

# Efficiency, cost-effectiveness and safety in water treatment

The effective polymer preparation and metering systems Ultramat®



# Polymer preparation and metering stations

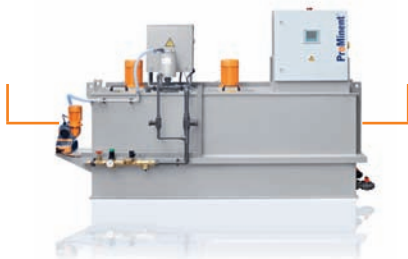
## Different concepts, one success story

### Continuous flow systems

#### Ultromat® ULFa

Ultromat® ULFa continuous flow systems permit the batching of flocculation aids for the preparation of ready to use polymer solutions and both liquid and powdered polymers can be processed in this way. The storage tank is subdivided into three chambers, largely preventing carry-over of the freshly prepared polymer.

The Ultromat® ULFa, along with device types ULPa and ULDa, is equipped with a PLC Programmable Logic Controller S7-1200 and touch panel.



### Oscillating systems

#### Ultromat® ULPa

Ultromat® ULPa the oscillating systems are ideal for the batching of flocculation aids for the preparation of ready to use polymer solutions. The Ultromat® ULPa consists of two separate chambers which can be successively filled with polymer solution, thereby ruling out the risk of product carry-over. Both liquid and powdered polymers can be processed depending on the product range.



### Double-deck systems

#### Ultromat® ULDa

Ultromat® ULDa double-deck systems are designed for the processing of liquid and powdered polymers. The system consists of two separate polypropylene storage tanks, arranged above each other, thereby preventing product carry-over. The polymer solution is batched in the upper storage tank and can be transferred to the lower storage tank once the maturing time has elapsed.



## Reliable flocculant metering

Polymer feed stations and metering systems are special developments used for feeding liquid and / or powdered polymers. Polyelectrolytes are used as flocculation aids in a broad range of applications where colloidal solids and liquids have to be separated in an economical manner.

The design of the systems is based on our decades of experience in the development and application of technologies for water treatment. Hundreds of applications worldwide serve as impressive testimony to this highly specialized competence.

- Reliable, mature technology
- Simple commissioning
- High level of user convenience

### Manual batching stations

#### Ultromat® MT

The manual batching stations Ultromat® MT permit both liquid and powdered polymers to be processed and are ideal for individually batching polymer solutions where there is no need for continuous operation. The liquid or powdered polymer is added manually to the single-chamber tank, is then mixed by the stirrer and the flocculant solution can be metered once the maturing time has elapsed.



### Inline batching stations

#### POLYMORE

Inline batching stations POLYMORE meter the liquid polymer with a hose pump into the pressure-encapsulated multi-zone mixing equipment with the dilution water, thereby creating a homogeneous polymer solution. The polymer solution can be metered directly into the application in most cases. POLYMORE has a compact design ideal for wall mounting.



### Continuous flow systems

#### Ultromat® ATR

Ultromat® ATR continuous flow systems with cylindrical polypropylene storage tanks are used for processing powdered polymers into ready to use polymer solutions. The Ultromat® ATR storage tanks are hydraulically connected via overflow channels and are extremely robust thanks to their cylindrical form. The integrated Siemens LOGO control makes the system particularly cost-effective.



Systems	Type	Output range l/h									Polymers*	
		100	500	1.000	2.000	4.000	5.000	10.000	15.000	20.000		
Continuous flow	ULFa											F/T/TF
Oscillating	ULPa											F/T/TF
Double deck	ULDa											F/T/TF
Manual	MT											TF
Inline	POLYMORE											F
Continuous flow	ATR											T

