

Pneumatic Drill

Types 2 1310 0010
2 1310 0020
2 1311 0010

Techn. Doc.-No. 207



Illustration can differ from the original

Operation and Maintenance Manual

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TECHNICAL SPECIFICATION

Type No.	2 1310 0010	2 1310 0020	2 1311 0010	
Operating/Flow pressure	6	6	6	bar
Motor power	0.65	0.65	0.65	kW
Speed under load	650	650	650	rpm
Drill chuck	Geared chuck dia. 13	Quick-release chuck dia. 13	TP 1	mm
Drilling capacity in steel	max. 15	max. 13	max. 15	mm
Air connection	R 3/8"	R 3/8"	R 3/8"	female
ID of hose	13	13	13	mm
Air consumption	0.68	0.68	0.68	m ³ /min.
Weight	5.7	5.7	5.4	kgs
Length with drill chuck	314	314	281	mm
Noise (1m distance)	88.8	88.8	88.8	dB(A)
Vibration at free speed	2.23	2.23	2.23	m/s ²



Operating Instruction

Handling and proceeding are described here

Spare Parts Documentation

Consisting of parts lists and sectional drawings.

Supplement

Maintenance of pneumatic tools

Notes for oiler setting

OPERATING INSTRUCTIONS

General

The performance / output power of this machine are designed for drilling of different work pieces and materials. Hold the machine tight against rotation.

Before Operation

- Check the oil level. If necessary, add oil to fill up the oiler (line oiler or service unit).
- Clamp the drill into three-jaw chuck or into morse taper.
- Connect air hose. (In order to remove contaminants, blow out the air hose before connecting).
- Open the valve and begin the drilling. (Speed can be regulated by opening the valve more or less).

After finishing the operation

- Shut the valve
- Turn off compressed air and disconnect the air hose.
- Loosen the drill and pull it out.
- Check oiler.



Pneumatic Drill
2 1310 0010-0020, 2 1311 0010

SAFETY INSTRUCTIONS

Any tool can be dangerous. Please follow these simple safety procedures - they are for your personal protection.

- Do not use this machine in any way other than as directed by these operating instructions.
- Hold the machine tight during operation. When operating with the hammer drill also use the second handle.
- Regular maintenance is essential - check all screws, fittings etc. for tightness.
- Check the air hose for damage.
- Use only lubricated air during work.
- Never use dull tools or bits.
- Avoid sparks in hazardous environment - created by the drill. In this case flush material and drill always with sufficient water for cooling during use.
- Wear safety-glasses, non-slip gloves, protective clothing and ear protectors.
- Ensure that you maintain a safe working position.
- Never work under the influence of alcohol, drugs or strong medication.
- Always disconnect machine from the air line for changing drills or working on the machine.
- Remove rings, watches, ties etc. that could be torn by the machine.
- Follow the general current and appropriate **Accident Prevention and Safety Procedures**.

WARNING! Never use the flexible hose as a lifting handle.

**Your safety is in your hand!
Observe these instructions!**

Noise and vibration levels

Typically A-weighted noise level of the machine is:

- **Sound pressure level: 88.8 dB(A)**

Wear ear protection.

The typical weighted acceleration is 2.23 m/s².

USE

Intended use

The machine is designed for drilling of different work pieces and materials.
Any use, deviating from the above is not intended use.

Improper use

Drive for lifting goods or people.
Working without individual safety equipment

DANGER ZONES

Operational condition Life phase	Normal function	Malfunctioning	improper use	Expected use
Transport	Transport of the machine in an inoperable condition	Drop of the machine	Transport of the machine in an operable condition	unknown
Start-up	Operating with the machine with designated tools	unknown	Operating with approved tools	unknown
Operation	Machine is only working when valve is actuated	Machine runs without intended actuating	Valve is blocked while open	unknown
	Machine moves tool	Tool blocks	unknown	unknown
Maintenance	Regular change of vanes			
	Operation on a Service Unit	Failure of the machine	unknown	unknown

MAINTENANCE AND ASSEMBLY INSTRUCTIONS

The service life and the performance of the motor are decisively determined by:

- a) The air purity
- b) The lubrication conditions and maintenance

at a):

Blow out the air hose before connecting it to the machine. Install dirt and water separator upstream of the motor, if it is not possible to prevent the formation of rust and water condensation in the air distribution lines.

at b):

Use only resin- and acid-free lubricating oils SAE 5 W - SAE 10 W. Oils of higher viscosity cause vane sticking (difficult start-up and lower performance). Optimal lubrication will increase the service life. We thus particularly recommend installing a service unit and line oiler upstream of the motor. Observe the comments in the supplement

„Maintenance of Pneumatic Tools“

Do not wash out sealed and greased ball bearings and do not rinse the machine in general with petroleum or similar cleaning fluids.

