

FLOQUIP

*Polymer
Make-up Equipment*



SNF FLOERGER®



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FLOQUIP™ : Polymer

1 FLOQUIP™ DE Emulsion Preparation Systems

PRODUCT DESCRIPTION

The FLOQUIP DE is a stand-alone polymer makedown system designed to dilute and activate emulsion polymers. The neat emulsion polymer is pumped from a drum, IBC or bulk tank using a variable speed, pulse free pump. Then, it is injected into the suction side of a stainless steel dynamic mixer to initiate complete polymer inversion. A second water adjunction and a static mixer postdilute the polymer solution.

NOMENCLATURE

FLOQUIP : Equipment

DE: Emulsion Dilution

1st number : Version 1, 2 or 3

2nd number : 0-without tank, 1-with tank

3rd number : 0-without filter, 1-with filter

Example:

FLOQUIP DE 111 is an emulsion preparation unit, type 1 (1 to 5 l/h of neat polymer), with an aging tank, and a filter.

FEATURES

- Variable speed progressive cavity pump
- Dynamic mixer
- Adjustable water flow
- Post-dilution
- Electrical control panel : manual and automatic
- Level sensor interface to tank
- Water low flow automatic shutoff
- Stand-alone skid

BENEFITS

- Complete system
- Accurate solution control
- Easy installation

OPTIONS

- Aging tank
- Level probes
- Dosing pump at the outlet of the aging tank
- Filtration system

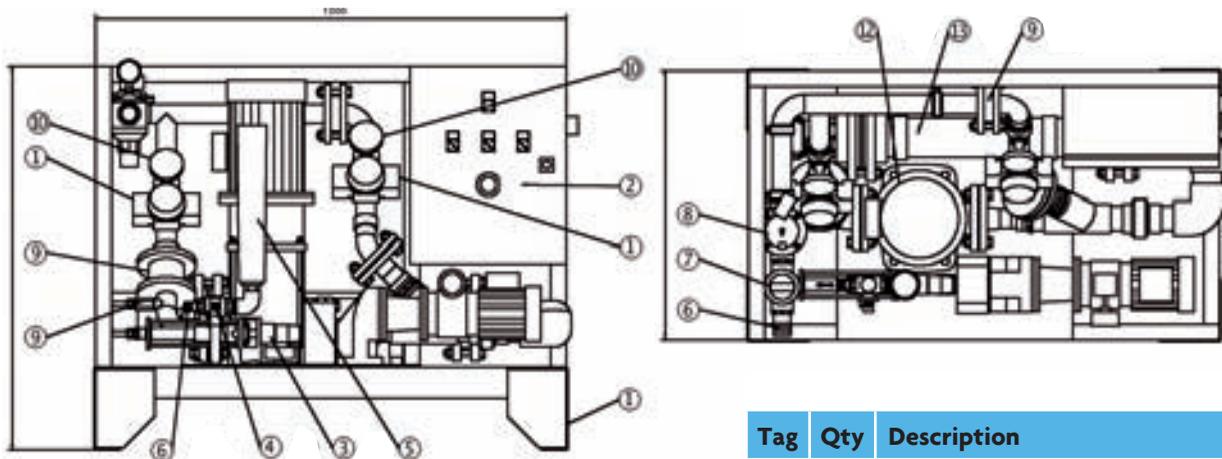
OPERATION

The FLOQUIP DE blends controlled amounts of neat polymer and water, then delivers the resulting solution to an aging tank. On demand from a low level sensor in the aging tank, water enters the system through a regulating valve. An inlet water solenoid and a flow-meter provide a controlled flow of dilution water to the dynamic mixer. The neat polymer pump begins delivering polymer through an injection check valve into the dilution water line at the suction of the dynamic mixer. High speed mixing takes place to obtain complete polymer inversion and a second water adjunction post dilutes the polymer solution. On demand from a high level sensor, the neat polymer is discontinued and, after flushing both mixers, the input of dilution water is stopped.

