



PERVATECH[®]

Datasheet

PERVATECH CONTINUOUS MODE

PERVAPORATION PILOT PLANT CP0736-2 (2 m²)

Pervatech provides pilot scale continuous mode pervaporation plants as turn-key installations. These units are highly flexible and easy to operate, stand-alone, but can be easily integrated in existing operations. Each unit has a universal design, which is scalable. Due to the integration of feed heating in the unit, there is no need for pressurized feed and product tanks. Therefore, process safety is ensured and CAPEX can be reduced. The units comply with the safety requirement for the application (incl. ATEX, CE, PED).

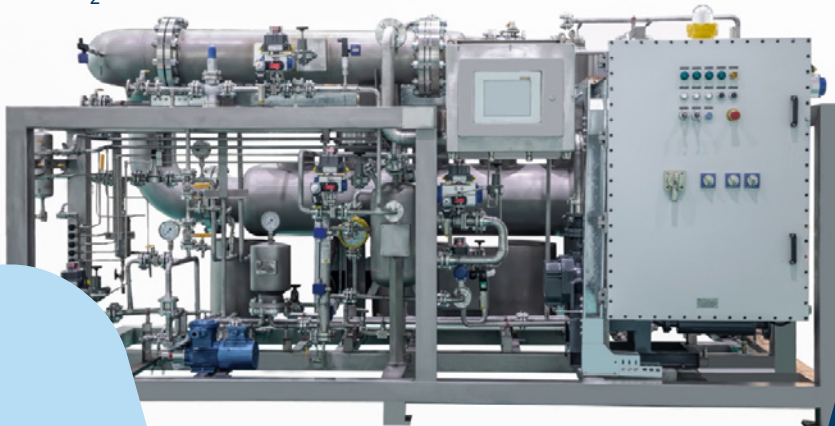
TECHNICAL SPECIFICATIONS OF THE SKID MOUNTED PILOT PLANT

Scope of supply

- Pervaporation pilot plant system for continuous process, skid mounted
- The pilot plant includes membrane modules with membranes and seals, feed pump, heat exchangers and filter, vacuum pump and permeate vessel
- Standards of the pressure vessels and pressure pipelines according to ASME or CE
- Membrane surface area: 2 m² Pervatech Hybrid Silica HybSi[®] Acid Resistant membranes
- The unit requires 380 V / 50 Hz electrical utilities (preferred, but can be flexible)
- Tubing, cables, and other supporting devices
- User manual and documentation
- Relevant certificates and declarations (e.g. ASME / CE / ATEX / PED)

Not included:

- Feed system or feed vessel
- Retentate vessel
- N₂-supply
- Cooling water and steam supply
- Site works
- Site regulatory



Operational window

- Feed flow rate:
For 2 m² membrane surface area:
60-150 kg/h (according to feed and outlet requirements)
- Process operating temperature: maximum 150 °C
- Process operating pressure: maximum 10 barg

SYSTEM DESCRIPTION

The pervaporation setup consists of

- i) a feed loop, and
- ii) a permeate side under vacuum.

The pervaporation membrane allows the separation of two or more components which are difficult to separate using common thermal separation processes such as distillation, e.g. in case of azeotropic compositions and solvents with high boiling points.

The feed line is heated by an in-line heat exchanger system.

During the pervaporation process, the vapor of the permeating component is collected from the permeate side of the membrane. The continuous removal of the vapor permeate with a vacuum pump creates a concentration gradient over both sides of the pervaporation membrane. This concentration gradient is the driving force for the separation process.

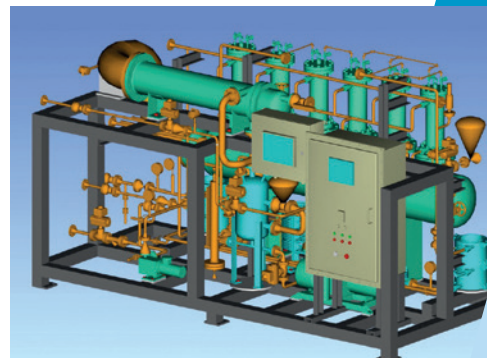
The vapor is cooled via a condenser and collected in the permeate vessel.

MEMBRANES, SPARE PARTS

The unit is to be supplied with a package of Pervatech Hybrid Silica HybSi[®] Acid Resistant membranes, modules, seals and spare parts.

ADVANTAGES OF THESE PERVAPORATION PLANTS

- Skid-mounted units: very little installation work, reducing the pricey installation costs. Skid-mounted units that fit containers can be shipped globally.
- No engineering design is needed: low costs, fast delivery, avoiding pricy design costs.
- Short operation times: it only takes 8 minutes between feed-in and product discharge. Moreover, it only takes 30 minutes from cold start-up to achieve qualified product. The plant can be shut-off at any time during operations, as it takes less than 30 minutes from shut-off to safe status.
- Safe operations: feed-in and product discharge occur at normal temperature and normal pressure, and a very small total amount of solvents is stored only in the ID-7mm membrane tubes and SS tubes.



Heliumstraat 11
7463 PL Rijssen
The Netherlands
T +31 548 530 360
info@pervatech.nl
pervatech.com

 **PERVATECH[®]**