Electric Immersion Pumps
PT, sealless

Peripheral impeller pumps of high-tech plastic for clean fluids

Technical data

- Delivery rate
  Q_{max} = 23 l/min
- Delivery head
  H_{max} = 35 m
- Temperature range
  –60 °C to +120 °C

Product features

- Centrifugal pump, 1-stage
- Peripheral impeller
- Port dimensions to DIN EN 12157
- Immersion depths of up to 270 mm
- Light weight and compact design
- Three-phase or single-phase motor

VOGEL® Spandau pumps

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Main applications

- Air conditioning
- Beverage filling installations
- Cleaning/degreasing installations
- Cooling systems
- Laboratory equipment
- Laser technology
- Machine tools
- Medical equipment
- Tempering installations
- Welding systems
- Wetting facilities
- etc.

Fluids – **clean** liquids –

- Water, also distilled or deionized; saltwater
- Emulsions (synthetic/containing mineral oil), also with chemical additives
- Oils
- Heat-transfer oils
- Photo developers
- Cooling brines
- Weak bases and acids
- etc.

Temperature range: –60 °C to +120 °C.
Ambient temperature: max. 40 °C (others on request).

Kinematic viscosity: up to 50 mm^2/s without reduction of Q_{max} (higher viscosities on request).

Product advantages

- High dependability and a long service life thanks to the combined use of PEI and stainless steel, two high-quality materials, and due to the fact that wearing parts have been dispensed with (sealless design).
- Constant, stable hydraulic performance throughout the entire temperature range due to a floating impeller.
- Special delivery characteristics due to peripheral impeller.
- Good handling thanks to low weight (approx. 4 kg).
- Small amount of space required thanks to compact design.
- Broad temperature range from –60 °C to +120 °C.
- Can be used in laboratories since it is very quiet.

Design features

– Sealless
– Peripheral impeller
– 1-stage model
– Installation and port dimensions to DIN EN 12157
– Immersion depths 130, 170, 270 mm

PEI – a high-tech top-grade plastic

All the pump's parts are made of glass-reinforced PEI (trade name: ULTEM®). The amorphous thermoplastic polyetherimide has outstanding thermal and mechanical properties.
The high thermostability of this material ensures great fatigue strength of the pump's parts, even at high operating temperatures.

Another unusual property is its extensive resistance to the long-term effects of chemicals throughout a broad range of temperatures.

PEI is physiologically safe, recyclable and reusable.

Mechanical design

Component	Material
Motor housing	Aluminum
Pump port	PEI/GF
Pump bottom	PEI/GF
Impeller	PEI/GF
Shaft	Stainless steel 1.4122
Rolling bearings her	Radial deep-groove ball bearings with a sealing was- and high-temperature grease
Rotary shaft lip-type seal (under lower ball bearing)	FPM
Guide bush	Teflon/graphite
Small parts (in contact with the fluid)	Stainless steel

Electrical design

The drive motors meet VDE regulations as well as European motor standards (DIN EN 60034-1/11.95) while also satisfying the requirements for a CE mark.

Designs in conformity with non-European regulations, e.g. **C**anadian **S**tandards **A**ssociation (**CSA**), **U**nderwriters **L**aboratories INC. (**UL**) or special requirements, e.g. the USA or Japan, are possible. Moreover, we also produce models for special operating conditions (e.g. exposure to high humidity or dust).

The regular models have motor windings designed for continuous operation and connection to a mains voltage of 230/400 V, ±10%, 50 Hz in accordance with IEC 38/5.87.
The motors can be adapted to all customary mains values on request.

	Standard	Optional
Type of enclosure (DIN EN 60034-5/4.88)	IP 54	IP 55
Insulation class	F.B	F
Ambient temperature (DIN EN 60034-1/11.95)	max. 40 °C	50 °C and higher
Relative humidity (DIN 50015)	max. 92 %	95 % and higher
Site altitude (DIN EN 60034-1/11.95)	< 1000 m above sea level	on request
Mains power	230/400 V, 50 Hz 255/440 V, 60 Hz	on request
Mains operation	three-phase	single-phase AC current
Number of poles	2 poles	4 poles
Terminal box – layout (DIN EN 12157) – material – cable entry (DIN 40430/2.71)	 layout 1 high-impact plastic M 16x1.5	 layout 2, 3 or 4 light-weight metal M 25x1.5 M 20x1.5
Protective surface coating	synthetic-resin lacquer, color: RAL 9005 (deep-black, dull)	special coatings available on request
Special protection		integrated thermistor-type motor protection: fan cowl with canopy

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Installation and operation

The unit is installed in a vertical position. The maximum permissible level of fluid amounts to 20 mm beneath the mounting flange. The fluid must always be higher than the pump chamber when the pump is turned on (cf. following drawing).

In principle, the pump must **not** run dry.

Direction of rotation: to the right (clockwise), as viewed from above looking down on the ventilation side of the motor.

