PRODUCT DATA SHEET

Polymer Preparation System (ASP)

water | wastewater | sewage

OVERVIEW

MAK Water's Polymer Preparation System (ASP) is a packaged plant used for automated batching of matured polymer solution from liquid concentrate polymer (C-type) or powder polymer (P-type). The ASP is ideal for mechanical sludge dewatering applications and small to medium water and wastewater treatment processes, including clarification and thickening.

Both the C-type and P-type ASP systems have a mixing tank fitted with a mixer, and a solution storage tank. Both tanks are fitted with level probes used for control purposes. Once the polymer in the tank drops below a certain level, a new preparation cycle is triggered automatically. There are actuated valves on the water inlet, and on the discharge of matured polymer solution between mixing and storage tanks. The P-type has a powder hopper with heated feeder that feeds powder polymer into the mixing tank. The C-type has a feed pump to transfer concentrated liquid polymer from a bulk tank (by others) into the mixing tank. The powder hopper for the P-type is filled manually.

FEATURES

- Simple and robust design
- Ease of installation & operation
- Fully automated control
- Low investment cost

STANDARD SPECIFICATIONS

Parameter	Units	ASP-1C	ASP-1P	ASP-2C	ASP-2P	ASP-3C	ASP-3P	ASP-4C	ASP-4P	ASP-5C	ASP-5P
Polymer type	-	Liquid concentrate	Powder	Liquid concentrate	Powder	Liquid concentrate	Powder	Liquid concentrate	Powder	Liquid concentrate	Powder
Maximum polymer solution output*1	L/hr	300	80	430	130	1,200	400	1,100	380	4,200	1,300
Mixing tank volume	L	110	110	150	150	450	450	400	400	1,400	1,400
Storage tank volume	L	220	220	250	250	700	700	750	750	1,550	1,550
Powder hopper capacity	kg	-	10	-	10	-	30	-	30	-	30
Mixer	kW	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Powder feeder*2	kW	-	0.37	-	0.37	-	0.37	-	0.37	-	0.37
Polymer concentrate transfer pump*3	kW	0.25	-	0.25	-	0.25	-	0.25	-	0.25	-
Length	mm	800	919	1,129	1,133	1,317	1,282	1,560	1,654	1,860	1,954
Width	mm	708	678	1,031	1,032	1,218	1,218	930	860	1,190	1,160
Height	mm	1,280	1,316	1,311	1,348	2,071	2,180	1,761	1,871	2,461	2,571
Weight	kg	150	170	120	140	200	230	290	320	500	530
Water inlet connection	mm	DN15	DN15	DN25	DN25	DN25	DN25	DN25	DN25	DN40	DN40
Storage tank outlet connection, pipe stub	mm	DN50	DN50	DN50	DN50	DN50	DN50	DN50	DN50	DN50	DN50

*[1]Maximum solution output is based on the time required to prepare a batch of matured polymer (where polymer chains are fully unrolled) and assumes using standard municipal water pressure to fill the mixing tank. Liquid concentrate polymer requires approx. 20-25 min/batch to mix and mature, and powder polymer requires approx. 65-75 min/batch. Example calculations:

- ASP-1C: 110 L mixing tank @ 3 - 2.4 batches/hr gives 330 - 264 L of matured polymer solution per hour, i.e. rated max 300 L/h
- ASP-2P: 150 L mixing tank @ 0.9 - 0.8 batches/hr gives 135 - 120 L of matured polymer solution per hour, i.e. rated max 130 L/h

*[2]Powder feeder: speed 56 rpm, heating power 10W (230V AC), knock system solenoid 40W, 20N

*[3]Polymer concentrate polymer transfer pump 3ph, 0.25kW, 316 SS piston pump, max flow 85 L/h, max 100 m head, manual stroke adjustment

