ITT

Vogel Pumpen

Vogel - Submersible Pumps

Design TV

Sizes 10“ to 12“

Engineered for life

VOGEL Submersible Pumps, Design TV

Sizes:

- 101-105 TV, 10“ to 12“ wells
- 121-123 TV, 12“ to 14“ wells
- For 8“ pump sizes refer to model TVS, List 3300.1.B

Performance Range:

- Max. capacity 580 m^3/h (2550 USgpm)
- Max. head up 450 m (1480 feet)
- Max. water temperature to 25°C (77°F)
  (Up to 60°C - 150°F upon request)
- Motor power up to 400 kW (540 HP)
- 3 phase power supply 400 V, 50 Hz/460 V, 60 Hz
  Other voltages or frequencies upon request

Handled liquid:

- Clear, non aggressive water
- Options for sea and thermal water

Applications:

- Water supply
- Booster systems
- Turf and irrigation
- Lowering of the ground water level
- Draining and water level control
- Industrial cooling water supply,
  flush water systems
- Fire fighting, sprinkler systems

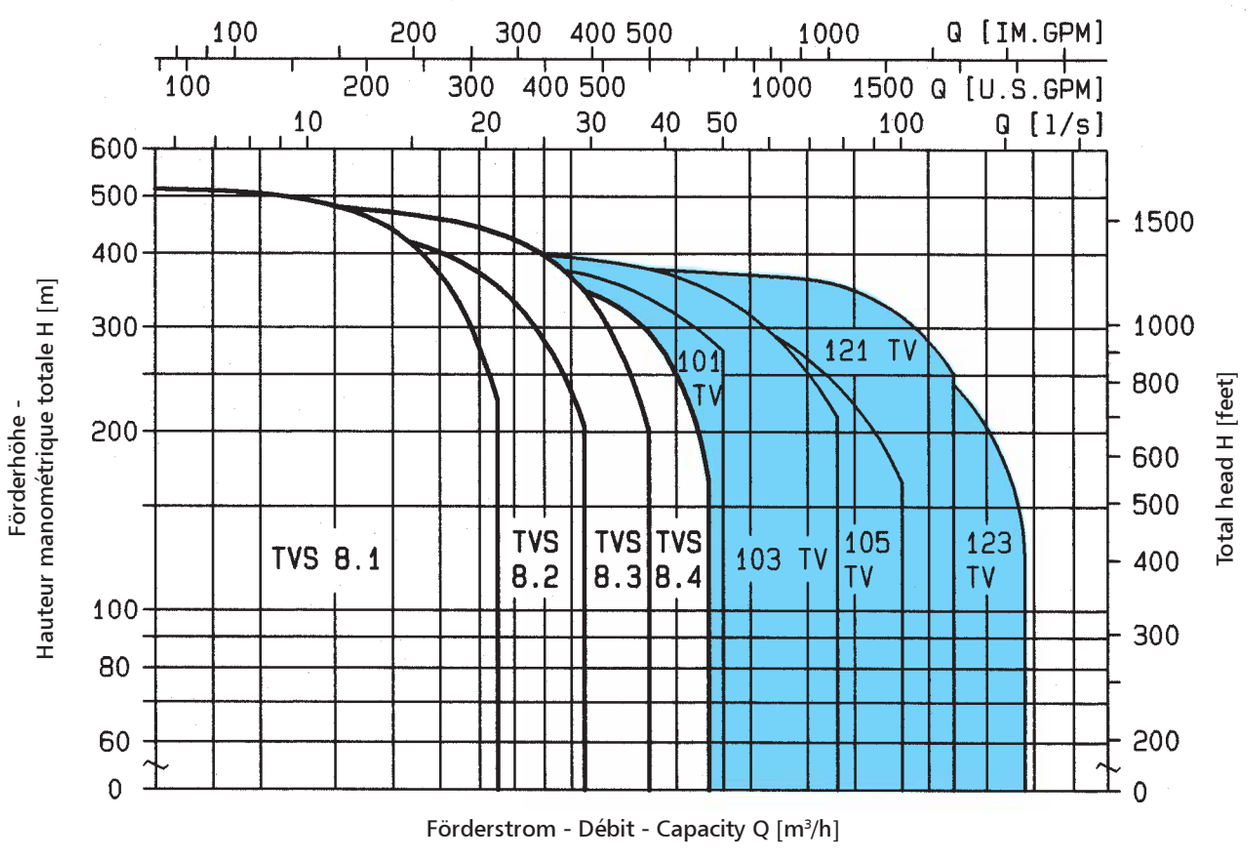
Installation:

