Electric pump EP-1

The BEKA-MAX central lubrication pump model EP-1 is electrically actuated and has up to a maximum of 3 independently operating lubricant outlets. A separate pump unit is required for each outlet. Two pump units are available, PE-120 or PE-120 V, (see Page 5) so that the lubricant volume can be adapted to the requirements of individual progressive distribution circuits.
These pumps enable the delivery of commercial lubricants up to NLGI-Cl. 2 at a working pressure of maximum 280 bar (pressure relief valve setting).

The EP-1 series pumps differ in container size and control type. EP-1 can be controlled externally e.g. via PLC or an additional control unit, S-EP 6, whereby the pump can also be delivered with a number of differently integrated controllers.

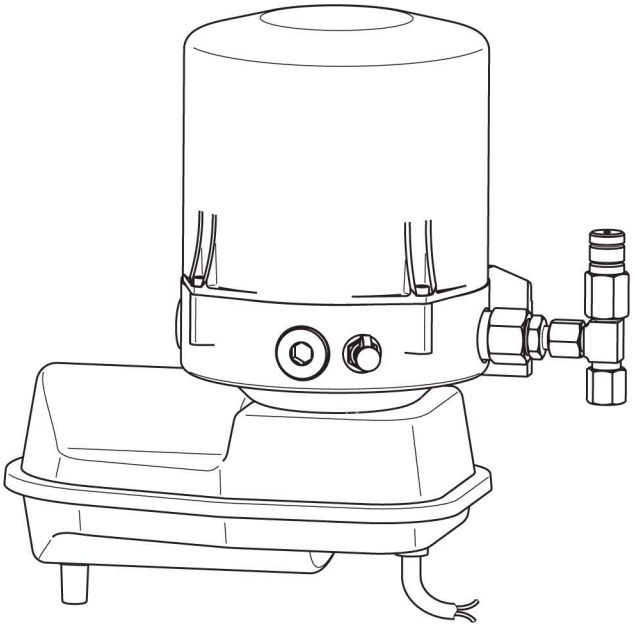
Integrated controllers:

- S-EP 4
- S-EP 5
- S-EP 7
- S-EP 8
- S-EP 10
- EP-tronic
- EP-tronic T1

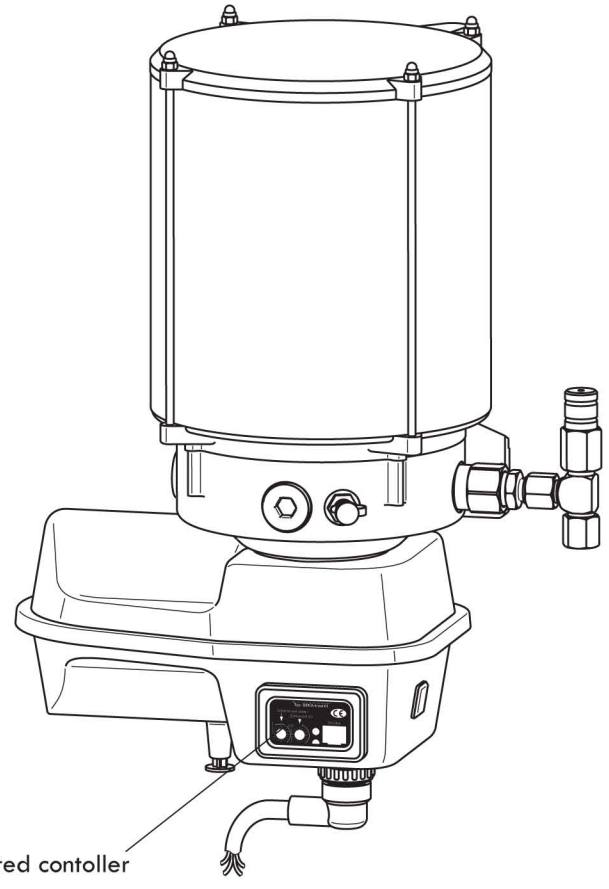
Technical data:

Motor:	
Operating voltage:	12 V DC / 24 V DC
Rpm:	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
Pumps:	
Max. operating pressure: (Pressure relief valve setting)	280 bar
Permissible operating temperature:	-35° C to +80° C
Container volume:	
Transparent container:	1.9 kg, 2.5 kg, 4 kg or 8 kg
Steel container:	2 kg or 4 kg
Stirrer direction:	clockwise
Mounting position:	Container vertical position
Delivery rate of pump units:	
PE-120:	120 mm3/stroke or rev.
PE-120V (adjustable):	40 to 120 mm3/stroke or rev.
Protection class:	IP5K9K as per DIN 40050
Lubricant:	Greases up to NLGI-Cl. 2 (excluding solid lubricants) Mineral oils up to 40 mm2/s (cSt)

Electric pump EP-1 with 1.9 kg container:

