



WARM EDGE SYSTEMS

Thermoplastic Spacers for Better Living Comfort

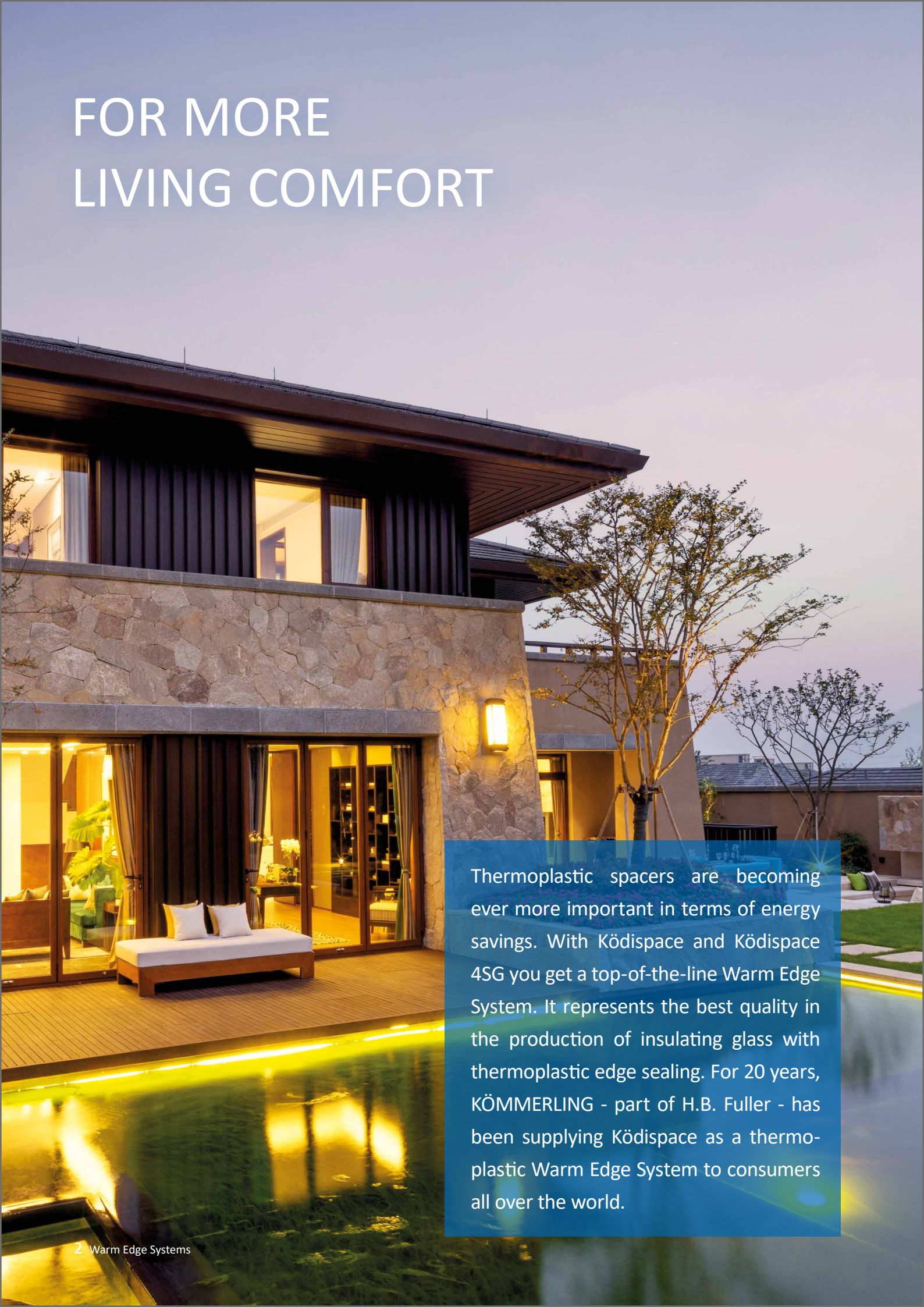


H.B. Fuller



KÖMMERLING

FOR MORE LIVING COMFORT



Thermoplastic spacers are becoming ever more important in terms of energy savings. With Ködispace and Ködispace 4SG you get a top-of-the-line Warm Edge System. It represents the best quality in the production of insulating glass with thermoplastic edge sealing. For 20 years, KÖMMERLING - part of H.B. Fuller - has been supplying Ködispace as a thermoplastic Warm Edge System to consumers all over the world.

