

# DEPRAG

## Operating Instruction Booklet

### Pneumatic Air Motor

67-031C

446337 D

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. 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.

## 1.3. 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.

## 1.4. 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.

## 1.5. 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.

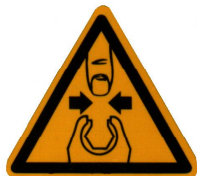


Wear hearing protection.



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!

## 1.6. 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

The motor is meant to be mounted onto another machine in order to drive it.

## 3 Installation

- Blow out air line and pressure hose, prior to connection it to the tool.
- Make sure, that all air lines have a sufficient cross-section (see technical data) and hoses must be free of bends and kinks. The hose length should not exceed 2 meters.
- All DEPRAG Motors, may be operated either with or without lubricated air. (see paragraph: Maintenance and Upkeep). Best results are achieved, when motor is lubricated with 1 – 2 drops of oil per 1m<sup>3</sup>. When motor is operated with dry air, a performance reduction of up to 20% occurs and maintenance increases!
- Connect the equipment as follows:
  - a) for standard operation connect to a maintenance unit consisting of filter with condensation reservoir, oiler and pressure regulator. When selecting a maintenance unit, make sure to observe the motor's air consumption requirement (see technical data).

Air Consumption	Thread Size	Part No.
0,05 - 0,5 m <sup>3</sup> /min	G 1/4	820454 A
0,15 – 1,5 m <sup>3</sup> /min	G 1/2	820455 A
0,8 – 4,0 m <sup>3</sup> /min	G 3/4	821608 A

- b) for the use with minimal lubrication connect equipment to a maintenance unit, consisting of Filter with condensation reservoir and Regulator

Air Consumption	Thread Size	Part No.
0,05 - 0,5 m <sup>3</sup> /min	G 1/4	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 1/2	822409 A
0,8 – 6,0 m <sup>3</sup> /min	G 3/4	826982 A

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

- c) For oilfree operation, connect to Filter/Regulator, consisting of Filter with condensation reservoir and Pressure Regulator.

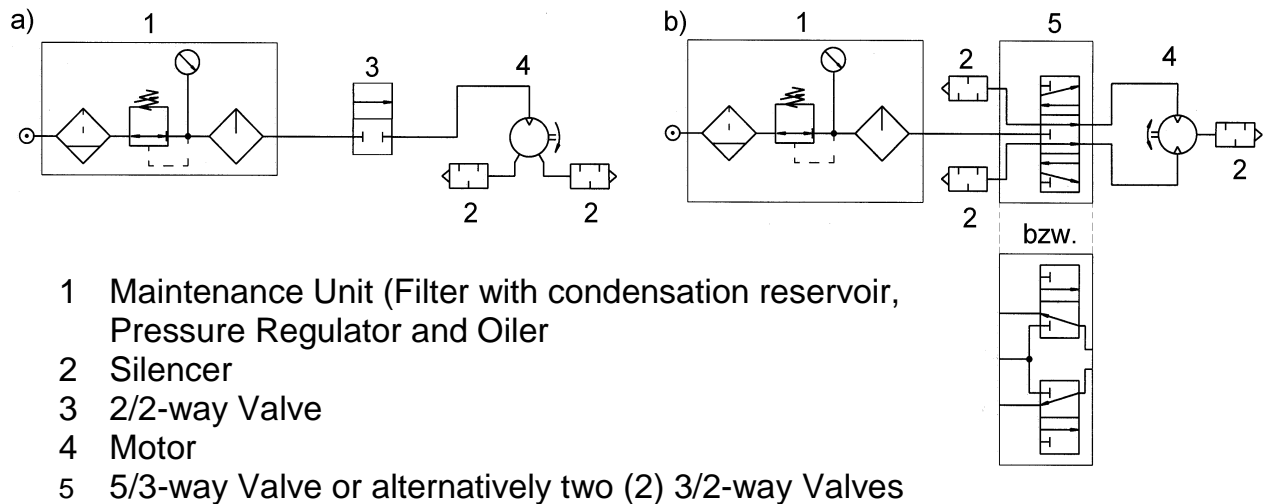
Air Consumption	Thread Size	Part No.
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0,5 – 1,5 m <sup>3</sup> /min	G 1/2	822409 A
0,8 – 6,0 m <sup>3</sup> /min	G 3/4	826982 A

- Check pressure at directly on the machine (max. permitted airflow 6,3 bar / 90 PSI). The Regulator needs to be adjusted to an airflow of 6 bar (85 PSI). A higher pressure leads to increased wear and tear. A lower pressure results into reduced power output.

