

1. General:

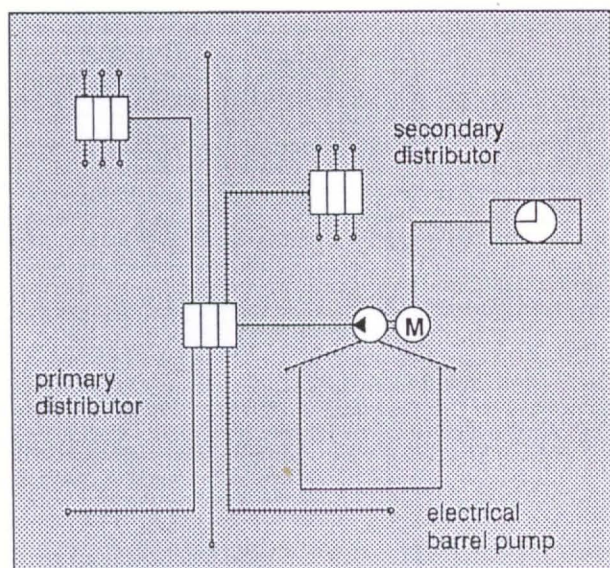
The **BEKA-MAX**[®] electrical barrel pump EFP-1 is a precision-piston pump designed for handling of greases up to the consistency class NLGI 2. It is actuated by a geared D.C. motor fitted by use of a flange and coupled directly to the pump shaft. Thanks to its first-class precision design, combined with the latest level of technology, this model series provides for a greasing pump of maximum dependability and very large field of applications. It feeds a precisely metered quantity of grease to the points of lubrication or to the distributors, the pressure being up to level of 280 bar.

2. Fields of application:

Preferred field of application of this electrical barrel pump is the supply to points of lubrication in medium and large-sized construction machines and of machinery assemblies in industrial production equipment.

3. Types of systems:

3.1 Description of "progressive operation" systems:

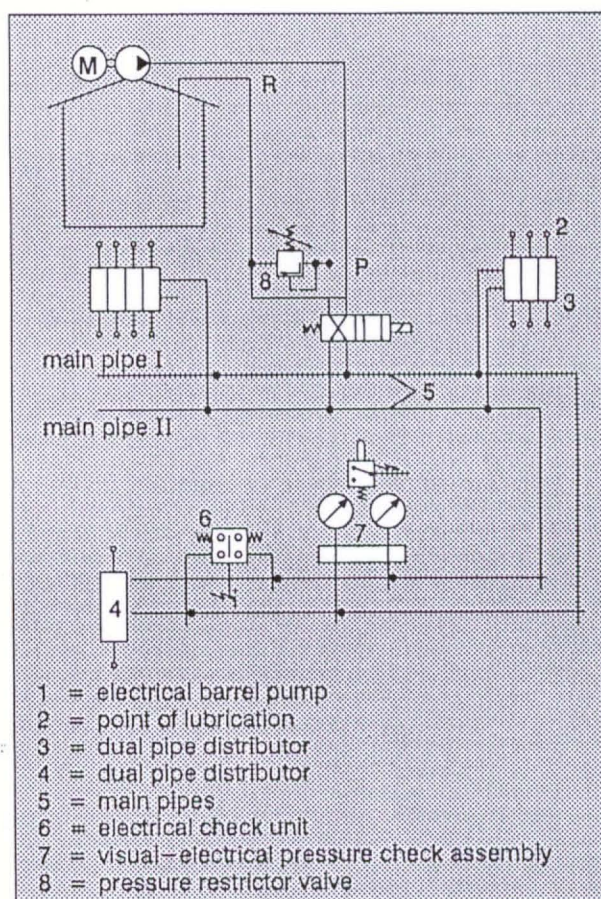


By means of the electrical barrel pump, the lubricant is fed directly into the primary (master)

