TECALEMIT

Fig. 110600350

Operating manual

HDM 50 pro, HDM 80 pro

Item-no.: 110600330, 110600340, 110600350,
110600430, 110600440, 110600450

Translation of the
original operating manual

Important!

The operating manual is always to be read before commissioning the equipment. No warranty claim will be granted for faults and damage to the equipment arising from insufficient knowledge of the operating manual.

Copyright

Service Hotline +49 1805 900 301
(0,14 €/Min: on the German landline network, Mobile telephone max. 0,42 €/Min.)

service@tecalemit.de

Document-No.: 44 1689 001 GB-F
Translation of document-no. 44 1689 001 DE-F
As of: 19.08.2015

Table of contents

1. Safety instructions

The device is a state of the art piece of equipment and has been constructed according to recognised safety specifications. It is nevertheless possible that use of the device will present hazards to the operator or to third parties, or may damage the device or other property. It is therefore essential to act in accordance with these safety instructions, and in particular with those sections identified as warnings.

Warning notices and symbols

In the operating manual, the following signs are used for highlighting important information.

☛ **Special information for economical use of the equipment.**

! **Special information or "dos and don'ts" for damage prevention.**

⚠ **Information or “dos and don'ts” for the prevention of damage to persons or equipment.**

Appropriate use

! The device may only be used if it is in perfect condition, and then only for its intended purpose, in compliance with all safety regulations, with an awareness of the potential risks, and according to the operating manual. Any faults that may impair the safety must be rectified immediately.

⚠ The device and its components are only to be used for handling the liquids listed and the purpose described. Using the machine for any other purpose would constitute inappropriate use. The manufacturer is not responsible for any loss arising as a result of this, the risk for this is borne only by the operating company.

Organisational measures

! This operating manual should always be kept readily available at the site of operation! Each person concerned with the assembly, commissioning, maintenance and operation of the equipment must have read and understood the entire operating manual. It is essential that the type plate and the warning notices attached to the device are observed, and are maintained in a fully readable condition.

Qualified personnel

! The operating, maintenance and assembly personnel must be appropriately qualified for their work. The areas of responsibility, competences and supervision of the personnel must be precisely regulated by the operating company. If the personnel do not have the required knowledge, they must be trained and instructed. The operating company must also ensure that the contents of the operating manual are properly understood by the personnel.

Waters protection

⚠ The device has been designed to handle water hazardous substances. The regulations on the operating place (e.g. Water Resources Act WHG, = ordinance on installations for handling of substances hazardous to water VAwS) must be adhered to.

Hydraulics

⚠ Only persons with special knowledge and experience with hydraulic systems may carry out work on hydraulic parts and equipment. All lines, hoses and screw joints should regularly be checked for leaks and visible external damage. Any damage must be rectified immediately. Any oil spurting out can cause injuries and fire.
The relevant safety regulations for the product must be followed when handling oils, greases or other chemical substances!

Maintenance and Service

⚠ According to the regulations of the water resources law only authorized services may work on devices for flammable and/or water endangering substances. During such works, appropriate tools are to be used (avoid sparking). Before any kind of work on the device, all fuel lines are to be completely emptied and aerated.
Do not make any changes. Modifications or additions to the device which may affect the safety cannot be carried out without consent of the manufacturer. Exclusively genuine spare parts made by the manufacturer may be used.

Electric power

⚠ Work on the electrical equipment may only be carried out by a qualified electrician or by trained persons under the guidance and supervision of a qualified electrician according to electro-technical guidelines.Machine or system components, on which inspection, maintenance or repair work is to be carried out must be de-energised.

2. Technical description

2.1. Description / Intended use

The HDM pro dispensing station is an electrical dispenser for refueling motor vehicles and filling drums with diesel fuel and heating oil EL from under- and aboveground storage tanks. The HDM pro has a robust sheet steel housing and can be equipped with a liter counter, price calculator or an HDA pro fuel management system. The dispensing station is available both as a legally calibratable and a non-calibratable version. It uses a gear pump that is self-priming up to a suction head of 4 m and has an integrated filter and gas separator. The pump is driven by an electric motor with V-belt drive.

A four-piston measurement device with an electronic pulse generator is used to measure the volume dispensed. Dispensation is done using a 4 m long hose with an automatic nozzle.

2.2. Errors in operation to avoid

⚠ **The dispensing station is to be operated exclusively with diesel fuel in accordance with DIN EN 590 and/or DIN 51628, biodiesel (RME) according to EN 14214, and heating oil EL according to DIN 51603-1. It is not to be used to convey any other liquids.**

⚠ **In particular, no flammable liquids with a flash point under 55 °C may be conveyed, nor may any other liquids be conveyed at a temperature above their flash point!**

! **The pump is not intended for any other use. The manufacturer cannot be held responsible for any damages resulting from such unintended use. The operator shall bear sole responsibility for such unintended use.**

! **The temperature of the liquid transported may not fall below -10 °C or exceed +35 °C.**

During normal operation, the dispensing station may only be operated with its door closed in order to protect its internal components from the weather and unauthorized access.

⚠ **The operation of the dispensing station with the door open may only be carried out by qualified personnel, as the V-belt drive poses a risk of injury.**

⚠ **The device may not be used in explosion hazard areas!**

2.3. Versions

The HDM pro dispenser is available in the following versions:

Description	Pump capacity [L/min]	legally calibratable	non-calibratable	Liter counter	Price calculator	management system	Art. no.:
HDM 050 pro e	50	X				X	110600330
HDM 050 pro LZ ne			X	X			110600340
HDM 050 pro ne			X			X	110600350
HDM 080 pro e	80	X				X	110600430
HDM 080 pro LZ ne			X	X			110600440
HDM 080 pro ne			X			X	110600450

2.4. Technical data

	HDM 50 pro	HDM 80 pro
Dimensions (WxHxD)	approx. 557x1425x433mm	
Media temperature	-10°C bis +35°C	
Ambient temperature	-25°C bis +55°C	
Suction connection	Ovalflange (see dimensional drawing)	
Nominal suction height	4m	
Rated delivery rate (HDM 050 pro / HDM 080 pro)	approx. 50 L/min *	/ approx. 80 L/min *
Voltage	400V 50Hz	
Power	1,1 kW	
Protection class	IP54	
Viscosity range	1mPa s to 20 mPa s at 20°C	

* depending on system and viscosity

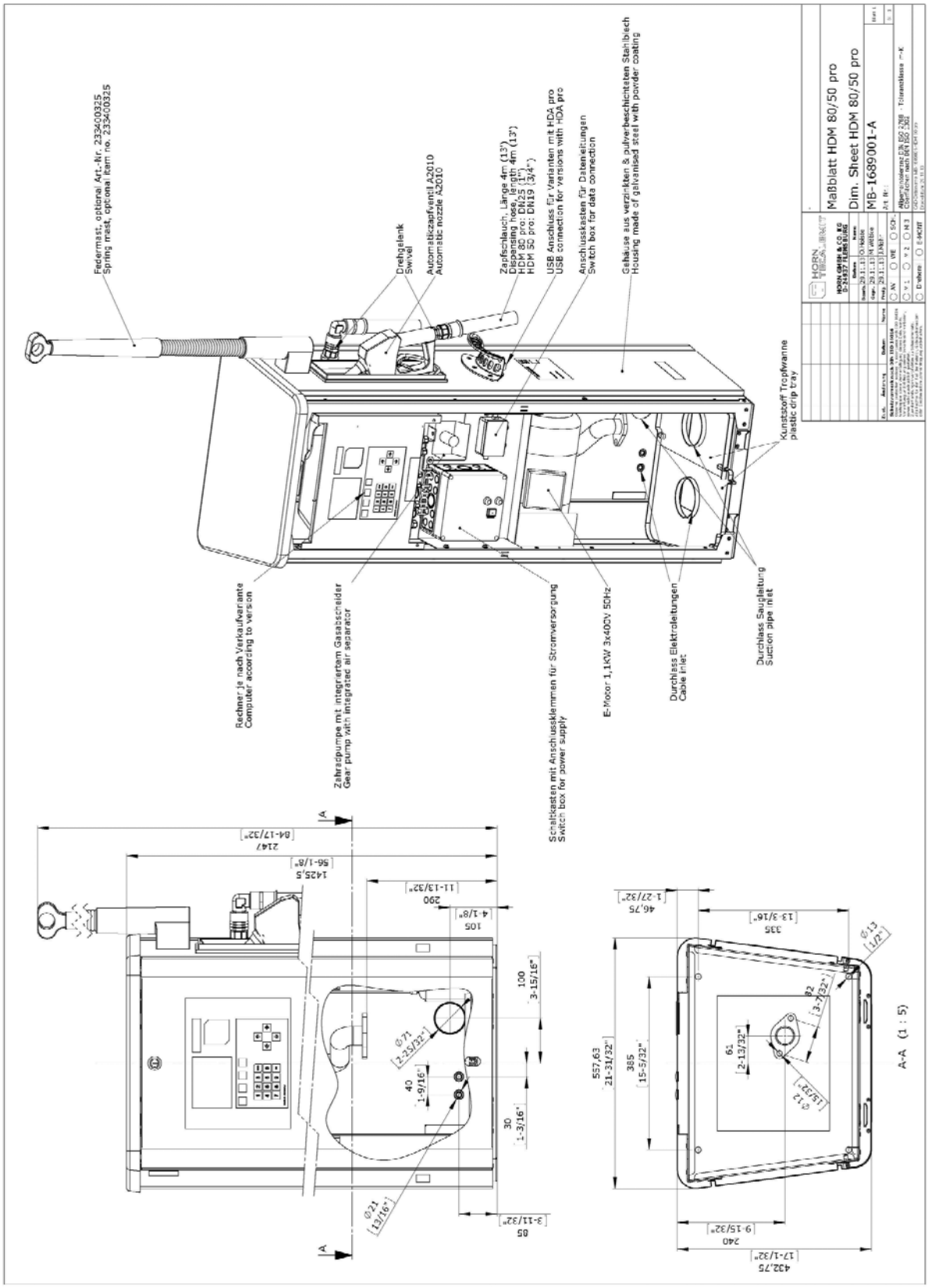
2.5. Requirements for use

In cases where the use of the measurement unit has to conform to the statutory metrological requirements of an EU member state, it may only be operated under the following nominal operating conditions:

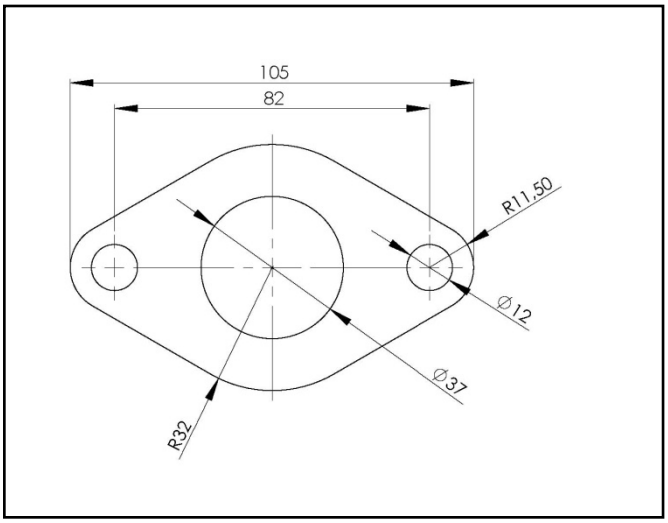
Nominal operating conditions

Measured quantity:	Volume (l)
Flow range	
HDM 50 pro:	5 l /min to 50 l /min
HDM 80 pro:	8 l /min to 80 l /min
Viscosity of substance measured:	1 mPa·s to 20 mPa·s at 20 °C
Temperature of substance measured:	-10 °C to +35 °C
Accuracy class:	0.5
Ambient conditions:	
• Climatic	Upper temperature limit: +55 °C
	Lower temperature limit: -25 °C (Condensation)
• Mechanical:	M2
• Electromagnetic	E2
Smallest division:	0.01 l
Smallest quantity measured:	5 l

2.6. Dimensional drawing



2.7. Suction connections



Suction port:
Flange joint
for Elaflex-DN 40
corrugated pipe.
Customer's suction
line min. DN 40.

2.8. Accessories

The following accessories are available for the HDM pro dispenser

Description		Art. no.:
Base frame		233400370
Spring mast		233400325
Angled non-return valve 1 1/4"	Incl. Pressure relief mechanism for underground tank	233400188
Angled non-return valve 1 1/4"	Incl. Siphon protection and pressure relief mechanism for aboveground tank	233400182
Floating switch*		233400165
Level probe interface	(In the case of orders for upgrades, please indicate factory number and year of construction of dispensing station)	233400450
Fee for activation code*	(Activation by telephone for upgrade with fill level sensor)	233400470
200 mbar level probe*	(Max. tank height: 2 m; cable length 5 m)	224010000
300 mbar level probe*	(Max. tank height: 3 m; cable length 5 m)	224020000
500 mbar level probe*	(Max. tank height: 3 m; cable length 7 m)	224050000
Terminal box with pressure equalization filter*	(For extending cable on level probes)	224061000
LAN connection*	(Add-on board; in the case of orders for upgrades, please indicate factory number and year of construction of dispensing station)	233400031
WiFi connection*		233400034
GPRS module *		233400037
RS422 interface*		233400170
RS232 interface*		233400190
TAG*	(Key fob for contactless driver/vehicle identification)	233400200
USB flash drive with HD Manager eco*	PC software for data evaluation and configuration of the HDA pro automatic dispenser	616700001
HD Manager 8, full version*		233500351
HD Manager 8, server version*		233500402

*only for dispensing stations with HDA pro automatic dispenser

3. Installation instructions

3.1. Legal

The dispensing station fulfills the water quality and commercial requirements as laid out in the German Water Resources Act (WHG), the Ordinance on Installations for the Handling of Substances Hazardous to Water (VAwS), the Ordinance on Industrial Safety and Health (BetrSichV) and the Technical Regulations for Combustible Liquids (TRbF). The operator is to update himself on and comply with local regulations for installation and operation, as well as obtain the required permits. Installation, commissioning and maintenance may only be performed by licensed specialist companies in accordance with art. 19l of the Water Resources Act (WHG) or by qualified personnel in accordance with the relevant local regulations.

⚠ **Outside the scope of the abovementioned regulations, the operator is to ensure that all prevailing regulations and technical regulations for the setting up, installation and operation of the dispensing station are adhered to.**

3.2. Installation site

The dispensing station has been conceived for outdoor operation. An installation site is to be chosen such that detrimental environmental conditions (e.g. seawater, road salt) do not adversely affect the components.
The device is to be installed, affixed onto and operated on a level, load-bearing surface. For space requirements, see chapter 0.
⚠ The dispensing station has four bore holes in its base frame which are to be used to mount the column.
Depending on the on-site structural conditions, the column may also be mounted using heavy-duty dowels suitable for the ground it is to be mounted on. Alternatively, the optionally available base frame may also be used (see chapter 2.8).

⚠ **The device may not be used in explosion hazard areas!**

The operator is to ensure that all regional structural regulations complied with; e.g. sealed road surfaces that are impermeable to liquids, oil separator etc.

3.3. Installation of pipes

3.3.1. Installation of suction line

The suction line for aboveground and underground storage tanks are to comply with at least DN 32. The suction head and the length of the suction line significantly influence the delivery rate of the dispensing station. In order for the dispensing station to provide an optimal flow rate, the suction line is to be kept as short and streamlined as possible.

The maximum permissible suction head is 4 m. For suction lines up to a length of 10 m, DN32 is recommended. For longer suction lines, the diameter is to be increased.

In the case of longer suction lines and greater suction heads, an additional connection for an external vacuum pump may be required, with which the initial priming is facilitated.

⚠ **A suitable on-site siphon protection valve is to be installed for aboveground tanks.**

For all installations, pressure relief of the dispensing station must be possible via the suction line. Non-return valves are not to be installed in the suction line without a pressure relief mechanism. On-site, precautions are to be taken to ensure that pressures exceeding the delivery pressure of the pump cannot arise in the suction line due to e.g. thermal expansion.

It must be ensured that no dirt or foreign objects are able to enter the pump and the meter. For this purpose, a suction filter has been installed in the suction line.

The installation of a corrugated pipe or another suitable elastic compensating element between the pump flange and suction line is necessary for a connection with strain relief. Otherwise, damages to the lines and/or excessive noise emissions cannot be ruled out.

When installing the suction line, ensure that it does not come into contact with housing components.

The operator is to ensure that all regional structural regulations complied with; e.g. double-walled suction lines etc.

For questions on the laying of the suction line, please contact HORN TECALEMIT's customer service.

3.3.2. Return line and venting

For discharging gases and/or foam from the venting line in systems with aboveground tanks, a return line complying with at least DN6 is to lead back into the tank from the dispensing station. In the case of systems with underground tanks, the gases and/or foam can be discharged into the collection reservoir provided; otherwise, a return line is to be laid.

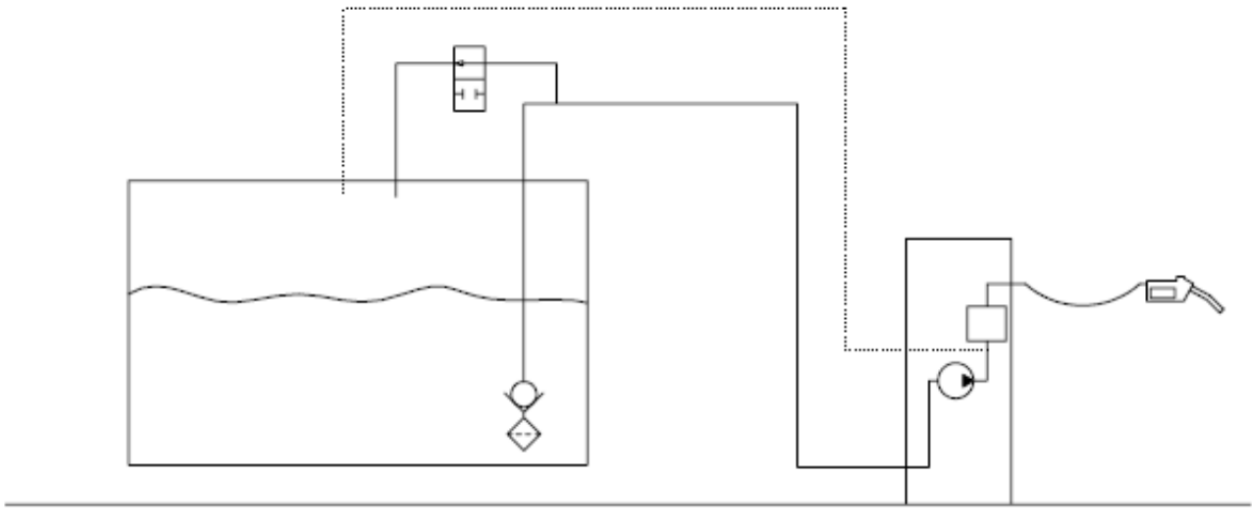
The collection reservoir is to be checked at regular intervals and to be emptied as and when required.

3.3.3. Installation diagram for suction and return lines

We recommend that the suction and return lines be installed as follows:

Aboveground tank – Variant A: Magnetic ventilation valve

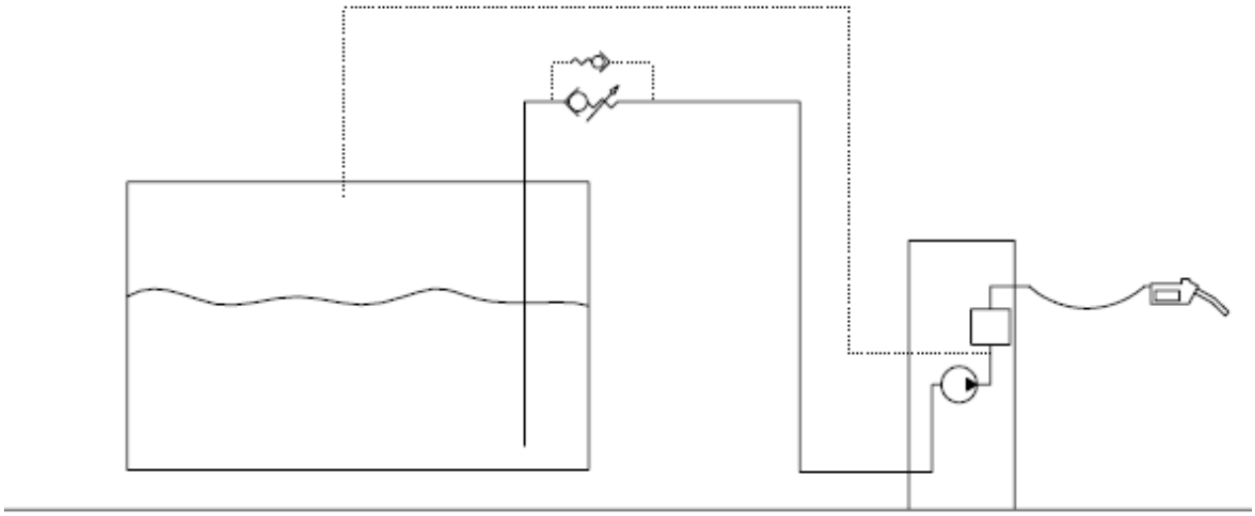
The suction line is outfitted with a foot valve (check valve). An electroless, open magnetic valve is mounted on a T-piece at the highest point of the suction line. A line from the magnet valve leads to the air space above the liquid level of the tank. The magnetic valve is connected in parallel with the pump motor. A return line is installed as described in chapter 3.3.2.



