



# Condensate removal pump TP1

WITH INNOVATIVE SPHERICAL MOTOR DESIGN FOR CONDENSING  
BOILERS AND AIR CONDITIONING / COOLING SYSTEMS

## Applications.

The condensate removal pump TP1 is a lifting station, suitable for all applications where a removal of condensate fluid is not possible by gravity. The TP1 is designed for condensate from (Specifications apply to Germany - please observe differing local regulations)

- Gas and oil condensing boilers (heating capacity max. 200 kW) with a pH value of 2.7 and higher,
- Air-conditioning systems, cooling and refrigeration systems,
- Air dehumidifiers and evaporators.

For very acidic condensates (pH-values below 2.7), for furnaces where not-sulphur-reduced heating oil is used, and for installations with a heating capacity of more than 200 kW a neutralizing device must be connected upstream. Please observe additional local sewage regulations.

## Design / Function.

The basic elements of the condensate pump TP1 are a tank for the condensate, a pump which drains the condensate into a pressure hose and a control which starts and stops the pump, lights indicator lights showing the status of the unit and opens an alarm relay if there is a problem. In comparison with traditional condensate pumps a series of innovative improvements has been made throughout the development process. The condensate pump TP1 saves energy, has a very low noise level and virtually guarantees trouble free operation:

### Tank

The tank is manufactured from acid resistant ABS material. It holds 0.5 l of condensate and therefore is sufficient even if additional water comes in through the chimney. Baffles inside the tank prevent waves and corresponding cycling of the unit caused by the inflow of liquid. To prevent blockage of the pump, a tank sump is integrated into the tank in which dirt particles can accumulate. The tank can be easily cleaned and flushed if necessary. A second fill opening at the top can accommodate the drain hose from the boiler pressure relief valve.

### Pump

At the bottom of the tank a very efficient spherical motor pump with permanent magnet rotor has been integrated.

Its power consumption is only a fraction of that of comparable conventional condensate removal pumps.

The electrical part of the pump is completely separated from the wet part, thereby making it splash water protected. The condensate removal pump TP1 is completely enclosed; accidental touching of live components (for example through the ventilation slots of conventional units) is completely impossible.

The spherical motor pump operates very quietly. The only moving part of the pump is the spherical rotor/impeller unit which rides on an ultra-hard ceramic bearing ball. Since this bearing design excludes the formation of bearing play over time, the quiet operation will be maintained over the whole life of the unit. A blockage of the condensate removal pump is extremely unlikely. Since the rotor is held in place magnetically, and since it can evade small dirt particles by tilting, a safe start-up even after prolonged shutdown periods is assured.

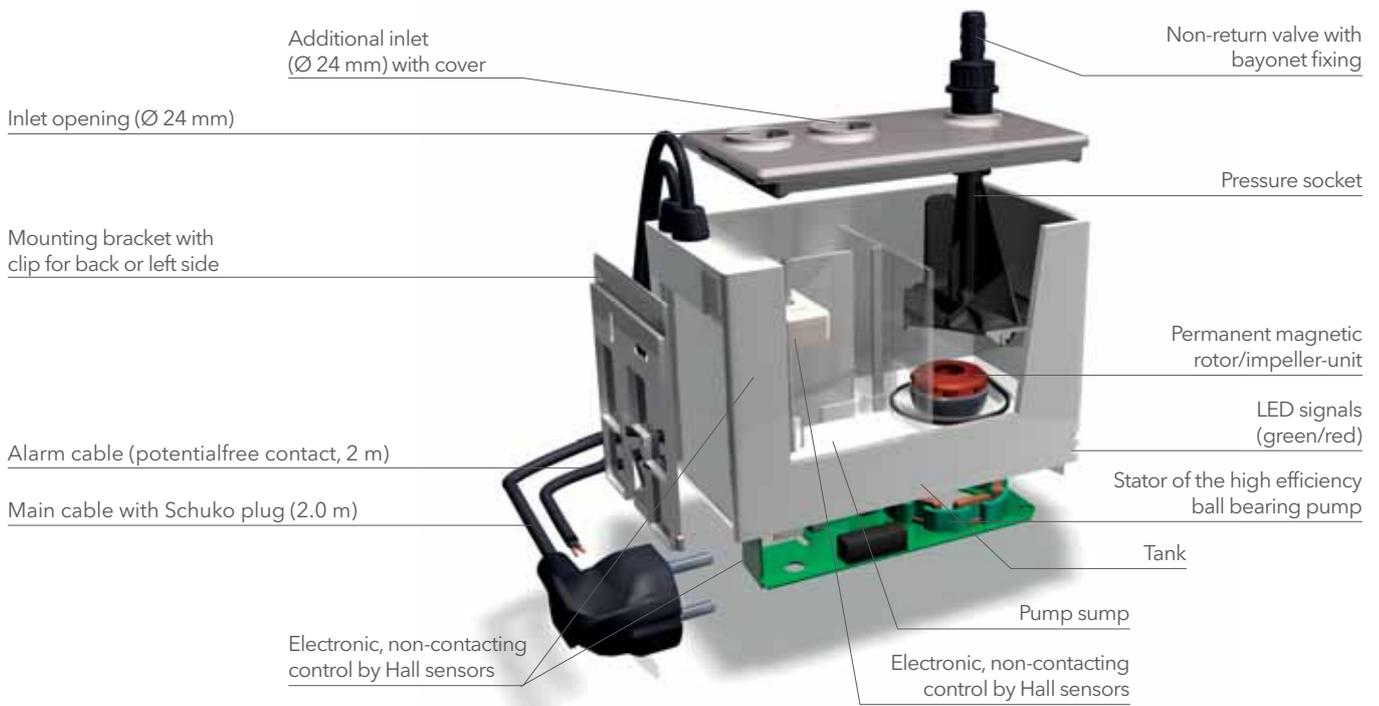
### Control.

