

Hydraulic pump HP-1

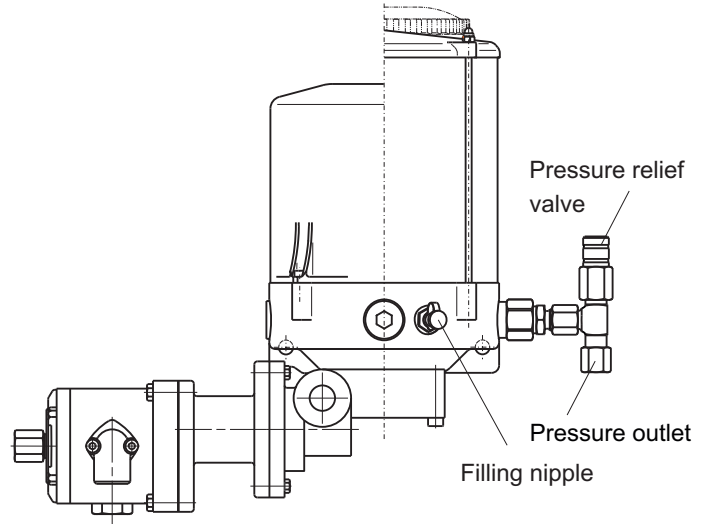
The BEKA-MAX central lubrication pump model HP-1 is hydraulic actuated and has up to a maximum of 3 independently operating lubricant outlets. A separate pump unit is required for each outlet.

Three pump elements with different flow rates are available, as well as a flow-adjustable pump element (see page 6). This enables the grease quantity to be adapted to the requirement of the individual progressive distributor circuits.

These pumps enable the delivery of commercial lubricants up to NLGI-class 2 at a working pressure of maximum 280 bar (pressure relief valve setting).

Filling the pump is made by a grease form nipple or as a fast-filling-coupling.

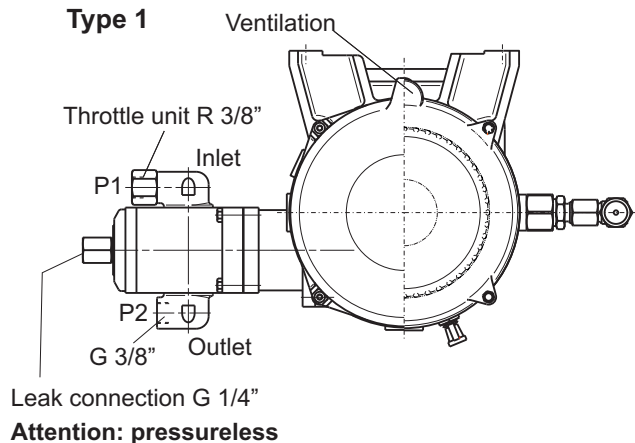
The pump is protected by the pressure relief valve at the pump element (up to max. 280 bar).



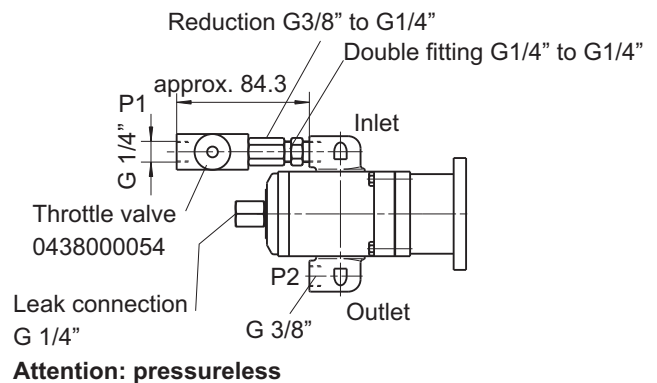
Technical data:

Permissible operating temperature:	-15°C - + 80°C
Lubricant:	Greases up to NLGI-Kl. 2 (excluding solid lubricants) Mineral oils up to 40 mm ² /s (cSt)
Number of outlets:	max. 3
Delivery rate per outlet:	max. 0.12 cm ³ /Stroke
Stirrer direction:	clockwise
Mounting position:	Reservoir in vertical position
Drive type:	Hydraulic motor with worm wheel
Displacement:	min. 6 l/min. max. 17.2 l/min. (corresponds 1400 - 4000 min ⁻¹)
Ratio of the worm gear:	150:1
Oil inlet pressure P1:	min. 30 bar max. 200 bar
Oil outlet pressure P2:	max. 1,5 bar
Reservoirs size:	
Transparent reservoirs:	1,9; 2,5; 4; and 8 kg
Steel reservoirs:	2 and 4 kg
Order-No.:	refer ordering key

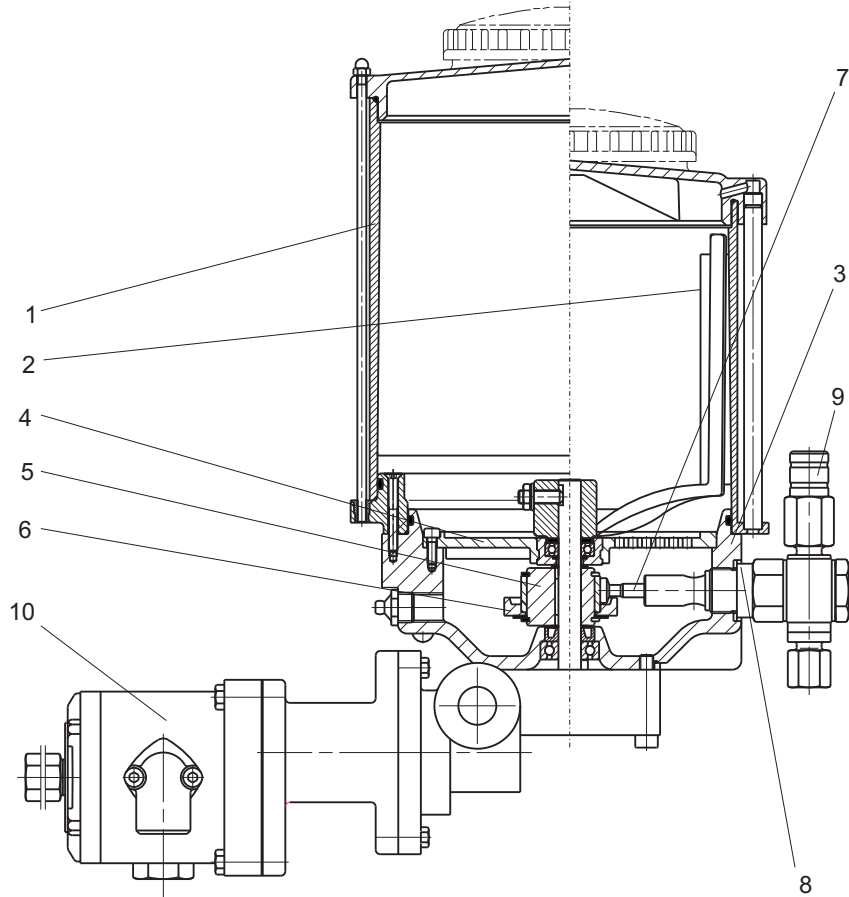
Type 1



Type 2



Hydraulic pump HP-1 Method of Operation



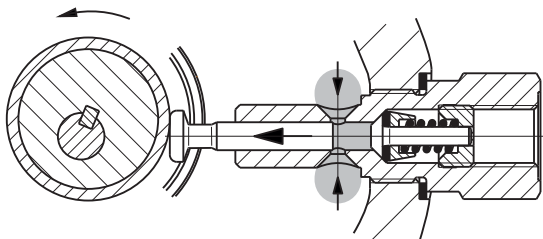
Method of Operation

A hydraulic motor (10) continually operates over a worm gear 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.

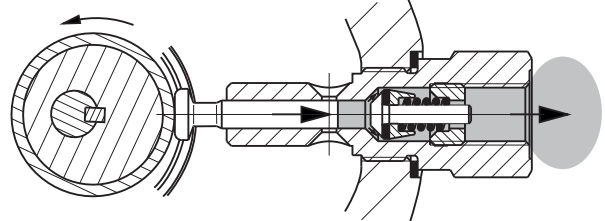
The stirrer (2) pushes the lubricant out of the supply container (1) through a screen (4), which reduces any air bubbles, to the suction area in the pump housing (3).

