KÖDIMELT TPS

WARM EDGE AS A SYSTEM

approved also for triple glazing
EN 1279 part 2 + 3
approved also for triple glazing

KÖMMERLING
KÖMMERLING CHEMISCHE FABRIK GMBH

ENERGY EFFICIENCY, SUSTAINABILITY, COMFORTABLE LIVING

WARM EDGE

The term "Warm Edge" refers to spacer systems that reduce the conductivity values at the edge of a sealed unit. This shows in the reduction of condensation at the edge of a window. Metal spacers, usually aluminium, have far less of this ability. The cooling of the edge of the unit is therefore significantly reduced by using a "Warm Edge Spacer" thus reducing the threat of the IGU falling below the dew point.

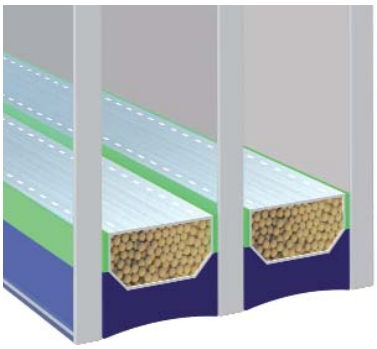
Insulating glass units made with "Warm Edge Spacer" are more thermally efficient than those made with aluminium spacers. Gas filling and low e glass will also help to achieve the required thermal performance as well as reduce condensation. This will improve the appearance of the window as well as the comfort of the occupants of the building. It will also reduce the risk of mould forming which can be detrimental to health and aggravate allergies.

Ködimelt TPS "Warm Edge" delivers the optimum thermal insulation at the edge of the unit due to the total absence of any metal. This provides an important contribution to:

ENERGY EFFICIENCY

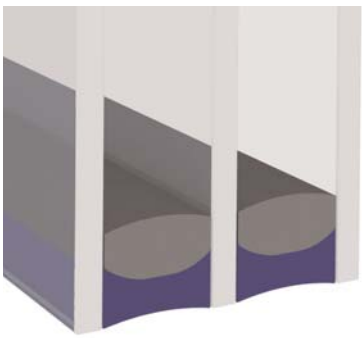
SUSTAINABILITY

COMFORTABLE LIVING



What must also be considered is the insulation performance of the whole unit. This is determined primarily by the low e glass and the filling of the inert gas.

For these reasons the overall performance of the system needs to be perfect. To this end Ködimelt TPS offers ideal solutions:



– Excellent PSI-values (measure of insulation)
– Organic based material, thus metal free
– Best possible gas retention, especially with triple glazed units
– This system halves the number of contact surfaces, therefore reducing gas leakage

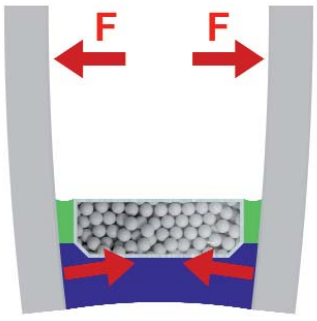
BENEFITS

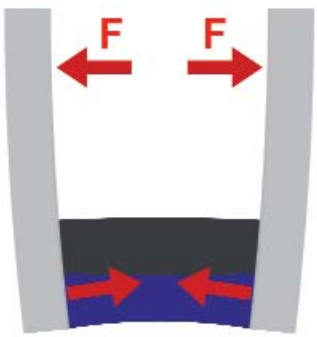
AESTHETICS, COMFORTABLE LIVING, LONG LIFE

TPS warm edge spacer is invisible when glazed

– This is achieved by the material reflecting the colour of the frame.
– Because of its totally automated application each spacer is positioned perfectly, a major benefit when producing triple units
– No shiny metal surfaces or reflections.
– TPS offers the best thermal break and results in minimum condensation at the windows edge

– The system offers maximum comfort due to reduced convection making the room more comfortable.
– Reduced heat loss lowers heating costs.
The lower CO_2 emissions will benefit the environment.
– The system is environmentally friendly as TPS is organically based which makes the system more eco efficient than comparable systems.
– Long life
– The flexible secondary sealant withstands environmental factors (climate, wind etc.) throughout the lifetime of the IG unit. Expansions in the edge area will be compensated over the whole width of the TPS due to its flexibility. This is in contrast with conventional spacers where only the width of the primary seal is available.





