



BLUE ENGINEERING  
STEEL FABRICATION

# Steel Fire Protection Doors



## CATALOGUE

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**JANSEN** by   
ACCREDITED FABRICATION PARTNER

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## Steel Fire Protection Doors and Windows in South Africa

Premium quality steel High Performance Fire Protection Doors for commercial, industrial and residential use, indoor or outdoor applications with great aesthetics.

Fire Protection Doors, also known as Fire Doors, Fire Rated Doors, Fire Proof Doors, Fire Resistant Doors and Fire Certified Doors. Most often referred to simply as Fire Doors.

We prefer to call them Fire Protection Doors and this is exactly what their function is for a specific period of time (30, 60, 90 or 120 minutes) to protect human lives and allow them time to evacuate.

Only steel framed doors can offer 120 minutes protection rating.

These upmarket doors are manufactured using the latest proven and tested technologies and materials from Jansen in Switzerland. These doors are for those seeking to combine quality, strength, reliability, durability, function, performance and purpose with elegance.

Not just any doors, these are Jansen Doors.

Blue Engineering is a fully accredited fabrication partner for the Jansen system in South Africa.

Whilst everything written is about doors, it also applies to windows.

### **The purpose of fire and smoke protection doors**

is to act as a barrier preventing the spread of smoke and fire from different areas of a building for a specific time according to the rating (30, 60, 90 or 120 minutes) to allow occupants time to safely evacuate the building and allows fire fighters a window of time to control the fire. Fire protection doors also assist in limiting damage by containing the fire within a specific area.

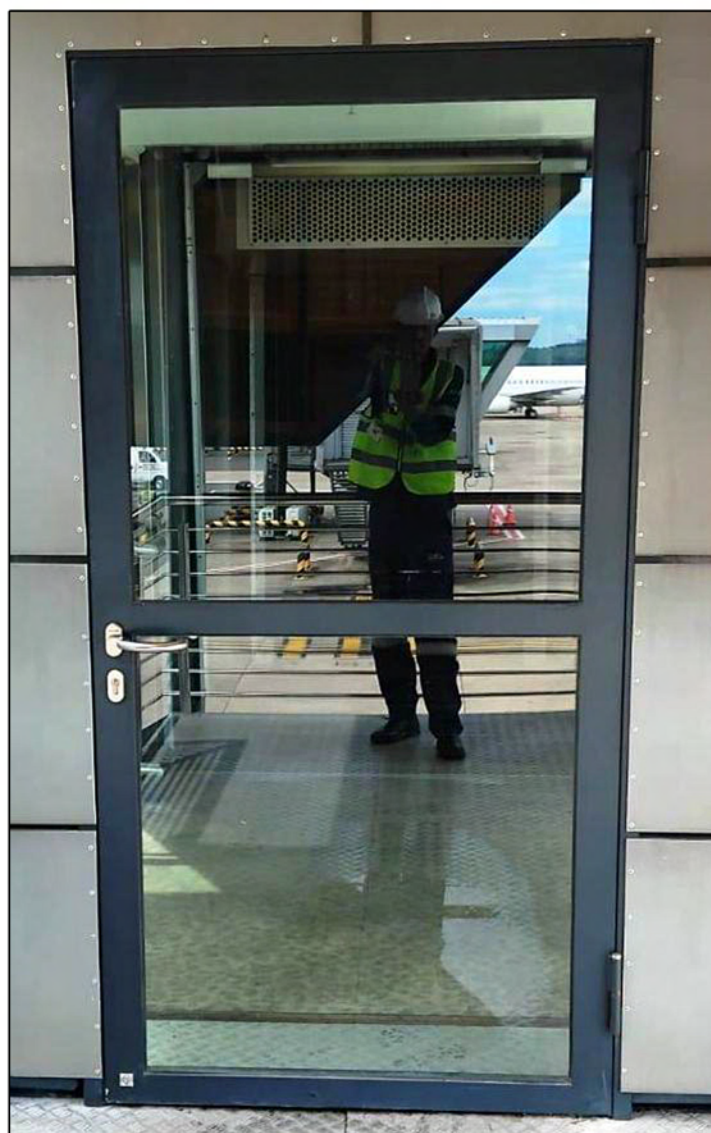
### **The Real Dangers of a Fire**

The danger from a fire is not only from heat or the fire itself, but also from dangerous poisonous gases, smoke and hot air which more often than not cause casualties and fatalities before the heat or fire even affects them.

It is therefore of utmost importance that fire doors are fully sealed and that the door/s have the structural integrity to hold the seals together for the rated time period to contain the gases, smoke and hot air along with the heat and flames from the fire itself.

### **What makes a fire protection door different from an ordinary door?**

Fire doors are specifically designed and built to resist the spread of fire and smoke for a specific time. They are made using fire resistant materials, specialised hardware (Locks, hinges etc.) and a sealing system which can withstand the pressure and heat caused by fire, these properties are not found in ordinary doors.





# Steel Fire Protection Doors and Windows

## Understanding the ratings for Fire Protection Doors (Fire Rated Doors)

In South Africa we have the SANS regulations (SANS1253, SANS1077 and SANS10400) which refer to "Class Ratings" for fire protection doors. In Europe they have the EN1363, EN1634 and EN12519 regulations. EN and SANS regulations are not identical as there are differences in parameters and methods in which the doors are tested, however with fire safety becoming a more prominent feature in South Africa the EN regulations are coming into the picture more often because of some of the differences as the EN codes are more descriptive and offer more parameters and test methodologies.

Door ratings are for a specific time period, 30 minutes (0.5 hour), 60 minutes (1 hour), 90 minutes (1.5 hours) or 120 minutes (2 hours).