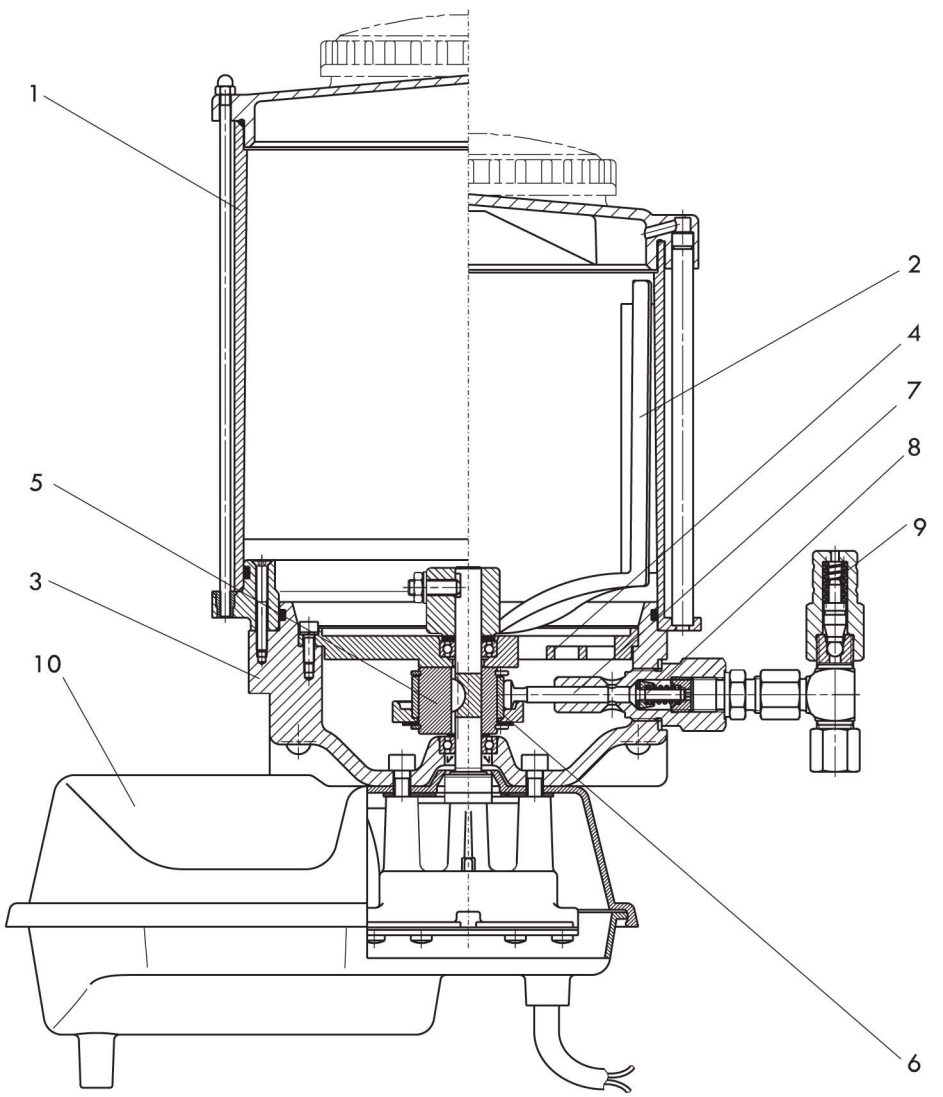


Electric pump EP-1 with 4 kg container and integrated electronic controller:

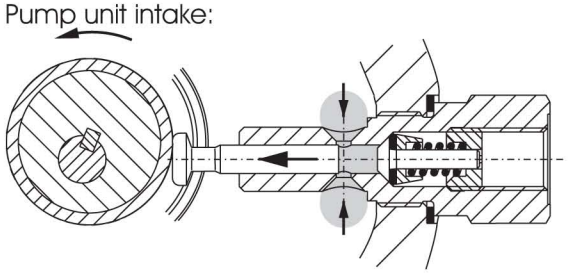


Operation:

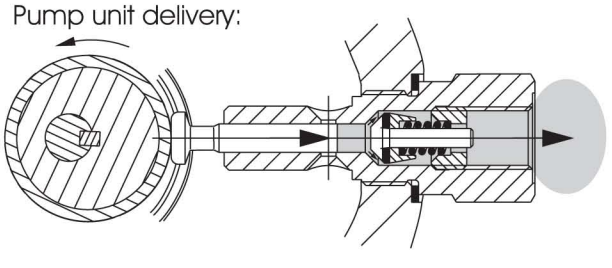
A DC motor (10) continually operates the eccentric cam (5) and pressure ring (6). This eccentricity effects the suction and pressure strokes of the delivery piston (7), whereby the integrated non-return valve (8) prevents the delivery media from being sucked back out of the main line.
The stirrer (2) 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).
The pressure relief valve (9) is pre-set to 280 bar.



Pump unit intake:



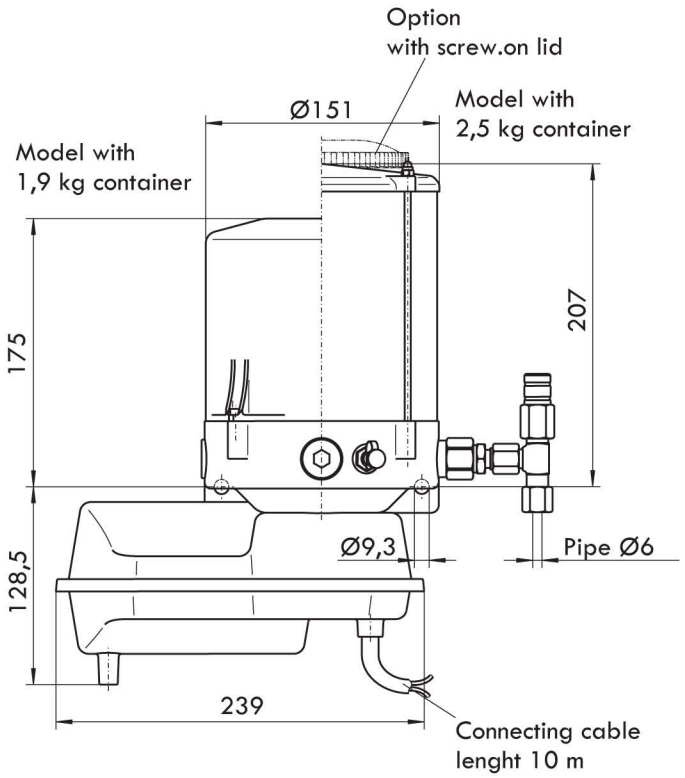
Pump unit delivery:

