

Electric Pump EP-1

The BEKA-MAX central lubrication pump model type EP-1 is electrical actuated and has a maximum of 3 independently operating lubricant outlets. The pump is delivered with one pumping element as a standard, however if necessary one or two pumping elements can be ordered additionally.

At the pumping elements PE-120 V the output can be adjusted and additionally they can be equipped with a manometer for the function monitoring (see page 5). This enables the grease quantity to be adapted to the requirement of the individual lubrication point. With an operating pressure of max. 280 bar (adjustment of the pressure relief valve), this pump enables the delivery of the copper-chisel paste, which is required for the lubrication of hydraulic hammers.

Due to the high solid content in the copper-chisel paste, a new pumping element has to be provided as spare part after 1000 to 1500 hours of operation.

The EP-1 series pumps differ in reservoir size and control type. EP-1 can be controlled directly or an integrated control unit S-EP 8.

Technical data:

Motor:

Operation voltage:	12 V DC / 24 V DC
Revolutions:	15 rpm.
Current consumption:	
Idling at +20° C:	0.8 A / 0.4 A
Full load at +20° C:	2.2 A / 1.1 A
Fuse:	5 A / 3 A

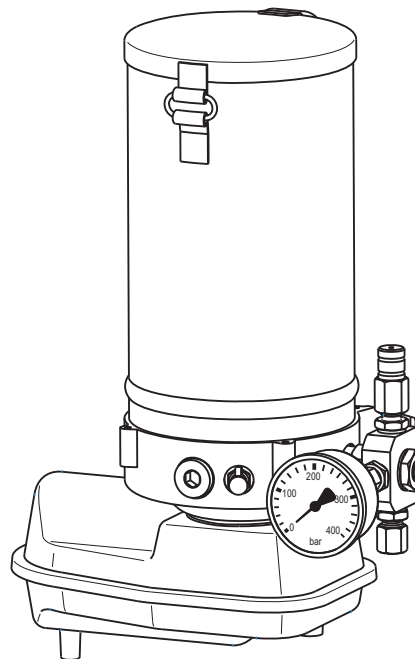
Pump:

Max. operating pressure:	280 bar
(Adjusting of pressure relief valve)	
Permissible operating temperature:	-35° C to +80° C
Reservoir size:	
Steel reservoir:	2 kg or 4 kg
Stirrer direction:	counterclockwise
Mounting position:	Reservoir in vertical position
Delivery quantities:	depending on pump element (refer page 6)
Protection type:	IP5K4 as per DIN 40050

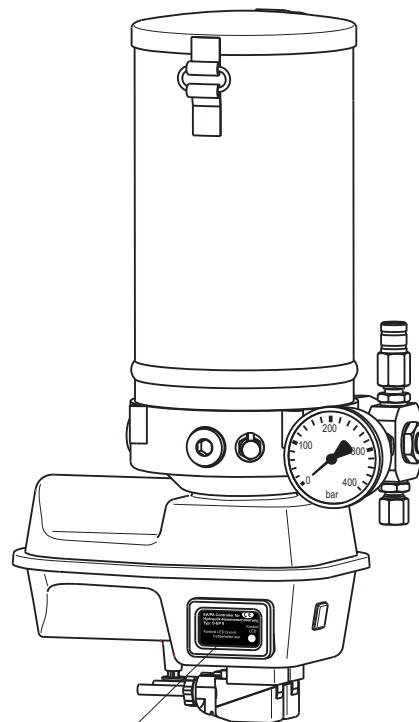
Lubricant:

For the lubrication of hydraulic hammers special lubricant are used (refer page 4).

