



## Central lubrication pump PICO

### Function sequence:

The PICO central lubrication pump is an electrical driven lubrication pump which can deliver grease up to NLGI-class 2. It can be used on both progressive systems as well as multi-line systems. These two systems can also be combined for use.

The PICO unit can be equipped with a maximum of 10 outlets with two outlets connected to a progressive system and eight outlets to the direct connection to the lubrication point.

Two different pump elements are available when the system is used as a progressive pump. They can be used in outlet numbers four and ten:

- Pump element PE-120 F (120 mm<sup>3</sup>/revolutions)
- Pump element PE-120 FV (adjustable delivery quantity from 40 to 120 mm<sup>3</sup>/revolutions)

Five different pump elements are available for use as a multiple-line unit. They can be used in outlet numbers one to three and five to nine.

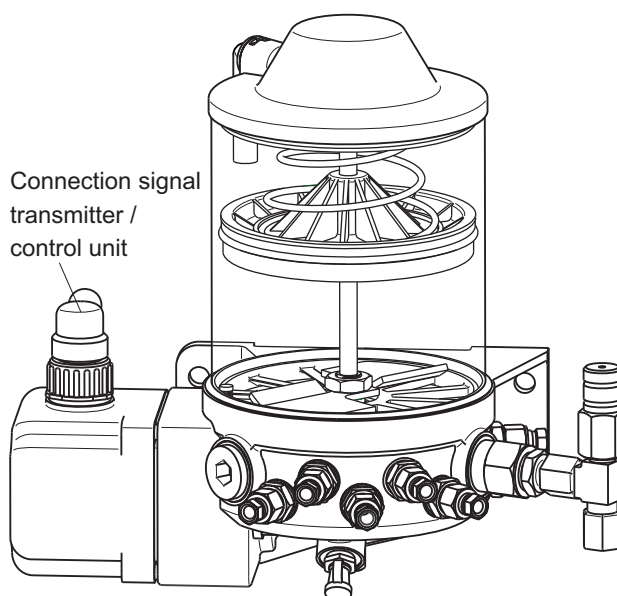
- Pump element PE-5 (5 mm<sup>3</sup>/revolutions)
- Pump element PE-10 (10 mm<sup>3</sup>/revolutions)
- Pump element PE-15 (15 mm<sup>3</sup>/revolutions)
- Pump element PE-25 (25 mm<sup>3</sup>/revolutions)
- Pump element PE-50 (50 mm<sup>3</sup>/revolutions)

The pump is standardly equipped with an electrical fullness level alarm. To prevent air from being sucked into the system, the pump switches off when the minimum grease level has been reached.

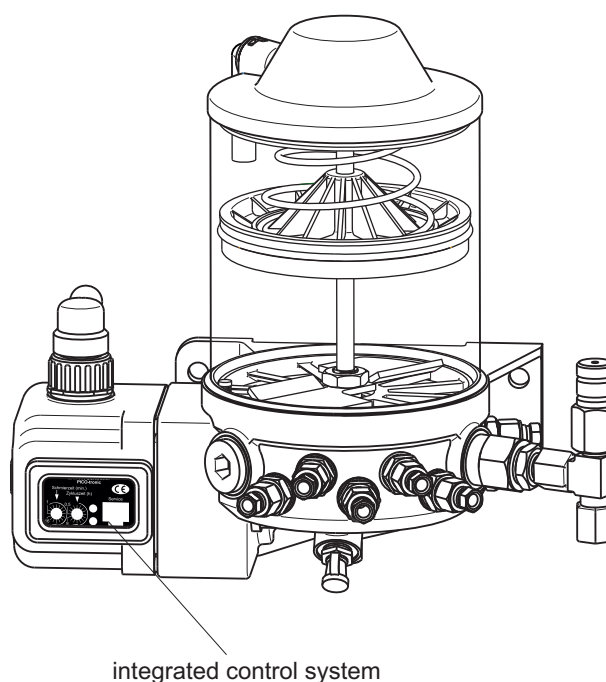
### Types of pump controls:

1. Execution without control  
(external control e. g. SPS)
2. Execution with integrated controls PICO S-EP 4  
(Controls with permanent power supply  
e. g. ignition voltage in a vehicle)  
(refer description PICO S-EP4)
3. Execution with integrated controls PICO-tronic T1  
(Controls without permanent power supply,  
e. g. trailers or semi-trailers)  
(refer description PICO-tronic T1)
4. Execution with integrated controls PICO-T2  
(Controls with power supply via break light  
e. g. trailers or semi-trailers)  
(refer description PICO-T2)

