May 21, 2025

Operators Check List
Picote Brush Coating™ Xpress System

WARNING **DO NOT** use the equipment if you have not been trained. For your personal safety always ensure that you have read and understood the Operational and Safety Manual. Always follow the manufacturer's instructions when installing and using the machine with accessories.

Danger risk of serious injury or death by electrocution.

Danger risk of serious injury.

Danger risk of serious injury from moving parts.

Only Use Picote Equipment & Tooling Designed for Coating

PERSONAL PROTECTIVE EQUIPMENT (PPE):

Always use Personal Protective Equipment including suitable protective clothing, footwear, plus:

Suitable eye protection to protect against injuries and chemicals from irritating eyes.

Suitable ear protection to protect against hearing loss.

Suitable heat and cut-resistant gloves to help prevent any hand injuries. Any open injuries or skin irritations should always be covered to avoid contact with sewage, chemicals or dust.

Suitable respirator to prevent any dust or fumes being inhaled or consumed, which could cause occupational asthma or dermatitis.

RESIN TEMPERATURES:

Resin Storage Temperature: +16 to +29°C (60-85°F).

If Resin has been stored in temperatures under +16°C (60°F), or if working ambient temperature is below +30°C (86°F) it is advised to heat up the Resin Buckets using a second Hose Reel Heating Blanket, or by placing them in a heated container. Resin Buckets should be kept heated to room temperature during entire coating process.

CURE TIMES:

During the curing process, it is very impoprtant to prevent any dirt, debris or water from entering the pipe. The pipe must stay clean and dry during the entire coating and curing process. Water can prevent the Resin from bonding properly. Resin is ready for additional coats once surface is dry to touch.

AMBIENT CURE TIME: approximately 1.5 hours at +21°C (70°F)

HEAT CURE TIME: approximately 1 hour at +25°C (77°F) if Picote Heater is used.

Note: When adding heat the Resin should be allowed to gel 15-20 minutes after each coat before applying the Picote Heater. The pipe should never exceed a constant temperature of +65°C (150°F).

RETURN TO SERVICE:

- 4 Hours: Light use/restore flow, non-heated water.
- 24 hours: Full cure, pressure testing, heated water.
- Can be re-coated within 12 hours without any preparation. After 12 hours the Smart Cutter™ and grinding panels must be used to abrade the coating surface to ensure proper bonding of the next coat and the dust removed.

TEMPERATURE RESISTANCE:

Finished Product: up to 82°C (180°F) for commercial hot water. For chemical solutions please refer to the Chemical Resistance Charts.

PIPE PREPERATION: METALLIC PIPES:

- Remove any fats, oils or grease using a suitable degreaser.
- Clean pipe using the Picote Cleaning Chains or other comparable Picote tooling.
- Flush pipe with water, air or a vacuum cleaner to remove all debris.
- If needed, smooth pipe surface using the Picote Smart Cutter™ & Side Grinding Panels.
- Finally use Picote Wire Brush to remove any fine dust or remaining particles.

PIPE PREPERATION: PLASTIC PIPES:

- Remove any fats, oils or grease using a suitable degreaser.
- Clean pipe using the Picote PVC Original and/or PVC Cyclone Chains.
- Flush pipe with water, air or use a vacuum cleaner to remove all debris.
- Scour pipe surface using the Picote Smart Cutter™ & Side Grinding Panels.
- Finally use the Picote Nylon Cleaning Brush to remove any fine dust or remaining particles.

BRUSH SELECTION:

Always use a Brush one pipe size larger than the pipe to be coated. Although one Brush can be used in straight pipe, dual Brushes are required for pipes with bends or transitions. Except in DN32 (1¼") pipes where only 1 Brush is used at all times.
If coating pipe diameters ≤ DN50 (2") use the Xpress Small Pipe Diameter Coating Kit.

Note: Configurations depend on pipe layout. It is advisable to do a dry run prior to coating. Brush sizes noted are part number/description as per the catalogue. Brush diameter is always larger than the diameter of the host pipe.

Recommended Coating Brush Diameters for: 8mm (1/8") Shaft Millers (Mini Cleaner / Mini Miller) & 10mm (3/8") Shaft Millers (Midi Cleaner)				
Host Pipe Diameter	**Front Coating Brush Diameter (Straight)**	**Front Coating Brush Diameter (Multiple Bends)**	**Rear Coating Brush**	**Distance Between Brushes**
DN32 (1¼")	50mm (2")	N/A	N/A	N/A
DN40 (1½")	50mm (2")	50mm (2")	50mm (2")	20mm (1½")
DN50 (2")	75mm (3")	100mm (4")	50mm (2")	50mm (2")
DN70 (3")	100mm (4")	125mm (5")	75mm (3")	75mm (3")
DN100 (4")	125mm (5")	175mm (7")	100mm (4")	100mm (4")
DN150 (6")	175mm (7")	220mm (9")	150mm (6")	150mm (6")

