RG3400 Roll Grooving Tool



WARNING



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

- Before operating or servicing any pipe preparation tools, read all instructions in the operating and maintenance manual and all warning labels on the tool.
- Wear safety glasses, hardhat, foot protection, and hearing protection while working around pipe preparation tools.
- Save the 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 any pipe preparation tools, contact Victaulic, P.O. Box 31, Easton, PA 18044-0031, Phone: 1-800-PICK VIC, E-Mail: pickvic@victaulic.com

Original Instructions



TM-RG3400 / Operating and Maintenance Instructions Manual

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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.

A 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.

A 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 RG3400 Roll Grooving Tool is designed for the sole purpose of roll grooving pipe/tubing. The lessee or owner of this tool is responsible for ensuring that each operator reads this manual and fully understands the operation of this grooving tool PRIOR to working with the tool. These instructions describe safe operation of the tool, including setup and maintenance. Each operator shall become familiar with the tool's operations, applications, and limitations. Particular attention shall be given to reading and understanding the dangers, warnings, and cautions described throughout this manual.

Operators shall follow all appropriate Occupational Safety and Health Administration (OSHA) guidelines and training, and/or other nationally-recognized standards, as well as jobsite-specific requirements. Use of this tool requires dexterity, mechanical skills, and sound safety habits. Although this tool is designed and manufactured for safe, dependable operation, it is difficult to anticipate all combinations of circumstances that could result in an accident. The operator is cautioned to always practice "safety first" during each phase of use, including setup and maintenance.

Store this manual in a clean, dry area where it is always readily available. Additional copies are available upon request through your Victaulic Sales Representative, or a PDF version can be downloaded at victaulic.com.

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A 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.
- **2. Ground the motor to protect the operator from electric shock.** Verify that the motor is connected to an internally-grounded electrical source.
- 3. Disconnect the power cord from the electrical source before servicing the tool. Only authorized personnel shall perform maintenance on the tool. Always disconnect the power cord from the electrical source before servicing or adjusting the tool. Follow all lockout/tagout procedures.
- **4. Prevent accidental startups.** Place the power switch in the "OFF" position before connecting the tool to an electrical source.

A WARNING

- 1. Follow all applicable local and national safety regulations.
- 2. Prevent back injury. Always follow OSHA guidelines, and/or other nationally-recognized standards, for safe lifting techniques when handling tool components.
- **3. Wear proper apparel.** Do not wear loose clothing, jewelry, or anything that can become entangled in moving parts.
- 4. Wear protective items when working with tools. Always wear safety glasses, hardhat, foot protection, and hearing protection (sound levels up to 104 decibels can be produced during the grooving process).
- 5. Keep hands and tools away from grooving rolls during the grooving operation. Grooving rolls can crush or cut fingers and hands. Use pipe that is a sufficient length.
- **6. Do not reach inside pipe ends during tool operation.** Pipe edges can be sharp and can snag gloves, hands, and shirt sleeves.
- 7. Operate the tool opposite the direction of pipe rotation. The tool shall be operated with a safety foot switch that is located for easy operator access. Never reach across moving parts. DO NOT use the tool if it does not contain a safety foot switch (contact Victaulic).
- **8. Do not over-reach.** Maintain proper balance at all times. Verify that the safety foot switch is easily accessible to the operator.
- 9. Do not make any modifications to the tool. DO NOT remove any safety guarding or any components that would affect tool safety or performance.

A CAUTION

- The RG3400 tool is designed ONLY for roll grooving pipe/tubing sizes, materials, and wall thicknesses specified in this manual.
- Inspect the equipment. Before using the tool, check moveable parts for obstructions. Verify that tool components are installed and adjusted in accordance with the "Tool Setup" section. Verify that properly matched roll sets are installed and lubricated.
- Stay alert. DO NOT operate the tool if impaired by drugs (medicinal or recreational), medication, alcohol, or fatigue.
- **4. Keep visitors, trainees, and observers away from the work area.** All visitors shall be kept a safe distance from equipment at all times, and shall be offered the opportunity to review this manual.
- **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 on the floor to prevent slips or falls.
- **6. Secure the work, machine, and accessories.** Verify that the tool is stable. Refer to the "Tool Setup" section.

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A CAUTION

- Support the work. Support long pipe/tubing lengths with a pipe stand, in accordance with the "Long Pipe/Tubing Lengths" section.
- **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 matching and 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 RG3400 is a hydraulic feed tool for roll grooving pipe to receive Victaulic grooved pipe products. The RG3400 tool can be equipped with grooving rolls for 1-12-inch/DN25 – DN300 steel pipe, 2-8-inch/DN50 – DN200 copper tubing, 2-12-inch/DN50 – DN300 stainless steel, and 2-12-inch/DN50 – DN300 PVC/aluminum pipe. Rolls are marked with the size and part number, and are color coded to identify the pipe/tubing material. Grooving rolls must be ordered for the particular groove profile and pipe sizes/materials.

