INSTRUCTIONS FOR USE

TIP-OVER DRINKING TROUGH WITH GALVANIZED RACK

Type: TOT-H-F
TOT-H-W

I. CONTENTS

II. SAFETY IN THE WORKPLACE

NOTE: The personnel must be familiarized with detailed information and guidelines contained in this manual that constitutes the precondition for proper and safe use of the drinking trough before any operations and works are made thereon. This manual should be near to the drinking trough in the place accessible to the personnel and it must be protected against damage.

This device must be operated by persons at least 18 years old who are literate, able-bodied and sane as well as familiarized with rules of operation with this device in manner possible to prove.

The drinking trough must be used for the purposes which is technically designed and according with manufacturer's conditions.

It is necessary to follow with guidelines in user's manual and official safety rules during installation, service and operation of the device.

This drinking trough meets the requirements of occupational health and safety, environmental protection and fire prevention defined in applicable regulations and technical standards.

1. RISK AND HAZARDS

The drinking troughs with heating plates supplied with 230V and 24 V are the electrical devices that must be operated only after professional hooking up and electrical rough-in inspection.
Impurities in the water line may cause the float valve malfunctions on water delivery to the drinking trough *(water delivery pipe or float valve may be choked or valve head may be leaky).*

Damage to the thermal insulation of the water delivery pipe to the drinking trough (*or neglect of restoring it to its previous condition after repair*) forms a threat of water delivery freezing.

Connecting the trough with the heating plate w/o water content to mains forms a threat of heating plate damage.

A rule concerning the contact with farm animals should be observed during maintenance of drinking trough.

In the case of plastic drinking trough with heating elements supplied with 230V AC, 50Hz, protection against electrical shock must be installed in conformity with EN 60898 or IEC 947 (EN 60947-2) standard by means of self-disconnection from main supply, insulation and interconnection, upgraded with a instantaneous lighting protector with differential current $I_n \leq 30$ mA according to the standard PN-IEC 60364-4-41:2000] – Outlet orifice of the float valve can be situated below water level, therefore the internal water line must be protected from contamination by back-flow (EN 1717:2000).

2. SAFETY IN THE WORKPLACE

If personnel discover technical fault or damage of drinking trough which may threaten health of people or animals, theirs life, property or natural environment, and personnel is not capable to remove this fault, they should stop operation of the drinking trough and disconnect it from power source and shut off water in drinking trough base and by main valve as well as immediately inform a responsible worker.

Before any maintenance, cleaning or repair or decommissioning, the drinking trough must be disconnected from power supply and it must be protected against random or intentional turning-on by incompetent persons.

During operation, safety covers (cover of float chamber, cover of electric connection box) must not be removed or handled in other way as well as all cover must be proper mounted in safety positions during operation of the drinking trough.

Protection and safety devices must not be turned off.

All electric works must be carried out by workers with right electrical certifications in compliance with the binding regulations of a given country or other regulation in force.

2. 1 STORAGE AND TRANSPORT

The drinking trough or its elements should be transported in undamaged pack, properly fitted to load-carrying body in order to prevent against move during transport.

Product must not change gravity center of transport facility.

Product must be protected against weather conditions during transportation.

Other objects or loads must not be placed on the drinking trough or its parts during transport.

The drinking trough must be storage in dry rooms protected against weather conditions and theft.

Other objects or loads must not be placed on the drinking trough or its parts during storage. This device must be secured that it is not hazardous for other persons or stored materials and products.

2. 2 INSTALLATION, MAINTENANCE, SERVICE AND REPAIRS

Works on electrical wiring system can be performed only by the persons with proper electrical qualifications and proper licenses in accordance with the regulations in force binding in a country of installation.

Before any internal check, maintenance, cleaning or repair or decommissioning, the drinking trough must be disconnected from power supply and water inflow must be shout off as well as this device must be protected against random or intentional turning on by incompetent persons all the time of mentioned operations!

After restart, it is necessary to check proper and safe operations of the device.

Thermal insulation must be exactly rehabilitated after repair.

2. 3 DISPOSAL

Disposal of the device must be carried out by authorized company in accordance with the rules in force in a given country of the said troughs utilization.

Disposal of packaging is carried out by recycling performed by authorized companies.

3. OCCUPATIONAL HYGIENE AND PERSONAL PROTECTION MEANS (PPM)

If it is required by nature of performed works, the personnel and ancillary staff must use personal protection means (PPM) and protective clothing.

After use of acid or basic disinfectants, manufacturer's guidelines must be observed during their disposal as well as workers must use personal protection means (PPM).

The personnel must keep general order and cleanness in the workplace, particularly they must keep control and cleanness of all functional elements as given in section "Maintenance".

4. SYMBOLS AND LABELS

Safety sign, symbols and labels on the device should be kept in legible condition.

If safety sign, symbols and labels are damaged or illegible, the User is responsible for their immediate repair i.e. restoring to original condition.

WARNING!

Covers marked with this safety sign are designed for hiding of electric wiring. Before dismantling of covers with this safety sign, electric wiring must be disconnected from main supply as well as off-state must be secured.