Central lubrication pump PICO without control



Central lubrication pump PICO with control



## Central lubrication pump PICO Method of operation

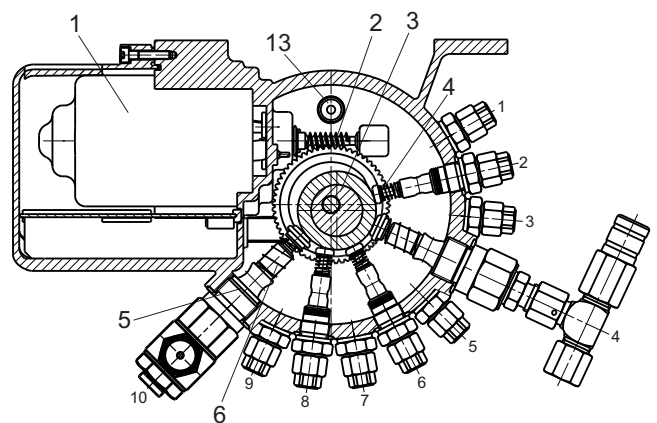
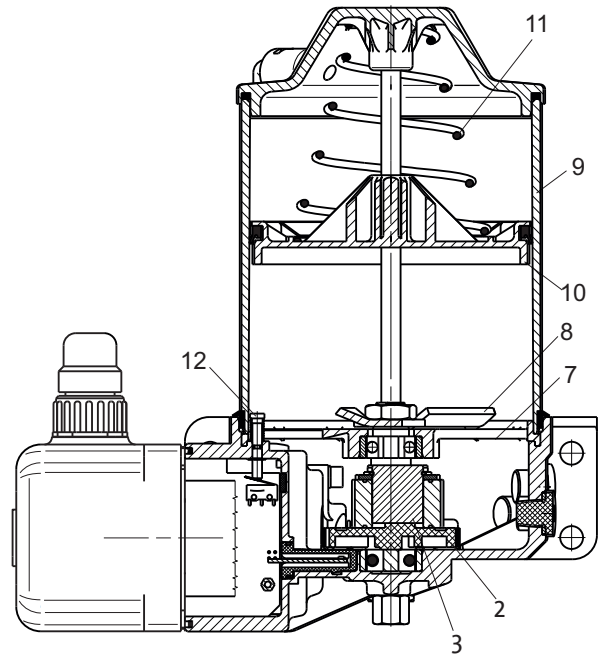
### Operation:

A dc motor (1) (12 or 24 V) drives the eccentric shaft (3) via a worm gear pair (2). The pistons (4) of the pump elements are pushed into the piston outlet threaded joint (5) by rotation and eccentricity (= delivery stroke). The plunger return spring resets the delivery plungers (6) to their initial position (priming).

The check valves integrated into the pump elements prevent previously delivered material from being sucked back inside. An agitator blade (8) is located above the grease sieve (7) on the eccentric shaft and is attached to it. The function of the agitator blade (8) is to push the grease toward the pump elements. There is a secondary piston (10) in the grease reservoir (9) which is impinged with a cone head coil spring (11), its function is to push the grease evenly to the agitator blade and to the pump elements. The horizontal pump assembly is not absolutely necessary due to the secondary piston.

If the content of the pump is delivered empty, the secondary piston (10) exerts pressure on a tracer pin (12). This sends a signal to the control system (pump empty).

Filling occurs via the cone headed lubrication nipple located above the pump housing. In order to prevent the pump from being over-filled, an over-flow safety device (13) is integrated into the pump housing.



