

## OPTIONS

### AUTOMATIC LUBRICATION SYSTEM

The central lubrication of the axes modules consists of a small lubricant dispenser with progressive distributor with several exits. It is responsible for the automatic lubrication of the toothed rack with the driving pinion and the prismatic and flat rail guidances of the Y-axis, the vertical Z-axis, and any further axes if applicable.

#### Programming:

The operating time is programmed for 12 months by means of the black plastic ring of the lubricant dispenser (volumetric displacement 120 cm<sup>3</sup>).

#### Setting up for operation / repairs:

Pipes must be pre-filled (manually with a pump) with the appropriate type of oil before the system is set up for operation, but also after any exchange of pipes.

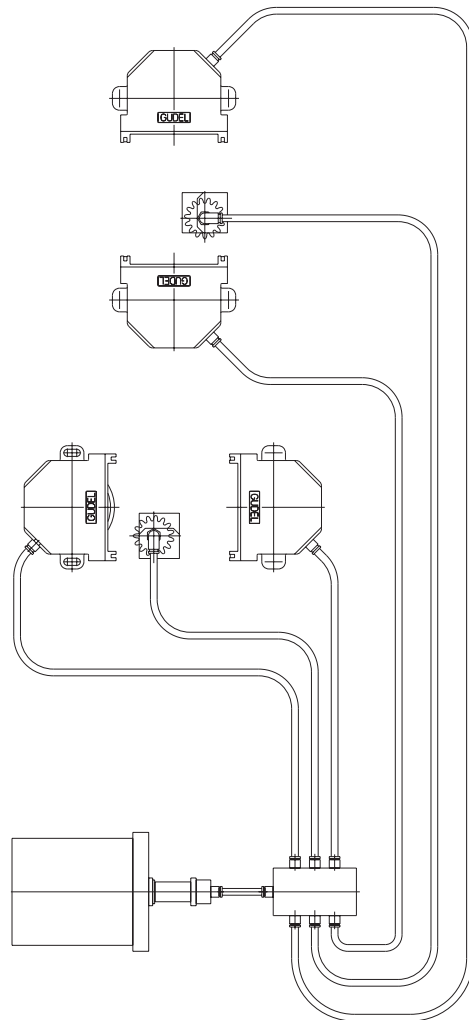
#### Maintenance work:

The exchange of the lubricant dispenser (expansion ring).

For more detailed information, please see the chapter on Products from third-party companies MEMOLUB.

#### Other suitable qualities of oil are:

- Degol GS 460 (Aral)
- BP Enersyn SG-XP 460 (BP)
- Pinnacle 460 (Texaco)
- Tivela Oil S 460 (Shell)



Quality of oil  
**Mobil Glygol 460**

### CAUTION

Always use the prescribed original quality of oil for the central lubrication. In this case, do not use any other quality of oil with the same properties. In case you wish to use any other quality of oil with the same properties, the felts of the lubrication units must be replaced, in order to prevent any forbidden mixing of different qualities of oil.

