

UNILIFT AP12



UNILIFT AP12 is a submersible pump designed for pumping drainage water or higher flows for effluent applications. The pump allows bypass of larger particles up to 12 mm. The pump has a riser pipe and cooling jacket for continuous cooling of the motor by the pumped liquid and long-life deep groove greased-for-life ball bearings. The pump is ready for use as it is fitted with a carrying handle and is supplied with a 10 m mains cable. The mains cable has a plug with a glass-sealing compound in the socket to prevent humidity from entering the stator windings.

The pump is suitable for permanent installations or it can be used as a portable pump. The pump is available with the following options:

- with a 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 a level switch for manual on/off operation

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

Applications

The pump is suitable for the following applications:

- pumping in drainage collecting wells, pits inside buildings
- pumping stations and small domestic treatment plants outside of buildings
- industrial and commercial use, for example, evaporative cooling systems
- various applications within agriculture, horticulture, dairies, breweries and the process industry
- emergencies, for example, flooding events inside and outside of buildings, and to pump (waste)water out of tanks, ponds or swimming pools.

Features and benefits of UNILIFT AP

UNILIFT AP has many beneficial features:

- robust and sustainable stainless-steel design for all hydraulic parts
- service friendly to extend pump lifetime – quick access to replace wear parts, for example, cable, float switch, shaft sealing, impeller and rotor.
- cooling jacket that allows the pump to operate continuously while partially submerged
- included motor protection that reacts to blockage
- longitudinal, water-tight cables and glass-sealed cable socket on the pump that prevents water from entering the motor at damaged cables and enables easy replacement
- highly reliable mechanical shaft seal with an oil chamber that protects the seals and motor.
- Range for frequency drive operation

Type key

Example:

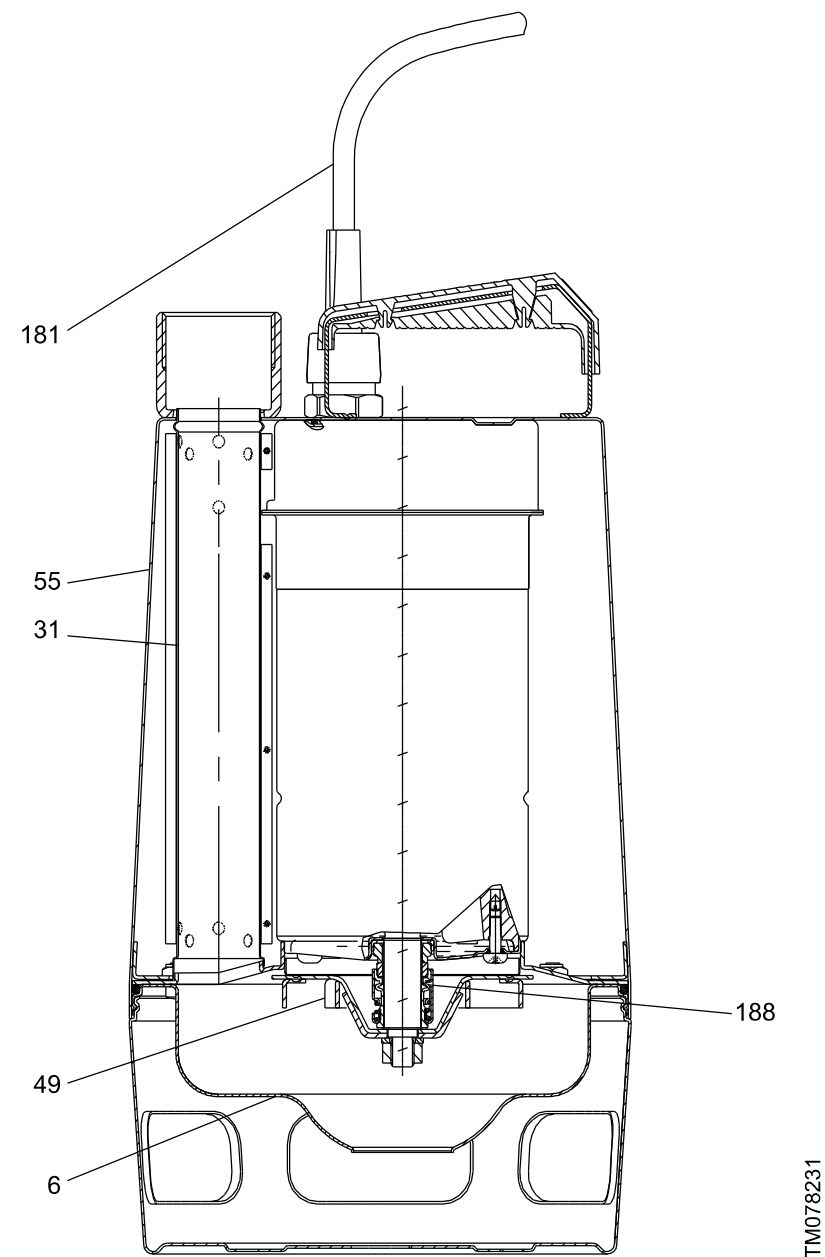
UNILIFT AP 35.B.50.08.A1V

	Description
UNILIFT AP	Type range
12	
35	Maximum solids size
50	
Blank - AP pump	Pump type
B - AP Basic	
40	Nominal diameter of the outlet port [mm]
50	
	Power output (P2/100[W])
A - automatic operation (with float switch)	Level control
Blank - manual operation (without float switch)	
1 - single-phase	Motor
3 - three-phase	
V - vortex impeller	Impeller

Approvals and markings

Approvals			
CE	TM075405	EAC	TM074611
	98507008_RCM_MARK		TM075835
TÜV Rheinland CERTIFIED	99853271	DVE	TM074619

Construction of UNILIFT AP12



Materials

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

Cooling jacket

The pump has a riser pipe and a cooling jacket for continuous cooling of the motor by the pumped liquid.

Outlet port

All UNILIFT AP12 pumps have a threaded vertical outlet port.

- UNILIFT AP12.40: Rp 1 1/2
- UNILIFT AP12.50: Rp 2.

Pump sleeve and housing

The stainless-steel pump sleeve is made in one piece and equipped with an insulated carrying handle. The inlet strainer is clipped onto 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 has a socket and plug connection for quick and easy dismantling.

Motor

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

Enclosure class	IP68
Insulation class	F (155 °C)
Cable type	H07RN(8)-F

Single-phase motors have built-in thermal protection. Manufactured according to EN 60335-2-41.

Shaft and bearings

The stainless-steel shaft rotates in maintenance-free pre-lubricated 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 effects from solid particles and to minimise power consumption.

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.

Pumped liquids

The pumps are suitable for the following liquids:

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

The open-impeller design ensures free passage of solids up to 12 mm.