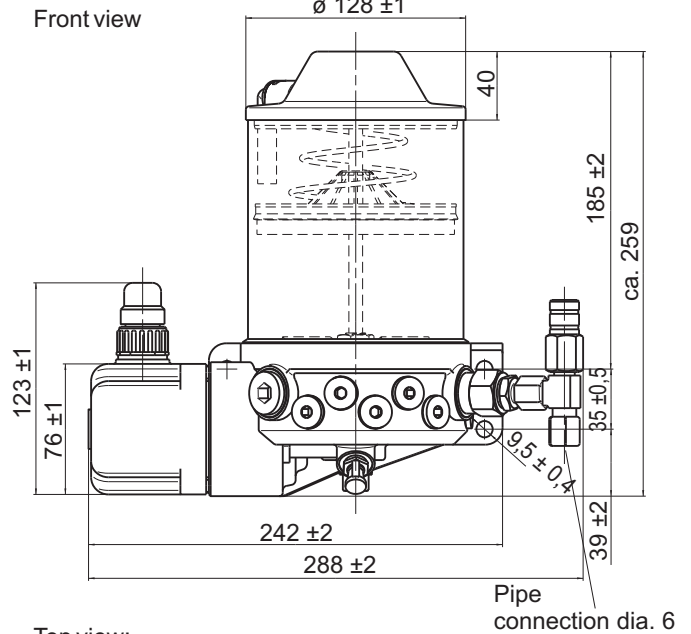
## Central lubrication pump PICO

### Technical data, Dimension plans, Terminal diagram, Replacement cable

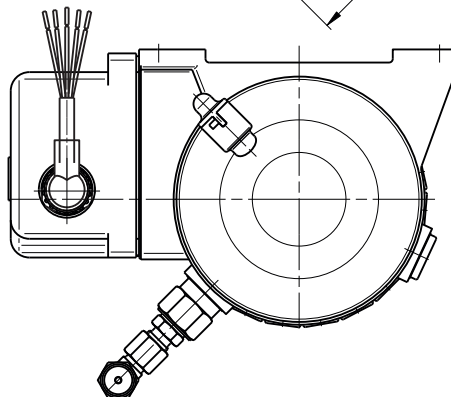
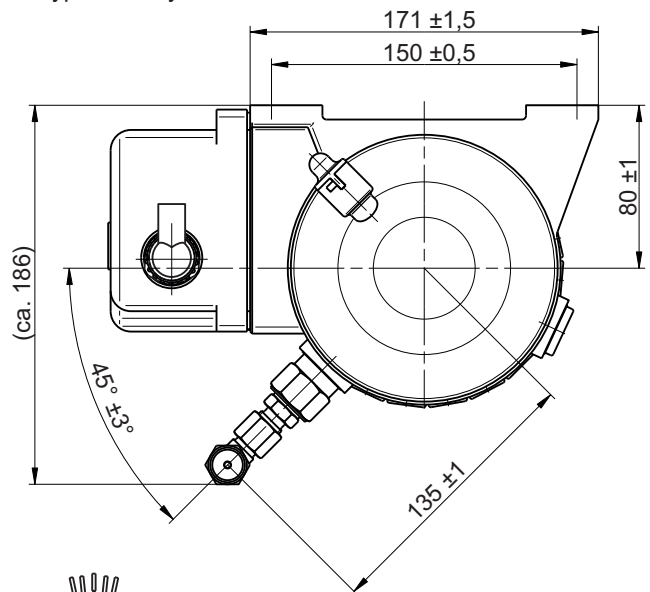
Operating temperature: - 25° C to + 70 ° C  
 Lubrication medium: Grease up to consistency-cl. 2  
 Number of outlets (Pump elements): max. 10  
 Stirrer direction: clockwise motion  
 Fitting position: any  
 Protection type: IP 65  
 Drive type: 12 V respectively 24 V DC  
 n = 15 rpm

Current consumption at 280 bar  
 back pressure and -25°C: max. 3,8 A at 24 V DC  
 max. 7,5A at 12 V DC  
 Size of reservoir: 1,2 kg  
 Fullness level monitoring: integrated into pump

#### Dimension plan:

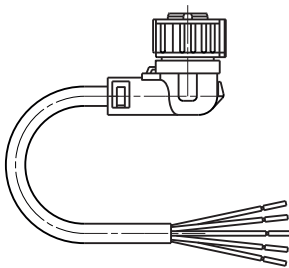


#### Top view: Type with bayonet connector:



#### Replacement cable:

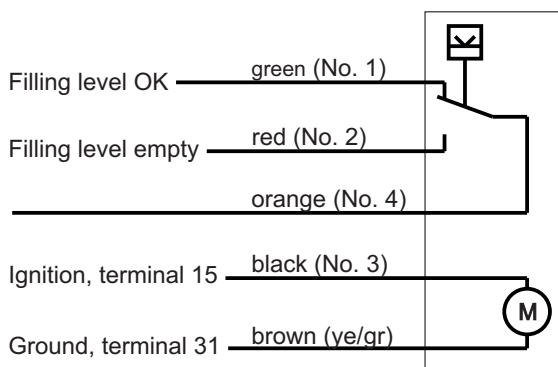
If the connection cable must be replaced, e. g. after a cable break, a replacement cable (length: 10 m) can be ordered.



Order-no.: FAZ02499-19

#### Terminal diagram:

Connection to existing signal transmitter e. g. onboard computer or SPS control.