STANDARD INCLUSIONS + OPTIONS

✓ = Standard Supply o = Optional Supply - = Not applicable

Equipment		ASP-1C	ASP-1P	ASP-2C	ASP-2P	ASP-3C	ASP-3P	ASP-4C	ASP-4P	ASP-5C	ASP-5P
Skid mounted plant		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Containerised plant		o	o	o	o	o	o	o	o	o	o
Tank shape	Rectangular	✓	✓	-	-	-	-	✓	✓	✓	✓
	Round	-	-	✓	✓	✓	✓	-	-	-	-
Tanks	SS304L	✓	✓	-	-	-	-	✓	✓	✓	✓
	SS316L	o	o	-	-	-	-	o	o	o	o
	Polypropylene	-	-	✓	✓	✓	✓	-	-	-	-
Powder hopper	SS304L	-	✓	-	✓	-	✓	-	✓	-	✓
	SS316L	-	o	-	o	-	o	-	o	-	o
Powder feeder w/ heating & knock system		-	✓	-	✓	-	✓	-	✓	-	✓
Mixing tank mixer		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mixer shaft & blades in SS304		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Polymer concentrate transfer pump (see note1)		✓	-	✓	-	✓	-	✓	-	✓	-
Storage tank manual drain valve		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Polymer solution dosing pump(s) (see note 2)		o	o	o	o	o	o	o	o	o	o

Note 1: For transfer of liquid concentrate into mixing tank.
Note 2: For transfer of polymer solution from storage tank into the process.

Instrumentation & Controls	Standard supply
Pressure sensors for level measurement in mixing & storage tanks	✓
Electrically actuated water inlet ball valve, 24V DC	✓
Electrically actuated bypass ball valve (between mixing & storage tanks), 24V DC	✓
Control panel to AS/NZS 3000 with PLC touch screen HMI, 316SS enclosure with approx. dimensions 600L x 400W x 300D mm	✓

MODEL SELECTION

ASP - ____ — — — — — —

1C	Max polymer solution output capacity 300 L/h
1P	Max polymer solution output capacity 80 L/h
2C	Max polymer solution output capacity 430 L/h
2P	Max polymer solution output capacity 130 L/h
3C	Max polymer solution output capacity 1,200 L/h
3P	Max polymer solution output capacity 400 L/h
4C	Max polymer solution output capacity 1,100 L/h
4P	Max polymer solution output capacity 380 L/h
5C	Max polymer solution output capacity 4,200 L/h
5P	Max polymer solution output capacity 1,300 L/h

C	Control panel - included (standard)
X	Control panel - without

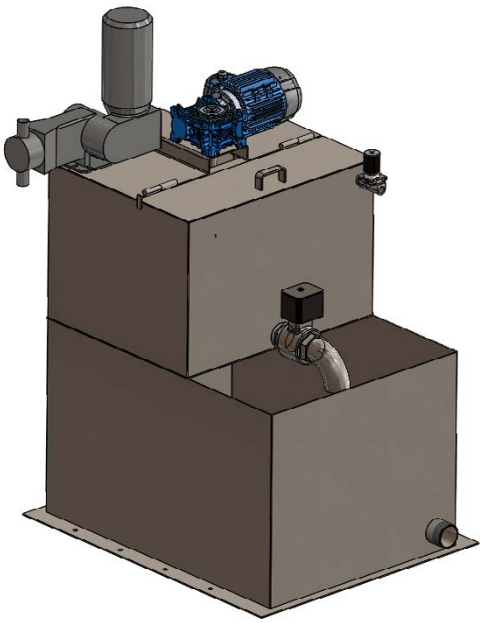
X	Assembly - skid mounted (standard)
C	Assembly - containerised

4	Tanks in SS304L
6	Tanks in SS316L
P	Tanks in polypropylene

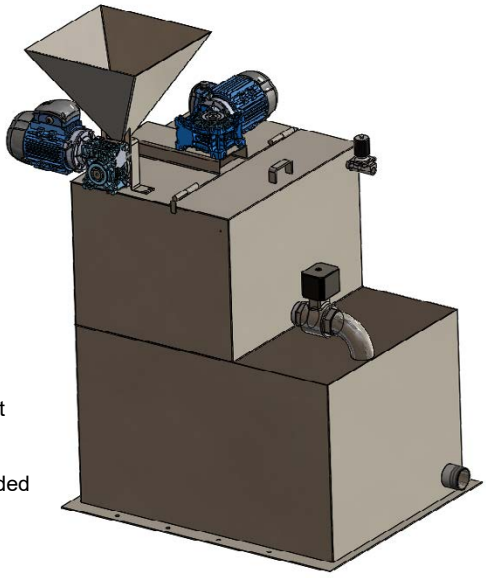
4	Powder hopper in SS304L (P-type only)
6	Powder hopper in SS316L (P-type only)
X	Without powder hopper (C-type only)

X	Polymer solution dosing pump, without (standard)
D	Polymer solution dosing pump - included

X	Specifications - standard
C	Specifications - custom



Typical ASP C-type



Typical ASP P-type

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sales@makwater.com.au