Instruction manual

Grün Drum Pumps: **Pumping units for Zone 0 to RL 94/9 EG (ATEX 100a)**

Read this first

The Motor and pumping unit are packaged separately. The packages may also contain accessories you ordered. Please inspect the packaging carefully before you discard it.

Attention!

Mandatory precautions for operating explosion proof drum pumps in potentially explosive environments:

- **A drum pump for potentially explosive areas consists of a pumping unit with an EC Type Examination Certificate to ATEX 100a, approved for category 1, and an electrical driving motor certified to ATEX 100a or a compressed-air motor certified to ATEX 100a.**
- **The drum or container and the drum pump must be connected electrically by means of an equipotential bonding cable with the diameter greater than or equal to 2,5 mm² prior to immersion of the pump in the liquid.**
- **Connection hoses must have an electrically conductive surface with a surface resistance < 10^6 Ω.**
- **An electrically conductive connection in the form of an attached hose or similar design must be present between the pumping unit and hose, as well as between the hose and the dispensing gun or metal outlet manifold. The drum or container must be connected to ground.**
- **Only approved explosion-proof connectors are allowed for electrical connections to the driving motor in potentially explosive areas.**
- **If an extension cord of sufficient length is used, or if the explosive area is small, a shockproof plug connected outside of this area is acceptable.**
- **Submerse the pumping unit up to the discharge spigot only. The motor must remain clear of the liquid.**
- **Never leave the pump in unattended operation.**

1. Further safety notes

- Use pumping units only for liquids that will not chemically attack the materials listed above.
- Carefully connect the pumping unit and motor, making sure that the units engage properly (see figure/drawing)
- Always use the foot strainer for pumping liquids with a high solids content.
- Always operate the drum pump in a vertical position.
- Before using the pump, make sure it is fixed to the container.
- For your personal safety, always wear safety glasses, protective clothing and gloves when handling hazardous or corrosive liquids.
- Avoid spilling liquid when retracting the pumping unit from its container.
- Before retracting the pipe, make sure that the liquid contained in the pump pipe and hose can run off into the container.
- Please also follow the operating instructions for driving motors.
- In addition, the appropriate local guidelines and regulations must be followed when installing or operating the motor in potentially explosive areas.

2. Description

- Grün drum pumps are used for discharging and/or transferring neutral, aggressive, easily flammable and/or low viscosity liquids from drums and other containers.
- A Grün drum pump always consists of a pumping unit and a motor that are connected by means of a quick release coupling.
- Always use appropriate accessories to ensure safe and reliable operation of your Grün drum pump.

3. Specifications

Pumping unit type	Pumping unit material	Drive shaft		„Zone 0“ Approval	Impeller=A/R, feed screw=S		
		Stainless steel	Hastelloy C		Material	Type	quantity
SD-SS-A	1.4571	X		X	ETFE	A	1
MS-SS-R	1.4571	X		X	ETFE	R	3
SD-SS-S	1.4571	X		X	PVDF	S	1
SS-R/4	1.4571	X		X	ETFE	R	4
SS-R/5	1.4571	X		X	ETFE	R	5
MP-SS-A	1.4571	X		X	ETFE	A	1
MP-SS-R	1.4571	X		X	ETFE	R	3
MP-SS-S	1.4571	X		X	PVDF	S	1
SL-SS-A	1.4571	X		X	ETFE	A	1
SL-SS-R	1.4571	X		X	ETFE	R	3
SL-SS-S	1.4571	X		X	PVDF	S	1
MP-SL-SS-A	1.4571	X		X	ETFE	A	1
MP-SL-SS-R	1.4571	X		X	ETFE	R	3
MP-SL-SS-S	1.4571	X		X	PVDF	S	1

4. Connecting the motor and pumping unit – using the pump

To connect the motor and the pumping unit, place the motor onto the pumping unit vertically and attach the motor to the pumping unit by turning the tension ring (B) clockwise by a quarter turn.
The connection snaps into place audibly and noticeably.
To disconnect the motor, switch it off (rotary switch A), unlock the connection by turning tension ring (B) counter-clockwise by a quarter turn, then pull off the motor vertically.
When connecting the motor to the pumping unit, make sure to properly insert the motor`s revolving safety catch (C) into the appropriate seat (D) on the pumping unit.
Do not use excessive force when connecting or disconnecting the motor and pumping unit.
Do not deflect or apply mechanical stress to the pumping unit during operation.

5. Commissioning

- The operating voltage must match the ratings printed on the nameplate.
- When using a compressed-air motor, the maximum operating pressure must not be exceeded.
- Prior to use, inspect all cables or compressed-air hoses for possible signs of damage.
- Before you connect the mains plug or air hose, check to make sure that the motor is powered OFF (the „0“ must be visible).
- Make sure to connect the hose and the pumping unit securely.
- Verify that the hose or dispending gun will reach all the way to the container that is to be filled.
- Always use great care when working with aggressive or environmentally harmful liquids.
- Do not immerse the drum pump any deeper than the discharge point or spigot.

- Securely fix the drum pump within the container by means of accessories such as drum adapters or clamps.
- Now switch on the pump by turning the red rotary switch on the motor.
- Note that the pumped flow can cause a recoil effect with splashing.
- Never leave the pump in unattended operation.
- Switch off the pump before removing it from the drum or container.

6. Service, cleaning

- Clean the drum pump thoroughly, especially after using it with aggressive liquids or liquids that tend to effloresce.
- Regular cleaning will extend your pump`s service life.
- To clean the pumping unit, flush it using suitable cleaning liquid or simply operate the pump in cleaning liquid for a short while. Make sure that the cleaning liquid is chemically compatible with the pumping unit.
- Do not immerse the motor into the cleaning liquid.
- Allow the pumping unit to dry thoroughly.
- The ball-bearings are permanently lubricated and do not require additional lubrication.

