

# DEPRAG

## Operating Instruction Booklet

### Pneumatic Riveting-Chipping Hammer

ZN12P-R10,3  
ZN12P-RS11,7

210409 A  
210409 B

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 Pneumatic Riveting-Chipping Hammer



- 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 hammers 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.
  - Chiseling operations may cause fragmentation or even destruction of the work piece.
  - The tooling of heavy-duty hammers such as concrete breakers is exposed to especially rough treatment and after some time of use may break due to fatigue.
  - 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 hammer. Therefore, please make sure to carry yourself so that you are even prepared for a possible breaking of the insert tool.
  - Holding the hammer 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 hammer.
- 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.

- 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.
- Make sure to lock inserting tool against loosening/dropping out (using a holding spring, catch or flap).
- Pay attention to firmly tighten handle with the cylinder and the presence of the locking pin on the screw cap.

### **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!



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

Hammers with holding spring resp. cap are especially used for breaking through light walls, light tearing down work, mortising, removing plaster, etc.

## 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.
- Connect the hammer 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> /h	G ¼	822408 A
0,15 – 0,9 m <sup>3</sup> /h	G 3/8	826981 A
0,5 – 1,5 m <sup>3</sup> /h	G ½	822409 A
0,8 – 6,0 m <sup>3</sup> /h	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	
Dry Air	3	1	5	5	-20	0,88	

## 4 Operation



### Attention:

**Loose tooling or handles may cause injuries. Therefore, before starting the hammer please make sure that all insert tools and the handle are securely fastened.**

**Use safe/approved insert tools only. .**

Actuate trigger 210354 – hammer starts working.

## 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 toll 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.**

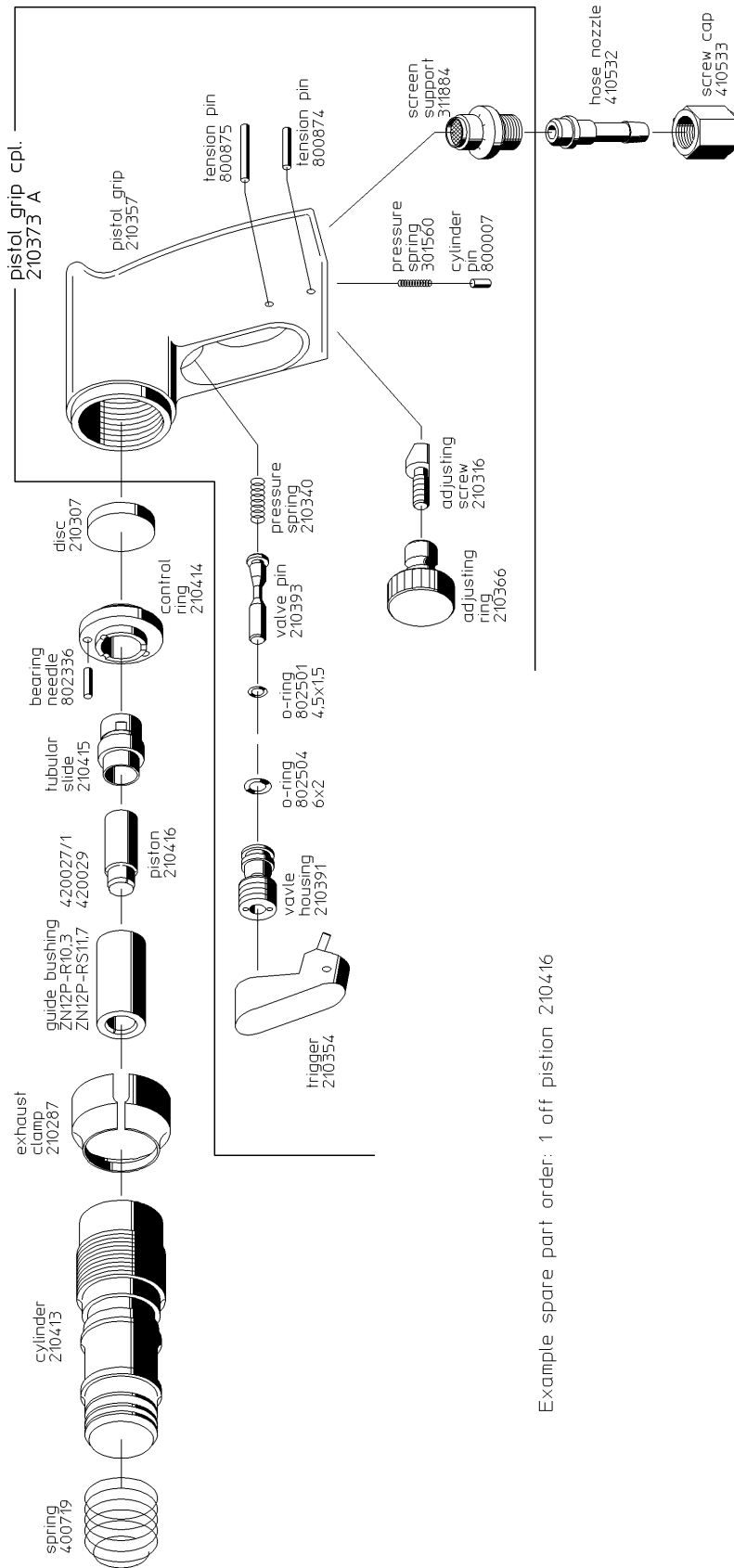
After repair or maintenance, verify that equipment runs to specification!

