



**STOPRAY - IPASOL - ENERGY
SUNERGY - STOPSOL**

**High-Performance
Solar Control Glazing**

AGC

Your Dreams, Our Challenge

AGC Glass Europe presents...



...the best coated glass products for solar control



STOPRAY - IPASOL ENERGY - SUNERGY - STOPSOL

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AGC solar control glazing for intelligent architecture

— BRINGING YOUR VISION TO LIFE —

Architects love glass, for it is the one material that has enabled all of the functional features and design qualities found in modern architecture. Moreover, only high-tech glass products are capable of meeting today's expanding energy and aesthetic requirements.

AGC's extensive range of solar control coated glass products delivers concrete solutions that offer you the right combination of solar and thermal performance. Aesthetically, AGC products can meet any requirement: highly transparent or coloured glass, neutral or reflective, curved, heat treated*, laminated or silkscreen printed. Architecture has been liberated!

Make AGC your key partner so you can benefit from its expertise in coated glass products and the many services it provides. Wherever you are, AGC is by your side thanks to a sales network that spans the globe.

— DIVERSIFIED, AESTHETIC AND MULTIFUNCTIONAL —

AGC and Interpane joined forces in 2012, enabling them to offer an extensive network along with optimised know-how and technology. The result is a glass portfolio that offers faster access to our products and services worldwide. Our customers value what is probably one of the widest ranges of high-tech coating solutions. By design, these product types provide the greatest transparency coupled with the lowest energy transmission.

Whether Stopray, ipasol, Energy, Stopsol or Sunergy each of our products has demonstrated its physical and aesthetic benefits in large prestigious and signature flagship projects around the world.

* AGC recommends that clients opt to have a Heat Soak Test carried out on all orders of thermally toughened glass.

Solar control and improved thermal insulation

— STOPRAY —

With Stopray, the neutrality and selectivity of solar control glass products are no longer incompatible: the ratio of light transmission to solar factor for neutral Stopray glazing approaches or exceeds a value of two.

This high-end soft coating is also available in a heat-treatable version, delivering maximum freedom for architectural design.

A double or triple silver coating applied using magnetron sputtering in a vacuum ensures optimal solar control in summer, while the particularly low U_g value prevents heat loss in the winter.

Stopray Vision glass can be combined with Stopray Active, an opaque spandrel and cladding glass solution that embeds photovoltaic cells concealed behind a Stopray Vision coating. It is totally integrated into the facade, perfectly matching the vision elements (windows) and delivering an aesthetically superb project while ensuring optimal energy generation.

What's so special about it | What does this mean for you?

Outstanding selectivity – Combines a low solar factor with high light transmission (Tv to solar factor approaches or exceeds two).

Maximum energy efficiency – Optimal thermal insulation with a U_g value as low as 1.0 W/(m²K) in double glazing units.

Great design flexibility – Wide range of colours and reflection levels.

When Stopray is combined with Planibel G fast in the same double glazing unit (G fast in position 4), the U_g value drops to 0.9 W/m²K – Lower energy consumption. This unique combination is an affordable, lighter and thinner alternative to triple glazing.



Stopray products are Cradle to Cradle Certified™ Silver



Flexibility for your high-tech solution

— IPASOL —

ipasol is the perfect combination of aesthetics and functionality. The glass is renowned the world over for its colour-neutrality, high transparency, low light reflection and excellent solar control, making it possible to create facades with a particularly transparent and filigreed appearance. At the same time, ipasol provides the broadest range of solar control coatings for cut-to-size glass.

Triple silver coating versions of ipasol are also available to satisfy the highest requirements in terms of light and energy transmission values.

Additional processing possibilities, such as silkscreen printing on the glass with the coating on top of it, offer original aesthetics and complete the portfolio.

What's so special about it | What does this mean for you?

