

Operating and Maintenance Instructions Manual

VE272FS

Pipe Roll Grooving Tool



WARNING



- Failure to follow instructions and warnings may result in serious personal injury, property damage or improper installation.
- Before installing, operating, or servicing this tool, read and understand the instructions in this manual and all warning labels on the tool.
- If you need additional copies of the manual or have any questions about the safe operation of this tool, contact Victaulic Europe, Prijkelstraat 36, Nazareth, Belgium, phone: +32-9-381 15 00, or your Victaulic Sales Office.

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READ THIS FIRST - HAZARD IDENTIFICATION

Definitions for identifying the various hazard levels shown on warning labels or to indicate proper safety procedures in this Manual are provided below.

When you see these safety messages, be alert to the possibility of personal injury or property damage and carefully read and fully understand the instructions that follow.

DANGER

The use of the word "DANGER" always signifies an immediate hazard with a likelihood of serious personal injury or death if instructions, including recommended precautions, are not followed.

WARNING

The use of the word "WARNING" signifies the presence of hazards or unsafe practices which could result in serious personal injury or death if instructions, including recommended precautions, are not followed.

CAUTION

The use of the word "CAUTION" signifies possible hazards or unsafe practices which could result in minor personal injury, product or property damage if instructions, including precautions, are not followed.

NOTICE

The use of the word "NOTICE" signifies special instructions which are important but not related to hazards.

OPERATOR SAFETY INSTRUCTIONS

This tool is designed only for roll grooving pipe. To accomplish this function requires some dexterity and mechanical skills, as well as sound safety habits. Although this tool is manufactured for safe dependable operation, it is impossible to anticipate those combinations of circumstances which could result in an accident. The following instructions are recommended for safe operation of the tool. The operator is cautioned to always practice "Safety First" during each phase of use, including setup and maintenance of this unit. **It is the responsibility of the owner, lessee or user of this tool to ensure that all operators receive, read and understand this manual and are fully trained to operate this tool.**

General

- **Read and understand this Manual before operating or performing maintenance on this tool.** Become familiar with the tool's operations, applications and limitations. Be particularly aware of its specific hazards. Store this manual in a clean area and always at a readily available location. Additional copies at no charge are available upon request by writing or phoning Victaulic Europe.
- **Use only recommended accessories.** Use of improper accessories may be hazardous. See "Accessories".
- **This tool is designed ONLY for roll grooving of pipe sizes, materials and wall thicknesses outlined under "Tool Rating and Roll Selection".**

Tool Setup

- **Ground the drive motor.** Be sure the drive motor is connected to an internally grounded electrical system.

- **Avoid dangerous environments.** Don't use the machine in damp or wet locations. Don't use the tool on sloped or uneven ground or floor. Keep work area well illuminated. Allow sufficient space to operate tool and accessories properly and for others to pass safely.
- **Prevent back injury.** During tool setup, it is recommended to use a lift to move and position the tool, as it cannot be safely handled by one person.

Operating Tool

- **Inspect the equipment.** Prior to starting the tool, check the movable parts for any obstructions. Be sure that guards and tool parts are properly installed and adjusted.
- **Prevent accidental startings.** Place power switch in the "OFF" position prior to connecting electrical power.
- **Operate tool from control station side only.** The tool must be operated with the safety foot switch control located for easy operator access. Never reach across moving parts or material being worked on. Foot switch should always be accessible to operator.
- **Keep hands away from grooving rolls and stabilizer wheel during grooving operation.** Grooving rolls can crush or cut fingers and hands.
- **Never reach inside pipe end or across the tool or pipe during operation.**
- **Do not over-reach.** Keep your proper footing and balance at all times. Be sure you can reach foot switch safely at all times. Do not reach across tool or pipe. Keep hands and loose tools away from moving parts.
- **Always wear safety glasses and foot protection.**
- **Keep work area clean.** Cluttered areas, benches and slippery floors invite accidents.
- **Wear ear protection if exposed to long periods of very noisy operations.**
- **Keep visitors away.** All visitors should be kept a safe distance from the work area.

- **Keep alert.** Do not operate tool if ill or drowsy from medication or fatigue. Avoid horseplay around tool and keep bystanders a safe distance from tool and pipe being grooved.
- **Wear proper apparel.** Never wear loose clothing (unbuttoned jackets or loose sleeve cuffs) loose gloves or jewelry that can get caught in moving parts.
- **Do not force tool.** It will do the job better and safer at the rate for which it was designed.
- **Secure work, machine and accessories.** Make sure machine is stable. See "Tool Setup" for securing machine to floor or platform.
- **Support work.** Support long pipe with a pipe stand secured to the floor or ground.
- **Do not misuse tool.** Perform only the functions for which the tool is designed. Do not overload the tool.
- **Do not remove any labels from tool.** Replace any damaged or worn labels.

Tool Maintenance

- **Disconnect electrical power prior to servicing.** Repair should be attempted only by authorized personnel. Always disconnect power before servicing or making any tool adjustments unless instructed otherwise.
- **Maintain tool in top condition.** Keep tool clean for best and safest performance. Follow lubricating instructions.
- **Use only genuine Victaulic replacement parts to ensure proper and safe function of the tool.**


NOTICE
Drawings and/or pictures in this manual may be exaggerated for clarity.

VE272FS

INTRODUCTION

The Victaulic® Vic-Easy® Series VE272FS is a semi-automatic hydraulic feed tool for roll grooving pipe to prepare it to receive Victaulic grooved pipe couplings. It is designed to roll groove pipe of various materials and wall thicknesses (see "Tool Rating and Roll Selection" charts). An external power drive is required and must be purchased separately.

Both this tool and the manual contain trademarks, copyrights and/or patented features which are the exclusive property of Victaulic Company of America.

DANGER	
	<ul style="list-style-type: none">• To reduce the risk of electric shock, check the electrical source for proper grounding.• Always disconnect power before servicing or making any tool adjustments unless instructed otherwise.• Failure to do so may result in serious personal injury.

CAUTION
<ul style="list-style-type: none">• This tool should only be used for roll grooving pipe designated in the "Tool Rating and Roll Selection" charts.• Use of the tool for other purposes or exceeding the pipe thickness maximums will overload the tool, shorten tool life and may cause tool damage.

Power Drive

This tool is designed for power operation. Tools mount directly onto a Ridgid®300* Power Drive (45 rpm maximum chuck speed) or a Victaulic VPD752/753 power drive. Consult drive manufacturer's instructions for proper operation.

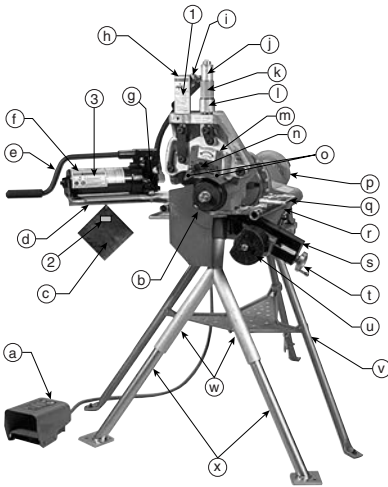
* Ridgid is a registered trademark of Ridge Tool Company.

Power Requirements

Power must be supplied through a safety foot switch to ensure safe operation. Be sure the tool is properly grounded in accordance with local regulations.

CAUTION
<ul style="list-style-type: none">• Power supplied to the tool must be 230 V ±5%.• Failure to do so may result in shortened tool life and property damage.

TOOL NOMENCLATURE



Item	Description
u	stabilizer roller
v	power drive stand
w	upper leg
x	adjusting legs

The numbers in the illustration indicate the location of the following warning labels:

- Label 1

! WARNING

Grooving rolls can crush or cut fingers and hands.

- Always unplug the power cord before adjusting guard.
- Be sure guard is properly adjusted before grooving pipe.
- Keep hands away from grooving rolls and stabilizer wheel.
- Never reach inside pipe end or across the tool or pipe during operation.
- Always groove pipe in a clockwise direction only.
- Never wear loose clothing, loose gloves or jewelry while operating tool.
- Never groove pipe shorter than what is recommended.

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- Label 2

ALWAYS KEEP THIS PAD WITH THE TOOL. USE IT TO SET THE GUARDS IN ACCORDANCE WITH THE TOOL OPERATION AND MAINTENANCE MANUAL.

Item	Description
a	foot switch
b	lower roll
c	guard setting pad
d	pump support
e	pump handle
f	pump
g	pump valve
h	hydraulic cylinder
i	hydraulic connectors
j	pipe size indicator
k	depth adjuster
l	depth adjuster lock
m	upper roll assembly
n	upper roll bolt
o	roll guards
p	power drive
q	lifting handles
r	power drive support arms
s	stabilizer assembly (optional)
t	stabilizer hand wheel

VE272FS

- Label 3

⚠ WARNING	
	<p>Failure to follow instructions and warnings can result in serious injury, property damage, or faulty installation.</p> <ul style="list-style-type: none">• Before installing, operating, or servicing this tool, read and understand the Operating Instructions and all warning labels on this tool.• Always wear safety glasses and foot protection. <p>If you have any questions about the safe operation of this tool, contact Victaulic Tool Company, P.O. Box 31, Easton, PA 18044-0031, 610-559-3300.</p>

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RECEIVING TOOL

Victaulic®VE272FS tools are packed individually in sturdy containers, designed for use in re-shipping the tool.