7. Disassembling the drum pump

- Disconnect the mains plug or air hose.
- Remove the motor from the pumping unit. To unlock the connector, turn the clamping ring counterclockwise by a quarter turn and pull off the motor vertically.
- Do not use excessive force.
- Store the motor in a safe place and keep it away from aggressive fumes.

8. Disassembling the pumping units

Type SD-A Item no. 631……
Follow point 10

Type SL-A/R Item no. 691…./ 696…..
Follow point 11

Complete repair manual on demand

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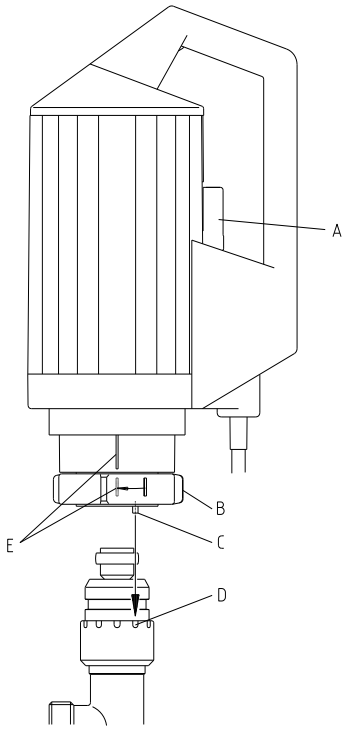
9. Maintenance, care and storage

For storing the Grün drum pump, we recommend our screw-on wall attachment
(order no. 840-0004). Store the pump in a dry, dust-free environment and make sure to protect it against mechanical damage. Prevent the pump from falling down when setting it aside for storage. If the pump falls down, the motor can be damaged.

The bearings are permanently lubricated and do not require additional lubrication. Take great care to keep the motor`s venting slots clean and do not cover them. Avoid unnecessary mechanical impact or shock.
Regularly inspect the connection line for signs of damage. If any damage is found, replace with an original connection line or comparable rubber hose (three-pole)



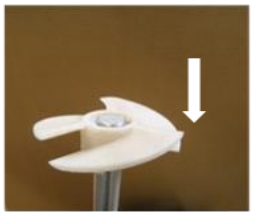
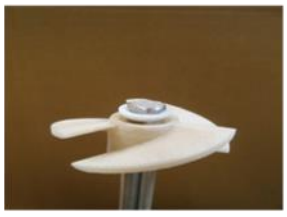
10.1 Disassembling the pump type SD-A / S

* Open the wing nut. Pull out the pump head with the shaft from the tube..
  You will need some force to overcome the O-ring friction.



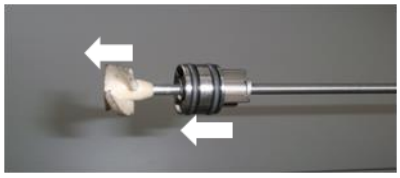
10.2 Changing the impeller A, R, S

Move back the impeller on the shaft. The snap ring is now freely accessible.
Using a screwdriver, you can remove the snap ring from the shaft.

10.3 Changing the shaft bearing

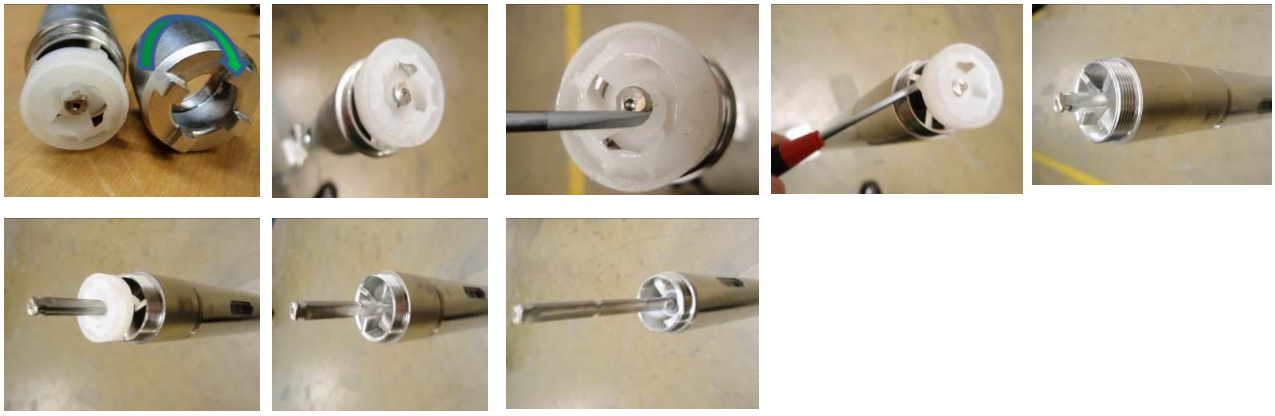
Remove the lower lock washers. Pull the shaft bearing from the shaft.
Replace the carbon bearing. Secure the shaft bearing.
new lock washers (1-2 pieces)



11.1 Disassembling the pump type SL-A / R / S

SL-A: Move back the impeller on the shaft. The snap ring is now freely accessible. Using a screwdriver, you can remove the snap ring from the shaft. Pull the impeller from the shaft (use tools)

SL-R: Unscrew the pump foot. **Left hand thread!** Using a screw driver you can remove the snap ring from the shaft. Pull the impeller from the shaft (use tools). Unscrew the 1. stage. **Left hand thread!** Remove snap ring. Pull the 2. impeller from the shaft. Repeat it with the next stage.



11.2 Disassembling the pump tube