WARM EDGE SYSTEMS

KÖDISPACE & KÖDISPACE 4SG

Ködispace and Ködispace 4SG are thermoplastic Warm Edge Systems with integrated desiccant. They completely replace the conventional edge sealing system with spacer, desiccant and primary sealant, optimally assuming the functions of both the spacer profile and the sealant while eliminating the metal heat bridge.

Both systems stand for permanent gas-tightness and best thermal values. Beside providing maximum energy efficiency, the flexible thermoplastic spacers offer unlimited creative freedom and a unique aesthetic.

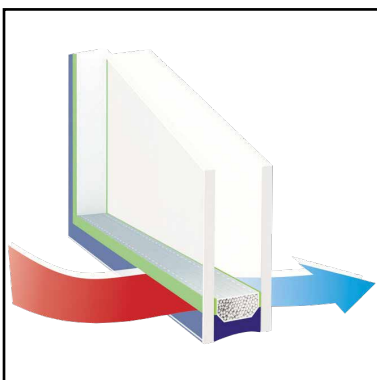
Ködispace for universal application of insulating glass in the construction industry and transport sectors, or Ködispace 4SG specifically for structural glazing façades - H.B. Fuller | KÖMMERLING offers the right solution for every application.

Specific Product Properties

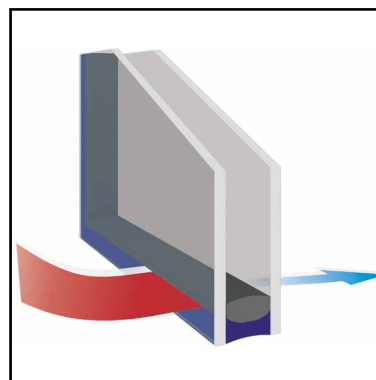
- ✚ Outstanding Psi values
- ✚ Fast adhesion buildup to glass
- ✚ Excellent gas retention

WARM EDGE – WHAT DOES THAT MEAN?

The term Warm Edge stands for a thermally improved edge seal in the insulating glass. Instead of conventional materials such as aluminium or steel (good heat conductors), the materials used will not conduct the heat to the outside. This leads to higher energy efficiency and lower heating costs. The risk of condensed water on the inside of the window is lowered at the same time, and the growth of unhealthy mould avoided. This also applies to the cooling of buildings conversely.



Conventional insulating glass with metal spacer. The metal profile conducts the heat and/or cold which results in sub-optimal heat insulation.



Insulating glass with Ködispace and/or Ködispace 4SG as a warm edge system offers optimal thermal insulation and lowers heating costs as a result.

FASCINATING DESIGN

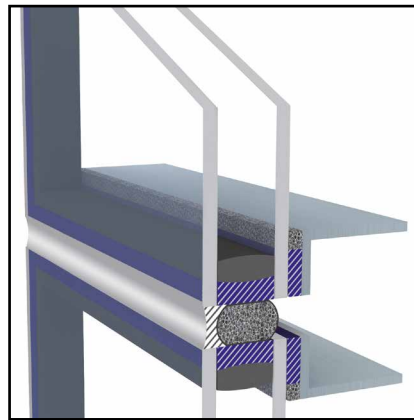
KÖDISPACE 4SG

THE SAFE SYSTEM FOR STRUCTURAL GLAZING

Glass façades have decisively influenced modern architecture and formed our cityscapes for decades. Structural glazing façades can no longer do without inert gas filling and warm edge. The quality requirements for the edge seal's tightness are particularly demanding with gas-filled, silicone-sealed panes.

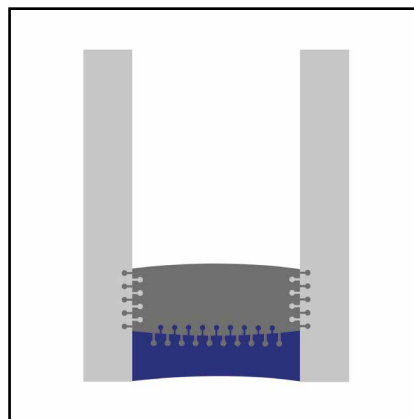
Ködispace 4SG was developed specifically as a warm edge system for structural glazing and thus meets the strict attendant requirements better than the great majority of other systems. Physical forces on the one hand lead to quick initial adhesion, while the newly developed, additional chemical bonding with glass and silicone ensures outstanding long-term stability on the other. These attributes make Ködispace 4SG an extremely robust and durable warm edge system that is recommended for structural glazing applications in all climate zones.

