

# Unilift CC, KP, AP

Submersible drainage and effluent pumps  
50 Hz



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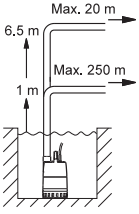

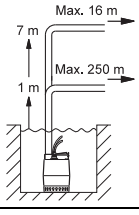

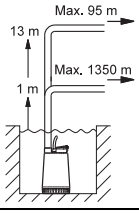

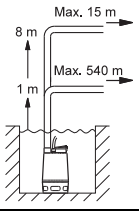

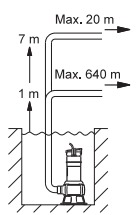

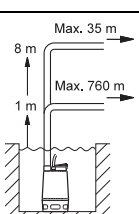

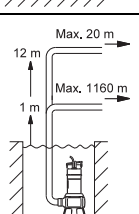
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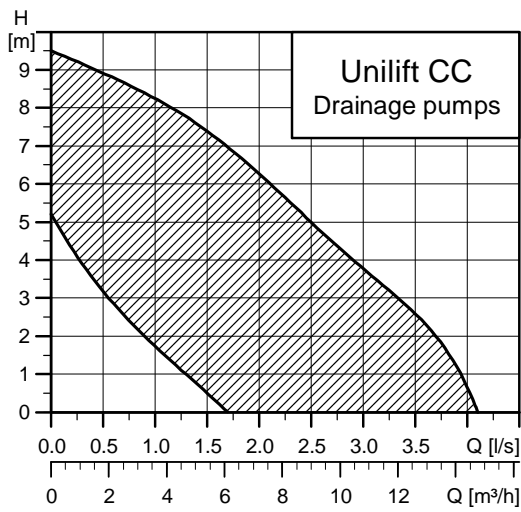
## Product range

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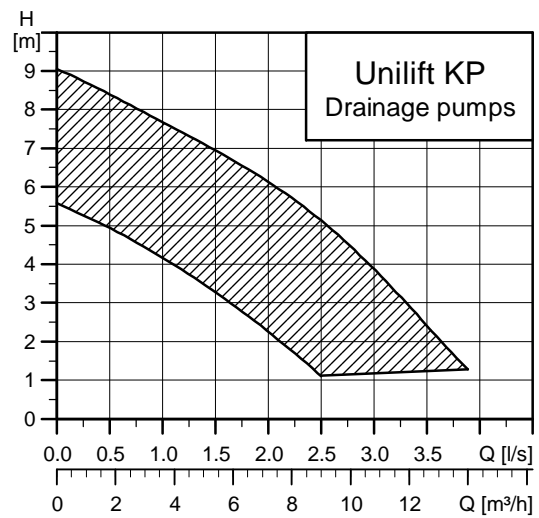
## Unilift CC, KP, AP

	Application		Technical data	Sizing
Drainage	<b>Unilift CC</b> Unilift CC is a submersible pump designed for pumping clean, non-aggressive water and slightly dirty (grey) wastewater. Unilift CC can pump down to 3 mm water level and can be used in permanent installations or as a portable pump.		GR A0682 <ul style="list-style-type: none"> <li>Max. flow rate, Q: 14 m<sup>3</sup>/h</li> <li>Max. head, H: 9 m</li> <li>Liquid temp.: 0 °C to +40 °C</li> <li>Max. particle size: Ø10</li> <li>Material: Composite</li> <li>Low suction to 3 mm.</li> </ul>	 TM03 1883 3305
	<b>Unilift KP</b> Unilift KP is a submersible pump designed for pumping clean, non-aggressive water and slightly dirty (grey) wastewater such as domestic effluents from septic and sludge treating systems.		GR 0110 <ul style="list-style-type: none"> <li>Max. flow rate, Q: 14 m<sup>3</sup>/h</li> <li>Max. head, H: 9 m</li> <li>Liquid temp.: 0 °C to +50 °C</li> <li>Max. particle size: Ø10</li> <li>Material: Stainless steel.</li> </ul>	 TM03 1884 3305
	<b>Unilift AP12</b> Unilift AP12 is a submersible pump designed for pumping clean, non-aggressive water and slightly dirty (grey) wastewater. The pump can be used as a portable unit.		TM03 1851 3205 <ul style="list-style-type: none"> <li>Max. flow rate, Q: 32 m<sup>3</sup>/h</li> <li>Max. head, H: 17 m</li> <li>Liquid temp.: 0 °C to +55 °C</li> <li>Max. particle size: Ø12</li> <li>Material: Stainless steel.</li> </ul>	 TM03 1885 3305
Effluent	<b>Unilift AP35</b> Unilift AP35 is a submersible pump designed for pumping dirty water, untreated wastewater (excluding toilet discharge) and liquids containing fibres from light industry, laundries, etc. with particles up to Ø35.		TM00 5739 1195 <ul style="list-style-type: none"> <li>Max. flow rate, Q: 18 m<sup>3</sup>/h</li> <li>Max. head, H: 11 m</li> <li>Liquid temp.: 0 °C to +55 °C</li> <li>Max. particle size: Ø35</li> <li>Material: Stainless steel.</li> </ul>	 TM03 1886 3305
	<b>Unilift AP35B</b> Unilift AP35B is a submersible pump designed for pumping effluents (excluding toilet discharge). The pump is suitable for installation on auto coupling; this allows easy access to the pump for maintenance and other purposes.		TM03 8259 0907 <ul style="list-style-type: none"> <li>Max. flow rate, Q: 21 m<sup>3</sup>/h</li> <li>Max. head, H: 13 m</li> <li>Liquid temp.: 0 °C to +40 °C</li> <li>Max. particle size: Ø35</li> <li>Material: Stainless steel</li> <li>Optional: Auto-coupling.</li> </ul>	 TM03 1888 3305
	<b>Unilift AP50</b> Unilift AP50 is a submersible pump designed for pumping dirty water, untreated wastewater and liquids containing fibres from light industry, laundries, etc. with particles up to Ø50.		TM00 5740 1495 <ul style="list-style-type: none"> <li>Max. flow rate, Q: 32 m<sup>3</sup>/h</li> <li>Max. head, H: 12 m</li> <li>Liquid temp.: 0 °C to +55 °C</li> <li>Max. particle size: Ø50</li> <li>Material: Stainless steel.</li> </ul>	 TM03 1887 3305
Domestic sewage	<b>Unilift AP50B</b> Unilift AP50B is a submersible pump designed for pumping effluents. The pump is suitable for installation on auto-coupling allowing easy access to the pump for maintenance and other purposes.		TM03 8260 0907 <ul style="list-style-type: none"> <li>Max. flow rate, Q: 31 m<sup>3</sup>/h</li> <li>Max. head, H: 17 m</li> <li>Liquid temp.: 0 °C to +40 °C</li> <li>Max. particle size: Ø50</li> <li>Material: Stainless steel</li> <li>Optional: Auto-coupling.</li> </ul>	 TM03 1889 3305

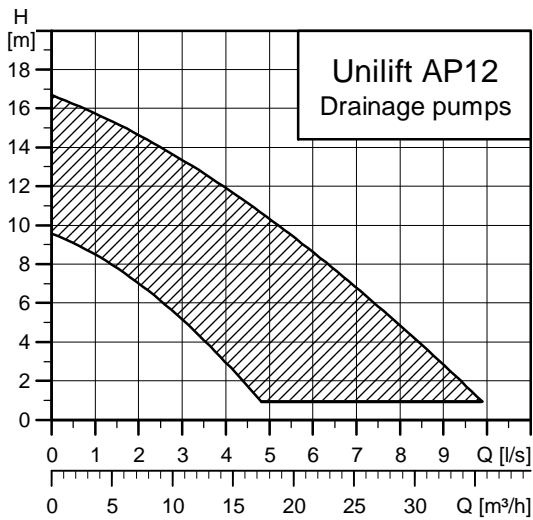
## Performance range



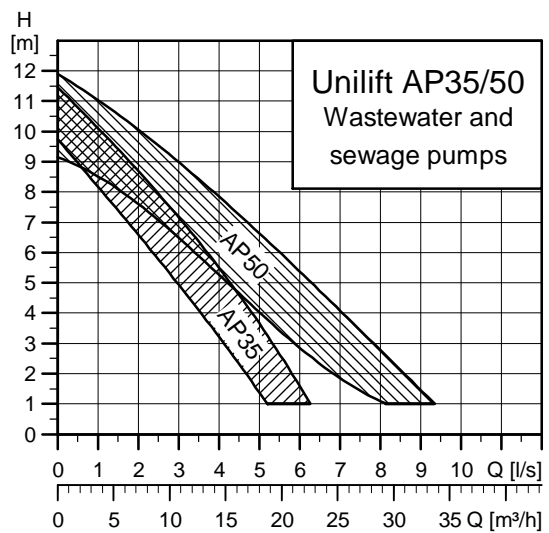
TM03 1364 1805



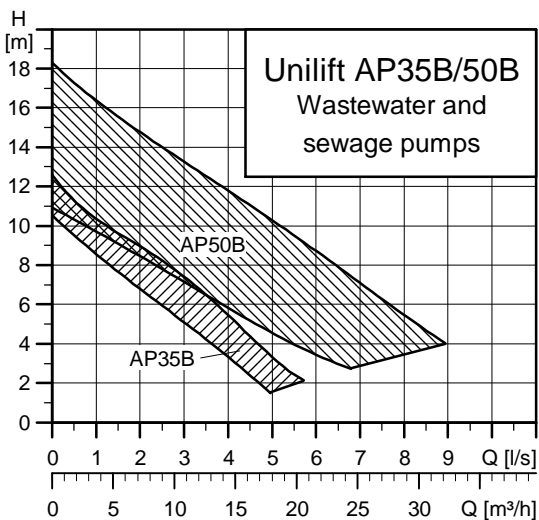
TM03 1363 1805



TM03 1362 1805



TM00 3547 1805



TM01 9544 1805

## Applications

The Unilift CC, KP and AP are submersible drainage pumps suitable for temporary as well as permanent free-standing installation. Furthermore, Unilift AP35B and AP50B pumps are suitable for installation on an auto-coupling at the bottom of a collecting tank with guide rails going to the top.

The pumps are designed for intermittent operation.

pH values:

- Unilift CC: 4 to 9
- Unilift KP: 4 to 9
- Unilift AP: 4 to 10.

Maximum density: 1,100 kg/m<sup>3</sup>.

Maximum installation depth below water level: 10 m.

For permanent installation, level controllers are available: LC 107, LC 108 and LC 110 for one-pump installations and LCD 107, LCD 108 and LCD 110 for two-pump installations.

## Examples of applications

Applications	Unilift pump type						
	CC	KP	AP12	AP35	AP35B	AP50	AP50B
Max. liquid temperature	40 °C	50 °C	55 °C	55 °C	40 °C	55 °C	40 °C
Max. particle size [mm]	10	10	12	35	35	50	50
Non-permanent, light-duty applications (used as a portable pump)	●	●	○	○	○	○	○
Non-permanent, heavy-duty applications for installers and light industry (used as a portable pump)			●	●	●	●	●
Pumping of:							
Water and rainwater in horticulture	●	●	●				
Water from rivers and lakes	●	●	●	●	●	●	●
Rainwater, drainage water and water from flooding	●	●	●	●	●	●	●
Water for filling/emptying containers, ponds, tanks, etc.	●	●	●	●	●	●	●
Effluents from showers, washing machines and sinks below sewer level	●	●	●	●	●	●	●
Pool water	●	●	●	●	●	●	●
Ditch drainage water	●	●	●	●	●	●	●
Groundwater (lowering applications)	●	●	●	●	●	●	●
Domestic effluents from septic and sludge-treating systems	○	●	●	●	●	●	●
Liquids containing fibres from light industry, laundries, etc.				●	●	●	●
Effluents from viaducts, underpasses, etc.				●	●	●	●
Drainage water from garage sprinkler systems				○	○	○	○
Domestic wastewater with toilet discharge from pipes and water closets below sewer level, outdoor pump installations						●	●
Domestic wastewater with toilet discharge from pipes and water closets below sewer level, indoor pump installations							Not applicable, use Multilift

● = Recommended pump type  
○ = Alternative pump type

## Wastewater definitions

### Drainage

Raw water, drainage and untreated wastewater containing solids no larger than 12 mm from households, farms and small industry.

### Effluent

Dirty water and untreated wastewater (excluding toilet discharge), containing fibres and solids no larger than 50 mm from dewatering systems, domestic wastewater systems and small industry.

### Sewage

Untreated wastewater and raw sewage containing fibres, textiles and other solids, including toilet discharge from domestic sewage systems, farms and industry.

