PILKINGTON

Pilkington **Pyroclear®**
Technical Data Sheet

Pilkington **Pyroclear®** is an advanced toughened fire-resistant glass for use as a basic integrity barrier. It is based on a new technology development which we've been perfecting and crafting for several years, built on an in-depth understanding of the behaviour of glass in fire, including new knowledge of the detail that influences probability of glass failure.

With nearly two hundred years of manufacturing experience, the Pilkington brand has developed a reputation for innovation in glass, and for leading the way in the development of fire-resistant glass. Pilkington **Pyroclear®** continues in that unique tradition, setting new benchmark standards for its category in terms of improved reliability and consistency of peformance in fire.

Product Range

Pilkington **Pyroclear®** is available in monolithic toughened, laminated and insulating glass unit versions to satisfy a wide range of requirements.

A brief summary of the product range is provided in Table 1.

Table 1: Pilkington **Pyroclear® product range**

Product	Glass type[1]	Description
E30 (30 minutes integrity)		
Pilkington **Pyroclear®** 30-001[3]	M	6 mm Pilkington **Pyroclear®** monolithic version for 30 minutes integrity and impact safety
Pilkington **Pyroclear®** 30-002[3]	M	8 mm Pilkington **Pyroclear®** monolithic version for 30 minutes integrity and impact safety
Pilkington **Pyroclear®** 30-003[3]	M	10 mm Pilkington **Pyroclear®** monolithic version for 30 minutes integrity and impact safety
Pilkington **Pyroclear®** 30-007[3]	L	13 mm Pilkington **Pyroclear®** laminated glass version for 30 minutes integrity, impact safety and enhanced acoustic performance
Pilkington **Pyroclear®** 30-008[3]	L	13 mm Pilkington **Pyroclear®** laminated glass version for 30 minutes integrity and impact safety
Pilkington **Pyroclear®** 30-361[3]	IGU	Comprising 6 mm toughened glass[2] outer pane and Pilkington **Pyroclear®** 30-001 inner pane
Pilkington **Pyroclear®** 30-381[4]	IGU	Comprising 8.8 mm laminated safety glass[2] outer pane and Pilkington **Pyroclear®** 30-001 inner pane
Pilkington **Pyroclear®** 30-401[4]	IGU	Comprising Pilkington **Pyroclear®** 30-001 outer pane and 8.8 mm laminated safety glass[2] inner pane
E60 (60 minutes integrity)		
Pilkington **Pyroclear®** 60-001[3]	M	6 mm Pilkington **Pyroclear®** monolithic version for 60 minutes integrity and impact safety
Pilkington **Pyroclear®** 60-002[3]	M	8 mm Pilkington **Pyroclear®** monolithic version for 60 minutes integrity and impact safety
Pilkington **Pyroclear®** 60-003[3]	M	10 mm Pilkington **Pyroclear®** monolithic version for 60 minutes integrity and impact safety

Note:

[1] For glass type: M = monolithic, L = laminated and IGU = insulating glass unit

[2] With appropriate coating for thermal insulation

[3] Bidirectional integrity performance (both sides can be faced to fire)

[4] Unidirectional integrity performance (laminated pane faced to fire)

For more information on the above product range, please refer to the table of physical data.

Fire Resistance

A selection of fire test evidence for Pilkington **Pyroclear®** in timber frames is provided in Tables 2 and 3, respectively.
In an impressively short period of time the product has been tested also in aluminium systems. Further information on request.

Timber Frames

Table 2: Fire test evidence for Pilkington **Pyroclear® in timber frames**

Product	Test	Application[1]	Pane sizes[2] (mm)	Test reference
30 minutes integrity				
Pilkington **Pyroclear®** 30-001 (6 mm)	BS EN 1634-1 and BS EN 1363-1	SLD with top and side lights	467 x 2023 (P) 1450 x 605 (L) 710 x 1850 (D)	RF 11150_A
Pilkington **Pyroclear®** 30-001 (6 mm)	BS EN 1634-1 and BS EN 1363-1	SLD with top and side lights	1000 x 2013 (P) 710 x 1750 (D)	RF 11177
Pilkington **Pyroclear®** 30-361 (IGU)[3]	BS EN 1634-1 and BS EN 1363-1	SLD with top and side lights	450 x 1000 (P) 910 x 450 (L) 450 x 1000 (D)	RF 12034
60 minutes integrity				
Pilkington **Pyroclear®** 60-001 (6 mm)	BS 476: Part 22[4]	3 single leaf single acting doorsets	200 x 1000 (Door A) 300 x 1200 (Door B) 300 x 1200 (Door C)	RF 12077

Note:
[1] For applications: SLD = single leaf door
[2] For pane sizes: P = portrait, L = landscape and D = door
[3] Pilkington **Pyroclear®** 30-361 (IGU) comprises Pilkington **Optitherm™** S3 (toughened) outer pane, 6 mm airspace and Pilkington **Pyroclear®** 30-001 (6 mm) inner pane
[4] Tested to BS476: to door blank manufacturer's recommendations

For more detailed information about the product in timber glazing systems, please refer to Fire Test Summary for Pilkington **Pyroclear®** in timber frames.

