TSTRIPE®

the dry side of life

Condensation on your windows?

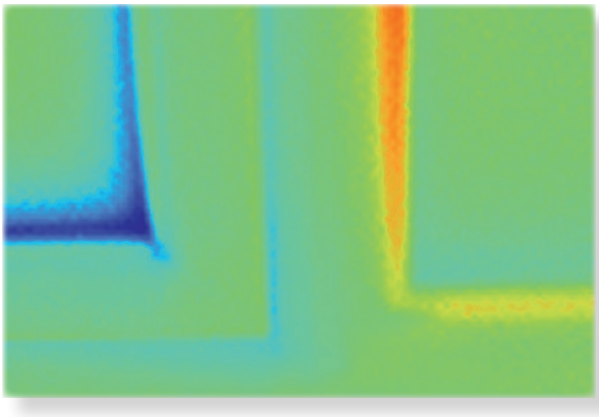
T STRIPE is the solution - your windows stay dry

HOW IT WORKS

The formation of condensation depends on the humidity and the temperature of the surfaces.
In order to actively prevent condensation,

1. the relative humidity must be reduced through regular ventilation (a relative humidity between 40% and 60% is ideal)
2. and the surface temperature of the cold regions must be increased using T-STRIPE.

Condensation and the resulting mould usually appear in the corners and edge areas of the window. If there are large differences between the indoor and outdoor temperatures, a drop in temperature can also occur along the edges of the window with high-quality insulation glass or double-glazing. These are the "weakest".



A thermal imaging camera clearly shows: The "blue area" (left) is so cold that condensation is created. In the right picture, T STRIPE heats up the edge area (red/yellow area), so that no condensate can form any longer!

INSTALLATION METHODS

Installation on the visible window pane

This method is suitable for all types of windows and all materials. The T STRIPE heating element is glued directly onto the glass at the very edge of the visible window. The heating element is a subtle silver colour and has a diameter of only 3.5mm, so it is hardly noticeable and preserves the beautiful appearance of the window.

T STRIPE can be installed on all windows, regardless of whether they are made of wood, plastic or aluminium.

… behind the window trim

In many Windows - especially those made of plastic - can you take off the window trim, and install the T-STRIPE behind it. As a result, the heating element is no longer visible, you can only see a part of the power supply cable in the lower corner.

… with the design aluminium bar

Anyone who is not able to install the heating element behind the window trim and does not want to glue it directly on the window, can cover it with this elegant design aluminium bar (see photo). This is made of anodized aluminium, white or anthracite and can be powder-coated in any colour. This possibility is popular with wooden windows and coloured aluminium (e.g. in conservatories).

