DIAPHRAGM PUMPS
No. 405-PM
Ready for any challenge
Packaging contains, depending on the articles, one or more of the following materials: they must be recycled in accordance with current regulations in the country of use.

cardboard • polyethylene sack • polystyrene paper • wood • nails • plastic strap cellophane • clips • gummed paper
DESIGN IS AN Art
founded in 1975
the human side
of Quality
RAASM pneumatic double-diaphragm pumps are designed and manufactured for pumping a wide range of fluids even with high viscosities and with suspended solids.

In being ATEX certified, they can also be used for heavy applications such as in places with high humidity or with potentially explosive atmosphere.
• Self-priming capability
• Easy adjustment of delivery
• They do not become damaged in case of prolonged operation when empty

are some of the features that make these pumps particularly versatile and appreciated in all work environments. The wide range of materials used for the pumps makes it easy to identify the model having the best chemical compatibility with the fluid to be pumped and for the work environment.
EXAMPLES OF **USE**
for pump entirely made of aluminum or aluminum and polypropylene
Diaphragm pumps are the ideal solution in different working environments, also the most aggressive ones. These are some examples of application:

- pumping detergent liquids in car washes
- transfer slip and glaze in the ceramics industry
- distribution of adhesives, paints, cellulose pulp in the paper and printing industry
- pumping of spent acids, dyes and wastewater in the textile and tanning industry
- distribution and mixing of paints in the colors/varnishes industry
- pumping of corrosive and abrasive products in galvanic applications in the chemical and mechanical sector
- pumping of waste oils and lubricants in a garage
Why choose a diaphragm pump entirely made of aluminum?

RAASM pneumatic diaphragm pumps are designed and manufactured for pumping a wide range of fluids even with high viscosities and with suspended solids. In being ATEX certified, they can also be used for heavy applications such as in places with high humidity or with potentially explosive atmosphere.

• ATEX certification available

• The wide range of materials used for the pumps makes it easy to identify the model having the best chemical compatibility with the fluid to be pumped and for the work environment

• All pumps are tested before the packaging to ensure the highest quality

• They do not become damaged in case of prolonged operation when empty

• Self-priming capability

• Easy adjustment of delivery
TECHNICAL CHARACTERISTICS

1. Ball valves designed to guarantee the total flow of the pumped fluid.

2. Total flow suction and delivery manifolds, to facilitate suction of the liquid in any situation, with threaded connections or flanged available in different diameters according to the pump models.

3. Membranes made with different and specific materials able to withstand many types of fluids and millions of cycles.

4. The air distribution valve ensures perfect operation in any operating conditions. Some examples:
   - Minimum supply pressures (min. 2 bar)
   - Critical fluid and ambient temperatures
   - Supply pressure fluctuations

5. Air distributor unit equipped with anti-stall reversing piston. This piston prevents the pump from stopping at a dead point, even in critical operating conditions.

6. Pneumatic motor with anti-ice device. This allows the pump to maintain its performance, even if powered with untreated air.

7. The pneumatic motor block of the pump does not require any type of lubrication because the moving parts are self-lubricating.

8. Flanges created to withstand heavy work conditions.

9. Industrial design, material in aluminum with internal and external sand blasting and nickel-plating surface treatment. Die-casting ensures a better structural and surface finish.
Diaphragm pumps R. 1:1 for transferring, made of die-cast aluminum; they ensure lasting and reliable operation with the most common automotive and industry fluids.

**Note:** The max flow rate shown in the below graphics has been obtained by laboratory test.

---

### Series

<table>
<thead>
<tr>
<th>Membranes</th>
<th>Balls</th>
<th>Seats</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPDM</td>
<td>Acetal</td>
<td>Acetal</td>
</tr>
<tr>
<td>Hytrel®</td>
<td>Hytrel®</td>
<td>Hytrel®</td>
</tr>
<tr>
<td>NBR</td>
<td>Hytrel®</td>
<td>Hytrel®</td>
</tr>
<tr>
<td>Santoprene™</td>
<td>Santoprene™</td>
<td>Santoprene™</td>
</tr>
<tr>
<td>PTFE+Hytrel®</td>
<td>PTFE</td>
<td>Polypropylene</td>
</tr>
</tbody>
</table>

### PUMP PERFORMANCE

**Pump Air Feeding Pressure**

- **PUMP AIR FEEDING PRESSURE**
  - Bar: 8
  - Cycles/min: 105, 210, 315, 420
  - m³/min: 8, 8.8, 9.6, 10.4

**PUMP PERFORMANCE**

- **PUMP PERFORMANCE**
  - Bar: 8
  - Cycles/min: 75, 150, 225, 300
  - m³/min: 0.35, 0.7, 1.05, 1.4

### PUMP DIMENSIONS

**Pump Dimensions**

- **Diaphragm Pumps R. 1:1**

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**ATEX Directive**

II 2 GD c IIB T4 X

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**Diaphragm Pumps R. 1:1**

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**Note:** With PTFE membrane flow rate is 10% lower. **Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute.*** The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature.
Diaphragm pumps R. 1:1 for transferring, made of die-cast aluminum; they ensure lasting and reliable operation with the most common automotive and industry fluids.

Note: The max flow rate shown in the below graphics has been obtained by laboratory test.

### Series

<table>
<thead>
<tr>
<th>membranes</th>
<th>balls</th>
<th>seats</th>
<th>P/N</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Acetal</td>
<td>Acetal</td>
<td>3C3/26111EAA</td>
<td>3C1/30111EAA</td>
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<tr>
<td>Hytrel®</td>
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<td>Hytrel®</td>
<td>3C3/26111HHH</td>
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<td>NBR</td>
<td>Hytrel®</td>
<td>Hytrel®</td>
<td>3C3/26111NHH</td>
<td>3C1/30111NHH</td>
</tr>
<tr>
<td>Santoprene™</td>
<td>Santoprene™</td>
<td>Santoprene™</td>
<td>3C3/26111SSS</td>
<td>3C1/30111SSS</td>
</tr>
<tr>
<td>PTFE + Hytrel® *</td>
<td>PTFE Polypropylene</td>
<td></td>
<td>3C3/26111TTP</td>
<td>3C1/30111TTP</td>
</tr>
</tbody>
</table>

| Max pressure | bar | 8 | 8 |
| Max cycles per min | cpm | 300 | 260 |
| Max suction lift | m | dry column 5 - wet column 7,5 | dry column 5 - wet column 7,5 |
| Noise level | dB | 75 | 75 |
| Max air consumption (m³/min) | m³/min | 1,40 | 1,80 |
| Air working pressure | bar | 2 - 6 | 2 - 6 |
| Air inlet connection | G 3/8” (f) | G 3/4” (f) |
| Air outlet connection (muffler) | G 1/2” (f) | G 1” (f) |
| Fluid inlet connection | 4 x G 1” (f) | G 1.1/4” (f) |
| Fluid outlet connection | 5 x G 1” (f) | G 1.1/4” (f) |
| Screws for pump fixing | M10 | M10 |
| Packing - Weight | N° 1 0,03 m³ | 13 kg | N° 1 0,03 m³ | 15 kg |