### The test parameter measures:

- **Stability** - How long the door, frame and hardware will maintain its structural integrity under fire conditions. In South Africa the regulations allow for a maximum movement of 25mm within the rating period
- **Integrity** – How long the door will prevent the passage of flames, hot gasses and smoke under fire conditions within the rating period.
- **Insulation** - Limits the temperature rise on the unexposed side of the doors, in South Africa this means it must not rise more than 140 degrees above ambient temperature within the rating period
- **Impact** – This is a test where the door must withstand impact from a diameter 250mm sand bag weighing 27Kg dropped (Usually from a 2m height) onto the door twice and not create an opening of more than 25mm between the door and the frame

## In SANS regulations we have the following Classes of Fire Protection Doors

### Class A

- Stability: 60 minutes (1 hour)
- Integrity: 60 minutes (1 hour)
- Insulation: 60 minutes (1 hour)
- Impact: N/A

### Class B

- Stability: 120 minutes (2 hours)
- Integrity: 120 minutes (2 hours)
- Insulation: 120 minutes (2 hours)
- Impact: N/A

### Class C

- Stability: 120 minutes (2 hours)
- Integrity: 120 minutes (2 hours)
- Insulation: No
- Impact: Yes

### Class D

- Stability: 120 minutes (2 hours)
- Integrity: 120 minutes (2 hours)
- Insulation: 120 minutes (2 hours)
- Impact: Yes

### Class E

- Stability: 30 minutes (0.5 hour)
- Integrity: 30 minutes (0.5 hour)
- Insulation: 30 minutes (0.5 hour)
- Impact: N/A

### Class F

- Stability: 30 minutes (0.5 hour)
- Integrity: 30 minutes (0.5 hour)
- Insulation: No
- Impact: N/A



# Steel Fire Protection Doors and Windows

**In EN regulations the doors are classified as follows:**

## **E Rating**

- Integrity (30, 60, 90 or 120 minutes)

Shown as E30, E60, E90 and E120

## **EW Rating**

- Integrity (30, 60, 90 or 120 minutes)
- Radiation (30, 60, 90 or 120 minutes)

Shown as EW30, EW60, EW90, EW120

The radiation properties are similar to our insulation requirements in South Africa

## **EI Rating**

- Integrity (30, 60, 90 or 120 minutes)
- Insulation (30, 60, 90 or 120 minutes)

Shown as EI30, EI60, EI90, EI120

The EN insulation requirements for EI doors far exceeds our insulation requirements in South Africa and would require a door constructed with materials that have thermally broken properties for the frame and the leaf like the Janisol 2 and Janisol C4 profiles from Jansen.



In South Africa we can combine the requirements of SANS and EN regulations together to meet and exceed compliance requirements for high performance fire protection doors.

For example, an EW120 door combined with an impact test would give you a CLASS D door that exceeds requirements in South Africa for compliance.

## **Glazing for Fire Protection Doors**

In South Africa we can only get 6mm Pyran S Glass from local suppliers. Pyran S glass is a borosilicate glass with outstanding fire retardant characteristics.

- 6mm Pyran S glass will not withstand the impact test required for Class C and Class D doors
- 6mm Pyran S glass offers no radiation or insulation properties

## **Viewing Panels**

Viewing panels allowed for by SANS1253 are only allowed to be maximum 100x300mm or diameter 200mm in size. Fire protection doors with 6mm Pyran S glass in the viewing panels cannot be rated as Class C or Class D doors. The doors will be rated according to the glazing.

## **Impact**

For glazed fire protection doors to be able withstand an impact test we have to consider the option of 12mm Pyran S glass which is an imported product and not available locally so costly and takes time, or we can locally laminate 6mm Pyran S glass with 12.7mm toughened Armourlam safety glass and place the Armourlam glass on the risk side, this is a more cost effective and quicker solution.

To reduce the risk of glass splinters in the event of glass breakage on the Pyran S glass we can use a specific vinyl on the glass, again this must be placed on the risk side.



# Steel Fire Protection Doors and Windows

## Glass with Radiation and Insulation Properties

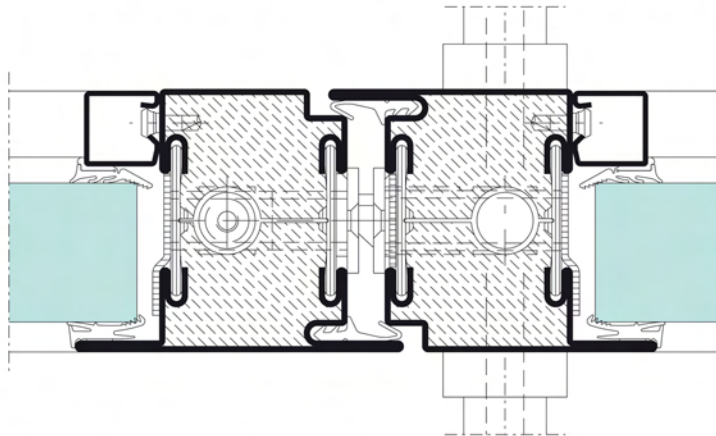
These types of glass are not available locally in South Africa and have to be imported, due to the way they are made they also have to be made to size before they are shipped which takes a lot of time and is costly.

*If there is a requirement we are able to provide these solutions.*

EW radiation glass is typically 13mm - 19mm thick and can be fitted into our normal fire doors and can offer a rating of up to 120 minutes (2 hours) EW120

EI fully insulated glass is very thick and heavy and needs to go into thermally broken 80mm wide Janisol C4 frames from Jansen. Due to the thickness (56mm) and weight of the glass we can offer a maximum rating of 90 Minutes (EI90) for doors, for fixed windows we can go up to EI120 where the glass is 80mm thick.

Fire doors with glazed fanlights above the door will be rated according to the glass in the fanlight.



## Gazing Installation for Fire Protection Doors

Installation of fire resistant glazing is very different when compared to normal glazing so the installation of fire resistant glass needs to fulfil specific requirements.

