

# DEPRAG

## Operating Instruction Booklet

### Pneumatic Rammer

VSt15R

270109 A

Dear Customer:

This tool is the result of more than 70 years of experience in the design and manufacturing of pneumatic tools for the industrial market.

We kindly ask that you read these operating instructions carefully so that you will be able to use this tool safely and for many years to come.

If you need additional information, please contact your DEPRAG Representative, one of our international support offices or us direct at DEPRAG. We will be happy to answer any questions. Please visit our web site: [www.deprag.com](http://www.deprag.com)

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## 1 Safety Tips

### 1.1. General Safety Tips



**Before operating tool make sure to carefully read and observe this operating instruction.**

Generally, the operator of the equipment and/or machinery is responsible for the equipment's perfect condition and operation, while observing all necessary safety regulations. The equipment and/or machinery has been constructed in accordance with the newest level of technology while recognizing all necessary safety-related requirements. Nevertheless, while operating the equipment and/or machinery there is a risk of bodily harm to the operator as well as damage to equipment and/or machinery and other property.

Operate the equipment and/or machinery only if equipment/machinery

- Is used for the task it was designed for
- is in perfect working condition and safe to use.

It is important to observe the technical data of the equipment, especially in regards to the environmental temperatures. The designated area of use for this equipment is clearly described in chapter *Designated Equipment Use* and those requirements have to be observed as well. Prerequisite for the safe conduct and the uninterrupted operation of the equipment, is the knowledge of the basic safety tips and the safety regulations. Additionally, all current regulations for a safe operational area, for accident-prevention guidelines of electrical and mechanical installations, as well as noise suppression demands must be observed. During any maintenance or repair work, a clean work surface is recommended. Also, it is not recommended to either eat or smoke during repair or maintenance. Arbitrary changes made to the equipment, which alters its designated use, voids the warranty and cancels the manufacturers liability.

- The tool is not insulated to protect against an electrical power surge.
- It is not recommended to use this tool in explosive hazardous environments, unless it was specifically designed for such a use.
- During the disconnection or reconnection of the tool from the compressed air, an injury is possible because of a whipping pressure-hose.

The operating instruction booklet, especially the safety symbols and safety tips attached to the equipment or included in the documentation, must be observed at all times by all persons getting into contact with the equipment.

## 1.2. Safety Tips for Rammers



- Disconnect tool from power supply when exchanging tool inserts or servicing the tool.
  - Do not wear any loose clothing or jewelry. These may get caught by moving parts. Make sure to wear a hair-net.
  - Keep your hands off the tooling used.
  - Pay attention to possible abrupt movements of the machine due to reaction forces or breaking of used tooling or workpieces.
  - Working with rammers may produce dust and depending on the material of the working surface this may be bad for the operator's health.
  - Personal protective devices and dust vacuum systems must be provided depending on the material of the work pieces / surfaces.
  - Wear eye and ear protection; gloves and protective clothing is recommended, too.
  - Working operations may cause fragmentation or even destruction of the work piece.
  - Insert tools improperly fastened or damaged may cause strong vibrations.
  - The operator's incorrect body carriage will not allow a proper reaction to normal or unexpected movements of the rammer. Therefore, please make sure to carry yourself so that you are even prepared for a possible breaking of the insert tool.
  - Holding the rammer in the hand freely may lead to vibration injuries.
- 
- The maximum operating pressure (flow pressure) must not be exceeded. A pressure regulator should be integrated so that the pressure will be adjusted before reaching the rammer.
  - Please note that the insert tool may turn a few more cycles after switch-off.
  - In case air supply is interrupted, make sure to release start button/lever, because otherwise tool will restart with re-installed air supply.
  - There is a risk of getting hurt by a whip-lashing air hose - please pay careful attention.
  - Permissible inserting tools with a suitable shaft diam. only must be used.
  - Do not run tools in the vicinity of inflammable liquids or gases.
  - Use lubricators recommended by DEPRAG, only.
  - Pay attention to firmly tighten handle.