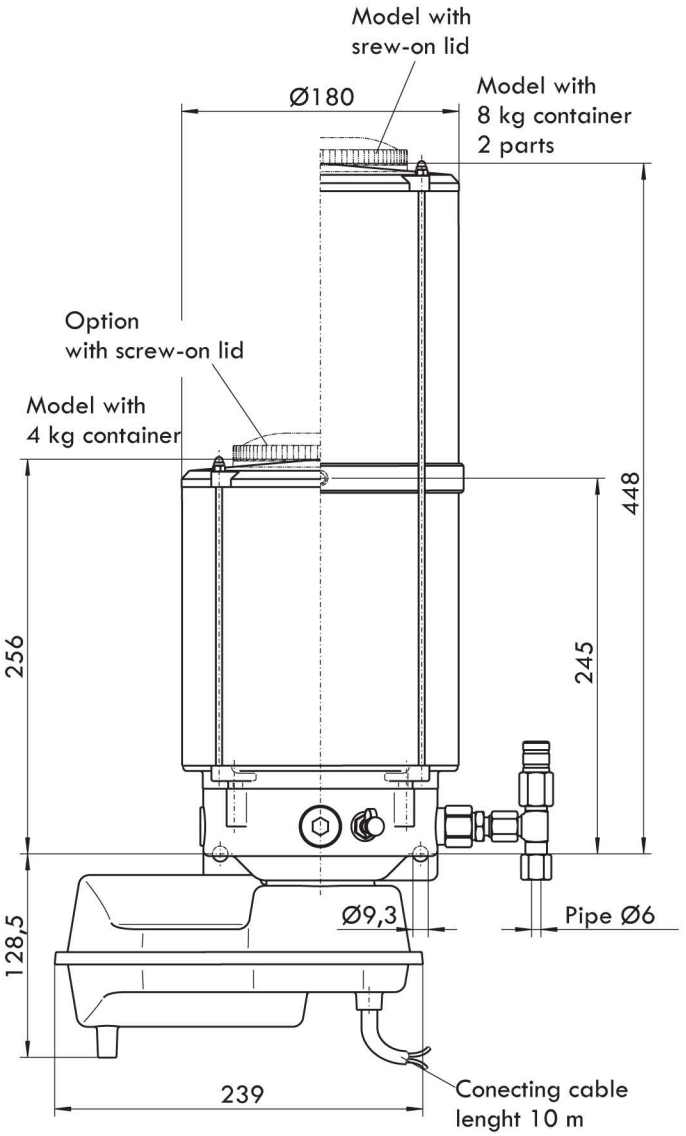


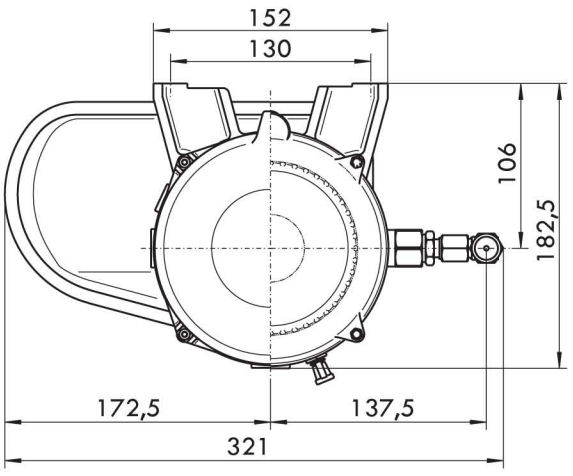
Electric pump EP-1

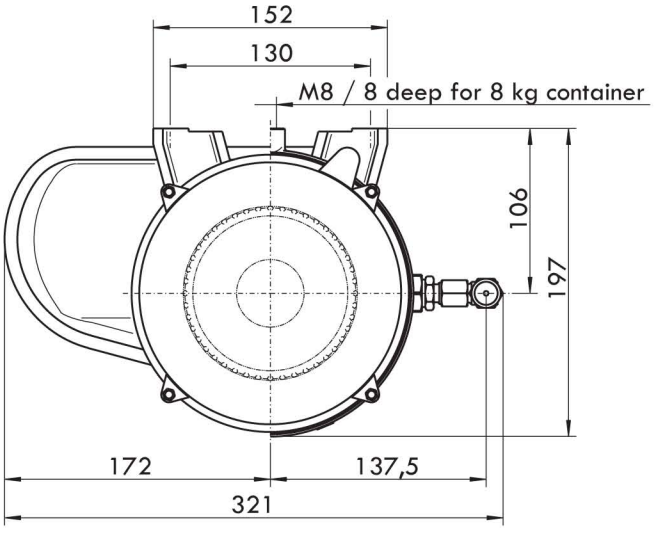
Container models and installation dimensions:

The electric pump EP-1 is available with 5 transparent container sizes and 2 steel container sizes.
Transparent container models:





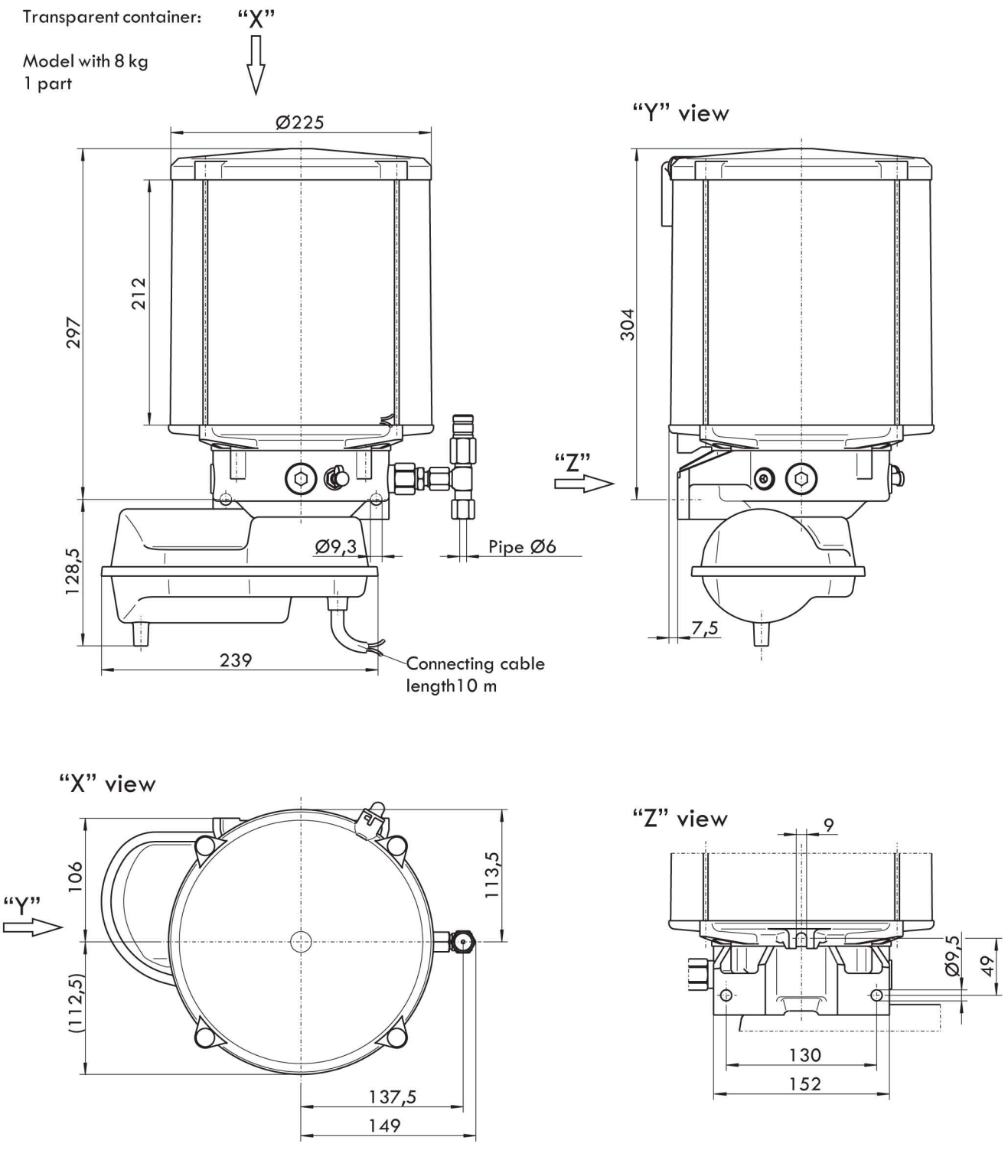




Electric pump EP-1

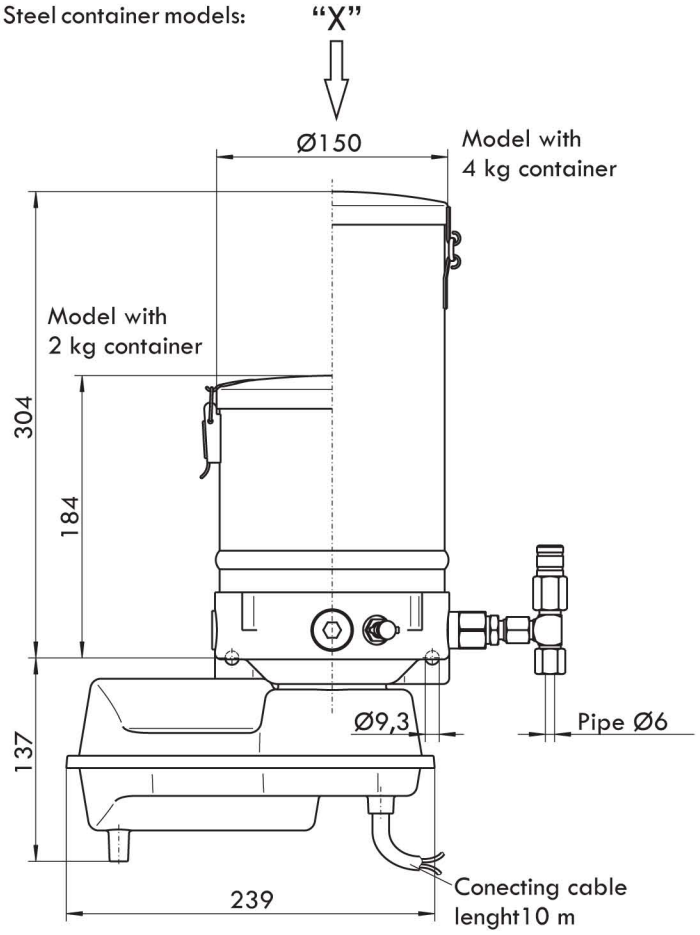
Transparent container:

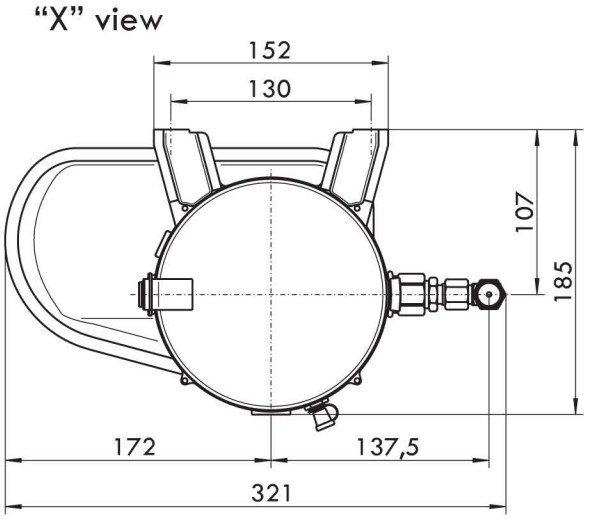
Model with 8 kg
1 part



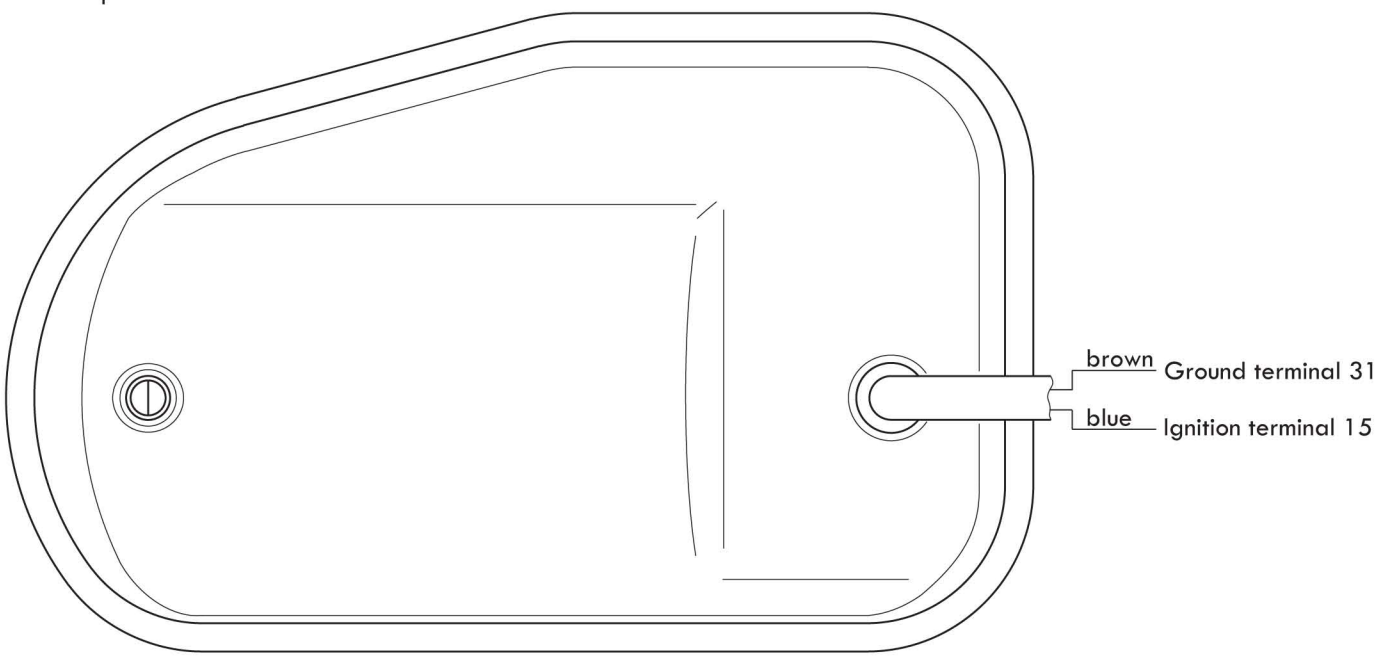
Electric pump EP-1

Steel container models:





Terminal plan:



Pump units PE-120 and PE-120 V

PE-120:

Technical data:
Delivery rate: 0.12 cm³ / stroke or rev.
Article No. (inc. pressure relief valve): 2152 9906 10000
Article No. (pressure relief valve for PE-120): 2152 0062

PE-120 V:

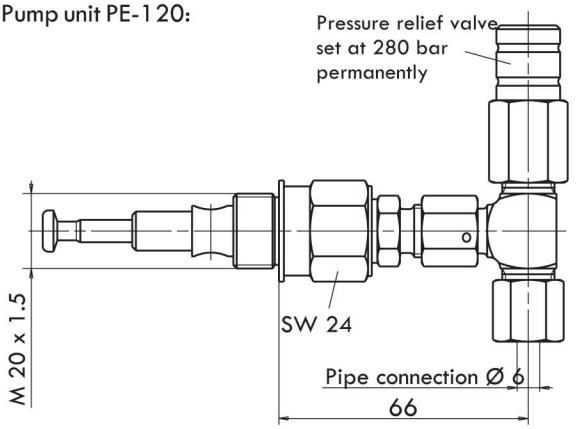
Delivery rate:
- All pump units are default set to full stroke
- Unit with piston diameter 6 mm
- max. delivery rate 0.12 cm³ at full stroke
- Reduction 0.013 cm³ per detent = 1/2 revolution

Delivery rate control:
- Remove plug screw (2) with Allen key (SW 5)
- Turn adjusting screw (3) with a screwdriver
- Turn clockwise to reduce delivery rate
- Turn anti-clockwise to increase delivery rate
- Maximum stroke of adjusting screw is 2.4 mm - 6 detents
- 1 turn of adjusting screw is 0.8 mm = 2 detents
- Tighten plug screw (2), inc. sealing ring.

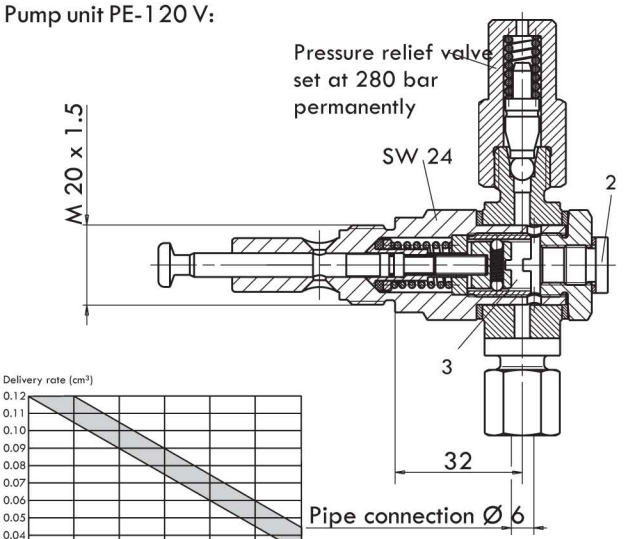
Installation of pump unit in electric pump EP-1:
- Only install/remove when pump is off
- Install pump unit with piston partially extended (4), insert at angle in top of housing bore (see diagram A)
- When piston head rests on pressure ring - move unit into vertical position (see diagram B)
. Piston head must run in guide ring groove
- Tighten pump unit
- Removal occurs in reverse sequence
- When removing the pump unit, ensure that the piston (4) is not left behind in the pump housing.