- The glass must rest on 2 calcium silicate spacer blocks
- The glass must be installed with intumescent ceramic fibre tape on both sides of the glass or alternatively low flammability gaskets on both sides
- The glass sizes must be less than the maximum permitted sizes as per the rating
- The glass must be marked with the manufacturers logo and glass details
- Double glazing must be done with steel spacers not aluminium
- If the glass used is laminated the non fire glass must face towards the risk side
- If any film is used on the glass it must face towards the risk side

## Door materials and ratings for glazed fire protection doors

- Aluminium frames in general cannot be used for fire protection doors and cannot achieve any rating or class, not even 30 minutes.
- Wooden framing can be used but can only achieve a 30 minutes or maximum 60 minutes rating
- Steel framing like Jansen that have been tested are the only material that can achieve a full 120 minutes rating

# Steel Fire Protection Doors and Windows

## A note on door hardware for fire protection doors

For fire protection doors it is not possible to fit standard door hardware (ironmongery) like hinges and locks etc. that are used on normal doors, the hardware (ironmongery) also needs to be tested and rated to be able to withstand the pressure from a fire without failing for the specific period of the door rating.

Fire protection doors are also required to be fitted with automatic closers so that the door is always closed. An open fire protection door offers no protection so it must be closed to perform its function.

Fire protection doors should be fully sealed between leaf and frame and have gaskets and drop seals at the bottom unless the door is constructed with a wrap around frame with gaskets along all 4 sides of the door.

Fire protection doors should always be supplied complete with frame and all hardware that is fire rated, tested and certified



## Emergency Exit Hardware

Fire doors can also be equipped with emergency exit hardware.

- Panic exit handles for areas with low traffic/personnel familiar with the procedure
- Full Emergency Exit Panic Push Bars
- Double doors can be fitted with a Single Emergency Exit Push Bar on the active door or Double Emergency Exit Push Bars on both the active and the passive door
- Emergency Exit Doors are required to be equipped with automatic closers which are concealed and flush mounted on our doors

## Access Control Upgrades

Our Fire Protection Doors can be equipped with fire rated electric lock strikes to connect to access control equipment.

## Jansen Steel Fire Protection Doors by Blue Engineering

### 1. Steel Non-Insulated Fire Protection Doors

These fire protection door leaves and frames are made with Jansen Economy 50 and Economy 60 folded steel profiles and fitted with 1.9mm galvanised steel insert sheet/s. The doors can be supplied with either a goal post frame or a wrap around frame.

These doors are rated E120 and Class C (Exceed the requirements of SANS regulations)

#### Standard features included with the door/s

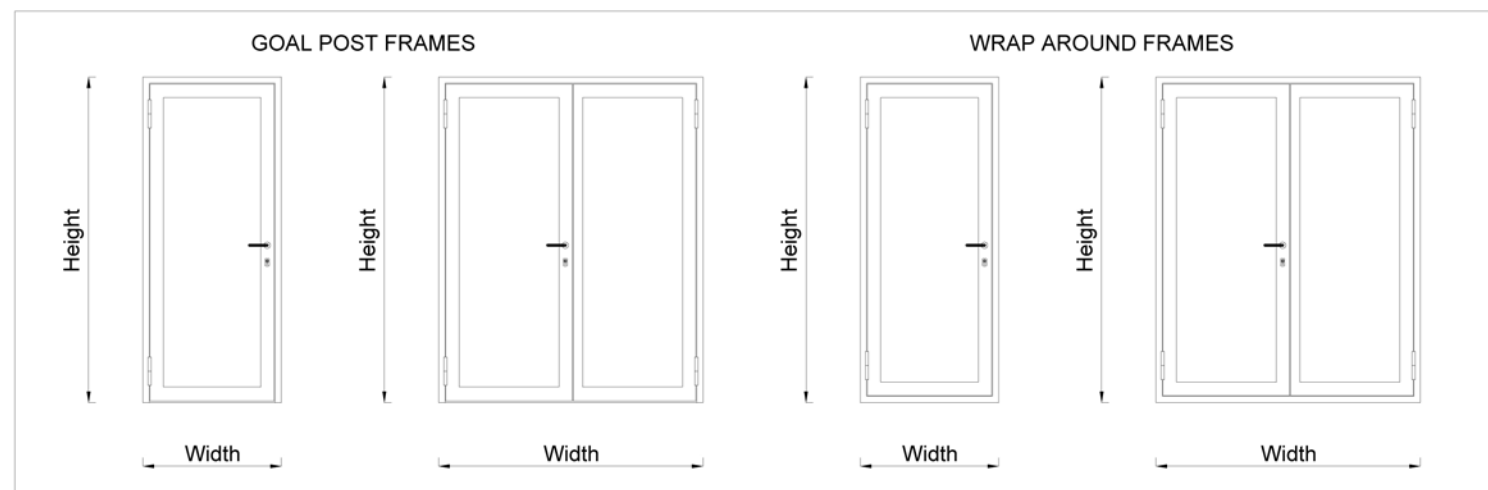
- Suitable for interior or exterior applications
- Double low flammability gaskets, with goal post type frames these will be along the sides and the top, with wrap around frames it will be along all 4 sides of the doors
- Concealed automatic drop seals for doors with goal post type frames
- Concealed flush mounted fire rated automatic closers (TS96)
- Heavy duty diameter 20x180mm adjustable hinges
- Rebate/Security/Dog bolts for impact
- Fire rated multi point locks for impact

#### Finishes

- Powder coated
- Galvanised and powder coated
- Stainless steel options available

#### Optional extras available

- Panic exit handles for areas with low traffic/personnel familiar with the procedure
- Full Emergency Exit Panic Push Bars
- Double doors can be fitted with a Single Emergency Exit Push Bar on the active door or Double Emergency Exit Push Bars on both the active and the passive door
- Fire rated electric lock strikes for access control
- Additional security upgrades (Some upgrades are not compatible with emergency exit gear)
- 60mm wide doors using Jansen Economy 60 folded steel profiles



## Jansen Steel Fire Protection Doors by Blue Engineering

### 2. Steel Insulated Fire Protection Doors

These fire protection door leaves and frames are made with Jansen Economy 50, Economy 60 and Janisol 2 folded steel profiles and clad with 1.2mm galvanised steel sheets on both sides on both sides of the door. The doors can be supplied with either a goal post frame or a wrap around frame.

