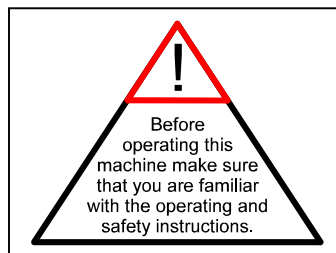


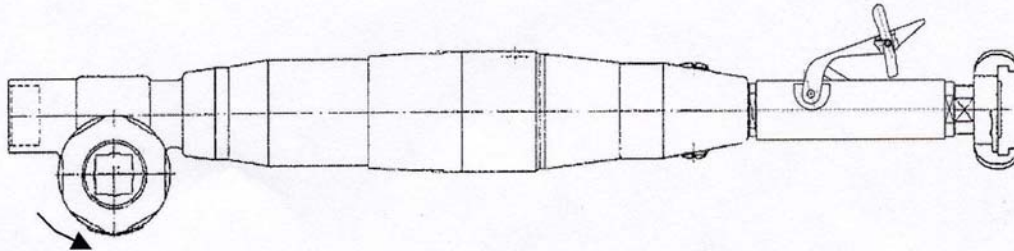
MODEL 6 1015 AIR NUT RUNNER



OPERATING MANUAL



Maintenance and Assembly Instructions



Technical Specification

Operating Pressure (Flow Pressure)	p	6	bar
Performance	P	0.65	kW
Speed (load)	n	22	rpm
Speed (idle)	n	44	rpm
Torque	Mt	280	Nm
Tool Holder (inner diameter)	•	20	mm
Rotation (see figure)		CCW	
Air consumption	V	1.3	m ³ /min
Air connection	*	R 3/8"	
ID of Hose (minimum)		13	mm
Noise (average 1 m distance)		85	dB(A)

* Claw coupling is an accessory

Available Square Drives:

- 6 1015 7030 □ 20 to □ 12
- 6 1017 4250 □ 20 Inlet to □ 19 Outlet
- 3 6339 4150 □ 20 to □ 15

- OPERATING INSTRUCTIONS

Operation and procedure are described here.

- SAFETY INSTRUCTIONS

- USE

- DANGER ZONES

- MAINTENANCE AND ASSEMBLY INSTRUCTIONS

This section contains the fundamentals of pneumatic machines, technical data, maintenance instructions and wear, as well as disassembly and assembly procedures.

- PROBLEM / CAUSE / SOLUTION

- SPARE PARTS DOCUMENTATION

This section consists of parts list, sectional drawings or exploded views.

- SUPPLEMENT

Maintenance of Pneumatic Tools

Instruction for oiler adjustment

Operating Instructions

General

The performance and pull-through force of this machine are designed for the drilling and milling of steel and cast iron. Also turning Valves, cutting Threads and tightening Bolts and Nuts. Freehand drilling and milling can only be performed for tools up to 100 mm in diameter. For tools with larger diameters, always work with a dead stop and ensure against rotation of the machine (danger of injury).

Drilling/Milling

- Check the oil level. If necessary, add oil to fill up the oiler.
- Attach desired tool to the machine.
- Center the machine on a suitable support, if working with a tool having a diameter of greater than 100 mm.
- Prevent the machine from rotating upwards (do not hold by hand), if working with a tool having a diameter of greater than 100 mm. See the section entitled „USE“.
- Connect the compressed air hose (blowing out of the hose before connecting is recommended in order to remove contaminants).
- Open the valve and begin the drilling or milling operation.
(The rpm's can be regulated by the opening of the valve to different degrees).

Other Application

- Tightening Bolts and Nuts (max Torque 280 Nm).
- Cutting Threads
- Closed and Opening Valves

After Finishing the Operation

- Close the valve.
- Turn off the compressed air and disconnect the compressed air hose.
- Take the machine out of the square holding.
- Remove the tool.
- Clean the tool holder seat.
- Check the oiler.

Safety Instructions

- Wear safety glasses (danger of injury through whirling up of dust particles).
- Wear safety gloves (injury by cutting oneself on sharp-edged workpieces).
- Wear protective clothing.
- Ensure that you maintain a good footing and proper balance at all times.
- Never work under the influence of alcohol, drugs or stronger medication.
- After use, disconnect the machine from the compressed air line (avoidance of unintentionally turning on machine).
- Follow the general current and appropriate **Accident Prevention and Safety Procedures**.

Use

Intended Use

The machine serves as a drive for drilling tools during the boring of pipes. The machine is guided by hand. When working with drilling or milling tools with diameters greater than 100 mm, the machine must continually contact a fixed dead stop in order for the torque to be transmitted to the machine.

