

SCHOTT
ROBAX®

Warm & safe

Transparent glass ceramic
for fireplaces and stoves





SCHOTT is an international technology group with over 125 years of experience in special glass, special materials, and leading edge technologies. Our high quality products and intelligent solutions are a significant factor in our customers' success and make SCHOTT an important feature in everyone's lives.

As a SCHOTT brand, ROBAX® is also on course for continued success. With sales of more than 60 million ROBAX® fireplace panels, SCHOTT is one of the leading manufacturers in the field of heat-resistant transparent materials. Today, the SCHOTT ROBAX® name is a byword for innovative quality, and is practically synonymous with the sense of warmth and security only a real stove can provide. ROBAX® fireplace panels guarantee a genuine fireside experience. They make it possible to see the fire clearly and get up close to it, yet remain completely protected from flying sparks. SCHOTT ROBAX® gives you a feeling of warmth and safety every day.



The magic of fire

When we look into a fire, we are captivated by its dancing flames full of imagery, passion and energy.

People have always been fascinated by the red embers and elemental force of fire. A couple lying together in front of a romantic fireplace fire. Telling interesting tales around a huge campfire. Or simply holding one’s cold hands over the flames.

Whenever a fire is burning, hardly anything else really matters to us. We allow our minds to wander, give in to our dreams or talk about everything under the sun. A fireplace or stove brings that special feeling of a flickering and crackling campfire inside our own four walls. It radiates soothing warmth and primordial coziness.

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Warm & safe

A blazing and flickering fire immediately warms our hearts.

No question: There is something very special about a blazing outdoor campfire. But, when it comes to our own four walls at home, safety, as well as thermo-technical and esthetic aspects, are extremely important.

Regardless of whether it's functionality, a sense of security, design or luxury you're looking for, the wide variety of transparent ROBAX® glass products that SCHOTT offers can easily keep up with the creative ideas of fireplace builders.

This is why ROBAX® has been representing the phrase warm & safe for over 30 years. It means that ROBAX® fireplace viewing panels guarantee genuine fire enjoyment and complete protection. They enable the best possible viewing and physical closeness to a fire, yet offer reliable protection from being hit by a spark.

“Beneficent is fire’s strong might, when man subdues and watches it.”

Friedrich von Schiller

We all seek safety, when the sparks begin to fly.

ROBAX® glass ceramic is extremely heat resistant, robust, and features an incredibly low coefficient of thermal expansion. These panes even stand up to incredibly high temperatures of up to 760 °C (1400 °F) for a short time, as well as considerable shifts in temperature and shocks.

These exact characteristics, temperature stability, transparency, heat transmission and a long lifespan, are advantages that enable ROBAX® to offer the best possible protection from the dangers of a fire – especially compared to conventional flat glass.

The ROBAX® brand is the embodiment of futuristic fireplace viewing panels. Always processed with great care and engineered in Germany to be long lasting and offer the highest quality.



Function

The natural way to heat

Fireplaces have a rich history. And hold significant potential for the future.

Ensuring proper heating is a great way to start feeling comfortable at home all year. Because fossil fuels, like petroleum, gas and coal, are becoming increasingly scarce, there is a real need to look for alternatives. Alternatives that many people are already benefiting from. But also, inexpensive and efficient.

For this reason, more and more people are interested in having a fireplace or stove (we'll be referring to fireplaces as of here), in order to feel more comfortable at home. But, at the same time, to heat their homes in a more cost effective and environmentally conscious way.

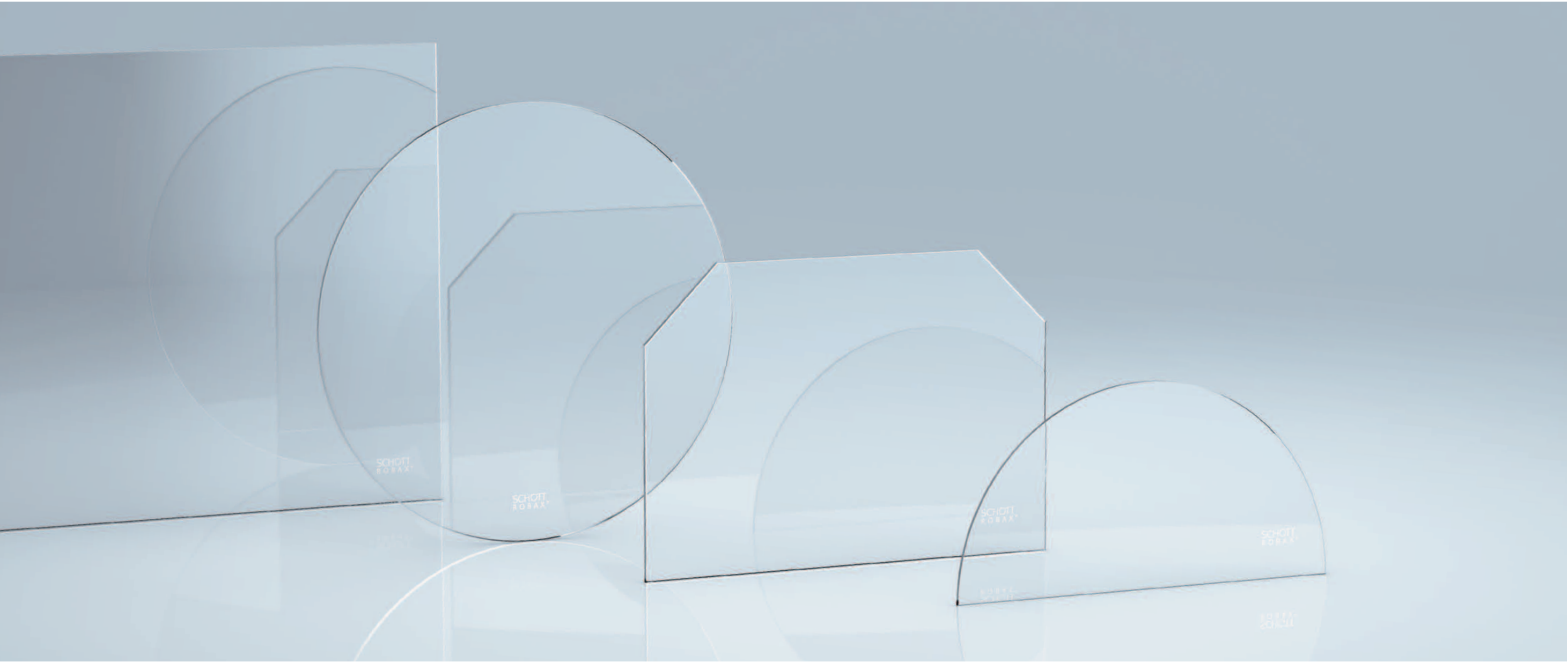
By choosing to heat with wood, people make themselves independent of the increasing energy costs that the major oil and gas companies are charging. But, a closed stove is really what is needed to heat most effectively.

With a viewing panel made of SCHOTT ROBAX®, fireplaces look great and emit the maximum amount of radiated heat.



“One must never allow the fire to go out in one’s soul, but must keep it burning.”

Vincent van Gogh



Flat ROBAX® Panels

The intrinsic values are really what counts

A fireplace offers the greatest possible benefit when it heats up an entire room evenly and combustion can be regulated.

Fireplaces that feature SCHOTT ROBAX® allow for the heat radiation created in the combustion chamber to pass through so that it gradually fills the entire room with pleasant warmth.

