

**pumpa**<sup>®</sup>

## SCREW PUMPS

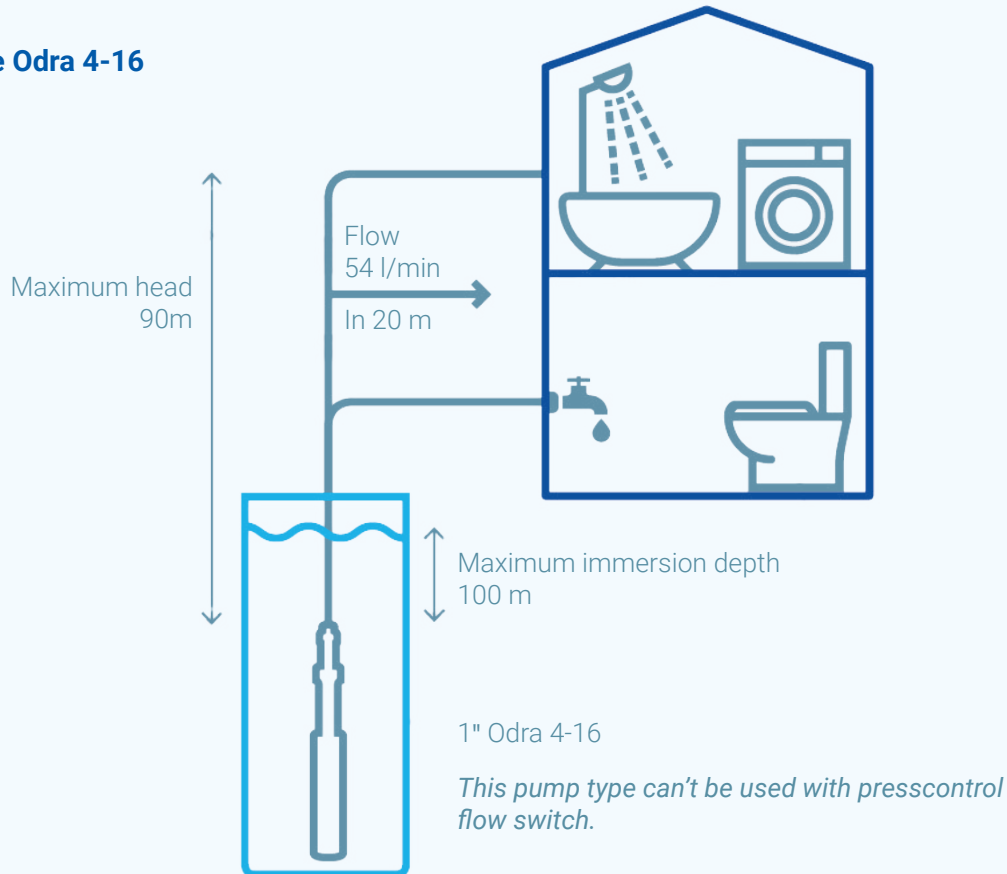


Screw pumps PUMPA and P-CH, manufactured in the Czech Republic, are suitable for pumping slightly polluted water from wells and boreholes.

# SCREW PUMPS

A screw pump is a type of submersible pump that is suitable for **pumping clean and slightly polluted water from boreholes and dug wells**, or as a **pump for a pressure sewerage**. The pumps can fully supply a family house and are also suitable for irrigation and pumping into tanks. The pumps can be used alone or with a pressure tank and pressure switch as a pressure booster pumps with automatic operation. This solution will allow **comfortable and maintenance-free use of your own water source**.

