

What happens during priming?

All types of metering pumps with low flow rates per stroke often have priming problems which grow as the suction lift and the liquid density increase. Low flow rates may be due to the size of the pump or to a reduced stroke adjustment.

The priming difficulties during start-up result from dry valves as well as from the high air volume within the suction line still being unfilled and the metering head. In metering systems with frequent periods of disuse, the priming aid is of great use because it makes priming much easier for the pump.

Air entering the suction line while changing the tank, and gas of effervescent liquids occurring in the suction line accumulate in the upper part of the priming aid and are therefore prevented from reaching the metering head. As a result, continuous metering takes place. The priming aid should be checked and refilled from time to time.

The gas cushion also smoothes the suction flow and avoids cavitation.

This is how the priming aid works

The priming aid consists of a syphon-type collector which is not draining after filling - not even in the case of backward siphoning due to a falling suction line. Only on entrance of air into the suction line or release of gas from the liquid would the collector be emptied gradually by the pump.

The ASH 65 priming aids are connected to the suction valve using union nuts. They are thus self-supporting, and the suction line can be fixed to the bottom connection of the priming aid. As an alternative, the ASH 95 version can be fastened to the wall by means of a clamp or e.g. onto a tank by means of a support. Versions ASH 3000 and ASH 5000 are integrated in the existing piping system and can be fixed to the wall using clamps. For filling purposes, the locking plug is removed and the chemical to be metered, or water, if permissible, can be filled in. After carefully locking the collector, the metering pump is started. The liquid primed then causes the liquid level of the collector to go down. At the same time, a vacuum is generated so that liquid from the actual chemical tank is primed through the suction line, refilling the collector at a constant flow rate. If the priming aid cannot be mounted directly below the check valves, it can also be installed at a short distance next to the pump. Priming aid and pump should geodetically have the same level. Connections are to be arranged vertically.

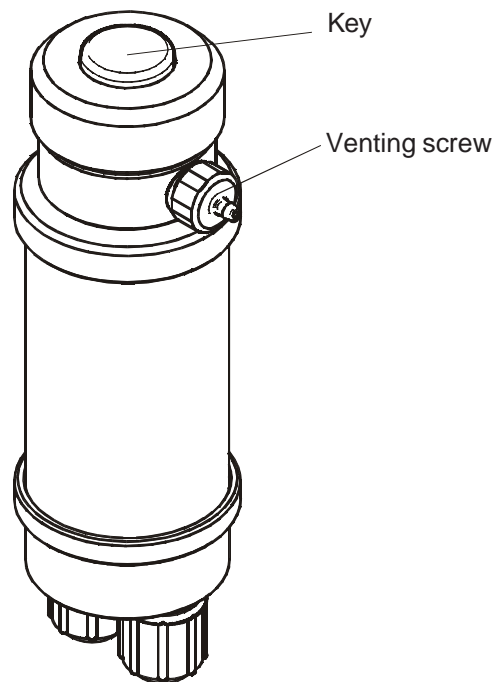


Version ASH 95 and AHP 95 are made of transparent PVC and have a metering flow indicator. The ASH 65 version is completely of PVC. For larger pumps, priming aids ASH 3000 and ASH 5000 of transparent PVC have been designed, other sizes are available in PVC upon request. In order to roughly determine the size in dependence of the capacity and liquid conditions, refer to the table on page 3.

Priming aid with pumping device

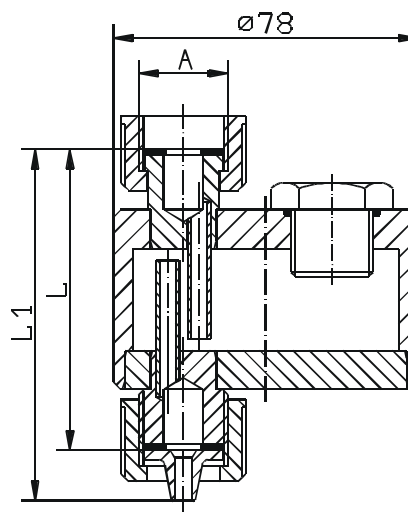
Priming aids AHP 95 and AHP 250 (max. suction lift 1.5 meters of head) are filled via an integrated pumping device without opening the collector. Thus spilling of possibly dangerous chemicals is avoided. First of all the venting screw is released manually by max 1/8 of a revolution. Now liquid can be pumped from the chemical tank into the collector by pressing the key several times. During this process a return tube to the chemical tanks should be connected to the nozzle of the venting screw so that possibly leaking chemical can flow back into the tank. After the collector is filled sufficiently, the venting screw is fastened again manually. The metering pump can be put into operation.

