

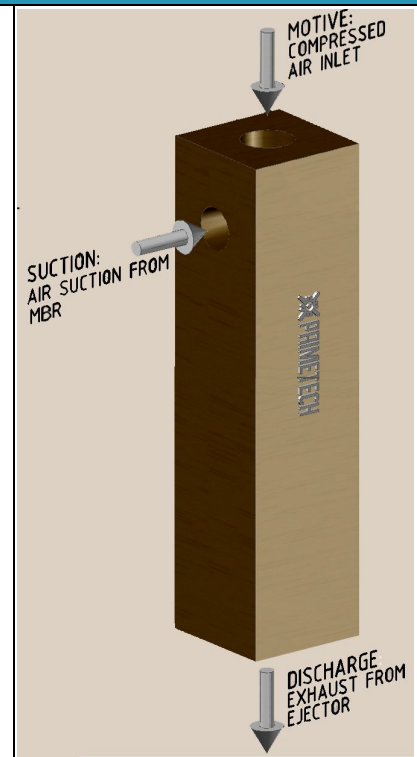
MBR EVACUATION EDUCTOR

E1900 SERIES



INTRODUCTION

- **MBR evacuation ejectors** are venturi devices which can either enhance or replace the existing vacuum pump which is used for permeate transport.
- **Membrane Bio Reactor (MBR)** systems combine biological treatment, involving bacteria with membrane separation to treat waste water.
- Treated water is separated from the purifying bacteria, referred to as activated sludge, by the process of membrane filtration.
- Membrane bio reactors typically employ submerged hollow fiber membrane modules incorporated in a distributed flow reactor.
- Evacuation of membrane bio reactors on a regular basis is necessary and it can be done by this MBR Evacuation Ejectors.
- Air ejector being self priming, it is ideally suited for multiple intermittent start/stop of permeate transport in waste water treatment plant/ STP plant.



WORKING MECHANISM

- A **venturi device** such as **ejectors** are installed at the end of the permeate line header of each Membrane bio reactor (which is called as "Train").
- Compressed air (**Motive Fluid**) is passed through the *air inlet* of the air ejector assembly for MBR evacuation.
- The motive air flow is controlled using a ball valve and entry of any particulate matter into the ejector is filtered out using an *air filter*.
- The only moving part in this system is the *Solenoid valve* which is used to turn on or turn off the vacuum produced by isolating the air supply to the ejector.
- The compressed air then passes through a series of pipe fittings such as *hose & tee* and then enters the *ejector nozzle*.
- A pneumatic impulse spring operated *angle seat valve* is used whose ends are connected to the *air suction pipe* & the *air motive pipeline* of the ejector.
- When the compressed air enters the motive nozzle, the high pressure motive fluid gets converted into a jet . According to the Principle of Conservation of energy, one form of energy (Pressure energy in this case) gets converted to other form of energy (Velocity energy in this case).
- As a result of the formation of jet, vacuum is created which pulls the fluid that has to be entrained. The fluid to be entrained is called the **Suction fluid** of the ejector.
- As soon as the permeate siphon is complete and liquid discharge happening at ejector outlet , the air supply to ejector is stopped through manual / PLC / Automated electrical interlock (Customer Scope).
- Subsequently, the permeate pump takes over the pumping of permeate liquid.

ADVANTAGES

- **INCREASING VACUUM PUMP'S LIFE**

MBR Evacuation Ejectors extends the life of the existing vacuum pumps as it reduces their use in permeate transportation.

- **DUAL PURPOSE**

MBR Evacuation Ejectors can serve 2 applications in MBR system. One is to enhance or replace the existing vacuum pump system and the other is to evacuate air following a membrane integrity test (MIT) .

- **COST REDUCTION**

The use of MBR Evacuation Ejectors reasonably reduces the operation & maintenance cost incurred due to the use of vacuum pumps. Since, the air ejector does not have any moving parts, the cost of its maintenance is negligible.