## 4" screw pump PUMPA blue line Odra 4-16



## Application

- **Domestic water supply**
- Pumping water from wells and boreholes – suitable for **depths of 50-60 m** with pressure tank
- Irrigation
- Pumping into storage tanks
- Pump for **pressure sewerage** (PUMPA inox line Morava)

## Main benefits

- excels in the ability to **draw water even from great depths** with a large elevation, usually several tens of meters
- **economical operation** – up to 50% energy savings at the same pump performance of a similar design
- high reliability, **simple installation and repair if needed**, replacement and availability of spare parts
- main parts made of stainless steel / stainless steel design (**Vltava, Moravia**)
- **Czech product**

**Do you need advice on choosing the right pump for your borehole or well?**

Fill out our inquiry form and we will propose a suitable solution.

Or write to us by email: [info.en@pumpa.en](mailto:info.en@pumpa.en).

## Pumps for boreholes from 120 mm

### PUMPA inox line Vltava 4-16-T 1,1kW

Economic submersible 4" screw pump with mechanical seal designed for pumping clean water from drilled wells.

Code	Model
ZB00040357	Pumpa INOX Vltava 4-16-T 1,1kW 400V, 1,7m cable
ZB00040360	Pumpa INOX Vltava 4-16-T 1,1kW 400V, 25m cable
ZB00040361	Pumpa INOX Vltava 4-16-T 1,1kW 400V, 35m cable



### PUMPA blue line Odra 4-16

Submersible 4" pump for wells and boreholes, for pumping clean water, irrigation. Main parts of hydraulics and connecting material made of stainless steel. Cover of hydraulics made of cast iron with special anti-corrosion treatment. Maximum immersion depth 100 m.

Code	Model
ZB00061720	PUMPA blue line 1" Odra 4-16 1,1kW 400V 4" cable 30m
ZB00061722	PUMPA blue line 1" Odra 4-16 1,1kW 400V 4" cable 40m
ZB00061723	PUMPA blue line 1" Odra 4-16 1,1kW 400V 4", cable 50m

### PCH EKO 1" T4-90-16 4"

Code	Model
ZB00001250	PCH EKO 1" T4-90-16 1,1kW 400V 4", cable 25m
ZB00001241	PCH EKO 1" T4-90-16 1,1kW 400V 4", cable 30m
ZB00001254	PCH EKO 1" T4-90-16 1,1kW 400V 4", cable 35m



## Pumps for dug wells

### PUMPA inox line Svitava 5-16-T 1,1kW

Submersible 5" screw pump designed for pumping clean water from dug wells.

Code	Model
ZB00043841	Pumpa INOX Svitava 5-16-T 1,1kW 400V, 1m cable
ZB00043836	Pumpa INOX Svitava 5-16-T 1,1kW 400V, 15m cable
ZB00043839	Pumpa INOX Svitava 5-16-T 1,1kW 400V, 20m cable
ZB00043840	Pumpa INOX Svitava 5-16-T 1,1kW 400V, 25m cable



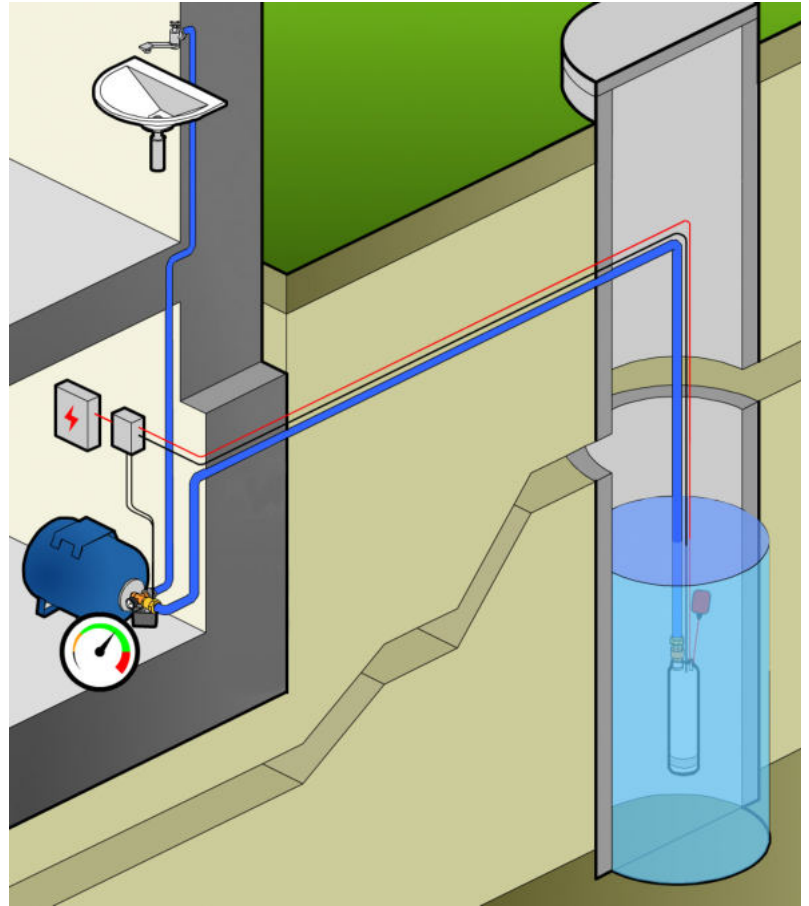
## What else will you need?

