

PTEX

PTEX extruder pumps
for drums

EN

Operating manual



Extruder pumps for drums type PTEX

Imprint

The operating manual is part of the scope of supply of the SKF extruder pump PTEX for centralized lubrication systems.

The manual has been edited in conformity with applicable standards and rules for technical documentation.

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Introduction

The extruder pumps PTEX are remarkable in their operational reliability and long service life. The extruder pumps are made in conformity with the generally recognized rules of technology and the applicable safe working practices and the rules for accident prevention. Still hazards may be involved in their use, which can lead to injury of operators or other persons or damage to the machine or other property.

To ensure trouble-free operation and prevent hazard, we kindly ask you to read the present manual carefully and observe the notes contained in it.

The present manual gives the instructions for operating and servicing standard pumps PTEX (→ **page 7**). In the case of a special pump PTEX, read carefully the technical sheet delivered with the pump with all specific technical data).

Notes on the operating manual



Text marked with this sign alerts to special hazards or work that must be performed with caution.

Keep the operating manual in a safe place so that it is always available wherever the system is in use.

This operating manual is a part of the system, and it must be given to the operating company upon sale of the system.

Safety instructions

Please comply with the following safety instructions in order to prevent possible damage and to ensure that the extruder pump PTEX works properly.

Use the extruder pump PTEX only in technically perfect condition for its intended use. Be aware of hazards and observe the operating manual.

Especially errors that could affect safety must be resolved without delay. Safety measures corresponding to the parameters of the lubricant supplied must be stipulated.

The safety mechanisms must not be damaged, dismantled, or in any way made inoperable, nor must they be replaced by parts which have not been expressly approved of by SKF.

The electrical connection and all interventions such as repairs, component replacement, etc. may be carried out only by properly qualified and instructed personnel.



If devices are improperly connected, substantial material and personal damage may be the consequence.

Repair work must only be performed after a trained specialist has disconnected the unit from power.



Working on an extruder pump under electrical voltage could lead to personal injury.

The centralized lubrication system connected to the pump may be under pressure. Before extension work, changes, repairs etc. it must be depressurized.




Working on systems under pressure could lead to personal injury.



Unauthorized modifications to the pumps and the use of unauthorized spare parts and aids are prohibited and disqualify the warranty.

Worn-out pumps must be made inoperable and disposed of properly.


Applications

 **All products from SKF may be used only for their intended purpose as described in this brochure and in any instructions. If operating instructions are supplied with the products, they must be read and followed.**

Not all lubricants are suitable for use in centralized lubrication systems. SKF does offer an inspection service to test customer supplied lubricant to determine if it can be used in a centralized system. SKF lubrication systems or their components are not approved for use with gases, liquefied gases, pressurized gases in solution and fluids with a vapor pressure exceeding normal atmospheric pressure (1013 mbars) by more than 0,5 bar at their maximum permissible temperature.

Hazardous materials of any kind, especially the materials classified as hazardous by European Community Directive EC 67/548/EEC, Article 2, Par. 2, may only be used to fill SKF centralized lubrication systems and components and delivered and/or distributed with the same after consulting with and receiving written approval from SKF.

The extruder pumps PTEX serve to supply lubricant to centralized lubrication systems. Other use or use beyond this purpose is considered unintended. SKF will not accept liability for damages resulting from such unintended use.

 **Only authorized lubricants for the pump type may be supplied. Unsuitable lubricants could lead to the pump failing and possibly severe property damage and personal injury.**

Lubricants

The extruder pumps PTEX can supply lubricants with the following NLGI grades:

- greases with NLGI grade 000 to grade 2

A list of authorized viscous lubricants can be found on the Internet at www.skf.com/lubrication. The lubricants recommended correspond in their composition to customary safety regulations, and they are suitable for use in centralized lubrication systems.

Whenever using other lubricants, keep in mind that there are lubricants which, although within the authorized limits, nevertheless are unsuitable for centralized lubrication systems because of their characteristics. Consult the manufacturer of your unit.