When operating motor with only one turn-direction, connect motor as shown below (a) and if operated with reverse direction as well, see (b). It is important that the port which is not connected to an air-inlet, functions as the exhaust port and has to remain open.

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

Connect motor to air supply. The motor starts by remote valve.

## 5 Assembly - Disassembly

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

### ATTENTION



**Prior to disassembly, disconnect equipment from air supply! Otherwise, machine starts automatically and an injury may occur.**

**Only experienced maintenance personnel is allowed to 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.



### Attention:

The motor must not be untightened or clamped at the threaded fitting 445163.

- a. Clamp rotor cylinder into chucking jaws.
- b. Pull of shaft-side bearing cover from rotor.
- c. Remove rotor cylinder.



### NOTE

Exchange only complete sets of vanes.

- d. Remove vanes and check them thoroughly. Vanes that are too narrow or damaged have to be replaced **in sets**.
- e. Pull of air connecting-side bearing cover from rotor.
- f. Press the two ball bearings from the bearing covers.

## Assembly:

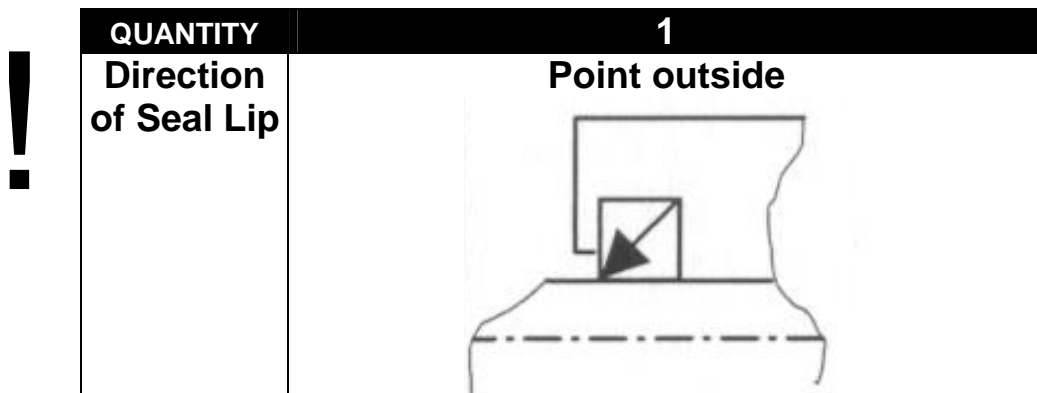
- a. Clean rotor.
- b. Press the ball bearings into the two bearing covers.
- c. Press the shaft-side bearing cover with the ball bearing on the rotor.
- d. Insert the new vanes into the rotor.
- e. Put the rotor cylinder over the rotor.



**After assembly the bearing covers shouldn't have any axial gap. The rotor must turn freely.**

- f. Press air-connecting side bearing cover with the ball bearing on the rotor.