- Vertical and horizontal
  with or without check valve

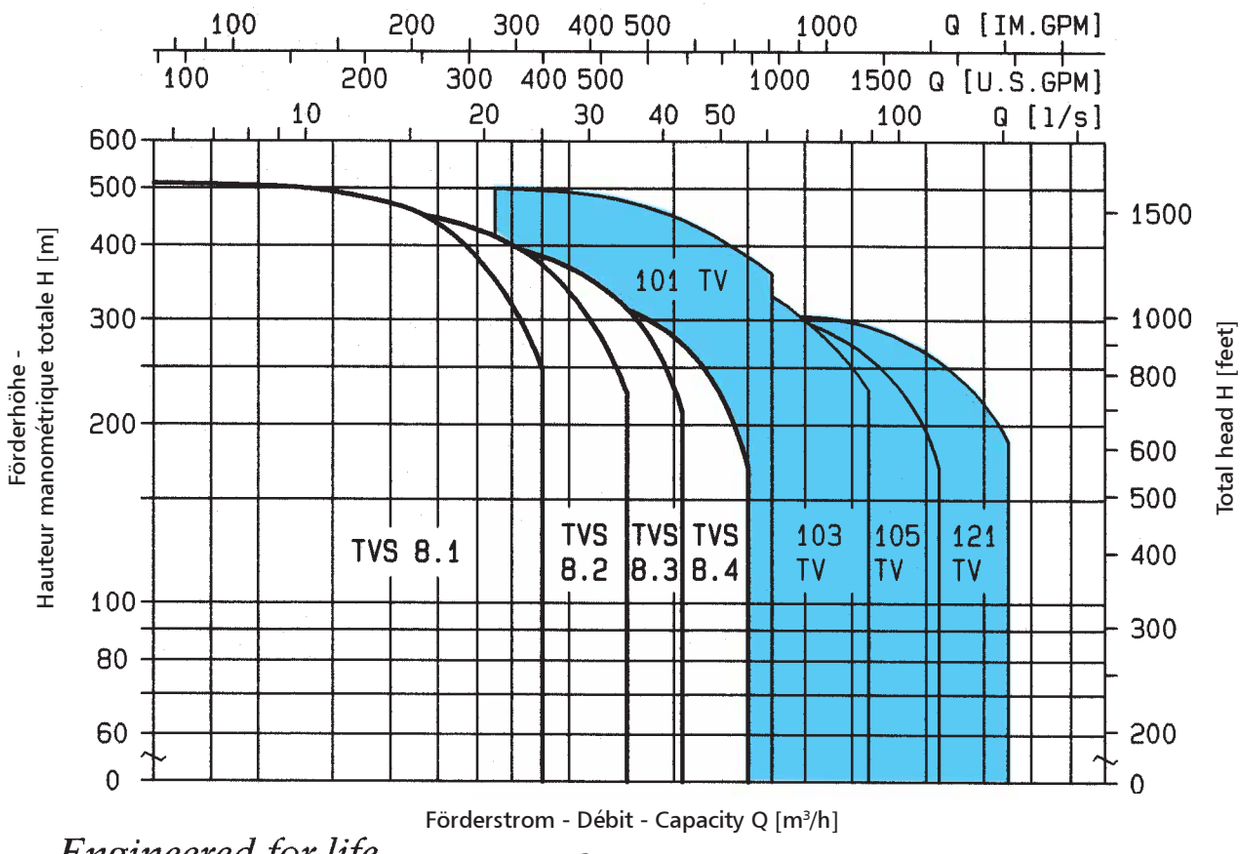
Designed and developed in accordance with international standards to fit customers requirements.