Steel Frames

Table 3: Selection of fire test evidence for Pilkington **Pyroclear® in steel frames**

Product	System	Application[2]	Pane sizes[3] (mm)	Test reference
30 minutes integrity[1]				
Pilkington **Pyroclear®** 30-001 (6 mm)	Forster Presto	Partition	1400 x 3000 (P/L)	27137686
Pilkington **Pyroclear®** 30-001 (6 mm)	Jansen Economy 50 Stainless Steel	DLD with top and side lights	1000 x 2540 (P)	10-001772-PR01
Pilkington **Pyroclear®** 30-002 (8 mm)	Forster Presto Stainless Steel	SLD	1304 x 2884 (D)	27137690
Pilkington **Pyroclear®** 30-381 (27 mm)	Jansen Janisol 1	Partition	1400 x 2869 (P) 2403 x 1200 (L)	DMT-DO-61-001
60 minutes integrity[1]				
Pilkington **Pyroclear®** 60-002 (8 mm)	RP Hermetic 50	Partition	2540 x 1200 (L) 1200 x 2830 (P)	3169/620/10
Pilkington **Pyroclear®** 60-002 (8 mm)	RP Hermetic 50	SLD with top and side lights	2400 x 800 (L) 1186 x 2373 (D)	LBO-182/11

Note:
[1] All tests undertaken in accordance with BS EN 1634-1 and BS EN 1363-1
[2] For applications: SLD = single leaf door and DLD = double leaf door
[3] For pane sizes: P = portrait, L = landscape and D = door

Table 3 provides a small selection of fire test evidence available for Pilkington **Pyroclear®** in steel frames. The product has been tested or approved in many more steel screens, doors and façade systems. For more detailed information about the product in steel glazing systems, please refer to Fire Test Summary for Pilkington **Pyroclear®** in steel frames.

Physical Data

Table 4 provides physical data for Pilkington **Pyroclear®**, covering fire resistance classification, thickness, light transmittance, sound reduction and impact safety classification.

Table 4: Physical data for Pilkington **Pyroclear®**

Product[1]	Fire resistance classification	Nominal glass thickness (mm)	Light transmittance	Sound reduction R_w (C; C_{tr}) (dB)	BS EN 12600 impact classification[2]
Pilkington **Pyroclear®** 30-001	E30	6	0.88	32 (-2; -2)	1 (C) 1
Pilkington **Pyroclear®** 30-002	E30	8	0.88	33 (-1; -2)	1 (C) 1
Pilkington **Pyroclear®** 30-003	E30	10	0.87	34 (-1; -2)	1 (C) 1
Pilkington **Pyroclear®** 30-007	E30	13	0.85	39 (0; -2)	1 (B) 1
Pilkington **Pyroclear®** 30-008	E30	13	0.85	37 (-1; -3)	1 (B) 1
Pilkington **Pyroclear®** 30-361[4]	E30	20[3]	Dependent upon coating	32 (-1; -5)	1 (C) 2 / 1 (C) 1
Pilkington **Pyroclear®** 30-381[4]	E30	23[3]	Dependent upon coating	39 (-2; -6)	1 (B) 1 / 1 (C) 1
Pilkington **Pyroclear®** 30-401[4]	E30	23[3]	Dependent upon coating	39 (-2; -6)	1 (C) 1 / 1 (B) 1
Pilkington **Pyroclear®** 60-001	E60	6	0.88	32 (-2; -2)	1 (C) 1
Pilkington **Pyroclear®** 60-002	E60	8	0.88	33 (-1; -2)	1 (C) 1
Pilkington **Pyroclear®** 60-003	E60	10	0.87	34 (-1; -2)	1 (C) 1

Notes:

[1] All products are suitable for use in internal and external applications

[2] In the case of insulating glass units, the BS EN 12600 classification is declared for each pane

[3] Based on 8 mm cavity width. Other cavity widths available on request

[4] For higher wind and snow loading performances please contact our professionals

Standards

Relevant Fire Test Standards

BS EN 13501: Fire classification of construction products and building elements.
Part 2: Classification using data from fire resistance tests, excluding ventilation services.

BS 476: Fire tests on building materials and structures.
Part 20: General requirements.
Part 22: Methods for the determination of the fire resistance of non-loadbearing elements of construction.

BS EN 1363: Fire resistance tests.
Part 1: General requirements.
Part 2: Alternative and additional procedures.

BS EN 1364: Fire resistance tests for non-loadbearing elements.
Part 1: Walls.
Part 2: Ceilings.
Part 3: Curtain walling – full configuration (complete assembly).

BS EN 1634: Fire resistance tests for door and shutter assemblies.
Part 1: Fire doors and shutters.

Relevant Impact Safety Test

Standards BS EN 12600: Glass in building – Pendulum test – Impact test method and classification for flat glass.

Handling and storage

Glass should be stored in dry conditions and out of direct sunlight, stacked upright and fully supported in a manner which prevents the glass from sagging. It should be stood on edge on strips of wood, felt or other relatively soft material. Special care should be taken to protect the glass, especially the edges, from impact damage (e.g. knocks, abrasions, excessive local pressure, etc.). Damaged glass should not be glazed. Water must not be allowed to reach the edges of stacked glass as it can be drawn between the plates by capillary action and cause damage. The glass should be protected from site contamination such as weld splatter, cementatious or plaster products and adhesives.

Thermal safety

Due to the proprietary technology used to manufacture Pilkington **Pyroclear®**, it has a high resistance to temperature differentials. As a result, the product will not be at risk of thermal overstressing from solar radiation and a thermal safety check is unnecessary.

For technical advice on the Pilkington range of fire protection glass, please refer to **www.pilkington.com/specifire** or contact us by telephone on **01744-69-2000** or email at **pilkington@respond.uk.com**

CE

CE marking confirms that a product complies with its relevant harmonised European Norm.
The CE marking label for each product, including declared values, can be found at www.pilkington.com/CE

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