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.

### **Assembly:**

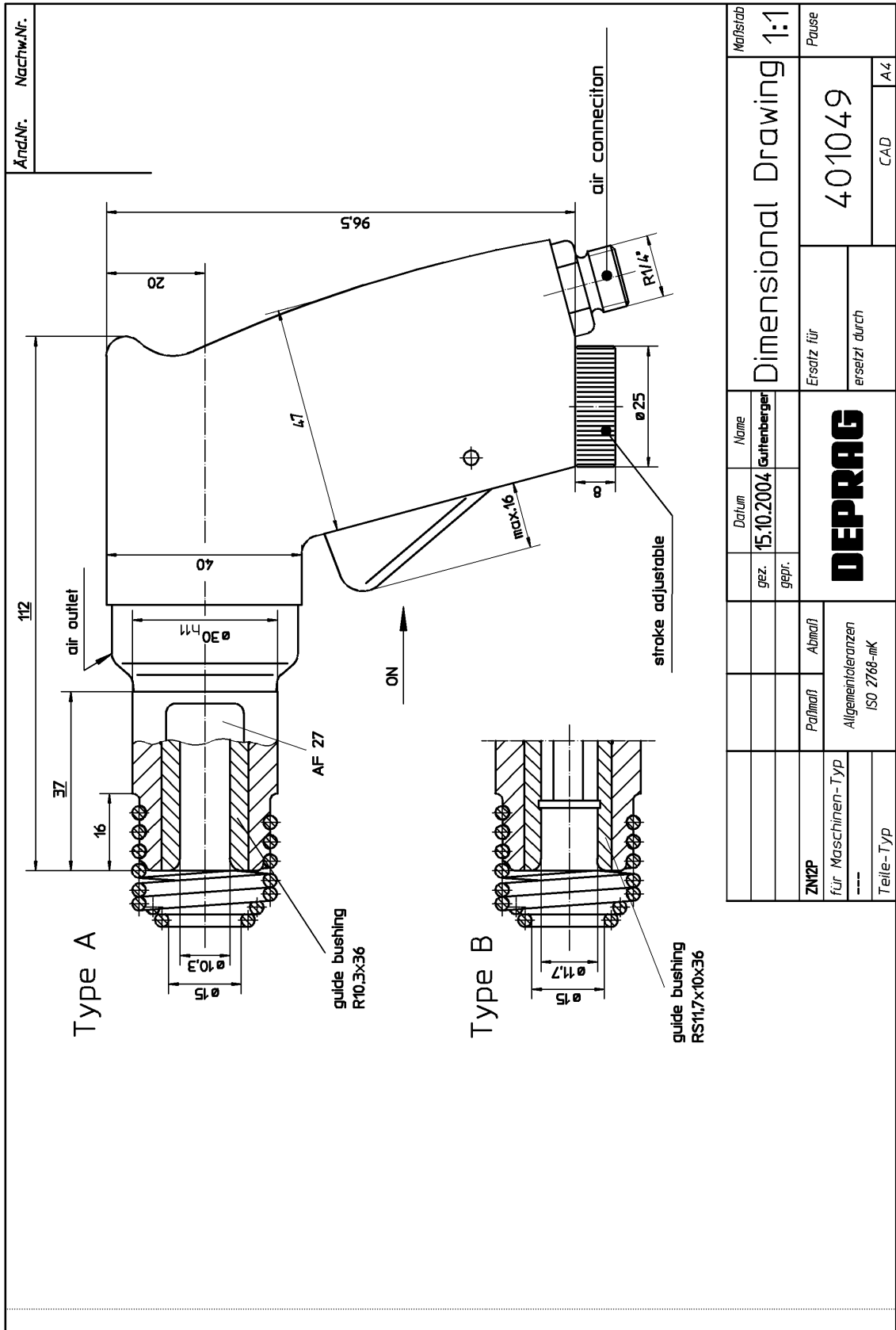
Reverse order

## 6.1. Spare Part Drawing



Example spare part order: 1 off piston 210416

## 6.2. Dimensional Drawing



## 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 hammer, pay attention to the fact that no filth nor water may get into the tool through the air inlet, the chisel bush 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 hammer and operator.
- 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

## 7.1. Wear Parts

QUANTITY	NAME	ORDER No.
1	Piston	210416
1	Guide bushing (ZN12P-R10,3)	420027/1
1	Guide bushing (ZN12P-RS11,7)	420029
1	Tubular slide	210415

## 8 Trouble Shooting

In case of a malfunction please 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>ERROR</b>	<b>REASON</b>	<b>SOLUTION</b>
Insufficient Power	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.
	Screen Support clogged (if applicable)	Clean screen support or exchange with new one
Tool does not work after being out of use for some time	Gummy oil deposits, tool filthy	Flush tool, start it and then relubricate
	Tubular slide or piston may be rusty	Disassemble tool, clean parts, repolish rusty spots. Relubricate all parts and re-assemble them.
„Dead“ impacts	Inserting end / bushing worn off	Replace parts
	Piston's or inserting end's space of impact damaged or not absolutely plane and rectangular	Replace damaged parts
	Handle loose	Retighten handle
Tool stops abruptly	Seizing of piston or tubular slide.	Polish all possible points of contact and thoroughly lubricate parts.

