CELLULAR RUBBER GASKETS

SIGNIFICANT CONTRIBUTION TO IMPROVING THE ENERGY EFFICIENCY OF YOUR WINDOW SYSTEMS

Outstanding insulation performance
Excellent resistance to ageing
High elasticity at minimal closing forces
BENEFITS OF FULL CELLULAR RUBBER GASKET PROFILES AND CO-EXTRUDED GASKET PROFILES

✓ Improved insulation performance
   
   Standard value solid rubber: $\lambda = 0.25 \text{ W/mK}$
   Standard value cellular rubber: $\lambda = 0.05 \text{ W/mK}$

✓ High, long-term elasticity
✓ Reduced closing forces
✓ Long-lasting, optimal sealing performance through permanently precise sealing lip position
✓ Excellent resistance to ageing despite cell structure
✓ Long-term elastic recovery
✓ Easier installation
✓ Higher tolerance thresholds possible
✓ Unrivalled high surface quality
EVOLUTION OF EPDM GASKETS

Right up to the early 90s, the material of choice for gaskets in the window and facade sectors was the mono gasket composed of sturdily designed soft rubber. At the beginning of the new millennium, in order to meet the increased requirements on thermal insulation for residential homes, offices and industrial buildings, co-extruded gaskets with solid and cellular components, often known as sponge rubber, became increasingly prevalent on the market.

The immense influence of a gasket on the overall evaluation of a window system, despite its small share in the total cost of the product, can be seen through calculating the so-called U-value or thermal transmittance in accordance with DIN EN ISO 10077-2.

\[
U_f = \frac{L_2D - U_p \times l_p \times L_2D}{l_p} = \frac{q}{\Delta T}
\]

Of course, the lower the value is, the better the result. For example, the following shows the thermal transmittance for a mullion-transom system:

<table>
<thead>
<tr>
<th>Solid rubber</th>
<th>Co-extruded solid/cellular rubber EPDM gasket</th>
</tr>
</thead>
<tbody>
<tr>
<td>( U_i = 2.55 \text{ W/(m}^2\text{K)(incl. } \Delta U) )</td>
<td>( U_i = 2.45 \text{ W/(m}^2\text{K)(incl. } \Delta U) )</td>
</tr>
</tbody>
</table>

A few years ago, the next step was taken with the introduction of gasket profiles made of 100% cellular rubber, bringing further thermal insulation advantages, as the U-value shows:

<table>
<thead>
<tr>
<th>Full cellular rubber</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>( U_i = 2.35 \text{ W/(m}^2\text{K)(incl. } \Delta U) )</td>
<td></td>
</tr>
</tbody>
</table>

Through further development of rubber gasket technology, SEMPERIT was able to improve insulation performance, reduce closing forces, and improve tolerance compensation, long-term elasticity and elastic recovery.
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