Underground tank – Variant A: Siphon protection check valve

A check valve with siphon protection for the corresponding height is installed at the highest point of the suction line. A pressure relief mechanism is to be installed in order to prevent an unacceptable pressure increase due to e.g. an increase in the temperature of the medium in the suction line (see diagram). A suitable valve is available as an accessory: See chapter 2.8

A return line is installed as described in chapter 3.3.2.

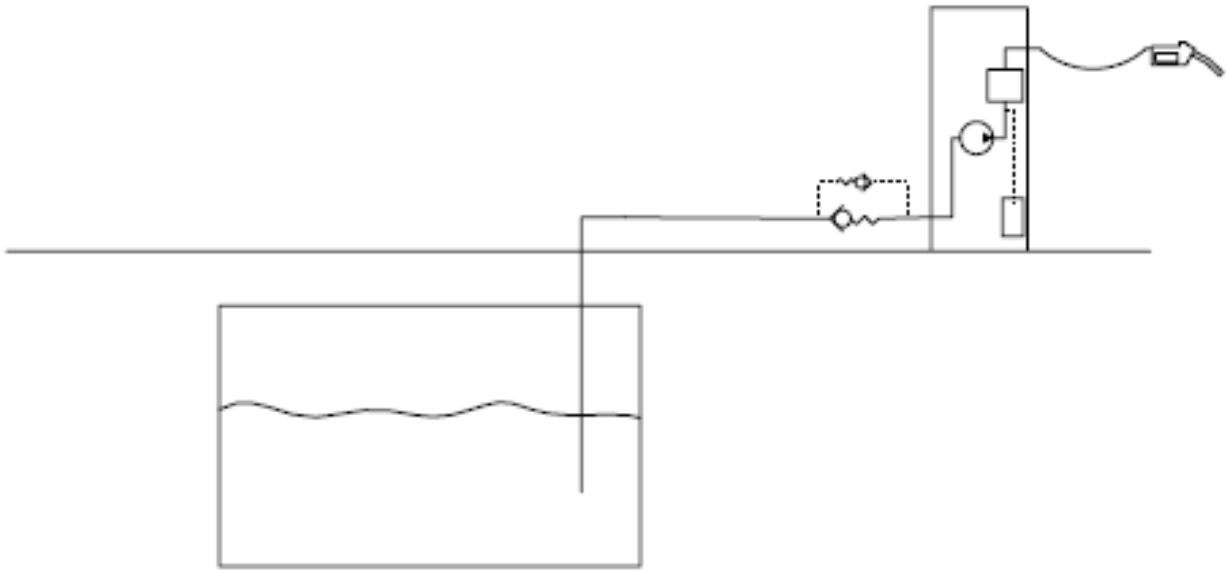


In the case of high tanks (= high opening pressure on the siphon protection valve), an additional connection for an external vacuum pump may be required in order to facilitate the initial priming, or it must be possible to reduce the opening pressure for the initial priming.

Underground tank: Angled check valve

In the case of underground tanks, a check valve with a low opening pressure is installed in the suction line. The valve is to have a pressure relief mechanism. A suitable valve is available as an accessory: See chapter 2.8

A return line may be installed as described in chapter 3.3.2, or the provided collection flask is to be used.



3.4. Electricity supply

⚠ **Work on the unit's electrical equipment may only be done by a certified electrician or trained personnel under the guidance and supervision of a certified electrician, and must be done in accordance with the relevant regulations for electrical equipment.**

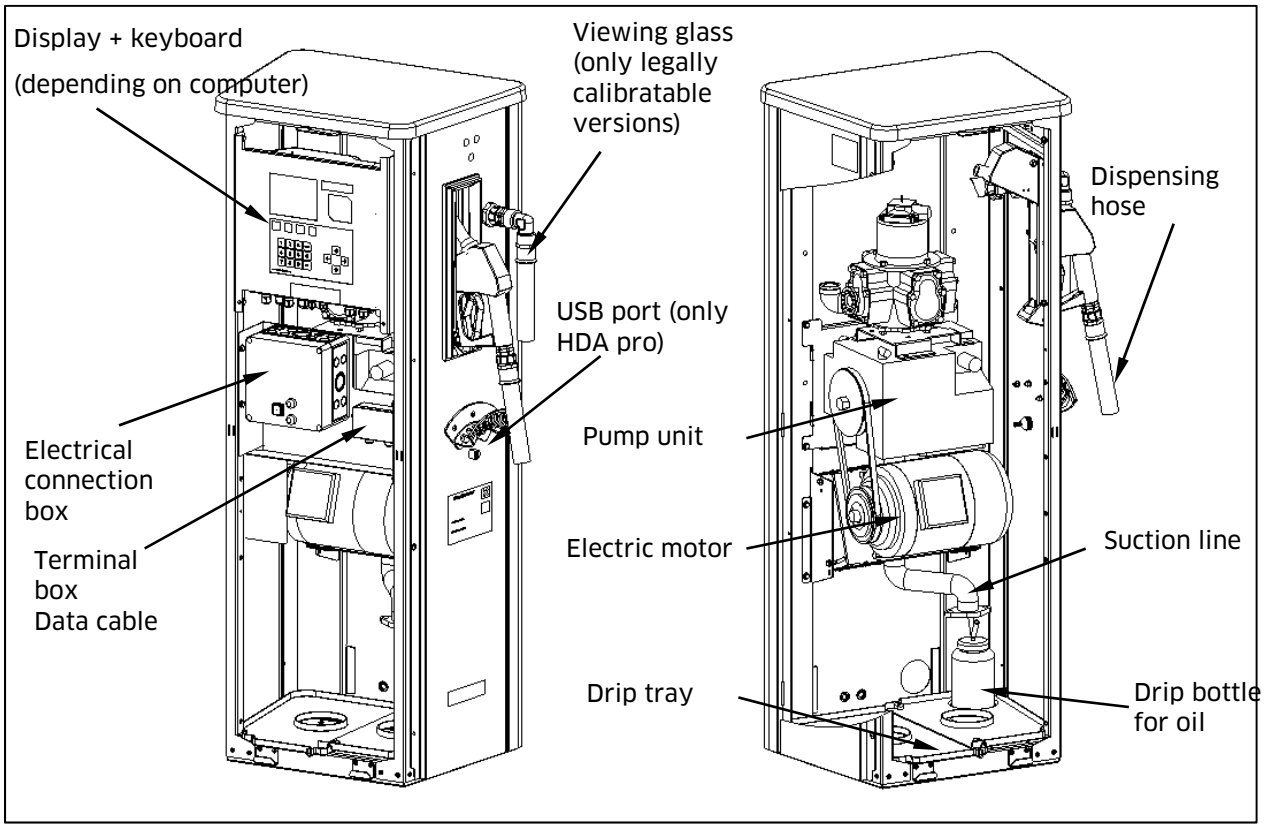
! **For error-free operation, an electrical connection from a breaker panel with a residual-current device is to be chosen!**

The electrical connections are to be done according to the wiring diagram (see Appendix A).
In the case of an aboveground tank connection, openings in the rear base are present for cable connections. In the case of an underground tank connection, an opening in the bottom plate is provided. (Also see "Dimension sheet" (Chapter 2.6)).

Depending on the variant of the processing unit installed, data interfaces, level probes etc. can be connected. Please refer to the instruction manuals for the associated components.
Some variants of the HDM pro have an additional terminal box for connecting the data line (see chapter 4).

4. HDM pro components

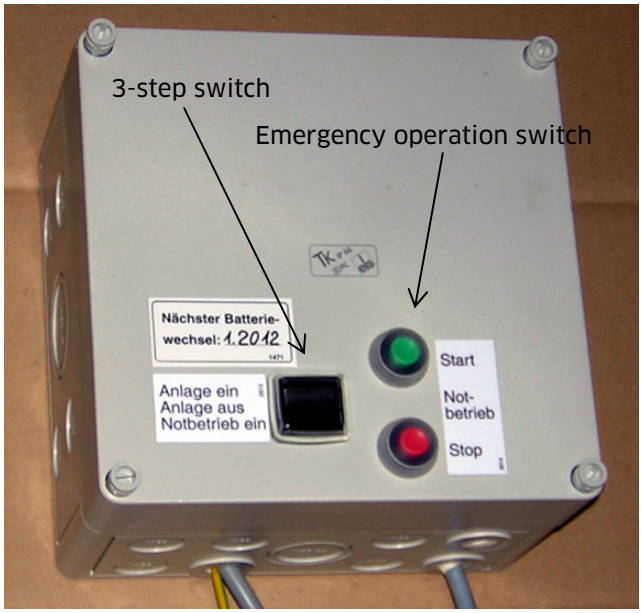
The configuration of the HDM pro is as shown in the following diagram:



4.1. Terminal box

The terminal box in the housing contains:

- 3-step switch with the positions
  a. System on
  b. System off
  c. Emergency operation on
- Start switch and stop switch for emergency operation

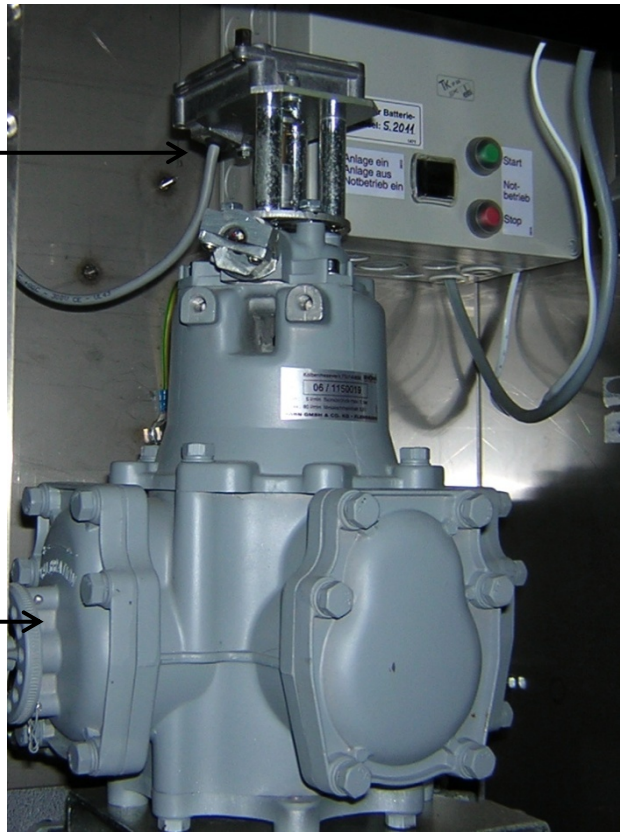


4.2. The 4-piston measuring device

The 4-piston measuring device keeps track of the quantity dispensed.