Use anti-freeze lubricants, such as „BP-Energol AX 10“, „Kilfrost“ or „Kompranol N 74“ in wintertime or if the compressed air is very moist.

Air connection:

Line, fitting and hose must have the required cross-section to obtain sufficient air (680 litres/min.). Regularly check and clean the air inlet screen (at item 26).

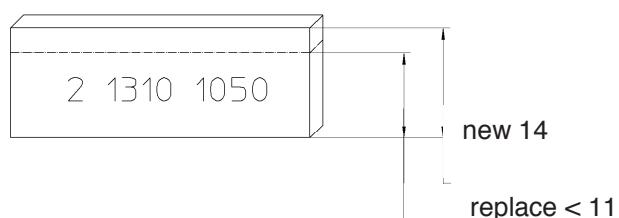
Operating pressure may not exceed 6 bar, otherwise the machine will be damaged.

Cleaning the motor:

Rinse the motor with cleansing oil after approx. 10 working hours. Cleansing and oil-ampule (Part No. 9 9902 0100). Fill the oil into the air connection. Connect air and start the motor (approx. 20 seconds at free speed).

Wear of vanes:

Vanес are main wear parts and are recommended to be replaced in due time. The wear can be noticed, when the performance decreases clearly (>100 hours operating time by regular lubrication). They are considered to be worn when the height "H" is less than 11 mm.



Greases (free of resins and acids)	Multi-purpose greases for antifriction bearings and gears
Designation according to DIN 512502	KL 2 k
Consistency class DIN 51818	2
Saponification type	lithium
Dripping point	185°C
Worked penetration	265 - 295
Temperature range	-25°C to +125°C

DEMONTAGE UND MONTAGE

Disassembly

Disassembly and reassembly should only be performed with the assistance of the sectional drawing.

All parts can be dismantled by light pushing or knocking (wooden base / rubber hammer).

Motor

Loosen screws (item 28), remove handle (item 20), pull out inner motor parts and dismantle. Check wear parts - especially the vanes (item 11).

Valve

Screw out nipple (item 26) and take out valve parts. Replace worn parts if necessary.

Gearbox

Screw neck (item 30 or item 70) out of motor housing. (Attention! Left-hand thread). Remove rim of the gear (item 42) and washer (item 43). Draw off drill chuck (item 60). Loosen cover lid (item 40), remove snap ring (item 39) and press out complete planet carrier (item 33 or item 72). Check wear parts as radial shaft seals (item 41) and ball bearings and replace if necessary.

Assembly hints

Repairs should be executed by authorized professionals only and with assistance of the sectional drawing.

