



## Operating & Safety Manual

Picote Coating System

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.



### **WARNING**

These instructions are for your personal safety. Always ensure that you have read and understood these instructions before using any of the Picote Coating System range.



We now have resellers in the U.S., Europe & Australasia.

Locate your reseller at [picotesolutions.com](http://picotesolutions.com)  
or call **+44 7585 116508** for further information.

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To watch practical demonstration videos, or to download an electronic copy of these Instructions, please visit [www.picotesolutions.com](http://www.picotesolutions.com). Please note that videos are not intended as a replacement or alternative to this operating and safety manual, but only as an additional learning tool.

## SAFETY INFORMATION



**WARNING**

*This section contains important safety information. Failure to comply could result in serious injury or death.*

### Safety Symbols

Safety symbols are used throughout this manual to draw attention to potential hazards.



**Danger** risk of serious injury, follow instructions



**Danger** risk of serious injury from rotating parts

### Personal Protective Equipment (PPE)

Always use Personal Protective Equipment when using the Picote Coating System, including suitable overalls / protective clothing & footwear and the following:



Always wear suitable eye protection when using the Coating System to prevent coating resin or other dust from irritating your eyes.



Always wear suitable ear protection when using the Coating System to prevent any hearing loss.



Always wear suitable resin-resistant gloves when using the Coating System to prevent any skin irritations. Any open injuries or skin irritations should be covered at all times to avoid contact with resin or dust.



Always wear a suitable ventilation mask when using the Coating System to prevent any resin dust or vapours being inhaled or consumed, which can cause occupational asthma or epoxy dermatitis as well as eye irritation.

### Always remember



Dust produced when working can be dangerous to your health, inflammable or explosive.

Make sure the drain pipe has been **opened** and **ventilated** to stop any gases forming in the lateral drain where the work takes place.



Before assembly, use, replacement of parts or maintenance, unplug the Picote milling machine from its power socket. **Failure to comply may lead to serious injury including electric shock or injury from rotating parts.**

# PICOTE COATING PUMP

## GENERAL DESCRIPTION

1. Power cord
2. Resin Supply Hose
3. Delivery Hose
4. Motor
5. Resin cup location
6. Speed control
7. Reverse/Forward
8. On/off button
9. Release, locks pump to Miller
10. Resin release button



SIZE WxLxH	HOSE	RANGE	ROTATING SPEED	OUTPUT kw	POWER SOURCE	WEIGHT
26x42x54.5 cm 10.2x16.5x21.5"	8/10mm	Max 15m Max 50ft	Depends on pipe diameter	5	Electric	15kg 33.1lb

## INTENDED USE

This machine is intended for the following uses;

1. Coating drains from DN32-150 / 1¼"-6".
2. Cleaning sewers and drains with degreaser.

Always follow the manufacturer's instructions when installing and using the machine with accessories.

## VOLTAGE

**Ensure that the supply voltage is correct.** The voltage of the power source must match the value given on the nameplate of the machine. Available in 230v and 110v.

## POWER SUPPLY

The machine should be connected only to a power supply of the same voltage as indicated on the nameplate, and can only be operated on single-phase AC supply.

The machine has a hand-held operator presence control button or 'OPC'. When the control is not held down, the machine stops pumping resin.

# MINI MILLER 8/17

The Mini Miller powers the Picote Coating Pump.

**TIP:** Please refer to Mini Miller manual for more information.

## GENERAL DESCRIPTION

1. Cable Rack
2. Frame
3. Flexible Shaft
4. Motor & Bevel Gear (not shown)
5. Emergency Stop Button (red)
6. Power Switch
7. Speed Control, see p.18
8. Foot Pedal — Operator Presence Control
9. Hand Guard & Strain Relief/inside Hand Guard



**CAUTION**

When in use, always lay the machine down horizontally on the floor as shown above. When not in use some non-hazardous paraffin oil might leak from the hand guard.

SIZE	SHAFT	RANGE	ROTATING SPEED	OUTPUT w	POWER SOURCE	WEIGHT
750x640x300	8mm	17m	500-2900rpm	1200	Electric motor	32kg
29"x20"x16"	1/3"	55ft				72lb

## INTENDED USE

This machine is intended for the following uses;

1. Coating drains from DN32-150 / 1¼"-6".
2. Cleaning sewers and drains by grinding. (Picote Grinding Chains)
3. Reinstating branches in sewers and drains by drilling and grinding (Picote Lateral Cutters)

Always follow the manufacturer's instructions when installing and using the machine with accessories.

