

PGX-Best Practice Guide

General Recommendations for Optimal End-Result

Section 1: Surface Preparations

<p>General recommendations, Surface Preparations:</p> <ul style="list-style-type: none"> ➢ Use fine mechanical sanding – do NOT sandblast ➢ Target surface roughness (Ra): 0.4–1.2 µm, depending on metal <p>Remove all:</p> <ul style="list-style-type: none"> ➢ Oxidation ➢ old coatings ➢ polish, wax, oils and contamination ➢ Finish with a solvent wash and clean lint-free cloths <p>Avoid:</p> <ul style="list-style-type: none"> ➢ wet sanding (water trapped in surface) ➢ silicon-based polishes ➢ fingerprints and grease <p>The surface must be:</p> <ul style="list-style-type: none"> ➢ Clean, dry, slightly “matte” and uniformly sanded ➢ Free from visible glossy spots and residues 	<p>Dew Point, Relative Humidity and Environmental Conditions</p> <p>To avoid condensation and moisture problems:</p> <ul style="list-style-type: none"> ➢ Steel and metal temperature must be at least 3 °C above dew point ➢ Relative humidity (RH): 40–85% is acceptable <p>Avoid application when:</p> <ul style="list-style-type: none"> ➢ dew or condensation is visible ➢ fog or mist is present ➢ salt spray is reaching the area during application <p>Practical recommendation:</p> <ul style="list-style-type: none"> ➢ Work under cover or indoors where possible ➢ Ensure constant, gentle ventilation around the propellers ➢ Avoid direct hot-air blasting that can dry only the surface and trap water inside the film
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Section 2: Detailed Surface Preparation by Metal

<p>Bronze / Nibral (most superyacht propellers)</p> <ul style="list-style-type: none"> ➢ Sanding sequence: P120 → P180 → P240 ➢ Target Ra: 0.8–1.2 µm ➢ Remove all tarnish and oxide layers ➢ Vacuum or blow off dust ➢ Degrease with appropriate solvent (as recommended by PWS supplier) ➢ Use clean lint-free cloths and new gloves ➢ Apply Layer 1 within 2–3 hours of preparation 	<p>Brass</p> <ul style="list-style-type: none"> ➢ Sanding sequence: P120 → P180 → P240 ➢ Target Ra: 0.8–1.2 µm ➢ Remove all discoloration and surface contamination ➢ Vacuum or blow off dust ➢ Degrease with appropriate solvent (as recommended by PWS supplier) ➢ Use clean lint-free cloths and new gloves
<p>Stainless Steel (316L, Duplex, Super Duplex)</p> <ul style="list-style-type: none"> ➢ Sanding sequence: P120 → P180 → P240 → P320 ➢ Target Ra: 0.4–0.8 µm ➢ Vacuum or blow off dust ➢ Degrease with appropriate solvent (as recommended by PWS supplier) ➢ Use clean lint-free cloths and new gloves <p>Special attention to:</p> <ul style="list-style-type: none"> ➢ “tea staining” ➢ micro-pitting and local crevices ➢ Stainless tends to hold oil/fat – degreasing is critical 	<p>Aluminium (props, pods, tabs, brackets)</p> <ul style="list-style-type: none"> ➢ Sanding sequence: P180 → P240 → P320 ➢ Target Ra: 0.6–1.0 µm ➢ Aluminium forms a new oxide film very quickly ➢ Degrease with appropriate solvent (as recommended by PWS supplier) ➢ Use clean lint-free cloths and new gloves <p>Recommendation:</p> <ul style="list-style-type: none"> ➢ Apply Layer 1 within 60 minutes after final sanding (Aluminium forms a new oxide film very quickly) ➢ If delayed, lightly re-sand with P320 and solvent-wipe before coating
<p>Special Alloys / Custom Castings</p> <ul style="list-style-type: none"> ➢ Sanding sequence: P180 → P240 → P320 ➢ Target Ra: 0.5–1.0 µm ➢ Degrease with appropriate solvent (as recommended by PWS supplier) ➢ Use clean lint-free cloths and new gloves 	

Section 3: Overcoating Intervals (Between Layers) @ normal thickness (70–120 µm DFT per coat) and good ventilation:

<p>25–30 °C:</p> <ul style="list-style-type: none"> ➢ Min. overcoat: 2-3 hours ➢ Max. overcoat: 8-12 hours 	<p>20–25 °C:</p> <ul style="list-style-type: none"> ➢ Min. overcoat: 2-4 hours ➢ Max. overcoat: 16-24 hours 	<p>15–20 °C:</p> <ul style="list-style-type: none"> ➢ Min. overcoat: 4-5 hours ➢ Max. overcoat: 24-30 hours 	<p>10–15 °C:</p> <ul style="list-style-type: none"> ➢ Min. overcoat: 6-8 hours ➢ Max. overcoat: 36-40 hours
<p>If the maximum interval is exceeded before applying the next coat: Lightly sand with P400–P600 and solvent-wipe before recoating.</p>			

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Section 4: Recommended Application Tools, Roll-Brush-Spray

