

Hydraulic Grinder for Underwater Use Type 1 1580 0060



Illustration can differ from the original

Operation and Maintenance Manual

TECHNICAL SPECIFICATION

Type		1 1580 0060
Working pressure p arb		90 bar
Capacity P		1,8 kW
Speed appr. at free speed		7000 rpm
Displacement V		18 l /min
Hydr. Connection		M18x1,5
Noise at 1 m distance free speed		80.6 dB(A)
Vibration free speed		< 2.5 m/s ²

Operation Instructions

Handling and replacement of the grinder body are described, danger zones, failures, root causes and remedy are itemized.

Maintenance and Assembly Instruction

Contains basic information on hydraulic machines and maintenance hints

Spare Parts Documentation

Lists and sectional drawings

Supplement

Maintenance of hydraulic tools

OPERATION INSTRUCTION

General

The capacity/ grinding force of the machines are designed for grinding work at two-hand handling.

Hydraulic Supply

In order to obtain the given capacity data, a minimum volume flow of 10 l /min is required. Over supplied oil up to max. 50 l/ min is piped back to the tank by an internal bypass. The pressure oil supply has to be equipped with a pressure limiting valve, which limits the maximum pressure to 90 bar.

Hydraulic fluid: High quality, wear-resistant hydraulic oil

Viscosity: min. 13 c St, optimum 20-43 c St

Oil temperatures: -35°C up to 80°C

Oil filtration: ISO purity class 18/13

Grinding Body

Only grinding bodies, of which the bore tolerance complies with DIN 69109, should be used. When a new wheel is fitted, there will be an inevitable radial run out, which can be reduced considerably by pressing the running wheel against a sharp edge. Once run-in, the wheel should not be untightened or released, because of quiet running. According to DSA directive, grinding wheels may be mounted by experienced personnel only.

GENERAL SAFETY INSTRUCTIONS

The general current and appropriate accident prevention regulations have to be observed.

Attention:

When using hydraulic machines, the basic safety instructions have to be followed, in order to avoid personal injury. Read these instructions completely, before using the machine and keep the instructions.

For safe operation:

1. Keep the work place clean. Untidy work places and workbenches increase the risk of accident.
2. Consider the operation conditions.
3. Keep children away from the machine. Avoid other persons getting into contact with the tool.

4. Keep the tools in safe custody. They should be stored at a dry and lockable place, in order to keep out of reach of children.
5. Never use tools with inappropriate force. Their performance is better and safer, if they are used with the specified speed.
6. Only use the appropriate tool. Never use a smaller tool or accessory device for work, which requires high performance machines. Only use tools which are designed for the intended purpose.
7. Never wear loose clothing or jewellery which can get entangled in the working parts of the tool. When working outdoor you should wear gloves and antislip shoes.
8. Wear goggles. When working in a dusty environment, a face guard or dust guard should be worn.
9. Never carry a tool at the hose.
10. Safeguard the work place. Use clamps or a vice for fixing the work piece. This is safer than using the hands and the hands are free for operating the tool.
11. Do not overreach. Maintain proper footing and balance at all times.
12. The tools should be handled carefully. They always should be sharp and clean in order to ensure a correct and safe operation. Imperatively observe the instructions for greasing and replacing the accessories. Regularly check the hoses of the machines and replace in case of damage.
The grips should always be dry and clean and have no oil or grease residues.
13. Separate the machine from the hydraulic supply, prior to maintenance work and tool replacement and when not used.
14. Remove screw wrench. Pay attention that all driving wedges and screw wrenches have been removed before starting the machine.
15. Avoid unintentional starting. Never carry a connected machine with the finger at the valve trigger. Check if the machine is switched off prior to transport.
16. Always have the work process under control.
17. Check damaged parts. Damaged parts and protection devices should be checked carefully before using the tool, in order to find out if they function correctly. Check adjustment, connections and mounting of moving parts.
Also check if there are broken parts. Damaged parts or protection devices should be replaced or repaired by qualified personnel, unless otherwise mentioned in the operation instruction. The same has to be applied for defective switches and valve triggers. If the tool can not be switched on or off, the tool should not be used.
18. **Attention:**
The use of different accessories or additives than recommended in this operation instruction can lead to personal injury.
19. Arrange the tool to be repaired by qualified personnel only. This hydraulic machine complies with the safety requirements. Repairs should be executed by qualified personnel only, by using original spare parts, otherwise there may be considerable danger for the user.