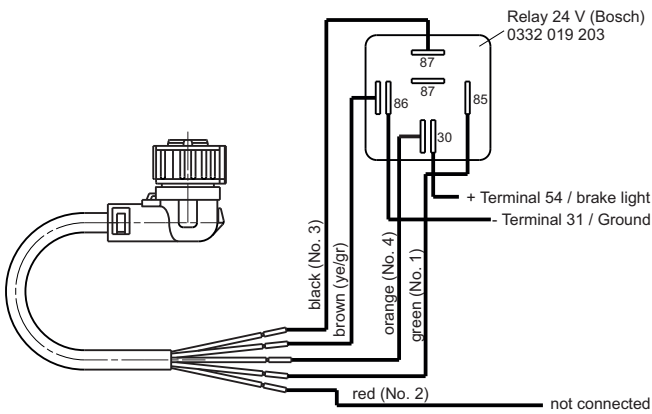
(no. ...) = Cable-no. at uncolored cables

## Central lubrication pump PICO Terminal diagrams

Connection to brake light with external pump shut-off  
(grease empty - pump off) = type for trailers or semi-trailers.

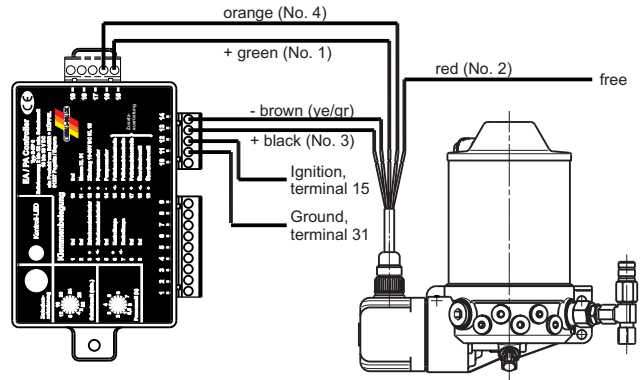
Relay motor shut-off:

Terminal diagram:



Connection to an external control unit S-EP 6:

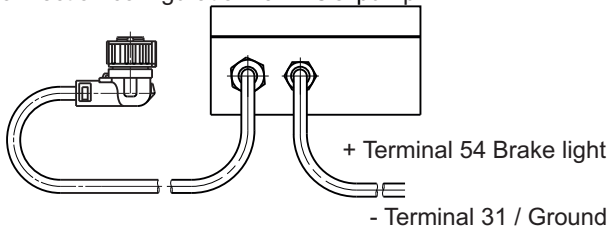
Order-No. or EDP-No. and function cf. operation manual or description control unit S-EP 6.



(No. ...) = Cable-no. at uncolored Cables

Other connections cf. terminal diagram in operation manual for control unit S-EP 6.

Connection configuration for PICO-pump:



Low level relay:

Order-no.	Output voltage
4460.0100	12 V
4460.0200	24 V

## Central lubrication pump PICO Pump element for connection to a progressive system

### PE-120 F

Technical data:

- Delivery quantity: 0,12 cm<sup>3</sup> / stroke or revolutions
- Order-no. / EDP-no.: 2185.99061.0000

### PE-120 FV

The PE-120 FV pump element has a delivery quantity regulator. This allows the pump to be adjusted for lubrication areas of various sizes.

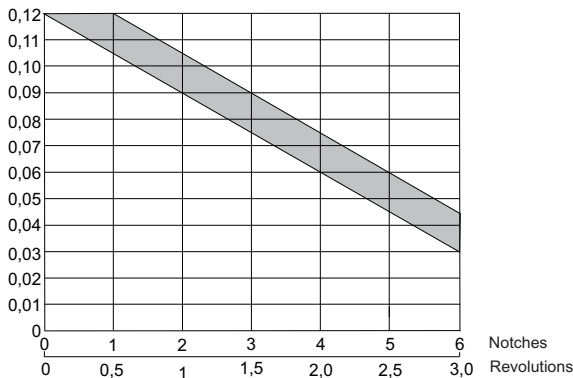
Technical data:

- All pump elements are set to full stroke ex works
- Delivery quantity 0,04 to 0,12 cm<sup>3</sup> / stroke
- Reduction 0,013 cm<sup>3</sup> per stop notch = 1/2 revolution
- Element with piston 6 mm
- Order-no.: 2158.99063.0000

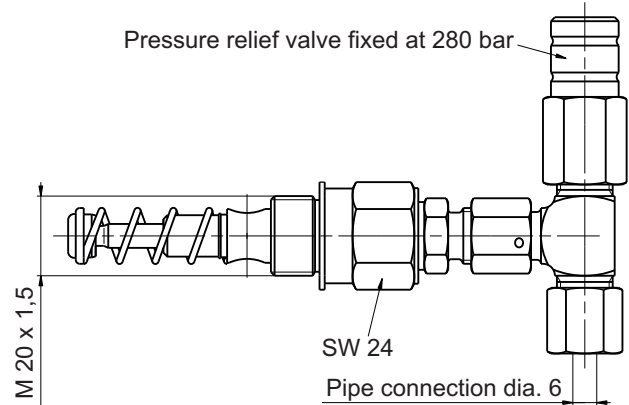
Adjustment of delivery quantity:

- Remove lock screw with a hexagon socket screw key (X 5)
- The adjusting screw (2) is screwed into place with a screw driver
- Turning clockwise reduces the delivery quantity
- Maximum stroke of adjusting screw is 2,4 mm = 6 notches.
- Tighten the lock screw including conical nipple

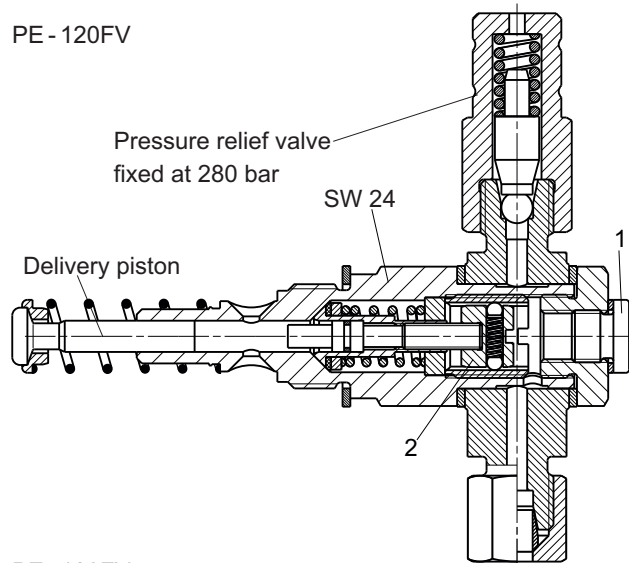
Delivery quantity (cm<sup>3</sup>)



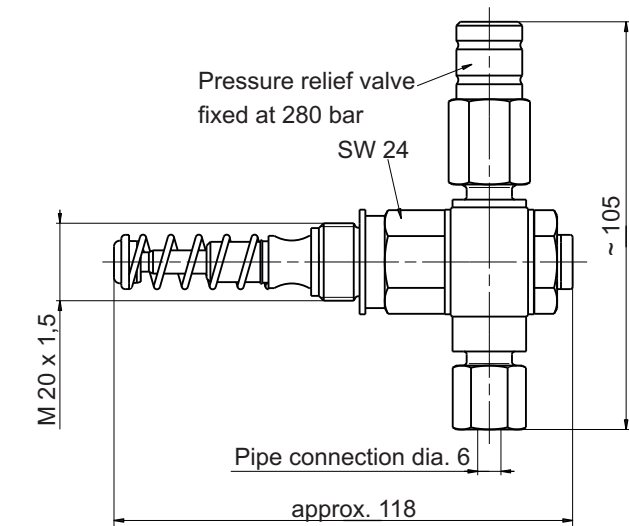
PE - 120F



PE - 120FV



PE - 120FV



## Central lubrication pump PICO Pump elements for connection to a multi-line system

### Description of pump elements PE - 5/10/15/25/50

A maximum of eight PE-5 or 10/15/25/50 pump elements can be installed onto the PICO electrical pump. They are connected directly to the lubrication points. The pump should be installed in such a way that the length of the individual pipe lines of 8 m is not exceeded.

The PE-5 or 10/15/25/50 pump elements can be supplied in five different delivery quantities per stroke:

- PE-5 = 5 mm<sup>3</sup>/stroke or revolutions
- PE-10 = 10 mm<sup>3</sup>/stroke or revolutions
- PE-15 = 15 mm<sup>3</sup>/stroke or revolutions
- PE-25 = 25 mm<sup>3</sup>/stroke or revolutions
- PE-50 = 50 mm<sup>3</sup>/stroke or revolutions

### Ordering key for pump elements PE-5 to PE-50:

Note: Pump elements PE-5 or 10/15/25/50 must be ordered separately!