## VOLTAGE

**Ensure that the supply voltage is correct.** The voltage of the power source must match the value given on the nameplate of the machine.

## POWER SUPPLY

The machine should be connected only to a power supply of the same voltage as indicated on the nameplate, and can only be operated on single-phase AC supply.

## EMERGENCY STOP

**There is an Emergency Stop Button on the machine.** The power supply to the motor is cut off when the Emergency Stop Button is pushed. Always make sure the Emergency Stop Button is pressed or completely unplug the machine when the machine accessories (e.g. Cutter or Grinding Chains) are not inside the drain.

The machine has an operator presence control or 'OPC'. When the control is not held down, the machine stops.

The Coating Pump can also be used with the Micro Miller, range 12m/39ft

# REQUIRED PARTS

First, make sure you have all the required parts.



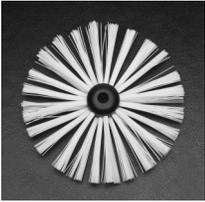
PRODUCT NAME	PRODUCT NUMBER	DESCRIPTION	INFO
<b>1. COATING PUMP</b> 	2220100001 2220100002	Coating Pump EU 230v Coating Pump UK, US 110v	Hoses, brushes & other parts sold separately.
<b>2. MINI MILLER</b> 	3540000817 3540000817UK 3540000817US	Mini Miller 230v, 17m range Mini Miller 110v, 17m UK 16A Mini Miller 110v, 55ft range	8mm/1/8" shaft
<b>3. HOSES &amp; SHAFT</b>     	2220100004  2220100003  1312020085  9522000018  9321319085SB 93212319085BS	Resin supply hose  Resin delivery hose  Mini Miller spare shaft, 8mm  Hose connector with two hose clamps  8mm/1/8" Sleeve with bearing Bearing for 8mm/1/8" sleeve (spare part)	Comes in 25m/82ft lengths. Colour red.  Comes in 25m/82ft lengths. Colour blue or black.  18 metres/59ft  For 8mm/1/8" shaft outer casing Package of 10 bearings. Bearing to be used inside the sleeve.

**PLEASE NOTE:** always check that the rotational direction is **clockwise** before placing the tool inside drain.

# REQUIRED PARTS FOR COATING SYSTEM

First, make sure you have all the required parts.



PRODUCT NAME	PRODUCT NUMBER	DESCRIPTION	INFO
<b>4. COATING BRUSHES</b>    	2120000050 2120000075 2120000100 2120000125 2120000175 2120000220  900000338	for DN32/¼" drain for DN50/2" drain for DN70/3" drain for DN100/4" drain for DN150 /6" drain for DN200 /8" drain  Brush stopper	All brushes fit 8mm/½" shaft only.  Extra stopper to secure brush
<b>5. PICOTE COATING RESIN</b>  	2110000501  2110000502	Coating resin + hardener (340g/0.75lb)  Coating resin + hardener (8.25kg/18.2lb)	More information p. 17 & 25
<b>6. DRAIN CAMERA</b>  	Use your own mini camera		Mini cam is necessary for the process as a standard cam will weight the brush down too much and create problems with the finished product.
<b>7. OTHER ITEMS</b>	Any coloured electric tape Resin cups Acetone, rags & bucket Latex gloves Razor knife Scissors Stirring stick Nut driver Hex Key Small hose clamps	See p. 16 for sample For clean up  For hose clamps For tightening crews Spares	

## PREPARING THE ORIGINAL PIPE FOR COATING



### Step 1

Clean the pipe very well with grinding chains and flush with water. Let the pipe dry out. For pipe with an excessive build up of fats, oils or grease (FOG) a degreaser may be necessary. This can be pumped into the pipe during cleaning if necessary.



### Step 2

When necessary run the Smart Cutter™ with side grinding panels through the pipe to create a rough surface and allow for resin to bond to the pipe wall as best as possible.



# COATING SYSTEM ASSEMBLY

First, make sure you have all the required parts. Please see photo parts' lists on pages 6 & 7.

