

# DEPRAG

## Operating Instructions

**Pneumatic Grinder**

**20-046**

**312544 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, our international support offices or contact 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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## 2 Safety Tips

### 2.1. General Safety



**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 stand of the technology, while recognizing all necessary safety-related requirement. Nevertheless, while operating the equipment and/or machinery there is a change 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

- used for the task it was designed for
- equipment and/or machinery is in perfect 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 3 and those requirements have to be observed as well. Prerequisite for the safe contact 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 drill spindle from the compressed air, an injury is possible because of a whipping pressure-hose.

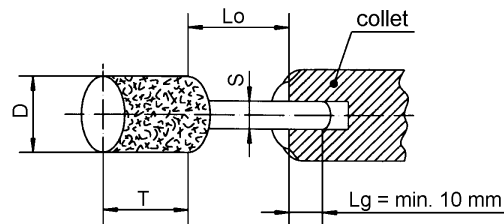
The operating-instruction booklet, especially the safety-symbols and safety-tips affixed to the equipment or included in the documentation, must be observed by all persons coming in contact with the equipment

## 2.2. Safety Tips for Grinders and their corresponding Grinding Inserts



- Use only approved grinding inserts with a correct shaft diameter.
- Make sure the rated speed of the insert is higher than the speed of the grinder.
- It is especially important to keep in mind, that the allowable speed of the installed grinding insert is reduced, if the distance between the end of the collet and the bottom of the insert (overhang “Lo”) is increased. A minimum shaft insertion length “Lg” has to be guaranteed.

Lo = overhang  
S = shaft diameter  
D = insert diameter  
T = insert length  
Lg = shaft insertion length



- Dust or steam may occur when grinding certain materials; those gases may create an explosive hazardous environment.
  - The shaft diameter of the insert and collet capacity has to be the same.
  - Strong vibrations may occur because of loose or damaged grinding inserts.
  - Do not exceed the maximum allowable air pressure. A pressure regulator has to be installed, which regulated the air pressure before reaching the tool.
  - After turning-off the grinder, the tool will continue to rotate (inertia).
  - Do not wear wide clothing or jewelry, for they can be seized by movable parts. Wear a hairnet if operator has long hair.
  - Do not use the grinder in close proximity of combustible liquids or gases.
- i**
- Wear eye- and hearing protection. It is also recommended to wear gloves and safety clothing.
  - Disconnect grinder from air supply prior to changing grinding inserts.
- Dependent on the materials to be processed, personal safety equipment must be used and a dust removal system should be installed.

- Stored energy in form of gas or liquid may cause a danger to Operator.
- Use the DEPRAG recommended lubrication oil only.
- In case of a power interruption, the grinder must be disconnected from the air supply.

## **2.3. User Obligation**

The user is obligated to only let persons operate the equipment, which

- are familiar with basic work environment safety-rules and accident-prevention regulations. Also, those persons must be 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-conscious 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.

## **2.4. Operator Obligation**

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

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

## 2.5. 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 foreign body effect or acts of god.

## 2.6. 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 heavy 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 for hand-injuries.

Attention: remove hands from areas, which are marked with this symbol!



There is a danger, that 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 for the maintenance or repair needed materials, tools and other supplies from work-area of the equipment
- Remove leaked liquid or oils
- Make sure all safety-devices on the equipment work perfectly!

## 2.7. 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

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

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

## 3 Designated Equipment Use

This midget grinder is used preferably with grinding pins or milling inserts, mainly for the treatment of plastic and metals in foundries, in the entire mechanical engineering industry, the tool- and die industry, the appliance-industry to level, de-burr or treat cast-iron parts.

## 4 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 Grinders or Polishers as follows:
  - a) for standard operation connect equipment to a maintenance unit, consisting of Filter with condensation reservoir, Regulator and Oiler. When choosing a maintenance unit, observe air consumption of the machine (see Technical Data).

Air Consumption	Thread Size	Part No.
0,05 - 0,5 m <sup>3</sup> /h	1/4 "	820454 A
0,15 – 1,5 m <sup>3</sup> /h	1/2 "	820455 A
0,8 – 6,0 m <sup>3</sup> /h	3/4 "	821608 A

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

Air Consumption	Thread Size	Part No.
0,05 - 0,5 m <sup>3</sup> /h	1/4 "	822408 A
0,15 – 0,9 m <sup>3</sup> /h	3/8 "	826981 A
0,5 – 1,5 m <sup>3</sup> /h	1/2 "	822409 A
0,8 – 6,0 m <sup>3</sup> /h	3/4 "	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

## 5 Operation

Prior to operation, insert the grinding tip as deep as possibly into the collet and tighten the grinding tip with the supplied wrenches. (see safety-tips for grinders and their corresponding grinding inserts)



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

**Use only acceptable grinding inserts. Check and make sure that the allowable speed of the grinding insert is higher than the speed of the grinder**

### Insert Grinding Insert:

Slide grinding insert with shaft (standard  $\varnothing 8$ ; for other  $\varnothing$  see spare parts listing) into collet 312696  $\varnothing 8$ , and tighten with wrenches (AF12 / AF15).