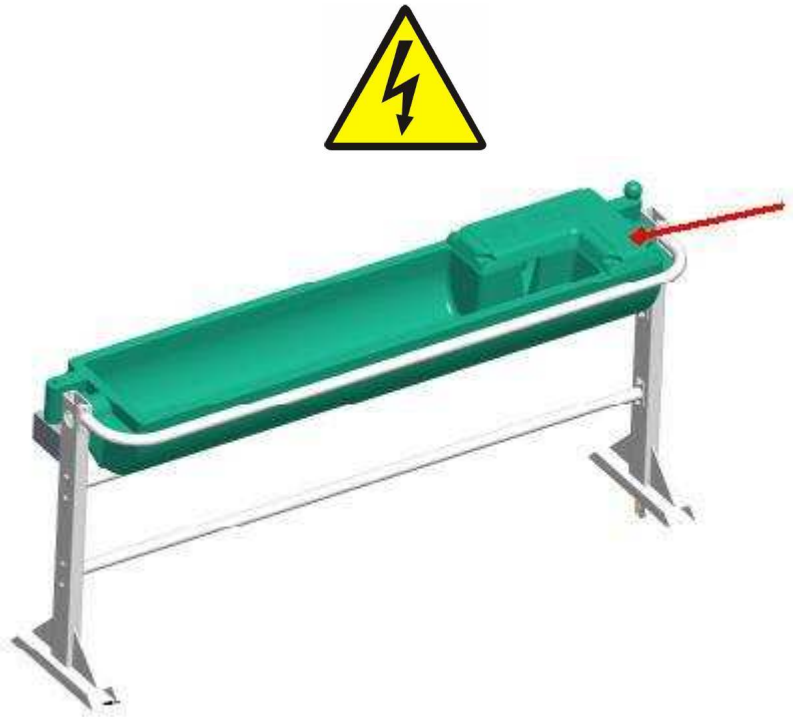


Fig. 1. Safety signs and labels layout on the drinking trough.

5. FIRE PROTECTION

The drinking trough is not equipped with extinguisher, therefore User must fit the object where the drinking trough is installed with proper extinguishers of approved type and in appropriate quantity. These extinguishers must be localized in visible place as well as protected against damages and abuse.

Performance efficiency of extinguishers should be regularly checked and the personnel must be familiarized with their use and operation in conformity general regulations on fire protection, (pursuant to the Fire Protection Act of 24 August 1991, as amended, NOTICE OF THE MINISTER OF INTERNAL AFFAIRS AND ADMINISTRATION of 22 July 2002 on proclamation of unified text of fire protection act (JoL No 147, item 1229).

Electric devices must not be extinguished with water! A dry chemical extinguisher, carbon-dioxide extinguisher or halon extinguisher must be placed next to the device as well as personnel must be familiarized with their use.

If a water extinguisher or a foam extinguisher is placed next to the device, it may be used only when the device is disconnected from power source.

For defrosting, unshielded flame or heaters which heat plastic surface above 50^0C must not be used.

6. WORKSTATIONS, WORKING SPACE AND WORKING CONDITIONS

The drinking troughs are designed to localization in barn and outside.

Construction of these drinking troughs meets requirements concerning localization in environments in conformity with EN 60721-3-4:2002 standard:

- AB3/AB4 - Ambient temperature in the range of -25 ÷ +40^0C with relative humidity, RH, up to 100%;
- AD4 - Presence of water – jet water;
- AE4 - Presence of foreign solid bodies, light dustiness;

- AF3 Presence of corrosive substances or contaminants – rare cases;
- BA4 – predispositions of persons – familiarized persons;
- BC3 - contact the persons with ground potential - frequent.

The device is not emitting noise.

III. INTENDED USE

1. CHARACTERISTIC OF THE DEVICE

Skip drinking troughs are designed for watering farm animals in free stall barn. These drinking troughs provide animals with access to free water level, sufficient reserve of water and fast water refill from water line. At the same time, it is important to right fit size of drinking troughs and its height over the floor of the station according to category and size of animal group in the barn. For more numerous group of animals, in regards to natural way of their behavior, it is recommended to localize greater number of smaller drinking troughs in different places than one big in one place. The best result is archived with the drinking troughs spaced not more than 12 m.

2. APPLICATION

Skip drinking troughs with troughs heated by electric heaters are designed for watering farm animals that have corral to unheated rooms or in the open (barns, light constructions, sheds with stands without binding) where temperature in the winter may be lower than 0˚C.

When heating is turned on, these drinking troughs maintain constant temperature of water above 0˚C during all winter period (when outside temperature is of -20˚C, temperature at bottom of heated trough is about +10˚C.

Drinking troughs are designed for connection to water line with max water pressure up to 0,6 Mpa; dimension of the connected pipeline is G1/2“. External water line must be protected against contamination by backflow (EN 1717:2000), or the protection device should be placed under each drinking trough.

3. ACTIONS PROHIBITED DURING DEVICE OPERATION

The following actions are prohibited:

Turning off the protection and safety devices;

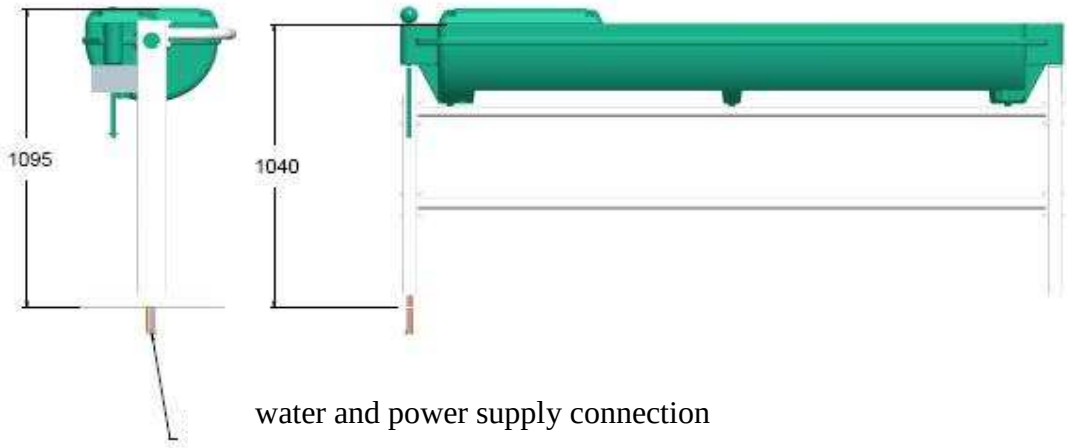
- Connection of other receiving facilities to the drinking trough;
- Execution of any changes in construction of the drinking trough that are not accepted by a Supplier
- Using of drinking trough for purposes to which it is not designed;
- Filling chemicals to troughs of drinkers;
- Standing up or sitting on the trough.
- Using of drinking trough as place to putting aside any objects;
- Hanging or placing or fitting any objects on the drinking trough