To pump water from a depth of more than 8 m, we will use a submersible pump, which in the set with

- dry running protection,
- check valve,
- pressure tank
- with pressure gauge
- and pressure switch
- installed on the so-called. five-way fittings,

forms a pressure booster pump.

When the pressure in the system drops below the set on pressure, the pressure switch automatically switches on the pump and shuts it off when the set cut-off pressure is reached. In case of water shortage in the well and in case we have dry running protection installed, the switching device turns off the pump and protects it from damage. The dry running protection switchgear will then not allow the pump to switch on until sufficient water level in the well has been reached.



## Selected accessories

### GWS PressureWave PWB-LH

Code	Model
ZB00012081	Global Water PWB-24LH ležatá tlaková nádoba 24l 10bar 1" 90°C
ZB00012083	Global Water PWB-60LH ležatá tlaková nádoba 60l 10bar 1" 90°C
ZB00012084	Global Water PWB-80LH ležatá tlaková nádoba 80l 10bar 1" 90°C
ZB00012085	Global Water PWB-100LH ležatá tlaková nádoba 100l 10bar 1" 90°C



### PUMPA suspension device for pumps 15-50m

Code	Model
ZB00043994	PUMPA suspension device for pumps 15m
ZB00043995	PUMPA suspension device for pumps 20m
ZB00043998	PUMPA suspension device for pumps 25m
ZB00043980	PUMPA suspension device for pumps 35m
ZB00043982	PUMPA suspension device for pumps 40m
ZB00043984	PUMPA suspension device for pumps 50m



The complete assortment and current prices can be found on the website [www.pumpa.eu](http://www.pumpa.eu)

## Pumps for pressure sewerage

Pumps for pressure sewers are used where it is **necessary to overcome height differences** and it is **not possible to build a normal gravity sewer**. They are **ideal for lower sumps** and pressure wastewater pumps with the appropriate conveying height are used. These **pumps are installed in so-called pumping sumps**, which are fully equipped **small wastewater pumping stations**. The sump is an ideal solution, especially for holiday homes such as summer houses and lodges, or even for permanently occupied properties if you have any problems connecting to the local sewerage system and obtaining the relevant permits.