* With PTFE membrane flow rate is 10 % lower ** Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute *** The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature

### PUMP DIMENSIONS

| Dimensions | mm | 280 x 200 x 352 x 182 x 130 | 286 x 238 x 386 x 199 x 137 |

### PUMP PERFORMANCE

#### PUMP AIR FEEDING PRESSURE

<table>
<thead>
<tr>
<th>Pressure (bar)</th>
<th>8</th>
<th>6</th>
<th>4</th>
<th>2</th>
<th>0</th>
<th>1.40</th>
<th>1.05</th>
<th>0.70</th>
<th>0.35</th>
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<tbody>
<tr>
<td>Cycles/min</td>
<td>75</td>
<td>150</td>
<td>225</td>
<td>300</td>
<td>75</td>
<td>150</td>
<td>225</td>
<td>300</td>
<td>75</td>
<td>150</td>
</tr>
<tr>
<td>m³/min</td>
<td>0.03</td>
<td>0.06</td>
<td>0.09</td>
<td>0.12</td>
<td>0</td>
<td>0</td>
<td>0</td>
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#### PUMP PERFORMANCE

<table>
<thead>
<tr>
<th>Pressure (bar)</th>
<th>8</th>
<th>6</th>
<th>4</th>
<th>2</th>
<th>0</th>
<th>1.8</th>
<th>1.35</th>
<th>0.9</th>
<th>0.45</th>
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</thead>
<tbody>
<tr>
<td>Cycles/min</td>
<td>65</td>
<td>130</td>
<td>195</td>
<td>260</td>
<td>65</td>
<td>130</td>
<td>195</td>
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<td>65</td>
<td>130</td>
</tr>
<tr>
<td>m³/min</td>
<td>0.35</td>
<td>0.70</td>
<td>1.05</td>
<td>1.40</td>
<td>0</td>
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</tr>
</tbody>
</table>

- **KIND OF FLUID: Water 20 °C**
- **SAE30 oil: (ISO VG 100) 20 °C**
ATEX directive
II 2 GD c IIB T4 X

Diaphragm pumps R. 1:1
for transferring,
made of die-cast
aluminum; they ensure
lasting and reliable operation
with the most common
automotive and industry fluids.

Note: The max flow rate
shown in the below graphics
has been obtained by
laboratory test.

<table>
<thead>
<tr>
<th>Series</th>
<th>1120-AB</th>
<th>2000-AB</th>
</tr>
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<tbody>
<tr>
<td>membranes</td>
<td>balls</td>
<td>seats</td>
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<tr>
<td>EPDM</td>
<td>Acetal</td>
<td>Acetal</td>
</tr>
<tr>
<td>Hytrel®</td>
<td>Hytrel®</td>
<td>Hytrel®</td>
</tr>
<tr>
<td>NBR</td>
<td>Hytrel®</td>
<td>Hytrel®</td>
</tr>
<tr>
<td>Santoprene®</td>
<td>Santoprene®</td>
<td>Santoprene®</td>
</tr>
<tr>
<td>PTFE+Hytrel®*</td>
<td>PTFE</td>
<td>Polypropylene</td>
</tr>
</tbody>
</table>

Max pressure | bar | 8 | 8 |
Max cycles per min | cpm | 220 | 147 |
Litres per cycle | l | 2,15 | 4,150 |
Max suction lift | m | dry column 5 - wet column 7,5 | dry column 5 - wet column 7,5 |
Max size pumpable solids | mm | 5,5 | 6,5 |
Max working temperature | °C | 100 | 100 |
Noise level | dB | 78 | 82 |
Max air consumption (m³/min) | m³/min | 3,40 | 4,00 |
Air working pressure | bar | 2 - 6 | 2 - 6 |
Air inlet connection | G 3/4” (f) |
Air outlet connection (muffler) | G 1” (f) |
Fluid inlet connection | G 2” (f) |
Fluid outlet connection | G 1.1/2” (f) |
Balls for inlet and outlet | |
Overall dimensions (A x B x C x D x E) | mm | 350 x 402 x 514 x 250 x 182 | 427 x 435 x 616 x 305 x 227 |
Screws for pump fixing | M12 | M12 |
Packing - Weight | N° 1 | 0,07 m³ | 21,5 kg |
| N° 1 | 0,12 m³ | 43 kg |

* With PTFE membrane flow rate is 10% lower
** Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute
*** The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature

PUMP DIMENSIONS

PUMP PERFORMANCE

KIND OF FLUID: Water 20 °C
ATEX directive
II 2 GD c IIB T4 X

Diaphragm pumps R. 1:1 for transferring, made of die-cast aluminum; they ensure lasting and reliable operation with the most common automotive and industry fluids. Flanges could be rotated of 90° or 180° to help the fluid inlet and outlet and the plant connection.

Note: The max flow rate shown in the below graphics has been obtained by laboratory test.

### Series 2000-AB with multi-ported inlet/outlet

<table>
<thead>
<tr>
<th>membranes</th>
<th>balls</th>
<th>seats</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPDM</td>
<td>Acetal</td>
<td>Acetal</td>
<td>3C3/50111EAA</td>
</tr>
<tr>
<td>Hytrel®</td>
<td>Hytrel®</td>
<td>Hytrel®</td>
<td>3C3/50111HHH</td>
</tr>
<tr>
<td>NBR</td>
<td>Hytrel®</td>
<td>Hytrel®</td>
<td>3C3/50111NH</td>
</tr>
<tr>
<td>Santoprene®</td>
<td>Santoprene®</td>
<td>Santoprene®</td>
<td>3C3/50111SSS</td>
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<tr>
<td>PTFE+Hytrel®</td>
<td>PTFE Polypropylene</td>
<td>3C3/50111TTP</td>
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### Series 2000-AB

<table>
<thead>
<tr>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>3C6/50111EAA</td>
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<tr>
<td>3C6/50111HHH</td>
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<td>3C6/50111NH</td>
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<tr>
<td>3C6/50111SSS</td>
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<tr>
<td>3C6/50111TTP</td>
</tr>
</tbody>
</table>

