

Operating Manual



High Pressure Hand Pump 700 bar

with Handle Size 6 - 32

Art. - Nr. 45352.00

Ausgabe 22.01.2003

Introduction

This instruction manual is made to introduce the high pressure hand pump and its accessories (named 'system') to be able to use the system according to the intended purpose.

This manual underlines high important details about how to operate the system in a safe, appropriate and economical way. Thus, the study will help to avoid danger, to reduce the cost of repair as well as the outage time and also to increase the life-time of the system.

The manual has to be completed based on the national accident prevention regulations and on the national conservation of the environment.

The complete technical documentation should always be kept near the system concerned.

This manual is meant to be read, understood and adhered to in all points by the personnel responsible for the system, p. e.:

- Operation including fitting, clearance in course of work, removal of manufacturing waste products, service, waste management of operations- and accessory substances
- Maintenance (service, inspection, assembly) and/or
- Transport and storage

In addition to this manual, the rules and regulations effective for national accident prevention regulations at the place of application as well as special national safety regulations must be observed.

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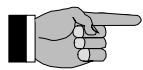
1 Safety

1.1 Principal Safety Advises

The principal precondition for the safe handling and the satisfactory operation of the system is the knowledge of the principal:

- Basic safety instructions and the safety regulations.
- This operating manual contains the most important instructions for a safe operation of the system.
- The manual, particularly the safety instructions, must be observed by all persons working on the system.
- In addition, the rules and regulations effective for accident prevention at the place of application must be observed and the inspection and maintenance work performed.

The following pages describe the basic safety instructions and the safety regulations.



Please read these instructions, as well as the directions given in subsequent sections before putting the system into service. The system operator must be familiar with these instructions. In addition, the safety instructions of the operator and the special regulations in the operator's company must be strictly observed.

1.2 Importance of the operating instructions

These operating instructions only refer to the system as described in the cover sheet. The manufacturer only takes responsibility for the safety, reliability and capacity of the system if the customer has read and understood the operating instructions. Please remember that the operating instructions have been made out mainly for your own protection and safety.

In view of the after-sales phase it can be of utmost importance for the customer to read and understand these operating instructions:

- the expensive service might be avoided.
- Wrong handling of the system may be avoided.

1.3 Responsibility of the operator

- The operator undertakes only to allow persons to work on the system who:
- Are familiar with the basic regulations concerning working safety and accident prevention and have been familiarised with the operation of the system.
- Have read and understood the safety instructions and warning notes in this operating manual.

The safety-conscious working of the system is checked by the operator at regular intervals.

- All persons, instructed to work on the system, undertake before starting work:
- To observe the basic instructions concerning working safety and accident prevention.
- To read the safety instructions and warning notes in this operating manual.

1.4 Training of personnel

- Only trained and instructed personnel may work on the system.
- The responsibilities of personnel are clearly defined for installation, commissioning, operation, fitting, transport, storage, maintenance and repair.
- Personnel to be trained must only work on the system under the supervision of an experienced person.

1.5 Danger when operating the system or subassembly

The machine or subassembly is constructed according to the latest state-of-the-art and the recognised safety regulations. Danger to the operator or other persons, or damage to the system or other material damage through improper handling or use can however arise during its operation. The system must only be operated:

- For the intended purpose.
- In a satisfactory and safe condition.

Faults which can affect safety must be eliminated immediately.

1.6 Workplaces for operating personnel

- The workplace is situated in front of the system.
- The cleanliness and tidiness of the workplace on and around the machine must be ensured and checked regularly.

1.7 Safety and protective devices

- All protective devices must be properly fitted and be in working order each time before starting the system.
- Protective devices may only be removed after shutdown and securing against re-start of the system.
- The lever of the reversing valve must be free accessible.

1.8 Personal protection and organisational measures

- The personal protection required must be provided by the operator.
- All safety devices must be checked regularly.

1.9 Appropriate Use

The system and components may only be used under the appropriate operating conditions. The system is to be used exclusive for hydraulic clamping and unclamping of tools for hydr. precision-power chuck according to the detailed specifications in the manual under section 2.1.

A different or fairly further use is considered inappropriate. Consequently, the manufacturer does not take any responsibility for damaged caused thereby.

Appropriate use means, amongst other things:

- To follow all recommendations mentioned in the operating instructions.
- To adhere to the inspection and maintenance works.

1.10 Inappropriate use

We do not take any responsibility for damages caused by inappropriate application. Inappropriate application means:

- The use for the clamping for this purpose not laid out tools or materials of all type.
- The connections and operations of other users.
- All intentions of using the high-pressure pump and chuck on living things.

1.11 Danger-, mandatory- and information symbols

Warning symbols are used in the manual to signify the safety:



DANGER

Warning signs contain information about danger which - through improper use, handling or application - could lead to health damage, injuries or mechanical defects.



700 bar

DANGER

Caution: This accessory has an high pressure of 700 bar.

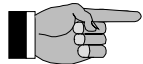
Mandatory symbols are used in the manual to signify the protection equipment:



SAFETY REGULATION

This sign indicates that safety glasses should be used.

Recommendation symbols are used in the manual to signify hints for handling:



HINT

These recommendation symbols furnishes important hints for an appropriate handling of the system. In the event these recommendations are not followed, interference of the system or in its ambience may be caused.

1.12 Dangers by hydraulic energy

- Works on hydraulic equipment may only be carried out by specially trained personnel with a good knowledge of and experiences in hydraulics.
- The system works with an high pressure of 700 bar. Parts of the system as pressure hoses, valves or user, have to be depressurised before start of the repair works. It is not allowed to have any pressure left.
- Hydraulic flexible tubes should be replaced regularly, even without obvious defects which might influence the safety.

1.13 Maintenance, repair, fault elimination

- The prescribed setting, maintenance and inspection work should be performed at the specified intervals.
- Operating personnel must be informed before starting maintenance and repair work.
- Check all released screw- and fitting connections for firm seating.
- Check safety devices for proper functioning after completing maintenance work.