Makeup Equipment

TECHNICAL SPECIFICATIONS

Version	1	2	3
Neat emulsion flowrate	1-5 l/h	5-25 l/h	20-100 l/h
Dilution water flowrate	0.5-4.0 m ³ /h (1")	0.5-4.0 m ³ /h (1")	1.2-10 m ³ /h (1" 1/2)
Post dilution water flowrate	1.2-10 m ³ /h (1" 1/2)	1.2-10 m ³ /h (1" 1/2)	1.2-10 m ³ /h (1" 1/2)
Minimal pressure	2 bar	2 bar	2 bar
Electricity	400 V tri, 50 Hz/440 V tri, 60 Hz	400 V tri, 50 Hz/440 V tri, 60 Hz	400 V tri, 50 Hz/440 V tri, 60 Hz
Power	1 kW	1 kW	4 kW
Dimensions (mm)	L-1200, W-680, H-970	L-1200, W-680, H-970	L-1200, W-680, H-970
Weight	150 kg	150 kg	210 kg



Tag	Qty	Description
13	1	Static Mixer
12	1	Dynamic Mixer
11	2	Flowmeter
10	2	Manual valve
9	3	Check valve
8	1	Solenoid valve
7	1	Pressure regulator an indicator
6	2	Grooved end
5	1	Calibrating Cylinder
4	1	3 ways valve
3	1	Progressing cavity pump
2	1	Control panel
1	1	Skid

FLOQUIP™ : Polymer

2 FLOQUIP™ DE 300+ Emulsion Preparation Systems

PRODUCT DESCRIPTION

The FLOQUIP DE X00+ is a fully automated and regulated polymer make down system designed to dilute and activate emulsion with water.

FEATURES AND BENEFITS

- Stand alone skid, compact and easy to install and maintain
- Simple design and operation
- Accurate control of the solution concentration & flow
- Fully automatic operation managed by level probes of the maturation tank
- Two automatic modes: local or distant control
- One manual mode: for special cleaning & components calibration
- Alarms and control parameters in manual and automatic modes
- Stainless steel piping and coated frame

SCOPE OF SUPPLY

- One variable speed progressive cavity pump for emulsion dosage
- One Coriolis flowmeter for emulsion flow control
- One water line with regulation valve and electromagnetic flowmeter for flow control
- One stainless steel dynamic mixer
- One electrical control panel with PLC & tactile displayer

OPTIONS

ter for emulsion flow control

- Maturation tank
- Level probes
- Dosing pump(s) at the outlet of the ageing tank
- Filtration system (for neat emulsion and/or prepared solution)

OPERATION

Under normal operating conditions, when the unit is in automatic mode, the preparation of the solution begins when the low level in the maturation storage tank is reached.

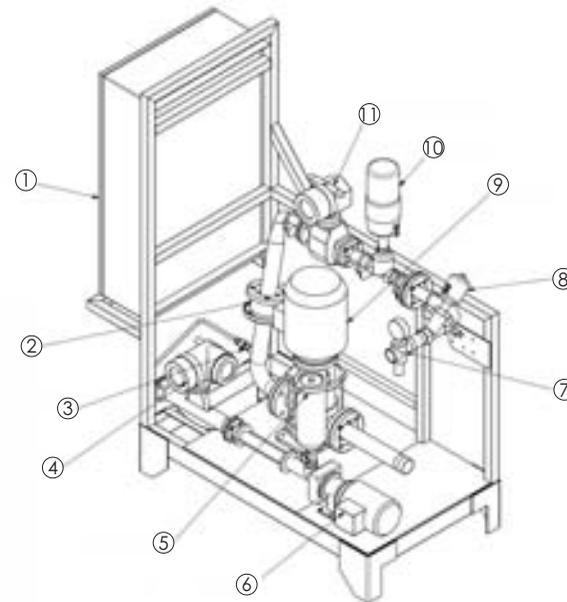
- The neat emulsion polymer is pumped from a drum, IBC or bulk tank using the variable speed progressive cavity pump.
- Then, it is injected into the water line at the suction side of a stainless steel dynamic mixer to initiate complete polymer inversion.
- After blending through the dynamic mixer, the prepared solution is delivered to the maturation tank.
- When the high level is reached in the tank, the dosage of neat emulsion is discontinued and, after flushing timer, the input of dilution water is closed.