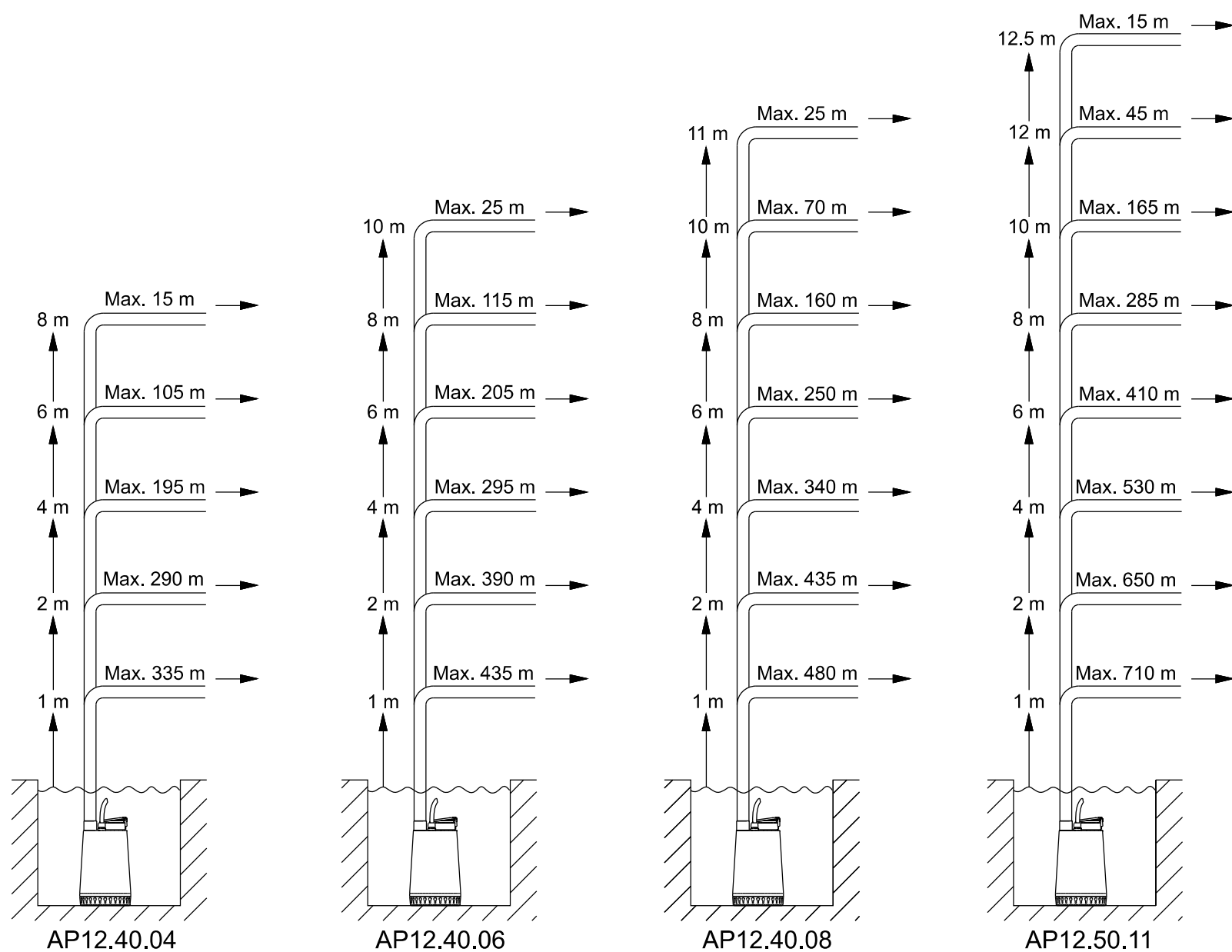
Level switches and control boxes

Level controllers and switches are delivered with the product and are directly connected to the single-phase motors. For three-phase motors, level switch solutions are available with control boxes in between the pump and the level switch. The cable length for the pump and level switch is 10 m. A power supply cable of 0.65 m is connected to the box. The level controller box incorporates a contactor and a motor protection unit. The motor protection unit is preset with the nominal current of the pump.

UNILIFT CC, KP, AP and KPC

Sizing guide

The quick sizing chart below gives an approximate overview of heights and outlet pipe lengths with an inner pipe diameter of 40 mm and a flow of 3.2 m³/h for AP12.40, so that a self cleaning velocity of $v=0,7$ m/s is covered. The overview is only intended as a guide. Grundfos is not liable for installations that do not comply with the overview. Pressure loss of a non-return valve, 4x90° bends and a gate valve is calculated. The vertical height of the outlet pipe must be measured from the pump stop level. For more flow requirements a calculation is needed.

