



OPERATING INSTRUCTIONS

Eccentric Screw Drum Pumps TP-700 series

Explosion-proof Pump tubes TP-700 SR

Ex II ½ G c IIA T4 – ZELM 10 ATEX 0451 X

Sold & Serviced by:
Global Pumps
Ph: 08 8275 8000
www.globalpumps.com.au

1. General Safety information

The operator must read the operating instructions before starting the pump and follow these instructions during operation.

Special conditions:

- **When using the pump tube TP-700SR there must be a secure connection between the pump tube to the local potential equalizer. National and international regulations must be observed.**
 - **During the operation of the pump tube, dry running has to be avoided.**
 - **Pumping against a closed discharge valve without bypass is not allowed.**
 - **When using the Eccentric screw pump JP-700SR in a potentially explosive environment or when pumping flammable liquids is to be observed, that all the connecting parts additionally attached components (clutch, gearbox, motor etc) must be outside of the portable tank. Here, the requirements of equipment group II (subgroup IIA), category 2, temperature class T4 are met (EN 13463-1:2009) must be fulfilled.**
 - **The pump tube must only be operated with an explosion proof motor with a maximum load speed of 17.000 rpm and a maximum power of 550 Watt.**
 - **The pump tube shall not be operated stationary. During use, the pump operation must be monitored.**
1. The pump may only be operated in an upright position
 2. Check the pump is suitable for the liquid being pumped
 3. Note the limit values for temperature, viscosity and density of the liquid being pumped
 4. The motor must rotate in the direction indicated by the arrow
 5. Ensure that all connections and fittings are properly tightened
 6. Check if the motor is switched-off before connecting the electric power supply or open the air-supply
 7. The motor must be located outside the drum or container
 8. Note the maximum immersion depth
 9. When pumping hazardous liquids, the operator of the pump has to wear suitable protective clothing, face shield or goggles, apron and gloves
 10. Never touch the pump intake
 11. Leakage opening on leaking fluid control
 12. Repair only by the manufacturer or an authorized work shop

When operating the Eccentric screw pump TP-700 SR in explosive environment or when pumping flammable liquids it is important to be aware, that only the pump tube must be inside the drum/container and all other components like coupling, gear, drive motor etc. must be outside of the drum/container.

Thereby all requirements according to equipment group II (sub-division IIA) category 2, temperature-class T4 (EN 13463-1:2009) must be fulfilled:

- 1) Only approved pumptubes with the classification II ½ G c IIAT4 to be used.
- 2) For flammable liquids only PTFE stators with stator-tubes to be used.
- 3) Only explosion-proof motors to be used
- 4) In explosive environment the electric connection must be done only with an explosion-proof EX-plug
- 5) Before starting the pump make sure that there is an equipotential bonding between pumptube and drum/container.
- 6) Conductable hoses and conductable special hose connectors to be used
- 7) The drum pump must not be used stationary
- 8) During operation the pump has to be supervised.
- 9) Repair and maintenance must be done only by the manufacturer or by an authorized workshop and only with original spare-parts.
- 10) No modifications must be executed on the explosion-proof pumps.

Rules for accident-prevention as well as Health and Safety at Work act of the individual country must be observed.

2. General

The Eccentric screw drum pump TP-700 SR is used to deliver flammable liquids from drums/container, which belong to the explosion-group IIA and temperature classes T1 to T4.

An Eccentric screw drum pump serie TP-700 SR composed of an electric 1-phase motor or a pneumatic air motor and a pump tube.

Flowrate and delivery head can be selected by different pump sizes. Therefore the most appropriate pump can be chosen for the individual application. Pump sizes are JP-700.12.1, 25.1, 25.2 and 50.1.

The external part of the pump tube between suction and delivery port corresponds to category 1.

The external part of the pump tube between delivery port and connecting component for a motor and the internal part of the pump tube with mechanical seal execution (with correct delivery should be covered with liquid) corresponds to category 2.

3. Scope of supply and year of manufacture

Motor and pump tube of the serie TP-700.12.1 to 50.1 SR will be supplied in a wooden case or a wooden box, provided there is no special customer requirement.

Inside the package can also be accessories. Therefore pls check the consignment on completeness.

The year of manufacture of the pump can be seen on the plate for the serial-No. The last two digits of the serial-No. refer to the year of manufacture (i.e. –12 for the year 2012)

4) Drive motor

Available is one electric single-phase motor and 3 Pneumatic air motors:

- Universalmotor TP-400 (Ex de II A T6) 550 Watt
- Pneumatic air motors TP-AIR-1 (300 Watt), TP-AIR-2 (600 Watt) and TP-AIR-3 (400 Watt)

The pump tube must be operated only with explosion-proof motors with a maximum speed of 17.000 rpm and a max. power of 600 Watt.

Further information can be taken from the Operating instructions of the motor.