Concentration and flow of the prepared solution are fully regulated throughout the cycle:

- A PID regulation, realized with an electromagnetic flowmeter associated to a regulation valve, ensures a stable water flowrate.
- A PID regulation, realized with a Coriolis flowmeter associated to a variable pump speed drive unit, ensures a stable concentration of the prepared solution.

Makeup Equipment

Version	1	2	3
Neat emulsion flowrate	1-5 l/h	5-25 l/h	20-100 l/h
Dilution water flowrate	0.5-4.0 m ³ /h (1")	0.5-4.0 m ³ /h (1")	1.2-10 m ³ /h (1" 1/2)
Minimal pressure	2 bar	2 bar	2 bar
Electricity	400 V tri, 50 Hz/460 V tri, 60 Hz	400 V tri, 50 Hz/460 V tri, 60 Hz	400 V tri, 50 Hz/460 V tri, 60 Hz
Air pressure	5.5 – 7.5 bars	5.5 – 7.5 bars	5.5 – 7.5 bars
Dimensions (mm)	L-1500, W-700, H-1710	L-1500, W-700, H-1710	L-1500, W-700, H-1710



Tag	Qty	Description
1	1	Control box
2	1	Check valve
3	1	Poppet check valve
4	1	Coriolis flowmeter
5	1	Single basket filter
6	1	Progressive cavity pump
7	1	Pressure reducer + manometer
8	1	Electro pneumatic valve
9	1	Dynamic mixer
10	1	Regulation valve
11	1	Electromagnetic flowmeter

FLOQUIP™ : Polymer

3 FLOQUIP™ DE0 Emulsion Preparation Systems

PRODUCT DESCRIPTION

The FLOQUIP DE0 is a manual polymer makedown system designed to dilute and activate emulsion polymers. The neat emulsion is pumped from a drum, IBC or bulk tank using a variable speed pulse free pump. Then it is injected at the inlet of a highly efficient static mixer initiate complete polymer inversion.

NOMENCLATURE

FLOQUIP : Equipment

DE: Emulsion Dilution

1st number : Version 1, 2 or 3

2nd number : 0-without tank, 1-with tank

3rd number : 0-without filter, 1-with filter

Example:

FLOQUIP DE 0100 is a manual emulsion preparation unit, type 1 (1 to 5 l/h of neat polymer), without ageing tank, and no filter.

OPERATION

The FLOQUIP DE0 blends controlled amounts of neat polymer and water, then delivers the resulting solution directly to your process or through an aging tank. The required flow of water is modified manually with the help of a regulating valve. The neat polymer pump begins delivering polymer through an injection check valve into the dilution water line at the inlet of a specific static mixer. The high speeds and shears in the static mixer ensure the quality of the flocculant solution.

FEATURES

- Variable speed progressing cavity pump
- Stainless steel static mixer
- Adjustable water flow
- Electrical control of the dosing pump
- Stand-alone skid

