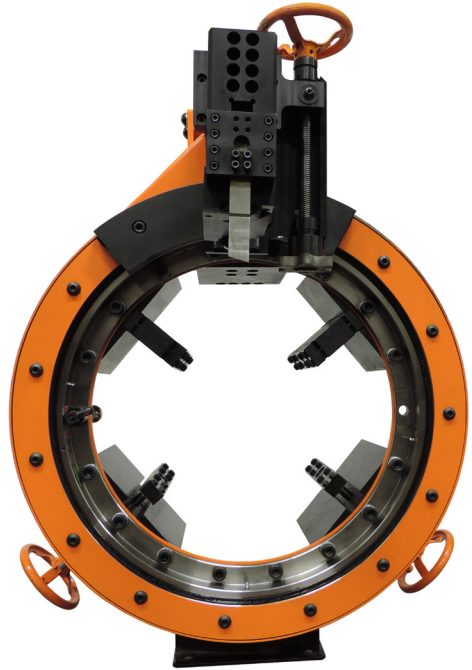


# Cut Grooving Tool

CG3100: 8–18 in HDPE Pipe  
 CG3300: 16–26 in HDPE Pipe  
 CG3500: 24–36 in HDPE Pipe

CG3101: 250–450 mm HDPE Pipe  
 CG3301: 400–630 mm HDPE Pipe  
 CG3501: 630–900 mm HDPE Pipe



WARNING



**WARNING**



Failure to follow instructions and warnings could result in death, 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

CG3000 series cut grooving tools are designed for the sole purpose of cut grooving HDPE pipe. 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, or can be downloaded at [victaulic.com](http://victaulic.com).

 **DANGER**

1. **Avoid using the tool in dangerous environments.** Do not use the tool on sloped or uneven surfaces. Keep the work area well lit. Allow sufficient space to operate the tool properly. Always ensure that the power source is grounded.
2. **Disconnect electrical power before servicing the tool.** Only authorized personnel should perform maintenance on the tool. Always disconnect power before servicing or adjusting the tool.
3. **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 (sound levels up to 93.6 decibels can be produced during the grooving process).
4. **Keep hands and tools away from grooving bits and tracking wheel during the grooving operation.** Grooving area 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 hands and shirt sleeves.
6. **Operate the tool from the control side only.** The power drive must be operated with a 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, contact Victaulic.

 **CAUTION**

1. **CG3000 tools are designed ONLY for grooving pipe sizes, materials, and wall thicknesses as designated.**
2. **Inspect the equipment.** Before using the tool, check moveable parts for obstructions. Ensure that tool components are installed and adjusted in accordance with setup instructions.
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 movement of the operator. Clean up any spills.
6. **Secure the work, tool, and accessories.** Verify that the tool is stable. Refer to the “Tool Setup” section.
7. **Support the work.** Pipe should be supported by a pipe stand that is secured to the floor or to 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 to ensure proper and safe performance. Follow the instructions for matching and lubricating tool components, if applicable.
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” section.
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 Company.

Victaulic CG3000 series cut grooving tools are power-driven for cut grooving HDPE pipe to prepare it to receive Victaulic keyed couplings.

These tools should only be used to groove pipe with specifications that fall within the designated parameters.

### CAUTION

- This tool must be used **ONLY** for grooving pipe with specifications that fall within the designated parameters.

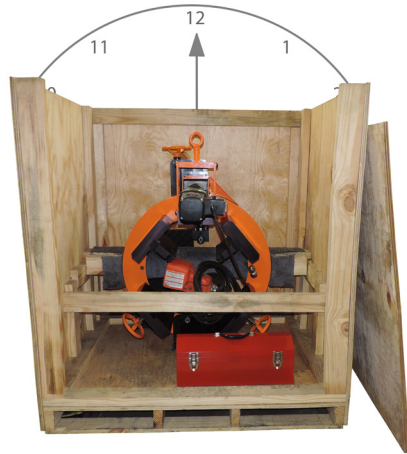
**Failure to follow these instructions could damage the tool and cause product failure, resulting in property damage or personal injury.**

## RECEIVING THE TOOL

CG3000 series cut grooving tools are packed upright in 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	CG3000 Series Tool
1	Motor with Foot Switch
1	Squaring and Grooving Bit Set
1	Grooving Spacer Set
1	Pipe Support Block Set
1	Grooving Bit Setting Fixture
1	Groove Verification Gauge
2	Operating and Maintenance Instructions Manual

## RETURNING THE TOOL

When packing the tool for return shipping, ensure that the adjustable lower blocks are fully retracted into the diameter of the ring gear. The tool head block must be rotated to the twelve o'clock position (as shown above) and secured in place to prevent movement during shipping. The squaring bit must be wrapped to protect the blade.

## 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

CG3100, CG3300, and CG3500 tools connect directly to a 110V 50-60 Hz 20 amp power source. CG3101, CG3301, and CG3501 tools connect directly to a 220V 50-60 Hz 20 amp single-phase power source. A hydraulic drive conversion kit may be ordered separately. Contact Victaulic for information regarding drive motors for alternate power sources.

Power must be supplied to the drive motor through a deadman foot switch to ensure safe operation. Ensure that the foot switch is grounded properly in accordance with Article 250 of the National Electrical Code.

## 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 drive motor while the tool is operating. Voltage drops may cause damage to the drive motor and can result in improper tool operation. **NOTE:** It is acceptable to use a cord size that is thicker than required.

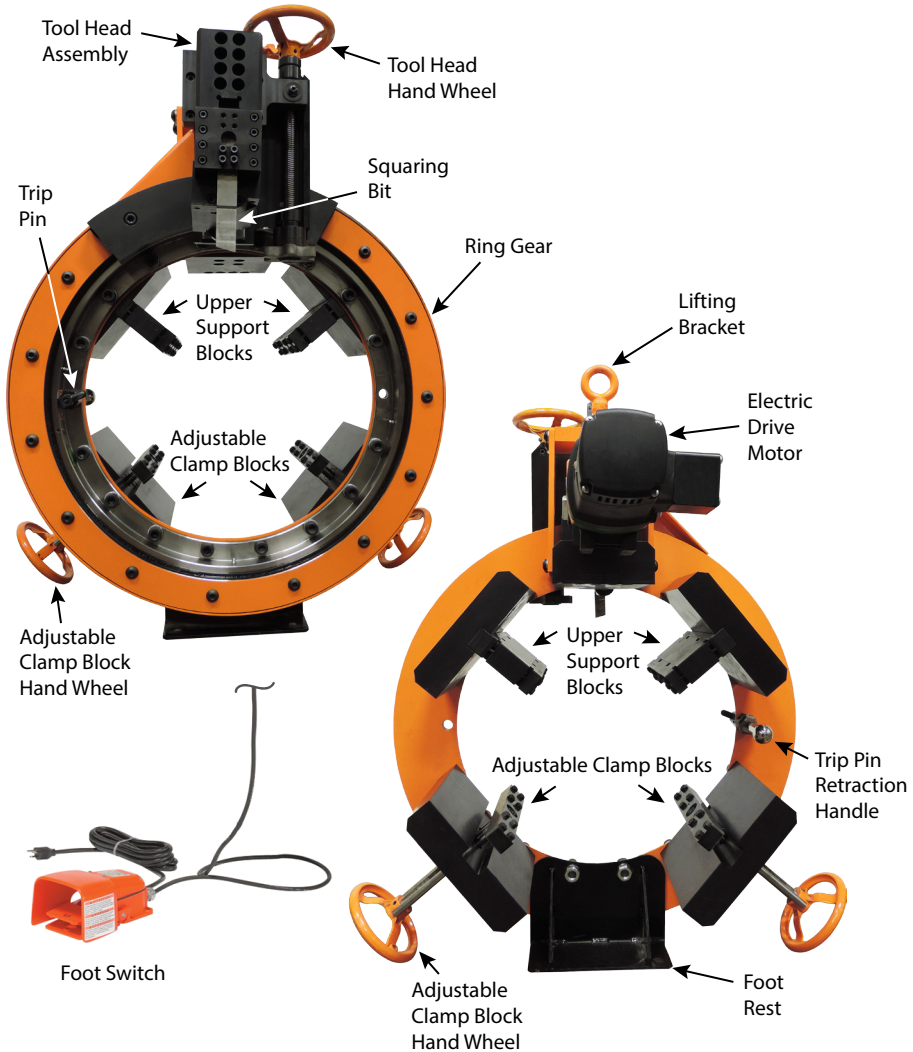
The required cord sizes for cord lengths up to and including 100 ft/31 m are listed in the table below. Use of extension cords longer than 100 ft/31 m must be avoided.

