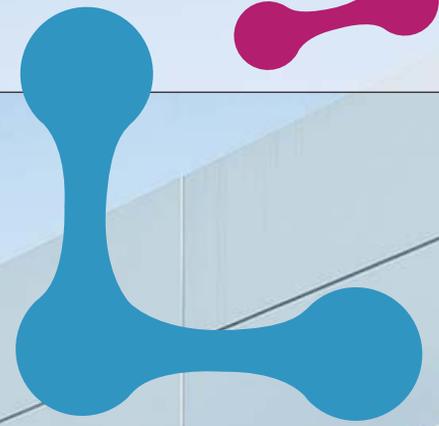


Ensinger



Thermix 'does the rounds' with 'rigid' warm edge spacers

Glass and its numerous applications are continuously on the move, leading to more complex and architecturally challenging aspects. An atrium of tall curved glass panes is an interesting way of welcoming visitors into a company. And if we consider the work and technology involved we can get an idea of how complex this work has become. This article gives us an insight into the spacers needed for façade elements like these used at the new location of Ensinger Sintimid in Austria.



Curved insulating glass elements are an eye-catching architectural feature, with the Thermix TX.N plus spacers creating a "warm edge". The required bending radius is produced simply and precisely without any folds using a manual roll former

ABOUT ENSINGER

The Ensinger group is engaged in the development, manufacture and sale of compounds, semi-finished materials, profiles and technical parts made of engineering and high-performance plastic. Ensinger makes use of a number of different manufacturing methods, in particular extrusion, machining and injection moulding. Employing a total workforce of 2,200 in 28 locations, the family firm is represented in many important industrial regions of the world with its own production plants or sales branches.



ABOUT THERMIX

Thermix spacers improve the thermal separation of insulated glass windows, doors and façades. This helps save energy and consequently heating and cooling costs as well as cutting carbon emissions. As an insulated glazing edge bond system, Thermix spacers provide a 'warm edge'. In addition, Thermix muntin bars produce the appearance of a genuine lattice window but with an excellent level of insulation. Both products can be simply and efficiently processed. Specially developed corner keys and straight connectors ensure well-fitting and secure connections every time. Thermix is a brand of Ensinger, one of the leading specialists in high-performance plastics.

A SUCCESSFUL FIT FOR CURVED INSULATING GLASS

A more interesting edge on things? Rounded edges are gaining increasing popularity in modern architecture. At the new location of Ensinger Sintimid in Austria, this look was used to create a special ambience in the entrance area: by creating a quarter turn, the glazed façade entices guests into the building, which sports a white and silver grey the-

me in keeping with the global company's corporate design colours.

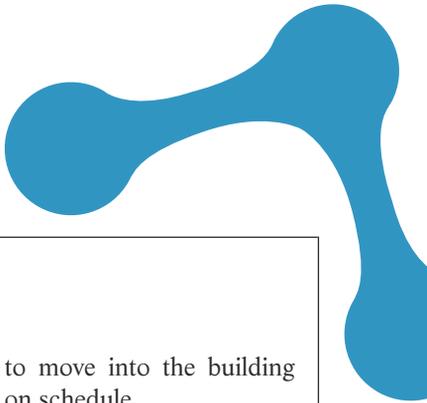
"The linear contours which are a distinguishing feature of the building in Seewalchen have been deliberately softened in the entrance area," explains Michael Frey, the CEO of Architects Schmelzle + Partner. "In terms of styling, this has created a curve linking the world of sophisticated high technology and the people whose special expertise in high performance plastics is used here to

develop specially tailored solutions for customers."

BENDING THE RULES

The curved façade elements were produced by Wenna Glass in Linz. Every pane measuring 2,126 mm in length and between 845 and 1,940 mm in height was precisely curved to the required radius of 2,635

mm using a special hot bending technique. But there was a question mark over the process from the start: how to further process the Thermix brand warm edge spacers specified by the client to fit the triple insulating glass? Although these spacers can be bent when cold to produce frames, they are considered 'rigid'



as they have been used to date predominantly for flat insulating glass. Ensinger itself came up with some expert advice. After all, the German sister company has been producing and further developing Thermix since 1994. “We checked this using a simple bending process,” explains application engineering specialist Heinz Raunest. “It’s actually sufficient to use a good manual roll former. With a few minor adjustments the plastic profiles can be precisely adapted to the required radius without any folds. The material with its integrated stabilizing wires stays reliably in shape.”