Attention: Operate the venting screw by hand only. By no means use a wrench. 1/8 of a revolution for release should be sufficient. Do not turn out the venting screw too far since otherwise the valve ball might drop out. To close the venting screw it is sufficient to fasten it by hand. When pumping no force needs to be applied. The collector should be held by thumb, middle finger, ring finger and small finger while the forefinger presses the key.



Selection table ASH 65, PVC

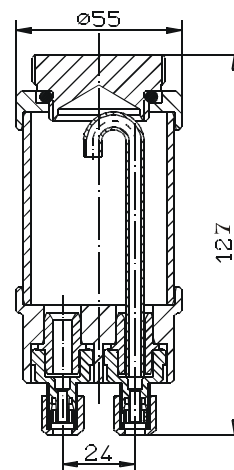
∅ A	Connection	L	L ₁	Part No.
G 5/8	G 5/8 outside	77	—	13322423
	Tubing 4/6	77	105	13322425
	Tubing 6/12	77	132	13322424
	Adh. sleeve ∅ 10	77	92	13322426
	Adh. sleeve ∅ 12	77	92	13332265
G 3/4	G 3/4 outside	76	—	13322889
	Tubing 4/6	76	104	13322888
	Tubing 6/12	76	131	13322886
	Adh. sleeve ∅ 12	76	91	13322887



Selection table ASH 95, transparent PVC

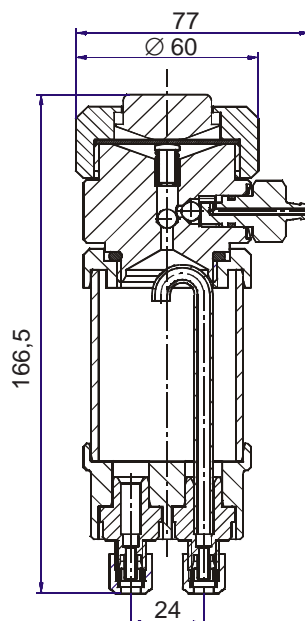
Connection	Accessories		Part No.
	1) Clamp	2) Support	
2x tubing connection 4/6	X	X	13300001
	X	-	13300002
	-	X	13300003
2x tubing connection 6/8	X	X	13300004
	X	-	13300005
	-	X	13300006

1.) Clamp for wall mounting
 2.) Support for tank mounting
 (Priming aids ASH 95 can be refitted with pumping device, Part No. 35890).