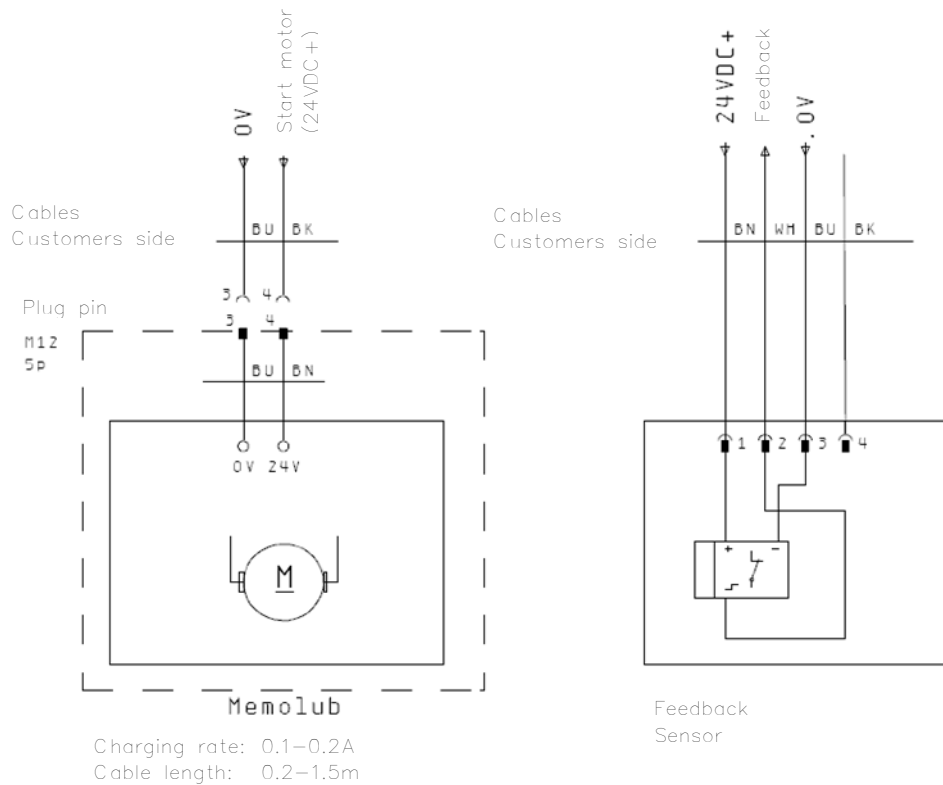


## Function Description of the Memolub

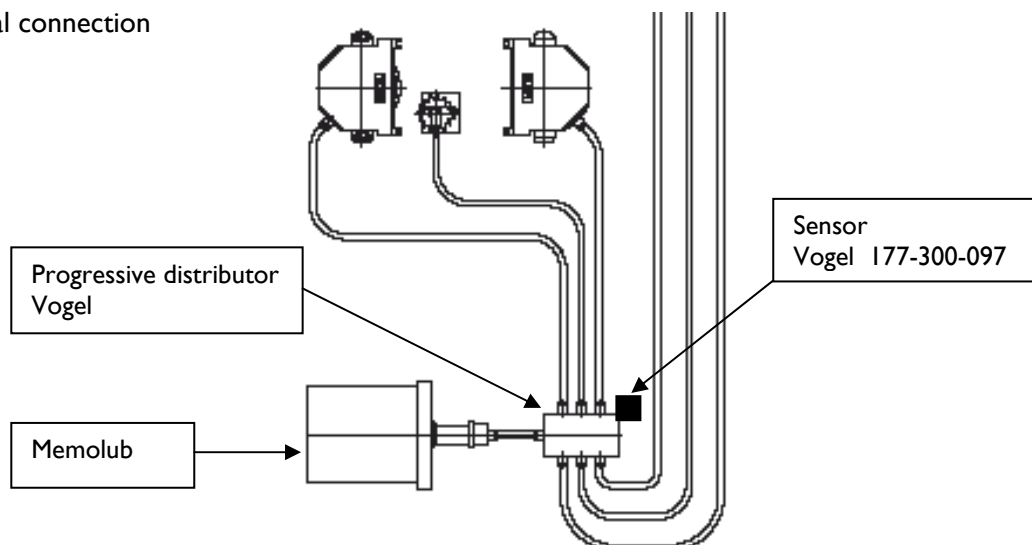
This document describes the functional flow of the Memolubs and of the progressive distributor. It is meant as a help in software development.