1.14 Guarantee and Liability

In principle, guarantee and liability is based on our already signed written agreement. We do not accept guarantee or any liability for damages caused to either persons or machinery which can be attributed to one or several of the following causes:

- Inappropriate use of the system.
- Inappropriate works on the system, done by non-instructed personnel.
- Inappropriate transport, storage, assembly, commissioning, operation and maintenance of the system.
- Operating of the system in spite of broken safety equipment or insufficiently mounted or not functional safety and protective equipment.
- Recommendations stated in the operating instructions concerning safety, transport, storage, assembly, commissioning, maintenance and fitting of the system.
- Constructive change of the system without permission.
- Change of pressure ration of the hydraulic pressure block without permission.
- Lack of control of the system parts which may be subject to wear.
- Inappropriate done repair works.
- Catastrophic cases due to foreign bodies or cases beyond our control.

1.15 Copyright

The copyright remains with the manufacturer. These operating instructions are destined to the customer and the operating personnel. The requirements and recommendations contained must not, neither in complete, nor in extras, be

- copied
- distributed or
- handed over to other persons.

2 Overview of the system

2.1 Usage

The system is to be used exclusive to clamp and unclamp the high - precision-power chuck of the following versions:

- GoroGrip™ of the company SANDVIK-Coromant
- HyMec of the company ETP®
- Patented



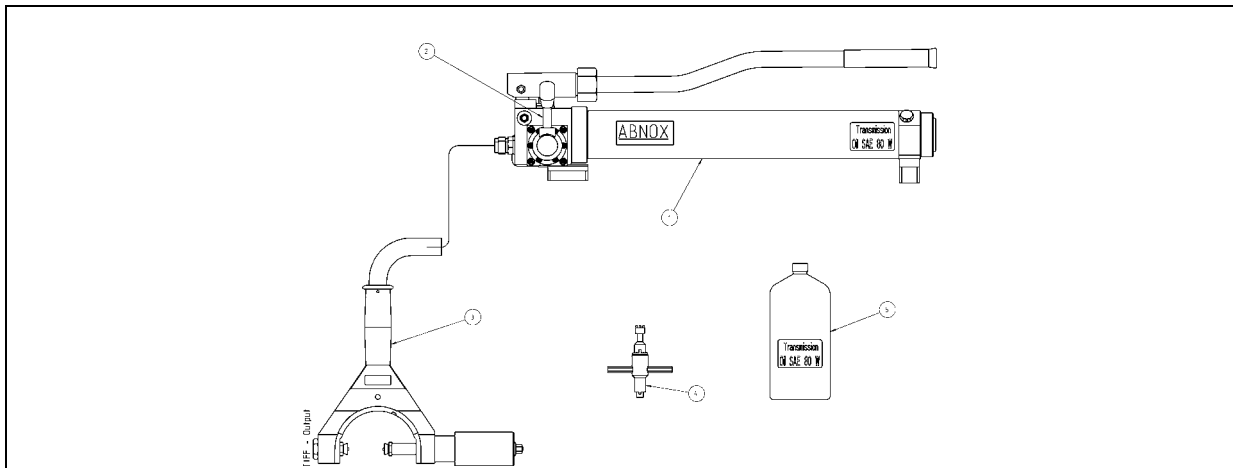
DANGER

The system works with a very high pressure of 700 bar. Do only use this system for hydr. precision-power chucks which are approved by the following companies:

- ABNOX AG - Switzerland
- SANDVIK-Coromant AB - Sweden
- ETP Transmission AB - Sweden

For every other application of this system there is a **danger of serious personnel injuries as well as mechanical defects.**

2.2 Overview illustration / Components



1) High pressure hand pump

This part produces the hydr. pressure to clamp resp. unclamp the precision-power chuck.

2) Reversing valve

The reversing valve clamps and unclamps the precision-power chuck

3) Handle

The handle enables the transfer of the hydr. pressure into the precision-power chuck.

4) Tool

This tool is needed for the maintenance of the hydraulic pump and for the valves of the handle.

5) Transmission-Oil

The tank contains 0.5 l transmission-oil SAE 80 W for the hydraulic pump.

2.3 Technical data

Operating capacity:	0.58 cm ³ /stroke
Hydr. Piston-Ø:	7 mm
Piston stroke:	15 mm
Tank:	ca. 0.5 l
Working pressure hydraulic:	700 bar
Max. Pressure hydraulic:	1000 bar
Weight system complete:	7.300 kg
Weight hand pump unit:	5.400 kg
Dimension packing:	60x27x22 cm
Min. dimension working space:	120x60x80 cm
Working temperature	0° to 40° C

3 Packaging and transport

3.1 Packaging

The system will be prepared and packed by ABNOX Ltd. for transport to the respective "first destination". The hole unit will be packed into a cardboard box. This packaging unit should not be exposed to any more weight. The packaging as well as its content should be protected for any influences of humidity. The transport as well as the storage temperature must be –20°C to + 40°C.

3.2 Transport damage

When transport damage is found when inspecting the system, the following procedure should be adopted:

- Notify delivery service (forwarder, railway etc.)
- Prepare damage report
- Inform manufacturer

3.3 Storage

The storage of the system in an aggressive and excessively moist surroundings or out of doors can lead to corrosion damage or other damages, for which we can accept no liability. The transport- as well as the storage temperature of –20°C to +40°C must be kept.

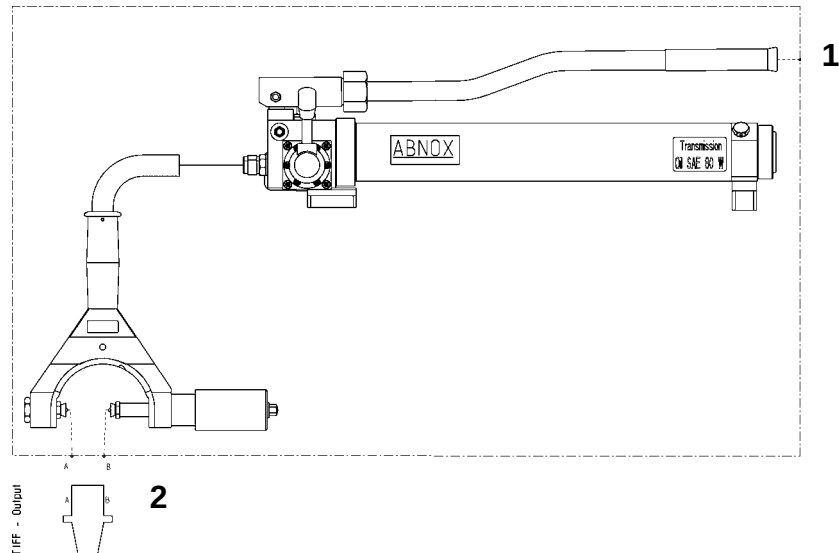
4 System installation

All rules and regulations valid for the system stand itself must be observed and respected. The floor- and place dimensions must be observed before the system is installed to be able to secure the operation for the personnel as well as for the system itself. The high pressure hand pump must be assembled in a way, that a safe and durable operation is guaranteed. All exposed parts and hoses have to be assembled in such a way, that no injury risk is given. Only special instructed and trained personnel is allowed to assemble, to commission and to storage the system.