Keep in mind that lubricants are environmentally unfriendly substances and that their transport, storage and processing require that special safety measures be taken.

For other lubricants, please contact SKF.

Delivery

Upon receiving the package please check the items for possible damage, and ensure the package is complete by checking the supply papers.

Keep the packaging material until any and all problems have been clarified.

Transport and Storage

In general, the pump should be stored in a dry and dust-free environment. It must be stored with the base on the ground (horizontal).

The storage temperatures can be found in the specifications.

Versions

The extruder pumps PTEX are available for three different drums capacities (25, 50 and 200 kg). Every pump is equipped with a position detector, type Reed switch (warning level) to monitor the motion of the follower plate. As electric options, a solenoid valve, to control the general air inlet, and a pressure switch, to monitor the lubricant outlet, are also available.

Even if the extruder pump is designed for three different drum capacities, the inner diameter of the drum can differ according to the model. Therefore, SKF designs the follower plate for every application, according to the technical data of the drum.

How your pump is equipped is indicated on the nameplate and delivery papers. The adjacent table explains the type key.



If an extruder pump unit is not listed in table 1, please refer to the delivered technical sheet to know the specific technical data of the unit.

Tableau 1 Type key

Designation	PTEX	-	25	-	E	-	B	-	V01	+	924
Extruder pump for drum											
Drum capacity (25, 50 ou 200 kg)											
Extruder pump equipment ¹⁾											
Pneumatic pump type ²⁾											
Follower plate index ³⁾											
Voltage key ⁴⁾											

- 1) S: standard equipment
E: electric option (solenoid valve and pressure switch)
- 2) A: pump with a max. delivery rate of 0,83 kg / mn at 6 bars (recommended for 200 kg drums)
B: pump with a max. delivery rate of 0,5 kg / mn at 6 bars (recommended for 25 and 50 kg drums)
- 3) V01: follower plate with wiper seal (seal material: FPM)
N01: follower plate with wiper seal (seal material: nitrile)
- 4) +924: 24 V DC
+428: 230 V 50/60 Hz
+429: 115 V 50/60 Hz

Design

Figure 1 shows the essential design of the extruder pump PTEX for 25 kg drum.

The extruder pump PTEX consists in three main components:

- support frame
- pneumatic pump
- control console (→ **page 10**)

The support frame is made of two vertical cylinders linked to each other by a traverse bar, which holds the pneumatic pump. The two cylinders are fixed on a common base, which makes the handling of the extruder pump easier. The drum is centered and fixed on the base with flanges. For the extruder pump for 200 kg drums a safety bow prevent any risk of accident with the drum.

The pneumatic pump sucks up lubricant directly into the drum and delivers it to the centralized lubrication system. The length of the suction pipe depends on the model of the drum. The pipe is equipped at its end with a follower plate and a wiper seal to ensure the tightness of the drum. The user can bleed the drum with a first manual bleeding valve located above the follower plate. With a second manual valve at the pneumatic pump outlet he can bleed the extruder pump.

The extruder pump PTEX is equipped with several devices to monitor the good function and to ensure the security of the system: The lubricant outlet pressure is monitored with a manometer, a Reed switch (adjustable) detects the position of the follower plate before it is getting to the bottom of the drum (warning level) and a safety switch interrupts the function of the pneumatic pump when the follower plate has reached the bottom of the drum.

In addition (electric option) the extruder pump can have two other electric devices: a solenoid valve to control the general air inlet and a pressure switch to monitor the lubricant outlet pressure.

