

**WICONA®**

By  Hydro



Engineered for bigger and  
heavier glass panels

» WICTEC 60 NG

ALUMINIUM FAÇADE SYSTEM

# » WICTEC

## For sophisticated architecture

The façade of the future combines energy efficiency and a multitude of design options, function and environmental responsibility. WICTEC is an integrated concept of modern-day architecture that combines the elements of protective skin, heat storage, air conditioning, lighting system, and fire safety and sound insulation within a single façade design.

The WICTEC façade system gives your creativity and ability to find the best solution almost limitless scope. From the traditional stick system to unitised and structural glazing constructions, with WICTEC you can select, design and produce all conceivable variants to the highest quality standards and in line with your specific project requirements.



Whatever the architectural concept, the wide range of WICTEC aluminium façade systems will meet all the design issues. Human safety and security is also ensured as the WICTEC series offers façade solutions with burglar and bullet resistance as well as fire safety features.

Enabling the implementation of the full range of ideas in contemporary architecture by developing the appropriate technology is our business: „Technik für Ideen“.



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# » Applications

## The decisive criteria

With the WICTEC façade system, your creativity and ability to find the best solution are virtually limitless. With WICTEC you can select, design and produce all conceivable variants to the highest quality standards and in line with your specific project requirements. Due to the system's great diversity and compatibility with the comprehensive WICONA window, door and sliding systems, you have extremely flexible façade technology at your disposal. So your individual requirements, from the design to detailed planning and completion, can be fully met with the standard system applications. If that is not enough, we can provide you with bespoke solutions.

### Performance

- Always the suitable solution due to a wide range of series (stick, unitised, structural glazing, double façades)
- Functional safety due to several cascading drainage levels
- Functions like burglar and bullet resistance and fire protection are feasible with minimum additions
- Multiple certificates, e.g. first aluminium passive house curtain wall certified by the ift window institute

### Flexibility

- Based on the WICONA Unisys principle: High level of process security, cost and time savings, simple production, fewer tools required due to use of standardised components
- Several system widths for any requirements
- Cost-effective adaptation to structural needs and optimised use of materials due to large profile range

### Efficiency

- Simplified transom-mullion-connection – with or without connector parts
- WICTEC AN modular attachment system
- Highest possible process reliability in planning, production and assembly

### Combination options

- Turn, tilt-turn, tilt and parallel sliding / tilt windows
- Parallel and top-hung outward opening windows
- Vertical and horizontal pivot windows
- Ventilation flap
- Door series WICSTYLE 65 evo, WICSTYLE 75 evo inward and outward opening, single or double action doors
- WICSLIDE sliding, lifting/sliding and folding/sliding systems
- NSHEv units

### Sustainability

- Aluminium is almost entirely recyclable.
- Several products of WICONA are Cradle to Cradle Certified® at the Silver level. This applies to the WICLINE 75 / 65 window ranges, the WICSTYLE 75 / 65 and the WICTEC 50 and WICTEC 60 NG façade.
- Up to 68% of the energy used for producing the aluminium for WICONA profiles comes from hydro power.
- Development using EcoDesign: e.g. higher insulation and structural values with a smaller share of material.

## WICTEC – at a glance



All elements have been tested and approved by our development teams and certified by ift Rosenheim so you can rely on guaranteed performance.



**Burglar resistance**



**Optimised manufacturing process**



**Availability of all configurations**



**Technical top performance**



# » Commitment and Sustainability

**WICONA demonstrates its strong commitment to the environment in all areas: by using recycled and low-carbon materials, with a product design that is adapted to a circular economy, and produced within a responsible supply chain. In addition, these statements are certified by external organisations to ensure maximum transparency.**

## HYDRO CIRCAL

We are demonstrating our focus on sustainability by using Hydro CIRCAL for our system solutions, one of the most sustainable aluminium alloys in our sector. Hydro CIRCAL is a range of prime quality aluminium made with a minimum of 75% recycled end-of-life aluminium (post-consumer scrap). The production process is verified by an independent third party (DNV-GL), and confirmed by an EPD (Environmental Product Declaration). Hydro CIRCAL also has one of the smallest CO<sub>2</sub> footprint worldwide: 2.3 kg CO<sub>2</sub> per kilo of aluminium – 4.5 times less than the world global primary average.



