Installation Instruction

FRANK WET / Water Heat Exchanger

General Information:

- The FRANK WET / Water Heat Exchanger is designed for installation in lakes and ponds. It is designed
- The high performance heat exchanger is designed to operate in combination with brine/water heat pumps and can be used for heating and cooling.
- The convection openings in the protection housing allow the circulation of the lake water.
- The FRANK heat exchanger and the protective casing are made of environmentally-friendly ,high-grade polyethylene.

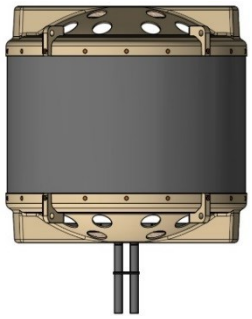

Fig. 1

Transport:

- The transport of the FRANK WET should be done by 2 people and with transport rope or by the help of a crane.
- Handle with proper care.
- The conveyor rope / sling hast to be fixed on the mounting eyes of the housing (see Fig. 2+3).

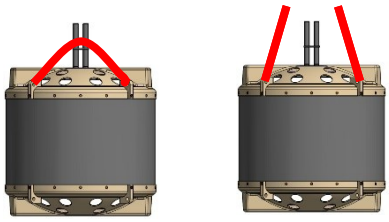

Fig. 2+3

Preparations before installation:

- Before installation check the product for damages.
- Consider the provided connection (upward or downward)
- Connection for supply and return by means of welded connection (electrofusion or socket welding) to the PE 100 pipe socket d 40 x 3.7 mm (SDR 11).
- To attach the WET, sturdy eyelets are provided at the top and bottom of the protective housing.
- The anchoring weights must be fastened to the lower eyelets (weights see page 3, Tab. 1).
- We recommend the use of steel weights.
- For a controlled lowering of the anchoring weight, a rope of appropriate length (double installation depth + min. length of 10 m) must be provided.

Conditions for installation:

- The FRANK WET water heat exchanger is installed at a distance from the bottom of the river to avoid contamination by sediments.
- Depending on the module size, a minimum water depth of 2.6 to 3.2 is required for installation.
- The following minimum distances must be observed:
  - 1m to the water surface
  - 1m to the ground
  - 1m to the side
- In determining the anchoring depth of the WET, ice formation on the water or boat traffic should be considered.
- The installation should take place in a water depth with water temperature not below of +4 ° C.
- The heat extraction rate depends on the ambient water temperature.

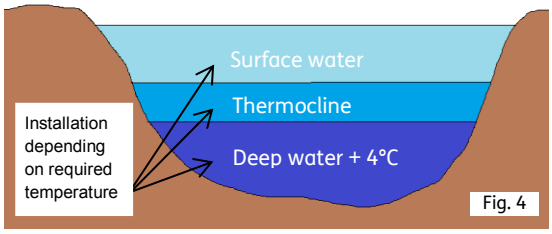

Fig. 4

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Pipe connections:

- The pipe connection of the WET is made by welding (electrofusion or socket welding).
- To prepare the welding, the pipe ends have to be peeled with a rotary peeler.
- Welded connections must be made in compliance with the valid DVS and DVGW guidelines for welding plastic pipes.
- The manufacturer's processing instructions for the components used must always be observed.
- PE pipe d 40 mm SDR 11 (PE 100 or PE 100-RC) is used for the connection line
- When installing the WET in a short distance to the bottom of the water, the use of 90 ° electrofusion elbow fittings is recommend, to avoid restoring forces due to the low bending radius of the connecting cables (Fig. 5).

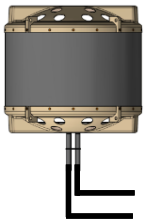
Fig. 5

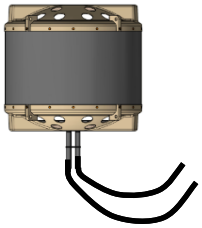
Fig. 6

- For a flexible transition from the connecting pieces to the connection line a flexible connection cable (accessory) can be used (Fig. 6).
- Longer connection lines must be fixed on the ground in order to prevent flooding.
- After completion of all pipe connections, a pressure test is recommended prior to discharge into the water.

