

BRE Global Assessment Report

**An assessment of the fire performance of JANSEN JANISOL 2
single-acting, single- and double-leaf, steel-framed, glazed, hinged
doorsets against the criteria of BS 476: Part 22: 1987**

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1 Introduction

A series of fire resistance tests in accordance with EN 1634-1 have been carried out on JANSEN JANISOL 2 steel-framed, glazed, hinged doorsets. This assessment report considers the fire performance of doorsets incorporating variations and modifications to the tested designs against the criteria of BS 476: Part 22: 1987.

2 Scope

This assessment report considers the fire resistance of JANSEN JANISOL 2 single-acting, single- and double-leaf, steel-framed, glazed, hinged doorsets installed in glazed screens, masonry or concrete walls, or steel-framed partition systems against the integrity and insulation criteria of BS 476: Part 22: 1987, for fire exposures of up to 30 minutes from either side.

3 Supporting Data

This assessment is partly based on supporting test data which is more than five years old. This supporting data has therefore been reviewed against current test procedures.

Details of the supporting data used in the preparation of this assessment are given in appendix A.

4 Description of the proposed doorsets

4.1 Door frame

The door frame comprises 60mm-deep galvanised mild steel or stainless steel profiles consisting of two cold rolled sections, each insulated with plasterboard strips, 8.5mm thick, and joined together with an I-section stiffener made of glass reinforced plastic. The frame members are mitre-jointed at the corners and welded. The door frame incorporates a Dätwyler CR flame-retardant gasket along the jambs and head profile.

Where the supporting construction is masonry, the frame is fixed back to this using minimum M8 anchors at maximum 1100mm centres on the jambs and maximum 800mm centres at the head. For installation in steel-framed partitions, M8 self-tapping screws with suitable all-steel plugs are used at the same centres. Where the profiles of the frame are fixed back to the profiles of a glazed screen, this is done using minimum 4.2mm diameter self-drilling screws at maximum 300mm centres.



When installed in masonry or concrete walls or steel-framed partitions, the perimeter for the door frame is bedded in on stone wool insulation, minimum density 60kg/m³, and the maximum gap between the frame and the supporting construction is 25mm.

4.2 Door leaves

The steel frame of the door leaves also comprises 60mm-deep galvanised mild steel profiles with the construction as those of the door frame. The frame members are mitre-jointed and welded at the corners. The perimeter of the leaf incorporates Dätwyler CR flame retardant gaskets in the rebate and a Promaseal PL intumescent strip, 1.8mm thick x 14mm wide, along the head and down the opening edge of the leaf (active leaf of double-leaf doorsets).

Glazing beads are used to retain the glass. These are either clipped over studs located at nominal 250mm centres or screwed to the frame profiles at the same centres. The pocket between the glazing bead and the frame profile incorporates a 1.8mm-thick intumescent strip which lies parallel to the edge of the glass.

The maximum permissible leaf dimensions for latched doorsets are detailed in table 1.

Table 1 Maximum permissible leaf dimensions for latched doorsets

Supporting construction	Single-leaf doorsets			Double-leaf doorsets		
	Maximum width (mm)	Maximum height (mm)	Maximum area (m ²)	Maximum width (mm)	Maximum height (mm)	Maximum area (m ²)
Masonry and concrete	1656	2889	4.34	1438	3038	3.96
Steel stud partition	1426	2544	3.29	1443	2905	3.80
Glazed screen	1656	2887	4.34	1130	2612	2.95

Note: Where the door leaves are overlaid with steel sheet, 2mm thick, the maximum leaf dimensions are limited to 1330mm wide x 2512mm high.

4.3 Glass

The glass is mounted in the JANSEN JANISOL 2 frame in the same way as for the fire tests. It is retained by glazing beads. The perimeter of the glass is sealed against the frame profiles and the beads using EPDM gaskets or ceramic fibre tape, as detailed in the relevant tests, and supported on non-combustible board setting blocks. The amount by which the frame grips the perimeter of each glass pane (the edge cover for the glass) must be as tested. This also applies to any adhesives and sealants used around the perimeter of the glass panes. The frame must compress the gaskets so that the glass is positively held in position by the frame.

Details of the glasses that may be used and their maximum dimensions are given in table 2.



Table 2 Maximum dimensions for glass

Type of glass	Maximum width (mm)	Maximum height (mm)	Maximum area (m ²)	Fire resistance	
				Integrity (min)	Insulation (min)
15mm Fireswiss Foam 30-15	1555	3050	3.99	30	-
	1336	1862	2.09	30	30
15mm Pyranova 30-S2.0	1296	2383	3.09	30	30
19mm Pyronova 30-S2.1	926	2383	2.21	30	30
16mm Contraflam 30 (VSGI)	986	2460	2.43	30	30
16mm Contraflam 30-2	1266	2300	2.91	30	30
20mm Contraflam 30-2	1037	2720	2.56	30	30
22mm Hero-Fire-Mono 30	1189	2383	2.83	30	30
24mm Hero-Fire	1159	2635	2.57	30	-
17mm Pyrobel 16	1327	2989	3.33	30	-
21mm Pyrobel 16 EG	1293	3021	3.28	30	30
15mm Pyrostop 30-10	1558	2833	3.71	30	30

Details of the insulating glass units (IGUs) that may be used and their maximum dimensions are given in table 3.