To avoid clogging, pumps allowing free passage of solids up to 70-80 mm are recommended. Be aware that toilet discharge often contains foreign bodies such as nappies, tampons, toilet rolls, children's toys and toothbrushes.

## Pump overview

Pump range Unilift	Free passage [mm]	Impeller type	Number of motor poles
CC	10	Semi-open	2
KP	10	Semi-open	2
AP12	12	Semi-open	2
AP35	35	Vortex	2
AP35B	35	Vortex	2
AP50	50	Vortex	2
AP50B	50	Vortex	2

## Type keys

### Unilift CC pumps

Example	Unilift	CC	9	A1
Type range				
Type				
Maximum head [m]				
5				
7				
9				
Operation				
A1 = Automatic operation				
M1 = Manual operation				

### Unilift KP pumps

Example	Unilift KP	150	A	1
Type range				
Rated motor output, $P_2$ [W]:				
150				
250				
350				
Level control:				
S = with integrated, electronic sensor (automatic operation)				
A = with float switch (automatic operation)				
M = without level switch (manual operation)				
Motor:				
1 = single-phase				
3 = three-phase				

### Unilift AP pumps

Example	Unilift AP	35	B.	50.	08.	A	1	.V
Type range								
Maximum solids size (mm)								
Pump type:								
Blank = AP pump								
B = AP Basic								
Nominal diameter of discharge port								
Power output $P_2/100$ [W]								
Level control:								
A = Automatic operation (with float switch)								
Blank = Manual operation (without float switch)								
Motor:								
1 = Single-phase								
3 = Three-phase								
Impeller:								
V = Vortex impeller								

## Construction

Vertical, single-stage, submersible centrifugal pumps with horizontal or vertical discharge port designed for free-standing installation, installation by means of an auto-coupling guide rail system or installation in collecting tanks.

The pumps are directly connected to an asynchronous submersible motor for 1 x 230 V +6/-10 %, 3 x 230 V +6/-10 % or 3 x 400 V +6/-10 %, 50 Hz.

Enclosure class: IP 68

Insulation class: B or F.

### Unilift pumps

Single-phase pumps incorporate thermal overload protection and require no additional motor protection.

Three-phase pumps must be connected to a motor starter.

## Installation

The pumps are suitable for free-standing installation. Unilift AP35B and AP50B can be installed on an auto-coupling guide rail system, available as an accessory.

Pumps for vertical dry tank installation can be installed by means of a stationary stand with suction bend.

## Unilift CC



TM03 1358 1805

**Fig. 1** Unilift CC

Unilift CC 5, CC 7 and CC 9 pumps are single-stage submersible pumps able to pump down to 3 mm water level. The pumps are designed for pumping rainwater and grey wastewater from:

- washing machines, baths, sinks, etc. from low-lying parts of buildings up to sewer level
- cellars or buildings prone to flooding
- draining wells
- collecting wells for surface water with inlets from roof gutters, tunnels, etc.
- swimming pools, ponds or fountains.

The pumps are suitable for permanent installation or they can be used as portable pumps. They are available in two versions:

- M for manual operation
- A for automatic operation.

The pumps allow free passage of particles up to Ø10 mm.

### Approvals

VDE, GOST and LGA according to DIN EN 12050-2.

### Pumped liquids

The pumps are suitable for these liquids:

- clean, non-aggressive water
- slightly dirty (grey) wastewater.

The pumps are **not** suitable for these liquids:

- liquids containing long fibres
- inflammable liquids (oil, petrol, etc.)
- aggressive liquids.

If the pump has been used for other liquids than clean water, it should be flushed through with clean water immediately after use.

### Components included

The pump is supplied with an adapter and a non-return valve.

The adapter has ¾", 1" and 1¼" external threads. It must be cut to fit the discharge pipe.

The non-return valve can be fitted in the adapter to prevent backflow through the pump when it stops.

### Pump sleeve and housing

The pump sleeve is made of composite material cast in one piece with a 1¼" external pipe thread (G) discharge connection. A slot on the handle holds the float switch cable.

The mains cable and float switch cable are introduced into the pump sleeve through hermetically sealed cable entries.

The suction strainer is fitted to the sleeve by giving it a light push, and it can be removed easily by means of a screwdriver or similar tool. The water enters the pump through the holes of the suction strainer preventing the passage of large solids. The large holes also ensure a slow flow into the pump.

Suction to low water level is obtained by removing the strainer.

### Motor

The motor is a single-phase, asynchronous, dry-rotor motor. The axial rotor position is secured by means of a ball bearing. The motor is cooled by the pumped liquid around the motor.

	Insulation class	Enclosure class
Unilift CC 5	B	IP68
Unilift CC 7	F	IP68
Unilift CC 9	B	IP68

The motor incorporates automatic overload protection cutting out the motor in case of overload. When cooled to normal temperature, the motor will restart automatically.

### Materials

Component	Material	DIN W.-Nr.
Motor sleeve	PP 15 GF	
Pump sleeve	PP 15 GF	
Impeller	PPOm 20 GF	
Suction strainer	Stainless steel class A2	1.4301
V-ring	NBR 50	
O-rings	NBR 70	
Cable	H05RN-F 3G0.75 (CC 5) H07RN-F3G1 (CC 7 - CC 9)	



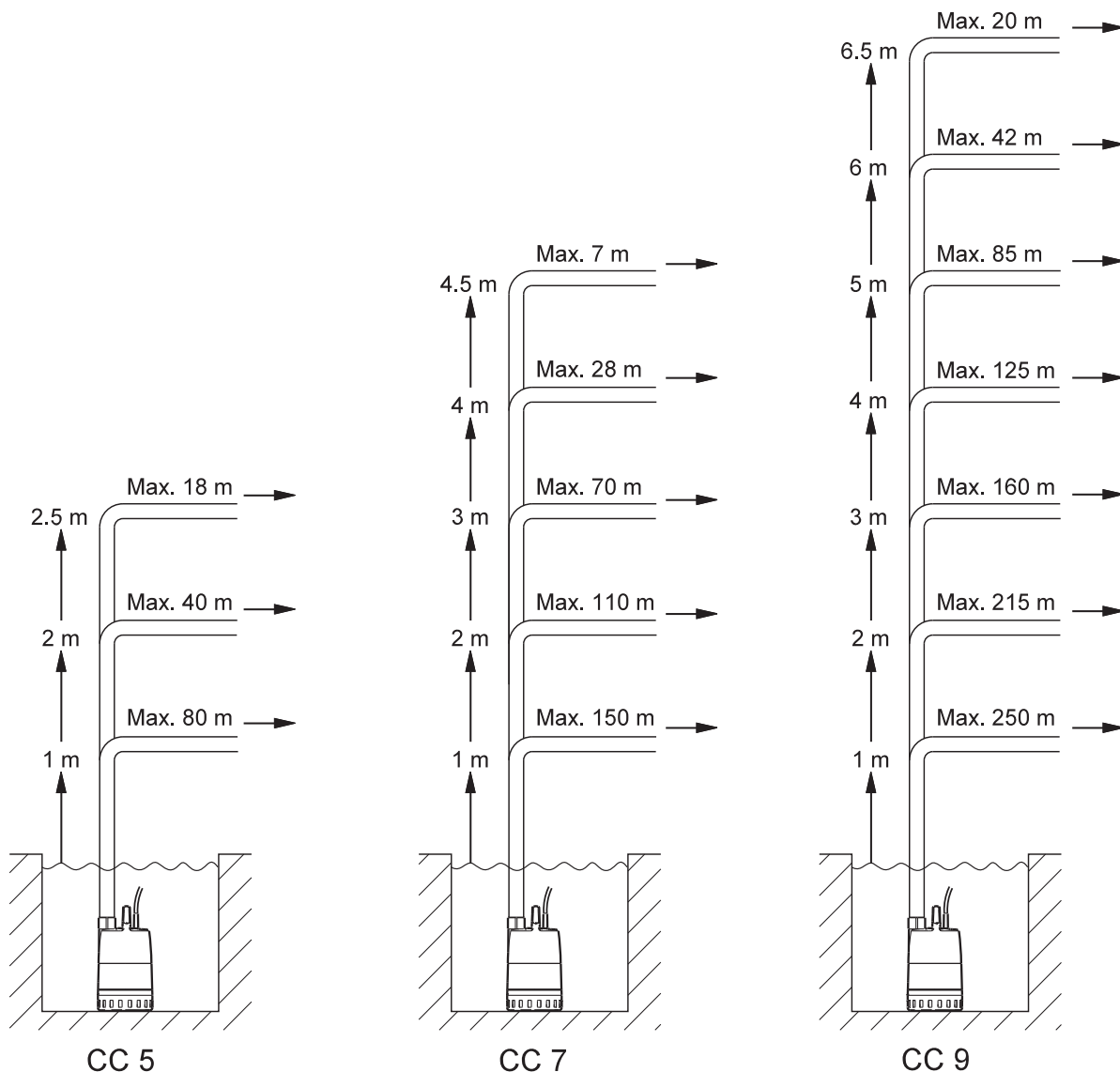
## Selection

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

The flow velocity through the discharge pipe must be minimum 0.7 m/s to ensure self-cleaning.

**Example:** A DN 32 discharge pipe with an inner diameter of 26 to 34 mm (depending on local standards) requires a minimum flow velocity of approximately 2 m<sup>3</sup>/h.

The overview below shows the maximum lengths of combined vertical and horizontal DN 32 discharge pipes.



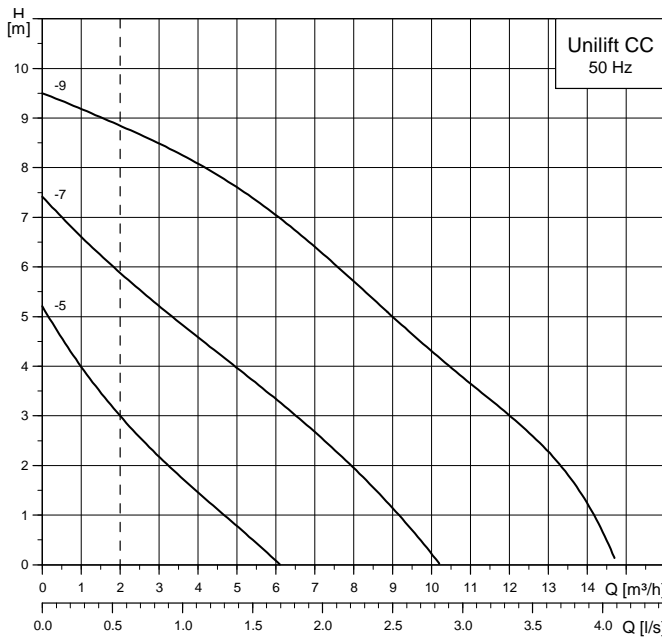
The overview is only intended as a guide. Grundfos is not liable for installations not complying with the overview.

**Note:** If the non-return valve is used, the pressure drop in the valve is 0.2 m head at 2 m<sup>3</sup>/h, 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.

TM03 1370 1805

## Performance curves



The broken line represents a min. flow velocity of 0.7 m/s with a DN 32 discharge pipe to DIN EN 12056.

TM03 1346 1805

## Operating conditions

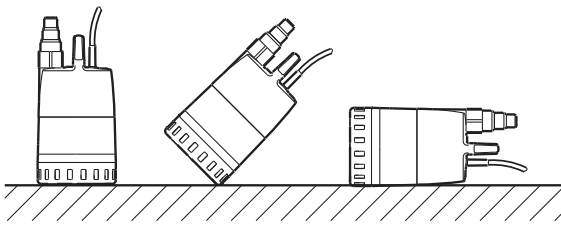
### Liquid temperature

0 °C to +40 °C.

However, at intervals of at least 30 minutes, the pump is allowed to run at maximum +70 °C for periods not exceeding two minutes.

### Installation

The pump can be used in the vertical position as well as in the tilted or horizontal position with the discharge port as the highest point of the pump. The suction strainer must be covered by the pumped liquid.



TM00 1111 1005

Fig. 2 Pump positions

### Installation depth

Maximum 10 metres below the water surface.

## 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 frequent 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 minimum 100 mm and maximum 200 mm.