DANGER ZONES

Operational condition	Normal function	Malfunction	Improper use	Expected use
Life phase				
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 the machine with designated grinding tools	unknown	Equipment with chamfering tools	unknown
Operation	The machine is only working when valve is actuated	Machine runs without intended actuating	Valve is blocked while open	unknown
	Machine moves grinding body	Grinding body improperly fixed	unknown	unknown
Maintenance	Regular cleaning	Breakdown of the machine	unknown	unknown
	Operation at a filter unit	Breakdown of the machine	unknown	unknown

TROUBLE SHOOTING

	Problem	Cause	Remedy
a	Machine doesn't start	No hydraulic supply Do not actuate valve	Connection and opening of the hydraulic supply Actuate Valve
b	Valve lever / Pin jams	Dirt in the valve	Disassemble valve parts and cleaning
c	Machine turns too slowly	Operation pressure too low Controller jams Friction of bearings in the gearbox	Increase operation pressure to 90 bar (at the machine) Disassemble motor, cleaning and replacement of worn out parts Disassemble gearbox, cleaning, replace worn out parts
d	Motor jams	Gross dirt in the motor box Motor parts broken	Disassemble motor, cleaning, replace worn out parts
e	Output, neck or extension make strong noise	Defective friction bearing	Disassemble output, neck or extension, cleaning and replace worn out/damaged parts

OPERATION INSTRUCTION FOR UNDERWATER TOOLS

Prior to Underwater work

- Check if the machine is leaking
- Check the functioning of all parts
- Spraying of all moving parts with spray OKS 8601 (or similar)
- Insert the tool with grease

After Underwater work

- Cleaning of the machine
- Dry the machine by blowing with compressed air
- Spraying of all moving parts with spray OKS 8601 (or similar)

For additional information have a look at the specific operation and maintenance instruction.

For a long life time of the machine we recommend regular (3-monthly) general overhaul by SPITZNAS.

Spray OKS 8601: Spitznas part no. 9 9902 0120

Our hydraulic grinders are designed for an operation pressure of 90 bar.

MAINTENANCE OF HYDRAULIC 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 hydraulic tools are equipped for an operating pressure of up to 100 bar. Regulator setting for a lower operating pressure is possible.

The tools should not run empty, because this results in heat and higher wear of the output section and the tool holder. The hydraulic oil should be clean. This is ensured by a professional equipment. Clean the connecting parts before connecting the hydraulic hoses. For an economic use of the hydraulic tools the required sizes of pipe, fittings and hoses have to be adjusted.

Proper greasing of the gear and the tool heads is a must. See the operation manual on this.

After finishing the work the tools have to be cleaned and protected against corrosion.

Visible grease nipples are provided for regular lubrication of the gears with a grease gun, or the gearboxes have a long term greasing.

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 6-8 hours.

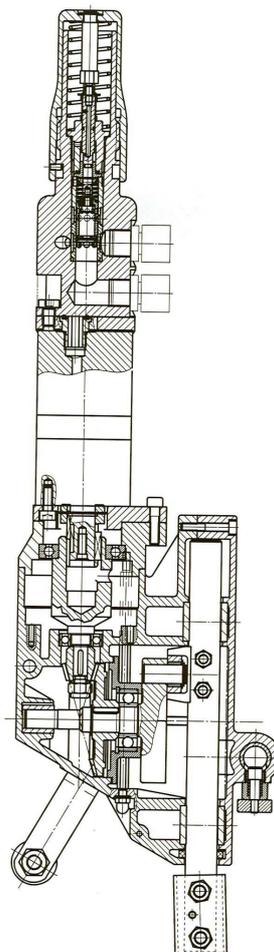
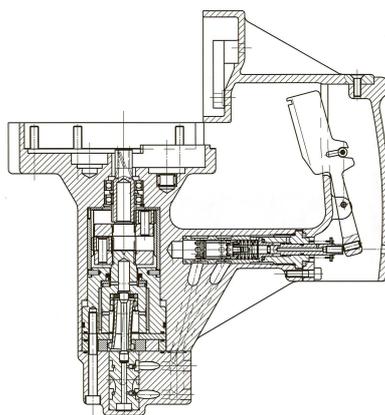
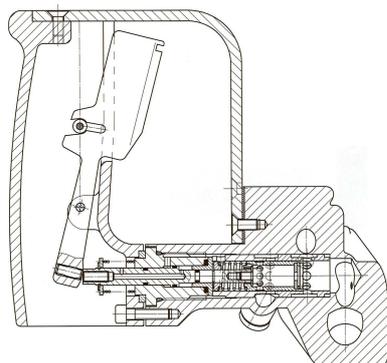
All inner parts of the drive (tool holder must be lubricated before storing for longer periods of time in order to prevent rusting. It is recommended to check the vanes and bearings at regular intervals. Store tools in dry rooms only.