**Performances**

- **Max pressure**: 8 bar
- **Max cycles per min**: 147 cpm
- **Litres per cycle**: 3,950 l
- **Max suction lift**: dry column 5 - wet column 7,5
- **Max working temperature**: 100 °C
- **Noise level**: 82 dB
- **Max air consumption (m³/min)**: 4,000 m³/min
- **Air working pressure**: 2 - 6 bar
- **Air inlet connection**: G 3/4” (f)
- **Air outlet connection (muffler)**: G 1” (f)
- **Fluid inlet connection**: G 2.1/2” (f)
- **Fluid outlet connection**: G 2” (f)
- **Balls for inlet and outlet**: M12
- **Overall dimensions (A x B x C x D x E)**: 449 x 435 x 255 x 227 mm
- **Fluid outlet pressure**: ANSI 150 - DIN PN 10 - JIS 10K 2” (50 mm)
- **Air outlet pressure**: ANSI 150 - DIN PN 10 - JIS 10K 2” (50 mm)
- **Screws for pump fixing**: M12
- **Packing - Weight**: N° 1 0,12 m³ 45 kg

**Note:**
- With PTFE membrane flow rate is 10 % lower
- Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute
- The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature

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**PUMP DIMENSIONS**

**PUMP PERFORMANCE**

**PUMP AIR FEEDING PRESSURE**

<table>
<thead>
<tr>
<th>bar</th>
<th>cycles/min</th>
<th>m³/min</th>
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</thead>
<tbody>
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<td>38</td>
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</tr>
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<td>6</td>
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</tr>
<tr>
<td>4</td>
<td>113</td>
<td>3</td>
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<tr>
<td>2</td>
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**FLUID OUTLET PRESSURE**

<table>
<thead>
<tr>
<th>l/min</th>
<th>155</th>
<th>310</th>
<th>465</th>
<th>620</th>
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<td>4</td>
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</tr>
<tr>
<td>2</td>
<td>5</td>
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</tbody>
</table>

**AIR CONSUMPTION**

<table>
<thead>
<tr>
<th>m³/min</th>
<th>150</th>
<th>300</th>
<th>450</th>
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<td>8</td>
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<tr>
<td>6</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4</td>
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</tr>
<tr>
<td>2</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**KIND OF FLUID: Water 20 °C**
Why choose a diaphragm pump made of aluminum and polypropylene?

RAASM pneumatic diaphragm pumps are designed and manufactured for pumping a wide range of fluids even with high viscosities and with suspended solids. In particular the diaphragm pump of this family can be used with corrosive fluids and aqueous solutions thanks to the manifolds made in polypropylene.

- ATEX certification available
- The wide range of materials used for the pumps makes it easy to identify the model having the best chemical compatibility with the fluid to be pumped and for the work environment
- 1/2” with reinforced thread thanks to a AISI 316 stainless steel ring
- Ball seats in AISI 316 stainless steel and polypropylene
- All pumps are tested before the packaging to ensure the highest quality
- They do not become damaged in case of prolonged operation when empty

Diaphragm pumps in aluminum and polypropylene

in accordance with the ATEX directive

5 YEARS WARRANTY

Made in Italy
TECHNICAL CHARACTERISTICS

1. Ball valves designed to guarantee the total flow of the pumped fluid. The ball seats are in AISI 316 stainless steel (versions 1") or in AISI 316 stainless steel and polypropylene (versions 1/2").

2. Total flow suction and delivery manifolds, to facilitate suction of the liquid in any situation, with threaded connections or flanged available in different diameters according to the pump models. There is a AISI 316 stainless steel ring to reinforce the thread (versions 1/2").

3. Membranes made with different and specific materials able to withstand many types of fluids and millions of cycles.

4. The air distribution valve ensures perfect operation in any operating conditions. Some examples:
   - Minimum supply pressures (min. 2 bar)
   - Critical fluid and ambient temperatures
   - Supply pressure fluctuations.

5. Air distributor unit equipped with anti-stall reversing piston. This piston prevents the pump from stopping at a dead point, even in critical operating conditions.

6. Pneumatic motor with anti-ice device. This allows the pump to maintain its performance, even if powered with untreated air.

7. The pneumatic motor block of the pump does not require any type of lubrication because the moving parts are self-lubricating.

8. Flanges created to withstand heavy work conditions.

9. Industrial design, material in aluminum with internal and external sand blasting and nickel-plating surface treatment. Die-casting ensures a better structural and surface finish.
Diaphragm pumps R. 1:1 for transferring fluids, made of molding injected polypropylene with motor made in aluminum; they ensure lasting and reliable operation even in extreme conditions and with aggressive fluids.

Note: The max flow rate shown in the below graphics has been obtained by laboratory test.

### Series

<table>
<thead>
<tr>
<th>Membranes</th>
<th>Balls</th>
<th>Seats</th>
<th>P/N</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPDM</td>
<td>Acetal</td>
<td>Polypropylene and AISI 316</td>
<td>2B3/16117EA5</td>
<td>2B8/16117EA5</td>
</tr>
<tr>
<td>Hytrel®</td>
<td>Hytrel®</td>
<td>Polypropylene and AISI 316</td>
<td>2B3/16117HH5</td>
<td>2B8/16117HH5</td>
</tr>
<tr>
<td>NBR</td>
<td>Hytrel®</td>
<td>Polypropylene and AISI 316</td>
<td>2B3/16117NH5</td>
<td>2B8/16117NH5</td>
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<tr>
<td>Santoprene™</td>
<td>Santoprene™</td>
<td>Polypropylene and AISI 316</td>
<td>2B3/16117SS5</td>
<td>2B8/16117SS5</td>
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<tr>
<td>PTFE+Hytrel®*</td>
<td>PTFE</td>
<td>Polypropylene and AISI 316</td>
<td>2B3/16117TT5</td>
<td>2B8/16117TT5</td>
</tr>
</tbody>
</table>

### Technical Specifications

- **Max pressure:** 8 bar
- **Max cycles per min:** 330
- **Litres per cycle:** 0.188
- **Max suction lift:** 1.5 mm, dry column 4.5 - wet column 7.5 mm
- **Max working temperature:** 65 °C
- **Noise level:** 75 dB
- **Max air consumption (m³/min):** 0.50
- **Air working pressure:** 2 - 6 bar
- **Air inlet connection:** G 3/8" (f)
- **Air outlet connection (muffler):** G 1/2" (f)
- **Fluid inlet connection:** G 3/4" (f) - G 1" (f) for drum
- **Fluid outlet connection:** G 1/2" (f)
- **Balls for inlet and outlet:** N° 1 0.02 m³ 5.8 kg
- **Overall dimensions (A x B x C x D x E):** 220 x 160 x 327 x 145 x 100 mm
- **Screws for pump fixing:** M8
- **Packing - Weight:** N° 1 0.02 m³ 5.8 kg