SIMPLY ADJUSTABLE

“We were able to then fill the pre-bent profiles in the customary way using adsorbent, apply butyl tape and assemble them to form

frames using corner keys,” adds Gregor Wenna, CEO of the curved insulating glass specialist. “We then built up the triple glazed units from the inside out, pressed the elements using clamps, filled them with inert gas and sealed them. It was all amazingly simple, as the glass and spacers had been processed to a high degree of precision.”

The job of the installers from Mglass Objektbau in Steyregg was somewhat more fraught with difficulty: With the aid of a crane, they fitted the ten weighty elements into the supporting structure of the façade and anchored them in place into their frames with plaster strips and

rolled aluminium trims. Robert Kaiser, Head of Controlling and authorized signatory at Ensinger Sintimid, is delighted with the new building. After only twelve months of construction, the company was able

to move into the building on schedule.

ENERGY-EFFICIENT CONSTRUCTION

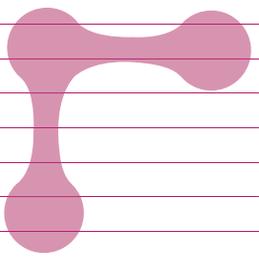
Overall, Ensinger Sintimid has invested over EUR 5 million in its Seewalchen

The pre-bent spacers are filled with desiccant, fitted manually with butyl tape and then assembled to produce frames using corner keys



FACTS AND FIGURES

Project location	Ensinger Sintimid GmbH, Ensinger Platz 1, 4863 Seewalchen, Austria
Plot	12,000 square metres
Utilization	3081 sq.m. for production and warehouse, two floors of 722 sq.m. for administration, Scope for optional building extension.
Special features	Modern architecture in keeping with the global corporate design, process-optimized building planning, energy-efficient construction: Heat pumps use surplus heat from production for heating, highly insulating façades, triple insulating glazing in the administrative wing with Thermix TX.N plus Warm Edge spacers even in the curved part of the glass façade.
Investment volume	Around Euro 5 million
Construction period	May 2014 to June 2015
Client	Ensinger Sintimid GmbH, Seewalchen, Austria
Architect	Schmelzle + Partner GmbH, Hallwangen, Germany
General contractor	Goldbeck Rhomberg GmbH, Salzburg, Austria
Curved windows	Wenna Glas GmbH, Linz, Austria
Warm edge	Thermix, Ensinger GmbH, Ravensburg, Germany
Façade construction	Mglass GmbH, Steyregg, Austria





PROJECT REPORT

Using the spacer frames, the triple insulating glass is built up in layers from inside to out, pressed together and the gaps between the panes filled with argon



location, setting a course for further growth. A workforce of around 40 currently handles and produces semi-finished products, finished parts and compounds made of high-performance plastics, which are used in a wide range of industries the world over, in particular in the aerospace sector, in electronics and semi-conductor production, mechanical engineering and the automotive industry. "We now have twice as much space available as before. Thanks to the energy-efficient construction method



used, we also anticipate a significant reduction in operating costs per square metre”, says Robert Kaiser. “Heat pumps enable surplus heat from production to be used for heating. The façade is highly insulating, with the flat and curved triple ISO elements providing a thermal transmission coefficient of just 0.89 W/m²K. This new building really does have all-round benefits for

Ensinger, for the workforce, the customers and also the environment.”

THERMIX TX.N PLUS SPACER CREATES A 'WARM EDGE'

Thermix spacers from Ensinger improve the thermal separation of insulated glass windows, doors and façades. This helps save energy and consequently heating and cooling costs as well as cutting carbon emissions. As an insulated glazing edge bond system, Thermix spacers

The curved façade elements made of triple insulating glass are lifted with the aid of a crane and placed in position from the raised platform



provide a 'warm edge'. Condensation formation and the chill sensation caused by cold air draughts on the inside of windows are reduced to a minimum.

Thermix spacers comprise the UV-resistant special plastic TECATHERM® PP, which is over 700 times less thermally conductive than aluminium. A 0.1 mm thin stainless steel foil sheet impervious to gas and water vapour on the hollow chamber profile provides a lasting seal of the space

between panes, which is usually filled with the inert gas argon to provide optimum insulation.

Its integrated stabilizing wires make Thermix TX.N plus extremely stable, and facilitate handling and further processing. The profiles can be bent cold in any axial direction. This allows spacer frames to be simply produced for straight as well as curved pane profiles, and ensures excellent thermal insulation values as well as outstanding productivity and quality for insulating glass manufacturers.

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