Power Drive Rating volts/amps	Cord Lengths feet/meters		
	25 8	50 15	100 31
110 20	12 gauge	12 gauge	10 gauge
220 20	12 gauge	12 gauge	10 gauge

## TOOL NOMENCLATURE

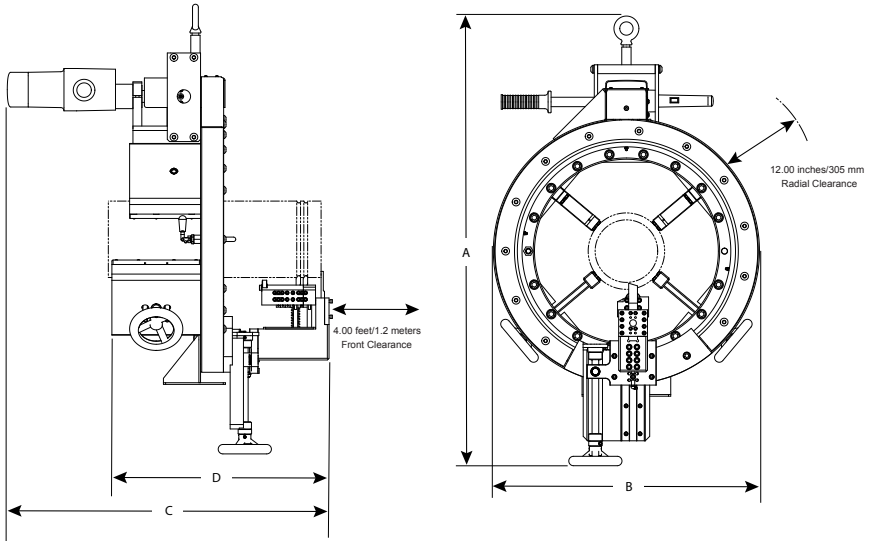
### NOTICE

- 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.





**TOOL DIMENSIONS AND SPECIFICATIONS**



Tool Model	Dimensions – inches/millimeters				Tool Weight lbs/kg
	A	B	C	D	
3100	43	33	37	25	430
	1092.2	838.2	939.8	635.0	195.1
3300	53	39	38	25	550
	1346.2	990.6	965.2	635.0	249.5
3500	63	48	48	27	715
	1600.2	1219.2	1219.2	685.8	324.3

Tool sound pressure is 85.6 dB(A), while tool sound power is 93.6 dB(A). All measurements taken with a Eibenstock EAU 34/4 120V 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.

## PIPE SET UP

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

CG3000 series tools are designed for field or shop use. Select a location for the grooving operation by taking into consideration the following factors:

- a. The required power supply
- b. Adequate space to handle pipe lengths
- c. A firm and level surface for the hoist and pipe stand.
- d. Anchoring requirements for the pipe stand

Pipe must be secured with a pipe stand or similar restraint at both ends to prevent movement. The system used must be capable of bearing the weight of the tool (see “Tool Dimensions” on page 9) in addition to the weight of the pipe being grooved.

### WARNING

- **DO NOT use a hoist or similar lifting system to lift the tool with the pipe inside. The lifting bracket is designed to bear only the weight of the tool.**
- Failure to follow these instructions could result in property damage or personal injury.**

Position the pipe to overhang the pipe stand by approximately 40 inches/1016 mm so that the tool can groove the pipe without being obstructed by the pipe stand.

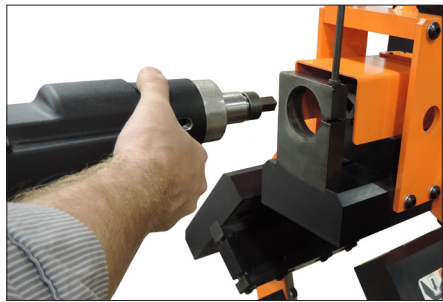
## MOTOR SET UP

### CAUTION

**While the foot rest may be used to provide additional balance during set up, the tool must not be left freestanding on the foot rest alone. Support the tool with a hoist or similar restraint when using the foot rest.**

While the CG3000 series tool ships fully assembled, maintenance or relocation may require removal of the motor. Should the motor be removed, complete the following steps for reattachment.

1. Install the motor into the tool, taking care to align the square drive shaft with the socket.



2. While supporting the motor, hand-tighten the motor mount fastener using the hex wrench provided. Do not overtighten.



3. The motor has four available adjustments, described below.

The gear selection knob offers two different gears for the motor, symbolized by the single and double raised bumps above the dial. The dial on both sides of the motor should point to the single bump. This setting creates the torque necessary for cutting and grooving. **The other settings are not to be used. Damage to the tool head may result.**



The direction switch is located to the left of the gear selection knob. The higher position drives the motor forward, while the lower position drives the motor backward. The motor should only be driven backward in order to loosen the blade if it becomes embedded in the pipe.



The master power switch is located to the left of the direction switch. The higher position is ON, while the lower position is OFF. Ensure that the power switch is OFF before connecting to power.

**WARNING**

**The electric motor features a safety delay. After depressing the switch, the motor will take 2 seconds to begin.**

- Do not interfere with the safety delay on the switch.
- Do not override the switch by obstructing or defeating it in any way.

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



The speed control knob is located above the power and direction switches. Turning the knob clockwise slows the motor, while turning the knob counterclockwise speeds up the motor.



The foot switch is wired in series with the master power switch. Ensure that the foot switch is located on the control side of the tool, with adequate clearance for ease of use and to avoid a tripping hazard.

## TOOL SET UP

CG3000 series components must be adjusted in a specific sequence. Performing the steps out of order will prevent the operator from taking the measurements necessary to ensure that grooves meet Victaulic specifications.

The following checklist details the appropriate order of set up.