These doors are rated EW120 and Class D (Exceed the requirements of SANS regulations)

With Janisol 2 Thermally Broken Profiles we can achieve EI120

#### Standard features included with the door/s

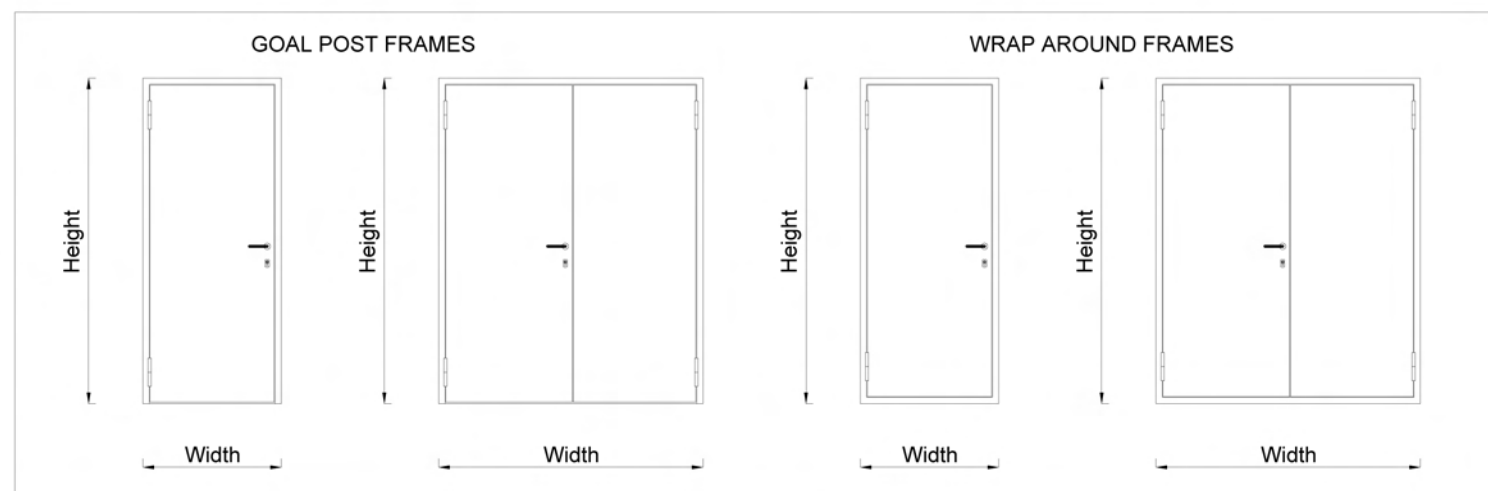
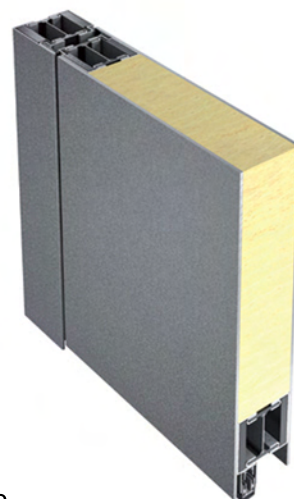
- Suitable for interior or exterior applications
- Mineral wool insulation inside the door
- Double low flammability gaskets, with goal post type frames these will be along the sides and the top, with wrap around frames it will be along all 4 sides of the doors
- Concealed automatic drop seals for doors with goal post type frames
- Concealed flush mounted fire rated automatic closers (TS96)
- Heavy duty diameter 20x180mm adjustable hinges
- Rebate/Security/Dog bolts for impact
- Fire rated multi point locks for impact

#### Finishes

- Powder coated
- Galvanised and powder coated
- Stainless steel options available

#### Optional extras available

- Panic exit handles for areas with low traffic/personnel familiar with the procedure
- Full Emergency Exit Panic Push Bars
- Double doors can be fitted with a Single Emergency Exit Push Bar on the active door or Double Emergency Exit Push Bars on both the active and the passive door
- Fire rated electric lock strikes for access control
- Additional security upgrades (Some upgrades are not compatible with emergency exit gear)
- 60mm wide doors using Jansen Economy 60 folded steel profiles





## Jansen Steel Fire Protection Doors by Blue Engineering

### 3. Steel Non-Insulated Fire Protection Doors with Glass Viewing Panel

These fire protection door leaves and frames are made with Jansen Economy 50 and Economy 60 folded steel profiles and fitted with 1.9mm galvanised steel insert sheet/s. The doors can be supplied with either a goal post frame or a wrap around frame.

