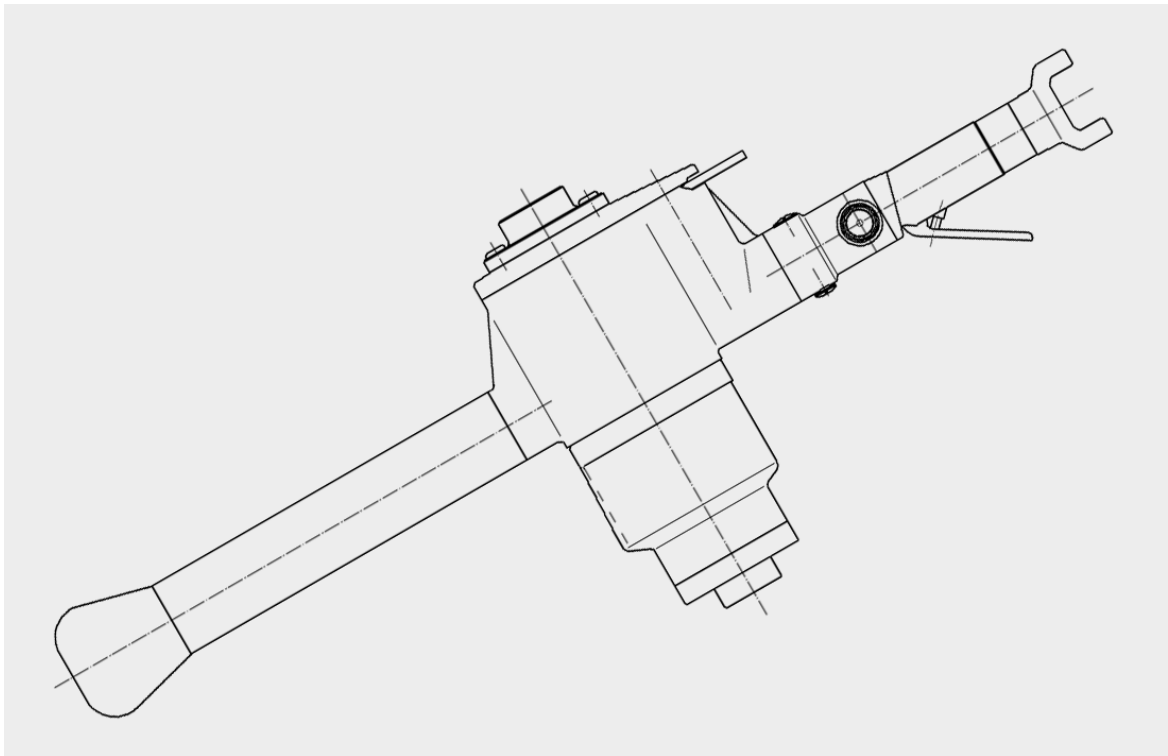


Pneumatic Drill and Drive Unit

Types

2 2080 – 2 2089



Technical specification

Operating pressure (flow pressure)	p	6 bar
Output	P	1 kW
Speed under load	n load	20 rpm
Free speed	n free	40 rpm
Torque at P	Mt	470 Nm
Air consumption	V	1.3 m ³ /min
Air connection	dia.	R ¾"
I/D of hose	dia.	15 mm

Operating Instructions

Handling and use are described here

Safety Instructions

Use

Danger Zones

Maintenance and Assembly Instructions

Contains basic information on pneumatic machines, technical specification, notes on maintenance, Wear and tear plus disassembly and assembly procedures.

Malfunction / Cause / Fault Clearance

Spare Parts Documentation

Supplementary Sheet

Maintenance of pneumatic tools

Note on oiler setting

Operating Instructions

General

The performance / engine power of the machine is designed for drilling and milling work in steel. Freehand drilling / milling is only possible up to 100 mm (risk of injury). The drill / drive unit must thus be centred and secured against rotation when working with larger diameters. Never attempt to hold the machine in the hand when drilling and milling at diameters above 100 mm.