BENEFITS

- Complete system
- Easy installation

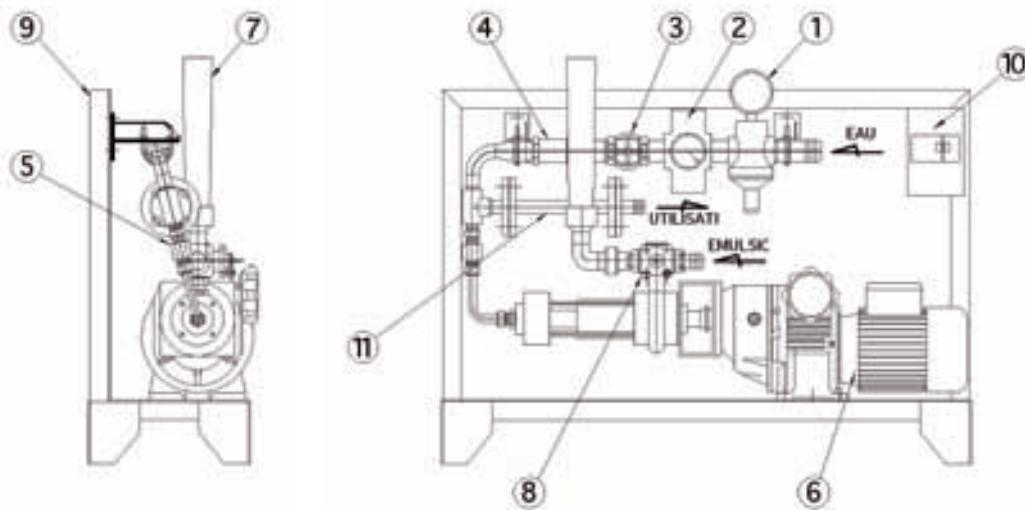
OPTIONS

- Ageing tank
- Dosing pump at the outlet of the aging tank
- Filtration system

Makeup Equipment

TECHNICAL SPECIFICATIONS

Version	1	2	3
Neat emulsion flowrate	1-5 l/h	5-25 l/h	20-100 l/h
Dilution water flowrate	0.5-4.0 m ³ /h (1")	0.5-4.0 m ³ /h (1")	1.2-10 m ³ /h (1" 1/2)
Minimal pressure	2 bar	2 bar	2 bar
Electricity	400 V tri, 50 Hz/440 V tri, 60 Hz	400 V tri, 50 Hz/440 V tri, 60 Hz	400 V tri, 50 Hz/440 V tri, 60 Hz
Dimensions (mm)	L-850, W-255, H-600	L-850, W-255, H-600	L-850, W-255, H-600
Weight	47 kg	47 kg	47 kg



Tag	Qty	Description
1	1	Pressure regulator
2	1	Flowmeter
3	1	Check valve
4	1	Check valve
5	1	Check valve
6	1	Dosing pump
7	1	Calibrating Cylinder
8	1	3 ways valve
9	1	Skid
10	1	Switch
11	1	Mixer

FLOQUIP™ : Polymer

4 FLOQUIP™ SE Emulsion Storage Unit

PRODUCT DESCRIPTION

The FLOQUIP SE is a storage tank designed to homogenise and filter polymer emulsion solutions. This system will eliminate the problems that decrease emulsion efficiency.

The product is optimized by :

- the elimination of polymer deposits
- re-suspension of the emulsion.

NOMENCLATURE

FLOQUIP : Equipment

SE: Emulsion Storage

1st number : Version

2nd number : 0-without filter, 1-with filter.

Example:

FLOQUIP SE 31 is a 4.5 cubic meter emulsion storage unit with filter.

OPERATION

The tank is filled through a filter that eliminates polymer deposits created during extended storage time. The agitator must be used about ten minutes per day in order to avoid natural decantation.

FEATURES

- Tank
- Agitator
- Bag filter support
- 1 1/2" drain valve for total emptying

BENEFITS

- Avoids decantation
- Eliminates the deposits
- Allows a good homogenisation before use
- Complete system
- Easy to install
- Low maintenance

