Rodelta EHT (Elbow pump)

The pump type EHT a single stage, Axially split, Axial flow pump and is also known as a "elbow pump" at Rodelta. This design make use of the siphon principle saving energy and minimize valves in system. The pumps are used where low heads and high capacities are needed, mostly to bring polder water over a dike or dam. .

EHT, Axial flow pumps with horizontal shaft

Axial flow pumps are often constructed with horizontal shaft and with suction and discharge lines or concrete inlet and outlet canals.

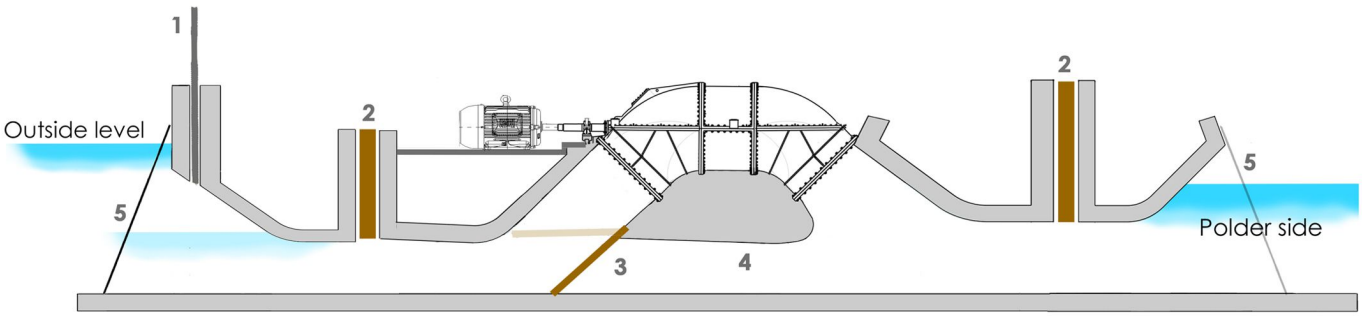
The advantages of this type of construction are that the pump can be placed on a simple foundation and provides easy accessibility for inspection. After removal of the top half of the pump casing the impeller can be easily mounted and dismounted. In this respect the water does not present any difficulties, since in this construction the impeller is as a rule located above the highest water level or else a valve is provided on the discharge side. Hence, it is not necessary to dam off or drain any part of the canal.

The pumps of this type can be built for very large capacities. When the impeller of a pump is located above the suction water level it is necessary to draw the line full of water before starting up the pump. Evacuation of the suction line is usually effected by means of a vacuum pump.

Pump type EHT 2400S

White metal bearings during installation at the Almelo factory

Figure 1:
Arrangement drawing of a pumping station where a VFD driven axial flow pump (EHT) has been combined with an automatcally operating clear discharge canal under the pump.



1 Emergency slide
2 Roller slide
3 Non-return valve
4 Channel for free discharge
5 Trach rack

Figure 1 shows the arrangement of a horizontal axial flow pump, of which the pump canals are combined with free discharge canals. This is a solution for those cases where the outside water level is affected by the tides. If the outside water level drops, the valve under the pump (see no:3) opens automatically and the water from the polder flows outwards underneath the pump. If the outside water level rises above the polder level, the valve closes automatically.

In this arrangement the discharge canal can pass about 2700 cu/m per minute. The design of this pump is based on the results obtained from measurements in respect of models and CFD studies. all performed by our own hydraulic team.

The pump type shown in the picture can be supplied in many versions. The illustration shows a station which during the greater part of the year discharges excess water from a polder into a large river. but in summer "thus in the dry time when the water level in the polder is low" it would be possible to pump the water from the river into the polder. In that case, the same pump can be used for both, drainage and irrigation. Rodelta can constructed the pump so that it can pump in two directions. The direction of flow in the pump can than be reversed.
The pump is driven by a VFD converter/driver this ensures that the flow rate of the pump accurately can be controlled. The construction of the pump is such that no damage can occur with rough operation or when the water contains coarse objects, such as pieces of wood or ice.

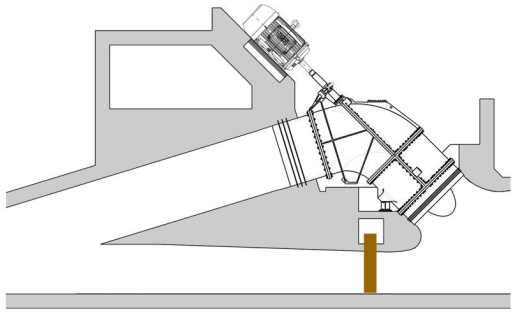


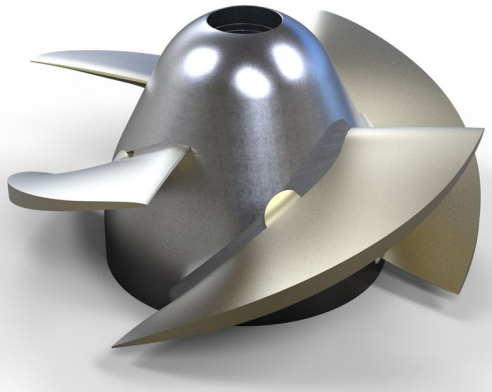
Figure 2:
The EHT pump type can also be delivered in a 45 degree setup as shown on the adjacent drawing