### PUMPA inox line Morava (HD) 5-16-T 1,1kW 5"

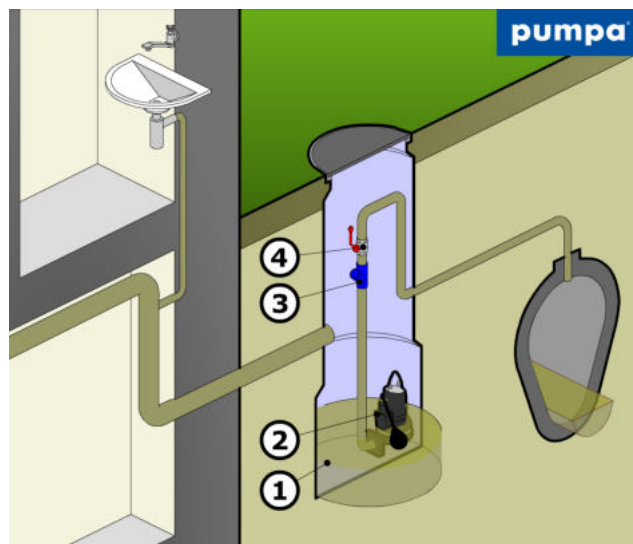
Code	Model
ZB00040416	Pumpa INOX Morava 5-16-T 1,1kW 400V, 15m cable, screw wastewater pump with grinder
ZB00049879	Pumpa INOX Morava HD 5-16-T 1,1kW 400V, 10m cable, screw wastewater pump with grinder



The **HD design** has an improved grinder with excellent efficiency when cutting long solid particles. It is suitable for installations where there are problems, for example, with non-woven fabrics.

## How does sewage removal from the sump work?

Drainage of sewage from the house can be realized by means of a **pumping station**(1) located outside the house. It is suitable for pumping and accumulating drainage and surface water, as well as wastewater from residential buildings and industrial plants. Pumping stations are made of polyethylene and can be provided with either one or two **pumps**(2). Reliable operation is then ensured by the **control unit**. When installing a pumping station, it is necessary to ensure its protection against the reverse flow of pumped fluid by means of a **check valve with a ball** (3). Due to possible service intervention, it is also necessary to install a **shut-off valve** on the delivery pipe (4).



### PUMPA black line Box 1VE MORAVA CLASSIC

Code	Model
ZB00042355	PUMPA black line Box 1 VE Morava Classic pumping station DN40 including the shaft 1100x2000mm, 400V cable 10m
ZB00042358	PUMPA Classic pressure sewer set DN40 including the pump Pumpa INOX Morava 5-16-T 1,1kW 400V cable 10m

# How to choose the right screw pump?

## 1. Select the type of pump according to the size of the borehole

– we recommend a difference of min. 30 mm between the borehole wall and the pump

## 2. Find the required pump flow

The flow rate depends on the number of supply points and the number of people in the household. For a medium-sized family house with 3-5 people, we expect a nominal flow rate of 2–2.9 m<sup>3</sup>/hour = 33.3–48.3 l/min.

	Kitchen sink	Dishwasher/washing machine	Toilet with a basin	Bathroom with a basin, WC and a shower	Bathroom with a basin, WC and a bathtub	Garden and lawn irrigation	Nominal flow rate (m <sup>3</sup> /hr)
Small house	1		1				1
Medium house	1	2	1	1			2
Big house	2	2		1	1	2	3

## Find out the required head (conveying height)

The total head corresponds to the sum of 3 values:

1. **Pressure** at the highest supply point
2. Static **height** from the water level to the highest sampling point (A+B+C)
3. **Pressure losses** in pipes and fittings (Z - we calculate the loss of 1m for every 10 m distance of horizontal pipes from the house)

### Calculation of total conveying height (H):

1. Pressure at the supply point - tap (in metres) = **X**
2. Static head (A+B+C) = **Y**
3. Pressure losses in pipes and fittings = **Z**

$$H_{\text{total}} = X + Y + Z$$

Highest point of collection

**C** (10 m)

Floor height at ground floor

**B** (8 m)

Ground level (concrete ring)

