



# EUROWATER

A GROUP OF CO-OPERATING EUROPEAN WATER TREATMENT SPECIALISTS

DEMINERALISATION

## FULLY AUTOMATIC DEMINERALISERS TYPES DME, DMHE, DMCE



Type DMHE 2002-F

## FULLY AUTOMATIC 2-COLUMN UNITS CO-CURRENT REGENERATED SERIES DME AND DMHE

- **PACKAGED MODULAR DESIGNED  
DEMINERALISATION PLANTS**
- **SKID-MOUNTED, COMPACT DESIGN \***
- **ADVANCED, ELECTRONIC CONTROL UNIT WITH  
PROGRAMMING SECTION**
- **CONTINUOUS QUALITY SURVEILLANCE WITH  
ALTERNATIVE CHOICE OF QUALITY LIMIT AND  
AUTOMATIC ALARM FUNCTIONS.**
- **SAFE LOW-VOLTAGE CONTROL, OPERATES ON 12 V  
SUPPLY**
- **CIRCULATION FOR PREVENTION OF UNWANTED  
STANDSTILL PHENOMENA**
- **COMPETITIVE PLANT INVESTMENTS BASED ON  
STANDARDIZED PRODUCTION**



Type DME 62-F\*

\* Alternative: without frame

### SERIES DME AND DMHE

Series DME and DMHE consist of 9 basic modules. The plants are co-current regenerated, meaning that water and regeneration chemicals are led the same way through the ion exchangers.

### SERIES DMCE

Series DMCE consists of 3 basic modules. The plants are counter-current regenerated, meaning that water and regeneration chemicals are led in opposite directions through the ion exchangers. Apart from this, the series are based on a principle similar to that of series DME and DMHE, cf. rear page of this brochure.

### THE 2-COLUMN PRINCIPLE

The unit consists of a column with strongly acid cation resin followed by a column with strongly alkaline anion resin, regenerated with hydrochloric acid and sodium hydroxide, respectively. During passage through the columns, the dissolved salts in the water are exchanged with hydrogen and hydroxyl ions, forming water.

### PLANT DESIGN

The basic module is a fully automatic, quality-controlled skid-mounted 2-column unit. It consists of two resin tanks with ion exchange materials, control panel type DME and an internal pipe system with conductivity measuring cell and automatic valves. Both resin tanks have a special EUROWATER 4-cycle valve, ensuring correct treatment of the resins both during service and regeneration.

### REGENERATION

When the plant capacity is exhausted, the plant is regenerated with hydrochloric acid and sodium hydroxide. The programmed regeneration consists of the following cycles: Backwash, draw of acid or sodium hydroxide, rinse. The regeneration programme can be individually adjusted in accordance with raw water quality and working conditions.

### CIRCULATION

Very low water consumption, or standstill, will cause an increase in the conductivity and thereby unnecessary regenerations. The plant is supplied with a circulation pump, eliminating these problems.

### STORAGE TANKS FOR ACID AND SODIUM HYDROXIDE

The plant draws acid and sodium hydroxide direct from the original containers. If wanted, the plant may be delivered with special polyethylene storage tanks.

### PLANT CAPACITY

The basic capacity is valid for ordinary clean waterworks water with a moderate salt content, and states the quantity of water - with a total salt content equivalent to one degree of German hardness (1°GH) - which can be demineralised per regeneration. The actual capacity per regeneration is found by dividing the basic capacity by the salt content in the water, measured in equivalent hardness.

### WATER QUALITY

The conductivity of the demineralised water is normally below 20 microsiemens. This quality is satisfactory for most industrial processes. If demineralised water of a higher quality is wanted, the plant can be combined with a mixed-bed unit.

### DRAIN WATER NEUTRALIZATION

If the acid and alkaline drain water from the plant is to be neutralized, the problem can be solved in different ways.

### CONTROL PANEL, TYPE DME

The electronic control panel is supplied with 12 V from a transformer. It comprises 12 time-adjustable cycles to control the regeneration of the plant. Impulses for remote alarm are attainable, and an external regeneration initiation, e.g. from a timer, can be connected.

### CONDUCTIVITY METER

The conductivity meter continuously indicates the quality of the demineralised water. The measuring range is 0-100  $\mu\text{S/cm}$ . According to need, the quality limit can be set between 0.1 and 30  $\mu\text{S/cm}$ .

### ALARM FUNCTIONS

An alarm is activated, if the plant goes through a regeneration without bringing the conductivity of the water below the quality limit chosen. Three further alarms may be connected to the panel.



DME control panel

### QUALITY SURVEILLANCE

The plant automatically discontinues the water supply, if the conductivity of the water exceeds the preset, adjustable quality limit, and a regeneration automatically starts. When a quality level below the quality limit is re-established, the plant automatically returns to service. Quality surveillance provides the most economic operation, since it allows for complete utilization of the plant capacity.