- Tool head set up
- Grooving bit set up
- Upper support block set up
- Tool mounting on pipe end
- Squaring bit set up

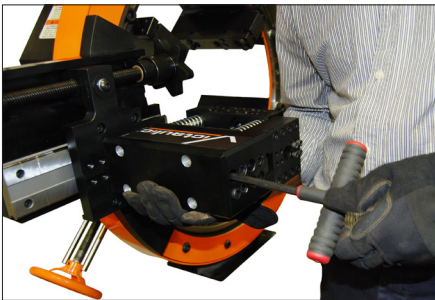
## TOOL HEAD SET UP

For accessibility and ease of reach, the tool head assembly must be set up before the tool is mounted on pipe.

The CG3000 series features a mounting plate that accommodates multiple tool head positions. Eight rows of mounting holes on the plate allow for five different height adjustments of the tool head.

To adjust the tool head position, rotate the tool head assembly to the nine o'clock position as shown below and complete the following steps.

1. Loosen the four rows of tool head mounting screws, being careful to support the tool head as the screws disengage.



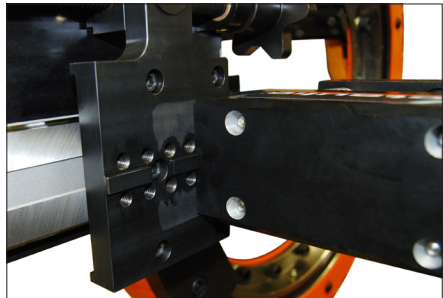
2. The appropriate height for the tool head is determined by the size of the pipe to be grooved. Refer to the "Tool Head Mounting Plate" diagram on page 26.

If the pipe is the largest possible size the tool can accommodate, the tool head should be mounted using the top four rows of holes on the mounting plate. The top of the mounting plate is the edge closest to the outer circumference of the ring gear.

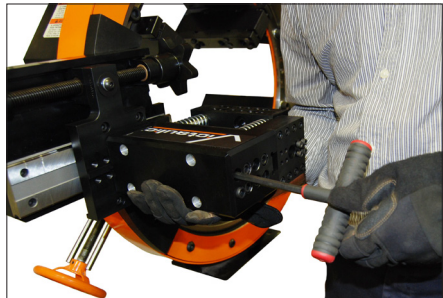
If the pipe is the smallest possible size the tool can accommodate, the tool head should be mounted using the bottom four rows of holes on the mounting plate. The bottom of the mounting plate is the edge closest to the inner circumference of the ring gear.

If the pipe is between the two outermost sizes, the tool head should be mounted using the center four rows of holes.

3. Place the tool head at the appropriate height. Ensure that the notch in the tool head is lined up with the tab at the center of the mounting plate.

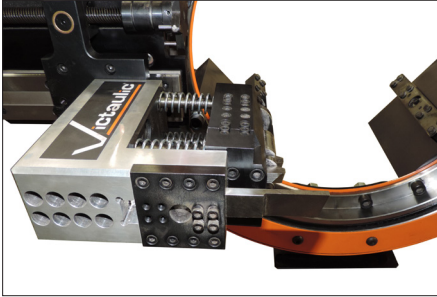


4. Tighten the four rows of tool head mounting screws evenly by alternating sides until the screws are snug. Do not overtighten.



**GROOVING BIT SET UP**

1. Ensure that the tool head assembly remains in the nine o'clock position, as shown below. Using the handwheel, advance the tool head block past the inner edge of the ring gear for ease of access.



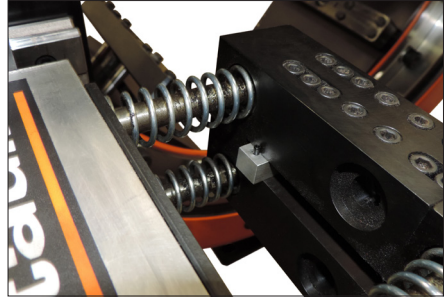
2. Loosen the compression screw on the back of the tool head block.



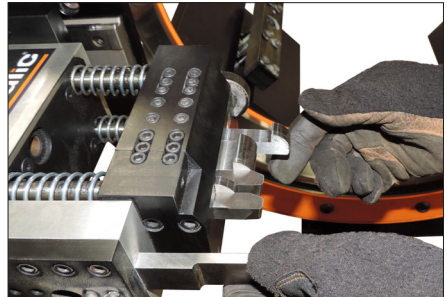
3. Loosen the side set screws until the bits are easily adjusted in and out. Remove all grooving and spacer bits.



4. Insert the squared-end spacer bit from the top of the tool head block until the stop pin rests against the block. Note that all other bits will be inserted from the bottom of the tool head block.



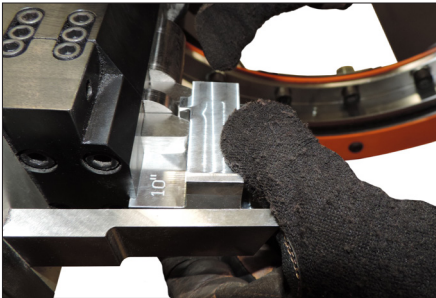
5. Insert the appropriate rounded-end spacer bits and grooving bits from the bottom of the tool head block, referring to the "Grooving Bit and Spacer Bit Set Up" diagram on page 27.



- 6. Find the mark on the groove verification gauge that corresponds to the diameter of the pipe to be grooved. Hold the gauge so that the appropriate mark faces upwards. (The photos below depict set up for 10-inch pipe.)



Place the gauge against the bottom of the tool head block. Ensure that the marking for the correct pipe size is facing up. Adjust the grooving bits so that their bottom edges rest against the shelf created by the gauge. Ensure that the rounded spacers are pressed against the tool head.

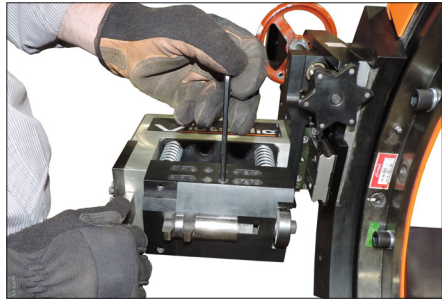


The gauge's key will rest between the two grooving bits. If the gauge does not fit, the grooving and spacer bits have not been set up properly. Confirm the appropriate size and order of bits by referring to the "Grooving Bit and Spacer Bit Set Up" diagram on page 27. Incorrect bit set up will prevent the pipe from being grooved to Victaulic specification and can cause interference with assembly of the housing. The final joint integrity could be compromised. If in doubt, contact Victaulic for assistance.

- 7. Tighten the rear compression screw to hand-tight to secure the grooving bits. Do not overtighten.



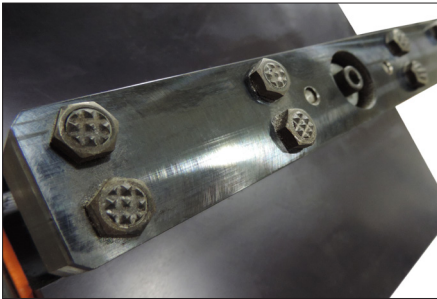
- 8. Tighten the side set screws to hand-tight to secure the grooving bits. Do not overtighten.