Please read safety information on page 3 before assembly and use.

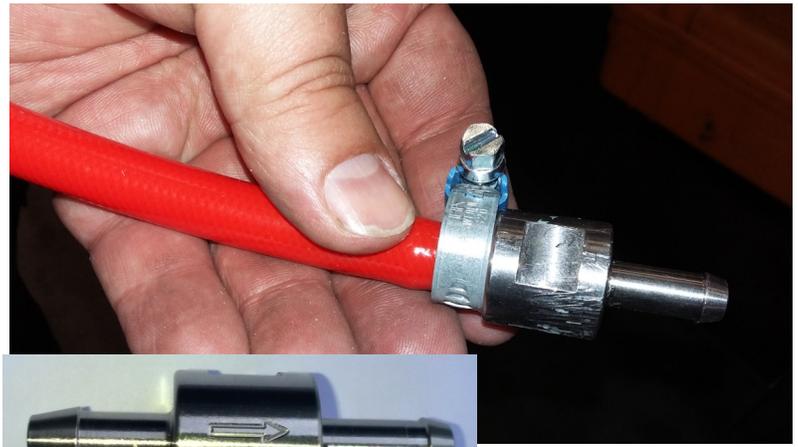
## Step 1.

Cut a 1.3 metre/4.2" piece of the red resin supply hose. Make the cut in a 45 degree angle on one end to allow for proper suction of resin and a square cut on the opposite end to attach to the hose connector.



## Step 2.

Attach the hose clamp and connector to the resin supply hose and tighten clamp. Picote uses a durable resin supply hose that can withstand both excess pressure and friction created by the pump head during the coating process.



**NOTE:** The arrow will point to the direction of the resin flow. The red hose comes to the left of the arrow.

## COATING SYSTEM ASSEMBLY

### Step 3.

Cut the required length of the delivery hose - length equals the coating distance (max recommended distance is 15 metres/50ft) plus the length of hose needed to reach the pump connector at the machine.



### Step 4.

Pump and Miller should be placed as closely as possible to the access point for safe and efficient operation.



### Step 5.

Attach the delivery hose to the connector and secure it with the hose clamp.



### Step 6.

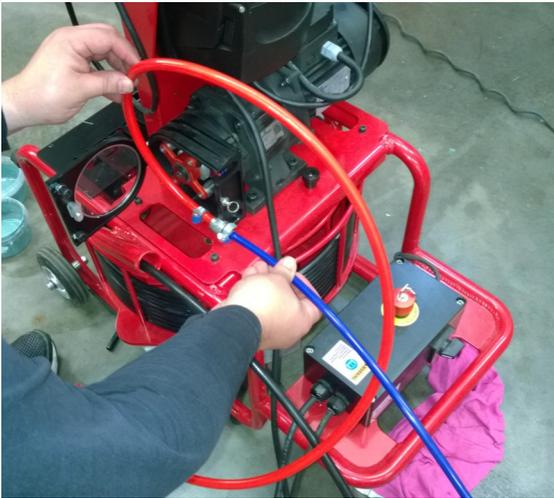
The resin supply hose will have a natural curve to it. Identify the direction of the curve.



# COATING SYSTEM ASSEMBLY

## Step 7.

Verify that the natural curve of the hose is followed through the pump housing from bottom to top when loading into the pump head. This will prevent the hose from becoming bound or pinched in the pump head.