NOTE: Be sure to save original shipping materials for return shipment of rental tools.

Upon receipt of tool, make sure all necessary parts are included. If any parts are missing, notify your Victaulic distributor or Victaulic representative.

Container Contents



- Tool head assembly with a base for Ridgid® 300 or Victaulic VPD752 power drive
- Telescoping leg assembly
- Pump/pump support assembly
- Rolls for 60,3 - 168,3 mm and 219,1 - 323,9 mm steel pipe. The 219,1 - 323,9 mm rolls are mounted on the head assembly.
- Two (2) tool operating manuals
- Guard setting pad
- Lower roller removal wedge
- Stabilizer with mounting hardware, if ordered
- Spare Woodruff keys
- One (1) 0,325 l can of Dow Corning G-n Mechanical Assembly Spray

The standard series VE272FS tools are supplied with grooving rolls for 60,3 - 323,9 mm

carbon steel pipe. Rolls are marked with the size and part number and color coded for pipe material, for your convenience.

For grooving to other specifications and other materials, see "Tool Rating and Roll Selection" charts. Grooving rolls for other specifications and other materials must be purchased separately.

TOOL SETUP

WARNING

- **Do not connect power until instructed otherwise.**
- **Accidental start up of tool may result in serious personal injury.**

This tool is intended for field or shop setup. Before grooving, the tool head assembly and legs must be mounted on a Victaulic VPD752 power drive or a Ridgid 300 power drive.

- 1** Remove all components from the containers and check to be certain all necessary items are included. See "Receiving Tool."
- 2** Locate the tool on a level concrete floor or base. A suitable location provides:
 - the required power as described under "Power Requirements"
 - the required space for adequate handling of pipe to be grooved
 - a level and even surface for tool, pipe stand and footing
- 3** Prepare the power drive to receive the tool. Remove threading dies, cut off attachments, etc., from the power drive.
- 4** Extend the two (2) tubular support arms approximately 20 cm beyond the power drive chuck. Secure the support arms in this position. (Consult power drive manufacturer's instructions.)

VE272FS

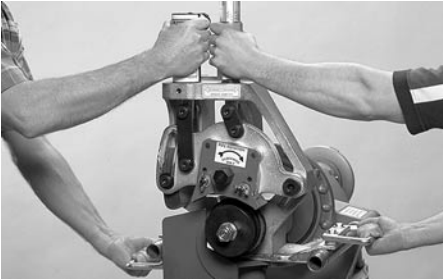


5 Fully open the power drive chuck. (Consult power drive manufacturer's instructions.)

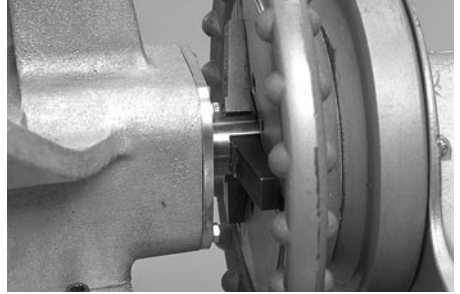
WARNING

- While the tool head assembly is on the power drive arms, without support legs installed, it is front heavy. Have someone push back on the tool head to prevent it from tipping over.
- Failure to do so may result in serious personal injury.

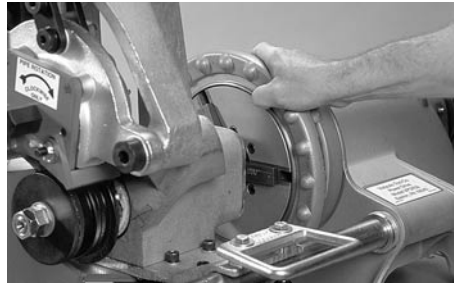
6 Slide the tool head assembly fully onto the power drive arms.



7 Allow approximately 15 mm clearance from hex bolts on the back of the tool to the face of the power drive chuck. Turn the lower roll to align the flat portions of the drive shaft with the chuck jaws.

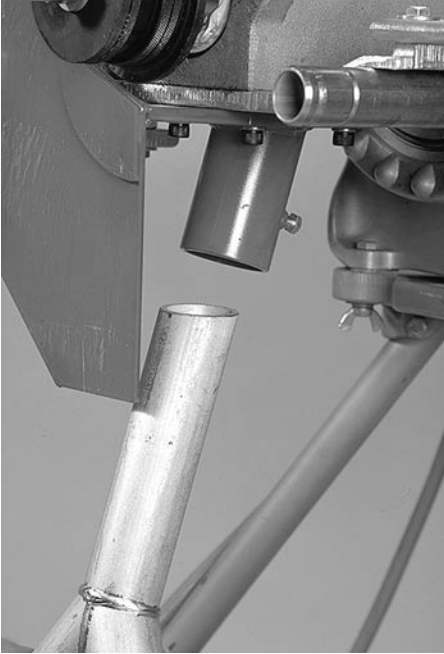


8 Tighten the chuck, making sure the jaws fit the drive shaft flats.



9 Insert the two (2) adjusting legs completely into the sockets of the upper leg and finger tighten the hex bolts.

10 Insert the top leg assembly fully into the socket under the tool head assembly. Rotate the assembly so it fully seats in the socket. The hex head bolts on the legs should be toward the back of the machine, i.e. toward the power drive.



11 Tighten the hex head bolts with a wrench.



12 Release the lower legs by loosening the hex bolts. Turn the leg pads at the bottom until they rest flat on the floor.



13 Carefully level the tool front to back. Check tool levelness by placing level directly on top of the hydraulic ram as shown.

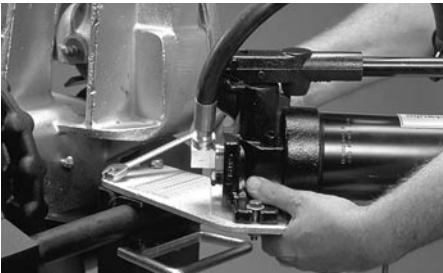
VE272FS



14 Tighten the hex head bolts with a wrench. The legs should now support the tool in a level position.



15 Attach the pump and its support to the left side of the tool, using the two (2) hex bolts supplied. Tighten with a wrench.



16 Connect the hydraulic line from the pump to the power cylinder using connectors provided.



17 Hang the guard setting pad on the hook provided under the pump base.

DANGER



- To reduce the risk of electric shock, check the electrical source for proper grounding.
- Always disconnect power before servicing or making any tool adjustments unless instructed otherwise.
- Failure to do so may result in serious personal injury.

18 Make sure the power drive is OFF. (Consult power drive manufacturer's instructions.) Connect the power drive to an internally grounded electrical outlet. The outlet must meet the power requirements for the power drive.

WARNING

- The power drive must be operated with a safety foot switch for safe tool operation. If your power drive does not have a foot switch, contact the power drive manufacturer.
- Failure to follow instructions and warnings may result in serious personal injury, property damage or improper installation.

19 Turn the power drive switch to the position that will produce **clockwise** rotation of the chuck when viewed from the front of the tool. On the Ridgid 300 and Victaulic VPD752, putting the switch in the **Reverse** position will pro-

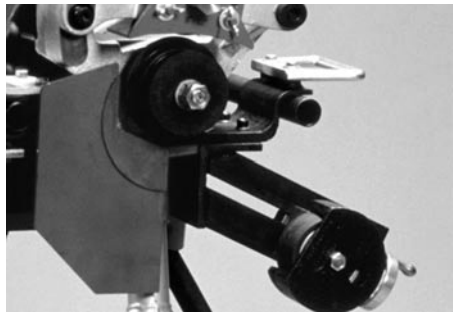
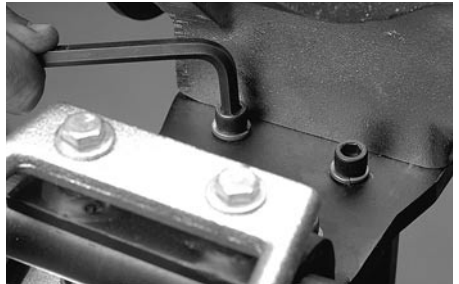
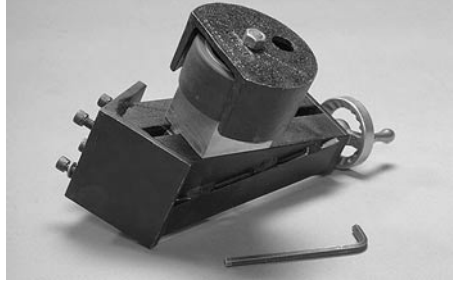
duce clockwise rotation of the chuck, lower roll and pipe.



20 Depress foot switch and check chuck and lower roll direction and tool stability. If rotation is counterclockwise, move power drive switch to opposite position. If tool wobbles, make sure tool is mounted squarely in chuck and tool is level. If the wobble cannot be eliminated, the power drive support arms are bent or the power drive is damaged. Have the power drive repaired if wobble persists.

21 Disconnect power. Turn power drive off or unplug power drive.

22 If an optional stabilizer assembly was ordered (separately), attach it to the right side of the tool using the four hex socket cap screws and four lock washers provided. A hex key is provided for installing the screws.



VE272FS

PRE-OPERATION ADJUSTMENTS

Every Victaulic® tool is checked, adjusted and tested at the factory prior to shipment. Before grooving, however, the following adjustments must be made in sequence to make sure of proper tool operation.