The system must be put and operated onto an horizontal floor/basis. Also, the system has been built to be used in rooms which are not exposed to the effects of the weather. The storage of the system in an aggressive and excessively moist surroundings or out of doors can lead to corrosion damage or other damages, for which we can accept no liability.



5 Definition of interface



1) Inlet
 Hand work.

2) Outlet
 The hydraulic pressure is transmitted via the 2 oil nozzles at the handle onto the precision-power chuck.

Working pressure:

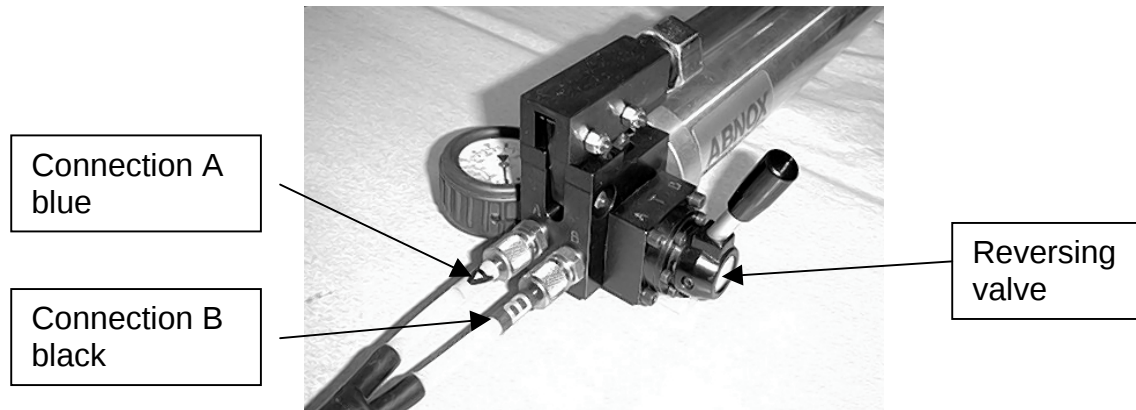
700 bar

Precision-power chuck:

CoroGrip™ of the companies
 SANDVIK-Coromant or
 HyMec of the company ETP®

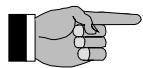
6 Assembly

The high pressure hand pump has to be put on the determined position (considering the conditions listed under section 4) and to be assembled in a way that the connection hoses to the handle have not buckles and that a free access to the operating elements/gauges is guaranteed.



7 First installation

- Before delivery, the system has been tested for imperviousness and function with transmission-oil SAE 80 W



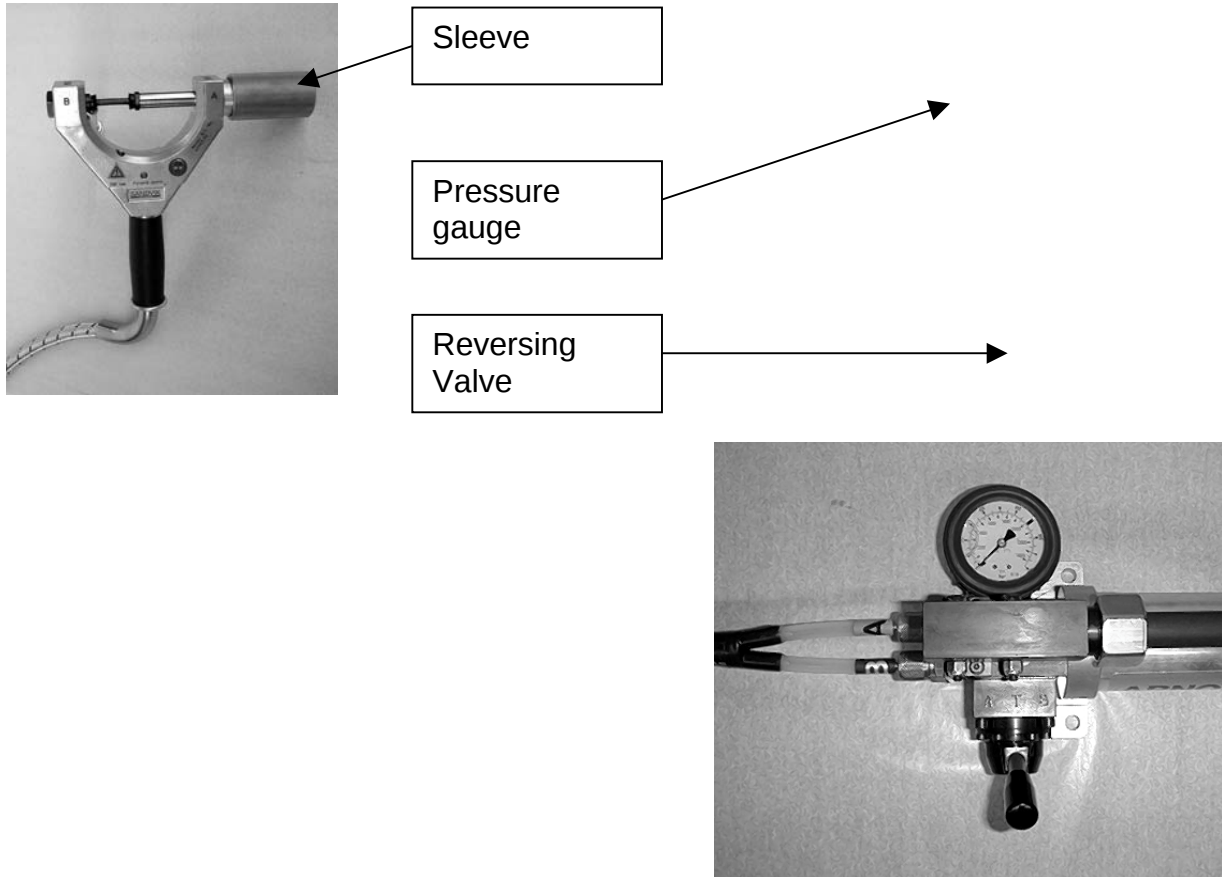
HINT

Check if all hoses and screws are properly fixed (imperviousness).