- a) If fitted with 6mm Pyran S Glass these doors are rated E120 with no equivalent SANS Rating
- b) If fitted with imported 12mm Pyran S Glass or 6mm Pyran S Glass laminated with 12.7mm Armourlam Glass these doors are rated E120 and then they can achieve a Class C rating

#### Standard features included with the door/s

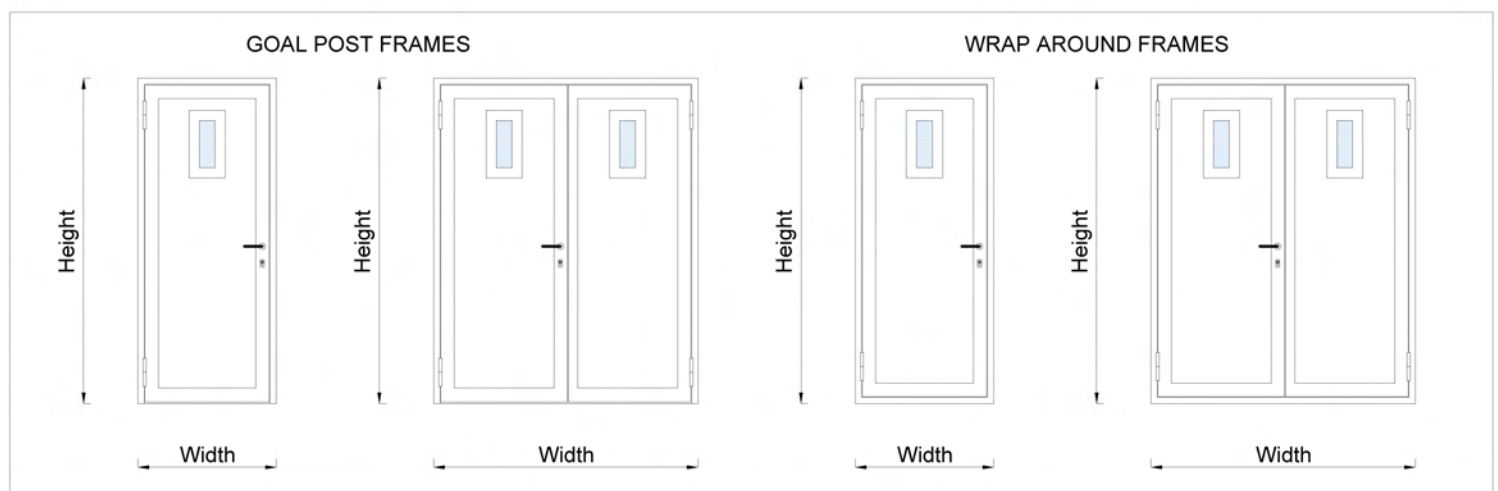
- Suitable for interior or exterior applications
- Double low flammability gaskets, with goal post type frames these will be along the sides and the top, with wrap around frames it will be along all 4 sides of the doors
- Concealed automatic drop seals for doors with goal post type frames
- Concealed flush mounted fire rated automatic closers (TS96)
- Heavy duty diameter 20x180mm adjustable hinges
- Rebate/Security/Dog bolts for impact
- Fire rated multi point locks for impact

#### Finishes

- Powder coated
- Galvanised and powder coated
- Stainless steel options available

#### Optional extras available

- Panic exit handles for areas with low traffic/personnel familiar with the procedure
- Full Emergency Exit Panic Push Bars
- Double doors can be fitted with a Single Emergency Exit Push Bar on the active door or Double Emergency Exit Push Bars on both the active and the passive door
- Fire rated electric lock strikes for access control
- Additional security upgrades (Some upgrades are not compatible with emergency exit gear)
- 60mm wide doors using Jansen Economy 60 folded steel profiles



## Jansen Steel Fire Protection Doors by Blue Engineering

### 4. Steel Insulated Fire Protection Doors with Glass Viewing Panel

These fire protection door leaves and frames are made with Jansen Economy 50 or 60 or Janisol 2 folded steel profiles and clad with 1.2mm galvanised steel sheets on both sides on both sides of the door. The doors can be supplied with either a goal post frame or a wrap around frame.

- a) If fitted with 6mm Pyran S Glass these doors are rated E120 with no equivalent SANS Rating
- b) If fitted with imported Radiation Glass these doors are rated EW120 and then they can achieve a Class D rating

#### Standard features included with the door/s

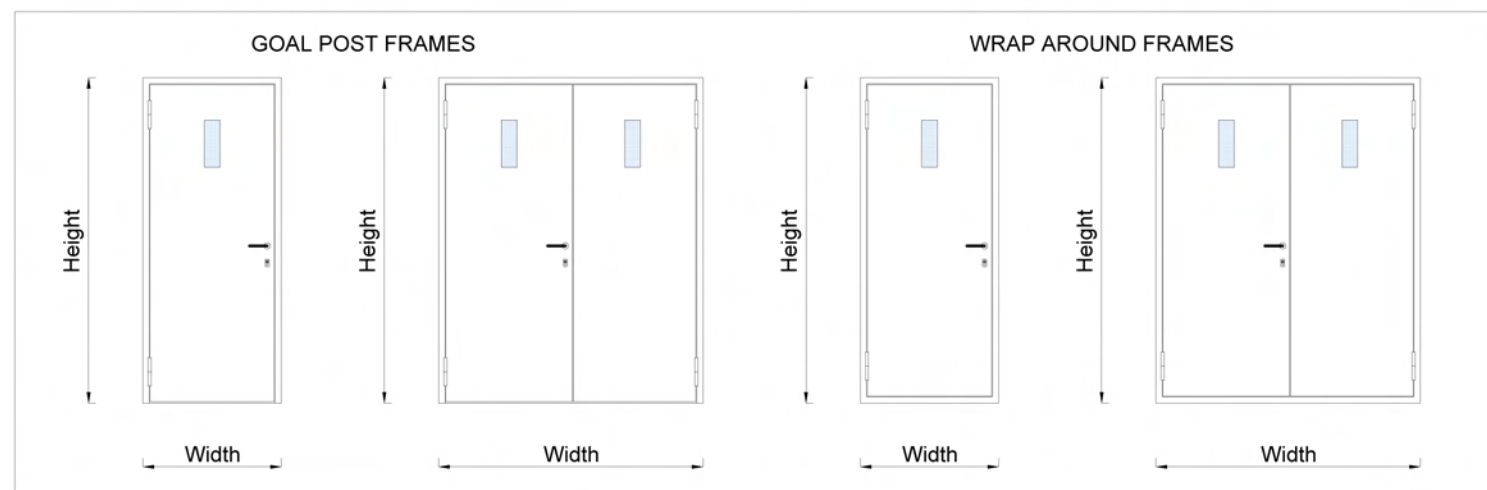
- Suitable for interior or exterior applications
- Mineral wool insulation inside the door
- Double low flammability gaskets, with goal post type frames these will be along the sides and the top, with wrap around frames it will be along all 4 sides of the doors
- Concealed automatic drop seals for doors with goal post type frames
- Concealed flush mounted fire rated automatic closers (TS96)
- Heavy duty diameter 20x180mm adjustable hinges
- Rebate/Security/Dog bolts for impact
- Fire rated multi point locks for impact