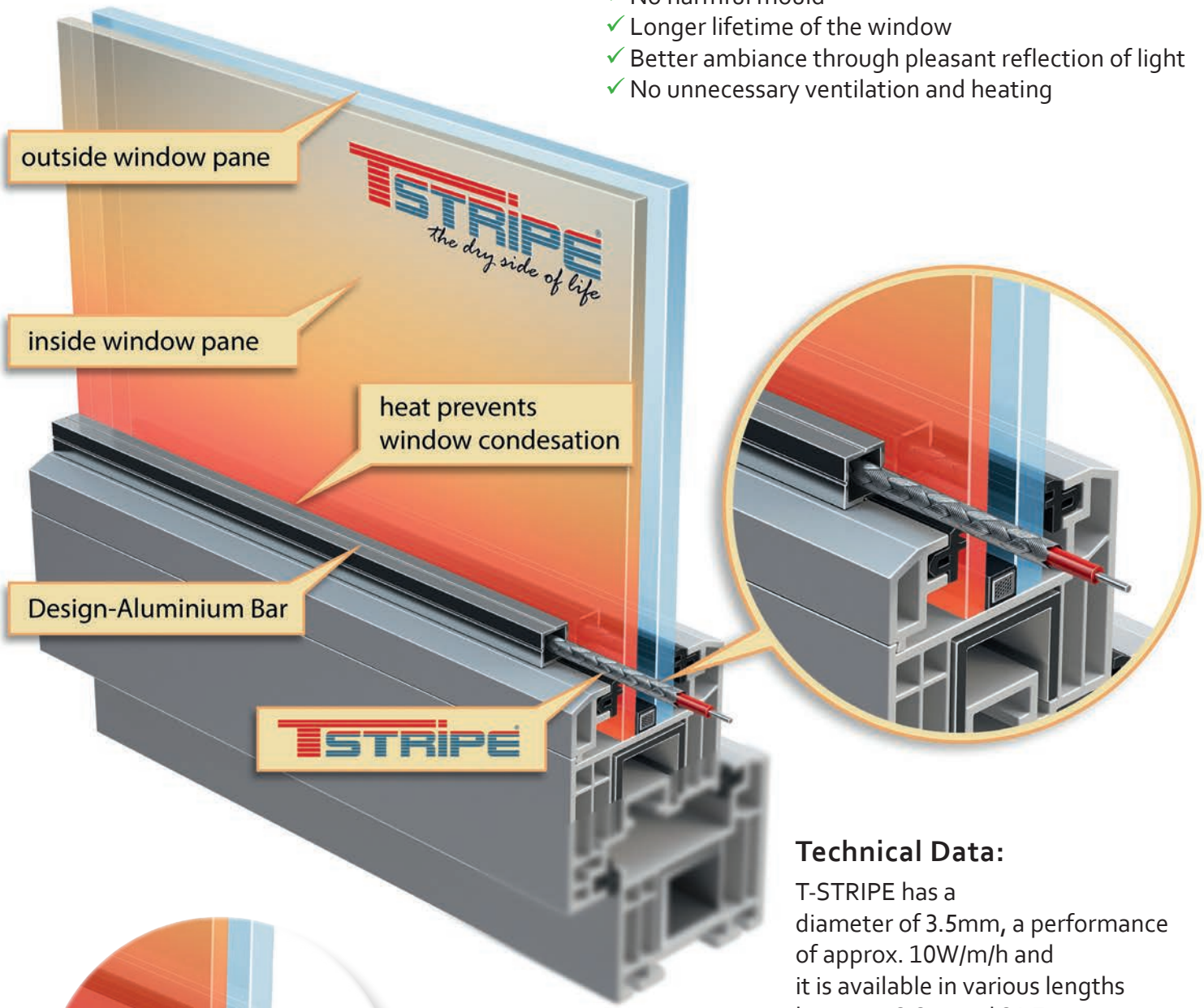
T-STRIPE design aluminium bar, powder coated in dark grey

T-STRIPE: the first flexible window heating system that prevents condensation

It was designed especially for use on windows, to purposefully solve the problem of the wet window panes forever.
T-STRIPE heats the edge area of the window panes, so that no more condensation will ever form there.

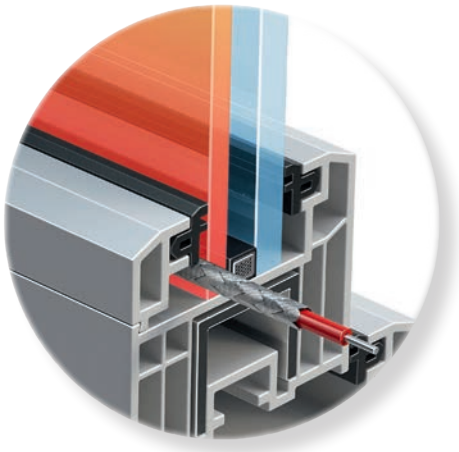
Effect & benefits of T-STRIPE

- ✓ No more condensation on the windows
- ✓ Warms up the edge area of the window panes
- ✓ Dry & beautiful windows
- ✓ No harmful mould
- ✓ Longer lifetime of the window
- ✓ Better ambiance through pleasant reflection of light
- ✓ No unnecessary ventilation and heating



Technical Data:

T-STRIPE has a
diameter of 3.5mm, a performance
of approx. 10W/m/h and
it is available in various lengths
between 2.2m and 21.7m.



T- STRIPE can also be installed behind the window trim so it is completely invisible.

T STRIPE is a proven window heating system that is already keeping thousands of windows, skylights, glass corners, conservatories and large glass structures in single family homes, apartment buildings and office buildings dry.

- ✓ Simple, fast and clean installation
- ✓ By yourself or by an electrician
- ✓ With existing and new windows
- ✓ Almost invisible, depending on installation
- ✓ Suitable for all types of windows
- ✓ The windows remain fully functional
- ✓ Extremely low power consumption

In general, T STRIPE can be installed with all window types.
It is either glued directly onto the visible window pane, installed behind the window trim or elegantly disguised using the design aluminium bar.
The functionality of the window such as the opening, tilting and closing remains fully intact with all variants.

T-STRIPE Installation

The standard thermostat can also be tucked away next to the window to be installed (for example: in a box).