WARNING

- This tool shall be used ONLY for grooving pipe/tubing with specifications that fall within the designated parameters.
- . Always verify that the upper and lower grooving rolls are a matched set.

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

RECEIVING THE TOOL



RG3400 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, verify that all necessary parts are included. If any parts are missing, contact Victaulic.

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CONTAINER CONTENTS

	••••••				
Qty.	Description				
1	Tool with Motor and Hydraulic Pump Handle				
1	Foot Switch				
1	Pipe Stand				
1	Go/No-Go Grooved Pipe Diameter Tape				
1	IGS Groove Confirmation Cable, FP Tools Only				
1	Storage Bag with Accessories				
2	Operating and Maintenance Manual				
2	Repair Parts List				

ROLL SETS

Roll sets are shipped with the tool based on the initial order. The following table is a listing of all available roll sets that must be purchased separately.

Qty.	Description
	Roll Set for 1-inch/DN25 Steel Pipe -
1	Innovative Groove System 185
	Specification, FP Tools Only
	Roll Set for 1-11/2-inch/DN25-DN40 Steel
1	Pipe - Original Groove System (OGS)
	Specification, Non-FP Tools Only
	Roll Set for 1 ¼ - 1 ½-inch/DN32 - DN40
1	Steel Pipe - Original Groove System (OGS)
	Specification, FP Tools Only
1	Roll Set for 2–31/2-inch/DN50-DN90 Steel
	Pipe - OGS Specification
1	Roll Set for 4–6-inch/DN100-DN150 Steel
	Pipe - OGS Specification
1	Roll Set for 8–12-inch/DN200-DN300 Steel
	Pipe - OGS Specification
1	Roll Set for 2–31/2-inch/DN50-DN90
	Stainless Steel Pipe - OGS Specification
1	Roll Set for 4–6-inch/DN100-DN150
	Stainless Steel Pipe - OGS Specification
1	Roll Set for 8–12-inch/DN200-DN300
	Stainless Steel Pipe - OGS Specification
1	Roll Set for 2–6-inch/54.0-155.6-mm
	Copper Tubing
1	Roll Set for 8-inch/206.4-mm Copper
	Tubing
1	Roll Set for 2–31/2-inch/DN50-DN90 PVC/
<u> </u>	Aluminum Pipe - OGS Specification
1	Roll Set for 4-6-inch/DN100-DN150 PVC/
<u> </u>	Aluminum Pipe - OGS Specification
1	Roll Set for 8-12-inch/DN200-DN300 PVC/
	Aluminum Pipe - OGS Specification

POWER REQUIREMENTS

A DANGER



- ONLY QUALIFIED ELECTRICIANS SHALL CONNECT INCOMING POWER.
- To reduce the risk of electric shock, check the electrical source for proper grounding.
- Always disconnect the power cord from the electrical source before servicing or adjusting the tool. Follow all lockout/tagout procedures.
- DO NOT alter plugs in any way.

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

The RG3400 tool shall be grounded properly in accordance with all local and national electrical code requirements.

Maximum current draw is 15 amps. Tool motor is set to the appropriate specifications for the region.

If an extension cord is required, refer to the "Extension Cord Requirements" section.

EXTENSION CORD REQUIREMENTS

When pre-wired outlets are not available and an extension cord is needed, 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 tool motor while the tool is operating. Voltage drops may cause damage to the tool motor and can result in improper tool operation. **NOTE:** It is acceptable to use a cord size that is thicker than required. Extension cords shall meet all applicable local codes and facility rules for safe and proper use.

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 shall be avoided.

	Cord Lengths				
Tool Rating volts/amps	25 feet 8 meters	50 feet 15 meters	100 feet 31 meters		
110/120 14.5	12 gauge	12 gauge	10 gauge		
220 8	14 gauge	12 gauge	10 gauge		



TOOL NOMENCLATURE

NOTICE

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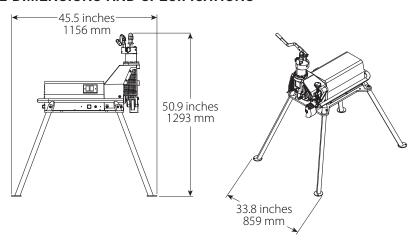
WARNING

- An overhead crane shall be used to lift/transport the tool to its intended location.
- An eye bolt is provided in the middle section inside the tool, as shown in the photo to the left.
- Minimum capacity rating of the overhead crane shall be 500 pounds/227 kilograms.

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



TOOL DIMENSIONS AND SPECIFICATIONS



Tool Weight: 302 pounds/137 kg Voltage: 110/120/220-volt, Single Phase

Frequency: 50/60 Hz

Note: This tool has the following four motor options: 220V/50HZ, 220V/60HZ, 120V/60HZ, 110V/50HZ Capacity of Oil Reservoir: 5 fl oz/150 ml

TOOL SETUP

WARNING

- Do not connect power until instructed otherwise.
- An overhead crane shall be used to lift/ transport the tool to its intended location.