## Step 8.

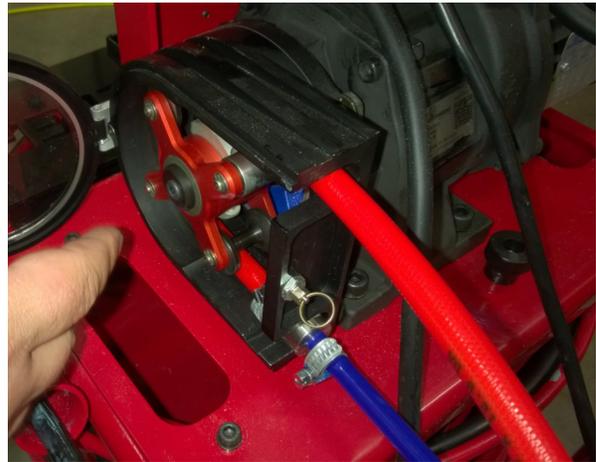
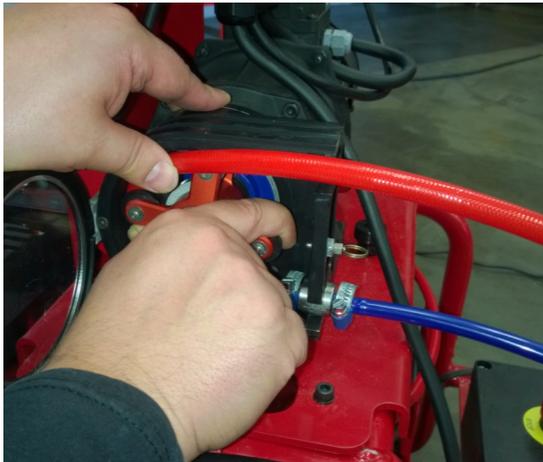
Place the hose connector inside the pump compartment at the bottom. There is a specific groove for the connector to rest in.



## COATING SYSTEM ASSEMBLY

### Step 9.

Turn the pump head so the hose goes around it. Ensure that the natural curve of the hose is following around the pump head.



### Step 10.

Make sure door is firmly closed. Once the hose is wrapped around the pump head close the door firmly until it clicks.



### Step 11.

Keep door closed during operation.



**IMPORTANT:** The pump will automatically stop if door is left open. Keep door closed during operation.

# COATING SYSTEM ASSEMBLY

## Step 12

Feed the supply hose through the handle and down towards the supply hose holder.



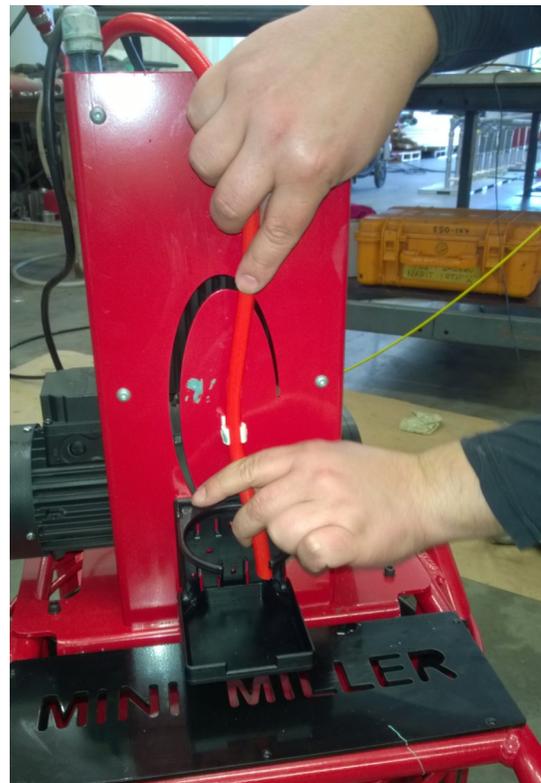
## Step 13.

Add resin cup to holder.



## Step 14.

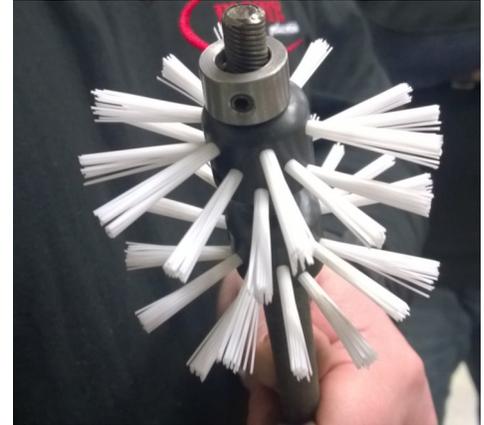
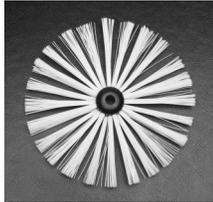
Push resin supply hose to bottom of the cup and snap into the hose holder.



# COATING SYSTEM ASSEMBLY / BRUSHES

## Step 15

**Brush selection:** Select the appropriate brush size(s) for the coating job. Generally use a bigger size brush than the pipe diameter. In pipes with diameter changes, use two different brush sizes. Using two brushes will also minimize the run-off and keep the forward most brush centered better in the pipe.