Flat ROBAX® panels are also known for the many other advantages they offer. Thanks to their rigorous design, they serve as simple, yet impressive, barriers between the fire and the living room and allow for maximum freedom of design, thanks to the many possible shapes they come in.

Special coatings guarantee a high level of functionality – for example ROBAX® Energy Plus – which guarantees a reduction in the build-up of soot on the fireplace panel.

FUNCTIONAL

- high heat permeability of the panels
- flat panels for increased functionality
- available in sizes of up to 195.4 x 110 cm
- thicknesses of either 4 or 5 mm
- a variety of different shapes
- heating with renewable raw materials

Conziness

Comfort for every home

The feeling of being safe and secure all alone, or together with a loved one, is rather unique. The ways to achieve it are not.

Feeling safe and secure. Protected and happy.

These objectives can be achieved more easily at home than anywhere else. And no place is more pleasant than sitting in front of a crackling fireplace fire. This is the place to spend romantic moments together, peacefully enjoy a glass of red wine or relax and exchange the latest stories and happenings with family and friends.

Especially when sitting in front of a fire together, having a clear panoramic view is extremely important. This is where SCHOTT ROBAX® sets new standards. Shaped fireplace panels invite people to sit close to the fireplace – and yet provide a clear view of the fire. A campfire feeling that lets people experience the flames even more. With all of their senses and full of emotions.



“We humans are always longing. And the main goal of our longing is to feel safe and secure.”

Rainer Kaune

ROBAX® 3D Panels Shaped for coziness

SCHOTT ROBAX® turns a fire into a 3D experience – an all around pleasant feeling.

Round or square. One-sided or more: The various designs that ROBAX® 3D panels come in offer completely new views of a fire inside a closed fireplace.

ROBAX® 3D panels feature a variety of viewing elements that turn the fireplace into a real meeting point. From either the right or left, not to mention the front, everyone will be able to enjoy the view of the flames. Regardless of whether these elements are round or angular in shape, the broad selection of panel shapes makes the fireplace experience even more flexible.

Nothing more will stand in your way, when it comes to experiencing the fire in a more emotional manner.



FIRE AND FLAMES FOR ROBAX® 3D PANELS

- great view of the fireplace from all sides
- round or angular in shape
- thickness of 4 or 5 mm
- singular or double bends
- many different bending angles possible





Design

Fireplaces to match your lifestyle

Good design says more than words.
And always shows itself from its best side.

There are people who turn everyone's heads the moment that they enter the room. The reason is that they have that special something, their own personal style. Architectural elements can have this same effect by influencing the character of a home. By either fitting in perfectly with the surroundings or setting impressive accents.

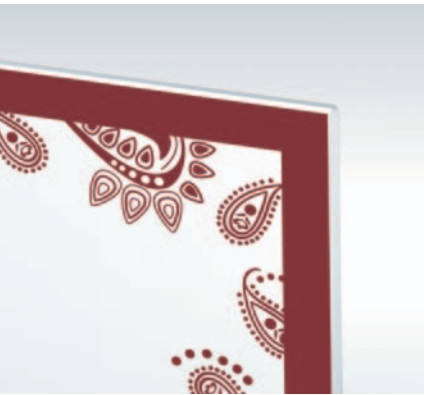
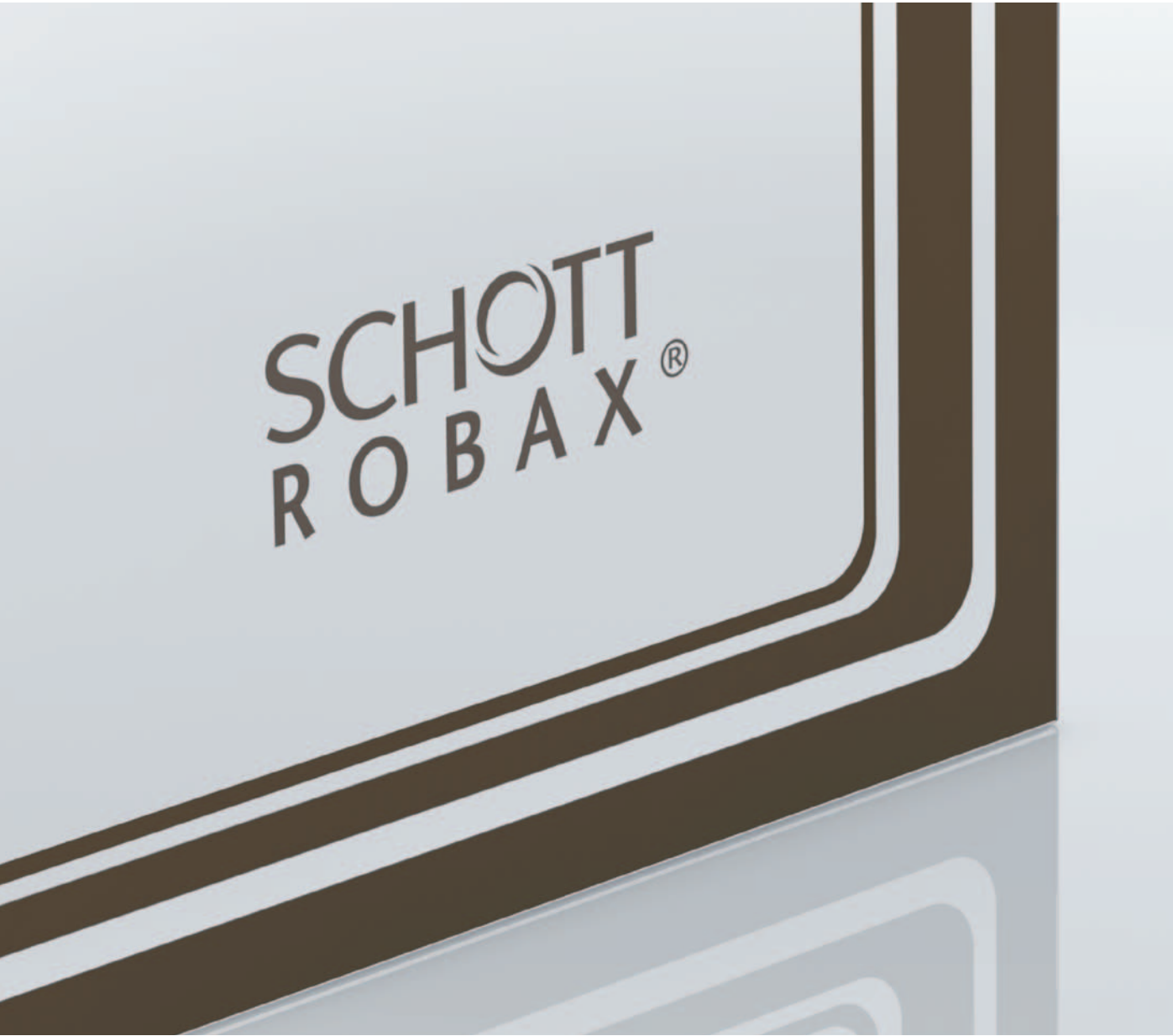
Today, fireplaces offer much more than just the ability to light up a fire. They are part of the furnishings and underscore the love one has for a certain design. Whether traditional, rustic, austere or stylish: By using various decorative elements and coatings, SCHOTT ROBAX® gives a fireplace fire that special something.



*“One does not experience what one experiences,
but rather how it was experienced.”*

Wilhelm Raabe





Individuality is what really counts – from the inscription on the glass ceramic panel to the decorative printing around the edges, to ROBAX® Magic. This panel is mounted on the inside of the gas fire and uses reflections to make the fire look even bigger.