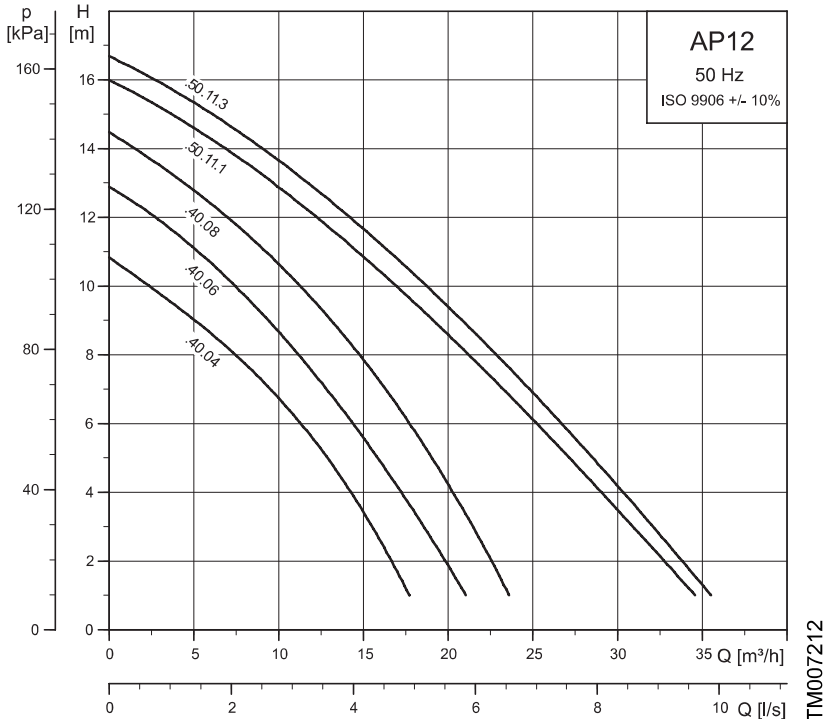


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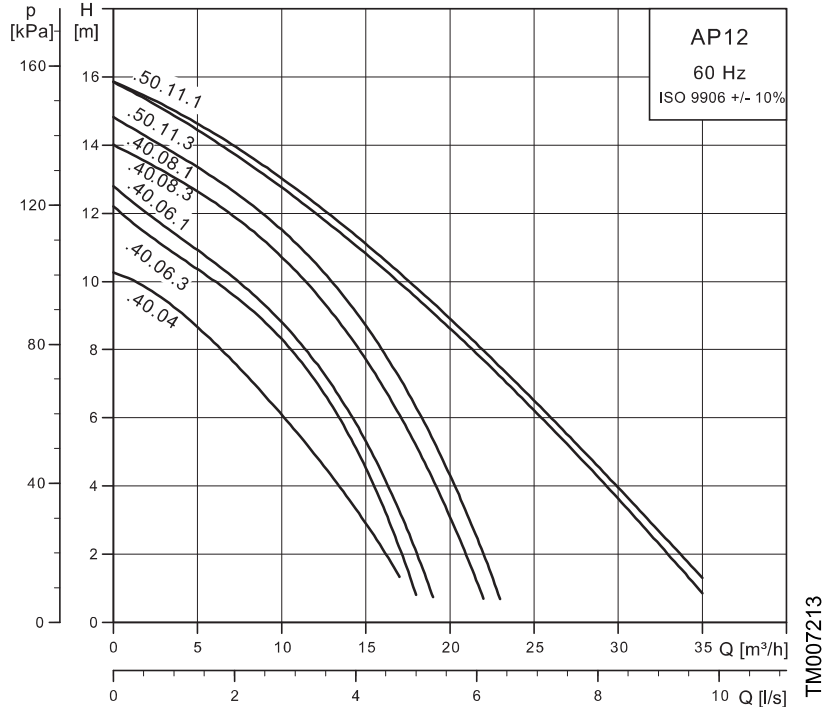
¹¹⁾ For AP12.50 pumps it is an inner pipe diameter of 50 mm and a flow of 5 m³/h.

¹²⁾ UNILIFT AP12.50.11 3x200-220V, 60 Hz is excluded from this overview. Carry out separate calculations for this variant.

Performance curves UNILIFT AP12 50 Hz



Performance curves UNILIFT AP12 60 Hz



Product range UNILIFT AP12 50 Hz

Pump type	Product number(s)	Voltage [V]	Plug type	Control box with 0.65 m supply cable	Float switch type	Cable length [m]	Cable type	Net weight [kg]
AP12.40.04.1	96011016	1 x 230	SCHUKO	-	-	10	H07RN8-F 3G1	12.1
AP12.40.04.A1	96011017	1 x 230	SCHUKO	-	Cable guided	5	H07RN8-F 3G1	11.7
AP12.40.04.A1	96011018	1 x 230	SCHUKO	-	Cable guided	10	H07RN8-F 3G1	12.3
AP12.40.06.1	96001720	1 x 230	SCHUKO	-	-	10	H07RN8-F 3G1	12.6
AP12.40.06.A1	96001735	1 x 230	SCHUKO	-	Cable guided	5	H07RN8-F 3G1	12.2
AP12.40.06.A1	96010979	1 x 230	SCHUKO	-	Cable guided	10	H07RN8-F 3G1	12.8
AP12.40.08.1	96001869	1 x 230	SCHUKO	-	-	10	H07RN8-F 3G1	13.7
AP12.40.08.A1	96001798	1 x 230	SCHUKO	-	Cable guided	5	H07RN8-F 3G1	13.3
AP12.40.08.A1	96010980	1 x 230	SCHUKO	-	Cable guided	10	H07RN8-F 3G1	13.9
AP12.50.11.1	96001958	1 x 230	SCHUKO	-	-	10	H07RN8-F 3G1	15.6
AP12.50.11.A1	96001965	1 x 230	SCHUKO	-	Cable guided	5	H07RN8-F 3G1	15.2
AP12.50.11.A1	96010981	1 x 230	SCHUKO	-	Cable guided	10	H07RN8-F 3G1	15.8
AP12.40.04.1	96011014	1 x 230	No plug	-	-	10	H07RN8-F 3G1	12.0
AP12.40.04.A1	96011015	1 x 230	No plug	-	Cable guided	5	H07RN8-F 3G1	11.6
AP12.40.04.A1	96404179	1 x 230	No plug	-	Cable guided	10	H07RN8-F 3G1	12.2
AP12.40.04.3	96011024	3 x 400	No plug	-	-	10	H07RN8-F 4G1	12.4
AP12.40.04.3	96011030	3 x 230	No plug	-	-	10	H07RN8-F 4G1	12.4
AP12.40.04.A3	96011025	3 x 400	No plug	✓	Cable guided	10	H07RN8-F 4G1	13.6
AP12.40.06.1	96001732	1 x 230	No plug	-	-	10	H07RN8-F 3G1	12.5
AP12.40.06.A1	96404180	1 x 230	No plug	-	Cable guided	10	H07RN8-F 3G1	12.7
AP12.40.06.3	96001652	3 x 400	No plug	-	-	10	H07RN8-F 4G1	12.9
AP12.40.06.3	96010628	3 x 230	No plug	-	-	10	H07RN8-F 4G1	12.9
AP12.40.06.A3	96010923	3 x 400	No plug	✓	Cable guided	10	H07RN8-F 4G1	14.1
AP12.40.08.1	96001873	1 x 230	No plug	-	-	10	H07RN8-F 3G1	13.6
AP12.40.08.3	96001791	3 x 400	No plug	-	-	10	H07RN8-F 4G1	14.0
AP12.40.08.3	96010630	3 x 230	No plug	-	-	10	H07RN8-F 4G1	14.0
AP12.40.08.A3	96010925	3 x 400	No plug	✓	Cable guided	10	H07RN8-F 4G1	14.2
AP12.40.08.A3	96010958	3 x 230	No plug	✓	Cable guided	10	H07RN8-F 4G1	14.2
AP12.50.11.1	96001962	1 x 230	No plug	-	-	10	H07RN8-F 3G1	15.5
AP12.50.11.A1	96404182	1 x 230	No plug	-	Cable guided	10	H07RN8-F 3G1	15.7
AP12.50.11.3	96010634	3 x 230	No plug	-	-	10	H07RN8-F 4G1	15.9
AP12.50.11.A3	96010927	3 x 400	No plug	✓	Cable guided	10	H07RN8-F 4G1	17.1

