

## Unilift AP12



TM00 5738 0895

**Fig. 13** Unilift AP12

The Unilift AP12 pump is a single-stage submersible pump designed for pumping drainage water.

The pump is suitable for these applications:

- groundwater lowering
- pumping in drainage collecting wells
- pumping in surface water collecting wells with inflow from roof gutters, shafts, tunnels, etc.
- emptying ponds, tanks, etc.

Maximum particle size: 12 mm.

Liquid temperature range: 0 °C to +55 °C.

### Approvals

VDE, LGA, UL and CSA.

### Automatic operation

The pump is available for automatic as well as manual operation and can be installed in a permanent installation or used as a portable pump. The pump is available in these versions:

- with float switch fitted for automatic on/off operation between two liquid levels (single-phase pumps)
- with separate level switch and control box for automatic on/off operation between two liquid levels (three-phase pumps)
- without level switch for manual on/off operation.

Pumps fitted with float switch can also be used for manual on/off operation. In this case, the float switch must be secured in an upward-pointing position.

### Pump sleeve and housing

The stainless steel pump sleeve is made in one piece and equipped with an insulated carrying handle. The suction strainer is clipped on to the pump housing for easy removal in connection with maintenance. The strainer prevents the passage of large solids and ensures a slow flow into the pump. As a result, most impurities are prevented from entering the pump.

The stainless steel pump housing is fitted with an internal riser pipe ensuring high efficiency.

The riser pipe has a number of holes enabling efficient cooling of the motor during operation. The cable entry is of the socket and plug connection type for quick and easy dismantling.

### Discharge port

All Unilift AP12 pumps have a threaded vertical discharge port.

Unilift AP12.40: Rp 1½

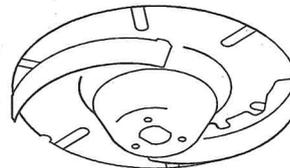
Unilift AP12.50: Rp 2.

### Shaft and bearings

The stainless steel shaft rotates in maintenance-free prelubricated ball bearings.

### Impeller

The stainless steel impeller is a semi-open impeller with L-shaped blades and a clearance of 12 mm. The blades are curved backwards to reduce any harmful effect from solid particles and to minimise power consumption.



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**Fig. 14** Impeller, Unilift AP12

### Shaft seal

The shaft seal is a combination of a mechanical bellows shaft seal and a lip seal with 60 ml oil between. Seal faces are made of silicone carbide.

### Motor

The motor is a single- or three-phase asynchronous dry-rotor motor.

Enclosure class: IP68

Insulation class: F (155 °C)

Cable type: H07RN-F.

Single-phase motors have built-in thermal protection.