Decorative ROBAX® Panels

Love at first sight

Tastes can differ. So do glass ceramic products made from SCHOTT ROBAX®.

Design-oriented and functional aspects, like the engraving of a logo or concealed mounting elements, clearly speak for decorative glass ceramic panels made of ROBAX®. In fact, ROBAX® always sets new decorative accents.

All flat and curved panels are available in a variety of decorative designs according to your preference, either in black or one of many other colours.

Thanks to its unique transparency, **ROBAX® Anti-reflective** creates the impression that there isn't even a panel – and, thus, the illusion of an open fireplace.

Completely the opposite happens with **ROBAX® Mirror**. Once the fire has burned down, the glass that was transparent suddenly becomes reflective. Ashes and soil can no longer be seen. Here, an uncoated, yet body-tinted material, like

ROBAX® Ambience – can be used as a resistant exterior panel, due to its thermal, physical and chemical material characteristics.

With **ROBAX® Magic**, an extra black panel is fixed on the inside of the gas fire, creating reflections which make the fire look even bigger than it is.

DESIGNED FOR INDIVIDUALISTS

- attractive colored patterns that perfectly match interiors
- customized inscriptions or designs possible
- processing of the edges possible by adding planar bevels
- upon request: view of the fire without reflections, mirror reflections to conceal the ashes or panels that project the image of the flames

The solutions that can be achieved with ROBAX® using special coatings are every bit as unique as the many different demands that glass ceramic panels must meet.



Luxury
Longing for something
very special

Granting special wishes calls for
exclusive and customized design.

Lavishly granting one’s own desires. And
occasionally treating oneself to something very
exclusive. Luxury takes on a different appearance
for each of us. A fast car or expensive jewelry can
qualify as luxury in the same way as good health
and a happy family.

But one thing remains the same: Luxury feels good.
On the outside, but also deep inside. Owning
something very special – who could say no?

Whenever flickering flames blaze in such splendor,
the fireplace transforms itself into a luxury item.
SCHOTT ROBAX® offers just the right panels for
custom designed fireplaces. And, thus, meets even
the highest demands for unique shapes and sizes.
Truly a luxury that one can kindle and enjoy every day.

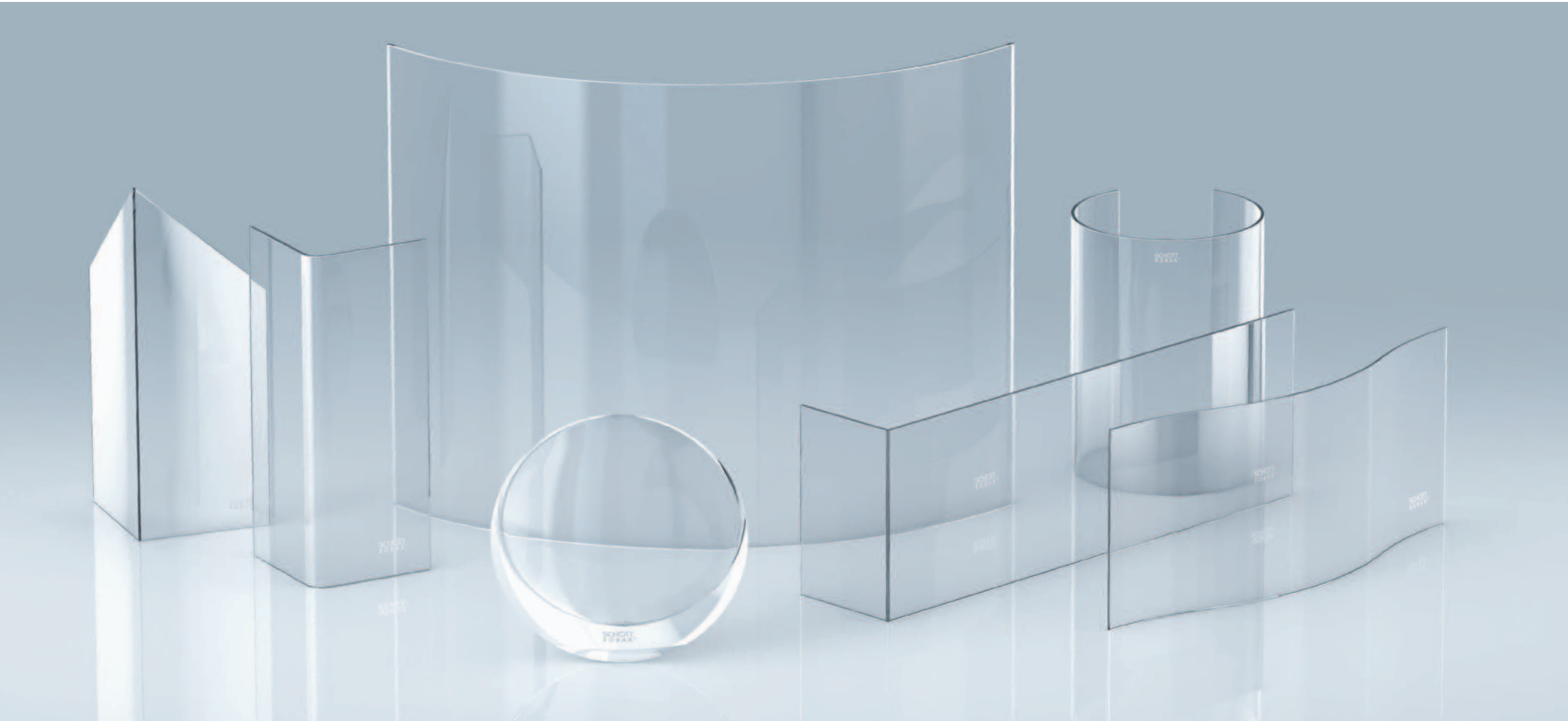


“It is the possibility of realizing a dream that makes life interesting.”

Paulo Coelho



Exclusive living rooms call for
exclusive solutions. ROBAX®
sets standards based on glass
ceramic solutions that are
completely unique.



Exclusive ROBAX® Panels

A taste of something very unique

We not only see that something is quite special. We also sense and feel it.

Whether custom manufactured, factory made or limited edition: The luxury segment of SCHOTT ROBAX® helps make customized dreams come true. In order to grant even the most unconventional of wishes, the ROBAX® product line also features panels you'll find very convincing, thanks to their innovative shapes and exclusive functionalities.

Whether a design uses a wave-shaped ROBAX® panel, ROBAX® Giant, a panoramic glass ceramic panel that spans the wall, or ROBAX® Dome, which is a curved convex panel it will always bring out the best of the fire, both beautifully and safely.

Whatever luxury might mean to an individual, custom manufactured ROBAX® panels allow for even the most exclusive fireplace wishes to come true.

UNIQUELY DIFFERENT

- innovative shapes and designs
- the highest standard, even for non-standardized shapes
- exclusive specialties for every taste



Sustainability: good for us and good for the environment.

Wood is a valuable source of energy. The ‚Natural Power? Yes please‘ initiative by SCHOTT ROBAX® supports the sustainable use of this renewable raw material.

Where does the energy of tomorrow actually come from? The answer: from regenerative energies and renewable raw materials such as wood. More and more people are being inspired by the multitude of benefits that this natural resource has as a source of heat. That’s why the demand for fireplaces – and for wood – is continuously growing.