- 50mm/2" Coating Brush for DN32/1/4 drain
- 75mm/3" Coating Brush for DN50/2" drain
- 100mm/4" Coating Brush for DN70/3" drain
- 125mm/5" Coating Brush for DN100/4" drain
- 175mm/7" Coating Brush for DN150/6" drain
- 225mm/9" Coating Brush for DN200/8" drain

**DIAMETER CHANGE IN THE PIPE:** Use 20-30% bigger brushes. For example: in a DN70/100 (3"/4") pipe use one 125mm/5" in front and 100mm/4" brush in the back.

## Step 16

Always use a sleeve for the outer casing. Plan to leave about 100mm/4" between the two brushes. Attach first brush against the sleeve about 5-10mm from the sleeve. Tighten the screws.



**IMPORTANT:**  
DO NOT OVERTIGHTEN  
THE SET SCREWS AS  
THEY CAN BECOME  
STRIPPED AND LOOSE  
ON THE SHAFT.

Set the rounded edge of the brush against the sleeve. Leave a 5-10 mm space between the brush and the sleeve.

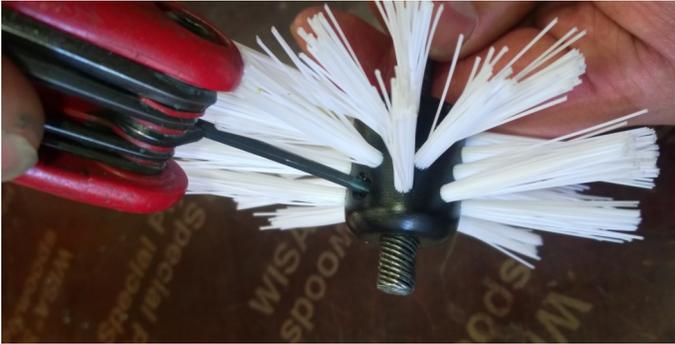
**TIP:** Extend the lifespan of the shaft and outer casing. Always use a sleeve with bearing for the outer casing.



# COATING SYSTEM ASSEMBLY / BRUSHES

## Step 17

Set the front brush rounded side facing forward. The rounded edge decreases the risk of the brush becoming stuck. Tighten the screws.



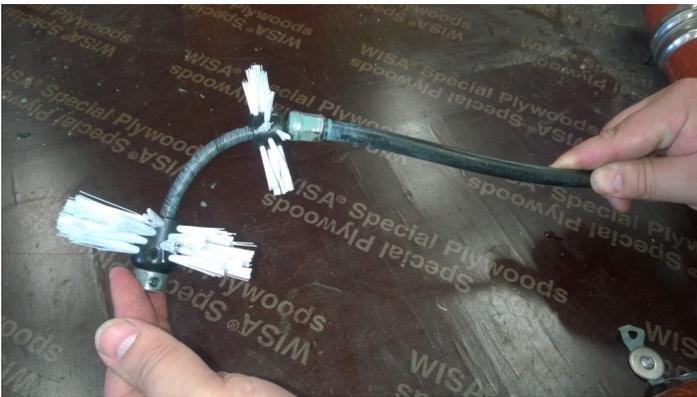
## Step 18

**Added security:** Always secure the brushes with a Brush Stopper in front. Tighten the screws.



## Step 19

**Test flexibility:** Leaving exposed shaft between the two brushes makes it more flexible.



Bends.



Diameter change in pipe.

## COATING SYSTEM ASSEMBLY / BRUSHES

### Step 20

Attach the delivery hose to the Mini Miller shaft about 5cm/2" behind the closest brush. Use electrical tape to tape the hose and shaft together for about a 1m/3.3ft length. Use several pieces of tape.



**NOTE:** Leave enough space between the tape pieces to keep the flexibility.

### Step 21

Attach the camera about 20-30 cm/8"-12" from the back of the brush so that you can see the entire brush on the camera screen. The camera head is attached below the resin delivery hose and the Miller shaft.



# PREPARING THE RESIN



## Step 1

Wear at least two pairs of safety gloves.



## Step 2

Follow the coating resin manufacturer's instructions. Use a scale when measuring parts for ratios from larger containers.