Filling of the storage tank (1) is effected via the conical grease nipple. The pressure relief value (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:

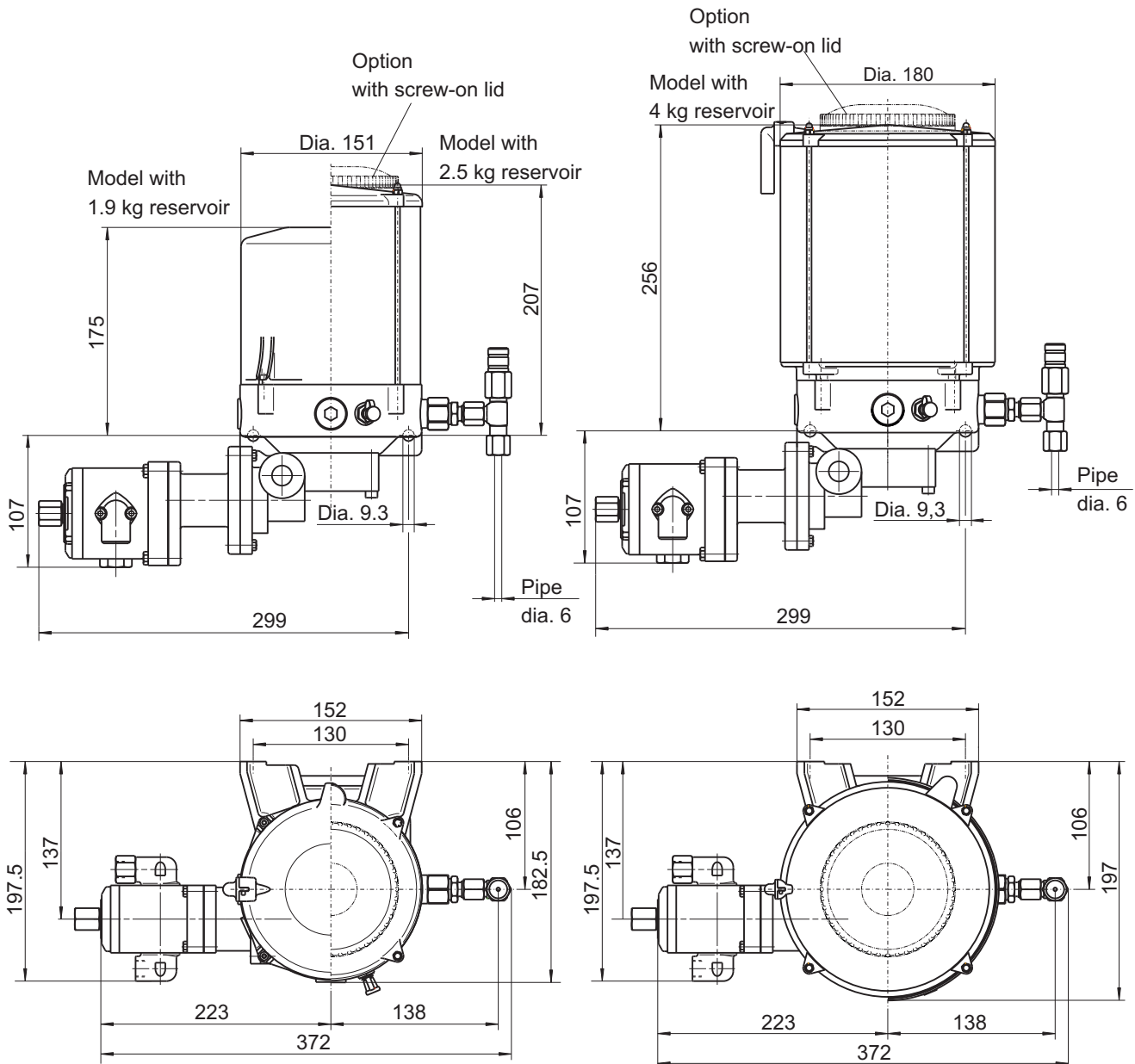


Hydraulic pump HP-1 Installation dimensions

Reservoir models and installation dimensions:

The hydraulic pump HP-1 is available with 4 transparent reservoir sizes and with 2 steel reservoir sizes.

