



# **VR12 VALVE REFACER OPERATIONS MANUAL**





# PARTS ORDERING

For optional equipment catalogs, please visit <https://www.rottlermfg.com/documentation.php>

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4. Machine model and serial number
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If you are unsure which part you need to order, contact our service department, and ask to speak to one of our service consultants. They will assist you in determining which part(s) you require.

**THERE IS A MINIMUM ORDER OF \$25.00**

# **MANUAL SECTIONS**

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**SAFETY**

**CONTROL DEFINITIONS AND SWITCHES**

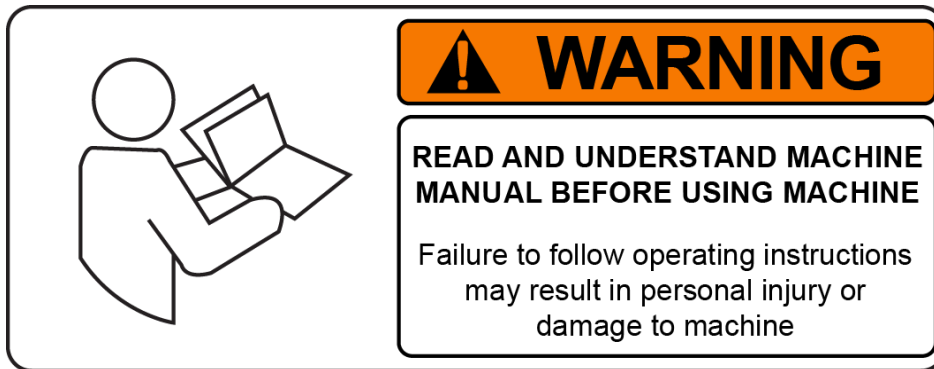
**OPERATING INSTRUCTIONS**

# INTRODUCTION

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## Introduction



**READ THE SAFETY CHAPTER BEFORE INSTALLING MACHINE. THOROUGHLY UNDERSTAND ALL SAFETY ISSUES BEFORE OPERATING MACHINE.**

### **ATTENTION OWNER/BUSINESS MANAGER**

**To validate the warranty on your new Rottler machine, please be sure to sign and complete the “Installation Report” located in the Installation Chapter of this manual.**

We suggest that the new user of the VR12 read the CONTROL DEFINITIONS to get an idea how the machine operates.

The Operating Instructions chapter should be read in order to familiarize the user with the actual button pushing sequences required to carry out a job. These chapters in the manual should be considered an introduction. As the operators of the VR12 series machines gain experience with using the different functions of the machine, complicated setups and programs will make more sense.

The rest of the manual contains information and part number reference on fixtures, cutting tools, and machine maintenance. The operator should read and become familiar with these areas as well.

## Description

Rottler's Centerless Grinding System is able to grind a set of valves to exact same length without adjusting settings.

The Centerless System rotates the valve stem on it's own centerline. Precision drive rollers rotate the valve stem and a pneumatic low friction steady rest support the valve stem similar to a precision balancing machine, resulting in extremely accurate valve stem to valve seat run out less than .0002" (.005mm) TIR. The Rottler Centerless System allows a wide range of valve stem diameters to be ground without changing any collets or chucks.

Stroking Handwheel - The new design stroking handwheel moves the valve back and forth over the grinding wheel. When operator's hand is removed from the stroking handwheel, the stroking system remains in position until the operator moves the handwheel again.

## Disclaimer

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## Limited Warranty

Rottler Manufacturing Company Model VR12 parts and equipment is warranted as to materials and workmanship. This limited warranty remains in effect for one year from the date of installation or two years from the date of the original shipment from Rottler or whichever date occurs first. This only applies if the machine is owned and operated by the original purchaser and is operated and maintained as per the instructions in the manual. A machine is warranted only if the Installation Report has been properly executed by a certified installation person and received by Rottler at the time of actual installation.

The products are warranted upon delivery to conform to their published specifications and to be free from defects in material and workmanship under normal use for a period of one year from shipment. Should a product not be as warranted, Rottler sole obligation shall be, at its option, to repair, correct or replace the product or to refund the amounts paid for the Product upon its return to a location designated by Rottler. No warranty shall extend to rapid wear Products (including tooling) or to Products which have been subject to misuse (including any use contrary to Rottler instructions), neglect, accident (including during shipment), improper handling or installation, or subject to any modification, repair or service not certified by Rottler. Rottler shall not be liable for any consequential, direct or indirect damages or for any other injury or loss. Buyer waives any right, beyond the foregoing warranty, to make a claim against Rottler. No warranty is provided for any Products not paid in full.

Merchandise cannot be returned to Rottler without prior approval. Customer must contact the Parts Department to get approval and to be issued a Return Goods Authorization number (**RGR#**). Merchandise authorized for return must be returned prepaid. If merchandise is returned with shipping charges collect, the actual amount of these charges may be deducted from any credit which may be due the customer. The **RGR #** assigned by the Parts Department should be written on the shipping label and must appear on a copy of the invoice(s) covering the original shipment. This invoice copy must be included in the box with the parts. Shipment must contain **ONLY** those items on the **RGR** as approved for return. Merchandise must be received within 10 days of the date of **RGR** or the **RGR** will be canceled. All returned merchandise may be subject to a 20% restocking fee on under \$1,000.00 amount or 10% on any items over \$1,000.00. Parts or tooling over 30 days old are considered as customer property and can only be returned with prior approval from Rottler Corporation Management.

