because it works

Operation manual

VULKAN
Extrusion Pumps

Type:

- ❍ **49** … …
- ❍ **78** … …
- ❍ **134** … …
- ❍ **269** … …
- ❍ **521** … …
- ❍ **680** … …

Serial-No.

… … … … … … … … …

CE

Translation of the original operation manual Extrusion pumps
EXP · DBK · en · 04.12 · jw

1 Contents

1.1 Preface

This User's Handbook must always be available to operating staff
The operating authority of the equipment must ensure, that a user`s handbook is available to the operator, in a language which he understands

Dear customer!
Thank you for your decision to purchase a WIWA® equipment.
In the user's manual you can find all information required for the proper handling of your WIWA® extrusion pump. However, for safe operation there are further essential details which you should adhere:
Please read and observe the guidelines valid for your country. In Germany the "Richtlinien für Flüssigkeitsstrahler" (Guidelines for liquid sprayers), Published by: Hauptverband der Gewerblichen Berufsgenossenschaften, are valid.

Manufacturer's notes and operating guidelines for coating and pumping materials should be observed at all times.

Since WIWA® extrusion pumps, mainly with rams and lifts, are installed in plants, the operating instructions of such devices and the accessories applied in this connection must also be observed and adhered to.

In principle no method of working should be exercised which impairs the safety of WIWA® products and the operating personnel.

We wish you much success and good working results for the application of your extrusion pump.
WIWA Wilhelm Wagner GmbH & Co.KG

This operating manual only applies in conjunction with the machine card that was given to you with the user manual for your equipment. Please check that the type plate data is identical with the information on the machine card. Please notify us immediately if there are discrepancies, if the user manual has been incorrectly compiled or if the type plate is missing.

1.2 Table of Contents

2 Safety

2.1 Description of symbols

The signs and symbols used in this manual have the following meaning:

NOTE
marks a section of text which is especially relevant to safety. Special attention should be paid to this section and it's contents strictly observed.

WARNING
marks a situation which could be dangerous. If not observed death and very serious injuries can result.

DANGER OF EXPLOSION
marks a situation, where there is danger of explosion. Observation of this information is absolutely essential.

ELECTRICAL VOLTAGE
marks a situation, where there is a danger of explosion through an electrostatic charge. Observation of this information is absolutely essential.

HOT SURFACES
marks a situation where there is danger of burns caused by hot surfaces.
Hot surfaces should not be touched unless wearing protective gloves.

WEAR PROTECTIVE GLOVES
Wear protective gloves with lower arm protection to avoid burn injuries.
The warnings must be adhered to.

USE EAR PLUGS
For health reasons, it is very important to pay attention to this warning.

FIRST AID
In case of injuries or accidents, these instructions should be absolutely adhered to.

2.2 Dangers arising from the equipment

This machine was designed and built in accordance with all safety aspects. It corresponds with the present standards of technical regulations and current rules for accident prevention. It left the factory in perfect condition and warrants a high level of safety. However the following dangers exist if operated wrongly or used inappropriately:

- ➤ to life and limb of operator or third persons,
- for the machine and other property belonging to owner of machine,
- ➤ for the efficient working of the machine.

All personnel involved in the starting, operation and maintenance of the machine must read the following notes carefully and observe them. It is a matter of their safety! We recommend that the machine operation management have this confirmed in writing.

Additionally please pay attention to the following:
Manufacturer's notes and operating guidelines for coating material and pumping material should be observed at all times.

In principle no method of working should be exercised which impairs the safety of WIWA® products and the operating personnel.

The rules for the prevention of accidents "Machining of coating materials" ("Verarbeiten von Beschichtungsstoffen" (BGR 500, chap. 2.29)) as well as the directives for liquid jet systems ZH1/406 ("Richtlinien für Flüssigkeitsstrahler") of the professional association must be complied with under all circumstances. Liquid jet systems have to be checked for safe operation by a specialist upon requirement, however at least every 12 months. The results of such check must be recorded in writing.
We recommend to enclose all directives and rules for the prevention of accidents in the user's manual.

In case of injuries consult a physician or go to the next hospital without delay. If paint/material or solvent has gone into the skin, the physician has to be informed about the type of paint/material or the solvent applied. Therefore always see to it that the product specification sheet with address and telephone number of the manufacturer is at your disposal!

2.3 Application of the machine

The extrusion pump is designed for pumping and applying non-flowing coating materials such as grease, adhesives, sealing compounds, mastic, etc. The extrusion pump is mounted mainly on a ram or a lift and installed in an existing plant or before a dosing unit.

Using this equipment in areas requiring protection from explosions (is not valid for extrusion pumps with electrically heated follow plates)

Marking: Ex **II 2G cT4**

This equipment fulfills the explosion-proof requirements found in the guideline 94/9/EC for the type of explosion, equipment catagory and temperature class

found on the nameplate.
This equipment is able to be installed in areas requiring Zone I explosion protection. Due to the possibility that explosive gases and overspray may be created, this unit is to be considered as Group II, Equipment Catagory 2G. The flash point for the materials being sprayed, as well as the solvent being used, must be above 200°C. This corresponds to the temperature class T3.
When operating this equipment, the User's Handbook must be followed closely. The required inspection and maintenance intervals must be adhered to strictly.
All information found on the unit's signs or plates must be adhered to and not exceeded. Do not allow this unit to be overloaded.
It is the responsibility of the operator of this equipment to determine the explosion risk (zone determination according to EC regulation 94/9/EC, Appendix II, Nr. 2.1-2.3) in the area of usage, in accordance with local regulatory authority guidelines.
Furthermore, it is the responsibility of the operator on-sight to check and ensure that the technical specifications and markings according to ATEX are compliant with local requirements.
Please observe that some components have their own nameplate with separate markings according to ATEX. The marking with the lowest rating for explosion protection becomes valid for the entire system.
If the intended application could lead to injury of personnel if this equipment malfunctions, on-sight precautions and preventive measures must be implemented
If this equipment appears to be malfunctioning or behaving strangely during operation, the unit must be shut down immediately and WIWA® Customer Service contacted as soon as possible.
It must be ensured that the unit is grounded either separately or together with the equipment it is mounted to (maximum resistance $10^6\,\Omega$).