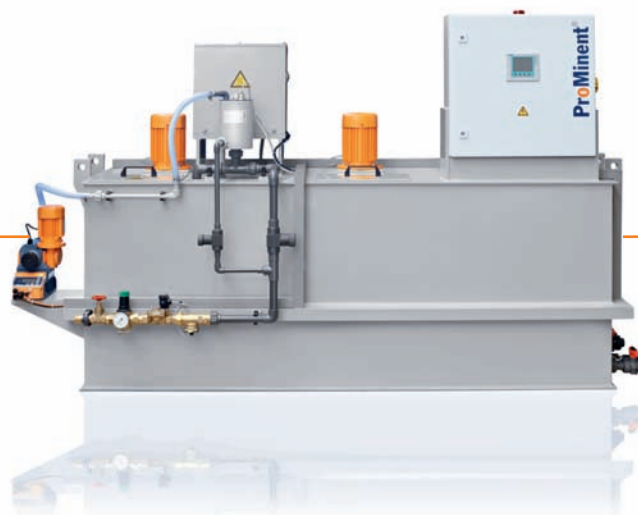
\* F = liquid; T = powder; TF = liquid and powder

# Ultromat® ULFa

## Effective polymer metering

Triple chamber continuous flow systems Ultromat® ULFa are used to batch flocculation aids for the preparation of polymer solutions and feature a storage tank subdivided into three chambers.

- Processing of liquid polymer (0.05–1.0%) and powdered polymers (0.05–0.5%)
- Minimal product carry-over
- Extraction of the polymer solution and drainage of the chambers via the front of the storage tank
- Wide range of models for specific applications
- User-guided input of the solvent concentration as well as calibration of the powder metering unit and liquid concentrate pump
- Siemens compact controller S7-1200 and touch panel KTP 400
- Optional PLC Programmable Logic Controller with PROFIBUS module
- Version with terminal box available on request
- Extraction rate up to 8,000 l/h



### Technical data

Max. extraction rate		400	1,000	2,000	4,000	6,000	8,000
Storage tank capacity	l	400	1,000	2,000	4,000	6,000	8,000
Max. dilution water	l/h	600	1,500	3,000	6,000	9,000	12,000
Water pressure	bar	3–5	3–5	3–5	3–5	3–5	3–5
Metering capacity of powdered polymer	kg/h	0.5–11	0.5–11	0.8–18	3.6–55	3.6–55	4.8–110
Length	mm	1,999	2,643	3,292	3,301	4,120	4,605
Width	mm	918	1,002	1,186	1,456	1,651	1,910
Height	mm	1,250	1,600	1,750	2,182	2,172	2,290
Water connection	"	1	1	1	1½	1½	2
Extraction connection DN	mm	25	25	32	40	40	50
Concentrate feed DN	mm	15	15	15	20	20	20
Voltage/frequency	VAC/Hz	400/50	400/50	400/50	400/50	400/50	400/50
Power consumption	kW	1.5	2.6	3.2	5.0	5.0	9.5

# Ultromat® ULPa

## Oscillation without product carry-over

Ultromat® ULPa the oscillating systems are ideal for batching flocculation aids for the preparation of polymer solutions.

Ultromat® ULPa consists of two completely separate storage tanks.



- Processing of liquid polymer (0.05–1.0 %) and powdered polymers (0.05–0.5 %)
- No mixing of fresh and matured polymer
- Wide range of models for specific applications
- User-guided input of the solvent concentration as well as calibration of the powder metering unit and liquid concentrate pump
- Four system sizes with extraction rates from 400 to 4,000 l/h
- Siemens compact controller S7-1200 and touch panel KTP 400
- Optional PLC Programmable Logic Controller with PROFIBUS module
- Version with terminal box available on request

### Technical data

Max. extraction rate		400	1,000	2,000	4,000
Storage tank capacity	l	2 x 400	2 x 1,000	2 x 2,000	2 x 4,000
Max. dilution water	l/h	1,600	4,000	8,000	14,000
Water pressure	bar	3–5	3–5	3–5	3–5
Metering capacity of powdered polymer	kg/h	0.5–11	0.8–18	3.6–55	4.8–110
Length	mm	2,095	2,895	3,395	4,595
Width	mm	1,254	1,734	1,919	2,645
Height	mm	1,635	1,738	2,180	2,400
Water connection	"	1	1¼	1½	2
Extraction connection DN	mm	25	32	40	50
Concentrate feed DN	mm	15	15	20	20
Voltage/frequency	VAC/Hz	400/50	400/50	400/50	400/50
Power consumption	kW	2.5	3.2	5.5	7.0

# Double-deck systems

## Ultromat® ULDa

### Compact “double-decker”

The double deck systems Ultromat® ULDa are subdivided into two storage tanks stacked on top of each other and are used to batch flocculation aids for the preparation of polymer solutions. This system concept in the Ultromat® ULDa product range is especially space-saving.