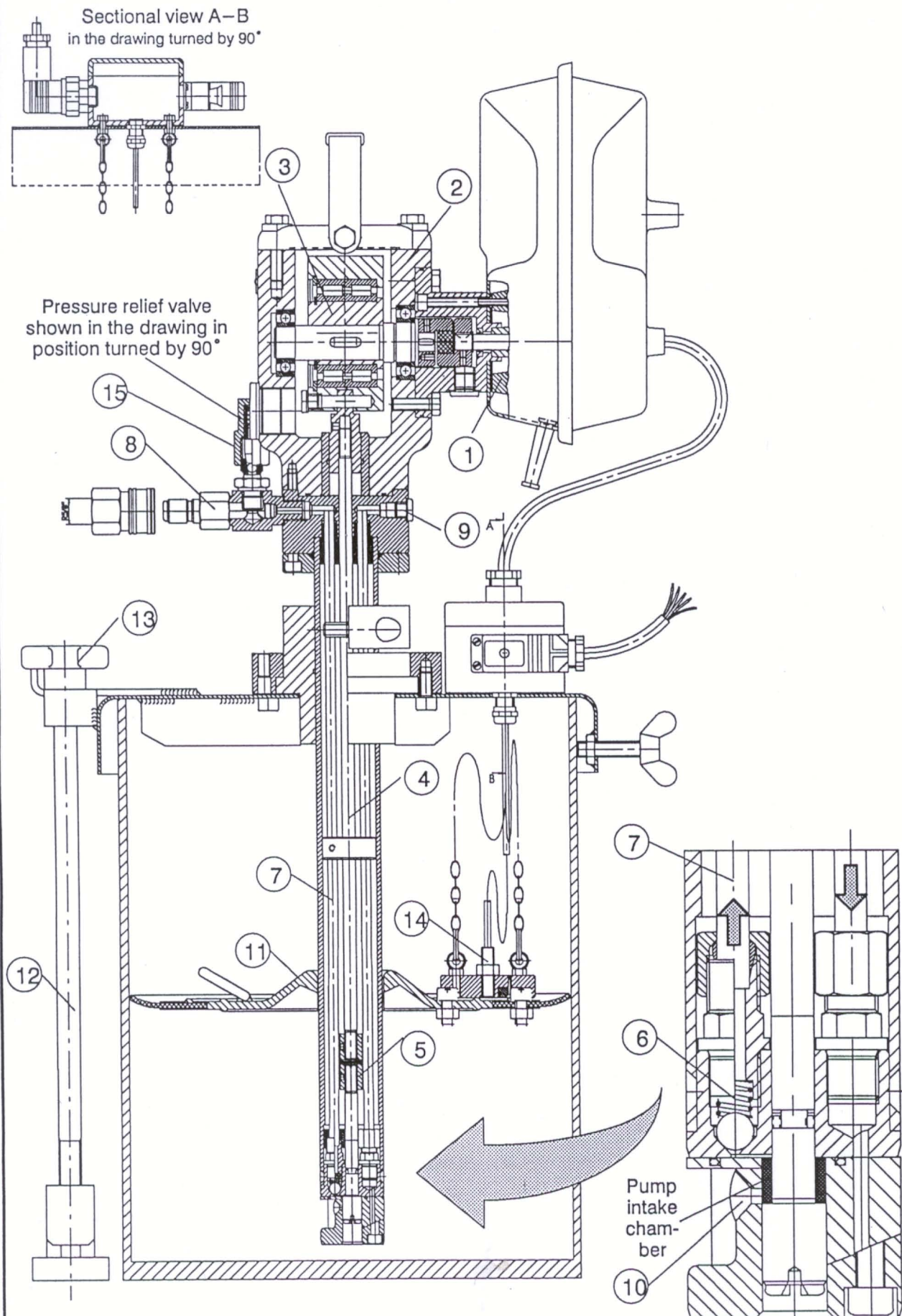
distributor which has to feed a correctly metered part of lubricant to the various secondary progressive distributor, which on their turn supply the optimal dosage of lubricant the individual points of lubrication.

Checking of the whole system is ensured by the function of the progressive distributors. Whenever some point of lubrication should not accept the grease fed to it, grease will leave through the pressure relief valve of the pump.

3.2 Description of "dual pipe" systems:



The dual pipe system comprises two main pipes which are pressurized by alternating sequence of operation, by means of a valve, thus being able to supply lubricant to the dual pipe distributors concerned. Subsequently, the dual pipe distributor supplies the required quantity of lubricant (pre-set at the distributor) to the points of lubrication concerned.



4. Description of method of operation

The electrical barrel pump EFP-1 is driven by a D.C. geared motor (1) mounted to it by a flange. The eccentric (3) installed in the pump housing (2) converts the rotary movement of the motor into lift-and-lower motions of the piston rod (4). The feed piston (5) of the pump is rigidly screwed to the piston rod (4), thus making sure that intake and pressure motions will be performed. Via the non-return valve (6) which prevents return flow of the lubricant being handled, the lubricant is fed through the feed pipe (7) to the pressure connector socket (8) which is provided with a coupling.