Selection table AHP 95, transparent PVC with integrated pumping device

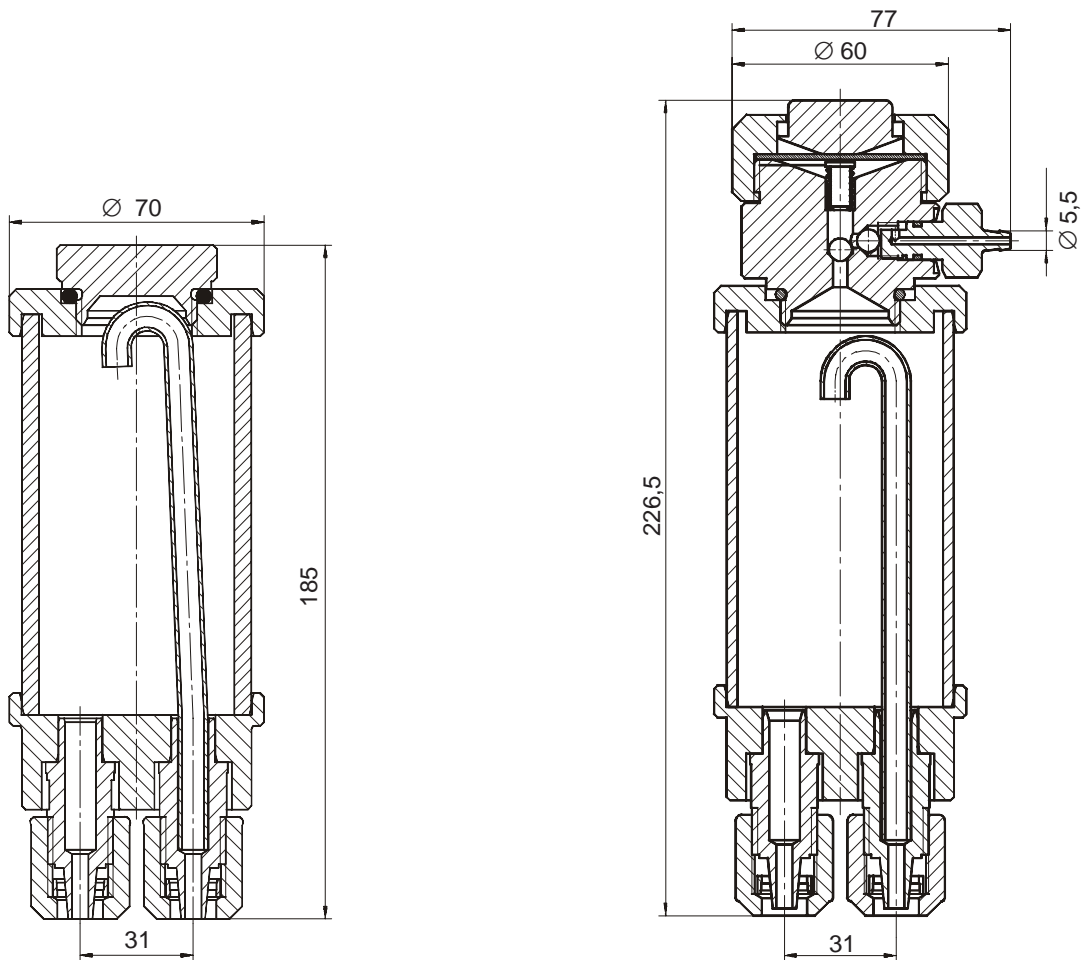
Connection	Accessories		Part No.
	Clamp	Support	
2x tubing connection 4/6	X	X	13300026
	X	-	13300027
	-	X	13300028
2x tubing connection 6/8	X	X	13300029
	X	-	13300030
	-	X	13300031



