

VE106 and VE107 Groove-N-Go

PIPE/TUBING ROLL GROOVING TOOLS



WARNING



WARNING



Failure to follow instructions and warnings could result in serious personal injury, property damage, and/or product damage.

- Before operating or servicing any roll grooving tools, read all instructions in this manual and all warning labels on the tool.
- Wear safety glasses, hardhat, foot protection, and hearing protection while working around this tool.
- Save this operating and maintenance manual in a place accessible to all operators of the tool.

If you need additional copies of any literature, or if you have questions concerning the safe and proper operation of this tool, contact Victaulic, P.O. Box 31, Easton, PA 18044-0031, Phone: 1-800-PICK VIC, E-Mail: pickvic@victaulic.com.

Original Instructions



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HAZARD IDENTIFICATION

Definitions for identifying the various hazard levels are provided below.



This safety alert symbol indicates important safety messages. When you see this symbol, be alert to the possibility of personal injury.

Carefully read and fully understand the message that follows.



DANGER

- The use of the word “DANGER” identifies an immediate hazard with a likelihood of death or serious personal injury if instructions, including recommended precautions, are not followed.



WARNING

- The use of the word “WARNING” identifies the presence of hazards or unsafe practices that could result in death or serious personal injury if instructions, including recommended precautions, are not followed.



CAUTION

- The use of the word “CAUTION” identifies possible hazards or unsafe practices that could result in personal injury and product or property damage if instructions, including recommended precautions, are not followed.

NOTICE

- The use of the word “NOTICE” identifies special instructions that are important but not related to hazards.

OPERATOR SAFETY INSTRUCTIONS

The VE106/107 is designed for the sole purpose of roll grooving pipe/tubing. These instructions must be read and understood by each operator PRIOR to working with the grooving tools. These instructions describe safe operation of the tool, including set up and maintenance. Each operator must become familiar with the tool’s operations, applications, and limitations. Particular care should be given to reading and understanding the dangers, warnings, and cautions described throughout these operating instructions.

Use of these tools requires dexterity and mechanical skills, as well as sound safety habits. Although these tools are designed and manufactured for safe, dependable operation, it is difficult to anticipate all combinations of circumstances that could result in an accident. The following instructions are recommended for safe operation of these tools. The operator is cautioned to always practice “safety first” during each phase of use, including set up and maintenance. It is the responsibility of the lessee or user of these tools to ensure that all operators read this manual and fully understand the operation of these tools.

Store this manual in a clean, dry area where it is always readily available. Additional copies of this manual are available upon request through Victaulic.



DANGER

1. **Avoid using the tool in potentially dangerous environments.** Do not expose the tool to rain, and do not use the tool in damp or wet locations. Do not use the tool on sloped or uneven surfaces. Keep the work area well lit. Allow sufficient space to operate the tool properly.
3. **Ground the drive motor to protect the operator from electric shock.** Ensure that the drive motor is connected to an internally grounded electrical source.

3. **Disconnect electrical power before servicing the tool.** Only authorized personnel should perform maintenance on the tool. Always disconnect the power before servicing or adjusting the tool.
4. **Prevent accidental startups.** Place the power switch in the “OFF” position before connecting the tool to an electrical source.

 WARNING

1. **Prevent back injury.** DO NOT attempt to lift tool components without the use of mechanical lifting equipment.
2. **Wear proper apparel.** Do not wear loose clothing, jewelry, or anything that can become entangled in moving parts.
3. **Wear protective items when working with tools.** Always wear safety glasses, hardhat, foot protection, and hearing protection.
4. **Keep hands and tools away from grooving rolls during the grooving operation.** Grooving rolls can crush or cut fingers and hands.
5. **Do not reach inside pipe ends during tool operation.** Pipe edges can be sharp and can snag gloves, hands, and shirt sleeves.
6. **Operate the tool only with a safety foot switch.** The tool must be operated with the safety foot switch that is located for easy operator access. Never reach across moving parts. If the tool does not contain a safety foot switch, do not use the tool, and contact Victaulic.
7. **Do not over-reach.** Maintain proper footing and balance at all times. Ensure that the safety foot switch is easily accessible to the operator.

 CAUTION

1. **This tool is designed ONLY for roll grooving pipe/tubing sizes, materials, and wall thicknesses listed in the “Tool Rating and Roll Selection” section.**
2. **Inspect the equipment.** Before using the tool, check all moveable parts for any obstructions. Ensure that all tool components are installed and adjusted properly.
3. **Stay alert.** Do not operate the tool if you are drowsy from medication or fatigue.
4. **Keep visitors, trainees, and observers away from the immediate work area.** All visitors should be kept a safe distance from the equipment at all times.
5. **Keep work areas clean.** Keep the work area around the tool clear of any obstructions that could limit the movement of the operator. Clean up any oil or other spills.
6. **Secure the work, tool, and accessories.** Ensure that the power drive is secured to the floor or is otherwise capable of resisting the full output torque of the power drive and the weight of the pipe being grooved.
7. **Support the work.** Support long pipe lengths with a pipe stand that is secured to the floor or the ground.
8. **Do not force the tool.** Do not force the tool or accessories to perform any functions beyond the capabilities described in these instructions. Do not overload the tool.
9. **Maintain tool with care.** Keep the tool clean at all times to ensure proper and safe performance. Follow the instructions for lubricating tool components.
10. **Use only Victaulic replacement parts and accessories.** Use of any other parts may result in a voided warranty, improper operation, and hazardous situations. Refer to the “Parts Ordering Information” and “Accessories” sections.
11. **Do not remove any labels from the tool.** Replace any damaged or worn labels.

INTRODUCTION

NOTICE

- Drawings and/or pictures in this manual may be exaggerated for clarity.
- The tool, along with this operating and maintenance instructions manual, contains trademarks, copyrights, and/or patented features that are the exclusive property of Victaulic.

The Victaulic VE106/VE107 is a manual-feed tool for roll grooving pipe/tubing to receive Victaulic grooved pipe/tubing products. The standard VE106/VE107 tool is supplied with grooving rolls for 1¼–6 inch/42.4–168.3 mm carbon steel pipe. Rolls are marked with the size and part number, and are color-coded to identify the pipe material. For roll grooving to other Victaulic specifications and materials, refer to the “Tool Rating and Roll Selection” section. Grooving rolls for other specifications, sizes, and materials must be purchased separately.



CAUTION

- This tool must be used **ONLY** for roll grooving pipe/tubing designated in the “Tool Rating and Roll Selection” section of this manual.

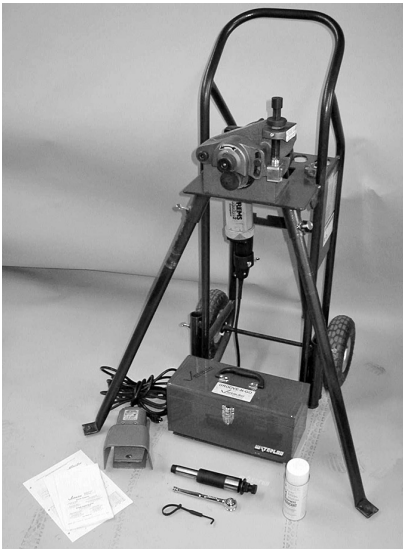
Failure to follow this instruction could overload the tool, resulting in reduced tool life and/or damage to the tool.

RECEIVING THE TOOL

VE106/VE107 Groove-N-Go tools are packed individually in sturdy containers that are designed for repeated shipping. Save the original container for return shipment of rental tools.

Upon receipt of the tool, ensure that all necessary parts are included. If any parts are missing, contact Victaulic.

CONTAINER CONTENTS



Qty.	Description
1	Tool Head Assembly with Cart
3	Adjustable Legs (secured in leg storage tubes of cart)
1	Lower Roll/Main Shaft for 4–6-inch/ 114.3–168.3-mm Carbon Steel Pipe*
1	Lower Roll/Main Shaft for 1¼–3-inch/ 42.4–88.9-mm Carbon Steel Pipe
1	Safety-Foot-Switch Storage Box
1	Safety Foot Switch (located inside storage box)
2	Operating and Maintenance Manual
1	Repair Parts List
1	Feed Ratchet
-	Spare Shear Pins
-	Depth Gauges for 1¼ – 6-inch/42.4 – 168.3-mm Schedule 5, Schedule 10, and Schedule 40 Carbon Steel Pipe
1	¾-inch Hex Key Allen Wrench
1	Go/No-Go Pipe Tape
1	Can of Dry Graphite Spray

* Installed in the head assembly

NOTE: Optional items, such as roll sets for grooving stainless steel pipe and copper tubing, may be shipped separately.

POWER REQUIREMENTS

**DANGER**



- To reduce the risk of electric shock, check the electrical source for proper grounding.
- Before performing any maintenance on the tool, disconnect the power cord from the electrical source.

Failure to follow these instructions could result in death or serious personal injury.

POWER DRIVE REQUIREMENTS

Power must be supplied to the drive motor through a safety foot switch to ensure safe operation. Ensure that the power drive is grounded properly in accordance with Article 250 of the National Electrical Code. Always refer to the operating manual for the power drive for additional information.

If an extension cord is required, refer to the “Extension Cord Requirements” section that follows for cord sizes.

EXTENSION CORD REQUIREMENTS

When pre-wired outlets are not available and an extension cord must be used, it is important to use the proper cord size (i.e. Conductor Size American Wire Gauge). Cord size selection is based upon tool rating (amps) and cord length (feet). Use of a cord size (gauge) thinner than required will cause significant voltage drop at the power drive while the tool is operating. Voltage drops may cause damage to the power drive and can result in improper tool operation.

