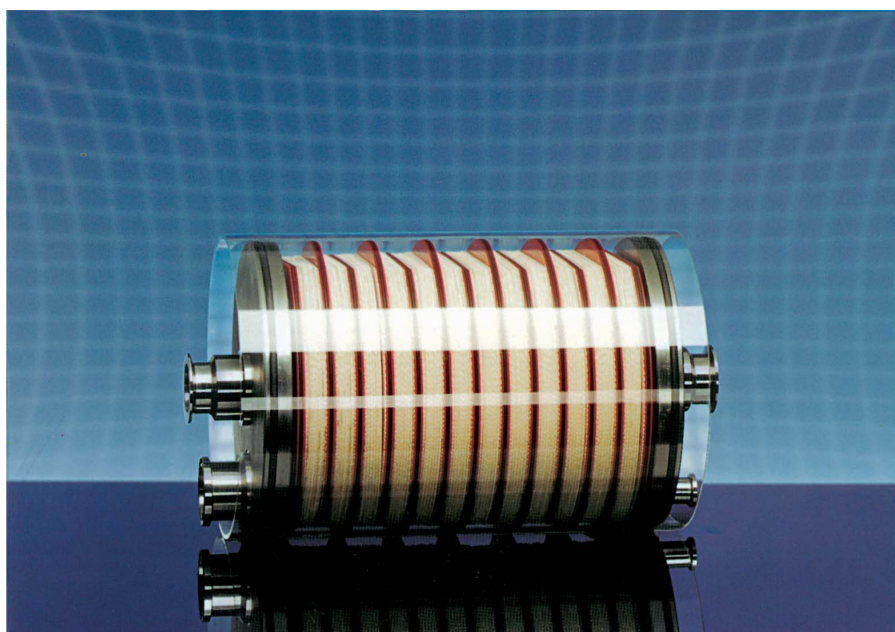


Process Solutions for Gas Cleaning and Recovery of Solvents and Monomers



Vaporous solvent emissions degrade slowly in the atmosphere and represent a potential hazard to both the population and the environment. International and local clean air regulations have therefore been passed which impose maximum emission limits.

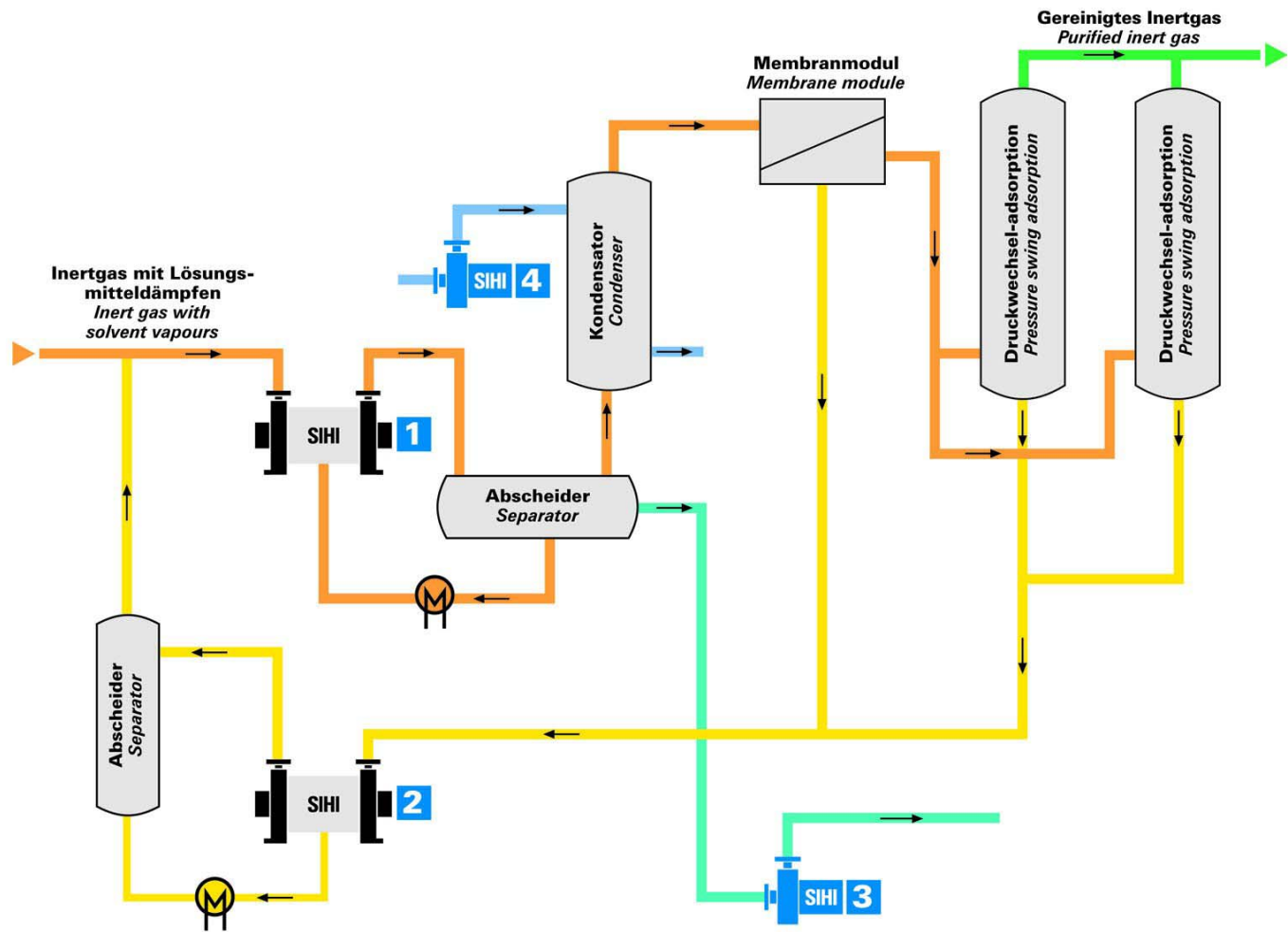
Therefore one of the key reasons for carrying out this process is the environmental benefits. In addition to this aspect, there are also financial benefits, gained by the recovery and recycling of valuable materials.

