

## Polymer Make-up Systems

FOR DISSOLVING AND DOSING SOLID AND LIQUID POLYMERS



# PolyRex

## The King of polymer units

PolyRex is a turnkey automatic machine for batch-wise preparation of powdered and liquid polymers.

PolyRex uses a highly effective three-step sequence of wetting, water acceleration and gentle but efficient agitation in the mixing tank to produce a homogeneous and activated polymer solution.

PolyRex can be supplied with a wide range of capacities and custom-made options.

### Minimized polymer usage

The batch preparation system gives outstanding characteristics compared to a continuous system. The short-circuit effect is avoided and only 100% activated polymer will pass the process.

TOMAL's proven multi-screw polymer feeder ensures reliable pulsation-free discharge with high accuracy metering. This ensures consistent batch composition.



### BENEFITS

- Batch preparation ensures a fully activated polymer solution.
- Accurate powder feeding with double-screw feeder.
- Outlet valve to prevent moisture from reaching the polymer powder.
- A highly effective static mixer in stainless steel optimizes the post-dilution water sequence.
- A large range of options and our flexibility enables us to adapt machines to specific requirements.
- Each unit is wet-tested prior to dispatch from the factory and ready for immediate use.
- Thanks to its compact design, the PolyRex unit is easy to install and commission.
- Robust construction ensures a long lifetime and reduced cost.
- User friendly controls.
- Proven design with thousands of units in use.

### FEATURES

- Multiscrew feeder with interacting feeder screws.
- Wetting system is made in stainless steel and designed for optimal dissolving of polymer.
- Automatic and easily regulated water control ensuring an undisturbed pressure feed.
- Preparation/stock tanks made from stainless steel, fitted with our highly effective agitator unit. The preparation tank is fitted with a cover and inspection hatch.
- PolyRex is easily operated via the PLC touch screen display.
- Heating device for high humidity surrounding.

## OPTIONS

- Vacuum conveyor for filling the powder hopper from small bags. Ensures a dust free working environment, without direct contact with the polymer.
- Powder hopper, 100 or 200 L volume including level sight glass.
- Powder hopper low level switch, issues an alarm signal for refill of polymer powder.
- Post dilution water equipment/static mixer, for dilution of the polymer solution to a lower concentration
- Dosing pump, type progressive cavity pump including frequency inverter drive.
- Electromagnetic flowmeter, for easy and accurate measuring of the dosing pump output.
- Water armatures and pipework made in stainless steel.
- Liquid polymer pump, for easy changeover from dry to liquid polymer.
- Big bag handling systems



## EASY AND QUICK MAINTENANCE

The inlet of the wetting unit is Teflon-coated for minimized maintenance



## TECHNICAL DATA, POLYMER

Max. preparation capacity at 0.5%, 0.25% and 0.1% stock solution concentration and 60-45 min. maturing time.

The capacities are based on a bulk density of 0,8 kg/l. The PolyRex Maxi systems are built for high-capacity requirements.

Type	Tank size	0,5% solution		0,25% solution		0,1% solution	
<b>PolyRex 0.6</b>	2 x 0.3 m <sup>3</sup>	1.0 – 1.3	200 - 260	0.5 – 0.65	200 - 260	0.2 – 0.25	200 - 250
<b>PolyRex 1.0</b>	2 x 0.5 m <sup>3</sup>	1.8 – 2.3	360 - 460	0.9 – 1.2	360 - 480	0.4 – 0.5	400 - 500
<b>PolyRex 2.0</b>	2 x 1.0 m <sup>3</sup>	5.2 – 4.1	1,040 - 820	2.1 – 2.7	840 - 1080	0.85 – 1.1	850 – 1 100
<b>PolyRex 3.0</b>	2 x 1.5 m <sup>3</sup>	5.1 – 6.5	1,020 – 1,300	2.7 - 3.4	1,080 – 1,360	1.1 – 1.4	1,100 – 1,400
<b>PolyRex 4.0</b>	2 x 2.0 m <sup>3</sup>	7.6 – 9.4	1,520 – 1,880	4.0 – 5.0	1,600 – 2,000	1.7 – 2.1	1,700 – 2,100
<b>PolyRex 5.4</b>	2 x 2.7 m <sup>3</sup>	9.5 – 11.6	1,900 – 2,320	5.1 – 6.3	2,040 – 2,520	2.1 – 2.6	2,100 – 2,600
<b>PolyRex 6.6</b>	2 x 3.3 m <sup>3</sup>	12.5 – 15.4	2,500 – 3,080	6.6 – 8.2	2,640 – 3,280	2.7 – 3.4	2,700 – 3,400
<b>PolyRex 8.4</b>	2 x 4.2 m <sup>3</sup>	15.3 – 18.6	3,060 – 3,720	8.2 – 10.1	3,280 – 4,040	3.4 – 4.3	3,400 – 4,300
<b>PolyRex MAXI 11</b>	2 x 5.5 m <sup>3</sup>	20.7 – 25.5	4,140 – 5,100	11.1 – 14.0	4,440 – 5,600	4.7 – 5.9	4,700 – 5,900
<b>PolyRex MAXI 16</b>	2 x 8.0 m <sup>3</sup>	27.0 – 32.9	5,400 – 6,580	15.0 – 18.5	6,000 – 7,400	6.4 – 8.0	6,400 – 8,000
<b>PolyRex MAXI 23</b>	2 x 11.5 m <sup>3</sup>	33.3 – 39.6	6,660 – 7,920	18.9 – 23.00	7,560 – 9,200	8.2 – 10.2	8,200 – 10,200
		Capacities (kg/h)	Capacities (l/h)	Capacities (kg/h)	Capacities (l/h)	Capacities (kg/h)	Capacities (l/h)

