



SOLUTIONS FOR THE REPAIR RENOVATION AND DECOMMISSIONING OF PIPELINES



Large Diameter PE Pipe Cutter Operating Instructions—DRAFT

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1. INTRODUCTION

Since its foundation in 1981, Steve Vick International has been at the leading edge of trenchless techniques for the repair and renovation of underground **gas** distribution pipes.

In the UK, we are a major supplier to the gas distribution networks and many of our techniques have become accepted practice in the industry. We constantly seek to provide our customers with renewal methods which will minimise their costs and maximise their production.

The company has been supplying pipe handling equipment to the **water and gas** utilities and their contractors for over 20 years. More recently we have entered the market with pipe cutting equipment and our sealant technology has been successfully adapted for use in the waste water sector.

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2.0 REVISION HISTORY

Version No.	Revision Date	Summary of Changes
01	01/02/2023	Created.
02	06.03/2023	Text and Image changes
03	22/05/2023	Text and Image changes
04	08/09/2023	Text and Image changes

2.1 APPROVALS

This document requires the following approvals.

Name	Signature	Position	Approval Date	Version No.
Sean Noonan		Director	06/10/2023	4
Elliot Ross		Technical Support Manager	06/10/2023	4

3.0 PE CUTTER INTRODUCTION

The PE Pipe Cutter is a chain mounted pneumatic device that uses a cutting tool to perform a full circumferential cut on Polyethylene pipe up to a diameter of 900mm. The machine is safer and faster than alternative cutting methods such as a chainsaw and can be used either in an excavation or above ground.

3.1 SCOPE

This manual covers the assembly of the equipment, installation, and maintenance of the PE Pipe Cutter.

4.0 SAFETY AND PRECAUTIONS

4.1 PREPARATION PRIOR TO OPERATING THE PE CUTTER

- Ensure Safety Zone is established in the area of operation and route taken by the hose lines
- Isolate area from pedestrians and other plant.
- Carry out daily checks as listed in *Section 8 Maintenance* of this manual
- Ensure all equipment is sound and where required certified, in date and available on request.
- For the machine to travel 360 degrees around the pipe, 190mm of clearance to other utilities and obstructions is required above the pipe's surface.
- Whilst the best cutting results occur when transiting the machine clockwise, cutting can be performed in the reverse direction if required to avoid an obstruction, with the final section being completed using a manual cutting method.

4.2 IMPORTANT POINTS

The Grout Rig is designed for the purpose of mixing Grout product to water and should not be used for anything else. Ensure the following points are adhered to:

- Ensure the cutter guard is present correctly fitted.
- Correctly fitted PPE must be worn without any loose clothing as this could snag in the machine—see Section 4.1
- The decibel rating for the PE Cutter (Pneumatic Control and Storage Box) runs at ??
- Only trained operatives are to use the PE Cutter

4.3 THE FOLLOWING PPE MUST BE WORN AT ALL TIMES



FULLY READ MANUAL BEFORE USE



Hard hat



High visibility jacket



Gloves



Steel toe cap footwear



Ear Defenders may be required—see Power Source dB rating on pneumatic control and storage box



Wear protective clothing (no loose clothing)



Eye Protection

5. Kit Contents

The following image shows the component parts of the PE Pipe Cutter that are provided as standard by SVI. Please note that all guards have been removed to allow for cleared imagery of the machine.

