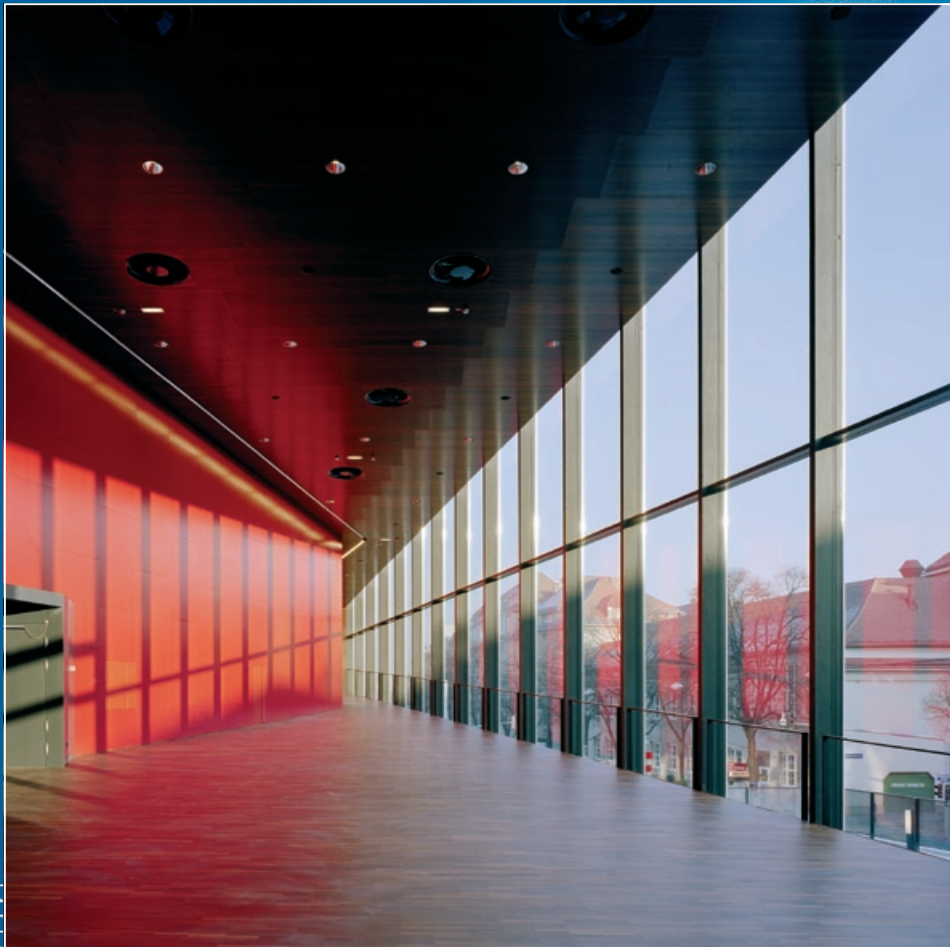


SCHOTT PYRANOVA®

Special glass for integrity and insulation fire resistant glazing



SCHOTT
glass made of ideas



Expert competence combined with technical know-how, service and business acumen – SCHOTT JENA^{er} GLAS GmbH puts particular emphasis on these properties.

The future arrives when visions meet

SCHOTT – A highly dynamic group of technological companies

As a **globally active technological group** of companies, SCHOTT develops, produces and supplies special materials, components and systems. The priority task for SCHOTT's products is to continue to improve living and working conditions for people in the future.

SCHOTT JENA^{er} GLAS GmbH is a leading manufacturer of fire resistant glazing with a strong international reputation. Known under the brands PYRAN[®] and PYRANOVA[®], SCHOTT provides special glass for reliable, transparent structural fire resistant glazing in order to guarantee safety, functionality and aesthetics.

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Safety is more than a feeling

PYRANOVA®. Stay cool, calm and collected

PYRANOVA® is a clear, laminated composite glass, consisting of at least two float glass panes.