Other use is not in line with the regulations.
Before WIWA® equipment is used for other purposes or with other materials, and therefore not according to the regulations, permission should be obtained from the manufacturer as the guarantee is otherwise invalid.
The observation of technical documentation and compliance with specified operation, maintenance and starting guidelines are a component of the use in accordance with the regulations.

2.4 Machine surroundings and Installation Site

Rebuilds and changes
For safety reasons it is not allowed to carry out rebuilds or changes without authorization. Protective equipment must not be dismounted, changed or neglected.
If using components, which are not produced or delivered by WIWA®, any warranty expires.
The machine may only be operated within the prescribed limits and machine parameters.

Danger caused by attachments and spare parts
If you use original attachments and original spare parts from WIWA® Spray and Pump Systems the usability with our equipment is guaranteed. It is however essential that the safety regulations of the attachments and spare parts are observed.
If you use attachments and spare parts from another source, WIWA® cannot guarantee the safety of the entire system. The guarantee is also not valid for damage or injury caused by such attachments and spare parts.

Emissions
It is possible for solvent vapours to occur, depending on the materials used. Therefore please ensure the workplace is sufficiently ventilated in order to avoid damage to health and property. Always observe the processing information given by the material manufacturer.
The sound pressure level of the equipment is below 80 db(A). Nevertheless appropriate noise protection means should be made available to the operating staff. The operator is responsible for compliance with the rules for the prevention of accidents for "noise" (BGV B3).
Therefore pay special attention to the environmental conditions at the site, e.g. noise can be increased if the machine is installed in or on hollow bodies.

Safety measures at installation site
- The system must have a fixed position and sufficient space to ensure safe operating. The passage to the safety fittings must not be blocked.
- Keep the working area especially all gangways and standing areas clean.
- Ensure there is sufficient ventilation at the workplace to prevent damage to health and property. Observe the manufacturer's processing instructions at all times.
- The owner / operator of this equipment is required to ensure that proper protection against lightning strikes is available.
- Comply strictly with the current rules for accident prevention.

2.5 Sources of danger

Remember that WIWA® Extrusions Pumps works under extreme pressure procedures and that it can cause life-endangering injuries if used inappropriately.


Pay attention to the following notes:
For design reasons the danger of getting squashed or sheared in the material feed area of the pump and be-

tween the air motor and the material pump is very high. Before working in such areas release the pressure from the extrusion pump by interrupting the compressed air supply.
Material hoses **must** conform with maximum working pressure, whereby a safety factor must be included in the statement. Do not repair defected material hoses!
Never try to seal leaks on joints and high pressure hoses with your hand or by binding the spot. Should a leak occur the whole system are to be de-pressurised **immediately**. Defective parts are to be replaced.

If working with heated materials, always wear the proper hand protection.
BURN DANGER!

Before maintenance and cleaning work at the equipment and jet system accessories take the pressure from the complete system. The compressed air supply must be interrupted.

If the machine stops up pressure may still exist despite de-pressurisation. This must be kept in mind when carrying out repairs!
Special care must be taken when dismantling the material hoses and extrusion gun especially.

Only conductive material hoses should be used. All original WIWA® material hoses are conductive and compatible with our equipment. The maximum admissible working pressure on the hoses must correspond to the maximum operating pressure of each airless machine.

Should the safety valve need replacing, please see the enclosed machine card for its order number.
Take care that the safety valve corresponds with the maximum admissible air inlet pressure of the extrusion pump.
Never use other safety valves than WIWA® original valves.

Never use this equipment outdoors during a thunderstorm.

During operation, ensure that sufficient feed of material is available to the pump in order to avoid heating due to friction, caused when the material pump runs dry.
Observe closely:

- no empty feed containers may be present during operation.
- the suction system may not be clogged, buckled or defect in any other way.
- if the unit stops processing material, shut it down immediately.

The maximum operating pressures given by WIWA® are to be adhered to in principle for all WIWA® parts. When using substances containing the following materials

- Trichlorofluormethane (R-11)
- 1.1.2 Trichlorine
- 1.1.2.2 Tetrachlorine
- 1.2.2 Fluorethane (R-113)
- 1.2 Difluorethane (R-112)
- Tetrachloroethane (Perchloroethylene)
- Trichloroethane (Trichloroethylene)
- Dichloromethane (Methylenechloride)
- other solvents with halogenated chlorohydrocarbon (FCKW)

it is essential to use a rustproof extrusion pump as otherwise dangerous chemical reactions are possible. If you wish to work with the above solvents or with lacquers or paints or materials which contain them, we recommend you to contact either WIWA® customer services or WIWA® directly.

Smoking, open flames or any other possible ignition sources are not allowed anywhere near the area of operation

2.6 Operating staff

Authorised Operators
People under the age of 16 should not operate this equipment.
The management in charge of the operation of the machine must make the user's handbook available to the operator and must make sure that he has read and understood it. Only then may the system be put into operation. We recommend the manager has this confirmed in writing.
The operator of the machine is obliged to report any changes in the machine which might affect its safety to the manager as he must ensure that the machine is functional.
The responsibilities for the different activities on the system must be laid down clearly and adhered to. No unclear competences may remain as these could endanger the safety of the users.

The operator must make sure that only authorised persons work on the machine. He is responsible to third parties in the working vicinity of the system.

The operator of the equipment is obliged to repeat instructions about dangers and safety measures at regular intervals (at least once a year, for young persons twice a year).

Personal protective equipment

We call to your attention that the valid guidelines and requirements in accordance with work surroundings (mining, closed areas etc.) must be adhered to absolutely.

Please wear the prescribed protective clothing at all times as solvent vapours and solvent splashes cannot be completely avoided.

The sound pressure level of the equipment is below 80 db(A). Nevertheless appropriate noise protection means should be made available to the operating staff.

2.7 Behaviour in case of emergency

Leaks

If leaks occur in the system it must be shut down **immediately** and the entire system de-pressurised:

- Cut-off the compressed air supply
- Open the Drain Valve

Replace defective parts immediately.