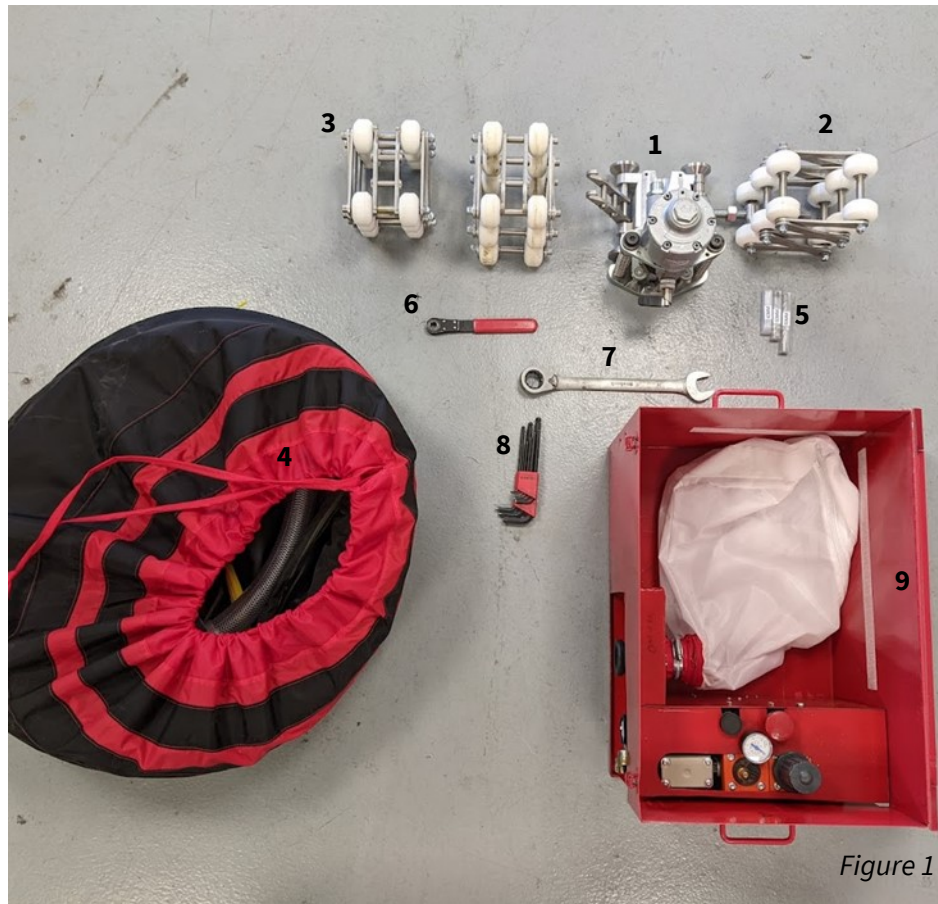


Figure 1

Image No.	Component
1	Machine Body
2	Primary Chain
3	Additional Chain Sections
4	Hose System
5	Cutter Set
6	10mm Ratchet Spanner
7	24mm Spanner
8	Allen Key Set
9	Pneumatic Control and Storage Box

6. Pipe Preparation and Assembly

6.1 Identify the amount of chain extension links required for the given pipe diameter, using the table below as a guide. These additional links can be easily hooked together to form a continuous chain. Please note that the PE Pipe Cutter is only provided with two extension links as standard and therefore can only cut up to 630mm without extra links. For additional lengths please contact SVL.

Chain Configuration	Suitable Pipe Diameters (mm)
Primary Chain Only	250 - 300
Primary + 1 Additional Chain Link	300 - 450
Primary + 2 Additional Chain Links	450 - 630

6.2 Based on the wall thickness of the pipe you are wishing to cut, select the correct cutting tool from the table below. Attach the cutting tool to the machine using the provided 4mm hex key, checking that the tool is pushed all the way up into the collet.

Cutting Tool	Suitable Wall Thicknesses (mm)
40mm	Less than 20
60mm	25 - 50
80mm	50 - 70

6.3 Before mounting the PE Pipe Cutter to the pipe, ensure the surface where the chain will be rolling is smooth and free of any mud or other contaminants. If cutting a large length of pipe, confirm that both halves of the PE will be supported once the cut is complete.



6.4 On the PE cutter check all bolts and fasteners are fully tightened and secure. Attach the threaded adjuster on the cutter body to the chain. Tighten until the square section of the adjuster is just protruding the chain link as shown.