## PICOTE COATING RESIN

Mixing ratio 100:65 / Pot life 25-30 min

SMALL CONTAINER		LARGE CONTAINER	
Plastic part:	200g/0.44lb	Plastic part:	5kg/11lb
Hardener:	140g/0.31lb	Hardener:	3.25kg/7.2lb
Total:	<b>340g/0.75lb</b>	Total:	<b>8.25kg/18.2lb</b>

**Picote Coating Resin:** Cure Times & Temperature: Dusty dry 12 hours, light wearing 1 day, final hardness 7 days. Pot life (mixed resin) 25 minutes at 20°C/68F. Installation at 16-50°C/61F-122F. Storage at 16-25°C /61F-77F. For more detailed information sheet, please see page 25.

**TIP:** Do not mix too much resin at a time. Resins have limited work time. Higher temperatures will decrease the work time.

## Step 3

For Picote resin, carefully mix the hardener and the plastic part for approximately three minutes.



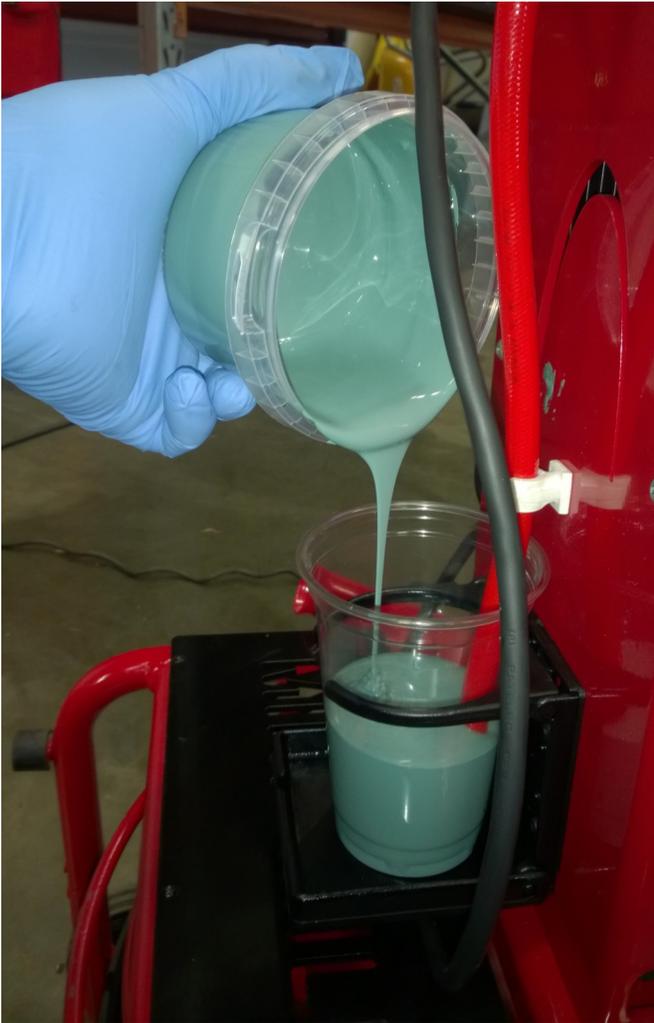
Small pot of Picote Coating Resin



## PREPARING THE RESIN

### Step 4

Pour the mixed resin into a safe, disposable cup.



**TIP:** Minimise the mess. Have rags and a cutter available for later use.

# OPERATING THE COATING SYSTEM



## Step 1

Adjust the rotational speed in the back of the Mini Miller. Recommended setting is 2-3 on the variable speed dial on Miller.



## Step 2

On/Off button.



## Step 3

Adjust the pump speed to high. This will allow the pump to prime the delivery hose faster once the coating process begins.



## Step 4

Verify the rotational direction is **clockwise** on the pump and Miller. Both machines should be operating in forward setting.