Drilling / Milling

(also see the “ Use “ sheet)

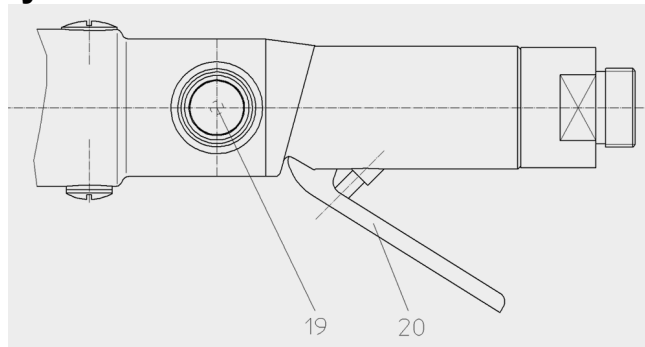
- Check the oil level. If necessary, add oil to fill up the oiler
- Fit the machine with the tool required
- Centre the machine with the tip in a suitable support and fix firmly.
- Secure the machine on the handhold against rotation when drilling / milling above 100 mm diameter
- Connect the air hose. (In order to remove contaminants, blow out the air hose before connecting).
- Actuate valve* and start the drilling milling operation. (The speed can be regulated, by opening the valve more or less). *The valve (safety lever throttle / twist throttle with sensor block) first releases the air when the sensor button is actuated. (see operation safety lever throttle / twist throttle with sensor block)

Make sure that the tools and workpieces are adequately cooled (by appropriate coolants).

After Finishing the Drilling Procedure

- Shut the valve.
- Shut off air and disconnect air hose.
- Remove the machine from the fixture.
- Remove drilling / milling tool.
- Check the oiler

Operation of Safety Lever Throttle

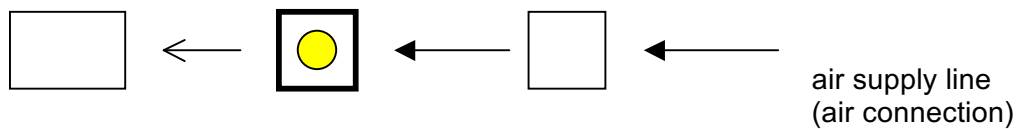


In order to ensure that the air medium flows through the valve, the differential piston valve must be actuated using the push-button (19) simultaneously with the valve lever (20). After this it is only necessary to hold the valve lever (20) firmly for the operation of the machine. If this lever is released the valve immediately shuts off. Both of these actuation mechanisms are arranged offset at 90° in order to prevent a simultaneous unintentional actuation of the two mechanisms at once and thus avoiding an unintentional start-up of the machine.

Operation of Twist Throttle with Sensor Block

The sensor block is set between the machine and the shut-off device (e.g. lever throttle, ball cock, twist throttle) (see Fig. 1).

Fig. 1

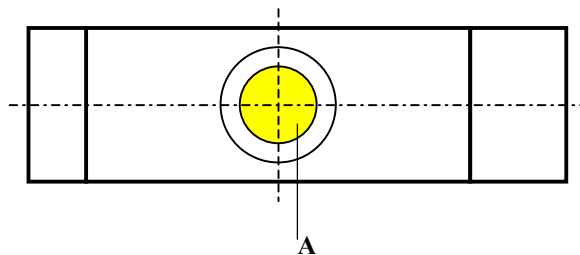


In order to ensure that the air flows through the sensor block and that the machine is correctly supplied, the differential piston valve (sensor block) must be actuated using the push-button “A” (marked with a yellow spot), after the opening of the shut-off device.

If the shut-off device is closed, or the air supply is interrupted, the sensor block (differential piston valve) immediately closes it off.

An air admission, even when the shut-off device is open, does not result in a start-up of the machine (flow-through in the sensor block closed).