Injury

- Should an injury occur through contact with liquid spray we recommend a doctor is called immediately. Inform the doctor of the material sprayed (e.g. paint) and the solvent (thinner).
- Have the product data sheet at hand (address and telephone number of supplier or manufacturer, name of material and material number).
- Memorize the local emergency phone numbers.
- In any case get familiar with the first-aid measures.

Fires

- Read the instructions for fire alarm and escape routes put up in your factory.

2.8 Protective equipment

All equipment is delivered with the following protective fitting:

Safety valve

The safety valve prevents the maximum admissible air entry pressure being exceeded. **With the air pressure supply interrupted**, the pressure of the extrusion pump is released by shortly triggering the extrusion gun and/or opening the material outlet for a short time.

All protection devices must be checked!

- Before each commissioning of the machine!
- Before each start of machine operation!
- After all aligning work!
- After cleaning and servicing!
- After maintenance and repair!

If a protective device is not fully operative, or another defect is detected on the machine, interrupt the compressed air supply to the machine immediately and open the drain valve. The machine may be restarted only if perfect operation is restored.

2.9 Handling of the machine and auxiliary materials

Alignment, servicing, maintenance and repair of the machine

- Alignment when changing production as well as servicing and cleaning may be carried out by trained operating personnel only.
- Maintenance and repair may be carried out by trained, qualified personnel only.
- Before starting work the compressed air supply of the machine must be shut-off.
- Make sure that the machine is absolutely free from pressure. For this, hold the drain hose into an open container and open the drain valve.
- In any case, the function of all protective devices as well as perfect function of the machine must be checked after completion of the work.

Handling of auxiliary materials

- When handling the materials to be worked, solvents, oils, greases and other chemical substances comply with the safety and dosing instructions of the manufacturer and the generally applicable prescriptions.
- Remains of solvents, oils, greases and other chemical substances must be collected according to the legal prescriptions for recycling and waste disposal.
- The local official laws for the protection of waste water must be observed.

2.10 Transportation of the machine and additional equipment

- Interrupt the complete power supply of the machine, even for short transport routes.
- Before transportation empty the machine.
- Pay attention when loading, with our without hoisting devices!
- When loading the machine with hoisting devices pay attention to sufficient load capacity.
- Never stay under swivelling loads or in the loading area due to exposing your **life to danger!!**
- Only use suitable transportation vehicles with sufficient load capacity.
- Secure the load on the transportation vehicle against slipping and falling down.
- Parts or equipment dismounted for transportation purposes must be properly remounted according to application by a specialist before start-up.

3 Machine description

Models: 49. ...
78. ...
134. ...
269.13
269.27
269.36
521.14
521.19
680.14

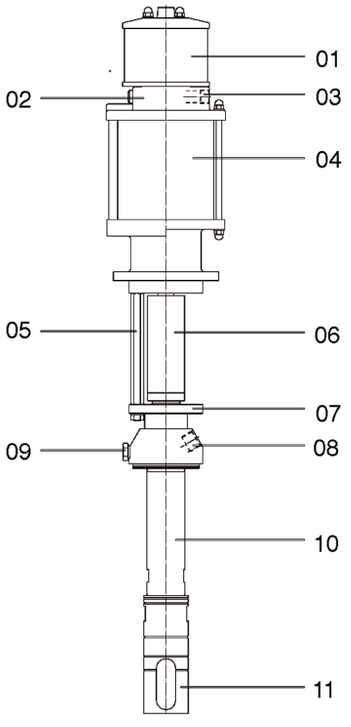


Fig. : 3.1

Pos.	Description
1	Muffler
2	Safety valve
3	Air inlet (connection for air maintenance unit, compressed air regulator or compressed air stop valve)
4	Air motor
5	Distance bolt
6	Adjusting cup
7	High pressure head
8	Material outlet / Connection for non-return valve
9	Pressure relief plug / Connection for drain valve
10	Material pump
11	Filling pipe

Models: 269.62
521.32
521.40
680.24
680.30

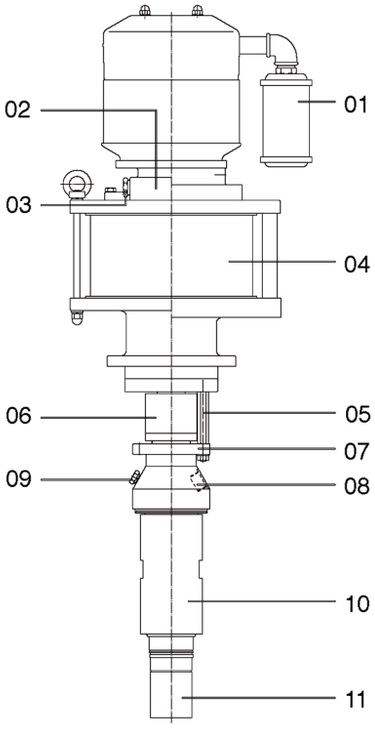


Fig.: 3.2

4 Erection and Assembly

4.1 Erection

Extrusion pumps can be integrated in plants inside or outside of production rooms. Dimensions of the equipment are indicated in Chapter 9.1.

- The machine is to be set up securely on a level and solid surface. All operating elements must be easily accessible. In order that the necessary volume of air is guaranteed the compressor capacity must comply with the amount of air needed by the machine and the diameter of the air supply hoses must correspond to the joints.

Depending on the pump version supplied, certain optional accessories may have been unscrewed and packed in a separate card-box, e. g.:

- Extrusion gun
- Air maintenance unit, or
- Compressed air regulator
- Please add these parts in accordance with the diagram of the machine enclosed in the user's handbook (chapter 3).
- When using accessories observe and adhere to the respective operating instructions.

4.2 Assembly

Extrusion pumps are operating at high pressures.