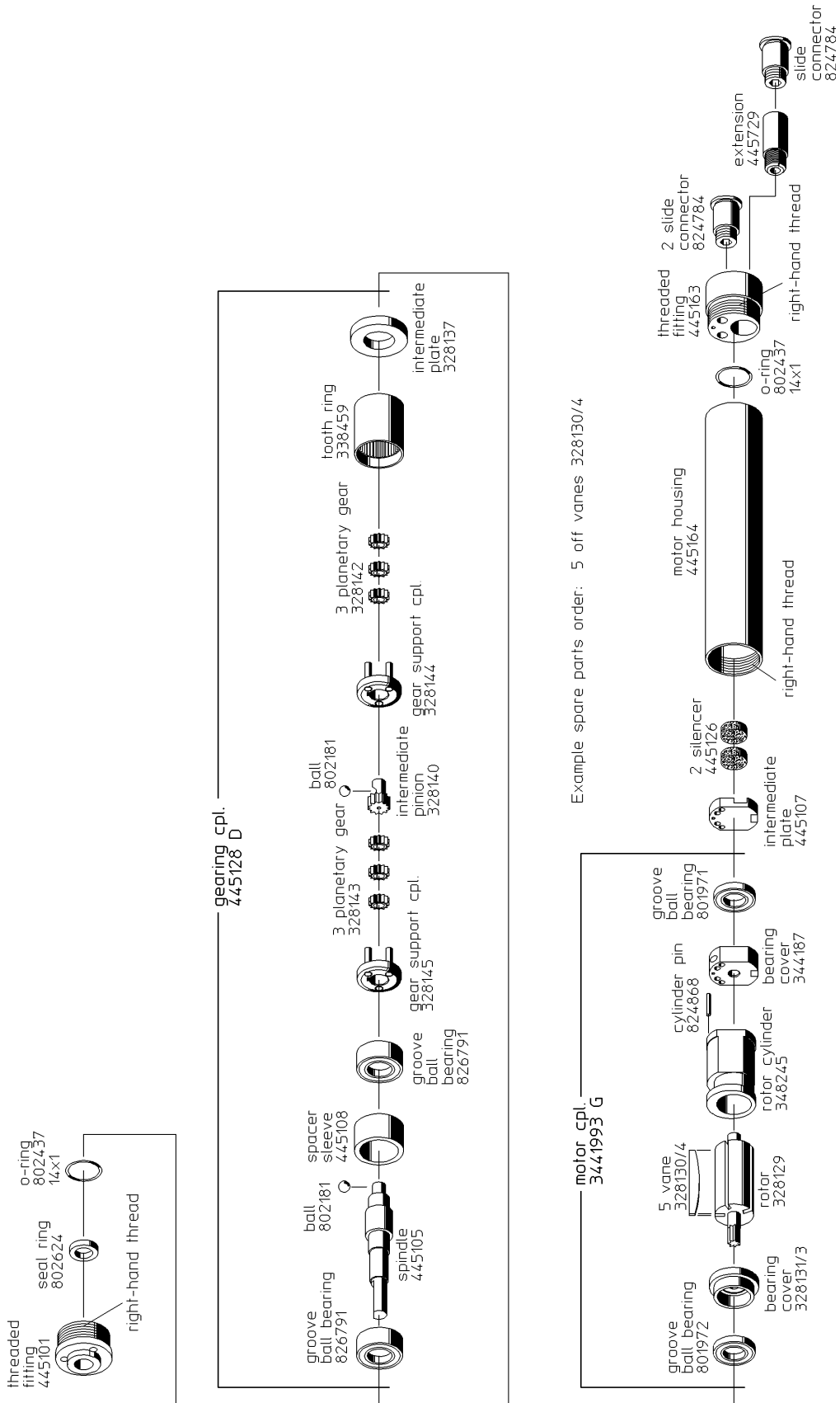
## Installation Tips for the Seal Ring



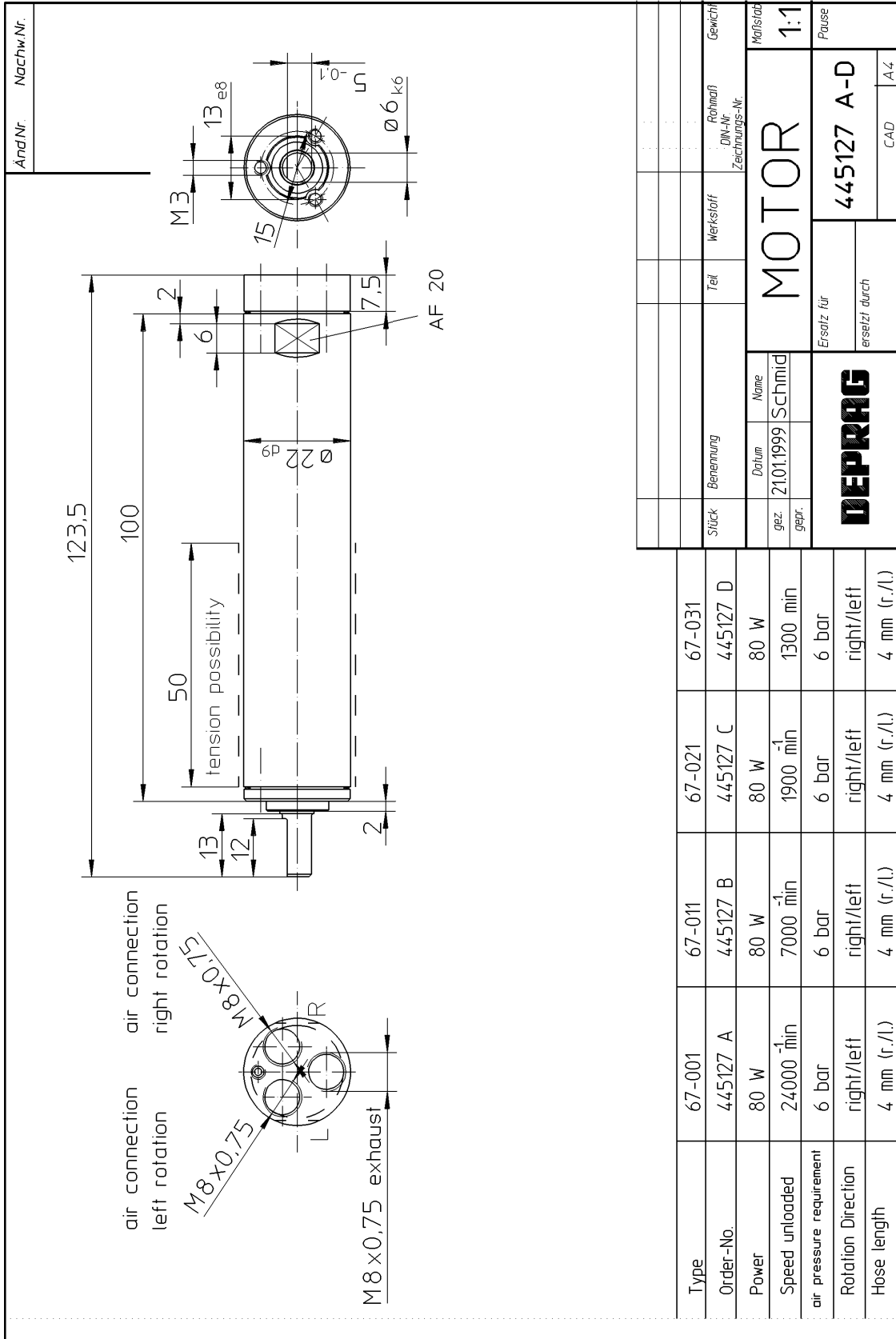
## Special Repair Tools (Optional Equipment)

NAME	PART No.
Fixing device (for rotor cylinder)	460762
Arbor (to disassemble bearing cover with groove ball bearing)	462329
Pin wrench (for threaded fitting 445163)	462066
Pin wrench (for threaded fitting 445101)	461694/1

## 5.1. Spare Parts Drawing



## 5.2. Dimensional Drawing



## 6 Maintenance and Upkeep

Testing and maintenance can be provided by Operator, disassembly and re-assembly of the DEPRAG motor should be done by experienced maintenance personnel only. Incorrect assembly or disassembly can lead to injury of an operator and damage of the motor.

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

- Check motor 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.
- After cleaning, the gearing parts have to be greased prior to re-assembly, preferably with Grease, part 807293.
- After assembly fill 2 – 3 drops of DEPRAGOL into the air inlet nipple.
- Grease the gearing, ball, and needle bearing, as well as the o-rings every 500 operating hours, or at least once a year with a suitable grease.
- If motor is used without lubrication, reduce the maintenance requirement to 250 operating hours.
- If you don't use the motor for a longer time period or if motor has not been used for a longer time period, drip a couple drops of Oil into the air inlet and let the tool resp. motor run for 5 – 10 seconds.
- If malfunctioning, we recommend sending the motor to DEPRAG.