- Start operation of the rammer only if the tool is fixed.
- Do operate the tool only, if it is in perfect condition and will be applied as per its appropriate purpose according to the relevant safety instructions.
- Avoid impacts without load.
- When interrupting operations, make sure to store the rammer so that it will not get dirty.
- Don't point the rammer towards human beings.
- Hold the rammer tightly in both hands and then actuate the start lever.
- Before starting any operations, do mind to visually check the rammer and tool inserts for signs of heavy wear or other damage and, if need be, replace these parts by appropriate ones (otherwise risk of injuries).
- Do not expose tool to rain. Make sure to provide good lighting.
- Pay attention to a firm foothold and fix the workpiece properly before operation.
- Do provide devices for cleaning the air at the working place, in case explosive dust, steam or aerosols dangerous to your health may occur.
- This DEPRAG-rammer should not be used for any other job than originally designated.
- In case of extraordinary high vibration and noise, switch off the machine immediately and check if movable parts are damaged.
- In untidy working areas dangerous accidents may occur.
- Do not modify neither rammer nor inserting tool after receipt!
- Do take due note of special markings, limitations or any other explicit instructions of use such as "Hearing protection", etc.
- Before start-up of tool make sure to visually check both the rammer and the rammer inserts, whether they are okay and not damaged in any way and whether they are appropriate for the work ahead.

## 1.3. Owner Obligation

The owner is obliged to only let persons operate the equipment, who

- are familiar with basic work environment safety rules and accident-preventing regulations. Also, those persons must have been instructed in the correct use of the equipment.
- have read and understood all safety and warning notifications in the Operating Instruction Booklet, as well as all other documentation pertaining to this equipment.
- check and confirm at regular intervals, that a safety oriented operation is guaranteed.

Only qualified and authorized personnel is allowed to operate, maintain and repair this equipment. A malfunction, which impairs operator safety, must be immediately removed.

## 1.4. Operator Obligation

Personnel, who is engaged in the operation of the equipment, must always be committed to

- observe the basic safety and accident preventing regulations,
- read and observe the safety and warning notifications of this operating instruction booklet.

## 1.5. Warranty and Liability

Unless otherwise specified, our “General Sales and Delivery Conditions” apply. Warranty and liability claims in regards to persons or equipment damages are invalid, if one or several of the following causes apply:

- Use of the equipment in a non-designated application.
- Improper installation, operation, service or maintenance of the machine.
- Operation of the machine with either defective or removed safety and protection devices.
- Non-observance of the requirements stated in the operating instruction booklet, in regards to transportation, storage, mounting, installation, operation, maintenance and service of the equipment.
- Structural change or adjustment on the equipment to a non-designated use.
- Inadequate supervision of wear parts.
- Improper repair, inspection or maintenance.
- Catastrophic cases because of a war, acts of god or other reasons which are beyond our control.

## 1.6. Symbol Description



Read and observe the Operating Instruction Booklet, prior to and during operation of tool.



### **DANGER**

Reference to an immediate danger to a person. May lead to serious injuries or even death, if unobserved!



Waste Oil

Properly recycle environmentally damaging grease, cooling agents or detergents.



### **RECOMMENDATIONS**

Important or additional information on the equipment or in the documentation.



Use eye protection or wear safety goggles.

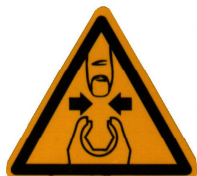


Wear hearing protection.



Warning against hand-injuries.

Attention: Keep away your hands from areas, which are marked with this symbol!



Hands may be crushed, seized or otherwise injured.



## ESD-protected area

Equipment may be damaged or destroyed by an electrostatic discharge.

Maintenance and repair on hydraulic and pneumatic equipment may only be performed by specially trained personnel!



Disconnect equipment from air supply, prior to repair of pneumatic or hydraulic equipment.

Provide regular preventive maintenance on hoses and airlines. Exchange hose lines, even if there is no visible damage! (Observe corresponding requirements of the manufacturer!)

After repair and maintenance, check the following items:

- make sure all detached and re-attached connections are solid.
- confirm that removed covers, screens or filters were re-installed
- During disconnecting or reconnecting of an air-operated equipment, injury may occur due to a whipping air-hose

After conclusion of maintenance or repair and prior to start of operation, make sure to

- remove all materials, tools and other supplies needed for the maintenance or repair from work area of the equipment
- remove leaking liquid or oils
- make sure all safety devices on the equipment work perfectly!

## 1.7. Observe Environmental Regulations



When working on or with the equipment, it is imperative to observe all requirements in regards to waste-disposal and proper recycling.

Especially during installation, repair or maintenance, water damaging agents such as

- lubricating grease and oil
- hydraulic fluid
- cooling agents
- solvent-containing cleaning agents

must not leak into the ground or into the sewage system!

Such materials must be stored, transported, contained and recycled in suitable containers.

## 2 Designated Equipment Use

Rammers with malleable cast iron or rubber butts are especially used for ramming of molding flasks in foundries, lining of martin- and electric kiln as well as Bessemer converters, and also for ramming of concrete and soil in construction work and in cement and artificial stone factories.