- Check all parts that can be turned, nuts, screws and hose couplings and tighten them to avoid material from passing through these connections and causing injuries.
- Check the permissible maximum air pressure for the material hose and extrusion gun. It must be greater than or equal to the maximum operational pressure for the system, which is shown on the type plate on the extrusion pump or on the machine card (chapter 10.3).
- Compare the maximum operating pressure of the safety valve with the information on the machine card (chapter 10.3) or the type plate. This information must correspond.
- Prepare the plant where the extrusion pump shall be integrated. WIWA® offers various rams and lifts for application with the extrusion pump. A WIWA® follow plate or WIWA® follow cover can be attached to each device (see Chapter 9.2).
  Observe and adhere to the corresponding operating instructions of these devices.
- Install the extrusion pump into the existing plant.
- Connect the extrusion pump to the compressed air supply.
- In this connection take care that the compressed air supply is interrupted, e. g. by means of a compressed air stop valve.
  An air maintenance unit or a compressed air regulator can be connected directly to the pump.
- Connect a material hose or line to the material outlet of the extrusion pump.
  - optional version with high pressure filter (fig. 4.1):

fig. 4.1

- Now fill Release agent into the adjusting cup.
  The adjusting cup should be filled up to the half.
  The Release agent is used for lubrication of the piston and to avoid hardening of the upper packing.
  We recommend to use WIWA® Release Agent, Order No. 0163333.
- Fill the maintenance unit with pneumatic oil or anti-freeze and take the setting as described in chapter 9.1 "Maintenance on the maintenance unit. (This does not apply to machines delivered in a standard version with only a compressed air regulator.)

Result

Now the machine is ready for operation. You can proceed with first cleaning (Chapter 5).

5 Start-up

5.1 Preparation

Job

You wish to erect the machine at the site and prepare it for operation.

Prerequisite

The material to be worked is prepared.
All materials to be sprayed should be marked with information on viscosity, processing temperatures, mixing proportions etc. If this is not the case please acquire this data from the relevant manufacturer.

WIWA® offers a broad selection of accessories for the optimum processing of coating materials, e.g.:

- Follow plate
- Follow cover
- Ram
- Lift
- Air maintenance unit or compressed air regulator
- Non-return valve
- Material hoses of various lengths and cross sections
- Extrusion gun
- Extrusion nozzles
- Collecting trays for condensed water

For further accessories and more details do not hesitate to directly contact WIWA® or the WIWA® Customer Service.

5.2 First cleaning

Job

This machine was factory tested, after assembly, for perfect functioning with a test medium. However, the extrusion pump and/or the entire system should first be flushed with solvent before spray operation begins so that the material to be sprayed is not affected by the test-medium.

Prerequisite

You will need:

- open pail (or barrel) with a cleaning agent that is compatible with the material and that has been recommended by the manufacturer.
- empty, open pail to hold the rest material which is in the extrusion pump.

The extrusion pump is properly installed in the plant, all material and air connections are correctly established.

Procedure

- compressed air supply is shut-off.
- Move the extrusion pump into the solvent container.

If using a follow plate or follow cover pay attention to the notes mentioned in Chapter 9.2. Furthermore, observe and adhere to the notes of the operating instructions of the applied rams / lifts.

- Hold the material hose respectively extrusion gun (if existing) into the empty container.
- Slowly open the compressed air stop valve of the equipment.
- When using a WIWA® maintenance unit or a WIWA® compressed air control observe and adhere to the notes mentioned in Chapter 9.1.
- Pump solvent into the empty container until clean material is protruding.
- optional version with high pressure filter:
  - Remove the filter insert from the high pressure filter in accordance with chapter 9.5.
  - Hold the drain hose (Fig 5.1, Pos. 2) into empty containe and secure it against slipping.
  - Open the relief tap on the high pressure filter (Fig 5.1, Pos. 1).
  - Open the main air supply tap. (Fig 5.1).
    Adjust the air regulator to a maximum of 2 bar (30 psi) by slowly turning the regulating screw to the right.
  - Allow the Wash Thinner, soiled with the test-medium, to run out of the relief hose into the empty open container for at least 10 seconds.
  - Close the relief tap (Fig. 5.1, Pos. 1).

Recommended cleaning time:

max. 2 bar
mind. 10 Sekunden

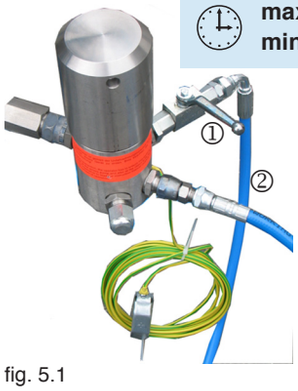


fig. 5.1

- Switch off the compressed air supply.
- Open the drain valve for pressure relieve and let the protruding material flow into the container with the contaminated material.
- If you do not use an extrusion gun connect the material hose to the device provided for this purpose or to the equipment.

Result

The extrusion pump is ready for operation.

6 Operation

6.1 Spraying/pumping material

Job

The material to be processed is to be applied to the surface to be coated.

Prerequisite

You will need:

- open pail (or barrel) containing the material to be worked.
- empty, open pail to hold the rest material which is in the extrusion pump.

The extrusion pump is properly installed in the plant, all material and air connections are correctly established.

Procedure

- compressed air supply is shut-off.
- optional version with high pressure filter:
  - Depressurize the system: Open the relief tap on the high pressure filter.
  - Place a filter element according to Chapter 8.3 into the high-pressure filter.
- Move the extrusion pump into the material container.

If using a follow plate or follow cover pay attention to the notes mentioned in Chapter 9.2. Furthermore, observe and adhere to the notes of the operating instructions of the applied rams / lifts.

- Hold the material hose respectively extrusion gun (if existing) into the empty container.
- Slowly open the compressed air stop valve of the equipment.
- When using a WIWA® maintenance unit or a WIWA® compressed air control observe and adhere to the notes mentioned in Chapter 9.1.
- Supply the scoop piston pump with compressed air again.
- Keep pumping into an empty collecting vessel, until clear material starts to run out.
  optional version with high pressure filter:
  - Hold the drain hose into empty container and secure it against slipping.
  - Open the drain valve on the high-pressure filter.
  - Open the air tap lock.
  - Turn the air pressure regulator control knob clockwise until the pump slowly cycles.
  - As soon as coatings material comes out of the drain hose, close the drain valve / drain screw tightly.
- Switch off the compressed air supply.
- Hold the extrusion gun over the surface to be coated.
- Supply the scoop piston pump with compressed air again.