Extruder pump

1. Air filter/lubricator (actuation of the pump)
2. Air inlet G 3/8"
3. Air manual control valve (or 3/2 solenoid valve – electric option)
4. Air filter
5. Drum bleeding valve
6. Manometer (lubricant pressure)
7. Pneumatic pump
8. Control console (→ **page 10**)
9. Cylinder
10. Flange (centering and fastening)
11. Pressure switch (electric option)
12. Lubricant outlet connection R 3/8"
13. Pump bleeding valve
14. Suction pipe
15. End switch (follower plate stroke)
16. Follower plate
17. Position detector, type Reed switch – warning level

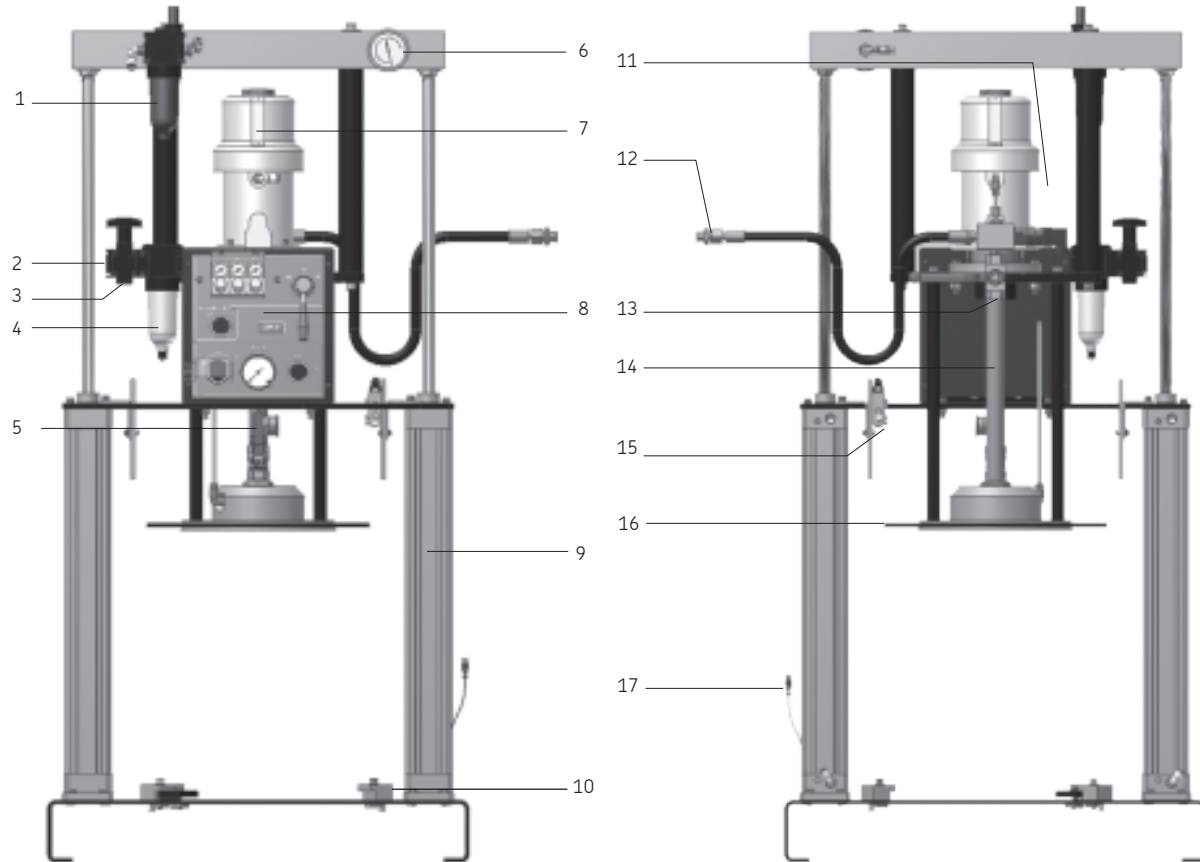


Fig. 1 Extruder pump PTEX for 25 kg drum

Control console

Several functions are available on the control console of the extruder pump PTEX such as to:

- control the pneumatic pump function
- control the follower plate function
- control the blowing air inlet (upward motion of the follower plate)
- regulate and monitor the air pressure to let the follower plate move upwards
- regulate and monitor the air pressure to let the follower plate move downwards
- regulate and monitor the blowing air pressure (upward motion of the follower plate)
- regulate and monitor the air pressure for the actuation of the pump