UNILIFT CC, KP, AP and KPC

Pump type	Product number(s)	Voltage [V]	Plug type	Control box with 0.65 m supply cable	Float switch type	Cable length [m]	Cable type	Net weight [kg]
AP12.50.11.A3	96010959	3 x 230	No plug	✓	Cable guided	10	H07RN8-F 4G1	17.1
AP12.50.11.3	96001975	3 x 400	No plug	-	-	10	H07RN8-F 4G1	15.9
AP12.40.04.A3	96023871	3 x 400	CEE	✓	Cable guided	10	H07RN8-F 4G1	12.92
AP12.40.06.A3	96023872	3 x 400	CEE	✓	Cable guided	10	H07RN8-F 4G1	14.28
AP12.40.08.A3	96023873	3 x 400	CEE	✓	Cable guided	10	H07RN8-F 4G1	16.18
AP12.40.08.A1	96404181	1 x 230	No plug	-	Cable guided	10	H07RN8-F 3G1	13.8
AP12.50.11.A3	96023874	3 x 400	CEE	✓	Cable guided	10	H07RN8-F 4G1	17.5
AP12.40.04.1	96011032	1 x 230	Australia	-	-	10	H07RN-F 3G1	11.6
AP12.40.04.A1	96023914	1 x 230	Australia	-	Cable guided	10	H07RN-F 3G1	10.7
AP12.40.06.1	96001729	1 x 230	Australia	-	-	10	H07RN-F 3G1	12.0
AP12.40.06.A1	96023929	1 x 230	Australia	-	Cable guided	10	H07RN-F 3G1	12.8
AP12.40.08.1	96001872	1 x 230	Australia	-	-	10	H07RN-F 3G1	13.2
AP12.40.08.A1	96023930	1 x 230	Australia	-	Cable guided	10	H07RN-F 3G1	13.9
AP12.50.11.1	96001961	1 x 230	Australia	-	-	10	H07RN-F 3G1	15.7
AP12.50.11.A1	96023931	1 x 230	Australia	-	Cable guided	10	H07RN-F 3G1	15.6

Product range UNILIFT AP12 50 Hz for frequency drive operation

Pump type	Product number(s)	Voltage [V]	Plug type	Control box with 0.65 m supply cable	Float switch type	Cable length [m]	Cable type	Net weight [kg]
UNILIFT AP12.40.06.3	92747392	3 x 400	No plug	-	-	10	H07RN8-F 4G1	12.9
UNILIFT AP12.40.08.3	92747394	3 x 400	No plug	-	-	10	H07RN8-F 4G1	14.0
UNILIFT AP12.50.11.3	98492741	3 x 400	No plug	-	-	10	H07RN8-F 4G1	15.9