### The Memolub system is connected as follows:

#### Electrical connection



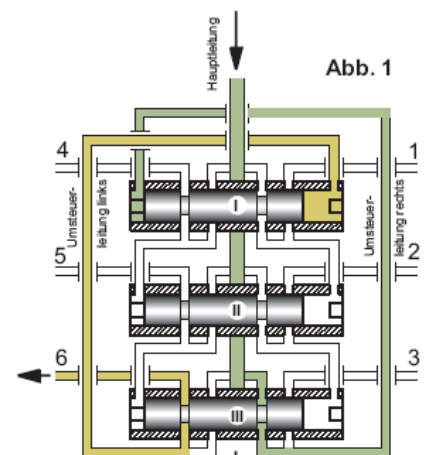
#### Mechanical connection



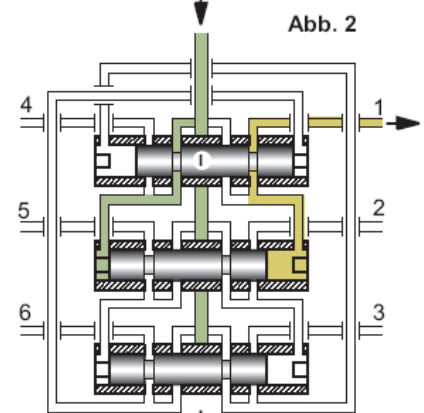
## Description of the Functional Flow

Description of the functional flow of the progressive distributor

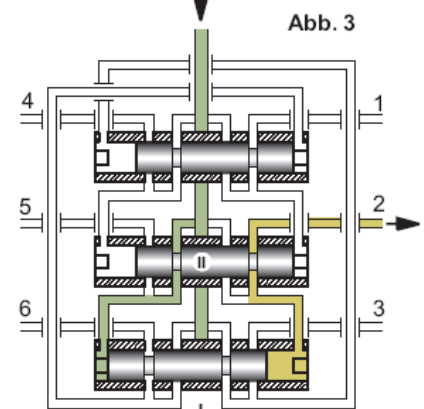
The lubricant flows from the main hose through the right snap ring groove of the piston and the reversing hose (on the right) to the left side of piston I and pushes it into its right-side end position. The lubricant displaced by piston I exits through the left reversing hose at outlet 6.



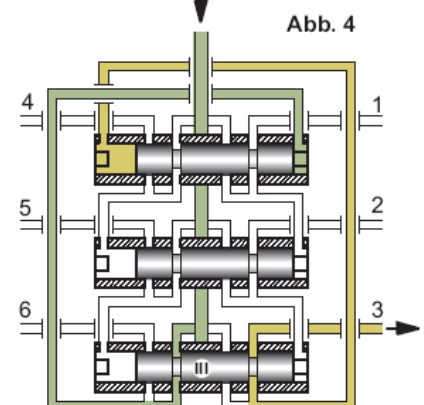
After piston I was moved, the lubricant flows to the left side of piston II and pushes it to its right-side end position. The displaced lubricant exits through outlet 1.



After piston II was moved, the lubricant flows to the left side of piston III and pushes it to its right-side end position. The displaced lubricant exits through outlet 2.