- ✚ Best Psi and Ug values also for facade glazing
- ✚ Improved heat stability
- ✚ For structural glazing applications in all climate zones
- ✚ Additional chemical bonding with the glass and silicone edge seal enabling extremely tight and long-lived gas-filled facade panes



The additional chemical bond created between Ködispace 4SG and the silicone edge seal and glass offers further benefits on top of this:

- ✚ Stable edge seal by bonding individual components on a molecular level
- ✚ Robust against glazing errors
- ✚ Expanded application temperature in the insulating glass from -30 °C to +90 °C
- ✚ Certified as per EN1279 parts 2 & 3 for triple glazing



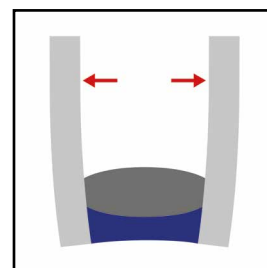
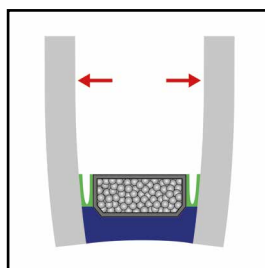
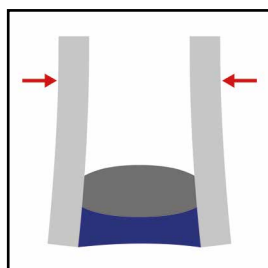
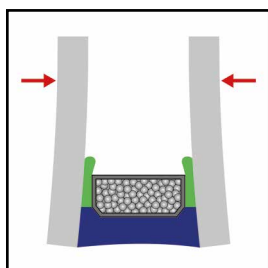
Ködispace 4SG forms a chemical bond with the glass and silicone seal.

QUALITY & LONGEVITY

THE RESILIENT SYSTEM

The main stress in the sealing of spacer profiles is on the butyl applied to both sides. Pumping movements of the insulating glass caused by climatic stress lead to enormous strain in the butyl. This constant load caused by compression and elongation of the primary seal can cause seal failure over time. The edge bond with Ködispace or Ködispace 4SG remains elastic which results in considerably less stress on the bond and hence greater longevity.

- ✚ Compensation of climatic stress by flexibility
- ✚ Optimal sealing barrier against gas loss and penetrating moisture
- ✚ Absolutely tight joint from the beginning to the end of the application
- ✚ No extra butyling of joints and corners required



CREATIVE FREEDOM & DESIGN

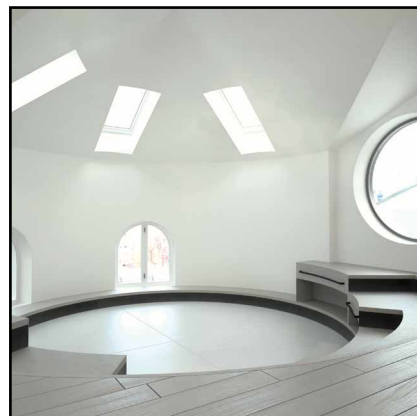
THE INVISIBLE SYSTEM

Conventional metal spacers can mar the visual appearance with their shiny and perforated surfaces. The matt black of Ködispace and/or Ködispace 4SG reflects the colour of the frame, rendering the space between the panes virtually invisible.



THE VARIED SYSTEM

Ködispace offers flexible creative options in a consistently high quality, also for large formats and curved insulating glasses. The reflection of the frame colour redundantisises various spacer colours.



THE PRECISE SYSTEM

Exact spacer positioning is impossible by hand with triple glazing and conventional profile systems. Misalignment will mar the visual appearance of the insulating glass. The fully automatic application of Ködispace helps triple glazing achieve the greatest precision, leading to visually flawless results.



A modern living room with large floor-to-ceiling windows. The room features a dark leather tufted sofa, a contemporary floor lamp with a cylindrical shade, and a tall, thin decorative plant. The floor is made of light-colored wood, and a dark rug is partially visible in the foreground. The windows offer a panoramic view of a mountain range at sunset, with the sky transitioning from orange to pink and purple. The text "ENERGY EFFICIENCY & LIVING COMFORT" is overlaid in white, bold, sans-serif capital letters.