WARNING

- Always disconnect power before servicing or making any tool adjustments unless instructed otherwise.
- Accidental start up of tool may result in serious personal injury.

Grooving Rolls

Make sure the proper roll set is on the tool for the pipe size and material to be grooved. Rolls are marked with the pipe size, part number and color coded for the pipe material to be grooved. See "Tool Rating and Roll Selection" charts. If proper rolls are not on tool, refer to "Roll Changing".

CAUTION

- Make sure roll retaining bolts and set screws are tight.
- Loose retaining bolts or set screws could seriously damage both the tool and rolls.

Pipe Preparation

For proper tool operation, and production of proper pipe grooves, carefully observe the following pipe preparation tips.

- Pipe ends should be cut squarely in accordance with Column 1 note in the appropriate chart under "Roll Groove Specifications".
- Internal or external weld bead or seams must be ground flush with the pipe surface extending 51 mm back from the pipe end.
- The end of the pipe, both inside and out, must be cleaned of loose rust, coarse scale, dirt and other foreign material.

CAUTION

- For maximum grooving roll life, remove foreign material and loose rust.
- Foreign material such as coarse scale or dirt might interfere with or damage the grooving rolls or distort the groove. Rust is an abrasive material and will tend to wear out the surface of the grooving rolls.

Victaulic recommends that pipe shall be square ended. When using beveled pipe, standard wall or less, the bevel should not exceed 37,5°. Square ended pipe must be used with FlushSeal® and EndSeal® gaskets. For heavier pipe walls, square ended pipe is also required.

Groovable Pipe Lengths

The VE272FS is capable of grooving short pipe lengths without the use of a pipe stand (see Table 1), or long pipe lengths up to double randoms (approximately 12,2 m.) with the use of appropriate pipe stands.

Short Pipe Lengths

Table 1 shows minimum and maximum pipe lengths that can be grooved without the need for a pipe stand. Refer to "Grooving Operation" for instructions on how to groove short pipe lengths. For pipe longer than shown in Table 1, refer to "Long Pipe Lengths".

WARNING



- Grooving rolls can crush or cut fingers and hands.
- Loading and unloading pipe will place your hands close to the rollers.
- Never groove pipe shorter than what is recommended (See "Groovable Pipe Lengths").

Table 1 - Pipe lengths groovable without a pipe stand

O.D. [mm]	Length - [mm]	
	Min.	Max.
60,3	203	914
73,0	203	914
88,9	203	914
101,6	203	914
114,3	203	914
127,0	203	813
141,3	203	813
152,4	254	762
168,3	254	711
203,2	254	610
219,1	254	610
273,0	254	508/381 *
323,9	305	457/356 †

* 508 mm long for aluminum, PVC and lightwall steel and stainless steel. 381 mm long for Sched. 30 and standard wall steel and stainless steel.
 † 457 mm long for aluminum, PVC and lightwall steel and stainless steel. 356 mm long for Sched. 30 and standard wall steel and stainless steel.

If a pipe shorter than the minimum shown in Table 1 is needed, if possible, shorten the next to last piece of pipe enough so that the last piece of pipe is as long or longer than the minimum length specified in Table 1. See example below.

NOTICE

Pipe nipples shorter than those shown in the table above are available from Victaulic.

Example: A 6.198 mm length of 273,0 mm diameter pipe is needed to finish a section and you only have 6.000 mm lengths available. In-

stead of roll grooving a 6.000 mm piece of pipe and a 198 mm piece of pipe, follow these steps:

- 1** Refer to Table 1 and note that for 273,0 mm diameter pipe, the minimum length that should be grooved is 508 mm
- 2** Roll groove a 5.690 mm piece of pipe and a 508 mm piece of pipe. Refer to "Long Pipe Lengths" below.

Long Pipe Lengths

With pipe in excess of the maximum length shown in Table 1, a roller type pipe stand must be used.

NOTICE

The figures below show the Victaulic adjustable pipe stand (VAPS 112). VAPS 112 is suitable for 26,9 - 323,9 mm pipe. Also available is Victaulic model VAPS 224 suitable for sizes 60,3 - 610,0 mm. See "Accessories".

- 1** Position pipe and pipe stand in accordance with the figures below.

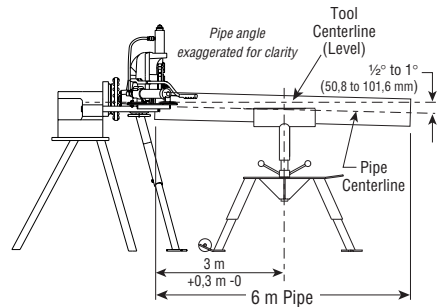


Figure 1 - Support of pipe

VE272FS

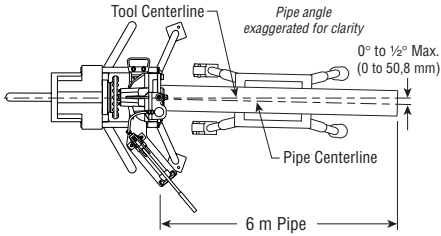


Figure 2 - Tracking angle

WARNING

- Pipe stand location will affect pipe tracking.
- Incorrect pipe stand position may cause the pipe to be pushed out of rolls and fall.
- Failure to position pipe and pipe stand in accordance with the figures shown may result in serious personal injury or property damage.

CAUTION

Pipe position will affect pipe flare.

- When pipe end flare is excessive, right-to-left tracking must be kept to a minimum. It may be necessary to use less than 0,5°.

Make sure tool is level (see "Tool Setup").

- If pipe is grooved with back end of pipe (end of pipe which is not in tool) higher than the end being grooved, pipe may not track and excessive pipe end flare may result.
- Assembly of couplings on pipe exceeding Maximum Allowable Flare (see "Roll Groove Specifications" charts) may prevent closure of couplings pad-to-pad, allowing possible pipe separation, and result in property damage.
- Also, joint leakage may result due to excessive gasket distortion/damage.

NOTICE

For additional information about pipe stands, refer to the Operating Instructions included with your pipe stand.

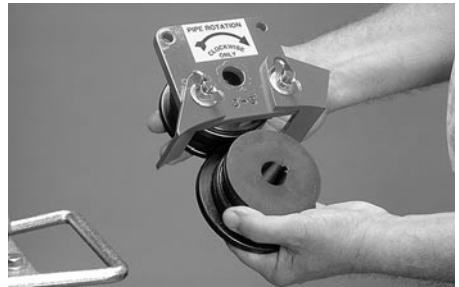
Roll Guard Adjustment

The VE272FS guards must be adjusted every time rolls are changed or pipe size or wall thickness is different from pipe previously grooved.

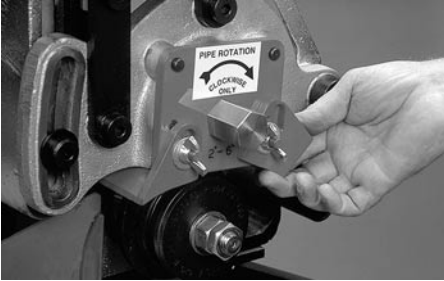
WARNING

- Always disconnect power before servicing or making any tool adjustments unless instructed otherwise.
- Accidental start up of tool may result in serious personal injury.

1 Make sure the proper roll set is on the tool for the pipe size and material to be grooved. Rolls are marked with the pipe size, part number and color coded for the pipe material to be grooved. See "Tool Rating and Roll Selection" charts. If proper rolls are not on tool, refer to "Roll Changing".



2 Loosen wing nuts and move the adjustable guards to the full up position. Tighten wing nuts.



3 Set groove diameter stop to pipe size and schedule/thickness to be grooved. To do this, back off the depth adjuster lock, align the depth adjuster with the proper diameter and thickness. Lock the depth adjuster in position with the depth adjuster lock. See "Groovable Pipe Lengths" instructions and cautionary information.



4 If so equipped, retract stabilizer, if necessary, to insert pipe. To do this, loosen the stabilizer locking handle and retract stabilizer roller with the hand wheel to clear pipe when inserted onto lower roll.



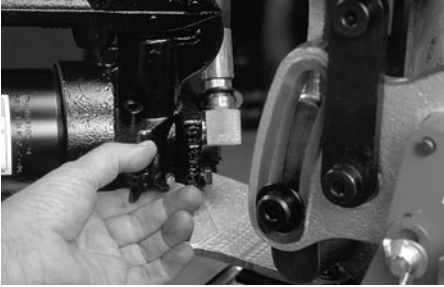
WARNING	
	<ul style="list-style-type: none"> • Grooving rolls can crush or cut fingers and hands. • Loading and unloading pipe will place your hands close to the rollers. • Never groove pipe shorter than what is recommended (See "Groovable Pipe Lengths").

5 Insert a piece of pipe of the correct size and schedule/thickness to be grooved over the lower roll with the pipe end against the lower roll backstop flange. See "Pipe Preparation".

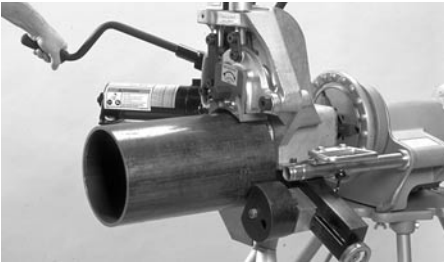


6 Close hand pump valve.

VE272FS



7 Pump upper roll down into firm contact with the pipe.



8 Remove the guard setting pad from its storage hook. Hold the guard setting pad firmly down against the pipe and push it under the adjustable guards flush against the red plate.