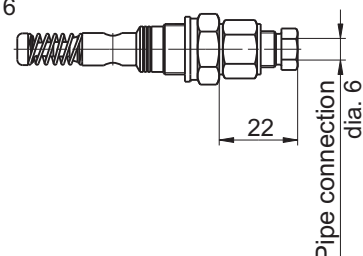
Construction type 2154 . 9000 . 01

Name	Delivery quantity/stroke	
PE-5	5 mm <sup>3</sup>	9001
PE-10	10 mm <sup>3</sup>	9002
PE-15	15 mm <sup>3</sup>	9003
PE-25	25 mm <sup>3</sup>	9000
PE-50	50 mm <sup>3</sup>	9010

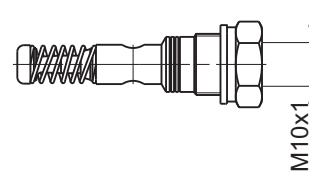
Connection name	
Threaded joint M10x1	00
Pipe connection dia. 6 with ÜS6 and DKR6	01
Plug connection straight for pipe-dia. 6	02
Plug connection 90° for pipe-dia. 6	03
Pipe connection dia. 4 with ÜS4 and DKR4	04

These pump elements can be supplied with five different connectors:

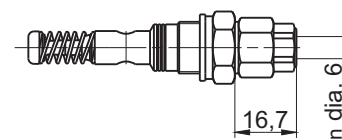
With pipe connection dia. 6 with cap screw and double cone olive: (Standard)



with threaded joint M10x1:

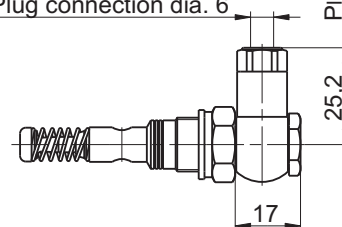


With plug connection straight for pipe-dia. 6:

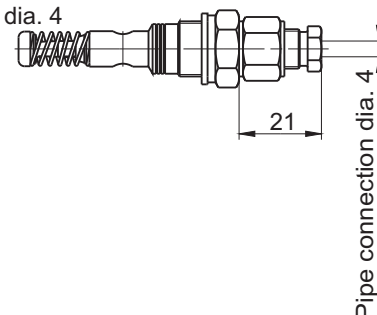


Plug connection dia. 6

With plug connection 90° for pipe-dia. 6:



With pipe connection dia. 4 with cap screw and double cone olive:



## Central lubrication pump PICO Installation of the pump elements

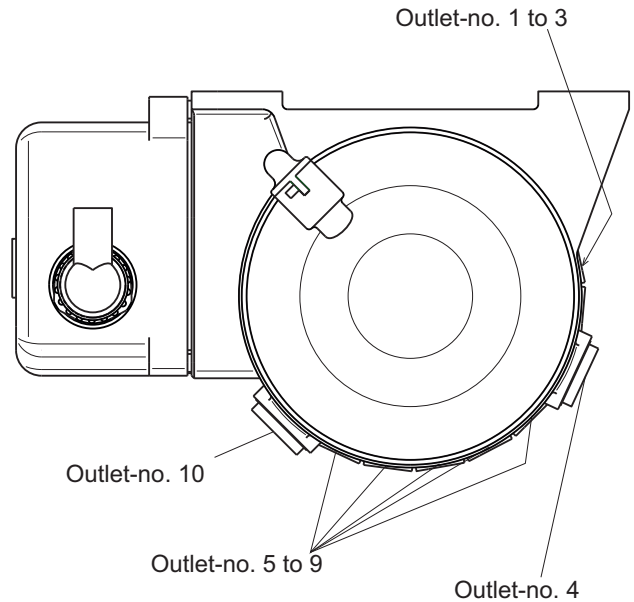
The PE-120 F and PE-120 FV pump elements to connect to a progressive system can be installed interchangeably in output positions 4 and 10.

The pump elements PE-5 to PE-50 can be installed interchangeably in output positions 1 to 3 and 5 to 9.

- Remove blanking screw and sealing ring
- Screw on pump element

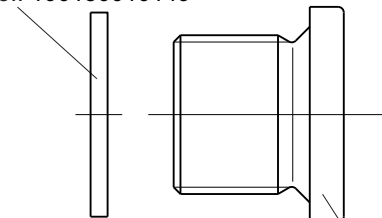
If a pump element has to be disassembled, the outlet must be locked in with a corresponding blanking screw and a conical nipple.

Electric pump PICO without pump elements:



Blanking screw and sealing ring  
 for outlet-no. 4 and 10:

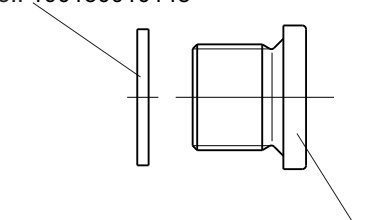
Sealing ring dia. 28 x dia. 21  
 Order-no.: 100150010149



Blanking screw M20x1,5  
 Order-no.: 090090800850

Blanking screw and sealing ring  
 for outlet-no. 1 to 3 and 5 to 9:

Sealing ring dia. 14 x dia. 18  
 Order-no.: 100150010148



Blanking screw M14x1  
 Order-no.: 090090801450

## Central lubrication pump PICO Special accessories pressure relief valve with microswitch

The microswitch located on the pressure relief valve on pump elements PE-120 F or PE-120 FV (Mounting position 4 or 10) is used to monitor the maximum operating pressure in the central lubrication system.

