

Traditionally, glass has been the last material architects think of when specifying fire barriers. New technologies are turning this traditional thinking on its head. Glass is now firmly established throughout the world as a fire protection material. Advances in glass, and the manufacturing technology of glass, mean that today's range of fire resistant glazing offers creative options for the designer/specifier.

This document provides information on the Promat fire resistant glazing systems, which offer technical, economical and aesthetic solutions to glazing problems. For Promat, the aesthetics of glazing systems go hand in hand with the vital aspect of fire safety offered by passive fire protection systems.

With our Promat glazing systems we have developed a wide range of systems for fire resistant applications of up to 120 minute ratings, including 30 minute and 60 minute doors, which provide both integrity and insulation when exposed to fire. Typical examples include glazed screens without vertical or horizontal framing, and all-glass doors.

Our commitment to the philosophy of providing the optimum system performance is shown by our development of glazing systems that fulfil the highest safety classifications for impact resistance. Promat glazing systems meet the approval criteria of all the relevant standards applicable to fire resistant glazed constructions.

Design Considerations

1. Manifestation

Large areas of transparent glazing used to subdivide a building may not be immediately apparent, particularly under certain lighting conditions. People moving around the building may not be aware of the glazing and may collide with it. The glazed areas referred to include large uninterrupted areas of transparent glazing which form, or are part of, the walls and doors of shops, showrooms, offices, factories, public and other non-domestic buildings. Permanent manifestation is only necessary when other means of indicating the presence of the glazing are not present. When manifestation is required it should be of a sufficient size to be immediately obvious and should be positioned between 600mm and 1500mm above floor level and preferably be permanent and durable.

2. Impact Resistance

Glass and plastic materials which are intended for use as safety glazing materials in critical locations in buildings where human impact can occur, should be classified according to their performance when subjected to a series of pendulum tests.

The impact test utilises a lead shot-filled leather bag weighing 45kg dropped from different heights. Details of the impact test are given in BS 6206: 1981 'Specification for Impact Performance Requirements for Flat Safety Glass and Safety Plastics for use in Buildings'. There are three safety glazing classifications: A (the highest), B, and C (the lowest). Glasses meeting these requirements and intended for use as safety glasses must be permanently marked as conforming to BS 6206.

Critical Locations

These are defined either directly or in Building Regulations. These detail areas in which the use of glazing systems will be subject to additional performance requirements in terms of impact and bending resistance. For example, the use of glass to encase escape stairways, etc. Most building regulations are only concerned with glazing which forms part of the building structure whereas BS 6262: Part 4: 1994 sets standards for other locations, such as shower screens, shower cubicles and mirror glazing for cupboards and wardrobes.

The following locations should be regarded as critical:

- Between finished floor level and 800mm above
- Between finished floor level and 1500mm above, if in doors or side panels close to either edge of a door.

Glazing in critical situations may be protected by a suitably designed protective screen in which case the glazing does not need to meet the defined requirements. The screening should be designed in such a way that:

- It is independent of the glazing
- It will prevent a sphere of 75mm diameter from touching the glass
- If 900mm or more in length, it is sufficiently robust to sustain at least a centrally applied force of 1350N (1100N if less than 900mm in length) without:
 - Fracturing
 - Deflecting so as to impact the glass
 - Permanently distorting
 - Being displaced

If the screening system is multi-railed, each rail should satisfy this recommendation. The screen should not be climbable. Please consult Promat Customer Relations Team for further information.

NOTE: Promat SYSTEMGLASS® is designed for use in internal applications. It should not be used in high humidity, semi exposed or external applications.

Fire Resistant Insulated Glass – Promat SYSTEMGLASS®

Promat SYSTEMGLASS® has been especially developed to enable architects and designers to indulge in aesthetically pleasing constructions whilst ensuring the vital aspect of fire safety is completely fulfilled.

Exciting design concepts are now possible with the new Promat SYSTEMGLASS®. The system offers superior passive fire protection quality using innovative methods of construction. The Promat SYSTEMGLASS® construction provides insulation across the glass joints without the need for insulating cover strips. This performance is only possible with the new, specially developed Promat SYSTEMGLASS®.

With our patented Promat SYSTEMGLASS® constructions, we have developed a wide range of fire resistant systems, including FD30 and FD60 doorsets. All our designs will provide both integrity and insulation in accordance with the criteria of the BS 476: Part 22: 1987.

Each construction is particularly innovative, typical examples include glazed screens without any framing at any joints, and all-glass doors. Promat SYSTEMGLASS® is available in many variations, including several tints and with different coatings, etchings etc.

The Key Advantages of Promat SYSTEMGLASS® are:

- Joints in the Promat SYSTEMGLASS® all-glass screen are simply formed with a bead of silicone mastic. No transoms or mullions are required.
- The perimeter frame of the screen uses slender sections only 50mm wide and 20mm deep.
- Promat SYSTEMGLASS® fire doors (double leaf or single leaf) can be fixed either within a glazed screen or a masonry wall construction, and can also be used as smoke rated (FD30S) doors.
- Promat SYSTEMGLASS® doors can be installed without the need for lever handles.
- The use of standard steel hollow sections and accessories makes each Promat system very economical in construction.