6.5 Place the machine body on top of the pipe. With one hand keeping the machine stable.

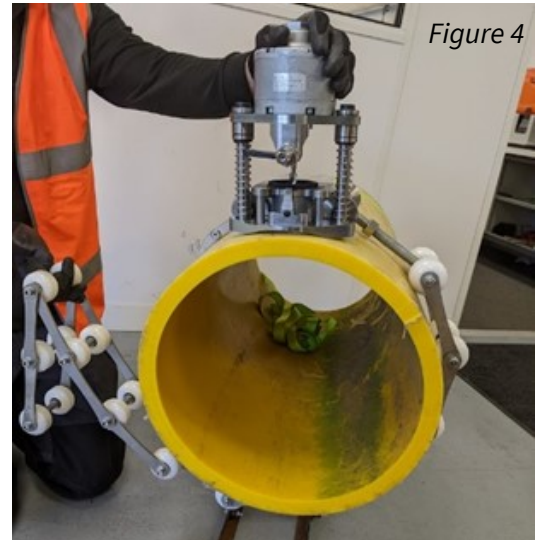


Figure 4

6.6 Wrap the chain around the pipe and hook onto the machine with the tightest chain link available.

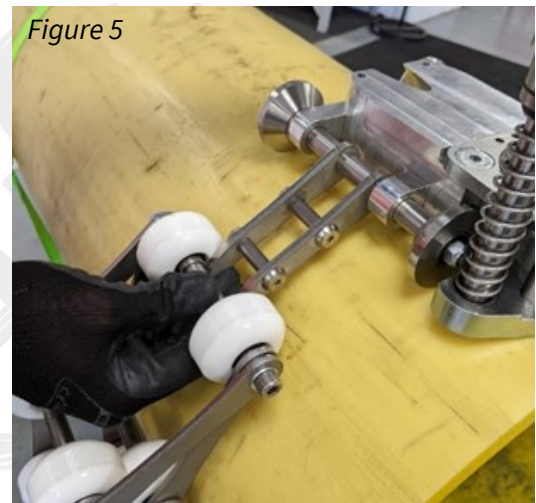


Figure 5

6.7 Tighten the screw thread adjuster using the provided 10mm ratchet spanner until the chain is tight but will still spin easily.

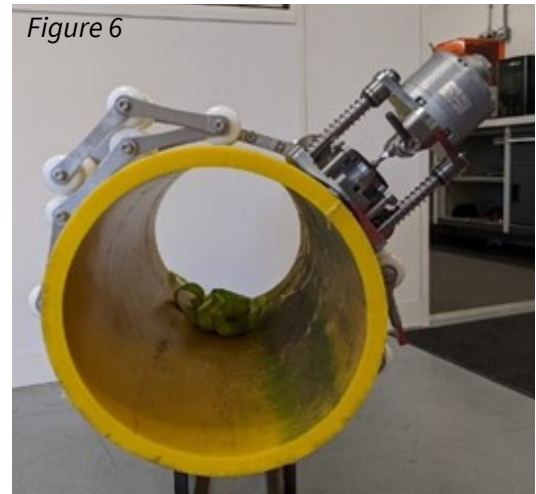


Figure 6

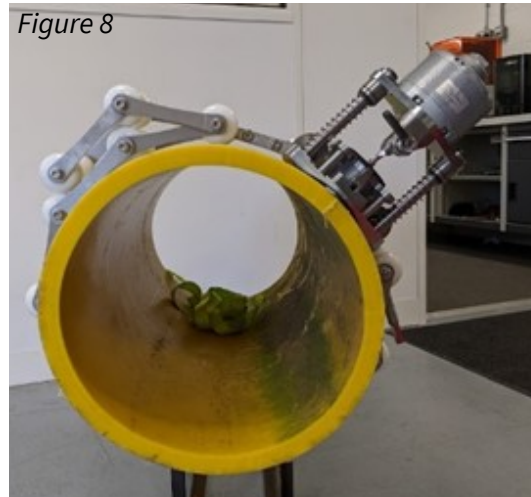
6.8 Rotate the assembly around the pipe back and forth three times to allow the chain to straighten. Ensure the cutting tool is positioned where the cut is required.