9 Loosen the wing nuts and adjust each guard to conform to and lightly pinch the pad against the pipe. Tighten wing nuts to secure guards in position.



10 Remove the guard setting pad. Store the pad back on the hook provided.

Pipe Stabilizer Adjustment

(applies only to tools equipped with the optional stabilizer)

The Series VE272FS pipe stabilizer is designed to prevent sway of 219,1 - 323,9 mm pipe. This applies to short as well as long pipes. Once the stabilizer is adjusted for a selected pipe size and wall thickness, it does not require further adjustment on that size and thickness. Pipe of the same size and thickness may be moved in and out of the tool without retracting the stabilizer.

WARNING

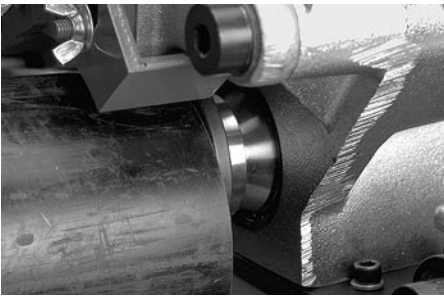
- Do not connect power until instructed otherwise.
- Accidental start up of tool may result in serious personal injury.

1 Make sure the proper roll set is on the tool for the pipe size and material to be grooved. Rolls are marked with the pipe size, part number and color coded for the pipe material to be grooved. See "Tool Rating and Roll Selection" charts. If proper rolls are not on tool, refer to "Roll Changing".

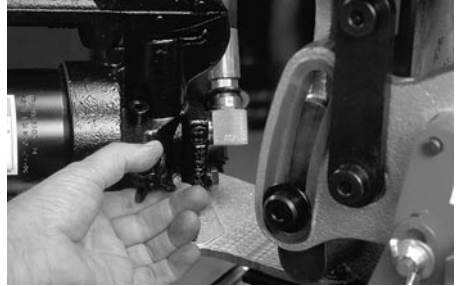
2 Loosen locking handle. With the hand wheel, retract the stabilizer roller to clear pipe when inserted onto lower roll.



3 Insert a piece of pipe of the correct size and schedule/thickness to be grooved over the lower roll with the pipe end against the lower roll backstop flange.



4 Close hand pump valve and pump upper roll down into firm contact with the pipe.



5 Make sure guards are properly adjusted. Refer to "Roll Guard Adjustment".

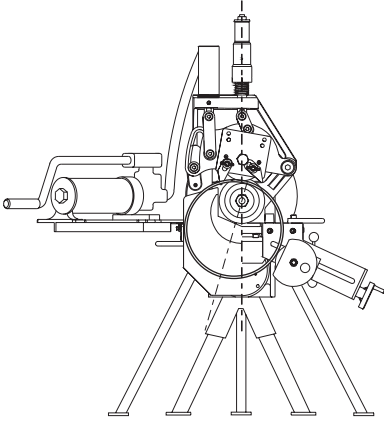
6 Advance stabilizer roller inward with the handwheel until the roller lightly contacts the pipe, then tighten locking handle.

CAUTION

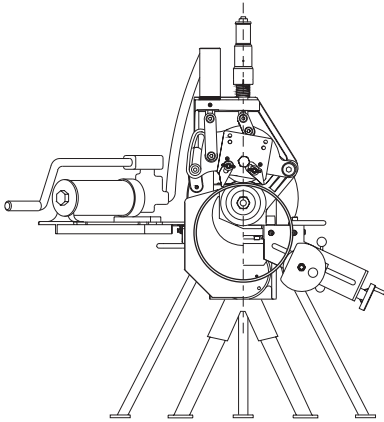
Do not adjust stabilizers to push pipe to the left and off center from the rolls. Doing so will cause increased pipe end flare and shorten roller life.

- **Assembly of couplings on pipe exceeding Maximum Allowable Flare (see "Roll Groove Specifications" charts) may prevent closure of couplings pad-to-pad, allowing possible pipe separation, and result in property damage.**
- **Also, joint leakage may result due to excessive gasket distortion/damage.**

7 Complete the "Pre-Operation Adjustments" and groove the pipe (see "Grooving Operation".) Observe the stabilizer roller while grooving. It should remain in contact with the pipe most of the time and the pipe should rotate smoothly without swaying from side to side. If not, advance stabilizer roller further inward. Re-test and make further adjustments as necessary. Remember, do not adjust stabilizer too far inward as it will skew the pipe to the left and possibly result in excessive pipe end flaring.



INCORRECT



CORRECT

Figure 3 - Positioning the stabilizer.

Groove Diameter Stop Adjustment

The groove diameter stop must be adjusted for each pipe size or change in wall thickness. Groove diameter, identified as the "C" dimension for each pipe size, is listed under "Standard Roll Groove Specifications".

For your convenience, a "C" dimension chart for steel pipe is also on the tool.

NOTICE

To perform the following adjustments, use several short scrap sections of pipe (but not shorter than what is recommended in the "Groovable Pipe Lengths" table) of the proper material, diameter and thickness to be grooved.

To achieve proper diameter:

- 1** Determine the size and thickness of pipe to be grooved. See "Pipe Dimensions" to determine proper schedule.
- 2** Locate the proper size and schedule on the pipe size indicator. It is rotatable for easy viewing.
- 3** Back off the depth adjuster lock. Align the depth adjuster with the proper size and schedule as shown. Lock the depth adjuster in position with the depth adjuster lock.

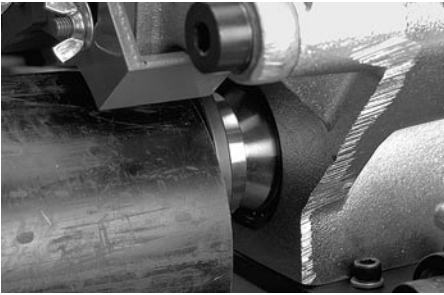


NOTICE

The markings provide an approximate groove diameter adjustment and are not "exact" groove diameter settings. Variations in actual pipe O.D.'s and wall thicknesses make it impossible to calibrate the diameter stop exactly.

- 4** Using a piece of scrap pipe or short piece of pipe (refer to the "Groovable Pipe Lengths" table) of the diameter and wall thickness to be

grooved, place the pipe over the lower roll with the pipe end against the lower roll backstop flange.



the groove. Average reading must equal the required groove diameter specification.



WARNING



- Grooving rolls can crush or cut fingers and hands.
- Always disconnect power before servicing or making any tool adjustments unless instructed otherwise.
- Be sure guard is properly adjusted before grooving pipe.
- Keep hands away from grooving rolls and stabilizer wheel.
- Never reach inside pipe end or across the tool or pipe during operation.
- Never groove pipe shorter than what is recommended (See "Groovable Pipe Lengths").
- Never wear loose clothing, loose gloves, or jewelry while operating tool.

5 Prepare a trial groove. To do so, follow the "Grooving Operation" procedures.

6 After a trial groove is prepared and pipe removed from the tool, carefully check the groove diameter ("C" dimension), as charted under "Roll Groove Specifications". The "C" dimension is best checked with a pipe tape. It also may be checked with a vernier caliper or narrow-land micrometer at two locations, 90° apart, around

CAUTION

- The "C" dimension (groove diameter) must always conform to specifications under "Roll Groove Specifications" to ensure proper joint performance.
- Failure to follow instructions and warnings may result in serious personal injury, property damage or improper installation.

7 If groove diameter ("C" dimension) is not within tolerance, the diameter stop must be adjusted to obtain the proper dimension. To adjust for a **smaller groove diameter**, turn the depth adjuster **counterclockwise**. To adjust for a **bigger groove diameter**, turn adjuster **clockwise**. A quarter turn either way will change the groove diameter adjustment by 0,79 mm (3,175 mm per full turn).

8 Prepare another trial groove and check the groove diameter again. Repeat the two previous steps until the groove diameter is within specification.

GROOVING OPERATION

CAUTION

- Victaulic® Series VE272FS tools are designed **ONLY** for roll grooving pipe of the sizes, materials and wall thicknesses outlined under "Tool Rating and Roll Selection".
- Grooving pipe other than that recommended will result in improper pipe end configuration or improper groove dimensions for applying Victaulic products.

Before grooving, make sure you have followed all instructions in:

- "Tool Setup"
- "Grooving Rolls"
- "Pipe Preparation"
- "Groovable Pipe Lengths"
- "Roll Guard Adjustment"
- "Pipe Stabilizer Adjustment"
- "Groove Diameter Stop Adjustment"

WARNING



- Before operating tool, review precautions under "Operator Safety Instructions".
- Failure to follow instructions and warnings may result in serious personal injury, property damage or improper installation.

DANGER



- To reduce the risk of electric shock, check the electrical source for proper grounding.
- Always disconnect power before servicing or making any tool adjustments unless instructed otherwise.
- Failure to do so may result in serious personal injury.