Starting and stopping of the pump as well as the opening of the potential free safety contact are realized in the condensate removal pump TP1 by way of an electronic level sensing system. Electronic Hall sensors placed on the pc board behind the tank wall are activated by a small magnet inside a float. The advantage of this design is that it is safe from corrosive attack, which can happen with mechanical level switches placed above the tank.

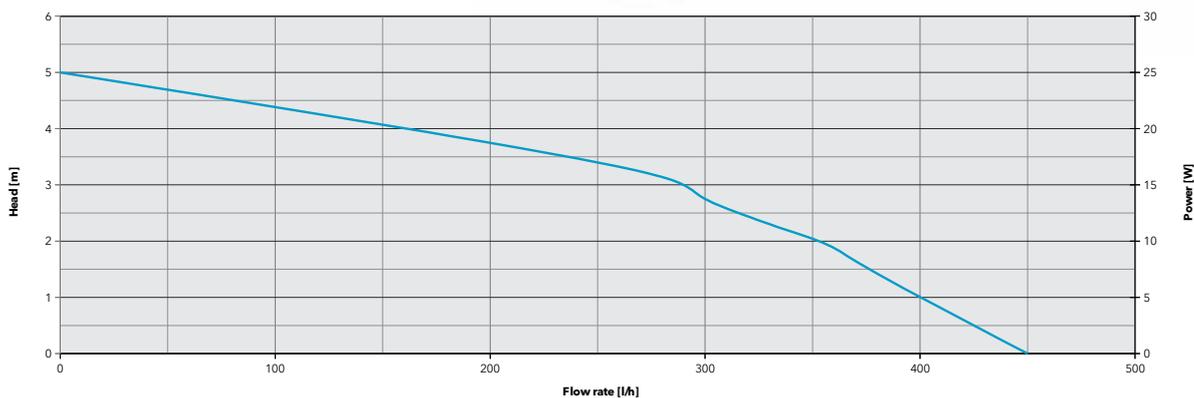
## Technical Data.

Supply voltage	100 - 240 Volt
Power consumption P1	25 Watt
Current draw	0.2 - 0.1 A
Protection class	IP 44 / Class F
Acid resistance	pH2 or higher
Pump	Electronically commutated spherical motor with permanent magnet rotor / impeller
Max. Pump head	50 kPa
Max. Flow rate	450 l/h
Noise level (Lw)	46 [dB(A)]
Max. system temperature	+60°C
Min. ambient temperature	non-freezing
Safety contact	Relay open when triggered, capacity 250 VA
Tank volume	0.7l (usable volume 0.5l)
Package dimensions	215 x 215 x 180mm
Package weight	1.6 kg

Please check your local requirements and ordinances regarding the discharge of condensate.



## Pump curve TP1.



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- 2) a leading global water technology company.

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