It is imperative that this natural source of energy is managed sustainably in order to ensure a permanent and plentiful supply. The term sustainability is a current buzzword. But what many people do not yet know is that it comes from the forestry industry and was invented in Germany in 1773. The core of the idea is the obligation to plant just as many trees as are chopped down, allowing the forest to supply us with wood in the long-term. That’s the way things should stay, and that’s why SCHOTT ROBAX® supports the sustainable use of wood on two fronts: with its innovative and energy-efficient products and with an initiative.

The use of our glass ceramic windows doubles the efficiency of a glazed heating device when burning wood compared to open stoves. This means SCHOTT ROBAX® products can help reduce the amount of wood needed for heating. The ‚saved‘ wood remains in the forest, where it stores CO² for many years and contributes towards climate protection.

Even the burning itself is CO² neutral, because the process only releases as much carbon dioxide into the environment as the wood absorbed from the atmosphere before being felled. Also, even if the tree was allowed to ‚naturally‘ rot down instead of being burnt, the same amount of CO² would be released. A further ecological benefit provided by SCHOTT ROBAX® is that conditions in the combustion space are optimised to significantly reduce the amount of particulate matter produced during burning.

But SCHOTT ROBAX® would like to inspire other companies, partners and users to use wood sustainably. That’s why we have started the ‚Natural power? Yes please‘ initiative. The aim is to provide information about conserving resources through the use of wood and to increase awareness of the importance of this valuable raw material for securing our energy supply. More information and opportunities for taking part can be found on our website at www.naturalpower-yes-please.net or www.naturalpower-yes-please.us

Take part in the ‚Natural power? Yes please‘ campaign by SCHOTT ROBAX® and include this in your customer communications. Visit our website www.naturalpower-yes-please.net or www.naturalpower-yes-please.us and find out more about our initiative.

You can also order information material on the site and download the ‚Natural Power? Yes please‘ -logo. Join in, and contribute to protecting the environment and securing our energy supply.



Our promise: warm & safe.



A pleasure to work with you

Technology always heads to the future. However, when it comes to service, we often prefer to do things the old-fashioned way.

Logistics | Regardless of whether it’s e-commerce or a customized approach to logistics: SCHOTT ROBAX® always provides top delivery performances.

Application technology | ROBAX® will answer all of your technical questions and also sponsors specialized expert workshops to professionally train you and your employees.

Marketing | For us, effective marketing starts with a well-researched study – and then goes far beyond that. Take “atmosfire”, for example, the European project we set up to promote sales of fireplaces and stoves. Similar projects have also been started in the USA and Argentina.

Quality | We subject our products to regular quality assurance tests. The result: ISO Certification according to Germany’s DIN 9001, as well as complete fulfillment of REACH requirements. And if anything should ever go wrong, we’ll take care of your claim immediately.

Global Presence | Together means one is never alone. And a lot stronger. Our long-term business partnerships make it possible for us to react quickly and flexibly to customer requests.

Research and Development | For us as a technology company, innovation is the cornerstone of our everyday work. Futuristic development partnerships ensure the highest technological advances in all areas.

TRUST IN STRONG VALUES
<ul style="list-style-type: none">• excellent logistics• professional application technology• comprehensive marketing activities• high quality• global presence• ongoing research and development



Igniting a passion: “atmosfire”, the new customer magazine, sets the mood for fireplaces with SCHOTT ROBAX® glass ceramic.

atmosfire® Dry Wiper for fireplace panels, as recommended by SCHOTT ROBAX® cleans without application time, without smearing or scratching, and without any need for rinsing. For more information turn to page 43.

Appearance

ROBAX® glass ceramic is transparent and has very little natural coloring with respect to the material itself or as a result of the manufacturing process. The surface is smooth on both sides, but has a slight texture.

Quality

The externally certified management system introduced in accordance with DIN EN ISO 9001 (for quality management) and DIN EN ISO 14001 (for environmental management) represents a high standard for quality. It also ensures compliance with customer demands, as well as official regulations and guidelines.

Random sheets, i.e. stock sizes and jumbo formats are large-format glass ceramic sheets that have not yet been processed, especially with respect to the edges. These serve as the base material for cut-to-size panels.

Stock sizes are available as follows:

Minimum usable area	Thickness*	Packaging	Number per packaging unit
1,580 x 890 mm	4.0 mm	Wooden crate	60 sheets
1,580 x 890 mm	5.0 mm	Wooden crate	55 sheets

Jumbo formats are available in the following sizes:

Minimum usable area	Thickness*	Packaging	Number per packaging unit
1,954 x 1,100 mm	4.0 mm	Wooden crate	45 sheets
1,954 x 1,100 mm	5.0 mm	Wooden crate	35 sheets

*Other thicknesses upon request.

Flatness | Random sizes

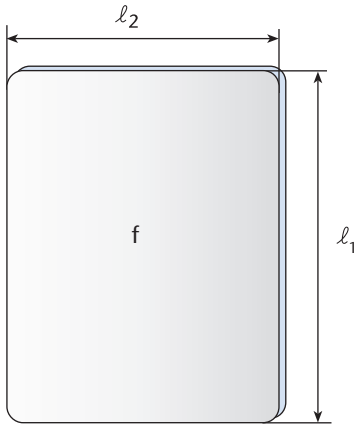
Flatness (f) describes the maximum deviation from flatness for stock sizes. This is tested using a straightedge and a feeler gauge. The following applies to random sizes:

Flatness ≤ 0,3% x measured length. | Measured length at least 500 mm

ROBAX® can be cut to size within the standard dimensions to meet your specific demands. We would be happy to supply you with the minimum dimensions of cut-to-size panels upon request. The maximum dimensions of cut-to-size panels are equivalent to the minimum usable area of the respective panel.

Standard length tolerance cut-to-size panels, standard shape cut-to-size panels

Edge length ℓ_1 ℓ_2	Tolerance
≤ 500 mm	± 1.0 mm
> 500 mm	± 1.5 mm



Flatness | Flat cut-to-size panels

Flatness (f) describes the maximum deviation from flatness and is tested using a straightedge and a feeler gauge. Maximum deflection for cut-to-size panels: Flatness ≤ 0,3% x diagonal of the cut-to-size panel

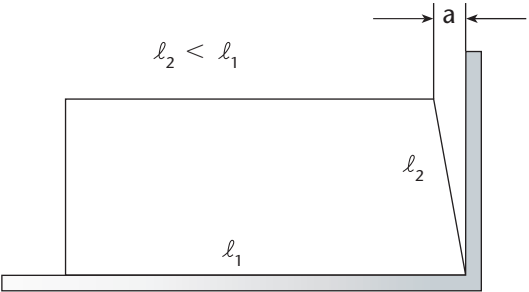
Rectangularity

The limits shown in the sketch below apply to the rectangularity of the panels:

The tolerance range a is the range within which the actual dimensions of the panel may vary.

Rectangularity tolerance

Edge length	Tolerance
≤ 500 mm	a ≤ 1.0 mm
> 500 mm	a ≤ 1.5 mm



ROBAX® 3D Panels

Available shapes
Shaped glass ceramic panels

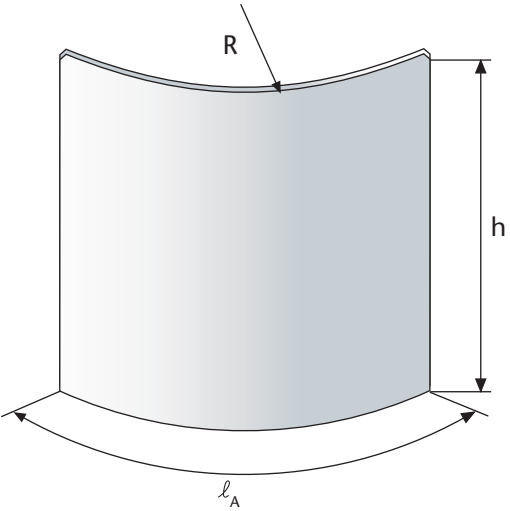
ROBAX®curved and angular bent panels are available in various versions in thicknesses of 4 and 5 mm.

