record DIAMOND Series

TECHNICAL OVERVIEW


One Melbourne Quarter
699 Collins Street, Docklands
glass roof
leading sidewall
safety sensor
carousel top rail
infrared safety sensor
sidewall glass edge
protection
frameless centre carousel
[black silicon butt joint]
curved sidewall glass
door wing glass
slow speed button
[inside and outside]
mode key switch
emergency stop
[inside only]
sidewall bollard
[alternative designs by others]
carousel bottom rail
contact safety sensor
floor matting
[by flooring contractor]
floor ring
[linish stainless steel]

OUTLINE

The Diamond Series is the result of record's experience in the areas of revolving door technology and structural glass engineering. This door was developed in response to popular demand for the most frameless revolving door possible. Its clean and uncluttered appearance belies the complication of its design.

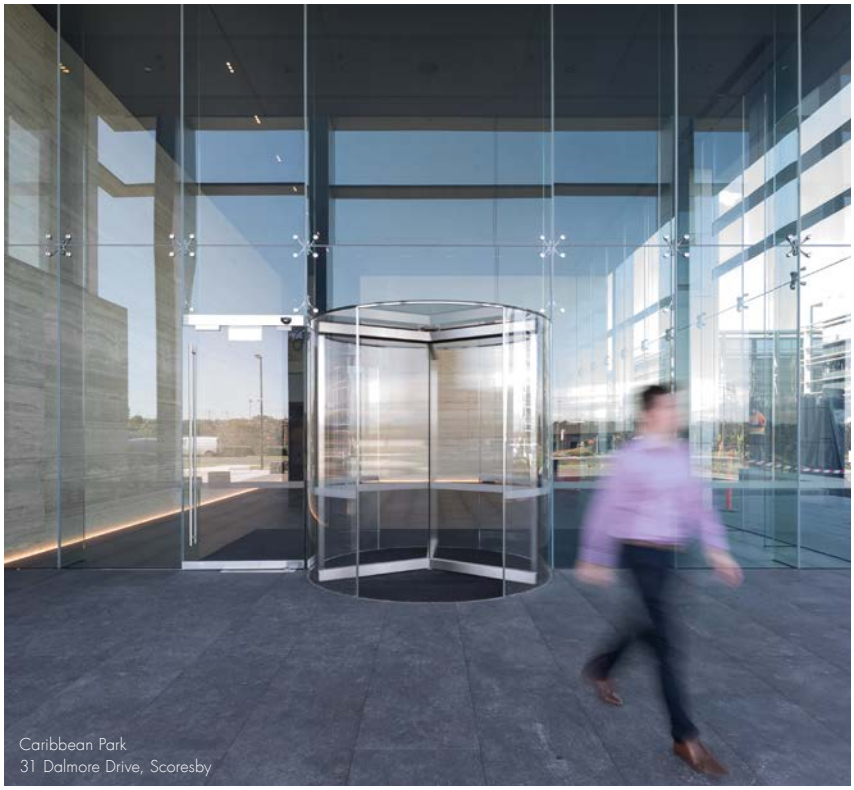
Taking glass engineering in revolving door design to a new level, the entire door structure of the record Diamond Series is designed to be self supporting, with the glass roof structurally glazed to the glass sidewalls, whilst still accommodating the dynamic loads of the rotating carousel.

It's all glass design does restrict it's maximum size and ability to support the surrounding glazing (for these features see the Crystal Series), but the door can still be built up to 4000mm diameter and 4000mm in height.

Metal trims around the openings protect the glass edges and house the infrared safety sensors, while press to slow buttons are mounted off freestanding bollards at both entries.

This door can be built in either 3 or 4 wing configuration and is available with fixed door wings only. The electrical drive motor can be contained in a pit in the concrete slab or, if there is a suspended slab, mounted to the underside for ease of access when servicing.

44 Market Street, Sydney



Caribbean Park
31 Dalmore Drive, Scoresby

567 Collins Street, Melbourne

DESIGN

When designing a building entrance with a revolving door, the diameter and door wing configuration are of critical importance in ensuring that the entrance has a door that is safe and able to meet the expected traffic flows of the building occupants.

In general terms the larger the diameter of a revolving door, the more practical this door will be, in terms of pedestrian capacity as well as the ability for people with bulky goods, strollers or in wheelchairs to also use the door.

When it comes to door wing configuration, 3 wing doors are more practical in smaller diameter revolving doors, where maximising the usable space per door segment is very important. In larger diameter doors however, the larger clear opening width provided by a 4 wing door can provide advantages with the flow of people entering and exiting the door at the same time.

When considering the size and configuration of the revolving door(s) for you building, other factors need to be taken into account, such as the general safety and comfort level of the of door users, the entrance location (proximity to public transport) the type of building (commercial, leisure, hotel, shopping) and the type of people expected to use the revolving door (business people, families, senior citizens).