For that pay attention to the following:
Increase of the air pressure results in

- a higher material outlet pressure
- a higher material pumping capacity

- The maximum operating speed of the extrusion pump amounts to 30 double strokes per minute. (The slower the operating speed the lower the wear)
- The required operating pressure is adjusted at the compressed air regulator.
- When using a WIWA® air maintenance unit or a WIWA® compressed air regulator observe and adhere to the notes mentioned in Chapter 9.1.

6.2 Interruption of work

- Interrupt the compressed air supply.
- When using an extrusion gun press the trigger for a short
- while for pressure relieve.

6.3 Cleaning /Change of material

- Interrupt the compressed air supply.
  When using an extrusion gun press the trigger for a short while for pressure relieve.

Job

You wish to clean the extrusion pump before a longer standstill or before a change of material.

Prerequisite

The solvent recommended by the material manufacturer is available.

Procedure

- Interrupt the compressed air supply
- Carry out pressure relieve of the extrusion pump
- Slowly lift the extrusion pump from the material container
- Put the extrusion pump into the container filled with solvent
- Apply compressed air to the extrusion pump. 2 bars are sufficient.
- Put the material hose respectively the extrusion gun into the empty waste bin until clean solvent agent protrudes.
- Clean all accessories with the solvent recommended by the material manufacturer. Observe and adhere to the notes mentioned in the respective instructions.
- optional version with high pressure filter:
  - Clean the filter insert or replace it if it is damaged.
  - Place the cleaned or replacement filter insert into the high-pressure filter according to Chapter 9.5.

7 Maintenance and inspection

7.1 Inspection

According to the rules for the prevention of accidents "Working with liquid jet systems" ("Arbeiten mit Flüssigkeitsstrahlern", BGR 500, chap. 2.36) the equipment must be checked and overhauled at regular intervals by a specialist (WIWA® Service).

The equipment must be checked:
- before the first start-up,
- after changes and repairs of equipment parts having an effect on safety,
- after an interruption of operation of more than 6 months,
- however at least every 12 months.

For equipment, which has been taken out of operation, the check can be postponed up to the next start-up.

The results of the checks must be recorded in writing and kept until the next check. The checking certificate or a copy of it must be available at the place where the equipment is used.

7.2 Maintenance plan

Release agent control

Before each start-up check the level of the Release agent and, if necessary, refill release agent.
The adjusting cup should be filled up to the half.

Please proceed as follows:
- Once the piston has reached top position, switch off the unit.
- Relieve the pressure from the complete unit.
- Use a wire as dipstick and insert it carefully in a release agent filler opening in the adjustment cup to check the filling level.
- If the adjustment cup holds less than the specified minimum quantity, you must fill in release agent through the filler opening.
  The filling quantity depends on the corresponding pump size. With a maximum filling level the release agent will be visible at the bottom edge of the filler openings.

Readjusting the top packing

The prevailing local operating conditions for the pump (operating time, running speed of the pump as well as the abrasive properties of the material) will cause wear to the top packing in the high pressure head of the material pump (chapter 3).

Undesired material leaks on the piston can thus lead to pump damage.

In order to prevent this from happening we recommend to check and, if necessary, readjust the packing at regular intervals:
- during initial commissioning.
- after the first 2 work days.
- later 1 x per week.

Exact intervals must be matched to the prevailing conditions of the application and should be determined as necessary.

In order to prevent dangerous physical injuries caused by escaping material and crushing of limbs you should only replace the packing with the unit completely depressurized.

The higher the running speed of the pump and the abrasive properties of the material, the higher the re-adjustment frequency.

- For this purpose switch off the unit and relieve the pressure.

The pump must be downward stroke.

- Insert the attached stud driver into a free bore in the adjustment cup.
- Turn the adjustment cup anti-clockwise to loosen.
- Turn the adjustment cup clockwise, until slight resistance can be felt. Then turn 1/4 of a turn further.

Replace the complete packing if:
- release agent comes out through the packing (can be noticed by a permanent loss of release agent).
- the packing can no longer be adjusted.
- there is no clearance between adjustment cup and high pressure head.

8 Disturbances during operation and trouble-shooting

Disturbance	Possible cause	Trouble-shooting
Extrusion pump does not start despite having triggered extrusion gun or opened material outlet	1) Air stop valve is closed 2) Material outlet is clogged 3) Defective air motor	1) Open the air stop valve 2) Clean the material outlet 3) • Repair the air motor • Replace the air motor This work has to be carried out by trained personnel only. Pay attention to the respective spare parts lists.
Extrusion pump is working regularly, however the required pressure is not reached	1) Air pressure too low 2) Material outlet too big 3) Nozzle too big when using an extrusion gun	1) • Increase the air pressure • Check the air lines for correct cross sections 2) Reduce material outlet 3) Insert a smaller nozzle
Extrusion pump is working irregularly, does not reach the required pressure, does not stop even with closed extrusion gun or closed material outlet	1) Viscosity of the material to be worked is too high 2) Leaky valves and packings	1) • Increase the operating pressure of the ram • Use a bigger extrusion pump • Eventually heat the material to be worked 2) Replace wear parts

9 Various brief instructions

9.1 Maintenance unit / compressed air regulator

Regulating the compressed air supply

Increase the air pressure: Turn spindle clockwise

Reduce the air pressure: Turn spindle anti-clockwise

Only for maintenance unit:

Lubricant or anti-freeze agent

- ➤ Also check and, if necessary, top up the lubricant for the fan motor in the container of the service unit.
- ➤ High humidity can cause icing of the motor.
- ➤ In case of icing use pure anti-freeze agent.

Adjusting the fog oiler on the maintenance unit

- ➤ Allow the air motor to run slowly with an air inlet pressure of approx. 4 bar.
- ➤ In the inspection glass of the fog oiler check whether one drop of lubricant is released into the compressed air with every 10 to 15 double strokes of the air motor. Should this not be the case, adjust the regulating screw on the lubricator accordingly.

Draining the condensation water

- ➤ Before each use and, in case of high humidity, also during operation, drain of the accumulated condensation water through the drain valve.

Only use the lubricants and anti-freeze agents listed in the chapter 10.1.

9.2 Follow plate / Follow cover

Problem definition

Fitting a scoop piston pump with a follow plate / follow cover.