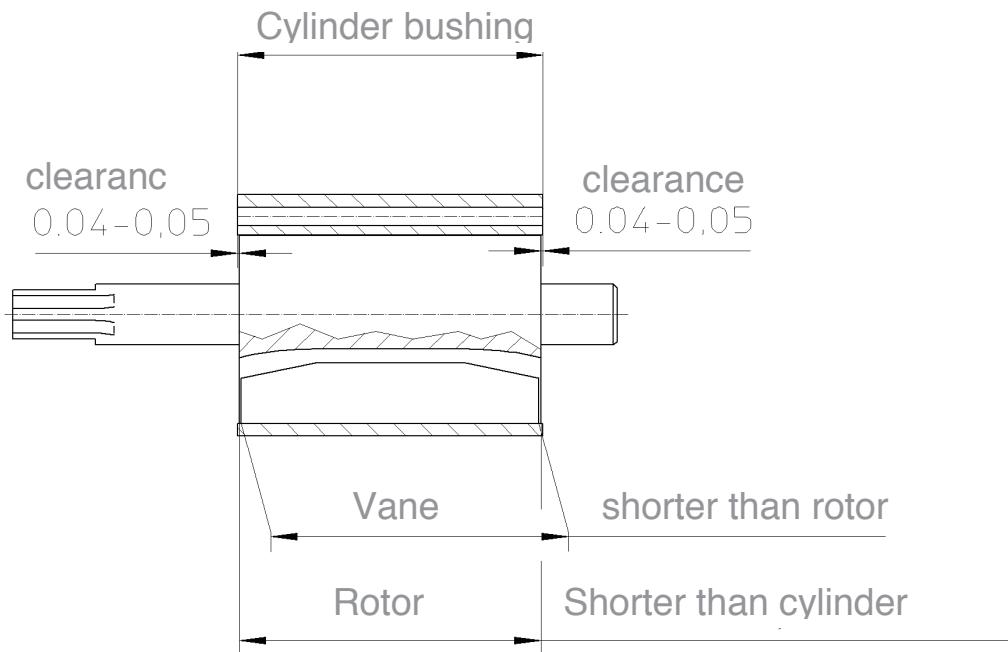
Reassembly

Perform reassembly after checking and replacing worn parts. It will be done basically in the reverse order than the disassembly. Lightly grease all parts to avoid falling apart during reassembly. Remove any oil and resin residue from the rotor slots. The vanes should fit easily into the rotor slots.

Motor running

If the motor cannot be turned after reassembly, light axial or lateral tapping with a rubber hammer on motor housing is helpful. The rotor places and comes into free-wheel position between the end plates. If not, check length of the rotor, cylinder bushing and vanes.

- The vanes must not jut out laterally of the rotor slots and not project on the rotor.
- Cylinder bushing has to be 0.08 mm to 0.10 mm longer than the rotor.



Check all functions after finishing the reassembly, especially free speed and air consumption according to "**Technical Specifications**".

Use only original Spitznas Spare Parts for repairs!

Trouble/ Probable Cause/ Remedy

Trouble	Probable cause	Remedy
► Machine does not start	<ul style="list-style-type: none"> ► Air not connected ► Rotor rusted by humid ► Vanes jam (worn) ► Gearbox blocks 	<ul style="list-style-type: none"> ► Connect and open air line ► Disassemble and clean motor, check and test service unit for function ► Disassemble motor, clean and replace worn parts ► Disassemble and clean gearbox and replace worn parts
► Trigger clamps	► Contaminates in valve	<ul style="list-style-type: none"> ► clean seat
► Machine rotates too slowly	<ul style="list-style-type: none"> ► Operating pressure too low ► Rotor grinds on end plates / cylinder bushing ► Gear parts jam 	<ul style="list-style-type: none"> ► Increase operating pressure to 6 bar (on the machine) ► Disassemble and clean motor, replace worn parts ► Disassemble and clean gearbox, replace worn parts
► Motor sticks / jams	<ul style="list-style-type: none"> ► Vanes worn or broken, broken parts stick between rotor and cylinder bushing ► No lubrication - ball bearings have run dry, rotor has rubbed on end plates ► Coarse impurities in motor area jam between rotor and cylinder bushing 	<ul style="list-style-type: none"> ► Dissassemble and clean motor, replace worn parts ► Dissassemble and clean motor, replace worn parts ► Dissassemble and clean motor, replace worn parts
► Gearbox makes loud noises	► Toothing is clattering Ball bearings defective	<ul style="list-style-type: none"> ► Dissassemble and clean gearbox, replace worn parts
► Tool not able to be clamped	<ul style="list-style-type: none"> ► Drill chuck defective ► Diameter of tool too small 	<ul style="list-style-type: none"> ► Change drill chuck use bigger tool
► Reversing „drilling / hammering“ clamps	<ul style="list-style-type: none"> ► Dirt in reversing area ► Steel rollers clamp 	<ul style="list-style-type: none"> ► Clean machine ► Disassemble gearbox and replace defective parts