### METER CONTROL WITH QUALITY SURVEILLANCE

If the demineralised water of the two-column plant needs polishing in a mixed-bed unit, the control is changed to meter control, meaning that regenerations are released according to a pre-calculated capacity. This capacity is calculated for the regeneration to set in right before breakthrough of carbonic and silicic acid. The maximum utilization of the mixed-bed plant is thereby achieved.

### DUPLEX CONTROL

If a continuous water supply is required, two basic units are needed. By connecting the control panels, an automatic change from one unit to the other is achieved. The first unit supplies demineralised water, while the second regenerates. After completed regeneration, the newly regenerated unit is placed in stand-by position, until the quality limit is exceeded by the unit in service. An established plant can at any time be extended to function as a duplex plant by the addition of an extra basic unit.

### SPECIFICATIONS - SERIES DME AND DMHE

TYPE	Flow Rate m <sup>3</sup> /h	Pressure Loss bar	Basic Capacity m <sup>3</sup> °GH	Regenerant Consumpt.		Dimensions Length x Depth x Height mm mm mm	Connections		
				30% HCl 	30% NaOH 		Inlet " BSP	Outlet PVC DN/mm	Drain PVC DN/mm
DME 42-F	1	0.8	80	10	8	1000 x 450 x 1805	3/4	20/25	15/20
DME 62-F	1.5	0.8	115	15	13	1000 x 450 x 1805	3/4	20/25	15/20
DME 362-F	2	1.4	200	26	23	1300 x 600 x 2070	3/4	20/25	15/20
DME 602-F	2.5	1.2	300	37	32	1300 x 600 x 2070	3/4	20/25	15/20
DMHE 602-F	5	1.2	300	37	32	1480 x 600 x 2070	1 1/2	40/50	15/20
DMHE 902-F	7	1.3	400	50	44	1880 x 800 x 2070	1 1/2	40/50	15/20
DMHE 1202-F	9	1.4	575	72	62	1880 x 800 x 2070	1 1/2	40/50	15/20
DMHE 1802-F	14	1.6	920	116	100	2180 x 950 x 2070	1 1/2	40/50	15/20
DMHE 2002-F	14	1.8	1265	160	137	2180 x 950 x 2550	1 1/2	40/50	15/20

\* 1°GH corresponds to 2.8 mval/l. The capacity per regeneration is calculated by dividing the basic capacity by the salt content of the inlet water measured in equivalent hardness.

Operating pressure: 2-6 bar. Water temperature: max. 35°C. (for certain fillings lower). Power supply: 230/12 V, 50 Hz.

## FULLY AUTOMATIC 2-COLUMN UNITS COUNTER-CURRENT REGENERATED SERIES DMCE

- MINIMUM CONSUMPTION OF CHEMICALS
- OPTIMUM WATER QUALITY
- LOW SILICIC ACID CONTENT IN PROCESS WATER
- ECONOMIC AT COMPREHENSIVE WATER CONSUMPTION

### SERIES DMCE

A EUROWATER counter-current regenerated two-column plant has the same advantages as applies to series DME and DMHE. However, series DMCE provides regeneration with approximately half the application of chemicals and produces a similar or improved water quality.

### COUNTER-CURRENT REGENERATION

During operation the raw water passes through the resin from the bottom of the tank, whereas during regeneration the chemicals are added at the top of the tank. Hereby a highly regenerated zone is created, which polishes the water.

### WATER QUALITY

By plant regeneration according to the counter-current principle, a considerably better conductivity is achieved than by co-current regeneration. When using demineralised water, high quality demands concerning silicic acid contents are met.



Type DMCE 361/601-F

### SPECIFICATIONS - SERIES DMCE

TYPE	Flow Rate m <sup>3</sup> /h	Pressure Loss bar	Basic Capacity m <sup>3</sup> °GH	Regenerant Consumpt.		Dimensions			Connections		
				30% HCL l	30% NaOH l	Length	Depth	Height	Inlet " BSP	Outlet PVC DN/mm	Drain PVC DN/mm
DMCE 361/601-F	3	1.5	300	16	16	1480	600	2090	3/4	40/50	20/25
DMCE 601H/1201H-F	4.5	1.5	720	36	37	1880	800	2590	1 1/4	40/50	20/25
DMCE 1201H/2001-F	7.5	1.5	1380	68	70	2180	950	2590	1 1/2	40/50	20/25

\* 1°GH corresponds to 2.8 mval/l. The capacity per regeneration is calculated by dividing the basic capacity by the salt content of the inlet water measured in equivalent hardness.

Operating pressure: 2.5-6 bar. Water temperature: max. 35°C. (for certain fillings lower). Power supply: 230/12 V, 50 Hz.