The issuance of a **RGR DOES NOT** guarantee credit - it is only authorization for the return of the goods. Credit for return merchandise is at the sole discretion of Rottler. Credit will be issued only after inspection of returned goods.

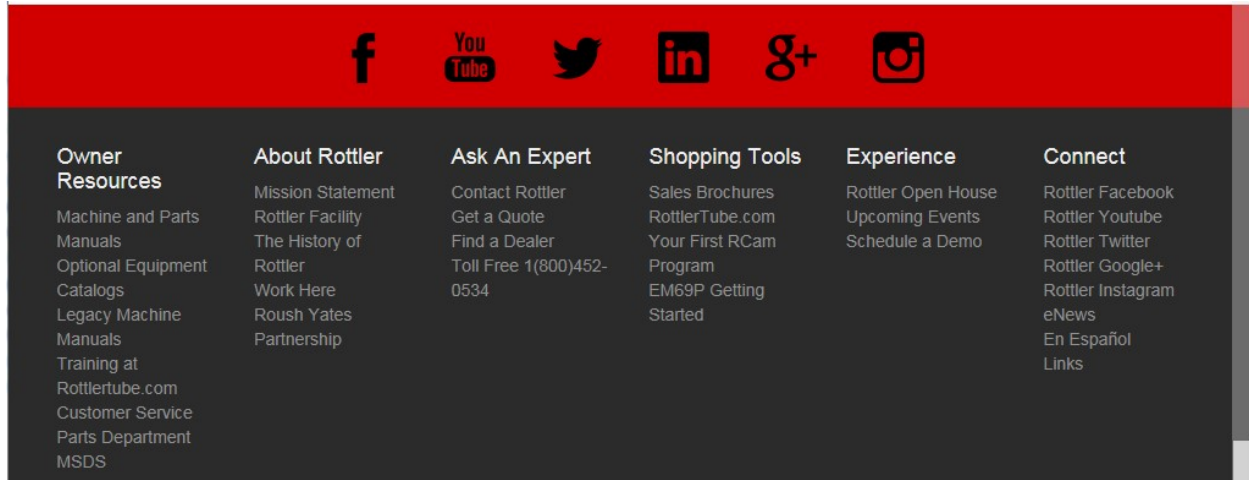
Tools proven to be defective within the warranty period will be repaired or replaced at the factory's option. We accept no responsibility for defects caused by external damage, wear, abuse, or misuse, nor do we accept any obligation to provide compensation for direct or indirect costs in connection with cases covered by the warranty.



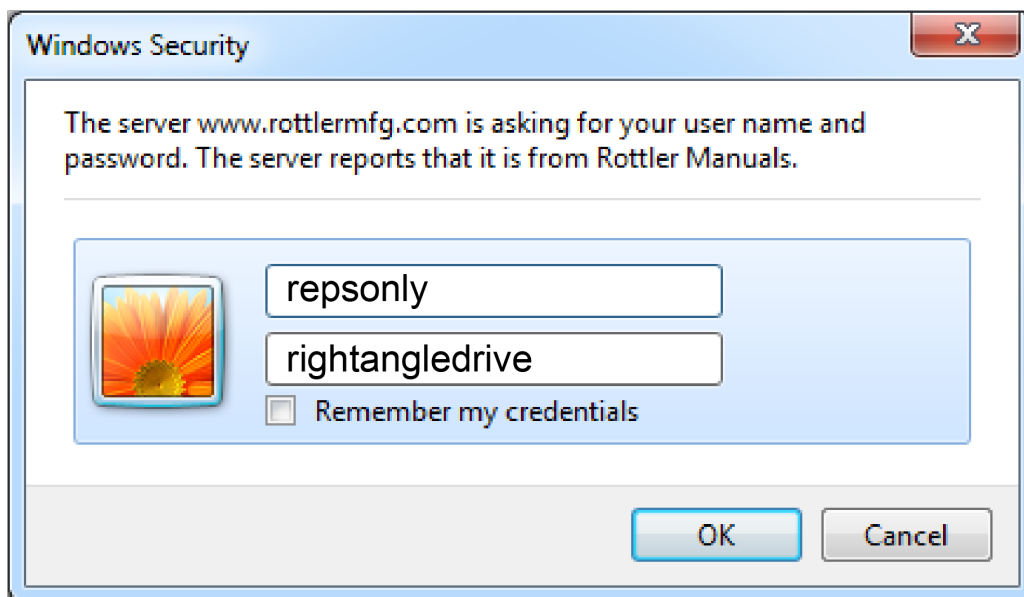
## Online Documentation Access

Online documentation for machines and optional equipment can be accessed at the Rottler website. To access documentation open your browser and navigate to <https://www.rottlermfg.com>.

Scroll to the bottom of the page and under the Owner Resources title click the type of documentation you want to access.



If a log in window pops up asking for user name and password fill in the blanks as shown.



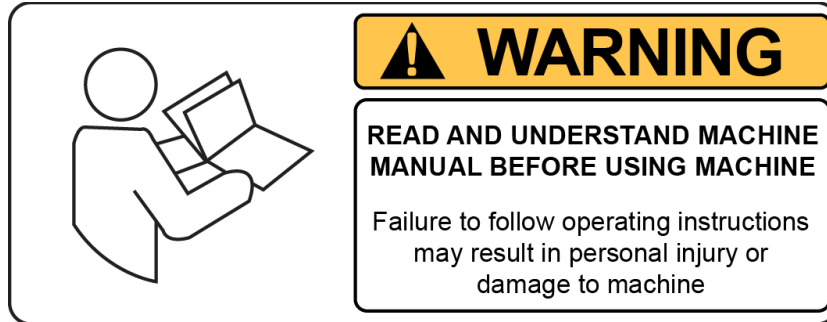
# **SAFETY**

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## Safety Information

For Your Own Safety Read This Instruction Manual Before Operating This Machine.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



**DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING** indicates a potentially hazardous situation which, if not avoided, could result in serious injury.



**CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



**CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

## Safety Instructions for Machine Use



This machine is capable of causing severe bodily injury

**ONLY A QUALIFIED, EXPERIENCED OPERATOR SHOULD OPERATE THIS MACHINE. NEVER ALLOW UNSUPERVISED OR UNTRAINED PERSONNEL TO OPERATE THE MACHINE.** Make sure any instructions you give in regards to machine operation are approved, correct, safe, and clearly understood. Untrained personnel present a hazard to themselves and the machine. Improper operation will void the warranty.

**KEEP GUARDS IN PLACE** and in proper working order. If equipped with doors, they must be in the closed position when the machine is in operation.



**KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.

**KEEP CHILDREN AND VISITORS AWAY.** All children and visitors should be kept a safe distance from work area.

**WEAR THE PROPER APPAREL. DO NOT** wear loose clothing, gloves, rings, bracelets, or other jewelry which may get caught in moving parts. Non-Slip foot wear is recommended. Wear protective hair covering to contain long hair.

**ALWAYS USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty. Everyday eye glasses only have impact resistant lenses, they are NOT safety glasses.



**DO NOT OVER-REACH.** Keep proper footing and balance at all times.

**USE THE RECOMMENDED ACCESSORIES.** Consult the manual for recommended accessories. The use of improper accessories may cause risk of injury.

**CHECK DAMAGED PARTS.** Before further use of the machine, a guard or other part that is damaged should be checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, breakage of parts, mounting, and other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

**NEVER OPERATE A MACHINE WHEN TIRED, OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Full mental alertness is required at all times when running a machine.

**IF AT ANY TIME YOU ARE EXPERIENCING DIFFICULTIES** performing the intended operation, stop using the machine! Then contact our service department or ask a qualified expert how the operation should be performed.

**DO NOT MODIFY OR ALTER THIS EQUIPMENT** in any way. If modifications are deemed necessary, all such requests must be approved and/or handled by Rottler Manufacturing. Unauthorized modifications could cause injury and/or damage to machine and will void the warranty.

**SAFETY DECALS SHOULD NEVER BE REMOVED.** They are there to convey important safety information and warn of potential hazards.

**ALL LOCAL SAFETY CODES AND REGULATIONS** should be followed when installing this machine. **ONLY QUALIFIED PERSONAL** should perform service on the electrical and control systems.

**ALWAYS USE THE GUARDS.** Eye protection must be worn at all times by the operator and all other personnel in the area of the machine.

**CAUTION**

No list of safety guidelines can be complete. Every piece of shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to follow guidelines could result in serious personal injury, damage to equipment or poor work results.

**Electrical Power**

Make sure all electrical equipment has the proper overload protection. The VR12 should have a **fully isolated power supply** to prevent damage and uncontrolled movement of the machine.

If the VR12 is on the same power lines that are running to other electrical equipment (grinders, welders, and other AC motors) electrical noise can be induced into the VR12 electrical system.

Electrical noise can cause the controller to see false signals to move. Not supplying a fully isolated supply to the machine may void factory warranty.

Make sure all electrical equipment has the proper electrical overload protection.

**WARNING**

Electrocution or a fire can result if the machine is not grounded correctly. Make sure the ground is connected in accordance with this manual. DO NOT operate the machine if it is not grounded. In the event of an electrical short, grounding reduces the risk of electric shock by providing a path of least resistance to disperse electric current.

**DANGER**

All electrical power should be removed from the machine before opening the rear electrical enclosure. It is recommended that the machine have a electrical LOCK-OUT device installed.

**CAUTION**

When you doing any operation on the cylinder head; the machine is capable of throwing metal chips. Eye protection must be worn at all times by the operator and all other personnel in the area of the machine.

**WARNING**

The operator and nearby personnel should be familiar with the location and operation of the Emergency Stop Button.

**Machine Operator**

The operator of the VR12 should be a skilled machinist craftsman who is well versed in the caution, care, and knowledge required to safely operate metal cutting tools.

If the operator is not a skilled machinist he/she must pay strict attention to the Operating Instructions outlined in this manual, and get instruction from a qualified machinist in both production and operation of this machine.

The VR12 machines have the following areas of exposed moving parts that you must train yourself to respect and stay away from when they are in motion:

**WARNING**

Cutting Tool Area – Any operation involving hands in the tool holder, such as inspection or alignment of the tool holder or tools, changing

tool holder or insert holders, tool insertion, and removal, tool holder changes, and size checking etc. requires the machine to be in neutral or on the off position.

**CAUTION**

Machining – Eye protection must be worn during all operations of the machine. Hands must be kept completely away from the cutter head.

**CAUTION**

Work Loading and Unloading – Carefully develop handling methods of loading and unloading work pieces so that no injury can result if hoist equipment or lift connection should fail. Periodically check lift components for damage that may cause failure of Cylinder head Handler Assembly.