## HYDRO REDUXA

Hydro REDUXA is a low-carbon aluminium, which is made by using renewable energy sources like hydro power. The result is aluminum with a maximum carbon footprint of 4.0 kg CO<sub>2</sub>e per kg aluminum, which is one of the world's lowest carbon footprint. Hydro REDUXA is verified by an independent third party (DNV-GL), covering all carbon emissions from bauxite mining and alumina refining to the production of aluminum in electrolysis and casting. It is also confirmed by an EPD (Environmental Product Declaration).



## 100% RECYCLED POLYAMIDE

WICONA is one of the first suppliers worldwide to use thermal insulation strips made from recycled polyamide for the thermal insulation of its systems. Available as standard right away, no extra cost, with outstanding mechanical and physical properties and an excellent environmental performance. At the same time there is a large gain in sustainability due to low consumption of energy and resources. Therefore the recycled version features a considerably improved production ecobalance.



## CRADLE TO CRADLE CERTIFIED® – SILVER AND BRONZE FOR WICONA

Sustainability has always played a key role at WICONA. At the beginning of 2017, WICONA system solutions were Cradle to Cradle Certified® at the Bronze level. Cradle to Cradle Certified® is the world's most advanced science-based, multi-attribute certification program for designing, making and verifying materials and products that are safe, circular and responsibly made with integration of beneficial Environment, Social and Governance features. Since then 14 WICONA systems have been Cradle to Cradle Certified® at the Silver level and 4 other systems at the Bronze level. In order to achieve one of the five levels of certification (from Basic up to Platinum), a product must satisfy the minimum requirements of the relevant level in all five categories. These categories are: material health, material reutilization, renewable energy and carbon management, water stewardship, social fairness and biodiversity.



## ENVIRONMENTAL PRODUCT DECLARATION (EPD)

An Environmental Product Declaration (EPD) is an independently third party-verified document that communicates precise, transparent and comparable information about the life-cycle environmental impacts of a product. But it is not only limited to products, such as a window, but can also be applied to materials (an aluminium billet), assembly parts of products or even for services (like maintenance). This document is used for many different applications, e.g. public procurement or green building rating schemes (i.e. BREEAM, LEED, DGNB). In addition, WICONA offers the opportunity to obtain the EPD certificate for exactly the desired product and design automatically from the WICTOP software in a simple and intuitive way.



## ALUMINIUM STEWARD INITIATIVE (ASI)

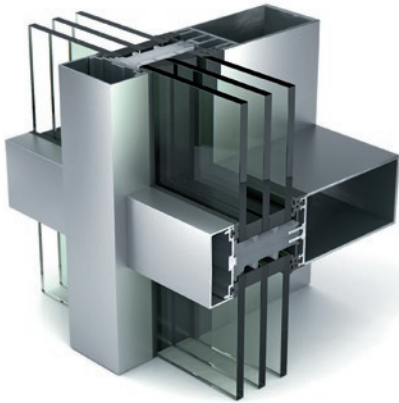
ASI is a multi-stakeholder, non-profit, standards-setting and certification organisation. It is the most internationally recognised standard, which addresses the environmental, social and governance (ESG) aspects of the entire aluminium value chain. The assessment is based around the sustainable production of aluminium, from bauxite or mining to the production of semi-fabricated products, taking into account the recycling of pre- and post-consumer scrap. Hydro was one of the first companies, that received this recognition, in accordance with its commitment to a more sustainable future.



## FURTHER CERTIFICATIONS FOR THE DECLARATION OF SUSTAINABLE BUILDINGS

WICONA offers certifications of materials, products and manufacturing processes, which are helpful to certify the sustainability of buildings, with seals such as LEED, BREEAM, DGNB, WELL, etc.

## » WICTEC – Curtain wall systems overview



### Stick system curtain wall

WICTEC stick system curtain walls are the flexible, tried and tested solutions among WICONA's range of façade systems. The wide range of profiles and the extensive equipment options guarantee optimum creative freedom. The state-of-the-art technology ensures the highest level of process security, from the planning stage through to completion.