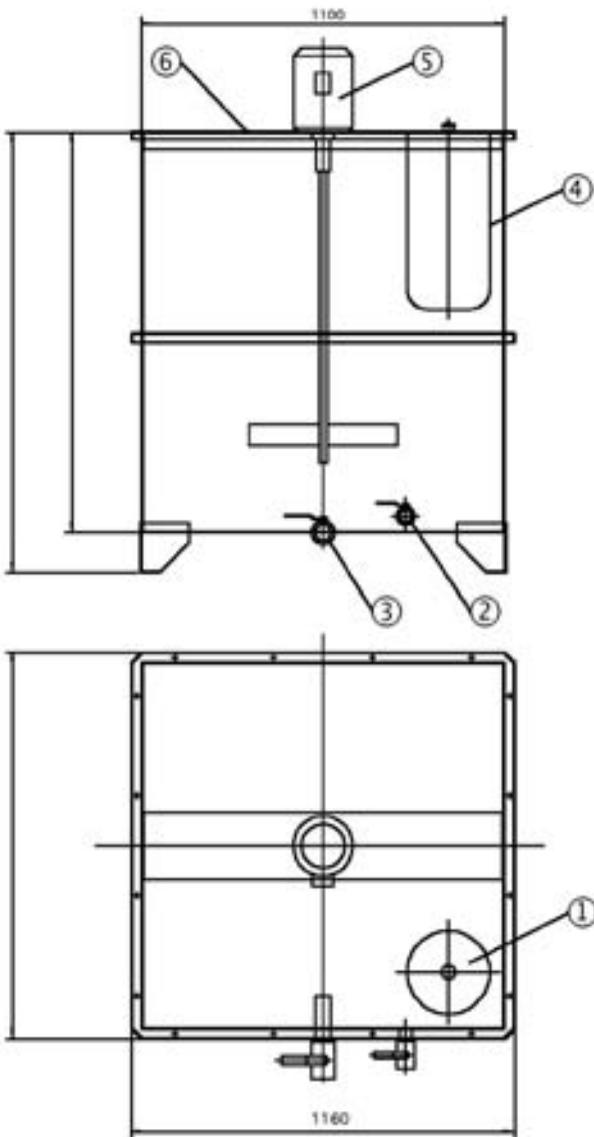
OPTIONS

- Low level alarm
- Automatic agitation
- High quality filtration system
- Dosing pump

Makeup Equipment

TECHNICAL SPECIFICATIONS

Version	1	2	3
Tank volume	1500 l	3500 l	4500 l
Electricity (Agitation)	220/380 V tri, 50 Hz, IP55	220/380 V tri, 50 Hz, IP55	220/380 V tri, 50 Hz, IP55
Power	0,75 kW	0,75 kW	0,75 kW
Speed	101 rpm	101 rpm	101 rpm
Dimensions (mm)	L-1160, W-110, H-1800	on demand	on demand
Weight	100 kg	on demand	on demand



Tag	Qty	Description
1	1	Trap door
2	1	Outlet valve: 1"
3	1	Drain valve: 1" 1/2
4	1	Bag filter
5	1	Agitation motor
6	1	Roof

FLOQUIP™ : Polymer

5 FLOQUIP™ DP 220 Manual Dissolution Unit for Dry Polymer

PRODUCT DESCRIPTION

The FLOQUIP DP is a fast efficient polymer preparation system. The whole unit is mounted on one skid and is easy to move. It is composed of two tanks of 1 m³ which are alternately used to prepare the polymer solution or to feed the application line.

NOMENCLATURE

FLOQUIP : Equipment

DP : Powder Dissolution

1st number : Total Volume in cubic meters

2nd number : Number of tanks

3rd number : 0-manual, 1-automatic

Example:

FLOQUIP DP 220 is a powder preparation unit, with two tanks, and a total volume of 2 cubic meters, and no filter.

FEATURES

- two 1 m³ tanks
- two slow speed agitators with supporting structures
- two flocculant wetting modules
- one dosing pump with speed variator
- two level controls
- one post dilution system
- one control panel (IP55)

BENEFITS

- Easy to install.
- Complete system.
- Self contained.
- Easy to use.