**CAUTION**

Machine Maintenance – Any machine adjustment, maintenance or parts replacement absolutely requires a complete power disconnection from the machine, this is an absolute rule.

### Emergency Procedure

Assuming one of the following has occurred: tool bit set completely off size, work piece or spindle base not clamped, spindle is not properly centered, and these mistakes will become obvious the minute the cut starts

#### **PRESS THE EMERGENCY STOP BUTTON (on the front control panel) IMMEDIATELY!**

Find out what the problem is; return the spindle to its up position without causing more damage. To restart the machine, turn the Emergency Stop Button CW until the button pops out. Make sure the button has been depress for at least 1 1/2 minutes or the drive will not have time to reset and they will not function.

Be alert to quickly stop the machine in the event of a serious disruption of the boring process either at the top or bottom of the bores.

“**REMEMBER**” metal cutting tools have the speed and torque to severely injure any part of the human body exposed to them.

#### **When Using the VR12 Machine**

- **Never** use wheels, which that have been dropped or damaged
- **Never** use excessive pressure when installing a new wheel between the wheel and hubs. Tighten nut only enough to hold wheel firmly.
- **Don't** overload Precaution the wheel when grinding.
- **Don't** use the machine for any purpose than grinding Valves, Valve Stem or Rocker Arms.
- **Don't** modify the safety guards provided with the machine.
- **Always** use Safety Glasses when operating the machine.

# CONTROL DEFINITIONS AND SWITCHES

Before attempting to operate this machine, first familiarize yourself with all controls and switches and the functions of each component of the machine.



## E-STOP Switch

Pushing the E-STOP switch will shut off all power functions. Release the E-STOP switch the regain full machine function.

## Wheel Rotation Switch

Turns wheel on and off

## Coolant Switch

Turns coolant pump on and off

## Wheel Rotation Speed

Adjusts wheel speed 0 –2300 RPM

## Valve Rotation Speed

Adjusts valve rotation speed 0 – 225 RPM

## Valve Face Angle LED

Tells you what angle you are grinding valve at.

# OPERATING INSTRUCTIONS

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## Operating Instructions

The ROTTLER VR12 MODEL is a machine fitted with high speed rotating grinding wheels, it is therefore very important to apply the following safety instructions.



Do not use the machine without all the guards on.

**Grounding procedure:** the machine comes with a three-wire conductor. The green / yellow wire must be connected to the ground in the plug and receptacle. A qualified electrician is required for this procedure.

**Personal protection:** prior to operating the machine, Remove loose clothes and. Safety shoes must be worn. Do not wear gloves.

**Eye protection:** wear safety glasses, goggles, or a facial shield.



Stop the machine before making adjustments or removing debris from the working area.

The part to be machined must be strongly clamped before beginning machining.

The power must always be **OFF** if the operator is not present.

### Machine Operator

The operator of the VR12 should be a skilled machinist craftsman who is well versed in the caution, care, and knowledge required to safely operate metal cutting tools.

Clean the machine carefully, removing the protective grease spread on unpainted parts.

Lubricate the points as indicated.

Before the delivery the machine has been duly tested therefore it is not necessary any particular setting up when using it.

Anyway, since damage might occur during the transport, it is advisable to verify its status before putting into operation.

### Work Area

Keep the floor around the machine clean and free of tools, tooling, stock scrap and other foreign material and oil, grease or coolant to minimize the danger of tripping or slipping. Rottler recommends the use of anti-skid floor strips on the floor area where the operator normally stands and that each machine's work area be marked off. Make certain the work area is well lighted and ventilated. Provide for adequate workspace around the machine.

### Overreach

Maintain a balanced stance and keep your body under control at all times.

### Hand Safety

**NEVER** wear gloves while operating this machine.



### Machine Capacity

Do not attempt to use the machine beyond its stated capacity or operations. This type use will reduce the productive life of the machine and could cause the breakage of parts, which could result in personal injury.

### Avoid Accidental Starting

Make certain the main switch is in the OFF position before connecting power to the machine.

### Careless Acts

Give the work you are doing your undivided attention. Looking around, carrying on a conversation and horseplay are careless acts that can result in serious injury.

### Job Completion

If the operation is complete, the machine should be emptied and the work area cleaned.

### Replacement Parts

Use only Rottler replacement parts and accessories; otherwise, warranty will be null and void.

### Misuse

Do not use the machine for other than its intended use. If used for other purposes, Rottler Manufacturing disclaims any real or implied warranty and holds itself harmless for any injury or loss that may result from such use.

### Emergency Procedure

Assuming one of the following has occurred: Work piece or spindle base not clamped, depth of cut not set correctly, these mistakes will become obvious the minute the cut starts

**PRESS THE EMERGENCY STOP BUTTON** (on the front control panel) **IMMEDIATELY!**

### Grinding Wheel Replacement

Use **ONLY ROTTLER** grinding wheels when replacing a grinding wheel. Use the reference numbers listed in the consumable section of this manual. Those grinding wheels are checked for balance before shipment.

