

Membrane Filtration Pilot Units

For pilot-scale and production membrane processing



DESCRIPTION

Membrane Specialists offers small-scale membrane plants for pilot processing of a variety of aqueous solutions using reverse osmosis (RO), nanofiltration (NF), or ultrafiltration (UF). Available in a configuration intended to provide maximum testing versatility, or in an economical standard design, the units are supplied with all the instrumentation necessary to collect scale-up data accurately and easily. Customization is available to allow the plants to be used for small production requirements in continuous, semi continuous or batch operation.

A wide range of membranes is available to suit almost any application. Membrane Specialists can recommend the most suitable membrane and module type for your application. We can also provide test programs, and from the data collected, design full-scale plants and supply budget or firm quotations.

PUMP AND PIPING

The feed pump is a stainless-steel positive-displacement pump, usually variable speed, capable of producing a maximum operating pressure of 1000 psi (69 bar). Pipe-work in contact with feed fluid is made of hygienic AISI-316 stainless steel. Options can include additional pressure, temperature and flow indicators, data logging, and special piping arrangements to allow recycling of fluids for high recovery levels and other special needs. Membrane housings may limit maximum operating pressure to below 1000 psi.

HEAT EXCHANGERS

A heat exchanger is provided maintain the temperature of the recycled liquor at the desired value. The shell and tube design is constructed of AISI-316 stainless steel and removes heat generated by the pump.

CLEANING

All membranes are easy to clean by simple clean-in-place procedures at low pressures. An optional cleaning tank can be supplied.

MEMBRANES AND MODULES

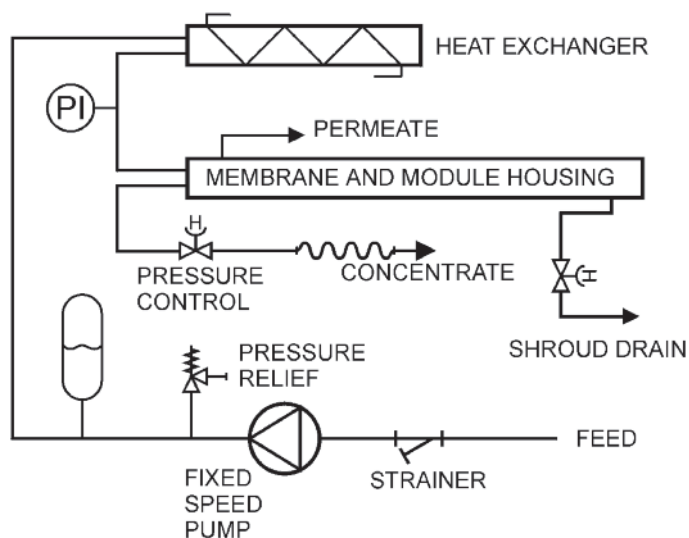
The unit can be fitted with different membranes and modules to suit a range of applications. These can include:

- A single B1 tubular module 4 ft (1.2 m) long, with 9.7 ft² (0.9 m²) of membrane area (all applications)
- Up to six 12 ft (3.6 m) long B1 modules, giving a total area of 168 ft² (15.6 m²) for RO and NF applications only.
- Up to two 2.5 in-(63.5 mm) diameter spiral elements and housings in series.

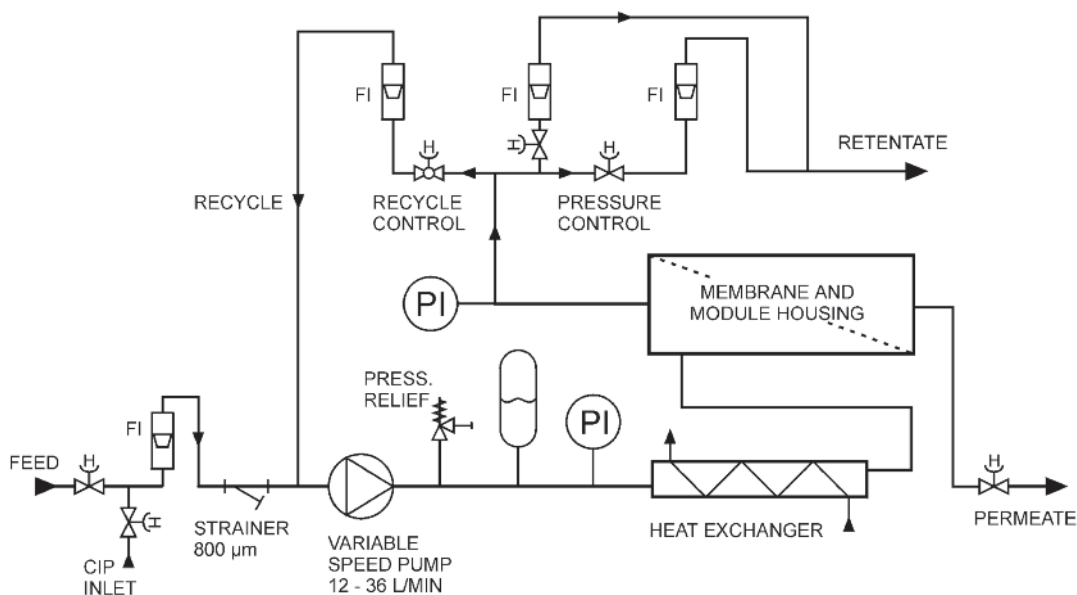
RENTAL UNITS

Membrane Specialists maintains a selection of pilot plants that can be rented for short-term trials. If application or process development requirements demand special capabilities, however, we can design and build a custom unit for purchase, which exactly matches your needs.

Typical Flow P & ID for a standard RO pilot plant



Typical Flow P & ID for a versatile RO pilot plant



Membrane information

Membrane Specialists offers a full range of membranes for applications in many different industries. Customized process solutions are available using reverse osmosis, nanofiltration, ultrafiltration and open ultrafiltration and all available membrane geometries including polymeric tubular, spiral-wound and hollow-fiber membranes, as well as inorganic ceramic and stainless-steel membranes. Contact us for detailed information on the operating and retention characteristics of membranes and modules available for both piloting and full-scale production.