With the help of the calibration wheel, the distance of travel of the piston can be modified, thereby adjusting the measurement accuracy. In the case of non-legally calibratable variants, the user may perform this calibration. In the case of legally calibratable variants, the calibration is to take place as part of a precalibration procedure, and/or must take place as part of an official calibration. Always try to calibrate the HDM using the electronic system.

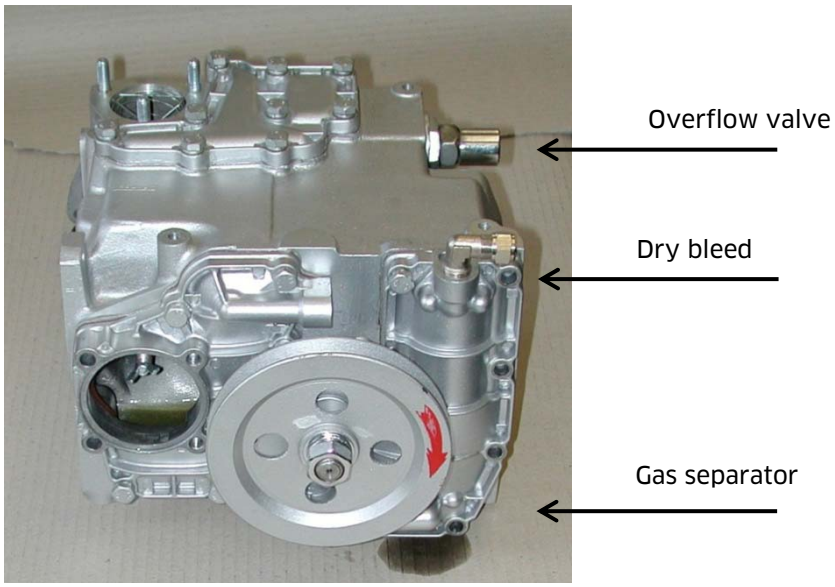
In non-legally calibratable versions, the integrated single pulse generator is used. In legally calibratable versions, a calibratable double pulse generator is mounted on the measuring device.



4.3. Pump unit in detail

The compact pump unit installed in the device comprises the following elements:

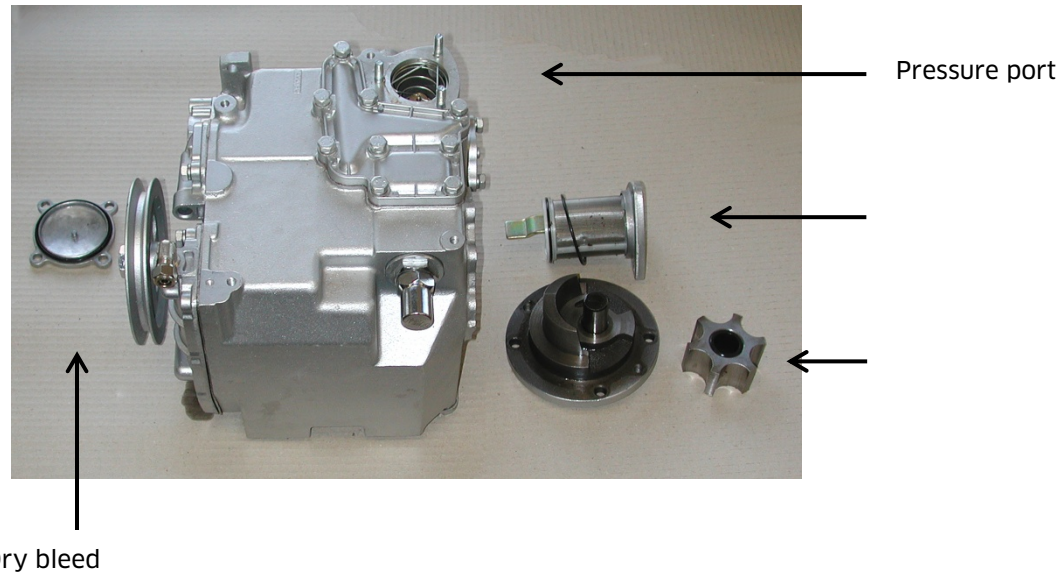
Pump unit
Side view



4.4. Pump unit components

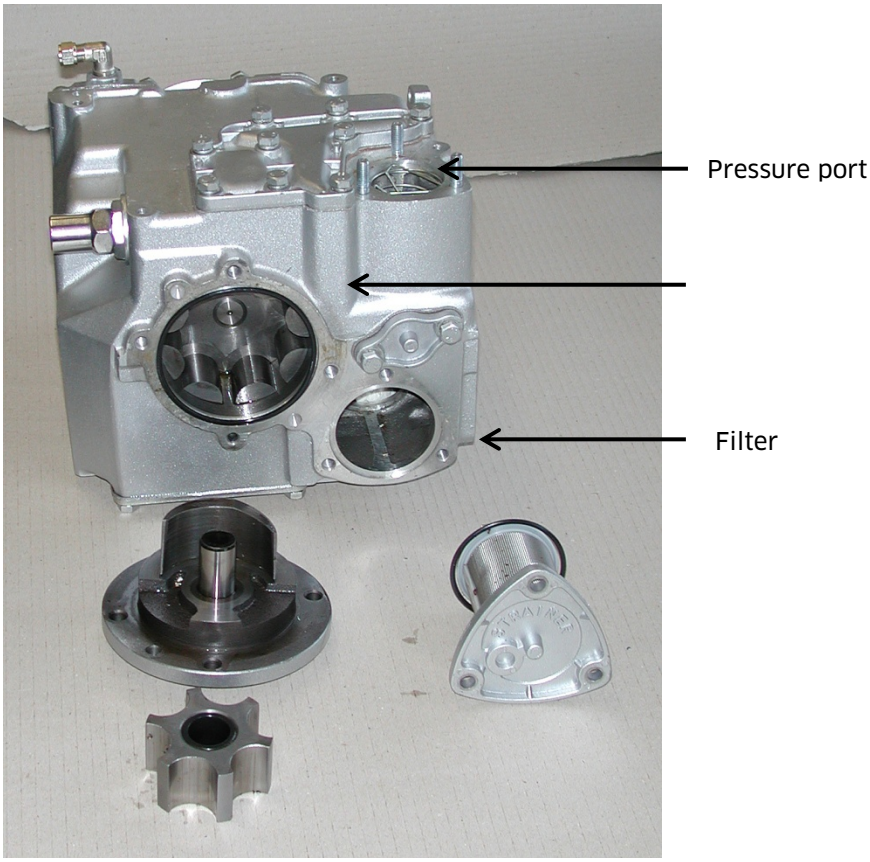
The following image shows the components of the pump block:

Pump unit Components



In the side view (right side when installed), you will see the openings for the gear pump and the filter.

Pump unit Components View of right side



5. Commissioning/operation

5.1. Initial commissioning and recommissioning

The pump is a self-priming gear pump. Hence, during commissioning, as described in chapter 5.2, only a "normal tank procedure" needs to be carried out, during which priming is done with medium from the tank. Ensure that the pump does not run dry for longer than necessary, as this may result in damage to the pump and seals. A normal priming procedure should not take longer than 2 minutes. If, after this period of time, priming with the medium still has not taken place, the suction line is to be checked for leaks, and the suction protection valve is to be checked to ensure that it is functioning properly.

! **Always avoid running the pump dry for prolonged periods (>1 min), as this may cause irreparable damage to important components.**

Approx. 30 l is to be dispensed into a collecting receptacle in order to ensure that all air bubbles (if any) in the suction line have been expelled. This medium is to be disposed of as jetting liquid.

⚠ **The operation of the dispensing station with the door open may only be carried out by qualified personnel, as the V-belt drive poses a risk of injury.**

5.2. Normal operation

The following is to be observed during normal operation:

! **Avoid running the pump dry (>1 min)**

! **A defective hose may result in the ingress of dirt and contamination.**

! **When the nozzle is closed and the pump is filled with media, it may be operated for a max. of 2 mins; after which excessive temperatures and irreparable damage to important components may result.**

! **After the filling procedure, the nozzle is to be returned to the nozzle holder, and the hose is to be protected from vehicles driving over it by hanging it on the hose support.**

! **Only vehicle tanks or suitable receptacles may be refueled or filled. The dispensing procedure must be monitored.**

To dispense fuel in normal operation, do the following:

1. Unlock the dispensing station using the automatic dispenser or, if necessary, using the electronic cash register system.

☛ **Details on unlocking the dispensing stations are described in the operating instructions of the computers installed.**

2. Turn on the pump by pulling on the nozzle.
3. Insert the nozzle into the receptacle to be filled or into the vehicle tank
4. Open the nozzle and leave it open until the desired amount has been dispensed.

You can use the catch to lock the nozzle lever in place (hold it open). The automatic nozzle shuts off the flow automatically when the tank is full. If you would like to end the dispensation procedure before this happens,

a. release the nozzle lever (if it has not been locked in place)

b. If the lever has been locked in place, pull it up and then release it.

! The dispensation procedure must be monitored constantly!

5. Return the nozzle to the nozzle holder immediately after the nozzle has been shut off. The pump turns off automatically.

Please also refer to the operating instructions for the nozzle and/or chapter 6.

5.3. Emergency operation

If the price calculator, liter counter or automatic dispenser has stopped working, dispensation can still take place in emergency operation mode.