NOTE: It is acceptable to use a cord size that is thicker than required.

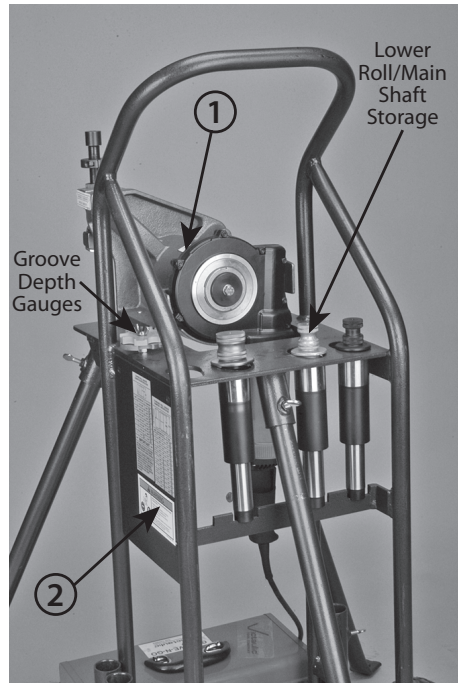
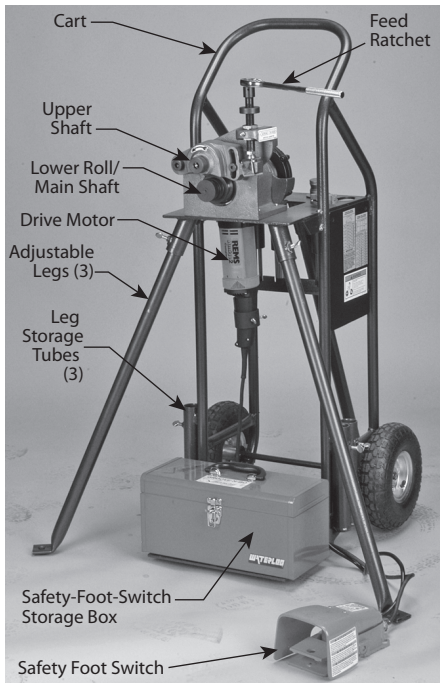
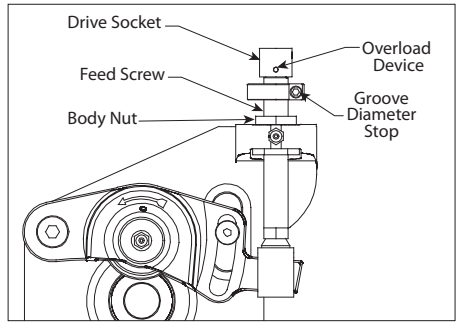
The required cord sizes for cord lengths up to and including 100 ft/31 m are listed in the table below. Use of extension cords longer than 100 ft/31 m must be avoided.

Model	Power Drive Rating volts/amps	Cord Lengths feet/meters		
		25 8	50 15	100 31
VE106	110 12	12 gauge	12 gauge	10 gauge
VE107	220 6	14 gauge	12 gauge	10 gauge

TOOL NOMENCLATURE

NOTICE

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- The tool, along with this operating and maintenance instructions manual, contains trademarks, copyrights, and/or patented features that are the exclusive property of Victaulic.



①

WARNING

Failure to follow instructions and warnings could result in serious personal injury.

- Before operating or servicing this tool, read all instructions in the operating and maintenance manual and all labels on the tool.
- Wear safety glasses, hardhat, foot protection, and hearing protection.

If you have questions concerning the safe and proper operation of this tool, contact Victaulic, P.O. Box 31, Easton, PA 18040-0031, Phone: 1-800-PICK VIC, e-Mail: pickvic@victaulic.com.

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②

WARNING

Failure to follow instructions and warnings could result in serious personal injury, property damage, and/or product damage.

- Before operating or servicing any pipe preparation tools, read all instructions in the Operating and Maintenance Instructions Manual and all labels on the tool.
- Wear safety glasses, hardhat, foot protection, and hearing protection when working around tools.

If you need additional copies of any literature, or if you have questions concerning the safe and proper operation of any pipe preparation tools, contact Victaulic, P.O. Box 31, Easton, PA 18040-0031, Phone: 1-800-PICK VIC, E-Mail: pickvic@victaulic.com.

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Pipe and groove features, noted below, must be measured to verify they are within current Victaulic specifications. Victaulic submittal publications can be downloaded at www.victaulic.com.

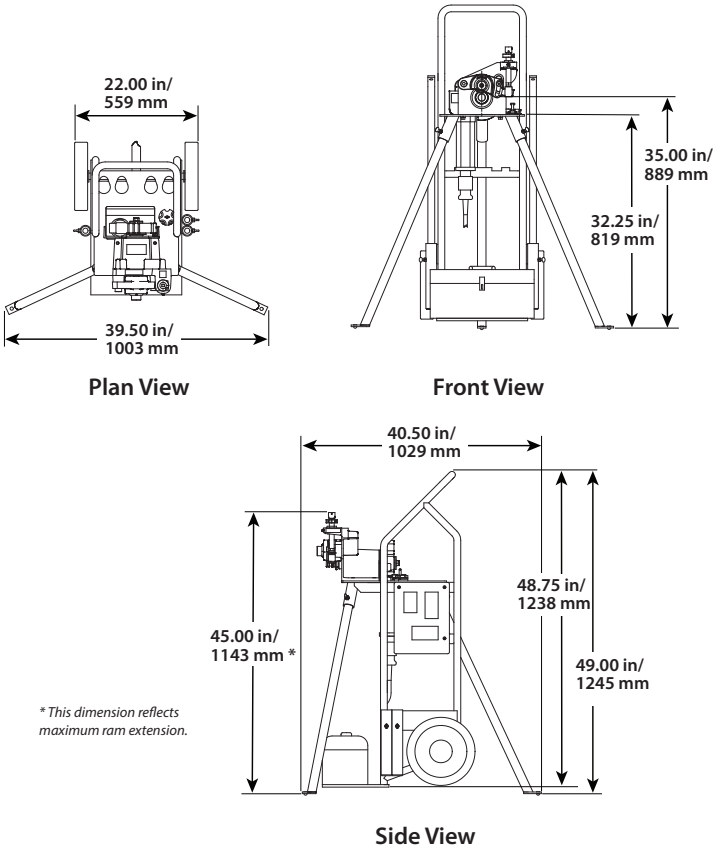
Measure Prior to Grooving Measure After Grooving

OD = Average Pipe Outside Diameter
T = Pipe Wall Thickness
A = Distance from Pipe End to Groove
B = Groove Width
C = Average Diameter at Base of Groove
D = Groove Depth
F = Pipe-End Flare

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Not Shown

TOOL DIMENSIONS AND SPECIFICATIONS



Tool weight is 140 pounds/64 kilograms.

Tool sound pressure is 95 dB(A), while tool sound power is 97 dB(A). All measurements taken with a Rems Amigo 2 power drive.

NOTE: Noise measurements are dependent on the power drive, and will vary based on configuration. Always check the power drive manufacturer's documentation for details.

TOOL SETUP

WARNING

- **DO NOT connect the tool to the electrical source until instructed otherwise.**

Accidental startup of the tool could result in serious personal injury.

The standard VE106/VE107 Groove-N-Go tool is intended for field or shop setup. Before grooving, the adjustable legs must be mounted onto the tool.

1. Remove components from the packaging, and ensure that all necessary items are included. Refer to the “Receiving the Tool” section.

2. Select a location for the tool by taking into consideration the following factors (refer to the drawing below for overall dimensions):

- a. The required power supply (verify the voltage of the drive motor as 110 volt or 220 volt)
- b. Adequate space to handle pipe/tubing lengths
- c. A firm and level surface for the tool and pipe stand
- d. Adequate clearance around the tool for adjustment and maintenance

WARNING

- **DO NOT lift the tool into the vertical (upright) position until the two front legs are installed.**
- **The tool will be top heavy until the third leg is installed on the tool. Use caution to prevent the tool from tipping over.**

Failure to follow these instructions could result in serious personal injury.



3. Ensure that the tool is secure and is in the horizontal position (lying down) with the handle of the cart resting against the ground or floor, as shown above.



4. Remove the legs from the leg storage tubes. Install the two front legs by inserting them into the sockets located on the underside of the tool head table. Ensure that each leg seats properly in the sockets. Rotate the legs so that each foot points away from the tool. Using a 1/2-inch wrench, tighten each 5/16 – 18 hex bolt to secure the legs to the tool.



5. Ensure that the front legs are securely fastened in the sockets. Lift/tilt the tool into the vertical (upright) position, as shown above.



6. With the tool in the vertical (upright) position, install the third leg into the socket adjacent to the drive motor. Rotate the leg so that the foot points away from the tool. Using a ½-inch wrench, tighten the ⅝ – 18 hex bolt to secure the leg to the tool.



7a. Level the tool from front to back. **NOTE:** The top of the tool head table is a good location to measure “level”, as shown above. If the tool is not level, proceed with 7a.

7b. Loosen the hex bolts to adjust the legs in or out, as required, to make the tool level. Re-tighten all hex bolts after leveling the tool. Do not extend any of the legs past the hex bolt. If this cannot be accomplished, move the tool to a more level surface, and repeat this step until the tool is level.

