TECALEMIT

Operating manual

HORNET

W 85 H

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.

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Service Hotline 281-446-7300

support@tecalemitusa.com

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1. Safety notes

This device has been constructed per the current state of technology and in accordance with the recognized technical safety regulations. Regardless, risks to the user or third parties and/or damages to the device or other material assets could result from its use. The instructions in this operation manual, especially the safety instructions and the sections marked with warning signs, must thus be complied with.

Warning Signs and Symbols

The following symbols are used for especially important information in the operation manual.

☛ **Special information regarding the efficient use of the device.**

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

⚠ **Information and/or dos and don’ts for personal accident prevention or comprehensive material damages.**

Correct use

! The equipment must only be used in a technically fault-free condition and in accordance with its intended purpose, bearing in mind safety and danger precautions and with a full understanding of the operating instructions. Faults that could jeopardise safety must in particular be remedied without delay.

⚠ The equipment and its components are intended exclusively for use with the liquids set out in these operating instructions and for the purpose described. Any other use is deemed as not in accordance with the intended purpose. The manufacturer accepts no liability for any damages arising from this. The risk is borne solely by the operator.

Organisational measures

! These operating instructions must always be kept within reach of the place in which the equipment is being used! Anyone involved with the assembly, commissioning, maintenance and operation of the equipment must have read and understood these operating instructions in their entirety. The type plate and warning notes affixed to the equipment must be observed at all times and be maintained in a fully legible condition.

Trained personnel

! The personnel involved with operating, maintaining and assembling this equipment must have received the relevant training for this work. The domain of responsibility, accountability and surveillance of staff must be carefully regulated by the operator. If personnel do not have the necessary skills, appropriate training and instruction must be provided. Further, the operator must ensure that personnel fully understand the con-tents of these operating instructions.

Waters protection

⚠ The device has been designed to handle water hazardous substances. It must be operated in such a way that contamination of water bodies is excluded. The relevant valid local regulations have to be observed!

Hydraulics

⚠ Work on hydraulic parts and installations must only be carried out by persons with specialist knowledge of and expertise in hydraulics. All cables, hoses and screw connections must be checked regularly for leaks and any externally-visible damage, and any such problems eliminated without delay. Oil that sprays out under pressure can cause injuries and fires.
When handling oils, grease and other chemical substances, observe the safety regulations applicable to the product in question!

Maintenance and servicing

⚠ In accordance with legal requirements, work may only be carried out on systems containing water-endangering liquids by specialist firms as defined by WHG §19l. No modifications, additions or conversions to the system that could impair safety must be made without the manufacturer's approval. Spare parts must match the technical specifications set down by the manufacturer. This is always guaranteed with OEM parts.

Electrical energy

⚠ Work on electrical equipment must only be carried out by a specialist electrician or by trained personnel under the supervision and guidance of an electrician in accordance with electrical engineering regulations. Mechanical and system parts on which inspec-tion, maintenance and repair work is being carried out must be disconnected from the power source.

2. Technical description

2.1. Description / Correct use

HORNET W 85 H electric hybrid pump

The HORNET W 85 H is a self-priming electric pump.
The HORNET W 85 H is intended for use in industry, workshops, filling stations and similar facilities. It is intended for filling vehicle tanks with fuel, primarily diesel. In operation, the pump must be securely mounted either to the storage tank / fuel tank or on a wall console.

⚠ **The HORNET W 85 H must not be operated with flammable or explosive liquids with a flash point of below 130°F (55 °C). Liquids with a flash point above 130°F (55 °C) must not be pumped if they are heated beyond their flash point.**

! **Operation of the HORNET W 85 H in explosion-risk areas is not permitted. There is a risk of explosion!**

! **The pump has no safety device to prevent automatic restarting after interruption of the power supply.**

2.2. Product variants

The product numbers and equipment variations of the HORNET W 85 H INOX are arranged according to the follow pattern:

Art no.	Without accessories	¾" (DN19) dispensing hose A2010 nozzle	1" (DN25) dispensing hose A2015 nozzle	Standard	Incl. speed control	Without meter	FMT II meter	FMT 3 meter	Basic pump without dispensing hose	Set with 4 m dispensing hose
US108701100			x	x			x			x
US108701102			x	x				x		x

2.2.1. Further equipment parts in "set"

Applies to all versions except "basic pump" (item number US108 X X X 0 0 0).
1.6 m suction line with filter, nozzle holder and threaded pin (as closure for the siphon protection opening).