* With PTFE membrane flow rate is 10% lower
** Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute
*** The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature

### PUMP DIMENSIONS

#### PUMP PERFORMANCE

<table>
<thead>
<tr>
<th>Pressure (bar)</th>
<th>Fluid Outlet Pressure</th>
<th>Air Consumption (m³/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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</tr>
<tr>
<td>0.13</td>
<td>0.27</td>
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</tr>
<tr>
<td>0.4</td>
<td>0.53</td>
<td>0.85</td>
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</table>

- **KIND OF FLUID:** Water 20 °C
- **SAE30 oil:** (ISO VG 100) 20 °C

### ATEX directive

II 3 GD c TX

Diaphragm pumps R. 1:1 for transferring fluids, made of molding injected polypropylene with motor made in aluminum; they ensure lasting and reliable operation even in extreme conditions and with aggressive fluids.
**Diaphragm pumps R. 1:1 for transferring fluids**, made of molding injected polypropylene with motor made in aluminum. These versions have got 1" flange to connect the pump with the plant. Use the new AISI 304 stainless steel flange available in the accessories section for the piping connection.

*Note: The max flow rate shown in the below graphics has been obtained by laboratory test.

### Diaphragm pumps R. 1:1

**PUMP DIMENSIONS**

**Diaphragm pumps R. 1:1 for transferring fluids**

<table>
<thead>
<tr>
<th>Series</th>
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<th>1000-PPAB dual inlet</th>
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</thead>
<tbody>
<tr>
<td>membranes</td>
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<td>seats</td>
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<td>Hytrele®</td>
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<td>AISI 316 stainless steel</td>
</tr>
<tr>
<td>PTFE+Hytrel®</td>
<td>PTFE</td>
<td>AISI 316 stainless steel</td>
</tr>
</tbody>
</table>

| Max pressure | bar | 8 | 8 |
| Max cycles per min | cpm | 300 | 300 |
| Litres per cycle | l | 0,590 | 0,590 |
| Max suction lift | m | dry column 5 - wet column 7,5 | dry column 5 - wet column 7,5 |
| Max size pumpable solids | mm | 3 | 3 |
| Max working temperature | °C | 65 | 65 |
| Noise level | dB | 75 | 75 |
| Max air consumption (m³/min) | m³/min | 1,60 | 1,60 |
| Air working pressure | bar | 2 - 6 | 2 - 6 |
| Air inlet connection | G 3/8” (f) | G 3/8” (f) |
| Air outlet connection (muffler) | G 1/2” (f) | G 1/2” (f) |
| Fluid inlet connection in | ANSI 150 - DIN PN 10 - JIS 10K 1” (25 mm) | ANSI 150 - DIN PN 10 - JIS 10K 1” (25 mm) |
| Fluid outlet connection | ANSI 150 - DIN PN 10 - JIS 10K 1” (25 mm) | ANSI 150 - DIN PN 10 - JIS 10K 1” (25 mm) |
| Balls for inlet and outlet | | |
| Overall dimensions (A x B x C x D x E) | mm | 305 x 200 x 420 x 191 x 130 | 357 x 200 x 420 x 191 x 130 |
| Screws for pump fixing | M10 | M10 |
| Packing - Weight | N° 1 | 0,03 m³ | 7 kg |

* With PTFE membrane flow rate is 10 % lower | ** Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute | *** The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature

### PUMP PERFORMANCE

**PUMP AIR FEEDING PRESSURE**

- **A**: 8 bar
- **B**: 6 bar
- **C**: 4 bar

**FLUID/OIL PRESSURE**

- **A, B**: KIND OF FLUID: Water 20 °C
- **C, D**: SAE30 oil (ISO VG 100) 20 °C

**AIR CONSUMPTION**

- **A**: 0,4 m³/min
- **B**: 0,8 m³/min
- **C**: 1,2 m³/min
- **D**: 1,6 m³/min
Why choose a diaphragm pump entirely made of polypropylene?

RAASM pneumatic diaphragm pumps completely made of polypropylene are made to work in particularly aggressive work atmospheres, with a wide range of fluids, also corrosive, with high viscosity and solid parts in suspension.

- Suitable in environments with aggressive atmospheres
- Can be used with water or corrosive solutions
- Higher quality thanks also to the stainless steel screws
- Built with anti-stalling and anti-icing devices to maintain unaltered the performances over time
- Silencer in plastic material for corrosive environments with stainless steel cage.
- 1/2” pumps with reinforced thread thanks to a AISI 316 stainless steel ring
- Usable with viscous fluids and with solid parts in suspension
- Easy and on-site maintainability by requesting predefined replacement kits
- Self-priming capability
- All pumps are tested before the packaging to ensure the highest quality

strength points

Diaphragm pumps in polypropylene

20
Balls and ball seats in many types of materials to guarantee chemical compatibility according to the fluid to be pumped. Easy to clean or replace as required. The ball seats are in AISI 316 stainless steel (versions 1") or in AISI 316 stainless steel and polypropylene (versions 1/2").

Total flow suction and delivery manifolds, to facilitate suction of the liquid in any situation, with threaded connections or flanged available in different diameters according to the pump models. There is a AISI 316 stainless steel ring to reinforce the thread (versions 1/2").

Membranes made with different and specific materials able to withstand many types of fluids and millions of cycles.

The air distribution valve ensures perfect operation in any operating conditions, some examples:
- Minimum supply pressures (min. 2 bar)
- Fluid and environment critical temperatures
- Supply pressure fluctuations

Air distributor unit equipped with anti-stall reversing piston. This piston prevents the pump from stopping at a dead point, even in critical operating conditions.

Pneumatic motor anti-icing device made of plastic material. This allows the pump to maintain its unaltered performance even if powered with untreated air.

The pneumatic motor block of the pump does not require any type of lubrication because the moving parts are self-lubricating.

Pump body in polypropylene with integrated flanges and co-molded inserts to guarantee elevated tightening torques.

Silencer made of plastic material with increased exhaust system designed to withstand corrosive environments also thanks to stainless steel cage.
Diaphragm pumps
R. 1:1 for fluids transfer, produced entirely in polypropylene, are recommended for applications with industrial fluids, also corrosive, and in working environments with aggressive atmospheres.