5. Special conditions

When operating the drum pump it is important to be aware, that only the drum pump must be inside the drum/container and all other components (coupling, gear, drive motor etc) must be outside of the drum/container. Thereby all requirements according to equipment group II (sub-division IIA), category 2, temperatur-class T4 must be fulfilled.

It is to be ensured, that only a stator made of PTFE will be used.

The drum pump must not be used stationary. During the operation, the pump must be supervised in a way, that dry-and idle run is limited to an absolute minimum. The pump can be operated in the temperatur class T4 at a max. environmental temperature resp. liquid temperature of minus 20°C to plus 50°C.

6. Equipotential bonding and grounding

Before starting the pump it is absolutely necessary to establish a equipotential bonding between the full and empty drums/container. The same equipotential bonding between the pump and the drum to be emptied is reached by connecting the clamps of the Bond/ground cable set (Article No. 9003). For a better conductivity, colour and dirt at the clamping unit are to be removed.

A conductable connection between between the drum to be emptied and the drum to be filled will be secured by means of a conductable ground (e.g. conductable grid).

A proper conductable transition between the drum and the ground potential must also be available.

7. Conductable hoses / hose connectors

Concerning the electrostatic charge, the hose at the delivery side of the drum pump must always be sufficient electrically conductable. The ohmic resistance between the fittings – in this case between pump tube and nozzle – must not exceed a certain limit value depending on the type of hose.

1. Marking of the hose with the symbol “M”
limit value $<10^{-2} \Omega$
2. Marking of the hose with the symbol Ω
limit value $<10^{-6} \Omega$

The hose connector must ensure a proper conductive transition between hose and pump tube as well as between hose and nozzle.

Should this exceptionally not be the case, a separate grounding of all conductable parts (e.g. metal hose barbs at the end of the hose) is absolutely necessary.

The tie-in of conductable hoses with fittings to a flexible hose line requires the marking and testing according to DIN EN 12 115.

8. Regulations on Explosion protection

For equipment used in hazardous areas a number of rules and regulations have to be observed. The following listing will give a summary of the most important regulations:

Applied within the European Union:

- Directive 1999/92/EG about minimum regulations for improvement of health protection and safety of employees, who could be endangered by potentially explosive atmosphere.
- EN 60079-0 (IEC 60079-0)
Electric equipment for potentially hazardous areas
- EN 60079-14 (IEC 60079-14)
Electric equipment for gas-explosive areas – part 14: Electric installations in potential hazardous areas
- EN 60079-10 (IEC 60079-10)
Electric equipment for gas-explosive areas – Part 10: Classification of potentially hazardous areas.

In addition, national rules and regulations can apply

9. Classification of hazardous areas

Potentially hazardous areas are areas, in which potentially explosive atmosphere in ominous quantities can develop. They are divided in several zones:

For hazardous areas through flammable gases, vapours or fog the following zones apply:

- a) Zone 0 covers areas, in which dangerous, explosive atmosphere is permanently or for a long period exist.
- b) Zone 1 covers areas, in which it is expected, that dangerous, explosive atmosphere can develop occasionally.
- c) Zone 2 covers areas, in which it is expected, that dangerous, explosive atmosphere can develop rarely and if, only for a short time.

10. Explanation of zonal structure with application of Eccentric screw pumps for flammable liquids

- Inside a drum or barrel there is generally zone 0.
- The parting point between zone 0 and a less dangerous area will be realized in the pump tube. The parting point between zone 0 and a less dangerous area outside the pump tube will be fixed by the end-user.
- Areas, in which an Eccentric screw pump is operated, generally apply to zone 1. The classification, whether an area will fall under zone 0, zone 1 or zone 2, is done by the end-user. It is to be considered, that the pump tubes can only be used as a parting point between an endangered area of category 1 and a less endangered area.
- The consequences for drum-, barrel- and container pumps therefore are the following:
 - 1) For decanting flammable liquids, only pump tubes of equipment-group II, category ½ G must be used. These comply with the rules and regulations for operation in zone 0.
 - 2) The use of explosion-proof motors, never mind which protection class, is not permitted. Exceptions can only be made by the supervisory authorities.
 - 3) Three-phase motors, gear motors and pneumatic motors executed as “Flameproof enclosure – increased safety” comply the rules and regulations für equipment group II, category 2G. They may be operated in zone 1.

11. Re-Traceability

Pumps of TECHNIFLO for hazardous areas are marked with individual serial-numbers, which serve for re-traceability. From this figure, the year of manufacture and the pump execution can be determined.

This pump is an equipment for hazardous areas. Referring to this and under consideration of ATEX-directive 94/9/EG specific precautionary measures have to be taken to secure the re-traceability in the upstream and downstream area.

Our certified QM-system ensures this re-traceability up to the place of first delivery. Except in case of contrary contractual clauses, all persons who re-sell these pumps are obliged to introduce a system, which would enable a possible product recall of deficient products.



1300 1 GLOBAL
sales@globalpumps.com.au
globalpumps.com.au