Fig. 2 Control console of the extruder pump PTEX

Control console

1. Blowing air control switch – 2 positions (On / Off)
2. Blowing air pressure regulator with manometer
3. Air pressure regulator (follower plate upward motion) with manometer
4. Air pressure regulator (follower plate downward motion) with manometer
5. Follower plate control lever – 3 positions (up, stop, down)
6. Air inlet pressure regulator for the pneumatic pump
7. Air inlet manometer for the pneumatic pump
8. Pump control switch – 2 positions (On / Off)

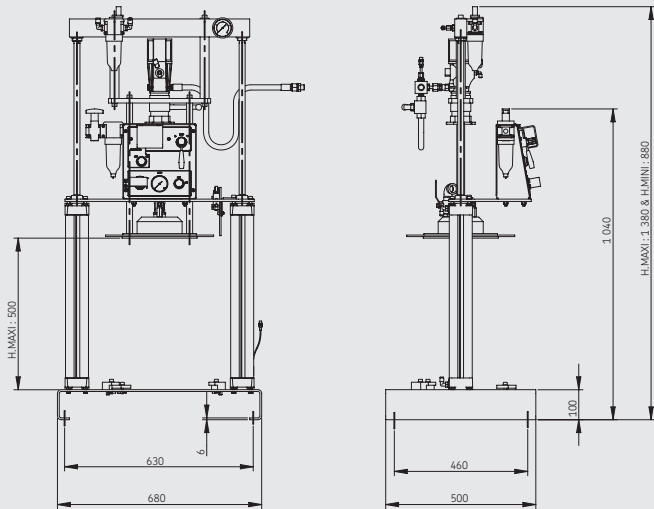


Fig. 3 Extruder pump PTEX-25-S-B...

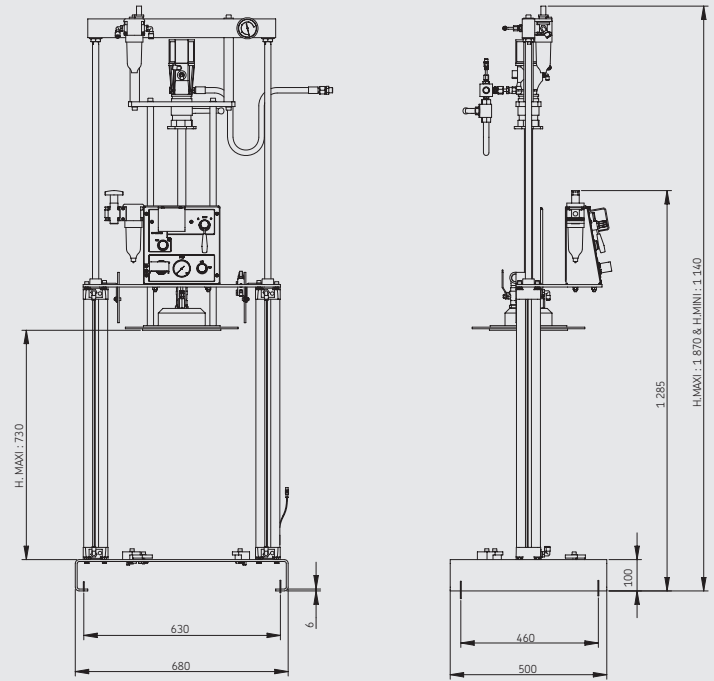


Fig. 4 Extruder pump PTEX-50-S-B...