IV. DESCRIPTION

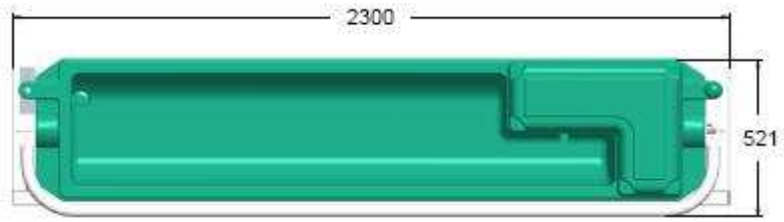
The drinking trough is composed of galvanized load-carrying and shielding rack as well as proper plastic trough, which performs the function of water tank maintaining the dimensions, functions and similar connections as are proper for TOT-H drinking trough. It is manufactured in two variations:

1)TOT-H-W;

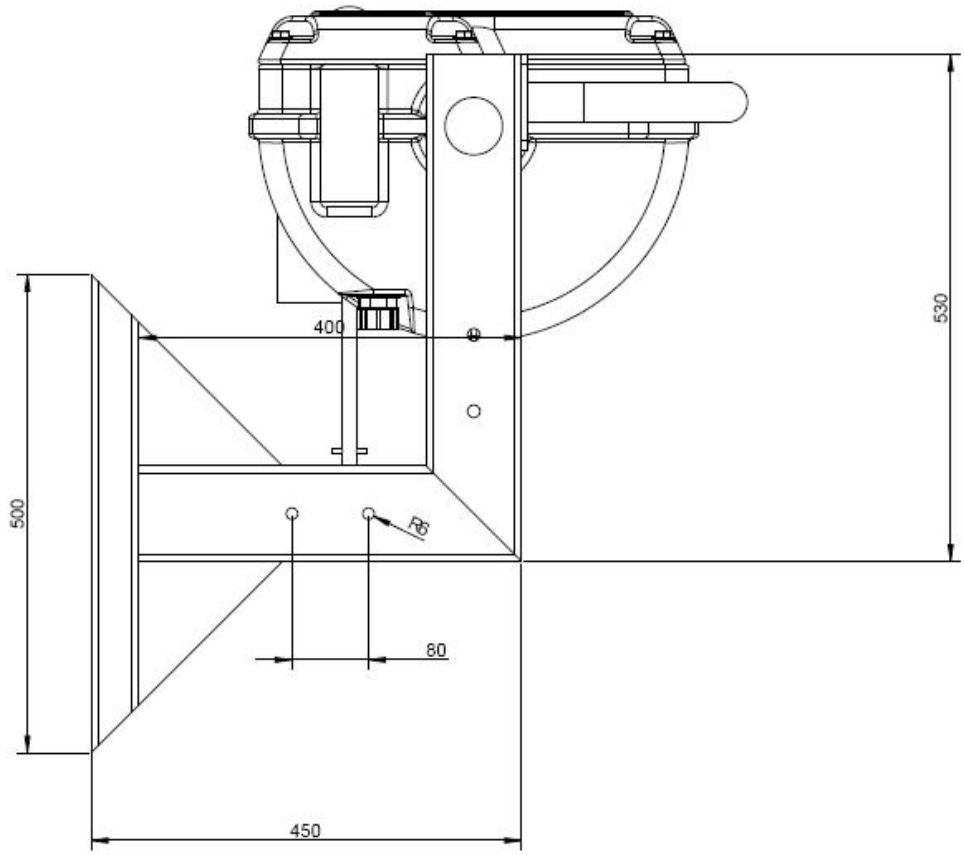
Standing unit – fixed to the ground on which it stands.