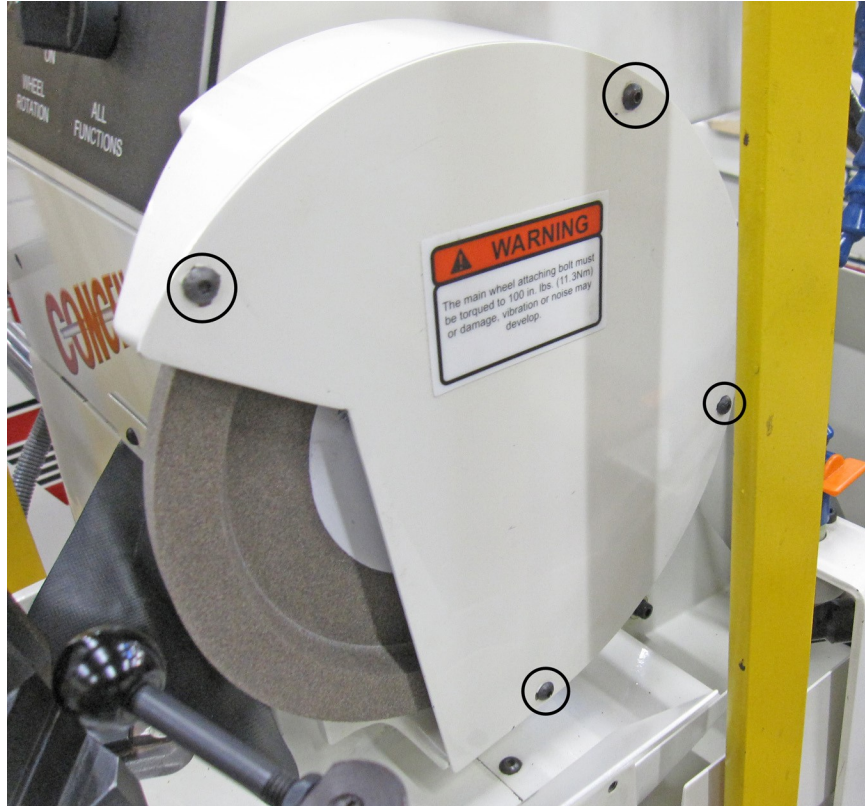


**Attention! The use of original parts is required.**

**CAUTION** Before mounting a wheel, always check for damage before installing.

**WARNING** Unplug machine power before starting the procedure.

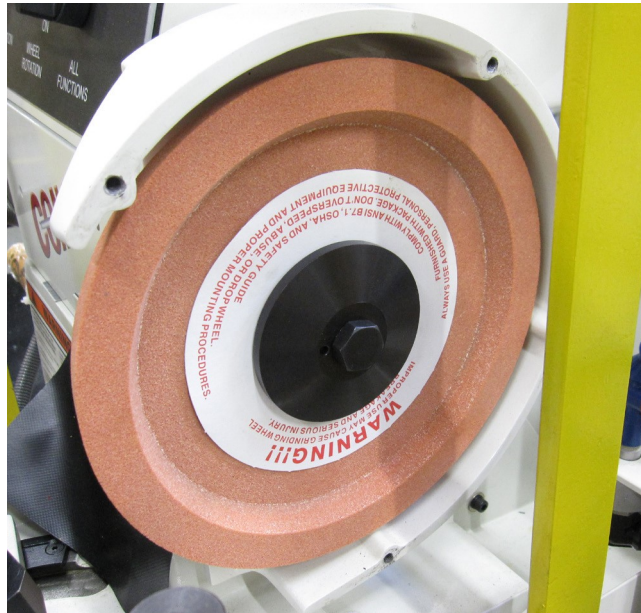
- 1 Remove the 4 screws on the grinding wheel cover and remove cover.



- 2 Push the spindle locking pin in and rotate the grinding wheel until the pin locks the grinding wheel shaft in place.



- 3 Remove retaining bolt and flange from grinding wheel shaft.



- 4 Remove old wheel from mounting flange and clean mounting flange.
- 5 Place new wheel on mounting flange. Place the lettering on wheel as shown in photo above. Be certain that mounting flange is all the way on the shaft and aligned with the drive key on the shaft.
- 6 Replace retaining flange on shaft making certain that the pin hole aligns with the pin on the mounting shaft.
- 7 Install retaining bolt and finger tighten.
- 8 Engage lock pin and torque retaining bolt to 100 in lb.

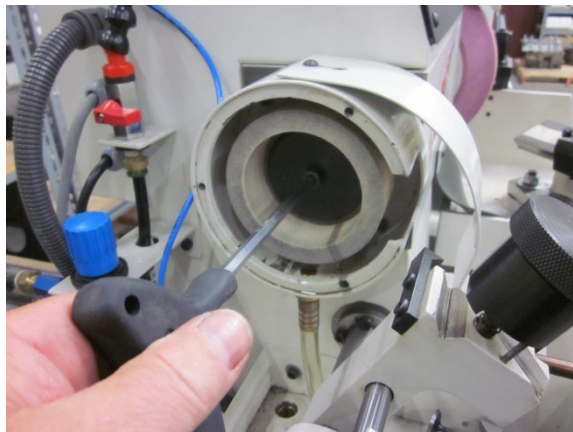
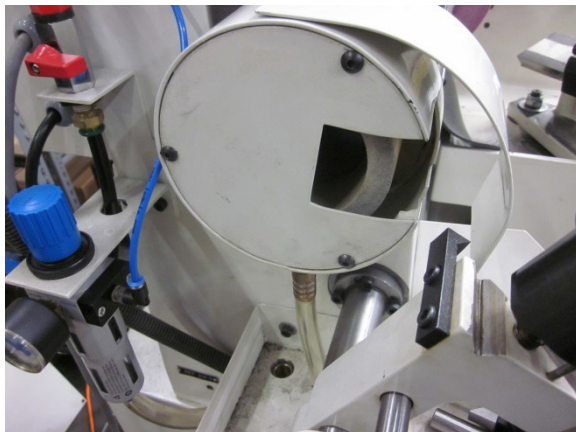
## **IMPORTANT**

*Do not over torque retaining bolt.*

- 9 Reinstall wheel cover.
- 10 Start the grinding wheel and check for any vibration. If there is any vibration, remove the cover and make a reference mark on wheels label. Loosen the retaining bolt and rotate the wheel clockwise 30°. Retorque the mounting bolt and again check for vibration. Repeat if needed until the vibration is gone. If vibration can not be eliminated, contact the Rotter service department for further assistance.