Attention: In the models for dual pipe systems, a lubricant return pipe (9), marked "R", is installed opposite to the pressure connector socket. This return pipe (9) is to make the discharge quantity flow back into the lubricant barrel, where that quantity is leaving below of the intake port (10) of the pump pipe.

In order to prevent the pump from taking in any air, it is important that the lubricant contact plate (11) is in perfect touch on the lubricant, and that the grease barrel is not misshaped. Stability of the barrel pump is safeguarded by the three tie rods (12) with cross-shaped handles (13), which in turn must be rigidly secured to the ground.

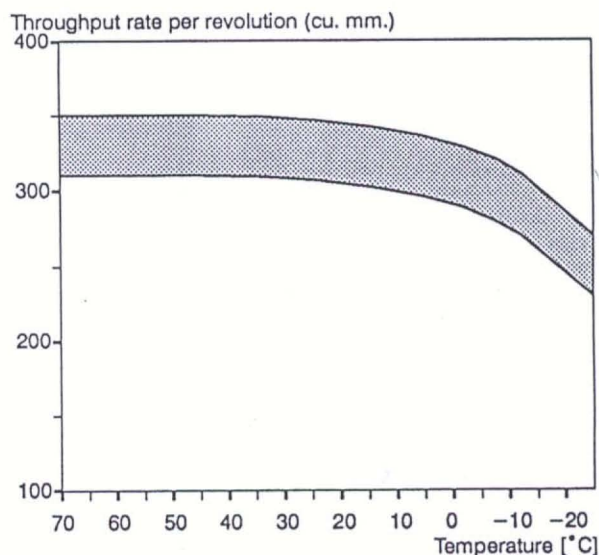
Emptying of the barrel is monitored by an electrical level measuring device. A plate, secured by magnet and provided with a proximity switch (14), is fixed to the contact piston. As the barrel is being emptied, the contact piston also will be lowered, and the proximity switch will be detached from the lubricant contact plate at a level of approx. 3 cm above of the intake port, and then it will give a signal calling for change of the barrel.

The pressure relief valve (15), set to a service pressure of 280 bar, is to protect the pump and the piping system against excessive pressure.

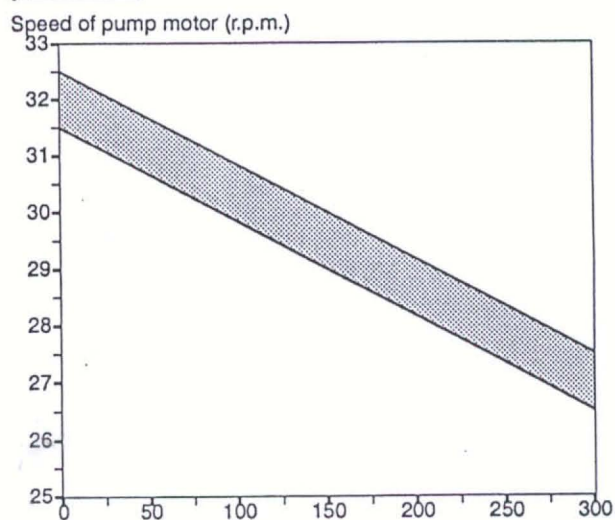
5. Technical details:

Number of outlet ports:	1
Throughput:	330 cu.mm. per rev. of the pump, depending on the service temperature
Charging rate:	max. 5 A
Feed pressure:	max. 280 bar
Drum sizes:	20, 50 or 200 kg
Drive system:	24 V D.C.
Range of temperatures for operation:	-17°C up to +70°C grease NLGI Cl. 2 -25°C up to +70°C grease NLGI Cl. 1

Throughput rate of the pump, depending on temperature:



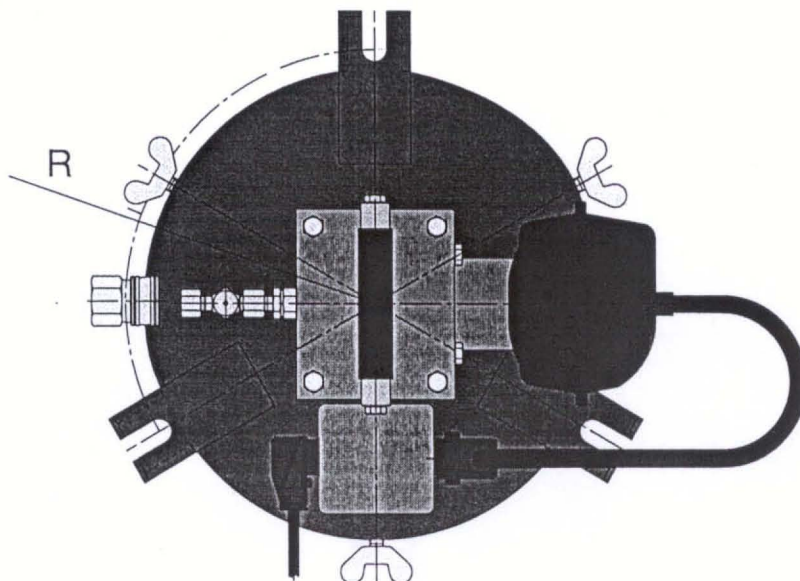
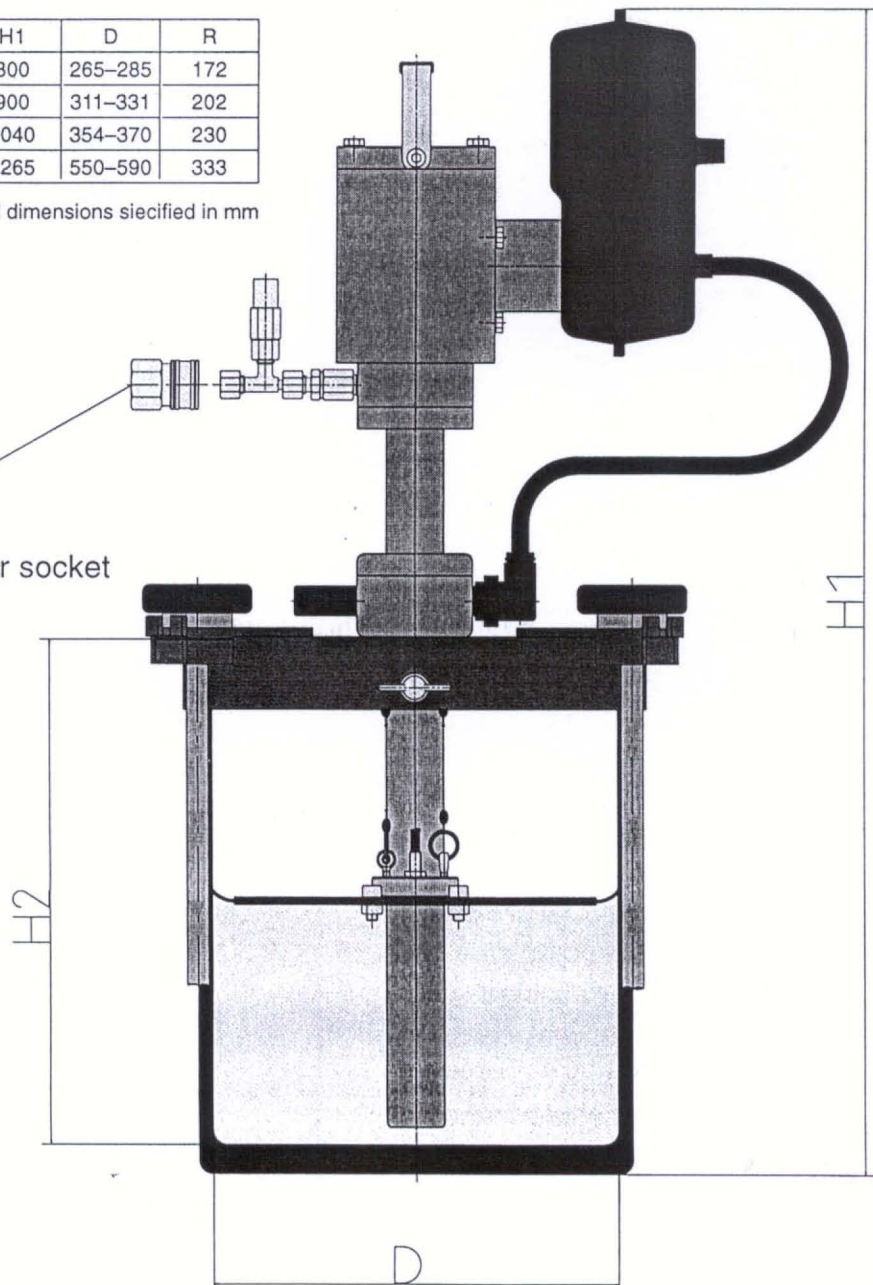
Pump speed, depending on the service pressure:



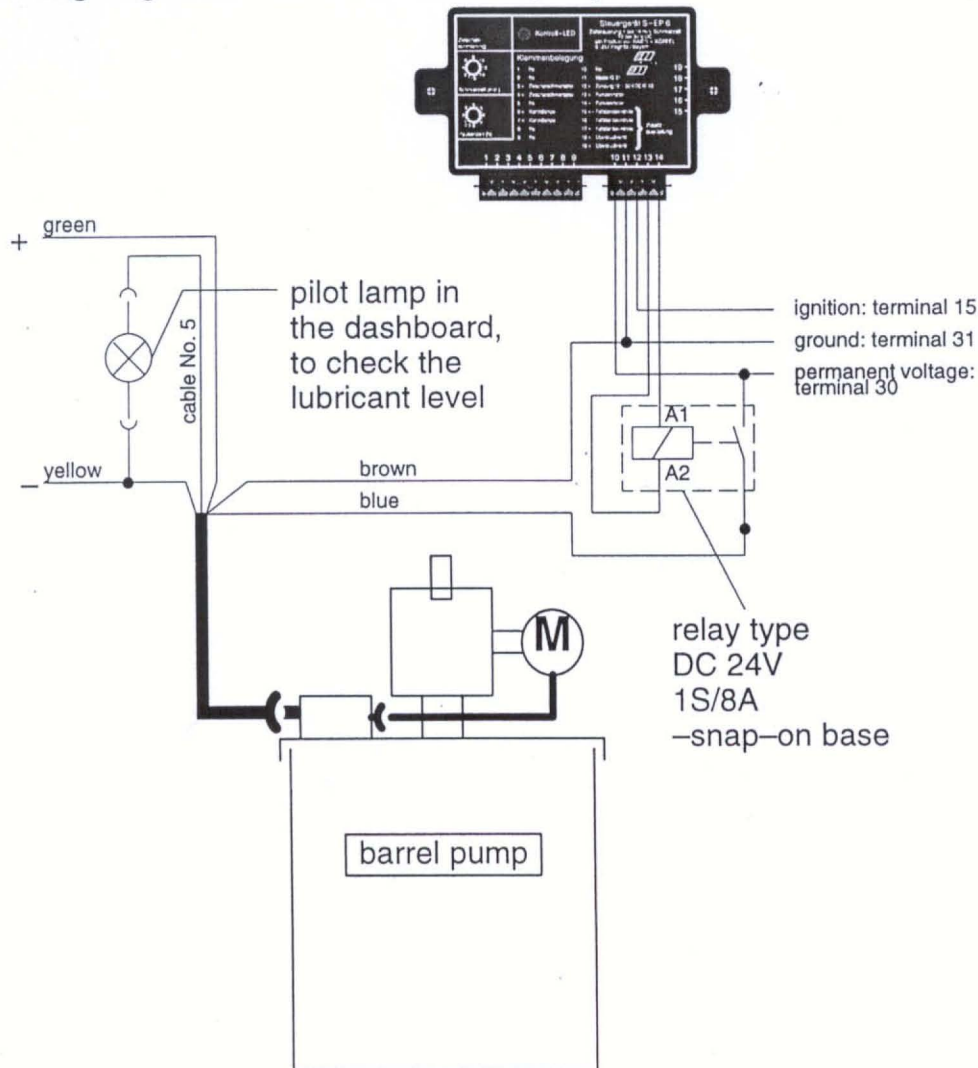
barrel size	H2	H1	D	R
20 kg	375	800	265-285	172
25 kg	475	900	311-331	202
50 kg	672	1040	354-370	230
200 kg	893	1265	550-590	333

all dimensions siecified in mm

Pressure connector socket
R 3/8"



7. Wiring diagram of the electrical barrel pump



8. Lubricants

The electrical barrel pump EFP-1 is designed for commercially available multi-use grease up to NLGI Cl. 2.

The following advices should be adhered to:

- Use greases containing high-pressure additives (EP lubricants).
- Use only greases of same kind of saponification.
- Lubricants containing solid matter must not be used (lubricants such as copper, graphite or MOS2 if approved upon inquiry)
- Biodegradable lubricants may be used.

