Working Instruction of brushing/ rolling

1. 請參考「噴塗的工作說明」內「一般用途」的步驟 1-3。Please refer to step 1-3 in “General Purpose” under “Working Instruction of spraying”
2. 將刷子/滾筒刷輕輕蘸入 NanoFlow 漆料 Dip your brush/roller gently into NanoFlow
3. 塗抹在工件的表面 Apply on the surface of your substrate
4. 首次塗在工件上時，塗層可能會出現縫隙或氣泡。為了得到最佳的效果，暫時不需蘸上漆料，請等待 10 秒後，在同一位置不斷塗抹，直至消除所有縫隙或氣泡為止。 Coating may be having voids or bubbles when you apply on the substrate initially. To get best result, please wait for 10sec and keep painting the surface with no EXTRA NanoFlow soaking until unwanted voids or bubbles are eliminated or reduced in order to achieve smooth coating.
5. 首先把第一層(前層)的氣泡消除，才進行複塗作業。Recoat may be arranged after bubbles on the first layer of coating are gone .
6. 請參考「噴塗的工作說明」內「一般用途」的步驟 8-10。Please refer to step 8-10 in “General Purpose” under “Working Instruction of spraying

附錄貳 Appendix II

個人防護裝備 Personal Protective Equipment

(PPE)

在使用 NanoFlow 進行噴塗，刷塗，滾筒刷塗或任何其他塗裝工作前，需穿著及佩帶適當的個人防護裝備，為了施工者的自身安全，對於眼睛及呼吸防護設備，建議採用全面/較大遮蔽的款式，如下圖所示：Prior to operating NanoFlow with spraying, brushing, rolling or any other painting method, it is required to dress up appropriate PPE. Eyes and respiration protective equipment is recommended to adopt full/larger coverage one for your own safety as shown below:

半面雙罐式面具(帶有 N95 過濾器和 VOC 濾盒 Half mask respirator with N95 filter and VOC absorbent

保護手套(乳膠或丁腈)Protective Gloves (latex or nitrile)

連身工作服
Worker overall

防護眼罩
Safety goggle

工業安全鞋 Industrial Safety Shoes