### **Valve Stem Grinding Wheel Removal**

1. Remove wheel cover plate.
2. Push the locking pin in to lock the spindle from turning and remove the wheel retaining bolt
3. Remove old wheel and install new one.
4. Tighten retaining allen bolt and reinstall cover.



### Dressing the Main Grinding Wheel

Use ONLY the ROTTLER grinding wheels using the reference numbers listed on consumable section of this manual. Those grinding wheels are already balanced before delivery.



**Attention!** The use of original parts is required.

As the wheel is used, particles break away from the face and the wheel needs to be dressed. The process of dressing the grinding wheel returns it to a smooth condition for the best possible finish on the valve face.

**NOTE:** Coolant nozzles must always be directly onto the diamond when dressing the wheels; make sure the wheel turning before turning on the coolant pump to avoid unbalancing the grinding wheel.



1. Move the valve carrier to the park position or the lower position.
2. Loosen the locking handle and swing the diamond dresser into dressing position, (make sure the diamond is not going to make contact with the grinding wheel) and lock.
3. Start the coolant pump by turning the switch button to the on position. (cooling must be on after the wheel is rotating to avoid unbalancing the wheel)
4. Feed the diamond until it start making Contact to the wheel



and a clean face.

5. Set the proper speed for dressing (Truing)
6. Firmly grasp the main handle and sweep the dresser across the wheel slowly while slightly pushing in towards the wheel. Adjust diamond slightly in and continue to sweep the wheel until completely dressed or until the face on the grinding wheel is complete clean.
7. Loosen lock handle and swing diamond dresser back out of the way and lock handle.

#### **Dressing the Butt Wheel**

The Valve stem grinding wheel needs to be dressed periodically, to keep a sharp cutting edge

**Note: NEVER MAKE THE WHEEL ROTATE WITHOUT ITS PROTECTING COVER**

Install dressing diamond in place as shown below. Adjust until tip just comes in contact with wheel, swing dresser across wheel slowly until wheel is dressed, cleaned.



## Operating Guide

The ROTTLER VR12 MODEL is a machine fitted with high speed rotating grinding wheels, it is therefore very important to apply the following safety instructions.



Do not use the machine without all the guards on.

Grounding procedure: the machine comes with a three wire conductor. The green / yellow wire must be connected to the ground in the plug and receptacle. A qualified electrician is required for this procedure.

Personal protection: prior to operating the machine, Remove loose clothes and. Safety shoes must be worn.



Do not wear gloves.

Use eye protection: wear safety glasses, goggles, or a facial shield.



Stop the machine before making adjustments or removing chips from the working area.

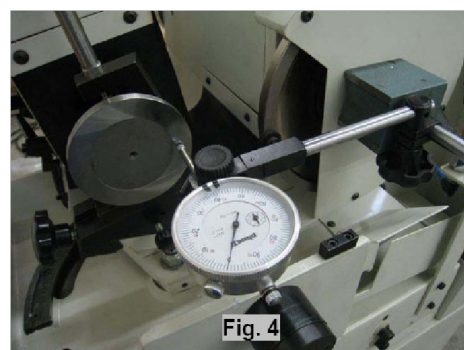
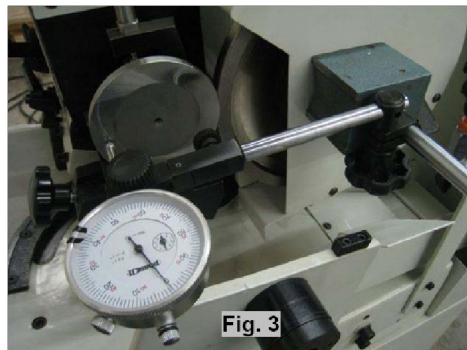
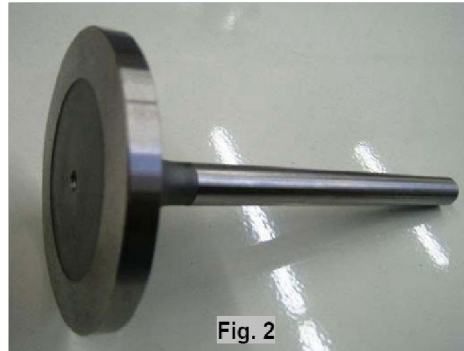
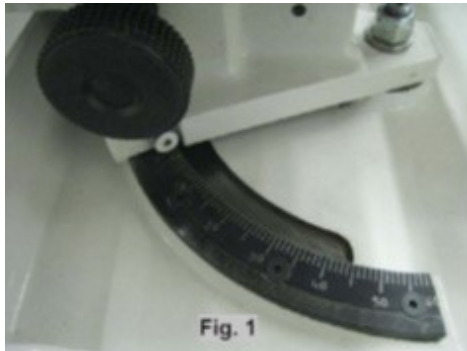
The part to be machined must be strongly clamped before beginning machining.