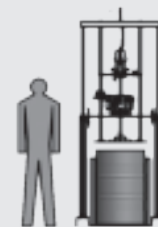
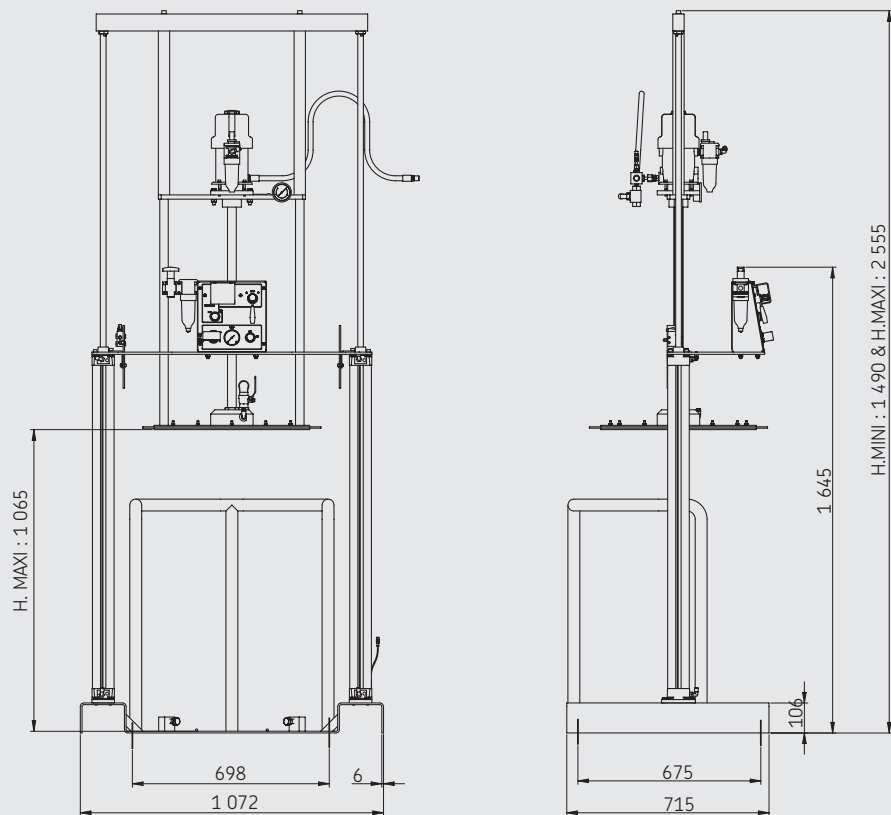


Fig. 5 Extruder pump PTEX-200-S-A...

Function

Before using the extruder pump PTEX the drum has to be correctly positioned on the base of the pump according to the follower plate. If the drum is not correctly installed, the follower plate can not move downwards or the drum will not be tightened.

After opening the general air inlet valve, the user drives the cylinder of the extruder pump from the control console. The cylinder under pressure let the follower plate move downwards into the drum and press it against the lubricant.

At this point, it is necessary to bleed first the drum, and then the extruder pump.

When the bleeding has been carried out, the user starts up the pneumatic pump from the control console. The pump sucks the lubricant into the drum and delivers it to the connected centralized lubrication system. The user can monitor the operation and adjust the pump pressure on the control console. During the suction the lubricant level falls in the drum. But under the effect of the cylinder pressure, the follower keeps moving downwards and stays pressed against the lubricant. The permanent contact between the lubricant and the follower plate optimizes the function of the pneumatic pump.

The position Reed switch sends a signal (warning level) when the follower plate gets closer to the bottom of the drum.

When the follower plate reaches the bottom of the drum, a pneumatic end switch switches off the air inlet of the cylinders and the pneumatic pump, and thus interrupts the operation of the pump (no air suction).

When the drum is empty the user triggers the upward motion of the cylinders. But it also has to switch on the blowing air. This air is blown under the follower plate and will push it upwards.


Installation

Setup

Before installing the extruder pump, remove the packaging material as well as any transport safety devices (e.g. sealing plug in the open outlet).

The extruder pump must be protected from moisture and und vibration, but on the other hand mounted so that it is easily accessible to ensure that all further installation work can be carried out without difficulty and that later the drum can be easily replaced.


The extruder pump has to be installed on an even and horizontal surface and fixed with 4 fixing bolts.