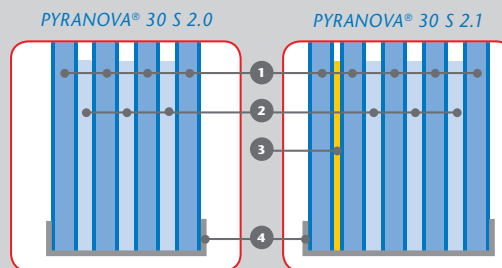
A transparent fire resistant layer, which foams in the case of fire, is incorporated between the panes. PYRANOVA®, applied in fire resistant glazing, avoids the passage of fire, smoke and heat radiation.

PYRANOVA® has been proven in the fire resistance categories EI 30 and EI 60 in many buildings. The glazing in the Seniorenpark in Crailsheim, Germany, not only provides appealing design, but also reliably safeguards the escape routes in case of fire.

In the Seniorenpark in Crailsheim, PYRANOVA® protects the staircase emergency escape routes.



Standard structure PYRANOVA®



- 1 Soda-lime float glass, thickness: 3 mm
- 2 Fire resistant layer, thickness: 1 mm
- 3 PVB foil
- 4 Edge protection band

The use of various construction designs make PYRANOVA® suitable for internal and external applications.

Fire resistant glazing by PYRANOVA® provides the following distinctive properties:

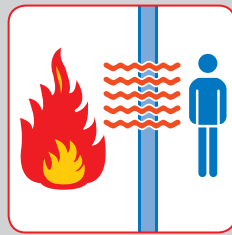
- + Enduring transparency and stability, ambient temperature from -20 °C to 50 °C
- + Good sound insulation properties
- + In accordance with EN 13501, PYRANOVA® provides up to 60 minutes insulation and integrity against flames, smoke and heat radiation from the fire to the non-fire side of the glazing
- + PYRANOVA® has also been tested for impact resistance in accordance with EN12600 and has achieved a rating of Class 1 (B) 1
- + PYRANOVA® can be provided in combination with a range of glass types in addition to the standard clear float sheets

Fire resistance categories for individual resistant requirements

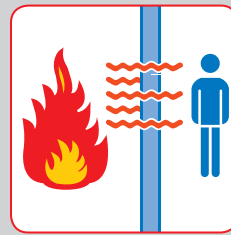
According to EN classification 13501-2 the fire resistance performance is expressed by letters explaining the functional requirement, and numbers explaining the minimum performance time in minutes:

- E: Integrity – provides a physical barrier against flame, hot gases and smoke.
- EI: Integrity & insulation – provides a physical barrier against flame, hot gases and smoke as well as a reduced surface temperature and resistance against spontaneous ignition on the unexposed side.
- EW: Provides a physical barrier against flame, hot gases and smoke and offers reduced heat radiation.

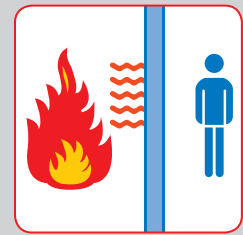
PYRANOVA® fulfils the requirements of fire resistance category EI. It provides a physical barrier against flame, hot gases and smoke as well as a reduced surface temperature and resistance against spontaneous ignition on the unexposed side.



E



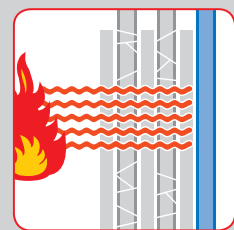
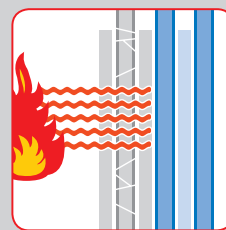
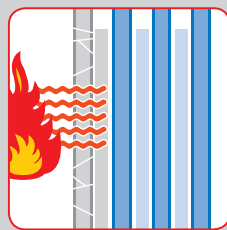
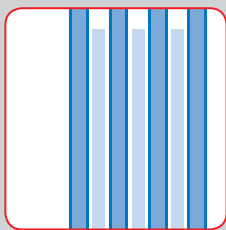
EW



EI

Mode of performance

PYRANOVA® fire resistant glass will **act as a barrier against spread of fire, smoke and heat radiation**. The float glass pane facing the fire shatters. The enclosed, transparent fire resistant layers foam up and form an opaque heat shield, which prevents the passage of heat radiation. Depending on the thickness of the composite, the fire resistance time can be influenced accordingly.