### 6.1. Wear Parts

QUANTITY	NAME	PART No.
5	Vane	328130/4

## 7 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	Worn vanes	Exchange vanes
	Insufficient lubrication	Provide the required air-quality
	No air, Shut-Off valve is closed	Open Shut-Off valve
Machine does not start	No air; shut-off valve is closed.	Open shut-off valve
	Worn vanes or vanes are jammed	Exchange vanes

If necessary, send the equipment to DEPRAG.

## 8 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	012596EN
1	Motor	446337 D

## 9 Storage

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

## 10 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>	<b>67-031C</b>
<b>PART No.</b>	<b>446337 D</b>
<b>Waste Air (Zoll)</b>	M8 x 0,75
<b>Air Intake (Zoll)</b>	2 x M8 x 0,75
<b>Speed, unloaded (rpm)</b>	1300
<b>Nominal-Speed (rpm)</b>	650
<b>Air Consumption, under load (m<sup>3</sup>/min/cfm)</b>	0,23 / 8
<b>Nominal-Power (W/HP)</b>	80 / 0,11
<b>Nominal-Torque (Nm/in.lbs)</b>	1,2 / 11
<b>Start-Torque min. (Nm/in.lbs)</b>	1,8 / 16
<b>Weight (kg/lbs)</b>	0,22 / 0,5
<b>Hose I.D. (mm/in.)</b>	LW 4 / <sup>5</sup> / <sub>32</sub>
<b>Noise level (dB(A)) (with silencer)</b>	71
<b>Vibration (m/s<sup>2</sup>)</b>	< 2,5
<b>Air pressure (bar/PSI)</b>	6 / 85

## 11 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!**

## 12 Declaration of Manufacturer

### EC-Declaration of Manufacturer in accordance with the CE-Machine-Guideline 98/37/EC, appendix II B

DEPRAG SCHULZ GMBH u. CO.  
Kurfürstenring 12 – 18                      Postfach 1352  
D-92204 Amberg                                D-92203 Amberg

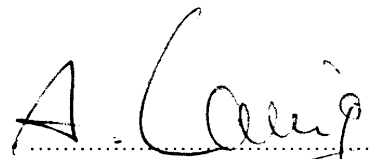
declares, that the construction of  
the motor

**67-031C**

its design this tool is meant for integration with another machine.  
Operation of this tool is not permitted unless the complete unit of  
mounted machines conforms with the national Protection of Labour  
Regulations, especially in application of the Provision and Use of Work  
Equipment Regulations Directive.

used standards  
- EN 292

Amberg, 15.09. 2005

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

## 13 Service Locations and Authorized Partners

### ARGENTINA

#### ERIN s.a.

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RA-1431 Buenos Aires  
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### AUSTRIA

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Internet: <http://www.amersin.at>  
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e-mail: [info@zumpolle.net](mailto:info@zumpolle.net)

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#### DEPRAG China

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Takarék u. 18/B  
H-8800 Nagykanizsa  
Tel./Fax: +36 (0) 93 / 314 633  
e-mail: [adler91adlovits@chello.hu](mailto:adler91adlovits@chello.hu)

#### Nóniusz Tool Trading House Ltd.

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### INDIA

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Fax: +91 / 22 / 2756.2881  
Internet: [www.leaptechcorp.com](http://www.leaptechcorp.com)  
e-mail: [leaptech@vsnl.net](mailto:leaptech@vsnl.net)

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Bangalore – 560 093  
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Fax: 0039 02/ 61.03.48.60  
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Internet: [www.atax.it](http://www.atax.it)

## JAPAN

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Chuo-Ku, Tokyo  
Tel.: +81 (0) 3 / 3542.2400  
Fax: +81 (0) 3 / 3542.2420  
e-mail: [mail@gesco.co.jp](mailto:mail@gesco.co.jp)

## KOREA (South)

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Songpa-Ku  
Seoul, Korea  
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