- Outstanding selectivity – Lowest solar factor combined with the highest light transmission (Tv to solar factor approaches or exceeds two).
- High energy efficiency – Outstanding thermal insulation, with a U_g value as low as 1.0 W/(m²K) in double glazing units.
- Great freedom of design – Huge number of variations and coatings of cut-to-size glass.



ipasol products are Cradle to Cradle Certified™ Silver

Also available as OverSized Glass in maxi formats

— STOPRAY AND IPASOL —

Worldwide demand for oversized glass products is growing. Developed after extensive consultation with many cutting-edge architects to achieve the maximum size possible, AGC have now developed some of the world's largest coated glass products: OverSized Glass. The maximum deliverable size of Stopray and ipasol solar control and iplus thermal insulation coatings on float glass is an impressive 18 × 3.21 metres, with a glazing thickness of up to 20 millimetres.

Projects using OverSized Glass are anything but standard. Through a coordinated design process and careful planning, it is possible to realise pioneering architectural designs that challenge technical standards and push the boundaries of the built-up environment. The materials, installation methods and logistical approach need careful consideration and can be taken care of by our specialist teams.

Our Technical Advisory Service (TAS) will be happy to help you.



The power of solar control and thermal insulation

ENERGY

AGC's Energy range has been specially designed for double and triple glazing in residential applications. With their high light transmission, these coated glazings let in maximum natural light while maintaining excellent solar protection.

Our Energy products deliver the perfect combination of solar control and thermal insulation, ensuring optimal indoor comfort. They are suitable for all weather conditions, efficiently reducing overheating in summer, yet keeping warmth inside the home in winter.

What's so special about it | What does this mean for you?

Superb light transmission – Lets a comfortable level of daylight into the home.

Outstanding solar protection – Prevents homes from overheating due to sunlight and saves on air conditioning costs.

Low emissivity – Very low heat loss, translating into lower energy costs.

When Energy products are combined with Planibel G fasT (G fast in position 4) in the same double unit, the U_g value drops to $0.9 \text{ W/(m}^2\cdot\text{K)}$



Energy products are Cradle to Cradle Certified™ Silver

Functionality combined with aesthetics

— SUNERGY —

As a solar control glass with a pyrolytic coating that can be heat treated, Sunergy is particularly easy to process and is often chosen for curved, coloured or neutral facades worldwide. It delivers low light reflection similar to soft coatings.

Its high level of light transmission creates a bright daylight atmosphere indoors and gives the facade a particularly transparent quality.

What's so special about it | What does this mean for you?

- Top design flexibility** – Pyrolytic coating (online deposition). Can be used as single-pane, insulating or laminated glazing and heat treated or enamelled. Large range of substrate colours available.
- Functional** – High light transmission, low light reflection and neutral appearance.
- High energy efficiency** – High thermal insulation with a U_g value as low as $1.0 \text{ W/(m}^2\text{K)}$ in double glazing units in combination with a low-E glass.
- Processing benefits** – Easy to process and can be stored for many years.



Solar control and privacy

STOPSOL

Glass processors frequently require glazing with flexible design qualities that can be used for a variety of purposes. Stopsol uses a pyrolytic coating that renders the glass easily heat-treatable and bendable. Suitable as single glass, laminated glass or part of an insulating glazing unit, it also offers the possibility of decorative ceramic printing on both surfaces.

Of particular use in densely built-up cities, the highly reflective surface delivers increased privacy and outstanding aesthetics. Stopsol is available in different colours and architects can leverage different combinations of solar factor, light transmission, light reflection and aesthetics.

Three types of Stopsol coatings are available (Classic, Supersilver and Silverlight), enabling even more creativity.

What's so special about it | What does this mean for you?

High flexibility – Pyrolytic coating (online deposition). Can be used as single-pane, insulating or laminated glazing and heat treated or enamelled. Large range of substrate colours available.

Privacy – Protects privacy due to its high level of light reflection when viewed from the outside.

Processing benefits – Easy to process and can be stored for many years.



ITALY | MILAN, HOTEL VIU - COATING ON DEMAND - ARCHITECT: MICHELE TADINI

Custom products in just one day

— COATING ON DEMAND —

AGC can now create custom glazing in just one day thanks to our Coating on Demand service.