Diagrammed action mode of PYRANOVA®.

Under the influence of heat the fire resistant layer foams up and forms an opaque heat shield.





PYRANOVA® provides many application options in constructions consisting of timber, steel, aluminium or as butt joint glazing.

Application fields

PYRANOVA® is suitable for all areas of buildings requiring protection from fire.

With more than 25 years of extensive experience in the fire resistant market, SCHOTT JENA^{er} GLAS GmbH is both competent and innovative. In co-operation with system partners, SCHOTT JENA^{er} GLAS GmbH develops internationally approved constructions with PYRANOVA®, which are ideally suited for application in:

- doors
- facades
- as well as butt jointed partition walls, such as on escape routes and stairways.

Fire resistance category	Frame material / system				
	steel	wood	aluminium	butt joint	Planline
EI 30	x	x	x	x	x
EI 60	x	x		x	

Detailed information can be found in the test certificates and approvals for each country.

Safety must come first. SCHOTT thinks: your creativity should, too.

Endless freedom of design with PYRANOVA® butt-jointed systems



The SCHOTT PYRANOVA® S-SF butt joint system provides maximum light transmission without obtrusive mullions.

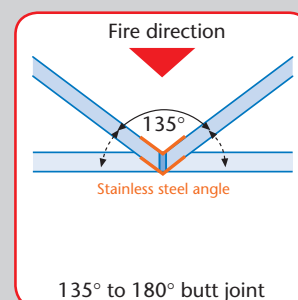
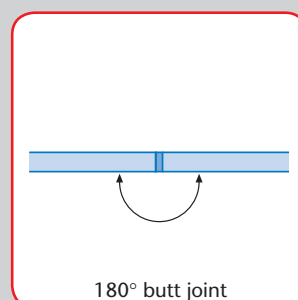
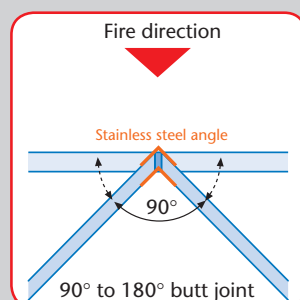
PYRANOVA® S-SF butt joint system

PYRANOVA® integrates easily into architectural design. The frameless butt joint with PYRANOVA® joins the glass panes with a special silicon seal. This permits the installation of long runs of uninterrupted glazing to maximise visibility. The PYRANOVA® S-SF butt joint system also permits the construction of corners.

PYRANOVA® S-SF butt joint system can be constructed with corners of various angles.

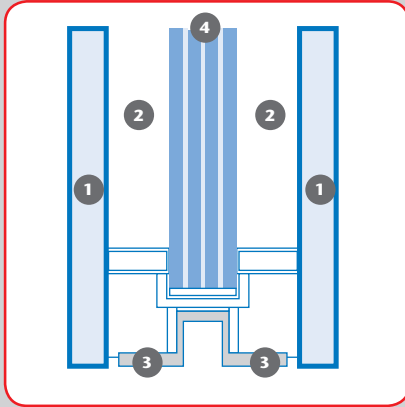
Ideal for applications which combine fire resistance with maximum visibility and minimum interruptions:

- + freedom of design with maximum glass areas
- + clear views – no distracting mullions
- + large pane sizes – from floor to ceiling
- + endless glass runs
- + up to 60 minutes fire resistance



Maximum pane dimension can be found in the respective approvals. Fire directions must be defined for angled butt joint glazing.

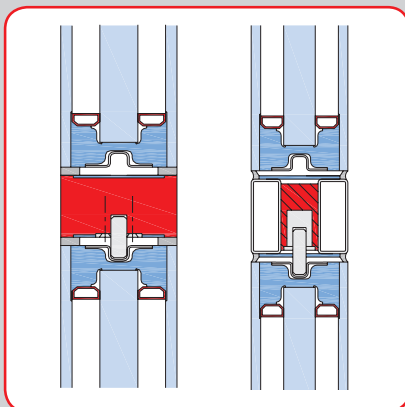
Glass structure



- 1 Toughened safety glass ≥ 5 mm with options of screen-printing, colour, coatings and sand blasted finishes
- 2 Interspace ≥ 16 mm, spacer consisting of aluminium or sheet steel
- 3 Secondary seal
- 4 SCHOTT PYRANOVA[®] ≥ 15 mm

The Planline system with SCHOTT PYRANOVA[®] consists of two external toughened safety glasses, serving as covering panes for the centrally located PYRANOVA[®] glass.