### Connection:

Connect hose. Open shut-off valve (operating pressure 6.3 bar)

### Start:

Actuate the self-returning valve and keep it actuated, turn twist valve 301280 - machine is running.

### 5.1. Special Repair Tools (Optional Equipment)

(see also our Maintenance leaflet D0090)

Pressure Pin 460417	for motor housing 311860
Chucking Jaws 460334	for motor housing 311860
Positioning Device 460475	for rotor cylinder 311856
Wrench 460413	for valve housing 312364
Wrench 460475	for spindle bearing 312495
Tachometer 807416	(measuring range 40 - 50000 rpm)

## 6 Handling

The tool should only be used while observing all safety- and danger recommendations.

## 7 Disassembly - Assembly

**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.

### **Disassembly:**

Disconnect grinder from air supply. Remove spindle-bearing 312497 (left hand thread).

Completely remove twist valve 340370 A (right hand thread). Unscrew screw joint 312499 from motor housing 311860 (left hand thread). Slide complete motor 312658 E out of motor housing 311860. remove bearing cover 311921 / 311865. Remove the 3 vanes 312030/3 and check them in regards to wear and tear, as well as width. Minimum width should be 6 mm. Vanes that are smaller than 6mm or which are damaged, must be replaced.

### **Assembly:**

Clean and grease all parts, replace damaged parts and reassembly in reverse order.

Test speed of grinder (19000 rpm) after repair or maintenance!

## 8 Maintenance and Unkeep

Operator can perform inspection and maintenance. Only specialized personnel may perform assembly or disassembly of this equipment. Faulty assembly may lead to danger for the operator and to permanent damage of the equipment

This grinder requires little maintenance. If the following rules are observed, the tool reaches its promised high life span and remains in a safe condition to use.

- Regularly check equipment for external damage.
- Check the air filter (bleed water condensation on a regular basis) and the oil reservoir, as well as the oiler adjustment [if operated with lubricated air]. We recommend DEPRAG-Oil, Part No. 790081 A (250 cm<sup>3</sup>).
- We recommend a maintenance interval of every 1000 operating hours. Vanes have to be checked and if needed, replaced.
- After re-assembly, drip 2 – 3 drops of oil into the air inlet.
- If grinder malfunctions, we recommend to send the machine to DEPRAG.

### 8.1. Wear Parts

QUANTITY	DESCRIPTION	PART No.
3	Vane	312130/3
1	O-ring	802502

## 8.2. 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 fault and their causes are shown below:

<b>FAULT</b>	<b>CAUSE</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.
	Worn vanes	Exchange vanes
	Screen Support clogged	Clean screen support or exchange with new one
	Insufficient lubrication	Provide the required air-quality
Machine does not start	No air, shut-off valve is closed.	Open shut-off valve
	Worn vanes or vanes are jammed	Exchange vanes
Motor operates, but spindle does not rotate	Broken clutch	Replace clutch
Grinder does not want to stop	Worn O-Ring	Replace O-Ring

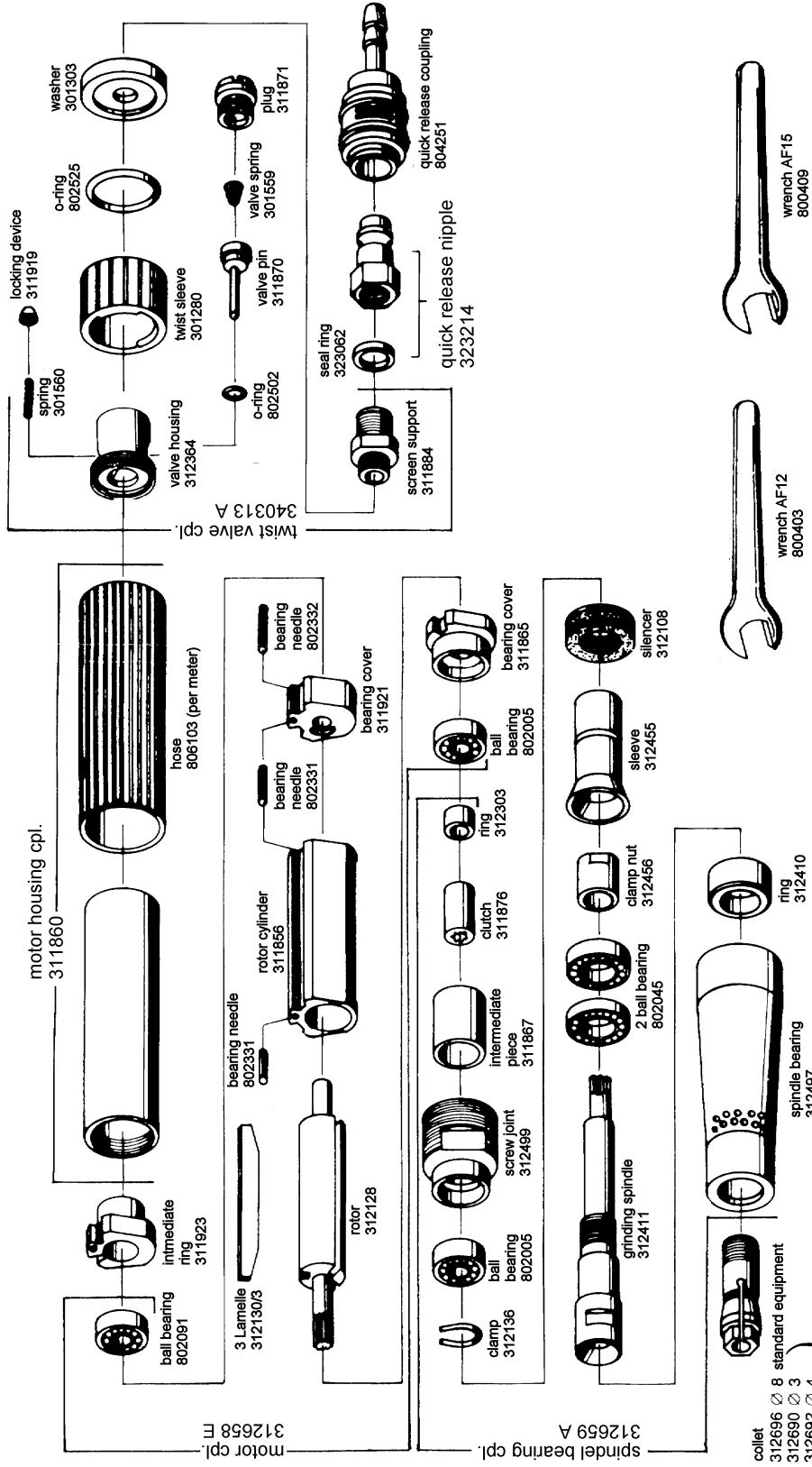
If necessary, send the equipment to DEPRAG.