Ködimelt TPS: Warm-Edge as a System
Thermal performance in different types of windows

		Double glazing U_g = 1,1 W/m²K			Triple glazing U_g = 0,7 W/m²K		
Spacer System		**Aluminium**	**Stainless steel**	**Ködimelt TPS**	**Aluminium**	**Stainless steel**	**Ködimelt TPS**
PVC frame	U_f = 1,2 W/m²K						
Psi value	[W/mK]	0,077	0,051	0,039	0,075	0,048	0,037
Window U_w	[W/m²K]	1,32	1,26	1,23	1,04	0,97	0,94
Temperature factor f_{RSi}		0,52	0,61	0,66	0,57	0,67	0,71
Surface temperature T_{oi} at -10°C, 20°C	[°C]	5,6	8,3	9,8	7,1	10,1	11,3
Wooden frame	U_f = 1,4 W/m²K						
Psi value	[W/mK]	0,081	0,053	0,038	0,086	0,052	0,037
Window Uw	[W/m²K]	1,33	1,26	1,23	1,07	0,98	0,94
Temperature factor f_{RSi}		0,47	0,58	0,63	0,54	0,66	0,70
Surface temperature T_{oi} at -10°C, 20°C	[°C]	4,1	7,4	8,9	6,2	9,8	11,0
Aluminium frame	U_f = 1,6 W/m²K						
Psi value	[W/mK]	0,111	0,068	0,047	0,111	0,063	0,042
Window Uw	[W/m²K]	1,41	1,3	1,25	1,13	1,01	0,96
Temperature factor f_{RSi}		0,49	0,61	0,66	0,57	0,69	0,74
Surface temperature T_{oi} at -10°C, 20°C	[°C]	4,7	8,3	9,8	7,1	10,7	12,2
Wood-aluminium frame	U_f = 1,4 W/m²K						
Psi value	[W/mK]	0,092	0,058	0,042	0,097	0,058	0,040
Window Uw	[W/m²K]	1,36	1,27	1,23	1,09	1,00	0,95
Temperature factor f_{RSi}		0,41	0,54	0,59	0,49	0,63	0,68
Surface temperature T_{oi} at -10°C, 20°C	[°C]	2,3	6,2	7,7	4,7	8,9	10,4

The technical values are valid for typical window frames and glazing and were determined according to the ift guideline WA-08/1 "Thermally optimised spacers - Part 1 Determining the Representative PSI-value for window frame profiles" (according to the presettings of the working group "Warm Edge" of the BF).

Conditions:

Window: 1,23 x 1,48 m²
A_w = 1,82 m²
A_f = 0,55 m²
A_g = 1,27 m²
l_r = 4,54 m

$$U_w = \frac{U_f \bullet A_f + U_g \bullet A_g + \Psi \bullet l_r}{A_w}$$

$$T_{oi} = T_{la} + f_{RSI} \bullet (T_{li} - T_{la})$$

T_{oi} = Temperature of the inner glass surface
T_{la} = Outside temperature (-10°C)
T_{li} = Inside temperature (+20°C)

Gütegemeinschaft Mehrscheiben-Isolierglas e.V.

Bundesverband Flachglas Großhandel Isolierglasherstellung Veredlung e.V.

KÖMMERLING
KÖMMERLING CHEMISCHE FABRIK GMBH

Kömmerling Chemische Fabrik GmbH
Postfach 2162
D-66929 Pirmasens
Germany
0049 6331 562283 phone
0049 6331 562618 fax
e-mail: dichtstoffe@koe-chemie.de
www.koe-chemie.de

Kommerling UK Ltd.
27 Riverside Way,
Uxbridge Middlesex UB8 2YF
Great Britain
0044 1895 465-600 phone
0044 1895 465-617 fax
e-mail: enquiries@kommerlinguk.com
www.koe-chemie.com

Kömmerling Chimie S.à.r.l.
7, Rue des Corroyeurs
F - 67200 Strasbourg
France
0033 388 288359 phone
0033 388 282223 fax
e-mail: dichtstoffe@koe-chemie.de
www.koe-chemie.fr

ADCO Products Inc.
4401 Page Avenue
Michigan Center MI 49254
USA
001 800 248-4010 phone
001 517 764-6697 fax
e-mail: info@adcocorp.com
www.adcocorp.com

A360005– 0910 – gedruckt in Deutschland – © KÖMMERLING CHEMISCHE FABRIK GMBH– Bildnachweis: Kömmerling