### UPPER SUPPORT BLOCK SET UP

The upper support blocks use multiple removable extensions depending on the size of the pipe to be grooved. Extension blocks have the corresponding pipe size etched on their sides. Base and thin blocks are not marked. For appropriate block order, refer to the “Block Set Up” diagram on page 28.

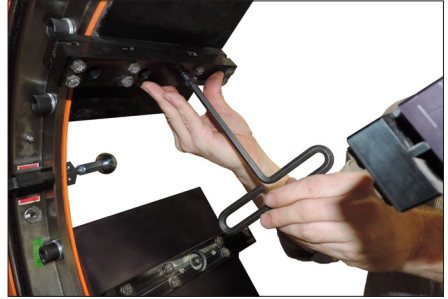
1. Examine the blocks for any foreign material, scratches, or deformities. The carbide pads should be free of any debris that could prevent the pads from gripping the pipe.



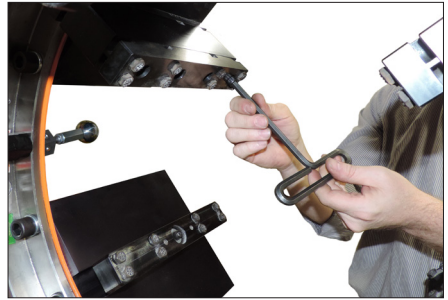
2. Extension and thin blocks have indents to allow room for the carbide pads of the base block. These indents protect the carbide pads from damage during the use of multiple blocks. When attaching multiple blocks, ensure that the pads from the block above are contained completely inside the indents of the block below.



3. Loosen and remove any unneeded blocks attached to the tool, making sure to support the blocks during removal.



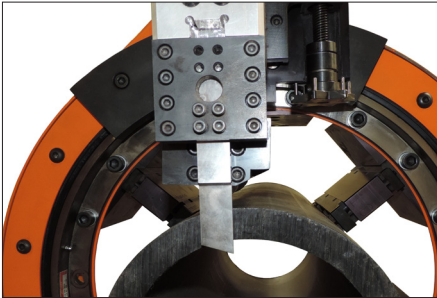
4. Attach the appropriate blocks for the pipe size to be grooved, referring to the “Block Set Up” diagram on page 28.



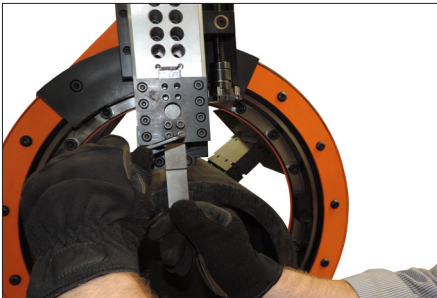
### SQUARING BIT SET UP

Because setting the length of the squaring bit depends upon the thickness of the pipe to be grooved, the tool must be mounted on the end of the pipe before the squaring bit can be adjusted. Follow the procedure outlined in the "Tool Mounting" section, starting on page 17, then set the squaring bit using the directions below.

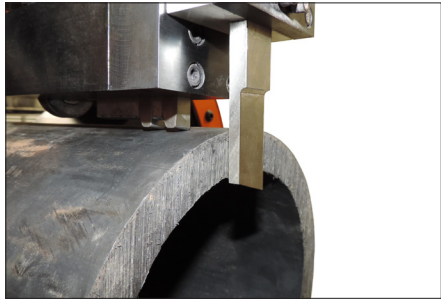
1. Rotate the tool head assembly to the twelve o'clock position, as shown below.



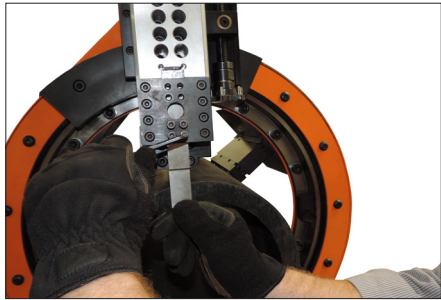
2. Loosen the set screws on the front of the tool head block to adjust the squaring bit.



3. Adjust the squaring bit until the bottom edge of the blade extends .25 in/6.35 mm past the inner diameter of the pipe.



4. Tighten the set screws on the front of the tool head block.





## TOOL MOUNTING

### **WARNING**

- **DO NOT** connect the power until instructed otherwise.
- **DO NOT** set up or operate the tool until you have read and understood the **Operating and Maintenance Instructions manual** supplied with the tool.

**Failure to follow these instructions could result in property damage or personal injury.**

1. Using a crane hoist or similar system, lift the tool into place and line it up with the end of the pipe.

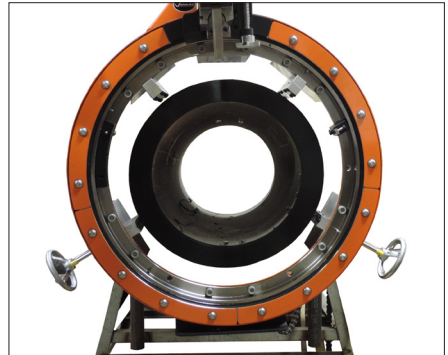


2. Ensure that the two adjustable clamp blocks on the bottom of the tool are extended to create the proper space inside the ring. Ensure that the tool head block is in the twelve o'clock position and is lifted all the way up so that the squaring bit does not drag across the pipe surface.

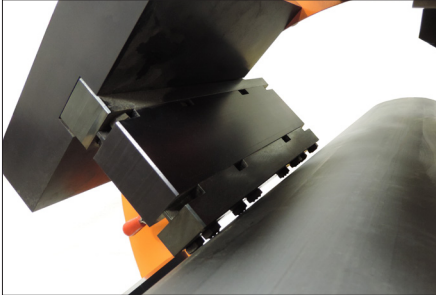
### **NOTICE**

**Avoid scratching or damaging the pipe when mounting the tool.**

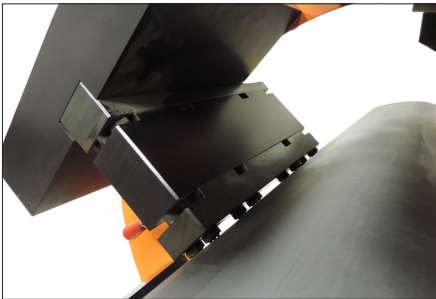
3. Push the tool over the pipe end, ensuring that the carbide pads of the four support blocks do not drag across the pipe surface. If the pads gouge the pipe surface, the affected area of pipe must be removed during the squaring process.



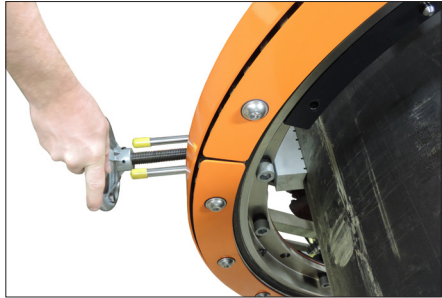
- 4. Lower the tool until the upper support blocks rest against the outside diameter of the pipe. The carbide pads on the blocks should rest evenly against the pipe surface, with no gapping. If there is gapping, like that shown below, gently rock the tool back and forth until the pads rest squarely on the pipe. This ensures that the tool is aligned with the pipe and will produce a square cut.