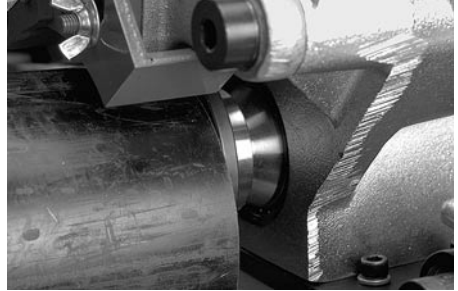
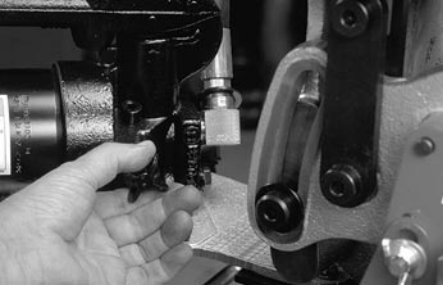
1 Plug the power drive into an internally grounded electrical source. Make sure power drive is grounded. Consult power drive manufacturer's instructions.

2 Set power drive switch to produce clockwise rotation of lower roll and pipe when viewed from the front of the tool. On the Victaulic VPD752/753 and Ridgid 300, putting the switch in the "**REVERSE**" position will produce **clockwise** rotation.



3 Actuate safety foot switch by pressing foot on pedal to be certain tool is operational, power supply is available, and that lower roll is turning clockwise when viewed from the front. Remove foot from foot switch.

4 Open hand pump valve by turning counter-clockwise. This will allow upper roll and arm to move to full up position.



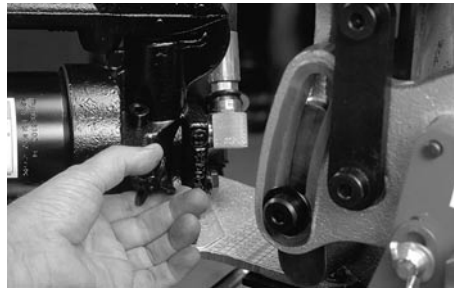
WARNING



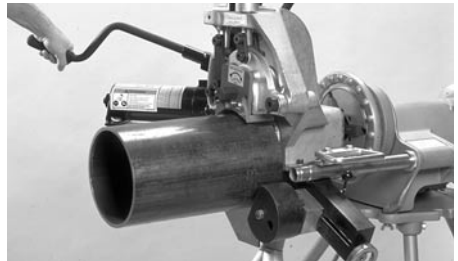
- Grooving rolls can crush or cut fingers and hands.
- Always disconnect power before servicing or making any tool adjustments unless instructed otherwise.
- Always groove pipe in a clockwise direction only.
- Be sure guard is properly adjusted before grooving pipe.
- Keep hands away from grooving rolls and stabilizer wheel.
- Never reach inside pipe end or across the tool or pipe during operation.
- Never groove pipe shorter than what is recommended (See "Groovable Pipe Lengths").
- Never wear loose clothing, loose gloves, or jewelry while operating tool.

5 Insert a piece of pipe of the correct size and schedule/thickness to be grooved over the lower roll with the pipe end against the lower roll backstop flange.

6 Close hand pump valve by turning clockwise.



7 Pump the handle several times to bring the upper roll into light but firm contact with the pipe.



8 If grooving a short pipe (see "Groovable Pipe Lengths"), remove hands from pipe.

9 Depress and hold down safety foot switch. The pipe will begin to rotate clockwise. As the pipe rotates, begin grooving by slowly pumping the pump handle.

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NOTICE

Do not pump too fast, but at a rate sufficient to groove the pipe and maintain audible moderate-to-heavy load on the gear motor.

10 Let the grooving continue until the depth adjuster lock comes into full, firm contact with the underlying surface. Continue pipe rotation for several revolutions to ensure groove completion.



11 Withdraw foot from safety foot switch.

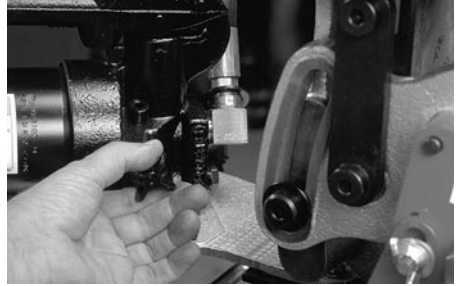
WARNING



- Grooving rolls can crush or cut fingers and hands.
- Do not place hand(s) inside end of pipe to pull pipe out of tool or place hand(s) in area of grooving rolls or stabilizer roller.

12 If grooving a short pipe, manually support pipe.

13 Open hand pump valve to release pipe. Remove pipe from tool.



NOTICE

Groove diameter should be correct for the diameter and wall thickness of pipe for which it was set under "Groove Diameter Stop Adjustment". Groove diameter should be checked and adjusted as necessary to ensure grooves are within specification.

ROLL CHANGING

WARNING

- Always disconnect power before servicing or making any tool adjustments unless instructed otherwise.
- Accidental start up of tool may result in serious personal injury.

NOTICE

Victaulic® Series VE272FS roll grooving tools are designed for fast, easy grooving. Rolls accommodate several pipe sizes (refer to "Tool Rating and Roll Selection") eliminating the need for frequent roll changes. When a different size range is encountered or special grooving styles are required, the grooving rolls must be changed and Pre-Operation Adjustments performed again. Also, different pipe materials may require that the rolls be changed. Refer to "Tool Rating and Roll Selection" for proper roll selection.

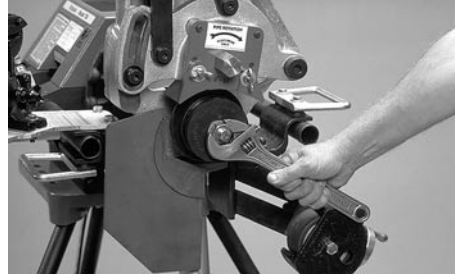
Roll Removal

WARNING

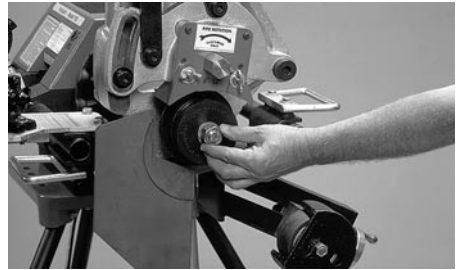
- Always disconnect power before servicing or making any tool adjustments unless instructed otherwise.
- Accidental start up of tool may result in serious personal injury.

Lower Roll (all sizes)

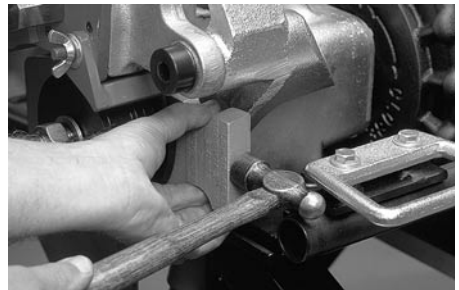
- 1 Open hand pump valve by turning counter-clockwise. This will allow upper roll and arm to move to full up position.
- 2 With a wrench, loosen and remove (thin) jam nut securing large nut on lower roll shaft.



- 3 With a wrench, loosen large nut on lower shaft and back off approximately 6,5 mm without removing.



- 4 To loosen lower roll from tapered lower roll shaft, use the aluminum wedge supplied with tool. Place wedge behind lower roll and hit with a hammer to break roll loose from taper. **Do not use a hammer on the roll.**



WARNING



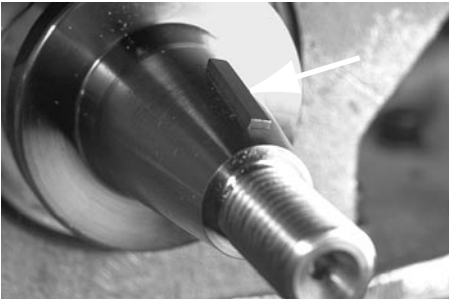
Hammering rolls can cause serious personal injury due to fragmentation.

- Always wear eye protection.
- Always use supplied aluminum wedge for roll removal.
- Always use soft faced hammers with aluminum wedge.
- Never strike rolls directly for any reason.

5 Remove nut, washer and roll and store in a clean place.

NOTICE

Be careful not to lose the Woodruff keys. They should remain in the lower shaft. Inspect the Woodruff keys and replace if damaged. Spare Woodruff keys are supplied with instruction manual.

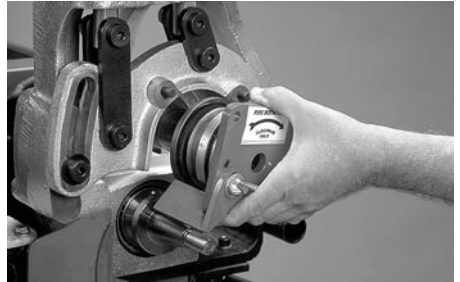


Upper Roll (all sizes)

1 With a wrench, loosen and remove upper roll bolt as shown. Place on a clean surface.



2 Remove the upper roll assembly. Store in a clean place.



Roll Installation

NOTICE

See "Tool Rating and Roll Selection" charts for information on available grooving rolls.

Upper Roll (all sizes)

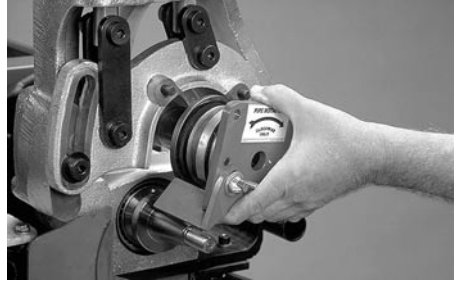
1 Clean all shaft surfaces and roll bores of any dirt and/or scale before installation.