Product range UNILIFT AP12 60 Hz

Pump type	Product number	Voltage [V]	Plug type	Control box with 0.65 m supply cable	Float switch type	Cable length [m]	Cable type	Net weight [kg]
AP12.40.04.1	96023923	1 x 220 - 230	No plug	-	-	10	H07RN8-F 3G1	12.0
AP12.40.04.A1	96023921	1 x 220 - 230	No plug	-	Cable guided	5	H07RN8-F 3G1	11.4
AP12.40.04.A1	96023922	1 x 220 - 230	No plug	-	Cable guided	10	H07RN8-F 3G1	11.6
AP12.40.04.3	96011027	3 x 200 - 220	No plug	-	-	10	H07RN8-F 4G1	12.4
AP12.40.04.3	96011029	3 x 380 - 440	No plug	-	-	10	H07RN8-F 4G1	12.4
AP12.40.04.A3	96011042	3 x 380 - 440	No plug	✓	Cable guided	10	H07RN8-F 4G1	13.6
AP12.40.06.1	96010659	1 x 220 - 230	No plug	-	-	10	H07RN8-F 3G1	12.5
AP12.40.06.3	96010895	3 x 200 - 220	No plug	-	-	10	H07RN8-F 4G1	12.9
AP12.40.06.3	96001776	3 x 380 - 440	No plug	-	-	10	H07RN8-F 4G1	12.9
AP12.40.06.A3	96010938	3 x 380 - 440	No plug	✓	Cable guided	10	H07RN8-F 4G1	14.1
AP12.40.08.1	96010665	1 x 220 - 230	No plug	-	-	10	H07RN8-F 3G1	13.6
AP12.40.08.A1	98602896	1 x 220 - 230	No plug	-	Cable guided	5	H07RN8-F 3G1	13.8
AP12.40.08.3	96010896	3 x 200 - 220	No plug	-	-	10	H07RN8-F 4G1	14.0
AP12.40.08.3	96010641	3 x 380 - 440	No plug	-	-	10	H07RN8-F 4G1	14.0
AP12.40.08.A3	96010941	3 x 380 - 440	No plug	✓	Cable guided	10	H07RN8-F 4G1	15.2
AP12.40.08.A3	96010940	3 x 200 - 220	No plug	✓	Cable guided	10	H07RN8-F 4G1	15.2
AP12.50.11.1	96010682	1 x 220 - 230	No plug	-	-	10	H07RN8-F 3G1	15.5
AP12.50.11.A1	96010678	1 x 220 - 230	No plug	-	Cable guided	5	H07RN8-F 3G1	15.7
AP12.50.11.3	96010897	3 x 200 - 220	No plug	-	-	10	H07RN8-F 4G1	15.9
AP12.50.11.3	96010642	3 x 380 - 440	No plug	-	-	10	H07RN8-F 4G1	15.9
AP12.50.11.A3	96010944	3 x 380 - 440	No plug	✓	Cable guided	10	H07RN8-F 4G1	17.1
AP12.50.11.A3	96010943	3 x 200 - 220	No plug	✓	Cable guided	10	H07RN8-F 4G1	17.1

Technical data

Electrical data

UNILIFT AP12 50 Hz

Pump type	Voltage[V]	P1 [kW]	P2 [kW]	I _n [A]	I _{start} [A]	Speed [rpm]
AP12.40.04.1 AP12.40.04.A1	1 x 230	0.7	0.4	3.0	12.5	2770
AP12.40.04.3 AP12.40.04.A3	3 x 230	0.7	0.4	2.3	9.5	2800
AP12.40.04.3 AP12.40.04.A3	3 x 400	0.7	0.4	1.2	5.5	2800
AP12.40.06.1 AP12.40.06.A1	1 x 230	0.9	0.6	4.4	17.3	2785
AP12.40.06.3 AP12.40.06.A3	3 x 230	0.9	0.6	3.0	15.0	2815
AP12.40.06.3 AP12.40.06.A3	3 x 400	0.9	0.6	1.6	8.1	2815
AP12.40.08.1 AP12.40.08.A1	1 x 230	1.3	0.8	5.9	23.0	2780
AP12.40.08.3 AP12.40.08.A3	3 x 230	1.2	0.8	2.8	18.8	2810
AP12.40.08.3 AP12.40.08.A3	3 x 400	1.2	0.8	2.1	10.8	2810
AP12.50.11.1 AP12.50.11.A1	1 x 230	1.7	1.1	8.5	29.9	2760
AP12.50.11.3 AP12.50.11.A3	3 x 230	1.9	1.2	5.2	29.9	2785
AP12.50.11.3 AP12.50.11.A3	3 x 400	1.9	1.2	3.2	16.2	2785