- Before the first installation can be started, the system must be unwrapped completely.
- Remove the inlet nipple and fill in the transmission-oil SAE 80 W. Remount the inlet nipple. The oil-level must be at a height of $\frac{1}{2}$ to $\frac{2}{3}$ of the oil level window.
- Control of the hydraulic pressure: mount the chuck to the defined handle. The has to be positioned in a way that the marked connections A and B match with the marks of the hydraulic handle. Use the sleeve to fix the chuck hand-tight (handle screw). The nozzles are pushed automatically onto the handle (hydraulic pressure).
- Move the reversing valve in direction A.
- Use the high pressure hand pump until the pressure gauge shows a pressure of 700 bar.
- Put the reversing valve into position T.
- Take the handle of the chuck.

8 Operation

8.1 Elements of operation



8.2 Clamping a tool

- Put the precision-power chuck holder in a vice.
- Push down the plastic ring on the holder so the oil inlet holes are uncovered.
- Fix the handle with the handle screw (sleeve) so the oil nozzles fits into the oil inlet holes on both sides of the holder. Don't tighten hard, it's enough that the handle doesn't move when it is not hold by the hand. The two oil nozzles are two pistons that are pressed against the holder when pumping up the oil pressure. This gives right contact pressure so there will be no leakage.
- Insert the tool into the chuck.
- Put the reversing valve to position A.
- Use the high pressure hand pump until the hydraulic pressure of 700 bar is reached.
- Put the reversing valve into position T. The hydraulic pressure now descends to 0 bar.

- Take the handle off the chuck.
- The chuck is now ready to be implemented into the tooling machine.



DANGER OF INJURY

Attention: this element has an high-pressure of 700 bar. Please unclamp the handle of the chuck only when the reversing valve is brought into position T and when the pressure gauge shows no hydraulic pressure anymore (0 bar).

Both insulation caps on the oil nozzles of the chuck are not allowed to be removed.



SAFETY REGULATION

Please wear the stipulated safety glasses. Both insulation caps on the oil nozzles of the chuck must be fitted properly.

8.3 Unclamping a tool

The precision-power chuck has to be positioned in a way that the marked connections A and B match with the marks of the hydraulic handle. Use the sleeve to fix onto chuck hand-tight (handle screws). The nozzles are pushed automatically onto the handle (hydraulic pressure).

Put the reversing valve to position B.

Use the high pressure hand pump until the hydraulic pressure of 700 bar is reached.

Put the reversing valve into position T. The hydraulic pressure now descends to 0 bar.

Take the handle off the chuck. Lift off the tool.



DANGER OF INJURY

Attention: this element has an high-pressure of 700 bar. Please unclamp the handle of the chuck only when the reversing valve is brought into position T and when the pressure gauge shows no hydraulic pressure anymore (0 bar). Both insulation caps on the oil nozzles of the chuck are not allowed to be removed.



SAFETY REGULATION

Please wear the stipulated safety glasses. Both insulation caps must be fitted properly onto the oil nozzles of the chuck.

9 Shutting the system down

9.1 Short shut down

Following works need to be carried out when a short shut down (overnight, weekend) is necessary:

- The release valve must be in middle-position T (no pressure).
- Clean the system.

9.2 Long shut down

Following works need to be carried out when a long shut down is necessary:

- No hydraulic pressure is allowed to be in the system (controlling of pressure gauge).
- The reversing valve must be in middle-position T (no pressure).
- The hydraulic hoses as well as the whole system unit must be stored in a way that there is no danger of accident and no damage can occur (buckle).

9.3 Putting the system out of operation

If the system is put out of operation, the following points must be observed:

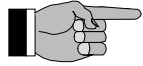
- The reversing valve must be in middle-position T (no pressure).
- No hydraulic pressure is allowed to be in the system (control pressure gauge).
- The oil SAE 80 W must be removed out of the oil tank.
- The hydraulic hoses and the whole system unit must be stored in a way that there is no danger of accident and no damage can occur (buckle).
- System unit must be stored in a clean and dry place.
- The oil must be professionally disposed (special refuse).



DANGER

Danger of accident and ecological damage: no oil is to be encumbered!

10 Trouble shooting, fault elimination



HINT

Only **special instructed and trained personnel** are allowed to eliminate all below described faults.

10.1 Faults – causes – elimination

Fault	Possible causes	Elimination	Comments
High pressure hand pump has no or almost no pressure	Oil level too low (hydr.)	Fill in oil until the oil level window shows half full	
	Leakage	Control of hoses and fittings	
	Soiled oil	Clean tank, refill with new, filtered oil and release air	
	Wrong position of reversing valve	Reset valve into position A or B	
Tool can not be clamped	Wrong position of reversing valve	Put valve into position A	
	Wrong mounting of the handle onto the power chuck	Marks of the handle must be identical with the ones of the chuck	
	Check valve of power chuck broken	Check power chuck	See manual power chuck
Tool can not be unclamped	Wrong position of reversing valve	Put valve into position B	
	Wrong mounting of the handle onto the power chuck	Marks of the handle must be identical with the ones of the chuck	
	Check power chuck		See manual power chuck
Tool can not be unclamped in spite of a pressure of 700 bar	Fault on the chuck	Contact manufacturer	

11 Operating- and working material (EC Safety data sheet)

EC Safety Data Sheet

Date of issue / Reference - No. 14.03.00 00235.01

Replaces version of 11.08.97 DIN

EP gear oil 80W

Page 1 of 4

Company Blaser Swissslube Ltd., CH-3415 Hasle-Rüegsau (Switzerland)
Tel.: int. ++41 (0)34 460 01 01