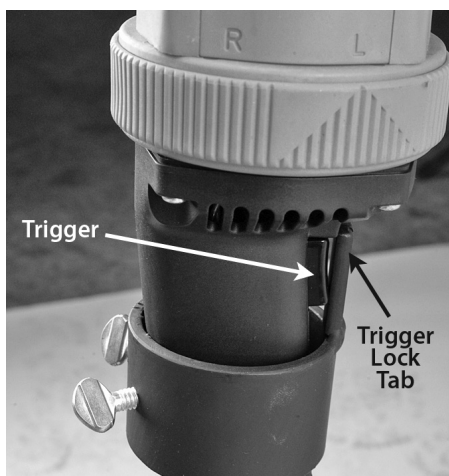


DANGER



- To reduce the risk of electric shock, check the electrical source for proper grounding.
- Before performing any maintenance on the tool, disconnect the power cord from the electrical source.

Failure to follow these instructions could result in death or serious personal injury.



8a. Ensure that the drive-motor trigger switch is depressed in the proper location. The trigger lock tab must push down on the drive-motor trigger switch.



8b. Tighten the two trigger-lock switch thumb screws to maintain this position.

⚠ WARNING

- **DO NOT** operate the drive motor without a safety foot switch. If the tool does not contain a safety foot switch, contact Victaulic.

Operating the tool without a safety foot switch could result in serious personal injury.



9a. Remove the safety foot switch from the storage box.

9b. Plug the cord for the safety foot switch into a grounded electrical outlet. Refer to the "Power Requirements" section. If an extension cord is used, refer to the "Extension Cord Requirements" section for requirements.



10. Rotate the drive motor switch to the "L" position to produce **counterclockwise** rotation of the lower roll/main shaft and pipe/tubing, as shown above.

11. Depress the safety foot switch, check the rotation of the lower roll/main shaft, and ensure that the tool is stable. If rotation is clockwise, rotate the drive-motor switch to the opposite position. If the tool wobbles, ensure that the legs are adjusted correctly and that the tool is level on the floor. If the wobble persists, re-adjust the legs.

PRE-OPERATION CHECKS AND ADJUSTMENTS

Every Victaulic roll grooving tool is checked, adjusted, and tested at the factory prior to shipment. However, before attempting to operate the tool, the following checks and adjustments should be made to ensure proper tool operation.

**WARNING**

- Before making any tool adjustments, always disconnect the power cord from the electrical source.

Accidental startup of the tool could result in serious personal injury.

GROOVING ROLLS

Ensure that the proper roll set is installed on the tool for the pipe/tubing size and material that will be grooved. Roll sets are marked with the pipe/tubing size and part number, and they are color coded for the pipe/tubing material. Refer to the “Tool Rating and Roll Selection” section. If the proper rolls are not installed on the tool, refer to the “Roll Changing” section.

PIPE/TUBING PREPARATION

For proper tool operation and production of grooves that are within Victaulic specifications, the following guidelines must be followed.

1. Victaulic recommends square-cut pipe/tubing for use with grooved-end pipe/tubing products. Square-cut pipe/tubing MUST be used with FlushSeal® and EndSeal® gaskets. Beveled-end pipe/tubing may be used for other applications, provided that the wall thickness is standard wall (ANSI B36.10) or less and that the bevel meets ANSI B16.25 (37½°) or ASTM A-53 (30°).

NOTE: Roll grooving beveled-end pipe/tubing may result in unacceptable flare.

2. Raised internal and external weld beads and seams must be ground flush with the pipe/tubing surface 2inches/50mm back from the pipe/tubing ends.

3. All coarse scale, dirt, and other foreign material must be removed from the interior and exterior surfaces of the pipe/tubing ends.

**CAUTION**

- For maximum grooving roll life, remove foreign material and loose rust from the interior and exterior surfaces of the pipe/tubing ends. Rust is an abrasive material that will wear the surface of grooving rolls.

Foreign material may interfere with or damage grooving rolls, resulting in distorted grooves and grooves that are out of Victaulic specifications.

PIPE LENGTHS SUITABLE FOR GROOVING

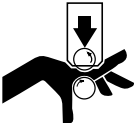
The VE106/VE107 Groove-N-Go tool is capable of grooving short pipe/tubing lengths without the use of a pipe stand. Refer to the “Short Pipe/Tubing Lengths” section on this page.

Table 1 shows the minimum and maximum pipe/tubing lengths that can be grooved without the use of a pipe stand. Refer to the “Grooving Operation” section for instructions on how to groove short pipe/tubing lengths. For pipe/tubing longer than what is shown in Table 1, refer to the “Long Pipe/Tubing Lengths” section.

Pipe/tubing lengths longer than those listed in Table 1 (and up to 20feet/6meters) must be supported with a pipe stand.

Pipe/tubing lengths from 20feet/6meters up to double-random lengths (approximately 40feet/12meters) must be supported with two pipe stands.

SHORT PIPE/TUBING LENGTHS

 WARNING	
	• Grooving rolls can crush or cut fingers and hands. Never groove pipe/tubing that is shorter than the recommended lengths listed in this manual.

NOTICE
• Grooved pipe/tubing nipples, shorter than those listed in Table 1, are available from Victaulic.

TABLE 1 - PIPE LENGTHS SUITABLE FOR GROOVING

Steel and Stainless Steel Pipe Size		Length inches/mm	
Nominal Pipe Size inches or mm	Actual Outside Diameter inches/mm	Minimum	Maximum
1/4	1.660 42.4	8 205	36 915
1/2	1.900 48.3	8 205	36 915
2	2.375 60.3	8 205	36 915
2 1/2	2.875 73.0	8 205	36 915
3	3.500 88.9	8 205	36 915
3 1/2	4.000 101.6	8 205	36 915
4	4.500 114.3	8 205	36 915
4 1/2	5.000 127.0	8 205	32 815
5	5.563 141.3	8 205	32 815
152.4 mm	6.000 152.4	10 255	30 765
6	6.625 168.3	10 255	28 715

If pipe/tubing is required that is shorter than the minimum length listed in Table 1, shorten the next-to-last piece so that the last piece is as long (or longer) than the minimum length specified. Refer to the example below.

EXAMPLE: A 20-foot, 4-inch (6.19-m) length of 6-inch diameter steel pipe is required to finish a section, and only 20-foot (6.09-m) lengths are available. Instead of roll grooving a 20-foot (6.09-m) length of steel pipe and a 4-inch (101.6-mm) length of steel pipe, follow these steps:

1. Refer to Table 1 and note that for 6-inch diameter steel pipe, the minimum length that should be roll grooved is 10 inches (254 mm).
2. Roll groove a 19-foot, 6-inch (5.94-m) length of steel pipe and a 10-inch (254-mm) length of steel pipe. Refer to the “Long Pipe/Tubing Lengths” section.

LONG PIPE/TUBING LENGTHS

When roll grooving pipe/tubing that exceeds the maximum length shown in Table 1, a roller-type pipe stand must be capable of handling the weight of the pipe/tubing, while allowing the pipe/tubing to rotate freely.

- a. Ensure that the tool is level. Refer to the “Tool Setup” section for leveling requirements. Set the pipe stand height to produce a $\frac{1}{2}$ to 1° pitch on the pipe away from the tool (see Figure 1). This will help promote tracking and reduce pipe end flare.
- b. When flare is excessive, right-to-left tracking must be kept to a minimum. It may be necessary to use less than $\frac{1}{2}^\circ$ for the tracking angle (see Figure 2).
- c. Installation of couplings on pipe/tubing that exceeds the maximum allowable flare may prevent pad-to-pad closure of the housings and/or may cause damage to the coupling gasket. Refer to the applicable “Roll Groove Specifications” table for details.
- d. If the tool is properly set up in a level position, but the back end of the pipe/tubing is higher than the end being grooved, the pipe/tubing may not track. As a result, excessive flare may occur on the pipe/tubing end. Refer to Figures 1 and 2 and the “Tool Setup” section for pipe/tubing positioning and tool setup requirements.

NOTICE

- Figure 1 shows a typical pipe stand.
- Victaulic offers several pipe stands, such as the VAPS112 and VAPS224. The VAPS112 is suitable for $\frac{3}{4}$ to 12-inch/26.9 to 323.9-mm sizes. The VAPS224 is suitable for 2 to 24-inch/60.3 to 610-mm sizes. Refer to the “Accessories” section.
- For additional information about pipe stands, refer to the instructions included with the pipe stand.

- e. Position the pipe stand at a distance slightly beyond half the pipe/tubing length from the tool. Refer to Figure 1 below.

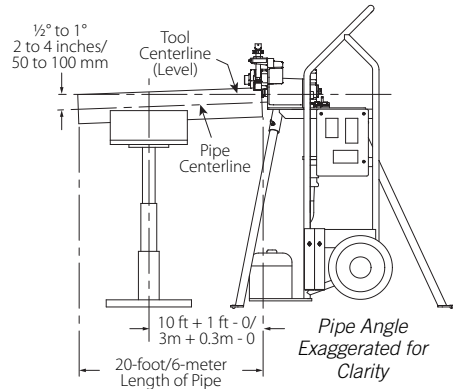


FIGURE 1 – SUPPORT OF PIPE

- f. Position the pipe stand approximately 0 to $\frac{1}{2}^\circ$ to the left for the tracking angle. Refer to Figure 2 below.

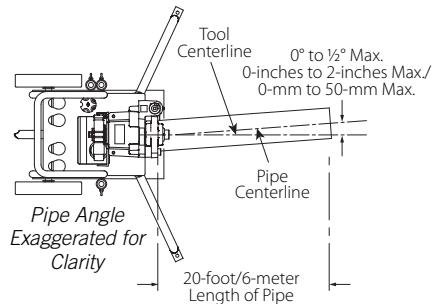


FIGURE 2 – TRACKING ANGLE

GROOVE DIAMETER STOP ADJUSTMENT

The groove diameter stop must be adjusted for each pipe/tubing size or change in wall thickness. The groove diameter, which is identified as the “C” dimension, is listed under the “Roll Groove Specifications” section. In addition, a label is affixed to the tool, which lists the “C” dimensions.