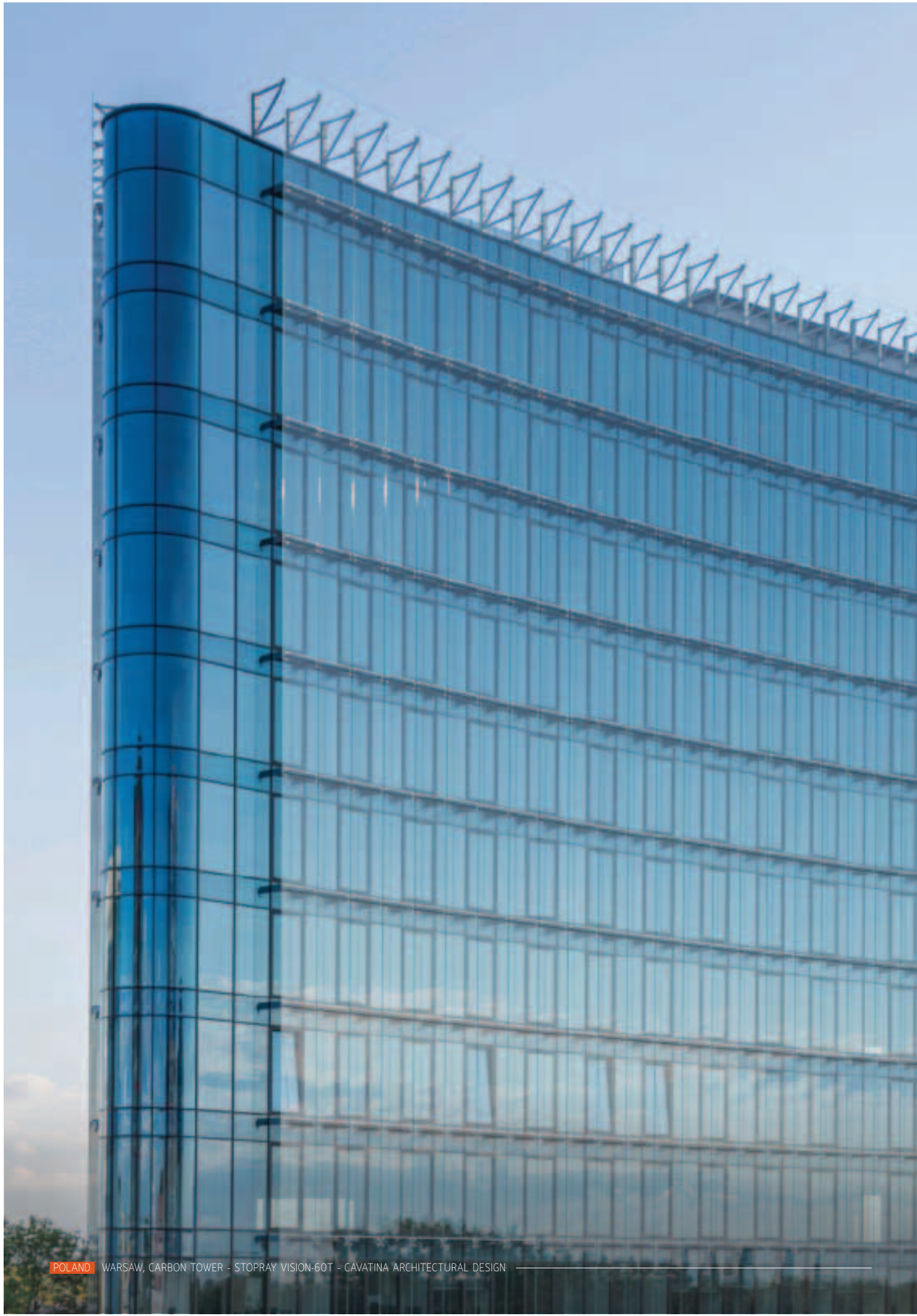
Coating on Demand (CoD) allows architects to develop unique coated glass products for facades and windows tailored precisely to their needs. A prototype product can be manufactured during a one-day development session. The technical specifications and optical properties are individually defined.

The service is powered by AGC's virtual prototyping software, capable of delivering a true representation of coated glass in its environment and under various climate conditions based on all of the glazing's physical values. Customers can fine-tune light transmission, light reflection and colour to find the perfect solution for their project. Once all the technical characteristics and aesthetic features have been defined, the programme runs a feasibility check and, where necessary, optimises the configuration. The first physical glass samples are then produced directly at the plant in the afternoon.