**A** (2 m)

Dynamic water level

### Calculation example

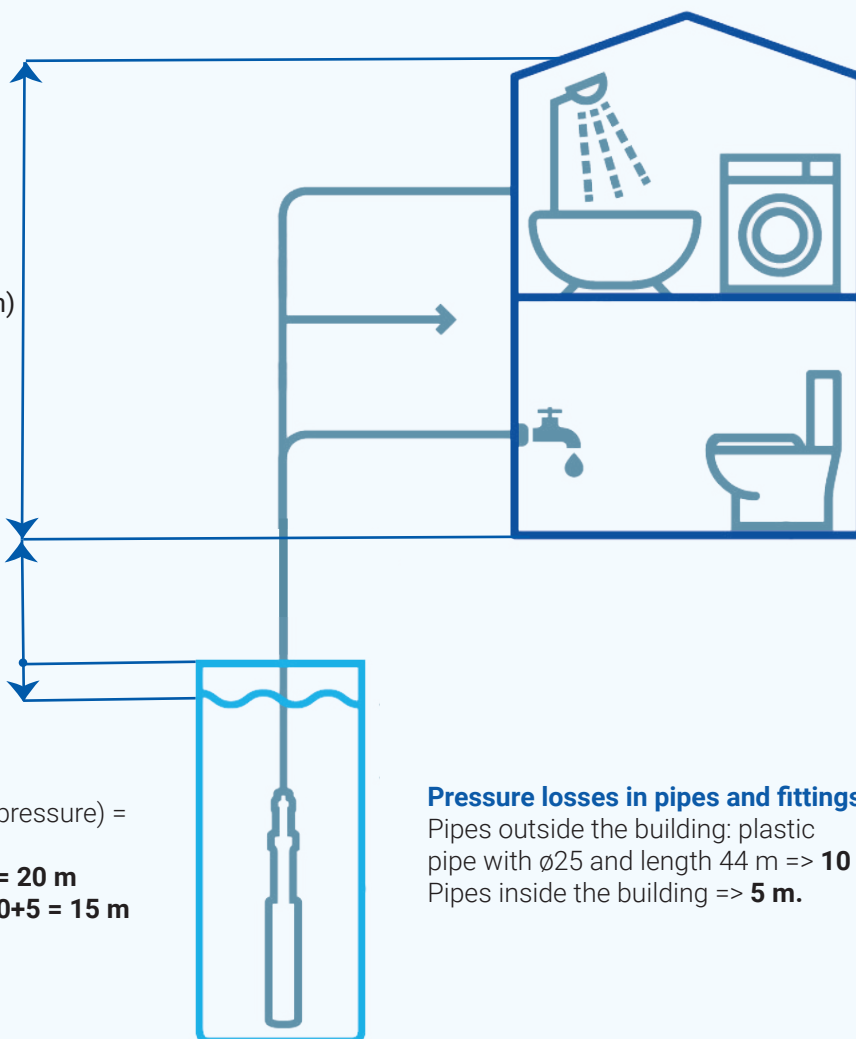
1. Pressure at the supply point - tap (max. pressure) = **3.5 bar = 35 m**
2. Static head (A+B+C) = **a+b+c = 2+8+10 = 20 m**
3. Pressure losses in pipes and fittings = **10+5 = 15 m**