## Materials

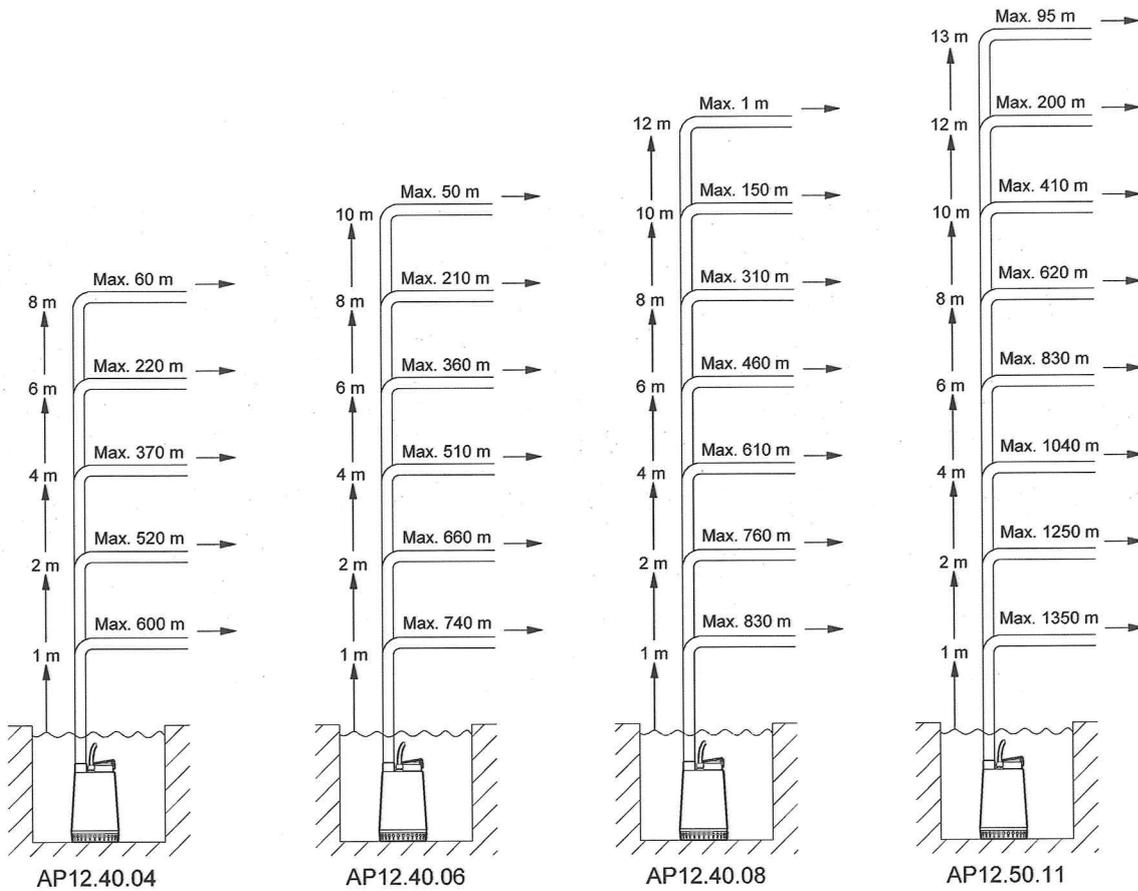
Component	Material	DIN W.-Nr.	AISI
Pump housing	Stainless steel	1.4301	304
Riser pipe	Stainless steel	1.4301	304
Impeller	Stainless steel	1.4301	304
Pump sleeve	Stainless steel	1.4401	316
Pump shaft - wet end	Stainless steel	1.4301	304
Bearings	Heavy-duty prelubricated ball bearings		
O-rings	NBR rubber		
Screws	Stainless steel	1.4301	304
Oil	Shell Ondina 15, non-toxic		

## Selection

The overview below is suitable for the selection of the correct size of Unilift AP12 pumps used in stationary applications.

To ensure that the discharge pipe is self-cleaning, the calculation of the pipe lengths is based on these requirements:

- use steel pipes
- the minimum flow velocity through the vertical discharge pipe must be 1 m/s (1½" for AP12.40.xx and 2" for AP12.50.11)
- the minimum flow velocity through the horizontal discharge pipe must be 0.7 m/s (2" for AP12.40.xx and 2½" for AP12.50.11).



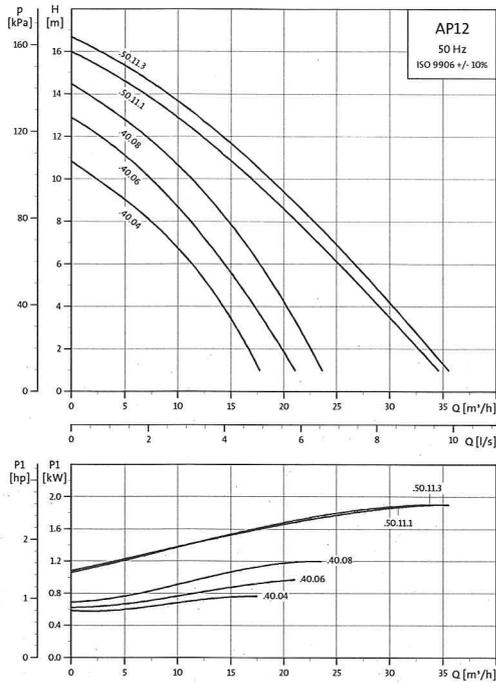
The overview is only intended as a guide. Grundfos is not liable for installations not complying with the overview.