Figure 7

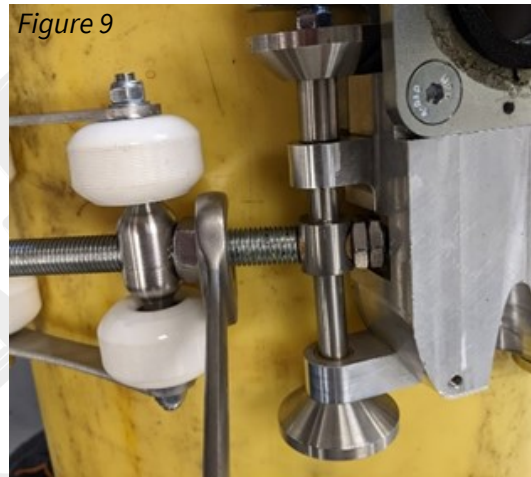
6.9 Tighten the screw thread adjuster until the machine can just hold its own weight at the 2 o'clock position without falling around the pipe.

Figure 8



6.10 Use the 24mm spanner to lock the M12 nut against the threaded chain link.

Figure 9



6.11 Empty the swarf bag before velcroing it in place inside the storage box.

Figure 10

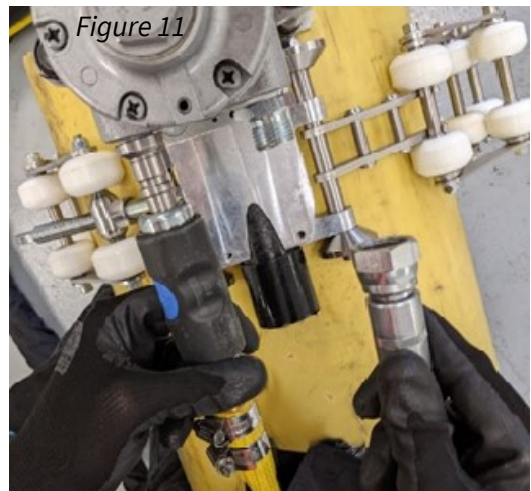


6.12 Connect the exhaust and the air supply hose at the machine end of the hose assembly to the ports at the rear of the PE Pipe Cutter body. The Hydraulic exhaust fitting should be tightened with a spanner.

Leave the vacuum hose unconnected as it is will be necessary to check the hose for any blockages.



Figure 11



6.13 Connect the three hoses at the collection end of the hose assembly to the ports on the front of the box, taking care to line up the white tab on the pneumatic multi feed port.

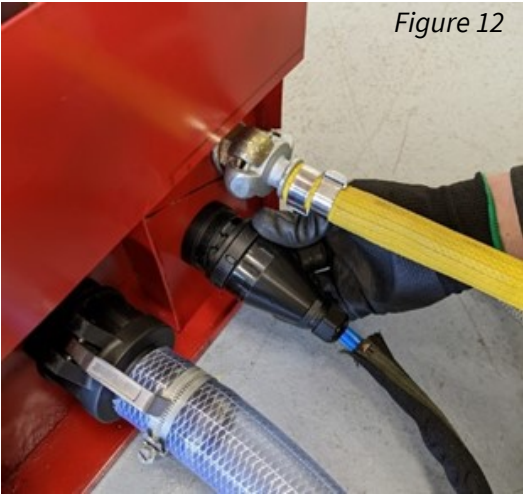


Figure 12

6.14 Hook up the earthing cable as shown in Figure 13.

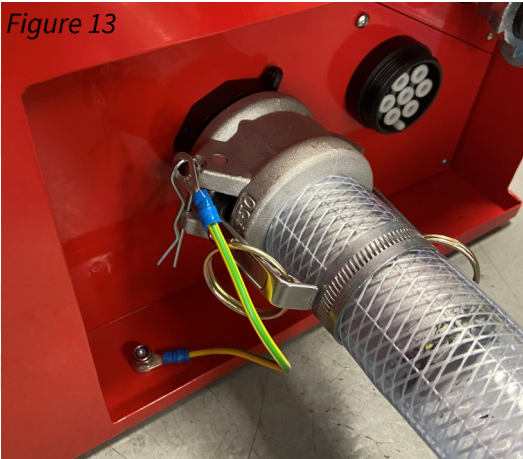


Figure 13

6.15 Attach the other end of the collection box to your air supply (hose not included). Check your surroundings are safe before turning on the air supply.