## 3 Installation

- Blow out air line and pressure hose, prior to connection it to the equipment.
- The hoses must be free of bends and kinks.
- Make sure, that all air lines have a sufficient cross-section and remove possible throttle areas.
- The rammer **must be operated with lubricated air**. Connect the rammer as follows:

for the use with minimal lubrication connect to a filter-regulator consisting of Filter with condensation reservoir and pressure regulator

| Air Consumption                | Connecting thread | Part No. |
|--------------------------------|-------------------|----------|
| 0,05 - 0,5 m <sup>3</sup> /min | G ¼               | 822408 A |
| 0,15 – 0,9 m <sup>3</sup> /min | G 3/8             | 826981 A |
| 0,5 – 1,5 m <sup>3</sup> /min  | G ½               | 822409 A |
| 0,8 – 6,0 m <sup>3</sup> /min  | G ¾               | 826982 A |

in connection with a Point-of-Use Oiler (Part No. 378077 A)

- Check air pressure at F/R/L outlet. The Regulator needs to be adjusted to an airflow of 6.3 bar (90 PSI). A higher pressure than 6.3 bar leads to increased wear and tear. Pressure below 6.3 bar leads to performance loss.

In regards to air-quality according to ISO8573-1, we recommend:

|                | CLASS | RESIDUE OF OIL            |                  | RESIDUE OF DUST                      |              | RESIDUE OF WATER                             |  |
|----------------|-------|---------------------------|------------------|--------------------------------------|--------------|--|--|
|                |       | Content mg/m <sup>3</sup> | Particle Size µm | Concentration max. mg/m <sup>3</sup> | Dew Point °C | Pressure Concentration max. g/m <sup>3</sup> |  |
| Lubricated Air | 4     | 5                         | 15               | 8                                    | +3           | 6  |  |

## 4 Operation

Before start-up of the rammer, do clean the holding taper of the tool insert you are going to use as well as the internal taper of the rammer. Put the insert into the internal taper of the rammer.

### **Exchange of the tool insert:**

1. Disconnect the drill from the air supply.
2. Tool insert will be pressed out of the holding taper via a drive (DIN 317).



**Before operating the tool, check that insert is securely fastened. A loose insert may cause an injury.**

**Use only acceptable inserts.**

## 5 Handling

Use the equipment only while observing all safety tips and maintenance regulations. Don't let push the machine without load, because the stop of the piston can be damaged.



**Don't keep the inserted tool by your free hand!  
This can have adverse effects by vibrations.**

With a weighted acceleration  $a_{h,w}$  (in accordance with DIN EN 28662-2) over  $2,5 \text{ m/s}^2$  use the following formula. The permissible daily time of exposition  $T$  (in relations with the 8 standard-working hours) with the use of a machine can be approximated for one operator with the following formula:

$$T[h] = \left( \frac{5}{a_{h,w}} \right)^2 \cdot 8$$

$T$  = time of exposition

$a_{h,w}$  = Value of weighted acceleration (look at techn. Data: Vibration)

## 6 Assembly - Disassembly

**Disassembly:** (see Spare Parts Drawing)



**Prior to disassembly, disconnect equipment from air supply ! Only experienced maintenance personnel may assemble or disassemble this equipment.**

After repair or maintenance, verify that equipment runs to specification!

Principally, use only DEPRAG original spare parts. Otherwise, a reduction in equipment power-output and an increased maintenance-requirement occurs. If NON-DEPRAG parts are installed, DEPRAG is justified to void any existing warranty and liability obligations.

1. Clamp cylinder 270099 with light metal chucking jaws into a vice.
2. Loosen and unscrew cylinder hood 270055/1 (AF 36).
3. For further disassembly - see spare parts drawing.

### **Assembly:**

For assembly proceed logically in reverse order with reference to disassembly!



Prior to assembly, do clean all parts, check whether they are worn off at all and slightly lubricate them.