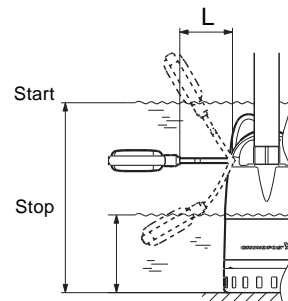


Fig. 3 Start-stop level, Unilift CC

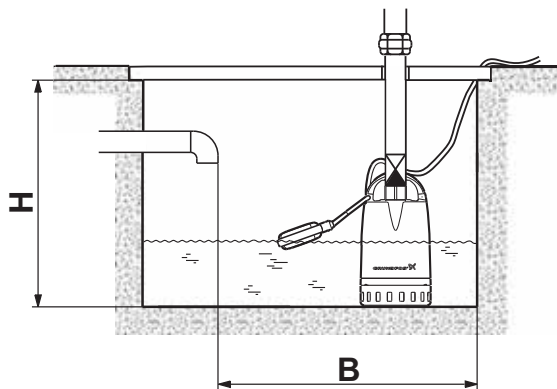
TM03 0829 0505

Pump type	Cable length (L) min. 100 mm		Cable length (L) max. 200 mm	
	Start [mm]	Stop [mm]	Start [mm]	Stop [mm]
Unilift CC 5	350	115	400	55
Unilift CC 7	350	115	400	55
Unilift CC 9	385	150	435	90

## Technical data

Pump type	Voltage [V]	P <sub>1</sub> [W]	I <sub>n</sub> [A]	Dimensions [mm]					Weight [kg]
				H	B	H1	B1	B2	
Unilift CC 5	1 x 220/240	240	1.1	520	400	305	160	26.5	4.35
Unilift CC 7	1 x 220/240	380	1.7	520	400	305	160	26.5	4.6
Unilift CC 9	1 x 220-240	780	3.7	570	500	340	160	26.5	6.5

### With float switch

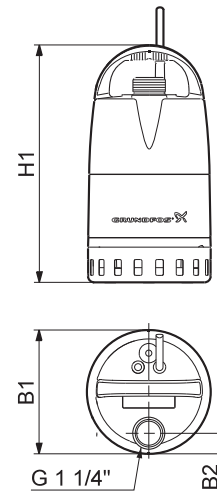


TM03 1122 1105

**Fig. 4** Minimum well dimensions, Unilift CC

If the pump is installed in a collecting well, the minimum dimensions of the well should be as shown above to ensure free movability of the float switch.

### Without float switch



TM03 1357 1805

**Fig. 5** Pump dimensions

The space required corresponds to the physical dimensions of the pump.

## Unilift KP



TM01 7145 4099

The Unilift KP pump is designed for liquid transfer and drainage of clean or slightly dirty wastewater with the pump completely or partly submerged in the liquid.

The pump is suitable for these applications:

- drainage of cellars or buildings
- pumping of domestic wastewater without toilet waste
- groundwater lowering
- emptying applications, e.g. in pools, tanks and vessels
- pumping applications within agriculture, the dairy industry, horticulture and the process industry.

## Approvals

VDE, LGA, UL and CSA.

## Pumped liquids

### Pumps without level switch or with float switch

The pumps are suitable for these liquids:

- clean, non-aggressive water
- slightly dirty (grey) wastewater.

If the pump has been used for other liquids than clean water, it should be flushed through with clean water immediately after use. The open-impeller construction ensures a free passage of solids up to a diameter of  $\varnothing 10$  mm.

### Pumps with vertical level switch

The pumps must only be used for the pumping of clean groundwater and drain water.

## Operating conditions

Installation depth: Max. 10 m below liquid level  
 Min. liquid temperature: 0°C  
 Max. liquid temperature at continuous operation: 50°C

During continuous pumping, the suction strainer must always be completely covered by the liquid.

Max. liquid temperature: 70°C for periods not exceeding two minutes at intervals of at least 30 minutes.

## Discharge

Unilift KP 150, KP 250 and KP 350: Rp 1¼.

## Pump sleeve and housing

Single-stage, submersible, stainless steel, drainage pump in a robust design with upward-pointing discharge port placed on top of the pump.

The water enters the pump through the holes of the suction strainer, preventing the passage of large solids. The sturdy impeller has single-curved vanes with bevelled front edges preventing fibres from jamming the impeller. The guide vanes in the pump housing guide the liquid, lifting sand grains into the liquid flow, thus preventing blocking by sand.

The outer casing is made in one piece. The mains cable and the cable of the level switch are combined in one vulcanized and water-tight plug, which is secured to the socket of the hermetically sealed stator housing.

## Motor

The motor is a single- or three-phase asynchronous canned motor with liquid-filled rotor chamber and water-lubricated bearings. The motor is cooled by the pumped liquid around the motor.

Enclosure class: IP 68

Insulation class: F.

The motor incorporates automatic overload protection which cuts out the motor in case of overload. When cooled to normal temperature, the motor restarts automatically.

## Materials

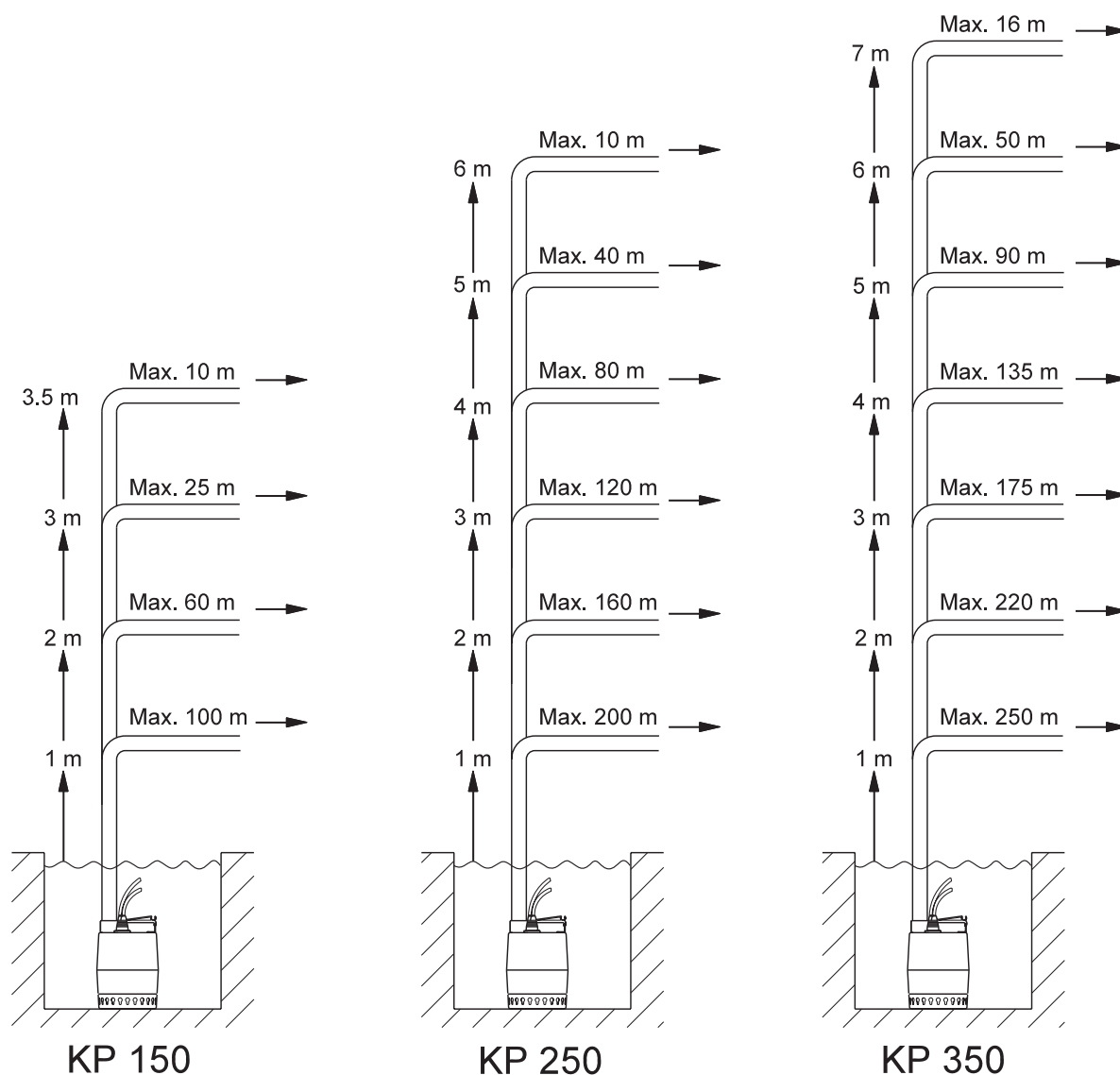
Component	Material	DIN W.-Nr.	AISI
Outer casing	Stainless steel	1.4301	304
Pump housing	Stainless steel	1.4301	304
Suction strainer	Stainless steel	1.4301	304
Impeller	Stainless steel	1.4301	304
Shaft	Stainless steel	1.4057	431
Stator housing	Stainless steel	1.4301	304
Guide vanes	Stainless steel	1.4301	304
Bearings	Carbon		
O-rings	NBR		
Seal rings			
Cables	H 07 RN-F		

## Selection

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

The flow velocity through the discharge pipe must be minimum 0.7 m/s to ensure self-cleaning. Example: A DN 32 discharge pipe with an inner diameter of 26 to 34 mm (depending on local standards) requires a minimum flow velocity of approximately 2.3 m<sup>3</sup>/h.

The overview below shows the maximum lengths of combined vertical and horizontal DN 32 discharge pipes.



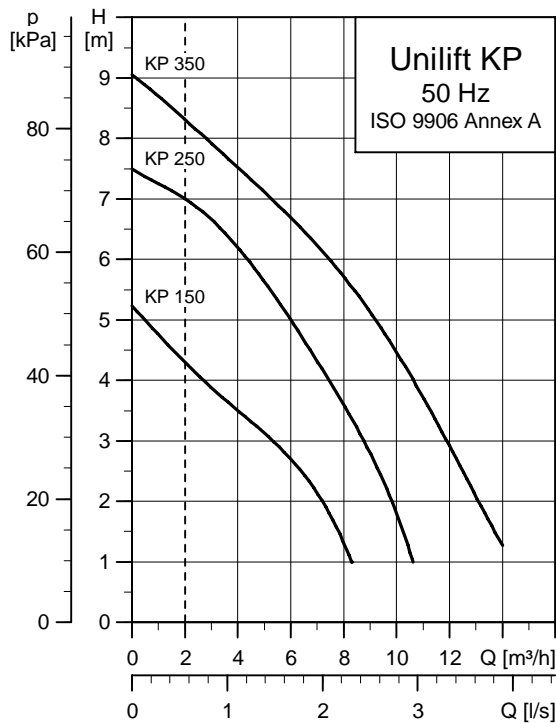
TMM03 1643 2505

The above overview is only intended as a guide. Grundfos is not liable for any faulty installations based on 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.

## Performance curves

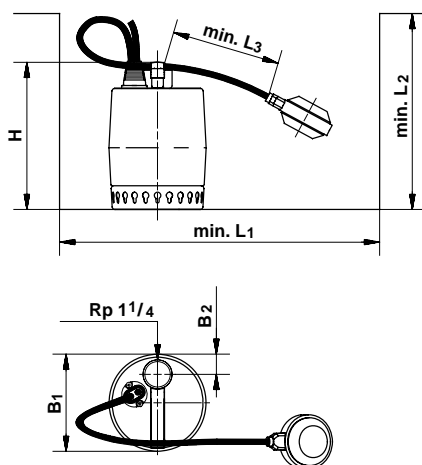


The broken line represents a min. liquid velocity of 0.7 m/s with a DN 32 discharge pipe to DIN EN 12056.