**Selection table ASH / AHP 250, transparent PVC
Connections d6/12**

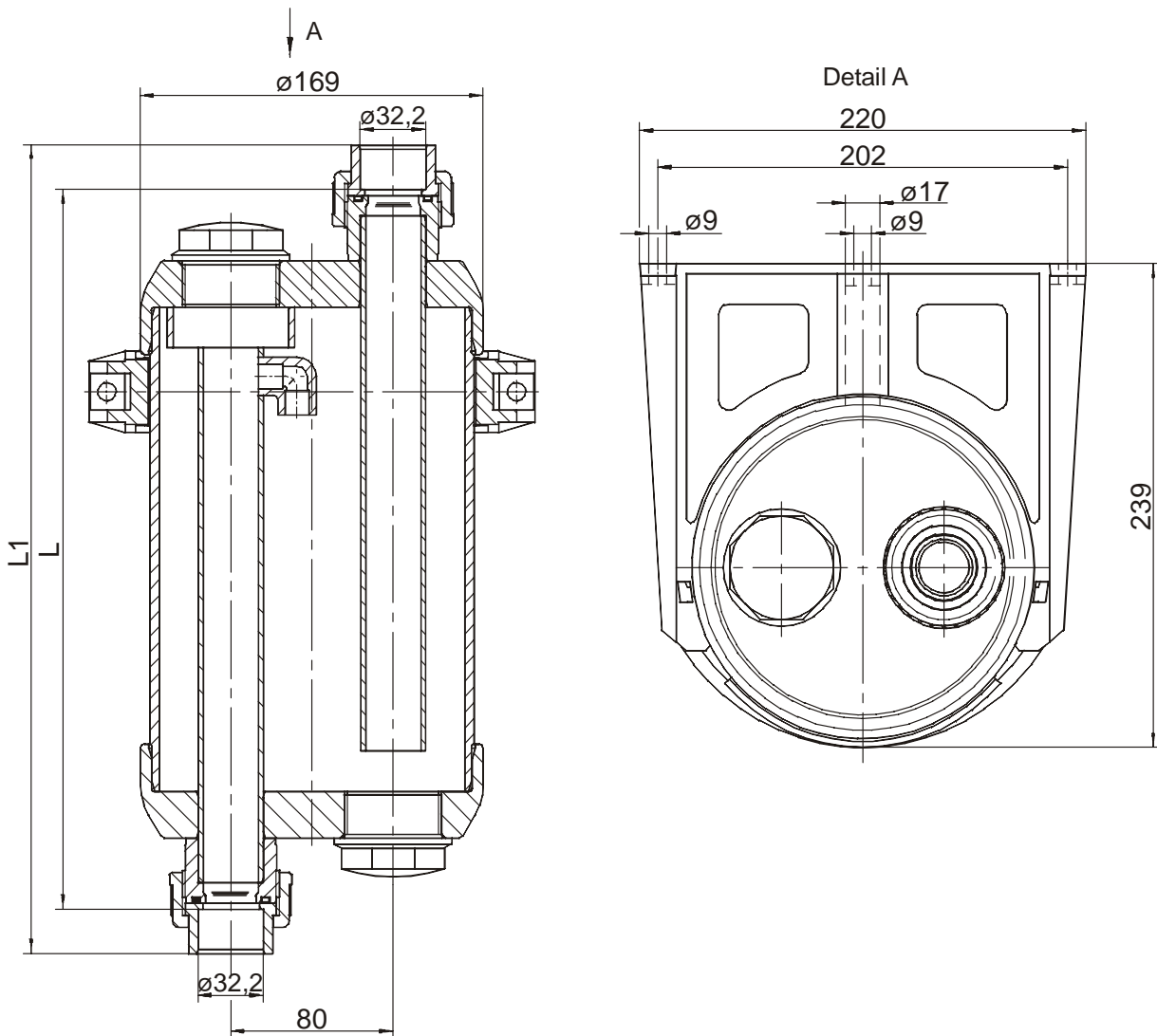
Accessories		Part No.	
Clamp ¹⁾	Support ²⁾	ASH 250	AHP250
X	X	13300009	13300032
X		13300008	13300033
	X	13300007	13300034

- 1.) Clamp for wall mounting
 2.) Support for tank mounting
 (Priming aids ASH 250 can be refitted with pumping device, Part No. 35890).



Selection table ASH 3000/5000,
transparent PVC

Type	Connection	L	L ₁	Part No.
ASH 3000	Adh. sleeve \varnothing 32	355	399	13332765
ASH 5000	Adh. sleeve \varnothing 32	475	519	13332766



Priming Aids ASH and AHP

Determining the size of the priming aid

The table is valid if the atmospheric pressure is 1 bar abs. and if the nominal diameter is constant for the whole line from foot valve to pump.

To calculate the required volume, use the following equation:

$$V = B \times (DN)^2.$$

An extra of 20% is included in the volume thus calculated for the collector.

Suction lift H [m] at minimum liquid level	Line length L total [m]	Density ρ [kg/m ³]	Minimum volume B [dm ³] for DN 1
1	2	1000	0.00115
1	2	1500	0.00127
1	2	2000	0.00140
1	5	1000	0.00146
1	5	1500	0.00176
1	5	2000	0.00209
2	3	1000	0.00258
2	3	1500	0.00306
2	3	2000	0.00371
2	6	1000	0.00327
2	6	1500	0.00424
2	6	2000	0.00554
3	4	1000	0.00440
3	4	1500	0.00581
3	4	2000	0.00822
3	6	1000	0.00519
3	6	1500	0.00730
3	6	2000	0.01092
4	5	1000	0.00681
4	5	1500	0.01051
4	5	2000	0.02096
4	8	1000	0.00864
4	8	1500	0.01456
4	8	2000	0.03127
5	6	1000	0.01016
5	6	1500	0.02046
5	6	1750	0.03899
5	10	1000	0.01379
5	10	1500	0.03095
5	10	1750	0.06184
6	7	1000	0.01509
6	7	1500	0.05540
6	12	1000	0.02184
6	12	1500	0.09093