The power must always be off if the operator is not present.

### Calibrating the Digital Angle Display

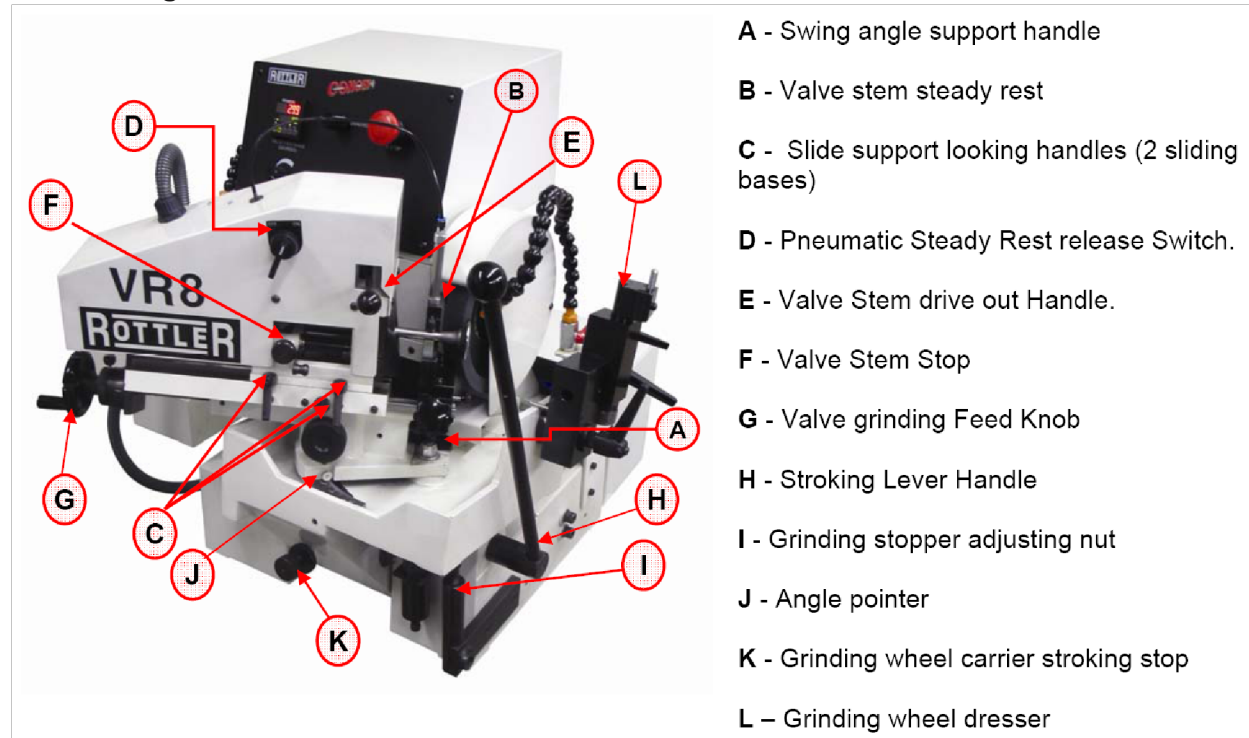
1. Set the rocker arm so that the scale is at zero by losing the swing angle position block and then clamped. Referred to (Fig. 1)
2. Fit the calibrating device (Fig. 2) into the chuck the same as if a valve is to be ground.
3. Set up a magnetic dial gage and magnetized on the grinding wheel cover and the dial on the center left of the machining face of the calibrating device (Fig. 3) and set the dial gage on Zero.
4. Stroke the rocker arm back and forward the machining face of the calibrating device and adjust the angle until both sides of the calibrating device read zero on the dial gage.

5. Press the Reset button (RST) so that the display shows 0.0
6. Remove the calibrating device, The Digital Angle Display has been calibrated to the perfect zero setting.





## Resurfacing Procedure



**Note:** To achieve a good run out on the valve head is imported to keep valve stem clean and the butt must be resurface.

### Grinding of Valve

1. Grinding angle setting
2. Check the valve seat angle that you will be grinding.
  - a. Loosen the handle or locking nut A and rotate the slide support valve holding group look at the angle pointer J and set it to the angle from the valve. Verify the angle on the Digital display unit and set it to the proper angle.
  - b. Lock the handle A
3. Valve positioning
  - a. Shift the valve rest B on the slide, in order the supporting of the valve stem is done at its end as much as possible.
  - b. By means of the hand wheel G shift the valve driving unit in a convenient position.