Prerequisite

The following is required:

- ➤ 1 follow plate or follow cover
- ➤ 1 mounting kit for follow plate / follow cover

The use of a follow plate / follow cover is highly application specific. The mounting kits must be ordered in compliance with the accessories used.
Please consult the WIWA® customer service or directly the WIWA® company to ask for the right selection and order number for follow plate / follow cover and mounting kits.

Procedure

The scoop piston pump including accessories must be switched off and depressurized before assembly / disassembly. Please follow the safety notes in chapter 2.

- ➤ Attach the follow plate (Fig. 9.2.3 and 9.2.4) respectively the follow cover (Fig. 9.2.1 and 9.2.2) to the ram or directly to the extrusion pump.
- ➤ Observe and adhere to the notes mentioned in Chapter 9.4.
- ➤ Connect the air hose of the ram to the hose spout (Fig. 9.2.1 to 9.2.4, Item 1) on the follow plate / follow cover.

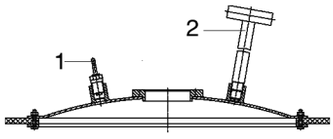


fig. 9.2.1 Follow cover, large (200 ltr tank)

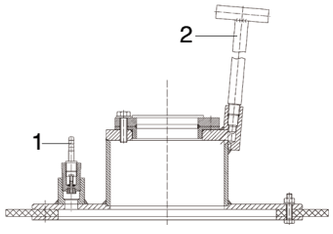


fig. 9.2.2 Follow cover, small (20-60 ltr tank)

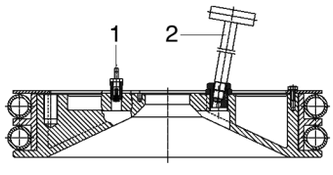


fig. 9.2.3 Follow plate, large (200 ltr tank)

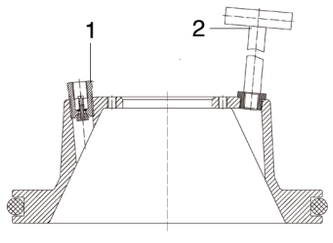


fig. 9.2.4 Follow plate, small (20-60 ltr tank)

for immersion into the material container

- ➤ Loosen the locking toggle (Fig. 9.2.1 to 9.2.4, Item 2) from the ventilating housing of the follow plate / follow cover.
- ➤ Insert the follow plate / follow cover into the container together with the extrusion pump. When doing this, the air in the material container / barrel is released through the opening. Adhere to the notes mentioned in Chapter 9.4.

➤ Screw the locking toggle (Fig. 9.2.1 to 9.2.4, Item 2) back into the ventilating housing of the follow plate / follow cover as soon as material protrudes from the opening.

container / barrel exchange

Proceed as follows to move the extrusion pump out of an empty container:

➤ Make sure that the air hose has been properly connected to the hose spout (Fig. 9.2.1 to 9.2.4, Item 1) on the follow plate / follow cover.
➤ Open the ball valve on the ram (Chapter 8.3) and set the lever on the ram to "UP". Compressed air is blown into the empty container / barrel lifting the extrusion pump with the follow plate / follow cover off the container / barrel.
➤ Shut the ball valve on the ram (Chapter 8.3).
➤ Exchange the container / barrel.

cleaning

➤ If required clean the outside of the follow plate / follow cover.

Special notes for electrically heated follow plates

Please comply with the following instructions: By using an electrically heated follow plate materials with high viscosity can be maintained flowable or heated up. Heating is accomplished by a special heating element mounted inside the follow plate. The temperature can be set by means of a thermostat (optionally available). The electrically heated follow plate is suitable for 216.5 l drums.

The unit must not be operated in explosion endangered environments.

Heating solvent containing and easily inflammable materials can lead to explosion and thus cause severe injury to persons and material damage. Please follow the processing instructions in the data sheet provided by the material manufacturer - especially the information concerning application temperature (ignition temperature) of the material. Always make sure that the temperature of the material to be processed is lower than the ignition temperature specified by the manufacturer.

The electric connection must only be made by expert personnel with profound knowledge about electrical engineering.
Take note of the connected loads.
The connection must only be made with the unit switched off.

Always switch off the unit before starting maintenance and repair work.

Danger of burning!
Depending on the temperature setting, the temperatures on the outside of the follow plate and on the drum may reach max. 80 °C. You should therefore always wear protective gloves.

Any contact with solvents or water can cause damage to the unit.
Do not use any solvent containing materials for cleaning and do not direct high pressure or water jets directly towards the unit.

9.3 Version with thermostat (optional)

Electronic Temperature Controller Type ELTC/1-4/05

for wall mounting; 1 contactor

Description:

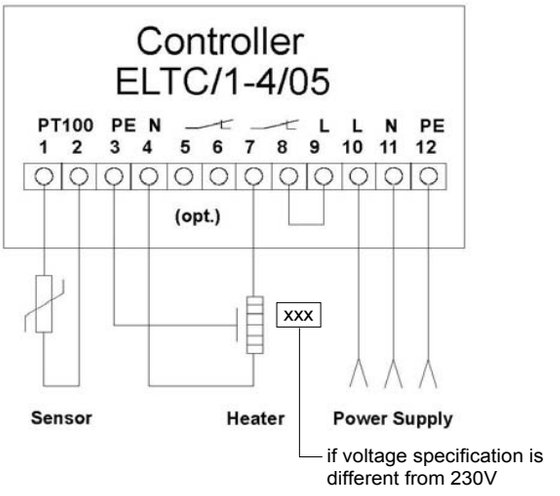
The electronic temperature controller type ELTC/ is designed for use as an ambient thermostat or surface thermostat with remote sensor. Cable glands and terminations are provided for the power connection.

