Thermally optimized HVAC frames

Tailored engineering plastics solutions
Our solutions for HVAC systems made of technical plastics

Plastic solutions for thermal optimization

The application of plastic profiles as the frame structure in ventilation and air-conditioning (HVAC) equipment allows far better thermal properties than solutions made of metal.

Depending on the selected polymer, plastics have significantly better insulation properties due to their thermal conductivity that is more than 870 times lower than that of aluminum profiles.

Your benefits with plastics:
• better insulation than with metals
• minimization of noise emission
• highly reduced vibrations on housings
• weight reduction

Our special extrusion process enables the processing of numerous technical plastics. To produce our profiles, we select the material according to your individual requirements in order to achieve the optimum customer benefit.
Comparison of material properties

<table>
<thead>
<tr>
<th>Material properties</th>
<th>Unit</th>
<th>PA 6.6 GF25</th>
<th>PBT GF30</th>
<th>SAN GF35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile modulus</td>
<td>MPa</td>
<td>4500</td>
<td>9800</td>
<td>12000</td>
</tr>
<tr>
<td>Failure stress</td>
<td>MPa</td>
<td>130</td>
<td>140</td>
<td>150</td>
</tr>
<tr>
<td>Def. resistance temp. (1.80 MPa)</td>
<td>°C</td>
<td>245</td>
<td>215</td>
<td>104</td>
</tr>
<tr>
<td>Coefficient of lin. expansion (parallel)</td>
<td>E-6/K</td>
<td>25-35</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>Density</td>
<td>kg/m³</td>
<td>1320</td>
<td>1530</td>
<td>1360</td>
</tr>
<tr>
<td>Heat conductivity</td>
<td>W/m²K</td>
<td>0.34</td>
<td>0.27</td>
<td>0.215</td>
</tr>
<tr>
<td>Electrical resistance</td>
<td>Ω·cm</td>
<td>10¹¹³</td>
<td>10¹¹⁴</td>
<td>10¹¹⁴</td>
</tr>
<tr>
<td>Moisture absorbency</td>
<td>%</td>
<td>1.5-1.9</td>
<td>0.2</td>
<td>0.25</td>
</tr>
<tr>
<td>Charpy impact strength (23 °C)</td>
<td>kJ/m²</td>
<td>40</td>
<td>70</td>
<td>4</td>
</tr>
</tbody>
</table>

Making a decision

**PA solution**
- More suitable for interior applications
- Cost-efficient standard material
- Linear expansion adjustable to that of aluminum
- Average temperature stability
- Average strength
- High impact strength: absorption of kinetic energy
- Electrically insulating

**PBT solution**
- Suitable for humid environment
- Stable mechanical properties under temperature fluctuation
- Good resistance against cleaning agents
- Good mechanical properties
- Linear expansion adjustable to that of aluminum
- High impact strength: absorption of kinetic energy
- Electrically insulating

**SAN solution**
- Very good thermal insulation properties
- Good mechanical properties
- Weight reduction by lowering the amount of material
- Very good UV resistance
- Good thermal deformation resistance
- Very good gluing and screwing properties
- Electrically insulating
Thermal insulation of different systems*

Benefits
- Better thermal insulation than aluminum
- High mechanical resilience
- Protection against condensation
- Avoiding the heat-bridge symptom

Additional optimization options
- Individual colouring with completely dyed material
- High resistance to weather and UV radiation by adding certain additives
- Mating: gluing and screwing together, welding
- High complexity of the geometry possible in solutions made entirely of plastic

* Assumption of bending under central point load of 500 N with a profile length of 1 m.
We aren’t simply looking for solutions. We’re looking for development partnerships.

Services

• Technical thermoplastics with outstanding insulation properties
• Use of different plastics depending on each case of application
• Solutions made of metal combined with plastics and those made entirely of plastic
• Calculation of the profile in terms of thermal transmittance value, loading conditions or other parameters

Market leadership

As market leader in the field of thermal insulation of windows, doors and facades, Technoform is also the right project partner for thermal projects in other sectors. Ranging from the thermal layout and the design of the profile to virtual application simulations, each of our customized insulating plastic profiles benefits from intra-group knowledge exchange.

With us you have a partner for HVAC systems who offers you the highest expertise in thermoplastic extrusion. We develop profiles in any desired geometry with the right properties based on your requirements.

For you, we are looking for:
• New materials
• Optimization of existing materials
• Optimal customer benefit
• Best price-performance ratio
We love to innovate your industry.

Originally started with tailored plastic profile solutions, Technoform has always been opening up new business fields – and still does. Providing holistic know-how and technical expertise, we are a trusted partner and problem solver for various industries today, from construction and insulating glass to automotive and aviation, from oil and gas to wastewater treatment and seawater desalination.

Our promise: consistent high quality and fastest delivery times, from the initial idea to the first sample, from pilot lot to serial production. You’re looking for a plastics extrusion specialist? We make your task our own.