Transparent reservoir models:



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Subject to alterations!

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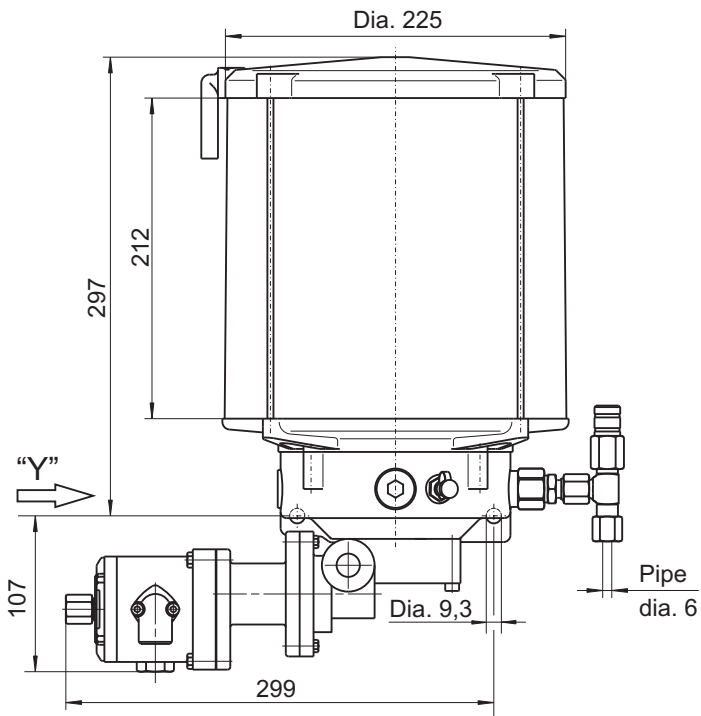
Hydraulic pump HP-1 Installation dimensions

Transparent reservoir:

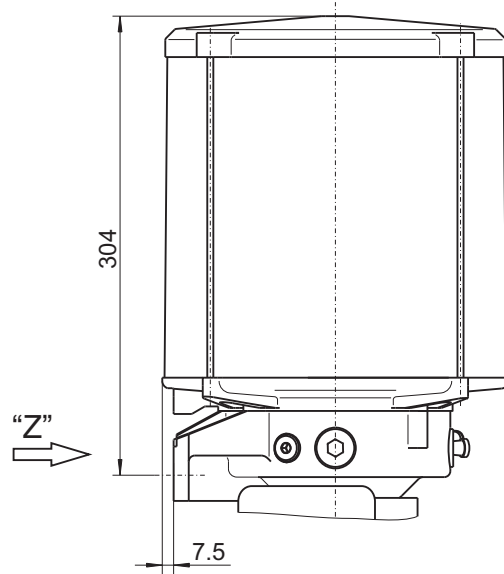
“X”