1 Commercial product name and supplier

- | | | |
|-----|---------------------------------------|---|
| 1.1 | Commercial product name / designation | EP gear oil 80W |
| | Art. No. | 235 |
| 1.2 | Application / use | Universal EP gear oil |
| 1.3 | Producer | Blaser Swissslube Ltd., CH-3415 Hasle-Rüegsau (Switzerland) |
| 1.4 | Supplier | Blaser Swissslube Ltd., CH-3415 Hasle-Rüegsau (Switzerland) |
| 1.5 | TOX emergency number CH | 01/ 251 51 51 Toxicological Information Centre CH-Zurich |

2 Composition

- | | | |
|-----|---------------------------|--|
| 2.1 | Chemical characterisation | Paraffin-based mineral oil - selective raffinate with active substances. |
| 2.2 | Hazardous components | Contains no hazardous substances according to the EC Directives 88/379/EEC and 67/548/EEC. |

2.3 Further information

3 Hazards identification

4 First aid measures

- | | | |
|-----|---------------------|--|
| 4.1 | Eye contact | Rinse thoroughly with water. If the irritation persists, consult a doctor. |
| 4.2 | Skin contact | Wash off with water and mild soap. |
| 4.3 | Ingestion | Do not induce vomiting, consult a doctor. |
| 4.4 | Inhalation | Normally not possible. |
| 4.5 | Further information | |

5 Fire-fighting measures

- | | | |
|-----|------------------------------|---|
| 5.1 | Suitable extinguishing media | Carbon dioxide, extinguishing powder, foam, water mist. |
| 5.2 | Extinguishing media to avoid | Direct jet of water |
| 5.3 | Further information | |

6 Accidental release measures

Do not allow to get into drainage systems, rivers, lakes or the soil.
Take up with oil binders.
Particular risk of slipping due to leaked/spilled product.

7 Handling and storage

- | | | |
|-----|----------|---|
| 7.1 | Handling | The usual precautions for the handling of chemicals are to be observed. |
|-----|----------|---|

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EP gear oil 80W

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7.2	Industrial hygiene	Keep away from food, drinks and animal feed. Wash the hands after using the product. Change soaked clothing.	
7.3	Storage	Store in closed, original containers.	
7.4	Place of storage		
7.5	Fire- and explosion protection	The usual protective measures for products containing mineral oils are to be taken.	
8	Exposure controls / personal protection		
8.1	Technical equipment		
8.2	Control of threshold limits	MAK value: 5 mg/m³ (oil mist).	
8.3	Personal protective equipment		
8.3.1	Respiratory protection	Only in case of development of oil mist.	
8.3.2	Hand protection	Protective gloves are recommended if there may be prolonged or frequent contact with the skin.	
8.3.3	Eye protection	Not required.	
8.3.4	Other	Working clothes.	
9	Physical and chemical properties		
9.1	Appearance	Liquid	
9.2	Color	yellow - brown	
9.3	Odour	like mineral oil	
9.4	Change in physical state Pour Point	- 22 °C	Test method: DIN ISO 3018
9.5	Density	0.89 g/cm³ (20 °C)	ISO 3675
9.6	Vapour pressure	< 0.1 mbar	
9.7	Viscosity	71 mm²/s (40°C)	ISO 3104
9.8	Solubility in water	insoluble	
9.9	pH-value	n.a. n.a.	
9.10	Flash point	215 °C	DIN 51758
9.11	Ignition temperature	> 500 °C	
9.12	Explosion limits	Lower: 0.6 vol.% 1013 mbar Upper: 6.5 vol.% 1013 mbar at formation of oil mist *	
9.13	Further information	* general values for mineral oil.	
10	Stability and reactivity		
10.1	Thermal decomposition	None when used according to the instructions.	
10.2	Hazardous decomposition products	Incomplete combustion and/or thermal decomposition lead to the formation of smoke, carbon dioxide and hazardous gases such as carbon	

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10.3	Hazardous reactions	No dangerous reactions are known.		
10.4	Further information			
11	Toxicological information			
11.1	Acute toxicity	LD ₅₀ (oral, rat): > 5000 mg/kg (calculated)		
11.2	Further information			
12	Ecological information	The product is not readily biodegradable. The product must not be allowed to get into waste water, ground water, surface water or the soil.		
12.1	Water-endangering Class	WEC: 2 - Water-endangering		
13	Disposal considerations	Switzerland: in accordance with the OMSW of 12.11.1986. In accordance with the local authority regulations. Germany: in accordance with the Law on Waste Disposal (AbfG).		
13.1	European waste code	54112		
13.2	Swiss waste code	1470		
14	Transport information			
14.1	GGVE / GGVS	Class	Cipher	
	RID / ADR	Class	Cipher	
	UN-No.			
	Kemler No.			
	Overland statement			
14.2	GGVSee	Class	Cipher	
	ADNR	Class	Cipher	Cat.
	UN-No.			
	IMDG-code page			
	EMS			
	MFAG			
	Packing group			
	See transport statement			
14.3	ICAO / IATA-DGR			
	UN-No.			
	Proper Shipping Name			
	Subsidiary risk			
	Labels			
	Packing group			
	Passenger aircraft	Packing Instruction	max.	
	Cargo aircraft only	Packing Instruction	max.	
14.4	Further information	Not a hazardous material according to the above mentioned transport regulations.		
15	Regulatory information	The product does not require marking/identification according to the EC guidelines.		
15.1	Switzerland: FOPH T No.	611'500		
15.2	Swiss toxicity class	Free of toxicity class		
15.3	EC-No.			

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15.4 Hazard symbols

15.5 Hazard designation

15.6 Risk phrases R: -

15.7 Safety phrases S: -

15.8 MAK value

15.9 BVD classification F4 I Fu PN2

15.10 VbF

15.11 Further information

16 Other information The product does not contain: PCB, PCT, TCDD
(tetrachlorodibenzodioxin) and other dioxin-like substances.
Abbreviations: n.a. = not applicable; n.b. = not determined

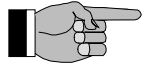
The above mentioned data correspond to our present state of knowledge and experience. The safety data sheet serves as description of the products in regard to necessary safety measures. The indications have not the meaning of guarantees on properties.