Grease to be used:

In general: SAE 5 W to SAE 10

For impact wrenches without gear only SAE 5 W

For saw chain greasing on chain saws:
Machine oil with adhesive additive, viscosity:
c ST 49-55' (6,5-7,5 E) / 50°C



GREASE (free of acids and resins)

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

Multi-purpose greases for antifriction and friction bearings and gears

K L 2 k
2
Lithium
185 °C
265 to 295
-25°C to + 125°C

Special greases for high-speed miter gears

G 000 h
00
sodium
145°C
400 bis 410
-25°C bis + 100°C

For the operation of the hydraulic motor we recommend high-class hydraulic oil, e. g. HLP 46, depending on the case of operation (temperature).

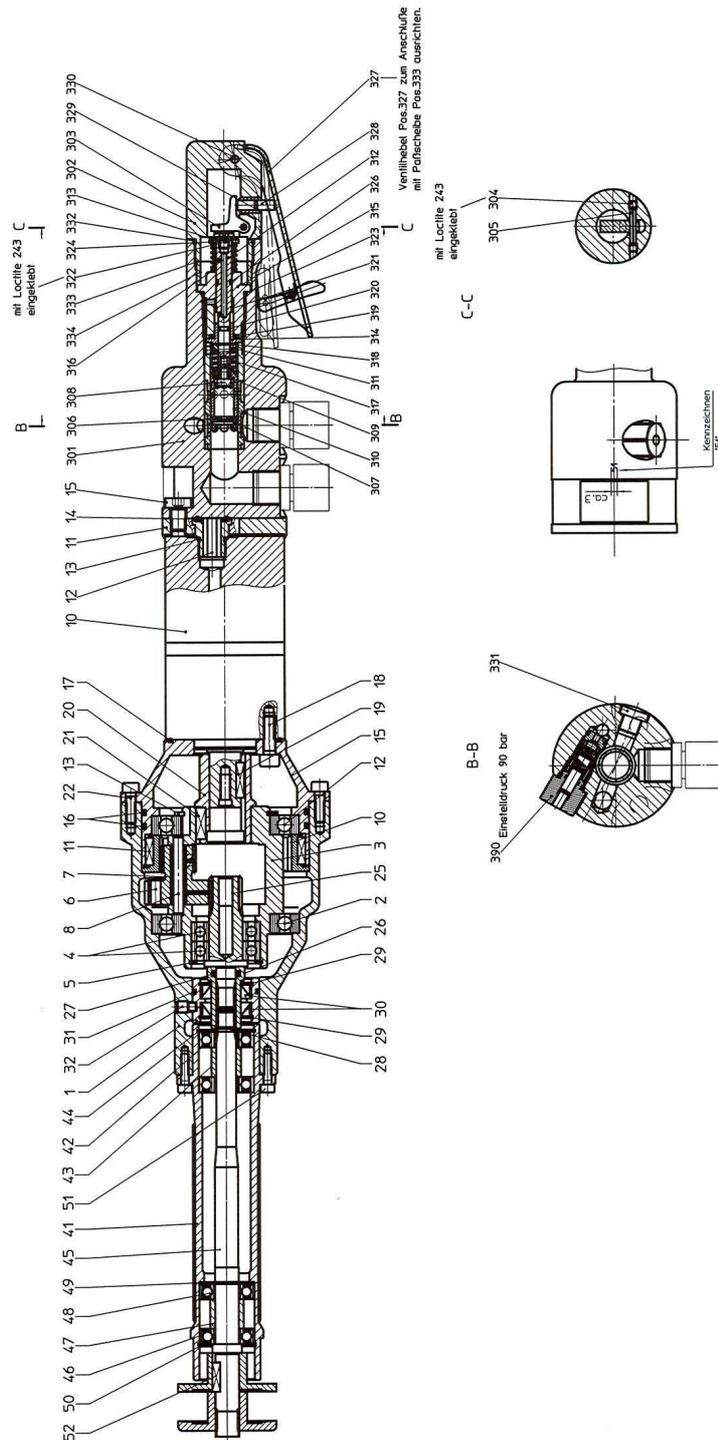
Spare Parts List

Description:

**Hydraulic Grinder
for underwater use**

Part and drawing number:

1 1580 0060



Spare Parts List

Description:

Part and drawing number:

Lever valve

5 1220 3510

Item	Qty.	Description	Part and drawing no.		Remarks
301	1	Valve housing, Assy.	5 1220 3520		
302	1	End piece, Assy.	5 1220 3530		
303	1	Arm	5 1220 3560		
304	2	Threaded pin	9 1140 2030		
305	1	Cylinder pin	9 1619 0150		
306	1	Cladding d=4,2 mm 18 l/min	1 1580 3080		
307	1	Snap ring	9 1703 0260		
308	1	Fillister-head screw	9 1110 2090		
309	1	Disc	9 3302 0150		
310	1	Governor piston valve	2 1317 3320		
311	1	Spring plate	2 1317 3070		
312	1	Slider	5 1220 3110		
313	1	Locking plate	9 1706 0140		
314	1	Sleeve	5 1220 3540		
315	1	Guide	5 1220 3610		
316	1	Compression spring	9 1803 3590		
317	1	Compression spring	9 1803 1700		
318	1	Snap ring	9 1706 0180		
319	1	O-Ring	9 1901 3290	*	
320	1	O-Ring	9 1901 9800	*	
321	1	O-Ring	9 1901 2550	*	
322	1	Threaded pin (Pressure piece screw)	9 1148 3030		
323	1	O-Ring	9 1901 6020	*	
324	1	Disc	9 3304 0110		
326	1	O-Ring	9 1901 2080	*	
327	1	Lever valve, Assy.	5 5010 3940		
328	1	Trigger pin	5 1220 3550		
329	1	O-Ring	9 1901 2020	*	
330	1	Grooved pin	9 1627 0090		
331	2	Locking screw	9 1174 0010		
332	1	O-Ring	9 1901 2380	*	
333	2	Adjusting washer	9 3331 1740	*	
333	2	Adjusting washer	9 3325 1130	*	
333	1	Adjusting washer	9 3331 0170	*	