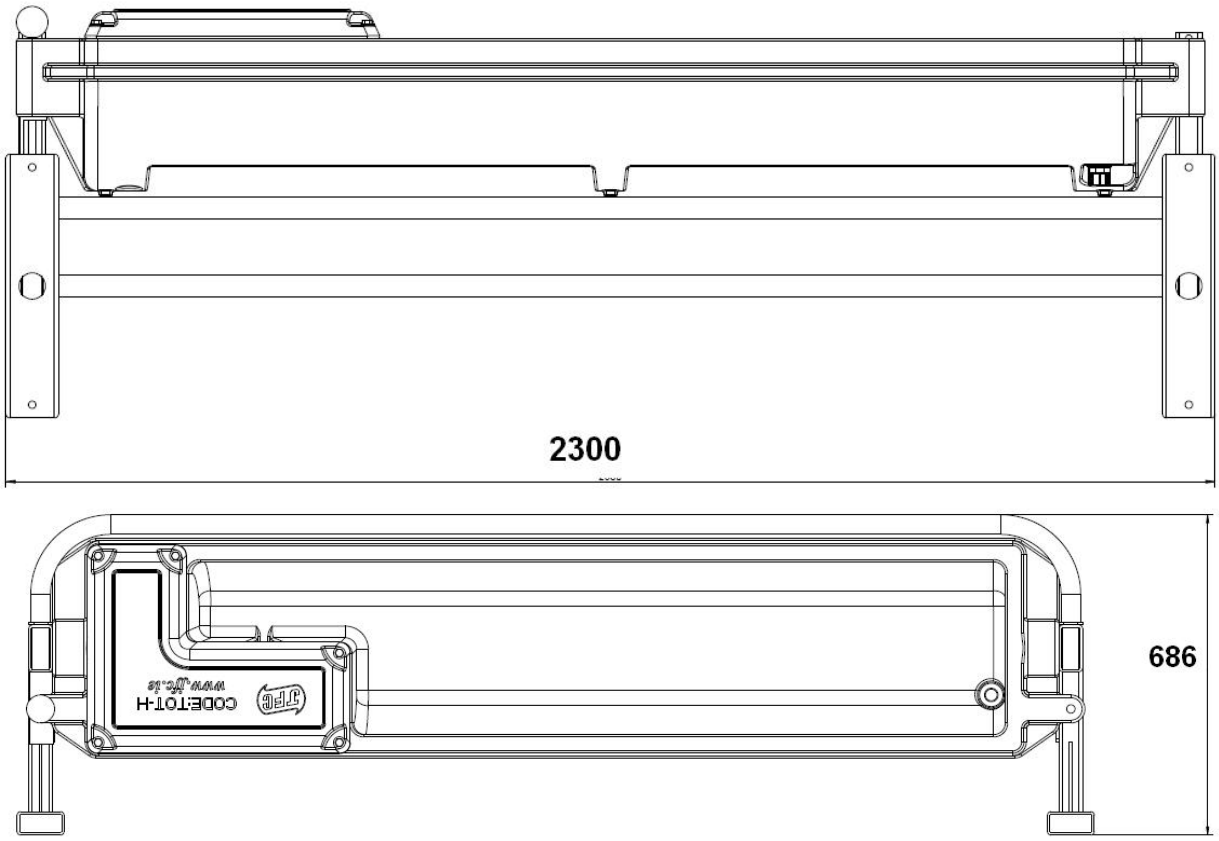


water and power supply connection



2)TOT-H-W;
Hanging unit – wall-mounted.





1. TOT-H HEATED trough AND TOT-H W/O HEATING,

TOT-H trough is a manger – a skip type plastic container of double wall made from polyethylene. It has one drainage hole. The trough has one open chamber with a drain plug and two covered chambers: float and electrical wiring chamber, which is equipped with a drainage hole protecting from flooding the electrical connection box.

Body of drinking trough is made from galvanized steel frame. There are two heating plates at the trough bottom (preventing from heat losses) and plastic covering plate, which is attached to the external wall of the trough bottom by means of aluminum rivets.

The float chamber is covered with the plastic lid from the top, which is mounted to the trough walls by means of five M6 stainless steel screws screwed into special threaded sockets embedded in the trough walls.

The electric conduits are led out from the heating plates with the terminals mounted in the electric connection box at the covered trough chamber.

Access to the heating plate is possible only after pulling out the plastic covering plates and thermal insulation.

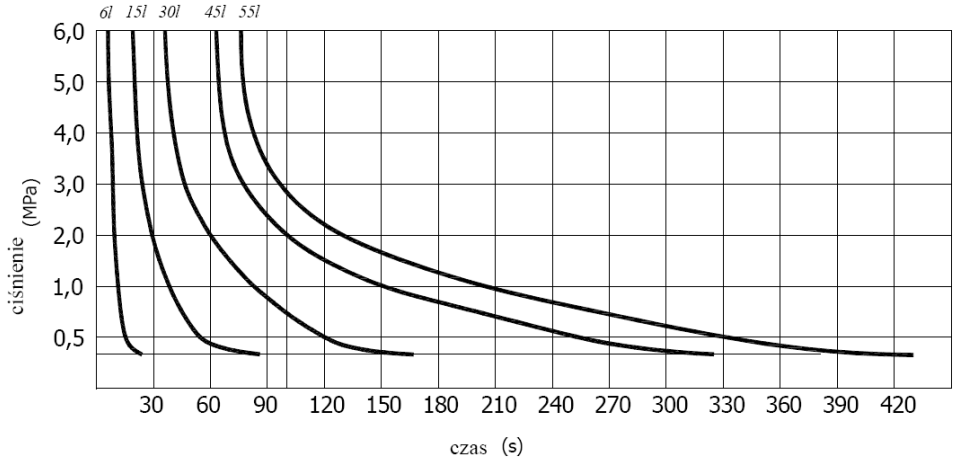
TOT-H trough w/o HEATING does not possess the heating plates, thermal insulation and electrical connection box.

1. 1 FLOAT VALVE

The float valve of 30l/min. capacity ended with ½" thread is mounted in the hole cut out in the float chamber wall. The valve body is made from brass and head from plastic. The rubber insert causes water delivery shut off to the drinking trough. The lever mechanism is made from stainless steel or brass with float from plastic.

Water level in the drinking trough can be adjusted by shifting the float along the lever and setting it proper inclination on the cam.

Fig. 2. Float valve seating *(ex: TOT-H heated drinking trough):*



Rys. 6 DIAGRAM szybkość napełniania komór poidłowych przy różnych poziomach wody

Fig. 6 Diagram of the filling speed of drinking trough chambers at various water levels

2. LOAD-CARRYING STRUCTURE - BASE

The load carrying structure is mounted to the barn floor according to the designing documentation or this instruction as per Fig. 1. The main load-carrying part are two hot galvanized steel legs screwed one another by means of two transverse tubes and plastic trough clamping ring. Water and power supply as well as earth lead are mounted in one leg.