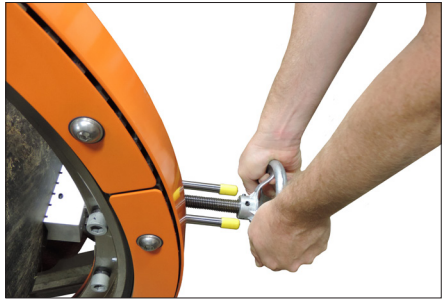
Correctly mounted, the carbide pads will appear as shown below.



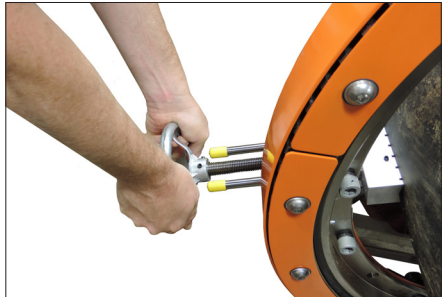
- 5. Tighten one of the adjustable clamp blocks to single-hand tight.



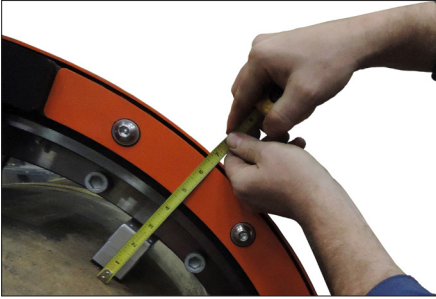
- 6. Tighten the opposite adjustable clamp block with both hands, ensuring that the pad is snug against the pipe.



- 7. Return to the first adjustable clamp block and retighten with both hands, ensuring that the pad is snug against the pipe.



8. Measure the distance from the outside diameter of the pipe to the edge of the ring gear. Take this measurement at several points around the circumference of the pipe, ensuring that the pipe is centered within the tool. Allow for no more than  $\frac{1}{2}$  inch/13 mm difference among measurements.



If the difference is greater than  $\frac{1}{2}$  inch/13 mm, verify that the correct clamp blocks are in place. Pipe that is out of round by more than  $\frac{1}{2}$  inch/13 mm will take additional time to form complete grooves. The tool cannot accommodate pipe that is out of round by more than  $1\frac{1}{2}$  inches/38 mm. If available pipe is beyond the given parameters, contact Victaulic.

**NOTE:** The pipe clamp blocks are designed for the sole purpose of mounting the tool on the pipe. These clamps do not have the strength to round pipe that is out of round. Overtightening these clamps will damage the tool.

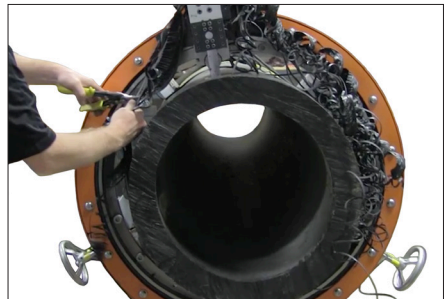
9. When tool mounting is complete, ensure that there is adequate clearance around the set up for tool rotation and operator movement. Allow 12 in/305 mm of radial clearance past the outer ring of the tool for operation. Allow 4 ft/1.2 m of clearance in front of the tool for operator movement and tool adjustment.

## GROOVING OPERATION

1. Using the handwheel, lower the squaring bit until it is  $\frac{1}{4}$  inch/6 mm above the outside diameter of the pipe.



2. After verifying appropriate tool set up, run the tool at the slowest speed for one revolution around the pipe to confirm proper operation.
3. Begin grooving operation to prepare a test groove.
4. Periodically stop the motor and cut away grooving debris to prevent it from becoming tangled around the tool head block or around the grooving bits.



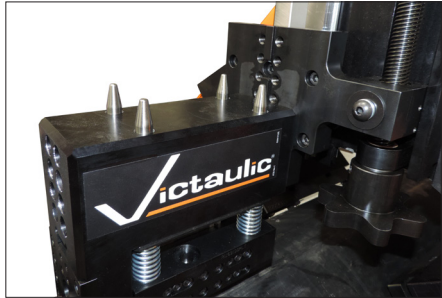
5. If the pipe is significantly out of round or is unusually hard due to cold temperatures, pull back the trip handle to allow an extra pass of the squaring bit before advancement. Re-engage the trip handle to continue advancing the blade. Repeat as necessary.



6. The grooving bits should engage the pipe as the squaring bit completes cutting and the pipe end falls away. Uneven pipe engagement may occur as the grooving bits encounter low spots on out-of-round pipe. This is normal.



7. As the pipe is being grooved and the springs compress, watch for the guide rods to become visible at the top of the tool head block.

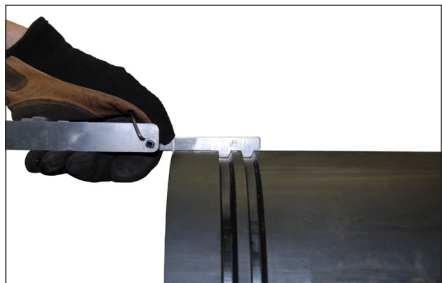


Once the entire taper at the tip of each guide rod is visible, the spring has achieved full compression. Release the trip handle to stop advancing the tool head. Continue grooving for several revolutions to ensure even grooves.

**NOTICE**

**Do not allow the tool head to advance past full spring compression. Doing so will cause the spacer bits to bite into the pipe surface, and may deform the groove or damage the tool head.**

8. Stop the motor and check groove depth at several locations around the pipe using the tool provided. Refer to the table on page 30 for specifications.



- 9. If necessary, continue grooving until consistent groove depth is achieved.
- 10. Once the test groove is completed to specification, commence grooving using the same tool settings.
- 11. Using the handwheel, back off the tool head block to lift the blades away from the pipe. The squaring blade should be 1/2 inch/13 mm above the pipe surface in preparation for the next cut.




- 12. Reverse the adjustable clamp blocks until they are 1 inch/25 mm from the pipe surface.



- 13. Remove the tool from the pipe. As with tool mounting, ensure that the carbide pads of the four support blocks do not drag across the pipe surface.
- 14. Using a deburring tool, cut away any extraneous material extruding from the inner diameter of the pipe.

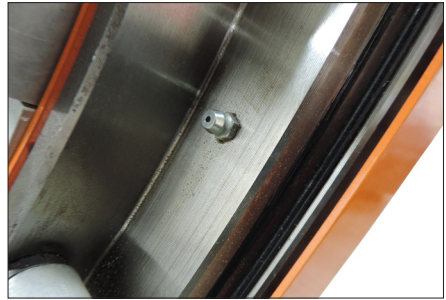
## MAINTENANCE

<b>⚠ DANGER</b>	
	<ul style="list-style-type: none"><li>• <b>Before performing any maintenance on the tool, disconnect power from the electrical source.</b></li></ul> <p><b>Failure to follow this instruction could result in death or serious personal injury.</b></p>

The tool must be cleaned after grooving each piece of pipe to remove chips and debris from all components. Pay particular attention to the tool head block, where chips can become stuck.