Controls

The use of a thermostat makes the operation of a T STRIPE very comfortable and energy-saving. The thermostat measures the temperature directly on the window pane and then switches the window heating on precisely at that time when condensation would occur.

This makes it possible to reduce the operating time of the T STRIPE window heating. This saves energy and costs. 63.2% of the used thermal energy is released into the room. This means that T-STRIPE also contributes towards its heating (see IBO report).

During a heating season (October to March), the operating time is approx. 30%. The power consumption of T-STRIPE is very low. The heating element requires approximately 10 Watt/m/h per running meter.

Dew point

Dew point index

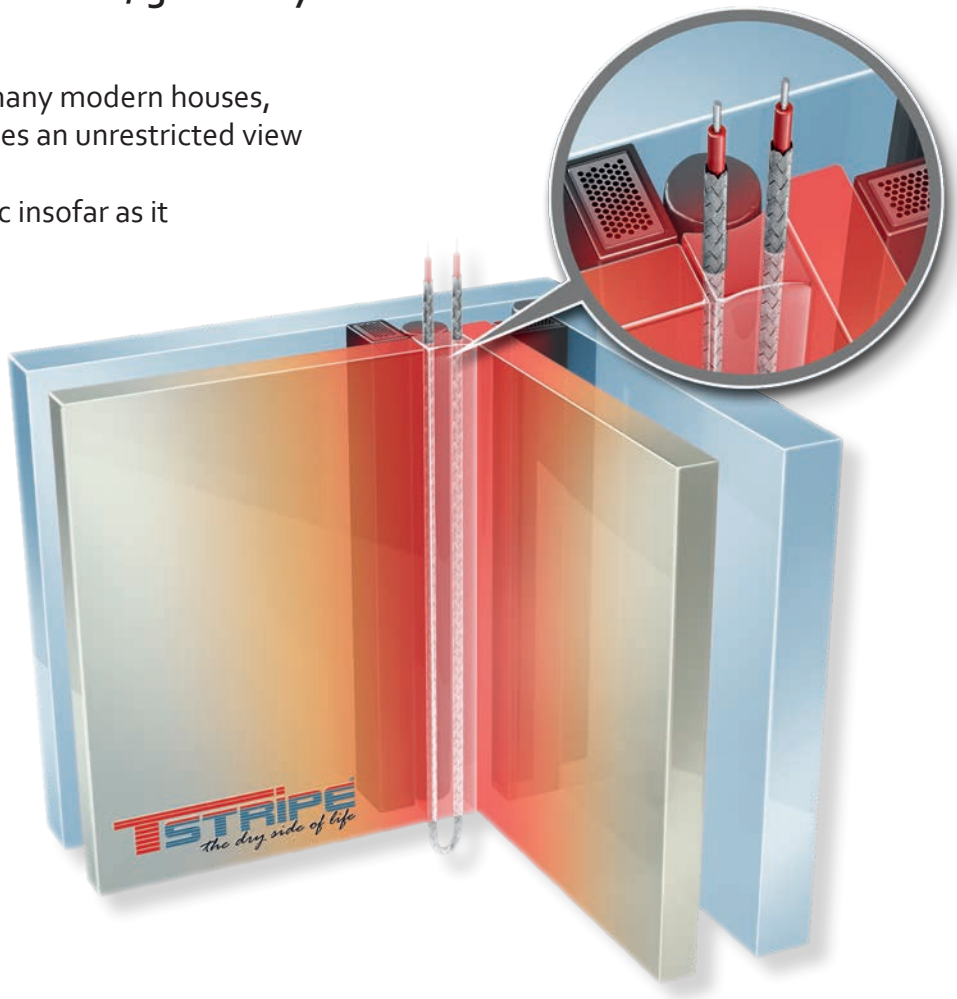
Room temperature (°C) \ Relative humidity (%)	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%
30°C	10,5	12,9	14,9	16,8	18,4	20,0	21,4	22,7	23,9	25,1	26,2	27,2	28,2	29,1
29°C	9,7	12,0	14,0	15,9	17,5	19,0	20,4	21,7	23,0	24,1	25,2	26,2	27,2	28,1
28°C	8,8	11,1	13,1	15,0	16,6	18,1	19,5	20,8	22,0	23,2	24,2	25,2	26,2	27,1
27°C	8,0	10,2	12,2	14,1	15,7	17,2	18,6	19,9	21,1	22,2	23,3	24,3	25,2	26,1
26°C	7,1	9,4	11,4	13,2	14,8	16,3	17,6	18,9	20,1	21,2	22,3	23,3	24,2	25,1
25°C	6,2	8,5	10,5	12,2	13,9	15,3	16,7	18,0	19,1	20,3	21,3	22,3	23,2	
24°C	5,4	7,6	9,6	11,3	12,9	14,4	15,8	17,0	18,2	19,3	20,3	21,2		
23°C	4,5	6,7	8,7	10,4	12,0	13,5	14,8	16,1	17,2	18,3	19,4			
22°C	3,6	5,9	7,8	9,5	11,1	12,5	13,9	15,1	16,3					
21°C	2,8	5,0	6,9	8,6	10,2	11,6	12,9	14,2						
20°C	1,9	4,1	6,0	7,7	9,3	10,7	12,0							
19°C	1,0	3,2	5,1	6,8	8,3	9,8								
18°C	0,2	2,3	4,2	5,9	7,4									
17°C	-0,6	1,4	3,3	5,0										
16°C	-1,4	0,3	2,4											