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

- 1. Remove all components and verify that all necessary items are included. Refer to the "Receiving the Tool" section.
- **2.** Select a location for the tool and pipe stand. Choose a location that has:
 - **a.** The required power. Refer to the "Power Requirements" section
 - **b.** The space necessary to adequately handle the pipe to be grooved
 - **c.** A level surface for the tool and pipe stand
- **3.** Place the tool on a level surface. Place a level on top of the plate and cylinder to verify that the tool is level front to back and side to side.





4. Verify that the hydraulic system is full of oil. Refer to the "Maintenance" section for hydraulic oil requirements.



PRE-OPERATION ADJUSTMENTS

Every RG3400 tool is checked and tested at the factory prior to shipment. Before grooving, however, the following adjustments shall be made to ensure proper tool operation.

WARNING

 Always disconnect the tool from the electrical source before making any tool adjustments.

Accidental startup of tool may result in serious personal injury.

GROOVING ROLLS

Verify that the proper roll set is installed on the tool. Rolls are marked with the pipe size and part number. Reference page 22. If the proper roll set is not installed on the tool, reference pages 15-17 to change the rolls.

CAUTION

 Verify that roll retaining bolts are tight.
 Loose retaining bolts could cause severe damage to the tool and the rolls.

PREPARING PIPE FOR GROOVING

A CAUTION

 For maximum grooving roll life, remove foreign material and loose rust from the interior and exterior surfaces of the pipe 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 not within Victaulic specifications.

For proper tool operation and production of grooves that are within Victaulic specifications, the following pipe preparation steps shall be followed.

- **1.** Victaulic recommends square-cut pipe for use with grooved-end pipe products.
- 2. Raised internal and external weld beads and seams shall be ground flush with the pipe surface 2 inches/50 mm back from the pipe ends.

3. The inside diameter of the pipe end shall 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 and result in difficulties during coupling assembly.

PIPE LENGTH REQUIREMENTS

RG3400 tools are capable of grooving short pipe lengths without the use of a pipe stand. Table 1 identifies the minimum pipe lengths that can be grooved safely with the RG3400. In addition, this table identifies the maximum pipe lengths that can be roll grooved without the use of a pipe stand. Pipe that exceeds the maximum lengths listed in Table 1 requires the use of a pipe stand. **NOTE:** Grooved pipe nipples, shorter than the minimum lengths listed in Table 1, are available from Victaulic

Pipe lengths, longer than those listed in Table 1 (and up to 20 feet/6 meters), shall be supported with a pipe stand. Pipe lengths, from 20 feet/6 meters up to double-random lengths (approximately 40 feet/12 meters), shall be supported with two pipe stands. Refer to the "Long Pipe Lengths" section on the following page for instructions.

If pipe 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.

EXAMPLE: A 20-foot, 4-inch/6.2-m length of 10-inch/DN250 diameter carbon steel pipe is required to finish a section, and only 20-foot/6.1-m lengths are available. Instead of roll grooving a 20-foot/6.1-m length of carbon steel pipe and a 4-inch/102-mm length of carbon steel pipe, follow these steps:

- 1. Refer to Table 1 and note that for 10-inch/DN250 diameter carbon steel pipe, the minimum length that can be roll grooved is 10 inches/255 mm.
- **2.** Roll groove a 19-foot, 6-inch/5.9-m length of pipe and a 10-inch/255-mm length of pipe. Refer to the "Long Pipe Lengths" section on the following page.



TABLE 1- PIPE LENGTHS SUITABLE FOR GROOVING

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Nominal Pipe Size inches/DN	Minimum Length that can be Grooved Safely with RG3400 inches/mm	Maximum Length that can be Grooved Without Use of Pipe Stand inches/mm				
1 – 1 ½	8	36				
DN25 – DN40	205	915				
2 – 4	8	36				
DN50 - DN100	205	915				
5	8	32				
DN125	205	815				
6	10	28				
DN150	255	715				
8	10	24				
DN200	255	610				
10	10	20				
DN250	255	510				
12	12	18				
DN300	305	460				

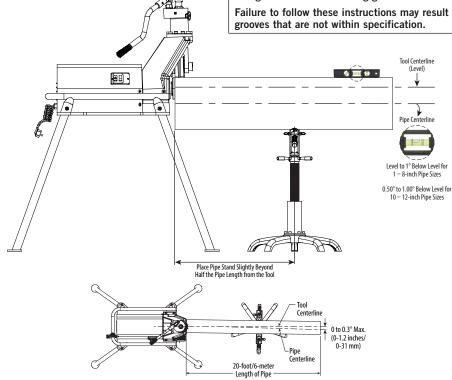
LONG PIPE LENGTHS

- 1. A pipe stand shall be used with pipe that is longer than the maximum length listed in Table 1. Place the pipe stand at a distance slightly beyond half the pipe length from the tool.
- 2. Position a length of pipe on the tool's lower roll. For 1 – 8-inch/DN25 – DN200 pipe sizes, adjust the pipe stand height to position the pipe level to 1° below level. For 10 - 12-inch/DN250 - DN300 pipe sizes, adjust the pipe stand height to position the pipe angle between 0.50° and 1.00° below level (when necessary, raise the tool to achieve the required pipe angle).