Table 3 Maximum dimensions for insulated glazed units (IGUs)

Type of glass	Maximum width (mm)	Maximum height (mm)	Maximum area (m ²)	Fire resistance	
				Integrity (min)	Insulation (min)
40mm Contraflam 30 IGU ¹	1428	2792	3.62	30	30
38mm Pyrobel 16 IGU	1046	2731	2.60	30	30
52mm Pyrostop 30-17 Triple with Optitherm S3 ¹	1319	2443	2.70	30	30

Notes:

- 1) Fire resistance limited to applications with fire resistant glass on fire side only.



The minimum dimensions of any single pane of glass are 250mm x 250mm in all cases.

4.4 Non-glass panels

The non-glass panels are mounted in the JANSEN JANISOL 2 frame in the same way as for the fire tests. They are retained by glazing beads, either clipped over screws located at nominal 250mm centres or screwed directly to the frame at nominal 250mm centres. The perimeter of the panels is sealed against the frame profiles and the beads using ceramic fibre tape. The amount by which the frame grips the perimeter of each panel (the edge cover for the panel) must be as tested. The frame must compress the tape so that the panels are positively held in position by the frame.

Details of the non-glass panels that may be used and their maximum dimensions are given in table 4.

Table 4 Maximum dimensions for non-glass panels

Type of panel	Maximum width (mm)	Maximum height (mm)	Fire resistance	
			Integrity (min)	Insulation (min)
15mm + 20mm Knauf K751 plasterboard faced with 1mm-thick steel sheet	1200	2483	30	30

The minimum dimensions of the non-glass panels are 250mm wide x 250mm high unless the panel is at the bottom of the door leaf where the height can be reduced to 200mm.

4.5 Supporting construction

The doorsets may be fitted into JANSEN JANISOL 2 glazed screens, masonry or concrete walls or steel-framed partitions. Where the doorset is installed in a masonry or concrete wall, the minimum thickness must be 150mm and a minimum density 600kg/m³. Where the doorset is installed in a steel-framed partition, the partition must be constructed with studs a minimum of 56mm deep lined on both sides with at least a single layer of 12.5mm-thick type F plasterboard with mineral wool insulation 40 to 50mm thick with a density between 30 and 60kg/m³ between the studs.

5 Assessment

5.1 General

For the purposes of this assessment, reference has been made to EN 15269-5:2014+A1:2016, *Extended application of test results for fire resistance and/ or smoke control for door, shutter and openable window assemblies, including their elements of building hardware. Part 5: Fire resistance of hinged and pivoted metal framed glazed doorsets and openable windows* and the field of direct application in section 13 of EN 1634-1:2014+A1:2018, *Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware. Part 1: Fire resistance test for door and shutter assemblies and openable windows*. These standards have been used for guidance due to the similarity of tests conducted to EN 1634-1 with those carried out in accordance with BS 476: Part 22: 1987 (see section 5.2) and the fact that they provide the most comprehensive field of application rules for hinged doorsets.



5.2 Comparison of test standards

The tests referenced in appendix A were carried out in accordance with EN 1634-1. This standard is broadly similar to BS 476: Part 22. Although the furnace time/temperature curves of the two standards are the same, the temperature in the EN is measured using plate thermometers whereas in the BS it is measured using bare-wire thermocouples. As the plate thermometers detect the rising temperature in the furnace more slowly, this tends to lead to a more severe exposure.

The two other significant differences relate to the furnace pressure and the location of the thermocouple on the unexposed face. The furnace pressure in the EN is set so that the neutral pressure plane is located 500mm above notional floor level whereas in the BS the neutral pressure plane is located 1000mm above notional floor level. This results in a slightly higher pressure at the top of the specimen in the EN. EN 1634-1, also allows thermocouples to be attached within 25mm of the door leaf edge when using the supplementary procedure whereas the BS does not allow thermocouples to be attached closer than 50mm to the leaf edge. In this respect the EN is again more onerous as insulation failure is likely to occur sooner under the supplementary procedure.

5.3 Maximum doorset sizes

For doorsets designed to satisfy both the integrity and insulation criteria, the field of direct application in EN 1634-1:2014+A1:2018, allows an increase in width and height up to 15% for doorsets that have achieved category B (an overrun of six minutes beyond the required fire resistance period for 30-minute doorsets), subject to a maximum increase in area of 20%.

The maximum door leaf dimensions defined in table 1 of section 4.2 have been calculated on this basis for each type of supporting construction.

5.4 Maximum glass sizes

The maximum glass sizes detailed in section 4.3 have been calculated in accordance with EN 15269-5:2014+A1:2016, annex A, rule F.1.3. This refers to EN 15254-4:2018, *Extended application of results from fire resistance tests – Non-loadbearing walls. Part 4: Glazed constructions*, which then refers to EN 1364-1:2015, *Fire resistance test for non-loadbearing elements. Part 1: Walls*. Annex A of this standard states that where a fire resistance of 30 minutes is required, an overrun greater of between 3 minutes and 6 minutes allows an increase of up to 10% in height or width, subject to a maximum increase in area of 10% and an overrun of 6 minutes or more allows an increase of up to 20% in height or width, subject to a maximum increase in area of 21%.

The increased glass dimensions given in tables 2 and 3 of section 4.3 have been calculated on this basis.

5.5 Direction of fire exposure

Tests on the frame system have been successfully carried out with the glazing beads on both the exposed and unexposed faces. The frame system is therefore considered suitable for fire exposure from either direction. The doorsets have also been tested from both sides, i.e. opening and closing, and are therefore considered suitable for fire exposure from either side.

Where the IGUs have been tested from one side only, the fire resistance given is limited to the orientation tested alone.