NOTICE

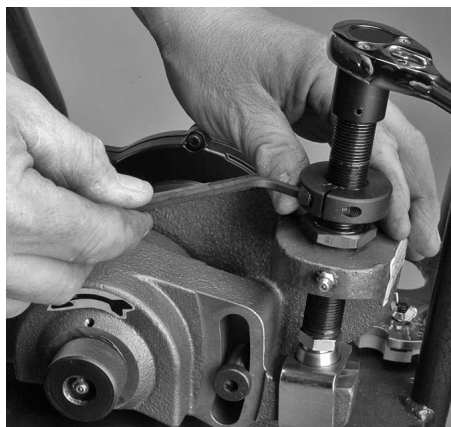
- To perform the following adjustments, use several short, scrap sections of pipe/tubing that are the proper material, diameter, and thickness to be grooved. Ensure that the scrap sections meet the length requirements listed in Table 1.

To achieve the proper diameter:

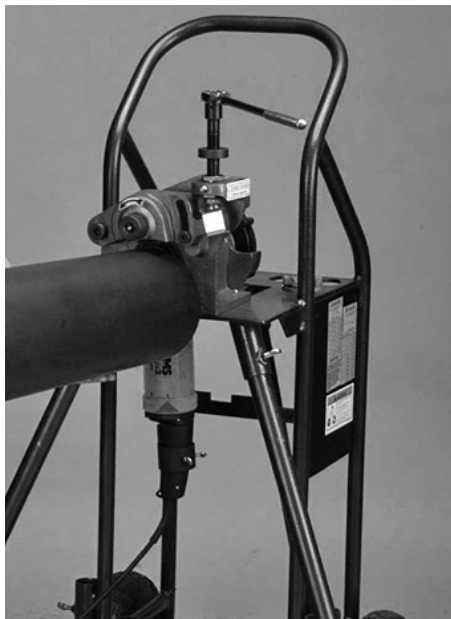
1. Determine the diameter and thickness of the pipe/tubing to be grooved.



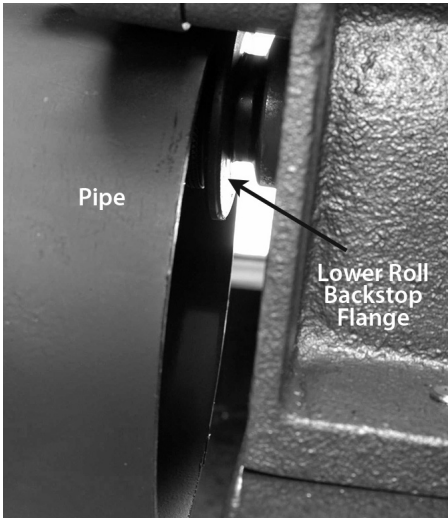
2. Using the feed ratchet (provided), retract (turn counterclockwise) the feed screw/upper roll until the pipe/tubing can be slipped completely over the lower roll.



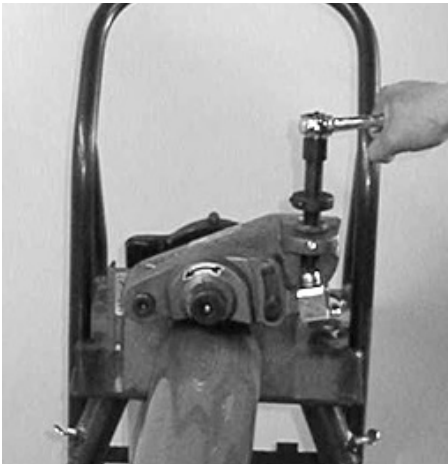
- 2a. Back off the groove-diameter stop by loosening the clamping screw with the supplied $\frac{3}{16}$ -inch hex key. Turn the groove-diameter stop counterclockwise several turns.



3. Insert a length of pipe/tubing that is the correct size and thickness into the lower roll.



4. Ensure that the pipe/tubing end contacts the lower-roll backstop flange completely.



5. Continue supporting the pipe manually. Using the feed ratchet (provided), advance (turn clockwise) the feed screw to place the upper roll into light contact with the pipe/tubing.



6. Locate the groove depth gauges on the tool. Remove the wing nut from the gauge retainer, and select the proper groove depth gauge for the pipe size being grooved.



7. Using the groove depth gauge as a “feeler gauge” between the groove-diameter stop and the body nut, adjust the groove-diameter stop until it contacts the groove depth gauge, as shown above.

7a. Using the $\frac{3}{16}$ -inch hex key, tighten the screw on the groove-diameter stop to maintain the adjustment made in the previous step.



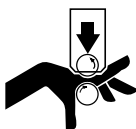
8. Replace the groove depth gauge onto the gauge retainer. Re-install and tighten the wing nut.



10. After a trial groove is prepared and the pipe/tubing is removed from the tool, carefully check the groove diameter ("C" dimension). Refer to the "Roll Groove Specifications" section. The pipe tape, supplied with the tool, is the best method for checking the "C" dimension. In addition, a vernier caliper or narrow-land micrometer can be used to check this dimension at two locations (90° apart) around the groove. The average reading must be within the required groove diameter specification.



WARNING



Grooving rolls can crush or cut fingers and hands.

- Before making any tool adjustments, always disconnect the power cord from the electrical source.

- Loading and unloading pipe/tubing will place your hands close to the rollers. Keep hands away from the grooving rolls during operation.
- Never reach inside the pipe/tubing end or across the tool or pipe/tubing during operation.
- Always groove pipe/tubing in a COUNTERCLOCKWISE direction only.
- Never groove pipe/tubing that is shorter than the recommended lengths listed in this manual.
- Never wear loose clothing, jewelry, or anything that can become entangled in moving parts.

9. Prepare a trial groove. Refer to the "Grooving Operation" section.



CAUTION

- The "C" dimension (groove diameter) must conform to Victaulic specifications to ensure proper joint performance.

Failure to follow this instruction could cause joint failure, resulting in personal injury and/or property damage.

11. If the groove diameter ("C" dimension) is not within Victaulic specifications, the diameter stop must be adjusted.

11a. To **DECREASE** the groove diameter (increase groove depth), turn the diameter stop **counterclockwise** (when viewed from above the tool).

11b. To **INCREASE** the groove diameter (decrease groove depth), turn the diameter stop **clockwise** (when viewed from above the tool).

NOTE: A quarter-turn either way will change the groove diameter adjustment by approximately 0.013 inch/0.3 mm or 0.051 inch/1.3 mm per full turn.

12. Prepare another trial groove, and check the groove diameter ("C" dimension), as described in step 10. Repeat these steps, as necessary, until the groove diameter is within specification.

GROOVING OPERATION

DANGER



- To reduce the risk of electric shock, check the electrical source for proper grounding.
- Before operating the tool, review the “Operator Safety Instructions” section of this manual.

Failure to follow these instructions could result in death or serious personal injury.

CAUTION

- This tool must be used **ONLY** for roll grooving pipe/tubing designated in the “Tool Rating and Roll Selection” section of this manual.

Failure to follow this instruction could overload the tool, resulting in reduced tool life and/or damage to the tool.

1. Before grooving, ensure that all instructions in the previous sections of this manual have been followed.

2. Plug the safety foot switch into an internally-grounded electrical source. Ensure that the safety foot switch and drive motor are grounded.



3. Set the switch on the drive motor to produce **counterclockwise** rotation of the lower roll/main shaft and pipe/tubing when viewed from the front of the tool. Placing the switch in the “L” position will produce counterclockwise rotation of the lower roll/main shaft and pipe/tubing.

WARNING

- The drive motor must be operated with a safety foot switch. If the drive motor does not contain a safety foot switch, contact Victaulic.

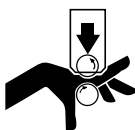
Operating the tool without a safety foot switch could result in serious personal injury.

4. Ensure that the tool is operational by depressing the safety-foot-switch pedal. The lower roll/main shaft must turn **counterclockwise** when viewed from the front of the tool. Remove foot from the safety foot switch.



5. Using the feed ratchet (provided), rotate the feed screw **counterclockwise** to move the upper roll to the fully up position.

WARNING

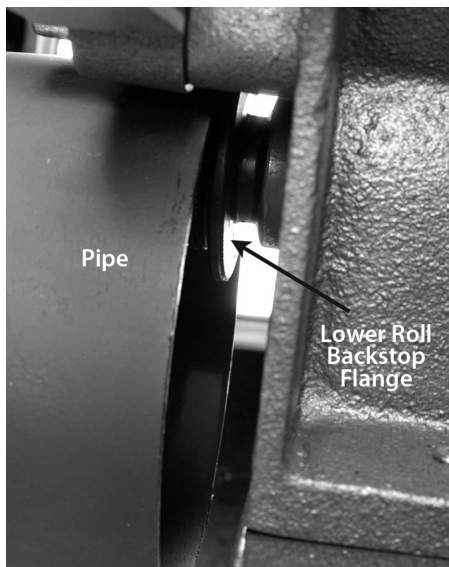


Grooving rolls can crush or cut fingers and hands.

- Before making any tool adjustments, always disconnect the power cord from the electrical source.
- Loading and unloading pipe/tubing will place your hands close to the rollers. Keep hands away from the grooving rolls during operation.
- Never reach inside the pipe/tubing end or across the tool or pipe/tubing during operation.
- Always groove pipe/tubing in a counterclockwise direction only.
- Never groove pipe/tubing that is shorter than the recommended lengths listed in this manual.
- Never wear loose clothing, jewelry, or anything that can become entangled in moving parts.