Fig. 2



Operation of Switching Clockwise / Anti-clockwise Rotation

The Type: 2 2081 0040 is designed for clockwise / anti-clockwise operation. Switching to another direction of rotation may only be done when the machine has been switched off, since this will ensure that the reversing valve will not be burdened.

Safety Instructions

- Wear protective glasses (ships – risk of injury)
- Wear protective gloves (to protect against cuts from sharp edged workpieces)
- Wear protective clothing
- Ensure that you maintain good footing and proper balance at all times
- Never work under the influence of alcohol, drugs or stronger medication
- Switch off the machine before leaving it (shut the valve)
- Disconnect the machine from the air supply after working (to avoid unintentional switching on)
- Observe the local and generally applicable safety regulations for the prevention of accidents.

Use

Use for the purpose intended

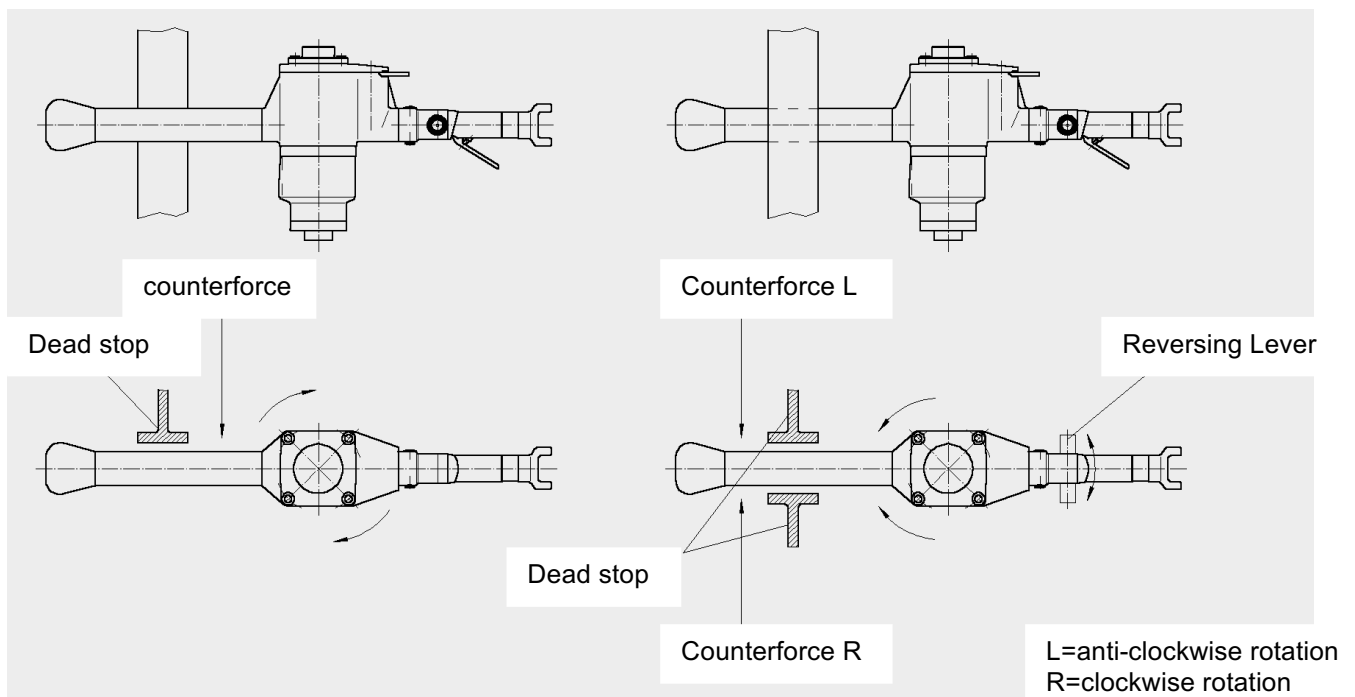
The machine is used for driving drilling tools for the spot boring of pipes. The machine is guided manually and must always be firmly gripped to ensure the absorption of the torque in drilling and milling work of over 100 mm diameter. A further use for the purpose intended is the mixing of mortar and similar materials. Any use deviating from the intended uses as described is considered to be incorrect use.