- **ENERGY SAVING**

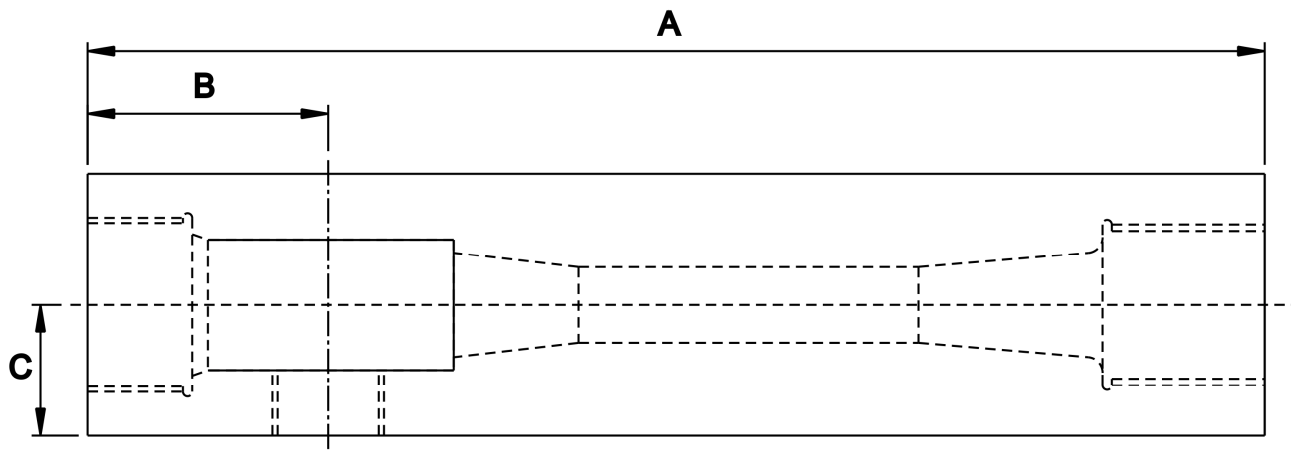
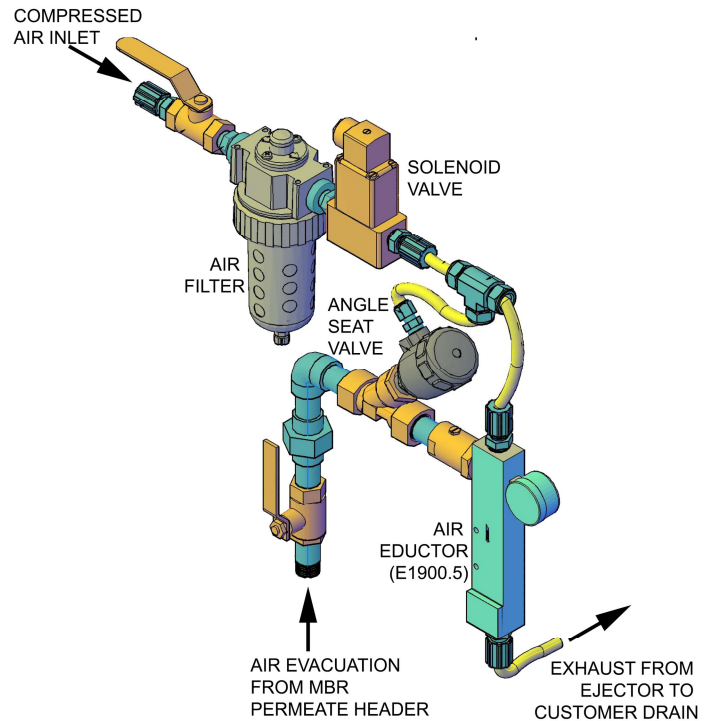
MBR evacuation ejectors are intermittently used and hence, it produces less noise and the energy loss is minimal

- **ENHANCES FLEXIBILTIV & PRODUCTIVITY**

Air being removed from each train enhances the flexibility of the operation of Membrane bio reactors.

Since, air is being vented faster following a MIT, it allows to restart the MBR process faster.

TYPICAL INSTALLATION



MODEL MM	END CONNECTION			DIMENSIONS IN MM		
	M	S	D	A	B	C
E1900.5	1/2"BSP/F	1"BSP/F	1"BSP/F	225	50	40
E1901	1"ASA150# FLANGES			240	80	80

INDUSTRIES UTILISING MBR EVACUATION EJECTORS

MBR Evacuation Ejectors are used in Waste Water treatment Plants, ETP or STP.