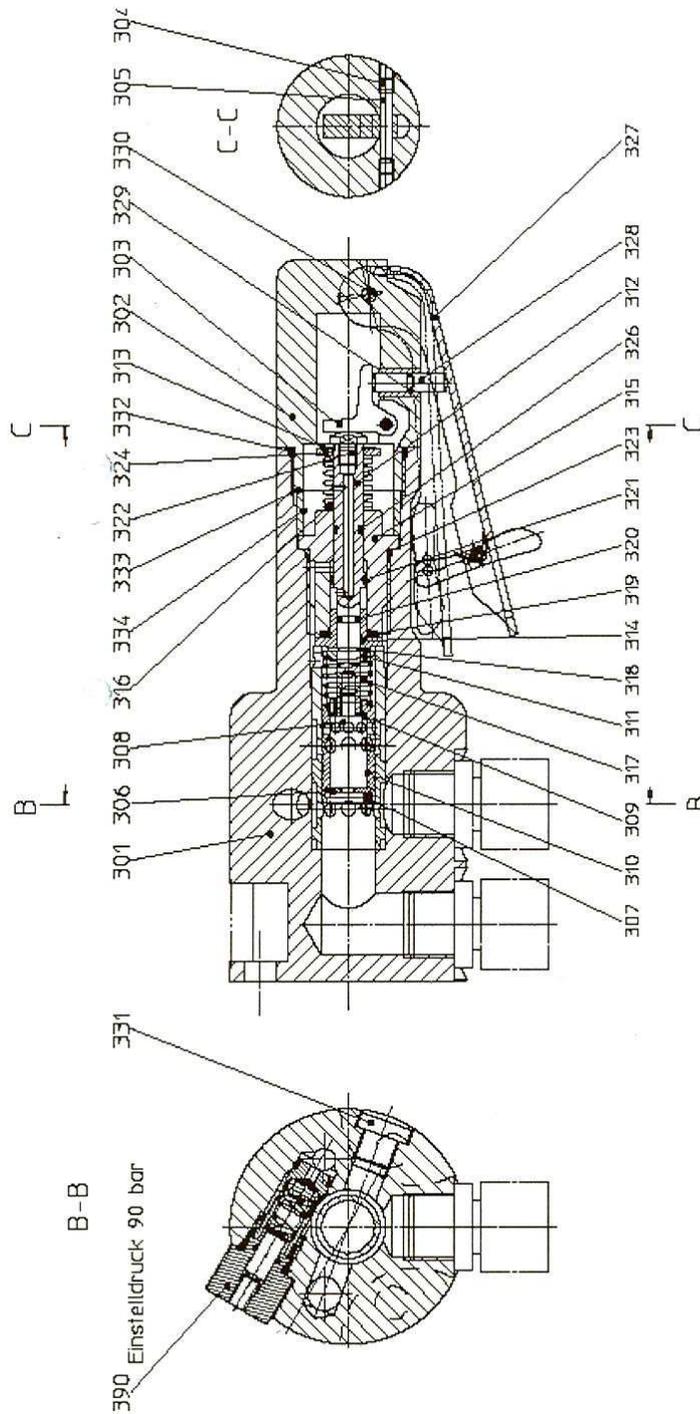
Spare Parts List

Description:

Lever Valve

Part and drawing number:

5 1220 3510



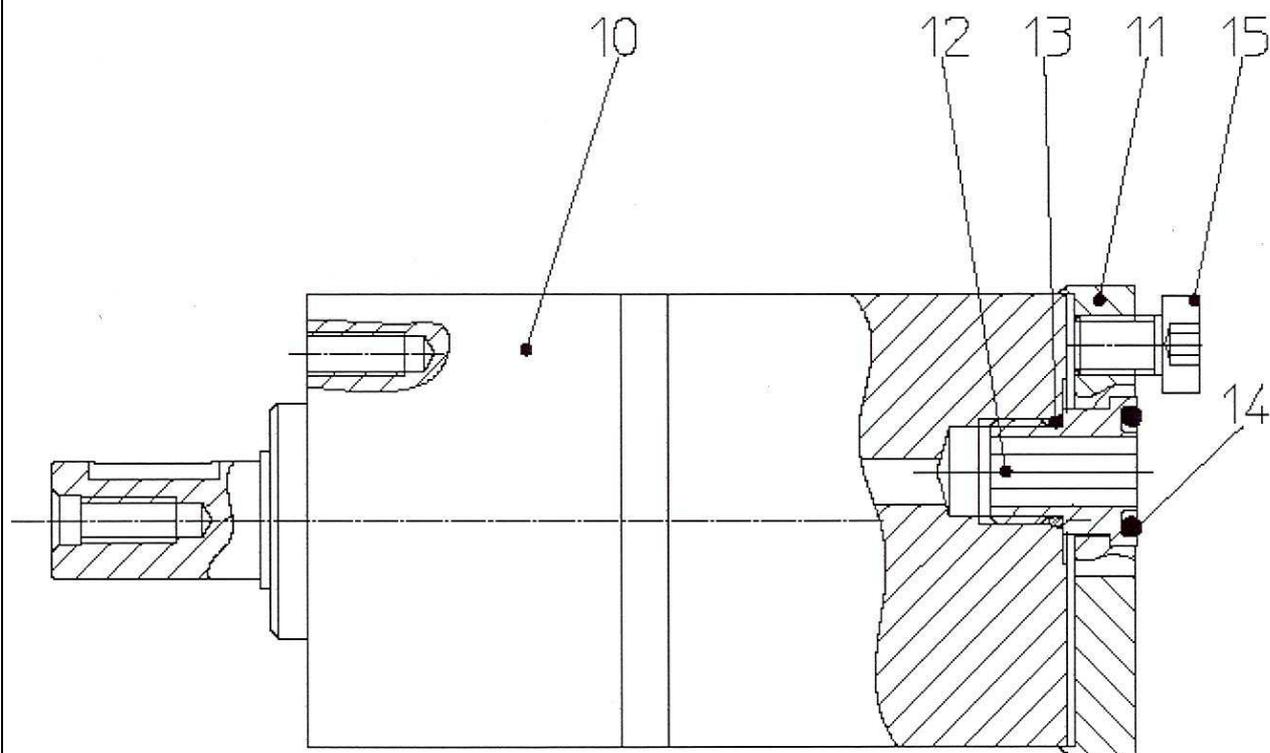
Spare Parts List

Description:

Part and drawing number:

Hydraulic Motor

1 1580 1600



Spare Parts List

Description:

Part and drawing number:

Gearbox (i =10)