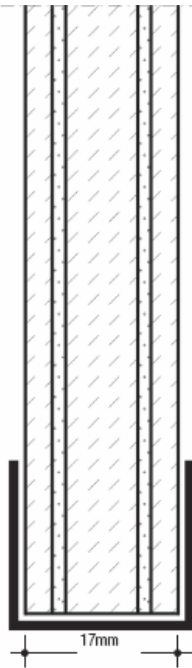
Promat SYSTEMGLASS® Options and Properties

	Promat SYSTEMGLASS® 30			Promat SYSTEMGLASS® 60		
	30 minutes integrity and insulation			60 minutes integrity and insulation		
Glass Type	Type 1	Type 2	Type 3	Type 1	Type 2	Type 3
Areas of Glass	Internal protected from UV	Internal exposed to UV*	Internal Double Glazed	Internal protected from UV	Internal exposed to UV*	Internal Double Glazed
Thermal Transmittance W/m ² K	5.2	5.0	2.8	5.1	5.0	2.7
Sound Attenuation (Rw) dB	39	41	42	41	42	44
Safety Rating to BS 6206	Class B	Class A	Class A	Class A	Class A	Class A
Safety Class to EN 12600	2B2	1B1	1B1	1B1	1B1	1B1
Butt Joint Application	Yes	Yes	No	Yes	Yes	No
Maximum tested pane size	2700 x 1400			2700 x 1400		
Size Tolerance	+2 to -2			+2 to -2		
Thickness mm	17	21	35	25	29	43
Glass weight kg/m ²	40	48	64	60	68	83
Light transmittance	85	83	74	83	82	73

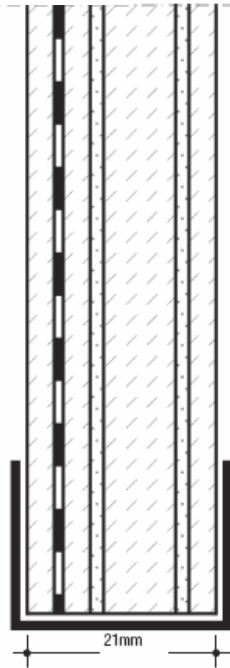
* If there is UV exposure from both sides of the screen, UV filter is required on both sides of the glass.

NOTE: Details for Promat SYSTEMGLASS® 90 are also available.
Refer to Promat SYSTEMGLASS® Product brochure and Technical datasheet TDS 126 for further details.

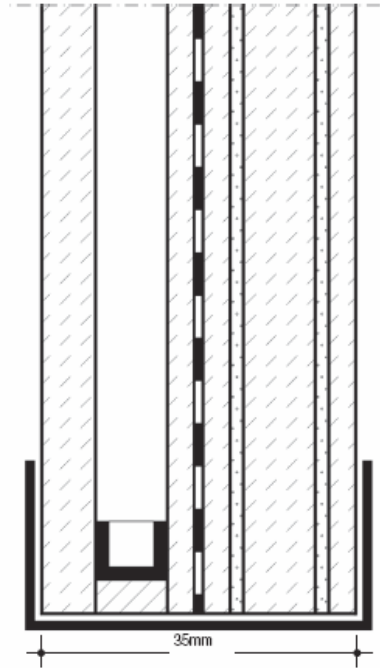
Profile of Promat SYSTEMGLASS® 30



Type 1 – Standard glass

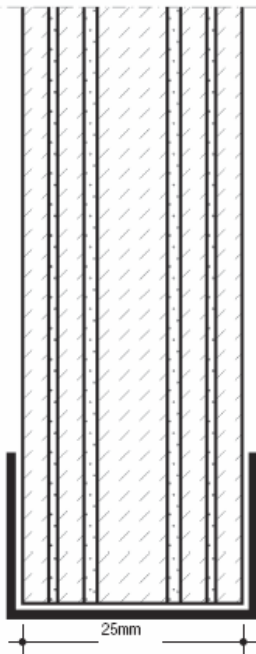


Type 2 – With PVB (UV) protective layer

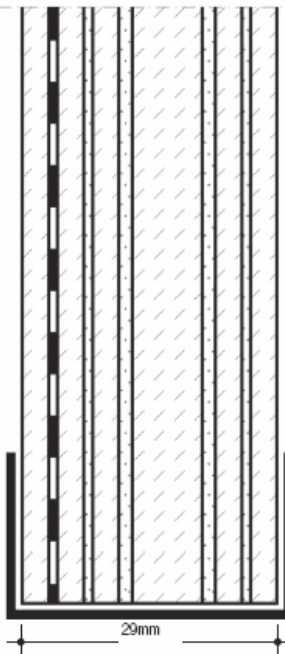


Type 3 – Double glazed (Acoustic) unit with UV protective inter layer

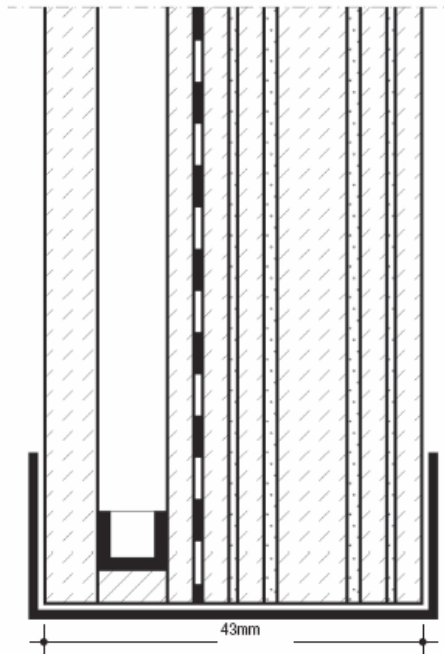
Profile of Promat SYSTEMGLASS® 60



Type 1 – Standard glass



Type 2 – With PVB (UV) protective layer



Type 3 – Double glazed (Acoustic) unit with UV protective inter layer

NOTE: If there is UV exposure from both sides of the screen, UV filter is required on both sides of the glass.