Stability of the welded frame base is provided by the span of its legs. The frame base is equipped with the holes for connecting components of water and power supply service lines as well as the screws for mounting the earth leads connecting the current conducting components of the drinking trough with the protection circuits (EN 60204-1.5).

There is the plastic trough TOT-H on the upper part of the frame-base. Access to the float chamber interior, if necessary, and water delivery shut off during utilization after the drinking trough installation is possible from the top after unscrewing the five mounting screws. A part of the electrical wiring system of the heated drinking trough are two heating plates with power consumption of 130 each, intended for water heating from the base interior..

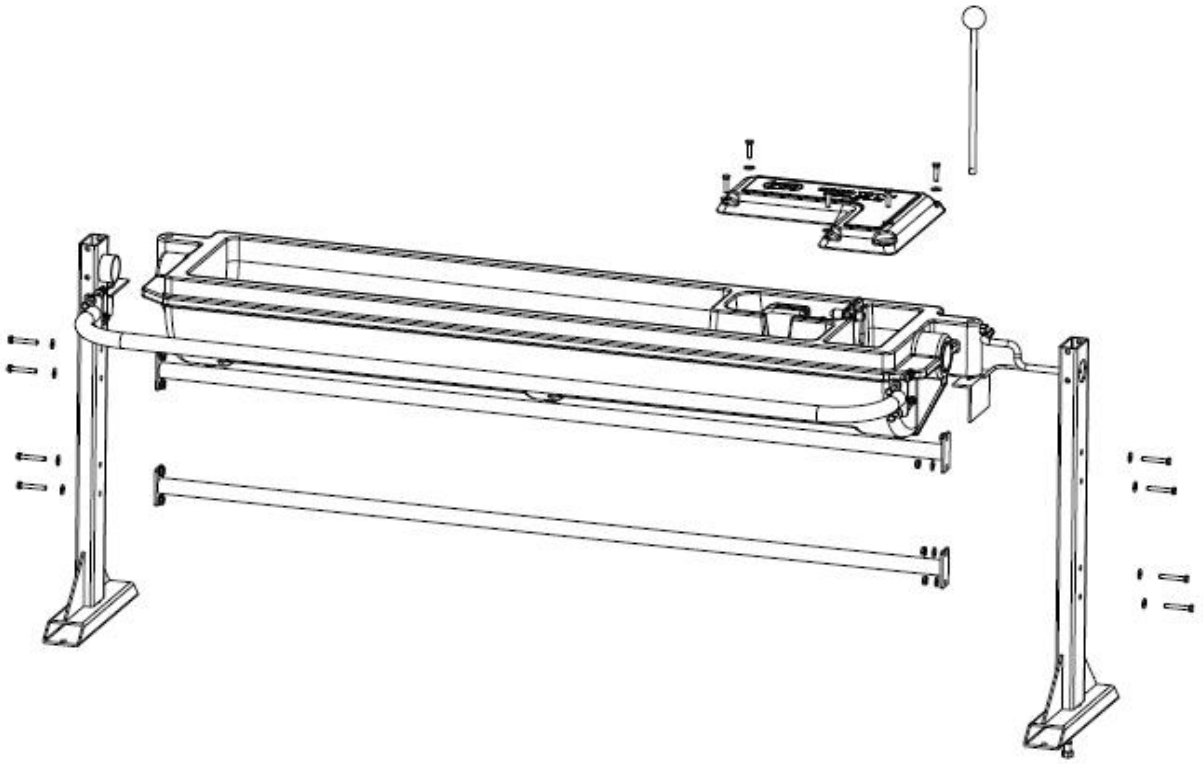


Fig. 1. Load-carrying structure and trough mounting method.

2. 1 THERMAL INSULATION

It is necessary to insulate the water delivery conduit in the leg of the load-carrying structure placing it in thermal insulation from polystyrene of 40 mm in thickness around the water conduit.

2. 2 PROTECTION DEVICES

The drinking troughs are protected from upsetting by means of a great span of the feet of two legs of the load-carrying structure. Those feet should be mounted to concrete by means of four expansion bolts the solution for standing troughs (Fig.3) or to the wall in case of suspended troughs (Fig. 2). The drinking trough is equipped with a very simple protection that locks the plastic skip trough in relation to the load-carrying structure by means of one movable lever (ended with a ball from the top). At working position of the drinking trough the lever counterweight protects the frame with trough permanently, which can be unlocked only by shifting the lever upwards and turning it so that its bottom protecting pin could pass the hole in the frame of the drinking trough that will cause the lever removal from the protecting location and releasing the frame with plastic trough.

After skipping (pouring water out of the trough) one shall remember to position the trough in the horizontal position and lock it against pouring out by pushing the lever with ball into the hole situated in the frame of the drinking trough (the so-called „protecting – position”).