6. Insert a length of pipe/tubing that is the correct size and thickness onto the lower roll.



7. Ensure that the pipe/tubing end contacts the lower-roll backstop flange completely.



8. Rotate the feed screw **clockwise** to bring the upper roll into firm contact with the pipe/tubing. Continue to support the pipe, or use a pipe stand for long pipe/tubing lengths. Refer to the “Long Pipe/Tubing Lengths” section.

9. Remove hands from the pipe/tubing.



11. Depress and hold down the safety foot-switch pedal. The pipe/tubing will begin to rotate counterclockwise. As the pipe/tubing rotates, begin the grooving process by rotating the feed screw **clockwise** slowly with the feed ratchet (provided). Ensure that the pipe/tubing remains against the lower-roll backstop flange. If the pipe/tubing does not remain against the lower-roll backstop flange, release the safety foot switch, and re-position the pipe/tubing.



10. For long pipe/tubing lengths supported with a pipe stand, ensure that the pipe/tubing is pitched and positioned properly. Refer to the “Long Pipe/Tubing Lengths” section.

NOTICE

- Groove light-wall pipe at a moderate rate by forming grooves uniformly in 5 to 10 pipe rotations.
- Schedule 40 pipe requires more revolutions to reach the proper groove diameter.
- A shear pin is used to connect the drive socket to the feed screw. If excessive force is applied to the feed ratchet, the pin will shear and prevent damaging forces from being applied to tool components.
- The tool is designed to accommodate normal grooving forces. Therefore, shearing the pin should not occur normally. However, if a pin shears, determine the cause by referring to the "Troubleshooting" section. Correct the problem, and replace the sheared pin with a spare pin supplied with the tool.

12. Continue the grooving process until the groove diameter stop makes firm contact with the top of the body nut.

13. Continue to rotate the pipe/tubing for one to three revolutions to ensure groove completion.

14. Release the safety-foot-switch pedal, and withdraw foot from the safety foot switch.

WARNING

- **DO NOT** place hands inside the pipe/tubing end or in the area of the grooving rolls while the pipe/tubing is still rotating.

Failure to follow this instruction could result in serious personal injury.

15. If a short length of pipe/tubing is in the tool, manually support the pipe/tubing.

16. To release the pipe/tubing, retract the upper roll by turning the feed screw counterclockwise. Remove the pipe/tubing from the tool.

NOTICE

- The groove diameter must be within specification for the diameter and wall thickness of pipe/tubing. The groove diameter should be checked and adjusted, as necessary, to ensure that grooves remain within specification.

ROLL CHANGING

WARNING

- Before making any tool adjustments, always disconnect the power cord from the electrical source.

Accidental startup of the tool could result in serious personal injury.

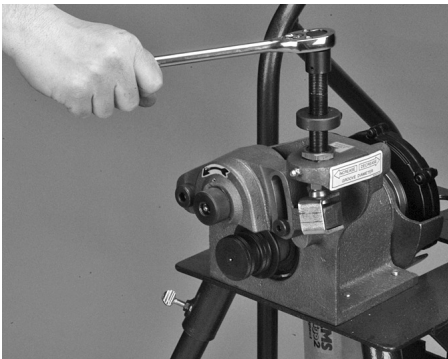
The VE106/VE107 Groove-N-Go is designed with rolls to accommodate several pipe sizes, which eliminates the need for frequent roll changes.

In addition, different pipe materials may require different rolls. For proper roll selection, refer to the “Tool Rating and Roll Selection” section.

LOWER ROLL/MAIN SHAFT REMOVAL

When preparing to groove stainless steel pipe, copper tubing, or pipe to “ES” specifications, the lower roll/main shaft for carbon steel pipe must be removed.

In addition, when preparing to groove copper tubing or pipe to “ES” specifications, the carbon steel upper roll must be removed (refer to the “Upper Roll Removal” and “Upper Roll Installation” sections). The upper roll must be installed prior to installation of the lower roll/main shaft in the tool body.



1. Raise the upper roll arm to its maximum position by rotating the feed screw counterclockwise.



2. Loosen and remove the 3/8-inch hex bolt and lock washer at the rear of the shaft.

WARNING



DO NOT strike the roll with a hammer or other blunt object. Striking the roll can cause fragmentation, resulting in serious personal injury.

- Always wear safety glasses.
- Never strike the roll directly for any reason.



3. Remove the drive key from the rear of the shaft.



4. Store the drive key, hex bolt, and lock washer in the safety-foot-switch storage box.



5. Using a punch and hammer (these tools are not supplied), tap the lower roll/main shaft out from the rear of the tool, as shown above.



6. Pull the lower roll/main shaft out from the front of the tool head. Using a soft cloth, remove any debris and excess grease from the lower roll/main shaft.



7. Store the lower roll/main shaft in the holder located on the tool cart.

8. Follow the “Lower Roll/Main Shaft Installation” section.

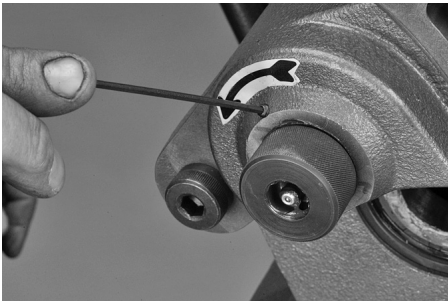
UPPER ROLL REMOVAL

The same upper roll is used for standard grooving of carbon steel pipe and stainless steel pipe.

When preparing to groove copper tubing or pipe to “ES” specifications, the upper roll for carbon steel/stainless steel pipe must be removed and the appropriate upper roll must be installed.

NOTICE

- **The lower roll/main shaft must be removed prior to removing the upper roll from the upper roll shaft/arm casting.**



1. Using a $\frac{3}{32}$ -inch hex key (not supplied), loosen the set screw located on the top front portion of the arm casting.



2. Prepare to support the upper roll while sliding the upper shaft out of the arm casting.



3. Remove the upper roll. Store the upper roll in the safety-foot-switch storage box.

4. Follow the “Upper Roll Installation” section.

UPPER ROLL INSTALLATION

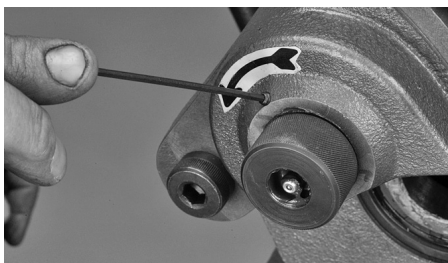
1. Select the proper upper roll for the pipe size and material to be grooved. Refer to the “Tool Rating and Roll Selection” section.



2. Position the upper roll in the pocket of the arm casting. **NOTE:** The flange portion of the upper roll must face toward the rear of the tool, as shown above.



3. Insert the upper shaft into the arm casting and upper roll.



4. Tighten the set screw to secure the upper shaft in position. Ensure that the upper roll rotates freely.

5. Lower the arm casting. Ensure that the upper roll aligns properly with the lower roll/main shaft.

LOWER ROLL/MAIN SHAFT INSTALLATION

1. Select the proper lower roll/main shaft for the pipe size and material to be grooved. Refer to the “Tool Rating and Roll Selection” section.

NOTICE

- Upper roll installation must be complete before proceeding with lower roll/main shaft installation.



2. Apply dry graphite spray (supplied) to the lower roll/main shaft bore, as shown above.



3. Apply dry graphite spray (supplied) to the main shaft, as shown above.



4. Install the lower roll/main shaft into the tool head. While maintaining a grip on the knurled end (lower roll) of the main shaft, ensure that the flats on the drive end of the main shaft align with the flats in the drive motor.



5. Seat the drive key into the rear of the lower roll/main shaft.



6. Install the lock washer, and tighten the $\frac{3}{8}$ -inch hex bolt to retain the drive key.

MAINTENANCE



! DANGER

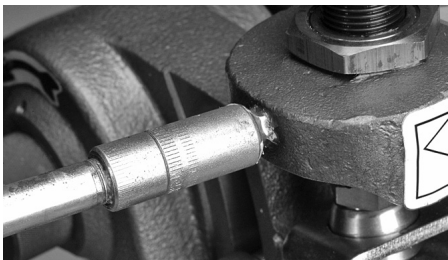
- Before performing any maintenance on the tool, disconnect the power cord from the electrical source.

Failure to follow this instruction could result in death or serious personal injury.

This section provides information about keeping tools in proper operating condition and guidance for making repairs when it becomes necessary. Preventive maintenance during operation will pay for itself in repair and operating savings.

Replacement parts must be ordered from Victaulic to ensure proper and safe operation of the tool.

LUBRICATION



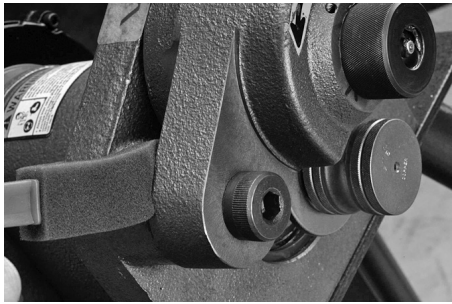
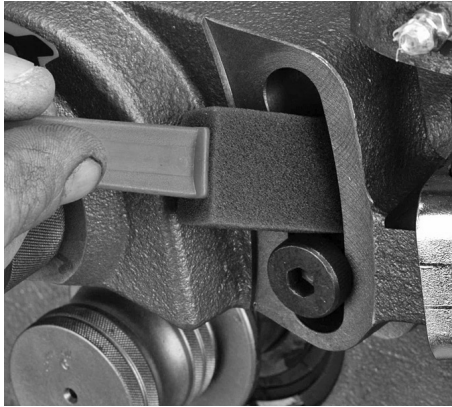
1. After every two hours of operation, apply a No. 2EP lithium-based grease to the feed screw. Apply the grease by hand to the screw threads or through the grease fitting located at the feed screw. Keep the feed screw lubricated to ensure a long service life.



