

DEPRAG

OPERATING INSTRUCTIONS

Pneumatic Drill Spindle

101-030-13

101-030-14

302303 K

302303 L

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

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2. Safety Tips

2.1. General Safety Tips

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 requirements. 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 manufacturer's 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. GENERAL SAFETY TIPS FOR DRILLS AND TAPPERS



- If the machine locks-up, an increased reaction torque occurs. Reason for lock-up:
Tool operates over capacity; jamming of the drill bit in material or when drill bit breaks through the material.
- An unexpected motion of the tool or the breakage of a drill bit may cause an injury.
- Disconnect tool from air supply, prior to changing inserts.
- Prior to operating tool, make sure that collet and drill bit is securely installed.
- Wear no loose clothing or jewelry, for movable parts [collet/bit] may seize them. Wear a hairnet if operator has long hair.



- Reduce down pressure, shortly before bit breaks through the material to be drilled.
- Prior to operating tool, remove key from chuck, if a drill chuck is installed
- If the tool is to be suspended from a Balancer, make sure it is securely attached to it.
- The specified maximum operating pressure cannot be exceeded. A pressure regulator should be installed, which regulates the operating pressure prior to reaching the tool.
- Keep in mind that tool will continue to rotate, once it has been turned off. [inertia]
- Turn tool off, if the airflow is suddenly disrupted.

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!**



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 to 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 liquids 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

The drill has been designed to integrate into another machinery, for drilling into steel, aluminum or other materials.

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.
- All DEPRAG Drills as well as Tappers, may be operated either with or without lubricated air. (see paragraph: Maintenance and Upkeep)
When operating with oilfree air, a performance reduction of up to 20% occurs!
- Connect the equipment 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 ³ /h | 1/4" | 820454 A |
| 0.15 – 1.5 m ³ /h | 1/2" | 820455 A |
| 0.8 – 6.0 m ³ /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 ³ /h | 1/4" | 822408 A |
| < 0.15 – 0.9 m ³ /h | 3/8" | 826981 A |
| 0.5 – 1.5 m ³ /h | 1/2" | 822409 A |
| 0.8 – 6.0 m ³ /h | 3/4" | 826982 A |

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 | Part No. |
|--------------------------------|----------|
| < 0.05 – 0.5 m ³ /h | 822408 A |
| < 0.15 – 0.9 m ³ /h | 826981 A |
| 0.5 – 1.5 m ³ /h | 822409 A |
| 0.8 – 6.0 m ³ /h | 826982 A |

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

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

| | Class | Residue of Oil Content mg/m ³ | Residue of Dust | | Residue of Water | |
|----------------|-------|--|---------------------|---|--------------------------|--|
| | | | Particle Size μm | Concentration max. mg/m ³ | Pressure Dew Point °C | Concentration max. g/m ³ |
| Lubricated Air | 4 | 5 | 15 | 8 | +3 | 6 |
| Dry Air | 3 | 1 | 5 | 5 | -20 | 0.88 |

5. Operation

Prior to operation, make sure that the drill bit is inserted into the collet as deep as possible and that collet has been securely tightened using the provided wrench. (see Safety Tips for Drills and Tappers)



Before operating the tool, test drill bit and make sure it is securely installed. A loose drill-bit causes injury.

6. Handling and Start-Up

Use the equipment only while observing all safety tips and maintenance regulations.

The drill spindle starts by remote valve.

7. 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.

Disassembly continued:

Unscrew valve housing 301305 (right-hand thread). Unscrew flange 302737/1. Slide motor 302010A with gearing out of the motor housing 302736 in direction to the flange. Remove bearing cover 311921. Remove and check vanes 301930 (5 pieces). Minimum width of vane should be 7 mm. Vanes, which have a smaller width or show visible damage, need to be replaced.

Assembly:

in reverse sequence

always check speed of tool after maintenance (refer to Technical Data section)

8. Maintenance and Upkeep

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 drill spindle 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 cm³).
- After repair and prior to assembly, grease gearing parts with DEPRAG grease Part No. 807293 A (tube: 100 g)
- After assembly, drip 2 – 3 drops of oil into the drill's air intake.
- The gearing, balls and needle bearing, as well as the seal rings, must be greased every 500 operating hours or at least once a year.
- If operated in an oilfree environment, this maintenance is necessary every 250 hours
- If machine has not been operated for some time, drip a couple drops of oil into the motor and let drill run for 5 – 10 seconds.
- If drill malfunctions, we recommend to send the machine to DEPRAG.