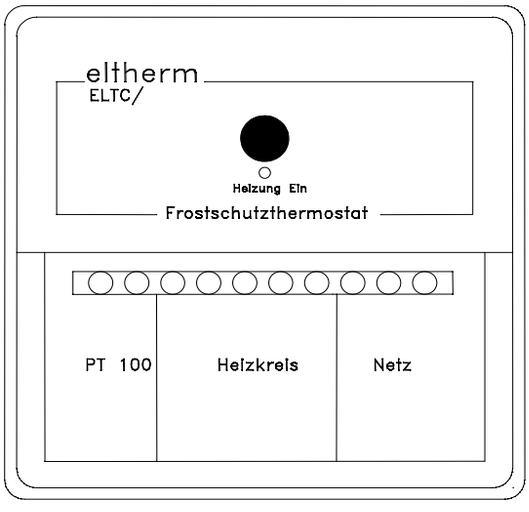
The unit is supplied in a weather proof polycarbonate casing for wall mounting, with a transparent (ELTC/05 = grey) cover. The controller should be protected from direct sunlight when used outdoors.

Function:
If the sensed temperature is lower than the adjusted set point, the relay contact closes and the heating switches on. The yellow LED glows while the contact is closed.

During sensor discontinuity or sensor short circuit, the heating is switched off!

Installation as outside temperature controller:
The sensor cable is to be shortened so that the sensor cover can be secured inside of the M12 cable gland. There should be 15mm of the sensor cover exposed after securing the sensor into the gland.
Suggested setting for frost protection: +3°C





Technical Data:

Supply voltage:	230V, +/- 10%, 50Hz, if not otherwise stated
switching capacity	16A
measuring input	PT100 DIN 2- wire
adjustment ranges:	
ELTC/05	+3°C
ELTC/1	-5...+15°C
ELTC/2	0...+100°C
ELTC/3	0...+250°C
ELTC/4	+150…+400°C
ambient temperature	-30...+60°C
control characteristic	two-limits controller
output	1 relay contacts
LED (yellow)	HEATING ON
material of case	Polycarbonate
dimension	130x130x75mm
protection type	IP 66
weight	520g
cable glands:	
for connection of self-regulating heating tape:	1x M12; 2x M25
for connection from both ends of a resistance cable:	1xM25;1xM12 2xM20

9.4 Ram / Single post ram press

Operation

- Check if all accessories are correctly connected.
- Set the compressed air control (Fig. 9.4.4 Item 3) on 2 bars.
- Set the lever (Fig. 9.4.4, Item 1) on "UP".
- The extrusion pump is slowly lifted.
- Place the material container / barrel on the ram base.
- Set the lever (Fig. 9.4.4, Item 1) on "DOWN".
  The extrusion pump is slowly lowered.
- Pay attention that the container is placed in such a way that the sequence plate can be moved into the container.
- Screw the locking toggle (Fig. 9.2.1 + 9.2.2, Item 2 and Fig. 8.2.3 + 8.2.4, Item 2) off the sequence plate / sequence cover to let the air go out.
- Screw the locking toggle (Fig. 9.2.1 + 9.2.2, Item 2 and Fig. 8.2.3 + 8.2.4, Item 2) back into the sequence plate / sequence cover as soon as the material protrudes.
- Set the pressure on the requested operating pressure at the compressed air control (Fig. 9.4.4, Item 3).

Switch off the compressed air supply when interrupting or stopping operation.

Exchange of the container

- Open the ball tap (Fig. 9.4.4, Item 2).
- Set the compressed air on 2 bars at the compressed air control (Fig. 8.3.4, Item 3).
- Set the lever (Fig. 9.4.4, Item 1) on "UP".
  The extrusion pump is lifted.
- Take off the container to the bottom.

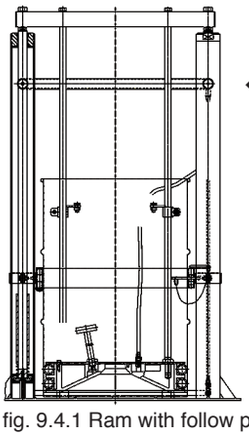


fig. 9.4.1 Ram with follow plate (0.3-0.7 t)

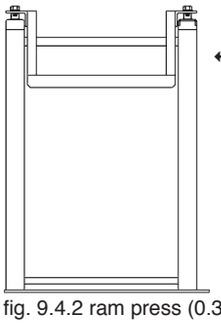


fig. 9.4.2 ram press (0.3 t)

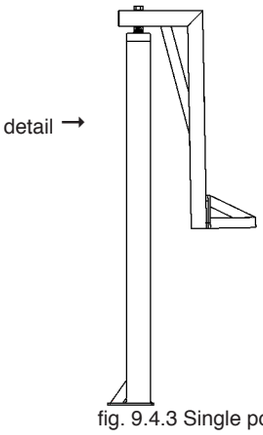


fig. 9.4.3 Single post ram press (0.375 t)

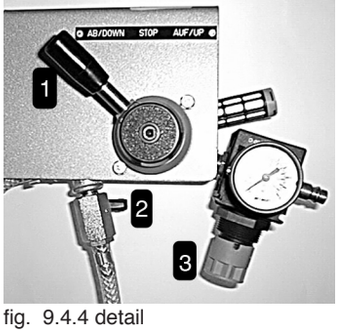


fig. 9.4.4 detail

9.5 High pressure filter

Job

➤ Clean or replace the filter insert:
1. after shutting down the unit (daily).
2. before every change of spray material.
3. if the pump does not cycle although the spray gun is triggered (without tip) or the drain valve / drain screw for the high-pressure filter is opened.

Prerequisite

Required are:
➤ An empty, open container for the mixture of solvent / spray material, hereafter called container "**B**".
➤ 1 open-end wrench Size 13

Warning!
If blockages occur, residual pressure may still be in the system even after depressurizing. Residual pressure can lead to serious injuries to the body or eyes.

➤ Before starting any work on the high-pressure filter, the pump must be turned off.
➤ Briefly trigger the spray gun.
➤ To drain pressure, open the drain valve / screw on the high-pressure filter.
➤ Disassemble the high-pressure filter very carefully!
➤ Replace worn parts with new ones..

Procedure

➤ Hold the drain hose into container **"B"**.
➤ Close the air tap lock for the pump.
➤ To depressurize, open the drain valve (Fig.e 9.5.1, pos. 6).