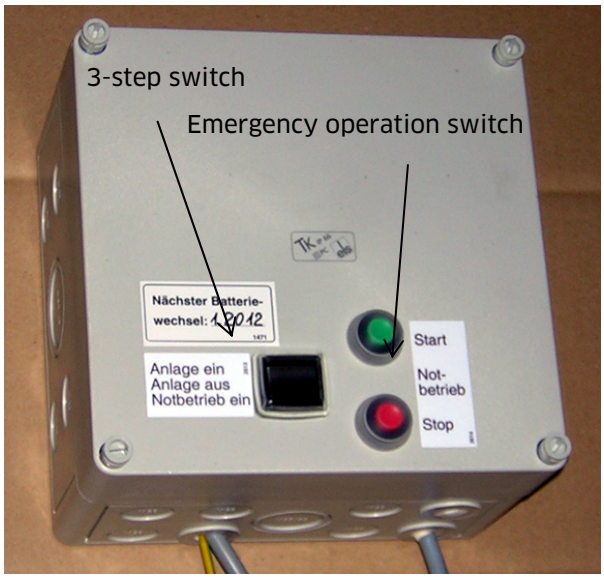
In this case, it will not be possible to calculate or measure the quantity dispensed.

To dispense fuel in emergency operation mode, do the following:

1. Remove the door of the housing.

⚠ **The operation of the dispensing station with the door open may only be carried out by qualified personnel, as the V-belt drive poses a risk of injury.**

Terminal box Operating switches



2. Turn the 3-step switch to "Emergency operation" This will enable you to start and stop

the pump in emergency operation.

3. Press on "Start" in the switching cabinet to start the dispensation.

4. Insert the nozzle into the receptacle to be filled or into the vehicle tank

5. Pull up the nozzle lever to the extent desired in order to obtain the desired flow rate. You can use

the catch to lock the nozzle lever in place (hold it open). If you would like to end the

dispensation procedure,

a. release the nozzle lever (if it has not been locked in place)

b. If the lever has been locked in place, pull it up and then release it.

! **The dispensation procedure must be monitored constantly!**

6. Remove the nozzle from the receptacle or the vehicle tank.

7. Return the nozzle to the nozzle holder.

8. Press "Stop" to end the dispensing procedure.

! **The pump will not turn off automatically.**

! **In order to prevent overheating, remember to press the STOP button immediately after returning the nozzle to the holder.**

! **When the nozzle is closed and the pump is filled with media, it may be operated for a max. of 2 mins; after which excessive temperatures and irreparable damage to important components may result.**

6. Automatic nozzle

6.1. Description

The HDM pro dispensing station is equipped with a type A2010 automatic nozzle. It is wet hose nozzle that shuts off automatically, and is used for dispensing the liquids listed above. The type A2010 automatic nozzle has been approved according to the DIN EN 13012 standard.
The standard equipment used in the nozzle is as follows: Safety shut-off and wear-resistant and/or cold protection covering.
The type A2010 nozzles are also equipped with a 3-step catch for the control lever and a spring to lock the discharge pipe in place in the tank filling port.
Other nozzles may also be used as extras. In this case, please refer to the corresponding instruction manuals.

6.2. Intended use

The automatic nozzles are designed to be state-of-the-art and operationally reliable.

⚠ **However, these products may pose a hazard if they are not used as intended.**

Each and every person involved in the installation, implementation, maintenance and the operation of the automatic nozzle must have read and understood the entire operating manual.

! **The type A2010 automatic nozzles are to be used exclusively for the dispensation of diesel fuel in accordance with DIN EN 590 and/or DIN 51628, biodiesel (RME) according to EN 14214, and heating oil EL according to DIN 51603-1.**

! **The pump is not intended for any other use. The manufacturer cannot be held responsible for any damages resulting from such unintended use. The operator shall bear sole responsibility for such unintended use.**

"Intended use" also includes adherence to the specifications for commissioning, operation and maintenance as prescribed by the manufacturer.
Local safety and accident prevention regulations are to be strictly adhered to when operating the automatic nozzle.
It may be used in the following areas:

- Dispensation facilities at gas stations (TRbF 40, no. 4.1.1.5 and TRwS 781-2)
- Filling of portable receptacles and fuel containers of work machines out in the open (TRbF 30, Appendix 4)
- Filling of single tanks with a capacity of up to 1000 l for the storage of diesel fuel and heating oil EL (TRbF 20, no. 9.3.2.3, para. 3)

6.3. Functioning / safety devices

The closing valve of the type A2010 automatic nozzle can only be opened by hand using the control lever. An automatic shut-off will be triggered when

- the tank is full; i.e. the sensor tip on the discharge pipe is blocked by fuel.
- the nozzle is held horizontally (see Fig. B).
- the nozzle with locked control lever falls to the ground.

The shut-off can also be triggered manually by releasing the catch (if present) holding the control lever in place.

6.4. Operating instructions

The type A2010 automatic nozzles are ready for operation. No adjustments or lubrication are required.

⚠ **Smoking is strictly forbidden, even when dispensing diesel and heating oil EL. Ignition sources such as e.g. fires, sparks etc. are to be removed or turned off.**

1. Insert the discharge pipe deep enough into the tank filling port such that it remains securely in the filling port (see Fig. A). At the same time, this also ensures that the nozzle turns off when the fuel tank is full.

For product variants with a catch, insert it in the direction of the guard bracket and lock the control lever in place.

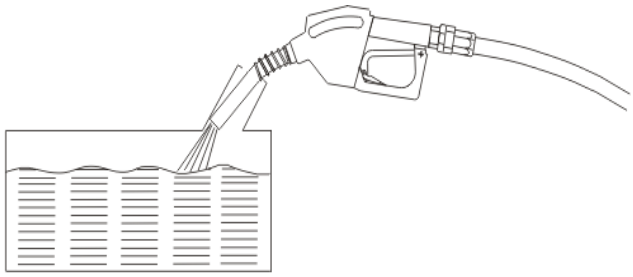


Fig. A

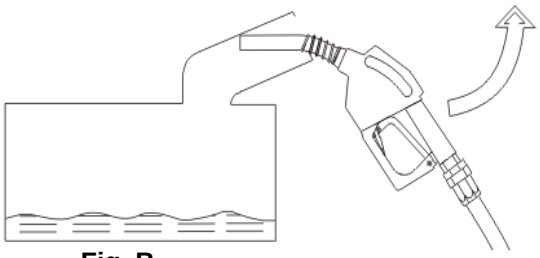


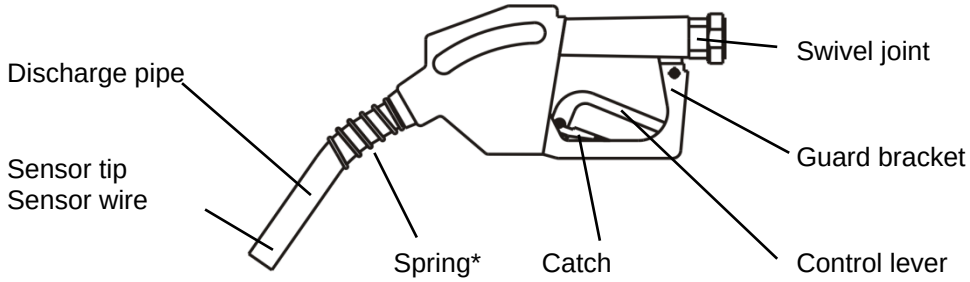
Fig. B

Once the nozzle has turned off automatically, always tilt the nozzle towards the tank for a few seconds and allow any remaining fuel to drip out of the discharge pipe. This is also recommended when the filling procedure has been ended manually.

If the nozzle can only be locked in place as shown in Fig. B, you will not be able to fill the fuel tank. The nozzle will shut off immediately. Insert the nozzle in the direction of the arrow (see Fig. B) until it is in a position as shown in Fig. A. The nozzle must be held in this position during the refueling procedure. Points 2 and 3 also apply correspondingly.

! **When topping up small quantities by hand and when filling fuel with a locked control lever, the flow rate may fall below the minimum value. In such a case, the nozzle's automatic shut-off mechanism will no longer be able to operate reliably! The fuel tank may be overfilled.**

! **Even when using a nozzle that shuts off on its own, the filling operation may only be conducted under supervision!**



7. Fault display – What to do if … ?

… the pump runs, but the automatic nozzle immediately shuts off again?

- The sensor pipe of the automatic nozzle is clogged: The nozzle must be cleaned.

… the pump runs, but no medium is pumped?

- Storage tank is empty: hang up the nozzle immediately and refill the tank
- Air has entered the suction line: hang up the nozzle immediately and fill the suction line as described above.

…when the pump does not start up after the nozzle has been removed?

- Flap of nozzle switch is stiff: Lubricate as described below.
- Variants with automatic dispenser: The dispensing station has been locked due to too many zero dispensations: See the operating instructions for the dispensing station
- Variants with price calculator / liter counter: The station is not unlocked: See the operating instructions for the processing unit
- The motor protection switch has been triggered: Resolve the source of the error and switch system on again.

… The pumps is operating, but too little media is pumped?

- The suction-side filter is dirty and must be cleaned.
- The V-belt slips due to insufficient tension.

8. Maintenance

⚠ For any maintenance the valid and applicable accident prevention regulations must be observed. Disconnect the device from the power supply and depressurise it when carrying out maintenance work. Secure it against being unintentionally switched on. Maintenance and repair work may only be carried out by specially-trained service technicians.
Although the HDM eco dispenser is to a large extent maintenance-free, the following work should be performed regularly in order to ensure reliable operation.

8.1. Regular inspections / maintenance work

Components	Checks / maintenance operations	Monthly	Annually	After 1 million liters	As needed / upon malfunction
Automatic pump nozzle	Check functioning of automatic mechanism	X			X
Pump nozzle holder	Clean with water and non-aggressive household cleaner		X		X
	Lubricate switch flap with resin-free spray oil	X			X
Dispensing hose	Check the dispensing hose for damages and increased wear	X			X
Hydraulic components	Visually inspect system for leaks	X			X
Housing	Clean with water and non-aggressive household cleaner; check for damage to paintwork + corrosion – if necessary, renew corrosion protection		X		X
V-belt	Check tension and check for damage		X		X
Filter	Clean as described below			X	X

The maintenance intervals are maximum periods that must be shortened in the case of difficult operating conditions (e.g. heavy use, careless users).

8.1.1. Cleaning the system

Clean dirty outsides carefully with a damp cloth and gentle household cleaner. Do not use aggressive (e.g. abrasive, chlorinated) cleaning agents or solvents. The equipment must not be cleaned with a high-pressure cleaner or water jet.

8.1.2. Maintenance of the nozzle

Make sure that the sensor jet on the outlet pipe is always open. The nozzle does not work if the sensor jet is dirty. Any dirt particles can be removed using a suitable wire. Greasing or oiling is not necessary.

