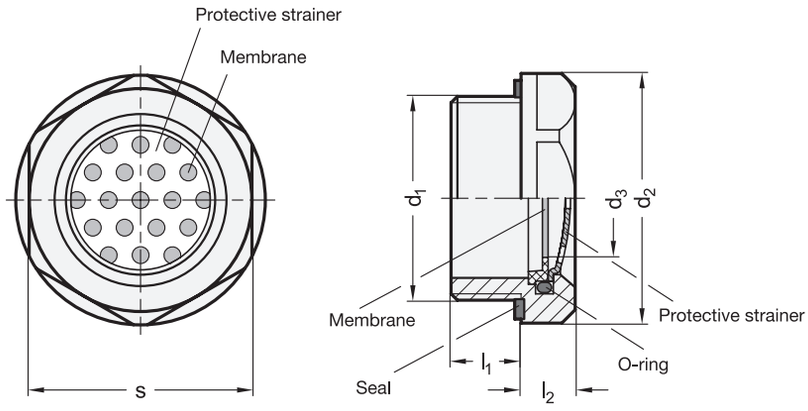
GN 7404 | Breather Membranes

Aluminum / Stainless Steel, Oil / Water Repellent (Hydrophobic / Oleophobic)

JW WINCO® A Ganter Company



Metric

SS Stainless Steel

Metric table

3 Dimensions in: millimeters - *inches*

d_1 Pipe thread	d_1 Fine thread	d_2	d_3	l_1	l_2	s	Membrane pore size in µm	Differential pressure Δ 1 bar Air outlet volume in l/min
G 1/2	M 20 x 1.5	26 *1.02*	10 *0.39*	8.5 *0.33*	7.5 *0.30*	23 *0.91*	1.2	11
G 3/4	M 26 x 1.5	32 *1.26*	14 *0.55*	9 *0.35*	8 *0.31*	30 *1.18*	1.2	21
G 1	M 33 x 1.5	40 *1.57*	20 *0.79*	11 *0.43*	8.5 *0.33*	36 *1.42*	1.2	34

Specification

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- Body
  - Aluminum **AL**
  - Stainless steel AISI 303 **NI**
- Membrane
  Polyamide fleece, non-woven / acrylic copolymer wetting
- Membrane bezel
  Plastic
  Technopolymer (Polyamide PA)
  - Glass fiber reinforced
  - Temperature resistant up to 212 °F (100 °C)
- Protective strainer
  Stainless steel AISI 304
- Seal / O-ring
  Rubber NBR (Perbunan®)
- *Plastic Characteristics → page 2135*
- *Stainless Steel Characteristics → page 2143*
- RoHS compliant

Accessory

- Thin hex nuts GN 7430 → *page 1714*

On request

- Body in brass
- Other membrane pore sizes

Information

GN 7404 breather membranes are used in enclosure and device construction. In an enclosure wall, they ensure pressure compensation between the enclosure interior and the outside.

Any possible dirt and dust particles carried by the gaseous medium, but also oil and water drops, are retained. This protects the enclosure interior from contamination and moisture and also prevents oil from dripping into the surrounding area.

In order to protect the membranes, they should not be completely covered with oil or water, and the differential pressure / air outlet volume should not be exceeded. They should be installed on the side / vertically in a protected position.

The outer diameter of the enclosures with recessed hex is chosen to match screw-in holes for tube connections according to DIN 3852.

The seal is embedded in a radial groove and can therefore not be lost or squeezed out during the tightening operation.

Assembly note:
For wall thicknesses below 4 mm, use GN 7430 thin hex nuts.

see also...

- *Breather Strainers GN 7403 → page 1712*

How to order

1 2 3

GN 7404-AL-G1/2-1.2

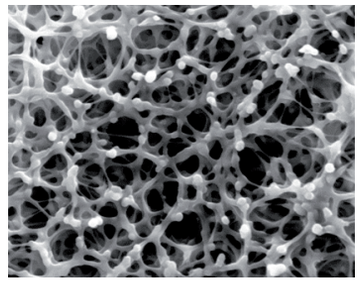
1	**Material**
2	**Pipe thread d_1 (Fine thread d_1)**
3	**Membrane pore size**

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

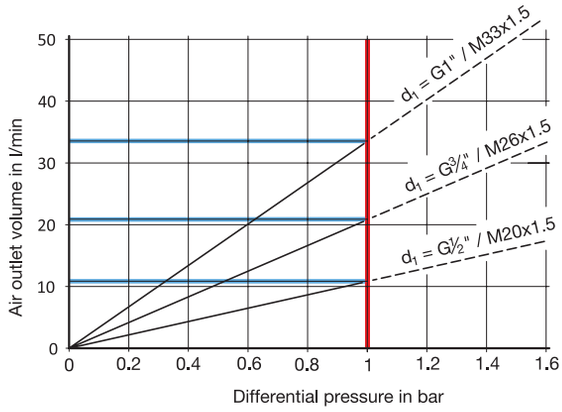
The membranes repel oil and water because of their materials and surface structure. This prevents water and oil droplets from completely suffusing the membrane surface. This repellent property is supported by installing the membrane on the side in a vertical position.

If, in exceptional cases, the membrane is compelety 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.

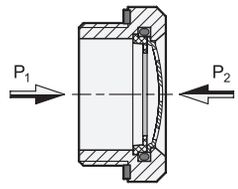
Technical parameters

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.

Air outlet volume dependent on differential pressure



Differential pressure, burst pressure



Rated pressure / Differential pressure:

$P_1 - P_2$ = max. ±1 bar

Burst pressure (Membrane tears):

P_1 > 10 bar

P_2 > 2 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.