Electric pump EP-1 with steel reservoir and pump element PE-120 V with manometer:



Electric pump EP-1 with steel reservoir, pump element PE-120 V and integrated control S-EP 8:



Integrated Controller S-EP 8

Electric Pump EP-1 Method of Operation

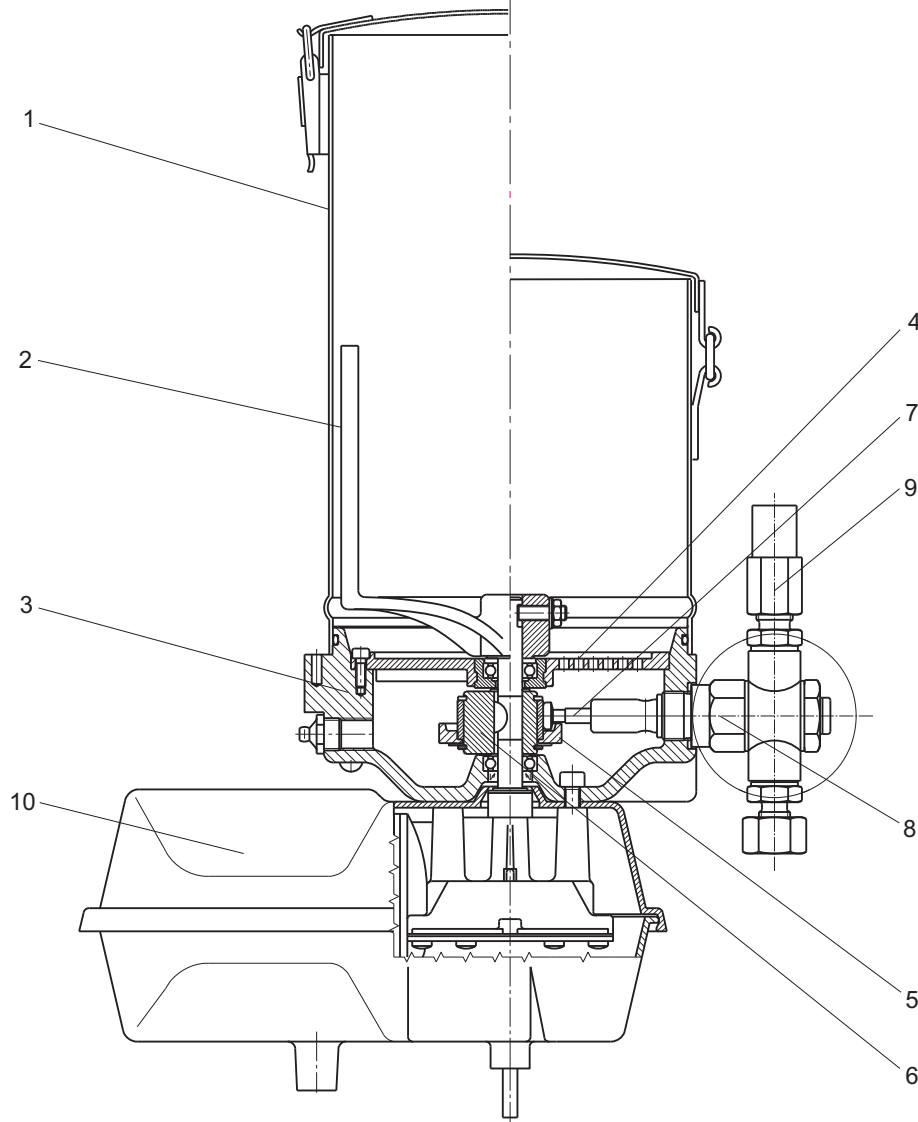
A DC motor (10) continually operates the eccentric cam (6) and pressure ring (5). This eccentricity effects the suction and pressure strokes of the delivery piston (7), whereby the integrated non-return valve (8) prevents the delivery media from being sucked back out of the main line.