1 1580 4000

Item	Qty.	Description	Part and drawing no.		Remarks
1	1	Gearbox housing, Assy.	1 1580 4910		
2	1	Grooved ball bearing	9 1002 0080	*	
3	1	Planet carrier	1 1580 4030		
4	2	Grooved ball bearing	9 1003 0040	*	
5	1	Snap ring	9 1703 0110		
6	3	Double planetary wheel	1 1580 4040		
7	9	Needle cage	9 1015 0160	*	
8	3	Needle roller	9 1016 0520	*	
10	1	Pinion	1 1580 4020		
11	2	Feather key	9 1501 2210		
12	1	Grooved ball bearing	9 1002 0080	*	
13	1	Snap ring	9 1702 0190		
15	1	Connection cover	1 1580 4190		
16	2	O-Ring	9 1901 3420	*	
17	1	O-Ring	9 1921 1240		
18	5	Fillister-head screw	9 1110 4030		
19	1	Feather key	9 1507 9050		
20	1	Coupling sleeve	1 1580 4290		
21	2	Feather key	9 1501 3080		
22	4	Fillister-head screw	9 1110 3310		
25	1	Pinion shaft	1 1580 4200		
26	1	Coupling	1 1580 7030		
27	1	O-Ring	9 1901 3290	*	
28	1	Sealing sleeve	1 1580 7040		
29	2	Snap ring	9 1703 0050		
30	2	Radial shaft sealing ring	9 1905 0760	*	
31	1	O-Ring	9 1901 3180	*	
32	1	Threaded pin	9 1747 4020		
		* wear and tear parts to be stored in case of continuous use			

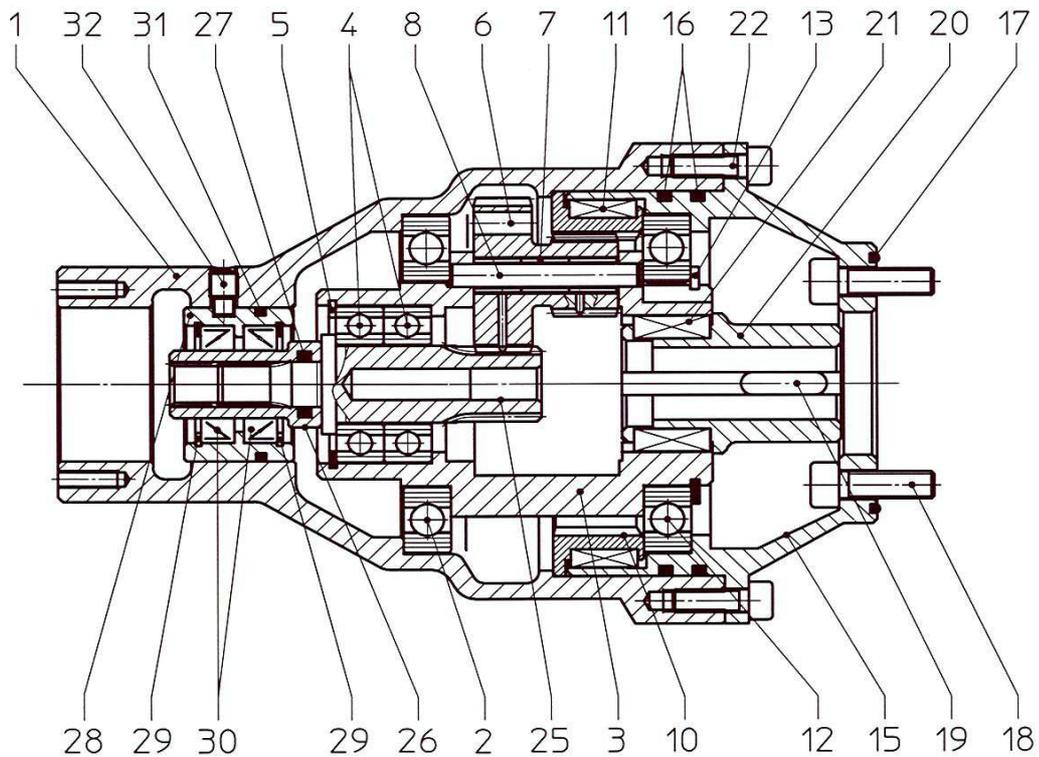
Spare Parts List

Description:

Getriebe (i =10)

Part and drawing number:

1 1580 4000



Spare Parts List

Description:

Part and drawing number:

Neck

1 1454 7920