If you require a custom-tailored solution, please inquire early about our available models and shapes. This helps us reduce delivery times and costs. For curved panels, we recommend selecting panels from the standard product line. The delivery times for these are shorter.

All geometric tolerances are ascertained using a two-dimensional slot gauge. This is a level plastic gauge with a defined slot. The glass ceramic panel must fit easily into the gauge.

Curved

Curved ROBAX® glass ceramic panels are available in a number of different versions.



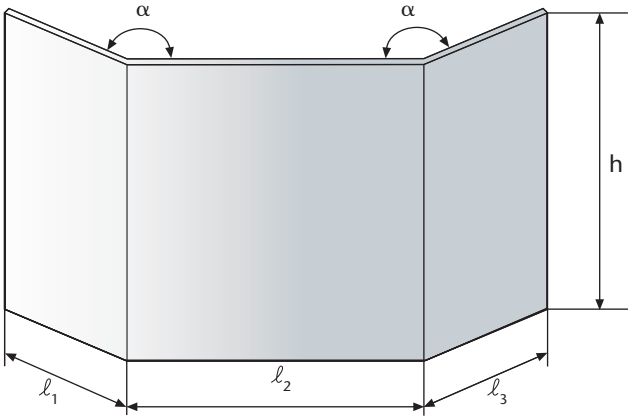
Minimum bending radius (R) = 225 mm

	Standard	Maximum	Size	Tolerance
h panel height	200–600 mm	800 mm	$h \leq 500 \text{ mm}$	$\pm 1.0 \text{ mm}$
			$500 \text{ mm} < h \leq 650 \text{ mm}$	$\pm 1.5 \text{ mm}$
			$h > 650 \text{ mm}$	Determined with first sample
l_A arc length	300–700 mm	1000 mm	$l_A \leq 500 \text{ mm}$	$\pm 1.5 \text{ mm}$
			$l_A > 500 \text{ mm}$	$\pm 2.0 \text{ mm}$
r bending radius	350–650 mm	250 mm		according slot gauge

Other configurations on request | All dimensions are exterior dimensions

Angular bent, 2 angles

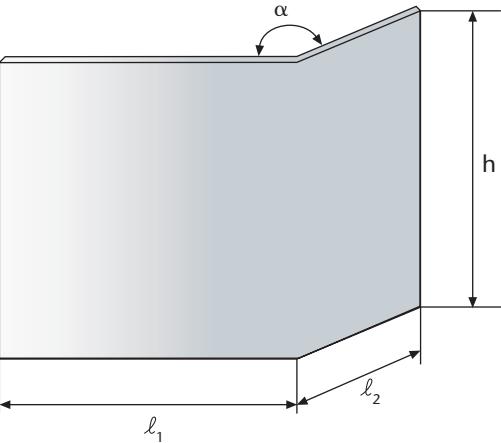
	Standard	Minimum	Maximum	Size	Tolerance
h panel heigh	250–500 mm	230 mm	650 mm	$h \leq 500 \text{ mm}$	$\pm 1.0 \text{ mm}$
				$500 < h \leq 650$	$\pm 1.5 \text{ mm}$
l_2 center section length	200–400 mm	170 mm	650 mm	l_2	$\pm 1.0 \text{ mm}$
l_1, l_3 side section length	100–210 mm	60 mm	300 mm	l_1, l_3	$\pm 2.0 \text{ mm}$
α bending angle	135°	90°	160°	α	as per TS



Special shapes upon request. | all sizes are outer dimensions.

Angular bent, 1 angle

	Standard	Minimum	Maximum	Size	Tolerance
h panel heigh	350–500 mm	230 mm	650 mm	$h \leq 500 \text{ mm}$	$\pm 1.0 \text{ mm}$
				$500 < h \leq 650$	$\pm 1.5 \text{ mm}$
l_1 long side	400–800 mm	60 mm	860 mm	l_1	$\pm 2.0 \text{ mm}$
l_2 short side	100–500 mm	60 mm	500 mm	l_2	$\pm 2.0 \text{ mm}$
α bending angle	135°	90°	160°	α	as per TS



Special shapes upon request. | all sizes are outer dimensions.

Complex shapes

Perhaps you have something special in mind? Upon request, we are able to develop additional complex and innovative shapes in cooperation with you. You'll find examples on pages 22 to 23.

Panel thicknesses

ROBAX® is available in the following standard thicknesses with corresponding admissible tolerances:

Thickness	Tolerance
4 mm	$\pm 0,2 \text{ mm}$
5 mm	$\pm 0,2 \text{ mm}$

Other thicknesses upon request.

Processing and finishing

Fine grinding for that perfect effect

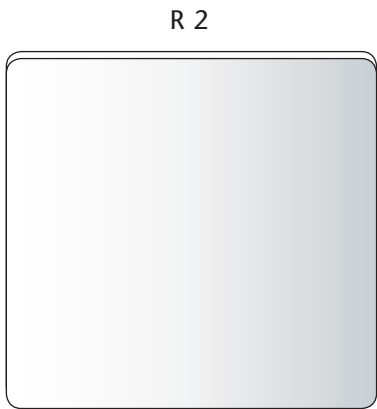
Regardless of whether attractive appearance or top functionality is what interests you most, a variety of different types of processing and finishes give ROBAX® the finishing touch. You'll receive a perfect product that meets your needs.

Edge and corner finishing

The standard edge finish for glass ceramic panels is based on DIN 1249. Standard grinding is used for flat and curved ROBAX® panels as in the following sketch:



Custom ground U-shaped profile. Specially rounded edges can be produced on customer request.



Standard R 2 | 3D glass with rounded corners

Boreholes

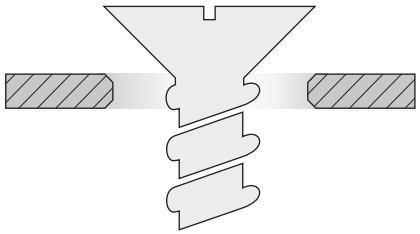
Upon request, ROBAX® is available with holes bored into it.

These holes are available with diameters of 7 mm or more. The position of the holes is subject to certain limitations with respect to the edges and corners of the panel, as well as the position of these holes in relationship to each other.

This limitation generally depends on:

- the nominal thickness of the glass ceramic
- the panel dimensions
- the diameter of the hole
- the shape of the panel

Further details available upon request.

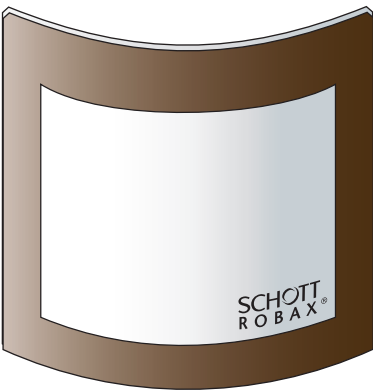


Holes for countersunk screws

Decorative patterns

Flat and curved ROBAX® panels are available with decorative designs on request. Decorative designs can have a functional purpose. Decorations can be selected from a wide range of colours.

On request we can supply a glass ceramic panel with a personalised logo. For area coverage greater than 70%, the glass requires a thickness of 5 mm.