5.6 Supporting construction

The doorsets were tested in JANSEN JANISOL 2 glazed screens, masonry/concrete walls or non-loadbearing, steel-framed drywall partition systems.

The minimum specification for masonry/concrete walls is based on the specimens tested in FIRES report FR 021/04 CP (E) and Efectis Era Avrasya report nos. RFTR15087, RFTR16141 and RFTR16142; these



doorsets were installed in a 150mm-thick wall comprising aerated concrete blocks with a nominal density of 650kg/m³. This is therefore the minimum specification of wall considered acceptable.

The minimum specification for steel-framed partitions is based on the specimens tested in ift Rosenheim report no. 13-002710-PR02 and ITB report LP-00811/2010/e. In both these tests, the partition comprised 75mm-deep studs lined on both faces with a single layer of 12.5mm-thick type F plasterboard with mineral wool insulation between the studs. This is the specification for a standard EI 30 partition given in EN 1363-1:2020, *Fire resistance tests. Part 1: General requirements*. The specification detailed in section 4.5 is based on the allowable variation to what has been tested detailed within this standard.

6 Conclusion

Therefore, it is our opinion that the JANSEN JANISOL 2 single-acting, single- and double-leaf, steel-framed, glazed, hinged doorsets, when fitted with various fire rated glass types, as described in section 4 of this report, are suitable for applications where a fire resistance of up to 30 minutes is required with respect to the integrity and insulation criteria of BS 476: Part 22: 1987, for fire exposure from either side, but also taking account of the requirements and limitations stated above.

7 Validity of the assessment

7.1 Declaration by applicant

We the undersigned confirm that we have read and complied with the obligations placed on us by the Passive Fire Protection Forum (PFPF) Guide to undertaking technical assessments and engineering evaluations based on fire test evidence 2021 Industry Standard Procedure.

We confirm that any changes which are the subject of this assessment, has not to our knowledge been tested to the standard against which this assessment has been made.

We agree to withdraw this assessment from circulation should the component or element of structure, or any of its component parts be the subject of a failed fire resistance test to the standard against which this assessment is being made.

We understand that this assessment is based on test evidence and will be withdrawn should evidence become available that causes the conclusion to be questioned. In that case, we accept that new test evidence may be required.

We are not aware of any information that could affect the conclusions of this assessment. If we subsequently become aware of any such information, we agree to ask BRE Global to withdraw the assessment.



Signature:

Name:

Position:

Company:

Date:

7.2 BRE Global declaration

This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to BRE Global the assessment will be unconditionally withdrawn and the applicant will be notified in writing. Similarly, the assessment should be re-evaluated if the assessed construction is subsequently tested since actual test data is deemed to take precedence.

The assessment is valid initially for a period of five years after which time it is recommended that it be submitted to BRE Global for re-evaluation.

This assessment has been carried out in accordance with the Passive Fire Protection Forum (PFPF) Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence 2021. It relates to the fire performance of the product and does not cover aspects of quality, durability, maintenance nor service requirements. This assessment relates only to the specimen(s) assessed and does not by itself imply that the product is approved under any Loss Prevention Certification Board approval or certification scheme or any other endorsements, approval or certification scheme.

The assessment report is not valid unless it incorporates the declaration duly signed by the applicant.

Next review date: 24 July 2029



Appendix A Supporting data

A.1 FIRES test report FR 021/04 CP (E)

A fire resistance test in accordance with EN 1634-1:2001 was carried out on a JANSEN JANISOL 2 steel single-leaf hinged doorset installed in a concrete block wall on 30 March 2004 for a duration of 47 minutes.

The doorset, nominally 1200mm wide x 2400mm high, comprised a steel door frame, consisting of JANSEN JANISOL 2 profiles, housing a single leaf with overall dimensions of 1110mm wide x 2347mm high. The leaf was glazed with a single pane of 24mm Hero-Fire glass, nominally 966mm wide x 2195.5mm high. The perimeter of the glass was sealed against the frame and glazing beads with Gluske ceramic tape capped with a bead of silicone. The leaf was fitted with a two-point lock.

The doorset was tested opening away from the furnace with the glazing beads on the unexposed side. In this orientation the doorset achieved the following performance:

Integrity:	Sustained flaming:	46 minutes
	Gap gauge:	46 minutes (no failure during test)
	Cotton pad:	46 minutes (no failure during test)
Insulation:	Supplementary procedure:	27 minutes
	Normal procedure:	35 minutes

For full details see FIRES test report FR 021/04 CP (E).

A.2 ift Rosenheim test report no. 271 32521

A fire resistance test in accordance with EN 1634-1:2000 was carried out on a JANSEN JANISOL 2 Power Swing glazed double-leaf hinged doorset in a section of partition on 15 November 2006 for a duration of 43 minutes.

The doorset, nominally 2580mm wide x 2619mm high, comprised a steel door frame, consisting of JANSEN JANISOL 2 profiles, housing two leaves each with overall dimensions of 1255mm wide x 2526mm high. The leaves were each glazed with two panes of Fireswiss Foam 30-15 glass, nominally 15mm thick, separated by a horizontal transom. The upper pane of glass in each leaf had overall dimensions of 1113mm wide x 762.5mm high and the lower 1113mm wide x 1552mm high. The edge cover for the glass was 14mm and the perimeter was sealed against the frame with EPDM gaskets. The leaves were fitted with a Jansen bi-metallic latch, Besam PowerSwing-2 SAS-F overhead door operators and a Besam COOA door co-ordinator. The door leaves were unlatched for the test.