This safety data sheet has been generated with the safety database "ChemManager", © ASSIST, Baslerstrasse 21, CH-4102 Binningen

91/155/EEC

12 Maintenance and service

In this section you will be informed about how to maintenance this system. You will find an overview in which the maintenance and service plan is detailed.



HINT

It is not mentioned in this section, how to reassemble the system after any kind of error. These works should only be done by special instructed and trained personnel or by our after-sales service.

12.1 Maintenance plan

The indicated maintenance intervals refer to a single-shift operation. The maintenance intervals are shortened when the system is used at high level, i.e. by several-shift operation. Additional negative influences such as low air pressure quality and clean work surroundings have to be considered.

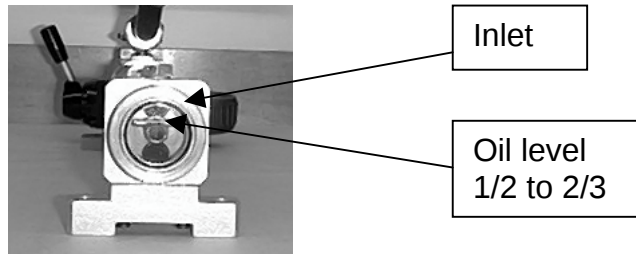
WHEN	WHAT	HOW	WHO
Weekly	Check the imperviousness hoses and fittings	By eye	Special instructed and trained personnel
Monthly	Oil tank (Hydraulic)	Control of oil level, refill if necessary	Special instructed and trained personnel
Yearly	Change of oil Hydraulic	Exchange transmission-oil with filtered oil	Special instructed and trained personnel



DANGER

All works on the system should be carried out when the system is shut down. No pressure is allowed in the hydraulic system, i.e. the pressure gauge must indicate 0 bar.

12.2 Oil tank hydraulic



12.3 Service instructions for hydraulic handle

Safety



Danger of injuring: Before beginning the service the hydraulic handle has to be disconnected from the pump!

General

Maintenance may only be done by qualified technicians or appropriately trained persons (responsible maintenance mechanic). Pay attention to cleanness! Particles and dirt must not get into the system. For mounting the seals do not use assembling tools with sharp edges.

Use only the original spare parts ABNOX Art. No. 45034.00 or 45034.01 (see section No. 13.2 drawings)

12.3.1 Disassembling

Disassembling side A

- Unscrew cap nut Pos. 1 using wrench size 10 and using wrench size 15 on opposite side on insert Pos. 2. Remove washer Pos. 3.
- Remove sleeve nut Pos. 4 from casing Pos. 5 by twisting. Remove spacer ring pos. 6. Unscrew insert pos. 2 using wrench size 15 and using wrench size 12 on opposite side on the wrench flat of spindle Pos. 7.

Disassembling side B

- Unscrew insert Pos. 2 using wrench size 15 from stop screw insert Pos. 8 with wrench size 22.

12.3.2 Assembling

Assembling side A

- Mount insert 45034.00 or 45034.01 Pos. 2. First place the spring in the hole of spindle pos. 7.
- Tighten insert Pos. 2 using wrench size 15 and spindle Pos. 7 using wrench size 12 at the same time.
- Place spacer ring Pos. 6. Insert sleeve nut Pos. 4 in casing Pos. 5 by twisting.
- Place washer Pos. 3. Tighten cap nut Pos. 1 using wrench size 10 and using wrench size 15 on opposite side at insert Pos. 2.

Assembling side B

- Mount insert 45034.00 or 45034.01 Pos. 2. First place the spring in the hole of insert Pos. 8.
- Tighten insert Pos. 2 using wrench size 15 and stop screw Pos. 8 using wrench size 22 at the same time.

12.4 Service instructions for hydraulic hand pump

Safety



Danger of injury: Disconnect hydraulic hand pump from hydraulic supply and make sure that no pressure is present, before the begin of any service action!

General

Maintenance and Service may only be executed by qualified technicians or persons who have been appropriately trained (responsible maintenance mechanic). Attention must be paid to utmost cleanliness during disassembly and assembly work. Dirt particles must not touch the hand pump system nor any tools. No tools with sharp edges may be used for dismounting and mounting seals.

Use original seal spare parts only: ABNOX Art. – Nr. 45100.08 !
(Assembly drawing see chapter 13.1)

12.4.1 Replace manometer seal 80128.00

Remove manometer

- Start with disassembly of foot plate pos. 1. Unscrew both cheese-head screws Pos. 2 using a hexagon key size 4.

- Unscrew manometer Pos. 3 using wrench size 14.
- Remove the manometer seal. Also remove any dirt.
- Do not re-use used seals.

Install manometer

- Put seal 80128.00 on manometer.
- Screw manometer Pos. 3 with seal and tighten with wrench size 14. Adjust face of manometer properly.
- Reassemble foot plate Pos. 1. Tighten both cheese-head screws Pos. 2 using the hexagon key size 4. Use torque moment of 5.7 Nm

12.4.2 Exchange of seals on piston and casing

Disassembly of lever and high pressure piston

- Unscrew nut Pos. 4 using wrench size 10 and remove dowel screw from its bore hole.
- Pull lever with piston from pump casing.
- Unscrew all 4 cheese-head screws Pos. 5 using hexagonal key size 2.5 .
- Dismount plate and screws.
- Remove step seal and O-ring.
- Exchange seal ring 82595.01. Unscrew screw plug Pos. 6 using a hexagonal key size 6.

Re-assembly lever and high pressure piston

- Place seal ring 82595.01 on screw plug Pos. 6 and tighten using the hexagonal key size 6. Use torque moment 30 Nm
- Place O-ring 82243.01 and step seal 82242.02 properly aligned in bore of casing.
- Mount plate and screws Pos. 5. Tighten all 4 cheese-head screws Pos. 5 using a hexagonal key size 2.5. Use torque moment 2.1 Nm
- Insert lever with piston in the pump casing.
- Insert the dowel screw in hole. Tighten nut Pos. 4 using wrench size 10.

12.4.3 Exchange seal of reversing valve

Dismount reversing valve

- Unscrew all 4 cheese-head screws Pos. 7 using a hexagonal key size 4.
- Remove all 4 O-rings.