Improper use

Working without the use of a dead stop in drilling and milling work of over 100 mm in diameter.

Use of the machine as a drive for the lifting of either goods or passengers.

Working without use of personal safety equipment.



Danger Zones

Operational condition Life phase	Normal function	Malfunction	Improper use	Use to be expected
Transport	Transport of the machine in an inoperable condition	Machine is dropped	Transport of the machine in an operable condition	Unknown
Start-up	Machine must be fixed to a dead stop	Stop too weak	Working without using the dead stop	Unknown
Operation	Machine runs only when the valve is actuated	Machine runs unintentionally	Valve is blocked while open	Unknown
	The machine moves the tool	Tool is blocked	Unknown	Unknown
Maintenance	Regular changing of vanes			
	Operation on a service unit	Breakdown of the machine	Unknown	Unknwon

Maintenance and Assembly Instructions

Our air motors are designed for an operating pressure of 4-6 bar (60-90 psi).

The service life and the performance of the machine are determined to a significant extent by:

- a) the degree of air purity
- b) the lubrication and maintenance

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

to b) The service life of the machine is greatly increased by an optimum lubrication. The distance between machine and oiler should be no more than 5m. The oiler that is located between the machine and the twist throttle or lever throttle should always be checked for its oil content. The oiler should be set so that 2-5 drops are atomized per m³/min. air consumption. Clean the air inlet screen regularly.

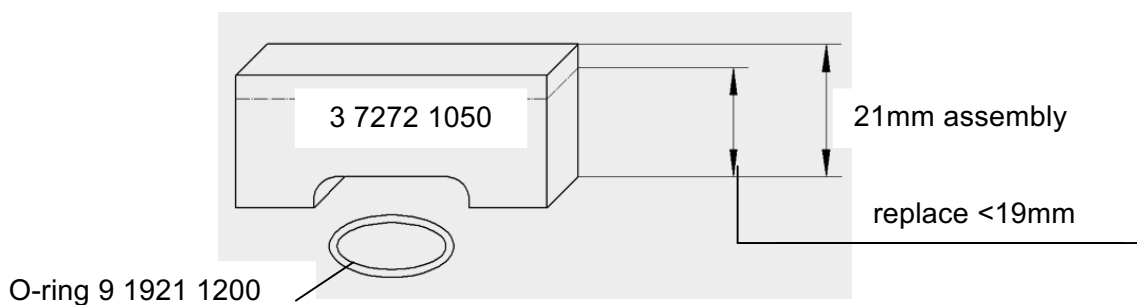
Use always acid- and resin-free SAE 5W - SAE 10W oil. Thick flowing oil will stick the vanes and as a result reduce the efficiency of the start-up and the performance of the motor. We thus particularly recommend to install a service unit and line oiler upstream of the machine.

An anti-freeze lubricant e.g. "BP-Energol AX 10", "Kilfrost" or "Kompranol N74" should be used in winter and if the compressed air is very moist. Observe instructions on the supplementary sheet:

"Maintenance of Pneumatic Tools"

The lubricated and sealed ball bearings must not be washed out.

Replace wear parts -in particular the vanes – when necessary. **Vanes are worn and ready for replacement when their width is less than 19 mm.**



It is advisable that the O-ring that is devised as a start aid, should also be replaced when changing the vanes.

After ending a working task, the machine should be rinsed down with a thin oil or other corrosion protection measures must be taken.

The Assembly / Disassembly should be in accordance with the sectional drawing.

Disassembly of the Components

- Screw out entire silencer handhold.
- Remove front silencer (18) after loosening the screws (19).
- Pull out the entire safety lever throttle after loosening the screws (41)
- Separate gearbox from motor after removing the screws (83).