CAUTION

- Right-to-left tracking angle shall be kept to a minimum. Keep the pipe as centered as possible on the lower roll.
- · Verify that the tool is level. The pipe may not track properly if the back end of the pipe is higher than the end being grooved.

Failure to follow these instructions may result in grooves that are not within specification.



Drawings are exaggerated for clarity



GROOVE DIAMETER STOP ADJUSTMENT

WARNING

 Always disconnect the tool from the electrical source before making any tool adjustments.

Accidental startup of tool may result in serious personal injury.

The groove diameter stop shall be adjusted each time rolls are changed and for each change in pipe size or wall thickness.

1. Verify that the correct, matching roll set is installed on the tool. Rolls are marked with the pipe size and part number. If the correct, matching rolls are not on the tool, the roll set shall be changed by following the steps on pages 15-17.

NOTICE

 To perform the following adjustments, use several short scrap sections of pipe that are the proper material, diameter, and wall thickness. Refer to Table 1 on the previous page for the minimum pipe lengths required for grooving.



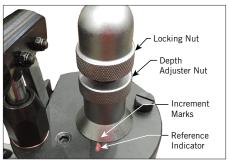
2. Adjust depth adjuster nut and locking nut high enough that the slide has room to travel to the pipe.



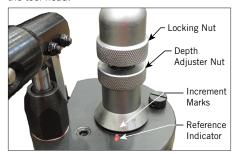
3. Insert a piece of pipe of the correct size and wall thickness onto the lower roll.



- 4a. Close the hydraulic pump valve.
- **4b.** Use the hydraulic pump handle to bring the slide down until the upper roll contacts the pipe.

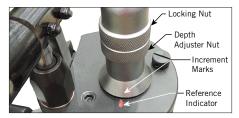


5. Loosen the locking nut from the depth adjuster nut. Tighten the depth adjuster nut downward until it bottoms out against the top of the tool head.



6. Adjust the depth adjuster nut for initial depth setting by turning it counterclockwise one full rotation. One full rotation of the depth adjuster nut equals a .20-inch/5.1-mm change in diameter (.10-inch/2.5-mm change in depth). Each increment mark on the barrel is a .01-inch/.25-mm change in diameter.





7. Tighten the locking nut downward against the top of the depth adjuster nut to secure the depth setting.

WARNING



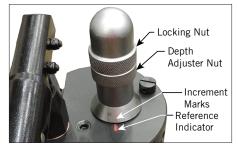
Grooving rolls can crush or cut fingers and hands.

- Before making any tool adjustments, always disconnect the power cord from the electrical source.
- Loading and unloading pipe will place your hands close to the rollers. Keep hands away from the grooving rolls during operation.
- Never reach inside the pipe end or across the tool during operation.
- Always groove pipe with rotation away from the operator.
- Never groove pipe that is shorter than the recommended lengths listed in this manual.
- Never wear loose clothing, loose gloves, or anything that can become entangled in moving parts.
- **8.** Groove the sample pipe by following the "Grooving Operation" section. Continue the grooving operation until the depth adjuster nut contacts the tool head. To ensure groove completion, allow the pipe to rotate an additional two turns after the depth adjuster bottoms out on the tool head.



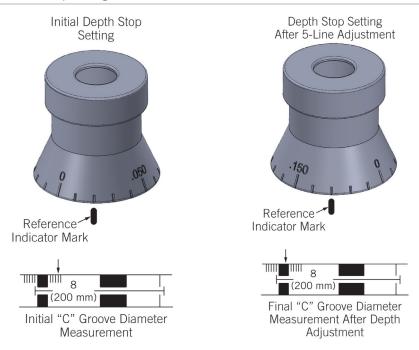
9. After a trial groove is prepared and the pipe is removed from the tool, carefully check the "C" groove diameter.

The "C" groove diameter dimension is best checked the Victaulic Go/No-Go Grooved Pipe Diameter Tape. If a vernier caliper or narrowland micrometer is used, the groove shall be checked at two locations, 90° apart. The average reading shall equal the required groove diameter specification.



- 10. If the "C" groove diameter is too large (too shallow), loosen the locking nut and adjust the depth adjuster nut upward to the distance of the desired adjustment to the "C" groove diameter value. The Victaulic Go/No-Go Grooved Pipe Diameter Tape has graduations on both sides of the groove diameter band that are in .01-inch/.25-mm increments. Each increment mark on the depth adjuster nut also equals a .01-inch/.25-mm change in diameter. Reference the examples on the following page.
- 11. If the "C" groove diameter is too small (too deep), loosen the locking nut and adjust the depth adjuster nut downward to the distance of the desired adjustment to the "C" groove diameter value. The Victaulic Go/No-Go Grooved Pipe Diameter Tape has graduations on both sides of the groove diameter band that are in .01-inch/.25-mm increments. Each increment mark on the depth adjuster nut also equals a .01-inch/.25-mm change in diameter. Reference the examples on the following page.
- **12.** Prepare another trial groove on a non-grooved pipe end and check the "C" groove diameter again. Follow all steps in this section until the "C" groove diameter is within specification.