- Nevertheless and in any case, please adhere to the manufacturer's specifications when selecting your lubricant.

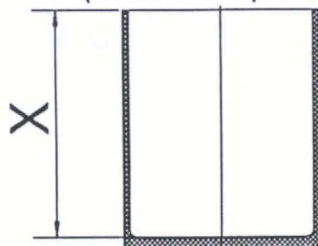
9. Service and maintenance

In the first few weeks after the equipment has been taken into operation, it should be checked several times with regard to the following points:

- Satisfactory dosage at the bearing points (collar of grease)
- Check the pipes system (points of lubrication, detached hoses, leakages).
- All the components of the electrical barrel pump do not need any maintenance.

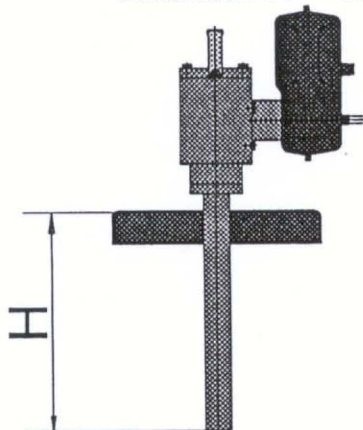
10. Setting of the electrical level check unit

1 st step: Measure the height of the barrel (dimension X)



2nd step: Set the pump lid at the intake pipe to dimension H, and secure it by two socket head screws SW 6.

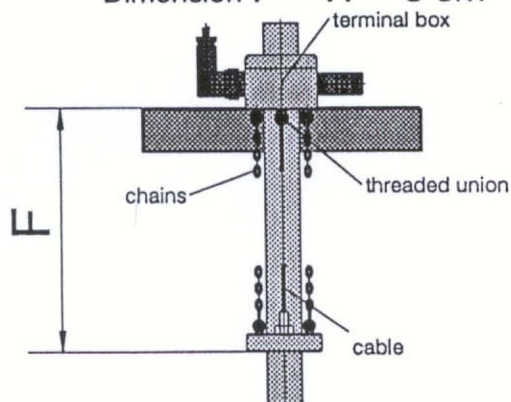
Dimension $H = X - 1 \text{ cm}$



Dimension H should be smaller than dimension X, so that the pump pipe does not reach the drum bottom.

3rd step: Hinge the chain of the control unit (grease level check unit) to a length obtaining dimension F.

Dimension $F = H - 5 \text{ cm}$

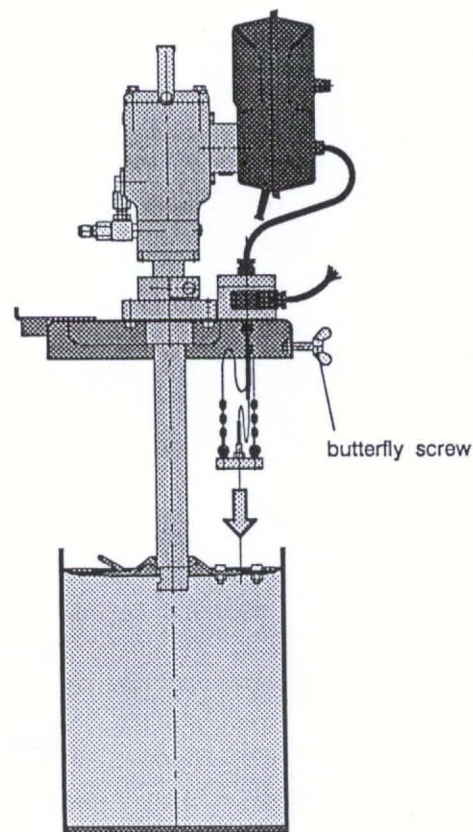


Dimension F must be smaller than dimension H in order to prevent the pump from taking in any air when it is going to be emptied

Hinge the two chains of the grease level check unit to more or less of length, as required. After that, unscrew the lid from the terminal box, unscrew the threaded unions, and adjust the cable of the proximity switch as required by the length of the chains.

Re-tighten the threaded unions and the lid of the terminal box.

4th step: Press the grease contact plate into the barrel filled with grease, until grease is leaving through the central port. Introduce the pump with lid into the central port of the grease contact plate. Pay attention to alignment of the terminal box with the centering screws for the control unit of the level check unit. After that, dip into the grease barrel, and establish centered condition, using the butterfly screws.