#### Finishes

- Powder coated
- Galvanised and powder coated
- Stainless steel options available

#### Optional extras available

- Panic exit handles for areas with low traffic/personnel familiar with the procedure
- Full Emergency Exit Panic Push Bars
- Double doors can be fitted with a Single Emergency Exit Push Bar on the active door or Double Emergency Exit Push Bars on both the active and the passive door
- Fire rated electric lock strikes for access control
- Additional security upgrades (Some upgrades are not compatible with emergency exit gear)
- 60mm wide doors using Jansen Economy 60 folded steel profiles



## Jansen Steel Fire Protection Doors by Blue Engineering

### 5. Steel Non-Insulated Fire Protection Doors with Glazing

These fire protection door leaves and frames are made with Jansen Economy 50 folded or Economy 60 steel profiles with glazing. The doors can be supplied with either a goal post frame or a wrap around frame.

- a) If fitted with 6mm Pyran S Glass these doors are rated E120 with no equivalent SANS Rating
- b) If fitted with imported 12mm Pyran S Glass or 6mm Pyran S Glass laminated with 12.7mm Armourlam Glass these doors are rated E120 and then they can achieve a Class C rating

#### Standard features included with the door/s

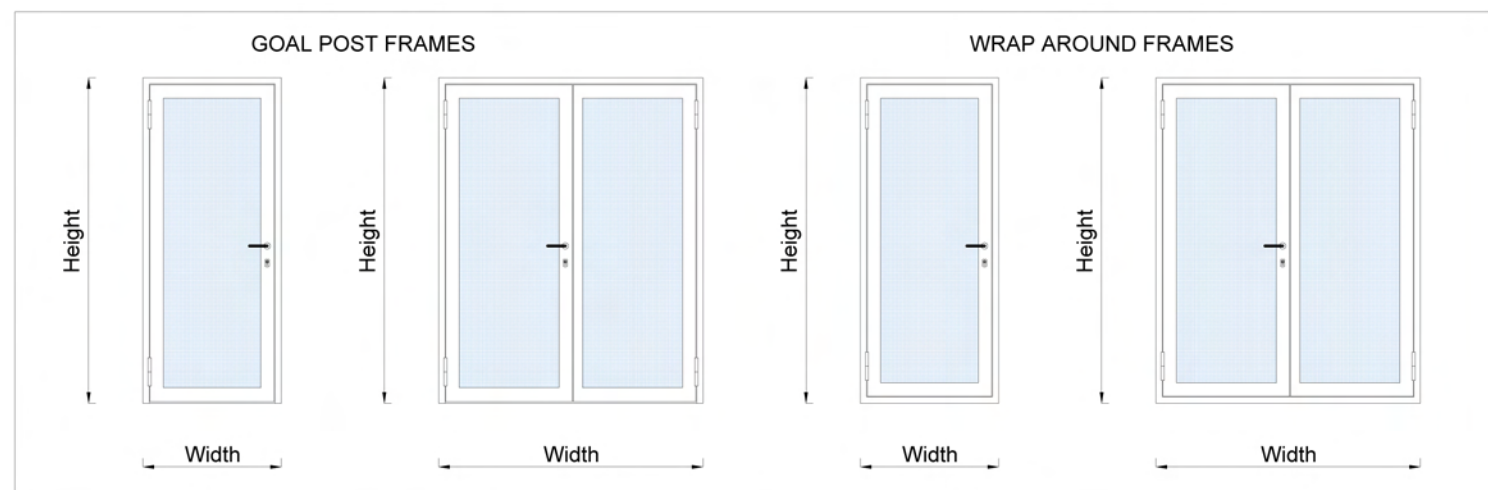
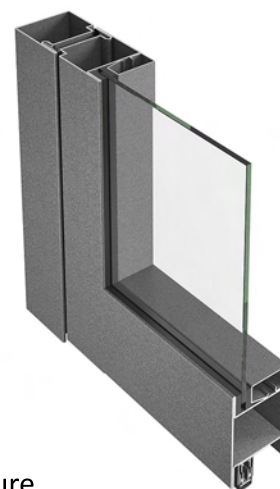
- Suitable for interior or exterior applications
- Double low flammability gaskets, with goal post type frames these will be along the sides and the top, with wrap around frames it will be along all 4 sides of the doors
- Concealed automatic drop seals for doors with goal post type frames
- Concealed flush mounted fire rated automatic closers (TS96)
- Heavy duty diameter 20x180mm adjustable hinges
- Rebate/Security/Dog bolts for impact
- Fire rated multi point locks for impact

#### Finishes

- Powder coated
- Galvanised and powder coated
- Stainless steel options available

#### Optional extras available

- Panic exit handles for areas with low traffic/personnel familiar with the procedure
- Full Emergency Exit Panic Push Bars
- Double doors can be fitted with a Single Emergency Exit Push Bar on the active door or Double Emergency Exit Push Bars on both the active and the passive door
- Fire rated electric lock strikes for access control
- Additional security upgrades (Some upgrades are not compatible with emergency exit gear)
- 60mm wide doors using Jansen Economy 60 folded steel profiles





## Jansen Steel Fire Protection Doors by Blue Engineering

### 6. Steel Fire Protection Doors with Radiation Glazing

These fire protection door leaves and frames are made with Jansen Economy 50 and Economy 60 folded steel profiles with glazing. The doors can be supplied with either a goal post frame or a wrap around frame.