Spare Parts List

Pneumatic Drill				Part and drawing number 2 1310 0010
Item	Qty.	Description	Part and drawing no.	Page no.: 1/3 Date: 03/08
1	1	Motor housing	2 1311 1010	
2	2	Damping material	1 2034 6100	
3	2	Belleville spring	9 1802 0260	
4	1	End plate	7 1401 1100	
5	1	Grooved ball bearing	9 1003 0030	
6	1	Snap ring	9 1703 0100	
7	1	Spacer	1 1501 1090	
8	1	Cylinder bushing	1 1379 1020	
9	1	Adapter sleeve	9 1630 0510	
10	1	Rotor	2 1311 1030	
11	6	Vane	2 1310 1050	
12	1	End plate	2 1310 1110	
13	1	Grooved ball bearing	9 1003 0010	
14	1	Snap ring	9 1703 0050	
15	1	Spacer	2 1301 1090	
16	2	Adapter sleeve	9 1630 0140	
20	1	Handle	2 1310 6010	
21	1	Valve pusher	2 1311 3040	
22	1	Double notched pin	9 1641 0020	
23	1	Cylindrical pin	9 1619 1360	
24	1	Ball	9 1017 0080	
25	1	Compression spring	9 1803 0250	
26	1	Nipple	9 2205 1190	
27	1	O-Ring	9 1901 3230	
28	4	Fillister-head screw	9 1110 4010	
30	1	Neck	2 1301 7010	
31	1	Grooved ball bearing	9 1002 0040	
32	1	Journal bearing	9 1021 0040	
33	1	Planet carrier	2 1310 4910	With item 34
34	3	Cylindrical pin	9 1631 0170	
35	3	Needle cage	9 1015 0110	
36	3	Planetary wheel	2 1301 4040	
37	2	Fitting washer	9 3331 0230	

Spare Parts List

Description:

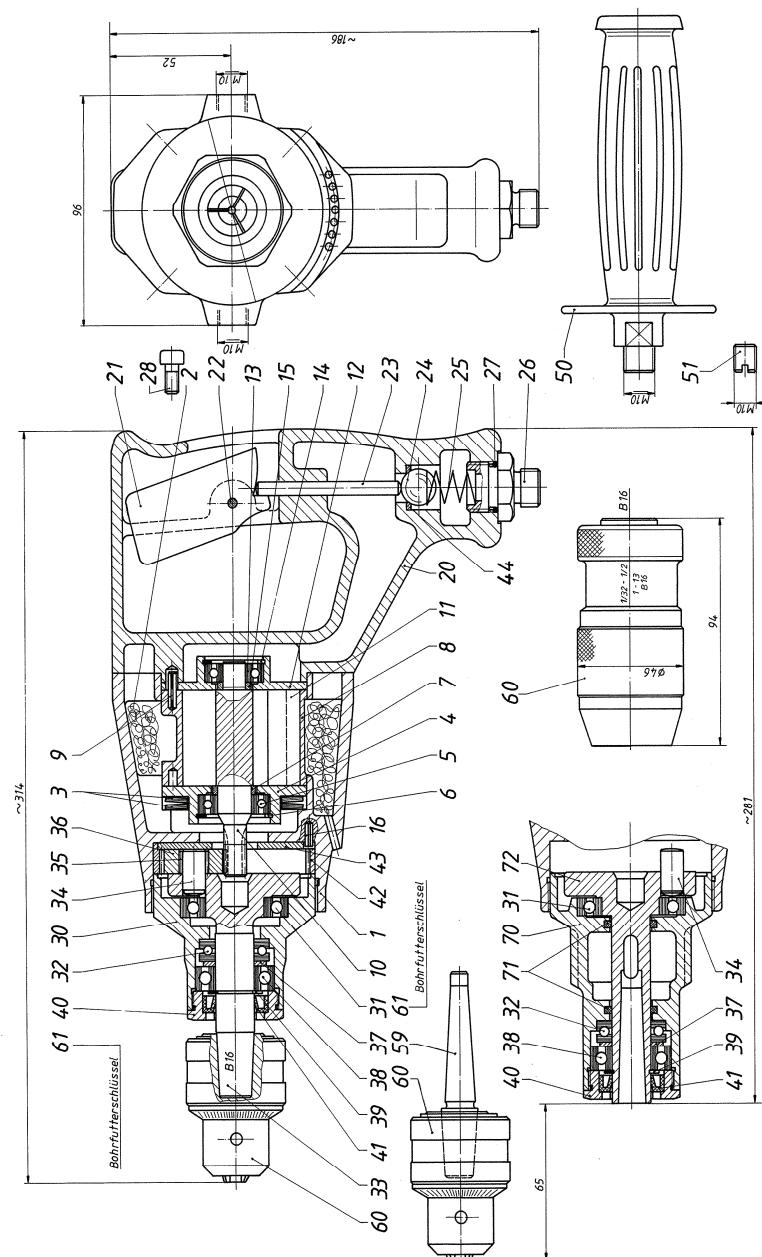
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16	2	Adapter sleeve	9 1630 0140	
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25	1	Compression spring	9 1803 0250	
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28	4	Fillister-head screw	9 1110 4010	
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37	2	Fitting washer	9 3331 0230	