**Note:** If the non-return valve is used, the pressure drop in the valve is 0.2 m head, which is to be subtracted from the vertical pipe lengths.

The vertical height of the discharge pipe should be measured from the pump stop level.

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## Performance curves



## Dimensional sketch

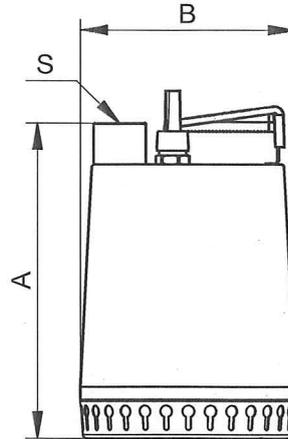


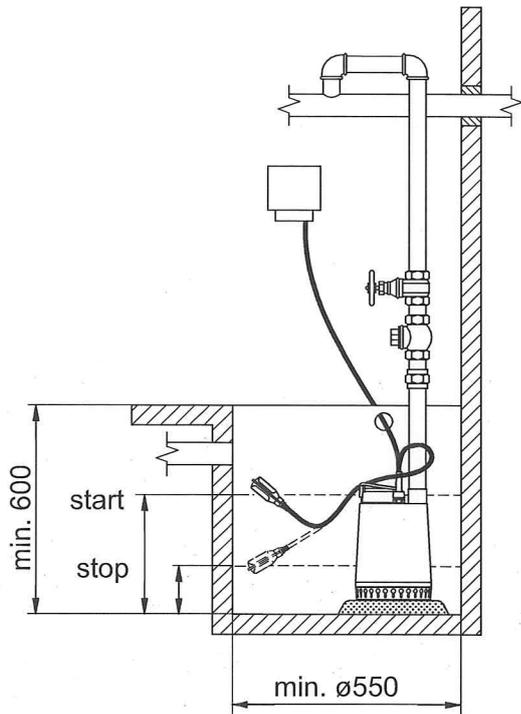
Fig. 15 Pump dimensions

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Pump type	Voltage [V]	P <sub>1</sub> [kW]	P <sub>2</sub> [kW]	I <sub>n</sub> [A]	Cos φ	I <sub>start</sub> / I <sub>n</sub>	Dimensions [mm]			Weight [kg]
							A	B	S	
Unilift AP12.40.04.1	1 x 230	0.7	0.4	3.0	0.99	3.8	321	216	Rp 1½	11.0
Unilift AP12.40.04.A.1	1 x 230	0.7	0.4	3.0	0.99	3.8	321	216	Rp 1½	11.0
Unilift AP12.40.04.3	3 x 230	0.7	0.4	2.2	0.85	4.7	321	216	Rp 1½	9.7
Unilift AP12.40.04.A.3	3 x 230	0.7	0.4	2.2	0.85	4.7	321	216	Rp 1½	12.0
Unilift AP12.40.04.3	3 x 400	0.7	0.4	1.2	0.83	5.0	321	216	Rp 1½	9.7
Unilift AP12.40.04.A.3	3 x 400	0.7	0.4	1.2	0.83	5.0	321	216	Rp 1½	12.0
Unilift AP12.40.06.1	1 x 230	0.9	0.6	4.4	0.99	3.8	321	216	Rp 1½	11.0
Unilift AP12.40.06.A.1	1 x 230	0.9	0.6	4.4	0.99	3.8	321	216	Rp 1½	11.0
Unilift AP12.40.06.3	3 x 230	0.9	0.6	2.9	0.83	5.4	321	216	Rp 1½	10.7
Unilift AP12.40.06.A.3	3 x 230	0.9	0.6	2.9	0.83	5.4	321	216	Rp 1½	13.0
Unilift AP12.40.06.3	3 x 400	0.9	0.6	1.6	0.83	4.8	321	216	Rp 1½	10.7
Unilift AP12.40.06.A.3	3 x 400	0.9	0.6	1.6	0.83	4.8	321	216	Rp 1½	10.7
Unilift AP12.40.08.1	1 x 230	1.3	0.8	5.9	0.99	3.8	346	216	Rp 1½	12.6
Unilift AP12.40.08.A.1	1 x 230	1.3	0.8	5.9	0.99	3.8	346	216	Rp 1½	12.6
Unilift AP12.40.08.3	3 x 230	1.2	0.8	3.7	0.85	4.7	346	216	Rp 1½	12.0
Unilift AP12.40.08.A.3	3 x 230	1.2	0.8	3.7	0.85	4.7	346	216	Rp 1½	14.3
Unilift AP12.40.08.3	3 x 400	1.2	0.8	2.1	0.87	4.9	346	216	Rp 1½	12.0
Unilift AP12.40.08.A.3	3 x 400	1.2	0.8	2.1	0.87	4.9	346	216	Rp 1½	14.3
Unilift AP12.50.11.1	1 x 230	1.7	1.1	8.5	0.92	3.8	357	241	Rp 2	15.1
Unilift AP12.50.11.A.1	1 x 230	1.7	1.1	8.5	0.92	3.8	357	241	Rp 2	15.1
Unilift AP12.50.11.3	3 x 230	1.9	1.1	6.4	0.85	3.6	357	241	Rp 2	15.6
Unilift AP12.50.11.A.3	3 x 230	1.9	1.1	6.4	0.85	3.6	357	241	Rp 2	17.9
Unilift AP12.50.11.3	3 x 400	1.9	1.1	3.2	0.88	4.6	357	241	Rp 2	15.6
Unilift AP12.50.11.A.3	3 x 400	1.9	1.1	3.2	0.88	4.6	357	241	Rp 2	17.9