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EXAMPLE: After initial depth stop setting, the Victaulic Go/No-Go Pipe Tape measures four lines outside the groove diameter band. The "Initial" example above shows that the groove is too shallow. Turn the depth adjuster nut five increment marks (4+1) counterclockwise. Perform groove at new depth setting and confirm final diameter with the Victaulic Go/No-Go Pipe Tape. The arrow shall fall within the groove diameter band, as shown in the "Final" example above. If it does not, repeat the adjustment procedure.

A CAUTION

 The "C" groove diameter shall always conform to Victaulic specifications to ensure proper joint performance.

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

PIPE STABILIZER ADJUSTMENT



The pipe stabilizer of the RG3400 is designed to prevent sway of short and long pipe lengths, especially for 8-inch/DN200 and larger pipe sizes. Start with the roller of the pipe stabilizer approximately ½ inch/3.2 mm away from the pipe, then gradually adjust the wheel further inward until the pipe rotates smoothly. DO NOT adjust the stabilizer roller too far inward, since it will skew the pipe to the left and off center. When the stabilizer is adjusted for a selected pipe size and wall thickness, it does not require further adjustment unless pipe of a different size and wall thickness will be grooved. Pipe of the same size and wall thickness can be moved in and out of the tool without retracting the stabilizer.

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GROOVING OPERATION

A 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.

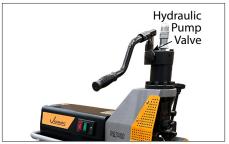
Failure to follow these instructions could result in death or serious personal injury.

CAUTION

 RG3400 tools are designed ONLY for roll grooving pipe sizes and wall thicknesses outlined on page 21.

Failure to follow the instructions in this manual will result in improper tool operation.

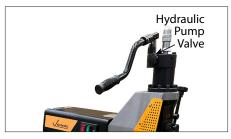
- 1. Before grooving, verify that all instructions in the previous sections of this manual have been followed.
- **2.** Plug the RG3400 into an internally-grounded electrical source.
- **3.** Power on the tool by pushing in the green button on the side of the tool. Depress the foot switch. Verify that the tool is operational and that the lower roll is turning clockwise.



4. Open the hydraulic pump valve by turning the knob counterclockwise. This will raise the slide and upper roll to their highest positions.



5. Insert a piece of pipe of the correct size and wall thickness onto the lower roll.



6. Close the hydraulic pump valve by turning the knob clockwise.

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 will place your hands close to the rollers. Keep hands away from the grooving rolls during operation.
- Never reach inside the pipe end or across the tool during operation.
- Always groove pipe with rotation away from the operator.
- Never groove pipe that is shorter than the recommended lengths listed in this manual.
- Never wear loose clothing, loose gloves, or anything that can become entangled in moving parts.

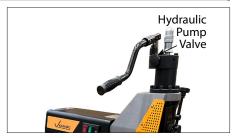
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- **7.** Operator and foot switch shall be positioned on the left side of the tool with the hydraulic pump handle.
- **8.** Use the hydraulic pump handle to bring the slide down until the upper roll contacts the pipe.
- **9a.** Depress the foot switch and check the tracking of the pipe as it rotates to verify that it remains against the lower roll. In addition, verify that the pipe rotates in a clockwise direction when viewed from the front of the tool.
- **9b.** If the pipe remains against the lower roll, begin the grooving process by pumping the hydraulic pump handle.
- **9c.** If the pipe does not remain against the lower roll, remove foot from foot switch and power down the tool by pushing in the red button on the side of the tool. Verify that the pipe is level and positioned properly.

NOTICE

- Do not pump the hydraulic pump handle too fast, but at a rate sufficient to groove the pipe and maintain a moderate load on the tool's motor (typically, half a pump per one rotation of the pipe).
- **10.** Continue the grooving operation until the bottom of the depth adjuster contacts the tool head. Allow the pipe to rotate an additional two turns to ensure groove completion.
- **11.** Power down the tool by pushing in the red button on the side of the tool.



12. To release the pipe, open the hydraulic pump valve by turning the knob counterclockwise (be prepared to support short pipe lengths when opening the hydraulic pump valve). Remove pipe from tool.

NOTICE

 The "C" groove diameter shall be checked periodically and adjusted, as necessary, to ensure that the dimension remains within Victaulic specifications.