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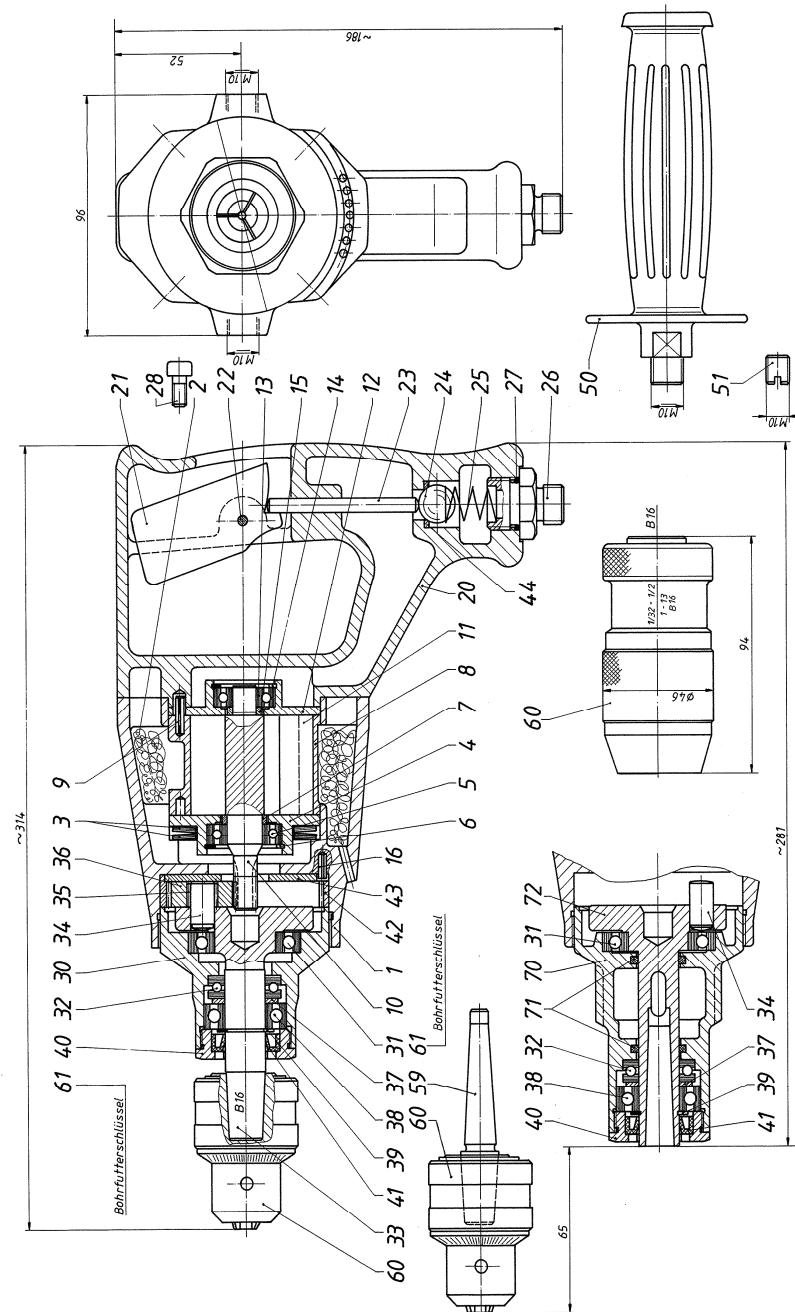
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24	1	Ball	9 1017 0080	
25	1	Compression spring	9 1803 0250	
26	1	Nipple	9 2205 1190	
27	1	O-Ring	9 1901 3230	
28	4	Fillister-head screw	9 1110 4010	
70	1	Neck, Assy.	2 1302 7910	
71	2	Felt ring	9 1902 0090	
31	1	Grooved ball bearing	9 1002 0040	
32	1	Journal bearing	9 1021 0040	With item 34
72	1	Planet carrier	2 1311 4910	
34	3	Cylindrical pin, hardened	9 1631 0170	
35	3	Needle cage	9 1015 0110	
36	3	Planetary wheel	2 1301 4040	