A complete process solution generally provides a purified inert gas flow as well as separated organic compounds in the liquefied phase. At the start of this process the gas flow is compressed and transferred to the condenser where the fractions that can be condensed are separated. At the membrane stage the organic fractions of the inert gas flow are separated and concentrated. For precision cleaning a pressure swing adsorption stage can be added.

Membrane technology's main advantage is that the recovered substances are not modified or polluted by the membrane.

The membrane has a low constructed volume, high efficiency, long lifespan and does not need continuous regeneration or cleaning. Membranes are suitable for a wide range of concentrations and for most substances used in the process industry.

Process Pumps for Gas Cleaning and Recovery of Solvent and Monomers



An overview of the various Process Pumps

- 1 Compressors**
 The compressor compresses the mixture of inert gas and solvent vapours and generate the required pressure for separation in the membrane module. The compressor service liquid runs in a closed circuit utilising a heat exchanger.
- 2 Vacuum pumps**
 Vacuum pumps increase the pressure difference in the membrane module and therefore improves the separation process. In addition to this, they support the process regeneration of the adsorption vessel. Dry running vacuum pumps or liquid ring vacuum pumps are used. Liquid ring vacuum pumps are generally running within a closed service liquid circuit.
- 4 Discharge pumps**
 The discharge pumps transfer the product from the separator to other stages in the process or into tanks where it can be stored. Depending on the properties of the product in the sump and the presence of by-products, the requirements for these discharge pumps vary.
- 4 Cooling water pumps**
 To improve the condensation process, heat needs to be removed. To do this, recirculation of the cooling media is carried out by using centrifugal pumps. The capacity of these pumps varies depending on the size of the condenser vessel and the amount of heat that needs to be dissipated.

Innovative Solutions from Sterling SIHI

Process pumps	Pump types	Pump execution		
1 Compressors	Liquid ring compressors Type LPHX/LPH, KPH		Capacity: Shaft sealing: Materials:	max. 10700 m³/h mechanical seal grey cast iron, stainless steel 
	Liquid ring vacuum pumps Type LPHX/LPH		Capacity: Shaft sealing: Materials:	max. 10700 m³/h stuffing box, mechanical seal grey cast iron, stainless steel 
2 Vacuum pumps	Dry running vacuum pumps Type SIHI ^{dry}		Capacity: Suction pressure: Materials:	max. 1000 m³/h > 0,001 mbar abs nodular iron / steel 
	Chemical process pumps Type CBS, CBM, CBE, CBT		Capacity: Shaft sealing: Materials:	max. 2200 m³/h mechanical seal, mag drive nodular iron, stainless steel, special materials on request 
3 Discharge pumps	Side channel pumps Type CEH		Capacity: Shaft sealing: Materials:	max. 35 m³/h mechanical seal, mag drive nodular iron, stainless steel 
	Chemical process pumps Type CBS, CBM, CBE, CBT		Capacity: Shaft sealing: Materials:	max. 2200 m³/h mechanical seal, mag drive nodular iron, stainless steel, special materials on request 
4 Cooling water pumps	Industrial pumps Typ ZLN		Capacity: Shaft sealing: Materials:	max. 1800 m³/h mechanical seal grey cast iron, stainless steel 
5 Complete systems				Systems with • Vacuum pumps, • Compressors, • Membrane modules, • Liquid pumps • Electric control panel



... Liquid pumps, vacuum pumps and complete vacuum systems ... from one source

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