OPTIONS

- Secondary backup dosing pump
- Filtration system

OPERATION

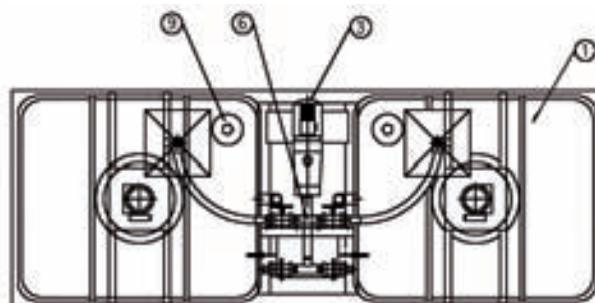
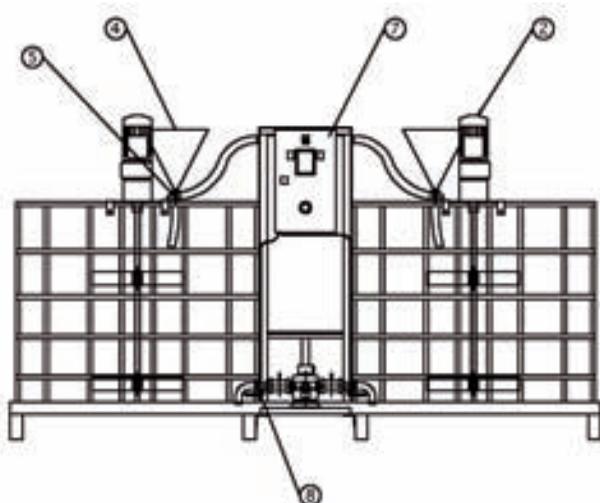
As the operator want to make up a polymer solution, he needs to fill the half of the tank with water. Then he turns on the agitator and places the desired quantity of polymer powder in the hopper. The polymer is dispersed and wetted in the water flow as it enters the tank. As soon as the tank is full, the water supply is switched off by the operator but the stirring keeps on. The solution is mixed and matured during the required time till the other tank is filled out by the dosing pump. The suction is manually transferred to the other tank when the first one is empty.

The DP 220 is an efficient way for the manual dissolution of solid grade flocculants.

Makeup Equipment

TECHNICAL SPECIFICATIONS

Version	110 F4	750 F4
Dosing Pump - Maximum Flow	20-110 l/h	150-700 l/h
Minimal pressure	1 bar	1 bar
Electricity	230 V mono, 50 Hz	230 V mono, 50 Hz
Dimensions (mm)	0,75 kW	0,75 kW
Weight	300 kg	305 kg



FLOQUIP DP220

Tag	Description
1	Tanks (HDPE)
2	Agitator
3	Dossing pump
4	Hopper
5	Eductor
6	Post dilution system
7	Control panel
8	Level down on tanks
9	Hatch

FLOQUIP™ : Polymer

6 FLOQUIP™ DPX21

Automatic Dissolution Unit for Dry Polymer

PRODUCT DESCRIPTION

The FLOQUIP DPX21 is a self contained, split tank design, automated polymer dilution and solution feed system for application of dry polymer. The polymer mixing tank is equipped with a dry polymer feeder and wetting system. The solution is agitated till the polymer is dissolved and then it is transferred to the application tank. The application pump is variable speed and delivers the prepared polymer solution continuously. An optional post-dilution system is available on request.

NOMENCLATURE

FLOQUIP : Equipment
 DP: Powder Dissolution
 1st number : Total volume in cubic meters
 2nd number : number of tanks
 3rd number : 1-automatic

Example:
 FLOQUIP DP421 is a 4 m³ automatic powder dissolution unit, with 2 tanks.

FEATURES

- 304L stainless steel polymer mixing and application tank
- Dry polymer feeder
- Wetting weir
- PLC control system
- Automatic level controls
- Transfer and application pumps
- Automatic High/Low shutoff alarms

BENEFITS

- Fully automated system
- Self contained
- User friendly PLC operation
- Low maintenance

OPTIONS

- Post-dilution system
- Filtration system
- Additional dosing pumps at the outlet of the application tank
- Platform or pallet station