2.2.2. Further equipment parts of "basic pump"

Only applies to "basic pump" (item number US108 X X X 0 0 0).
DN 19 hose grommet for pressure ports and threaded pin (as closure for the siphon protection opening).

2.3. Authorized mediums

All versions of the Hornet W 85 H pump can transport diesel and EL heating oil. The basic pumps without nozzle and suction line, item no. US108500001 and US108510001, can also pump bio-diesel, anti-freeze (concentrated and mixed) and water.

⚠ **All other mediums may not be pumped!**

⚠ **Please be aware of the safety data sheet for your medium.**

2.4. Technical data

Motor	AC motor	**Output**	0,78 KW
Rated current	9,5A	**Voltage**	120V / 60 Hz
Duty cycle	100 %	**Protection Class**	IP 54
Pump type	Hybrid pump	**Pumping volume**	max. 18 gpm (max. 70 l/min)*
Pumping pressure	max.36psi (2,5 bar)*	**Suction height**	max. 13' (4m)*
Dimensions (HxWxD)	11"x8"x5" (286x205x130mm)	**Suction ports**	1" NPT Female
Ambient temperature	-13°F to 104°F (-25°C to 40°C)	**Pressure Ports**	1" BSP female (union screw connection)
Media Temperature	14°F to 104°F (-10°C to 40°C)		
Sound pressure level	max. 85 dB(A)	**Weight (bare pump)**	8 lbs (ca. 3,6 kg)

* Viscosity and system-dependent

2.5. Accessories

Depending on the application, the following articles can be ordered as accessories:

	Article No.
FMT II flow meter retrofit kit	**253 590 020**
FMT 3 flow meter retrofit kit	**253 591 020**
Nozzle holder	**816 420 004**
Tank screw connection G2"	**816 420 003**
Wall console	**209 050 010**
Return set for siphon safety	**208 085 000**

3. Installation instructions

3.1. Mounting parts

1. Slide the filter (1) onto the pipe (2) of the suction line (3) and mount with the clip.
2. Screw the suction line (3) onto the pump (4). Seal with teflon tape.
3. Screw the dispensing hose (5) on the nozzle gun (6): use the screw connector with the o-ring.
4. Screw the dispensing hose (5) on the pressure ports (7) with the union cap.
5. Fix the nozzle holder (9) with the enclosed screw and disk (10) to the drum adapter (11).
6. Insert the cup (14) into the nozzle holder (9).

3.1.1. Meter option

If a meter is included in the delivery, the screw connection on the dispensing hose (5) must be connected with the meter outlet (8). Then slide the meter onto the pressure ports (7) of the pump and fix with the union nut.

3.1.2. Drum and tank mounting

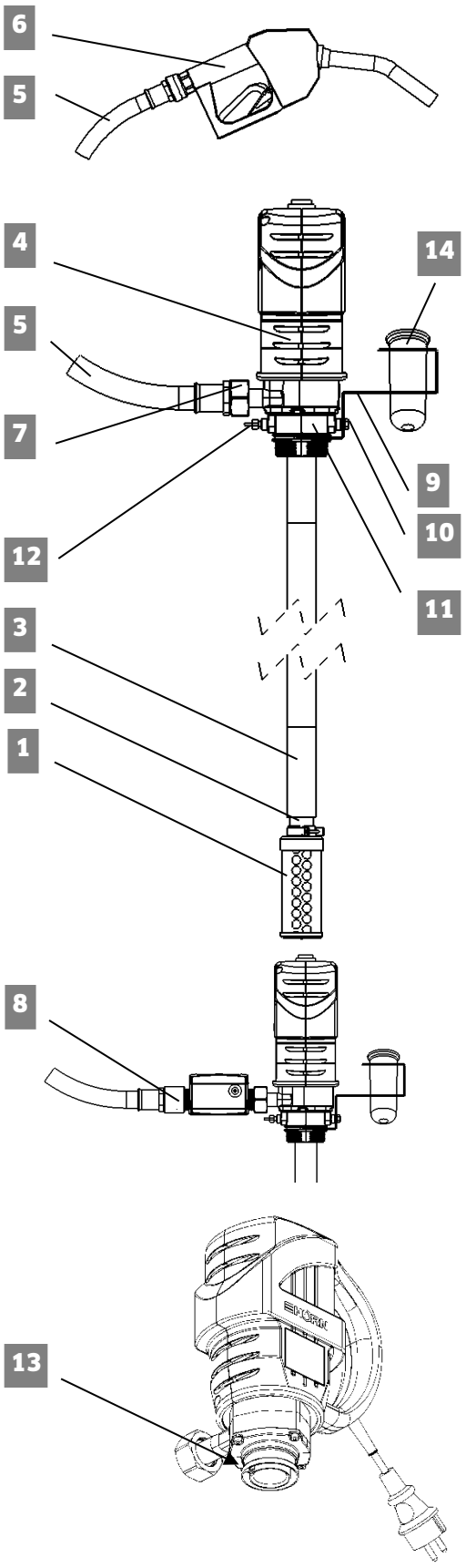
7. Screw the drum adapter (11) with 2" thread into a drum or tank.
8. Insert the pump with the suction line through the drum adapter into the container.
9. Fix the pump with the wing screw (12) to the drum adapter.
10. The siphon protection opening (13) remains open.