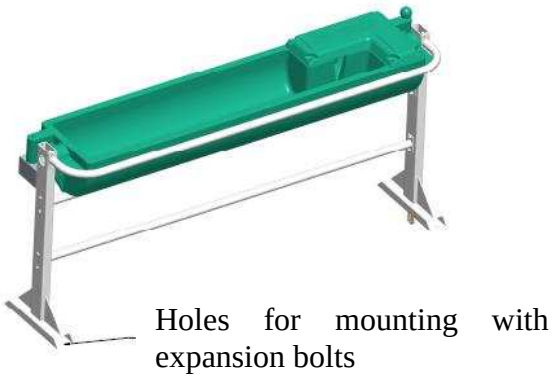


Fig. 3. Places for mounting the structure to the floor. (mounting holes)

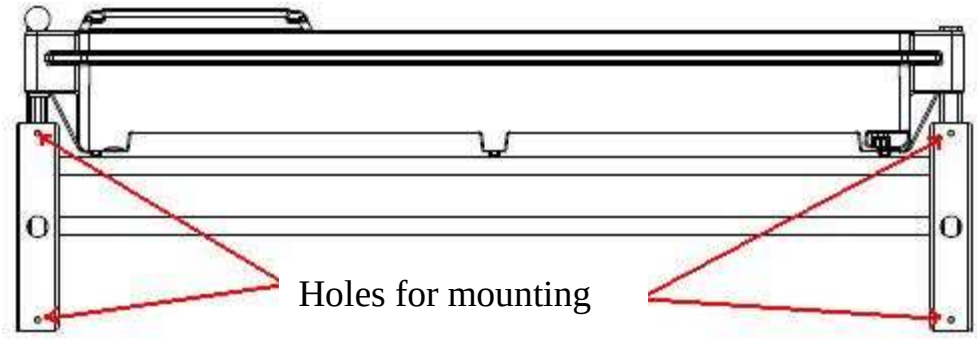


Fig. 2. Places for mounting the structure to the floor.

2. 3 ELECTRICAL WIRING

The bottom chamber heating is realized with the special customized heating plates type NOMATERM II with power consumption of 130 W each. The heating plates are placed in the chambers between two walls of the trough and mounted from the outside to the chamber bottom by means of plastic plates, which are fixed to the external wall of the trough bottom with aluminum rivets. The ends of the heating plates cable (ca. 800 mm) pass between the bottom double wall of the trough and are connected to electric current supply in the float chamber of the drinking trough by means of terminals in the electrical box. Also the earth lead for connecting the drinking trough load-carrying part with the barn earth terminal is connected to the same box. Power supply from the switchgear to the drinking trough should be equipped with an overvoltage protector; it is possible to connect three troughs to the maximum to each of them.