## TECHNICAL DATA, BIOPOLYMER

Max. preparation capacity at 1.0%, 0.5% and 0.25% stock solution concentration and 30-15 min. maturing time.  
The capacities are based on a bulk density of 0,3 kg/l.

Type	Tank size	1.0% solution		0.5% solution		0.25% solution	
PolyRex 1.0	2 x 0.5 m³	6.2 – 10.3	620 – 1,030	3.3 – 5.7	660 – 1,140	1.7 – 3.0	680 – 1,200
PolyRex 2.0	2 x 1.0 m³	12.3 – 18.1	1,230 – 1,810	6.9 – 10.9	1,380 – 2,180	3.7 – 6.0	1,480 – 2,400
PolyRex 3.0	2 x 1.5 m³	14.5 – 20.4	1,450 – 2,040	8.4 – 12.6	1,680 – 2,520	4.5 – 7.1	1,800 – 2,840
PolyRex 4.0	2 x 2.0 m³	19.0 – 25.0	1,900 – 2,500	11.6 – 16.3	2,320 – 3,220	6.5 – 9.6	2,600 – 3,840
		Capacities (kg/h)	Capacities (l/h)	Capacities (kg/h)	Capacities (l/h)	Capacities (kg/h)	Capacities (l/h)

## PolyRex metering systems

### POLYREX CLASSIC – cyclonic wetting cone

The PolyRex Classic wetting system includes a double-angled wetting cone with Teflon-coated powder inlet.  
The inlet preparation water is added tangentially, passing a reducing valve and a flow washer for safe and controlled hydration.

#### Advantages

- Unique design of wetting cone that handles fluctuations of inlet water pressure.
- Reliable and effective hydration of the polymer powder.
- Teflon-coated inlet ensures easy maintenance.
- Outlet valve to prevent moisture from reaching the polymer powder.
- A water ejector for homogenous and fully activated polymer solution.



### POLYREX OPTIMO – high efficiency mixing

Tomal's Optimo wetting system is designed for very high efficiency polymer mixing. Its unique construction has been developed especially for customers with demanding requirements.  
Optimo's sealed wetting system has a heated outlet area and a mixing pump for optimal efficiency.  
The result is an accurate, reliable and dust free preparation of polymer solution.

#### Advantages

- Pneumatic outlet valve to prevent moisture from reaching the polymer powder.
- Reliable heated wetting area that prevents condensation.
- Closed system for a clean working environment.
- Superior mixing guarantees both clear solution and low polymer consumption.
- Transparent mixing pipe for optical overview.
- Inlet at the bottom of the mixing tank eliminates foaming.



### POLYREX AERO MIX – pneumatic powder conveyance

Powders or granulates are metered in a clean, enclosed stream of air to the mixing pipe with water nozzles, mounted on top of the mixing tank.  
Including a blower for transfer of the dry polymer powder.

#### Advantages

- Dry powder storage and metering is separated from mixing system.
- Transparent mixing pipe for optical overview.



## PolyRex Big-Bag handling systems

Tomal offers a wide range of Big-Bag handling systems. Whether a crane, forklift or our integrated telfer lifting hoist is utilized, Tomal Big-Bag handling systems ensures that handling will be fast and efficient.

Tomal Big-Bag handling systems contribute to smooth operation of the polymer make-up unit by ensuring that the big bag is safely supported and firmly secured to the feeder hopper.

Use of our dust-free stainless steel connector keeps your working environment even more clean and powder free

**Telfer beam stand** with an electrically operated lifting hoist. The chain hoist transports the Big-Bag vertically and sideways to allow for easy positioning with the supplied pendant control. Slip clutch is included as standard.

Stand made in parts and assembled on site. This results in smaller packages and cost-effective shipping.



**Adjustable Big-Bag stand** includes a lifting yoke for handling by forklift or hoist. The operator lifts the Big-Bag into the stand and keeps it hanging during the emptying. As the upper support is adjustable it gives a possibility to adapt different big bag sizes and have them stretched for optimized emptying.



### **Dust-free connector for Big-Bags**

This option is a connector that ensures a clean, dust-free environment by providing a secure attachment of the Big-Bag outlet spout to the powder hopper. Powder that would otherwise escape into the working environment is carried away to a filter or other containment device.