At the end of each week, the following additional steps are required.

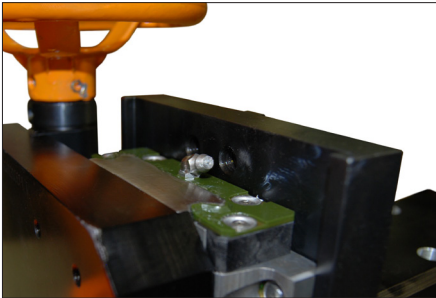
- 1. Grease the ring gear at each grease fitting, using a lithium-based mineral oil grease.



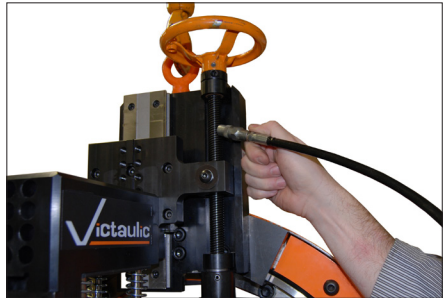
If the nozzle of the grease gun does not fit past the upper support block, apply lubrication to the other fittings and run the ring gear for several revolutions in order to spread the lubrication throughout the ring gear.



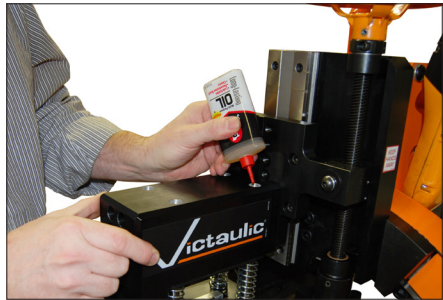
2. Grease the linear block at both grease fittings with the same lithium-based mineral oil grease.



3. Grease the lead screw with the same lithium-based mineral oil grease, and spread evenly along the entire shaft.



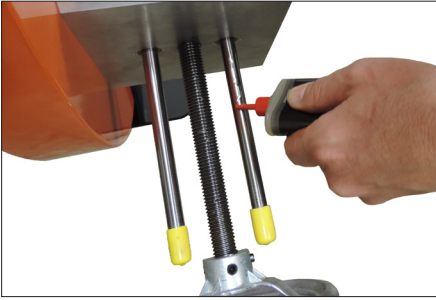
4. Apply several drops of a light machine oil to each guide shaft.



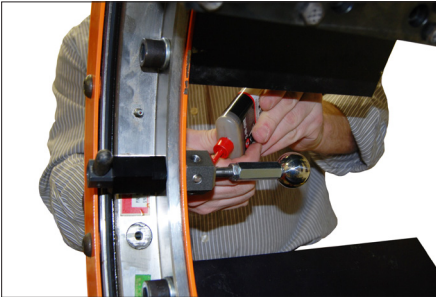
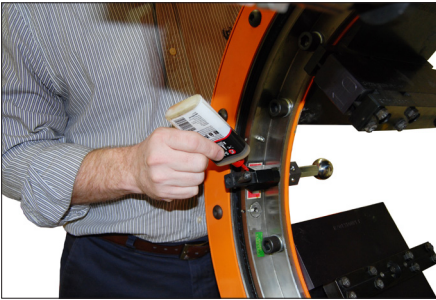
5. Apply a light machine oil to the hand wheel screw for both adjustable clamp blocks. Run the blocks to full extension and back to spread the oil along the entire screw shaft.



- 6. Apply a light machine oil to each guide rod, and spread evenly along the entire shaft.



- 7. Apply a light machine oil to the tripping shaft, and spread evenly along the entire shaft.



## PARTS ORDERING INFORMATION

When ordering parts, the following information is required for Victaulic to process the order and send the correct part(s).

1. Tool Model Number – CG3100/CG3300/CG3500
2. Tool Serial Number – The serial number can be found on the tool's nameplate.
3. Quantity, Item Number, Part Number, and Description – Example: (1) #R-001-300-MCH, Main Shaft
4. Where to send the part(s) – Company Name and Address
5. To whose attention to send the part(s) – Person's Name
6. Purchase Order Number
7. Billing Address

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

**TROUBLESHOOTING**

<b>PROBLEM</b>	<b>POSSIBLE CAUSE</b>	<b>SOLUTION</b>
Tool bit chatters.	Tool bit is loose or overextended.	Tighten or retract tool bit.
	Tool bit is damaged.	Replace tool bit.
	Tool holder is too loose in the slides.	Tighten tool holder.
	Feed nut is worn.	Replace feed nut.
	Cutting speed is too fast.	Adjust cutting speed.
	Clamping pads are loose on the pipe.	Tighten clamping pads.
Excessive tool bit wear.	Scale or other foreign material is present on the pipe.	Clean pipe to remove foreign material.
	Cutting speed is too fast.	Adjust cutting speed.
	Tool bit is incorrect for the material being cut.	Replace tool bit.
Rough surface finish.	Tool bit is chipped or dull.	Sharpen or replace tool bit.
	Cutting speed is incorrect.	Adjust cutting speed.
Tool bit does not reach the work, or grooves are too shallow.	Foreign material caught between guide wheel and pipe.	Clean pipe to remove foreign material.
	Groove bit depth not set correctly.	Adjust groove bit depth.
	Tool head positioned too high.	Lower tool head on mounting plate.