Room temperature = 21°C
Relative humidity = 60%
⇨ dew point = 12,9°C
Therefore condensation and respectively mold spores will occur on cold surfaces (like window panes) with a surface temperature lower than 12.9°C

The dew point is the point at which the air can no longer bind the water vapor it contains.
The dew point has fallen below! As a result, this water vapor is „condensed out" and the condensation water is deposited on the cold surfaces, the window.
If the temperature is increased with the T-STRIPE window heating, no more condensation can form. The water vapor remains in the air.

… on a full glass corner / glass only corner

Glass only corners are incorporated in many modern houses, because these allow the corners of houses an unrestricted view without window frames.
Structurally a glass corner is problematic insofar as it represents a thermal bridge and condensation almost always forms there.
This issue can however be avoided in advance:
If new windows are being installed, then the T-STRIPE heating element can be hidden directly in the silicon joint, so that it is invisible.
In the event of an existing glass corner with condensation, the window heating can be installed internally after the fact.
The T-STRIPE window heater warms up the glass corner and the edge zone, as soon as these cool down too much, thereby preventing condensation from forming.



Report by the IFT Rosenheim confirms the effect of T-STRIPE on glass only corners

By calculating various set-ups (details) of glass corners, the IFT Rosenheim (Institute for Window Technology) has been able to prove that the danger of condensation in glass only corners can be prevented by using the T-STRIPE winter heater . Simulations were performed on double wall glazing as well as a triple wall glazing with normal heat transfer coefficient (8W/(m²K)) and reduced heat transfer coefficient (4W/(m²K)) .
In glass corners made of double wall glazing as well as in glass corners made of triple wall glazing, the formation of condensation can hardly be excluded on the room side even if thermally improved spacers are used, and therefore the T-STRIPE window heater helps to prevent condensation there.

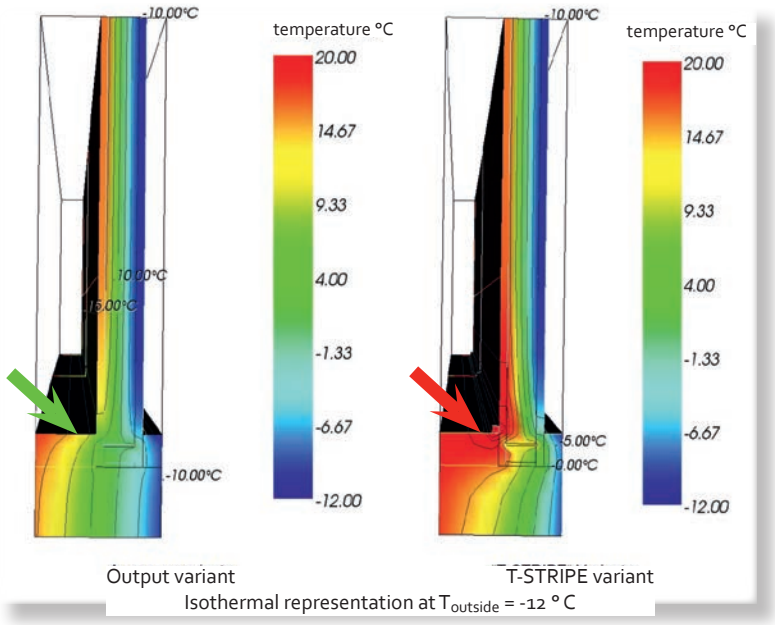
All the structures showed that the formation of condensation was hardly avoidable without the use of window heating.