In addition to custom coatings, CoD delivers another key benefit: slashing the time you need to select the right product to just one day. The end result is a unique product that an architect and investor can use to create their own iconic building, as AGC will not use the same solution for any other project anywhere in the world.



Coating on Demand is Cradle to Cradle Certified™ Silver



The perfect size glass straight from the oven

— TAILOR-MADE SIZES —

The carbon footprint of every renovation and new build project has become a central concern for architects and investors. To address these concerns, AGC has further pushed the boundaries of its commitment to sustainable manufacturing by introducing the option of producing glass in custom sizes.

With our Tailor-Made Sizes service customers can now order glass of the exact length required for their project, resulting in better production yield, faster processing and cost savings.

Tailor-Made Sizes service provides a sustainable approach for every project. When ordering glass that is exactly the right size, only the necessary amount of glass is produced, which in turn prevents waste and reduces the project's environmental footprint.

For a 10,000 m² project where the windows measure 3800 × 1600 mm, Tailor-Made size production could mean a reduction of 144.5 tonnes in CO₂ emissions*.

* Calculation based on the following glazing unit composition: 66.2 Stratobel – 16 mm space filled with 90% Argon – 44.2 Stratobel

What's so special about it | What does this mean for you?

- | | |
|---|--|
| The glass is directly produced at exactly the right length | – Better production yield, faster processing and cost savings for glass processors and their end customers |
| Less glass waste | – Less CO ₂ is consumed during production and recycling, thus reducing the project's carbon footprint |
| Custom glass in lengths ranging from 3500 to 7000 mm | – Glass can be produced in the exact length required |
| Available for float glass, laminated glass, decorative glass, pyrolytic and magnetron coatings | – Total freedom of design in many types of features |



No more condensation, just a clear view

ANTI-FOG

While highly insulated windows deliver comfort and energy savings, the more we insulate our homes and windows, the greater the likelihood of external condensation forming.

Anti-Fog is a pyrolytic coating specifically developed for use on the outer pane of the glazing unit to prevent condensation from forming.

AGC's Anti-Fog coating can be combined with solar control or thermal insulation coatings to make your living space more comfortable while delivering a clear view of the outside world.

What's so special about it | What does this mean for you?

- Applying the Anti-Fog coating in position 1 increases the temperature of the outer glass pane and prevents condensation from forming — Ensures a strikingly clear view of the outside world since there is no condensation on the glass to blur the view.
- The Anti-Fog coating can be combined with solar control or thermal insulation coatings on the same pane — Allows you to choose from multiple options so you find the right solution for your needs.
- Also available in Stratobel laminated versions with the Anti-Fog coating always in position 1 — Provides enhanced safety and security as well as acoustic comfort.
- Reduces haze — The Planibel Anti-Fog coating significantly reduces haze.*
- Planibel Anti-Fog does not need to be heat-treated in order to activate the coating — Provides the same anti-condensation performance in both the annealed and heat-treated versions.
- Neutral colour — Is in line with current trends in the residential market.

* Haze is an optical phenomenon visible when looking through a glazing at an angle, giving the impression that the glass is coated with a thin layer of dust.

Our commitment to producing sustainable products...

— CRADLE TO CRADLE —



The Cradle to Cradle certification system is a globally recognised measure of safer and more sustainable products made for the circular economy. It evaluates a product's sustainability across its entire life cycle. To achieve certification, a product must meet strict standards in five categories linked to health and the environment: Material Health, Material Reutilisation, Renewable Energy, Water Stewardship and Social Fairness.

AGC was the first European glassmaker to obtain C2C certification for its float glass and magnetron-coated glass. Since then, AGC has continually worked to achieve C2C certification for more and more of its products, with the result that some 75% of its entire product portfolio is now Cradle to Cradle Certified™.

By committing to C2C standards, AGC can deliver high-quality products while protecting people and the environment, and while supporting its customers in their socially and environmentally responsible purchasing decisions.

...for certified sustainable buildings

AGC's Cradle to Cradle Certified™ products also enable extra credits to be gained for LEED and some national BREEAM schemes. AGC's solar control glass products help to earn points in the LEED and BREEAM systems in three key areas: natural lighting, thermal comfort and energy performance. Their excellent insulation performance reduces cold emanating from windows while their solar factor reduces overheating, thus helping prevent discomfort for building occupants.