### Structural glazing curtain wall

Façades made entirely of glass have a firm place in contemporary architecture and create impressive building elevations. Using WICONA systems, extremely delicate outside structures which only have narrow joints can be created. Opening elements and insulating glazing can be incorporated.



### Unitised curtain wall

Today, most building projects are subject to intense time pressure. When it comes to meeting demanding deadlines, WICONA unitised curtain walls provide a solution: production and installation can be scheduled precisely.



### Closed Cavity system

Innovative intelligent façade concepts that open up new solutions based on WICONA systems. Today's construction is determined as much by environmental standards as by technical, functional, aesthetic and economic criteria.



	WICTEC 50 / WICTEC 50 evo	WICTEC 60 NG
<b>Energy</b>		
Thermally insulated	•	•
Highly thermally insulated	•	•
Passive house certified	•	–
U <sub>vm</sub> value in W/(m <sup>2</sup> K) from	0.74	0.67
<b>Design</b>		
Sight line in mm	50	60
<b>Type of curtain wall</b>		
Stick system	•	•
Add-on system	•	–
Structural glazing system	•	–
Unitised system	–	–
Renovation façade	•	•
Double façade	–	–
<b>Construction type</b>		
Skylight	•	–
Polygonal	•	–
Integrated sun protection	•	•
<b>Design version</b>		
Collection	•	–
SG-Design	•	•
Industrial Design	•	–
<b>Integration units</b>		
WICLINE windows	•	•
WICSTYLE doors	•	•
WICSLIDE sliding systems	•	•
Skylight window	•	–
WICLINE 90SG	•	•
<b>Glass load</b>		
Maximum glass load in kg	600	850
<b>Safety and security</b>		
Fire protection	•	–
Burglar resistance	•	•
Bullet resistance	•	–
<b>Construction physics</b>		
Sound insulation R <sub>w</sub> (C;C <sub>tr</sub> ) = x (-1;-4) dB	47 dB	47 dB
Air tightness	AE	AE
Water tightness	RE1200	RE1500
Wind tightness	+2.0/-3.2 kN	+2.0/-2.0 kN

# » One system for all requirements

## Versatility and flexibility

Quality, freedom in design, reliability of processes and simplicity of fabrication form the tangible benefits of WICONA aluminium curtain walling. Whatever the requirements may be, WICTEC profiles coupled with your own specialist expertise make it possible to provide the individual, tailor-made solution. Our products are always simple to install.

The reason: The WICONA Unisys principle also applies to our range of curtain walls. WICONA Unisys is a modular concept used in the design of all WICONA systems.

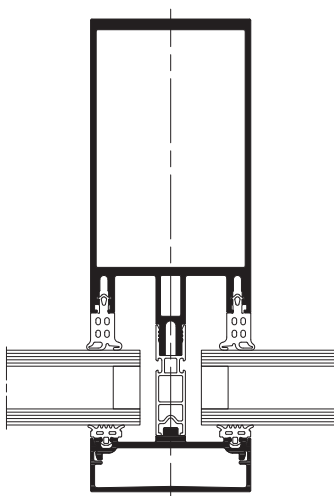
When creating a façade, you are able to make use of the same processing steps, accessories, gaskets, sealants and tools. It is very simple to upgrade the façade with burglar or bullet resistance as well as fire protection.

This means, that overall WICONA constructions offer maximum flexibility, are more cost-effective, safer and quicker to install.

