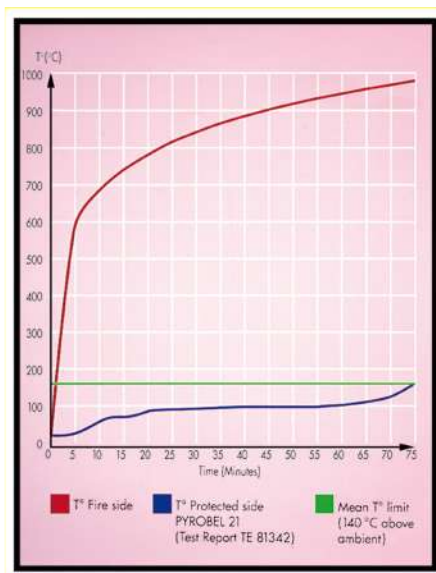


FIRE REGULATIONS

Fire regulations are specified by several national and international standards. Building regulations, By-laws and Codes describe the specific level of fire protection required (criteria, period of time). Pyrobel glass is only a part of a complete fire resistant system. It is the responsibility of the users to ensure that the fire resistant element as a whole satisfies the current regulations, and to obtain the approval from the competent authorities. AGC Flat Glass Europe disclaim all liability should Pyrobel be installed in systems that do not comply with the regulations. Pyrobel has been successfully tested according to most European standards, including BS 476: Part 22: 1987 (which, together with BS 476: Parts 20, 21, 23 and 24 supersedes BS 476: Part 8: 1972).



Time/Temperature Curve



Fire Test

QUALITY

The Pyrobel quality and performances are carefully controlled at each step of production. Due to the nature of its special intumescent interlayers, Pyrobel may exhibit or develop some minor imperfections such as small inclusions and bubbles, a slight distortion and a light haze. These features which do not affect the free vision nor the fire resistance of the glazing shall not be considered as defects provided the variation of haze and light transmission do not exceed 5%. The edge area may include larger air bubbles or imperfections that will be hidden by the rebates.



FIRE TEST

The element to be fire tested is placed in front of a furnace that is heated according to the Time/Temperature Curve described by the respective standards.

Two different criteria are considered:

INTEGRITY

i.e. the ability of the element to prevent the passage of flames or hot gases. This criterion is assessed either visually (no collapsing or sustained flaming), by means of a cotton fibre pad (no glowing or flaming) or by gauges that may not penetrate through cracks or tears in the glazing.

INSULATION

i.e. the ability of the element to stop conductive and radiant heat. The mean temperature on the unexposed face must not increase by more than 140°C above ambient, nor must it increase by more than 180°C above ambient at one point. A fire resistant glass must fulfil at least the integrity criterion. Pyrobel glasses fulfil both integrity and insulation criteria for durations of 30, 60, 90 or 120 minutes. Please refer to the respective Pyrobel data sheets for more details.

STORAGE

Pyrobel must be stored in dry and ventilated conditions, at temperatures between -20°C and 40°C, not exposed to solar radiation or UV light. In cases, Pyrobel must always be transported and stored in upright position. On racks, Pyrobel must be stored slightly inclined (6 to 10° from the vertical) and fully supported. A soft spacer must be placed between each glazing. Do not pile up more than 20 sheets per rack. Pyrobel is delivered in ready-to-install cut sizes, with and edge protection tape. Pyrobel can not be cut on site and the edge protection tape must not be removed nor damaged.

GLAZING INSTRUCTIONS

- Do not allow any contact of the glazing's edges with water.
- Do not install Pyrobel in locations where the glass temperature might exceed 40°C.
- Always refer to the fire test reports.
- Avoid all glass to metal contact.
- Do not exercise any restraint on the glazing.
- Do not damage the glazing's edges nor the protection tape.
- Keep the rebates dry and free from aggressive products (acids, organic solvents, etc.).
- Use hardwood setting blocs or equivalent (Shore hardness A 75).
- Provide an edge clearance of 4-5 mm.
- Provide front and back clearances of 4-5 mm, using closed cells foam tape.
- Provide a rebate depth of minimum 20 mm.
- Apply a neutral silicone sealant immediately after glazing.



EXTERNAL GLAZING

For external application, or in case of direct solar radiation on the glazing, Pyrobel is available as external grade, with a UV filter.

Pyrobel external grade must be correctly orientated, according to its label.

The glazing must be either fully bedded using neutral silicone or installed in drained and ventilated rebates and carefully sealed with a neutral siliconed capping.

Outside applications are only permitted if the temperature limit of 40°C is not likely to be exceeded.

For further advice on glazing details, please refer to the respective Pyrobel data sheets or to AGC Flat Glass Europe technical services.

PYROBELITE

For applications where fire resistant glasses with a rating of 30 minutes integrity only are required, AGC Flat Glass Europe has developed Pyrobelite, a new product thinner than Pyrobel but based on the same technology, that offers comparable advantages of clearness, safety, sound reduction and availability in small to large sizes from stock.