8.1.3. Replacing the back-up battery

Some variants of the processing unit have a back-up battery that needs to be replaced regularly. For further information, please refer to the operating instructions of the processing unit installed.

8.1.4. Hoses

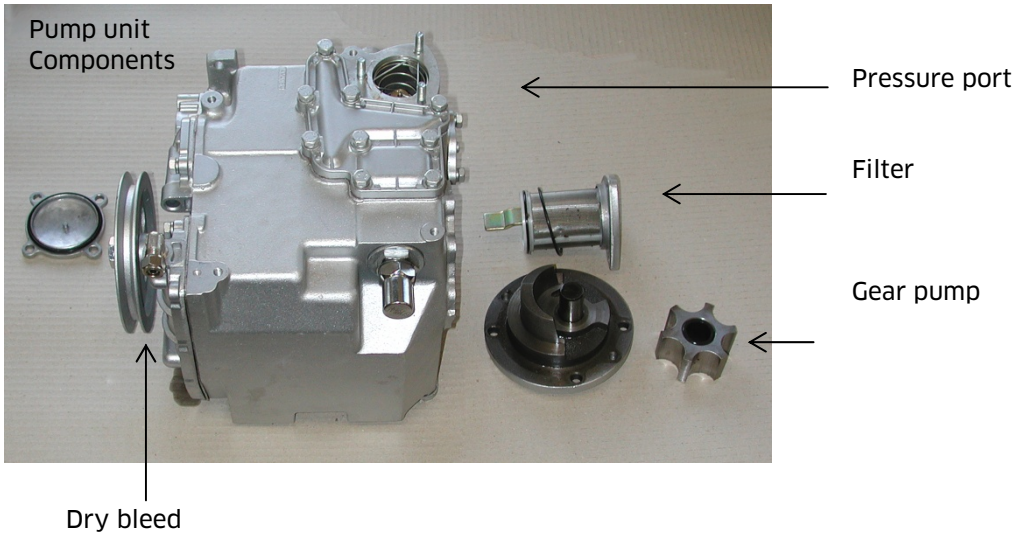
The dispensing hose and internal connecting hoses are subject to wear and tear and aging.
Check the hoses regularly for signs wear and aging, such as abrasion, dents, porous surfaces and tears.

⚠ **A leaking or exploding hose is a hazard to the user and may also cause environmental pollution. If signs of wear or aging are detected, the hoses need to be replaced.**

8.1.5. Cleaning filters

The dispensing stations are equipped with filters (dirt traps) that need to be changed at regular intervals and/or as needed. The filters are located to the left and right in the pump unit. Filters must be cleaned after 1 million liters have been dispensed, or if the discharge rate slows down perceptibly. It may also need to be changed, e.g. if it is damaged.

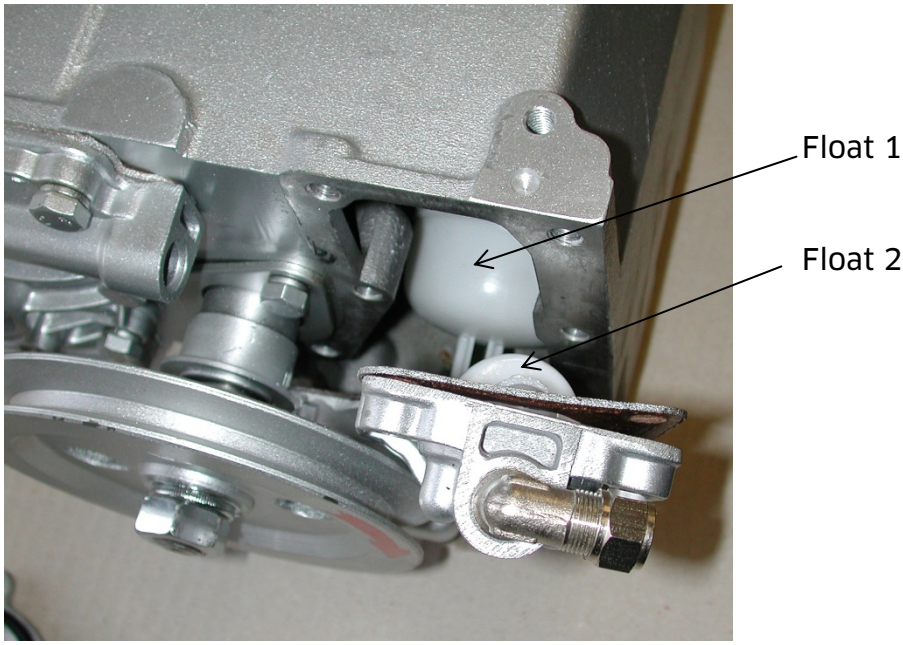
(Right filter: art. no. 499900516, Left filter: art. no. 499900517)



8.1.6. Float valve

The pump unit is outfitted with a float valve that needs to be checked to ensure that it is functioning properly when the gas separator malfunctions. To do so, open the chamber and check the mobility of the float.

Pump unit
With both
floats



8.1.7. V-belt

The tension of the V-belt needs to be checked at regular intervals. If signs of damage or wear are noticeable on the V-belt, it is to be replaced. The tension of the V-belt must be checked if it starts emitting noise and/or at the very latest, after 1 million liters have been dispensed.

8.1.8. Type Plate and Warning Signs

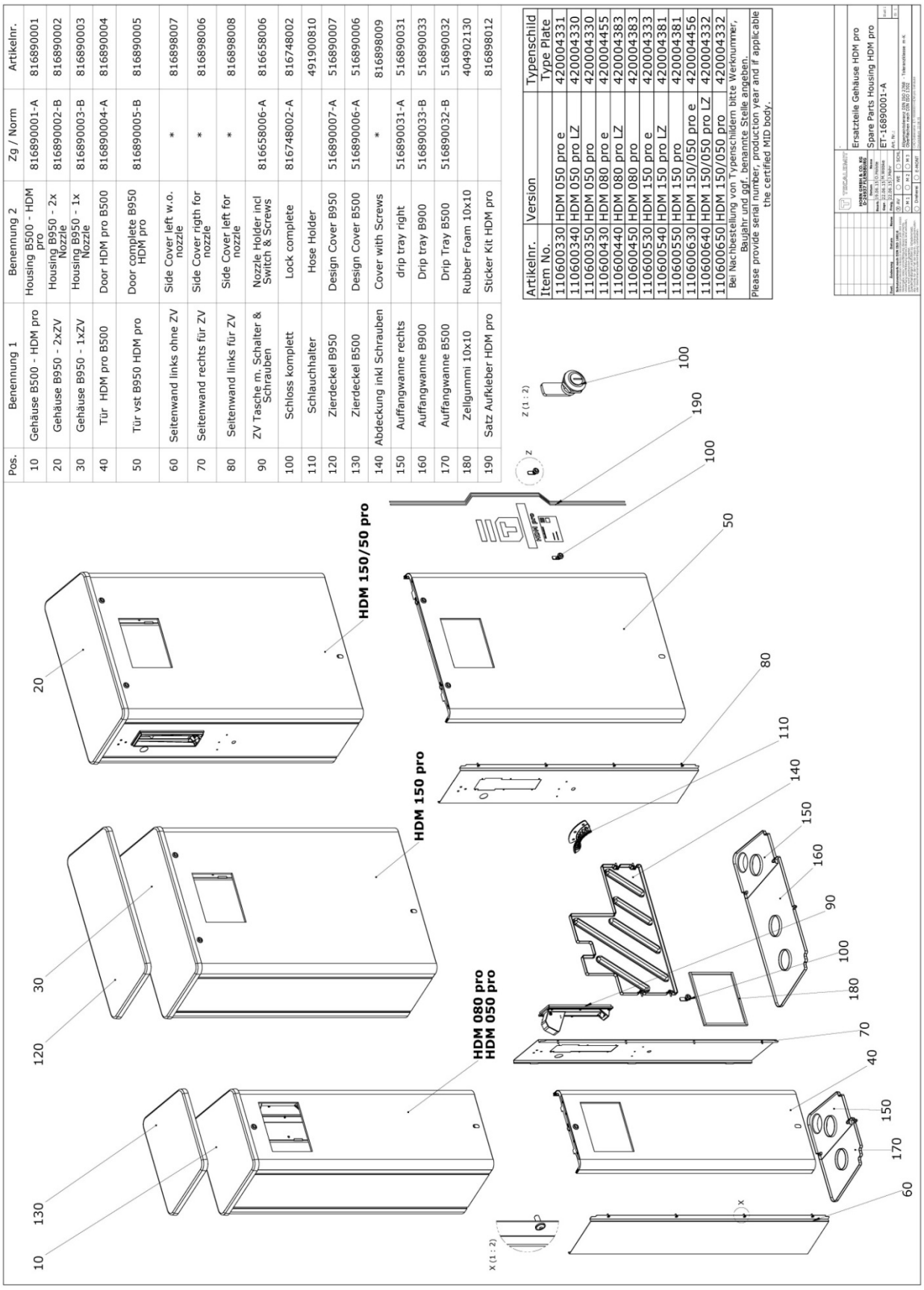
! **The warning signs attached to the device and the type plate must be well legible. Dirty signs must be cleaned, and replaced if necessary.**

8.2. Repairs and customer service

The HDM was developed with the goal of enabling operation with the lowest possible maintenance costs. You can achieve this by operating the device in accordance with this instruction manual. However, if you require our services, please contact our Horn customer service.