UNILIFT AP12 60 Hz

Pump type	Voltage[V]	P1 [kW]	P2 [kW]	I _n [A]	I _{start} [A]	Speed [rpm]
AP12.40.04.1 AP12.40.04.A1	1 x 220-230	0.8	0.5	3.7	13.9	3350
AP12.40.04.3 AP12.40.04.A3	3 x 200-220	0.8	0.4	2.4	9.8	3350
AP12.40.04.3 AP12.40.04.A3	3 x 380-440	0.8	0.4	1.5	4.7	3350
AP12.40.06.1 AP12.40.06.A1	1 x 220-230	1.0	0.6	4.6	20.9	3350
AP12.40.06.3 AP12.40.06.A3	3 x 200-220	1.0	0.6	3.2	14.6	3300
AP12.40.06.3 AP12.40.06.A3	3 x 380-440	1.0	0.6	1.6	7.0	3370
AP12.40.08.1 AP12.40.08.A1	1 x 220-230	1.2	0.8	5.8	30.9	3400
AP12.40.08.3 AP12.40.08.A3	3 x 200-220	1.2	0.8	3.9	19.9	3350
AP12.40.08.3 AP12.40.08.A3	3 x 380-440	1.2	0.8	1.8	9.2	3400
AP12.50.11.1 AP12.50.11.A1	1 x 220-230	1.8	1.3	9.0	39.2	3350
AP12.50.11.3 AP12.50.11.A3	3 x 200-220	1.8	1.3	5.9	28.6	3350
AP12.50.11.3 AP12.50.11.A3	3 x 380-440	1.8	1.3	2.7	13.8	3350

UNILIFT CC, KP, AP and KPC

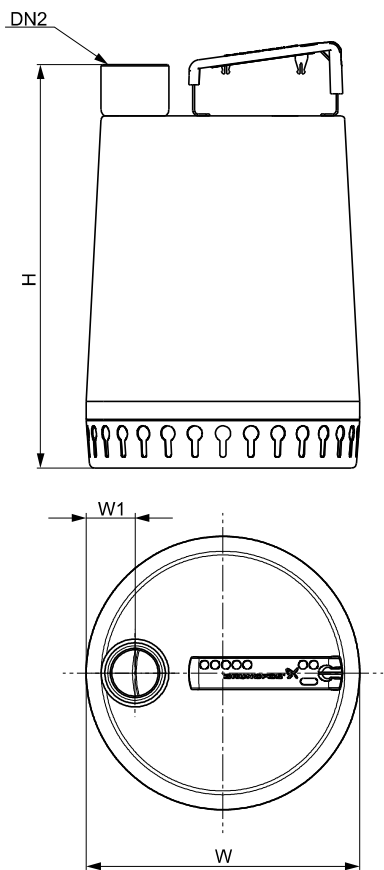
Operating conditions

Max. head	18 m
Max. flow rate	32 m ³ /h
Liquid temperature range	0-55 °C ¹³⁾
Liquid pH range	4-10
Liquid requirements	Clean, non-aggressive water and grey wastewater
Max. ambient temperature	55 °C
Max. particle size	12 mm
Max. submersion depth	2 m with 5 m cable 7 m with 10 m cable ¹⁴⁾
Automatic float switch	Type name extension A
Special versions on request	Other voltages and/or frequencies

13) For UNILIFT AP 12, AP 35 and AP 50 without float switch, where the media cannot touch the cable and the plug: up to + 70 °C every 30 min. for time periods below 3 min.

14) IEC 60335-2-41 requires 3 m cable length outside of water.