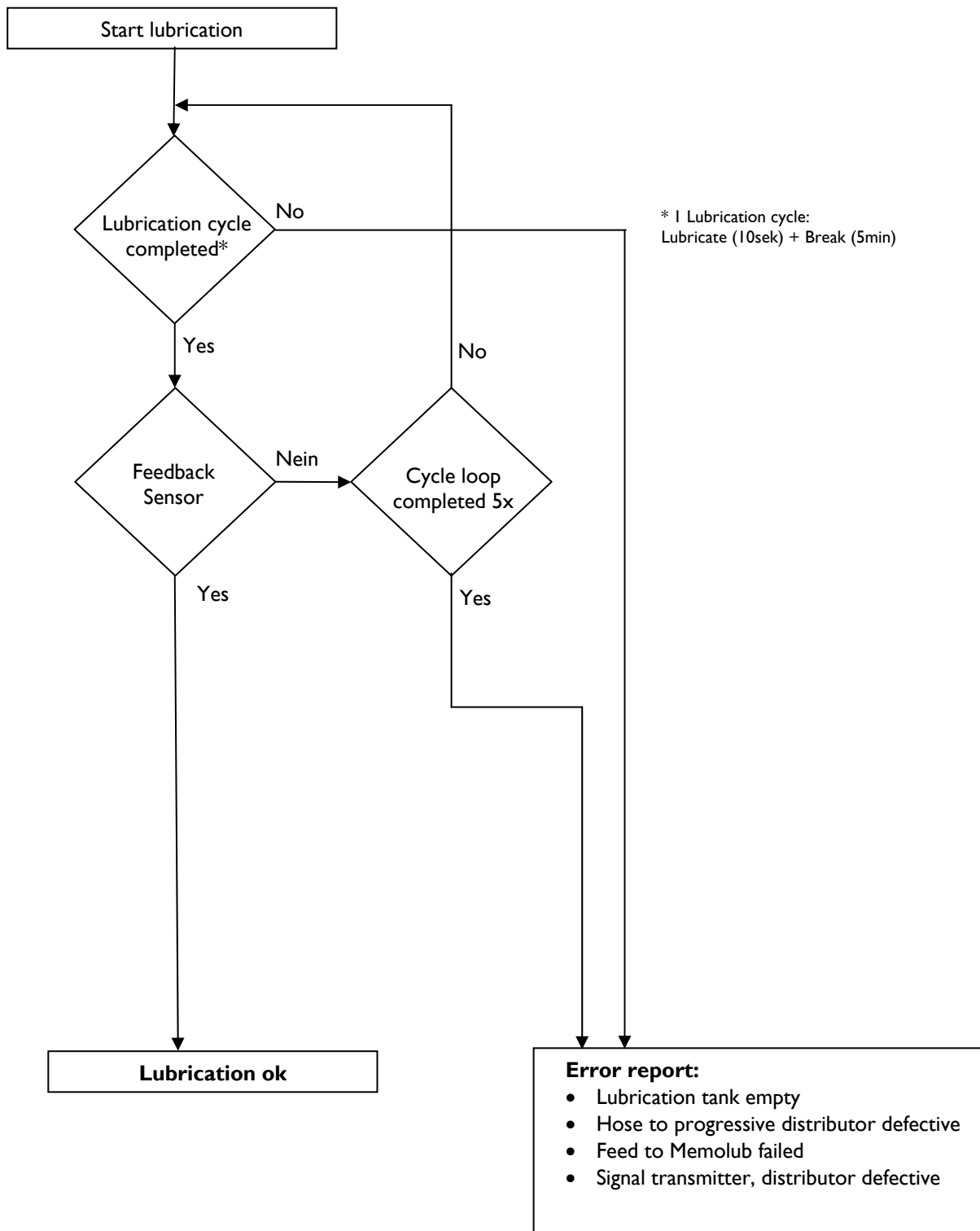


After piston III was moved, the lubricant flows to the right side of piston I and pushes it to its left-side end position. The displaced lubricant exits through outlet 3. The continuing process is described in the diagram.



## Systems functions

Software flow chart:

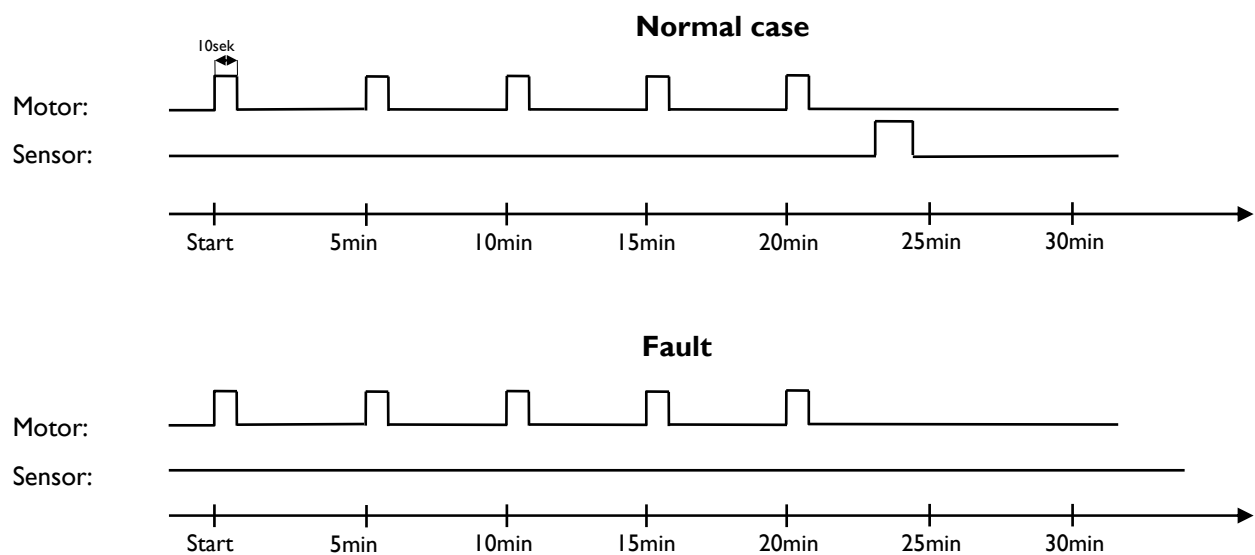


### Notice:

The Sensor reports a completed cycle of the progressive distributor by changing the pulse twice. The software has to react on the second change of pulse at the PLC-input.

**Signal diagram**

The signal diagram for the motor (output) and the transducer (feedback) shows up as follows:



# MEMOLUB<sup>®</sup> HPS

## AUTOMATIC LUBRICATORS & LUBRICATION



## Introduction



### Refillable autonomous and programmable lubricator for one or more points of lubrication

Lubrication is an important part of the maintenance. The lubricator, the point of lubrication, the quality and the frequency are the main elements for an effective lubrication and are therefore also important for an optimal production. In modern factories the points of lubrication are lubricated through a centralized lubrication system. These systems are effective if they are well maintained, regulated and checked. The rest is mainly lubricated manually or with small independent low pressure lubrication systems.

MEMOLUB HPS is a high-pressure (25 Bar) and precise electromechanical lubricator for central and autonomous lubrication. It operates autonomously, contains an oil or lubricant bellows and is battery driven. Using a progressive distributor makes it possible to lubricate several points at the same time. It can be (if possible) mounted directly to the point of lubrication or pressed through lines on to the point of lubrication.

## Specifications

Dimensions and Capacity	Standard	⊙ 115 x 101 mm	120 cm <sup>3</sup> (ml)
	Mega	⊙ 147 x 101 mm	240 cm <sup>3</sup> (ml)
	Giga	⊙ 228 x 101 mm	480 cm <sup>3</sup> (ml)
Electronic Controls	Quartz Timer, Microprocessor		
Stop, Start	Immediate		
Lubricants	Oils and Greases (to NLGI #2)		
Feed	HPS=	3 Batteries 4,5 V Alkaline	
	EPS=	5 VDC	} cable 0.4m
		12 VDC	
		24 VDC	
	SPS=	12 VDC	} cable 0.4m
		24 VDC	
Temperature Range	From – 15°C to + 50°C		
Feed pressure	25 bar (piston pump)		
Point of lubrication	1 to max. 8 out lines (with progressive distributors)		
Remote installation Monopoint	Up to 10 m line length		
Remote installation Multipoint	4m line length per point of lubrication		
Installation Thread	¼ inch R		
Protection class	IP66		
Max. feed volume	0.635 cm <sup>3</sup> (ml)		
Min. feed volume	0.100 cm <sup>3</sup> (ml) with metering discs		

P.S. In case of extended usage at temperatures below –5°C, it is important to check the battery status regularly by activating the control function.

## Program settings



### MEMO Standard program settings using coloured plastic rings

The electronic lubricant regulation is done with 3 coloured (red, white, black) plastic rings, which inserted in a black plastic support, activate the electronic contacts of the frequency selector through the pressed pins. With a single ring inserted, the time related feed volume increases from the outside inwards. With all 3 rings inserted, the maximum feed volume is reached.

