

Pilot plant for heavy metal recovery via membrane electrolysis



DIMENSIONS

Dimensions	approx. 2400 x 1000 x 1700 mm (L x B x H)
Weight	approx. 350 kg
Material (wetted parts)	PVDF / PTFE / FPM / EPDM / PP / PVC / glass / PE / brass and stainless steel group 316A)
IP protection class	IP 54

ELEKTRICAL DATA

Connection for power supply	400V / 50 Hz / 3-phase / 32 A-CEE
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DATA

Storage tanks	<ul style="list-style-type: none"> 1 bright plating bath (approx. 35 l, PE) 1 catolyte (approx. 35 l, PE) 1 anolyte (approx. 35 l, PE) 1 acid (approx. 35 l, PE) 1 metal-containing solution, approx. 60 l, PE) 1 storage (metal-containing solution, approx. 60 l, PE) 1 dissolving incl. stirrer (approx. 60 l, PE) 1 acid storage (approx. 100 l, PE)
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Membrane electrolysis cell	closed anode compartment anode surface approx. 1000 cm ² active membrane area approx. 1000 cm ² extension kit for cathode chamber
Pumps	2 transfer pumps (air operated membrane pump, max. 3,4 m ³ /h, 0 – 7 bar) 4 circulation pumps (centrifugal pump, max. 80 l/min, max. 0,5 bar) 1 bright plating bath pump (peristaltic pump, 0 – 4 l/h) 1 transfer pump (peristaltic pump, 0 – 75 l/h)
Temperature range	max. 60 °C
Pressure range	max. 1,0 bar
Immersion heater	1000 W
Exhaust air	Low pressure fan (max. 190 m ³ /h)
Fresh air	Low pressure fan (max. 96 m ³ /h)

(The specified technical data are maximum values. They do not coincide all at the same time!)

SENSORS	MEASURING RANGE	QUANTITY
Pressure	0 - 1 bar	(3 pieces)
Volume flow (rotameter)	10 – 100 l/h 50 – 500 l/h	(2 pieces) (2 pieces)
Conductivity measurement (acid and metal-containing solution)	10 – 1000 mS/cm	(2 pieces)
Level control	guided microwave	(6 pieces)
pH-measurement (catolyt and metal-containing solution)	pH-glass electrode	(2 pieces)
Temperature (PT 100)	0 – 100 °C	(1 piece)
Flow monitor	0,03 – 3 m/s	(1 piece)

FIELD OF USE

Experiments to separate metal from metal-containing solutions

Optimization of process parameters

Long-term experiments for piloting

Processing of larger quantities on pilot plant scale