ROBAX® in decorative wooden brown



ROBAX® with an individual logo

Decorative ROBAX® Panels

Processing and finishing

Stress temperature		
650 °C/ 1,202 °F	100 hours	
600 °C/ 1,112 °F	1,000 hours	

Coatings | ROBAX® Energy Plus

At a glance

The power package for your fireplace: ROBAX® Energy Plus is the first glass ceramic fireplace panel with a heat reflecting coating. It is available in a flat version as well as in a rounded form for the first time. The advantage is an energy-friendly fireplace: While visible light can easily pass through the panel, some of the heat radiation is reflected back into the combustion chamber. This can result in a noticeable gain in stored energy – ROBAX® Energy Plus.

Further product benefits

- Due to the innovative construction, up to 35 % of the heat radiation is reflected back into the combustion chamber. The result: the energy radiation passing through the panel is reduced and the temperature in the combustion chamber is significantly increased. The extra energy gained can for example be used for more efficient heating water conduits or as additional stored energy. Its advantage: more optimal use of the heat energy in the wood reduces heating costs.
- With the highest esteem for the environment: the higher temperature in the combustion chamber generally results in better combustion and therefore lower emission values.
- Even when the heat runs high, ROBAX® Energy Plus is resistant to high temperatures. The temperature resistance is approximately 650 °C (1,202 °F). The efficiency of the coating is therefore maintained over time.
- ROBAX® Energy Plus inspires confidence with a homogeneous and attractive bluish shimmering look, which integrates it perfectly into any home design.
- The coating can result in less soiling on the panel, in particular due to soot, which makes cleaning the glass ceramic distinctly easier.
- ROBAX® Energy Plus makes heating with fire safer. The reason for this: the reduced radiation means that the installation area is heated more pleasantly and evenly. Also, the floor temperature in front of the heating appliance remains lower. This means that furniture can be placed closer to the visible area of the appliance, thus offering increased enjoyment of the fire experience.
- It also provides safety: the SCHOTT application technology laboratory guarantees comprehensive application servicing.

Technical data	
Glass thickness	4 and 5 mm
Max. usable area	1,914 mm x 1,060 mm
Versions	Rounded (dimensions upon request), flat, coating is always on outer side
Temperature resistance	up to 650 °C (1,202 °F)
Effect of the coating	Additional stored energy, improved combustion, reduced emissions, reduced contamination of panel, safe heating*

All the above effects are of course heavily dependent on the construction of the individual stove and its normal usage. We strongly recommend that you check whether ROBAX® Energy Plus delivers the results you are looking for before you opt for a standard model.

Coatings | ROBAX® Mirror

This reflective layer is only offered for flat ROBAX® fireplace viewing panels. When no fire is burning, the reflective pane prevents the inside of the fireplace from being viewed to a large extent. When a fire is burning, however, viewing is excellent. The reflective layer is found on the side that faces away from the fire. To provide assistance with installation, the uncoated side is labeled accordingly.

Technical data	
Glass thicknesses	4 and 5 mm
Max. usable area	1,770 mm x 1,070 mm*
Long-term temperature resistance	up to 600 °C (1112 °F)
Mean visual reflection	approx. 50%

* Other dimensions upon request

Coatings | ROBAX® Anti-reflective

The anti-reflective coating applied on both sides of the glass is available for flat ROBAX® fireplace viewing panels. It helps to avoid reflections from the area surrounding the fireplace and, thus, facilitates the best possible view of the heart of the fireplace. We recommend using ROBAX® AR only with gas devices.

Technical data	
Glass thicknesses	4 and 5 mm
Max. usable area	1,770 mm x 1,070 mm*
Long-term temperature resistance	up to 600 °C (1112 °F)
Reflection (at a wavelength of 550 nm)	approx. 1%

* Other dimensions upon request

If you have any questions, we would be happy to assist you.

Decorative ROBAX® Panels

Processing and finishing

Stress temperature		
560 °C/1,040 °F	5,000 hours	
660 °C/1,220 °F	100 hours	

Tinted Panels | ROBAX® Magic

ROBAX® Magic glass ceramic panels have thermal, physical and chemical characteristics, which make them suitable for use as highly resistant interior panelling for gas stoves and gas fires for domestic heating in private homes. More prolonged periods of contact with flames should be avoided. ROBAX® Magic opens up new design options for improving the appearance of room-heating devices that require low thermal expansion and high temperature stability. The impression of additional reflections created by the dancing flames and the ease with which glass ceramic panels can be cleaned make ROBAX® Magic a real alternative to the conventional materials used inside combustion chambers.

ROBAX® Magic is available in black. Other colours available on request. The surface of the ROBAX® Magic panel is dimpled on one side and smooth on the other.

Temperature/time loading

Temperature/time loading determines the lowest possible specifications on permissible temperatures for pre-determined periods of stress below which no thermally-induced heat stress breakage occurs for panels used as interior linings in stoves and fireplaces. The values presented in the table to the left are of relevance for the practical use of glass ceramic as an interior lining for stoves and fireplaces.

Technical data	
Glass thickness	4 mm
Version	flat boring of holes possible
Minimum size	100 mm x 100 mm
Maximum size	1,180 mm x 590 mm
Edge processing	C-grind
Corner radii	2 mm
Shape	Square with corner radius

Other dimensions and customized sizes upon request.

Tinted Panels | ROBAX® Ambience

Thanks to their thermal, physical and chemical material properties, ROBAX® Ambience glass ceramic panels are designed for use as highly resistant exterior linings for stoves and fireplaces that are used to heat private homes (electric, wood, oil or gas fireplaces and cassettes). ROBAX® Ambience opens up new large-format design options for enhancing the appearances of room-heating devices that perhaps require low thermal expansion and high temperature resistance.

The colour of the ROBAX® Ambience is black. Other colours available on request.

Temperature/time loading

No thermally-induced heat stress breakage occurs with ROBAX® Ambience at temperatures of up to 500 °C (932 °F).

Technical data	
Glass thickness	4 mm
Version	flat boring of holes possible
Minimum size	100 mm x 100 mm
Maximum size	1,180 mm x 590 mm
Edge processing	U-profile edge
Corner radii	2 mm
Shape	Square with corner radius
Color patterns (screen printing)	Several colours available for decoration

Other dimensions and customized sizes upon request.

Technical properties
facts and figures

General information

In addition to its attractive appearance, SCHOTT ROBAX® is mainly known for its “intrinsic” values. Regardless of whether one refers to its mechanical, thermal, chemical, or optical properties, the transparent glass ceramic meets even the highest requirements with poise. The following technical information applies to ROBAX® in general. Unless otherwise indicated, the data provided is intended as a point of reference. Values for which no generally applicable measurement method exists or, alternatively, are not defined in a generally applicable manner (for instance by a standard), are specified and explained.

Mechanical properties

Density	ρ approx. 2.6 g/cm³ (at 25 °C / 77 °F)
Bending strength	σ _{bb} approx. 35 MPa*

* The test is carried out in accordance with DIN EN 1288 T5, with the surface in its normal condition of use as encouraged in practice.

Impact resistance

Comments can only be made on impact resistance when more is known about the actual application. Of particular importance here are application-specific standards that must be met with respect to strength requirements. Basic values available upon request.

Comments on mechanical properties

Values presented on the strength of glass and glass ceramic must also take into account the special properties of these materials.