The doorset was tested opening away from the furnace with the glazing beads on the exposed side. In this orientation the doorset achieved the following performance:

Integrity:	Sustained flaming:	42 minutes
	Gap gauge:	43 minutes (no failure during test)
	Cotton pad:	43 minutes (no failure during test)
Insulation:	Supplementary procedure:	38 minutes
	Normal procedure:	42 minutes



For full details see ift Rosenheim test report no. 271 32521.

A.3 ift Rosenheim test report no. 271 38191 e

A fire resistance test in accordance with EN 1634-1:2000 was carried out on a JANSEN JANISOL 2 steel single-leaf hinged glazed doorset installed in a masonry wall on 09 March 2009 for a duration of 60 minutes.

The doorset, with clear opening dimensions of 1400mm wide x 2680mm high, comprised a steel door frame housing a single leaf with overall dimensions of 1440mm wide x 2692mm high.

The frame consisted of JANSEN JANISOL 2 profiles. These were fitted with Dätwyler CR quality seals which were retained by a groove in the frame rebate along the head and down both jambs.

The leaf, which was fabricated using steel profiles, was glazed with 15mm-thick Fireswiss Foam 30-15 glass. The overall dimensions of the glass were 1296mm wide x 2542mm high. The nominal edge cover was 13mm and the perimeter of the glass was sealed against the frame using Dätwyler EPDM gaskets. Promaseal PL intumescent strips, 14mm wide x 1.8mm thick, were fitted to the door leaf rebate along the head and down the latch edge of the leaf above the position of the latch and Dätwyler CR quality seals were pushed into a groove in the rebate along the head and down both edges of the leaf. The leaf was also fitted with a Planet JP 17 floor seal, a Geze TS 5000 door closer on the unexposed face and a BKS 1970C lock.

The doorset was tested opening towards the furnace with the glazing beads on the exposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	60 minutes (no failure during test)
	Gap gauge:	60 minutes (no failure during test)
	Cotton pad:	60 minutes (no failure during test)
Insulation:	Supplementary procedure:	26 minutes
	Normal procedure:	46 minutes

For full details see ift Rosenheim test report no. 271 38191 e.

A.4 ift Rosenheim test report no. 271 38190 e

A fire resistance test in accordance with EN 1634-1:2000 was carried out on a JANSEN JANISOL 2 steel over-clad double-leaf hinged doorset in a glazed screen on 10 March 2009 for a duration of 38 minutes.

The doorset, with clear opening dimensions of 2600mm wide x 2500mm high, comprised a steel door frame housing two leaves each with overall dimensions of 1330mm wide x 2512mm high.

The frame consisted of JANSEN JANISOL 2 profiles. These were fitted with Dätwyler CR quality seals which were pushed into a groove in the rebate of the head of the frame and both jambs.

The leaves each had a horizontal transom at mid-height and were each clad on both faces with 1.5mm-thick galvanised steel sheet. On the closing face the steel sheet was fixed using blind rivets, 4mm diameter x 8mm long, and on the opening face it was fixed using pan-head screws, M4 x 12mm. In both cases the fixings were at maximum 268mm centres. The core of each leaf was filled with Flumroc stone mineral wool. In the active leaf a single layer of 60mm-thick Prima board with a nominal density of 120kg/m³ was used and in the passive leaf two layers of 30mm-thick Iglu board with a nominal density of 110kg/m³ were used. Promaseal PL intumescent strips, 14mm wide x 1.8mm thick, were fitted into the door leaf rebate along the head and latch edge of the active door leaf and Dätwyler CR quality seals were



pushed into a groove in the rebate along the head and down both edges of the leaves. Both leaves were also fitted with a Planet JP 17 floor seal. The active leaf was fitted with a Wilka 4677 panic mortise lock and the passive leaf was fitted with shoot bolts at the head and base. Both leaves were fitted with Geze Boxer Gr. 3-6 ISM door closers with integrated door co-ordinator.

The glazed screen consisted of a JANSEN JANISOL 2 frame and was glazed with five panes of Fireswiss Foam 30-15 glass, 15mm thick. The two lower panes on either side of the doorset had dimensions of 941mm wide x 2442mm high, the two upper panes on either side of the doorset had dimensions of 941mm wide x 1291mm high and the pane across the top of the doorset had dimensions of 2617mm wide x 1291mm high. The edge cover for the glass was nominally 13mm and the glass was sealed against the frame using Dätwyler EPDM gaskets.

The doorset was tested opening towards the furnace and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	38 minutes (no failure during test)
	Gap gauge:	38 minutes (no failure during test)
	Cotton pad:	38 minutes (no failure during test)
Insulation:	Supplementary procedure:	31 minutes
	Normal procedure:	37 minutes

For full details see ift Rosenheim test report no. 271 38190 e.

A.5 ift Rosenheim test report no. 271 38193 e

A fire resistance test in accordance with EN 1634-1:2000 was carried out on a JANSEN JANISOL 2 steel over-clad single-leaf hinged doorset installed in a masonry wall on 16 April 2009 for a duration of 60 minutes.

The doorset, with clear opening dimensions of 1400mm wide x 2500mm high, comprised a steel door frame housing a single leaf with overall dimensions of 1440mm wide x 2512mm high.

The frame consisted of JANSEN JANISOL 2 profiles. These were fitted with Dätwyler CR rebate seals which were retained by a groove in the frame rebate along the head and down both jambs.