Depending on the combination of the rings, the desired time related feed volume can be set or the rate of dispensation of the reservoir of lubricant in the bellows can be determined.

### Rate of dispensation as a function of the combination of the rings (red, white, black)

Inserted rings	Frequency (hours)	Duration 120 cm <sup>3</sup> (ml)	Duration 240 cm <sup>3</sup> (ml)	Duration 480 cm <sup>3</sup> (ml)
Black	48 h	12 months	2 Jahre*	3 *days
White	24 h	6 months	12 months	18 months
Red	12 h	3 months	6 months	9 months
Black + white	16 h	4 months	8 months	12 months
Black + rot	6 h	-	3 months	6 months
White + red	2 h	-	1 month	2 months
Black + white + red	1 h	-	15 days	1 month

\* External power supply required (5 volts)





### Finer programming settings using the black metering disc

For an even finer setting of the time related feed volume, insert up to 5 small black metering discs and a open steel ring in the cylinder of the MEMO.

### Rate of dispension with additional metering discs

Inserted ring	Measuring out disc	Frequency (hours)	Duration/Standard 120 cm <sup>3</sup> (ml)	Duration/Mega 240 cm <sup>3</sup> (ml)
Black	5**	48 h	18 months	3 years *
Black	0	48 h	12 months	2 years *
White	5**	24 h	9 months	18 months
White	0	24 h	6 months	12 months
Red	5**	12 h	-	9 months
Black + white	0	16 h	4 months	8 months
Red	0	12 h	3 months	6 months
Black + rot	0	6 h	-	3 months
White + red	0	2 h	-	1 month
Black + white + red	0	1 h	-	15 days

\* external feed required

\*\* metering disc incl. open metering disc

### Warranty

For mechanical and electronic components a warranty period of 12 months is extended provided that the housing of the control unit (red) was not opened and the transparent bell is not damaged. The warranty is limited to the replacement of the lubricator. The operator is responsible to check the device for function.

For more information on the MEMOLUB please visit the website [www.memolub.com](http://www.memolub.com).

---

**Installation Instruction Lubricator Battery**

---



1. Program the volume of lubricant output by inserting the stroke-limiting washers.



2. Install the Power-Through Memo fitting, either direct or remote mounted.



3. Screw the MEMOLUB® HPS on the Power-Through MEMO fitting.

---

**Installation Instruction Lubricator 24VDC-PLC**

---



1. Program the volume of lubricant output by inserting the stroke-limiting washers.



2. Install the Power-Through Memo fitting, either direct or remote mounted.



3. Screw the MEMOLUB® 24VDC-PLC on the Power-Through MEMO fitting.



4. The MEMOLUB® 24VDC-PLC must be connected to a PLC for its power supply. The PLC determines the frequency of output cycles. (PLC Not Included)

---

**General Information**

---

**Maintenance**

Avoid operations with an empty cartridge. To restore the pump's suction function, use a grease gun without a grease nipple. 1 or 2 strokes are sufficient.

**Function checks during operations**

If the MEMOLUB is rotated by a half turn outwards and then inwards again, a completely automatic lubrication cycle is started 5 seconds after the inward rotation. Regularly perform checks.

**Stop / Start**

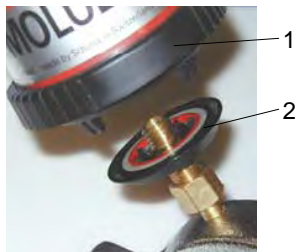
5 seconds after screwing it into the lubrication point, the first lubrication cycle is started. The MEMOLUB can be stopped and started again at any time (machine standstill, weekends, holidays, etc.). Just rotate the MEMOLUB by 3 rotations outwards and inwards again. After the inward rotation, the MEMOLUB carries out a self-test and is operational immediately afterwards.