Mount reversing valve

- Place 4 O-Rings 82213.01 in den bore hole of the reversing valve.
- Mount reversing valve and cheese-head screws Pos. 7. Tighten all 4 cheese-head screws Pos. 7 using a hexagonal key size 4. Use torque moment 5.7 Nm.

12.4.4 Exchange seal and air inlet valve

Dismount air inlet valve

- Unscrew air inlet valve using wrench size 15.
- Remove seal

Mount air inlet valve

- Place seal 82593.00 with air inlet valve 45193.00.
- Tighten air inlet valve using wrench size 15. Use torque moment 4 Nm.

12.4.5 Exchange o-ring of oil filler

Dismount the oil filler

- Unscrew oil filler Pos. 8 using hand. Remove O-ring.

Mount the oil filler tube

- Place O-ring 82396.00 on oil filler Pos. 8 and tighten oil filler by hand.

12.4.6 Exchange seal and parts of over pressure valve

Disassembly of over pressure valve

- Unscrew casing top Pos. 10 using a hexagonal key size 5. Remove distance rings and casing top Pos. 10.
- Remove spring, insert, ball and O-ring.

Reassembly of pressure relieve valve

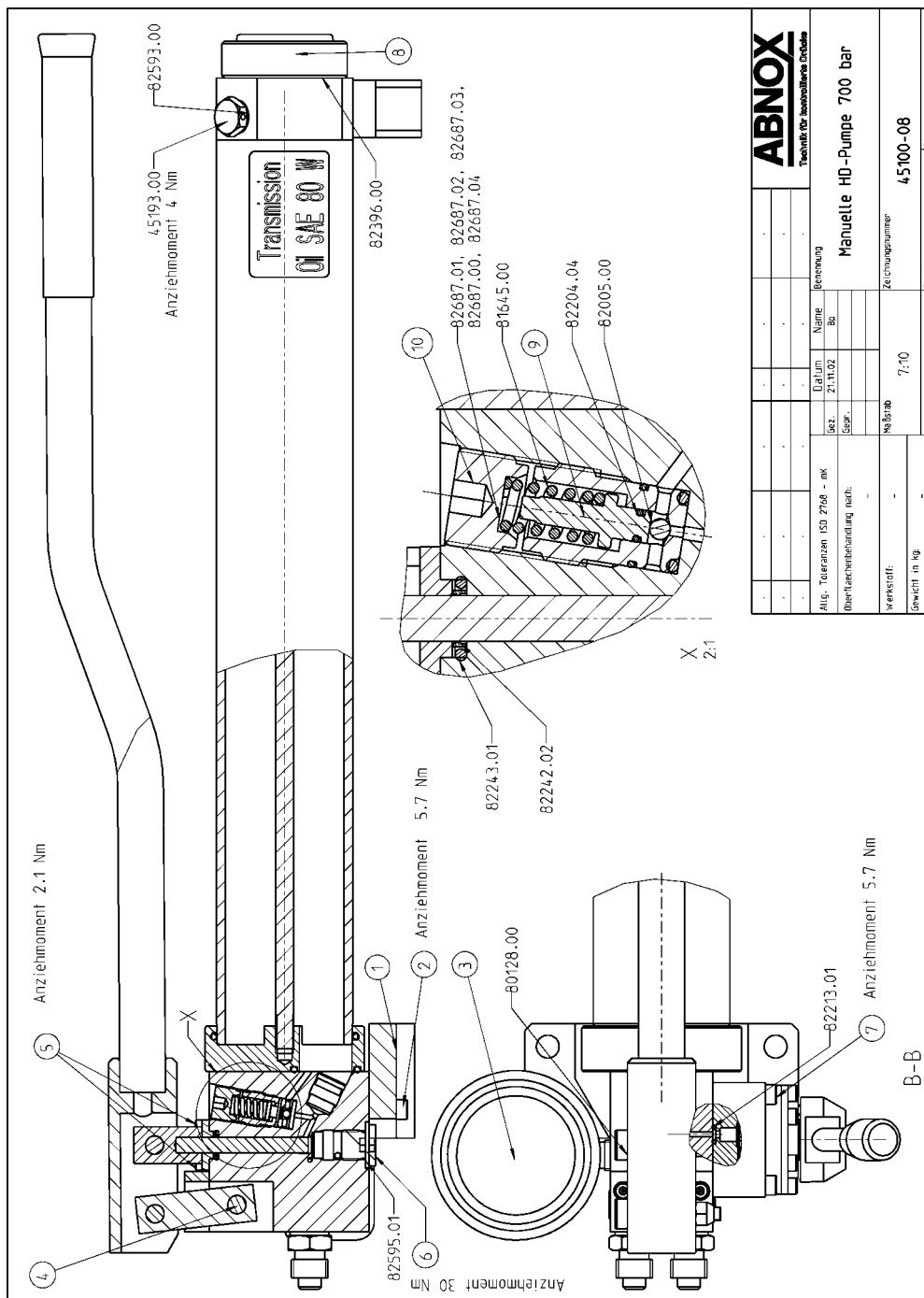
- Place O-ring 82204.04 on insert Pos. 9.
- Place ball 82005.00 in casing.
- Mount insert Pos. 9 with O-ring 82204.04
- Mount spring 81645.00
- Place casing top Pos. 10 using the same number of distance rings, by means of a hexagonal key size 5.