The leaf had a horizontal transom at mid-height and was clad on both faces with 2mm-thick galvanised steel sheet which was bonded to the door leaf profiles using 3M VHB 4611F, 25mm in width on the closing side and 12mm in width with a two-component adhesive, Collano RS 8500, on the opening side. The core of the leaf was filled with two layers of Flumroc stone mineral wool board, one layer of 25mm-thick Flumroc floor panel, nominal density 100kg/m³, and one layer of 30mm-thick Iglu board, nominal density 110kg/m³. Promaseal PL intumescent strips, 14mm wide x 1.8mm thick, were fitted into the door leaf rebate along the head and down both edges of the leaf and Dätwyler CR rebate seals were pushed into a groove in the rebate, again across the head of the leaf and down both edges. The leaf was also fitted with a Planet JP 17 floor seal, an EffEff 809-12C92-35F-4D panic mortise lock, a Jansen bi-metallic latch at the head and a Geze TS 5000 L door closer on the unexposed face.

The doorset was tested opening away from the furnace and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	57 minutes
	Gap gauge:	60 minutes (no failure during test)



	Cotton pad:	60 minutes (no failure during test)
Insulation:	Supplementary procedure:	50 minutes
	Normal procedure:	50 minutes

For full details see ift Rosenheim test report no. 271 38193 e.

A.6 ift Rosenheim test report no. 271 38194 e

A fire resistance test in accordance with EN 1634-1:2000 was carried out on a JANSEN JANISOL 2 stainless steel double-leaf hinged glazed doorset installed in masonry wall on 17 April 2009 for a duration of 45 minutes.

The doorset, with clear opening dimensions of 2450mm wide x 2500mm high, comprised a stainless steel door frame housing two leaves with overall dimensions of 1440mm wide x 2512mm high (active leaf) and 1070mm wide x 2512mm high (passive leaf).

The frame consisted of JANSEN JANISOL 2 profiles. These were fitted with Dätwyler CR quality seals which were retained by a groove in the frame rebate along the head and down both jambs.

The leaves, which were fabricated using stainless steel profiles, were glazed with 15mm-thick Pyranova 30 S2.0 (active leaf) and 19mm-thick Pyranova 30 S2.1 (passive leaf). The overall dimensions of the glass were 1296mm wide x 2383mm high and 926mm wide x 2383mm high respectively. In each case the nominal edge cover was 13mm and the perimeter of the glass was sealed against the frame using Dätwyler EPDM gaskets. Promaseal PL intumescent strips, 14mm wide x 1.8mm thick, were fitted to the door leaf rebate along the head and down both edges of the active leaf and along the head and down the hinge edge of the passive leaf and Dätwyler CR quality seals were pushed into a groove in the rebate along the head and down both edges of each leaf. Both leaves were also fitted with a Planet JP 17 floor seal and Geze TS 5000 door closers on the unexposed face. The active leaf was also fitted with a Geze IQ Lock EL self-locking panic lock and, at the head, a Jansen bi-metallic latch and the passive leaf was fitted with shoot bolts at the top and bottom.

The doorset was tested opening away from the furnace with the glazing beads on the exposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	45 minutes (no failure during test)
	Gap gauge:	30 minutes
	Cotton pad:	45 minutes (no failure during test)
Insulation:	Supplementary procedure:	30 minutes
	Normal procedure:	30 minutes

For full details see ift Rosenheim test report no. 271 38194 e.

A.7 iBMB MPA test report no. 3850/1564

A fire resistance test in accordance with EN 1364-1:2000-03 was carried out on a JANSEN JANISOL 2 steel-framed glazed screen incorporating a single-leaf steel-framed hinged doorset on 15 September 2009 for a duration of 61 minutes.

The specimen, of overall dimensions 3965mm wide x 3973mm high, comprised a JANSEN JANISOL 2 frame system housing four panes of 16mm Contraflam 30-N2 glass. The largest panes had overall dimensions of 1400mm wide x 3000mm high and 2387mm wide x 1400mm high respectively. The single-leaf doorset, overall dimensions 1410mm wide x 2429mm high, was glazed with a single pane of 16mm



Contraflam 30-N2, 1266mm wide x 2300mm high. The perimeter of the glass was sealed against the frame and the glazing beads with EPDM gaskets and the edge cover for the glass was 13mm. The door leaf, which was hung from two hinges, was fitted with a single-point latch and a Geze TS 5000 door closer.

The doorset opened away from the furnace with the glazing beads on the exposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	61 minutes (no failure during test)
	Gap gauge:	61 minutes (no failure during test)
	Cotton pad:	61 minutes (no failure during test)
Insulation:	Supplementary procedure:	39 minutes
	Normal procedure:	31 minutes

For full details see iBMB MPA test report no. 3850/1564.

A.8 Efectis France test report 10-V-075

A fire resistance test in accordance with EN 1364-1:1999 was carried out on a steel-framed glazed screen incorporating a double-leaf steel-framed hinged doorset on 19 February 2010 for a duration of 71 minutes.

The glazed screen, of overall dimensions 3000mm wide x 3000mm high, comprised a JANSEN JANISOL 2 frame system housing seven panes of 16mm-thick SGG Contraflam 30 (VSGI) and a single SGG Contraflam 60 DGU (VSGI) double-glazed unit. The double-leaf doorset had clear opening dimensions of 2200mm wide x 2600mm high. Each leaf was glazed with SGG Contraflam 60 DGU (VSGI) with overall dimensions 986mm wide x 2460mm high. The perimeter of the double-glazed units was sealed against the frame and the glazing beads with ceramic fibre tape and the edge cover for the glass was nominally 13.5mm. Each door leaf was hung from two steel pivots and the active leaf was fitted with a single-point latch. Both leaves were also fitted with Dorma BTS 80 EMB door closers and a Dorma G93-GSR-BS door selector.