Dimensions



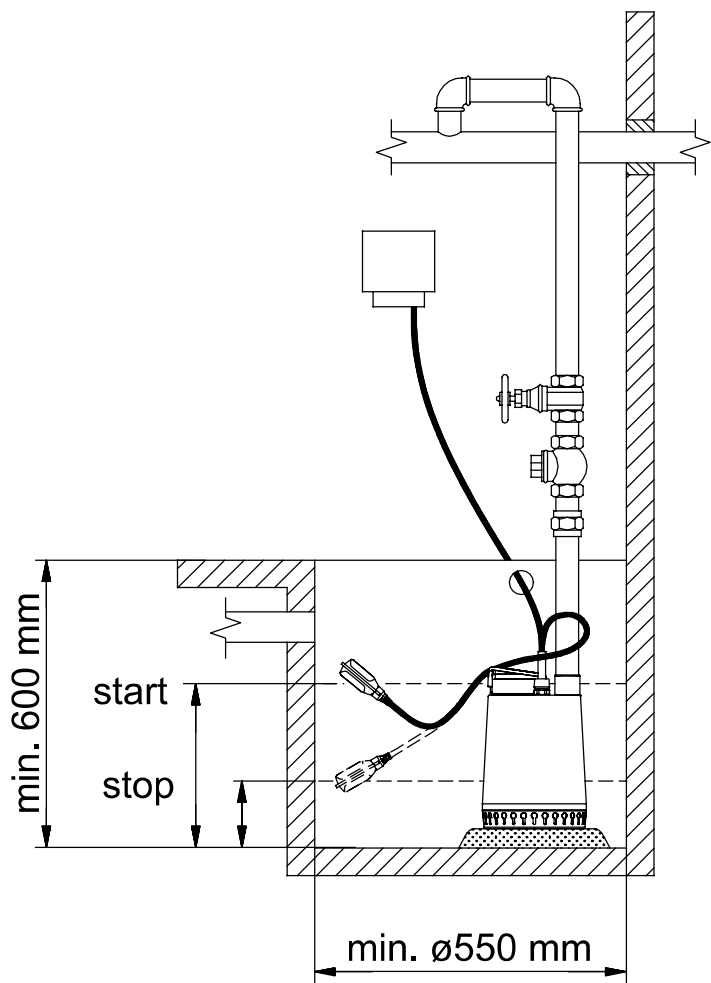
UNILIFT AP12

Pump type	W [mm]	W1 [mm]	H [mm]	DN2 [inch]
AP12.40.04	216	38	321	Rp 1 1/2
AP12.40.06	216	38	321	Rp 1 1/2
AP12.40.08	216	38	346	Rp 1 1/2
AP12.50.11	241	46	357	Rp 2

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Installation

Adjustment of cable length for float switch



One-pump installation with 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.

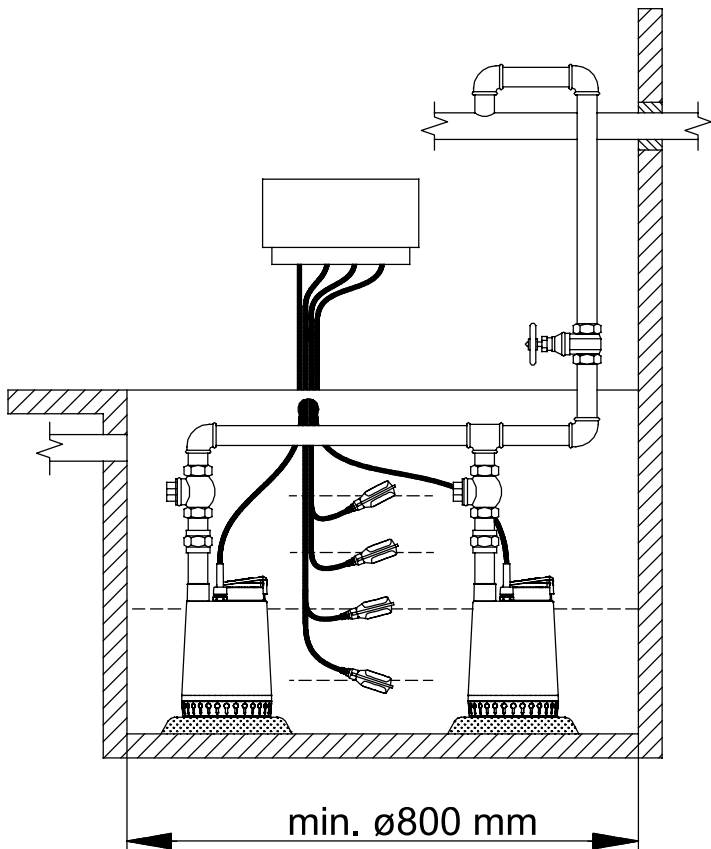
- Increasing the free cable length results in fewer starts/stops and a large difference in level.
- Reducing the free cable length results in more starts/stops and a small difference in level.

In order for the float switch to start and stop the pump, the free cable length must be at minimum 100 mm and maximum 250 mm.

Pump type	Cable length min. 100 mm		Cable length max. 250 mm	
	Start [mm]	Stop [mm]	Start [mm]	Stop [mm] ¹⁵⁾
UNILIFT AP12.40	360	230	370	100
UNILIFT AP12.50	410	250	380	110

¹⁵⁾ Minimum stop level during continuous operation or when using an external controller.

Two-pump installation



Two-pump installation with four float switches

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 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 rises and starts the second pump.

When the bottom float switch is no longer lifted by the liquid, the settable stop delay will set in and both pumps will stop. When the top float switch is lifted by the liquid, the high-level alarm will activate.

Accessories

Product number	Description
99369644	LC231 (1 pump) without float switch
99369650	LC231 (2 pump controller) without float switch
91427145	Float switch M2 with 5m cable