2 While upper roll is removed from tool, inspect the roller bearing inside for contamination, proper lubrication and movement. Also inspect guards for wear and freedom of adjustment. Make repairs/replacements as necessary.



3 Carefully slide desired upper roll assembly onto upper shaft with red plate facing out. Loosen guards, if necessary, to make installation easier. Make sure red plate engages the two pins on the arm and that it then contacts the front of the upper roll shaft.



4 Insert upper roll bolt and tighten securely with a wrench.

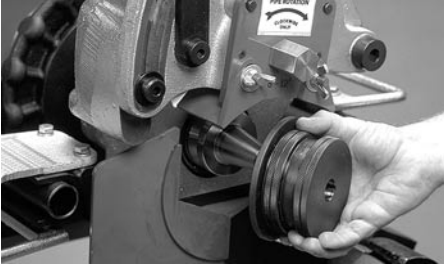


5 Lubricate upper roll bearing. Refer to "Maintenance" section for additional information.

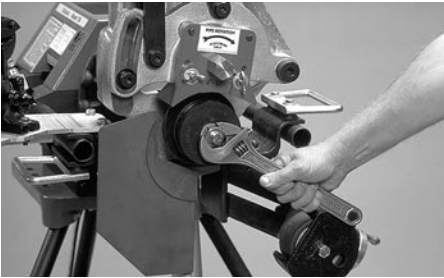


Lower Roll (all sizes)

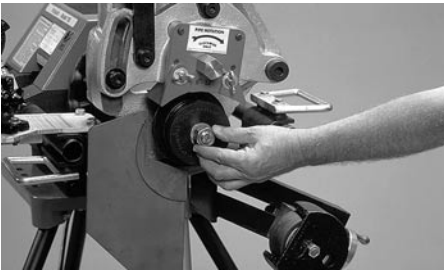
1 Place lower roll onto arbor shaft. Reposition guards, if necessary, to make assembly easier. Make sure lower roll fits fully onto arbor shaft with keys and keyway in alignment.



2 Install flat washer and large nut on threaded arbor stud, in front of lower roll, and tighten securely with a wrench.



3 Install (thin) jam nut on threaded arbor stud and tighten securely, with a wrench, against large nut.



Roll installation is complete.

Before grooving, make sure all "Pre-Operation Adjustments" are reviewed and followed.

MAINTENANCE

General

This manual provides information to permit the operator of Victaulic® roll grooving tools to keep his equipment in top operating condition and to guide him in making repairs when it becomes necessary.

Replacement parts, applicable only to these tools, should be ordered from Victaulic to ensure proper operation of the tool. All parts are supplied ex Nazareth, Belgium – unless otherwise stated – at the price in effect at the time of ordering.

NOTICE

Remember that preventative maintenance during operation will pay for itself in repair and operating savings.

DANGER



- Always disconnect power before servicing or making any tool adjustments unless instructed otherwise.
- Failure to do so may result in serious personal injury.

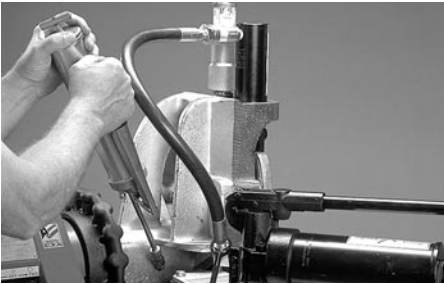
Lubrication

After every eight hours of operation lubricate the tool. Always lubricate upper roll bearings when rolls are changed.

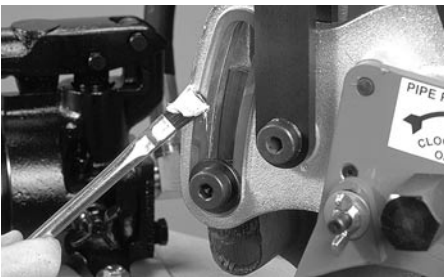
1 Grease upper roll bearing at fitting provided as shown. Use a No. 2EP Lithium base grease.



2 Grease main shaft bearings at fittings provided as shown. Use a No. 2EP Lithium base grease.



3 Lubricate the linkage mechanisms, the arm pivot point and the arm sliding surfaces. A heavy duty spray lubricant may be used, or apply grease by hand.



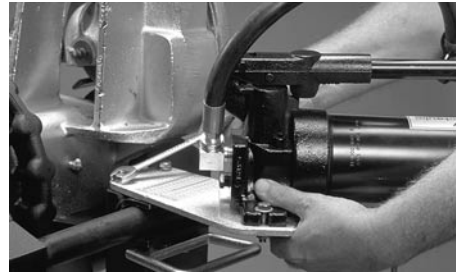
4 If mounted, lubricate the stabilizer wheel with a No. 2EP Lithium base grease.

Hydraulic Systems

The level of the hydraulic fluid in the pump must be checked every six months or if pumping feels spongy.

Filling and Checking

- 1** Open pump release valve fully by turning counterclockwise.
- 2** Remove pump and pump support from tool base.



- 3** Loosen, but do not remove the hydraulic fill plug/dipstick at the back end of the pump.
- 4** Hold pump so that fill plug end is ABOVE the hydraulic cylinder. This will prevent siphoning of oil from hydraulic cylinder through pump.



- 5** Check fluid level. Add hydraulic jack oil to proper level as required. On models without

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dipstick, remove cap; oil should be approximately 15-25 mm from the end.

Air Bleeding

1 To bleed air from the system, hold the entire pump above the hydraulic cylinder. Close the pump release valve by turning clockwise. Open fill plug one full turn.



- 2** Pump the pump handle several strokes to build pressure.
- 3** Open release valve by turning counter-clockwise and allow air to escape.
- 4** Repeat steps 1 - 3 several times to bleed all the air from the system.
- 5** Check oil level and add oil if necessary.
- 6** Continue to hold the pump above the hydraulic cylinder and close the fill plug.
- 7** Install the pump and pump support assembly securely to the side of the tool.



Recommended Lubricants

Bearing and Slide Grease

General Purpose E.P. Lithium Base Grease.

Manufacturer	Product
Amoco Oil	Amolith Grease #2EP
Arco Petroleum Prod. Co.	Litholine HEP 2
Ashland Oil, Inc./Valvoline Oil Co.	Multi-Lube Lith. EP Grease
Exxon Co., USA	Lidok EP 2
Gulf Oil Corp.	Gulfcrowne Grease EP#2
Kendall Refining Co.	L-426
Lubriplate	No. 630-2
Mobil Oil Corp.	Mobilux EP2
Pennzoil Prod. Co.	Pennlith EP 712 Lube
Shell Oil Co.	Alvania EP2
Sun Refining	Sun Prestige 742 EP
Texaco Inc.	Multifak EP2

Hydraulic Oil

High Pressure Anti-Wear Hydraulic Oil ISO Grade 32.

Manufacturer	Product
Amoco Oil	Rykon Oil #32
Arco Petroleum Prod. Co.	Duro AW 32
Ashland Oil, Inc./Valvoline Oil Co.	AW Oil #15
Exxon Co., USA	Nuto H 32
Gulf Oil Corp.	Harmony 32 AW
Kendall Refining Co.	Kenoil R&O AW-32
Lubriplate	HO-O

Manufacturer	Product
Mobil Oil Corp.	Mobil DTE 24
Pennzoil Prod. Co.	AW 32 Hyd. Oil/Penreco Oil 32
Shell Oil Co.	Tellus 32
Sun Refining	Survis 706, 816 WR
Texaco Inc.	Rando Oil HD 32

PARTS ORDERING INFORMATION

When ordering parts, the following information is necessary for Victaulic Europe to process the order promptly and send the correct part(s):

- Tool Model Number: VE272FS
- Tool Serial Number. The serial number can be found stamped onto the tool body.
- (Quantity), Item Number, Part Number and Description. Example: (1) #NK01060900, Woodruff Key.
- Where to send the part(s): company name, address
- To whose attention to send the part(s): person's name
- Purchase Order Number
- Billing Address

You can order parts directly from Victaulic Europe.

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ACCESSORIES

Victaulic Adjustable Pipe Stand VAPS112



Victaulic Model VAPS 112 (art. code: R000112PS0), a portable, adjustable, roller type, four-leg pipe stand for use with Victaulic roll grooving tools, is available from Victaulic Europe. Ball transfer rollers, adjustable for pipe from 26,9 - 323,9 mm, will accommodate linear and rotational movement. Turnstile design permits easy swivel for grooving both pipe ends. Contact Victaulic Europe for details.

Optional Rolls

See "Tool Rating and Roll Selection" for rolls for different materials and groove specifications.

Ridgid® 300 Power Drive



The Ridgid 300 Power Drive can be used as the power drive unit for the VE226, VE266FS, VE272FS and VE416FS roll grooving tools, provided the tool is equipped with the correct base plate. It utilizes a 50 Hz universal motor and requires 230 V/1 Phase 15 A of power. It is operated with a safety foot switch.

Pipe Stabilizer Assembly



A pipe stabilizer is available for this tool. It is designed to prevent pipe sway on IPS pipe sizes

of 219,1 mm and above. Contact Victaulic Europe for details.