Figure 14

6.16 Check the pressure dial is reading between 6.5 and 7bar. The machine will operate at a lower pressure but with less performance. SVI do not recommend running at pressures above 7 bar. Ensure both the emergency stop mushroom buttons are disengaged and press the black recharge button to arm the control box. Close the lid of the box to dampen the noise from cutting.

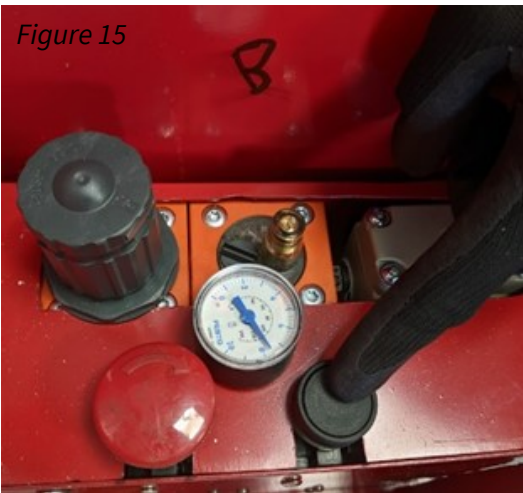


Figure 15

7.0 Operation

7.1 Ensure that the cutting area is safe and clear of any unrequired personnel and that all the PPE described in section 4 is worn.



Figure 16

7.2 With one hand on the top of the body to hold it steady, turn the machine on using the green button on the control box. If you wish to turn the machine off press the red button. The emergency stop button cuts the air supply completely and requires the black recharge button in the box to be pressed before the machine will cut again.

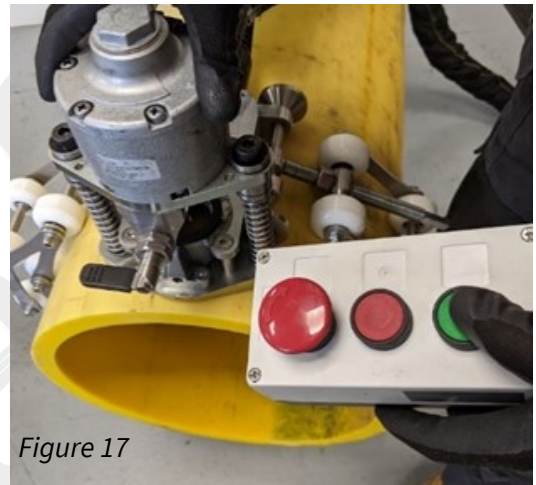


Figure 17

7.3 Prior to connecting the hose check the suction by carefully placing a gloved hand over the open end of the hose. Suction should be experienced. If there is no suction turn the machine off and investigate if the hose is block.

If it is clear there isn't a loss of suction slide the hose into the back of the machine and secure.



Figure 18

7.4 Press down on the top of the motor to plunge the cutter in to the cut, periodically releasing pressure in a pecking motion to allow swarf to be relieved from the cutter. Once the machine is fully engaged with the pipe the index pin will automatically lock in place.



Figure 17

7.5 Start to move the machine by slowly rolling the chain with your hands. For best cutting results the machine should be rotated clockwise (if you are looking at the cutter from the front). The optimum feed rate is steady and controlled, with the motor sounding consistent. A complete cut should take 2-4 minutes depending on the pipe size.



Figure 18

7.6 As the machine gets close to completing the cut, check that the pipe can separate freely without falling or endangering any other personnel. The pipe should separate after 360 degrees of rotation.