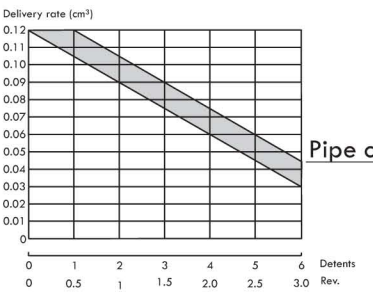
Technical data:
Delivery rate: between 0.04 and 0.12 cm³ / stroke
Delivery rate control: 6 detents, each 1/2 revolution
Reduction: 0.013 cm³ per detent
Delivery media:
Greases from NLGI-Cl. 00/000 to NLGI-Cl. 2
Piston return: forced
Article No. (inc. pressure relief valve): 2152.99063.0000
Article No. (pressure relief valve for PE-120 V): 2152 0063

Pump unit PE-120:



Pump unit PE-120 V:





Installation instructions:

Diagram A:

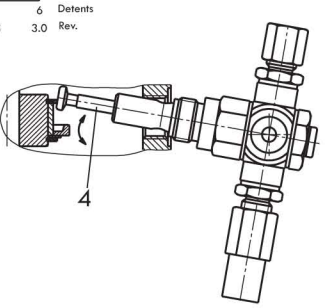
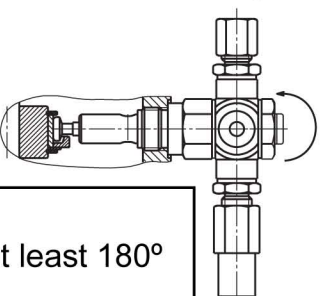


Diagram B

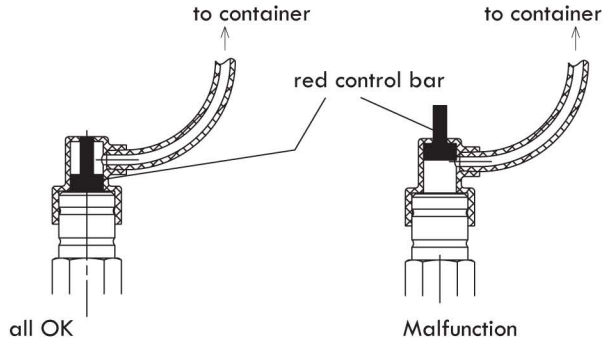


Note:
For ease of Pump Element installation, rotating paddle should be at least 180° opposite from the pump element being installed.

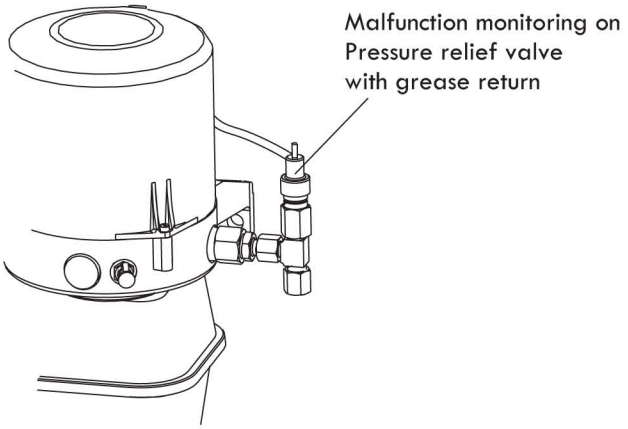
Electric pump EP-1
Special accessories

Malfunction display on pressure relief valve:

The pump units for the electric pump EP-1 can be equipped with a visual malfunction monitor. If a malfunction occurs in the central lubrication system and the operating pressure rises to 280 bar, the red control bar becomes visible. The grease escaping through the pressure relief valve is returned to the container. Once the malfunction is rectified, the red control bar must be pushed back in.



Pump unit with visual malfunction monitor:



Pressure relief valve with microswitch

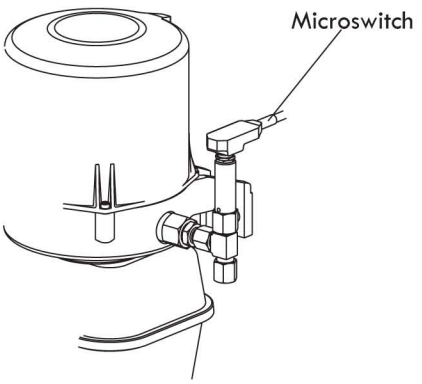
The microswitch located on the pressure relief valve is used to monitor the maximum operating pressure in the central lubrication system.
If a malfunction occurs in the system, the microswitch is triggered.
The microswitch signal can be processed by any signal encoder already present, e.g. an on-board processor, or by an external or integrated controller.

Technical data:

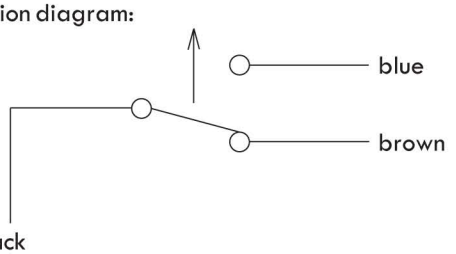
Possible operating voltage:	10 to 60 V DC
Maximum current load:	I = 4 A
Rated operating current:	1 A
Contact type:	1 changeover switch
Service life:	> 3x106 switching cycles
Temperature range:	-30°C to +80°C
Protection class:	IP 65

Before the electrical connection:
Observe the voltage of the pump motor.