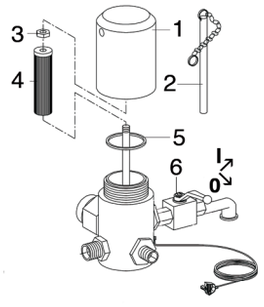


fig. 9.5.1

Removing the filter insert

➤ Unscrew the cap (Picture 9.5.1, pos. 1) with the spanner (Picture 9.5.1, pos. 2).
➤ Unscrew the nut (Picture 9.5.1, pos. 3) with a fork wrench and remove the filter insert (Picture 9.5.1, pos. 4)).
➤ Clean the filter insert.
Use only the appropriate solvent for the material being worked with.
Replace the filter insert should any sign of damage be present..
➤ Replace the o-ring (Picture 9.5.1, pos. 5) should any sign of leakage be present

Mounting the filter insert

➤ Mount the high pressure filter in reserve order.

Instructions

Before restarting the pump ensure that the unit is properly grounded.

R (corrosion resistant) + RS (stainless) versions: Lightly grease all threads to ease assembly / disassembly.

Filter insert selection

The insert must:
➤ correspond to the material being sprayed
➤ be compatible with the spray tip used
The mesh should always be a little finer that the bore of the tip being used:

Filter insert	Tip size (mm/") from	to
M 200 (white)	-	0,23/.009
M 150 (red)	0,23/.009	0,33/.013
M 100 (black)	0,33/.013	0,38/.015
M 70 (yellow)	0,38/.015	0,66/.026
M 50 (orange)	0,66/.026	-

If working with heavily pigmented or fiber-filled materials:
➤ do not use a filter insert.
➤ the standard suction sieve may need to be replaced with a sieve having a larger mesh size.
➤ use a WIWA® reversible tip

10 Appendix

10.1 Technical Data and Order References

Model		Ø Air Motor (mm)	Pressure-Ratio	Output		Max. Input Air Pressure (bar)	Max. Operating Pressure (bar)	Version* / Order Number	
				at 20 cycles per min. (l/min)	per cycle (cm3)			N	R
MP 49	49.16	85	16 : 1	0,9	49	8	128	0642739	---
	49.25	105	25 : 1				200	0642735	---
	49.45	140	45 : 1				360	0642734	---
MP 78	78.16	85	16 : 1	1,5	78	8	128	0640831	0640832
	78.25	105	25 : 1			8	200	0640833	0640834
	78.45	140	45 : 1			8	360	0640835	0640836
	78.94	200	94 : 1			5	470	0640837	0640838
MP 134	134.15	105	15 : 1	2,6	134	8	120	0640839	0640840
	134.27	140	27 : 1			8	216	0640841	0640842
	134.54	200	54 : 1			8	432	0640843	0640844
	134.73	230	73 : 1			6,5	474,5	0640845	0640846
MP 269	269.13	140	13 : 1	5,2	269	8	104	0640847	0640848
	269.27	200	27 : 1			8	216	0640849	0640850
	269.36	230	36 : 1			8	288	0640851	0640852
	269.62	300	62 : 1			6,5	403	0640853	0640854
MP 521	521.14	200	14 : 1	10,4	521	8	112	0641680	---
	521.19	230	19 : 1				152	0642320	---
	521.32	300	32 : 1				256	0642321	---
	521.40	333	40 : 1				320	0642322	---
MP 680	680.14	230	14 : 1	13,6	680	8	112	0641708	0642455
	680.24	300	24 : 1	13,6	680	8	192	0642323	0642752
	680.30	333	30 : 1	13,6	680	8	240	0642324	0642753

For all systems the sound pressure level is below 80 db(A)

Machinery materials

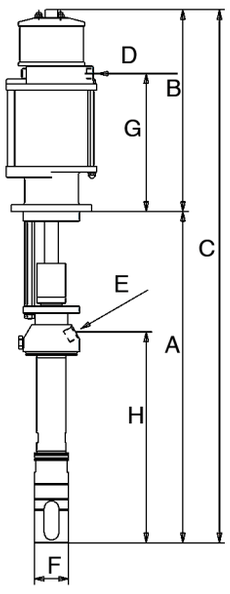
Release agent*	Best.-Nr. 0163333
Pneumatic oil (0.5 liter)**	Best.-Nr. 0632579
Anti-freezing agent**	Best.-Nr. 0631387
Securing material (50 ml)***	Best.-Nr. 000015
Lubricant (acid-free grease)***	Best.-Nr. 000025

* Plasticizer to fill into the release agent cup of the material pump

** for service unit

*** Materials required for cleaning and repair work (see information in spare parts lists)

Dimensions (in mm)



Model		Dimensions							
		A	B	C	D	E	F	G	H
MP 49	49.16	642	385	1027	G ½" (I)	G ¾" (I)	Ø 70	234	389
	49.25								
	49.45								
MP 78	78.16	681	430	1111	G ½" (I)	G ¾" (I)	Ø 70	289	433
	78.25		430	1111	G ½" (I)			289	
	78.45		430	1111	G ½" (I)			289	
	78.94		559	1240	G 1" (I)			358	
MP 134	134.15	681	430	1111	G ½" (I)	G ¾" (I)	Ø 70	289	433
	134.27		430	1111	G ½" (I)			289	
	134.54		559	1240	G 1" (I)			358	
	134.73		559	1240	G 1" (I)			358	
MP 269	269.13	681	430	1111	G ½" (I)	G ¾" (I)	Ø 80	289	457
	269.27		579	1260	G 1" (I)			358	
	269.36		579	1260	G 1" (I)			358	
	269.62		651	1332	G 1" (I)			370	
MP 521	521.14	681	579	1260	G 1" (I)	G 1" (I)	Ø 80	358	463
	521.19		579	1260				358	
	521.32		651	1332				370	
	521.40		651	1332				370	
MP 680	680.14	681	579	1260	G 1" (I)	G 1" (I)	Ø 80	358	463
	680.24		651	1332				370	
	680.30		651	1332				370	

10.2 Machine chart

This user's manual is valid only in connection with the following machine chart:

The machine chart includes all machine specifications and details which are important and relevant for safety:
- exact designation and manufacturing data
- technical specification and limit values
- equipment and checking certificate
- data for purchase
- machine features (machine components and accessories included in the supply with article and spare parts number)

Please pay attention that the machine chart specification is in accordance with the machine label.
In case of any deviations or **default** of a label we would ask you **to advise us** without delay.