Spare Parts List

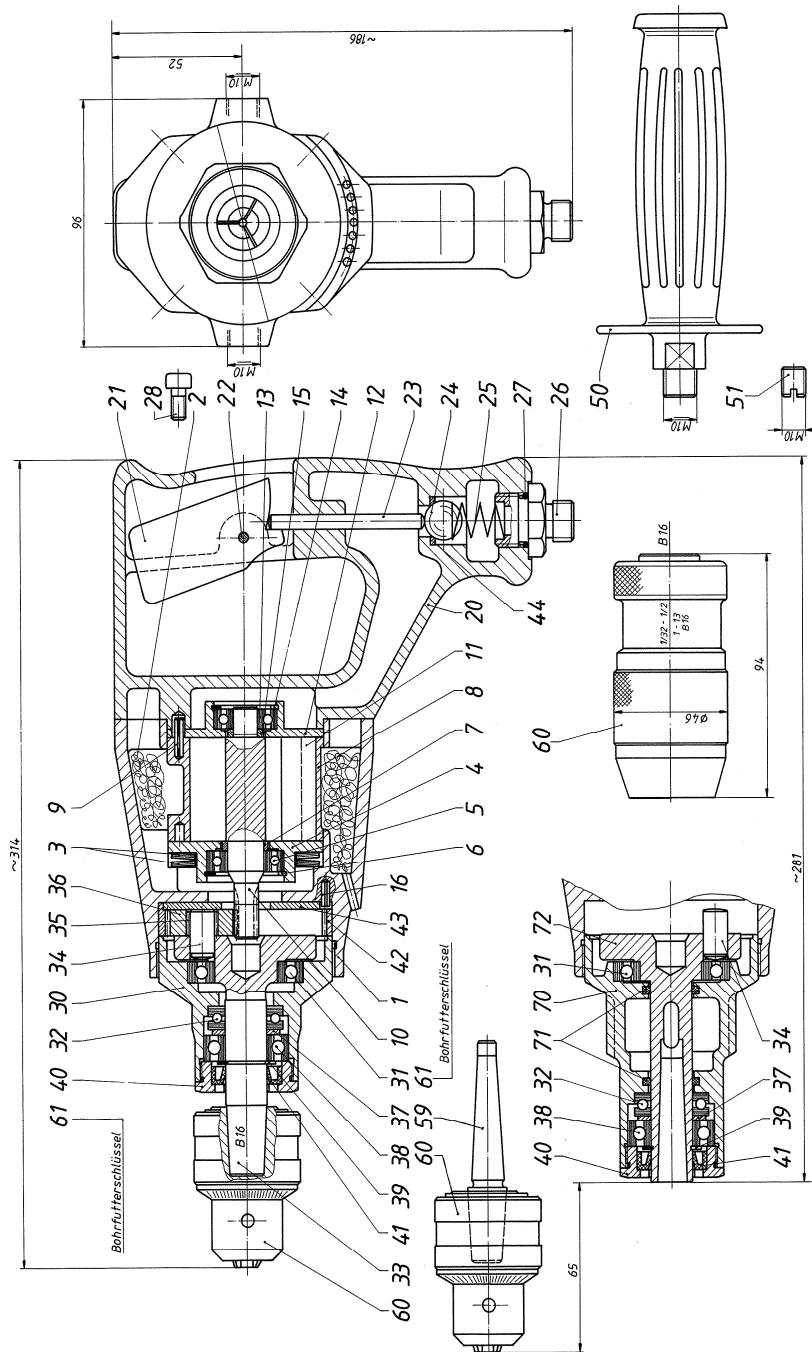
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2 1311 0010

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MAINTENANCE OF PNEUMATIC TOOLS

Only proper maintenance can ensure constant performance, reduction in wear and thus, a decrease in operating costs and an increase in service life.

Our pneumatic tools are equipped for an operating pressure of 6 bar. A regulator setting for an operating pressure of 4 bar is possible as well as expedient for grinding machines with a built-in regulator, so as to take full advantage of the speed prescribed for the corresponding grinding wheels.

Pneumatic tools should not run empty, because this results in heat and higher wear. The compressed air should be clean and dry. This is guaranteed by a proper pneumatic system. Blow through the pneumatic hose before connecting it. For the economical use of pneumatic tools, the prescribed air quantities are necessary, i.e., the line, armatures and hoses must have the required cross sections so that the flow pressure remains constant. Proper lubrication is a must; for this reason, our pneumatic tools usually have built-in oilers, which are located between the inlet valve and the motor, and which function in any position. In smaller and lighter hand tools, these oilers must often be left out, because the machines would then be too heavy and not easy to manage. In such cases, lubrication must be carried out by service units or by manual hose oilers. We recommend service units for permanently installed workplaces

(see accessories list). However, where longer hose lines are necessary, line oilers built into the hose lines are more effective. The distance between the tool and oiler should not be more than 5 m.