VOGEL Submersible Pumps, Design TV

Peformance Range 50 Hz



Performance Range 60 Hz



VOGEL Submersible Pumps, Design TV

Pump Technology:

Sizes 101-123 TV with semiaxial hydraulics.
Design features for long time performance.

- Discharge casing with threaded connection. Flange adapter optional.
- Built in check valve is standard, highly efficient design. Without check valve upon requested.
- Stage casing and diffuser cast in one piece. Low loss construction for optimum flow conditions, stages bolted together.
- Guide bearings made from wear resistant rubber for each stage.
- Closed semiaxial flow impellers.
- Impeller fixed by conical locating sleeves with securing nuts.
- Shaft made from stainless steel.
- Suction casing designed for optimum flow approach to 1st stage.
- Suction strainer to prevent clogging.
- Coupling is shrinked onto pump shaft.
- Motors adapters
  6" and 8" motors according NEMA standard additional axial up thrust bearing in the suction casing of the pump.

  10" and 12" motors with cylindrical shaft for keyed connection.
  Pump coupling and motor shaft secured by grub screw.

VOGEL Submersible Pumps, Design TV

Submersible Motors Technology:

VOGEL Submersible Motors in semi wet design

For this design the pre-filled motor space is hermetically seperated from the try winding. The winding itself is protected by resin.

Design HF - 6" Submersible Motors, Performance Range 4-45 kW

Design KF - 8" Submersible Motors, Performance Range 30-150 kW

Design features:

- Motor connection acc. NEMA standard.
- Replaceable motor cable with water proof plug connection.
- Shaft sealing by mechanical seal and additional sand protection on the shaft.
- Radial bearing water lubricated slide bearing type.
- Motor space with water filling. The waterfilled motor space is hermetically seperated from the stator with casing tube.
- Winding cast resin embedded.
- Thrust pad bearing design to take the axial forces of the pump rotor.
- Rubber diaphragm to balance volume variations of the motor liquid.

Starting: Direct or star-delta, softstarter.

Speed control via frequency inverters optional.

VOGEL Submersible Pumps, Design TV

Submersible Motors Technology:

VOGEL Submersible Motors in wet design

Motor entirely filled with water.
Motors with wet windings are rewindable

Design HFR, L6W - 6" Submersible Motors,
Performance Range 4-37 kW
Design KFR, L8W - 8" Submersible Motors,
Performance Range 37-92 kW
Design NFR, L10W - 10" Submersible Motors,
Performance Range 92-185 kW
Design L12W - 12" Submersible Motors,
Performance Range 185-300 kW
Design RP - 14" Submersible Motors,
Performance Range 280-400 kW

Design features:

- 6" und 8" motor connection (with motor shaft) according to NEMA standard.
  10"-14" motor with shaft for keyed connection.
- Waterproof cable connection.
- Shaft sealing by double radial shaft seals, optional design with mechanical seal.
  Additional sand protection on the shaft.
- Radial bearing water lubricated slide bearing type.
- Motor entirely filled with water.
- Winding specially isolated and renewable.
- Thrust pad bearing design to take the axial forces of the pump rotor.
- Rubber diaphragm to balance volumne variations of the motor liquid.

Starting: Direct or star-delta, soft starter.

Speed control via frequency inverters optional.

VOGEL Submersible Pumps, Design TV

Materials:

Size	Version	Impellers	Casing	Wear rings	Stage casing	Shaft	Bearing sleeves	Bearing bushes
101-123	N	Cast iron 0.6025	Cast iron 0.6025	–	Cast iron 0.6025	1.4021	–	Rubber
101-123	SN	Bronze	Cast iron 0.6025	–	Cast iron 0.6025	1.4021	–	Rubber
101-123	SS	Bronze	Bronze	1.4462	Bronze	1.4462	–	Rubber

Other material combinations upon request

Design features for long time performance:

- Heavy duty cast design
- Short bearing distances; low friction bearing design
- Prooven motor technology
- Material action dependent upon application

Designed for reliability and availability.
Low maintainance.