3.2. Wall fixing (optional)

11. Fix the mounting console* to the wall. The mounting material should be chose the suit the local conditions.
12. Seal the siphon protection opening (13) with the enclosed threaded pin and mount the suction line (3).
13. Place the drum adapter (11) on the mounting console* and fix with the 2" nut*.
14. Place the pump on the drum adapter (11) and fix with the wing screw (12).
15. Mount the return flow set for siphon protection**. Refer to the assembly instructions for details on the return flow set.
16. Screw the dispensing hose (5) onto the siphon protection**.

*Part of the wall console accessories.

**Part of the return flow set for siphon protection.



3.3. Place of installation

The pump is designed for installation inside buildings and outdoors. The place of installation should be selected so that problem-free operation and maintenance is assured. The pump can either be mounted directly on the tank or vessel or mounted independently with a wall console.

⚠ **The local regulations of the Water Resources Law and the Act on handling Substances Hazardous to Water must be complied with.**

3.4. Note the mounting position!

☛ **When correctly mounted, the suction line is located at the bottom.**

! **In other mounting positions, IP protection is diminished and cooling may be reduced. The operator must prevent the penetration of water, for instance through an additional casing. As a result of reduced cooling, the duty cycle or maximum permissible ambient and media temperature is reduced.**

3.5. Siphon protection

The HORNET W 85 H is provided with siphon protection. During operation, the medium continually flows from the siphon protection opening on the underside of the pump which has to be redirected into the tank.
The pump must be mounted above the container. If this is not possible, the siphon protection opening has to be sealed.
The siphon protection opening can be sealed with the enclosed threaded pin.

⚠ **If the siphon protection is sealed, the siphon protection function is ineffective and the operator must ensure that the legal regulations are complied with and the tank cannot lift up.**

The siphon protection opening is kept open when mounting directly on a drum or tank.
The "return flow set for siphon protection" available as an accessory can be used for wall mounting to prevent the tank lifting up. Make sure that:

The return flow line is fixed in the tank so that it is not immersed in the tank's fluid level and cannot slip out of the tank.

The pump is mounted above the fluid.

3.6. Temperature

The pump must be operated at ambient temperatures of -13°F to 104°F (-25 °C to +40 °C) and media temperatures of 14°F to 104°F (-10 °C to +40 °C). Condensing humidity in the air must be avoided.

3.7. Suction line

The suction line must be routed rising from the container to the pump, All parts of the suction line must be screwed vacuum-tight.
A dirt trap or base filter must be fitted to the suction line.
The nominal diameter of the suction line must be at least 1’ (DN25).
(See also section 3.3)

3.8. Pumping line

The pump is fitted with a dispensing hose and nozzle for operation. These dispensing hoses are available as equipment variants.
The dispensing hose is supplied unmounted and must be mounted on the pump using the union nut before commissioning. On variants with FMT II or FMT 3 meters, the meter is secured in place with the union nut.
The fitting of longer dispensing hoses or smaller cross-sections reduces the pumping capacity and may overload the pump.

3.9. Electrical connection

The pump is operated with 120 V / 60 Hz alternating current. The power consumption is 780 W. The pump is equipped with a safety plug.