TM03 1583 2505

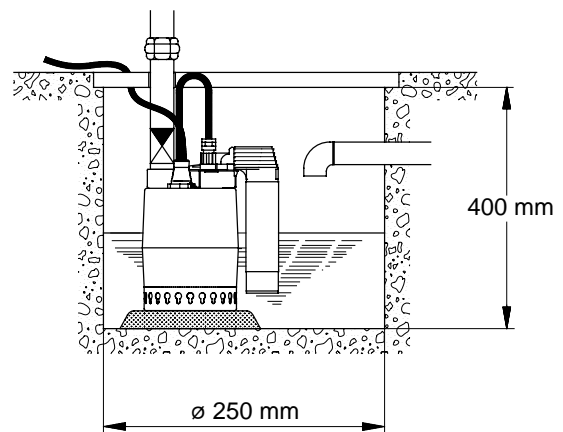
Pump type	Voltage [V]	P <sub>1</sub> [W]	I <sub>n</sub> [A]	Dimensions [mm]						Weight [kg]
				H	B1	B2	L1	L2	L3	
Unilift KP 150	1 x 220-230	300	1.3	225	149	31	350	400	70	6.3
Unilift KP 150	1 x 230-240	300	1.3	225	149	31	350	400	70	6.3
Unilift KP 250	1 x 220-230	480	2.3	225	149	31	350	400	70	7.2
Unilift KP 250	1 x 230-240	480	2.2	225	149	31	350	400	70	7.2
Unilift KP 250	3 x 380-415	480	0.8	225	149	31	350	400	70	7.2
Unilift KP 350	1 x 220-240	700	3.2	235	149	31	350	410	70	8.0
Unilift KP 350	3 x 380-400	700	1.3	235	149	31	350	410	70	8.0

### With float switch



TM00 1803 1597

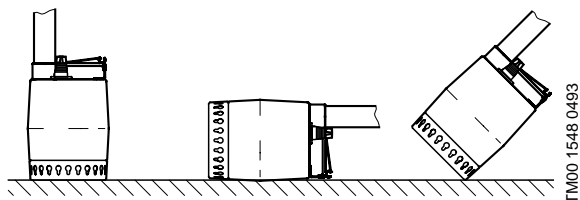
### With vertical level switch



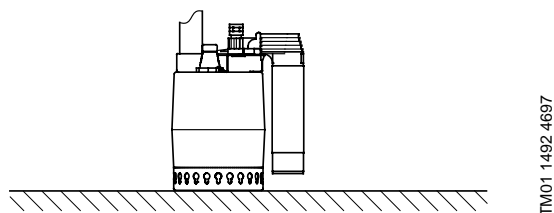
TM01 1109 1098

### Installation

Pumps without level switch or with float switch can be used in vertical position with the discharge port uppermost or in horizontal or tilted position with the discharge port as the highest point of the pump.



Pumps with vertical level switch must be used in the vertical position.



The Unilift KP pump with vertical level switch is well suited for permanent installation.

### Level switches

A level switch, which gives impulses to start/stop between two levels of liquid, is connected to pumps intended for automatic operation. This type of installation requires a non-return valve in the discharge pipe or pump. The pumps are available with two different types of level switches.

#### Minimum liquid level

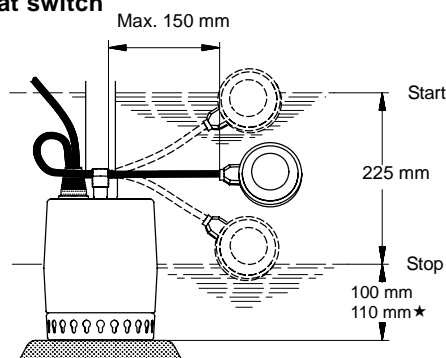
- manual operation: 14 mm
- automatic operation: See below.

#### Pumps with float switch

A clamp on the handle of the pump holds the cable of the level switch. The difference in level between start and stop can be adjusted by changing the free cable length between the handle of the pump and the level switch.

Dimensions for Unilift KP 350 are marked with an "★".

#### Float switch

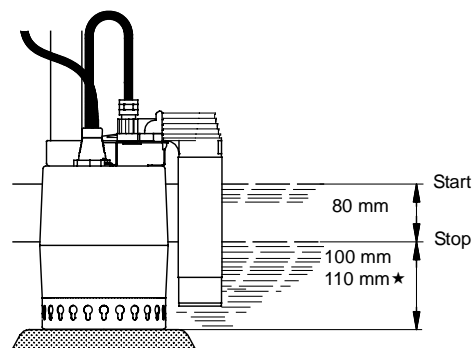


#### Pumps with vertical level switch

For pumps with vertical level switch, the difference in level between start and stop is not adjustable.

Dimensions for Unilift KP 350 are marked with an "★".

#### Vertical level switch



## 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

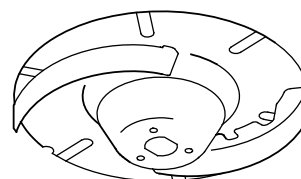
Unilift AP12.50: Rp 2.

### 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.



TM00 5477 0895

**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

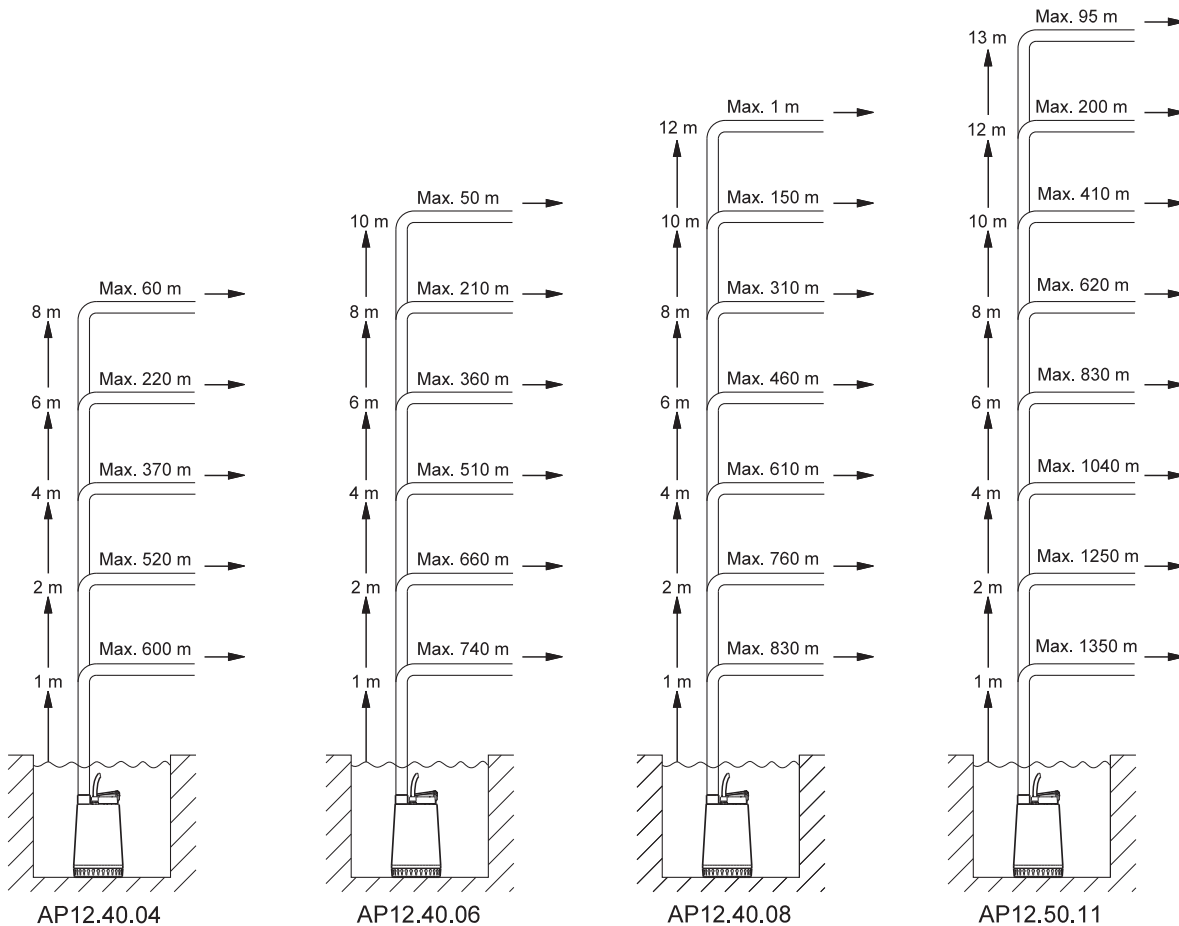
Component	Material	DIN W.-Nr.	AISI
Pump housing	Stainless steel	1.4301	304
Riser pipe	Stainless steel	1.4301	304
Impeller	Stainless steel	1.4301	304
Pump sleeve	Stainless steel	1.4401	316
Pump shaft - wet end	Stainless steel	1.4301	304
Bearings	Heavy-duty prelubricated ball bearings		
O-rings	NBR rubber		
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).



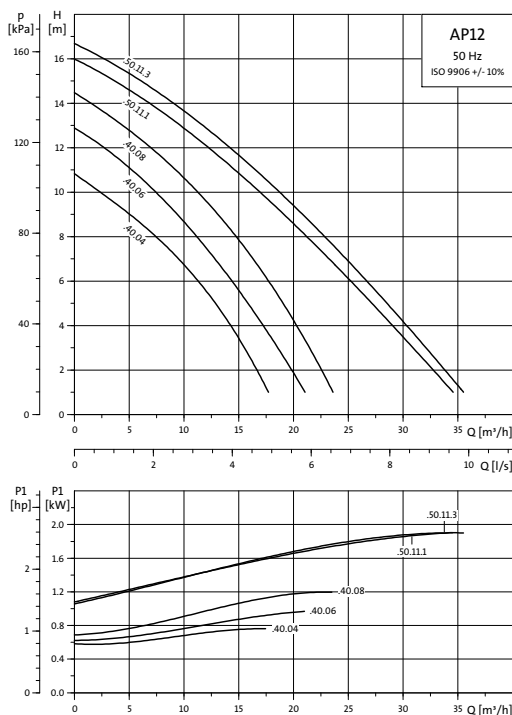
The overview is only intended as a guide. Grundfos is not liable for installations not complying with the overview.

**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.

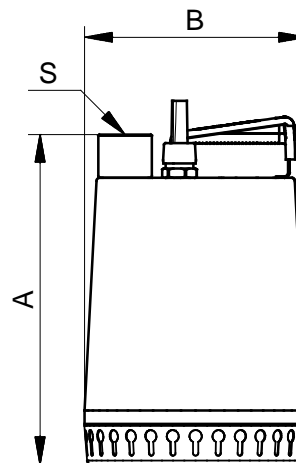
TM03 1878 3305

## Performance curves



TM00 7212 0803

## Dimensional sketch

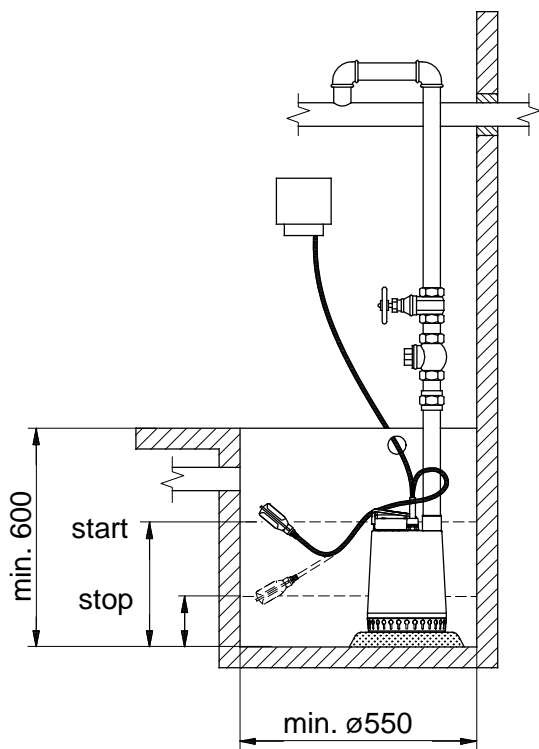


TM00 5523 0995

Fig. 15 Pump dimensions

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



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

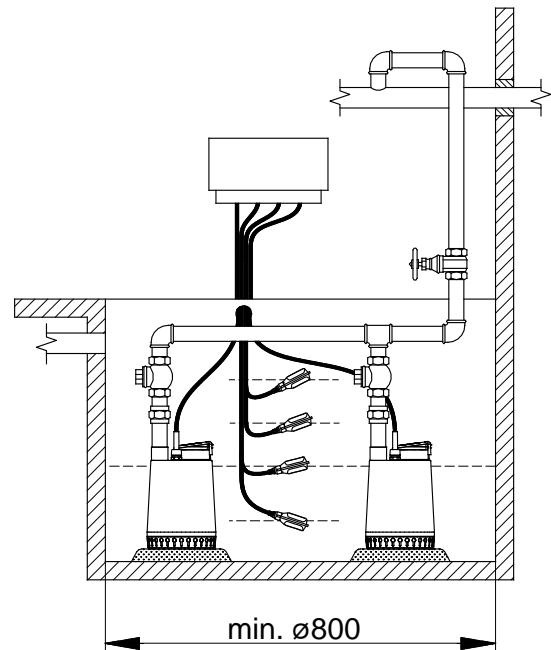
### Adjustment of cable length for float switch

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



**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

## Unilift AP35



TM00 5739 1195

**Fig. 18** Unilift AP35

The Unilift AP35 pump is a single-stage, submersible pump designed for pumping drainage water and effluent. 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 of ponds, tanks, etc.
- pumping of fibre-containing wastewater from laundries and industries
- pumping of domestic wastewater without discharge from water closets.

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.

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, allowing for quick and easy dismantling.