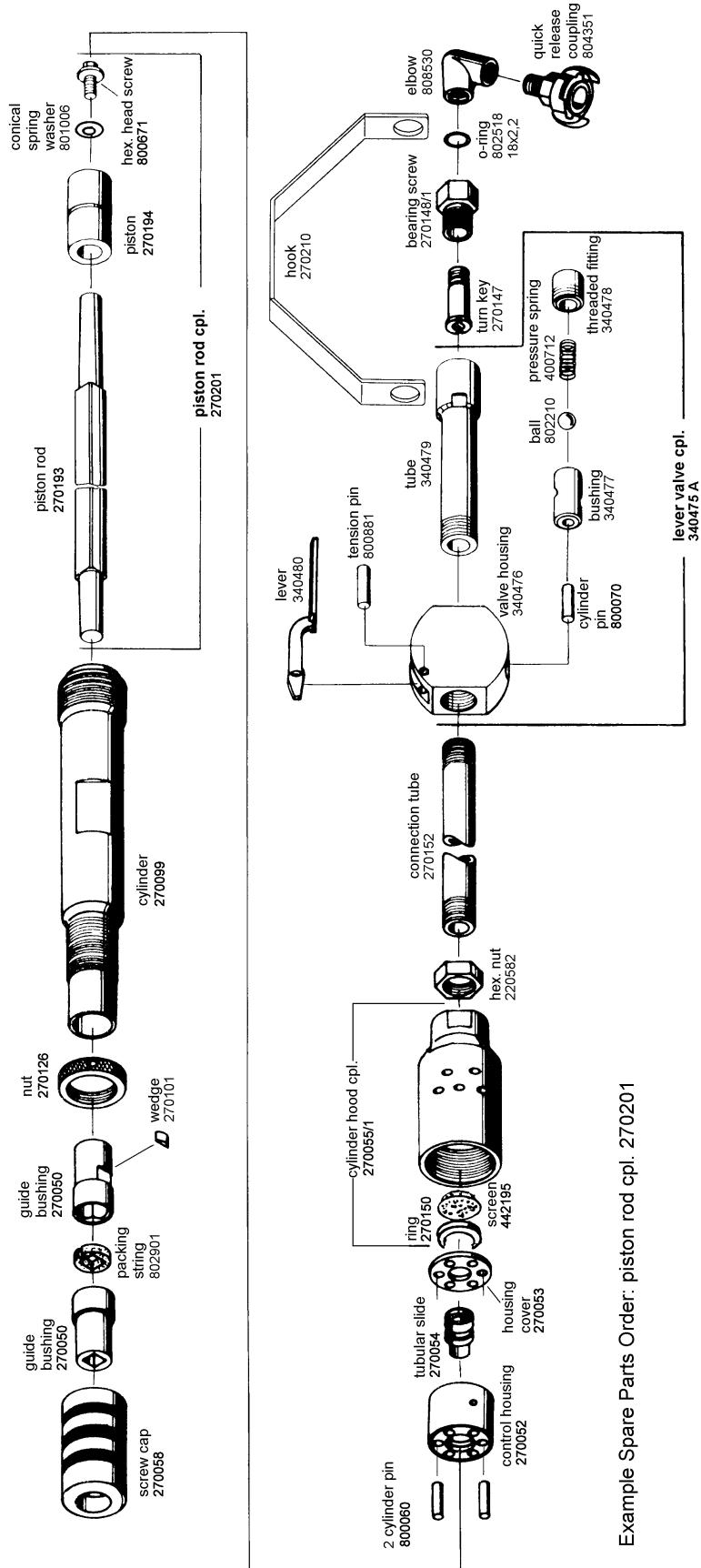
Replace worn or damaged parts by original DEPRAG-parts only.



### **Attention:**

When re-assembling the tool, make sure to correctly position wedge 270101 in the guide bushing 270050.

## 6.1. Spare Parts Drawing



Example Spare Parts Order: piston rod cpl. 270201

## 7 Maintenance and Upkeep

Testing and maintenance can be provided by Operator. Incorrect assembly or disassembly may lead to injury of operators and damage the tool.

The tool requires little maintenance. If the following service instructions are observed, the tool will have a long life expectancy and will remain in a safe condition.

- Check tool on a regular basis for external damage.
- Check your maintenance unit on a regular basis, make sure that sufficient oil is in the lubricator (if lubrication is used) and that the adjustment is correct. We recommend for your lubricator DEPRAGOL, part 790081 E (250 cm<sup>3</sup>).
- We recommend to service the tool once a year or after 300 hours of operation.
- After assembly, fill 2 – 3 drops of DEPRAGOL into the air inlet nipple.
- In case of tool malfunctions, we recommend to send the machine to DEPRAG.
- Corrosion and filth are the major source of problems with the tool. When moving or storing the rammer, pay attention to the fact that no filth nor water may get into the tool through the air inlet or the exhaust openings.
- Blow through the hoses before connecting them and check whether the screen in the screen support is clean.
- During operations only little lubrication is needed – however, after completion of the job protection by some oil layer is required.
- **We recommend:** Put some drops of oil into the air inlet.
- The inserting ends of the tool must be within dimension tolerances and clean and the impacting surface must be plane. Blunt inserting/treating tools will result in reduced performance and higher fatigue of rammer and operator.
- Use perfectly tapered ramming inserts only and make sure to loosen these inserts by means of the appropriate taper key (wedge) only, in order to avoid bending the piston rod.
- Normally the main lubricator on the compressor should suffice to lubricate the tools. When working with long-range hoses or at different height levels we would recommend to include an additional lubricator in the air lines.
- When operating tool in winter, use defrosting agent (such as Kilfrost).
- Preventive servicing will limit repair cost and avoid expensive breakdown

## Maintenance:

It is also very important to properly seal the piston rod, so that no dirt may penetrate into the inside of the rammer.