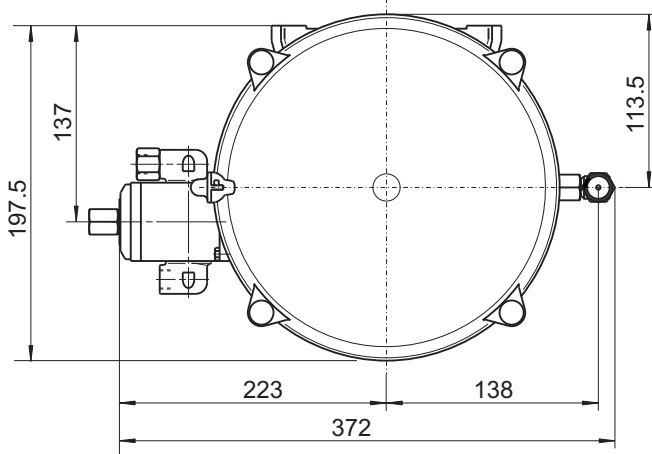
Model with
8 kg reservoir, 1 part



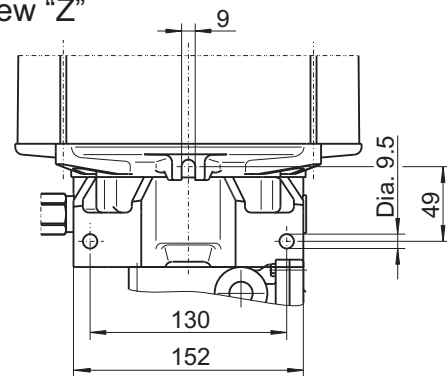
View “Y”



View “X”



View “Z”



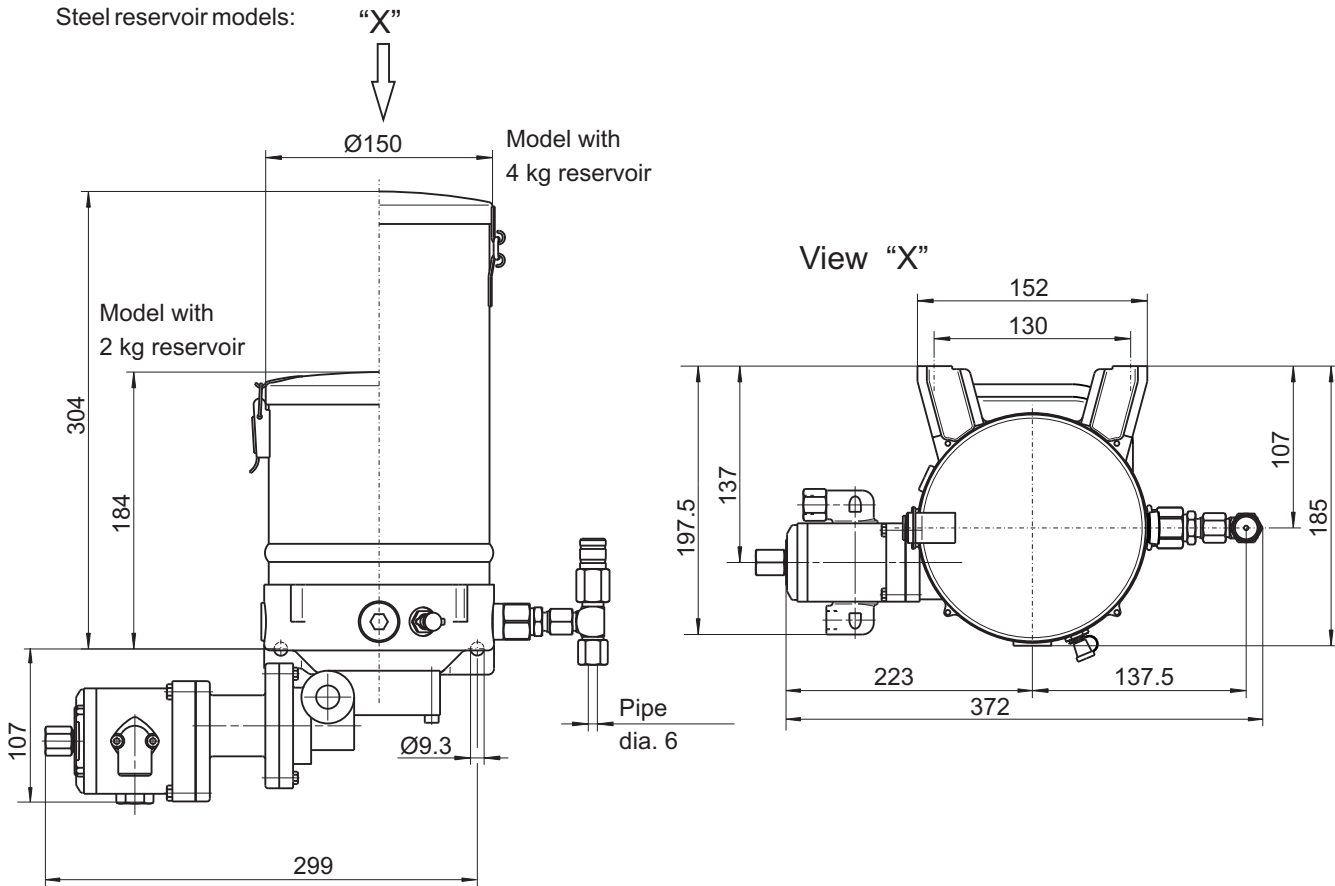
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Hydraulic pump HP-1 Installation dimensions



Lubricants:

For the lubrication of hydraulic hammers special lubricant are used.