9. Spare Parts

9.1. Housing



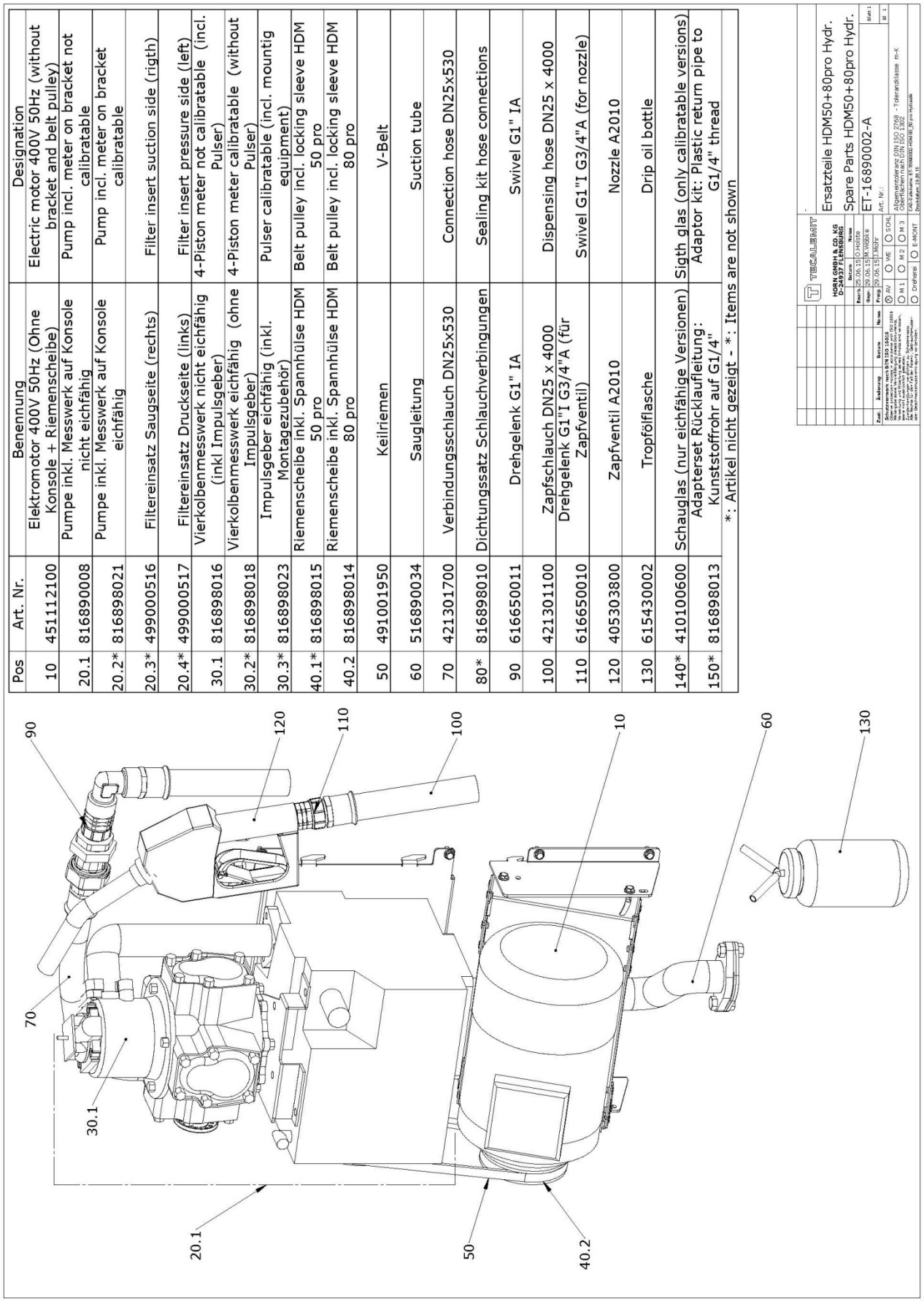
Pos.	Benennung 1	Benennung 2	Zg / Norm	Artikelnr.
10	Gehäuse B500 - HDM pro	Housing B500 - HDM pro	816890001-A	816890001
20	Gehäuse B950 - 2xZV	Housing B950 - 2x Nozzle	816890002-B	816890002
30	Gehäuse B950 - 1xZV	Housing B950 - 1x Nozzle	816890003-B	816890003
40	Tür HDM pro B500	Door HDM pro B500	816890004-A	816890004
50	Tür vst B950 HDM pro	Door complete B950 HDM pro	816890005-B	816890005
60	Seitenwand links ohne ZV	Side Cover left w.o. nozzle	*	816898007
70	Seitenwand rechts für ZV	Side Cover rigth for nozzle	*	816898006
80	Seitenwand links für ZV	Side Cover left for nozzle	*	816898008
90	ZV Tasche m. Schalter & Schrauben	Nozzle Holder incl Switch & Screws	816658006-A	816658006
100	Schloss komplett	Lock complete	816748002-A	816748002
110	Schlauchhalter	Hose Holder		491900810
120	Zierdeckel B950	Design Cover B950	516890007-A	516890007
130	Zierdeckel B500	Design Cover B500	516890006-A	516890006
140	Abdeckung inkl Schrauben	Cover with Screws	*	816898009
150	Auffangwanne rechts	drip tray right	516890031-A	516890031
160	Auffangwanne B900	Drip tray B900	516890033-B	516890033
170	Auffangwanne B500	Drip Tray B500	516890032-B	516890032
180	Zellgummi 10x10	Rubber Foam 10x10		404902130
190	Satz Aufkleber HDM pro	Sticker Kit HDM pro		816898012

Artikelnr. Item No.	Version	Typenschild Type Plate
110600330	HDM 050 pro e	420004331
110600340	HDM 050 pro LZ	420004330
110600350	HDM 050 pro	420004330
110600430	HDM 080 pro e	420004455
110600440	HDM 080 pro LZ	420004383
110600450	HDM 080 pro	420004383
110600530	HDM 150 pro e	420004333
110600540	HDM 150 pro LZ	420004381
110600550	HDM 150 pro	420004381
110600630	HDM 150/050 pro e	420004456
110600640	HDM 150/050 pro LZ	420004332
110600650	HDM 150/050 pro	420004332

Bei Nachbestellung von Typenschildern bitte Werknummer, Baujahr und ggf. benannte Stelle angeben.
Please provide serial number, production year and if applicable the certified MID body.

Ersatzteile Gehäuse HDM pro
Spare Parts Housing HDM pro
ET-16890001-A

9.2. Hydraulic



Pos	Art. Nr.	Benennung	Designation
10	451112100	Elektromotor 400V 50Hz (Ohne Konsole + Riemenscheibe)	Electric motor 400V 50Hz (without bracket and belt pulley)
20.1	816890008	Pumpe inkl. Messwerk auf Konsole nicht eichfähig	Pump incl. meter on bracket not calibratable
20.2*	816898021	Pumpe inkl. Messwerk auf Konsole eichfähig	Pump incl. meter on bracket calibratable
20.3*	499000516	Filtereinsatz Saugseite (rechts)	Filter insert suction side (rigth)
20.4*	499000517	Filtereinsatz Druckseite (links)	Filter insert pressure side (left)
30.1	816898016	Vierkolbenmesswerk nicht eichfähig (inkl Impulsgeber)	4-Piston meter not calibratable (incl. Pulser)
30.2*	816898018	Vierkolbenmesswerk eichfähig (ohne Impulsgeber)	4-Piston meter calibratable (without Pulser)
30.3*	816898023	Impulsgeber eichfähig (inkl. Montagezubehör)	Pulser calibratable (incl. mountig equipment)
40.1*	816898015	Riemenscheibe inkl. Spannhülse HDM 50 pro	Belt pulley incl. locking sleeve HDM 50 pro
40.2	816898014	Riemenscheibe inkl. Spannhülse HDM 80 pro	Belt pulley incl. locking sleeve HDM 80 pro
50	491001950	Keilriemen	V-Belt
60	516890034	Saugleitung	Suction tube
70	421301700	Verbindungsschlauch DN25x530	Connection hose DN25x530
80*	816898010	Dichtungssatz Schlauchverbingungen	Sealing kit hose connections
90	616650011	Drehgelenk G1" IA	Swivel G1" IA
100	421301100	Zapfschlauch DN25 x 4000	Dispensing hose DN25 x 4000
110	616650010	Drehgelenk G1"I G3/4"A (für Zapfventil)	Swivel G1"I G3/4"A (for nozzle)
120	405303800	Zapfventil A2010	Nozzle A2010
130	615430002	Tropföflasche	Drip oil bottle
140*	410100600	Schauglas (nur eichfähige Versionen)	Sigth glas (only calibratable versions)
150*	816898013	Adapterset Rücklaufleitung: Kunststoffrohr auf G1/4"	Adaptor kit: Plastic return pipe to G1/4" thread
		*: Artikel nicht gezeigt - *: Items are not shown	

HORN GMBH & CO. KG
D-24937 FLENSBURG

Ersatzteile HDM50+80pro Hydr.
Spare Parts HDM50+80pro Hydr.
ET-16890002-A

10. Disposal

The device is to be emptied completely and the liquids properly disposed of in case it is taken out of service.
The equipment is to be disposed of properly when taken permanently out of service:

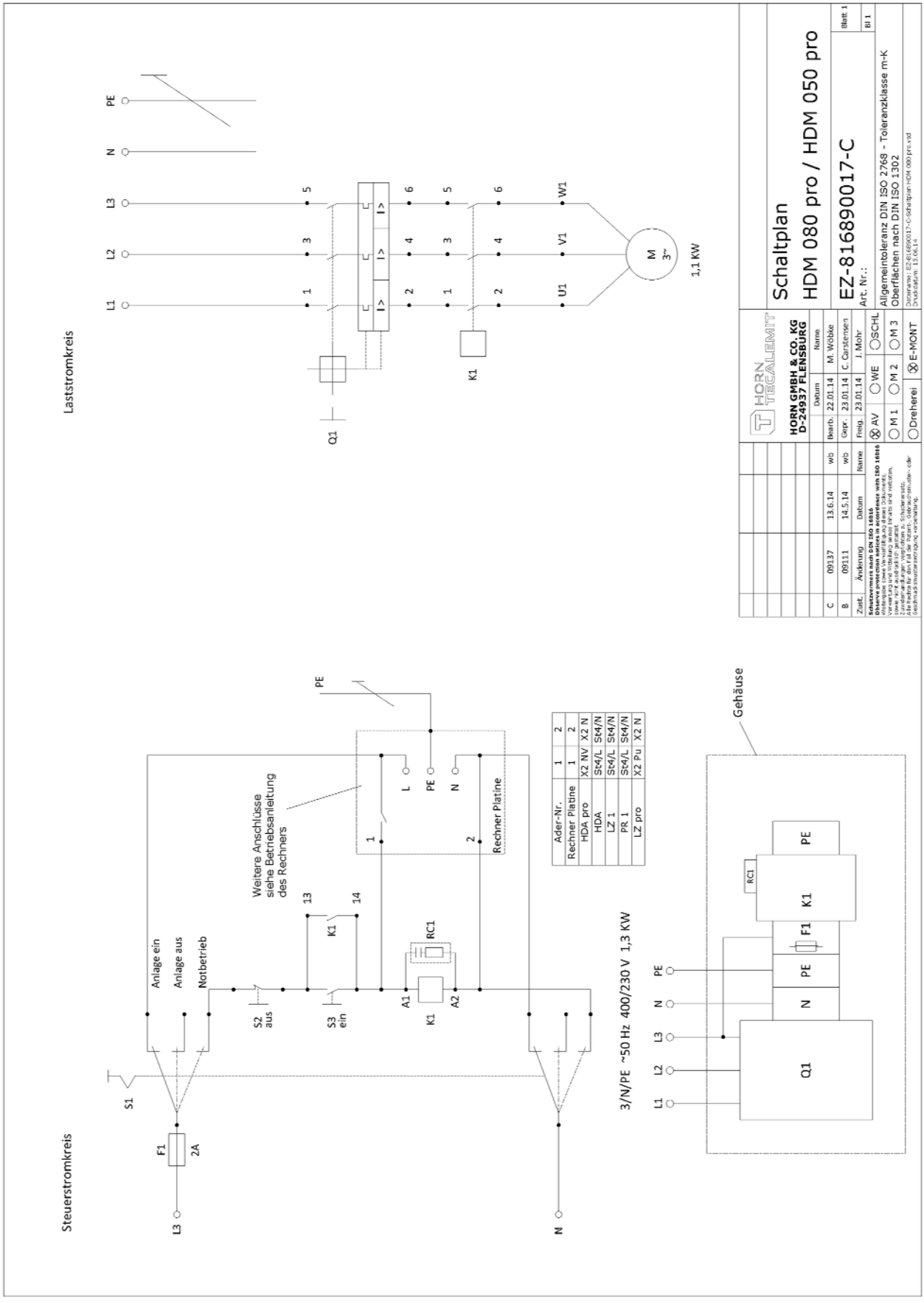
- Return old metal for recycling.
- Return plastic parts for recycling.
- Return electronic waste for recycling.