Pump unit with microswitch:

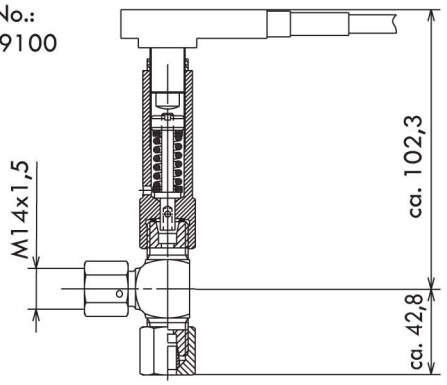


Connection diagram:

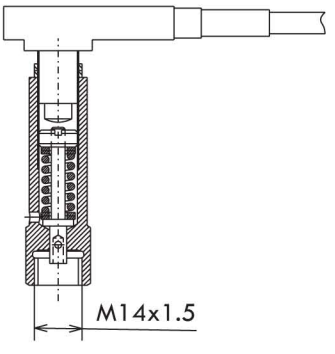


Pressure relief valve with microswitch for PE-120:

Article No.:
2152 99100



Pressure relief valve with microswitch for PE-120 V:
Article No.: 2152 990610028



Electric pump EP-1
Grease level monitor

Grease level monitor

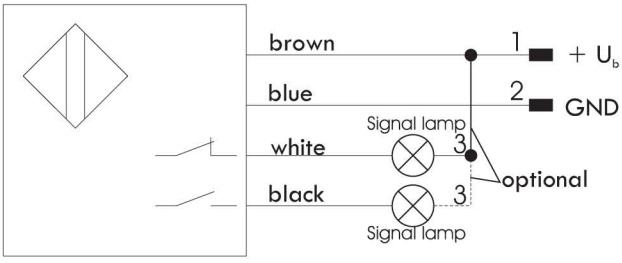
The electric pump EP-1 can be equipped with an electronic grease level monitor to monitor the minimum grease level. A capacitive proximity sensor is built into the pump supply container for this purpose. This emits a signal as long as there is sufficient grease in the container. If the grease level sinks below a certain level, the proximity sensor switches off the signal.
The proximity sensor can be evaluated by an external control unit or PLC or an integrated control unit.

Technical data:

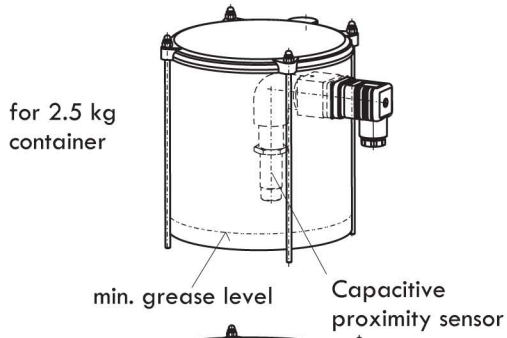
Possible operating voltage:		10 to 60 V DC
Switching type:		PNP-contact
Switching current: at 70°C:		250 mA
Current consumption:		without load:
< 20 mA		
Protection class:	Switch:	IP 67
Ambient temperature range:		-25°C to +70°C
Connection:	Compact plug connector on container	
Protection class:	Plug:	IP 65
Pole allocation:		No. 1 = 10 to 60 V DC
		No. 2 = Ground
		No. 3 = NC contact
		= vacant

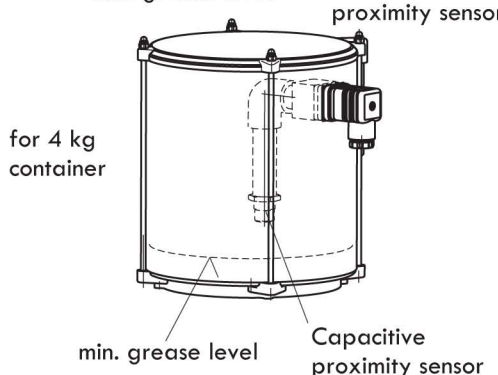
Before the electrical connection:
Observe the voltage of the pump motor.

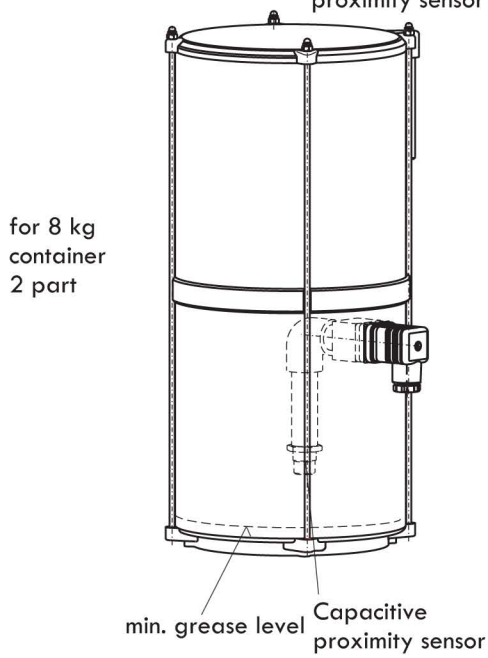
Connection diagram:

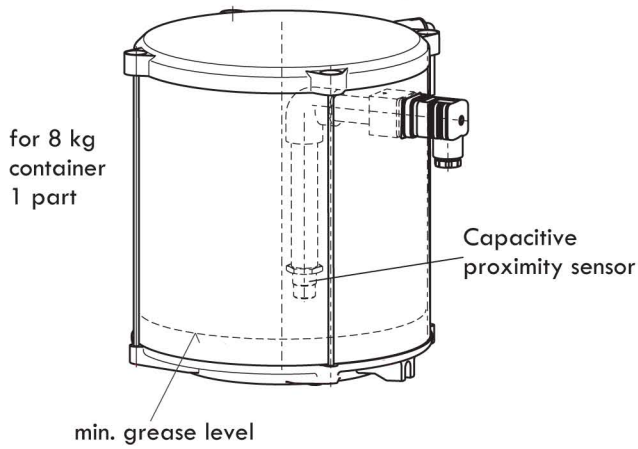


If the black connection wire is connected to +Ub, a signal is received as long as there is sufficient grease in the supply container.
If the white connection wire is connected to +Ub, a signal is received when the grease level sinks below a minimum in the supply container.