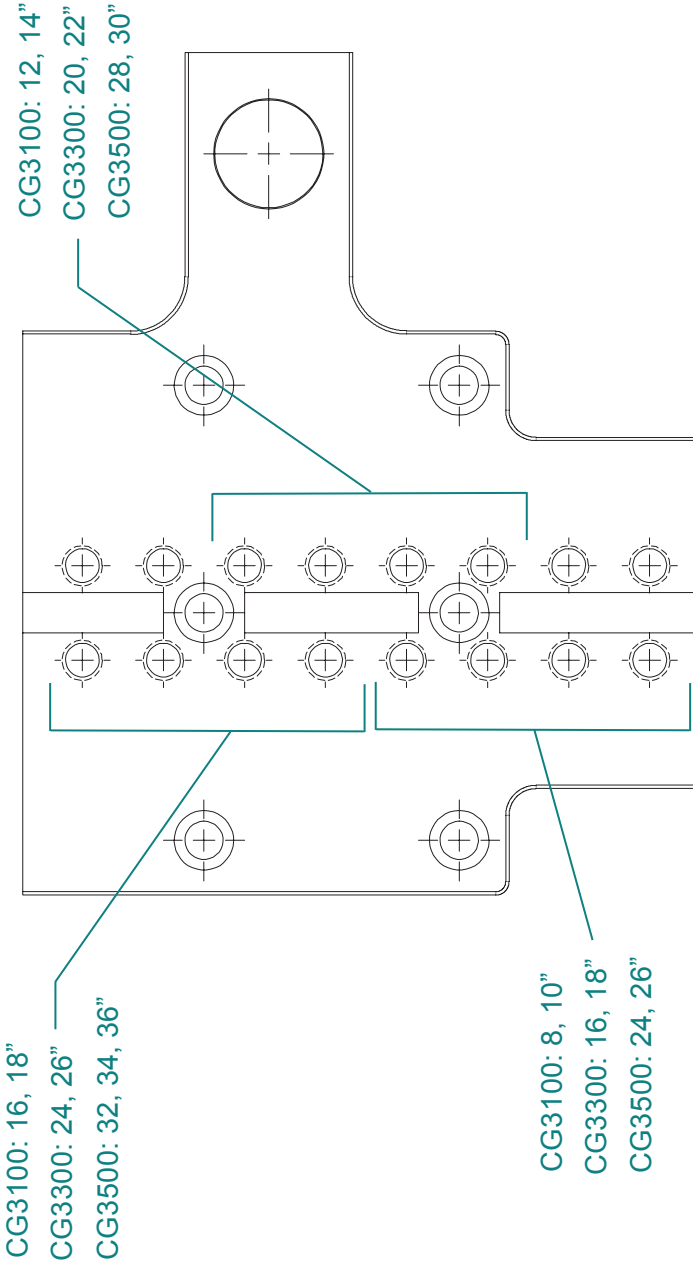


**TROUBLESHOOTING (CONTINUED)**

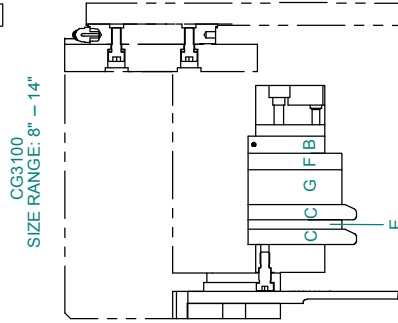
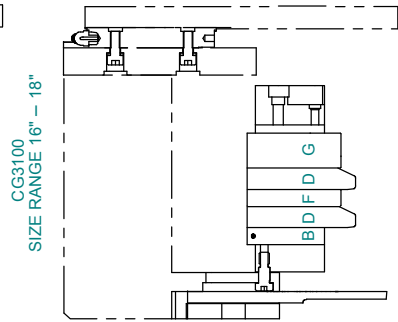
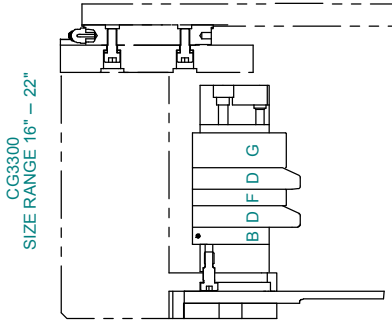
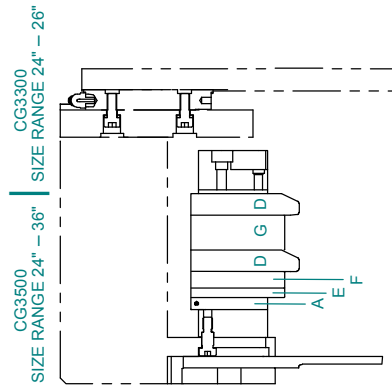
<b>PROBLEM</b>	<b>POSSIBLE CAUSE</b>	<b>SOLUTION</b>
Tool bit is diving and grooving module is stalling.	Tool bit is chipped or dull.	Replace tool bit.
	Tool holder adjustment slide is loose.	Tighten adjustment slide.
	Guide wheel is missing or broken.	Replace guide wheel.
	Tool bit is overextended.	Retract tool bit.
	Tool holder is overextended.	Retract tool holder.
Pipe is slipping in the clamping blocks.	Clamping pressure is not tight enough.	Tighten the handwheels for the adjustable blocks.
	Scale or other foreign material is present on the pipe.	Clean pipe to remove foreign material.
	Dull tool bits are causing extra force in the axial or radial direction.	Replace tool bits.
	Scale or other foreign material is present on the carbide pads.	Clean carbide pads to remove foreign material.
Electric motor does not start.	Electric supply not available.	Check plugs and circuit breakers of electrical supply.
Electric motor stalls.	Torque is too low for pipe diameter or ambient temperature.	Adjust motor to low gear and restart grooving.
	User is attempting to cut off pipe end while grooving.	Adjust squaring bit so that pipe end is cut off before grooving starts.
Tool is moving back and forth during grooving.	Clamping pressure is not tight enough.	Tighten the handwheels for the adjustable blocks.
	Scale or other foreign material is present on the carbide pads.	Clean carbide pads to remove foreign material.

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

TOOL HEAD MOUNTING PLATE SET UP

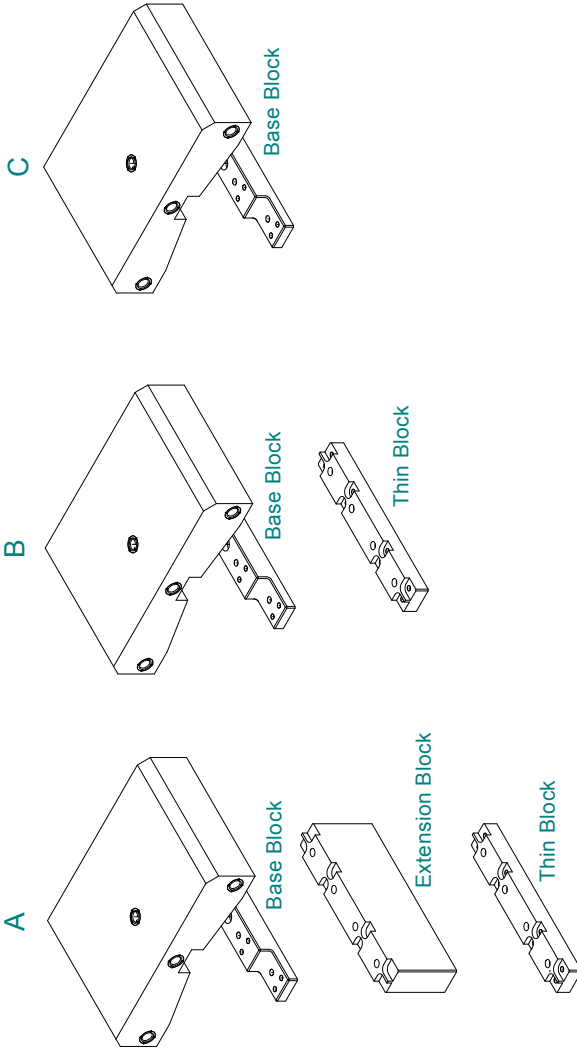


GROOVING BIT AND SPACER BIT SET UP



Call Out	Description	Part Number
A	Small Squared-End Spacer Bit	R-119-3100-MCH(-01)
B	Large Squared-End Spacer Bit	R-119-3100-MCH(-02)
C	8" - 14" Grooving Bit	R-117-3100-MCH
D	16" - 36" Grooving Bit	R-151-3100-MCH
E	Small Rounded-End Spacer Bit	R-118-3100-PLT(-01)
F	Medium Rounded-End Spacer Bit	R-118-3100-PLT(-02)
G	Large Rounded-End Spacer Bit	R-118-3100-PLT(-03)

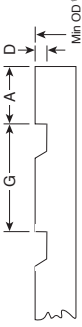
**BLOCK SET UP**



		Block Set Up						
Tool Model	A	A	A	A	A	A	B	C
3100	-	8 inch	10 inch	12 inch	14 inch	16 inch	18 inch	
3300	-	16 inch	18 inch	20 inch	22 inch	24 inch	26 inch	
3500	24 inch	26 inch	28 inch	30 inch	32 inch	34 inch	36 inch	