Fitted with imported Radiation Glass these doors are rated EW120 and then they can achieve a Class D rating

#### Standard features included with the door/s

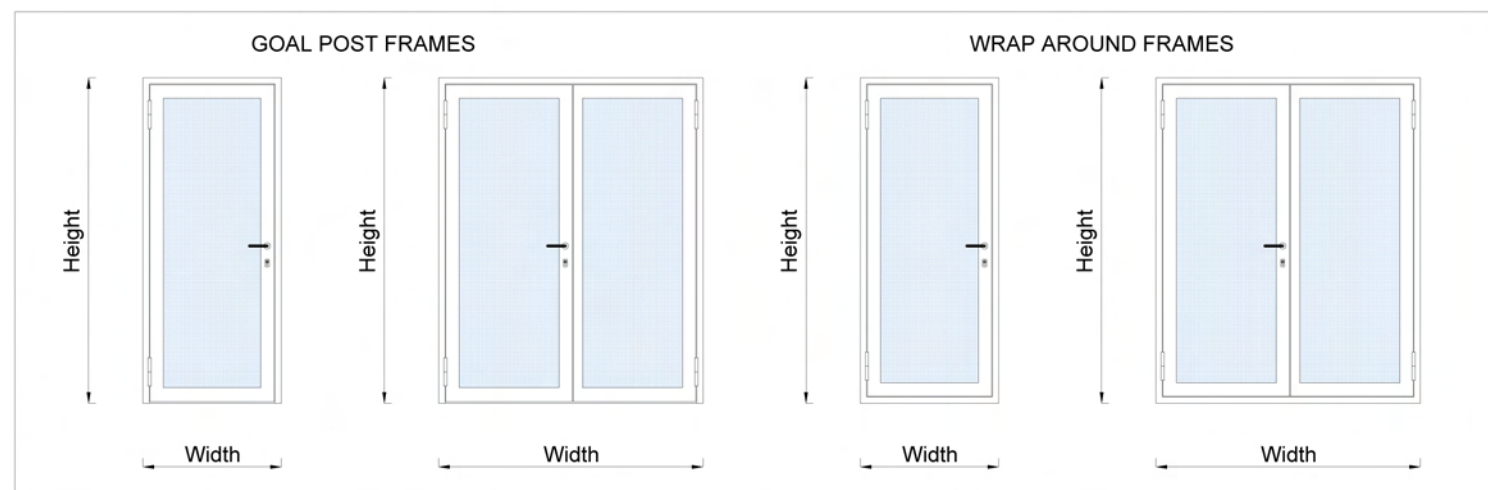
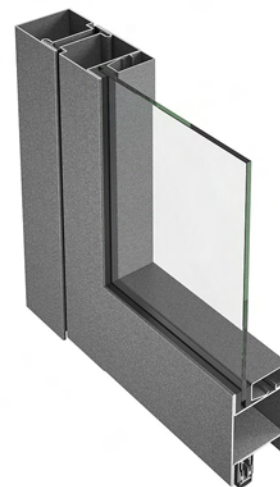
- Suitable for interior or exterior applications
- Mineral wool insulation inside the door
- Double low flammability gaskets, with goal post type frames these will be along the sides and the top, with wrap around frames it will be along all 4 sides of the doors
- Concealed automatic drop seals for doors with goal post type frames
- Concealed flush mounted fire rated automatic closers (TS96)
- Heavy duty diameter 20x180mm adjustable hinges
- Rebate/Security/Dog bolts for impact
- Fire rated multi point locks for impact

#### Finishes

- Powder coated
- Galvanised and powder coated
- Stainless steel options available

#### Optional extras available

- Panic exit handles for areas with low traffic/personnel familiar with the procedure
- Full Emergency Exit Panic Push Bars
- Double doors can be fitted with a Single Emergency Exit Push Bar on the active door or Double Emergency Exit Push Bars on both the active and the passive door
- Fire rated electric lock strikes for access control
- Additional security upgrades (Some upgrades are not compatible with emergency exit gear)
- 60mm wide doors using Jansen Economy 60 folded steel profiles



## Jansen Steel Fire Protection Doors by Blue Engineering

### 7. Thermally Broken Steel Fire Protection Doors with Insulated Glazing

These fire protection door leaves and frames are made with Jansen Janisol 2 and Janisol C4 thermally broken profiles that are 80mm wide with insulated glazing. The doors can be supplied with either a goal post frame or a wrap around frame.

Fitted with imported 56mm insulated glass these doors are rated EI90 and exceed any SANS ratings  
Fixed windows can be fitted with imported 80mm insulated glass and be rated EI120