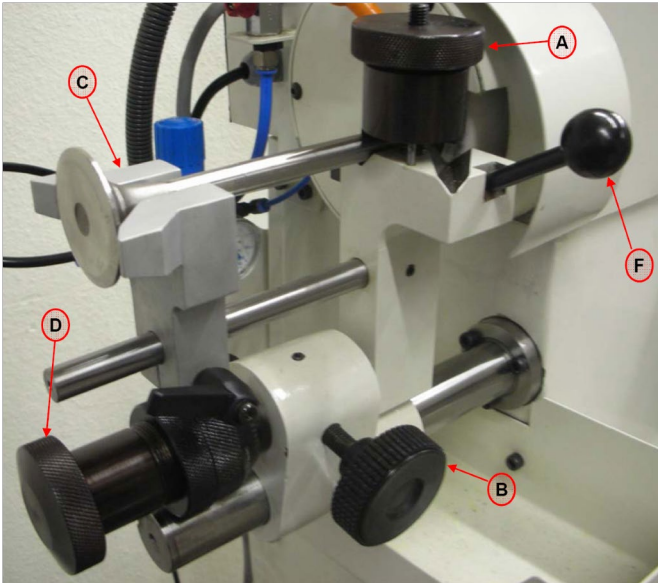
- c. By means of the lever H, pull the machine arm to the operator to release the upper valve driving roller.
  - d. Rise up the valve pressing finger F located on the rest.
  - e. Insert the valve into its lodgment up to touch the swinging stop device F. Eventually adjust the stop device in length C.
  - f. Lower the stem pressing finger of the rest.
  - g. Approach the valve using the stroking lever handle H to the grinding wheel
4. Adjusting
- a. Switch on the grinding wheel motor as that one of the valve driving and of the coolant pump.
  - b. If necessary adjust position of the valve by shifting the driving unit. Once reached the right position, block the slide by screwing the knob K; This adjustment limits the Grinding wheel carrier stroke in sweeping so that the wheel would not damage the valve stem. c.
5. By the lever, approach the valve to the grinding wheel within touching it. Rise up the swinging stop F. The valve automatically moves to left thus starting its grinding against the wheel.
6. Swing the machine stroking lever handle H in order to grind the valve on all the profile of the grinding wheel.
7. For any further pass turn the hand wheel of the valve driving unit.
8. Once performed the grinding operation, push to left E the upper roller lever. The valve is automatically pushed to right, for away from the grinding wheel.
9. Valve grinding by sequence
- a. Pull the machine stocking lever handle H towards the operator to rise the upper roller thus releasing the valve.
  - b. Rise up the rest pressing finger
  - c. Take out the ground valve.
  - d. Insert the second valve up to touch the swinging stop device F.
  - e. Let the rest finger go down.
  - f. Push the machine stocking lever handle H to approach the valve to the grinding wheel. Rise the swinging stop device in F to let the valve go towards the grinding wheel.
  - g. Once performed the grinding operation, push to the left, the upper roller lever to release the valve to right. Pull the arm towards the operator.

**CAUTION**

Never rotate the machine stroking lever handle H when the grinding wheel is in contact with the valve, move the stroking lever slowly into the grinding wheel to avoid hard contact with the grinding wheel.

This handling would possible destroy the grinding wheel and after the surface finish of the valve head.

**Stem Ends**



1- Install the valve stem on the clamping block axis, on the right side of the machine, with the straight "V" near the wheel. To do that, you have to lock the index in position **B**, and rotate the clamping block by using the lever handle **F**.

2- Use the "V" perpendicular to the wheel to clamp the valve on the clamping block **C**. Use the rear screw (to rotate the clamping block) to put in contact the valve stem end and the grinding wheel.

3- Lock the valve in this position **A**.

4- Unlock the graduate ring of the micrometer screw, and put it to zero **D**.

5- Use the clamping block rotation to avoid

a contact between the valve and the wheel (unlock the V stopper **C** to do that).

6- Adjust the micrometer screw with your grinding value. Be careful, you shouldn't grind more than .0005".

7- Start the wheel and the coolant system.

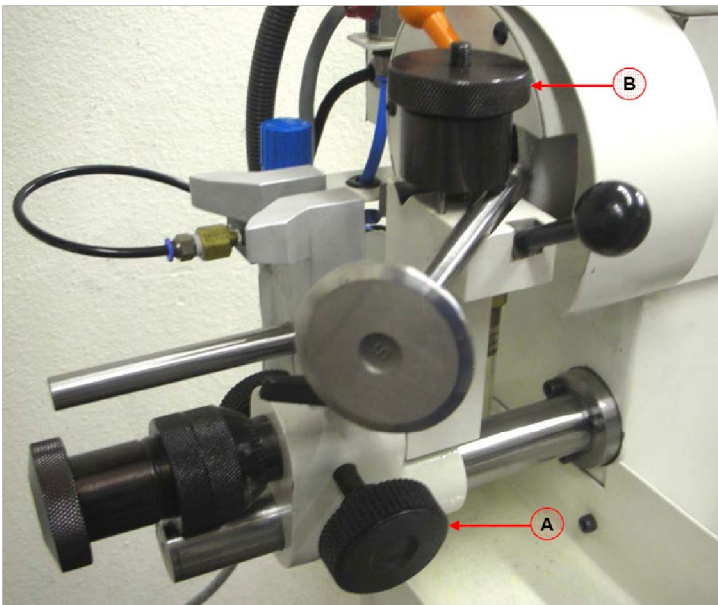
8- Use the clamping block **F** rotation to grind the valve stem end (backward and forward movement).

9- At the end of the machining, don't forget to stop the wheel and the coolant system.

10- Wait the end of the grinding wheel rotating to remove the valve from the clamping block.

### Valve Stem Chamfering





1. Put the end stop knob **A** on the valve and block it in position (not too tight).
2. Use the "V" 45° to the wheel to clamp the valve onto the clamping block. Use the top knob **B** (to rotate the clamping block) to put in contact the valve stem chamfering and the grinding wheel.
3. Block the valve in this position on the clamping system. Don't tight too much; you should be able to turn the valve around his own axis.
4. Start the wheel and the coolant system.
5. Use the clamping block rotation to grind the valve stem chamfering (turn the valve around his own axis).
6. At the end of the machining, don't forget to stop the wheel and the coolant system.

Wait the end of the grinding wheel rotating to remove the valve from the clamping block.