- For this loosen nut 270126 and unscrew screw cap 270058.
- Remove packing string 802901 and guide bushing 270050 by pulling the piston rod 270193.
- Replace sealing parts if they are worn off.



### Attention:

When re-assembling the tool, make sure to correctly position wedge 270101 in the guide bushing 270050.

## 7.1. Wear Parts

| QUANTITY | NAME       | PART No. |
|----------|------------|----------|
| 1        | Piston     | 270194   |
| 1        | Piston rod | 270193   |

## 8 Trouble Shooting

In the case of a malfunction, check and observe all instructions contained in this technical documentation. If necessary, adjust equipment as needed.

Possible faults and their causes are shown below:

| <b>FAULT</b>           | <b>CAUSE</b>                     | <b>SOLUTION</b>   |
|------------------------|----------------------------------|---|
| Insufficient Power     | Insufficient lubrication         | Provide the required air-quality                              |
|                        | Air pressure too low             | Minimum air pressure should be 90 PSI for maximum performance |
|                        | Restriction in air hose          | Remove bends or other restrictions                            |
|                        | Hose I.D. is too small           | Use required hose I.D.  |
| Machine does not start | No air, shut-off valve is closed | Open shut-off valve   |

If necessary, send the equipment to DEPRAG.

## 9 Delivery Capacity

Please check the delivery capacity in regards to its completeness.

| <b>QUANTITY</b> | <b>NAME</b>                   | <b>PART No.</b> |
|-----------------|-------------------------------|-----------------|
| 1               | Operating Instruction Booklet | 010018EN        |
| 1               | Rammer                        | 270109 A        |

## 10 Storage

Unused machines should be stored in a dry, locked area.

## 11 Technical Data

**Manufacturer** DEPRAG SCHULZ GMBH u. CO.  
**Address** Kurfürstenring 12 - 18 Postfach 1352  
D-92224 Amberg D-92203 Amberg  
**Phone** 09621/371-0  
**Fax** 09621/371-120

### Technical Data:

| <b>TYPE</b><br><b>PART No.</b>        | <b>VSt15R</b><br><b>270109 A</b> |
|---------------------------------------|----------------------------------|
| No. of impacts (rpm)                  | 850                              |
| Air Consumption (m <sup>3</sup> /min) | 0,28                             |
| Tool fitting-Morse Taper              | MK2                              |
| Piston dia. (mm)                      | 27,5                             |
| Piston stroke (mm)                    | 119,5                            |
| Length (mm)                           | 1110                             |
| Weight (kg)                           | 6,9                              |
| Hose I.D. (mm)                        | 13                               |
| Thread size                           | G ½ i                            |
| Air pressure (bar/PSI)                | 6,3 / 90                         |
| Vibration (m/s <sup>2</sup> )         | 12,23                            |

## 12 Disposal

Unused machines should be stored in a dry, locked area. Disassemble the machine for the required disposal complete. Observe local and environmental regulations for the separation and recycling of materials.



**Recycle waste oil to avoid environmental contamination!**

## 13 Conformity Declaration

### EC-Conformity Declaration according to the EC-Machine-Guidelines 98/37/EC, Amendment IIA

We,

DEPRAG SCHULZ GMBH & CO.  
PO Box 1352  
D-92203 Amberg

hereby confirm, that the design of the  
rammer

**VSt15R**

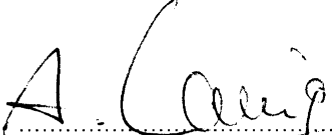
conforms to the following, relevant regulation:

- EC-Machine-Guidelines, Version 98/37/EC, Amendment No. 1 and No. 2.2.

Applicable Standard:

- EN 292

Amberg, 30.09. 2005

  
Dipl. Ing. (FH) A. Langig  
Mr. Design Dept.

## 14 Service Locations and Authorized Partners

### ARGENTINA

#### ERIN s.a.

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RA-1431 Buenos Aires  
Tel./Fax: +54 (0) 11 / 4573.1313

### AUSTRIA

#### Amersin Olschinsky GmbH

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### AUSTRALIA

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Internet: [www.leaptechcorp.com](http://www.leaptechcorp.com)  
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