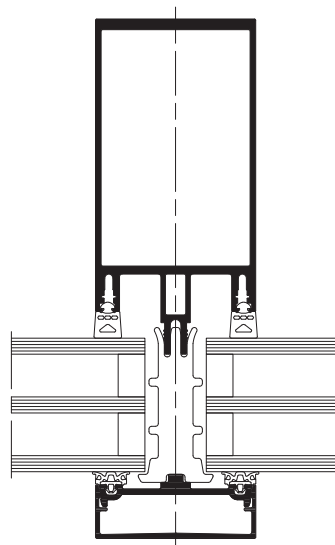


# WICONA Unisys – complex becomes easy!

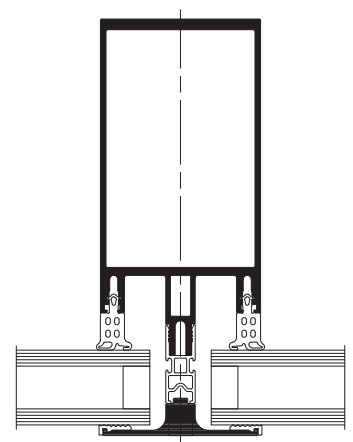
**WICTEC 60 NG**



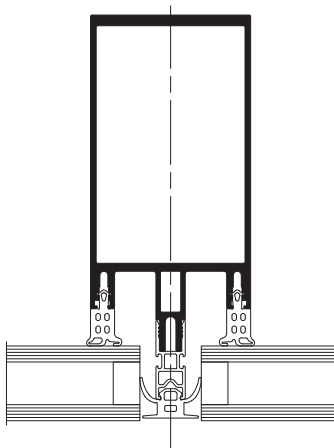
**WICTEC 60 NG**  
High-insulation curtain wall



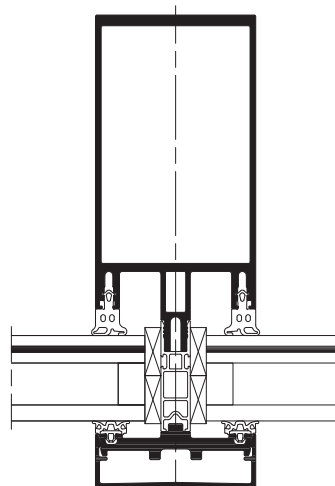
**WICTEC 60 NG**  
Integrated pressure profiles



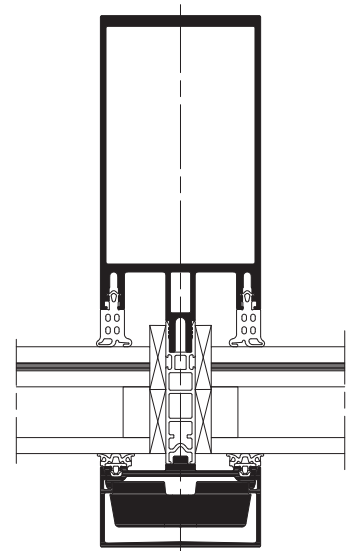
**WICTEC 60 NG**  
Horizontal line



**WICTEC 60 NG**  
Burglar resistance RC2



**WICTEC 60 NG**  
Burglar resistance RC3



# » WICTEC 60 NG – Benefits in detail





## Engineered for bigger and heavier glass panels

Many buildings are now committed to achieving net zero energy during their operational life, which not only means on-site generation of energy, but also to significantly reduce the internal heating and cooling loads within the building. Keeping the energy to an absolute minimum requires super-insulation in the floor, the roof and the walls. In the case of a curtain wall, it requires a super-insulated façade system with triple or even quadruple glazed units, insulated panels and almost impermeable air-tightness. At the same time, buildings aim to take advantage of freely available solar energy, using large glazed areas to flood the building with natural light. In addition to that, passive shading is integrated to either reduce or provide heat gains depending on the season. Thus, there is not only a demand for thicker glazed units, but also bigger glass dimensions on projects, which can be managed by WICTEC 60 NG.

## Innovative system

When floor-to-floor glazing is combined with triple and quadruple units, it requires an enhanced high-performance façade to encapsulate everything. In order to provide this kind of façade, the new WICTEC 60 NG has been designed with bigger and heavier infill weights from the very outset. Additionally, the profile shapes are optimised to provide maximum strength for bigger spans, thanks to an innovative pin connection system that effortlessly supports the weight of the glazing infill at the connection between horizontal transoms and vertical mullions. The WICTEC 60 NG also offers a range of reinforced glazing supports that work with the transoms and the mullions to transfer the infill weights back to the structure.

## Aesthetic design

WICONA always wants to provide more design freedom, therefore the WICTEC 60 NG has numerous aesthetic versions. In addition to the traditionally capped façade, using continuous pressure plates and a range of decorative feature caps, the façade can also be semi-capped, to create a horizontal line or vertical line appearance on the outside of the building, in order to make it appear wider or taller. A (low-profile) smooth or flat pressure (cap) profile is also available to provide four-sided retention of the insulated glass units, whilst creating the illusion of a cap-less structurally glazed façade, or SG design.