## ROTATIONAL DIRECTION

### CLOCKWISE

Miller — Forward

Pump — Forward

# OPERATING THE COATING SYSTEM

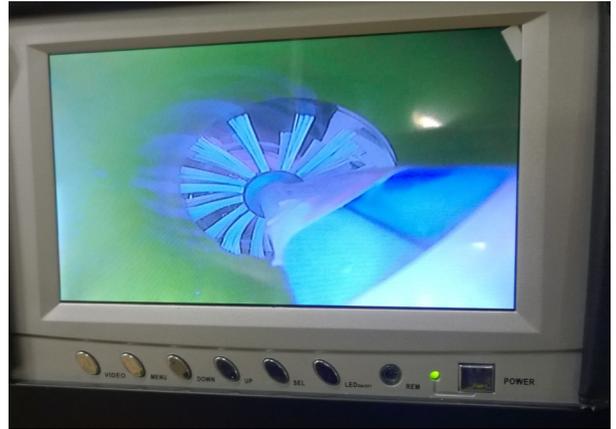
## Step 5

Push the coating brush/camera/resin hose set into the pipe. Start the Mini Miller and push the brushes into the pipe if necessary to navigate bends.



## Step 6

Follow the brushes on the camera screen. Throughout the coating process watch the camera screen.



**IMPORTANT:** Keep the camera head clean. Clean the camera head carefully with Acetone if resins gets stuck to it.

## Step 7

Push the resin release button to pump resin into the pipe. Watch for the resin to begin to flow from the delivery hose on the camera.



## Step 8

Once resin can be seen flowing stop the pump and turn the variable speed dial down to the appropriate speed for the pipe diameter.



# OPERATING THE COATING SYSTEM

## Step 9

Start the coating from the far end. Pump out resin and brush it on 20-30cm/8"-12" at the time. Push brushes back to starting point and check with the camera.



**TIP:** Pump resin out so there is a little 1mm puddle to brush in.

## Step 10

When pushing back don't rotate the brushes, except when you want to push material. Repeat the process if necessary.



## Step 11

Add more resin to the cup when needed. Mix small quantities at the time to maximise work time.



## Step 12

Average coat thickness is 1mm. Carefully inspect that the resin covers the pipe everywhere. Be especially careful around bends.



# OPERATING THE COATING SYSTEM

## Step 13

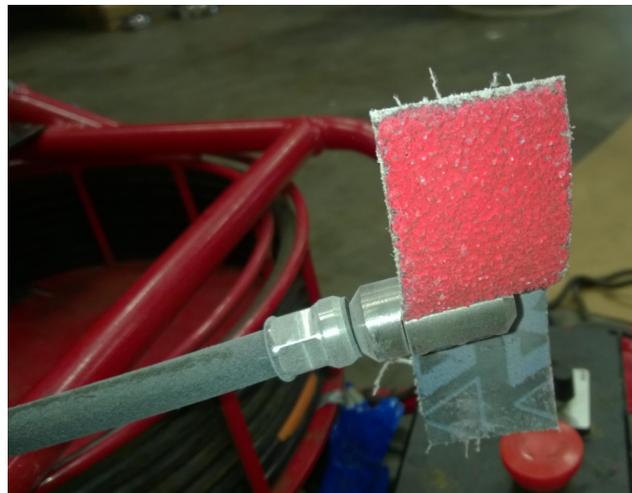
**Applying additional coats.** The next coat can be applied 4 hours later, or earlier if heat (warm air) is used.

### How many coats are recommended?

DN32/1¼"	2 coats
DN50/2"	2-3 coats
DN100/4"	3-4 coats
DN150/6"	4-5 coats

## Step 14

**Applying additional coats.** If the next coat is applied after 24 hours, the original coat will need to be roughened up with a Smart Cutter™ first to make sure that the layers bond well.



# OPERATING THE COATING SYSTEM / CLEAN UP

## Step 1

When you have finished coating, put the brushes in a small container filled with Acetone. Cover the hole with a rag. Turn on the Mini Miller.



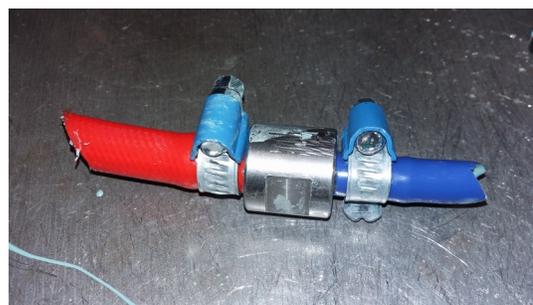
## Step 2

Wipe the camera head and the Mini Miller shaft clean with Acetone. Place the hose ends back to the resin cup. Cut off the hoses and discard them. **SAVE the hose connector.**



## Step 3

Save the hose connector. Let the resin dry out and follow instructions on page 24. You can also clean the connector with Acetone right away if you choose to.