Cut



Mechanical attachment of glazing units is effected through a patented glass bracket. This is invisibly integrated and enables easy exchange of panes.

PYRANOVA[®] Planline

PYRANOVA[®] in the Planline system provides fire resistance with excellent optical characteristics. It is a flush glazing system without protruding framing.

Extremely narrow profiles with the largest possible glass areas are features of this system. The Planline system with PYRANOVA[®] was successfully tested in timber and steel to fire resistance category EI 30.

PYRANOVA[®] in the Planline system also complies with design requirements. Stylish elements can be applied to the glass using **screen-printing, sand-blasted decor or metal coating** on the external toughened safety glass. There is also the possibility of integrating edge enamel in every RAL colour.

Applications:

SCHOTT PYRANOVA[®] in the Planline system permits the installation of prestige glass partition walls and single or double-leafed door construction with unlimited application options. The construction can be applied almost anywhere:

- schools
 - office buildings
 - sports halls
 - hospitals
 - commercial and exhibition rooms
- and all other areas with increased safety requirements.

The glass composition of the Planline system is safety glass in accordance with relevant standards. Requirements concerning impact resistance are fulfilled by the Planline system.



PYRANOVA®-SF Planline butt joint system

Planline also permits butt joint glazing with almost invisible silicone gaps between the PYRANOVA® glass panes. This enables the production of flush and limitless butt joint glazing.

PYRANOVA®-SF Planline butt joint system is a flush glazing system, consisting of **triple glazing with two external toughened safety glasses and a centrally arranged PYRANOVA® pane.**

Applications:

SCHOTT PYRANOVA®-SF Planline butt joint system allows the realisation of internal glass partition walls with unlimited application options. The construction can be applied almost anywhere, e.g. in

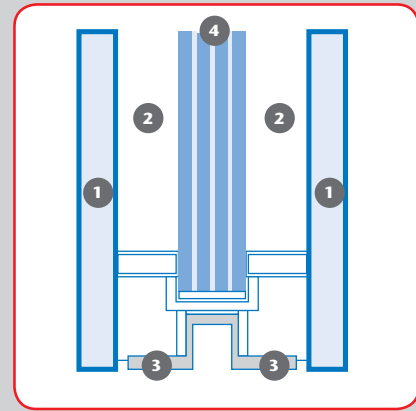
- schools
- office buildings
- sports halls
- hospitals
- commercial and exhibition rooms

and all other areas with increased safety requirements.

Not only flush but also butt-jointed glazing prevents risk of injuries in the university sports hall in Göttingen, Germany, while providing appealing optical characteristics.



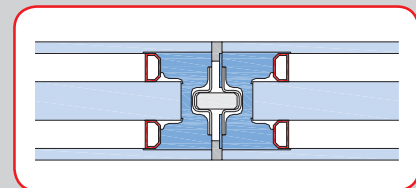
Glass structure



- 1 Toughened safety glass ≥ 5 mm with options of screen-printing, colour, coatings and sand blasted finishes
- 2 Interspace ≥ 16 mm, spacer consisting of aluminium or sheet steel
- 3 Secondary seal
- 4 SCHOTT PYRANOVA® ≥ 15 mm

The Planline system with SCHOTT PYRANOVA® consists of the combination of two external toughened safety glasses, serving as covering panes for the centrally located PYRANOVA® glass.

Cut



More than just safety, yet still not enough for SCHOTT.

Additional functionality with laminated composite glass

A powerful combination – fire resistant glazing and functional glass

The multifunctional laminated composite glass ISO-PYRANOVA® can be used where further requirements are needed in addition to protection from fire.