<p>Application by Roller, for optimal results use:</p> <ul style="list-style-type: none"> ➤ High-quality short-nap mohair or microfiber rollers, 4–7 mm nap, solvent-resistant (i.e. short pile mohair rollers for 2K polyurethane / epoxy topcoats) <p>Avoid:</p> <ul style="list-style-type: none"> ➤ long-nap facade rollers ➤ sponge rollers that create bubbles <p>General recommendations:</p> <ul style="list-style-type: none"> ➤ Use new, dust-free rollers ➤ Pre-roll on masking paper to remove lint ➤ Roll in thin, even coats and avoid excessive back-rolling 	<p>Application by brush, for detail work and edges: (particularly useful for around hub geometry, Leading/trailing edges, and tight clearances near hull or rudder)</p> <ul style="list-style-type: none"> ➤ Use high-quality solvent-resistant synthetic bristle brushes <p>Avoid:</p> <ul style="list-style-type: none"> ➤ natural hairbrushes that can swell or shed hair <p>General recommendations:</p> <ul style="list-style-type: none"> ➤ Apply in thin, even coats and avoid excessive back stroke 	<p>Spray application</p> <p>HVLP or airless systems can be used, Typical guidelines:</p> <ul style="list-style-type: none"> ➤ Nozzle size: 1.3–1.8 mm (HVLP) or equivalent in airless ➤ Atomizing pressure adjusted to obtain a fine, even film without dry spray ➤ Always strain mixed paint before filling the spray gun ➤ Apply in cross-coats where possible to ensure even film build <p>Note: Spray provides the smoothest possible finish, but rolling/brush can also achieve very high surface quality when done carefully.</p>
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Section 5: Film Build

Correct film build thickness ensures optimal film formation, performance, and durability.
Deviations from this range can negatively affect coating performance if the Coating is Applied Too Thin or too thick

<p>Recommended film Thickness – Base Coat</p> <ul style="list-style-type: none"> ➤ WFT 4.3-4.7 mils (110-120µm) 	<p>Recommended film thickness – Finish Coat</p> <ul style="list-style-type: none"> ➤ WFT 3.9-4.3 mils (100-110µm)
<p>Applying a film below the recommended thickness may result in:</p> <ul style="list-style-type: none"> ➤ Incomplete film build, reducing mechanical strength ➤ Reduced barrier protection against saltwater, chemicals, and abrasion ➤ Lower UV resistance and premature degradation ➤ Poor hiding power, leading to visible substrate or uneven appearance ➤ Shortened service life. Thin films may also be more prone to pinholes and localized wear, especially in marine or high-exposure environments. 	<p>Applying an excessively thick film can cause:</p> <ul style="list-style-type: none"> ➤ Extended drying and curing times, especially at high humidity ➤ Poor water evaporation, leading to soft or under-cured films ➤ Risk of sagging, runs, or surface defects ➤ Reduced inter-coat adhesion if recoating is done prematurely ➤ Internal stress, increasing the risk of cracking or delamination over time

Section 6: Mixing and Application

Following correct mixing ratios as provided is essential for most optimal end-result

<p>Mixing ratios Base Coat:</p> <p>4:1 (plus water 15-25% depending on application method)</p> <ul style="list-style-type: none"> ➤ Roller or brush application: add 15% water ➤ Spray application: add 25% water <p>“Do not exceed recommended total water addition”</p> <p>Mixing ratios Clear Coat:</p> <p>4:1 (plus water 20-25% depending on application method)</p> <ul style="list-style-type: none"> ➤ Roller or brush application: add 20% water ➤ Spray application: add 20-25% water <p>“Do not exceed recommended total water addition”</p> <p>Mixing Procedure:</p> <ol style="list-style-type: none"> 1. Part A (base): Remove the lid and stir thoroughly until a homogeneous consistency is achieved 2. Part B (hardner): Remove the lid and pour the hardener into Part A 3. Stir thoroughly and until homogeneous using the mixing tool/s provided 4. Add water in three steps using the water bottle provided <ul style="list-style-type: none"> ➤ Add approximately one-third of the water at a time, stirring for approximately 1 minute between each addition. <p>(Mixture must be fully homogeneous, without streaks or separation)</p> 5. Let it rest for two minutes before application 	<p>Application Base Coat:</p> <p>Application by Roller:</p> <p>Apply 1 layer of approx. WFT 4.3-4.7 mils (110-120µm)</p> <ul style="list-style-type: none"> - Roll in thin, even coats and avoid excessive back-rolling <p>Application by Brush:</p> <p>Apply 1 layer of approx. WFT 4.3-4.7 mils (110-120µm)</p> <ul style="list-style-type: none"> - Brush in thin, even coats and avoid excessive back-rolling <p>Application by Spray:</p> <p>Apply 1 layer of approx. WFT 4.3-4.7 mils (110-120µm)</p> <ul style="list-style-type: none"> - Apply in cross-coats where possible to ensure even film build <p>Application Clear Coat:</p> <p>Application by Roller:</p> <p>Apply 1 layer of approx. WFT 3.9-4.3 mils (100-110µm)</p> <ul style="list-style-type: none"> - Roll in thin, even coats and avoid excessive back-rolling <p>Application by Brush:</p> <p>Apply 1 layer of approx. WFT 3.9-4.3 mils (100-110µm)</p> <ul style="list-style-type: none"> - Brush in thin, even coats and avoid excessive back-rolling <p>Application by Spray:</p> <p>Apply 1 layer of approx. WFT 3.9-4.3 mils (100-110µm)</p> <ul style="list-style-type: none"> - Apply in cross-coats where possible to ensure even film build
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