**Thermal insulation**



**Outstanding performance**



**Large dimensions**



**Heavy weights**





# » Individual design and outstanding performance



© Fotograf Felix Gerlach



- Capped
  - With standard thermal break
  - With high-insulation thermal break



- Semi-Capped
  - Horizontal line
  - Vertical line

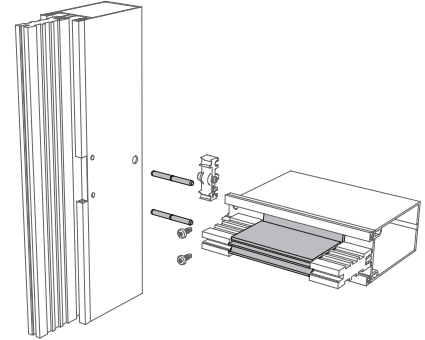


- SG design

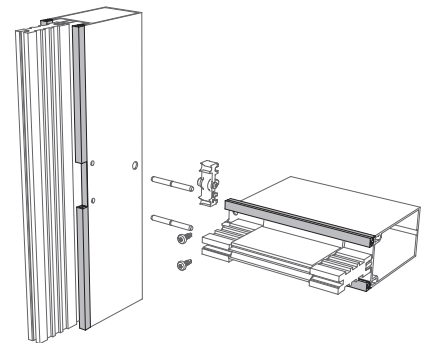


## Benefits of WICTEC 60 NG

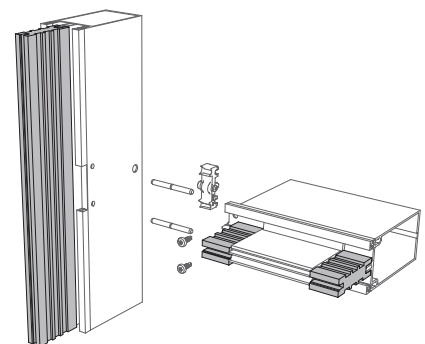
- Intelligent glass weight transfer (up to 850 kg) through the connected chain of items: reinforced glass supports, strengthened transom shapes and heavy load pins between connecting transoms and mullions.
- New internal glazing gaskets
  - absorbs increased infill thickness tolerances, associated with multi-layered glass units, up to +/- 2mm.
  - self-sealing corners for dry connections, ensuring outstanding tightness under extreme weather conditions, without the need for butyl mastic.
- Increased system width of 60 mm, not only means a stronger system in terms of profiles and connections, but also provides greater glass edge coverage or glass edge clearance. Individual design possibilities e.g. capped with standard or high insulation thermal break, a low-profile pressure cap for an SG design or semi-capped to create a horizontal or vertical line aesthetic.
- Outstanding thermal performance, with U-values as low as 0,67 w/m<sup>2</sup>k ( $U_{v/m}$ ) and infill thicknesses up to 62 mm.
- WICTEC 60 NG is fully integrated in both WICTOP and WIC3D, allowing the full project process to be realised from pricing to material orders, production to completion.