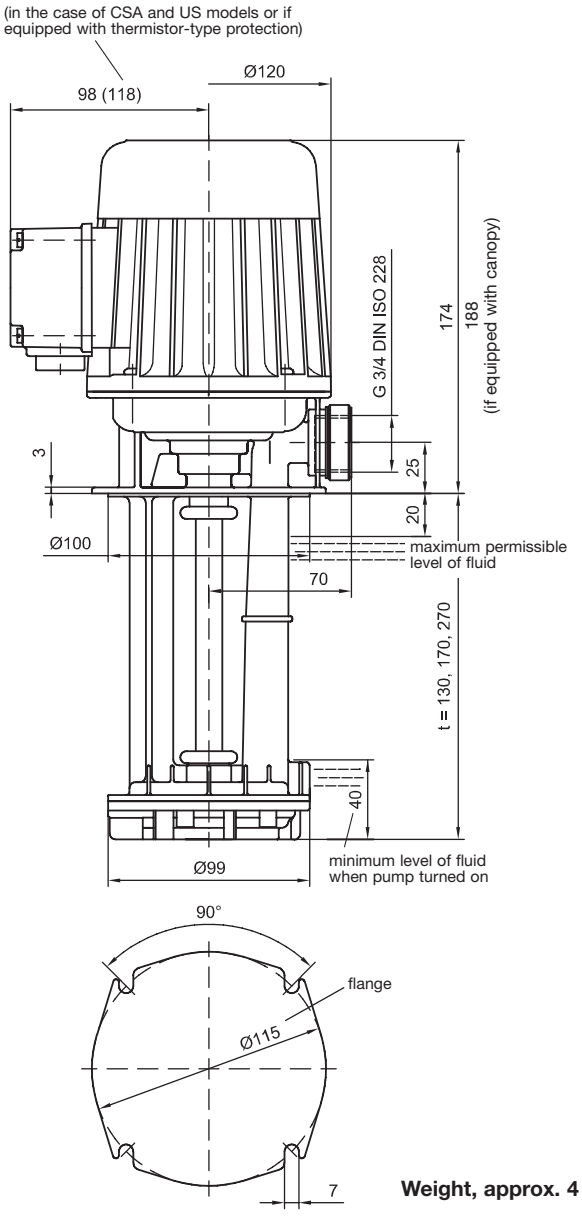
Order Example

PT 35-170
PT E 35-170

Model
Single-phase AC current
Size
Immersion depth t

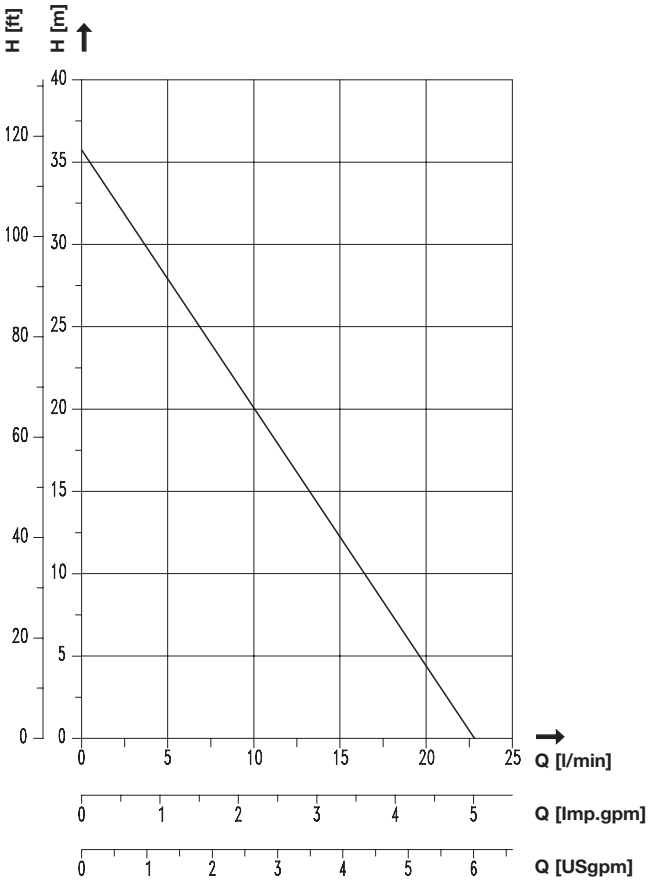
Please indicate mains power, e.g. 230/400 V, 50 Hz.

When ordering spare parts, always indicate the 6-place serial number (see motor rating plate).



Weight, approx. 4 kg

Characteristic for 50 or 60 Hz (with impeller change)



The data apply to fluids with a viscosity of 1 mm²/s at a density of 1 kg/dm³

Electrical values

Three-phase operation

Model	Rated power [kW]	Rated voltage Δ / Y [V]	Rated frequency [Hz]	Rated current Δ / Y [A]	Rated speed [rpm]	Noise level *) [dB (A)]
PT35	0.35	230 / 400 255 / 440	50 60	1.38 / 0.80 1.30 / 0.75	2750 3433	62 **)

*) to DIN EN 60034-9/5.96
**) at H = 15 m

Single-phase operation

Model	Rated power [kW]	Rated voltage ⊥ [V]	Rated frequency [Hz]	Rated current ⊥ [A]	Rated speed [rpm]	BC [µF]
PTE35	0.36	230 255	50 60	1.90	2795 3330	8 6

Standard ventilated motors come without a canopy. If necessary – observe the respective safety regulations and laws applying to machinery guards –, the motors can be supplied with a canopy at extra charge.

Please note:
All equipment may only be installed and/or assembled by qualified personnel. Observe existing safety regulations.
To avoid errors please consult our operating instructions.

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