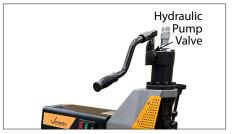
LOWER ROLL REMOVAL FOR 1-3½-INCH/DN50-DN90 ROLL SETS

A WARNING

 Always disconnect the tool from the electrical source before making any tool adjustments.

Accidental startup of tool may result in serious personal injury.

The lower roll shall be removed before the upper roll.



1. Open the hydraulic pump valve by turning the knob counterclockwise. This will raise the slide and upper roll to their highest positions.



2a. To remove the lower roll, loosen by turning it clockwise with the 14-mm wrench (included).



2b. Once the lower roll is loosened, remove the lower roll. Store the lower roll in a safe location for future use.

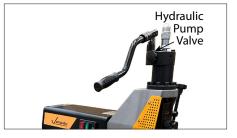
LOWER ROLL REMOVAL FOR 4-12-INCH/DN100-DN300 ROLL SETS

A WARNING

 Always disconnect the tool from the electrical source before making any tool adjustments.

Accidental startup of tool may result in serious personal injury.

The lower roll shall be removed before the upper roll.



1. Open the hydraulic pump valve by turning the knob counterclockwise. This will raise the slide and upper roll to their highest positions.



2. Loosen the lower roll retaining nut with the 38-mm wrench (included).

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3. Remove the lower roll retaining nut from the lower roll arbor. Store in a safe location for future use.



4. Remove the lower roll from the lower roll arbor. Store in a safe location for future use.



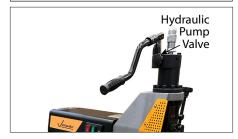
- **4a.** Loosen the lower roll arbor by turning it clockwise with the 14-mm wrench (included).
- **4b.** Once the arbor is loosened, remove the arbor. Store in a safe location for future use.

UPPER ROLL REMOVAL

▲ WARNING

 Always disconnect the tool from the electrical source before making any tool adjustments.

Accidental startup of tool may result in serious personal injury.



1. Open the hydraulic pump valve by turning the knob counterclockwise. This will raise the slide and upper roll to their highest positions.



2. Loosen the upper shaft retaining screw with the 5-mm hex key (included). DO NOT completely remove this screw.



3. While supporting the upper roll, remove the upper shaft from the slide by pulling it straight outward. Remove the upper roll, and store it in a safe location for future use.



UPPER ROLL INSTALLATION

Clean the upper shaft to remove any dirt before installation of the upper roll. Inspect the roller bearing inside the upper roll for proper lubrication and condition.

The upper roll shall be installed before the lower roll.

1. Carefully insert the desired size upper roll behind the slide with the markings on the upper roll facing outward.



2. While supporting the upper roll, insert the upper shaft into the slide and upper roll.



- **3.** Align the slot on the upper shaft with the upper shaft retaining screw.
- **4.** Tighten the upper shaft retaining screw to retain the upper roll on the upper shaft.
- **5.** Lubricate upper roll bearing with a No. 2EP lithium-based grease. Refer to the "Maintenance" section for additional information.

LOWER ROLL INSTALLATION FOR 1-3½-INCH/DN50-DN90 ROLL SETS

Clean the main shaft and lower roll bore to remove any dirt before installation of the lower roll. **NOTE:** To aid in removing the lower roll at a later time, apply a thin film of oil or grease (anti-seize lubricant) to the main shaft before installing the lower roll.



1. Insert the desired lower roll into the lower roll bore until it contacts the tool body.



2. Tighten the lower roll by turning it counterclockwise with the 14-mm wrench (included).

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LOWER ROLL INSTALLATION FOR 4-12-INCH/DN100-DN300 ROLL SETS

Clean the arbor and lower roll bore to remove any dirt before installation of the lower roll. **NOTE:** To aid in removing the lower roll at a later time, apply a thin film of oil or grease (anti-seize lubricant) to the arbor before installing the lower roll.



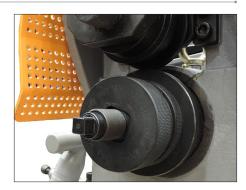
1. Insert the required lower roll adapter for larger size rolls into the lower roll bore until it contacts the tool body.



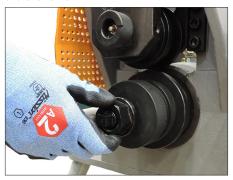
2. Tighten the lower roll adapter by turning it counter-clockwise with the 14-mm wrench (included).



3. Install the desired size lower roll onto the lower roll adapter with the marked side facing outward.



4. Align the square in the center of the lower roll with the lower roll adapter to allow full insertion of the lower roll.



5. Place the lower roll retaining nut onto the lower roll adapter and hand tighten.



6. Tighten the lower roll retaining nut with a 38-mm wrench (included) to retain the lower roll on the lower roll adapter.



MAINTENANCE

WARNING

 Always disconnect the tool from the electrical source before making any tool adjustments.

Accidental startup of tool may result in serious personal injury.

Prior to the start of each shift, verify that the tool and roll sets are clean. Lubricate the tool at the grease ports.