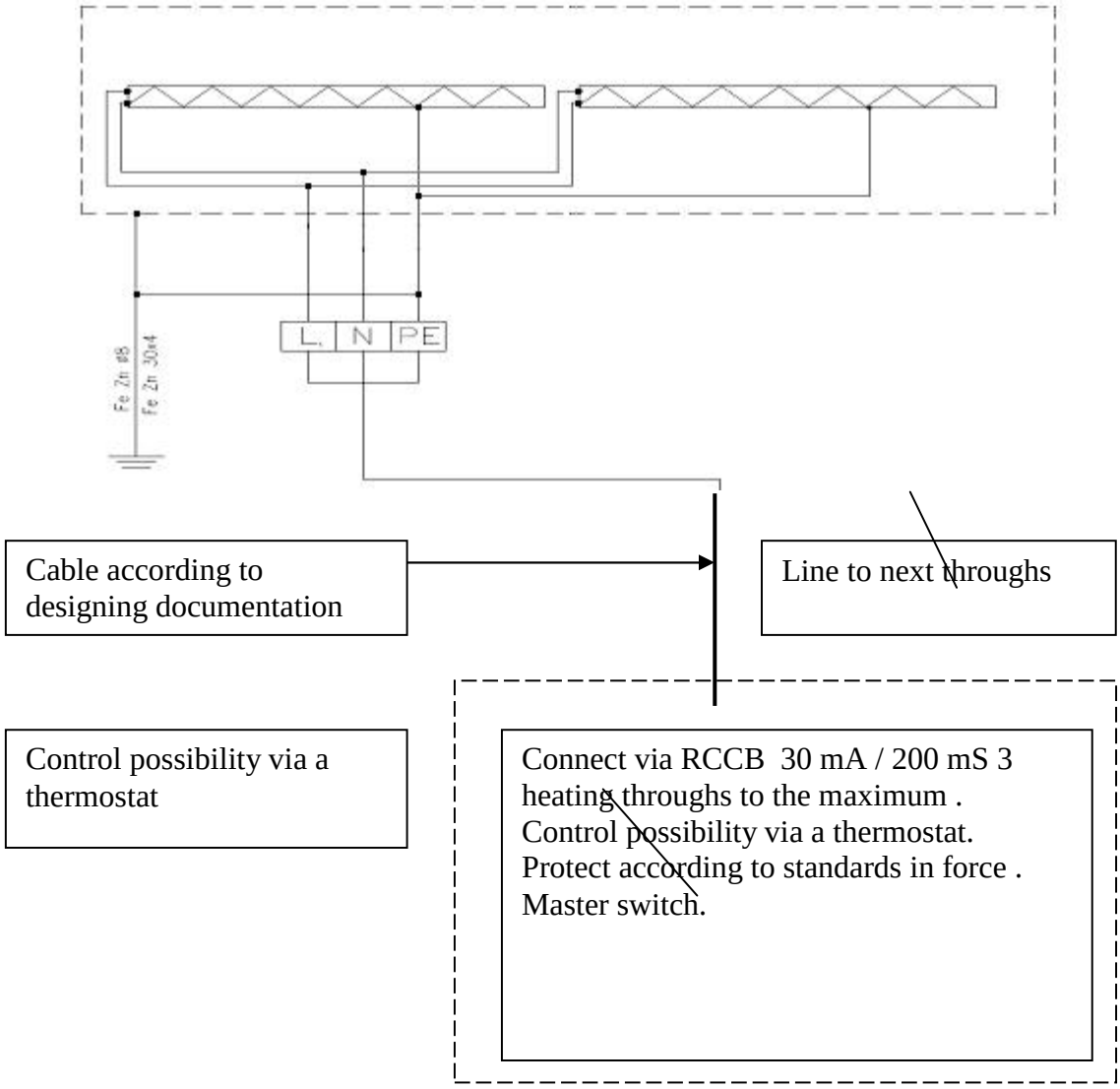


Fig. 3.1 Electric wiring diagram 230 V

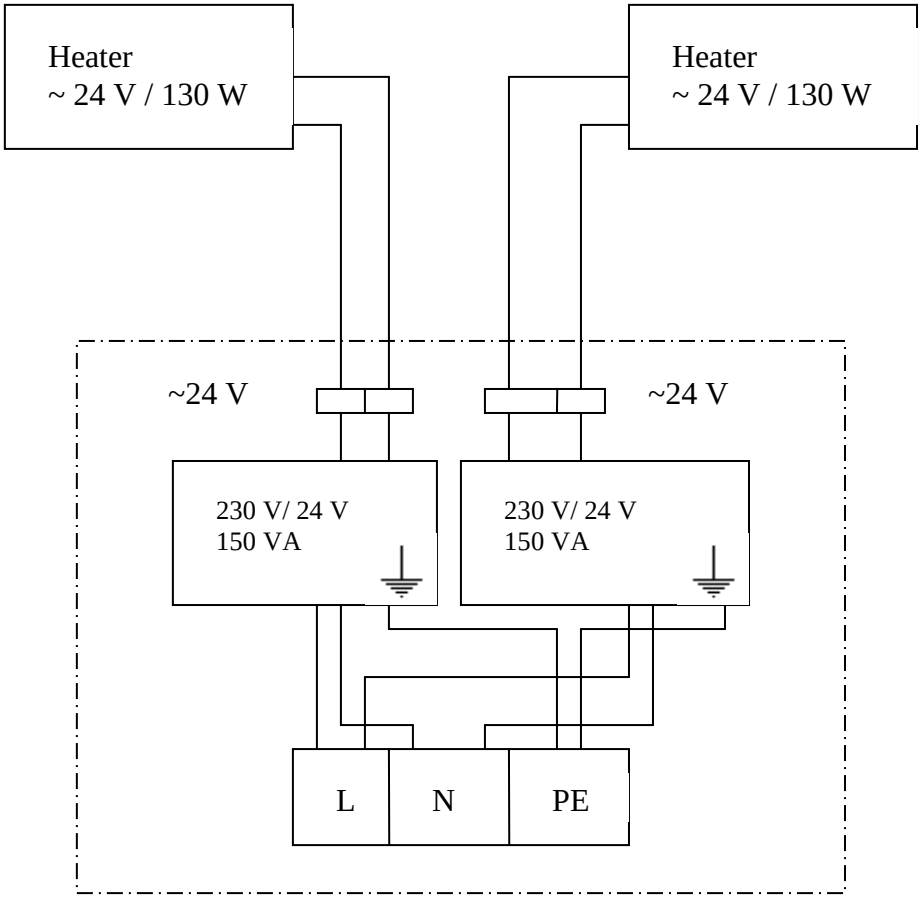


Fig. 3.2. Electric wiring diagram 24 V.

To reduce the power consumption it is useful to mount a thermostat in the object switchgear, which shall shut off power supply to the drinking trough only in case of ambient temperature drop below 0^{o}C.

2.4 WATER DELIVERY

Water is delivered from water mains to the float valve *(Fig. 2) via a closing ball tap* 1/2“ FF *(item. 2, fig. 4) –* ***IT IS OUT OF DELIVERY,*** *(item. 4, fig. 4) and braided rubber hose* HTOT water 1500mm (item *3, fig. 4)* ½’’ In this way water delivery to the drinking trough is not throttled at any cross-section and thereby the float valve can response to any water loss very quickly. The hose must move freely in the base at skipping and closing the trough..

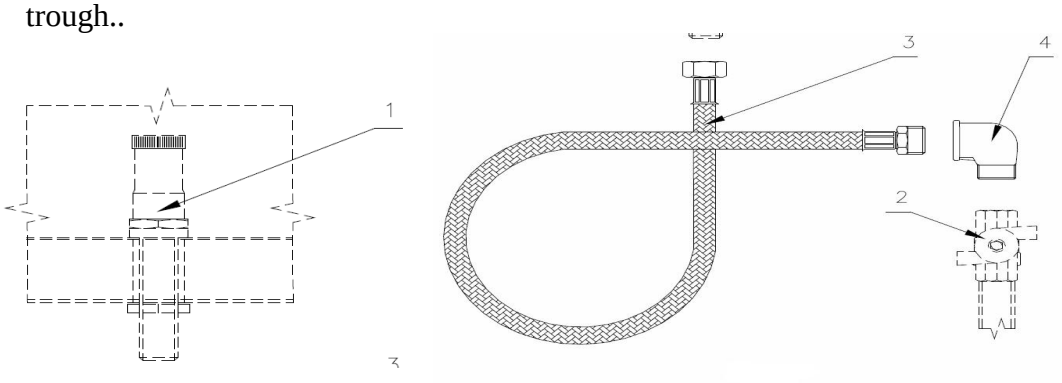


Fig. 4. Water connection.