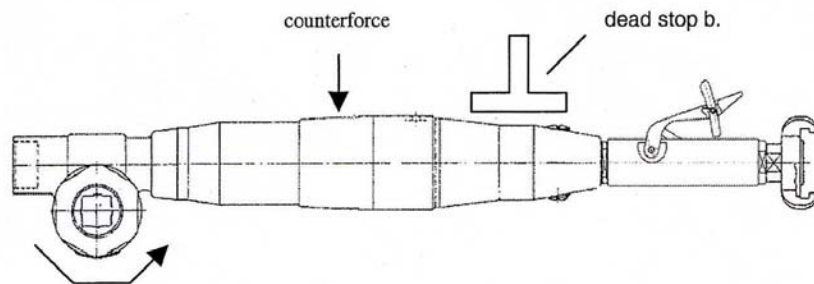
Any use which deviates from the instructions mentioned in this guide qualifies as unintended use.

Unintended use

Working without a dead stop when using tools with diameters greater than 100 mm.

Use the machine as a drive for lifting goods or people.

Working without using personal safety protective measures.



a. dead stop and housing

Danger Zones

Operating Conditions	Normal Function	Malfunction	Misuse	Expected Use
Life Phase				
Transport	Transport of the machine in an inoperable condition	Machine is dropped	Transport of the machine in an operable condition	Unknown
Start-up	Inserting the machine into the drill stand provided	Unknown	Drilling without using the drill stand	Unknown
Operation	Machine runs only when valve is open	Machine runs unintentionally	Valve is blocked while open	Unknown
	Machine moves the tool	Tools is blocked	Unknown	Unknown
Maintenance	Regular changing of vanes			
	Operation on a service unit	Breakdown of machine	Unknown	Unknown

Maintenance and Assembly Instructions

Service life and performance of this machine are decisively determined by

- a) **the air purity**
- b) **the lubrication conditions and maintenance**

Note a):

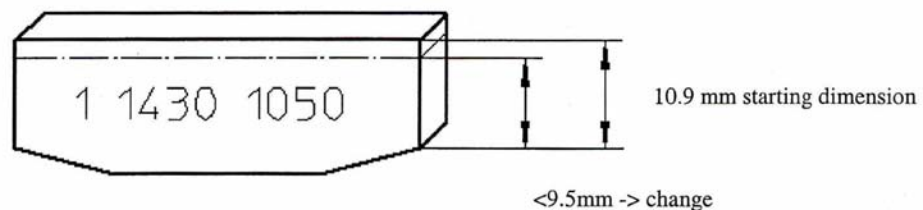
Before connecting the compressed air supply to the machine, blow out the air hose. If rust is able to build up and water is able to condense in the compressed air supply line, the place dirt and water precipitation filters at the air inlet.

Note b):

The distance between the machine and the oiler should not be more than 5 m. The oiler, which is found in the latch valve, should therefore always be checked to determine the oil level. The oiler should be adjusted so that 2-5 drops are dispersed per m³/min of air consumption. Resin- and acid-free lubricating oils SAE 5 W – SAE 10 should always be used. Viscous oils cause sticking of the vanes and thereby impair the start-up and performance of the motor. Through optimal lubrication, the service life will be multiplied. Please take note of the supplement

MAINTENANCE OF PNEUMATIC TOOLS

Sealed and greased ball bearings must not be washed out and the machine must generally never be rinsed with petroleum or similar cleaning fluids. After ending the drilling or milling operation, rins the machine with a thin oil or use other measures to ensure against corrosion. Clean the filters at the air inlet regularly. In winter and in case of very humid compressed air, antifreeze lubricants, such as **BP-Energol AX 10**, **Killfrost** or **Komranol N 74**, should be used. Parts exposed to wear -- especially the vanes -- should be regularly changed. They are considered to be worn when the **width is less than 9.5 mm**.



Maintenance and Assembly Instructions

We recommend reapplication of the grease in the planetary gear and in the worm gear after 300 hours of operation. Use only special gear grease. The rolling bearings must be thoroughly cleaned and filled with new bearing grease after approximately 900 hours of operation. In order to avoid excessive heating of the bearing, the space between the inner and outer rings should only be filled with grease until it is about 1/3 full.

The correct amount of grease is very important with respect to achieving good lubrication and minimal heating.