### Discharge port

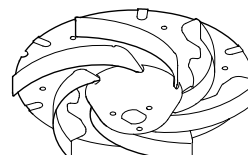
All Unilift AP35 pumps have a threaded Rp 1½ vertical discharge port.

### Shaft and bearings

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

### Impeller

The stainless steel impeller is a vortex impeller with L-shaped blades and a clearance of 35 mm in the pump housing. The blades are curved backwards to reduce any harmful effect from solid particles and to minimise power consumption. The impeller has a protective cap to prevent the deposit of long-fibred material.



TM00 5478 0895

**Fig. 19** Impeller, Unilift AP35

### 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 cable

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

Enclosure class: IP68  
 Insulation class: F (155 °C)  
 Cable typea: H07RN-F.

Single-phase motors have built-in thermal protection.

## Materials

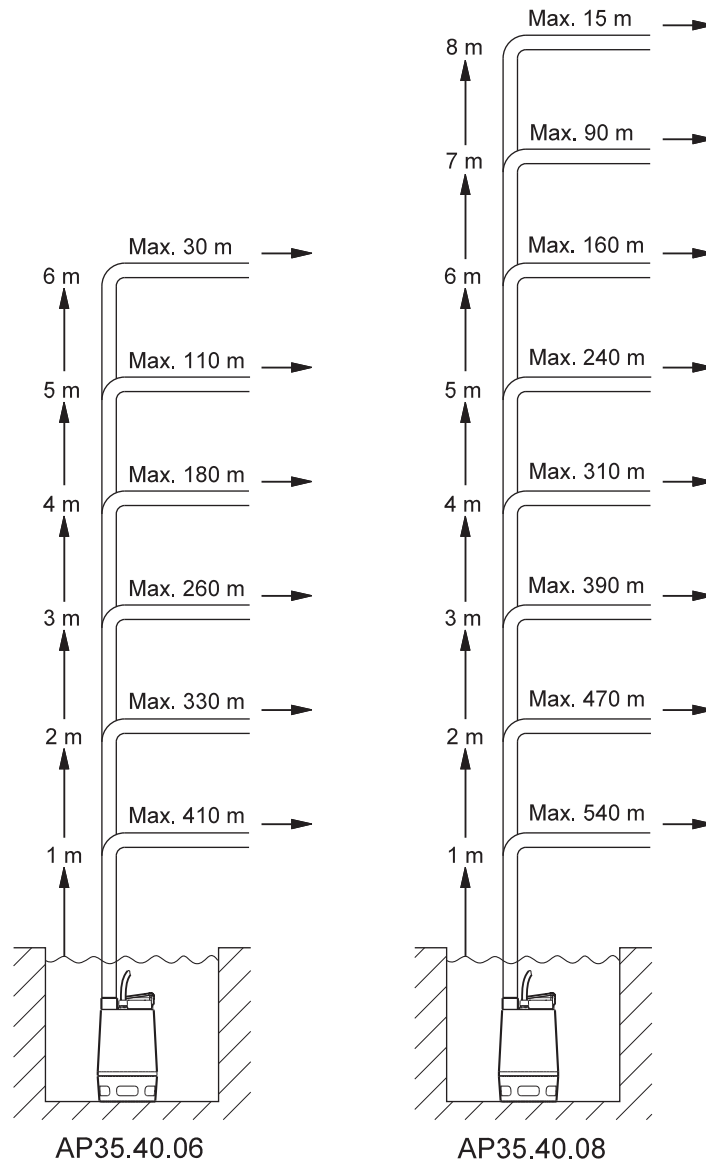
Component	Materials	DIN W.-Nr.	AISI
Pump housing	Stainless steel	1.4301	304
Riser pipe	Stainless steel	1.4301	304
Impeller	Stainless steel	1.4301	304
Pump sleeve	Stainless steel	1.4401	316
Pump shaft - wet end	Stainless steel	1.4301	304
Bearings	Heavy-duty prelubricated ball bearings		
O-rings	NBR rubber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

## Selection

The overview below is suitable for the selection of the correct size of Unilift AP35 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 (1½") must be 1 m/s
- the minimum flow velocity through the horizontal discharge pipe (2") must be 0.7 m/s.



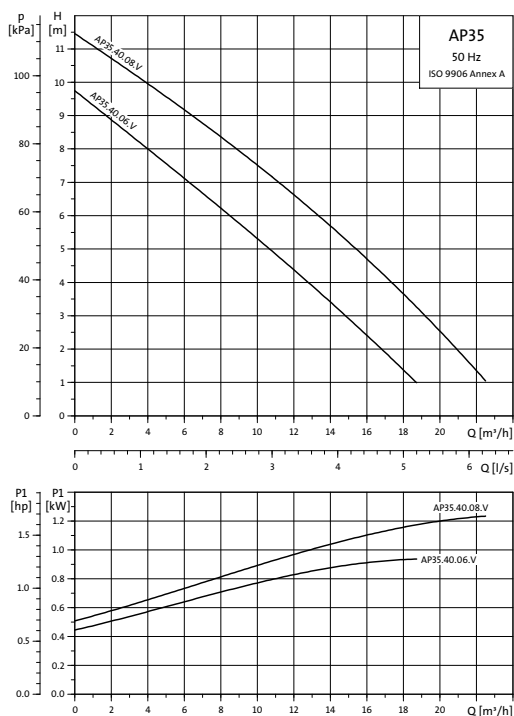
The overview is only intended as a guide. Grundfos is not liable for installations not complying with the overview.

**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.

TM03 1879 3305

## Performance curves



## Dimensional sketch

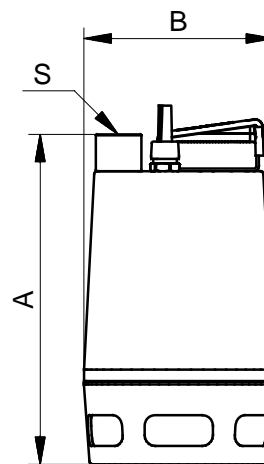


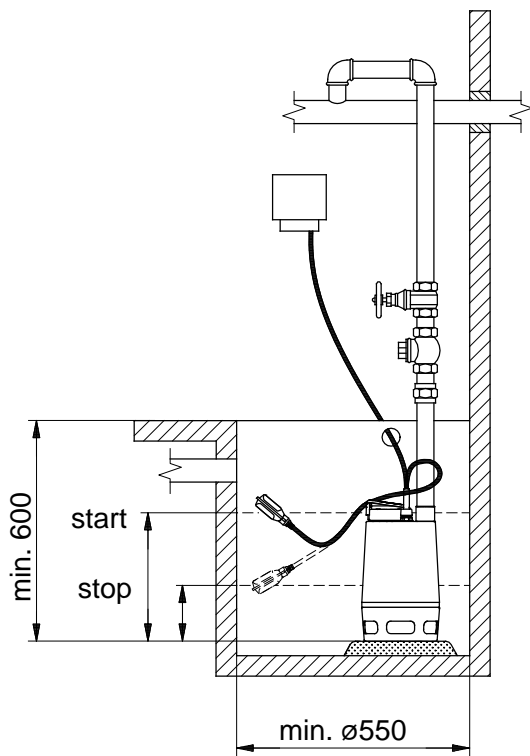
Fig. 20 Pump dimensions

TM00 5524 0995

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 AP35.40.06.1.V	1 x 230	0.9	0.6	4.0	0.97	4.1	376	216	Rp 1½	11.4
Unilift AP35.40.06.A.1.V	1 x 230	0.9	0.6	4.0	0.97	4.1	376	216	Rp 1½	11.4
Unilift AP35.40.06.3.V	3 x 230	0.9	0.6	3.0	0.85	5.2	376	216	Rp 1½	11.1
Unilift AP35.40.06.A.3.V	3 x 230	0.9	0.6	3.0	0.85	5.2	376	216	Rp 1½	13.4
Unilift AP35.40.06.3.V	3 x 400	0.9	0.6	1.6	0.83	4.8	376	216	Rp 1½	11.1
Unilift AP35.40.06.A.3.V	3 x 400	0.9	0.6	1.6	0.83	4.8	376	216	Rp 1½	13.4
Unilift AP35.40.08.1.V	1 x 230	1.2	0.7	5.5	0.98	4.0	410	216	Rp 1½	12.7
Unilift AP35.40.08.A.1.V	1 x 230	1.2	0.7	5.5	0.98	4.0	410	216	Rp 1½	12.7
Unilift AP35.40.08.3.V	3 x 230	1.1	0.7	3.6	0.85	5.3	410	216	Rp 1½	12.1
Unilift AP35.40.08.A.3.V	3 x 230	1.1	0.7	3.6	0.85	5.3	410	216	Rp 1½	14.4
Unilift AP35.40.08.3.V	3 x 400	1.1	0.7	2.0	0.86	5.1	410	216	Rp 1½	12.1
Unilift AP35.40.08.A.3.V	3 x 400	1.1	0.7	2.0	0.86	5.1	410	216	Rp 1½	14.4



## Unilift AP35 installations



**Fig. 21** One-pump installation with float switch

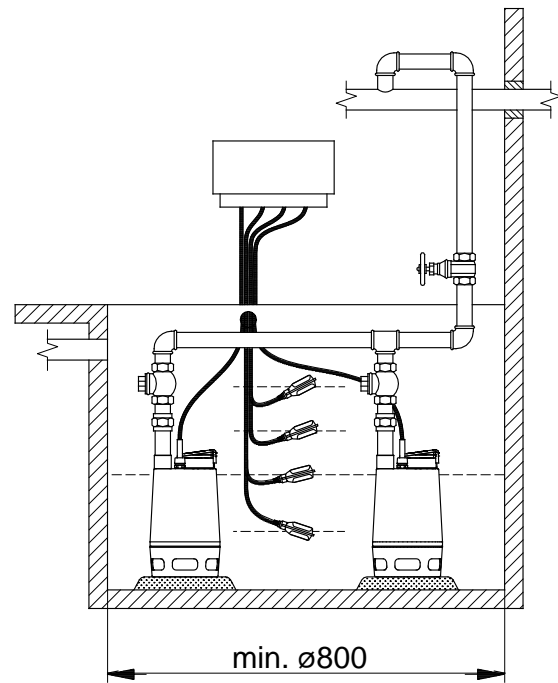
### Adjustment of cable length for float switch

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 AP35	500	300	550	100



**Fig. 22** 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.

## Unilift AP35B



TM03 8259 0907

**Fig. 23** Unilift AP35B

The Unilift AP35B pump is a single-stage submersible pump designed for pumping effluent.

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 of ponds, tanks, etc.
- pumping of fibre-containing effluent from laundries and industries
- pumping of domestic effluent from septic tanks and sludge treating systems
- pumping of domestic effluent without discharge from water closets.

Liquid temperature range: 0 °C to +40 °C.

### 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)
- 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 housing

Pump housing with an outstanding design for submersible wastewater pumps, resulting in a high head.

The pump housing is made of a steel tube with a smooth surface and a hydraulically correct shape ensuring free passage of particles.

Ring stand, pump inlet and pump housing are fastened to the motor by means of four springs enabling quick and easy dismantling.

### Discharge port

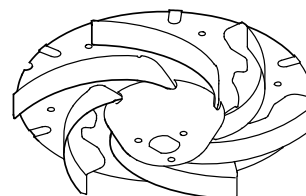
All Unilift AP35B pumps have a threaded R 2 horizontal discharge port.

### Shaft and bearings

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

### Impeller

The stainless steel impeller is a vortex impeller with L-shaped blades and a clearance of 35 mm in the pump housing. The blades are curved backwards to reduce any harmful effect from solid particles and to minimise power consumption. The impeller has a protective cap to prevent the deposit of long-fibred material.



TM00 5478 0895

**Fig. 24** Impeller, Unilift AP35B

### Shaft seal

The shaft seal is a combination of a mechanical, bellows shaft seal and a lip seal with 80 ml oil between. Seal faces are made of silicone carbide.

