PCI Membranes
Filtration Group®

BRO/BUF 10

A laboratory pilot plant designed for process development, membranes scale up testing, quality assurance and small-scale production.

A simple self-contained unit of minimum hold-up volume (15 Liters) with electric motor, CAT 1051 high pressure pump, membrane module, heat exchanger, pressure & temperature sensors, flowmeters, ABB data logger and a feed tank (105 Liters). All mounted on a welded 304 stainless-steel framework.

Application Range

Electrical Power Supply	Connections
400 Volts	Pump is fed directly from a built-in tank
3-phase (5 pins)	HE in/out cooling water: 1/2” OD hose
50 Hz. 32 Amp	Permeate & Shroud outlet: 1/2” OD hose
Motor rating: 5.5 KW	Concentrate outlet UF: 3/4” OD hose
	Concentrate outlet RO: 1/2” OD hose

Size & Weight

Dimension			Unit & Package	Unit Only
Length	Height	Width		
235 cm	193 cm	90 cm	520 kg	350 kg

Framework

Welded stainless-steel frame fabricated from a high-grade 304 SS for corrosion resistance, high rigidity and temperature resistance.

Module

4 ft (1.2 m) B1 Module

Comprised of 18 perforated stainless-steel tubes in the form of a shell & tube, each tube fitted with a membrane element. The module is designed with a series flow end caps; connecting all 18 tubes in series.

- Membrane area: 0.88 m^2
- Module weight: 14.4 kg
- Hold-up volume: Tubeside 2.8 L, Shroud-side 6.7 L
- Membrane tube ID: 12.7 mm

Heat Exchanger (HE)

Shell & Tube Type Heat Exchanger 2 Ft (0.6 M)

Process fluid is piped from the outlet of the pump through all 18 tubes in series within the heat exchanger while cooling water passes at low pressure (1-3 bar) through the shroud (shell) side. Cooling media flow could be up to 20 L/min.

Module tube side mechanical operating limit

- Max operating pressure: up to 64 bar
- Max pressure drop: 10 bar
- Max operating temperature: up to 80°C

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Pump

- A CAT 1051 HP (piston type) is fitted.
- Capable of a flow rate between 6 – 38 L/min.
- Flow can be adjusted via a potentiometer on the panel.

Motor & Drive Guard

- 5.5 KW motor with 3 phase, 1 earth and 1 neutral (5 pins).
- TEFC foot mounted motor with simple adjustment for drive belt tensioning and alignment. A cover for the toothed belt drive between pump and motor is also fitted.

Pressure Relief Valve

- The plant can either be fitted with a pressure relief valve set at 70 bar for NF/RO or 20 bar for MF/UF operation.

Pulsation Damper

A pulsation damper or accumulator is fitted to the pump outlet. Charge with Nitrogen as follows:

- 40 bar for RO.
- 6 bar or below for MF/UF operation (depending on the operating pressure).

Strainer

- A Pot Filter strainer (2 mm) is fitted to the pipe work to protect the pump and modules.

Flowmeter

- 2 Magnetic GMTX Variable Area flowmeters are installed on the unit: one on the feed line and the other installed on the retentate line.

Pressure & Temperature Sensor. Pressure Control Valve

- Pump outlet pressure, module inlet and outlet pressure are constantly display on independent Wika Presostat PSD 30 Pressure switches.
- Outlet temperature from heat exchanger is display on a Wika TR30 unit.
- A hand operated needle valve for NF/RO operation or a diaphragm valve for MF/UF operation is used to create the back pressure.

Safety

- The unit is designed to the principles of Supply of Machinery (Safety) Regulations 1992 and are safe if operated in accordance with the procedures in the operating manual.

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