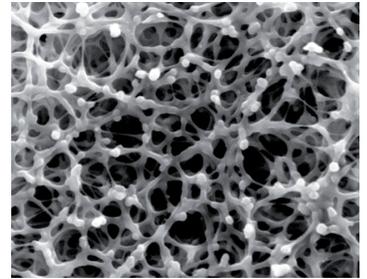


### Membrane structure – Materials

The membranes consist of a polyamide fleece as a substrate with a completely unordered structure. The minuscule membrane pores are created by saturating the fleece fibers with an acrylic copolymer, which completely wets them but does not fill the spaces between the fleece.

During manufacturing, the material and process parameters affect the pore size, which is between 0.2 and 10 µm. The quality of the membrane can be determined by means of “porometry”, a rating method which assesses the size distribution of the membrane pores and the air outlet. To illustrate this, a microscopic image of the cross-section of a membrane is shown on the right hand side.

For comparison: Strainers can only be manufactured economically with a mesh size of at least 50 µm.



Membrane, microscopic image, 2000x magnification

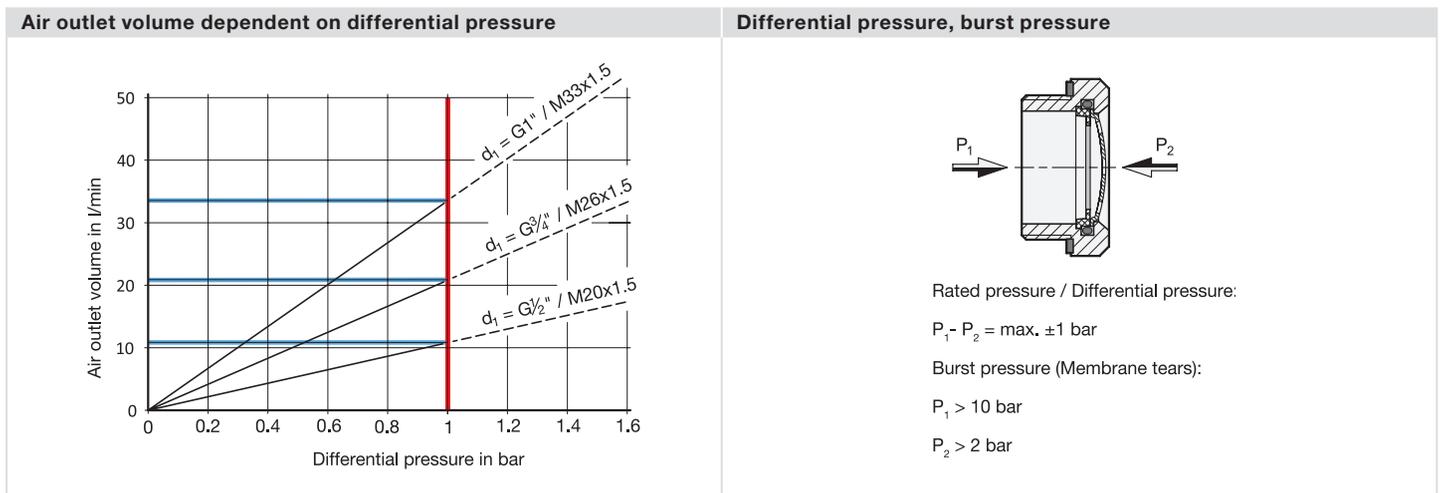
### Functionality – Conditions of use – Installation position

The membranes repel oil and water because of their materials and surface structure. This prevents water and oil droplets from completely suffusing the membrane surface. This repellent property is supported by installing the membrane on the side in a vertical position.

If, in exceptional cases, the membrane is completely covered, small amounts of oil or water can be pushed through the membrane at certain differential pressures. Once the situation has been rectified, the oil and water will drip off, and the membrane will be fully functional again.

### Technical parameters

When using breather membranes, the maximum air outlet volume, the maximum differential pressure as well as the maximum rated / burst pressure are of importance. The achievable air outlet volume depends linearly on the differential pressure, which should not exceed 1 bar.



### Resistances

**Thermal** - The membrane bezel may not be used in temperatures exceeding 212 °F (100 °C). The membrane itself can resist temperatures up to 302 °F (150 °C).

**Chemical** - The membranes are resistant to a wide range of chemical substances frequently used in machine and automotive engineering, e.g., oil, fuels, organic solvents, and alcohols. In case of doubt, a tolerability test should be carried out.

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