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CUT GROOVE SPECIFICATIONS FOR IPS HDPE PIPE

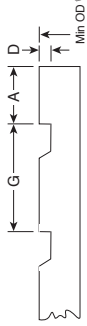


IPS Size *		Dimensions – inches/millimeters										
Nominal inches	Average Outside Diameter inches/mm	Cut End OD Min.† inches	Gasket Seat "A"		Groove Depth "D"		Groove Index "G"		Basic	Minimum	Maximum	Minimum
			Basic	Maximum	Minimum	Maximum	Basic	Maximum				
8	8.625 219.1	8.460	1.518 38.56	1.543 39.20	1.493 37.92	0.235 5.97	0.195 4.95	0.810 20.57	0.800 20.32	0.810 20.57	0.790 20.07	0.790 20.07
10	10.750 273.1	10.540	1.518 38.56	1.543 39.20	1.493 37.92	0.280 7.12	0.240 6.10	0.810 20.57	0.800 20.32	0.810 20.57	0.790 20.07	0.790 20.07
12	12.750 323.9	12.500	1.518 38.56	1.543 39.20	1.493 37.92	0.300 7.62	0.260 6.60	0.810 20.57	0.800 20.32	0.810 20.57	0.790 20.07	0.790 20.07
14	14.000 355.6	13.730	1.518 38.56	1.543 39.20	1.493 37.92	0.300 7.62	0.260 6.60	0.810 20.57	0.800 20.32	0.810 20.57	0.790 20.07	0.790 20.07
16	16.000 406.4	15.690	2.074 52.68	2.099 53.32	2.049 52.04	0.340 8.64	0.300 7.62	1.249 31.72	1.239 31.47	1.249 31.72	1.229 31.22	1.229 31.22
18	18.000 457.2	17.650	2.074 52.68	2.099 53.32	2.049 52.04	0.380 9.66	0.340 8.64	1.249 31.72	1.239 31.47	1.249 31.72	1.229 31.22	1.229 31.22
20	20.000 508.0	19.610	2.074 52.68	2.099 53.32	2.049 52.04	0.430 10.93	0.390 9.91	1.249 31.72	1.239 31.47	1.249 31.72	1.229 31.22	1.229 31.22
22	22.000 558.8	21.570	2.074 52.68	2.099 53.32	2.049 52.04	0.460 11.69	0.420 10.67	1.249 31.72	1.239 31.47	1.249 31.72	1.229 31.22	1.229 31.22
24	24.000 609.6	23.530	2.750 69.85	2.755 69.98	2.745 69.72	0.490 12.45	0.450 11.43	1.847 46.91	1.837 46.66	1.847 46.91	1.827 46.41	1.827 46.41
28	28.000 711.2	27.450	2.750 69.85	2.775 70.49	2.725 69.21	0.460 11.69	0.420 10.67	1.847 46.91	1.837 46.66	1.847 46.91	1.827 46.41	1.827 46.41
30	30.000 762.0	29.42	2.750 69.85	2.775 70.49	2.725 69.21	0.510 12.96	0.470 11.94	1.847 46.91	1.837 46.66	1.847 46.91	1.827 46.41	1.827 46.41
32	32.000 812.8	31.380	2.750 69.85	2.775 70.49	2.725 69.21	0.510 12.96	0.470 11.94	1.847 46.91	1.837 46.66	1.847 46.91	1.827 46.41	1.827 46.41
36	36.000 914.4	35.300	2.750 69.85	2.775 70.49	2.725 69.21	0.575 14.61	0.535 13.59	1.847 46.91	1.837 46.66	1.847 46.91	1.827 46.41	1.827 46.41

Table continued on the following page.



CUT GROOVE SPECIFICATIONS FOR ISO HDPE PIPE



ISO Size *		Cut End OD Min. † mm	Dimensions – millimeters/inches											
Nominal mm	Average Outside Diameter mm/inches		Gasket Seat "A"			Groove Depth "D"			Groove Index "G"					
			Basic	Maximum	Minimum	Maximum	Minimum	Basic	Maximum	Minimum				
250	250.0 9.843	246.7	38.56 1.518	39.20 1.543	37.92 1.493	6.61 0.260	5.59 0.220	20.32 0.810	20.57 0.810	20.07 0.790				
280	280.0 11.024	275.8	38.56 1.518	39.20 1.543	37.92 1.493	7.37 0.290	6.35 0.250	20.32 0.810	20.57 0.810	20.07 0.790				
315	315.0 12.402	310.3	38.56 1.518	39.20 1.543	37.92 1.493	7.62 0.300	6.60 0.260	20.32 0.810	20.57 0.810	20.07 0.790				
355	355.0 13.976	349.7	38.56 1.518	39.20 1.543	37.92 1.493	7.62 0.300	6.60 0.260	20.32 0.810	20.57 0.810	20.07 0.790				
400	400.0 15.748	394.0	52.68 2.074	53.32 2.099	52.04 2.049	8.64 0.340	7.62 0.300	31.47 1.239	31.72 1.249	31.22 1.229				
450	450.0 17.717	443.2	52.68 2.074	53.32 2.099	52.04 2.049	9.66 0.380	8.64 0.340	31.47 1.239	31.72 1.249	31.22 1.229				
500	500.0 19.685	494.7	52.68 2.074	53.32 2.099	52.04 2.049	10.93 0.430	9.91 0.390	31.47 1.239	31.72 1.249	31.22 1.229				
560	560.0 22.047	551.6	52.68 2.074	53.32 2.099	52.04 2.049	11.69 0.460	10.67 0.420	31.47 1.239	31.72 1.249	31.22 1.229				
630	630.0 24.803	619.7	69.85 2.750	70.49 2.775	69.21 2.725	12.45 0.490	11.43 0.450	46.66 1.837	46.91 1.847	46.41 1.827				
710	710.0 27.953	699.3	69.85 2.750	70.49 2.775	69.21 2.725	11.69 0.460	10.67 0.420	46.66 1.837	46.91 1.847	46.41 1.827				
800	800.0 31.496	787.9	69.85 2.750	70.49 2.775	69.21 2.725	12.96 0.510	11.94 0.470	46.66 1.837	46.91 1.847	46.41 1.827				
900 mm	900.0 35.433	886.4	69.85 2.750	70.49 2.775	69.21 2.725	14.61 0.575	13.59 0.535	46.66 1.837	46.91 1.847	46.41 1.827				

\* HDPE pipe dimensions per ASTM F714

† Cut End Minimum (measured at cut end of pipe) = average OD – OD tolerance per ASTM F714 – 1.5% toe in

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# Cut Grooving Tool

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**CG3100:** 8–18 in HDPE Pipe

**CG3300:** 16–26 in HDPE Pipe

**CG3500:** 24–36 in HDPE Pipe

**CG3101:** 250–450 mm HDPE Pipe

**CG3301:** 400–630 mm HDPE Pipe

**CG3501:** 630–900 mm HDPE Pipe

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**UPDATED 08/2019**

**TM-CG3000 9315 REV C**

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