Always lubricate upper roll bearings and main shaft bearings when rolls are changed by utilizing the grease ports. Use a No. 2EP lithium-based grease.

HYDRAULIC SYSTEM

The level of hydraulic fluid shall be checked before operation and **shall** be checked several times per year, especially if the hydraulic pump is not operating properly. Use an ISO Viscosity Grade 22 oil for the hydraulic pump. The level of the oil shall be no higher than the inlet hole when the hydraulic pump valve is released.

Fill Hydraulic System



1. Open the hydraulic pump valve by turning the knob counterclockwise.





2. Loosen reservoir cap and set aside. Fill with oil until level comes close to the inlet hole.

Drain Hydraulic System



1. Open the hydraulic pump valve by turning the knob counterclockwise.



2. Remove the bolts supporting the cylinder.





3. Remove the plug at the bottom of the cylinder. Drain the oil in the tank.

PIPE STAND



Regular lubrication is required for the pipe stand. On a weekly basis, apply a light machine oil to the location shown above at each universal ball unit. Work the light machine oil in by rotating the universal ball units.

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PARTS ORDERING INFORMATION

When ordering parts, the following information is required for Victaulic to process the order and send the correct part(s). Parts can be ordered by calling 1-800-PICK-VIC.

- 1. Tool Model Number
- 2. Tool Serial Number
- 3. Quantity, Item Number, Part Number, and Description
- **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

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION		
Pipe will not stay in groov- ing rolls.	Incorrect pipe positioning of long pipe.	Refer to "Long Pipe Lengths" section.		
Pipe stops rotating during	Rust or dirt has built up on lower roll.	Remove accumulation from lower roll with stiff wire brush.		
grooving.	Worn grooving rolls.	Inspect lower roll for worn knurls. Replace if worn.		
	Motor has stalled due to excess pumping of the hydraulic pump handle.	Open the hydraulic pump valve to free the pipe, then close hydraulic pump valve. Continue grooving, pumping at a moderate rate.		
	Circuit breaker has tripped or fuse has blown on electrical circuit supplying motor.	Reset breaker or replace fuse.		
While grooving, loud squeaks echo through	Incorrect pipe support positioning on long pipe. Pipe is "overtracking".	Refer to the "Long Pipe Lengths" section.		
the pipe.	Pipe end is not cut square.	Cut pipe end squarely.		
	Pipe is rubbing excessively hard on the lower roll.	Remove pipe from tool and apply a film of grease to the face of the lower roll, as needed.		
During grooving, loud thumps or bangs occur about once every revolution of the pipe.	Pipe has a pronounced weld seam.	Raised internal and external weld beads and seams shall be ground flush with the pipe surface 2 inches/50 mm back from the pipe ends.		
Tool won't groove pipe.	Hydraulic pump valve is not closed tightly.	Tighten the hydraulic pump valve.		
	Hydraulic pump is low on oil.	Refer to the "Maintenance" section.		
	Pipe is beyond tool's wall thickness capability.	Refer to page 21.		

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

NOTICE

 The "Maximum Pipe Size and Wall Thickness Capacity" table below is accurate as of the date printed on the back cover of this manual. For the most up-to-date information, reference Victaulic publication 24.01, which can be viewed/downloaded by scanning the mobile QR code link to the right, or by clicking on this desktop link:



https://www.victaulic.com/assets/uploads/literature/24.01.pdf

RG3400 RATINGS - MAXIMUM PIPE SIZE AND WALL THICKNESS CAPACITY¹

		Pipe Size (inches/DN)											
Pipe Material	1 DN25	1 ¹ / ₄ DN32	1½ DN40	2 DN50	2 ½	3 DN80	3½ DN90	4 DN100	5	6 DN150	8 DN200	10 DN250	12 DN300
Steel (IGS) ^{2,3}	Sch. 10 - 40						-	_					
Steel (OGS) ^{2,4}		Sch. 5 - 40 Sch. 5 - 20											
Stainless Steel ^{2,4}		Sch. 40S Sch. 20S											
Lt. Wall SS ⁵		- Sch. 5S - 10S											
Aluminum ^{6,7}		-	- Sch. 5 - 40 Sch. 5 - 20					5 - 20					
PVC Plastic ⁶		_		Sch. Sch. 40 - 80 Sch.					-	_			
Copper ⁸		_		Types K, L, M, DWV				-					

¹ Only RG3400-specific grooving rolls shall be used. Alternative Victaulic grooving rolls or parts from any other manufacturer shall not be used with the RG3400 Roll Grooving Tool.

² Maximum ratings are limited to 150 BHN (Brinell Hardness Number) and less.

³ Use grooving rolls marked with prefix RI.

⁴ Use grooving rolls marked with prefix R.

⁵ Use grooving rolls marked with prefix RX.

⁶ Use grooving rolls marked with prefix RP.

 $^{^7}$ 6061-T4 or 6063-T4 alloy shall be used.

⁸ Use grooving rolls marked with prefix RR.