#### Standard features included with the door/s

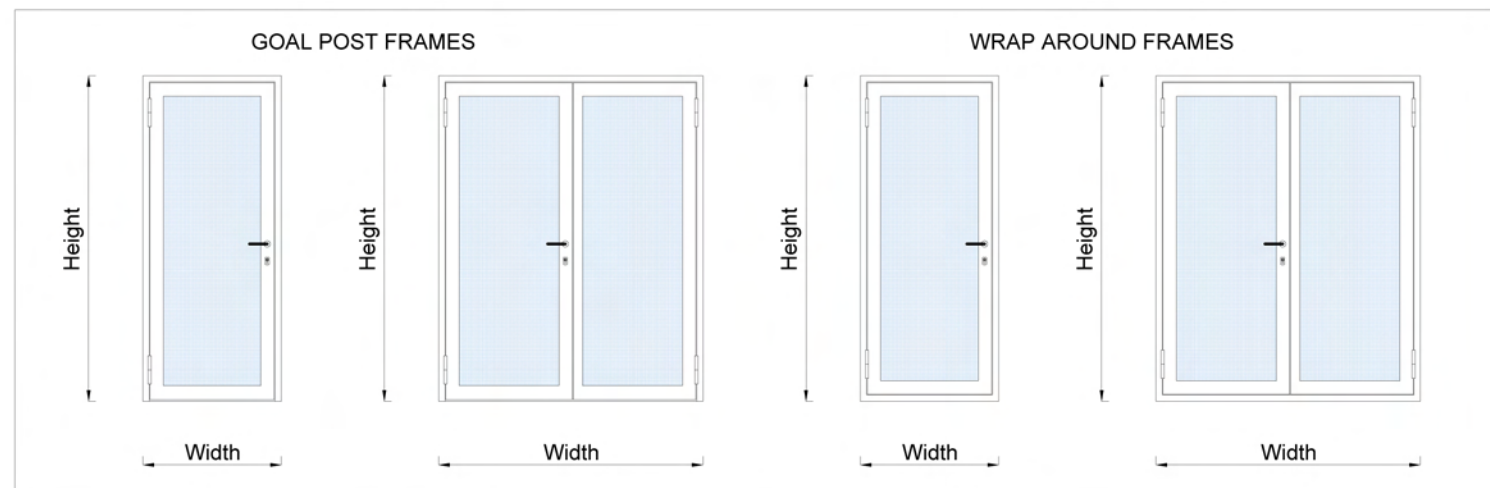
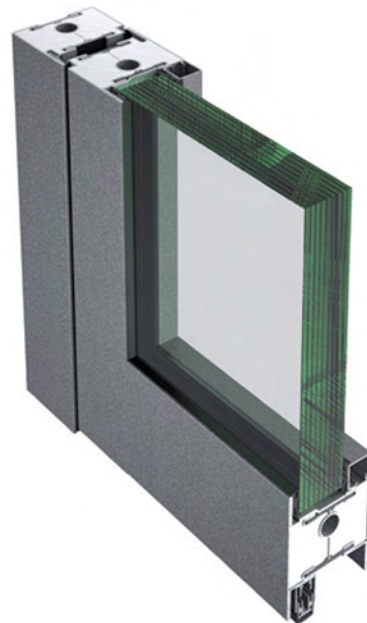
- Suitable for interior or exterior applications
- Mineral wool insulation inside the door
- Double low flammability gaskets, with goal post type frames these will be along the sides and the top, with wrap around frames it will be along all 4 sides of the doors
- Concealed automatic drop seals for doors with goal post type frames
- Concealed flush mounted fire rated automatic closers
- Heavy duty diameter 20x230mm adjustable hinges
- Rebate/Security/Dog bolts for impact
- Fire rated multi point locks for impact

#### Finishes

- Powder coated
- Galvanised and powder coated

#### Optional extras available

- Panic exit handles for areas with low traffic/personnel familiar with the procedure
- Full Emergency Exit Panic Push Bars
- Double doors can be fitted with a Single Emergency Exit Push Bar on the active door or Double Emergency Exit Push Bars on both the active and the passive door
- Fire rated electric lock strikes for access control
- Additional security upgrades (Some upgrades are not compatible with emergency exit gear)



## Jansen Steel Fire Protection Doors by Blue Engineering

### 8. Steel Fire Protection Sliding Doors

With the Jansen Janisol 2 Thermally Broken steel profile we can offer Fire Protection Sliding Doors either clad with steel or fitted with glazing



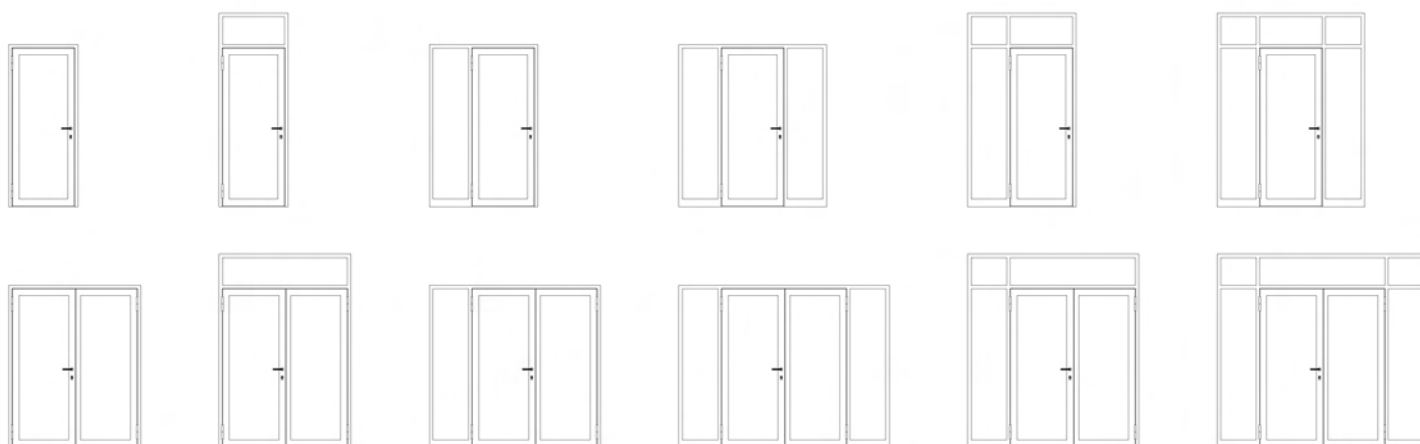
### 9. Steel Fire Protection Windows

With all the above mentioned on the doors we can offer the same with windows using the appropriate steel profiles and glazing

### 10. Steel Fire Protection Walls and Facades

On Fire Protection Walls and Facades can achieve up to EI120 fire protection using the appropriate profiles and glazing already mentioned above

#### SOME POSSIBLE DOOR CONFIGURATIONS





# Steel Fire Protection Doors and Windows