9.1. Wear Parts

| QUANTITY | DESCRIPTION | PART No. |
|----------|-------------|----------|
| 5 | Vane | 301930 |

9.2. 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 faults and their causes are shown below:

| FAULT | CAUSE | SOLUTION |
|------------------------|--|--|
| Insufficient Power | Dirty silencer or screen support | Clean or replace silencer or screen support |
| | Hose ID too small Hose has restrictions Air Pressure too low | Use correct size hose [6mm] Remove bends or kinks Provide the required air-pressure of 6.3 bar |
| Machine does not start | Worn vanes | Exchange vanes |
| | No air; shut-off valve is closed. | Open shut-off valve |
| | Worn vanes or vanes are jammed | Exchange vanes 301930 |

If necessary, send the equipment to DEPRAG.

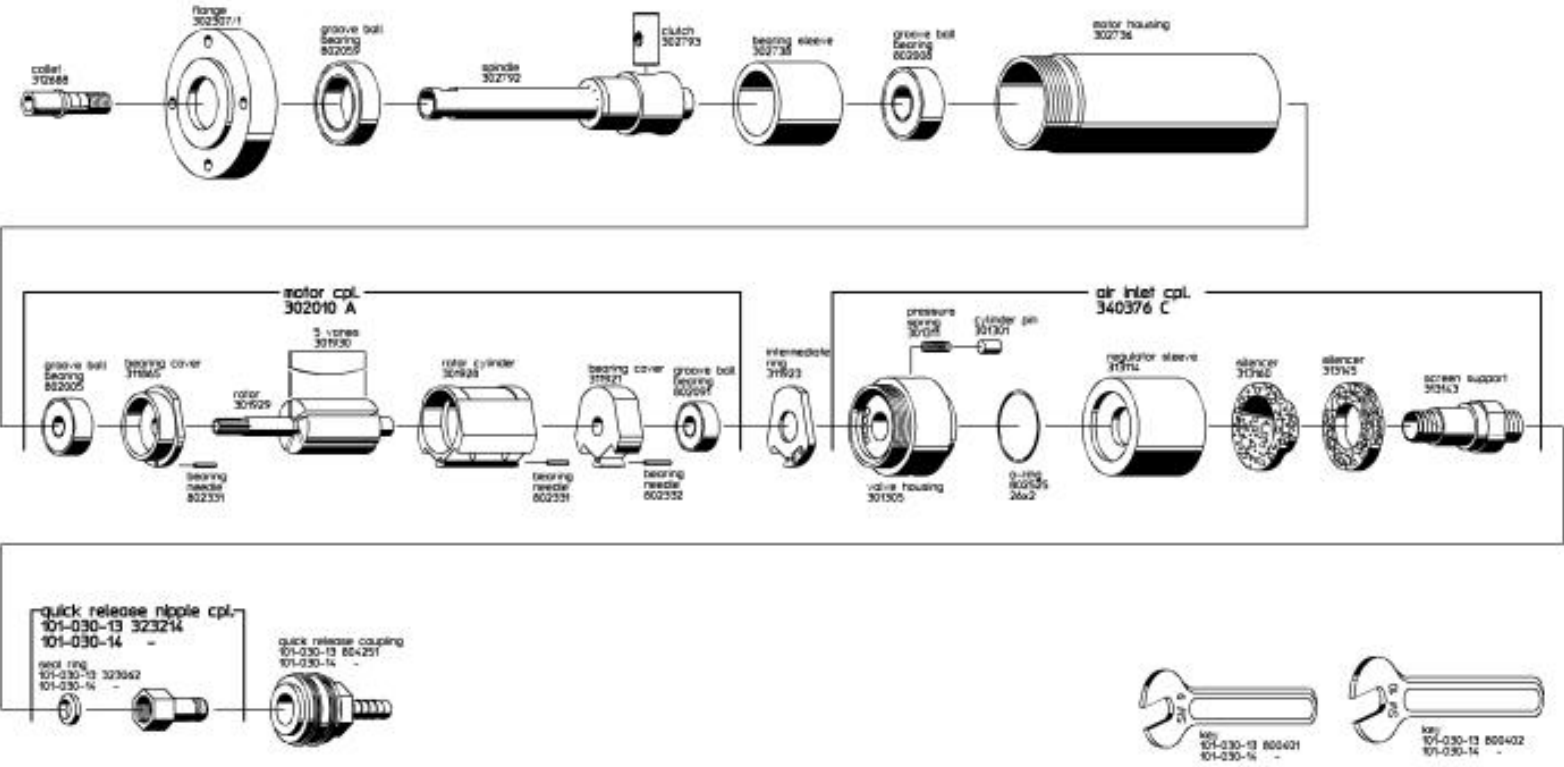
9. Delivery Capacity

Please check the delivery capacity in regards to its completeness.