If necessary, please send tool to DEPRAG for service.

## 9 Delivery Capacity

Please check the delivery capacity in regards to its completeness.

QUANTITY	NAME	ORDER No.
1	Operating Instruction Booklet	010259 EN
1	Pneumatic Riveting-Chipping Hammer	210409 A / B

## 10 Storage

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

## 11 Technical Data

**Manufacturer** DEPRAG SCHULZ GMBH u. CO.  
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**Phone** 09621/371-0  
**Fax** 09621/371-120

<b>TYPE</b>	<b>ZN12P-R10,3</b>	<b>ZN12P-RS11,7</b>
<b>ORDER No.</b>	<b>210409 A</b>	<b>210409 A</b>
<b>No. of impacts (min<sup>-1</sup>)</b>	<b>4000</b>	
<b>Air consumption (m<sup>3</sup>/min)</b>	<b>0,15</b>	
<b>Piston -Æ (mm)</b>	<b>12</b>	
<b>Piston length (mm)</b>	<b>26</b>	
<b>Piston stroke (mm)</b>	<b>18</b>	
<b>Length (mm)</b>	<b>112</b>	
<b>Weight (kg)</b>	<b>0,8</b>	
<b>Required Hose I.D. (mm)</b>	<b>6</b>	
<b>Vibration according VDI 2057: 2002, m/s<sup>2</sup> (a<sub>h,w</sub>)</b>	<b>8,11</b>	
<b>Connecting thread</b>	<b>G ¼ a</b>	

Admitted tools see pamphlet D 5110

## 12 Disposal

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

Pneumatic Riveting-Chipping Hammer

ZN12P-R10,3

ZN12P-RS11,7


folgenden einschlägigen Bestimmungen entspricht:

- EG-Maschinenrichtlinie in der Fassung 98/37/EG, Anh.I Nr.1 und Nr.2.2

Angewendete Normen

- EN 292

Amberg, den 26.01.2005

  
Dipl.-Ing. (FH) A. Lanig  
Konstruktionsleiter

## 14 Service Locations and Authorized Partners

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