OPERATION

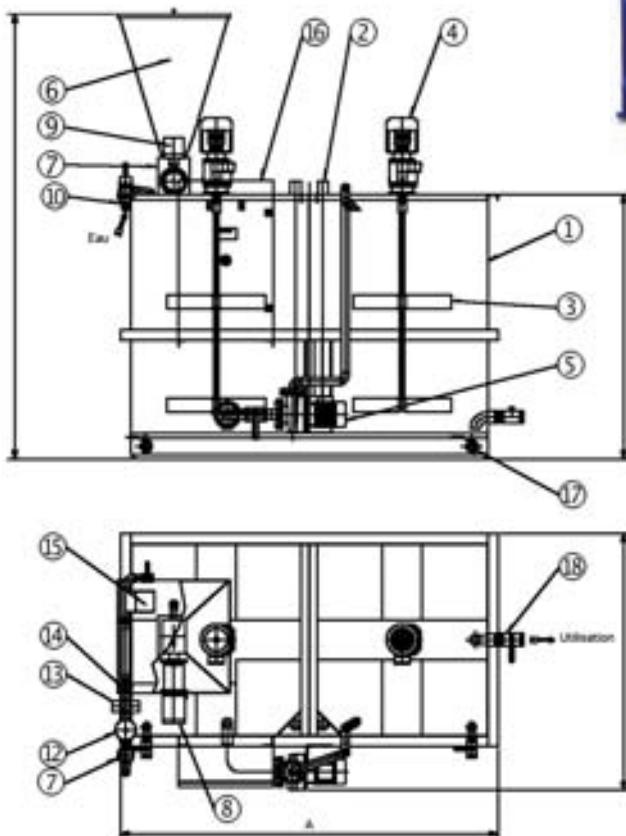
A controlled rate of dilution water flow enters the mixing tank to a preset level above the bottom agitator turbine. This preset level actuates the dry polymer feed and mixing tank agitator. The dry polymer feeder introduces the polymer into the dilution water stream entering the mixing tank. Solution agitation continues until proper solution aging and uniformity is achieved and ready for application. Then, the solution is transferred into the application tank for plant system use. After the solution transfer is completed, the system automatically starts a new preparation cycle. The variable speed application pump of the FLOQUIP DPX21 system delivers the prepared polymer solution.

If the information of the control panel has to be used in a distant control system, a specific program has to be developed beforehand with the customer's specialists.

Makeup Equipment

TECHNICAL SPECIFICATIONS

Version	DP 221	DP 421	DP 721
Tank Material	Stainless steel 304L	Stainless steel 304L	Stainless steel 304L
Total volume m ³	2	4	7
Volume of each tank V1 = V2	1	2	3.5
Electricity	400V tri, 50Hz / 440V tri, 60Hz	400V tri, 50Hz / 440V tri, 60Hz	400V tri, 50Hz / 440V tri, 60Hz
Agitations 1 & 2	400V tri, 50Hz, IP55	400V tri, 50Hz, IP55	400V tri, 50Hz, IP55
Agitation Speed N1 = N2	101 rpm	101 rpm	101 rpm
Power P1 = P2	0.75 kW	1.5 kW	1.5 kW
Transfer pump	Centrifugal	Centrifugal	Centrifugal
Dosing pump	Progressive cavity	Progressive cavity	Progressive cavity
Dosing screw motor	Frequency speed variator	Frequency speed variator	Frequency speed variator
Dimensions (mm)	L-2056, W-1406, H-1901	L-2386, W-1636, H-2795	L-3086, W-1936, H-2795



Tag	Qty	Description
18	1	1" 1/4 Application valve
17	2	1" 1/2 Draining valve
16	1	Control box
15	1	Powder wetting system
14	1	Water regulating valve
13	1	Water Flowmeter
12	1	Water solenoid valve
11	1	Pressure regulator + indicator
10	1	Water intel
9	1	Hopper low level
8	1	Dosing screw motor
7	1	Powder dosing system
6	1	Stainless steel hopper
5	1	Centrifugal transfer pump
4	2	Agitation motor
3	2	Agitator
2	2	Level probe
1	1	Stainless steel tank

FLOQUIP™ : Polymer

7 FLOQUIP™ ASA-EU Emulsification Unit for ASA and Polymers

PRODUCT DESCRIPTION

Emulsifies ASA 68S synthetic size with a cationic polymer APC 815 and doses the emulsion continuously into the paper process for internal sizing of a broad range of papers and boards.