The doorset opened away from the furnace with the glazing beads on the exposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	71 minutes (no failure during test)
	Gap gauge:	68 minutes
	Cotton pad:	71 minutes (no failure during test)
Insulation:	Supplementary procedure:	30 minutes
	Normal procedure:	41 minutes

For full details see Efectis France test report 10-V-075.

A.9 Efectis France test report no. 10-V-183

A fire resistance test in accordance with EN 1634-1 was carried out on a JANSEN JANISOL 2 steel double-leaf hinged glazed doorset installed in masonry wall on 30 April 2010 for a duration of 60 minutes.

The doorset, with clear opening dimensions of 2200mm wide x 2600mm high, comprised a steel door frame housing two leaves with overall dimensions of 1130mm wide x 2627mm high.



The frame consisted of JANSEN JANISOL 2 profiles. These were fitted with Jansen CR seals, Jansen ref. 455.005, which were retained by a groove in the frame rebate along the head and down both jambs.

The leaves, which were fabricated using steel profiles, were glazed with 38mm-thick Pyrobel 16 IGUs, comprising 16mm Pyrobel 16, a 14mm cavity and 8mm 44.2 laminated glass. The overall dimensions of the glass were 951mm wide x 2483mm high. In each case the nominal edge cover was 13.5mm and the perimeter of the glass was sealed against the frame using a mineral fibre strip, 4mm thick x 17mm wide, Jansen ref. 451.023, covered by Coitogum Acryl silicone. Intumescent strips, 1.8mm thick, Jansen ref. 451.080, were fitted to the door leaf rebate and Jansen CR seals, Jansen ref. 455.005, were pushed into a groove in the rebate along the head and down both edges of each leaf. Both leaves were also fitted with Eco ESB TS-61 II SR door closers on the unexposed face. The active leaf was also fitted with a GU Secury Automatic FH PZ three-point lock and the passive leaf was fitted with a top locking point, Jansen ref. 555.380, controlled with a steel rod.

The doorset was tested opening away from the furnace with the glazing beads on the exposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	60 minutes
	Gap gauge:	60 minutes
	Cotton pad:	60 minutes (no failure during test)
Insulation:	Supplementary procedure:	33 minutes
	Normal procedure:	46 minutes

For full details see Efectis France test report no. 10-V-183.

A.10 ift Rosenheim test report no. 11-000498-PR01

A fire resistance test in accordance with EN 1634-1:2008 was carried out on a steel-framed glazed screen incorporating a double-leaf steel-framed hinged doorset on 24 March 2011 for a duration of 56 minutes.

The glazed screen, of overall dimensions 3000mm wide x 3000mm high, comprised a JANSEN JANISOL C4 frame system housing eight panes of 23mm Fireswiss Foam 60-23 glass. The double-leaf doorset had clear opening dimensions of 2200mm wide x 2500mm high. The active leaf was glazed with a single pane, 986mm wide x 2360.5mm high and the passive leaf with two panes, 986mm wide x 1611mm high and 986mm wide x 685.5mm high, each glazed with 15mm Fireswiss Foam 30-15 glass. The perimeter of the glass was sealed against the frame and the glazing beads with ceramic fibre tape and the edge cover for the glass was nominally 18mm. The door leaves were each hung from two weld-on hinges, Jansen ref. 550.276, and fitted with a Geze TS5000 overhead door closer. The active leaf was also fitted with BKS 1820 B lock and the passive leaf with a Dorma HZ 43-F shoot bolt at the head.

The doorset opened away from the furnace with the glazing beads on the unexposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	48 minutes
	Gap gauge:	48 minutes
	Cotton pad:	48 minutes
Insulation:	Supplementary procedure:	26 minutes
	Normal procedure:	36 minutes



For full details see ift Rosenheim test report no. 11-000498-PR01.

A.11 ift Rosenheim test report no. 12-003306-PR01

A fire resistance test in accordance with EN 1363-2:1999 and EN 1364-1:2008 was carried out on a steel-framed glazed screen incorporating a single-leaf steel-framed hinged doorset on 14 January 2013 for a duration of 50 minutes.

The glazed screen, of overall dimensions 2704mm wide x 2965mm high, comprised a JANSEN JANISOL 2 frame system housing seven panes of 37mm Pilkington Pyrostop 90-102 glass. The single-leaf doorset had clear opening dimensions of 1410mm wide x 2495mm high and was glazed with a single pane of 15mm Pilkington Pyrostop 30-10 glass with overall dimensions 1298mm wide x 2360.5mm high. The perimeter of the double-glazed units was sealed against the frame and the glazing beads with Dätwyler EPDM seals, Jansen refs. 455.027 and 455.028, and the edge cover for the glass was nominally 15mm. The door leaf was fitted with a BKS B-18281-00U-8 lock and an Assa Abloy DC 700G-FT integrated door closer.

The doorset opened away from the furnace with the glazing beads on the unexposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	50 minutes (no failure during test)
	Gap gauge:	50 minutes (no failure during test)
	Cotton pad:	49 minutes
Insulation:	Supplementary procedure:	40 minutes
	Normal procedure:	40 minutes

For full details see ift Rosenheim test report no. 12-003306-PR01.