Intelligent glass weight transfer

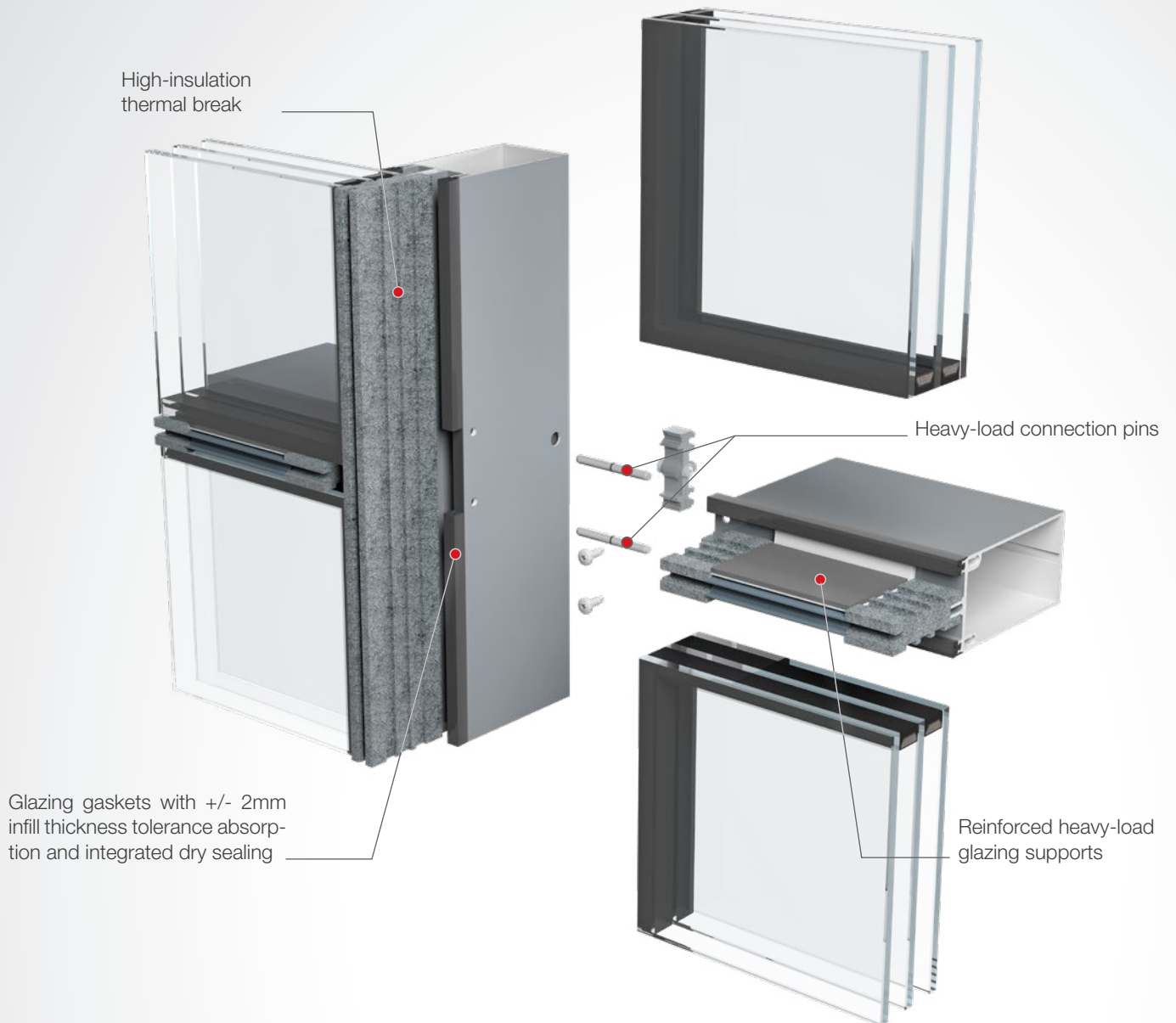


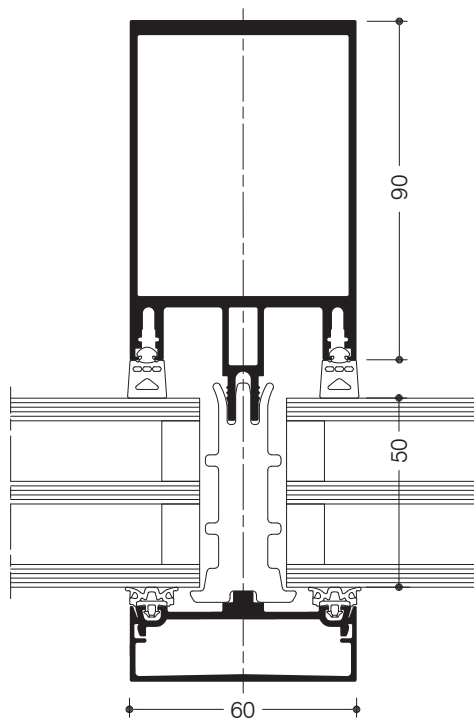
New internal glazing gaskets



High-insulation thermal break

# » WICTEC 60 NG – Technology in detail





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### Technical performance:

- Profile technology:  
Max infill thickness: 62 mm  
Max. infill load: 850 kg
- Thermal insulation:  
 $U_{vm}$  up to: 0.67 W/m<sup>2</sup>K  
(including pressure plate screw effect)
- Tightness:  
Air permeability: Class AE  
Watertightness: 1,500 Pa  
Resistance to wind load: +2,000 / -2,000 Pa  
Safety load: +3,000 Pa / -3,000 Pa  
Impact resistance: Class I5 (internal), Class E5 (external)
- Burglar resistance:  
RC1N, RC2N, RC2, RC3
- Extruded aluminium profiles in  
Hydro CIRCAL 75R

### System tests / CE product pass in accordance with EN 13830:2015+A1:2020

Air permeability:	Class AE
Watertightness:	RE1500
Thermal insulation $U_{vm}$	up to 0.67 W/(m <sup>2</sup> K)
Resistance to wind load:	+2,000 / -2,000 Pa, safety +3000 / -3000 Pa
Sound insulation:	$R_w (C; C_{tr}) = 47 (-1; -4)$ dB
Impact resistance:	Class I5 / E5
Burglar resistance:	RC1N, RC2N, RC2, RC3
Quality assurance:	Certified according to ISO 9001:2008
Environmental management:	Certified according to ISO 14001

# » Materials and sustainability



© Patrick Loubet

Following the tradition of all WICONA systems, only the best materials and accessories are used to ensure the least possible maintenance expenditure and greatest possible durability.

- Extruded aluminium profiles in Hydro CIRCAL 75R in accordance with EN 12020, EN 573-3, EN 515 and EN 775-1 - 9
- Fittings in die-cast zinc in accordance with EN 12844
- All gaskets EPDM or TPE (thermoplastic elastomer)
- Thermal break made of PA66-GF25 and ABS
- Stainless steel screws

## Surfaces and colours

Whether anodised or powder-coated – almost all optical requirements can be met thanks to the exclusive shades of WICONA's extensive colour range. Exclusive shades and coatings with antibacterial, antiviral, high scratch resistance and heat reflecting properties mean that architects and designers/planners have more design freedom to bring out the individual look of the building.



## Join a revolution

Building with vision means taking the future seriously. Bearing in mind that our resources are finite. We are absolutely convinced that future urban development is inconceivable without sustainable reuse of materials.

### Hydro CIRCAL

WICONA is a part of the Hydro group, a global supplier of aluminium with activities throughout the value chain. WICONA is once again demonstrating its focus on sustainability by using Hydro aluminium alloy CIRCAL made with recycled post-consumer scrap. Hydro CIRCAL 75R contains a minimum of 75% post-consumer scrap. When guaranteeing more than 75% recycled content, Hydro exclusively refers to aluminium that has reached its end-of-life as a product in use and is brought back into the loop.

### 100 % Opportunities. 5 % Energy.

Aluminium is infinitely recyclable. Its quality and material properties are never lost. Furthermore, melting down end-of-life aluminium uses just 5 % of the energy required for primary aluminium production. So the higher recycled content of post-consumer scrap, the better it is for our cities and the environment.