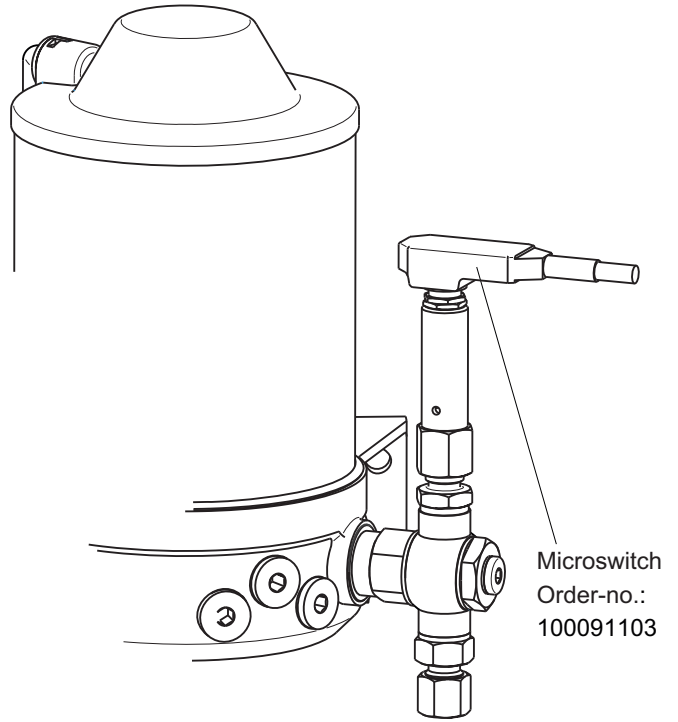
If a malfunction occurs in the system, the microswitch is triggered.

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.

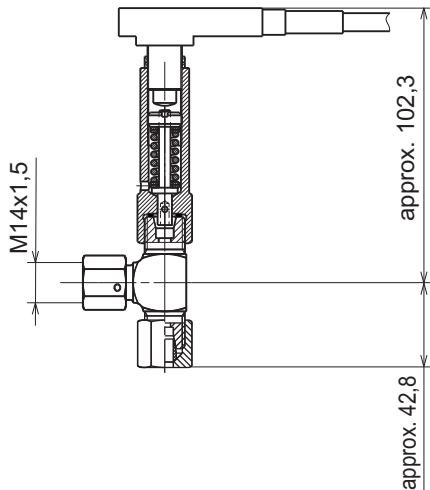
**Technical data:**

Operating voltage:	10 to 60 V DC
Max. current load:	I = 1,7 A
Contact type:	1 changeover switch
Temperature range:	-25°C to +85°C
Protection type:	IP 67
Connection:	Cable, length 0,5 m, heat-sealed

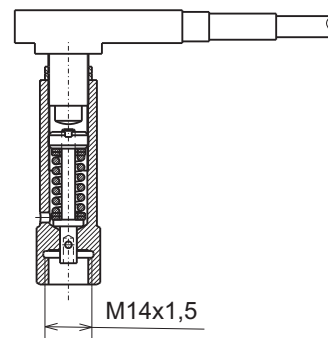
Pump element with microswitch:



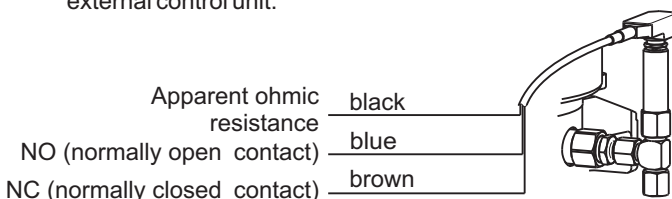
Pressure relief valve with microswitch for PE-120 F:  
Order-no.: 2152 99100



Pressure relief valve with microswitch for PE-120 FV:  
Order-no.: 2152 99101



Terminal diagram to connecting the microswitch to a external control unit:





## Central lubrication pump PICO

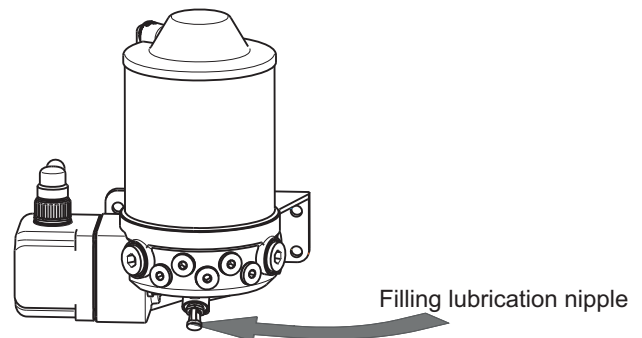
### Filling the pump

#### Filling methods

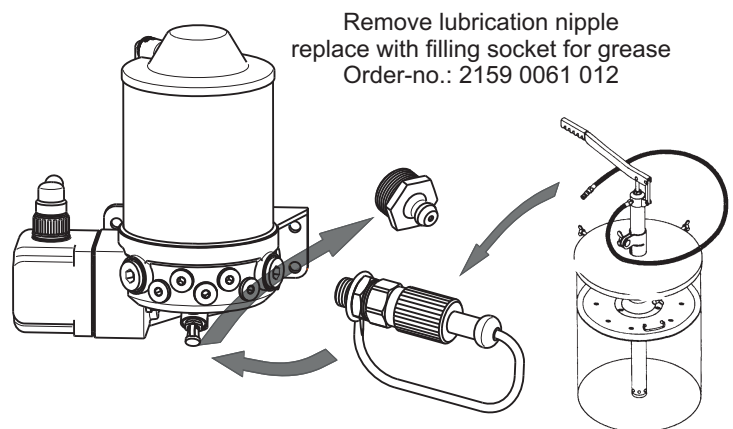
The PICO central lubrication pump is filled with a standard grease pump (lever type hand greasing gun) through the filling nipple on the pump housing. It is also possible to fill the pump through a rapid fill coupling with a drum pump.

**Note:** When filling, care should be taken to keep the area clean. Do not fill the pump beyond the maximum fullness level because the over-fill safety device will respond and excess grease will spill out.

**a) Standard filling method through conical lubricating nipple with hand-operated or pneumatic grease press:**

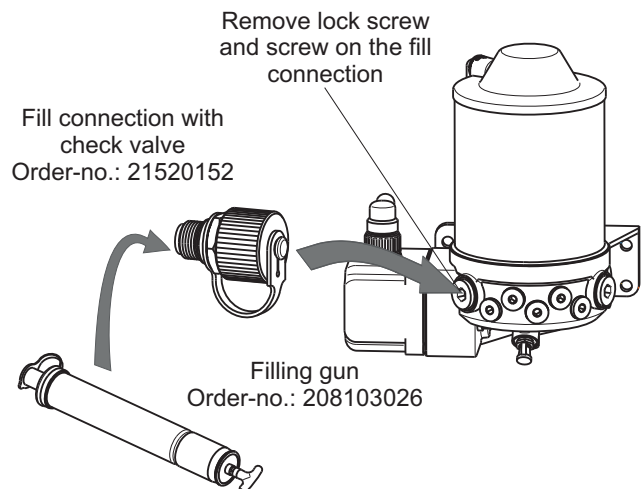


**b) Filling through filler coupling:**



**c) Filling with filling press:**

We have developed the PICO FILL Filling Set as an easy and fast way to fill the grease container. In PICO FILL the fill connection and the filling press are a set.



To fill, unscrew the dust cap from the fill connection and insert the filling press nozzle into the fill connection until it reaches the catch. Press in the grease until the maximum grease level has been reached.

Order-no.: 208103027

## Central lubrication pump PICO

### Ordering key

**Construction type:**

2185 . 3 . 1 . 1 . 10 . 0000

Motor voltage		
with bayonet connector	12 V	24 V
Code	3	4

Pump elements	Outlet-no.			
	4	10	4+10	without
PE-120 F	1	2	3	
PE-120 FV	4	5	6	
PE-120 F + X PE-120 FV	X		7	0
PE-120 F + X PE-120 FV	X		8	

Size of reservoir	1,2 kg
Code	1

Controller	without	PICO S-EP4	PICO-tronic T1	PICO-T2
Code	1	2	3	5

Controller	without
Code	0

PICO S-EP4	
Period of lubrication	Cycle time range
	0,5 h to 8 h
I 1 min. to 16 min.	Z
II 2 min. to 32 min.	T

PICO tronic-T1			
Period of lubrication	Cycle time range		
	0,5 h to 8 h	2 min. to 32 min.	2 h to 32 h
I 1 min. to 16 min.	1	A	J
II 2 min. to 32 min.	2	B	K
III 2 sec. to 32 sec.	3	C	L

PICO-T2	
Period of lubrication	
1 sec. to 1 min.	1

Special types	0000
---------------	------

Note: Pump elements PE-5 or 10/15/25/50 must be ordered separately!