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.

Name: EUROL Chisel paste
Manufacturer: EUROL Mineralöl Handelsgesmbh

Name: NILS Chisel paste
Manufacturer: Nils Italia S. r. l.

Name: Fuchs Lubritech Chisel paste
Manufacturer: Fuchs Lubritech GmbH



Hydraulic pump HP-1

Pump elements

Pump elements PE-60, PE-120 and PE-170:

Technical data:

	Delivery rate (cm ³ / stroke or revolution)	Order-no. (with pressure relief valve)	Order-no. Pressure relief valve
PE-60	0.06	2152 99067 0000	2152 0062
PE-120	0.12	2152 99061 0000	
PE-170	0.17	2152 99069 0000	

Pump element PE-120 V:

Delivery rate:

- All pump element 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 rate: 0.04 to 0.12 cm³ / stroke

Regulation of delivery rate:

6 detents each 1/2 revolution

Reduction: 0.013 cm³ per notch

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

Piston return: forced

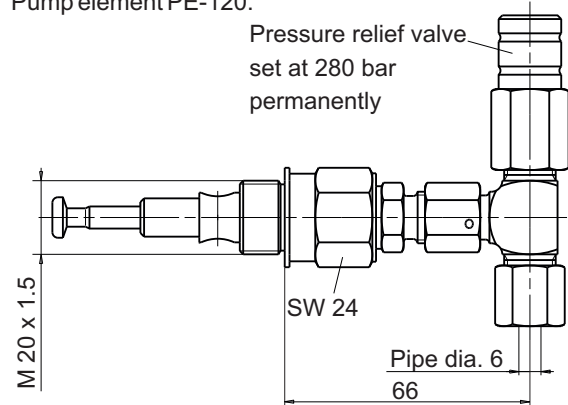
Order-no. (with pressure relief valve): 2152 99063 0000

Order-no. for pressure relief valve of PE-120 V: 2152 0063

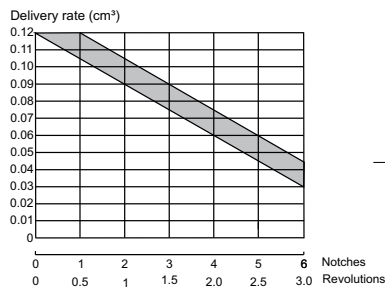
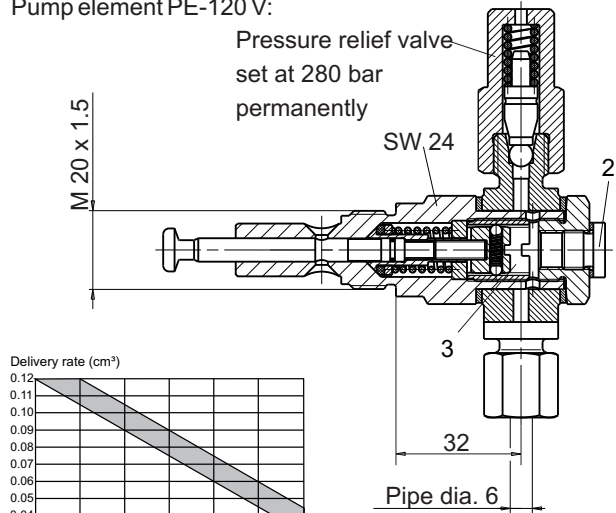
Installation of pump elements in electric pump EP-1:

- 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 the 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, reserve above sequence.
- When removing the pump element, ensure that the piston (4) is not left behind in the pump housing.