Placement in the water:

SAFETY NOTE:
Please work with at least 2 persons, wear life jackets and make sure that the ropes can run free.

- The placement of the heat exchanger in the water should be done from a boat or a floating platform
- The water heat exchanger is moved floating to the installation position (Fig. 8).

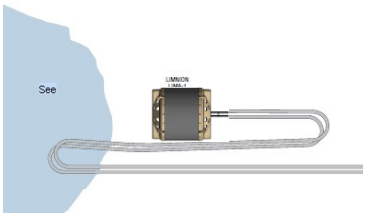

Fig. 7

- Lay the pipeline, which is connected to the water heat exchanger, on the shore and carry it along (Fig. 7).
- The anchoring weight should be transported by boat.
- The anchoring weight is attached to the water heat exchanger with the required distance. The weight can be fixed by a chain, wire or plastic rope.
- For a controlled lowering of the weight, an auxiliary line is guided by an eyelet / shackle on the weight. (Rope length = double installation depth + min. 10 m))

After releasing the weight, the auxiliary line can then be withdrawn. (Fig. 9)

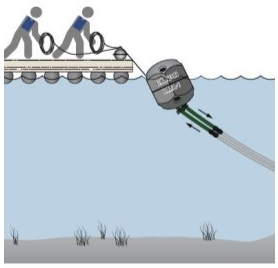
Fig. 8

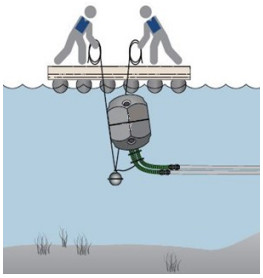
Fig. 9

- Before lowering the WET, the heat exchanger and the connection pipes have to be filled with heat transfer medium.
- For a better ventilation, the pipe connection should point upwards (Fig. 10)


Fig. 10

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Anchoring on jetties or piles:

- Anchoring can be done by bracing with wire or plastic ropes under boat jetties or between anchoring piles.
- In flowing waters or in case of stronger wave movement, a mounting with bracing is absolutely necessary.
- The wires must be fixed to the attachment points on the protective housing.
- The anchoring distances must be observed (Fig. 11)

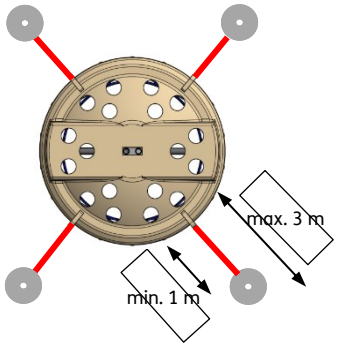

Fig. 11

Purging, Venting:

- Every water heat exchanger must be purged and completely vented after connection.
- When connecting several water heat exchangers to a manifold, each circuit must be purged and vented separately.

Pressure test and functional check:

- Before commissioning, the entire system has to be checked with a pressure test at 1.5 times of the operating pressure.
- The data must be recorded in a pressure test and acceptance report.

Connection to chamber manifolds:

- For higher power requirement several WET modules can be operated in parallel.
- The flow and return pipe of each WET has to be connected to a manifold.
- Each connected heat exchanger circuit must be equipped with shut-off valve and flow meter.

Technical Data:

	Module type		
	WET 1	**WET 2**	**WET 3**
Outer diameter (mm)	1220		
Height (mm)	600	900	1200
Weight (empty) (kg)	45	76	107
Ffig.ing volume (l)	25	50	75
Anchoring weight min. (kg)	35	75	100
Max. Volume flow (m^3/h)	2,0	3,7	4,7
Max. operating pressure	3,0 bar		
Max. test pressure	4,5 bar (20°C)		
Temperature range	-10°C bis +40 °C		

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