### Total required conveying height

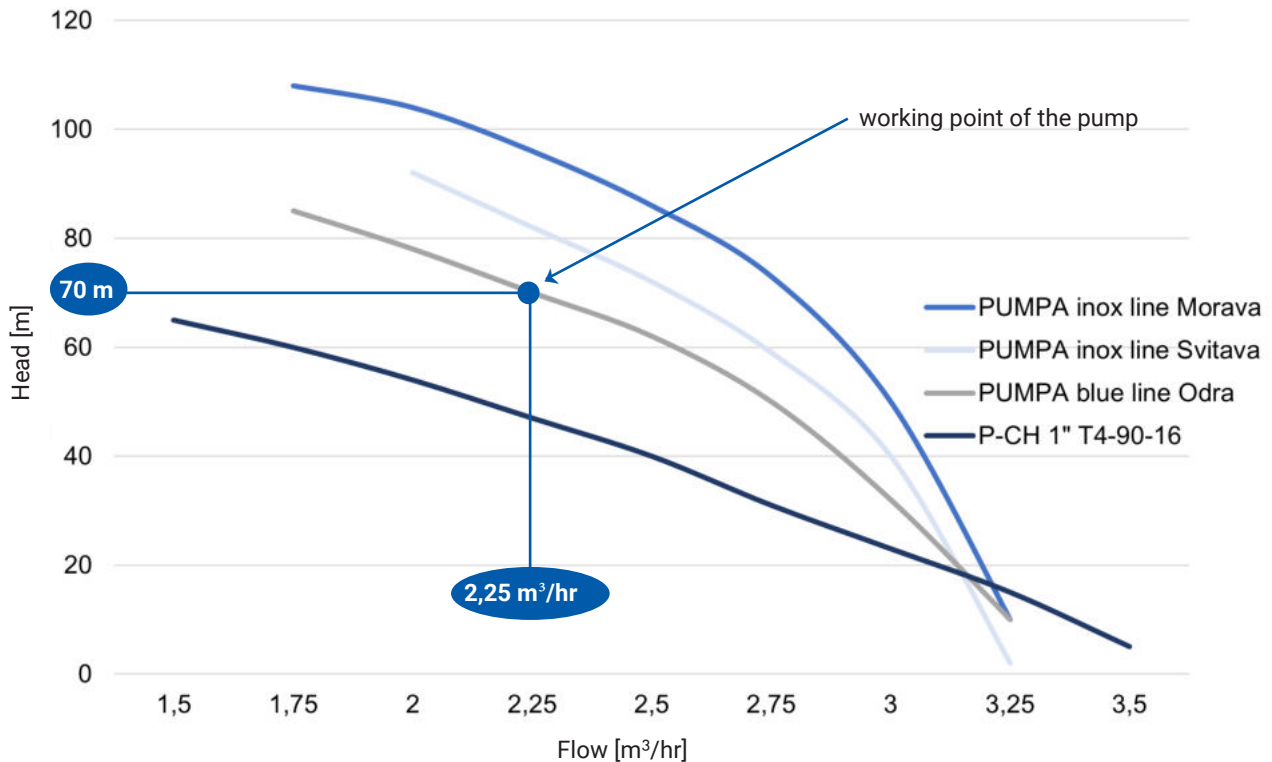
$$H_{\text{total}} = X + Y + Z = 35 + 20 + 15 = 70 \text{ m}$$

### Pressure losses in pipes and fittings

Pipes outside the building: plastic pipe with  $\varnothing 25$  and length 44 m => **10 m**.  
Pipes inside the building => **5 m**.



#### 4. According to these values, we look for the so-called working point on the hydraulic curve of the pump



For the medium house, a nominal flow rate of 2 m<sup>3</sup>/hour is suitable, so we choose with a reserve of 2.25 m<sup>3</sup>/hour.

→ With the required delivery height of 70 m and a flow rate of 2.25 m<sup>3</sup>/h, the **PUMPA blue line Odra**

### Installation and commissioning of the pump

*When putting the pump into operation, we always proceed according to the instructions, or call for professional help. (This procedure is suitable for spindle pumps.)*

1. Unplug the pump motor and fill it with clean water. (Only applies to 5" pumps.)
2. Turn the pump and top up with water to a volume of approx. 0.5 l.
3. Plug the pump motor.
4. Attach the suspension device to the pump.
5. Connect the pump cable to the electric power supply.
6. Before turning on the pump, the motor must be connected via the motor starter.
7. Pour water into the hydraulics, then perform a connection test for 1 second (apply palm to the discharge nozzle - after switching on, the pump must expel air, if the palm sucks, it is necessary swap the phase and repeat the test).
8. Place the pump on the discharge side non-return valve (just above the discharge nozzle).
9. Connect the prepared pipe to the check valve.



You can find more information on the website [www.pumpa.eu](http://www.pumpa.eu)