12.4.7 Pressure adjustment of over pressure valve

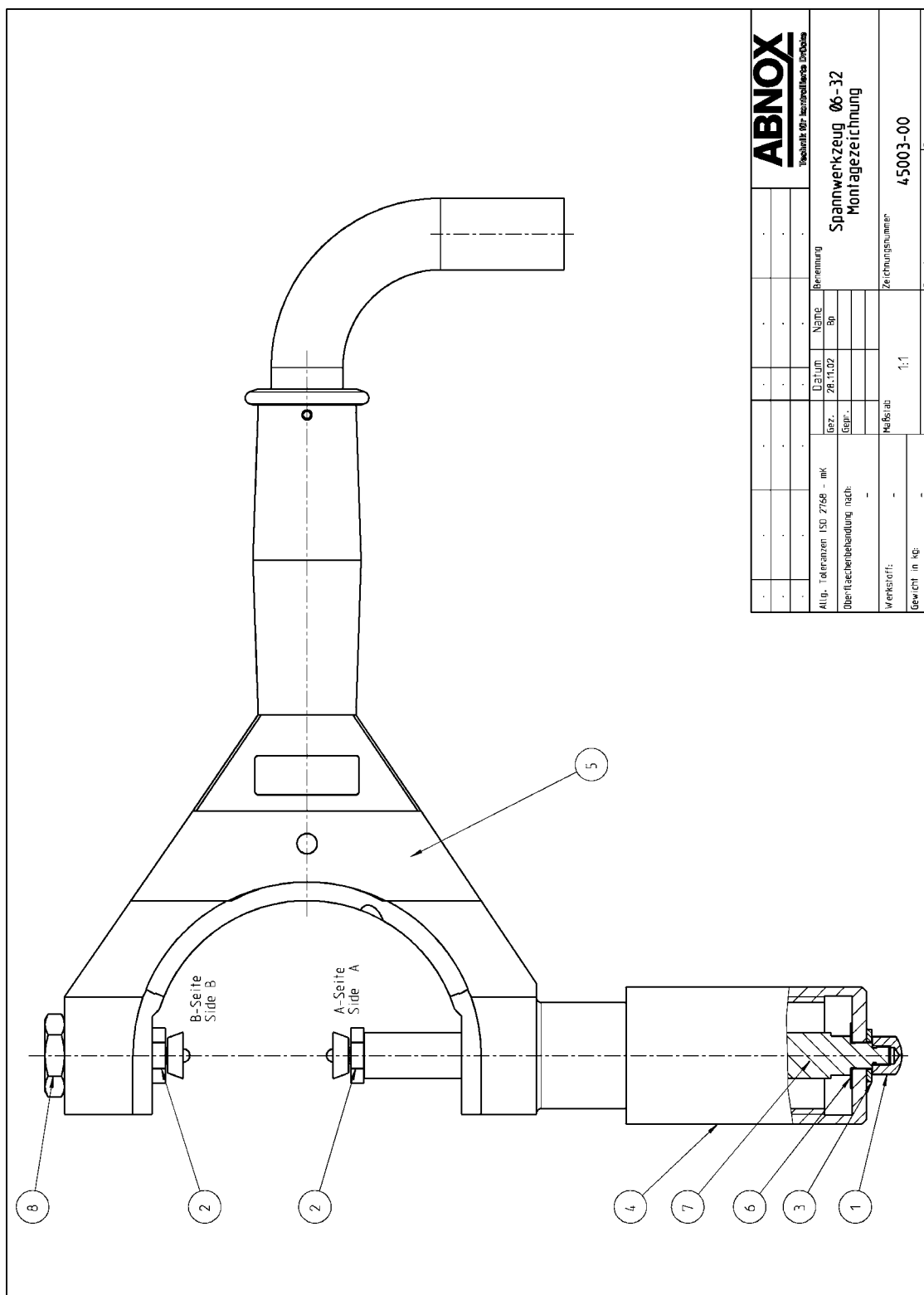
- Check oil level.
- Disconnect hand pump from high pressure hose.
- Set lever of reversing valve to position T.
- Apply ca. 10 pump strokes at no pressure for venting.
- Tighten the casing top Pos. 10 using a hexagonal key size 5 up to the stop.
- Set lever of reversing valve to position A.
- Increase pressure applying slow pump strokes up to a pressure of 1000 bar. The over pressure valve must operate at ca. 1000 bar –50 bar.
- If the operating pressure of the valve is too high or low, the pressure is adjusted by exchanging the distance rings. This must be done at zero pressure. If the pressure was excessively high, less distance rings are required. In case of low pressure, more distance rings are used.
- Distance rings 82687.00, 82687.01, 82687.02, 82687.03, 82687.04 have different thickness and may be mutually exchanged.
- Set lever of reversing valve to position B. Check over pressure valve at 1000 bar -50 bar.
- Release pressure using position T.
- Turn back slightly casing top Pos. 10 using hexagonal key size 5.
- Set to position A and B and increase pressure gently until the over pressure valve operates at 700 bar +/- 10 bar.
- Repeat this procedure until the pressure of 700 bar +/- 10 bar on the over pressure valve is reached.
- The high pressure hose with handle may now be connected.

13 Spare Parts

13.1 Hand Pump Spare Parts-Set (ABNOX Art.-No. 45100-08)



13.2 Handle Spare Parts Set (ABNOX Art.-No. 45034-00 or 45034-01)



ABNOX Technik für Metallbearbeitung		Benennung		Spannwerkzeug 06-32 Montagezeichnung		Zeichnungsnummer 45003-00	
Alt. p.	Toleranzen ISO 2768 - mK	Gez.	Datum	Name	Benennung	Gez.	Benennung
Quantitätsbehandlung nach:		Gepr.	28.11.02	Ap		Gepr.	
Werkstoff:		Maßstab	1:1				
Gewicht in kg:		Urspr.:					
		Ers.:					
		durch:					

14 Re-sale

This operation manual is part of the system and belongs to the delivery range if re-saled.

15 Recycling management



DANGER

All works on the system should be carried out when the system is shut down. No pressure is allowed in the hydraulic system, i.e. the pressure gauge must indicate 0 bar.

The different materials/liquids are to be handled professional and are to be separated according to the respective national regulations. After the procedure, they have to be supplied to the disposal.

Product	Material	Disposal
Reversing valve, chuck etc.	Steel and aluminium, brass, bronze	Separation of metals, recycling
Hoses, seals, lines	Rubber, plastic moulding material	Separation of metals, recycling
Lubrication mediums	Oils, grease	Recycling or disposal / according to national regulations



WARNING

Do not spoil any oil or grease. Therefore make arrangements in advance to be able to collect any kind of liquid.

16 Instruction and training

Only special instructed and trained personnel, who read and understood all sections of this instruction manual, who are aware of the different operating status as well as who know and respect the safety aspects are allowed to work on the system.

The responsibilities of personnel are clearly defined for installation, commissioning, operation, fitting, maintenance and repair.

Personnel to be trained must only work on the system under the supervision of an experienced person.