- Processing of liquid polymer (0.05–1.0%) and powdered polymers (0.05–0.5%)
- No mixing of fresh and matured polymer
- Wide range of models for specific applications
- User-guided input of the solvent concentration as well as calibration of the powder metering unit and liquid concentrate pump
- Water fitting with flow meter and fitting set for the dilution water
- Gentle mixing for constant performance (electric stirrer)
- Siemens compact controller S7-1200 and touch panel KTP 400
- Optional PLC Programmable Logic Controller with PROFIBUS module
- Version with terminal box available on request



#### Technical data

Max. extraction rate		400	1,000	2,000
Storage tank capacity	l	2 x 400	2 x 1,000	2 x 2,000
Max. dilution water	l/h	1,600	4,000	8,000
Water pressure	bar	3–5	3–5	3–5
Metering capacity of powdered polymer	kg/h	0.5–11	0.8–18	3.6–55
Diameter of storage tank	mm	1,200	1,440	1,826
Length	mm	1,638	1,902	2,288
Width	mm	1,351	1,615	2,005
Height	mm	2,030	2,514	3,149
Water connection	"	1	1¼	1½
Extraction connection DN	mm	25	32	40
Concentrate feed DN	mm	15	15	20
Voltage/frequency	VAC/Hz	400/50	400/50	400/50
Power consumption	kW	1.5	2.6	3.2

# Manual batching stations Ultromat® MT

## Batching of polymer solutions in batch quantities

Batching stations Ultromat® MT are used in batch operation for the manual batching of liquid and powdered polymers.



- Ideal for use where there is no need for continuous operation
- Manual addition of the flocculant solution in batch quantities
- Robust design
- Economical
- Batching tank made of polypropylene and complete with flushing system
- Gentle mixing for constant performance (electric stirrer)
- Terminal box

### Technical data

Typ		MT 140	MT 250	MT 500	MT 1000	MT 2000	MT 3000	MT 4000
Storage tank capacity	l/h	120	210	440	920	1,890	2,850	3,800
Storage tank capacity	l	120	210	440	920	1,890	2,850	3,800
Diameter of storage tank	mm	640	650	850	1,260	1,460	1,770	1,650
Height of storage tank	mm	714	1,116	1,018	1,016	1,518	1,620	2,072
Height	mm	1,003	1,405	1,309	1,320	1,875	1,998	2,496
Water connection	mm	20	20	20	25	32	40	40
Extraction connection DN	mm	20	20	20	25	32	40	40
Voltage/frequency	VAC/Hz	400/50	400/50	400/50	400/50	400/50	400/50	400/50
Power consumption	kW	0.18	0.55	0.75	1.10	2.20	2.20	3.00

# Inline batching stations

## POLYMORE

### Low-maintenance and compact

POLYMORE is a range of inline polymer batching systems for the processing of liquid polymers. The liquid polymer is batched with a hose pump into the multi-zone mixing equipment with the dilution water, thereby creating a homogeneous and effective polymer solution.

- Space-saving wall installation
- Simply connect up the water, liquid polymer and supply voltage to the unit for commissioning
- Downstream installation of a maturing tank with stirrer and metering pump is possible if the maturing time is insufficient for certain applications
- Capacity range from 120 to 18,000 l/h
- Pressure-encapsulated mixing system for the effective production of polymer solutions
- Low-maintenance hose pump for the metering of liquid polymer
- Waterside equipment includes pressure reducer and solenoid valve
- Re-dilution unit with static mixer and manometer
- Automatic control
- Manual or 4–20 mA control of the hose pump



#### Technical data

POLYMORE	Max. dilution water l/h	Metering capacity of liquid polymer kg/h
POLYMORE_mini_2-0,08	120	0.04
POLYMORE_mini_3-0,6	180	0.3
POLYMORE_mini_5-0,6	300	0.3
POLYMORE_mini_5-1,2	300	0.6
POLYMORE_mini_10-1,2	600	0.6
POLYMORE_mini_10-2,4	600	1.2
POLYMORE_mini_30-3,0	1,800	1.5
POLYMORE_duo_40-6,0	2,400	2.0
POLYMORE_duo_65-9,0	3,900	4.0
POLYMORE_midi_100-12	6,000	6.0
POLYMORE_midi_160-24	9,600	10
POLYMORE_maxi_300-54	18,000	25