 **When drilling installation holes always pay attention to any supply lines or other units as well as further sources of dangers such as moving parts. Maintain safe distances and observe regional installation and accident-prevention regulations.**

All visual indicators must be clearly visible.

Keep a sufficient clearance above the extruder pump for the free upward motion of the fol-lower plate cylinders.

Compressed air connection


 **The maximum inlet pressure specified for operating the extruder pump must not be exceeded.**

The compressed air line is connected to the extruder pump (→ **pos. 2 fig. 1 page 9**) via a male connector G 3/8".

Lubricant outlet connection

The pump lubricant outlet is connected to the centralized lubrication system by means of a hose (length 2 m) fitted with a male swivel connector R 3/8".

Electrical Connection

 **The system may be connected only by properly qualified and instructed personnel. Comply with the notes in this operating manual.**

The extruder pumps with the electric option have two different electric devices:

- a solenoid valve to control the general air inlet
- a pressure switch to monitor the lubricant outlet

Position Reed switch (warning level)

Every extruder pump PTEX has a position Reed switch. It detects the position of the cylinder when the follower plate comes down. It sends a signal to the user when the follower plate comes closer to the bottom of the drum (according to the adjustment of the user).

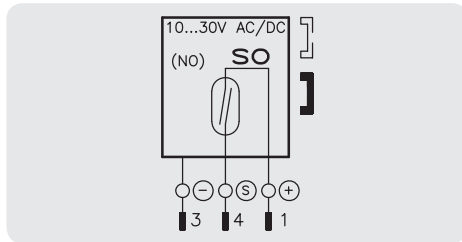


Fig. 6 Wiring of the position Reed switch

PVC lead + 3-pin plug-in male connector and
Ø M8

Air solenoid valve (option)

The solenoid valve is mounted at the general air inlet of the extruder pump PTEX. It replaces the hand operated valve. With the solenoid valve, the user can control at distance the general air inlet. This is a 3/2 way solenoid valve.

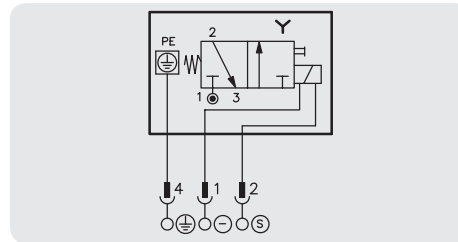


Fig. 7 Wiring of the air solenoid valve

Pressure switch (option)

The pressure switch is mounted at the pump lubricant outlet. It supplements the lubricant manometer a sends a signal when the minimal lubricant pressure has been reached.

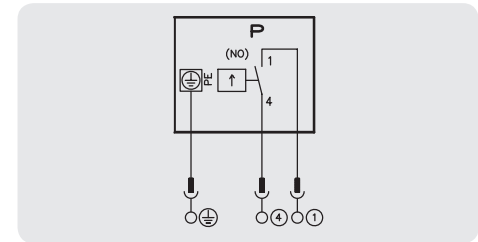




Fig. 8 Wiring of the pressure switch

Putting in place the drum

- Put the control lever on 'STOP'
- Put the control switches of the pump and the blowing air on 'OFF'
- Put the control lever on 'up' (↑) and open the general air inlet valve until the follower plate reaches its maximal high level
- Put the control lever on 'STOP'
- Lubricate the wiper seal with a lubricant, which is compatible with the product in the drum
- Position the drum according to the follower plate. Remove the cover of the drum

 **If the drum is bashed in, there is no guarantee for the tightness. Therefore bashed-in drums shall not be used.**


 **Drums shall be as cylindrical as possible and shall not have flared flange.**

- Put the control lever on 'down' (↓), until the follower plate reaches the top of the drum
- Put the control lever on 'STOP'

- Adjust the position of the drum if necessary and fasten it with the flanges on the base
- Open the manual bleeding valve which is above the follower plate
- Put the control lever on 'down' (↓), until the air is entirely blown away and bubble-free lubricant comes out of the bleeding valve
- Put the control lever on 'STOP' and close the bleeding valve.