IBO report - Austrian Institute for Building Biology and Ecology

The IBO - Austrian Institute for Building Biology and Ecology - as an independent, non-profit, scientific organization, researches the interactions between people, structures and the environment. T STRIPE has commissioned the IBO to scientifically investigate the T STRIPE works, in order to be able verify this not only in practice, but also through an opinion of an independent Institute. The IBO therefore subjected T STRIPE to a detailed structural-physical, energetic and room climate assessment.

The effects of T STRIPE on a floor to ceiling window and a dormer window were investigated.

The heat bridge calculation revealed the following results:



With an assumed outdoor temperature of 12°C, a minimum internal surface temperature of approximately 7°C was achieved without T-STRIPE. This temperature occurs in the area of the glass seal. Using T-STRIPE releases the weak point in the area of the glass edge seal and increases the minimum temperature to 16°C, although this only occurs in the area at the centre of the pane (so T-STRIPE heats up the area around the edges of the window). By the way, the heating element reaches a maximum temperature of 38.9°C during this process.

The calculations clearly show that the surface temperature in the area of the glass edge is raised significantly (see picture above right).

Through the use of T-STRIPE, the temperature factor f_{RSI} value can be raised significantly :

	Actual value f_{RSI}	Limit value: Formation of condensation	Limit value: Formation of mould
Without T-STRIPE	0.59	>=0.69	>=0.71
With T-STRIPE	0.88	>=0.69	>=0.71

Results:

Using the T-STRIPE system, the limit values for condensation and mold growth do not fall below, so neither condensation nor mold forms!

T STRIPE also has other positive effects:

Additional heating of the entire glazing is achieved by the strong warming in the glass edge seal and the resulting rising warm air.

63.2% of the heat energy is emitted directly into the living room. This proves that the windows get a pleasant radiation as a result of T-STRIPE because they are no longer cold. The majority of the energy is not lost, but contributes towards warming the room.

Installing T STRIPE is worthwhile because

condensation is an expensive, annoying and sometimes even harmful problem:

T-STRIPE helps you to save

because T-STRIPE prevents condensation.
Excessive heating and unnecessary ventilation are no longer necessary resulting in a reduction in heating costs. T-STRIPE also protects the window frame, the window sill, the brickwork and the floor. This increases the lifetime of the window.

Condensation destroys windows.

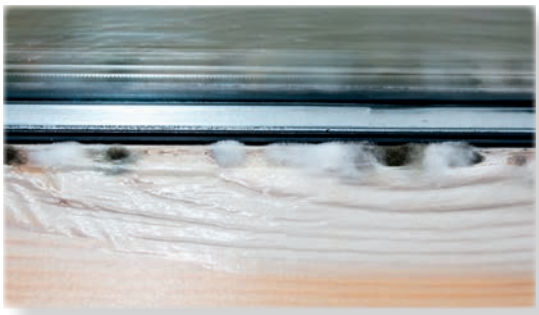
T-STRIPE enhances the quality of life

because T-STRIPE keeps the window dry.
Annoying dry wiping becomes a thing of the past. T-STRIPE also increases the subjective ambiance through the pleasant, warm radiation of the window panes.

T-STRIPE increases the "ambiance".

T-STRIPE creates a healthy room climate

because T -STRIPE prevents the formation of invisible spores. Mould growth is curbed and a distribution throughout the room is prevented. Thus T-STRIPE protects the immune system of people with allergies, of children and the elderly.



Mould is detrimental to health.

ORIGINS OF T-STRIPE

Maximilian Hron - owner and Managing Director of T STRIPE GmbH - belonged to those persons who had to wipe their windows dry every morning: "I moved to a new apartment - with a beautiful wall of floor to ceiling windows and door front to the patio as well as many skylights. Unfortunately, so much condensation formed right in that area that I had to dry off the windows and the complete parquet floor every day in the winter."
But we know that necessity is the mother of invention and as Maximilian Hron already has patents on other inventions, he developed his own system to reliably prevent condensation in a long and complex process: T STRIPE.

There is no more condensation with T STRIPE...

... on skylights

... on fixed glazing

... in conservatories

... on windows and glass corners

See the detailed installation instructions on the Internet at www.t-stripe.com under the menu item "Service - Downloads".

We are happy to answer any questions you may have.

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