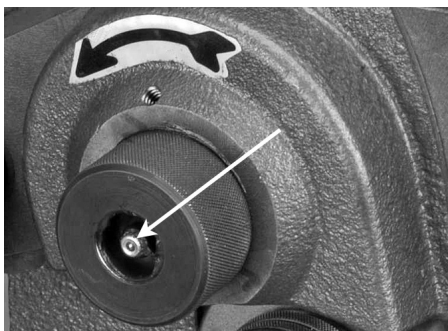
2. Apply grease underneath the toggle pad.



3. Apply grease to the ball-and-socket joint of the toggle pad.



4. Apply grease to the locations in which the roll arm slides against the tool body.



5. After every eight hours of operation, apply grease to the grease fitting of the upper roll shaft.

PARTS ORDERING INFORMATION

When ordering parts, the following information is required for Victaulic to process the order and send the correct part(s). Request the RP-VE106/107 Repair Parts List for detailed drawings and parts listings.

1. Tool Model Number – VE106 or VE107
2. Tool Serial Number – The serial number is stamped onto the tool body
3. Quantity, Part Number, and Description
4. Where to Send the Part(s) – Company Name and Address
5. To Whose Attention to Send the Part(s)
6. Purchase Order Number

Parts can be ordered by calling 1-800-PICK VIC.

ACCESSORIES

VAPS112 VICTAULIC ADJUSTABLE PIPE STAND



The Victaulic VAPS112 is a portable, adjustable, roller-type pipe stand that contains four legs for additional stability. Ball transfer rollers, adjustable for 2 to 12-inch/60.3 to 323.9-mm pipe, and the “V” rest for $\frac{3}{4}$ to $1\frac{1}{2}$ -inch/26.9 to 48.3-mm pipe accommodate linear and rotational movement. The turnstile design permits ease of grooving for both pipe ends. Contact Victaulic for details.

VAPS224 VICTAULIC ADJUSTABLE PIPE STAND



The Victaulic VAPS224 contains features that are similar to the VAPS112, but it is suitable for 2 to 24-inch/60.3 to 610.0-mm pipe sizes. Contact Victaulic for details.

OPTIONAL ROLLS

The following optional rolls are available for purchase. Contact Victaulic for details.

- Lower Roll/Main Shaft for Grooving
1 ¼ – 6-inch/42.4 – 168.3-mm Schedule
5S and 10S Stainless Steel Pipe

NOTE: The same upper roll is used for grooving carbon steel pipe and stainless steel pipe

- Lower Roll/Main Shaft and Upper Roll for Grooving 2 – 6-inch/54.0 – 155.6-mm
ASTM Drawn Copper Tubing to CTS US
Standard
- Lower Roll/Main Shaft and Upper Roll for 2 – 3-inch/60.3 – 88.9-mm “ES” Grooves
- Lower Roll/Main Shaft and Upper Roll for 4 – 6-inch/114.3 – 168.3-mm “ES” Grooves

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Pipe will not stay in grooving rolls.	Incorrect pipe positioning of long pipe.	Refer to "Long Pipe/Tubing Lengths" on page 15.
	Lower roll/main shaft and pipe are not rotating counterclockwise.	Turn the drive motor switch to the opposite rotation position.
Pipe stops rotating during grooving.	Rust or dirt has built up on lower roll.	Remove accumulation from the lower roll with a stiff wire brush.
	Rust or dirt is excessively heavy inside the pipe end.	Remove heavy rust and dirt from inside the pipe end.
	Worn lower roll.	Inspect lower roll for worn knurls, replace if worn.
	The circuit breaker has tripped or a fuse has blown out on the electrical circuit that supplies the power drive.	Reset the breaker, or replace the fuse.
	The trigger-lock switch clamp is loose.	Tighten the trigger-lock switch thumb screws.
While grooving, loud squeaks echo through the pipe.	Incorrect pipe support positioning of long pipe length. Pipe is "over-tracking."	Move the pipe support to the right. Refer to "Long Pipe/Tubing Lengths" on page 15.
	Pipe end is not cut square.	Cut the pipe end squarely.
	Pipe is rubbing excessively on the lower-roll backstop flange.	Remove the pipe from the tool, and apply a light coating of grease to the face of the lower-roll backstop flange.
During grooving, loud thumps or bangs occur approximately once every revolution of the pipe.	Pipe has a pronounced weld seam.	Grind the raised welds flush with the interior and exterior pipe surfaces 2 inches/50 mm back from the pipe end.
Pipe flare is excessive.	Pipe support is adjusted too high for long pipe.	Refer to "Long Pipe/Tubing Lengths" on page 15.
	Tool is tilted forward (out of level) while grooving long pipe length.	Refer to "Tool Setup" on page 10.
	Incorrect pipe support positioning.	Move the pipe support to the right. Refer to "Long Pipe/Tubing Lengths" on page 15.
The tool will not groove the pipe.	Pipe is beyond the wall thickness capacity of the tool, or the pipe material is too hard.	Refer to "Tool Rating and Roll Selection" on page 34.
The shear pin has broken.	Rolls were being fed too fast.	Replace the shear pin, and groove the pipe at a slower rate.
	Pipe is beyond the wall thickness capacity of the tool, or the pipe material is too hard.	Replace the pin, and groove pipe that is within the capacity of the tool. Refer to "Tool Rating and Roll Selection" on page 34.
	The feed mechanism is binding, damaged, or insufficiently lubricated.	Repair and lubricate the feed mechanism, as required.

TROUBLESHOOTING (CONTINUED)

PROBLEM	POSSIBLE CAUSE	SOLUTION
Pipe grooves do not meet Victaulic specifications.	Groove diameter stop is not adjusted correctly.	Refer to “Groove Diameter Stop Adjustment” on page 16.
	Pipe is beyond the wall thickness capacity of the tool, or the pipe material is too hard.	Refer to “Tool Rating and Roll Selection” on page 34.
The “A” Gasket Seat or “B” Groove Width dimensions do not meet Victaulic specifications.	Upper roll bearing is not lubricated sufficiently.	Refer to “Maintenance” on page 28.
	Incorrect upper roll, lower roll, or both installed on the tool.	Install the correct rolls. Refer to “Tool Rating and Roll Selection” on page 34.

In the event of tool malfunction outside the scope of the troubleshooting section, contact Victaulic Engineering Services for assistance.

TOOL RATING AND ROLL SELECTION

STANDARD AND “ES” ROLLS FOR STEEL PIPE – COLOR-CODED BLACK

Pipe Size		Dimensions - inches/millimeters		Standard	“ES”
Nominal Size inches	Actual Outside Diameter inches/mm	Steel Pipe Wall Thickness		Roll Part Numbers	Roll Part Numbers
		Minimum	Maximum		
1 ¼	1.660 42.4	0.065 1.7	0.140 3.6	Lower Roll R912106L03 Upper Roll R912106UA6	Lower Roll RZ02106L03 Upper Roll RZ02106UA3
1 ½	1.900 48.3	0.065 1.7	0.145 3.7		
2	2.375 60.0	0.065 1.7	0.154 3.9		
2 ½	2.875 73.0	0.083 2.1	0.203 5.2		
3	3.500 88.9	0.083 2.1	0.216 5.5		
4	4.500 114.3	0.083 2.1	0.237 6.0	Lower Roll R904106L06 Upper Roll R912106UA6	Lower Roll RZ04106L06 Upper Roll RZ04106UA6
4 ½	5.000 127.0	0.095 2.4	0.237 6.0		
5	5.563 141.3	0.109 2.8	0.258 6.6		
6	6.625 168.3	0.109 2.8	0.280 7.1		

Notes: Maximum ratings on steel are limited to pipe of a Brinell Hardness Number (BHN) of 180 BHN and less. The wall thicknesses listed are nominal minimum and maximum. In addition, the following pipe sizes may be roll grooved: 76.1 mm; 108.0 mm; 127.0 mm; 133.0 mm; 139.7 mm; 152.4 mm; 159.0 mm; and 165.1 mm. Contact Victaulic for details.

STANDARD ROLLS FOR SCHEDULES 5S AND 10S STAINLESS STEEL PIPE – COLOR-CODED SILVER

Pipe Size		Dimensions - inches/millimeters		RX
Nominal Size inches	Actual Outside Diameter inches/mm	Stainless Steel Pipe Wall Thickness		Roll Part Numbers
		Minimum for Schedule 5S	Maximum for Schedule 10S	
1 ¼	1.660 42.4	0.065 1.7	0.109 2.8	Lower Roll RX12106L06 Upper Roll R912106UA6
1 ½	1.900 48.3	0.065 1.7	0.109 2.8	
2	2.375 60.0	0.065 1.7	0.109 2.8	
2 ½	2.875 73.0	0.083 2.1	0.120 3.0	
3	3.500 88.9	0.083 2.1	0.120 3.0	
4	4.500 114.3	0.083 2.1	0.120 3.0	
5	5.563 141.3	0.109 2.8	0.134 3.4	
6	6.625 168.3	0.109 2.8	0.134 3.4	

Notes: Types 304/304L and 316/316L stainless steel pipe. The wall thicknesses listed are nominal minimum and maximum. In addition, the following pipe sizes may be roll grooved: 76.1 mm; 108.0 mm; 127.0 mm; 133.0 mm; 139.7 mm; 152.4 mm; 159.0 mm; and 165.1 mm. Contact Victaulic for details.