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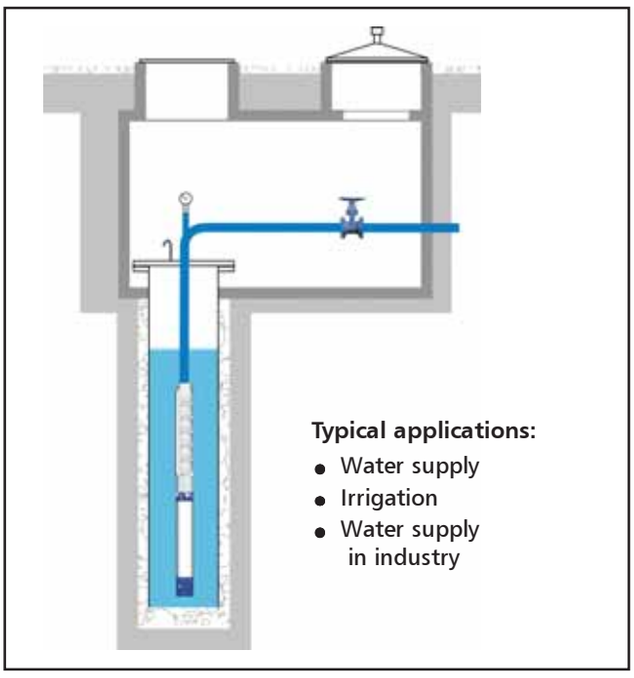
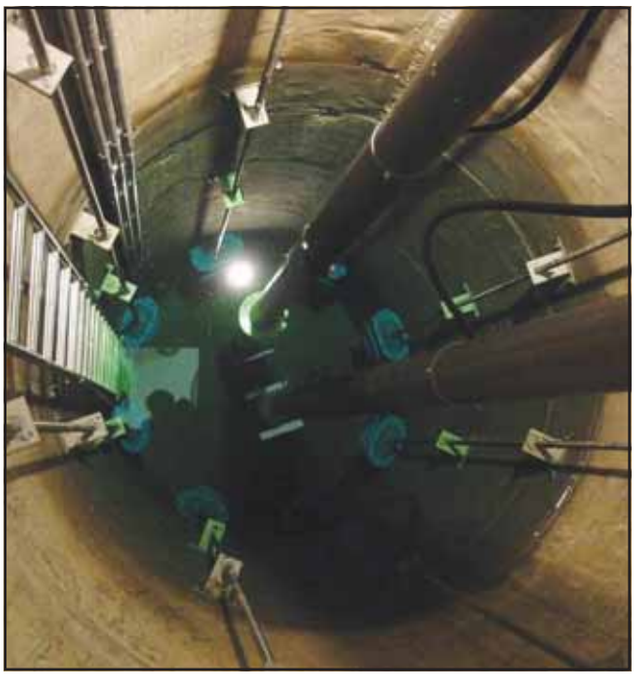
Applications:

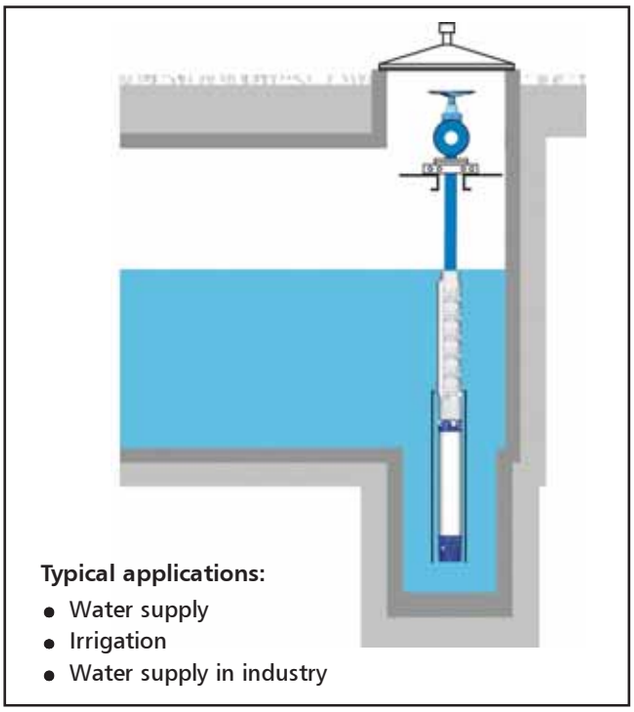
Vertical installation in a well (borehole)
pump directly arranged on discharge pipe.