Most of pneumatic tools have located at the connection a lined-up screen, which is to be regularly checked and cleaned.

After ending a working task, the machines are to be flushed with a thin oil, or protected some other way against corrosion.

Visible grease nipples are provided for regular lubrication of the gears with a grease gun. Note the following for grease lubrication: Every 60 hours of operation check striking mechanism, friction bearings and antifriction bearings; if necessary, grease them. Every 300 hours of operation grease the gears and antifriction bearings anew. In the case of impact wrenches, use a grease gun to grease the anvil guide before beginning daily work or every 6 to 8 hours. All inner parts must be lubricated before storing for longer periods of time in order to prevent rusting. It is recommended to check the vanes and bearings at regular intervals. Store pneumatic tools in dry rooms only.

Lubricating oils to be used:
Generally SAE 5 W to SAE 10

For gearless impact wrenches and small grinders, only SAE 5 W

For damp compressed air, oils are to be used that take up water (without losing the lubricating effect) and that contain anticorrosive additives. At lower temperatures (especially for work outside) it may be necessary to use an antifreeze lubricant (e.g., Kifrost, BP Energol AX 10, Kompranol N 74).

For saw-chain lubrication on chain saws:

Machine oil **with adhesive additive**, viscosity c ST 49-55° (6.5 - 7.5 E) / 50° C

Greases (free of resins and acids)

Multi-purpose greases for antifriction and friction bearings and gears

Special greases for high-speed miter gears

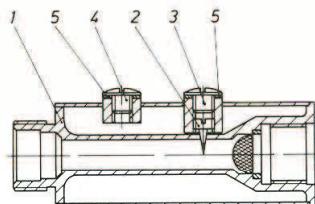
Designation in accordance with DIN 51502
Consistency class (DIN 51818)
Saponification type
Dripping point
Worked penetration
Temperature range

KL 2 K
2
lithium
185° C
265 to 295
−25° C to 125° C

G 00 h
00
sodium
145° C
400 to 410
−25° C to + 100° C

**Before starting:
Check correct oiler setting!**

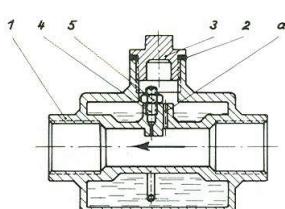
OILER TYPES USED ON OR WITH OUR TOOLS



Oiler to mount on the machine or connect in the hose line

Setting the oiler: The adjustment screw (Item 2) is visible after removing the screw plug (Item 3). The oil supply is decreased by tightening the screw, and by loosening the screw, more oil gets into the machine. In most cases it is sufficient to tighten or loosen the screw by 1/4 or 1/2 of a turn. When plugged, clean borehole (dia. 2 mm) with wire.

Correct setting: When under pressure and with the filler screw (Item 4) open, the oil must bubble slightly. The filling lasts for approx. 8 operating hours.

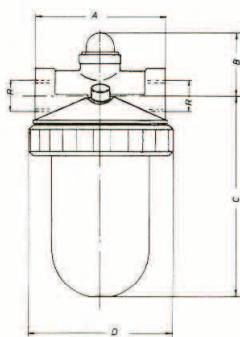


Line oiler

For stationary pneumatic machines and motors, the lubrication is carried out by lined-up oilers for horizontal or vertical installation.

Setting of oilers: Shut off air supply. Open plug (Item 3). Loosen visible lock nut (Item 5) with a socket wrench. Using a screw driver turn back the tightened screw plug (Item 4) by 1/4 to 1/2 of a turn and then lock again. No oil is to get into the borehole "a" when filling. Close plug (Item 3) and open the air supply.

Correct setting: A piece of paper held for a short time in front of the outlet must be coated with oil without drops forming.



Transparent oiler

For installing in permanently equipped workplaces.
(especially for type using service units – see accessories list)

The transparent supply containers allow for good checking as well as for good setting possibility by means of a screw driver via a set screw with visible dripping. (The set screw is above the lateral thread connection – turning to the right for less oil; turning to the left for more oil). The setting (2 to 5 drops per m³/min air consumption) is to be carried out when air is flowing through, i.e., when the machine is running.

**Before starting:
Check correct oiler setting!**