Pyrobelite is a laminated glass assembled with only one clear intumescent interlayer. Pyrobelite meets the integrity criterion of BS 476:Part 22:1987 for a duration of 30 minutes.

Contrary to the other monolithic fire resistant integrity glasses that remain clear when exposed to fire, Pyrobelite turns opaque as its interlayer expands. This characteristic reduces the heat transfer through the glazing and ensures a safe and panic-free evacuation of the building.

Last but not least, the protection offered by Pyrobelite after formal integrity failure is still very effective, as the glazing is not likely to collapse suddenly into small glass pieces.

Pyrobelite is available as 7 mm glazing for interior use and 11 mm glazing for outside use or high safety applications (class A according to BS 6206).

Please refer to the Pyrobelite data sheet for more details.

PYROBEL 16

**FIRE RATING:
60 MINUTES INTEGRITY/30 MINUTES INSULATION**

DESCRIPTION

Pyrobel is a multi-laminated glass assembled with clear intumescent interlayers. In the event of fire, these interlayers expand at around 120 °C and transform into a rigid and opaque fire shield, which enables the glazing to meet the integrity and insulation criteria, according to BS 476: Part 22: 1987.

TECHNICAL DATA

SPECIFICATION & IDENTIFICATION	PYROBEL 16 E60 / EI30 AGC Single	PYROBEL 16EG E60 / EI30 AGC Single	PYROBEL 16 or 16EG E60 / EI30 AGC Double Glazed
Glazing Type	Internal	External	External
Grade	Internal	External	External
Nominal Thickness	17,3 mm	21,1 mm	a) 6/12/Pyrobel 16EG = 39,1 mm b) 6.8/12/Pyrobel 16 = 36,1 mm
Thickness Tolerance	± 1 mm	± 1,5 mm	± 3 mm
Weight	40 kg/m ²	48 kg/m ²	a) 63 kg/m ² b) 56 kg/m ²
Dimension Tolerance	± 2 mm	± 2 mm	± 3 mm
Light Transmission (EN410)	84 %	83 %	74 %
U _g Value (EN673)	5.4 W/(m ² .K)	5.2 W/(m ² .K)	2.7 W/(m ² .K)
Safety Rating (BS 6206) (EN12600)	Class B 2B2	Class A 1B1	Class A (*) a) NPD / 1B1 b) 1B1 / 2B2
Sound Reduction R _w Index (EN12758) (*) on Pyrobel 16 EG or 6.8 laminated glass side NPD = No Performance Determined	39 dB	39 dB	41 dB (estimated)

APPLICATIONS AND CERTIFICATION ACCORDING TO BS 476:PART 22:1987

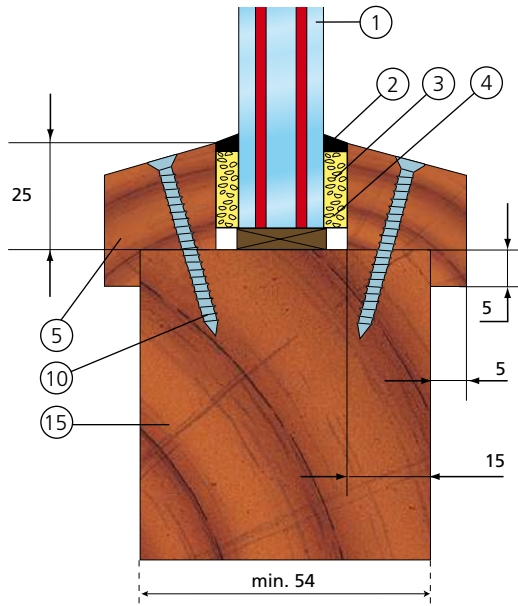
APPLICATIONS	MAXIMUM DIMENSIONS (*) (Width x Height)	GLASS TYPE	CERTIFICATION
Timber Doorsets (Certifire & Q-Mark approved)	710 x 1830 mm	Pyrobel 16 & 16EG	Certifire CF377 Chiltern Chilt/A05178
Timber Screens	1400 x 2700 mm 1944 x 1944 mm	Pyrobel 16 & 16EG	Certifire CF377
	1400 x 2700 mm	Pyrobel 16 Double Glazed	BRE CC201156
	For EI30 applications only 1600 x 2900 mm 1920 x 1900 mm	Pyrobel 16 & 16EG	Certifire CF377
Steel Screens	1400 x 2700 mm	Pyrobel 16	Warrington WFRC C102254
	900 x 2900 mm 2060 x 500 mm	Pyrobel 16	Certifire CF377
	For EI30 applications only 1600 x 2900 mm 1920 x 1900 mm	Pyrobel 16 & 16EG	Certifire CF377
Aluminium Screens - Schüco BF50+ and BF60+	For EI30 applications only 1252 x 2860 mm 2860 x 1400 mm	Pyrobel 16 & 16EG Double Glazed	Certifire CF377