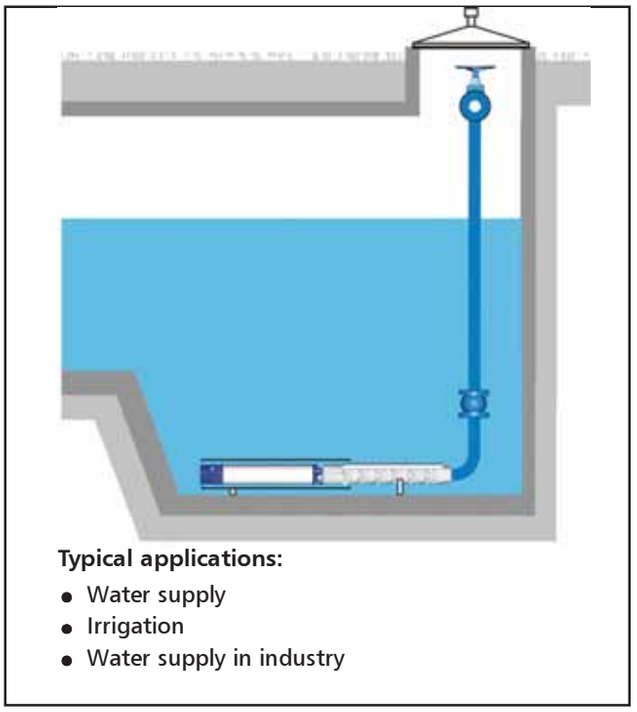
Pumps in horizontal filter well.



Vertical installation in water reservoir (pump sump).
Pump with cooling shroud assembled on discharge pipe.



Horizontal installation in water reservoir (pump sump).
Pump with cooling shroud mounted on brackets at basin bottom.



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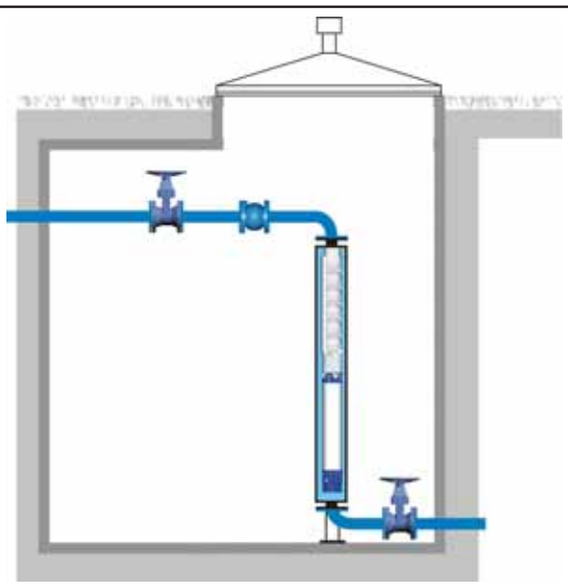
Applications:

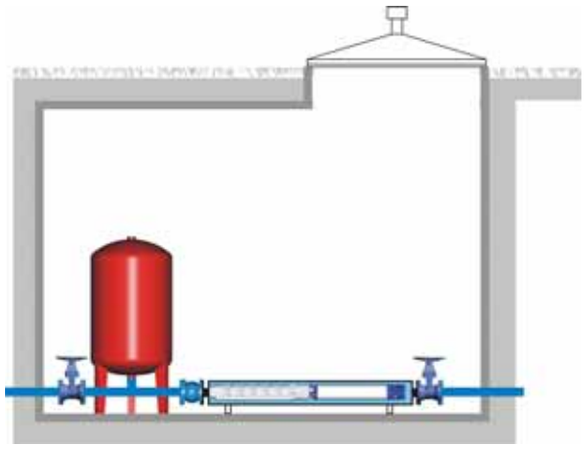
Vertical installation in pressure shroud as booster pump in dry mounting.