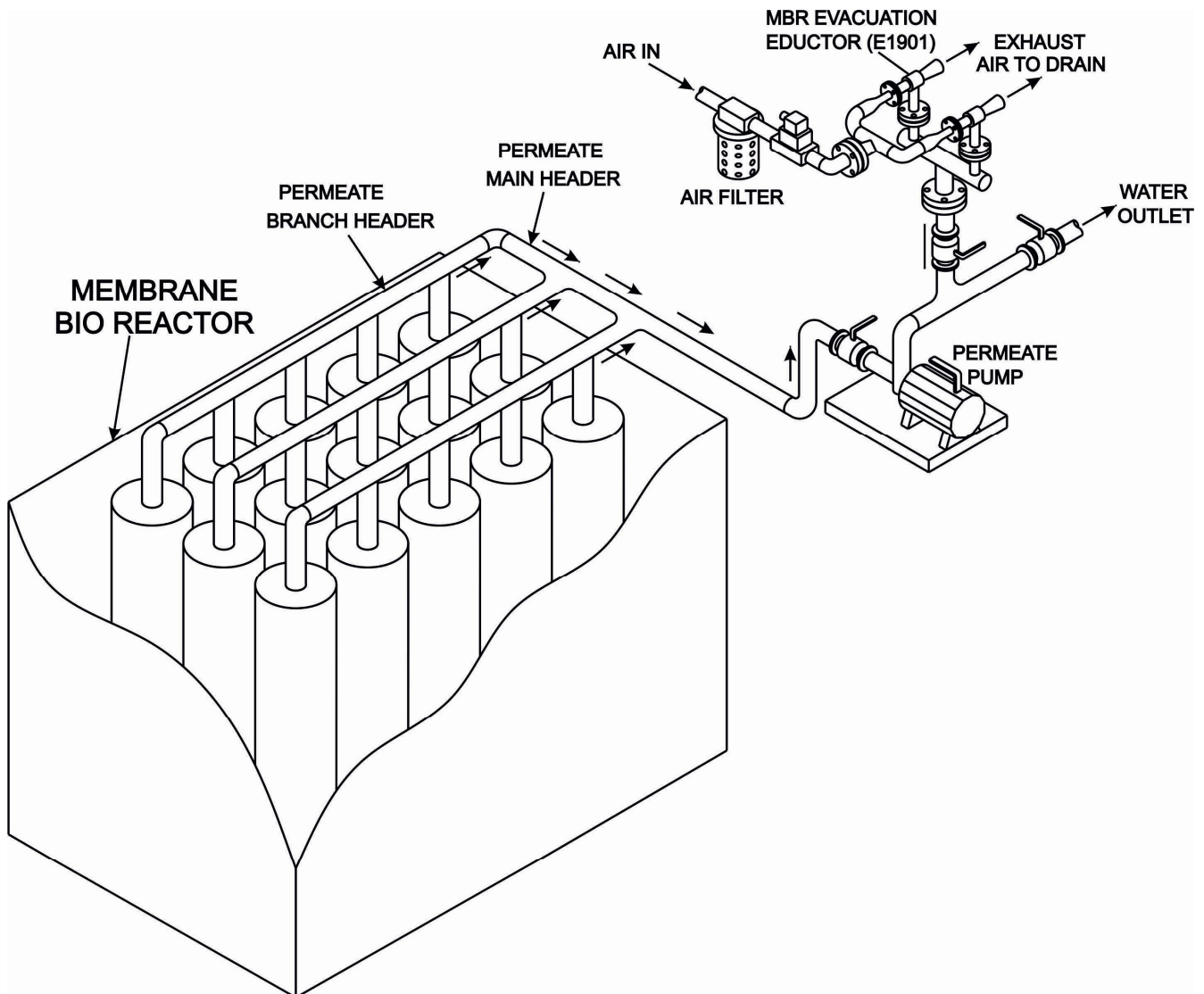
MATERIAL OF CONSTRUCTION

We offer the MBR evacuation ejector made out of Anodized Aluminum with SS316 nozzle.
Other materials can also be provided as per the Customer's requirement

END CONNECTIONS

Threaded or Flanged end connections can be provided. We can also provide in customer specified standards and end connections.

TYPICAL INSTALLATION



PRIMETECH

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