CTS US STANDARD – ASTM DRAWN COPPER TUBING – COLOR-CODED COPPER

Tube Size		Dimensions - inches/millimeters		Copper
Nominal Size inches	Actual Outside Diameter inches/mm	Copper Tubing Wall Thickness		Roll Part Numbers
		Minimum	Maximum	
2	2.125 54.0	0.042 1.1	0.083 2.1	Lower Roll RR02106L06 Upper Roll RR02106UA6
2 ½	2.625 66.7	0.065 1.7	0.095 2.4	
3	3.125 79.4	0.045 1.1	0.109 2.8	
4	4.125 104.8	0.058 1.5	0.134 3.4	
5	5.125 130.2	0.072 1.8	0.160 4.1	
6	6.125 155.6	0.083 2.1	0.192 4.9	

ASTM B306, Type DWV and ASTM B88, Types K, L, M copper tubing
The wall thicknesses listed are nominal minimum and maximum

AUSTRALIAN STANDARD – AS 1432 TYPES A, B, AND D COPPER TUBING – COLOR-CODED COPPER

Tube Size			Type “A” (AS 1432)	Type “B” (AS 1432)	Type “D” (AS 1432)	Copper
Australian Standard Nominal Size/ Actual Size	Actual Outside Diameter mm/inches		Wall Thickness mm/inches	Wall Thickness mm/inches	Wall Thickness mm/inches	Roll Part Numbers
	Minimum	Maximum				
DN 50 50.8	50.67 1.995	50.80 2.000	1.6 0.063	1.2 0.047	0.9 0.035	Lower Roll RRA2106L06 Upper Roll RRA2106UA6
DN 65 63.5	63.35 2.494	63.50 2.500	1.6 0.063	1.2 0.047	0.9 0.035	
DN 80 76.2	76.02 2.993	76.20 3.000	2.0 0.079	1.6 0.063	1.2 0.047	
DN 100 101.6	101.35 3.990	101.60 4.000	2.0 0.079	1.6 0.063	1.2 0.047	
DN 125 127.0	126.75 4.990	127.00 5.000	2.0 0.079	1.6 0.063	1.4 0.055	
DN 150 152.4	152.10 5.988	152.40 6.000	2.6 0.102	2.0 0.079	1.6 0.063	

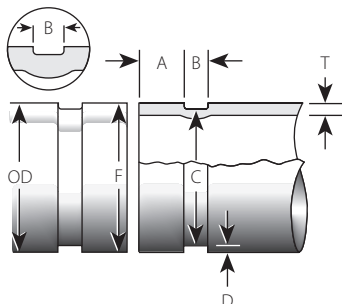
EXPLANATION OF CRITICAL ROLL GROOVE DIMENSIONS FOR ORIGINAL GROOVE SYSTEM (OGS) PRODUCTS



WARNING

- Pipe dimensions and groove dimensions must be within the tolerances specified in the tables on the following pages to ensure proper joint performance.

Failure to follow these specifications could cause joint failure, resulting in serious personal injury and/or property damage.



STANDARD ROLL GROOVE

Illustration is exaggerated for clarity

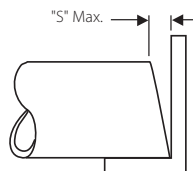
NOTICE

FOR STANDARD COUPLINGS WITH RATINGS ON LIGHT-WALL STAINLESS STEEL PIPE:

- Victaulic RX rolls **MUST** be used when roll grooving light-wall stainless steel pipe for use with standard couplings.

Pipe Outside Diameter – Nominal NPS Pipe Size (ANSI B36.10) and Basic Metric Pipe Size (ISO 4200) – The average pipe outside diameter must not vary from the specifications listed in the tables on the following pages. Maximum allowable pipe ovality shall comply with the requirements of ASTM A-999 and API 5L. Greater variations between the major and minor diameters will result in difficult coupling assembly.

For NPS pipe, the maximum allowable tolerance from square-cut pipe ends is: $\frac{1}{16}$ inch/1.6 mm for 4 to 24-inch/114.3 to 610-mm sizes and $\frac{3}{32}$ inch/2.4 mm for 26-inch/660-mm and larger sizes. This is measured from the true square line.



Any internal and external weld beads or seams must be ground flush to the pipe surface. The inside diameter of the pipe end must be cleaned to remove coarse scale, dirt, and other foreign material that might interfere with or damage grooving rolls. The front edge of the pipe end shall be uniform with no concave/convex surface features that will cause improper grooving roll tracking or result in difficulties during coupling assembly.

“A” Dimension – The “A” dimension, or the distance from the pipe end to the groove, identifies the gasket seating area. This area must be free from indentations, projections (including weld seams), and roll marks from the pipe end to the groove to ensure a leak-tight seal. All foreign material, such as loose paint, scale, oil, grease, chips, rust, and dirt must be removed.

“B” Dimension – The “B” dimension, or groove width, controls expansion, contraction, and angular deflection of flexible couplings by the distance it is located from the pipe and its width in relation to the coupling housings’ “key” width. The bottom of the groove must be free of all foreign material, such as dirt, chips, rust, and scale that may interfere with proper coupling assembly.

“C” Dimension – The “C” dimension is the average diameter at the base of the groove. This dimension must be within the diameter’s tolerance and concentric with the OD for proper coupling fit. The groove must be of uniform depth for the entire pipe circumference.

“D” Dimension – The “D” dimension is the normal depth of the groove and is a reference for a “trial groove” only. Variations in pipe OD affect this dimension and must be altered, if necessary, to keep the “C” dimension within tolerance. The groove diameter must conform to the “C” dimension described above.

“F” Dimension – Maximum allowable pipe-end flare diameter is measured at the extreme pipe-end diameter. **NOTE:** This applies to average (pi tape) and single-point readings.

“T” Dimension – The “T” dimension is the lightest grade (minimum nominal wall thickness) of pipe that is suitable for cut or roll grooving. Pipe that is less than the minimum nominal wall thickness for cut grooving may be suitable for roll grooving or adapted for Victaulic couplings by using Vic-Ring® Adapters. Vic-Ring Adapters can be used in the following situations (contact Victaulic for details):

- When pipe is less than the minimum nominal wall thickness suitable for roll grooving
- When pipe outside diameter is too large to roll or cut groove
- When pipe is used in abrasive services

NOTICE
• Coatings that are applied to the interior surfaces of Victaulic grooved and plain-end pipe couplings must not exceed 0.010 inch/0.25 mm. This includes the bolt pad mating surfaces. • In addition, the coating thickness applied to the gasket-sealing surface and within the groove on the pipe exterior must not exceed 0.010 inch/0.25 mm.

ROLL GROOVE SPECIFICATIONS
STEEL PIPE AND ALL MATERIALS GROOVED WITH STANDARD AND RX ROLLS

Size		Dimensions – inches/millimeters													
Nominal Size inches or mm	Actual Outside Diameter inches/mm	Pipe Outside Diameter		Gasket Seat "A"			Groove Width "B"			Groove Diameter "C"		Groove Depth "D" (ref.)	Min. Allow. Wall Thick. "T"	Max. Allow. Flare Dia. "F"	
		Max.	Min.	Basic	Max.	Min.	Basic	Max.	Min.	Max.	Min.				
1 ¼	1.660	1.676	1.644	0.625	0.656	0.594	0.281	0.312	0.250	1.535	1.520	0.063	0.049	1.77	
	42.4	42.6	41.8	15.9	16.7	15.1	7.1	7.9	6.4	39.0	38.6	1.6	1.2	45.0	
1 ½	1.900	1.919	1.881	0.625	0.656	0.594	0.281	0.312	0.250	1.775	1.760	0.063	0.049	2.01	
	48.3	48.7	47.8	15.9	16.7	15.1	7.1	7.9	6.4	45.1	44.7	1.6	1.2	51.1	
2	2.375	2.399	2.351	0.625	0.656	0.594	0.344	0.375	0.313	2.250	2.235	0.063	0.049	2.48	
	60.3	60.9	59.7	15.9	16.7	15.1	8.7	9.5	8.0	57.2	56.8	1.6	1.2	63.0	
2 ½	2.875	2.904	2.846	0.625	0.656	0.594	0.344	0.375	0.313	2.720	2.702	0.078	0.078	2.98	
	73.0	73.8	72.3	15.9	16.7	15.1	8.7	9.5	8.0	69.1	68.6	2.0	2.0	75.7	
76.1 mm	3.000	3.030	2.970	0.625	0.656	0.594	0.344	0.375	0.313	2.845	2.827	0.078	0.078	3.10	
	76.1	77.0	75.4	15.9	16.7	15.1	8.7	9.5	8.0	72.3	71.8	2.0	2.0	78.7	
3	3.500	3.535	3.469	0.625	0.656	0.594	0.344	0.375	0.313	3.344	3.326	0.078	0.078	3.60	
	88.9	89.8	88.1	15.9	16.7	15.1	8.7	9.5	8.0	84.9	84.5	2.0	2.0	91.4	
4	4.500	4.545	4.469	0.625	0.656	0.594	0.344	0.375	0.313	4.334	4.314	0.083	0.078	4.60	
	114.3	115.4	113.5	15.9	16.7	15.1	8.7	9.5	8.0	110.1	109.6	2.2	2.0	116.8	
4 ½	5.000	5.050	4.969	0.625	0.656	0.594	0.344	0.375	0.313	4.834	4.814	0.083	0.078	5.10	
	127.0	128.3	126.2	15.9	16.7	15.1	8.7	9.5	8.0	122.8	122.3	2.2	2.0	129.5	
133.0 mm	5.250	5.303	5.219	0.625	0.656	0.594	0.344	0.375	0.313	5.084	5.064	0.083	0.078	5.35	
	133.0	134.7	132.6	15.9	16.7	15.1	8.7	9.5	8.0	129.1	128.6	2.2	2.0	135.9	
139.7 mm	5.500	5.556	5.469	0.625	0.656	0.594	0.344	0.375	0.313	5.334	5.314	0.083	0.078	5.60	
	139.7	141.1	138.9	15.9	16.7	15.1	8.7	9.5	8.0	135.5	135.0	2.2	2.0	142.2	
5	5.563	5.619	5.532	0.625	0.656	0.594	0.344	0.375	0.313	5.395	5.373	0.084	0.078	5.66	
	141.3	142.7	140.5	15.9	16.7	15.1	8.7	9.5	8.0	137.0	136.5	2.2	2.0	143.8	
152.4 mm	6.000	6.056	5.969	0.625	0.656	0.594	0.344	0.375	0.313	5.830	5.808	0.085	0.078	6.10	
	152.4	153.8	151.6	15.9	16.7	15.1	8.7	9.5	8.0	148.1	147.5	2.2	2.0	154.9	
159.0 mm	6.250	6.313	6.219	0.625	0.656	0.594	0.344	0.375	0.313	6.032	6.002	0.109	0.109	6.35	
	159.0	160.4	158.0	15.9	16.7	15.1	8.7	9.5	8.0	153.2	152.5	2.8	2.8	161.3	
165.1 mm	6.500	6.563	6.469	0.625	0.656	0.594	0.344	0.375	0.313	6.330	6.308	0.085	0.078	6.60	
	165.1	166.7	164.3	15.9	16.7	15.1	8.7	9.5	8.0	160.8	160.2	2.2	2.8	167.6	
6	6.625	6.688	6.594	0.625	0.656	0.594	0.344	0.375	0.313	6.455	6.433	0.085	0.078	6.73	
	168.3	169.9	167.5	15.9	16.7	15.1	8.7	9.5	8.0	164.0	163.4	2.2	2.8	170.9	