4. Commissioning / Operation

⚠ **If there is the risk of splashes during operation, the user must wear suitable protective clothing (goggles and protective gloves). More information can be taken from the safety data sheet of the medium being transported.**

! **The HORNET W 85 H electric pump may only be operated under supervision.**

4.1. Aspiration / dry running

The HORNET W 85 H pump works according to the self-priming hybrid pump principle. This means that the pump, when in pumping mode, operates like a centrifugal pump and in aspiration mode like a vane pump.
The aspiration process should be completed after a few seconds. If the pump has not aspirated any medium after around 30 seconds, there is a fault (e.g. the suction line is leaking, the tank is empty, the suction height is too great).
In this case, the pump must be switched off immediately and the fault eliminated.
Running the pump dry increases the wear on the pump rotor and on shaft seals, and must therefore be avoided.
The pump is fitted with a thermal dry-running safety device which will switch off the pump automatically. Since the pump will start up again after cooling down, the pump must be switched off when the thermal dry-running recognition system has been triggered in order to prevent unintentional start-ups.
Repeated dry-running will cause severe overheating of the pumping chamber, which can damage the pump rotor and seals.

4.2. Tank process

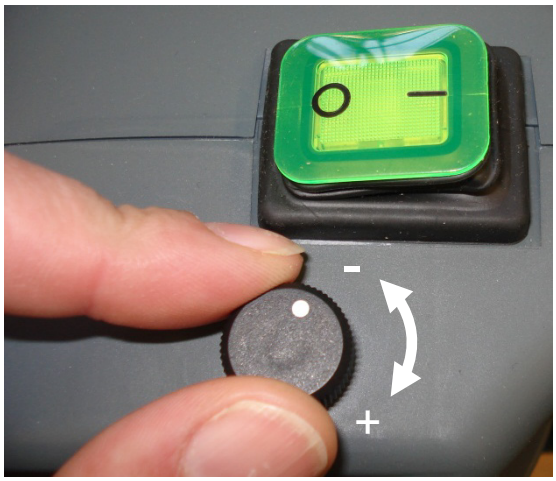
1. Switch on the pump => pump aspirates medium automatically.
2. Fill the vehicle's tank or container.
3. Switch off the pump; replace the nozzle.

☛ **Avoid lengthy operation against a closed nozzle!**

4.3. FMT II meter or FMT 3 meter (optional)

For further information, consult the FMT II's or FMT 3's operating instructions.

4.4. Rotational speed controller



The W 85 H pump can optionally be equipped with a rotational speed controller. The speed range lies between 9000 and 11000 rpm (dependent on viscosity and system).

Set the desired rotational speed of the drive motor or the desired volumetric flow rate with the speed setting wheel.

Caution! The rotational speed is dependent on the viscosity of the pumping medium.

Caution! If the pump does not prime, increase the rotational speed. If the speed setting wheel is at the maximum (+) and the pump still does not prime, then the error is not due to the rotational speed setting.

4.5. Automatic nozzles A2015

⚠ **Smoking is generally prohibited, also when drawing off diesel and heating oil and aqueous AUS32. Sources of ignition, such as fire, flying sparks etc., must be eliminated.**

! **If the A2015automatic nozzle is operated with a system other than the one supplied by us, a suitable pressure limiter must be installed because the automatic nozzle closes with pressure (max. operating pressure 3,5 bar)!**

Insert the outlet pipe into the tank filler pipe to the extent that it will remain securely in the tank filler pipe (see fig. A). This also ensures that the nozzle shuts down when the fuel tank is full.

For product variants with a holding clip guide the latter towards the protective bracket and latch the control lever.