The stirrer (2) pushes the lubricant out of the supply container (1) through a screen (4), which reduces any air bubbles, to the suction area in the pump housing (3). A

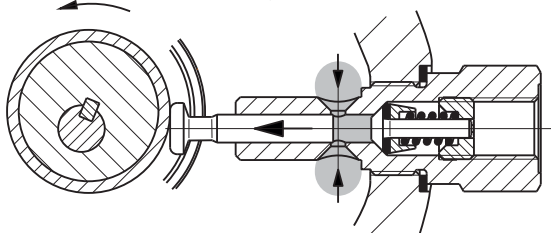
scraper on the stirrer (2) enables a visual check of the lubricant volume still present in the transparent supply container (1).

Filling the reservoir (1) is effected via the conical grease nipple or the hinged lid.

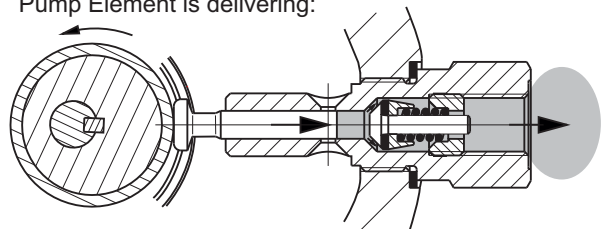
The pressure relief valve (9), is pre-set to 280 bar operating pressure, to provide protection for the pump and piping system.



Pump Element is drawing in:



Pump Element is delivering:

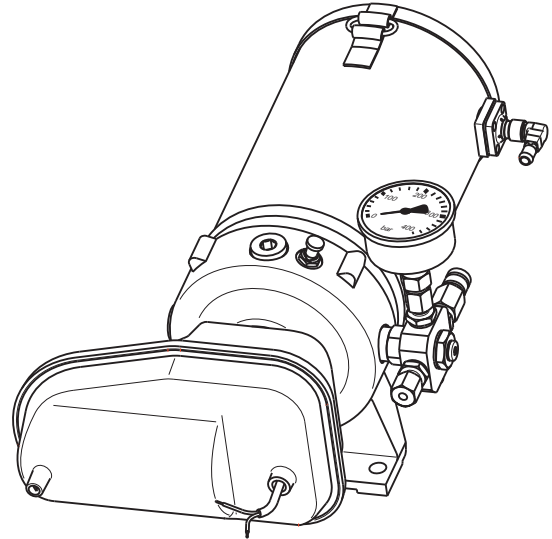


Electric Pump EP-1 Connection Cable and Terminal Diagram

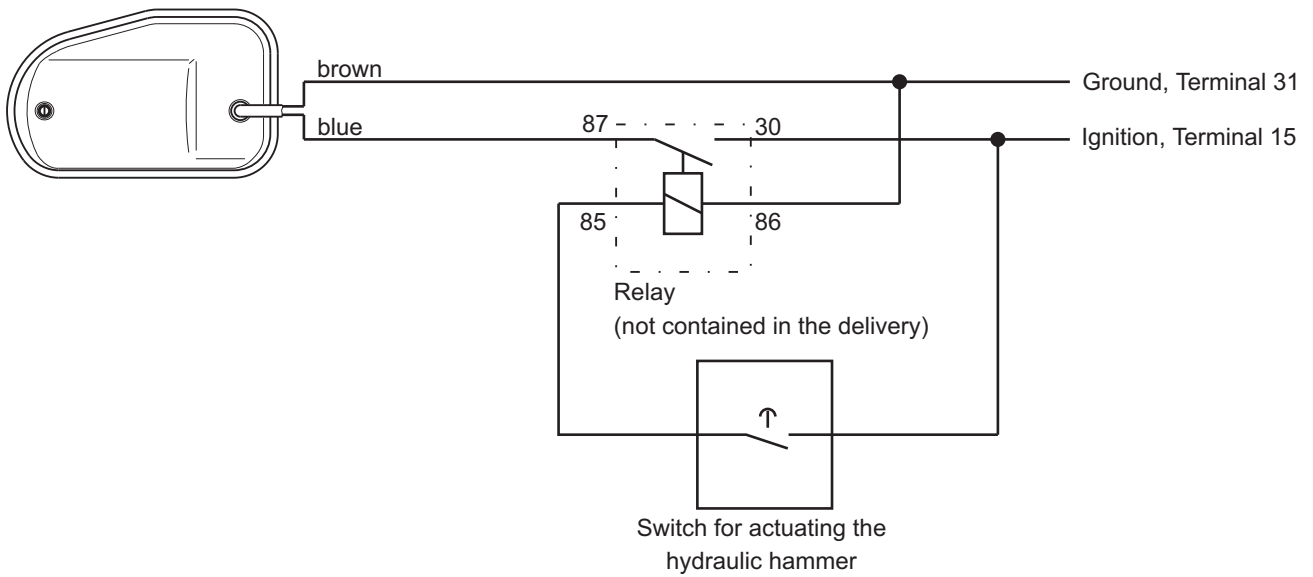
Connection Cable:

The electric pump EP-1 is supplied directly connected via a 10 m cable.

View from below with the cable directly connected:



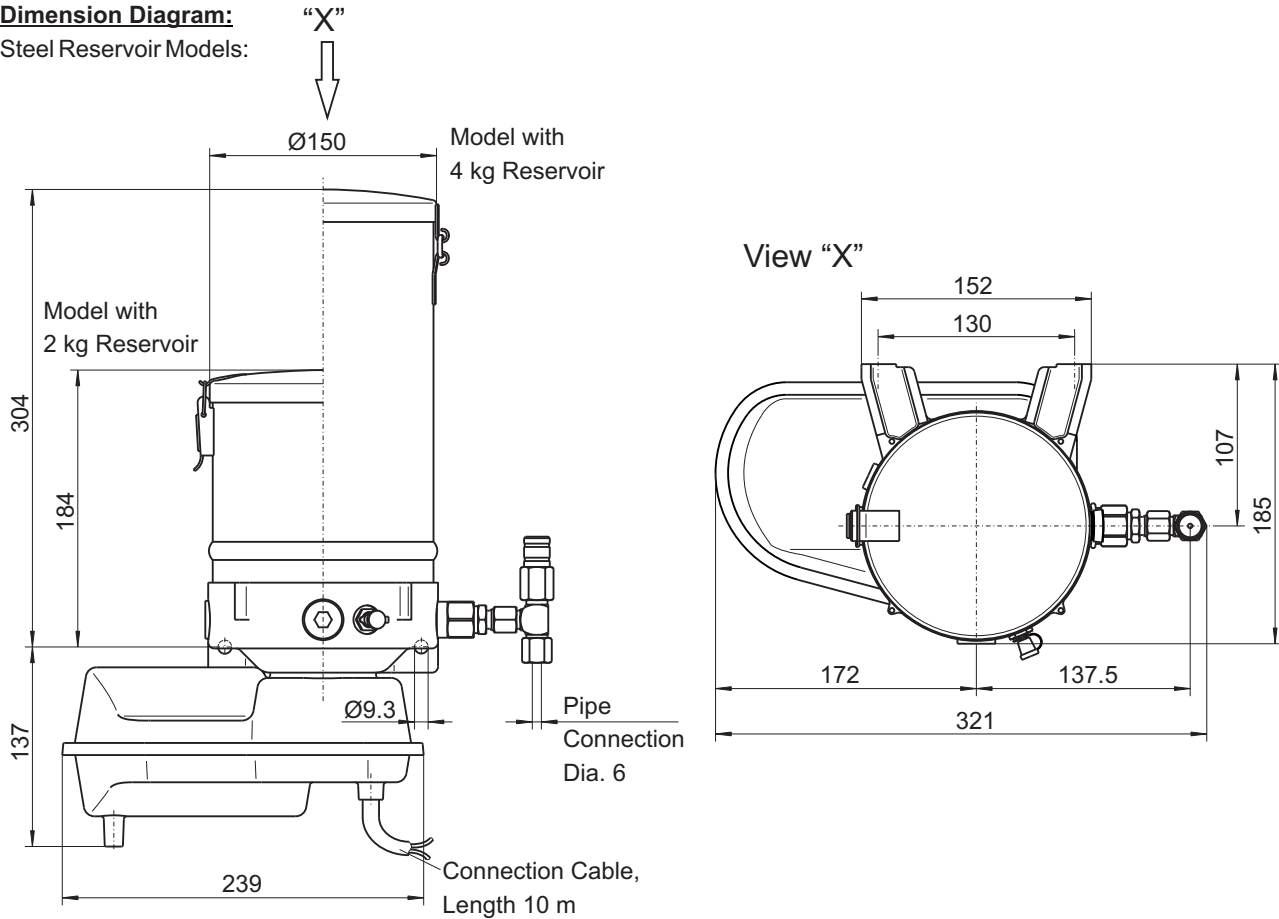
Terminal Diagram:



Electric Pump EP-1 Dimension Diagram and Lubricants

Dimension Diagram:

Steel Reservoir Models:



Lubricants:

The lubricants mentioned here are released for the use in central lubrication systems for hydraulic hammers. Please note the instructions of the manufacturer of the hydraulic hammer.

Description: EUROL Chisel Paste
Manufacturer: EUROL Mineralöl HandelsgesmbH

NILS Chisel Paste
Nils Italia S. r. l.

Fuchs Lubritech Chisel Paste
Fuchs Lubritech GmbH

BERULUB HTM Paste
Carl Bechem GmbH



Electric Pump EP-1 Pump element PE-120 V

Delivery rate:

- All pump elements are set to full stroke by the manufacturer
- max. delivery rate 0.12 cm³ at full stroke
- Reduction 0.013 cm³ per notch = 1/2 revolution

Adjusting the delivery rate:

- Remove plug screw (2) with Allen key (SW 5)
- Turn adjusting screw (3) with a screwdriver
- Turn clockwise to reduce delivery rate
- Turn counterclockwise to increase delivery rate
- Maximum stroke of adjusting screw is 2.4 mm = 6 notches
- 1 turn of adjusting screw is 0.8 mm = 2 notches
- Tighten plug screw (2) incl. sealing ring

Technical data:

Delivery quantity: 0.04 to 0.12 cm³ / Hub

Regulation of delivery rate: 6 detents each 1/2 revolution

Reduction: 0.013 cm³ per notch

Delivery media: Greases from NLGI-Kl. 00/000 to NLGI-Kl. 2

Piston return: forced

Part-no. pump element PE-120 V:

Pressure outlet dia. 6:
with pressure relief valve, without manometer: 2152.99063.0000

with pressure relief valve, with manometer: 2152.99063.0110

Pressure outlet dia. 8:
with pressure relief valve, without manometer: 2152.99063.0001

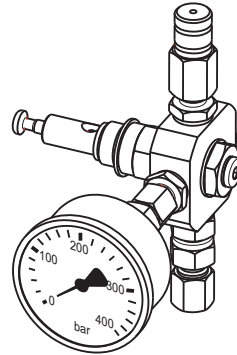
with pressure relief valve, with manometer: 2152.99063.0111

Pressure relief valve of PE-120 V
(preadjusted to 280 bar): 2152.99063.0020

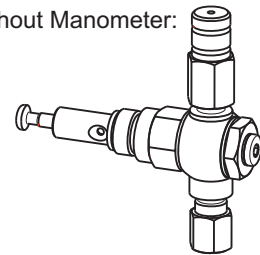
Installation of pump elements in electric pump EP-1:

- Only install / remove when pump is off
- Install pump unit with piston partially extended (4) insert at angle in top of housing bore (see diagram A)
- When piston head rests on pressure ring - move pump element into vertical position (see diagram B)
- Piston head must run in guide ring groove
- Tighten pump element
- For removal, reverse above sequence
- When removing the pump element, ensure that the piston (4) is not left behind in the pump housing

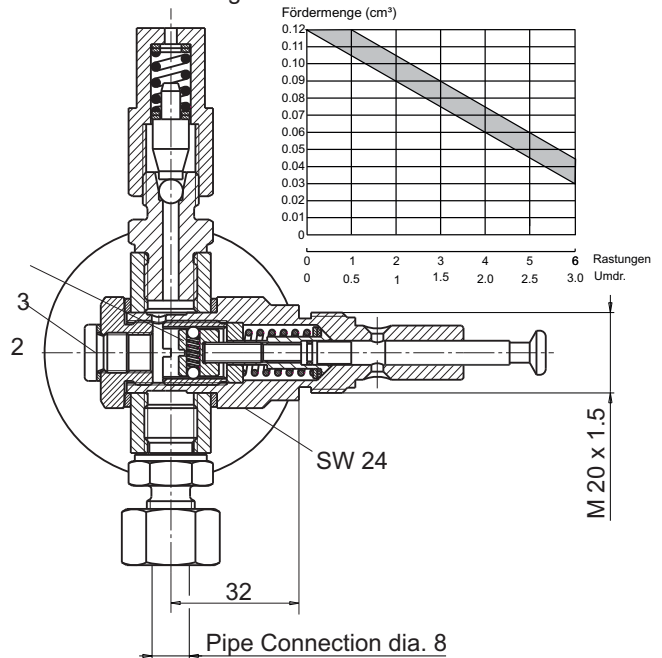
Pump Element PE-120 V with Manometer:



Pump Element PE-120 V without Manometer:



Sectional Drawing:



Installation Instructions:

Diagram A:

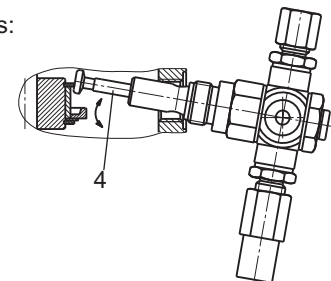
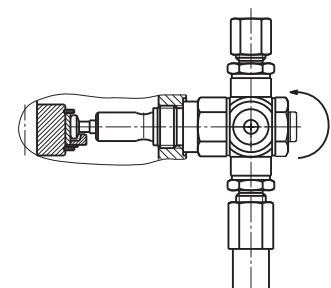


Diagram B:



Electric Pump EP-1 Special accessories grease level controller

The electric pump EP-1 can be equipped with an electronic grease level controller to control the minimum grease level. A capacitive proximity switch is built into the pump reservoir for this purpose. This emits a signal as long as there is sufficient grease in the reservoir (standard). If the grease level sinks below a certain level, the proximity switch switches off the signal.

The proximity switch can be evaluated by an external control unit or PLC or an integrated control unit.

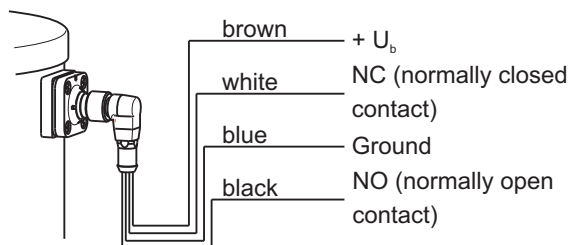
When connecting the grease level control to an intelligent controller (e. g. on-board computer, PLC), it must be taken into account that the grease level signal is only evaluated after a delay of 10 sec., meaning that only if the signal of the capacity proximity switch is missing permanently for over 10 sec., that lubricant reservoir is empty and the pump should be switched off (NO contact - black wire connected). If the white wire is connected (NC contact), the pump may only be switched OFF once the proximity switch issues a permanent signal for more than 10 sec.