STANDARD-WALL PIPE OR PLASTIC-COATED PIPE JOINED WITH STYLE HP-70ES ENDSEAL COUPLINGS

Size		Dimensions – inches/millimeters										
Nominal Size inches	Actual Outside Diameter inches/mm	Pipe Outside Diameter		Gasket Seat "A"		Groove Width "B"		Groove Diameter "C"		Groove Depth "D" (ref.)	Min. Allow. Wall Thick. "T"	Max. Allow Flare Dia. "F"
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			
2	2.375 60.3	2.399 60.9	2.351 59.7	0.572 14.5	0.552 14.0	0.265 6.7	0.250 6.4	2.250 57.2	2.235 56.8	0.063 1.6	0.154 3.9	2.480 63.0
2½	2.875 73.0	2.904 73.8	2.846 72.3	0.572 14.5	0.552 14.0	0.265 6.7	0.250 6.4	2.720 69.1	2.702 68.6	0.078 2.0	0.203 5.2	2.980 75.7
3	3.500 88.9	3.535 89.8	3.469 88.1	0.572 14.5	0.552 14.0	0.265 6.7	0.250 6.4	3.344 84.9	3.326 84.5	0.083 2.1	0.216 5.5	3.600 91.4
4	4.500 114.3	4.545 115.4	4.469 113.5	0.610 15.5	0.590 15.0	0.320 8.1	0.300 7.6	4.334 110.1	4.314 109.6	0.083 2.1	0.237 6.0	4.600 116.8
6	6.625 168.3	6.688 169.9	6.594 167.5	0.610 15.5	0.590 15.0	0.320 8.1	0.300 7.6	6.455 164.0	6.433 163.4	0.085 2.2	0.280 7.1	6.730 170.9

CTS US STANDARD – ASTM B-88 HARD-DRAWN COPPER TUBING AND DWV PER ASTM B-306

Copper Tubing Size		Dimensions – inches/millimeters									
Nominal inches/ Actual mm	Actual Outside Diameter †		Gasket Seat "A"		Groove Width "B"		Groove Diameter "C"		Groove Depth "D" (ref.)	Min. Allow. Wall Thick. "E"	Max. Allow. Flare Dia. "F"
	Max.	Min.	Basic	Max.	Min.	Max.	Min.	Max.			
2 54.0	2.127 53.9	2.123 53.9	0.610 15.5	0.640 16.3	0.580 14.7	0.330 8.4	0.300 7.6	2.009 51.0	0.048 1.2	DWV* 0.065	2.220 56.4
2½ 66.7	2.627 66.7	2.623 66.6	0.610 15.5	0.640 16.3	0.580 14.7	0.330 8.4	0.300 7.6	2.505 63.6	0.050 1.2	0.065 1.7	2.720 69.1
3 79.4	3.127 79.4	3.123 79.3	0.610 15.5	0.640 16.3	0.580 14.7	0.330 8.4	0.300 7.6	3.005 76.3	0.050 1.2	DWV* 0.065	3.220 81.8
4 104.8	4.127 104.8	4.123 104.7	0.610 15.5	0.640 16.3	0.580 14.7	0.330 8.4	0.300 7.6	3.999 101.6	0.053 1.4	DWV* 0.065	4.220 107.2
5 130.2	5.127 130.2	5.123 130.1	0.610 15.5	0.640 16.3	0.580 14.7	0.330 8.4	0.300 7.6	4.979 126.5	0.063 1.6	DWV* 0.065	5.220 132.6
6 155.6	6.127 155.6	6.123 155.5	0.610 15.5	0.640 16.3	0.580 14.7	0.330 8.4	0.300 7.6	5.999 151.9	0.063 1.6	DWV* 0.065	6.220 158.0
8 206.4	8.127 206.4	8.121 206.3	0.610 15.5	0.640 16.3	0.580 14.7	0.330 8.4	0.300 7.6	7.959 201.7	0.083 2.1	DWV* 0.065	8.220 208.8

† The outside diameter of roll grooved copper tubing cannot vary from the tolerance listed. The maximum allowable tolerance from square cut ends is 0.030 inch (0.8 mm) for 2 – 3 inch (54.0 – 79.4 mm) sizes and 0.045 inch (1.1 mm) for 4 – 6 inch (104.8 – 155.6 mm) sizes; this is measured from the true square line.

* ASTM B-306 drain-waste and vent (DWV) is the minimum wall thickness of copper tubing that can be roll grooved.

AUSTRALIAN STANDARD – AS 1432 TYPES A, B, AND D COPPER TUBING

Copper Tubing Size		Dimensions – millimeters/inches									
Nominal † Actual mm	mm/ mm/ mm	Actual Outside Diameter *		Gasket Seat "A"		Groove Width "B"		Groove Diameter "C"		Groove Depth "D" (ref.)	Max. Allow. Flare Dia. "F"
		Max.	Min.	Basic	Max.	Min.	Max.	Max.	Min.		
DN 50	50.8	50.80	50.67	15.87	16.64	15.11	8.38	48.21	47.70	1.25	53.06
50.8		2.000	1.995	0.625	0.655	0.595	0.330	1.898	1.878	0.049	2.089
DN 65	63.5	63.50	63.35	15.87	16.64	15.11	8.38	60.88	60.38	1.27	65.38
63.5		2.500	2.494	0.625	0.655	0.595	0.330	2.397	2.377	0.050	2.592
DN 80	76.2	76.20	76.02	15.87	16.64	15.11	8.38	73.56	73.05	1.27	78.51
76.2		3.000	2.993	0.625	0.655	0.595	0.330	2.896	2.876	0.050	3.091
DN 100	101.6	101.60	101.35	15.87	16.64	15.11	8.38	98.78	98.27	1.35	103.88
101.6		4.000	3.990	0.625	0.655	0.595	0.330	3.889	3.869	0.053	4.090
DN 125	127.0	127.00	126.75	15.87	16.64	15.11	8.38	123.67	123.16	1.60	128.77
127.0		5.000	4.990	0.625	0.655	0.595	0.330	4.869	4.849	0.063	5.070
DN 150	152.4	152.40	152.10	15.87	16.64	15.11	8.38	149.05	148.54	1.60	154.66
152.4		6.000	5.988	0.625	0.655	0.595	0.330	5.868	5.848	0.063	6.089

† Nominal AS 1432 drawn copper tubing size.

* The outside diameter of roll grooved copper tubing cannot vary from the tolerance listed. The maximum allowable tolerance from square cut ends is 0.8 mm for DN 50 – 80 mm sizes and 1.1 mm for DN 100 – 150 mm sizes; this is measured from the true square line.

EC DECLARATION OF CONFORMITY

In Accordance with the Machinery Directive 2006/42/EC

Victaulic Company, headquartered at 4901 Kesslersville Road, Easton, PA 18040, USA, hereby declares that the machinery listed below complies with the essential safety requirements of the Machinery Directive, 2006/42/EC.

Product Models:	VE 106 VE 107
Serial No. :	Refer to Machinery Nameplate
Product Description:	Portable Pipe Roll Grooving Tools
Conformity Assessment:	2006/42/EC, Annex I
Reference Standards:	EN ISO 12100 : 2010
Technical Documentation:	The relevant technical documentation prepared in accordance with Annex VII (A) of the Machinery Directive 2006/42/EC, will be made available upon request to the governing authorities.
Authorized Representative:	Victaulic Company c/o Victaulic Europe BVBA Prijkelstraat 36 9810, Nazareth Belgium

Signed for and on behalf of Victaulic Company,



Mr. Len R. Swantek
Director – Global Regulatory Compliance
Machinery Manufacturer Representative

Place of Issue: Easton, Pennsylvania, USA
Date of Issue: April 11, 2016

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VE106 and VE107 Groove-N-Go