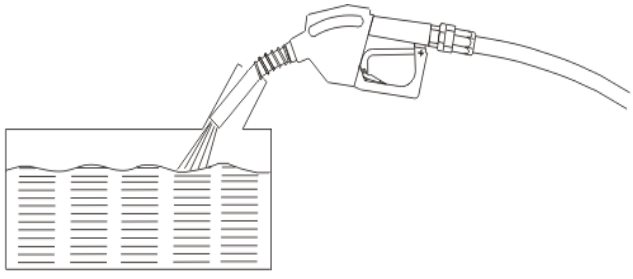


Fig. A

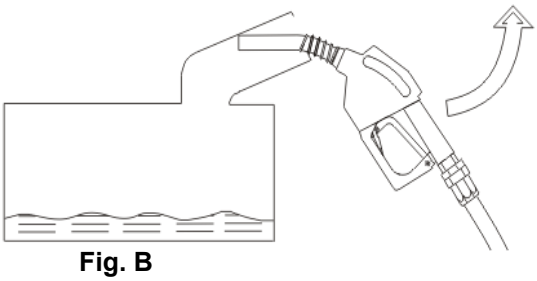


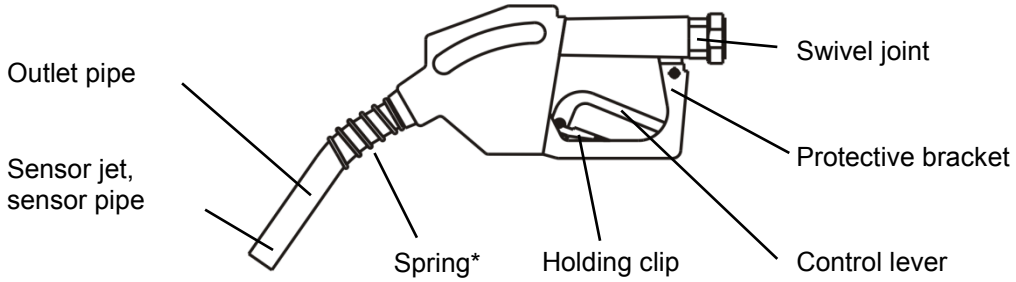
Fig. B

Once the nozzle has automatically shut down, tilt the nozzle towards the tank for a few seconds until the last drops have dripped out of the outlet pipe. This is also to be recommended when the filling procedure is ended manually.

If the nozzle can only be locked as shown in fig. B, it is not possible to fill the fuel tank. The nozzle shuts down immediately. Guide the nozzle in the direction of the arrow (see fig. B) to a position as shown in fig. A. The nozzle must be held in this position throughout the filling procedure. Items 2 and 3 apply accordingly.

! **If small amount are subsequently filled manually and when filling with the control lever locked, the volume flow may be less than the minimum allowed. In this case, the automatic shutdown of the nozzle can no longer work reliably! The fuel tank may be overfilled.**

! **The filling process must be supervised even when using an automatically-closing nozzle!**



5. Faults – what to do when …

… the pump is switching itself repeatedly on and off?

The pump is running dry and is switching itself back on after the pumping chamber has cooled down. Switch off the pump and eliminate the cause of the dry-running.

… the pump is leaking underneath?

The siphon protection opening is open: this is the normal operating status when the pump is mounted directly on the vessel or tank. When the tank is mounted separately, close the opening with the enclosed stoppers or fit a return line.

The stopper in the siphon protection opening has lost its sealing effect as a result of being screwed in several times and must be replaced.

The O-ring seal on the pumping chamber or suction nozzle is leaking and must be replaced.

… the pump is not aspirating (e.g. initial operation, lengthy periods of non-use)?

Check the suction line and all screw connections on the aspiration equip-ment for leaks and re-seal if necessary.

… the pumping capacity is too low?

The dirt trap is blocked.

Viscous and very cold oils are very difficult to aspirate, which will result in lower pumping capacities and high noise.

! **If the noise is excessive, further operation is only permitted following elimination of the cause!**

6. Maintenance

The HORNET W 85 H is virtually maintenance-free, however the following work should be carried out at regular intervals in order to ensure fault-free operation.

6.1. Seal checks

The equipment and other components in the system must be checked regularly for leaks and damage and any leaks or damage repaired.

6.2. Dirt trap

The sieve insert in the base filter or dirt trap must be cleaned after several vessel changes. To clean the sieve insert, remove it, wash it out, blow it out with compressed air and reinstall it. Replace any damaged sieve inserts.

6.3. Automatic nozzles A2015

1. 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.
2. Always hang up the nozzle securely after use so that it cannot fall. Handle the automatic pump nozzle with care.
3. Greasing or oiling is not necessary.

6.4. Cleaning the system

If the outside of the equipment is dirty, wipe it with a damp cloth and detergent. Do not use any aggressive cleaning agents or solvents.

7. Spare parts

The following spare parts are available:

	Article No.
Sealing set incl. siphon protection stoppers	**816 428 001**
Pump rotor including O ring for pump chamber	**816 428 002**
¾” (DN 19) hose barb connection pressure side	**516 420 010**
G1" thread adapter on pressure side	**616 420 005**
¾” (DN19) dispensing hose, length 13’ (4 m) standard (without nozzle and swivel joint)	**516 420 016**
¾” (DN19) dispensing hose, length 19’ (6 m) standard (without nozzle and swivel joint)	**516 420 023**
1” (DN25) dispensing hose, length 13’ (4 m) standard (without nozzle and swivel joint)	**516 420 017**
Suction hose with base filter, length 5’ (1.6 m) standard	**816 720 009**
Base filter FFT 26	**245 050 000**
Cup for nozzle holder	**515 610 012**