Note: The max flow rate shown in the below graphics has been obtained by laboratory test.

<table>
<thead>
<tr>
<th>Series</th>
<th>120-PPB with multi-ported inlet/outlet</th>
<th>120-PPB dual inlet/multi-ported outlet</th>
</tr>
</thead>
<tbody>
<tr>
<td>membranes</td>
<td>balls</td>
<td>seats</td>
</tr>
<tr>
<td>EPDM</td>
<td>Acetal</td>
<td>Polypropylene and AISI 316</td>
</tr>
<tr>
<td>Hytrel®</td>
<td>Hytrel®</td>
<td>Polypropylene and AISI 316</td>
</tr>
<tr>
<td>NBR</td>
<td>Hytrel®</td>
<td>Polypropylene and AISI 316</td>
</tr>
<tr>
<td>Santoprene™</td>
<td>Santoprene™</td>
<td>Polypropylene and AISI 316</td>
</tr>
<tr>
<td>PTFE+Hytrel®</td>
<td>PTFE</td>
<td>Polypropylene and AISI 316</td>
</tr>
</tbody>
</table>

- **Max pressure**: bar
- **Max cycles per min**: cpmp
- **Litrates per cycle**: l
- **Max suction lift**: m
- **Max size pumpable solids**: mm
- **Max working temperature**: °C
- **Noise level**: dB
- **Max air consumption (m³/min)**: m³/min
- **Air working pressure**: bar
- **Air inlet connection**: G 3/8” (f)
- **Air outlet connection (muffler)**: G 3/4” (f)
- **Fluid inlet connection**: G 3/4” (f) - G 1” (f) for drum
- **Fluid outlet connection**: G 1/2” (f)
- **Balls for inlet and outlet**: G
- **Overall dimensions (A x B x C x D x E)**: mm
- **Screws for pump fixing**: M8
- **Packing - Weight**: M8

* With PTFE membrane flow rate is 10 % lower
** Displacement per cycle may be influenced by suction lift, fluid viscosity, air pressure, number of cycles per minute
*** The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature
The family of 1" diaphragm pumps, R. 1:1 for fluid transfer, produced entirely in polypropylene, maintain their performance on applications with industrial fluids, also aggressive, and in working environments with corrosive atmospheres, offering an unquestionable higher capacity.

Note: The max flow rate shown in the below graphics has been obtained by laboratory test.

** Series 1000-PPB 1000-PPB dual inlet **

<table>
<thead>
<tr>
<th>membranes</th>
<th>balls</th>
<th>seats</th>
<th>P/N</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPDM</td>
<td>Acetal</td>
<td>AISI 316 stainless steel</td>
<td>2A4/2677EAI</td>
<td>2A7/2677EAI</td>
</tr>
<tr>
<td>Hytrel®</td>
<td>Hytrel®</td>
<td>AISI 316 stainless steel</td>
<td>2A4/2677HHI</td>
<td>2A7/2677HHI</td>
</tr>
<tr>
<td>NBR</td>
<td>Hytrel®</td>
<td>AISI 316 stainless steel</td>
<td>2A4/2677NHI</td>
<td>2A7/2677NHI</td>
</tr>
<tr>
<td>Santoprene™</td>
<td>Santoprene™</td>
<td>AISI 316 stainless steel</td>
<td>2A4/2677SSI</td>
<td>2A7/2677SSI</td>
</tr>
<tr>
<td>PTFE+Hytrel®</td>
<td>PTFE</td>
<td>AISI 316 stainless steel</td>
<td>2A4/2677TTI</td>
<td>2A7/2677TTI</td>
</tr>
</tbody>
</table>

Max pressure bar 8 8
Max cycles per min cpm 270 270
Litres per cycle l 0.540 0.540
Max suction lift m dry column 5 - wet column 7.5 dry column 5 - wet column 7.5
Max size pumpable solids mm 3 3
Max working temperature °C 65 65
Noise level dB 78 78
Max air consumption (m³/min) m³/min 1.1 1.1
Air working pressure bar 2 - 6 2 - 6
Air inlet connection G 3/8” (f) G 3/8” (f)
Air outlet connection (muffler) G 3/4” (f) G 3/4” (f)
Fluid inlet connection ANSI 150 - DIN PN 10 - JIS 10K 1” (25 mm) proneness to G 1.1/4” (f) thread ANSI 150 - DIN PN 10 - JIS 10K 1” (25 mm) proneness to G 1.1/4” (f) thread
Fluid outlet connection ANSI 150 - DIN PN 10 - JIS 10K 1” (25 mm) proneness to G 1.1/4” (f) thread ANSI 150 - DIN PN 10 - JIS 10K 1” (25 mm) proneness to G 1.1/4” (f) thread
Balls for inlet and outlet G 3/4” (f) G 3/4” (f)
Overall dimensions (A x B x C x D x E) mm 305 x 300 x 420 x 191 x 130 357 x 300 x 420 x 191 x 130
Screws for pump fixing M10 M10
Packing - Weight N° 1 0.03 m³ 9.6 kg N° 1 0.03 m³ 9.6 kg

** PUMP DIMENSIONS **

** PUMP PERFORMANCE **

- KIND OF FLUID: Water 20 °C
- SAE30 oil (ISO VG 100) 20 °C

- 8 bar
- 6 bar
- 4 bar
P/N 37819
Pressure regulator with condensate discharge filter and pressure gauge,
- connections
G 3/8” (f) x G 3/8” (f) for application at the start of the compressed air line feeding the pump

P/N 37815
Pressure regulator with condensate discharge filter and pressure gauge,
- connections
G 1/2” (f) x G 1/2” (f) for application at the start of the compressed air line feeding the pump

P/N 37821
Pressure regulator with condensate discharge filter, air lubricator and pressure gauge.
- connections
G 3/8” (f) x G 3/8” (f)
the system guarantees that the pump feed air is free of condensate

P/N 37817
Pressure regulator with condensate discharge filter, air lubricator and pressure gauge.
- connections
G 1/2” (f) x G 1/2” (f)
the system guarantees that the pump feed air is free of condensate

P/N 38097
Flow regulator chamber
G 3/4” (f) x G 3/4” (f) equipped with:
- one-way valve eliminates sudden pressure
- changes, ensuring a regular flow
- suitable for R 1:1 - 3:1 - 5:1 pumps
- max pressure 100 bar

PRESSURE TREND OF PUMP OUTLET

P/N KR4506
Earthing cable provided with plier.
In environments with risk of explosion (i.e. with a potentially explosive atmosphere according to the ATEX directive) it is mandatory to connect to the ground both the pump and other equipment placed in the work area.
diaphragm pumps in...

aluminum

aluminum and polypropylene

polypropylene
Accessories for

Mufflers reduce exponentially the noise level perceived. They decrease the pump outlet air level noise bringing it to a comfortable level, optimizing the air flow and so increasing the pump performance.