### Motor cable

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

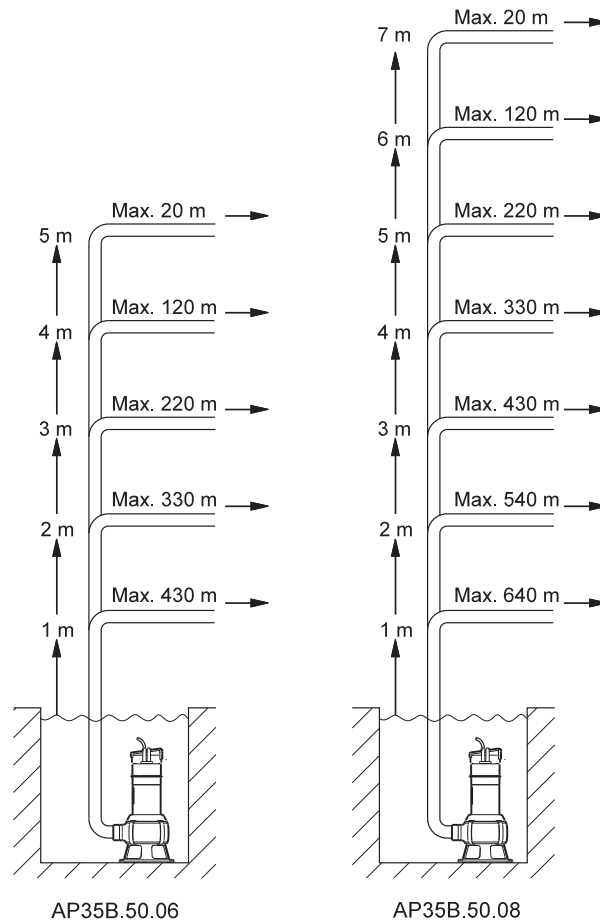
Component	Material	DIN W.-Nr.	AISI
Pump housing	Stainless steel	1.4301	304
Impeller	Stainless steel	1.4301	304
Washer	Stainless steel	1.4301	304
Protective cap	Novolen 2360 Kx		
Motor unit complete	Parts in contact with liquid: Stainless steel	1.4401	316
Pump shaft - wet end	Stainless steel	1.4301	304
Motor cable	Neoprene		
O-rings	NBR rubber		
Spring	Stainless steel	1.4310	
Pump inlet	Stainless steel	1.4301	304
Ring stand	Polycarbonate		
Oil	Shell Ondina 15, non-toxic		

## Selection

The overview below is suitable for the selection of the correct size of Unilift AP35B 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 (2") must be 1 m/s
- the minimum flow velocity through the horizontal discharge pipe (2½") must be 0.7 m/s.

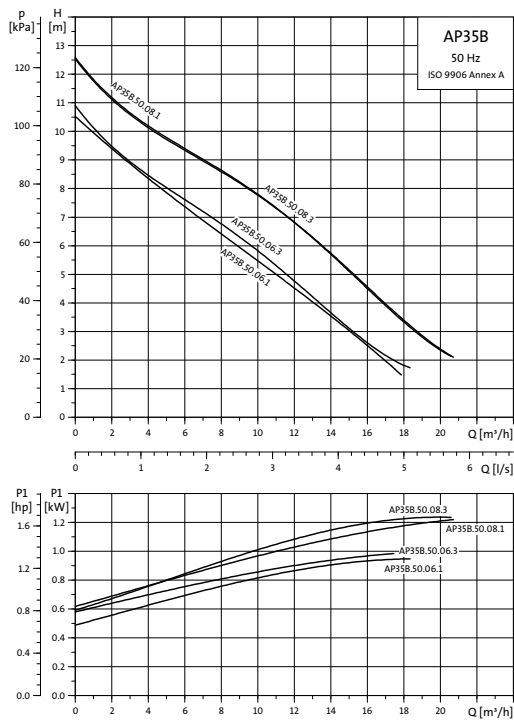


The overview is only intended as a guide. Grundfos is not liable for installations not complying with the overview.

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

TM03 1881 3305

## Performance curves



## Dimensional sketch

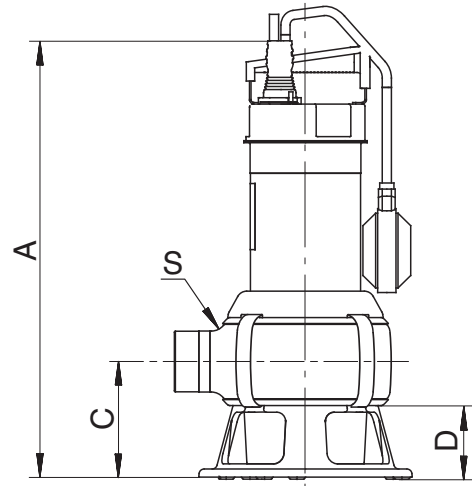


Fig. 25 Pump dimensions

Pump type	Voltage [V]	P <sub>1</sub> [kW]	P <sub>2</sub> [kW]	I <sub>n</sub> [A]	Cos φ	C [μF]	I <sub>start</sub> / I <sub>n</sub>	Dimensions [mm]				Weight [kg]	Cable length and plug
								A	C	D	S		
Unilift AP35B.50.06.A1.V	1 x 230	1.0	0.66	4.4	0.98	3.1	13.8	443	116	73	R 2	8.5	5 m with Schuko plug
Unilift AP35B.50.06.1.V	1 x 230	1.0	0.66	4.4	0.98	3.1	13.8	443	116	73	R 2	8.5	10 m with Schuko plug
Unilift AP35B.50.06.3.V	3 x 400	1.0	0.63	1.55	0.89	5.2	8.0	443	116	73	R 2	7.4	5 m without plug
Unilift AP35B.50.08.A1.V	1 x 230	1.25	0.71	5.44	0.98	3.4	18.4	468	116	73	R 2	10.0	5 m with Schuko plug
Unilift AP35B.50.08.1.V	1 x 230	1.25	0.71	5.44	0.98	3.4	18.4	468	116	73	R 2	10.0	10 m with Schuko plug
Unilift AP35B.50.08.3.V	3 x 400	1.25	0.78	1.98	0.89	5.4	10.6	468	116	73	R 2	8.4	5 m without plug

## Start/stop level

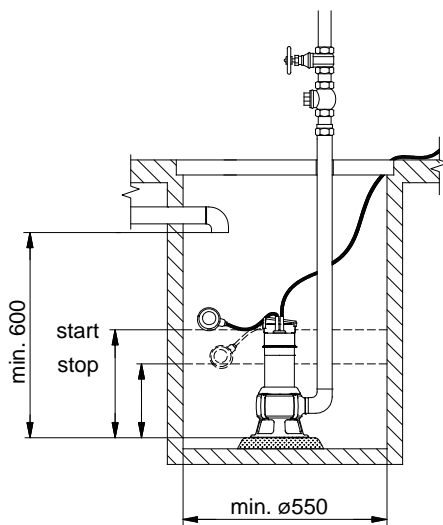
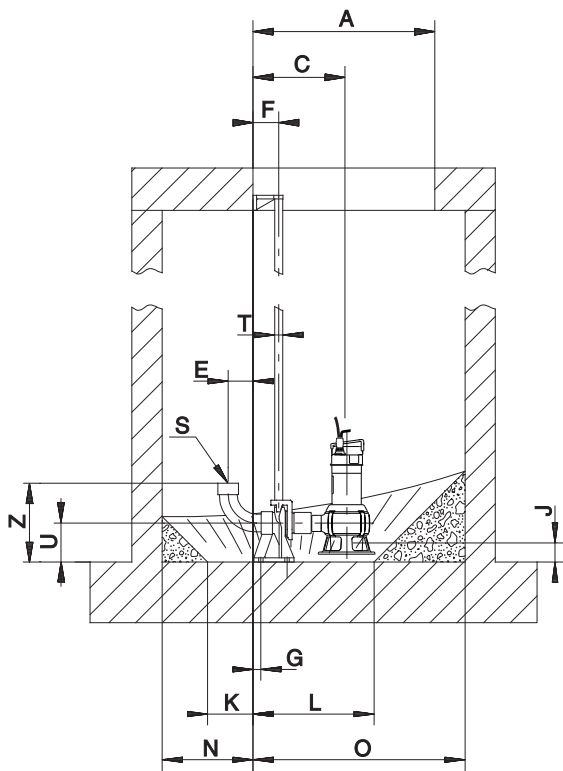


Fig. 26 Minimum well dimensions, Unilift AP35B

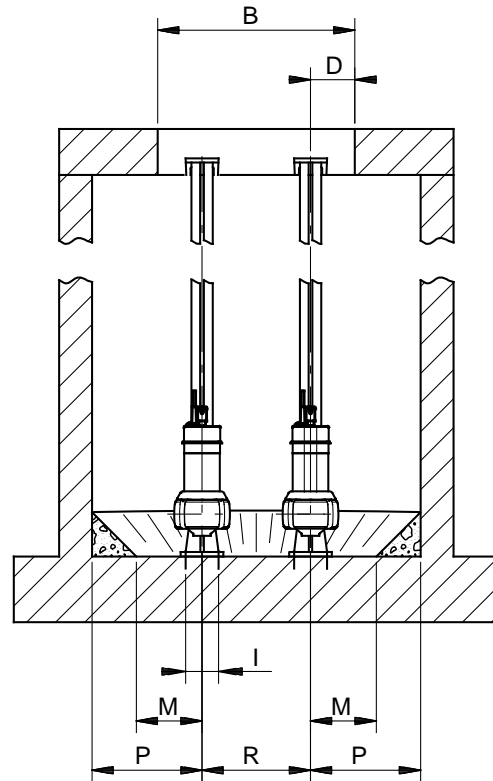
Pump type	Start [mm]	Stop [mm]
Unilift AP35B	633	270

## Unilift AP35B installations



TM03 4194 1806

**Fig. 27** Dimensional sketch, one-pump installation on auto-coupling system



TM01 3592 0299

**Fig. 28** Dimensional sketch, two-pump installation on auto-coupling system

### One-pump installation on auto-coupling

Pump type	Dimensions [mm]																			
	A	B	C	D	E	F	G	I	J	K	L	M	N	O	P	R	S	T	U	Z
Unilift AP35B.50.06	Ø600	Ø600	304	135	82	85	65	100	76	150	400	200	300	700	500	-	R 2	¾"	130	261
Unilift AP35B.50.08	Ø600	Ø600	304	135	82	85	65	100	76	150	400	200	300	700	500	-	R 2	¾"	130	261

### Two-pump installation on auto-coupling

Pump type	Dimensions [mm]																			
	A	B	C	D	E	F	G	I	J	K	L	M	N	O	P	R	S	T	U	Z
Unilift AP35B.50.06	600	600	304	135	82	85	26	100	76	150	400	200	300	700	335	330	R 2	¾"	130	261
Unilift AP35B.50.08	600	600	304	135	82	85	26	100	76	150	400	200	300	700	35	330	R 2	¾"	130	261

## Unilift AP50



TM00 5740 1495

**Fig. 29** Unilift AP50

The Unilift AP50 pump is a single-stage submersible pump designed for pumping effluent and sewage. 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 of ponds, tanks, etc.
- pumping of fibre-containing wastewater from laundries and industries
- pumping of domestic wastewater from septic tanks and sludge treating systems
- pumping of domestic wastewater with/without discharge from water closets.

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 and can easily be removed for maintenance. The strainer prevents the passage of large solids and ensures a slow flow into 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, allowing for quick and easy dismantling.

### Discharge port

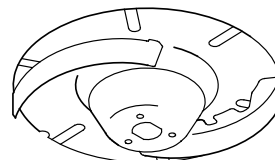
All Unilift AP50 pumps have a threaded Rp 2 vertical discharge port.

### Shaft and bearings

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

### Impeller

The stainless steel impeller is a vortex impeller with L-shaped blades and a clearance of 50 mm in the pump housing. The blades are curved backwards to reduce any harmful effect from solid particles and to minimise power consumption. The impeller has a protective cap to prevent the deposit of long-fibred material.



