

ELECTRODIALYSIS PILOT UNIT P1 EDR-Y/COM

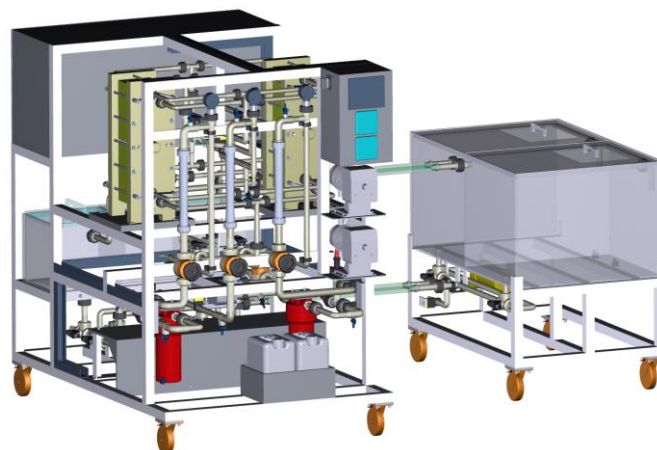
BASIC DESCRIPTION

Pilot unit P1 EDR-Y is used for pilot tests of electro dialysis (ED) process. Pilot tests are necessary prior industrial scale application design for validation of proposed technology and scale-up data gathering. Unit can be also used for pilot test of electro dialysis with bipolar membrane (EDBM) in EDBM module.

Unit P1 EDR-Y can work in batch, feed-and-bleed or continuous mode, diluate and concentrate circuits can work in different modes. Unit can be equipped with up to two electro dialysis modules with electrodes polarity reversal ability. Solutions are circulated between internal or external vessels and electro dialysis modules while pump power is controlled by frequency changers according to given flowrate or pressure. Process temperature is controlled automatically by heat exchanger. pH of diluate or concentrate is controlled automatically by two chemical dosage pumps. Concentrate conductivity is controlled automatically by water dosage. Safety filters avoids stack clogging by suspended solids. All process parameters (temperature, conductivity, pH, current, voltage) are visualized and logged. Remote access is used to control the unit and download data.

UNIT PARTS

- ED module(s): EDR-Y/25-0.8 or EDR-Y/50-0.8 with electrodes suitable for polarity reversal
- 3 circulation pumps: diluate (D), concentrate (C) and electrode solution (E)
- 2 safety cartridge filters (D, C)
- heat exchanger
- 2 chemical dosage pumps for automatic pH regulation and for unit cleaning (CIP)
- 3 internal vessels (D, C, E)
- 2 external product vessels with covers
- 2 pumps for product discharge from external vessels
- electrical switchboard with PLC and touchscreen control
- DC drive



P1 EDR-Y UNIT SPECIFICATIONS

Parameter	Value
Max. number of ED modules	2 pcs
Internal vessels number and volume	3 pcs per 15 l
External vessels number and volume	2 pcs per 120 l
DC drive	2 x 300 V / 24 A
Input power	max. 6.0 kW
Unit dimension (l x w x h)	1650 x 1080 x 1610 mm
External vessels dimension (l x w x h)	1166 x 943 x 1043 mm
Weight including external tanks without ED module	375 kg

MODULE SPECIFICATIONS

Module type	EDR-Y/25-0.8	EDR-Y/50-0.8	EDBM-Y/2x25-0.8	EDBM-Y/2x50-0.8
Module effective membrane area	2.04 m ²	4.04 m ²	2.04 m ²	4.04 m ²
Single membrane effective area	400 cm ²			
Cells	25 pcs	50 pcs	25 pcs	50 pcs
Anion-exchange membrane RALEX [®] AM(H)-PES RALEX [®] AM(H)-PP	25 pcs	50 pcs	0 pcs	0 pcs
Cation-exchange membrane RALEX [®] CM(H)-PES RALEX [®] CM(H)-PP	26 pcs	51 pcs	26 pcs	51 pcs
Bipolar membrane RALEX [®] BM	0 pcs	0 pcs	25 pcs	50 pcs
Spacer thickness	0.8 mm			
Electrodes (anode, cathode), Ti+Pt	2 pcs			
Module hydraulic connection	Ø 20 mm			
Module size (l x w x h)	243 x 210 x 608 mm	313 x 216 x 611 mm	240 x 216 x 623 mm	315 x 210 x 620 mm
Empty module weight	26 kg	30 kg	26 kg	30 kg

OPERATING AND LIMITING MODULE WORKING PARAMETERS

Module type	EDR-Y/25-0.8	EDR-Y/50-0.8	EDBM-Y/2x25-0.8	EDBM-Y/2x50-0.8
Usual voltage	25-40 V	50-75 V	25-50 V	75-100 V
Max. voltage	40 V	75 V	50 V	100 V
Max. current	10 A	10 A	12 A	12 A
Usual flowrate D, C	0.35-0.5 m ³ /h	0.7-1.0 m ³ /h	0.35-0.5 m ³ /h	0.7-1.0 m ³ /h
Min. flowrate D, C	0.3 m ³ /h	0.6 m ³ /h	0.3 m ³ /h	0.6 m ³ /h
Usual flowrate E	0.4-0.6 m ³ /h	0.4-0.6 m ³ /h	0.4-0.6 m ³ /h	0.4-0.6 m ³ /h
Min. flowrate E	0.2 m ³ /h	0.2 m ³ /h	0.2 m ³ /h	0.2 m ³ /h
Usual temperature	20-30 °C	20-30 °C	20-30 °C	20-30 °C
Min./Max. temperature	10-35 °C	10-35 °C	10-35 °C	10-35 °C