TROUBLESHOOTING

Problem	Possible Cause	Solution
Pipe will not stay in grooving rolls.	Incorrect pipe positioning.	See Pipe Support section.
	Improper manual grooving technique.	See "Grooving Operation" - Grooving Short Pipe Lengths section.
	Power Drive running counterclockwise	See "Tool Setup".
Pipe stops rotating during grooving.	Rust or dirt has built up on lower roll.	Remove accumulation from lower roll with stiff wire brush.
	Rust or dirt is excessively heavy inside the pipe end.	Remove heavy rust and dirt from inside pipe end. See "Pipe Preparation".
	Worn grooving rolls.	Inspect lower roll for worn knurls, replace if worn.
	Power drive chuck is not engaged onto drive shaft.	See "Tool Setup".
	Woodruff keys under lower roll are damaged or missing.	Remove lower roll, replace key and reinstall lower roll. See "Roll Changing".
	Motor has stalled due to excess hand pumping.	Open release valve to free pipe, close release valve and 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.
Pipe flare is excessive.	Pipe support adjusted too high on long pipes.	See "Long Pipe Lengths".
	Tool is tilted forward.	Check tool levelness. See Tool Setup section.
	Incorrect pipe support positioning, pipe is "overtracking".	Move pipe support to the right. See Pipe Support section.
	Stabilizer(s) is pushing pipe to the left and off center from the rolls.	Back off stabilizer(s) to the furthest point where it still stabilizes pipe effectively. See Stabilizer Adjustment section.
Pipe vibrates or sways from side to side.	Incorrect stabilizer adjustment.	Move stabilizer in or out until pipe rotates smoothly. See Stabilizer Adjustment section.
	Optional stabilizer was not purchased, installed and used.	Purchase, install and use optional stabilizer.
While grooving, loud squeaks echo through the pipe.	Pipe not square cut.	Cut pipe end squarely.
	Incorrect pipe support positioning, pipe is "overtracking".	Move pipe support to the right. See Pipe Support section.
	Pipe is rubbing excessively hard on lower roll flange.	Remove pipe from tool and apply a film of grease to the face of the lower roll flange as needed.
During grooving, loud thumps or bangs occur about once every revolution of the pipe.	Pipe has a pronounced weld seam.	Grind welds flush with pipe surface inside and out 51 mm back from pipe end.
Tool won't groove pipe.	Hand pump valve is not closed tightly.	Tighten valve.
	Hand pump is low on oil.	See "Maintenance".
	Air in hydraulic system.	See "Maintenance".
	Pipe beyond tool's wall thickness capability.	See "Tool Rating and Roll Selection".

TOOL RATING AND ROLL SELECTION

Standard and "ES" Rolls - Color Coded Black

O.D. [mm]	1		2		3		4		Standard Roll Nos.	"ES" Roll Nos.
	Nominal Wall Thickness Dimensions - [mm]									
	Steel Pipe		Stainless Steel Pipe		Aluminum Pipe		PVC Plastic Pipe			
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
60,3	1,65	3,91	3,91	3,91	1,70	3,91	3,91	3,91	Lower Roll R902272L03	Lower Roll RZ02272L03
73,0	2,11	5,16	5,16	5,16	2,11	5,16	5,16	7,01		
88,9	2,11	5,49	5,49	5,49	2,11	5,49	5,49	7,62	Upper Roll R9A2268U06	Upper Roll RZA2268U03
101,6	2,11	5,74	5,74	5,74	2,11	5,74	5,74	8,07		
114,3	2,11	9,53	6,02	6,02	2,11	6,02	6,02	8,55	Lower Roll R904272L06	Lower Roll RZ04272L06
127,0	2,41	9,53	6,02	6,02	2,41	6,02	-	-		
141,3	2,77	9,53	6,55	6,55	2,77	6,55	6,55	9,53		
152,4	2,77	9,53	6,55	6,55	2,77	6,55	-	-	Upper Roll R9A2268U06	Upper Roll RZA4268U06
168,3	2,77	9,53	7,11	7,11	2,77	7,11	7,11	10,97		
203,2	2,77	9,53	6,35	8,22	2,77	8,22	-	-	Lower Roll R908272L12	Lower Roll RZ08272L12
219,1	2,77	9,53	6,35	8,22	2,77	8,22	8,22	12,70		
273,0	3,40	9,53	6,35	9,27	3,40	6,35	9,27	15,06	Upper Roll R9A8268U12	Upper Roll RZA8268U12
323,9	4,00	9,53	6,35	9,53	3,96	6,35	10,30	17,45		

Notes for Standard and "ES" Rolls:

COLUMN 1: **Steel Pipe** – Maximum ratings on steel are limited to pipe of 180 BHN (Brinell Hardness Number) and less.

COLUMN 2: **Stainless Steel Pipe** – Types 304/304L and 316/316L

COLUMN 3: **Aluminum Pipe** – Alloys 6061-T4 and 6063-T4

COLUMN 4: **PVC Plastic Pipe** – PVC Type I Grade I - PVC1120; PVC Type I Grade II - PVC1220; PVC Type II Grade I - PVC2116

The following pipe sizes may also be grooved: 76,1 mm., 108,0 mm., 133,0 mm., 139,7 mm., 159,0 mm., 165,1 mm., 254,0 mm and 304,8 mm. Contact Victaulic Europe for details.

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Rolls for Stainless Steel Pipe† (RX Rolls) - Color Coded Silver

O.D. [mm]	Nominal Wall Thickness - [mm]		RX Roll Nos.	
	Sched. 5S	Sched. 10S	Lower	Upper
60,3	1,70	2,80	RX02272L03	RXA2268U06
73,0	2,10	3,00		
88,9	2,10	3,00		
101,6	2,10	3,00		
114,3	2,10	3,00		
141,3	2,80	3,40	RX04272L06	
168,3	2,80	3,40	RX08272L12	RXA8268U12
219,1	2,80	3,80		
273,0	3,40	4,20		
323,9	4,00	4,60		

† Types 304/304L and 316/316L

Rolls for Copper Tubing - Color Coded Copper†

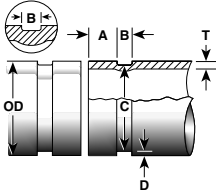
O.D. [mm]	Nominal Wall Thickness - [mm]		Copper Roll Nos.	
	Min.	Max.	Lower	Upper
54,0	1,1	2,1	RR02272L06	RRA2268U08
66,7	1,7	2,4		
79,4	1,1	2,8		
104,8	1,5	3,4		
130,2	1,8	4,1		
155,6	2,1	4,9		
206,4	2,8	6,9	RR08272L08	

Drawn copper tubing - DWV, ASTM B306, Type "M", ASTM B88 - Type "L", ASTM B88 - Type "K", ASTM B88.

Rolls are available for grooving British Standard, Australian Standard and DIN Standard copper tube, contact Victaulic Europe for details.

ROLL GROOVE SPECIFICATIONS

Steel Pipe and All Materials Grooved with Standard and RX Rolls



1			2	3	4		5	6	7
O.D. - [mm]			Dimensions - [mm]						
Basic	Tolerance		Gasket Seat A $\pm 0,76$	Groove Width B $\pm 0,76$	Groove Dia. C		Grv. Depth D (ref.)	Min. Wall Thk. T	Max. Flare Dia.
	+	-			Basic	Tolerance			
60,3	0,61	0,61	15,88	8,74	57,15	-0,38	1,60	1,65	63,0
73,0	0,74	0,74	15,88	8,74	69,09	-0,46	1,98	2,11	75,7
76,1	0,76	0,76	15,88	8,74	72,26	-0,46	1,98	2,11	78,7
88,9	0,89	0,89	15,88	8,74	84,94	-0,46	1,98	2,11	91,4
101,6	1,02	0,79	15,88	8,74	97,38	-0,51	2,11	2,11	104,1
108,0	1,04	0,79	15,88	8,74	103,73	-0,51	2,11	2,11	110,5
114,3	1,14	0,79	15,88	8,74	110,08	-0,51	2,11	2,11	116,8
127,0	1,27	0,79	15,88	8,74	122,78	-0,51	2,11	2,41	129,5
133,0	1,34	0,79	15,88	8,74	129,13	-0,51	2,11	2,77	135,9
139,7	1,42	0,79	15,88	8,74	135,48	-0,51	2,11	2,77	142,2
141,3	1,42	0,79	15,88	8,74	137,03	-0,56	2,13	2,77	143,8
152,4	1,42	0,79	15,88	8,74	148,06	-0,56	2,16	2,77	154,9
159,0	1,60	0,79	15,88	8,74	153,21	-0,56	2,16	2,77	161,3
165,1	1,60	0,79	15,88	8,74	160,78	-0,56	2,16	2,77	167,6
168,3	1,60	0,79	15,88	8,74	163,96	-0,56	2,16	2,77	170,9
203,2	1,60	0,79	19,05	11,91	198,53	-0,64	2,34	2,77	207,5
219,1	1,60	0,79	19,05	11,91	214,40	-0,64	2,34	2,77	223,5
254,0	1,60	0,79	19,05	11,91	249,23	-0,69	2,39	3,40	258,3
273,0	1,60	0,79	19,05	11,91	268,28	-0,69	2,39	3,40	277,4
304,8	1,60	0,79	19,05	11,91	299,24	-0,76	2,77	3,96	309,1
323,9	1,60	0,79	19,05	11,91	318,29	-0,76	2,77	3,96	328,2

Standard roll groove specifications notes:

COLUMN 1: Outside diameter – The outside diameter of roll grooved pipe shall not vary more than the tolerance listed. For IPS pipe the maximum allowable tolerance from square cut ends is 0,762 mm for 26,9 - 101,6 mm; 1,143 mm for 114,3 - 168,3 mm; and 1,524 mm for sizes 203,2 mm and above measured from true square line.