# PolyRex Liquid

## Liquid polymer make-up unit

When the application requires batch processing of liquid polymer, the PolyRex Liquid is the right choice.

PolyRex Liquid is a turn-key automatic machine for batch-wise preparation and metering of polymer solutions from concentrated polymer.

PolyRex Liquid is designed to be as user-friendly and maintenance free as possible. The unit is easily controlled via the PLC touch screen display.



Inlet armatures including the high-effective injection nozzle.



### BENEFITS

- Batch preparation ensures a fully activated solution.
- Reliable pump for the concentrated polymer for safe feeding and easy maintenance. Low speedlong lifetime.
- High energy mixing of polymer concentrate via the injection nozzle and water ejector.
- Each unit is wet tested prior to dispatch from the factory and ready for immediate use.
- Due to its compact design, the PolyRex Liquid unit is easy to install and commission.

### FEATURES

- Liquid polymer feed pump, type progressive cavity pump.
- Injection nozzle for adding the liquid polymer
- Water ejector for optimal dissolving of polymer.
- Preparation/stock tanks made from stainless steel, fitted with our highly effective agitator unit. The preparation tank is fitted with a PVC cover and inspection hatch.
- Electrical equipment that ensure that PolyRex Liquid is easily operated via the PLC touch screen display.
- The tanks and the agitator are made of stainless steel and are surface-treated. The water armatures are made of brass and the piping is in PVC. It is also possible to get the armatures and piping in stainless steel AISI316.

### TECHNICAL DATA PolyRex Liquid

Max. preparation capacity at 0.5%, 0.25% and 0.1% stock solution concentration, 50% Liquid product and 30-15 min. maturing time.

Type	Tank size	0.5% solution		0.25% solution		0.1% solution	
PolyRex Liquid 1.0	2 x 0.5 m <sup>3</sup>	3.0 – 5.3	600 – 1,060	1.7 – 2.9	680 – 1,160	0.7 – 1.2	700 – 1,200
PolyRex Liquid 2.0	2 x 1.0 m <sup>3</sup>	6.4 – 9.6	1,280 – 1,920	3.5 – 5.6	1,400 – 2,240	1.5 – 2.5	1,500 – 2,500
PolyRex Liquid 3.0	2 x 1.5 m <sup>3</sup>	7.7 – 11.2	1,540 – 2,240	4.3 – 6.7	1,720 – 2,680	1.9 – 3.0	1,900 – 3,000
PolyRex Liquid 4.0	2 x 2.0 m <sup>3</sup>	10.4 – 14.1	2,100 – 2,820	6.1 – 8.8	2,440 – 3,520	2.7 – 4.1	2,700 – 4,100
		Capacities (kg/h)	Capacities (l/h)	Capacities (kg/h)	Capacities (l/h)	Capacities (kg/h)	Capacities (l/h)

## Polymore

### In-line polymer make-up unit

Polymore provides a complete in-line dissolving and dosing system for liquid concentrated emulsion or dispersion polymer.

It dissolves and meters continuously the quantity of required polymer.

A wide product range ensures that there will always be a Polymore that meets your requirements.



#### BENEFITS

- **Peristaltic (tube) metering pump**  
less maintenance, no calibration and only one control for pump capacity
- **Large non-transparent mixing chamber**  
long retention time. The polymer solution is undamaged by UV-light
- Three mixing zones that gives an outstanding homogeneous and activated polymer solution
- **Easily accessible liquid polymer injection nozzle**  
inspection and maintenance is quick and easy
- Space efficient for easy installation. No need for a dosing pump
- Easy to start-up and commissioning



Quick and easy maintenance of injection nozzle.

#### TECHNICAL DATA Polymore

Polymore type		Max. design capacity 100% polymer kg/h	Max. concentrated polymer l/h	Max. dilution water l/h	Max. cap. sec.	Min. cap. sec.
Mini	2 - 0.08	0.04	0.08	120	210	720
Mini	2 - 0.2	0.1	0.2	120	210	720
Mini	3 - 0.6	0.3	0.6	180	150	480
Mini	5 - 0.6	0.3	0.6	300	90	270
Mini	5 - 1.2	0.6	1.2	300	90	270
Mini	10 - 1.2	0.6	1.2	600	45	120
Mini	10 - 2.4	1.2	2.4	600	45	120
Mini	30 - 3.0	1.5	3.0	1,800	45	120
Duo	40 - 6.0	2.0	6.0	2,400	90	270
Duo	65 - 9.0	4.0	9.0	4,200	60	330
Midi	100 - 12	6.0	12.0	6,000	120	660
Midi	160 - 24	10.0	24.0	9,900	60	330
Midi	175 - 38	15.0	38.0	10,500	90	450
Midi	300 - 54	25.0	54.0	18,000	60	240

## Reference units



PolyRex installation in China



Installation in Sweden



Wastewater plant in Norway

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