In the technical sense, glass and glass ceramic are “ideally elastic”, yet brittle materials in which there are no flow patterns. When they come into contact with materials of the same hardness, this causes surface damage in the form of fine nicks and cracks. When glass and glass ceramic are subjected to a mechanical load, the build-up of critical stress at the points of such nicks and cracks cannot be relieved by plastic flow, as is possible with materials like metals.

The consequence of this behavior is that the structurally based high strength of glass and glass ceramic (≥ 104 N/mm²) is practically irrelevant. It is reduced by the effect of unavoid-able surface defects (in the case of unprotected surfaces) to a practical value of approx. 20 bis 200 N/mm² bending strength, depending on the surface state and test conditions.

The strength of glass and glass ceramic is therefore not a material constant (as its density, for example), but is dependent on the following criteria:

- processing condition of the panel (incl. edge finish, bored holes, etc.)
- usage condition (type and distribution of surface defects)
- time-related conditions or alternatively the duration of the effective load
- surrounding conditions (corrosive substances, e.g. hydrofluoric acid)
- the area subject to load, as well as the thickness of the panel
- how the panel is installed

Its strength is also subject to a statistical distribution in accordance with the type and distribution of the surface defects.

Thermal properties

Coefficient of mean linear thermal expansion	α _(20–700 °C)	(0 ± 0.5) × 10 ⁻⁶ /K
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Resistance to thermal gradients (RTG)

The RTG value measures how well a material can resist temperature differences within a defined area, e.g. the temperature difference between the hot area in the center of a panel and the cold edge area (room temperature). No breakage caused by thermal stress occurs at a maximum temperature of T_{max} ≤ 700 °C (1292 °F).

Resistance to thermal shock (RTS)

The RTS value measures the panel’s ability to withstand a sudden thermal shock. No break-age caused by thermal stress occurs at a maximum temperature of T_{max} ≤ 700 °C (1292 °F).

Temperature/time loading

The temperature/time loading limits determine the permissible temperature for set usage times at which no breakage caused by thermal stress occurs. The pairs of values shown in the following table are relevant for the practical usage of glass ceramic as a viewing panel for stoves and fireplaces.

The temperature values refer to the hottest points on the outside of the panel. One must make sure that these temperature/time loading limits are not exceeded. Taking resistance to thermal gradients and thermal shock into account, the following applies:

Stress temperature	
560 °C/ 1,040 °F	5,000 hours
660 °C/ 1,220 °F	100 hours

Technical properties
facts and figures

Chemical properties

Chemical composition

The chemical composition of SCHOTT ROBAX® complies with the requirements for a glass ceramic in accordance with EN 1748 T2.