Recommended Coating Brush Diameters for: 12mm (1/2") Shaft Millers (Super Midi / Maxi Miller)				
Host Pipe Diameter	**Front Coating Brush Diameter (Straight)**	**Front Coating Brush Diameter (Multiple Bends)**	**Rear Coating Brush**	**Distance Between Brushes**
DN70 (3")	100mm (4")	125mm (5")	75mm (3")	25-50mm (1-2")
DN100 (4")	150mm (6")	175mm (7")	150mm (6")	25-50mm (1-2")
DN125 (5")	175mm (7")	200mm (8")	175mm (7")	25-50mm (1-2")
DN150 (6")	200mm (8")	225mm (9")	200mm (8")	25-50mm (1-2")
DN175 (7")	225mm (9")	250mm (10")	225mm (9")	25-50mm (1-2")
DN200 (8")	250mm (10")	275mm (11")	250mm (10")	25-50mm (1-2")
DN225 (9")	275mm (11")	300mm (12")	275mm (11")	25-50mm (1-2")
DN250 (10")	300mm (12")	350mm (14")	300mm (12")	25-50mm (1-2")
DN300 (12")	350mm (14")	350mm (14")	350mm (14")	25-50mm (1-2")

CAPABILITIES:

- Xpress Pump + Mini Cleaner: DN32 to 75 (1¼ to 3") / Max length per run 15 metres (49').
- Xpress Pump + Mini Miller: DN50 to 150 (2 to 6") / Max length per run 25 metres (82').
- Xpress Pump + Midi Cleaner: DN50 to 200 (2 to 6") / Max length per run 32 metres (104').
- Xpress Pump + Maxi Miller: DN70 to 300 (3 to 12") / Max length per run is 40 metres (130').

BRUSH ASSEMBLY:

TIP: Always mount Brushes onto a Leader. This makes cleanup easier and extends the life of the Miller Shaft by reducing number of times needed to cut back Outer Casing/excess Shaft.

The larger of the 2 Brushes will be the Brush at the tip of the shaft and is used for finishing the Resin. Closest Brush helps to spread the Resin and stabilize the Brush set during coating.

1. Always use a Sleeve on Miller shaft whenever possible. Attach smaller Brush against the Sleeve, leaving roughly 6mm (¼") between the Brush Hub and Sleeve.
2. Securely tighten the two 2.5mm set screws. Do not over tighten screws to prevent stripping the Hub.
3. Slide larger Coating Brush onto shaft followed by Brush Stopper. Bring to end & tighten both securely.
4. Refer to Brush Assembly Table for proper distance between the Front and Rear Brushes.
5. Do not use Shaft Casing between the Brushes to ensure the needed flexibility around bends.

ATTACHING RESIN DELIVERY HOSE & CCTV CAMERA:

1. Attach Static Mixing Tip and Y-Connector 50mm (2'') behind the Sleeve with PVC tape.
2. 300mm (12") away, apply a second piece of tape securing the delivery hose to the Miller Shaft.
3. Tape the camera head behind the Sleeve.
4. Inspect the camera CCTV screen to ensure you have a good and full view of the Rear Coating Brush.
5. Once the Brush is in full view on the screen, tape the camera head from the far end all the way past the camera spring. This will help ensure the camera spring and connectors stay clean.

RESIN PREPARATION:

- Be sure to check that both Resin Reservoirs have been filled before pumping any Resin. This will allow you to have more efficient workflow.
- If Resin has been stored in temperatures under +15°C (59°F) temperatures, or if working ambient temperature is below +30°C (86°F) it is advised to heat up the Resin Buckets using a second Hose Reel Heating Blanket, or by placing them in a heated container.
- Resin Buckets should be kept heated to room temperature during entire coating process.

BEFORE EACH PROJECT:

- **Resin should be pre-mixed in their respective buckets to ensure Resin pigment consistency before pouring into Pump Resin Reservoirs.**
- **Resin in the system should be fully recirculated through heated Pump and Reel. This ensures the Resins are at the proper viscosity and mixed properly.**
- Fill up Resin Reservoirs with corresponding Resin components. You can use a small pitcher to pour the Resin to help avoid spills.

NOTE: Be extremely careful not to mix up the BASE (White) and CATALYST (Black) Resins vs their corresponding Resin Reservoirs. Failure to do this can cause permanent damage to the system!

RESIN CALCULATOR:

Use the Resin Calculator to determine how much Resin will be needed to complete all necessary coats. Refer to the chart below for recommended number of coats. The Resin Calculator can be downloaded from the Picote Institute (picoteinstitute.com).

Pipe Diameter	Number of Applied Coats For Internal Pipe Work (Corrosion Resistance)	Number of Applied Coats For Buried Pipework (Semi Structural)
DN32 (1¼")	2	2
DN40 (1½")	2	2
DN50 (2")	2	2
DN70 (3")	2	2
DN100 (4")	2	3 to 4
DN150 (6")	2 to 3	4 to 5
DN200 (8")	3 to 4	5 to 6
DN225 (9")	4 to 5	6 to 7
DN250 (10")	4 to 5	7 to 8
DN300 (12")	5 to 6	8 to 9

Addition Requirements for Special Applications:

- A minimum of 4 coats need to be applied when the pipe is going to be cleaned using High Pressure Water Jetting*.
- Minimum of 3 coats is needed for abrasion resistance.
- *Maximum Water Jetting Pressure = 2600 PSI (180 Bar).