Figure 19

7.7 Turn the machine off using the stop button on the control box, then disengage the locking pin by turning the lever 180 degrees clockwise.



Figure 20

7.8 Turn off the compressor, before bleeding the air system using the green on button. Take care as the motor will spin during the bleeding process. All six connections of the hose assembly can now be detached.

Lower the chain to the floor and take the machine and chain off the pipe. Fully disengage the thread adjuster to separate the chain from the machine body. Remove the cutting tool from the collet using the 4mm hex key. Empty the collector box if there is a suitable facility waste nearby. Place all components back into the storage box, taking care to clean off any dirt or other contaminants to prolong the life of the machine.

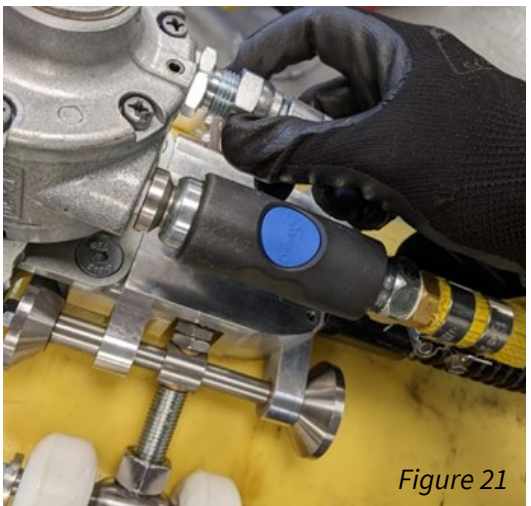


Figure 21

8. Maintenance

The PE Cutter has been designed to be relatively free of maintenance. Simple checks on the tightness of bolts and clips and a visual check for general wear on parts being all that is required in normal day to day operation.

Routine Maintenance	Schedule of Jobs
Clean down the machine and check all moving parts for wear and tear	Prior to use—Daily
Thoroughly check the cutting blade and replace when worn	Prior to use—Daily
Ensure the airline lubricator is operational	Prior to use—Daily
Retighten all nuts and bolts for wheels	Weekly
Ensure all wheels are present and can rotate	Prior to use—Daily
When installing the cutter, ensure the cutter is positioned correctly and grub screw is tightened	Prior to use—Daily
Ensure hose is clear of swarf	Prior to use—Daily
Ensure swarf collection bag is empty	Prior to use—Daily
Ensure 7 port pneumatic connection is secure to the red tin and pneumatic operating system is functioning correctly	Prior to use—Daily
If the motor fails to operate it is recommended that it is taken to a specialist to investigate the problem	N/A

9. Troubleshooting

If your PE Cutter is not performing as expected, please follow the guide below to identify the issue. If:

Swarf is Wrapped around the Cutter

This can block the swarf extraction system and the flutes can't guide the swarf away from the cut. If this has happened:

- Press the stop button on the control box
- Disengage the locking pin by turning the lever 180 degrees
- Disconnect the Prevost quick connect fitting from the back of the motor
Unravel the swarf from the blade by hand

The Plunge Locking Mechanism Not Engaging

This prevents a cut from being completed. If this has happened:

- Press the stop button on the control box
Manually pull out the locking pin and reengage

If the Problem Persists

- Check for any obstructions between the two plates
- Check the tightness of all fixing bolts on the plates, none should be loose
Remove the PE Cutter from the pipe and check if the lock engages

Swarf is not being extracted:

- Press the stop button on the control box
- Disengage the locking pin by turning the lever 180 degrees
- Disconnect the Prevost quick connect fitting from the back of the motor
Ensure the cutting tool and machine body are clear of built up swarf

If the Problem Persists

- Unzip the hose assembly and check for blockages
Check if the swarf bag is full-empty if required

The Motor is not turning on

Disengage both emergency stop buttons and check the compressor pressure (6.8bar)

If the Problem Persists

- Ensure the operation manual was followed correctly, and that all hoses are connected as instructed