A.12 ift Rosenheim test report no. 13-002710-PR02

A fire resistance test in accordance with EN 1634-1:2008 was carried out on a JANSEN JANISOL 2 steel single-leaf hinged glazed doorset installed in drywall partition on 26 September 2013 for a duration of 55 minutes.

The doorset, with clear opening dimensions of 1200mm wide x 2200mm high, comprised a steel door frame housing a single leaf with overall dimensions of 1240mm wide x 2212mm high.

The leaf, which were fabricated using steel profiles, was glazed with a 52mm Pilkington Pyrostop 30-17 Triple IGU with Optitherm S3. The overall dimensions of the glass were 1096mm wide x 2035.5mm high. The nominal edge cover was 15.5mm and the perimeter of the glass was sealed against the frame using Dätwyler EPDM seals, Jansen ref. 455.053, and against the glazing beads using Insulfrax-FT, Jansen ref. 455.031. The door leaf was fitted with an integral Geze Boxer door closer. The leaf was also fitted with a Karl Fliether AS-2600-P5-Fh24-35-92-9 multipoint lock with a single latch.

The doorset was tested opening away from the furnace with the glazing beads on the exposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	55 minutes (no failure during test)
	Gap gauge:	49 minutes
	Cotton pad:	55 minutes (no failure during test)
Insulation:	Supplementary procedure:	38 minutes



Normal procedure: 39 minutes

For full details see ift Rosenheim test report no. 13-002710-PR02.

A.13 DMT test report no. DMT-DO-50-209-R1

A fire resistance test in accordance with EN 1364-1:1999 was carried out on a steel-framed glazed screen incorporating a single-leaf steel-framed hinged doorset on 12 December 2014 for a duration of 45 minutes.

The glazed screen, of overall dimensions 3600mm wide x 3700mm high, comprised a JANSEN JANISOL 2 frame system housing four 40mm Contraflam 30 IGUs. The single-leaf doorset had clear opening dimensions of 1202mm wide x 2529mm high and was glazed with a single 40mm Contraflam 30 IGU with overall dimensions 1158mm wide x 2386.5mm high. The perimeter of the double-glazed units was sealed against the frame and the glazing beads with sealing strip and the edge cover for the glass was nominally 13mm. The hinge edges of the door leaf was fitted with an aluminium anti-finger trap profile, Jansen ref. 407.094. The door leaf was hung from two steel pivots and was fitted with a BKS B-18281-01-U-8 lock and a bi-metal latch, Jansen ref. 555.008, at the head of the leaf. The door leaf was also fitted with an Eco TS 61-B door closer.

The doorset opened away from the furnace with the glazing beads on the exposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	45 minutes (no failure during test)
	Gap gauge:	45 minutes (no failure during test)
	Cotton pad:	45 minutes (no failure during test)
Insulation:	Supplementary procedure:	33 minutes
	Normal procedure:	44 minutes

For full details see DMT test report no. DMT-DO-50-209-R1.

A.14 ift Rosenheim test report no. 15-000478-PR01

A fire resistance test in accordance with EN 1363-2:1999 and EN 1364-1:2014 was carried out on a JANSEN JANISOL 2 steel-framed glazed screen incorporating a JANSEN JANISOL 2 double-leaf steel-framed hinged doorset on 22 May 2015 for a duration of 59 minutes.

The specimen, of overall dimensions 4950mm wide x 3610mm high, comprised a JANSEN JANISOL 2 frame system housing three panes of 23mm Contraflam CF Structure 30 glass, the largest of which had overall dimensions of 1500mm wide x 3500mm high. Each leaf of the double-leaf doorset, overall dimensions 2737.5mm wide x 2233.5mm high, was glazed with a single pane of 20mm Contraflam 30-2, 943mm wide x 2472.5mm high. The perimeter of the glass was sealed against the frame and the glazing beads with Kerafix 2000 glazing tape and the edge cover for the glass was 15mm for both glass types. The door leaves, which were hung from two hinges, were fitted with a single-point latch into the head of the frame (active leaf), Assa Abloy DC 700 door closers and an Assa Abloy Gleitschiene G-CO-E door coordinator.

The doorset opened away from the furnace and glazing beads of both the door and the screen were on the exposed side. In this orientation the specimen achieved the following performance:

Integrity:	Sustained flaming:	58 minutes
	Gap gauge:	59 minutes (no failure during test)



	Cotton pad:	59 minutes (no failure during test)
Insulation:	Supplementary procedure:	33 minutes
	Normal procedure:	43 minutes

For full details see ift Rosenheim test report no. 15-000478-PR01.

A.15 Efectis Era Avrasya test report no. RFTR15087

A fire resistance test in accordance with EN 1634-1:2014 was carried out on a JANSEN JANISOL 2 steel double-leaf hinged glazed doorset installed in masonry wall on 04 June 2015 for a duration of 39 minutes.

The doorset, with clear opening dimensions of 2273mm wide x 2660mm high, comprised a steel door frame housing two leaves with overall dimensions of 1206.5mm wide x 2669mm high.

The leaves, which were fabricated using steel profiles, were glazed with 21mm Pyrobel 16 EG glass. The overall dimensions of the glass were 1077.5mm wide x 2517.5mm high. The nominal edge cover was 13mm and the perimeter of the glass was sealed against the frame using EPDM seals, Jansen ref. 455.027 and 455.028. The hinge edges of the door leaves were fitted with aluminium anti-finger trap profiles, Jansen ref. 407.094. Both leaves were also fitted with G-U K-18501-00-0-1/K-18537-00-01 door closers on the exposed face. The active leaf was also fitted with a steel latch and bolt lock, Jansen ref. 555.827, and the passive leaf was fitted with BKS B893X_D35_F24x3 motorised shoot bolts at the top and bottom.