☛ **The water legal regulations are to be followed.**

10.1. Return of batteries

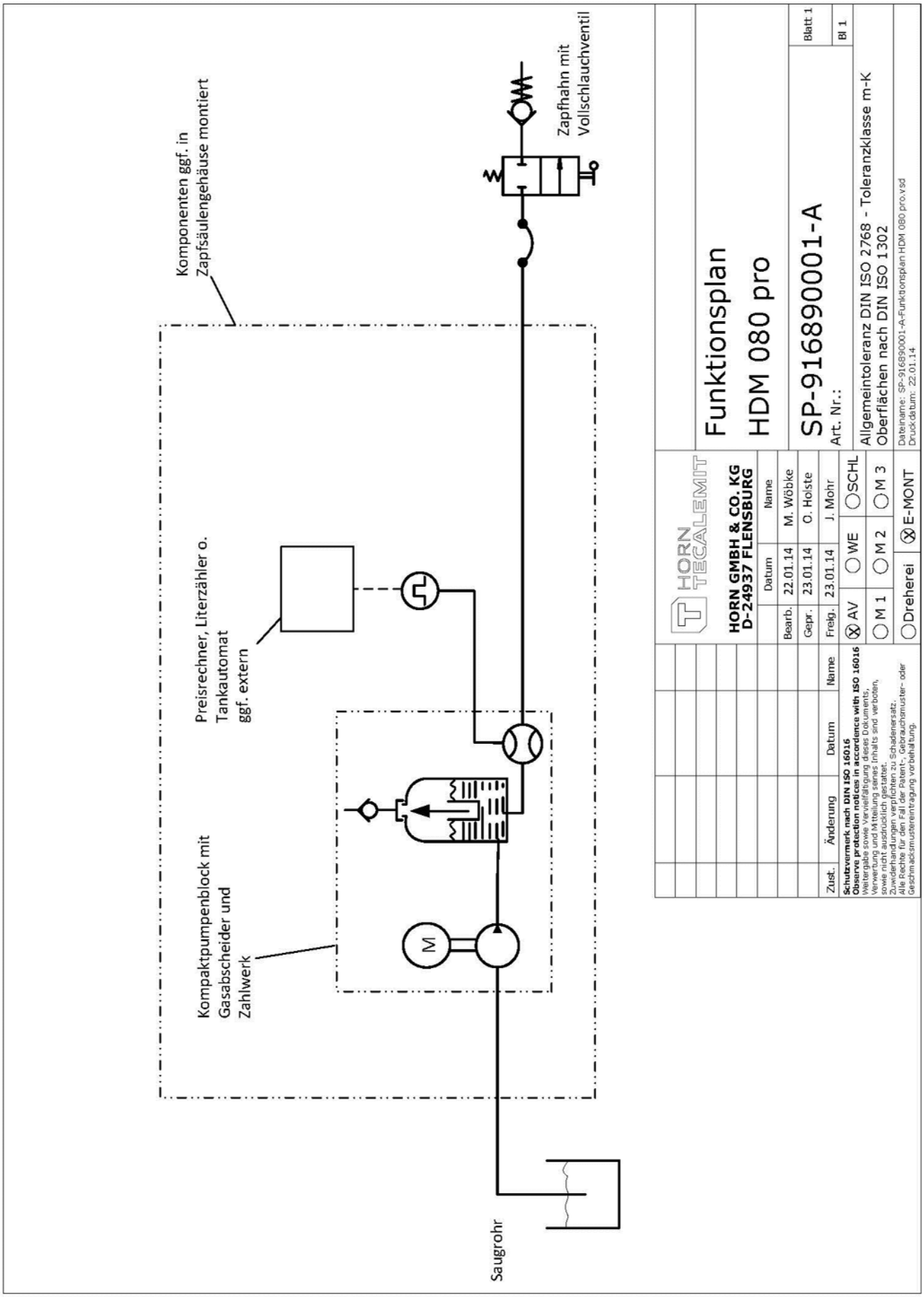
Batteries must not be disposed of with the domestic waste. Batteries can be returned free of charge via a suitable collecting point or to the dispatch stores. Consumers are legally obliged to return used batteries.
Batteries that contain harmful substances are marked with a crossed out dustbin (see above) and the chemical symbol (Cd, Hg or Pb) of the heavy metal that is decisive for the classification as containing harmful substances:
1. “Cd” stands for cadmium.
2. “Pb” stands for lead.
3. “Hg” stands for mercury.

Appendix A. Wiring diagram



Ader-Nr.	1	2
Rechner Platine	1	2
HDA pro	X2 NV	X2 N
HDA	St4/L	St4/N
LZ 1	St4/L	St4/N
PR 1	St4/L	St4/N
LZ pro	X2 Pu	X2 N

Appendix B. Operational diagram for hydraulics



Appendix C. Declaration of conformity of the A2010 nozzle

Horn GmbH & Co. KG hereby declares the conformity of the A2010 automatic nozzle to DIN EN 13012 and the general building authority test certificate P-TÜ7-01340.

Appendix D. Declaration of Conformity

HORN TECALEMIT

Konformitätserklärung
Declaration of Conformity

Hiermit erklären wir, dass die Bauart
We herewith declare that the construction type

Typ: **HDM 050 pro; HDM 080 pro;**
Type: **HDM 150 pro; HDM 150/050 pro;**

Bezeichnung: **Zapfsäule für Diesel**
Designation: ***Diesel pump***

Artikel-Nr.: **110600310; 110600320; 110600330; 110600340; 110600350;**
Item No.: **110600410; 110600420; 110600430; 110600440; 110600450;**
110600510; 110600520; 110600530; 110600540; 110600550;
110600610; 110600620; 110600630; 110600640; 110600650;

in der von uns gelieferten Ausführung folgenden einschlägigen Bestimmungen entspricht:
in the form as delivered by us complies with the following applicable regulations:

Maschinenrichtlinie 2006/42/EG
Machinery safety 2006/42/EC

EMV-Richtlinie 2004/108/EG
Electromagnetic compatibility 2004/108/EC

Niederspannungsrichtlinie 2006/95/EG
Low voltage equipment 2006/95/EC

Angewendete harmonisierte Normen:
Applied harmonised standards:
EN ISO 12100-1, -2
EN 60204-1

EG-Dokumentationsbevollmächtigter: Jörg Mohr Horn GmbH & Co. KG
EC official agent for documentation: Munketoft 42
24937 Flensburg

14.01.2014 .....
Datum i.V. Dipl.-Ing. Jörg Mohr
Date Entwicklungsleiter / *Engineering Manager*

HORN GmbH & Co. KG
Munketoft 42
D-24937 Flensburg
Germany

T +49 461 8696-0
F +49 461 8696-66
info@tecalemit.de
www.tecalemit.de

Geschäftsführer:
Torsten H. Kutschinski

Commerzbank AG
BLZ 215 400 60
Konto-Nr. 2476000

SWIFT COBADEFFXXX
IBAN DE33215400600247600000
Amtsgericht Flensburg HRA 4264
USt-IdNr. DE813038919

TECALEMIT

Konformitätserklärung
Declaration of Conformity

Hiermit erklären wir, dass die Bauart
We herewith declare that the construction type

Typ: **HDM 050 pro; HDM 080 pro;**
Type: **HDM 150 pro; HDM 150/050 pro;**

Bezeichnung: **Zapfsäule für Diesel**
Designation: ***Diesel pump***

Artikel-Nr.: **110600330;**
Item No.: **110600430;**
110600530;
110600630;

in der von uns gelieferten Ausführung folgenden einschlägigen Bestimmungen entspricht:
in the form as delivered by us complies with the following applicable regulations:

- Messgeräterichtlinie 2004/22/EG
  Directive measuring instruments 2004/22/EC

Nr. der EG-Baumusterprüfbescheinigung:
No. of EC-Type Examination Certificate: **DE-14-MI005-PTB027**

Angewendete harmonisierte Normen:
Applied harmonised standards:

OIML R117:1995 OIML D11:2004

Werknummer:
Serial No.

EG-Dokumentationsbevollmächtigter: Jörg Mohr Horn GmbH & Co. KG
EC official agent for documentation: Munketoft 42
24937 Flensburg

18.06.2015 .....
Datum i.V. Dipl.-Ing. Jörg Mohr
Date Entwicklungsleiter / *Engineering Manager*

HORN GmbH & Co. KG
Munketoft 42
D–24937 Flensburg
Germany

T +49 461 8696-0
F +49 461 8696-66
info@tecalemit.de
www.tecalemit.de

Geschäftsführer:
Torsten H. Kutschinski

Commerzbank AG
BLZ 215 400 60
Konto-Nr. 2476000

SWIFT COBADEFFXXX
IBAN DE33215400600247600000
Amtsgericht Flensburg HRA 4264
USt-IdNr. DE813038919

TECALEMIT

HORN GmbH & Co. KG
Munketoft 42
24937 Flensburg
Deutschland

T +49 461-8696-0
F +49 461-8696-66

www.tecalemit.de
info@tecalemit.de