

ELECTRODIALYSIS LABORATORY UNIT P EDR-Z/4x

BASIC DESCRIPTION

Laboratory unit P EDR-Z/4x is multifunctional four-chambers equipment suitable *for laboratory tests* of electro dialysis membrane process, electro dialysis-metathesis or electro dialysis with bipolar membranes. It enables to carry out engineering activity focused on research or technology work in the course of treatment of various solutions.

The unit can be equipped with two types of electro dialysis (ED) modules with 5 or 10 working cells: four compartment module EDR-Z/4x or module EDBM-Z with bipolar membranes.



UNIT PARTS

- ED module: compartment module with bipolar membranes **EDBM-Z/10-0.8** or four compartment module **EDR-Z/4x10-0.8**
- Tanks for products - diluates (D1, D2), concentrates (C1, C2) and electrode solution (E)
- Flow-meters of diluate, concentrate and electrode circuit: 10-100 l/h
- Chemically resistant pumps of diluates, concentrates and electrode solution
- Switch board with DC power supply

MODEL WITH BUILT-IN MEASUREMENT AND CONTROL

The unit includes flow meters, conductivity sensors, pH sensors, temperature sensors, SW for continuous recording and control. It also measures electrical current and voltage. The measured parameters are stored in USB and can be transmitted to PC connected via ethernet. The unit can be controlled either directly via touch screen or remotely via a PC connected to the network.

APPLICATION EXAMPLES

- production of acids and bases by EDBM in two or three compartment
 - o organic acids: ex. formic, citric, gluconic, succinic, lactic, propionic, fumaric, amino acids
 - o inorganic acids: ex. sulfuric
 - o inorganic hydroxides: ex. sodium, potassium
- desalination/concentration by EDR
- cation and anion exchange in two salts by EDM

P EDR-Z UNIT SPECIFICATIONS

Parameter	EDR-Z/4x
Max. number of ED modules	1 pc
Reservoir volume	27 l
Tanks volume D, C, E	5x2.5 pcs/l
DC power supply	40V / 5A
Unit dimension (l x w x h)	1220 x 1100 x 435 mm
Unit weight without ED module	88 kg

MODULE SPECIFICATIONS

Parameter	EDBM-Z/3x10-0.8	EDR-Z/4x10-0.8
Effective area of ED module	1984 cm ²	2624 cm ²
Effective area of one membrane	64 cm ²	64 cm ²
Number of membrane cells	10 pcs	10 pcs
Anion-exchange membrane RALEX® AM(H)-PES	-	20 pcs
RALEX® AM(H)-PP	10 pcs	-
Cation-exchange membrane RALEX® CM(H)-PES	-	21 pcs
RALEX® CM(H)-PP	11 pcs	-
Bipolar membrane (PP)	10 pcs	-
Spacer thickness	0.8 mm	0.8 mm
Electrodes (anode, cathode), Ti +Pt	2 pcs	2 pcs
Hydraulic connection inner/outer	∅ 8/12 mm	∅ 8/12 mm
ED module dimension (l x w x h)	177 x 260 x 100 mm	192 x 260 x 100 mm
ED module weight	1.7 kg	1.8 kg

OPERATING AND LIMITING MODULE WORKING PARAMETERS

Parameter	EDBM-Z/3x10-0.8	EDR-Z/4x10-0.8
Operating voltage (on membrane cell)	3 V	1 – 2 V
Max. voltage	40 V	40 V
Max. electrical current	3 A	3 A
Operating flow rate D, C	35 – 60 l/h	45 – 65 l/h
Min. flow rate D, C	25 l/h	25 l/h
Operating flow rate E	50-60 l/h	50-60 l/h
Min. flow rate E	20 l/h	20 l/h
Operating temperature	20-30 °C	20-30 °C
Min./ Max. temperature	10/35 °C	10/35 °C