V. TECHNICAL DATA

BASE		
	JM	
Width	mm	
Length	mm	2300
Height	mm	
Height after concreting L min	mm	
Height after concreting L max	mm	
Mass	kg	

DRINKING trough WITH BASE	JM	TOT-H STANDARD	TOT-H WALL MOUNTED
Width	mm	521	686
Total height	mm	1095	
Length	mm	2300	2300
Total internal volume	l	100	100
Mass	kg		
Voltage	V	230 or 24	230 or 24
Power consumption	W	2x130	2x130
Protection	IP		
Width	mm		
Depth	mm		
Length	mm		
Height	mm		
Mass	kg		

At commissioning completion carry out the training for staff and deliver the documentation relevant for the device, unless other specified in the contract!

VI. SERVICE AND MAINTENANCE

1. 1 WORKS ON THE DEVICE

The skip drinking trough connected to the water mains operates in continuous mode and quickly replenishes water to the level set previously. Service of heated drinking trough consists in regularly check of water purity and level which should be kept above freezing point all the time as well as turning on and turning off power supply, depending on ambient temperature, manually or by means of spatial thermostat.

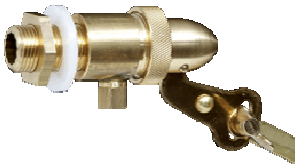
As it needed but at least once a week it is necessary to drain a trough by skipping and it must be cleaned. Working and float chamber, as well as other surfaces of plastic trough should be cleaned and dirty water poured out. If water inflow in the drinking trough base is not closed after skipping the trough the float valve still operates. The drinking trough chambers should be disinfected with approved non harmful agents and flushed with fresh water again.

Agents with chlorine are prohibited because chlorine may destruct galvanized top layers of steel elements.

At least once a month, it is necessary to take out the top cover of the float chamber at the closed water delivery (by unscrewing 5 M6 screws), and flush the float chamber surface after unscrewing and removing the float. The same float should also be cleaned and mounted in reverse order.

1. 2 SETTING THE WATER LEVEL

To set the water level and thereby the water volume in the skip drinking trough it is necessary to take out the top cover of the float chamber *(by unscrewing 5 M6 screws),* unscrew the wing-nut on the lever between the valve body and plastic float and set proper inclination of the plastic float in relation to the float valve lever (raising the float in relation to the lever causes the water level increase in the drinking trough). The float should be protected with the wing-nut in that position and float chamber cover mounted again.



1. 3 CURRENT CONTROL DURING OPERATION

- before winter season it is necessary to check general serviceability of the drinking trough, thermal insulation integrity on the leg of the load-carrying structure, between the base and trough and leak tightness of the plastic trough.
- integrity of frame welds, since their impairment may cause the plastic trough deformation
- integrity of the trough connection with the frame.

2. TROUBLESHOOTING

Water leaks to the trough slowly or not leaks at all:

- water mains is not in service,
- considerable pressure drop in water mains occurred,
- valve on water delivery to the drinking trough was closed,
- some foreign object is in the water delivery to the float valve,
- hose supplying water in the drinking trough leg is clogged.

Water leaks continuously and leaks from the trough to the outside:

- too high pressure in the water mains causes not complete valve closure,
- defected float or valve lever mechanism,

- float steam or float touched the float chamber roof,
- impurities between the head and seat of the valve,
- deformation of the rubber seal in the valve head.

Water frozen in the trough:

- power supply break-down,
- overvoltage fuse or protector was switched off.

VII. PACKING, DELIVERY AND ACCEPTANCE

1. PACKING

The plastic trough is delivered as-mounted, supporting frame is delivered not mounted, separately.

The plastic trough is wrapped in plastic film, whereas the auxiliary equipment is placed in separate packages.

The equipment of TOT-H-F and TOT-H WALL MOUNTED drinking trough

Catalogue number	Name	Qty
HTOT3x25	Electric conduit	2 m
HTOTściana (optional)	Wall rack	1 set
HTOTstel (optional)	Standing rack	1 set
HTOTzasl	Plug SFL55x1 black	2 pcs
BV3/8	Valve 3/8 with float	1 pc
HTOTwoda	Water connecting hose	1 pc
HTOTsruby	Set of screws	1 set
HTOTinstr	Instructions for use of heated skip drinking trough	1 pc

2. DELIVERY AND ACCPETANCE

The delivery and acceptance of that goods takes place according to the conditions of the agreement between the supplier and receiver.

VIII. CATALOGUE OF SPARE PARTS

BV3/8: valve with float.

Head and rubber plug closing water inflow

Braided hose 1/2x3/4” FM 1000 mm

IX. SPECIAL PROVISIONS

The producer reserves the right to changes and design modifications of the device.

GUARANTEE CARD

Product:
Factory No **Number of pieces:**
Name and address of the Orderer
Guarantee period:
Warranty period:

Warranty period for this product is 6 months from above mentioned date i.e. all claims due to defects which are not discovered during this period will expire.
The supplier declares that he will give warranty extended beyond this period if it is stated in Contract of division in the following scope:

Warranty period for this product is 6 months from above mentioned date i.e. all claims due to defects which are not discovered during this period will expire. After this warranty period, the Client will be charged for all cost for arriving of technician and maintenance operations.

Warranty terms
The Client is obliged to routine maintenance according to User's manual.

The supplier is not responsible for the following:

Defects and damages caused by User, third parties, breakdown or higher power;
Especially, damages caused when rules of User's manual were not observed during operation or when device was operated in improper purpose;
Defects caused by normal wear or unauthorized changes in device construction.
Warranty is not applicable to broken protection components, which are intended for protecting the device against overloading.
Routine maintenance, adjustments and cleaning of the device are not covered by this warranty; these operations are carried out by the Client in service center

Seal and signature