TM00 5477 0895

**Fig. 30** Impeller, Unilift AP50

### 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
Cables	Neoprene		
Oil	Shell Ondina 15, non-toxic		

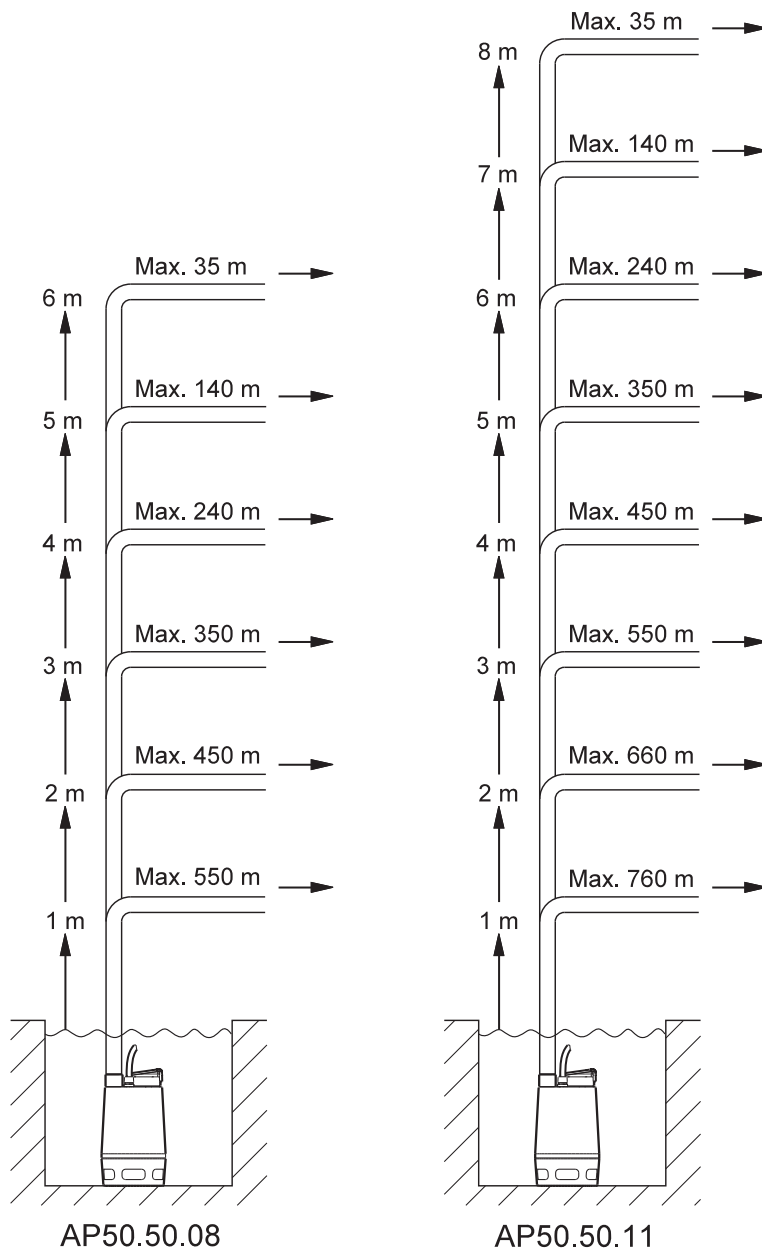


## Selection

The overview below is suitable for the selection of the correct size of Unilift AP50 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 (2") must be 1 m/s
- the minimum flow velocity through the horizontal discharge pipe (2½") must be 0.7 m/s.



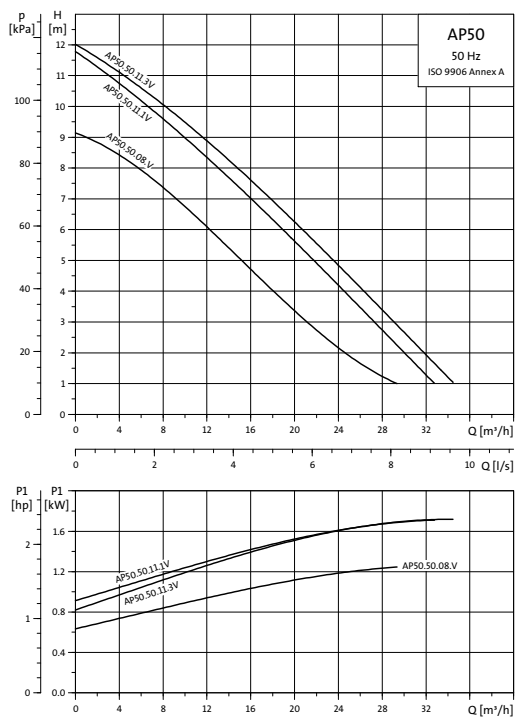
The overview is only intended as a guide. Grundfos is not liable for installations not complying with the overview.

**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.

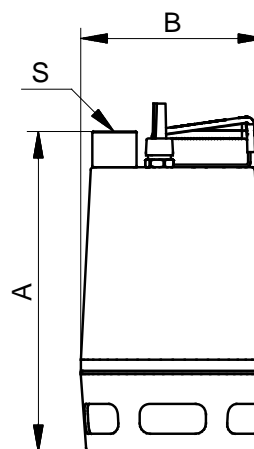
TM03 1880 3305

## Performance curves



TM00 7217 0803

## Dimensional sketch



TM00 5524 0995

**Fig. 31** Pump dimensions

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 AP50.50.08.1.V	1 x 230	1.3	0.8	5.9	0.99	1.9	436	241	Rp 2	15.1
Unilift AP50.50.08.A.1.V	1 x 230	1.3	0.8	5.9	0.99	1.9	436	241	Rp 2	15.1
Unilift AP50.50.08.3.V	3 x 230	1.2	0.8	3.3	0.85	2.8	436	241	Rp 2	14.2
Unilift AP50.50.08.A.3.V	3 x 230	1.2	0.8	3.3	0.85	2.8	436	241	Rp 2	16.5
Unilift AP50.50.08.3.V	3 x 400	1.2	0.8	2.0	0.80	3.0	436	241	Rp 2	14.2
Unilift AP50.50.08.A.3.V	3 x 400	1.2	0.8	2.0	0.80	3.0	436	241	Rp 2	16.5
Unilift AP50.50.11.1.V	1 x 230	1.6	1.1	8.0	0.92	4.0	436	241	Rp 2	15.1
Unilift AP50.50.11.A.1.V	1 x 230	1.6	1.1	8.0	0.92	4.0	436	241	Rp 2	15.1
Unilift AP50.50.11.3.V	3 x 230	1.6	1.2	6.0	0.85	2.8	436	241	Rp 2	15.6
Unilift AP50.50.11.A.3.V	3 x 230	1.6	1.2	6.0	0.85	2.8	436	241	Rp 2	17.9
Unilift AP50.50.11.3.V	3 x 400	1.9	1.2	3.0	0.88	4.9	436	241	Rp 2	15.6
Unilift AP50.50.11.A.3.V	3 x 400	1.9	1.2	3.0	0.88	4.9	436	241	Rp 2	17.9

## Unilift AP50 installations

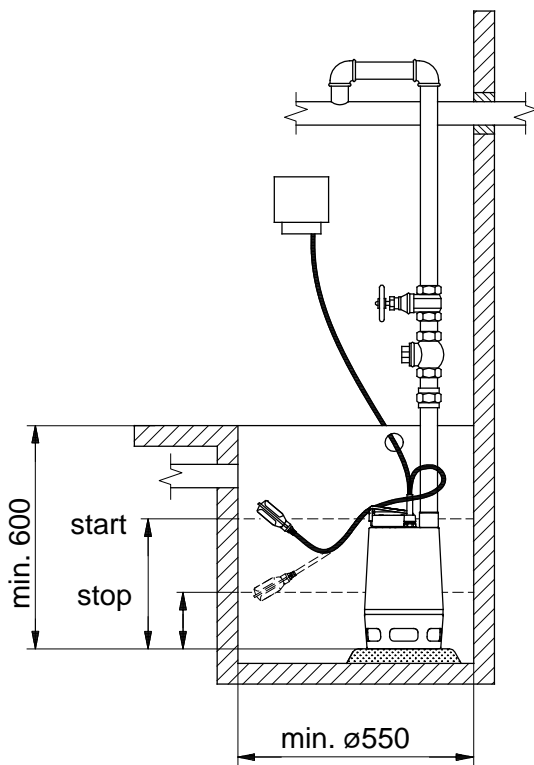


Fig. 32 One-pump installation with float switch

### 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 AP50	500	300	550	100

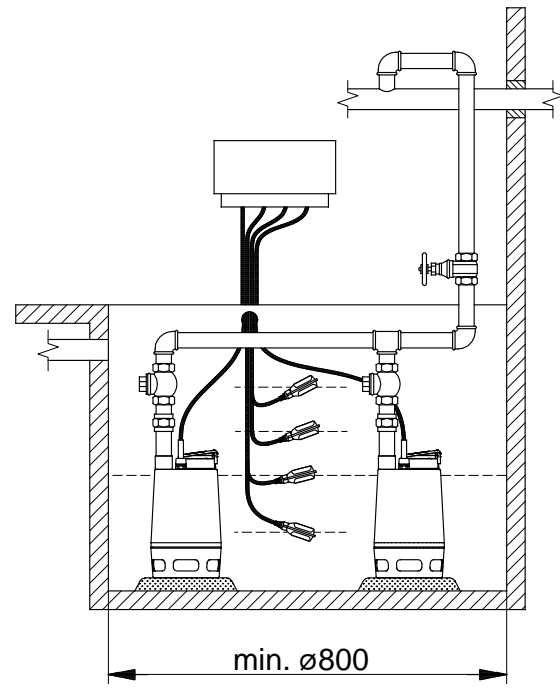


Fig. 33 Two-pump installation with four float switches

### 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.

## Unilift AP50B



TM03 8260 0907

**Fig. 34** Unilift AP50B

The Unilift AP50B pump is a single-stage submersible pump designed for pumping effluent.

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 of ponds, tanks, etc.
- pumping of fibre-containing effluent from laundries and industries
- pumping of domestic effluent from septic tanks and sludge treating systems
- pumping of domestic effluent without discharge from water closets.

Liquid temperature range: 0 °C to +40 °C.

### 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)
- without level switch for manual on/off operation.

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

### Pump housing

Pump housing with an outstanding design for submersible wastewater pumps resulting in a high head.

The pump housing is made of a steel tube with a smooth surface and a hydraulically correct shape ensuring free passage of particles.

Ring stand, pump inlet and pump housing are fastened to the motor by means of four springs enabling quick and easy dismantling.

### Discharge port

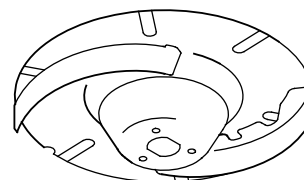
All Unilift AP50B pumps have a threaded R 2 horizontal discharge port.

### Shaft and bearings

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

### Impeller

The stainless steel impeller is a vortex impeller with L-shaped blades and a clearance of 50 mm in the pump housing. The blades are curved backwards to reduce any harmful effect from solid particles and to minimise power consumption. The impeller has a protective cap to prevent the deposit of long-fibred material.



TM00 5477 0895

**Fig. 35** Impeller, Unilift AP50B

### Shaft seal

The shaft seal is a combination of a mechanical, bellows shaft seal and a lip seal with 80 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

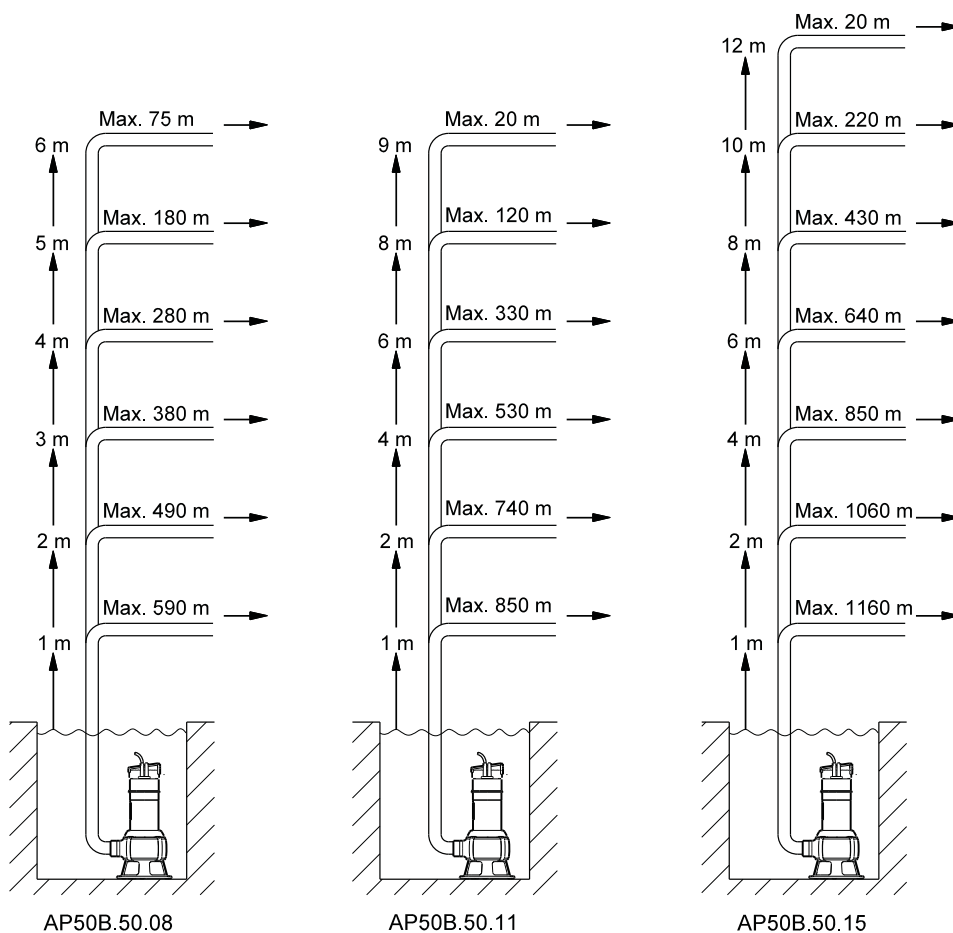
Component	Materials	DIN W.-Nr.	AISI
Pump housing	Stainless steel	1.4301	304
Impeller	Stainless steel	1.4301	304
Washer	Stainless steel	1.4301	304
Protective cap	Novolen 2360 Kx		
Motor unit complete	Parts in contact with liquid: Stainless steel	1.4401	316
Pump shaft	Stainless steel	1.4301	304
Motor cable	Neoprene		
O-rings	NBR rubber		
Spring	Stainless steel	1.4310	
Pump inlet	Stainless steel	1.4301	304
Ring stand	Polycarbonate		
Oil	Shell Ondina 15, non-toxic		

## Selection

The overview below is suitable for the selection of the correct size of Unilift AP50B 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 (2") must be 1 m/s
- the minimum flow velocity through the horizontal discharge pipe (2½") must be 0.7 m/s.