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COLUMN 2: **Gasket seat** – The pipe surface shall be free from indentations, roll marks, and projections from the end of the pipe to the groove, to provide a leak-tight seal for the gasket. All loose paint, scale, dirt, chips, grease and rust must be removed. It continues to be Victaulic's first recommendation that pipe be square cut. When using beveled pipe contact Victaulic for details. Square cut pipe must be used with FlushSeal® and EndSeal® gaskets. Gasket seat "A" is measured from the end of the pipe.

IMPORTANT: Roll grooving of beveled end pipe may result in unacceptable pipe end flare. See column 7.

COLUMN 3: **Groove width** – Bottom of groove to be free of loose dirt, chips, rust and scale that may interfere with proper coupling assembly. Corners at bottom of groove must have a radius of the following dimensions. For IPS steel pipe, 0,06R on 26,9 - 48,3 mm, 0,08R on 60,3 - 168,3 mm, 0,05R on 219,1 mm and up.

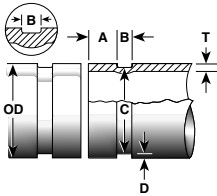
COLUMN 4: **Groove outside diameter** – The groove must be of uniform depth for the entire pipe circumference. Groove must be maintained within the "C" diameter tolerance listed.

COLUMN 5: **Groove depth** – For reference only. Groove must conform to the groove diameter "C" listed.

COLUMN 6: **Minimum allowable wall thickness** – This is the minimum wall thickness which may be roll grooved – except PVC.

COLUMN 7: **Maximum allowable pipe end flare diameter** – Measured at the most extreme pipe end diameter square cut or beveled.

Drawn Copper Tubing



1		2	3	4	5	6	7
O.D. - [mm]		Dimensions - [mm]					
Basic	Tolerance	Gasket Seat A ±0,76	Groove Width B +0,76/-0,00	Groove Diameter C +0,00	Groove Depth (ref.) D	Min. Wall Thk. T	Max. Flare Dia.
54,0	±0,05	15,5	7,6	51,5	1,2	1,6	56,4
66,7	±0,05	15,5	7,6	64,1	1,2	1,7	69,1
79,4	±0,05	15,5	7,6	76,8	1,2	DWV	81,8
104,8	±0,05	15,5	7,6	102,1	1,4	DWV	107,2
130,2	±0,05	15,5	7,6	127,0	1,4	DWV	132,6
155,6	±0,05	15,5	7,6	152,3	1,6	DWV	158,0
206,4	+0,05/-0,10	15,5	7,6	202,2	2,1	DWV	208,8

Copper tubing roll groove specifications notes:

COLUMN 1: **Outside diameter** – The outside diameter of roll grooved tubing shall not vary more than the tolerance listed. The maximum allowable tolerance from square cut ends is 0,762 mm for 54,0 - 79,4 mm; 1,143 mm for 104,8 - 155,6 mm, measured from true square line.

COLUMN 2: **Gasket seat** – The tubing surface shall be free from indentations, roll marks, and projections from the end of the tubing to the groove, to provide a leak-tight seat for the gasket. All loose scale, dirt, chips and grease must be removed.

COLUMN 3: **Groove width** – Bottom of groove to be free of loose dirt, chips and scale that may interfere with proper coupling assembly.

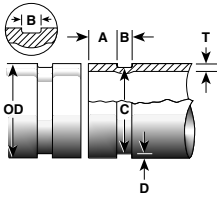
COLUMN 4: **Groove outside diameter** – The groove must be of uniform depth for the entire pipe circumference. Groove must be maintained within the "C" diameter tolerance listed.

COLUMN 5: **Groove depth** – For reference only. Groove must conform to the groove diameter "C" listed.

COLUMN 6: **Minimum allowable wall thickness** – ASTM B-306 drain waste and vent (DWV) is minimum wall thickness copper tubing which may be roll grooved.

COLUMN 7: **Maximum allowable pipe end flare diameter** – Measured at the most extreme pipe end diameter.

Steel Pipe and All Materials Grooved with "ES" Rolls



1		2		3		4		5	6	7
O.D. - [mm]		Dimensions - [mm]								
Basic	Tolerance		Gasket Seat A +0,00/-0,51	Groove Width B		Groove Diameter C		Groove Depth (ref.) D	Min. Wall Thk. T	Max. Flare Dia.
	+	-		Basic	Tol. -0,00	Basic	Tol. +0,00			
60,3	+0,61	-0,61	14,53	6,35	+0,38	57,15	-0,38	1,60	1,65	63,0
73,0	+0,74	-0,74	14,53	6,35	+0,38	69,09	-0,46	1,98	2,11	75,7
88,9	+0,89	-0,79	14,53	6,35	+0,38	84,94	-0,46	1,98	2,11	91,4
114,3	+1,14	-0,79	15,49	7,62	+0,51	110,08	-0,51	2,11	2,11	116,8
168,3	+1,60	-0,79	15,49	7,62	+0,51	163,96	-0,56	2,16	2,77	170,9
219,1	+1,60	-0,79	18,26	9,91	+0,51	214,40	-0,64	2,34	2,77	223,5
273,0	+1,60	-0,79	18,26	9,91	+0,51	268,26	-0,69	2,39	3,40	277,4
323,9	+1,60	-0,79	18,26	9,91	+0,51	318,29	-0,76	2,77	3,96	328,2

"ES" roll groove specifications notes:

COLUMN 1: Outside diameter – The outside diameter of roll grooved pipe shall not vary more than the tolerance listed. For IPS pipe, the maximum allowable tolerance from square cut ends is 0,762 mm for 26,9 - 101,6 mm; 1,143 mm for 114,3 - 168,3 mm; and 1,524 mm for sizes 203,2 mm and above measured from true square line. For (ISO) metric pipe, the maximum allowable tolerance from square cut ends is 0,762 mm for sizes 26,9 - 88,9 mm; 1,143 mm for sizes 114,3 - 168,3 mm; and 1,524 mm for sizes 219,1 mm and above, measured from the true square line.

COLUMN 2: Gasket seat – The pipe surface shall be free from indentations, roll marks, and projections from the end of the pipe to the groove, to provide a leak-tight seal for the gasket. All loose paint, scale, dirt, chips, grease and rust must be removed. Square cut pipe must be used with FlushSeal® and EndSeal® gaskets. Gasket seat "A" is measured from the end of the pipe.

IMPORTANT: Roll grooving of beveled end pipe may result in unacceptable pipe end flare.

COLUMN 3: Groove width – Bottom of groove to be free of loose dirt, chips, rust and scale that may interfere with proper coupling assembly. Corners at bottom of roll groove must be radiused. For IPS pipe, 0,04R on 48,3 - 323,9 mm. For (ISO) metric pipe, 1,2R on 26,9 - 323,9 mm.

COLUMN 4: Groove outside diameter – The groove must be of uniform depth for the entire pipe circumference. Groove must be maintained within the "C" diameter tolerance listed.

COLUMN 5: Groove depth – For reference only. Groove must conform to the groove diameter "C" listed.

COLUMN 6: Minimum allowable wall thickness – This is the minimum wall thickness which may be grooved.

COLUMN 7: Maximum allowable pipe end flare diameter – Measured at the most extreme pipe end diameter square cut or beveled.

PIPE DIMENSIONS

Seamless and Welded Steel Pipe†

O.D. [mm]	Nominal Wall Thickness - [mm]							
	Sched. 5S	Sched. 10S	Sched. 10	Sched. 20	Sched. 30	Sched. 40	Sched. STD	Sched. 80
60,3	1,7	2,8	-	-	-	3,9	3,9	5,5
73,0	2,1	3,0	-	-	-	5,2	5,2	7,0
88,9	2,1	3,0	-	-	-	5,5	5,5	7,6
101,6	2,1	3,0	-	-	-	5,7	5,7	8,1
114,3	2,1	3,0	-	-	-	6,0	6,0	8,6
141,3	2,8	3,4	-	-	-	6,6	6,6	9,5
168,3	2,8	3,4	-	-	-	7,1	7,1	11,0
219,1	2,8	3,8	-	6,4	7,0	8,2	8,2	12,7
273,0	3,4	4,2	-	6,4	7,8	9,3	9,3	15,1
323,9	4,0	4,6	-	6,4	8,4	10,3	9,5	17,4

† For reference only. The VE272FS cannot groove all schedules of steel pipe in table.

Drawn Copper Tubing

O.D. [mm]	Nominal Wall Thickness - [mm]			
	DWV ASTM B-306	Type "M" ASTM B-88	Type "L" ASTM B-88	Type "K" ASTM B-88
54,0	1,1	1,5	1,8	2,1
66,7	-	1,7	2,0	2,4
79,4	1,1	1,8	2,3	2,8
104,8	1,5	2,4	2,8	3,4
130,2	1,8	2,8	3,2	4,1
155,6	2,1	3,1	3,6	4,9
206,4	2,8	4,3	5,1	6,9



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