P/N 32/89
Increased Muffler G 1/2” (m) suitable for 1/2” and 1” pumps with aluminum motor.

P/N 32/90
Muffler G 3/4” (m) in polypropylene for 1/2” and 1” pumps with plastic motor.

P/N 32/91
Muffler G 1” (m) for 1.1/4”, 1.1/2” and 2” pumps with aluminum motor. Suggested with very dusty environments.

P/N 32/92
Muffler G 1” (m) for 1.1/4”, 1.1/2” and 2” pumps with aluminum motor.

P/N 33590
Wall bracket in painted steel for wall-mounting of diaphragm pumps 1/2” and 3/4” and screws for pump fixing M8.

P/N 33591
Wall bracket in painted steel for wall-mounting of diaphragm pumps 1” and 1.1/4” and screws for pump fixing M10.

P/N KR33/90
Antivibration kit in SBR rubber ø 30 x h. 20 thread M/M - M8 for 1/2” and 3/4” diaphragm pump. It reduces the vibrations in heavy applications.

P/N KR33/91
Antivibration kit in SBR rubber ø 50 x h. 30 thread M/M - M10 for 1” and 1.1/4” diaphragm pump. It reduces the vibrations in heavy applications.

P/N KR33/88
Antivibration kit in SBR rubber ø 30 x h. 20 thread F/F - M12 for 1.1/2” and 2” diaphragm pump. It reduces the vibrations in heavy applications.
diaphragm pumps in...

- aluminum
- aluminum and polypropylene
- polypropylene
Accessories for diaphragm pump in...

P/N 32/95 *
1" stainless steel AISI 304 flange suitable to connect the pump with the plant. Thread G 1" (f)

P/N 32/96 *
1" polypropylene flange suitable to connect the pump with the plant. Thread G 1" (f)

P/N 32/97 *
2" aluminum flange suitable to connect the pump with the plant. Thread G 1" (f)

* accessory only for flanged diaphragm pumps

P/N 33574
Hose holder ø 1.3/4" (47,5 mm) with connection G 1.1/4" (m)
P/N 33575
Hose holder ø 1.3/4" (47,5 mm) with connection G 1.1/2" (m)
P/N 33576
Hose holder ø 1.3/4" (47,5 mm) with connection G 2" (m)
P/N 38080
Hose holder ø 1.1/4" (31,4 mm) with connection G 3/4" (m)
P/N 38081
Hose holder ø 1.1/4" (31,4 mm) with connection G 1" (m)
P/N 38082
Hose holder ø 1.1/4" (31,4 mm) with connection G 1.1/4" (m)

P/N 33571
Hose holder ø 3/4" (22 mm) with connection G 3/4" (m) in AISI 304 stainless steel

P/N 38083
Hose holder ø 3/4" (22 mm) with connection G 1" (m) in AISI 304 stainless steel
SUCTION TUBES KITS AVAILABLE

P/N 33581
Rigid suction tube ø 34 mm
- length 940 mm

P/N 33582
Rigid suction tube ø 34 mm
- length 1240 mm

P/N 33586
Rigid suction tube ø 53 mm
- length 940 mm

P/N 33588
Rigid suction tube ø 53 mm
- length 1240 mm

P/N 33594
Rigid suction tube ø 34 mm
- length 1500 mm

P/N 33569
Stainless steel suction tube ø 34 mm
- length 1240 mm straight connection without joint

P/N 33579
Stainless steel suction tube ø 34 mm
- length 940 mm

P/N 33580
Stainless steel suction tube ø 34 mm
- length 1240 mm

P/N 33596
Stainless steel suction tube ø 34 mm
- length 1460 mm

P/N 33583
Rigid suction tube ø 34 mm
- length 940 mm

P/N 33585
Rigid suction tube ø 34 mm
- length 1240 mm

P/N 33587
Rigid suction tube kit ø 53 mm
- length 940 mm

P/N 33589
Rigid suction tube kit ø 53 mm
- length 1240 mm

P/N 33595
Rigid suction tube kit ø 34 mm
- length 1500 mm

P/N 33577
Stainless steel rigid suction tube kit ø 34 mm
- length 940 mm

P/N 33578
Stainless steel rigid suction tube kit ø 34 mm
- length 1260 mm

P/N 33597
Stainless steel rigid suction tube kit ø 34 mm
- length 1240 mm
The table summarises the pump configurations available, allowing the user to create his own personalised code whenever the models listed on the leaflet do not meet the specific requirements.

Two types of ATEX certifications are available, for zone 2 or for zone 1, depending on the materials making up the pump.

<table>
<thead>
<tr>
<th>MATERIALS AND ATEX VERSIONS</th>
<th>MANIFOLD FOR INLET AND OUTLET</th>
<th>FLOW INSIDE DIAMETER</th>
<th>KIND OF MATERIALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2B = Polypropylene for Zone 2</td>
<td>1/ = threaded connection G/BSP</td>
<td>16 = 1/2”</td>
<td>MOTOR</td>
</tr>
<tr>
<td>3C = Aluminum for Zone 1</td>
<td>4/ = connection with flange</td>
<td>30 = 1.1/4”</td>
<td>INNER FLANGES</td>
</tr>
<tr>
<td>2A = Polypropylene</td>
<td>6/ = multiple modular connection with flange</td>
<td>40 = 1.1/2”, 50 = 2”</td>
<td>PARTS IN CONTACT WITH THE FLUID</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MEMBRANE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BALLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SEATS</td>
</tr>
</tbody>
</table>

They are the only elastic parts of the pump, that suck and pump the liquid with their movement. The material they are made from must be compatible with the fluid being pumped.

These are all the rigid parts such as external flanges, manifolds and sleeves which are constantly in contact with the liquid to be pumped. Available in various materials, depending on the type of liquid.

These are not in contact with the pumped liquid, but only with the compressed air feeding the motor.

The valve seats are to be coupled to the balls and must ensure correct closing. Like the balls, they must be made from a material suitable for the fluid they come into contact with.

They open and close the flow of liquid as a result of the reciprocating movement of the follower plates. The material they are made from must be compatible with the fluid being pumped.

They can be threaded (G/BSP) or flanged, single, multiple and modular.