Caution! In progressive distributors and /or long lines that are filled with lubricants, a so-called relaxation may occur within these systems. The Memo is then filled with lubricant. While screwing the MEMOLUBS onto the Memo, pressures of over 100 bar may be generated which may damage the MOLUB. Use a so-called „SAFETY-MEMO“. On progressive distributors and / or on long lines

**Line lengths for central lubrication**

The length of the line depends on the type of lubricant to be transported and on the ambient temperature. With a multi-purpose lubricant and temperatures exceeding 100° C the following line lengths are used. At 4mm inner diameter max. 6m for single points of lubrication, max. 8x2,5 m for progressive distributors.

## Change of Battery and Lubricant Cartridge



1. Unscrew the MEMOLUB® HPS (1) from the Power-Through MEMO (2) fitting. The MEMO stays at position.



2. To open, place the lubricator upright on flat surface. Press firmly and turn locking ring counter-clockwise while holding the ribbed surface.



3. Remove the cartridge and batteries and dispose of them in an environmentally friendly way. Insert a new set of batteries according to the instructions on the red housing.



4. Remove the paper, disk-shaped label from the replacement cartridge and fill in the "Start Date" and "Change Date".



5. Carefully squeeze air out of the cartridge until grease begins to emerge from the outlet.



6. Place the cartridge on the inlet of the red housing.

## Grease Cartridges Only



5. Hold the cartridge with the outlet facing up. Carefully remove the cartridge plug. Turn the red housing over and gently place it on the outlet of the cartridge.



6. While holding the cartridge and red housing together, flip the assembly over and hold the cartridge in place.

## Oil Cartridges Only



7. Place the clear housing assembly over the lubricant cartridge and red housing.



8. Holding the locking ring by its ribbed surface, turn it clockwise until it clicks into the locked position.



9. Simulate a function test manually. Press the sensor pen against the bottom of the housing for approx. 5 sec.



10. Screw the MEMOLUB® HPS lubricator onto the Power-Through MEMO.



Note: If necessary, prime the MEMOLUB® HPS with a hand grease gun (*grease cartridges only*).

## Danger and safety instructions

- Warning: Lower red housing contains a loaded spring. Do not open.
- Attention! During the manual function test, lubricant may leak out. Point the MEMOLUB downwards and away from people.
- L éq. < 70Db.
- Use MEMOLUBS only for the lubrication of machines
- Use only factory pre-filled cartridges and battery packs with MEMOLUB® lubricator. Third party battery cells could destroy the electronics.

## Change of Lubricant Cartridge

### Danger and safety instructions

- Warning: Lower red housing contains a loaded spring. Do not open.
- L éq. < 70Db.
- Use MEMOLUBS only for the lubrication of machines
- Use only factory pre-filled cartridges with MEMOLUB® lubricator.



1. Unscrew the MEMOLUB® HPS (1) from the Power-Through MEMO (2) fitting. The MEMO stays at position.



2. To open, place the lubricator upright on flat surface. Press firmly and turn locking ring counter-clockwise while holding the ribbed surface.



3. Remove the paper, disk-shaped label from the replacement cartridge and fill in the "Start Date" and "Change Date".



4. Carefully squeeze air out of the cartridge until grease begins to emerge from the outlet.



5. Place the cartridge on the inlet of the red housing.

**Grease Cartridges Only**



4. Hold the cartridge with the outlet facing up. Carefully remove the cartridge plug. Turn the red housing over and gently place it on the outlet of the cartridge.



5. While holding the cartridge and red housing together, flip the assembly over and hold the cartridge in place.

**Oil Cartridges Only**



6. Place the clear housing assembly over the lubricant cartridge and red housing.



7. Holding the locking ring by its ribbed surface, turn it clockwise until it clicks into the locked position.



8. Screw the MEMOLUB® HPS lubricator onto the Power-Through MEMO.



Note: If necessary, prime the MEMOLUB® HPS with a hand grease gun (grease cartridges only).