Removing the drum

- Stop the function of the pneumatic pump (switch on OFF)
- Put the control lever on 'STOP'


 **If the follower plate has reached the minimal level in the drum, the function of the cylinder is then already interrupted. Nevertheless the previous instructions have to be carried out.**

- Open the air blowing valve (switch on ON)
- Put the control lever on 'up' (↑)
- When the follower plate has reached its maximal high level, close the air blowing valve (switch on OFF) and put the control lever on 'STOP'
- Remove the drum from the extruder pump
- Clean the follower plate and the wiper seal

Commissioning

Ensure that the pump and all its connections are firmly in place before the first operation.

Check that the follower plate is correctly positioned in the drum.

 **Only lubricants suited to the pump type may be supplied. Unsuitable lubricants could lead to the pump failing and possibly severe property damage and personal injury.**

- Open the general air inlet valve
- Put the control lever on 'down' (↓)
- Start the pump and regulate the pressure in order to get the optimal lubricant pressure.

Bleeding the extruder pump PTEX

Before bleeding, check that the follower plate is correctly positioned in the drum.

- Open the general air inlet valve
- Put the lever on 'down' (↓)

Bleeding of the drum

- Open the manual bleeding valve, which is on the above the follower plate
- Let the pump run until the follower plate lays on the lubricant and bubble-free lubricant comes out* and the close the bleeding valve
- Open the manual bleeding valve of the pneumatic pump




Bleeding of the pump

- Start the pneumatic pump
- Let the pump run until bubble-free lubricant is coming out and the close the bleeding valve
- Stop the pneumatic pump
- Put the control lever on 'STOP'.

The extruder pump PTEX is now ready to run.

**) According to the viscosity, it is possible that no lubricant comes out.*

Maintenance

-  **Maintenance work may be carried out only by qualified and trained specialists instructed to do so.**
-  **Maintenance work may be carried out only after a trained specialist has disconnected the extruder pump from power. Working on systems under electrical voltage could lead to personal injury.**
-  **The extruder pump unit may be subjected to pressure. Before extension work, changes, repairs etc. it must be depressurized.**

The extruder pump PTEX units are for the most part maintenance free. To ensure they work properly, however, please regularly check the following:

- Check the pump regularly for external damage or leaks.
- All electrical connections and lines must be checked regularly for damage and to ensure that they are firmly in place.
- Any faults found must be properly rectified before the extruder pump is activated again.

Faults




-  **All interventions such as repairs, component replacement, etc. may be carried out only by properly qualified and instructed personnel.**
-  **Repair work may be carried out only after a trained specialist has disconnected the unit from power. Working on systems under electrical voltage could lead to personal injury.**
-  **The extruder pump may be subjected to pressure. Before extension work, changes, repairs etc. it must be depressurized.**

Table 2 contains an overview of problems which you can remedy yourself. You should contact the SKF service center if the problem can not be rectified by taking the measures described here.

Table 2 shows different problems, which may occur, with the possible causes and the measures to be taken.

Problem	Possible cause	Remedy
The follower plate does not move upwards or downwards.	The general air inlet valve is closed.	Open the valve.
	The main hose (air inlet) is blocked.	Unblock the hose.
	The air inlet pressure is too low.	Increase the pressure of the air inlet.
	The blowing air valve for the follower plate is closed (upward motion).	Open the blowing air valve.
	The bleeding valve is closed (downward motion).	Open the bleeding air valve.
	The drum is bashed in due to a shock and jams the follower plate.	Straighten out the drum if possible or replace it.
The follower plate does not move upwards or downwards at a correct speed.	The air pressure is not correctly adjusted.	Adjust the air pressure.
Lubricant comes out along the wiper seal of the follower plate.	The pressure of the cylinder is too high.	Reduce the pressure of the cylinder.
	The wiper seal is worn or damaged.	Replace the wiper seal.
The pneumatic pump starts with difficulties or sucks only air.	The general air inlet valve is closed or the hose blocked.	Open the air inlet valve or unblock the hose.
	The air pressure to actuate the pump is too low.	Increase the air pressure.
	The bleeding valve is open or there is a leakage on a line.	Close the bleeding valve or replace the line.
	There is some air under the follower plate.	Bleed the drum with the bleeding valve above the follower plate.
	The follower plate is jammed because the drum is bashed in.	Straighten or replace the drum.