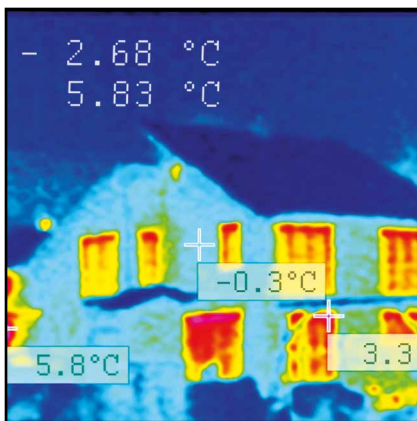
ENERGY EFFICIENCY & LIVING COMFORT

ENERGY EFFICIENCY & LIVING COMFORT

THE ENERGY-EFFICIENT SYSTEM WITH ADDED VALUE

Ködispace and Ködispace 4SG offer top-class Psi values. This means minimal heat loss along the linear thermal bridge at the glass edge and thus maximal improvement of the Uw values for windows and/or Ucw values for façades.

- ✚ Metal-free material with very low thermal conductance
- ✚ Minimization of condensate around the edges of the insulating glass
- ✚ More living comfort and cosiness
- ✚ Saves heating costs
- ✚ Contributes to CO₂-reduction



Thermal image of a detached house with standard insulation glazing. Red indicates areas with higher temperatures.



Thermal image of a detached house with Ködispace insulation glazing. The good thermal insulation is recognizable from the absence of red areas.

ADVANTAGES FOR THE PRODUCTION OF INSULATING GLASS

FLEXIBILITY & EFFICIENCY

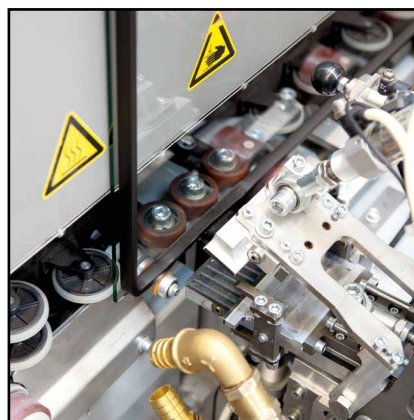
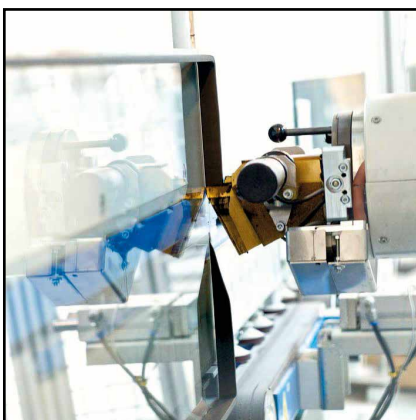
Ködispace and/or Ködispace 4SG replace three production components, enabling huge potential savings for the material procurement and internal logistics. Influencing factors that can threaten smooth production workflows are minimized. But the greatest advantages are provided by the direct application from the barrel for work preparation and production.

Material procurement & internal logistics

- + Complete elimination of the storage spaces, warehouse management and procurement effort required for profiles in various colours and widths, accessories such as corner brackets, straight connectors and driers
- + No offcuts, no waste
- + All pane interspace widths from 1 mm to 20 mm extrudable from one barrel

Work preparation & production

- + Standard or special formats in various sizes and shapes producible in one line
- + Enables precise production to customer specifications
- + Simplified capacity planning for machines and personnel
- + Complete elimination of the activities required for offline frame production (bending or sawing of profiles, their joining into frames, filling with drier, butyling and transport to the line)
- + Interruption-free production of double or triple insulation glazing units in all spacer widths
- + No sorting of frames before the installation and/or sorting of finished panes
- + No butyling errors possible
- + No delays caused by incorrectly produced or missing frames
- + No profile change with line interruption as with foam spacers
- + No production interruptions, even if the barrel is changed, hence no rejects
- + Complete elimination of the drier treatment, hence no soiling of frames with drier dust



H.B. FULLER | KÖMMERLING

YOUR SYSTEM PARTNER

COMPETENCE AND SERVICE – THE ENERGY-EFFICIENT SYSTEM WITH ADDED VALUE

With Ködispace und Ködispace 4SG, H.B. FULLER | KÖMMERLING delivers two top-class warm edge systems. All the materials are specifically selected for mutual compatibility and tolerability. With these system solutions from a single source, we offer a maximum level of safety.

We consider ourselves as a system supplier, offering not only high-quality products, but also offers individual support and consultancy services tailored to its customers and their needs over the entire project term and beyond.

OUR SERVICE PORTFOLIO

- Checking of joint designs and calculation of joint dimensions
- Adhesion testing
- Compatibility tests
- Application trainings directly at the processor
- Support in the cooperation with independent testing institutes
- Elaboration of quality assurance programmes





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