It defines the inside diameter of the manifold.

This is the heart of the pump, responsible for the reciprocating movement that creates the flow of liquid.

The inner flanges are the only parts in contact with the fluid.

This is the heart of the pump, responsible for the reciprocating movement that creates the flow of liquid.

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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MEMBRANE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BALLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SEATS</td>
</tr>
</tbody>
</table>

Two types of ATEX certifications are available, for zone 2 or for zone 1, depending on the materials making up the pump.

II 3GD c TX (for zone 2) II 2GD c IIB T4 X (for zone 1)

They are the only elastic parts of the pump, that suck and pump the liquid with their movement. The material they are made from must be compatible with the fluid being pumped.

These are all the rigid parts such as external flanges, manifolds and sleeves which are constantly in contact with the liquid to be pumped. Available in various materials, depending on the type of liquid.

These are not in contact with the pumped liquid, but only with the compressed air feeding the motor.

The valve seats are to be coupled to the balls and must ensure correct closing. Like the balls, they must be made from a material suitable for the fluid they come into contact with.

They open and close the flow of liquid as a result of the reciprocating movement of the follower plates. The material they are made from must be compatible with the fluid being pumped.
### Installation and operation

**SIMPLE AND EFFECTIVE (1:1 RATIO)**

The slide valve of the air motor sends air (blue) to the left chamber which, pushing the membrane outwards, compresses the previously filled liquid (green). Through the effect of the pressure created valve 1, valve 2 opens, allowing the liquid to dispense (green). The right membrane then carries out the same movement by the shaft joining it to the left membrane, creating a vacuum. Through the effect of the vacuum, valve 3 opens and valve 4 closes, enabling suction of the liquid (orange).

The slide valve of the air motor sends air (blue) to the right chamber which, pushing the membrane outwards, compresses the previously filled liquid (green). Through the effect of the pressure created valve 2, valve 3 closes and valve 4 opens, allowing the liquid to dispense (green). The left membrane then carries out the same movement by the shaft joining it to the right membrane, creating a vacuum. Through the effect of the vacuum, valve 1 opens and valve 2 closes, enabling suction of the liquid (orange).

### PUMP INSTALLATION

<table>
<thead>
<tr>
<th></th>
<th>ON DRUM</th>
<th>DUAL INLET SUCTION</th>
<th>TOP FEED</th>
<th>BOTTOM FEED</th>
</tr>
</thead>
<tbody>
<tr>
<td>(suitable with fluids with max viscosity 10000 cps, 20 °C)</td>
<td><img src="image1.png" alt="On Drum" /></td>
<td><img src="image2.png" alt="Dual Inlet Suction" /></td>
<td><img src="image3.png" alt="Top Feed" /></td>
<td><img src="image4.png" alt="Bottom Feed" /></td>
</tr>
<tr>
<td>(suitable with fluids with max viscosity 50000 cps, 20 °C)</td>
<td><img src="image1.png" alt="On Drum" /></td>
<td><img src="image2.png" alt="Dual Inlet Suction" /></td>
<td><img src="image3.png" alt="Top Feed" /></td>
<td><img src="image4.png" alt="Bottom Feed" /></td>
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<td><img src="image1.png" alt="On Drum" /></td>
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<tr>
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<td><img src="image1.png" alt="On Drum" /></td>
<td><img src="image2.png" alt="Dual Inlet Suction" /></td>
<td><img src="image3.png" alt="Top Feed" /></td>
<td><img src="image4.png" alt="Bottom Feed" /></td>
</tr>
</tbody>
</table>

**ON A MOBILE UNIT**

(suitable with fluids with max viscosity 10000 cps, 20 °C)

**SUBMERGED PUMP**

(suitable with fluids with max viscosity 50000 cps, 20 °C)

**BULK TANK**

(suitable with fluids with max viscosity 50000 cps, 20 °C)
## Wide choice of materials

### Parts in Contact with Fluid

<table>
<thead>
<tr>
<th>PUMP PARTS</th>
<th>MATERIALS</th>
<th>CHARACTERISTICS</th>
<th>TEMPERATURE MAX *</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nickel-plated</td>
<td>- average resistance to abrasion and corrosion</td>
<td>+100 °C</td>
</tr>
<tr>
<td></td>
<td>aluminum</td>
<td>- not intended for use with HHC (halogenated hydrocarbons)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Polypropylene</td>
<td>- wide chemical compatibility</td>
<td>+65 °C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- best alternative with aggressive fluids</td>
<td></td>
</tr>
</tbody>
</table>

### Central Motor Block

<table>
<thead>
<tr>
<th>PUMP PARTS</th>
<th>MATERIALS</th>
<th>CHARACTERISTICS</th>
<th>TEMPERATURE MAX *</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nickel-plated</td>
<td>- high mechanical strength</td>
<td>+100 °C</td>
</tr>
<tr>
<td></td>
<td>aluminum</td>
<td>- electrically conductive material for ATEX directive</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Polypropylene</td>
<td>- wide chemical compatibility</td>
<td>+65 °C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- general use</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- cheaper solution</td>
<td></td>
</tr>
</tbody>
</table>

### Diaphragms - Seats - Balls

<table>
<thead>
<tr>
<th>MATERIALS</th>
<th>CHARACTERISTICS AND STRENGTH POINTS</th>
<th>T° MAX *</th>
<th>DO NOT CHOOSE IF</th>
<th>SIMILAR NAMES ON THE MARKET</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Nitrile NBR</td>
<td>- high resistance to aliphatic hydrocarbons, oils and greases</td>
<td>+90 °C</td>
<td>you are looking for resistance to many chemical agents</td>
<td>Buna - N Geolast</td>
</tr>
<tr>
<td></td>
<td>- good flexibility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hytrel®</td>
<td>- high tenacity and springback</td>
<td>+65 °C</td>
<td>you work at high temperatures</td>
<td>Sani - flex</td>
</tr>
<tr>
<td></td>
<td>- high resistance to permanent deformation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- good resistance to industrial chemical substances and solvents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- excellent flexibility even at low temperature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santoprene™</td>
<td>- excellent flexural and fatigue strength</td>
<td>+110 °C</td>
<td>you work with Kerosene, Diesel, Petrol, Freon, Benzene</td>
<td>Wii - flex</td>
</tr>
<tr>
<td></td>
<td>- excellent resistance to abrasion and laceration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- excellent resistance to acids, alkanes and ageing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- also usable at high temperatures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPDM</td>
<td>- good compatibility with organic and non-organic acids</td>
<td>+110 °C</td>
<td>you work with mineral oils and hydrocarbons</td>
<td>Nordel Buna - Ep</td>
</tr>
<tr>
<td></td>
<td>- excellent resistance to heat and steam</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- insensitive to the action of oxidising agents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTFE</td>
<td>- inert with nearly all chemical reagents</td>
<td>+120 °C</td>
<td>you work at low temperatures</td>
<td>Teflon®</td>
</tr>
<tr>
<td></td>
<td>- excellent heat resistance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- excellent dielectric characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- excellent resistance to ageing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acetal resin</td>
<td>- high fatigue strength</td>
<td>+150 °C</td>
<td>you work in easy combustion environments</td>
<td>Delrin</td>
</tr>
<tr>
<td></td>
<td>- high compressive strength</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- good dimensional stability (low humidity absorption)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- resistance to alcohols and organic compounds</td>
<td></td>
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</tr>
</tbody>
</table>