Grease (resin- and acid-free)	Multipurpose Grease for Rolling and Sliding Bearings and for Gears	Special Grease for Worm Gears
Designation according to DIN 51502	KL 2k	G 00 h
Consistency Class DIN 51818	2	00
Saponification Additive	lithium	sodium
Drop Point	185° C	145° C
Walk Penetration	265 – 295	400 – 410
Temperature Range	-25° C to +125° C	-25° C to +100° C

Disassembly and Assembly:

The disassembly and the assembly should only be performed with assistance of the exploded views and sectional drawings.

Disassembly

Motor

Detach the motor housing (1) and the gear connection (16). The exhaust ring (19) can be pulled off the motor housing. Unscrew the valve (60) and push motor parts, such as the end plates (3 and 10), the cylinder bushing (6) and the rotor (8), out from behind. Check all parts especially the vanes (9), for signs of wear and damage.

Planetary Gear

Detach the gear housing (25) and the gear connection (16). Through gentle knocking against a wooden block, the two planetary gear stages complete with the bearings can be removed from the gear housing. After the lock washer (49) and the bearing cover (50) have been screwed off, the worm gear wheel (46) and the worm (47), as well as the axial bearing (41), the radial bearings (43 and 48) and the needle bearing (44), can be removed.

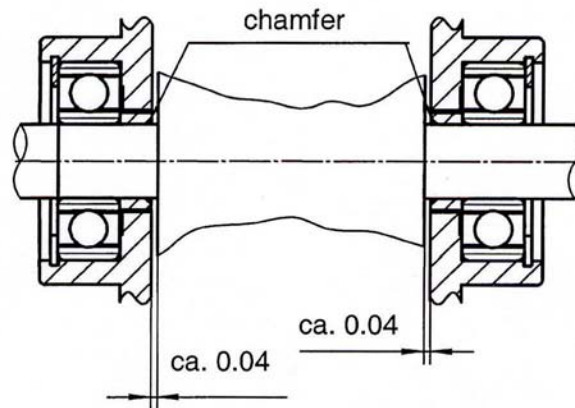
Maintenance and Assembly Instructions#

Assembly

The assembly is performed in basically the opposite order as the disassembly.

Ensure that the motor is precisely aligned. The clearance between the rotor (8) and the end plates (3 and 10) should be 0.04 mm in the front and in the back (see figure 2). The chamfers in the spacer rings (13 and 21) must point to the middle of the rotor. The cylinder bushing has to be correctly oriented before being inserted.

Figure 2:



The position of the lever valve can be determined with the help of the compensating coils.

For all repairs, use the ORIGINAL SPARE PARTS only.

Check after Assembly			
Operating Pressure (Flow Pressure)	p	6	bar
Speed (idle)	n	40-45	rpm
Air consumption (idle)	V	1.3-1.4	m ³ /min
Noise (1 m distance)	ca.	85-87	dB(A)

Maintenance and Assembly Instructions

Problem / Cause / Solution

	PROBLEM	CAUSE	SOLUTION
a	Machine doesn't start up	<ul style="list-style-type: none"> > Not connected to compressed air > Rotor has been rusted by humidity > Vanes are jammed (worn) > Gearing is blocked 	<ul style="list-style-type: none"> > Connect and open the compressed air line > Dismantle and clean the motor; check the service unit to see if it is functioning > Dismantle and clean the motor; replace worn parts. > Dismantle and clean the gearing; change worn parts
b	Valve lever / shaft is jammed	<ul style="list-style-type: none"> > Contamination in valve 	<ul style="list-style-type: none"> > Screw off the connection fitting; clean the spring, ball, seal and shaft
c	Machine is rotating too slowly	<ul style="list-style-type: none"> > Operating pressure is too low > Rotor is rubbing against the end plate / cylinder bushing > Gear parts are worn down 	<ul style="list-style-type: none"> > Increase the operating pressure on the machine to 6 bar > Dismantle and clean the motor; replace worn parts and align the motor again > Dismantle and clean the gearing; replace worn or damaged parts
d	Motor seizes up / jammed	<ul style="list-style-type: none"> > Vanes are worn or broken; broken parts are jammed between the rotor and the cylinder bushing > No lubrication – ball bearings were running dry; rotor was rubbing against the end plates > Coarse dirt particles in the motor compartment between the rotor and the cylinder bushing 	<ul style="list-style-type: none"> > Dismantle and clean the motor; replace worn parts and align the motor again > Dismantle and clean the motor; replace worn parts > Dismantle and clean the motor; replace worn parts and align the motor again
e	Gearing makes loud noises	<ul style="list-style-type: none"> > Needle cages are defective > Gear teeth are chattering > Ball Bearings are defective 	<ul style="list-style-type: none"> > Dismantle and clean the gearing; replace worn or damaged parts