## Unilift AP12 installations



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**Fig. 16** One-pump installation with float switch

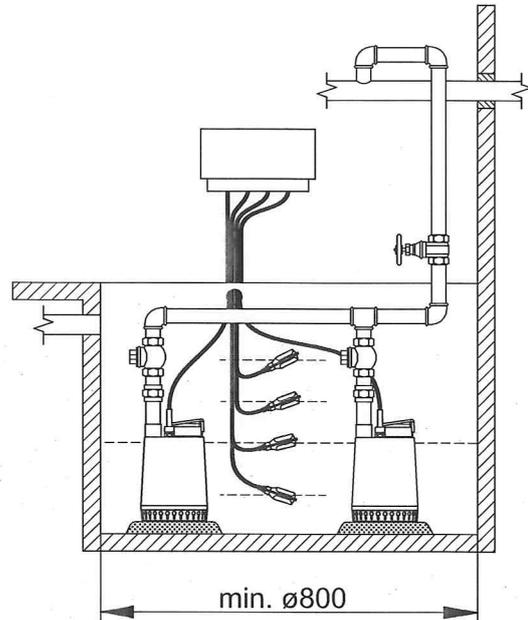
### Adjustment of cable length for float switch

The difference in level between start and stop can be adjusted by changing the free cable length between the float switch and the pump handle.

- Increasing the free cable length results in fewer starts/stops and a large difference in level.
- Reducing the free cable length results in more starts/stops and a small difference in level.

In order for the float switch to start and stop the pump, the free cable length must be min. 100 mm and max. 350 mm.

Pump type	Cable length min. 100 mm		Cable length max. 350 mm	
	Start [mm]	Stop [mm]	Start [mm]	Stop [mm]
Unilift AP12	500	300	550	100



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**Fig. 17** Two-pump installation with four float switches

### Two-pump installation

The Unilift AP pumps can be used for parallel installation together with a controller.

The example shows an installation with four float switches. The pumps are controlled by the liquid level in the tank.

When the liquid lifts up the second float switch from the bottom, the first pump will start.

If the liquid rises faster than one pump can manage, the third float switch from the bottom will be lifted up and start the second pump.

When the the bottom float switch is no longer lifted up by the liquid, the settable stop delay will set in and after that both pumps will be stopped.

When the top float switch is lifted up by the liquid, the high-level alarm will be activated