Pump element PE-120:



Pump element PE-120 V:



Installation instructions:

Diagram A:

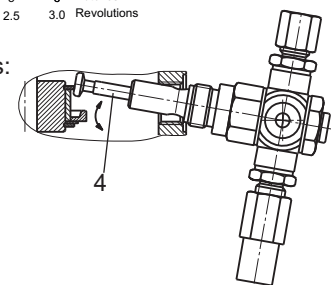
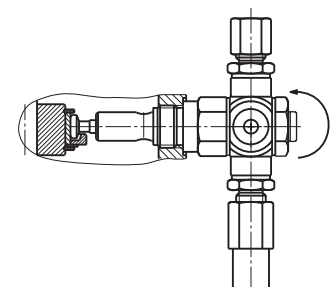


Diagram B:



Hydraulic pump HP-1 Special accessories grease level controller

The hydraulic 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.

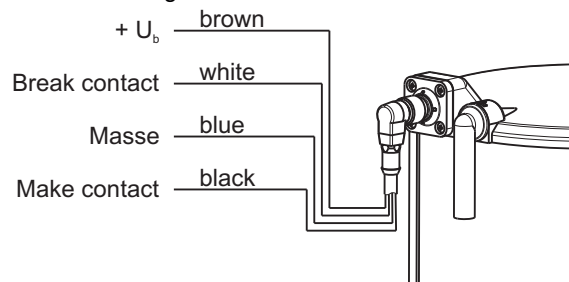
When connecting the grease level control to an intelligent controller (e. g. on-board computer, PLC), it must be taken into account that the grease level signal is only evaluated after a delay of 10 sec., meaning that only if the signal of the capacity proximity switch is missing permanently for over 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-turnkey
Maximum current load:	250 mA
Protection type: Switch:	IP 67
Protection type: Plug:	IP 54
Ambient temperature range:	-25°C to +70°C
Connection:	4-pole M12x1, pluggable

Connection diagram:

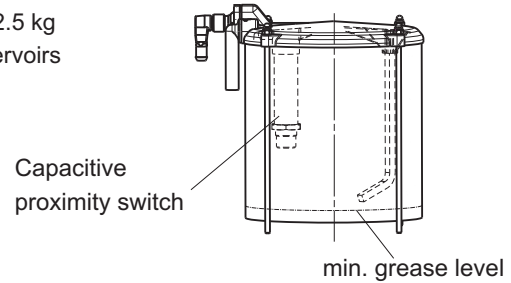


The brown wire (+U_b) and the blue one (ground) are used for the voltage supply of the sensor.

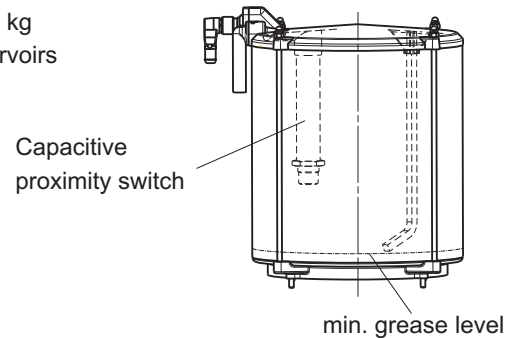
If the black wire is used as output of the sensor, it works as NO contact and signals +U_b as long as there is still grease in the reservoir (OK signal, no line rupture).

If the white wire is connected to +U_b, a signal is received when the grease level sinks below a minimum (NC contact) in the reservoir (empty signal).

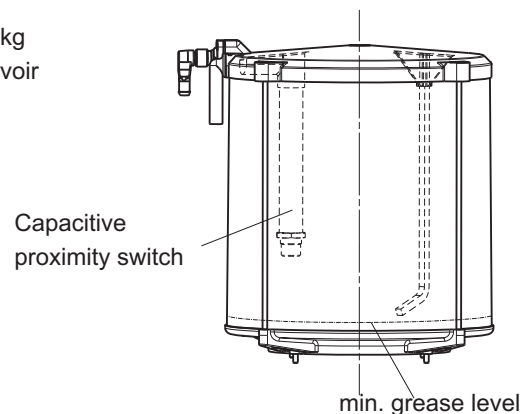
for 2.5 kg reservoirs



for 4 kg reservoirs



for 8 kg reservoir

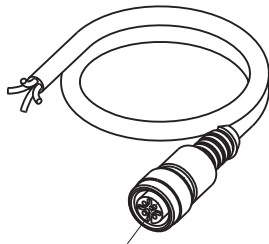


Hydraulic pump HP-1 Cable for connection of the grease level control

The connection cable for the grease level control must be ordered separately.