Typical applications:

- Water supply
- Booster pumping

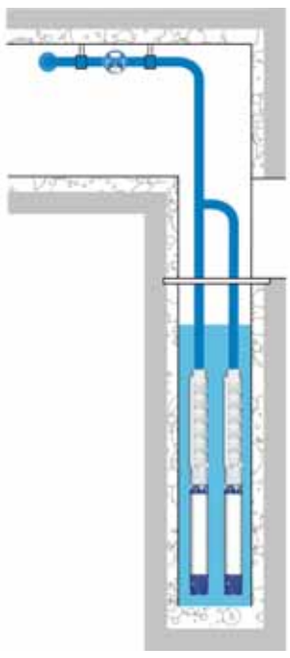
Horizontal installation in pressure shroud as booster pump in dry mounting.



Typical applications:

- Water supply
- Booster pumping

Vertical installation in cavern.



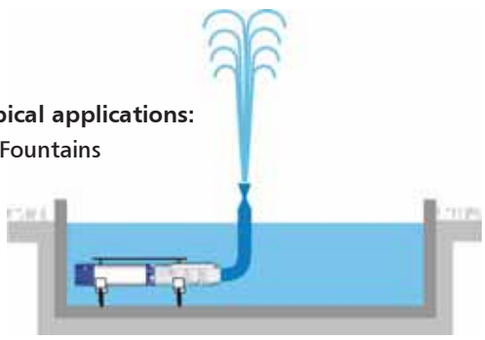
Typical applications:

- Dewatering in mining

Horizontal installation in open sumps or basins.

Typical applications:

- Fountains



VOGEL Submersible Pumps, Design TV

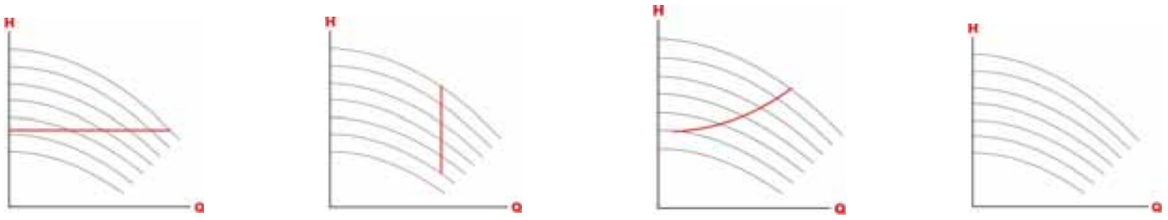
Applications with HYDROVAR:

Hydrovar - pump control system that reduces life cycle costs and improves reliability.

Hydrovar for mounting on the wall – the solution for varying the speed of clear water submersible pumps.

By optimising the pump performance to match the system requirements, significant advantages are gained

- Energy savings up to 50%
- Low installation costs, since control valves, by-pass pipework, switch and control panels can be omitted
- Soft start & stop to limit current peaks and prevent water hammers
- Built in pump protection (dry run, overvoltage, undervoltage, overload, phase loss)
- Fixed minimum speed to ensure the lubrication of the bearings
- Adjustable switching frequency between 2,5 and 8 kHz
- Multi-pump management - up to 4 units can be connected to one system
- Patented pump control to stop the pump at zero demand immediately
- Hydrovar units are available from 2,2 kW up to 45 kW for mounting directly on the wall
- Higher power ratings can be covered by using the HYDROVAR Smart controller in combination with any standard frequency converter - Hydrovar functionality without power limitation
- Wide range of applications (water supply, irrigation, filter systems)