Find out more by downloading the AGC LEED and BREEAM brochures from www.agc-yourglass.com

Harness AGC's comprehensive services to bring your vision to life

— ONE-STOP-SHOP —

Your one-stop-shop for top technological performance

AGC Glass Europe boasts one of the world's most comprehensive and diverse ranges of solar control glass products, giving architects, specifiers, facade consultants and glass processors the freedom to unleash their imagination and realise their vision.

AGC is your one-stop-shop, providing everything you need to create the aesthetically and technically perfect solution: research, consultancy and technical advice, production and logistics. We provide support via our dedicated teams and expert services throughout every stage of your project, from initial planning to completed construction.

IBP: International Building Projects

International Building Projects (IBP) is a team of AGC experts who help decision-makers to find the best glass solutions for their projects and applications.

TAS: Technical Advisory Service

The AGC Technical Advisory Service is a team of highly qualified specialists who provide our customers with technical information based on different types of analysis (structural, thermal, safety, security, acoustics, processing, etc).

www.agc-yourglass.com

AGCs comprehensive product website is a source of key information for all architectural and renovation construction projects. It provides commercial and technical documentation for all AGC products as well as a number of useful tools.

AGC Glass Configurator

The AGC Glass Configurator module can be used to calculate the light, energy and thermal performance of any glass composition to help you find the best performing glass that meets your needs. It also allows users to customise important parameters such as acoustics, safety, security, weight and thickness. Both European and NFRC standards are available. This fast, smart, user-friendly tool will make your life easier. Go to: www.agc-yourglass.com/configurator.

In Summary

- Stopray Ultra - Stopray Ultraselect ipasol ultraselect**
 - Products featuring innovative silver-based coatings delivering a selectivity value greater than two.
 - Available in annealed and heat-treatable versions, some of which are available in heat-treated cut sizes.
- Stopray Vision - Stopray Coloured ipasol neutral, platin, shine, sky**
 - A range of neutral and coloured coatings delivering various levels of solar protection, light transmission and reflection.
 - Also available in equivalent heat-treatable versions.
- Stopray Smart**
 - Products which can be used in heat-treated or annealed versions, and which do not require the coating to be edge-deleted.
 - Only one glass needs to be stocked.
- Stopray SilverFlex**
 - A single coating with an outstanding silver appearance.
 - It can be used in heat-treated or annealed versions, both of which match each other perfectly.
 - Only one glass needs to be stocked.
- Energy**
 - A range of neutral coatings designed mainly for residential buildings: high levels of solar protection combined with high light transmission values.
 - It can be used in heat treated or annealed versions with a perfect esthetic match.
 - Also available in single-stock
- Sunergy**
 - A large palette of coloured glass substrates with a pyrolytic coating, delivering high light transmission, low light reflection, and easy handling and processing.
 - Available in annealed and heat-treatable versions.
- Stopsol**
 - Products with a highly reflective pyrolytic coating that delivers increased privacy and outstanding aesthetics.
 - These products can be annealed, heat-treated and curved.
 - Easy handling and processing thanks to a durable pyrolytic coating.

NOTE: for detailed processing options, please refer to the Processing Guide available for all products on www.agc-yourglass.com



Discover more on AGC's solar control brands and products on www.agc-yourglass.com



CZECH REPUBLIC PRAGUE, QUADRIO - STRUCTURAL 3D FACADE, STOPRAY VISION-60T - ARCHITECT: CIGLER MARANI ARCHITECTS, A.S.

QUADRIO



AGC GLASS EUROPE, A EUROPEAN LEADER IN FLAT GLASS

Based in Louvain-la-Neuve (Belgium), AGC Glass Europe produces, processes and markets flat glass for the construction industry (external glazing and interior decoration), car manufacture and solar power applications. It is the European branch of AGC, the world's leading producer of flat glass. It has over 100 sites throughout Europe, from Spain to Russia, and employs around 16,500 employees. More information on www.agc-glass.eu (corporate site), www.agc-younglass.com (glass for the construction industry) and www.agc-automotive.com (for the automotive industry).

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