Water resistance

Hydrolytic resistance to ISO 719 Grain class: **HGB 1**

Alkali resistance

In line with ISO 695: **min. Class A2**

Acid resistance

DIN 12116: **min. Class S3**

Hydrolytic class

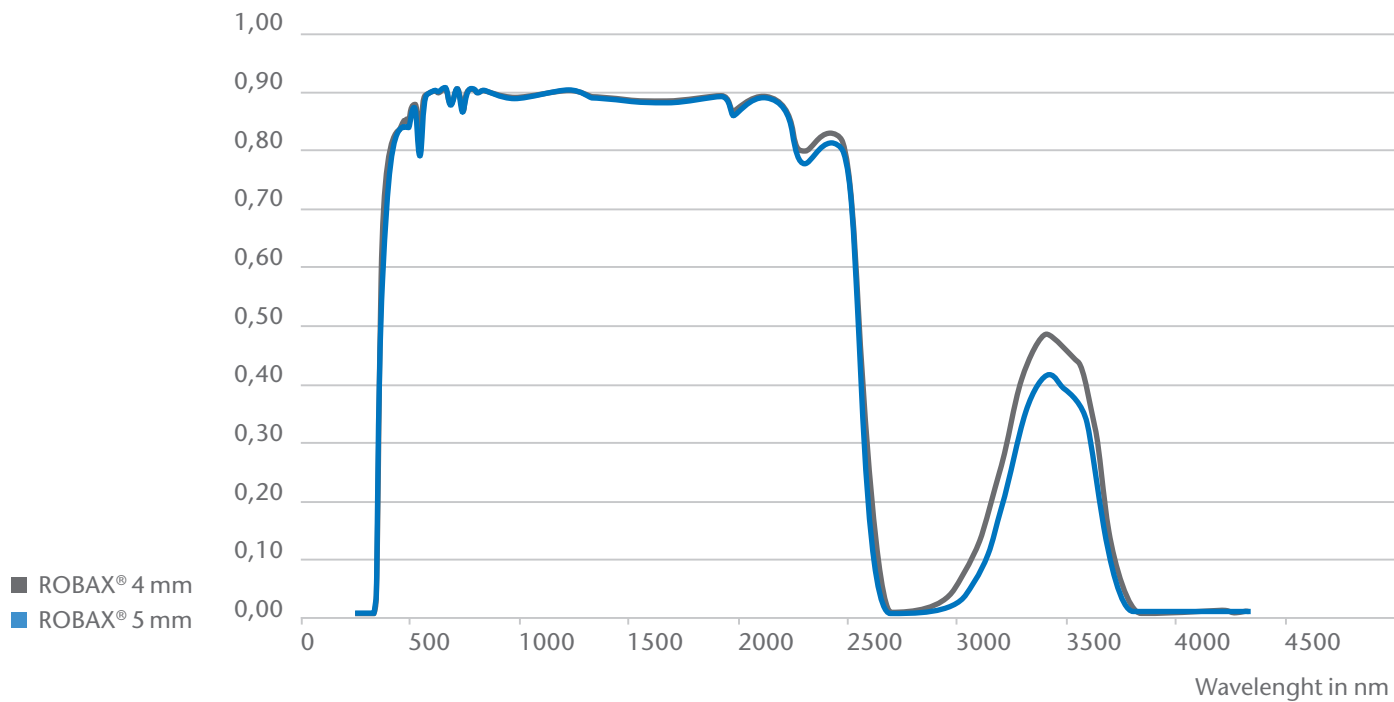
DIN ISO 719 Class: **HGB 1**

Surface modifications caused by use

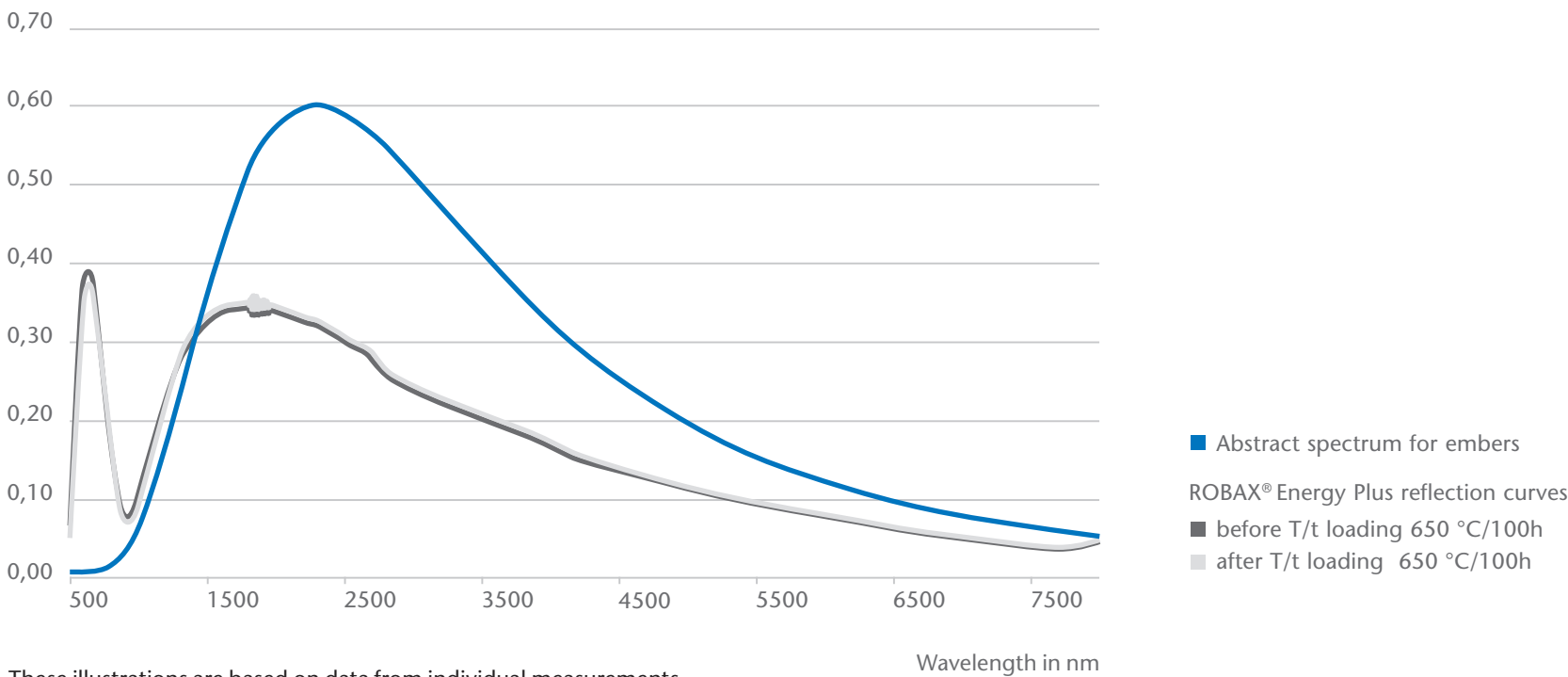
ROBAX® has a high degree of resistance to surface attacks. In individual cases, however, surfaces can experience changes under critical conditions, e.g. corrosive combustion gases (formation of acid at high temperatures). In such cases, practical tests should be conducted before using ROBAX®.

Optical properties

Transmission ROBAX® | 4 mm and 5 mm thicknesses



Reflection glow spectrum compared with ROBAX® Energy Plus | 4 mm



These illustrations are based on data from individual measurements. Deviations may result from manufacturing processes.

General Information on Installation

Perfection is always a question of more than just materials and design. Proper handling is also very important. If you follow the appropriate guidelines, you will always be on the safe side.

The following guidelines for glass and glass ceramic apply to the installation and handling of SCHOTT ROBAX®:

- When determining the sizes of the frame and panel, the differences in thermal expansion behavior of SCHOTT ROBAX® (nearly zero) and the respective frame materials, but also possible manufacturing tolerances, need to be taken into account.
- If the design requires the panel to be pressed against the frame, one must make sure that the panel is never subjected to high pressure at any time as a result of clamps or mounting.
- Non-distorting frames should be used. If slight distortion cannot be avoided, a suitable permanently elastic gasket must be used to prevent the distortion of the frame from being transferred over to the glass ceramic panel.
- Direct contact between glass and metal (or other hard construction elements) should be avoided. We recommend permanently elastic heat-resistant materials, such as mineral fiber materials, as an insert between the glass ceramic and the metal.

Installation

Fitting

Frameless fitting

When ROBAX® is used in frameless doors, there is a danger of mechanical stress (bending stress, impact, shock, etc.). In such cases, please pay close attention to the following basic points. Of course, the general information also still applies:

- The weight of the panel should be distributed across rails of a sufficient size. Stress on specific points, e.g. caused by the weight of the panel “resting” on the screws/bushings, should be avoided. The pressure forces transferred to the glass by the rails must be absorbed by a suitable material that is both stable in temperature and flexible (e.g. glass-fiber cord between hinge/handle and panel).
- Contact pressure on the panel that could cause it to bend under force must be avoided. This can be accomplished by restricting the torque or using a mechanical stop that limits the screw penetration, for example.
- Closing the door should not cause any additional pressure (or leverage) on the side of the panel that is mounted with a hinge.
- The hinges should not jam during closing, as the corresponding resistance forces could be transferred to the glass when the door is opened or closed.
- Bending forces are exerted on the corners of the glass panel during locking. These depend, among other things, on the position of the holes drilled for the locking mechanism and the pressure that the user needs to exert to lock the door. There is no cause for concern regarding strength, as long as the pressure force that is applied to the panel does not exceed 40 N. No design limitations are necessary with respect to the size and position of the holes drilled, as long as the standard recommendations for our product information are followed.
- The diameter of the holes that are drilled must be selected in such a way that expansion of the metallic components (bushings, mounting rails, etc.) as a result of temperature is still able to take place (play). In addition, the edges of the holes must be of sufficient quality and have a chamfered edge on both sides. The edges of the panel should be ground.

Delivery times

Delivery times for standard dimensions are from receipt of order; ex works.
Specific standard dimensions and custom agreements on logistics are possible on request.

Undecorated flat ROBAX® panels	approx. 2 weeks
Standard ROBAX® 3D panels	approx. 4 weeks
Non Standard ROBAX® 3D panels	approx. 6 weeks
Decorative flat ROBAX® panels	approx. 3 weeks
Decorative ROBAX® 3D panels	approx. 8 weeks
Exclusive ROBAX® panels	up to 3 months


Cleaning


Slight soiling of SCHOTT ROBAX® panels can removed using a conventional glass cleaning product. Note: On no account should scouring pads, abrasive cleansers or scouring agents be used, as they may cause damage to the glass surface. The SCHOTT-recommended atmosfire® Dry Wiper is eminently suitable for use on fireplace panels.


Find out more at: www.atmosfire.co.uk




Application of the atmosfire® Dry Wiper:

- 

1 Please wear household gloves, wear protection against any dust produced during cleaning and make sure the area is well ventilated during cleaning.
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2 Only use the Dry Wiper dry – do not moisten!
- 

3 Clean the cold SCHOTT ROBAX® fireplace window with the Dry Wiper before or after lighting every fire. To do this, rub the grey active side of the Dry Wiper over the cold dirty window.
- 

4 After cleaning, beat the Dry Wiper and return to the packaging. All done!

Photo credits:

Page 11	Model 1, Scan A/S, Denmark Model 2, Leda Werk GmbH & Co.KG, Germany Model 3, Messina Metall Design AG, Switzerland
Page 15	Model 1, Scan A/S, Denmark Model 2, Rüegg Cheminee AG, Switzerland Model 3, SAS Atelier Dominique Imbert – Focus, Frankreich
Page 17	Model 2, Spartherm Feuerungstechnik GmbH, Germany
Page 19	Model 1, Palazzetti Lelio S.P.A., Italy Model 2, Spartherm Feuerungstechnik GmbH, Germany Model 3, Palazzetti Lelio S.P.A., Italy
Page 21	Model 2, Rüegg Cheminee AG, Switzerland
Page 22	Model 1, SAS Atelier Dominique Imbert – Focus, France Model 2, Spartherm Feuerungstechnik GmbH, Germany
Page 23	Model 3, Chinvest SA, France Model 4, Spartherm Feuerungstechnik GmbH, Germany

Disposal

Should you need to replace a SCHOTT ROBAX® fireplace panel, it should be disposed of as normal domestic waste – not in the glass recycling bin.

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