# OPERATING THE COATING SYSTEM / CLEANING THE HOSE CONNECTOR

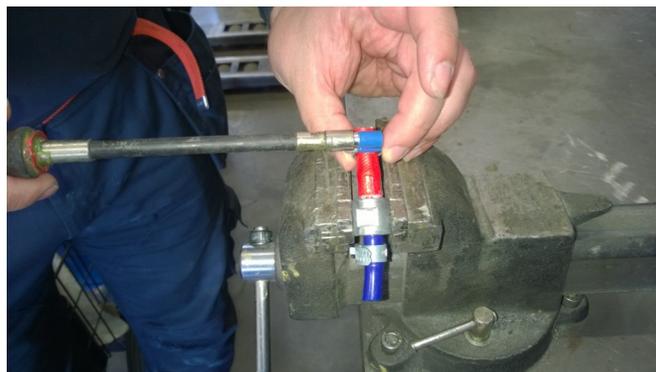
## Step 1

To remove the resin from the Hose Connector, place the connector in a safe, sturdy place.



## Step 2

Remove hose clamps using a Nut Driver.



## Step 3

Remove clamps and hose pieces. Save the clamps for future use.



## Step 4

Place the Hose Connector back to a safe place.



## Step 5

Use a 5mm drill bit to clean the connector. Turn the connector around to get all resin removed.



**TIP:** Make sure you have several connectors available.

## Step 6

Remove all resin.



# PICOTE COATING RESIN INFO

## K1 Curing Agent

**Contains:** 4,4'-Methylenediphenyl diisocyanate, oligomeric reaction products with butane- 1,3-diol, 2,4'-diisocyanatodiphenylmethane, 1,1'-methylenebis (4-isocyanatobenzene) homopolymer , [(methylethylene) bis(oxy)] dipropanol and propane- 1,2-diol.



**DANGER**

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### Hazard Statements

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation

H351 Suspected of causing cancer.

H373 May cause damage to organs through prolonged or repeated exposure.

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### Precautionary Statements

**P102 Keep out of reach of children.**

**P280 Wear protective gloves / protective clothing/ eye protection / face protection.**

**P260 Do not breathe dust / fume / gas / mist / vapours / spray.**

P304 + P340 IF INHALED: Remove victim to fresh air, keep at rest in a position for comfortable breathing.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P307 + P311 IF EXPOSED: Call a POISON CENTRE or doctor.

P501 Dispose of contents / container in accordance with local regulations.

**Minimum Storage Temperature:** +16° C / 61F

**Shelf Life:** 6 months from packing date.

# MAINTENANCE

## CARING FOR THE FLEXIBLE SHAFT (Mini Miller)

The flexible shaft is pre-treated with **paraffin oil** and the casing replaced prior to shipping. Always inspect the condition and apply oil between the flexible shaft and its outer casing when required. If necessary remove the shaft from its casing to treat. When the casing has been replaced, rotate manually for even coverage.



**TIP:** If paraffin oil is unavailable, air compressor lubricating oil may be used as an alternative.

## FASTENER SCREWS

If you are unable to tighten the fastener screws properly, due to worn out hex socket heads, replace the fastener screws immediately. Otherwise, a panel can detach from the hub during the coating process and fall into the pipe.



## PUMP & MILLER PARTS

Keep parts clean. Remove possible resin from Coating Pump, brushes, Miller and other parts carefully with Acetone. See pages 23-24 for more information.

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## FOR MORE INFORMATION

Please contact:

Your reseller / salesperson or Picote

### PICOTE INTERNATIONAL TEAM

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## INNOVATIVE THINKING

In Finland, Picote is a very well established contracting company, successfully rehabilitating thousands of drains and sewer pipes with trenchless methods since 2008.

By focusing on in-house research and development, our company also offers a growing range of unique, patented and patent-pending products, which are now available to the international market.

These resourceful tools and machinery have been devised and perfected as a direct result of feedback and evaluation from worksites.

As a contractor ourselves, we know that durability, reliability and safety do matter at the work site, and that value for money is also a priority. That's why at Picote we are proud of our innovative, quality products.

*Designed for professionals, by professionals.*

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