To ensure wire break monitoring, the NO contact should be used preferentially!

Technical data:

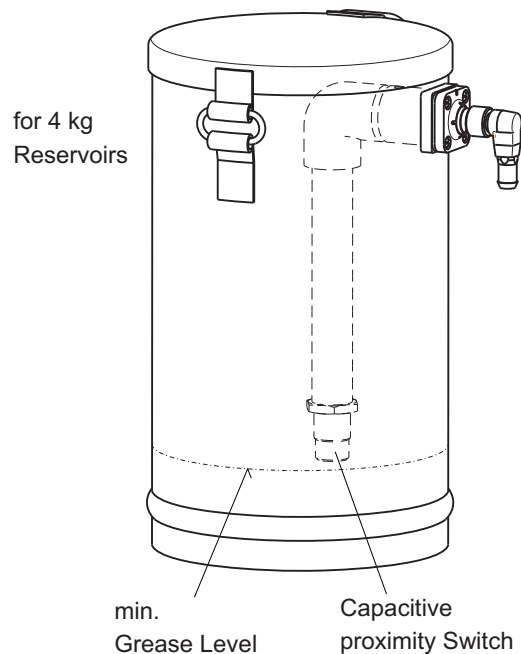
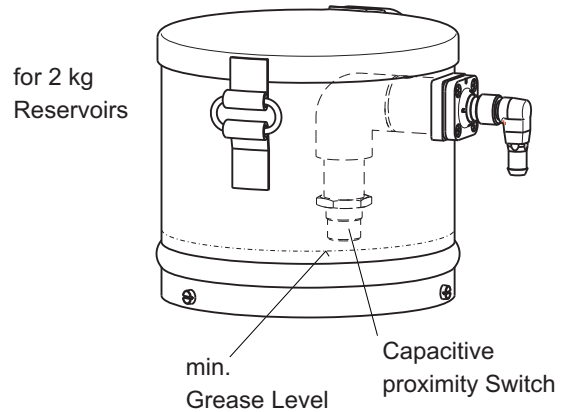
Operating voltage:	10 to 60 V DC
Connecting method:	PNP NO (normally open contact)
Max. current load:	250 mA
Protection type: Switch:	IP 67
Ambient temperature:	-25°C to +70°C
Connection:	4 pol. / M12x1 plug-in

Connection diagram:

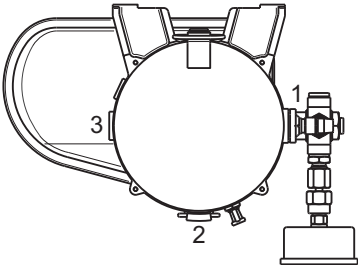


If the black connection wire is connected to +U_b, a signal is received as long as there is sufficient grease in the supply reservoir.

If the white connection wire is connected to +U_b, a signal is received when the grease level sinks below a minimum in the supply reservoir.



Electric Pump EP-1 Ordering Key

Construction Type	2152 . XX . XX . XX . 000		
Motor Voltage			
	without Plug		
Voltage	12 V	24 V	
Code	01	02	
Pump Elements			
			Code
1 PE-120 V in Outlet Position 1			41
1 PE-120 V in Outlet Position 2			D0
1 PE-120 V in Outlet Position 3			A4
<p>Order Sample Pump Elements:</p>  <p>1 PE-120 installed in Outlet Position 1</p>			
Size of reservoir (kg)			
Steel reservoir	2	4	
Code	31	26	
Special types	000		

Special types: 140 = with pump element PE-120 V with manometer with pressure outlet dia. 6
 141 = with pump element PE-120 V with manometer with pressure outlet dia. 6 and grease level controller
 045 = with pump element PE-120 V with manometer with pressure outlet dia. 8
 046 = with pump element PE-120 V with manometer with pressure outlet dia. 8 and grease level controller

Further special models on enquiry!