# Continuous flow systems

## Ultromat® ATR

### Polymer batching systems ready for operation

Ultromat® ATR are automatic triple chamber batching systems for powdered flocculant, suitable for the preparation of 0.05 to 0.5 % polymer solutions



- Systems assembled ready for operation
- Three individual cylindrical polypropylene tanks serve as batching, maturing and storage tanks
- Cylindrical storage tanks are hydraulically coupled via overflow channels
- Dry feeder with drive motor, dosing pipe heating and powder funnel with seal tight lid
- Flushing system for flushing and wetting of the powder
- Gentle mixing with two electric stirrers for constant performance
- Control cabinet for automatic control of the entire system
- Siemens LOGO control

#### Technical data

Max. extraction rate		400	1,000	2,000
Storage tank capacity	l	400	1,000	2,000
Max. dilution water	l/h	1,500	1,500	3,000
Water pressure	bar	3–5	3–5	3–5
Metering capacity of powdered polymer	kg/h	0.8–18	0.8–18	0.8–18
Length	mm	2,164	2,464	2,950
Width	mm	883	983	1,157
Height	mm	1,216	1,566	1,716
Water connection	"	1	1	1
Extraction connection DN	mm	25	25	32
Voltage/frequency	VAC/Hz	400/50	400/50	400/50
Power consumption	kW	1.5	2.6	3.2

# Applications & Industries



## Applications for polymer batching and metering stations

Our engineers draw on decades of experience that we have continually accumulated from innumerable applications worldwide for every new project.

Ultromat® systems from ProMinent were specifically designed for the manufacture of stock solutions and working solutions of synthetic polyelectrolytes and have proven themselves extensively in the field. They can be used in all applications where colloidal solids have to be economically separated from liquids.

Preferred areas of application for Ultromat® systems include:

- Treatment of drinking water
- Treatment of waste water
- Sludge de-watering
- Treatment of process water and circulation water
- Paper production
- Shipbuilding
- Chemical industry
- Power plants

# Environmental protection by intensive cleaning of drainage water in oil extraction



## “Clean separation of oil and particles”

An explosion-proof polymer batching station Ultromat® ATF 1000 Ex is part of a GEA Westfalia Separator Group drainage water system on an oil drilling platform operated by Transocean, the largest global specialist in offshore drilling. The drainage water from the platform is to a large extent contaminated with oil and cannot be discharged into the sea before it has been thoroughly de-oiled.

The Ultromat® ATF 1000 Ex from ProMinent helps to ensure that the cleaned drainage water meets the stringent international IMO (International Marine Organisation) regulations before it is discharged into the sea. Thomas Perschke, Head of Business Line Oil & Gas at GEA Westfalia Separator Group, comments on the technology in an interview.

Mr. Perschke, why are you using the Ultromat from ProMinent?

**Thomas Perschke:** “In the past we have had good experience with ProMinent and are convinced by the technology. A further advantage is that the company can also supply its systems as explosion-proof designs to meet the needs of the application.”

What is the role of the polymer batching station in this application?

**Thomas Perschke:** “The Ultromat is used to add a polymer to the drainage water as a flocculation aid, thereby increasing the size of the particles and enabling them to be separated more easily from the liquid.”

Why is this so important?

**Thomas Perschke:** “The oil and water monitors that control the cleaned drainage water at the outlet before it enters the sea cannot differentiate a droplet of oil from a solid particle with absolute certainty. The solids therefore have to be separated in advance, particularly as they are often wetted with oil.”

## Worldwide contact

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### Experts in Chem-Feed and Water Treatment

ProMinent is at home in more than 100 countries of the world. This guarantees worldwide availability of the products and short distances to the customer. We offer you the same high quality

standard in products and services worldwide. For you at your location: experience and knowhow in water treatment and chemical fluid handling are available worldwide.

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