* The materials in contact with the fluid, and the fluid as well, can restrict the pump working temperature

⚠️ Use these pumps only with fluids with flash point not less than +55 °C
Guide to choosing a pump

HOW TO CHOOSE A PUMP SUITABLE FOR ONE’S NEEDS

<table>
<thead>
<tr>
<th>PUMP SIZE</th>
<th>DELIVERY (FLOW RATE)</th>
<th>MAX Ø SOLID PARTS</th>
<th>SERIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2”</td>
<td>60 l/min</td>
<td>1,5 mm</td>
<td>120-PPAB</td>
</tr>
<tr>
<td>65 l/min</td>
<td>1,5 mm</td>
<td>120-PPB</td>
<td>-</td>
</tr>
<tr>
<td>70 l/min</td>
<td>1,5 mm</td>
<td>-</td>
<td>120-AB</td>
</tr>
<tr>
<td>1”</td>
<td>170 l/min</td>
<td>3 mm</td>
<td>1000-PPAB</td>
</tr>
<tr>
<td>145 l/min</td>
<td>3 mm</td>
<td>1000-PPB</td>
<td>1000-AB</td>
</tr>
<tr>
<td>1.1/4”</td>
<td>200 l/min</td>
<td>3 mm</td>
<td>-</td>
</tr>
<tr>
<td>1.1/2”</td>
<td>480 l/min</td>
<td>5,5 mm</td>
<td>-</td>
</tr>
<tr>
<td>2”</td>
<td>580 l/min</td>
<td>6,5 mm</td>
<td>-</td>
</tr>
<tr>
<td>610 l/min</td>
<td>6,5 mm</td>
<td>-</td>
<td>2000-AB</td>
</tr>
</tbody>
</table>

TECHNICAL ASPECTS TO BE CONSIDERED FOR A CORRECT CHOICE OF PUMP

PUMP SIZE
The size of a pump is closely linked to its maximum delivery: in fact, the larger the pump the greater the delivery.

CHEMICAL COMPATIBILITY
Some parts of the pump are always in contact with the liquid to be pumped. Therefore the materials these parts are made from must be chemically compatible with the liquid.

DIMENSIONS OF SUSPENDED SOLIDS
The maximum dimensions possible for suspended solids in the fluid to be pumped are specified in the technical tables of each diaphragm pump.

WORKING TEMPERATURE
The maximum and minimum working temperatures take into account the physical characteristics of the various parts making up the pump and their interaction with the pumped liquid.

ABRASION RESISTANCE
If the fluid to be pumped is very abrasive, the wear on parts that deteriorate quickly (e.g. diaphragms, balls, seats) can be reduced by choosing a pump larger than required. In this way the speed of the fluid inside the pump will be lower, thereby reducing the abrasion on the parts in contact with it.

SYSTEM SIZE
In order to optimise the performance of the pump it is advisable to consider the following dimensional parameters relevant to the system:

1) Suction pipe: position the pump as close as possible to the point of suction; if this is not possible, the maximum vertical distance must not exceed the limits reported in the technical table.

2) Delivery pipe: the pipe must be sized so as to avoid pressure losses; the internal diameter must be chosen according to the distance to be covered, the temperature and the viscosity of the fluid.

ATEX DIRECTIVE

<table>
<thead>
<tr>
<th>PUMP FAMILY</th>
<th>DESCRIPTION</th>
<th>CERTIFICATION CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTIRELY ALUMINUM SERIES</td>
<td>Conductive material version Built with central body and manifolds in conductive metallic material (aluminum)</td>
<td>II 2GD c IIB T4 X (zone 1)</td>
</tr>
<tr>
<td>ALUMINUM AND POLYPROPYLENE SERIES</td>
<td>Partially conductive material version Manifolds built with non-conductive plastic material (PP) and central body with conductive material (aluminum)</td>
<td>IIB 3GD c TX (zone 2)</td>
</tr>
<tr>
<td>ENTIRELY POLYPROPYLENE SERIES</td>
<td>Central body and manifolds in non-conductive plastic material (PP)</td>
<td>not certified</td>
</tr>
</tbody>
</table>
SPECIFIC TESTS AND OVERALL TESTING
The spare parts catalogue advantages

With a complete, intuitive and competitive catalogue the diaphragm pumps maintenance is every day easier and more profitable.

**LONG-TERM QUALITY**
The availability of spare parts kits extends the product’s lifetime, improving the investment over time.

**IMMEDIATE MAINTENANCE, AT THE WORKING SITE**
Kits are easy to install, they don’t need the presence of specialized technicians and they can be used at the working place.

**SIMPLE AND EFFICIENT**
The already available spare parts kits simplify the purchase procedure and make the stock more efficient.

**POWER TO THE COLOURS**
The colours in the exploded view make the consultation easy, evident and immediate.

**ALWAYS AVAILABLE**
The exploded view of all the catalogue’s products can be downloaded on-line.
THREE WORDS TO DESCRIBE RAASM

■ Technology
The starting point for the entire manufacturing cycle is the research and development of cutting-edge solutions for products fully made in Italy.

■ Quality
One of our most important target is to offer high level of quality. Rigorous tests follow every single phase of the manufacturing process.

■ Efficiency
RAASM offers the most complete range of fluid management solutions suitable for many sectors. Our success is founded upon our ability to identify and fulfill specific customers’ requirements.

RAASM S.p.A.
36022 S. ZENO DI CASSOLA (VI)
Via Marangoni, 33 - ITALY
Export department
Tel. +39 0424 571130 - Fax +39 0424 571135
Technical department
Tel. +39 0424 571150 - Fax +39 0424 571155
info@raasm.com - www.raasm.com

Company with an ISO 9001:2015 certified quality management system