Placing out of Service

Temporary Standstill

Comply with the instructions from the chapter *Transport and Storage* if the extruder pump is to be at a standstill for a longer period of time.

During a production standstill, when the drum has been removed but not replaced, it is very important to decompress the extruder pump in order to prevent any person or material damages.

- Put the lever on 'down' (↓) until the fol-lower plate reaches its minimal level
- Put the control lever on 'STOP'
- Close the general air inlet valve
- Put the lever on 'down' (↓) until the air is entirely blown away in this direction
- Put the control lever on 'up' (↑) until the air is entirely blown away in this direction too
- Put the control lever on 'STOP'.

Final Standstill

If you want to bring the extruder pump to a permanent standstill, please comply with the legal stipulations for disposal of oil-containing components.

The system can also be taken back by SKF for disposal if the costs are covered.

Spare parts*

Order No	Designation
UP0705-03	Hand operated valve 3/2 – G 3/8
UP0701-03	Air filter – G 3/8
UP0801-03	Air lubricator – G 3/8
PT.25	Drum pump for 25 kg drum
PT.50	Drum pump for 50 kg drum
PTF200	Drum pump for 200 kg drum
UH2820-03	Manometer Ø63 – 0 to 60 bars – G 1/4 – glycerin-filled manometer
FL420	Hose G 3/8 – Lg : 2m
PTEX-100-01	Control console (standard)
UP0709-01	End switch 3/2 (drum empty)
UL07-18-80	Position Reed switch
UP0708-3-C06-C06-M	Pressure regulation unit
AC-4380	Pressure regulator 0,5 to 7 bars – G 1/4
SY.8458	Manometer Ø63 – 0 to 10 bars – G 1/4 - with clamping bow
UP0703-01+924	Solenoid valve 2/2 – NC – G 3/8 – 24 V DC
UP0703-01+428	Solenoid valve 2/2 – NC – G 3/8 – 230 V 50/60 Hz
UP0703-01+429	Solenoid valve 2/2 – NC – G 3/8 – 115 V 50/60 Hz

*) Non-exhaustive list

Technical data

Air consumption	900 NI/mn
Air inlet pressure	3 to 8 bars
Pump ratio	55:1
Pump delivery rate (at 6 bars)	
Pump A	0,83 kg/mn
Pump B	0,5 kg/mn
Lubricant	greases NLGI grades 000 to 2
Operating temperature	10 to 50 °C
Air inlet	G 3/8

Position detector, Reed switch type

Max. switching power	6 W
Switching voltage	10 to 30 V DC and AC
Max. switching current	200 mA
Contact resistance	0,15 Ω max.
Insulation resistance	> 100 M Ω
Withstand voltage	200 V DC
Sensitivity	min. 2,5 mTesla (25 Gauss)
Repeatability	\pm 0,5 mm
Operating temperature	-15 to +70 °C
Degree of protection (CE I 529)	IP67
Signal indication	orange diode (LED) which lights up when the contact is established

General air solenoid valve

Type	3/2 NC
Connection	G 3/8
Electric connection	PG9
Delivery rate	2700 NI/mn
Operating pressure	0 to 8 bars
Operating voltage	according to the voltage key
Degree of protection	IP65

Lubricant pressure switch

Max. operating voltage	250 V AC
Degree of protection	IP65
Setting range	10 to 100 bars
Adm. pressure	max. 300 bar
Electric connection	PG9
Factory setting	none

Service

Please contact our sales offices or our international representatives if you have any questions or problems.

You can find a list with current addresses on the Internet at:

- www.skf.com/lubrication

Notes

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