

## Membrane Filtration

### Model T Membrane Filtration Pilot Plant

The GEA Filtration Model T pilot plant is a pilot-scale plant designed for application development of ceramic microfiltration and ultrafiltration. The unit can be configured for evaluation of separation characteristics of up to three different membrane porosities in parallel or it may be used to optimize process parameters once a particular porosity of membrane has been determined. The Model T is specially designed to allow for very precise separations utilizing state-of-the-art, gradient layered ceramic membranes operating under tightly controlled transmembrane pressure. Alternately, it can be used for more conventional ceramic membrane filtration applications.

The sophisticated control system design allows for convenient manipulation of a variety of process variables including cross-flow velocity, operating pressure, temperature and transmembrane pressure making the plant uniquely suited to complex molecular separations.



#### Standard Features

- 30 gallon balance tank
- Single stick ceramic housing, 0.2 to 0.5 M<sup>2</sup> membrane area
- Feed pump, rotary-lobe type with 1 HP VFD motor
- Recirculation pump, centrifugal type with 5 HP motor
- Heat exchanger, tubular type
- Pressure indicators, feed and recirculation
- Temperature indicator
- Flowmeters, magnetic type for retentate and permeate streams
- Assembled on a tubular stainless steel base with casters
- Control panel



#### Unique Features

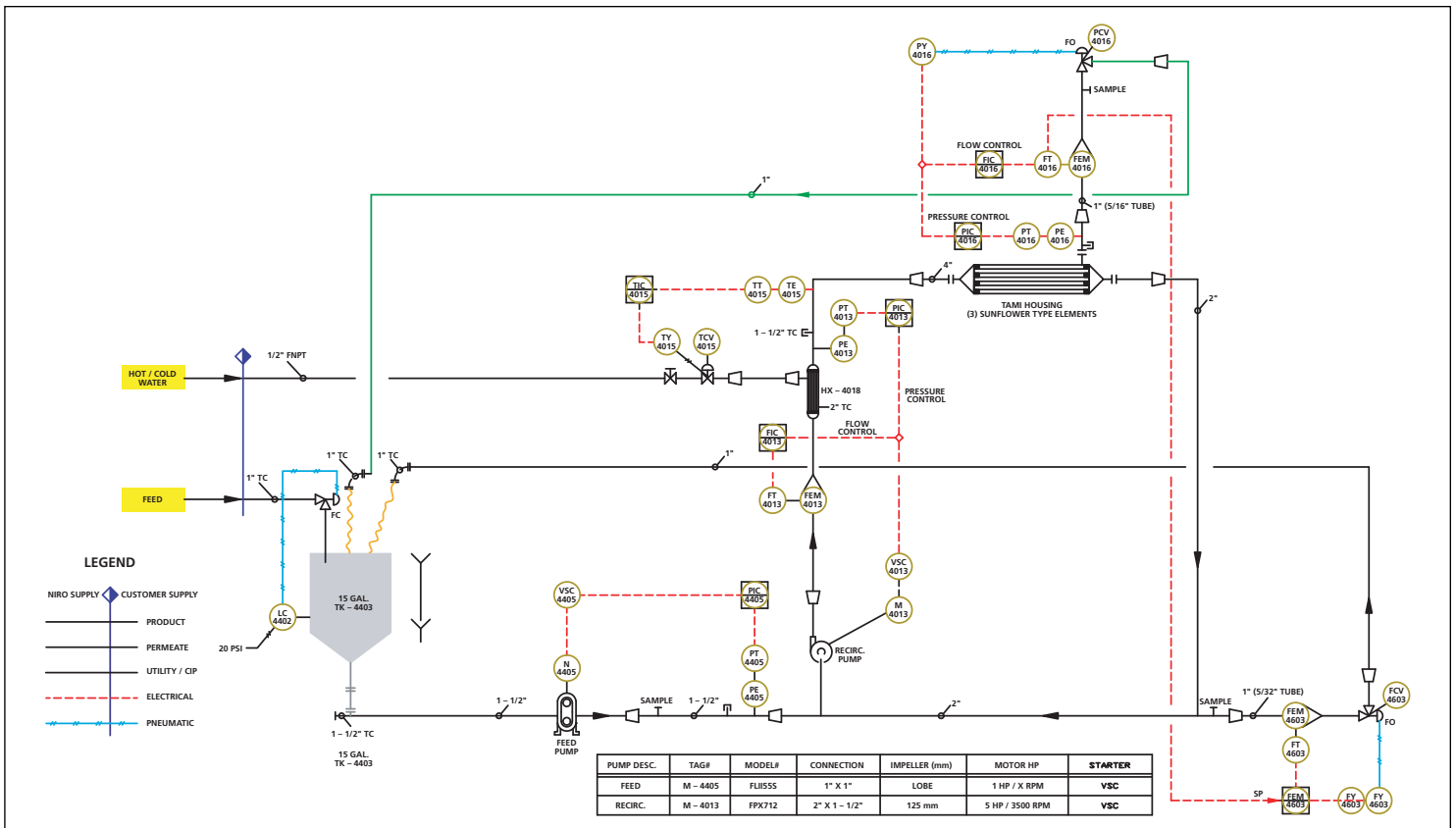
- Designed and built to take advantage of third generation, gradient layer ceramic membranes
- Excellent scale-up capabilities and accurate production scale simulation
- Flexible control scheme for simple and wide variability of key process parameters
- Automatic control scheme for continuous operation and automatic CIP (cleaning-in-place)

#### Operating Conditions

- Pressure up to 100 psi (7 bar)
- Temperature up to 180 degF (80 degC)
- Flow up to 5 gpm (1.1 m<sup>3</sup>/hr)

#### Optional Features

- Triple stick housing with individual permeate off-takes
- Larger module to accommodate up to 1.5 M<sup>2</sup> of membrane area
- Steam sterilization
- Hazardous area electrical construction



GEA Filtration is part of GEA, an international process engineering leader in the life sciences industry with more than 150 companies operating worldwide. As a team member with other technology leaders within the group, GEA Filtration is uniquely positioned to provide both customized membrane filtration plants as well as complete process lines specifically tailored to each customer's individual needs and requirements.

GEA Filtration is world renowned for its design of the most advanced cross-flow membrane filtration systems available, namely Reverse Osmosis (RO), Nanofiltration (NF), Ultrafiltration (UF) and Microfiltration (MF). We also offer a wide range of system configurations and membrane types to provide the customer with the most technically proficient and cost effective solution for each application.

For more information on the capabilities of our pilot plants, consult our website at [www.geafiltration.com](http://www.geafiltration.com).

## Utility Requirements

- Floor Space 5' x 8 1/2' x 8 1/2'
- Shipping Wt. 2400 lbs.
- Voltage/ph 440V, 3 ph
- Total HP 6
- Feed Line Fitting 1 1/2" TC
- CIP Fitting 1 1/2" TC
- CIP Flow 5 - 10 gpm
- Drain Fitting 1 1/2" TC
- Tank Drain 1 1/2" TC
- Product Outlets 1 1/2" TC, FLEX
- Sealwater In n/a
- Sealwater Out n/a
- Sealwater Flow n/a
- Cooling In 3/4" NPT
- Cooling Out 2" TC
- Cooling Flow 5 GPM
- Steam In 3/4" NPT
- Steam Out 2" TC
- Steam Req. Up to 100 pph, 50 psi
- Air Inlet 1/4" POLY
- Air Req. 80-psi, 2 scfm
- Caster Mounted YES



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