(*) For alternative dimensions within pane area please consult AGC Flat Glass Europe

PYROBEL 16

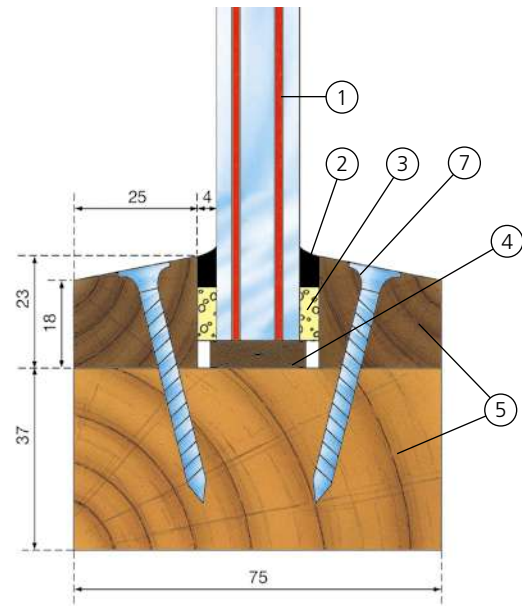
(dimensions in mm)

Timber Doorset



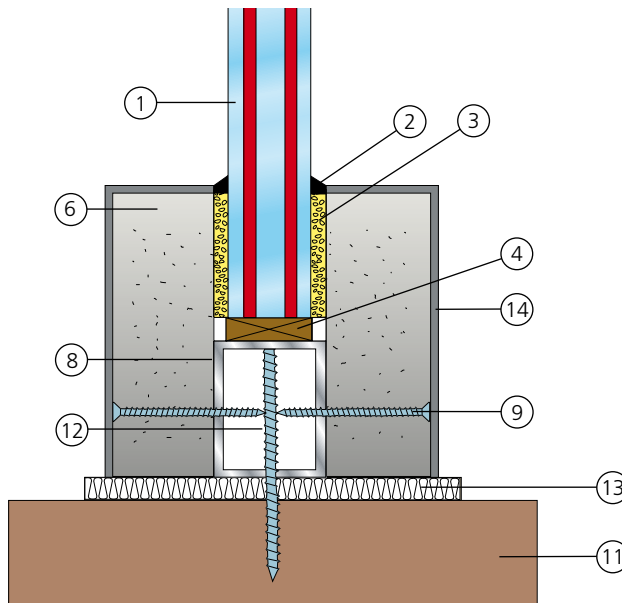
REPORT CHILTERN CHILT/A05178

Timber Screen



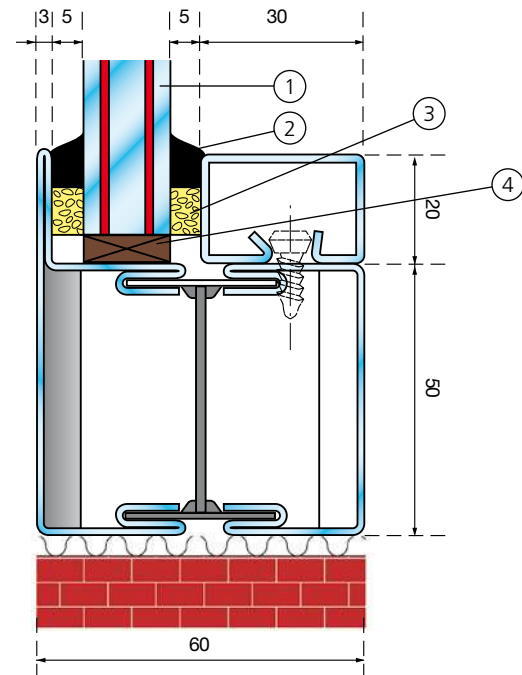
REPORT CERTIFIRE CF377

Steel Screen



REPORT WARRINGTON WFRC C102254

Steel Screen - Jansen Janisol 2



REPORT CERTIFIRE CF377

- | | |
|--|---|
| 1 Pyrobel 16 | 9 MT screws 35 x 5 mm |
| 2 Silicone Sealant | 10 Steel screws 60 x 4 mm |
| 3 Foam tape with closed cells | 11 Supporting Construction |
| 4 Setting block | 12 Wood screw 50 x 5 mm + Plug |
| 5 Hardwood | 13 Rock Wool |
| 6 Calcium Silicate 49 x 20mm | 14 Aesthetic Metal Cladding |
| 7 Steel screws 50 x 4 mm at 250 mm centres | 15 Wood or other approved constructions |
| 8 Steel tube 25 x 25 x 3mm | |

Diagrams for illustration purposes only. For full glazing details please refer to the relevant test report.

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GLASS UNLIMITED

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