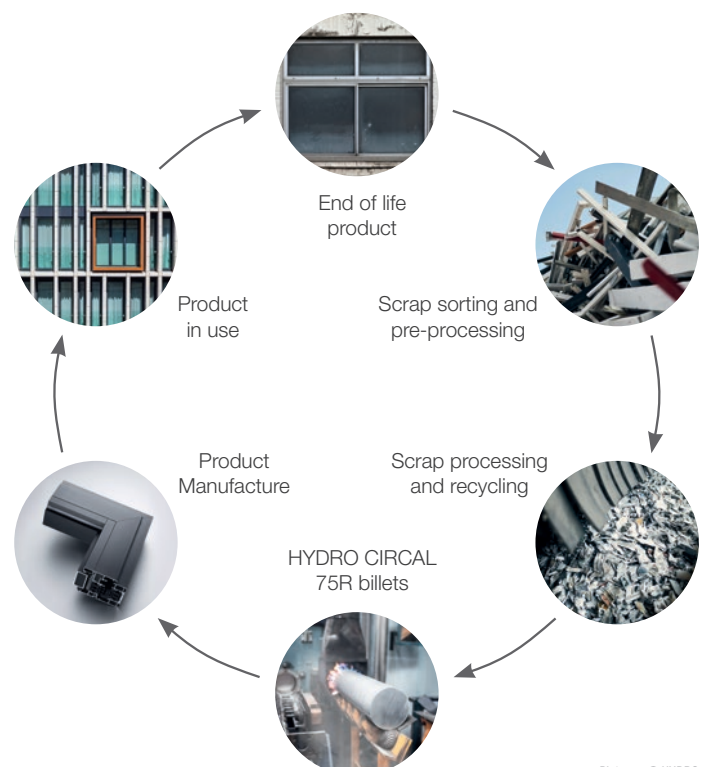
### Minimum CO<sub>2</sub> footprint

Hydro CIRCAL has one of the smallest CO<sub>2</sub> footprint worldwide: 2.3 kg CO<sub>2</sub> per kilo of aluminium – 4.5 times less than the world global primary average.

## About 75% of all aluminium ever produced is still in use today

### The Process

The production process is fully traceable, and the product is certified by an independent third party (DNV-GL). The certified production is nothing short of a revolution in the building industry.



Pictures: © HYDRO

# » Your partner from the start

The WICONA support team has many years' experience, and will support you through your project – with planning, technical drafts, calculations and drawings.

At WICONA, we know the importance of local contacts and fast, efficient support in project planning and implementation. We also know that a global reference and knowledge base is invaluable in all phases of the construction process. WICONA combines both of these strengths.

With our local presence, we make sure you always get the support you need for efficient, optimum planning. We will work together to design the perfect solution for your specific project, with regular meetings and a close dialogue.

We offer you a strong reference portfolio of global WICONA projects realised worldwide. With our know-how and support, you can rely on us throughout the whole process, whatever the nature of your project.

Beyond the richness of its catalogue, WICONA has developed a renowned know-how and established a team for special projects situated in Ulm. More than 30 engineers are working on special projects with bespoke designs for large international architectural projects. This guarantees the quality and homogeneity of the WICONA range, gathering, adapting and approving all the products in accordance with the technical requirements and test certificates.

For each design, its experts control the process from start to finish, ensuring that all performance commitments are met.



## Test Centre Bellenberg

Just as for the catalogue solutions, specific solutions are also thoroughly tested to ensure an optimal performance once set up on site. Most of them are tested in our Test Centre in Bellenberg that certifies all WICONA catalogue products. Certified by the IFT Institute, the German equivalent to the Scientific and Technical Centre for Building, it brings together all the control equipment to ensure the exceptional quality of the products. WICONA ensures the reliability as well as the mechanical, thermal, acoustic and reliability performances of all its solutions, both catalogue and bespoke.



### Façade test rigs

The façade test rigs make it possible to perform tests on samples with maximum dimensions of 10 m x 10 m. Customers are able to freely select the dimensions of their test specimens within these limits. The following tests can be carried out at the façade test rigs:

- Air permeability in accordance with EN 12153
- Static water tightness in accordance with EN 12155
- Dynamic water tightness in accordance with EN 13050
- Wind load resistance in accordance with EN 12179
- Impact resistance in accordance with EN 14019
- Accident-proof vertical glazing in accordance with TRAV

### Window test rig

The rig is designed for windows, doors, fixed panels and combinations. The maximum dimensions of the units including test frame are 3.6 m x 3.5 m. The following tests can be carried out at this bay:

- Air permeability in accordance with EN 1026
- Water tightness against driving rain in accordance with EN 1027
- Wind load resistance in accordance with EN 12211
- Loading with soft and heavy body impact in accordance with EN 13049

### Tension/compression testing machine

Static tests using tensile and compression loads are carried out on the tension/compression testing machine. These are also carried out in alternance. The component strength (in accordance with EN 14024), material strengths and screw pullout values are tested, amongst others.



© Conné van d'Grachten

### Fitting test rig

Dynamic tests on fittings and elements are carried out on doors and windows up to a height of 4 m. For example, continuous operational testing in accordance with EN 1191 and testing of fittings for windows and French doors, requirements and test procedures for turn/tilt and turn and tilt fittings in accordance with EN 13126-8 can be carried out. Sash widths of up to 1550 mm can be tested.

### Hot Box

- Determines heat transfer coefficients for framework profiles ( $U_f$ ) in accordance with EN 12412-2
- Gauges new insulating materials
- Verifies material properties
- Validates computer programs

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