The doorset opened towards the furnace with the glazing beads on the unexposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	39 minutes (no failure during test)
	Gap gauge:	38 minutes
	Cotton pad:	39 minutes (no failure during test)
Insulation:	Supplementary procedure:	37 minutes
	Normal procedure:	38 minutes

For full details see Efectis Era Avrasya test report no. RFTR15087.

A.16 Efectis Era Avrasya test report no. RFTR16141

A fire resistance test in accordance with EN 1634-1:2014 was carried out on a JANSEN JANISOL 2 steel double-leaf hinged glazed doorset installed in masonry wall on 14 July 2016 for a duration of 60 minutes.

The doorset, with clear opening dimensions of 2490mm wide x 2630mm high, comprised a steel door frame housing two leaves with overall dimensions of 1250mm wide x 2642mm high (active leaf) and 1225mm wide x 2642mm high (passive leaf).

The leaves, which were fabricated using steel profiles, were glazed with 17.3mm Pyrobel 16 glass. The overall dimensions of the glass were 1106mm wide x 2490.5mm high. The nominal edge cover was 15mm and the perimeter of the glass was sealed against the frame using EPDM seals, Jansen ref. 455.027 and 455.029. Both leaves were also fitted with Dorma ED 250 door closers on the unexposed face. The active leaf was also fitted with a Wilka 6668 latch and lock bolt and the passive leaf was fitted with a Wilka 7663 emergency exit lockcase.

The doorset opened away from the furnace with the glazing beads on the exposed side and in this orientation achieved the following performance:



Integrity:	Sustained flaming:	58 minutes
	Gap gauge:	60 minutes (no failure during test)
	Cotton pad:	60 minutes (no failure during test)
Insulation:	Supplementary procedure:	35 minutes
	Normal procedure:	38 minutes

For full details see Efectis Era Avrasya test report no. RFTR16141.

A.17 Efectis Era Avrasya test report no. RFTR16142

A fire resistance test in accordance with EN 1634-1:2014 was carried out on a JANSEN JANISOL 2 steel double-leaf hinged glazed doorset installed in masonry wall on 15 July 2016 for a duration of 55 minutes.

The doorset, with clear opening dimensions of 2440mm wide x 2630mm high, comprised a steel door frame housing two leaves with overall dimensions of 1250mm wide x 2642mm high (active leaf) and 1225mm wide x 2642mm high (passive leaf).

The leaves, which were fabricated using steel profiles, were glazed with 17.3mm Pyrobel 16 glass. The overall dimensions of the glass were 1106mm wide x 2490.5mm high. The nominal edge cover was 15mm and the perimeter of the glass was sealed against the frame using EPDM seals, Jansen ref. 455.027 and 455.029. Both leaves were also fitted with Dorma ED 250 door closers on the exposed face. The active leaf was also fitted with a Wilka 6668 latch and lock bolt and the passive leaf was fitted with a Wilka 7663 emergency exit lockcase.

The doorset opened towards the furnace with the glazing beads on the unexposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	55 minutes
	Gap gauge:	56 minutes (no failure during test)
	Cotton pad:	56 minutes (no failure during test)
Insulation:	Supplementary procedure:	21 minutes
	Normal procedure:	36 minutes

For full details see Efectis Era Avrasya test report no. RFTR16142.

A.18 DMT test report no. DMT-DO-50-888-R1

A fire resistance test in accordance with EN 1634-1:2014+A1:2018 was carried out on a JANSEN JANISOL 2 steel single-leaf hinged glazed doorset with side panel and over panel installed in a steel-stud partition on 25 November 2020 for a duration of 36 minutes.

The doorset, with clear opening dimensions of 1290mm wide x 2493mm high, comprised a steel door frame housing a single leaf with overall dimensions of 1330mm wide x 2524mm high.

The frame consisted of JANSEN JANISOL 2 profiles. These were fitted with Jansen EPDM/CR seals, Jansen ref. 455.005, which were retained by a groove in the frame rebate along the head and down both jambs.

The leaf, which was fabricated using steel profiles, was glazed with 22mm-thick Hero-Fire-Mono 30 glass. The overall dimensions of the glass were 1189mm wide x 2383mm high. The nominal edge cover was



14mm on the glazing bead side and 16.5mm on the profile side and the perimeter of the glass was sealed against the frame using Jansen EPDM/CR gaskets, Jansen refs. 455.052 (profile side) and 455.028 (glazing bead side). Promaseal PL intumescent strips, 14mm wide x 1.8mm thick, were fitted to the door leaf rebate along the head and down the latch edge of the leaf above the position of the latch and Jansen EPDM/CR seals, Jansen ref. 455.005, were pushed into a groove in the rebate along the head and down both edges of the leaf. The leaf was also fitted with a Dorma ITS 96 concealed door closer and an Assa Abloy lock.

The doorset was tested opening away from the furnace with the glazing beads on the exposed side and in this orientation achieved the following performance:

Integrity:	Sustained flaming:	30 minutes
	Gap gauge:	36 minutes (no failure during test)
	Cotton pad:	30 minutes
Insulation:	Supplementary procedure:	32 minutes
	Normal procedure:	35 minutes

For full details see DMT test report no. DMT-DO-50-888-R1.