11. Change of grease barrel

1 st step: Loosen the screw from plug (2), using a crosshead screwdriver; then remove the plug.

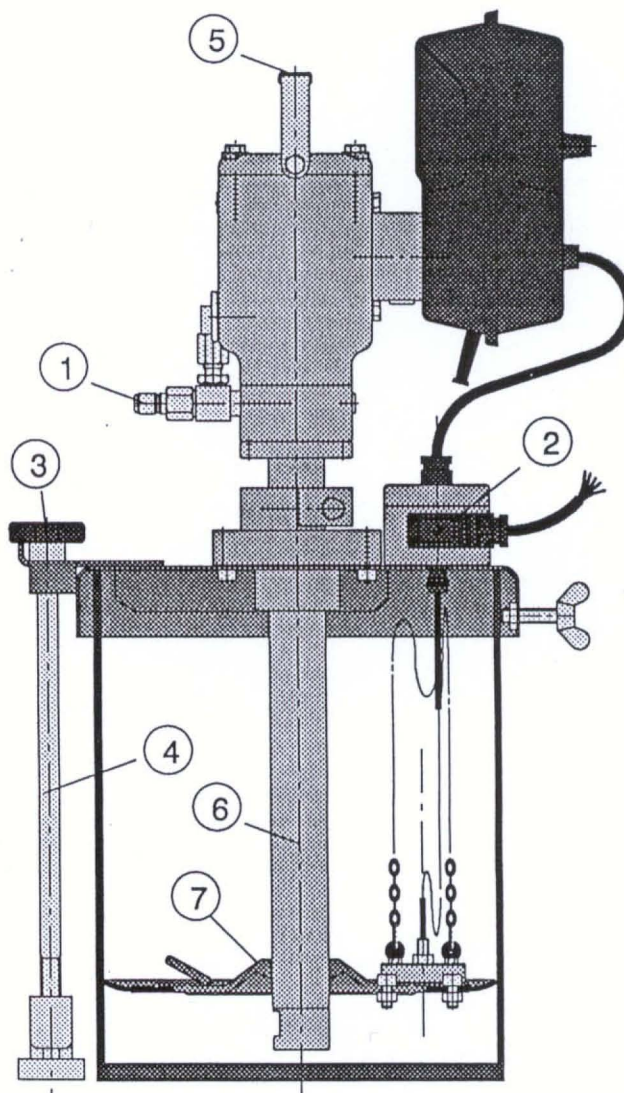
After that, detach the coupling (1) from the pressure connector socket.

2nd step: Unscrew the 3 crosshead nuts (3) from the lid, and tilt the tie rods (4) to outside.

Loosen the 3 butterfly screws from the lid.

3rd step: Take the barrel pump, together with the lid, out of the grease barrel and hang it up, using handle (5). It has to made sure to prevent the pump pipe (6) from being damaged or getting dirty.

4th step: Remove the grease contact plate (7) from the empty barrel and pour the residual grease into the new full barrel. Press the grease contact plate into the new barrel and re-assemble the barrel pump by inverse sequence of operations (refer to item 10 / 4th step). Make sure that both the old and the new grease drum have the same diameter and the same height.



12. Malfunctions – Origin – Remedies

Malfunctions	Origin	Remedies
Reduced pump speed	High pressure in system low ambient temperature	Check system & bearing points; not a defectiveness – (it may be useful to perform one or two intermediate lubrication operations).
Leakage of grease at the pressure relief valve	Excessive pressure in the system. Progressive distributor blocked. Defective valve spring.	Check the system. Repair clogged or seized bearing points. Replace distributor, if required. Replace the pressure relief valve.
Grease level warning lamp goes on.	Grease barrel is empty.	Replace the grease barrel.
Grease level pilot lamp is ON even if the barrel is full.	Defective proximity switch. Plate with proximity switch does not perfectly touch the grease contact plate. Defective supply cable for the proximity switch.	Replace the proximity switch. Place the plate with proximity switch in correct position refer to item 10 – setting of the el. level check unit, p. 8). Renew the supply cable.
Pump does not supply lubricant.	Drum is empty. Non–return valve in the pump is defective or clogged. Defective drive motor.	Renew the barrel. Replace the pump. Replace the motor together with flange.
Pump does not produce pressure	Non–return valve in the pump is defective or clogged.	Replace the pump.