## 9 Delivery Capacity

Please check the delivery capacity in regards to its completeness.

QUANTITY	NAME	PART No.
1	Operating Instruction Booklet	010354 E
1	Grinder	312544 A
1	Wrench AF 12	800403
1	Wrench AF 15	800409

## 9.1. Spare Parts Drawing



example spare parts order: 3 off vanes 312130/3

collet  
 312696 ∅ 8 standard equipment  
 312690 ∅ 3  
 312692 ∅ 4  
 312693 ∅ 5  
 312694 ∅ 6  
 312691 ∅ 1/8 " accessories  
 312695 ∅ 1/4 " are optional equipment  
 other dimensions by request

## 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

**Subsidiary** DEPRAG INC.  
**Address** 645 Hembry Street  
Lewisville, TX 75057  
**Phone** (800) 4 DEPRAG = (800) 433-7724  
**Fax** (214) 221-8163

### Technical Data:

TYPE:	20-046
<b>Part No.</b>	312544 A
<b>Exhaust</b>	On spindle
<b>Start Function:</b>	Twist Valve
<b>Grinding Insert Ø, mm</b>	(30m/s) ceramic 32 (45m/s) epoxy resin 40 (80m/s) epoxy resin with fiber reinforcement 70
<b>Speed (unloaded), rpm</b>	19000
<b>Air Consumption m<sup>3</sup>/min</b>	0,5
<b>Power Output, KW</b>	0,40
<b>Machine Diameter, mm</b>	38
<b>Machine Length, mm</b>	188
<b>Weight, kg</b>	0,9
<b>Hose ID requirement, mm</b>	6
<b>Connection Thread</b>	G ¼ a
<b>Noise Level, dB(A)</b>	82
<b>Operating Pressure, bar</b>	6,3
<b>Vibration, m/s<sup>2</sup></b>	<2,5

## 12 Disposal

Unused machines should be stored in a dry, locked area. Observe local and environmental regulations for the separation of materials.



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

## 13 Conformity Declaration

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

We,

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

hereby confirm, that the

Grinder

20-046


conform to the following, relevant regulation:

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

Applicable Standard:

- EN 292

Amberg, 07.09. 2001

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

## 14 Service Locations and Authorized Partners

### ARGENTINIEN

**ERIN s.a.**  
Av. Constituyentes 5751  
RA-1431 Buenos Aires  
Tel./Fax: +54 (0) 11 / 4573.1313

### AUSTRALIEN

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Kurfürstenring 12-18,  
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### FRANKREICH

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Athen  
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### GROSSBRITANNIEN

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### IRAN

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### JAPAN

**NIPPON GESCO Ltd.**  
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### KOREA (Süd)

**Handwerkzeuge**  
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**Fatec Co.Ltd.**  
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### KROATIEN

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Fax: +60 (0) 3 / 3191.7578

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Internet: <http://www.aijkenszumpolle.com>  
e-mail: [zumpolle@hotmail.com](mailto:zumpolle@hotmail.com)

## **NORWEGEN**

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## **POLEN**

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PL-02-562 Warszawa  
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## **PORTUGAL**

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## **SCHWEDEN**

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## **SCHWEIZ**

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ZERTIFIZIERT NACH DIN EN ISO 9001

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Sep-01 Änderungen vorbehalten