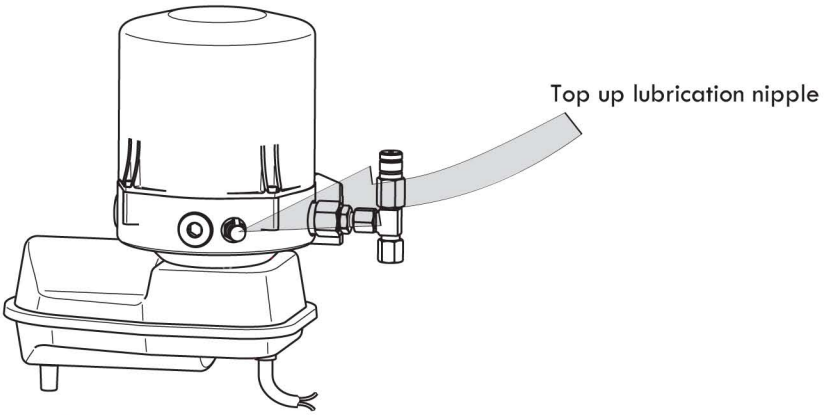




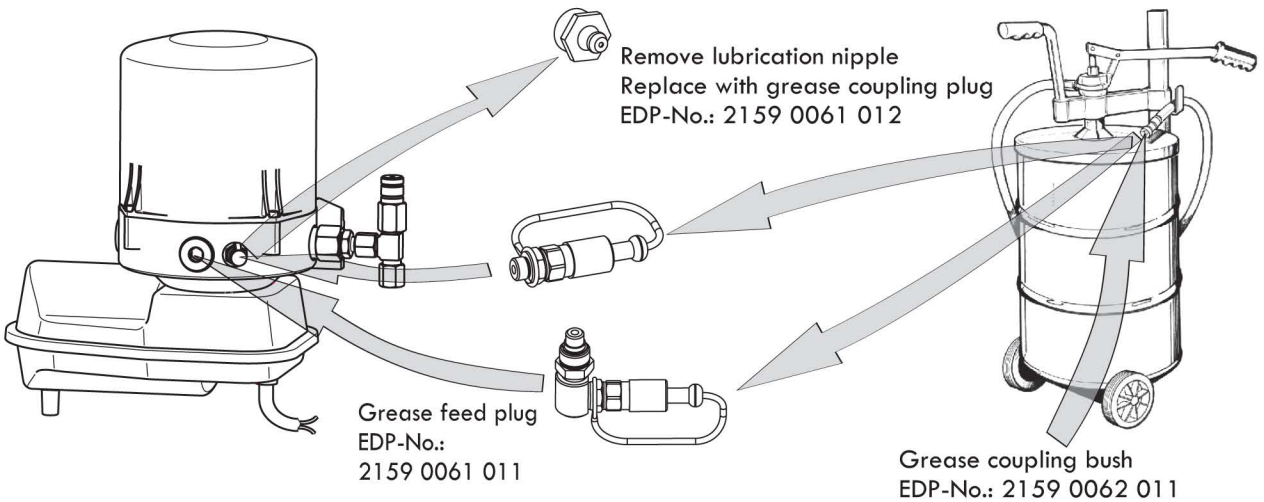
Electric pump EP-1

Filling the pump:

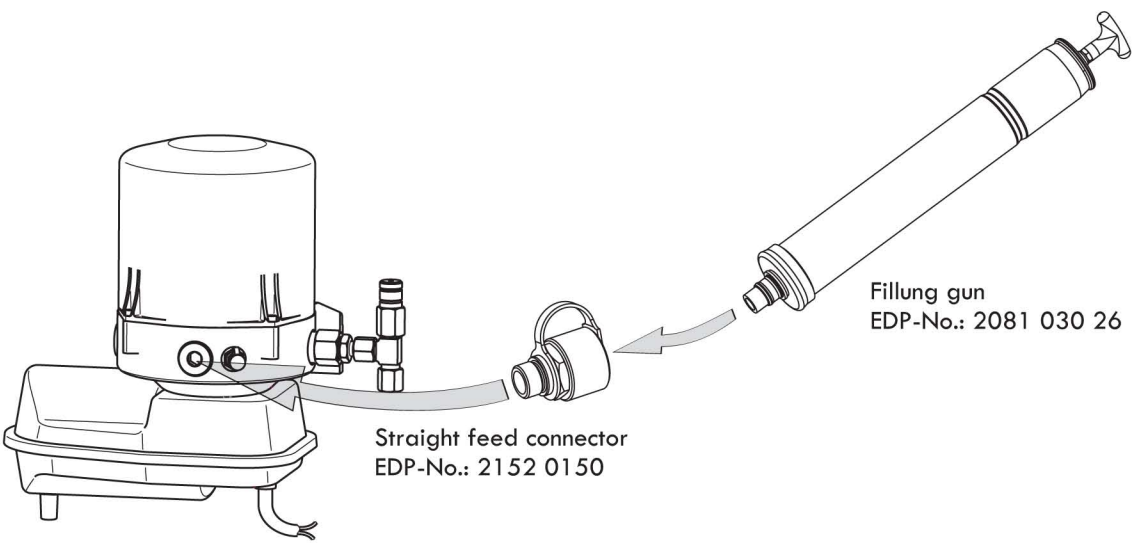
Standard filling via ball lubrication nipple with manual or pneumatic grease gun:



Top up via top up coupling:



Top up via top filling gun:



Electric pump EP-1

Order code:

2152 . 01 . 42 . 25 . 000

Design No.

Motor voltage	12 V	24 V
Reference figure	01	02

Outlet type	Outlet position		
	1	2	3
PE-120	01	02	03
PE-120 V	41	42	43
1 PE-120 and 1 PE-120 V	52		
1 PE-120 and 1 PE-120 V	53		

				2-component	1-component
Container size (kg) Transparent container	1.9	2.5	4	8	8
Reference figure	27	25	30	28	35

Container size (kg) Metal container	2	4
Reference figure	31	26

Special models	000
Special models	021

Special models:
021 = grease level monitoring as per drawing No. AZ-2205.5