FEATURES

- One water line for the dilution
- One caustic line for special cleaning
- Two dosing pumps (ASA and Polymer) with a flow meter for each
- One dispersing pump (2900 rpm)
- One recirculation loop with a regulating valve to adjust the pressure
- One final solution line with a flow meter and a regulating valve to adjust the flow of emulsion
- One water line for manual post-dilution (with a flow meter)
- One control panel with a touch-screen operator interface

BENEFITS

- Stand alone skid, compact and easy to install and maintain
- Simple design and operation
- Stainless steel piping and framework
- Consistent and repeatable emulsion quality
- Fully automatic operation with PLC controller
- Concentrations, flows and pressure PID controlled
- Optimized performance with post dilution
- Two automatic modes: configuration with a storage tank and injection pumps or with a remote run command (sheet break, shutdown, etc) for direct injection
- One manual mode utilized for special cleaning component testing.
- Alarms and control parameters in manual and automatic
- Automatic cleaning with water
- Manual cleaning with soda or with water

OPTIONS

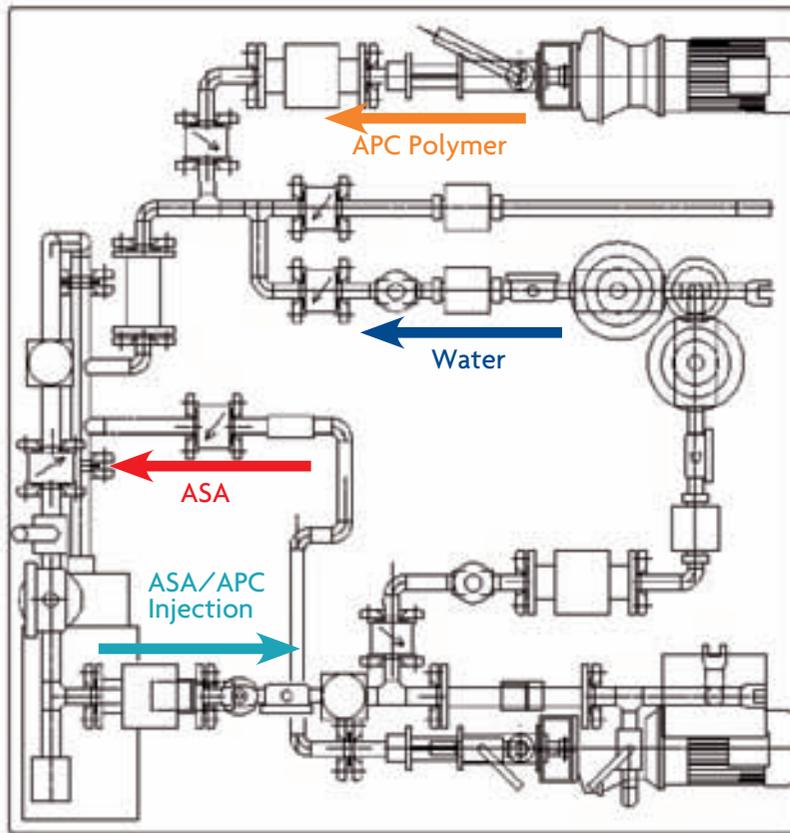
- Storage tank with levels to control automatic cycle
- Dosing pumps
- Installation and commissioning
- A completely custom tailored unit can be done

OPERATION

Under normal operating conditions when the unit is in automatic mode, the water solenoid valve opens and the pumps start in a precise sequence. Flows and pressure will be automatically adjusted according set points and concentration.

- Water is premixed with polymer by a static mixer.
- ASA is injected at the inlet of the dispersing pump.
- The recirculation through the dispersing pump at high pressure ensures high quality emulsion production.
- Mixing of emulsion and post dilution water is done by a static mixer.
- Automatic cleaning with water is carried out after the completion of each batch cycle or after each stop.
- The cleaning sequence can be done with water or soda in manual mode.

Makeup Equipment



STANDARD CAPACITIES

- ASA : 10 - 50 l/h
- Liquid polymer : 10 - 50 l/h
- Emulsion flow : 200 - 1000 l/h
- Water post dilution : 0 - 5000 l/h
- Dimensions : 2,20 m H x 1,70 m L x 1,50 m W
- Electricity : 400V tri, 50 Hz
- Water : 3 - 6 m³/h, 2 - 3 bars
- Air : 5.5-7bars, clean & dry instrumentation air
- Caustic soda : concentration <5%



Front view of
FLOQUIP ASA-EU



Rear view of
FLOQUIP ASA-EU



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