Constant Pressure | Constant Flow | System Curve | Actuator Mode

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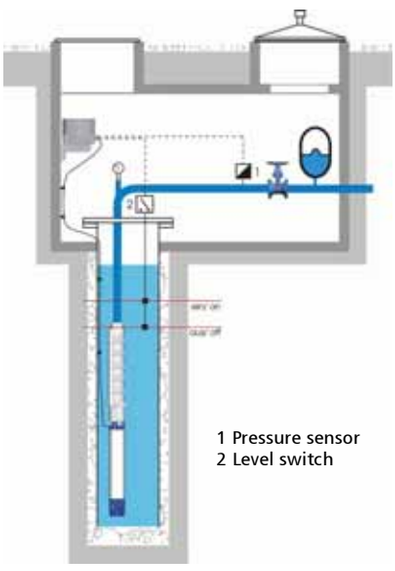
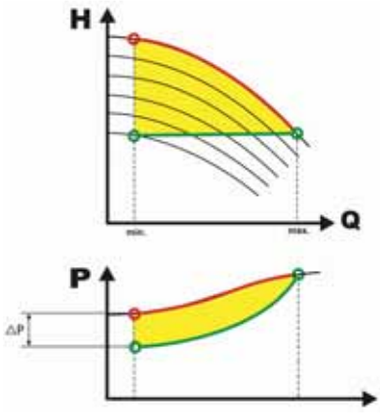
Applications:

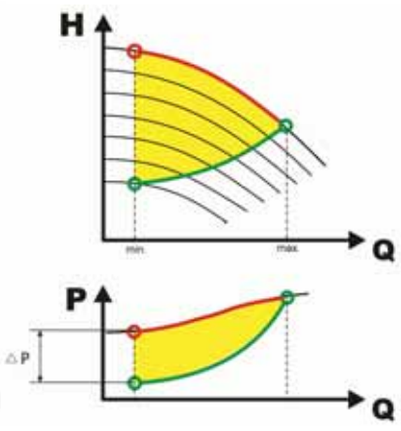
Pump regulation according to pressure with automatic switch off at zero consumption level (Vogel Patent).



Constant pressure control



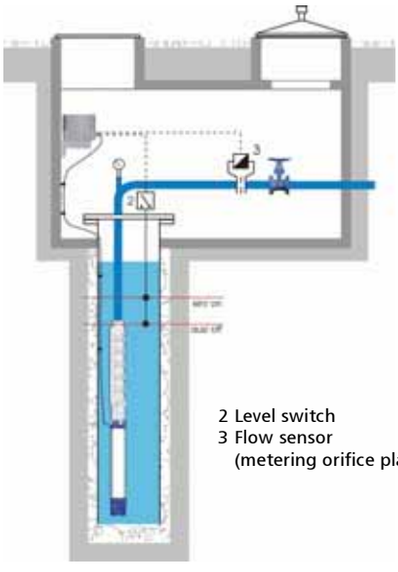
Pressure control, along a system curve (automatic compensation of pipe losses)

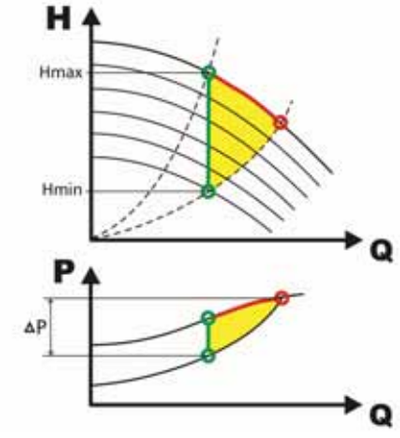


Application:
Drinking water- and irrigation installations, where constant system pressure is required at highly fluctuating consumption.

Advantages:
Energy saving compared with throttle controls or bypass regulator in part load operation up to 70%.

Constant flow control





Application:
All filter system versions for constant filter loads, regardless to different pressure and contamination levels.

Advantages:
Prevention of excess flow rates and cavitation and energy savings compared with throttle controls up to 50%.

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