Features: EHT (elbow pump)

- The pump is installed over the dike or dam above water level. The pump is filled with water by using vacuum installation creating a siphon by vacuum in the pump before start-up. The is vacuum automatically removed when stopping the pump.
- Energy saving, due siphon principle only dynamic losses and no static losses.
- Easy inspection of the pump possible as the pump is dry when not running.
- Fish-friendly design available

Specifications:

- Delivery size up to 2500mm (Diameters up to 4 meters possible on request)
- Capacity up to 150.000m3/hr
- Head up to 11m
- Suitable for liquid Temperature: Up to 50°C
- Sealing Arrangement: Packed gland



Applications:

- Drainage- or irrigation pumps
- Flood control

Constructional features:

Pumpcasing, suction and discharge

The pump casing and discharge are axial split type and together with suction pipe semi installed in the concrete.

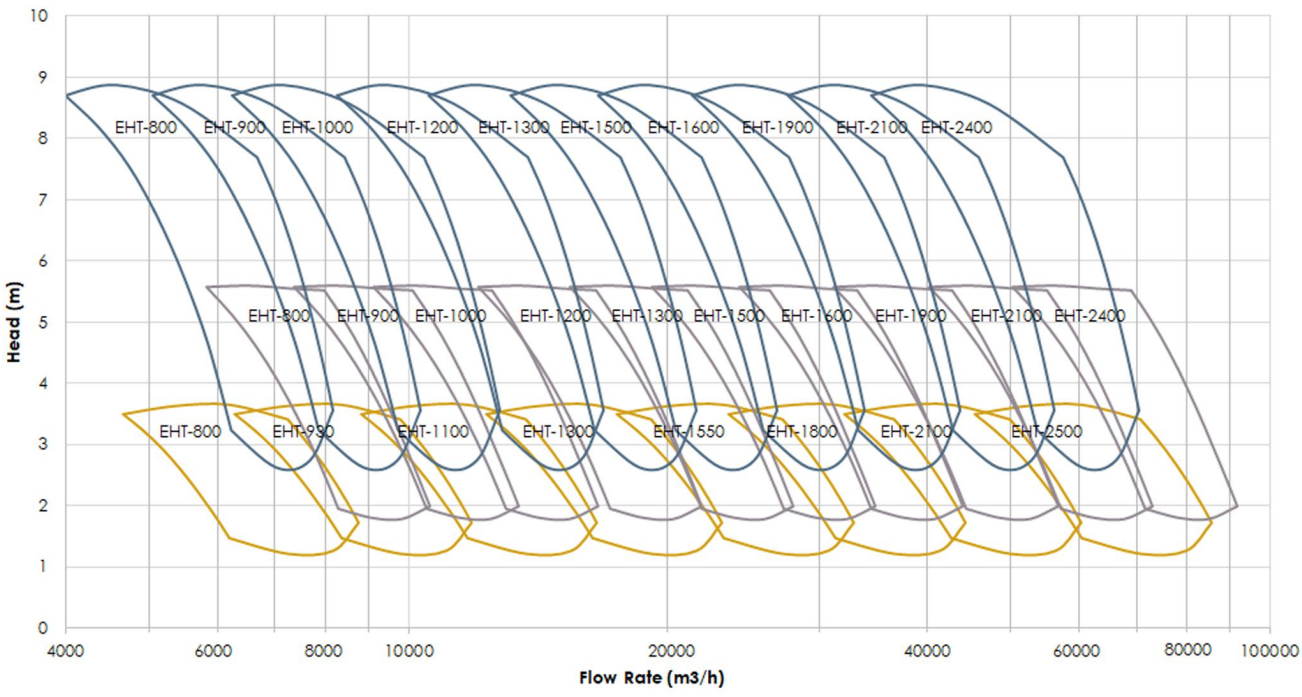
Impeller & shaft

The impeller is axial (propeller) type mounted to the horizontal pump shaft.

Thrust & radial bearing assembly

The axial thrust bearing assembly provided with radial roller and ball or spherical thrust bearings. The radial pump bearing is lubricated by the pump liquid

Capacity range.



EHT during assembly

EHT pump shaft

Features	Horizontal split, open impeller with axial diffuser design
Capacity @ BEP	Upto 150000 m^3/hr
Head	Upto 11 m
Temperature range	-10 to 50 °C
Efficiency	Upto 86 %
Material (Casing/Impeller)	Cast Iron, Bronze, SS, Duplex, Super Duplex
Nozzle Orientation (suc/dis)	Depends on site layout and can be customized as per requirement.
Standard Motor Sync. Speed	600 rpm
Options	Direc drive / Gear box drive
Flange drilling standard	BS EN/DIN/ANSI /AWWA
Max. Operating Speed	600 rpm

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