RESIN MAINTENANCE: RECYCLING RESIN / DECRYSTALIZATION:

It is recommended to fully recirculate Resin through the heated Pump & Reel bi-weekly if in storage, as well as each day prior to beginning coating. Recirculating Resin through the heated Pump & Reel ensures consistent Resin viscosity & temperature to maintain a proper mix ratio to produce the highest quality finished product. It also will help to decrystallize Resin (refer to the Picote Operation and Safety Manual).

SETTING UP THE XPRESS PUMP:

1. Connect Hose Reel Hydraulic Resin Supply Hoses to Pump.
2. Open Reservoir Valves to relief pressure buildup inside Cylinders. If hoses do not connect with reasonable force, open hose connection to relieve pressure.
3. Connect Hose Reel electric connection cable to Pump.
4. Connect Remote Control cable to Hose Reel and to Remote Control.
5. Turn on Pump.
6. Confirm Pump Thermostat set to +40°C (104°F). **Note:** temperature comes pre-set to that from factory.
7. Confirm Hose Reel Thermostat is set to +35C° (95°F). **Note:** Temperature comes pre-set from factory at +35C° (95°F).
   - Standard Reel: Wrap Heating Blanket around Hose Reel/Delivery Hoses, connect to power.
   - Heated Reel: Reel will automatically heat up.
6. Press Emergency Check button. If the light on the button does not go off, check all of the Emergency Stop Switches and also ensure that the Safety Screen is fully closed.
7. Press Check Button.
8. Fill Resin Reservoirs with BASE & CATALYST Resin and reinstall Lids.
   NOTE: Resin Reservoirs should be only be filled when Pistons are in the fully lowered position.
9. Open Reservoir Valves.
10. Allow system to heat for 30-60 minutes.

COATING PROCESS:

1. Select **COATING** mode on Directional Switch.
2. Select slowest Pump speed on the Remote. *When coating, slowest speed is recommended.*
3. Remove End Caps from Delivery Hoses.
4. Store End Caps in the Reservoir Lid's storage holes.
5. Place ends of Delivery Hoses into a waste container.
6. Close BASE Reservoir Valve.
7. To start pumping, press Start Button on Remote.
8. Watch pressure gauges. CATALYST pressure will rise before BASE pressure. Keep CATALYST Valve open, close as soon as pressure starts to rise on BASE Gauge.
   - The pressure difference shouldn't be more than 15 Bar (217 PSI).
   - Pressure should rise within a few seconds. If it takes longer than 5 seconds to build pressure, there is air in the system, and the system needs the air bled and Resin recirculated.
   - **During operation, visible bubbles in the Base Resin Reservoir are normal.**
   - **NOTE: During coating, Pump stops and resumes pumping automatically. This is normal.**
7. Pump until Resin can be seen dispensing our of both Delivery Hoses.
8. Connect Delivery Hoses to a clean Y-Connector and Static Mixing Tip.
9. Remove Heating Blanket from Hose Reel (if used). If ambient temperature is below +25°C (77°F), place Blanket back on between coats to keep Delivery Hoses/Resin warm.
10. Push assembly to far end of pipe area to be rehabilitated. Begin pumping Resin.
11. Watch CCTV screen closely for Resin flow. **NOTE:** it may be difficult to see the flow of Resin if camera is turned upside-down. Move camera and Miller Shaft back and forth as necessary to check for Resin flow.

12. Start coating from the far end. Pump out Resin and brush it on in 1m (3') sections. Pull slowly and evenly. Pay close attention to Resin flow and lay a consistent bead of Resin in the pipe by watching the thickness of the Resin bead around the Brush edge.

13. Stop Pump and Brushes. Push back into pipe to visually verify coating has covered all areas evenly. Repeat process in 1m (3 ft) sections until pipe is fully coated.
    NOTE: Brushes should always be rotating when being pulled back through the pipe for coating and stationary when being pushed into the pipe for visual inspection.
14. Carefully inspect and ensure Resin fully covers the pipe surface. Average Resin coat thickness is ≈ 1.0 mm (0.039"). Be especially mindful when coating around bends & ensure usage of Brush setup recommendations for coating in bends.
15. Between coats, rinse and spin Brushes in a bucket of acetone and clean off any excess Resin before it has a chance to harden. Be sure to use PPE along with a lid and rags/cover to prevent acetone from splashing out of the bucket.
16. Remove & disposed of Mixing Tip & Y-connector.
17. Pump out a small amount of Resin into a waste bucket. Note: Some BASE component might come out from the CATALYST side.

18. Cap both Delivery Hoses.
19. To speed up drying time, use a Piocte Heater. Allow Resin to gel for 15-20 minutes after a coat is complete before applying the Heater to avoid drips/runs/waves in the coating.

20. If the next coat is applied after 12 hours, the pipe will need to be abraided with the Picote Smart Cutter™ & Side Grinding Panels prior. Any resulting dust or debris will need to be removed from the pipe before the next coat is applied. **Failure to do so will cause a coating bond failure.**