Two different cable types are available:

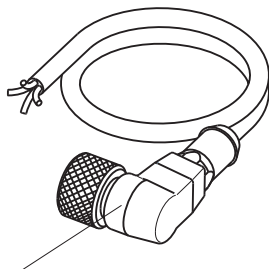
To connect the grease level control, connection cables no. 1 with straight socket M12x1 with cable length of 2 m, 5 m and 10 m can be used:



Socket M12x1 for connecting to the grease level control

Cable length	Order-no
2 m	1000 91 2458
5 m	1000 91 1237
10 m	1000 91 2457

Similarly, the connection cable no. 3 with right-angle socket M12x1 and a cable length of 5 m can be used:



Socket M12x1, angular,
 to connect the grease level control

Order-no: 1000 912997



Hydraulic pump HP-1

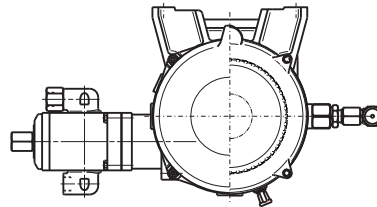
Order key of the pump

Construction type. 2163 . 01 . 20 . 1 . 00

Pump elements	Outlet-no.		
	1	2	3
without	0	0	0
PE-60	1	1	1
PE-120	2	2	2
PE-120 V	3	3	3
PE-170	4	4	4

No.	EDP-No.	No.	EDP-No.	No.	EDP-No.	No.	EDP-No.	No.	EDP-No.
000	A0	100	F0	200	O1	300	41	400	V0
001	A1	101	F1	201	K1	301	Q1	401	V1
002	03	102	F2	202	K2	302	Q2	402	V2
003	43	103	F3	203	K3	303	Q3	403	V3
004	A5	104	F4	204	K4	304	Q4	404	V4
010	B0	110	N0	210	L0	310	R0	410	W0
011	B1	111	G1	211	L1	311	R1	411	W1
012	B2	112	G2	212	L2	312	R2	412	W2
013	B3	113	G3	213	L3	313	R3	413	W3
014	B4	114	G4	214	L4	314	R4	414	W4
020	02	120	H0	220	M0	320	S0	420	X0
021	C1	121	H1	221	M1	321	S1	421	X1
022	C2	122	H2	222	M2	322	S2	422	X2
023	C3	123	H3	223	M3	323	S3	423	X3
024	C4	124	H4	224	M4	324	S4	424	X4
030	42	130	H5	230	N0	330	T0	430	Y0
031	D1	131	H6	231	N1	331	T1	431	Y1
032	D2	132	H7	232	N2	332	T2	432	Y2
033	D3	133	H8	233	53	333	T3	433	Y3
034	D4	134	H9	234	N4	334	T4	434	Y4
040	E0	140	J0	240	P0	340	U0	440	Z0
041	E1	141	J1	241	P1	341	U1	441	Z1
042	E2	142	J2	242	P2	342	U2	442	Z2
043	E3	143	J3	243	P3	343	U3	443	Z3
044	E4	144	J4	244	P4	344	U4	444	Z4

Order example for pump elements:



1 PE-120 installed in outlet position 1:
No. = 200 -> Code = 01

Special variants = 99

Reservoir size (kg) Transparent reservoir	1,9	2,5	4	8
without grease level control	19	20	40	81
with LM min. plug connection M12x1 in reservoir cover		23	43	83
Reservoir size (kg) Steel reservoir	2	4		
without grease level control	21	41		

Type			
Throttle unit	0.8 mm	1.0 mm	1.2 mm
Code	1	2	3
Throttle valve	4		

Special variants 00

Date of issue: 09.2012