8. 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:

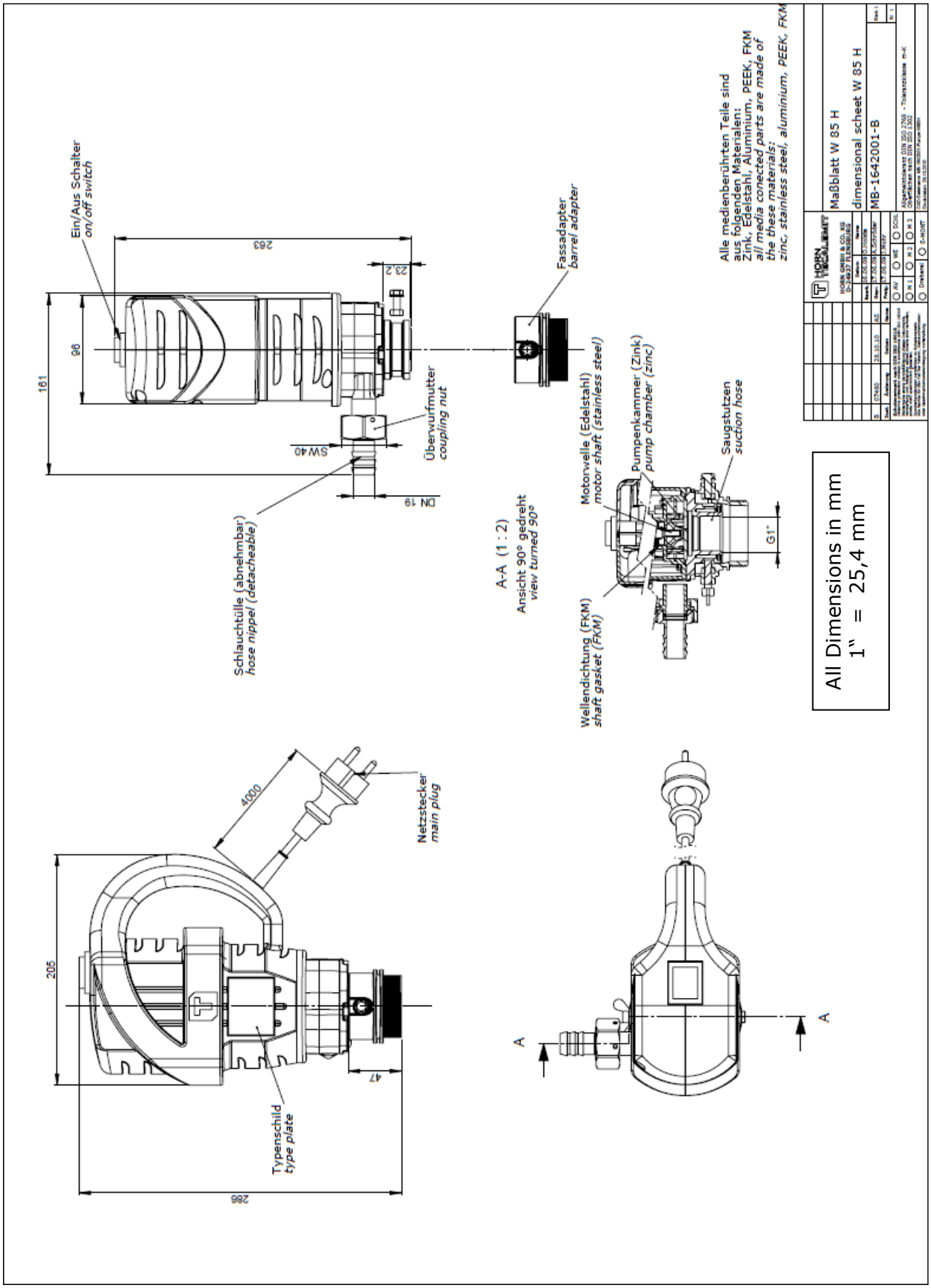
- Return old metal for recycling.
- Return plastic parts for recycling.
- Return electronic waste for recycling.

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

8.1. 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.

9. Dimension drawing of the HORNET W 85 H



TECALEMIT

TECALEMIT Inc.
6324 Greens Rd.
Humble, Texas 77396

T 281-446-7300
F 281-619-5613

sales@tecalemitusa.com
www.tecalemitusa.com