Disassembly Motor

Loosen screws (14), remove centring block (15). Turn the screws (16) until they come out, remove the motor cover (13), take out Belleville spring (12). Press out the entire inner parts of the motor. Light pressing on of a wooden base or light tapping with a plastic hammer on the rotary journal is helpful here. Pull off end plates (2) with bearings (3) from the rotor (9). Pay attention to the spacers (5) while doing so. Pull off cylinder bushing (6) and pull vanes with O-rings (11+10) out of the rotor slots.

Only in reversible models when necessary :

After removal of the reversing lever (20) pull reverse valve (1.3) out of reversing bush.

Caution!

In the case of a motor with single direction of rotation the air supply is firmly fixed in the reversing area and must not be removed.

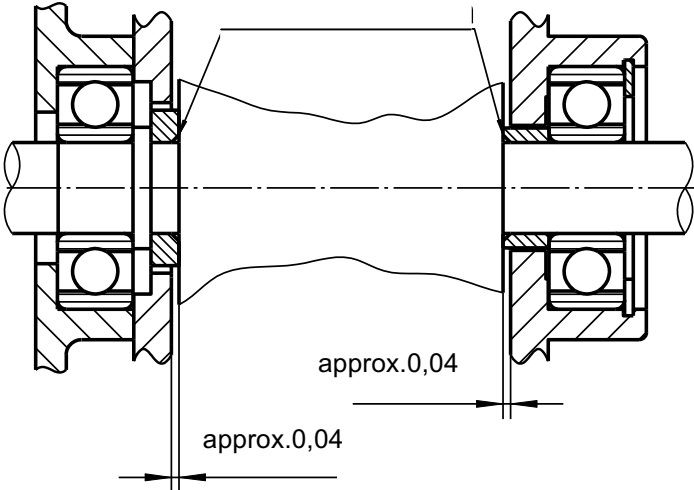
Disassembly Gearbox

Remove gear cover (64) after loosening the screws (66). Remove snap ring (63). By pushing lightly the planet carrier (55) with inner square on a wooden base, the separate gear stages can be pressed out of the casing. A further taking apart is then possible if required.

Assembly

The assembly is made analogously in the reverse order to disassembly. During the motor assembly particular attention must be given to ensuring the correct distance of rotor (9). The axial play between the rotor (9) and end plates (2) should be 0.04 mm per side (see Fig. 1). The rotor slots must be cleaned of any oil and resin residues. It must be possible to push the new vanes (11) with the O-rings (10) easily into the slots.

Fig. 1



The separate gear stages must be checked for ease of running.

Grease (resin and acid-free)	Multiple purpose grease for friction bearings and gears
Designation to DIN 51502	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

Use only Original Spare Parts!

Malfunction / Cause / Fault clearance

	Malfunction	Cause	Fault clearance
a	> Machine does not start	<ul style="list-style-type: none"> > Air not connected > Rotor rusted by damp > Vanes jam (worn) > gearbox blocked 	<ul style="list-style-type: none"> > Connect and open air line > Disassemble and clean motor, check and test service unit for function > Disassemble and clean gearbox, replace worn parts
b	> Valve lever / pin jams	> Dirt in valve	> Unscrew connecting nipple, clean spring, ball, seal and pin
c	> Machine rotates too slowly	<ul style="list-style-type: none"> > Operating pressure too low > Rotor drags on end plate / Cylinder bushing > Gear parts jam 	<ul style="list-style-type: none"> > Increase operating pressure (on the machine to 6 bar) > Disassemble and clean motor, replace worn parts and re-distance > Disassemble and clean gearbox, replace worn or damaged parts
d	> 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 worn end plates > Coarse impurities in motor area jammed between rotor and cylinder bushing 	<ul style="list-style-type: none"> > Disassemble and clean motor, replace worn parts and re-distance > Disassemble and clean motor, replace worn parts > Disassemble and clean motor, replace worn parts and re-distance
e	> Gearbox makes loud noises	<ul style="list-style-type: none"> > Needle cage defective > Tothing is clattering > Ball bearings defective 	> Disassemble and clean gearbox, replace worn or damaged parts