INNOVATIVE GROOVE SYSTEM © ROLL PART NUMBERS

STEEL PIPE

Pipe Size inches/DN	Roll Set Part Numbers
1 DN25	RI01G34201

ORIGINAL GROOVE SYSTEM (OGS) ROLL PART NUMBERS

STEEL PIPE AND SCHEDULE 40S STAINLESS STEEL PIPE

Pipe Size inches/DN	Roll Set Part Numbers
1 – 1½ DN25 – DN40	R901G34201
1 1⁄4– 1 1⁄2 DN32 – DN40	R90AG34201
2 – 3½ DN50 – DN90	R902G34203
4 – 6 DN100 – DN150	R904G34206
8 – 12 DN200 – DN300	R908G34212

ORIGINAL GROOVE SYSTEM (OGS) ROLL PART NUMBERS

STAINLESS STEEL PIPE (SCHEDULE 5S - 10S ONLY)

Pipe Size inches/DN	Roll Set Part Numbers
2 – 3½ DN50 – DN90	RX02G34203
4 – 6 DN100 – DN150	RX04G34206
8 – 12 DN200 – DN300	RX08G34212

ROLL PART NUMBERS

COPPER TUBING

Pipe Size inches/mm	Roll Set Part Numbers
2 - 6 54.0 - 155.6	RR02G34206
8 206.4	RR08G34208

ORIGINAL GROOVE SYSTEM (OGS) ROLL PART NUMBERS

PVC AND ALUMINUM

Pipe Size inches/mm	Roll Set Part Numbers
2 – 3½ DN50 – DN90	RP02G34203
4 – 6 DN100 – DN150	RP04G34206
8 – 12 DN200 – DN300	RP08G34212

GROOVE SPECIFICATIONS

For the most up-to-date information regarding IGS roll groove specifications, reference the current revision of Victaulic publication 25.14, which can be viewed/downloaded by scanning the mobile QR code link to the right, or by clicking on this desktop link: https://www.victaulic.com/assets/uploads/literature/25.14.pdf



OGS GROOVE SPECIFICATIONS

For the most up-to-date information regarding OGS roll groove specifications, reference the current revision of Victaulic publication 25.01, which can be viewed/downloaded by scanning the mobile QR code link to the right, or by clicking on this desktop link:





COPPER TUBING GROOVE SPECIFICATIONS

For the most up-to-date information regarding copper tubing roll groove specifications, reference the current revision of Victaulic publication 25.06, which can be viewed/downloaded by scanning the mobile QR code link to the right, or by clicking on this desktop link:

https://www.victaulic.com/assets/uploads/literature/25.06.pdf



ADDITIONAL RESOURCES

For additional information on 24-inch/DN600 and smaller Victaulic mechanical piping products for carbon steel, stainless steel, aluminum, and CPVC/PVC pipe, reference the current revision of the I-100 Field Installation Handbook, which can be viewed/downloaded by scanning the mobile QR code link to the right, or by clicking on this desktop link:





For additional information on Victaulic Copper Connection Products, reference the current revision of the I-600 Field Installation Handbook, which can be viewed/downloaded by scanning the mobile QR code link to the right, or by clicking on this desktop link:

https://www.victaulic.com/assets/uploads/literature/I-600.pdf





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: RG3400

Serial No.: Refer to Machinery Nameplate

Product Description: Roll Grooving Tool

Conformity Assessment: 2006/42/EC, Annex I

Reference Standards: EN ISO 12100 : 2010

EN IEC 60204-1 : 2018 EN ISO 13857 : 2019

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

Ld R. Al

Place of Issue: Easton, Pennsylvania, USA

Date of Issue: May, 24 2023

MD_DoC_RGT_014_052423_en





UK DECLARATION OF CONFORMITY

In Accordance with The Supply of Machinery (Safety) Regulations 2008 No. 1597

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 Supply of Machinery (Safety) Regulations 2008 No. 1597.

Product Models: RG3400

Serial No.: Refer to Machinery Nameplate

Product Description: Roll Grooving Tool

Conformity Assessment: 2008 No. 1597, Annex I

Reference Standards: BS EN ISO 12100 : 2010

BS EN ISO 13857 : 2019 BS EN ISO 14120 : 2015

Technical Documentation: The relevant technical documentation prepared in

accordance with Annex VII (A) of The Supply of Machinery (Safety) Regulations 2008 No. 1597, will be made available upon request to the governing

authorities.

Authorized Representative: Victaulic Company

c/o Victaulic Europe BVBA

Units B1 & B2

Cockerell Close off Gunnels

Wood Road

Stevenage, Hertfordshire SG1 2NB, United Kingdom

Signed for and on behalf of Victaulic Company,

Mr. Len R. Swantek

Director – Global Regulatory Compliance Machinery Manufacturer Representative

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Place of Issue: Easton, Pennsylvania, USA

Date of Issue: May 24, 2023



RG3400 Roll Grooving Tool