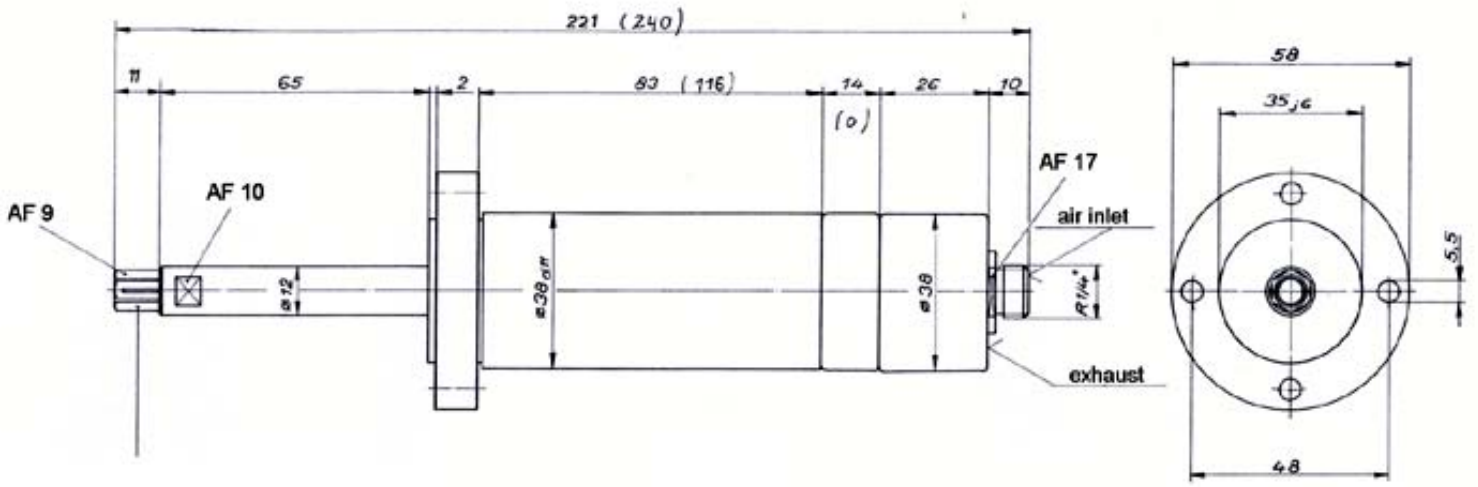
| QUANTITY | NAME | PART No. |
|-----------------|-------------------------------|--------------------|
| 1 | Operating Instruction Booklet | 011052 |
| 1 | Drill Spindle | 302303K or 302303L |

9.1. Spare Parts Drawing

Example Spare Parts Order: 5 piece vanes 301930



9.2. Dimensional Drawing



Collet: convertible
Collet-Range: 1,5 - 6 mm

Type Part No.
101-030-13 302303 K
101-040-2 302907 A
101-030-2 302303 A

| Stück | Bezeichnung | Art | Werkstoff | Material Zusatz-Info | Spezif. |
|--------|---------------|--------|-----------|-------------------------|---------|
| 1 | Drill Spindle | | | | |
| 10283 | 10283 | | | | |
| DEPRAG | | 302304 | | | |

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 PO Box 1352
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Technical Data:

| MODEL No.: | 101-030-13 | 101-030-14 |
|--|-------------------|-------------------|
| Drilling in aluminum | 6mm | 6mm |
| Collet – chucking range | 6mm | 6mm |
| Speed (unloaded) min⁻¹ | 20000 | 20000 |
| Air Consumption, under load m³/min | 0.4 | 0.4 |
| Power Output, KW | 0.22 | 0.22 |
| Weight, kg | 1.4 | 1.4 |
| Required Hose I.D., mm | 6 | 6 |
| Connection Thread | 1/4" | 1/4" |
| Noise Level dB(A) | 78 | 78 |
| Vibration m/s² | < 2.5 | < 2.5 |

12. Disposal

The waste disposal necessitates a complete disassembly. Observe local and environmental regulations for the separation of materials.



Recycle waste oil to avoid environmental damage!

13. Manufacturer's Declaration

**CE-Manufacturer's Declaration
according to the CE-Machine-Guideline 89/37/EWG, Amendment IIB**

We,

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

hereby confirm, that the construction of the
Drill Spindle

101-030-13

101-030-14

is designated for the installation into another machine and the
operation of this other machine is prohibited until it has been
certified, that this other machinery conforms with the
CE-Machine-Guideline I.D. F.98/37/EWG:

Applicable Norm:
- EN 292

Amberg, 19.07. 2001


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