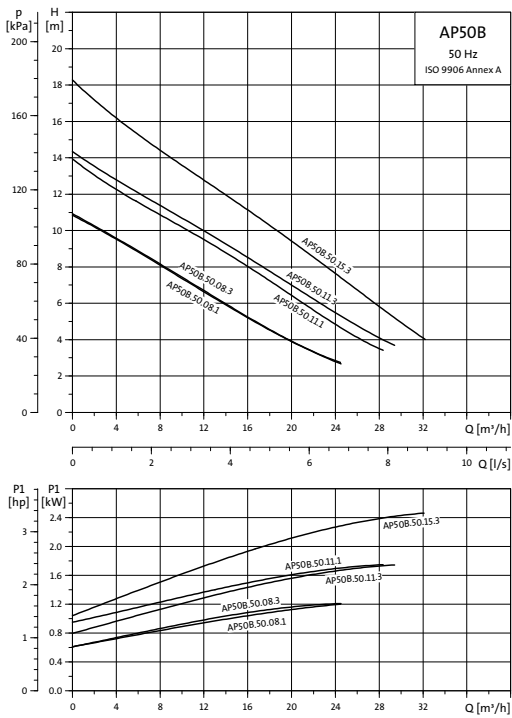


The overview is only intended as a guide. Grundfos is not liable for installations not complying with the overview.

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

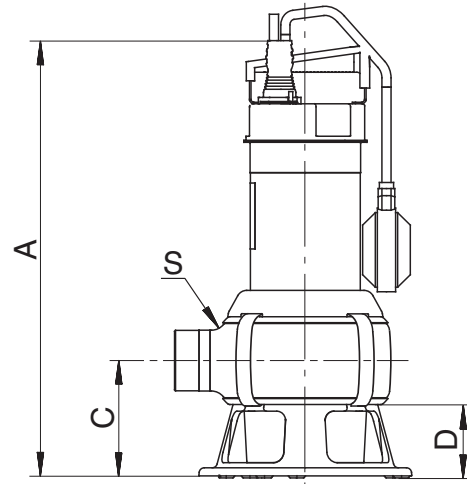
TM03 1882 3305

## Performance curves



TM01 3582 0803

## Dimensional sketch

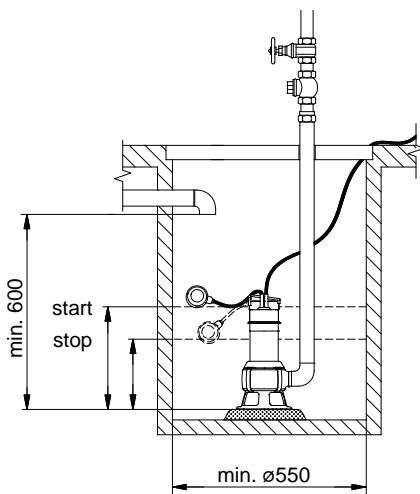


TM03 4097 1806

Fig. 36 Pump dimensions

Pump type	Voltage [V]	P <sub>1</sub> [kW]	P <sub>2</sub> [kW]	I <sub>n</sub> [A]	Cos φ	C [μF]	I <sub>start</sub> / I <sub>n</sub>	Dimensions [mm]				Weight [kg]	Cable length and plug
								A	C	D	S		
Unilift AP50B.50.08.A1.V	1 x 230	1.2	0.7	5.37	0.97	16	18.4	468	116	73	R 2	10.1	5 m with Schuko plug
Unilift AP50B.50.08.1.V	1 x 230	1.2	0.7	5.37	0.97	16	18.4	468	116	73	R 2	10.1	10 m with Schuko plug
Unilift AP50B.50.08.3.V	3 x 400	1.25	0.8	1.95	0.89		10.6	468	116	73	R 2	8.4	5 m without plug
Unilift AP50B.50.11.A1.V	1 x 230	1.75	1.2	8.00	0.95	16	23.8	468	116	73	R 2	10.2	5 m with Schuko plug
Unilift AP50B.50.11.1.V	1 x 230	1.75	1.2	8.00	0.95	16	23.8	468	116	73	R 2	10.2	10 m with Schuko plug
Unilift AP50B.50.11.3.V	3 x 400	1.75	1.3	2.81	0.90		16.0	468	116	73	R 2	9.7	5 m without plug
Unilift AP50B.50.15.3.V	3 x 400	2.15	1.5	3.00	0.88		22.4	468	116	73	R 2	10.0	5 m without plug

## Start/stop level

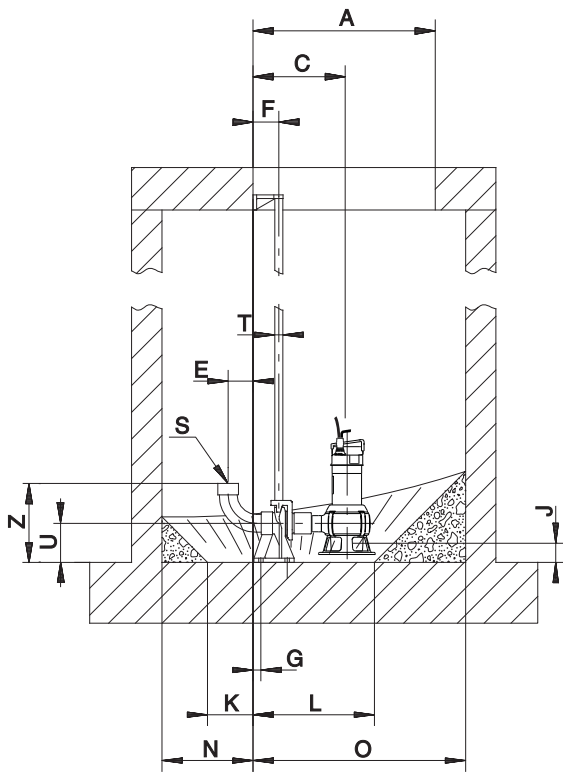


TM03 1914 3305

Fig. 37 Minimum well dimensions, Unilift AP50B

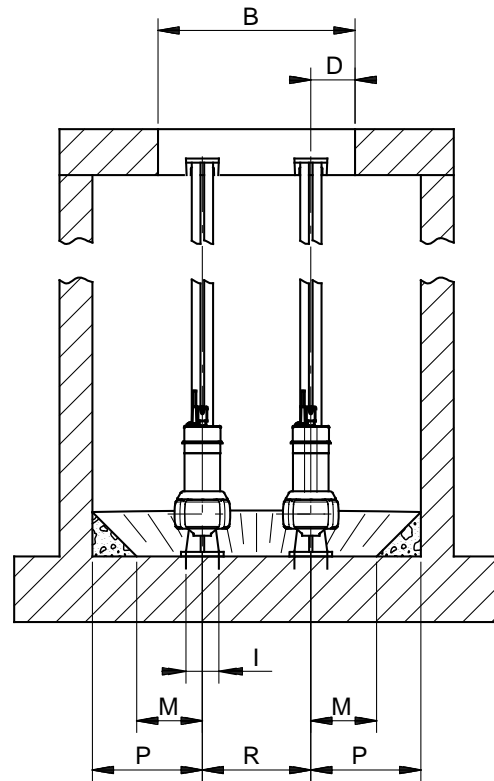
Pump type	Start [mm]	Stop [mm]
Unilift AP50B	633	270

## Unilift AP50B installations



TM03 4194 1806

**Fig. 38** Dimensional sketch, one-pump installation on auto-coupling system



TM01 3592 0299

**Fig. 39** Dimensional sketch, two-pump installation on auto-coupling system

### One-pump installation on auto-coupling

Pump type	Dimensions [mm]																			
	A	B	C	D	E	F	G	I	J	K	L	M	N	O	P	R	S	T	U	Z
Unilift AP50B.50.08	Ø600	Ø600	304	135	82	85	65	100	76	150	400	200	300	700	500	-	R 2	¾"	130	261
Unilift AP50B.50.11	Ø600	Ø600	304	135	82	85	65	100	76	150	400	200	300	700	500	-	R 2	¾"	130	261
Unilift AP50B.50.15	Ø600	Ø600	304	135	82	85	65	100	76	150	400	200	300	700	500	-	R 2	¾"	130	261

### Two-pump installation on auto-coupling

Pump type	Dimensions [mm]																			
	A	B	C	D	E	F	G	I	J	K	L	M	N	O	P	R	S	T	U	Z
Unilift AP50B.50.08	600	600	304	135	82	85	26	100	76	150	400	200	300	700	335	330	R 2	¾"	130	261
Unilift AP50B.50.11	600	600	304	135	82	85	26	100	76	150	400	200	300	700	335	330	R 2	¾"	130	261
Unilift AP50B.50.15	600	600	304	135	82	85	26	100	76	150	400	200	300	700	335	330	R 2	¾"	130	261

## Control box

### Variants

The Unilift AP pump range comprises versions with or without control box and float switch, designed for single-phase or three-phase power supply.

All types are designed for voltage tolerances of  $\pm 10\%$ .

### Pumps with control box and float switch

Some Unilift AP pumps are available with float switch for automatic start/stop of the pump. The float switch cable should be fastened to the pump handle.

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.

**Large difference in level:** Long cable.

**Small difference in level:** Short cable.

The float switch is connected direct to the control box by a 10-metre cable.

The mains cable between the pump and the control box is 10 metres. The mains cable of the control box is a 0.8-metre free cable end.

The control box includes a motor starter. The pumps require no further motor protection.

In case of a too high level, an alarm signal can be given by a separate float switch connected to an alarm. High-level alarm switch and alarm are available as accessories.

For further details, see "Product range", from page 53.

### Pumps with control box without float switch for manual on/off operation

The mains cable between the pump and the control box is 10 metres. The mains cable of the control box is a 0.8 metres long free cable end.

The control box includes a motor starter and a run capacitor but no relays for float switch.

### Pumps without control box

Pumps without control box must be connected to a separate motor starter, available as an accessory.

Single-phase pumps must also be connected to a capacitor.

## Level controller

A level controller and switches are available as accessories for the control, monitoring and protection of three-phase 50 Hz Unilift AP pumps.

The level controller incorporates motor starter, contactors and light-emitting diodes (LC/LCD) for indication of operating conditions.

Grundfos offers three types of level controller: LC, LCD 107, LC, LCD 108 and LC, LCD 110. The three level controllers are described in the following pages.

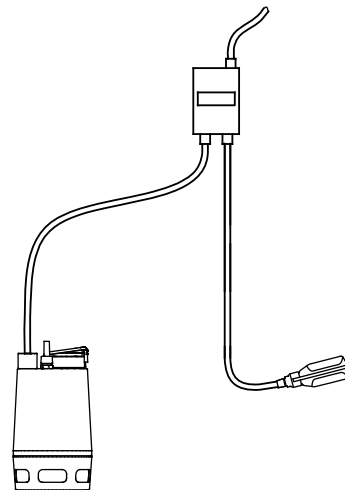


Fig. 40 Unilift AP35/50 pump with control box and float switch

TM03 1899 3305

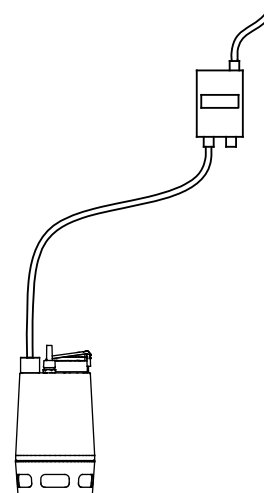


Fig. 41 Unilift AP35/50 pump with control box without float switch for manual on/off operation

TM03 1900 3305













