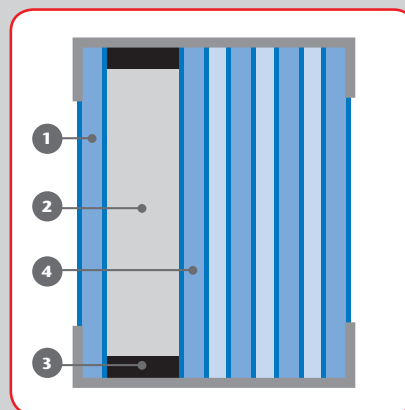
In combination with other functional glass, ISO-PYRANOVA® fulfils additional requirements to sound insulation and view protection, such as by the integration of blind systems in the interim unit space.



In combination with functional glass for double-glazing constructions, ISO-PYRANOVA® fulfils aesthetic and energy efficiency requirements. With individually specified counter panes, ISO-PYRANOVA® offers additional properties:

- + solar protection
- + heat insulation
- + noise protection
- + safety against falling and overhead protection
- + design
- + personal and building protection
- + X-ray protection
- + integrated blind systems

Standard structure ISO-PYRANOVA®



- 1 Countersheet
- 2 Interspace
- 3 Spacer
- 4 PYRANOVA®

SCHOTT's innovations open completely new perspectives in order to combine function, aesthetics and design. Fire resistant glazing by SCHOTT JENA^{er} GLAS GmbH meets the demands of modern architecture and enables the realisation of safety and integrity in a user-friendly but unobtrusive manner.



As changeable as a chameleon

ISO-PYRANOVA[®]'s multi-functionality is also demonstrated in combination with other design elements. **Glass with colours or patterns** can be applied to the counter pane in the fire resistant composite, laminated on to the composite or used to replace a float pane in the standard structure.

The surface structure of the external float glass panes in PYRANOVA[®] can be modified by **sand-blasting**. An optically unobtrusive design is achieved, whose aesthetics is fully revealed through light diffusion. The durability and efficiency of the functional glass is not impaired by this processing technology. An invisible coating can also be applied to protect against corrosion and residual dirt.

Comfort from solar shading and view protection

Electrically driven foil blinds as well as electrical or manually operated fin **blinds can be integrated into the space of ISO-PYRANOVA[®]**. They can be easily and accurately controlled as required. The systems provide

- reliable screening and protection for privacy and anti-glare
- daylight control
- energy saving and wellbeing of the occupants.

PYRANOVA® has a lot of advantages, especially the facts.

Technical Data

Glass type	Fire resistance time acc. to EN 13501	Thickness [mm]	Weight [kg/m ²]	Light transmission [%]	U _g value [k/Wm ²]	g value [%]	Sound insulation value [dB]
Internal application							
PYRANOVA® 30 S 2.0	EI 30	15	37.5	85	5.2	70	38
PYRANOVA® 60 S 2.0	EI 60	23	57.5	83	5.2	70	40
External application							
PYRANOVA® 30 S 2.1	EI 30	19	47.5	83	5.2	70	39
PYRANOVA® 60 S 2.1	EI 60	27	67.5	81	5.2	70	41
max. production dimension W x H [mm] (cut size)	2050 x 3000						
Recommended area of application [°C]	-20 to +50						
Impact test according to EN 12600	1(B)1						

Further design and combination options on request.

PYRANOVA® S 2.0

- Clear composite safety glass for fire resistant glazing in internal areas with fire resistant properties in accordance with to DIN EN ISO 12543
- Depending on design, it is manufactured from at least two float glass panes with transparent fire resistant interlayers
- Can be incorporated in double-glazing, sandblasted, partially or completely printed, to provide a wide range of fire resistant glazing options

PYRANOVA® S 2.1

- Clear composite safety glass for fire resistant glazing in external areas with fire resistant properties in accordance with to DIN EN ISO 12543
- Depending on design, it is manufactured from at least two float glass panes with transparent fire resistant interlayers and an external laminated pane
- Can be incorporated in double-glazing, sandblasted, partially or completely printed, to provide a wide range of fire resistant glazing options

PYRANOVA® Light

PYRANOVA® is also available in the Light option. PYRANOVA® Light is a thinner version for glazing in fire resistance category EI 15 or EI 30. Further product information is available on request.

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