The information contained in the table below is derived from the rotating speed of the carousel (maximum as per AS5007) and the number of people who can, in theory, safety use each segment of the revolving door. The results are for capacity in one direction only and assumes that each possible segment has the maximum prescribed number of people.

100 Mount Street, North Sydney

Theoretical Door Capacity

Diameter (mm)	Speed (m/sec)	Revolutions / Minute	3 WING CONFIGURATION Persons / Segment	3 WING CONFIGURATION Capacity / Minute	3 WING CONFIGURATION Capacity / Hour	4 WING CONFIGURATION Persons / Segment	4 WING CONFIGURATION Capacity / Minute	4 WING CONFIGURATION Capacity / Hour
2400	0.75	6.0	1	18.0	1080			
2700	0.75	5.3	1.5	23.9	1431			
3000	0.75	4.8	2	28.8	1728			
3600	0.75	4.0	3	36.0	2160	2	32.0	1920
4000	0.75	3.6	4	43.2	2592	3	43.2	2592

AESTHETICS IN SAFETY

Unlike any other revolving door on the market, the record Diamond Series revolving door features safety sensors that are fully incorporated into the door design, making them effectively hidden to the untrained eye.

For concealed safety along the leading sidewall edge, photo electric microcell sensors are mounted within the edge trim along the glass roof, with the receiver flush mounted within the floor ring.

The door wing infrared sensors are mounted within the custom designed top rail framing that incorporates a curved lens housing (rather than a black plastic sensor mounted on the door rail).

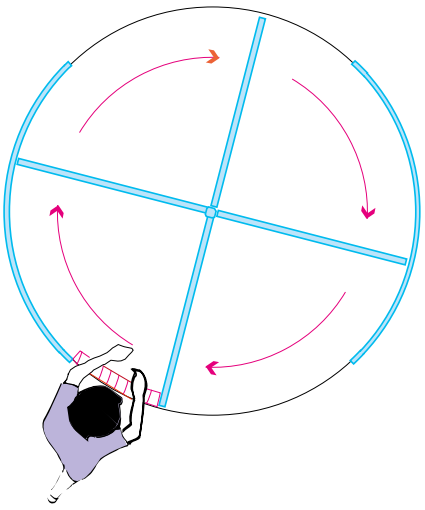
And for additional safety record's bottom rail design incorporates a concealed contact sensor (rather than a rubber bumper sensor mounted on the rail, or no safety sensor).

LEADING EDGE SAFETY SENSORS (A)

The leading edge PE microcell safety sensors provide an invisible safety barrier between the leading edge of the curved glass sidewall and the approaching revolving door leaf.

If an object is detected in front of this leading edge when the door leaf is approaching the carousel will stop rotating until the object has moved from the safety zone.

The record leading edge safety sensors comply with the Australian Standard on Revolving Doors AS5007:2007.



TOP RAIL SAFETY SENSORS (B)

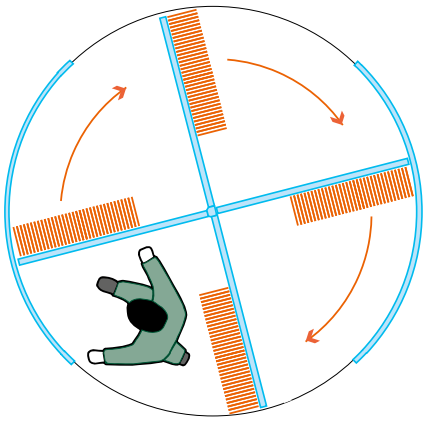
The rotating carousel infrared safety sensors are fitted to the top door rail and scans the area directly in front of each door leaf.

Should a person be detected the door will slow down to the speed of the person and if necessary stop.

The system is designed to minimise the possibility of collision between each revolving door leaf and a person or object inside the revolving door.

For elderly or handicapped persons the ability of a door to slow down to the same speed as they are walking has real safety advantages. This system is ideally suited for larger doors when there is more space inside each door segment.

The record top rail safety sensors comply with the Australian Standard on Revolving Doors AS5007:2007.



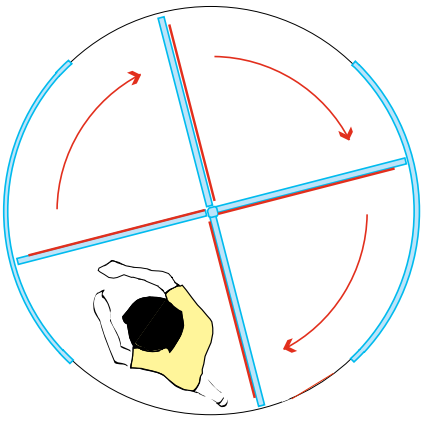
BOTTOM RAIL SAFETY SENSORS (C)

The rotating carousel contact safety sensors are fitted to the front of each door leaf bottom rail.

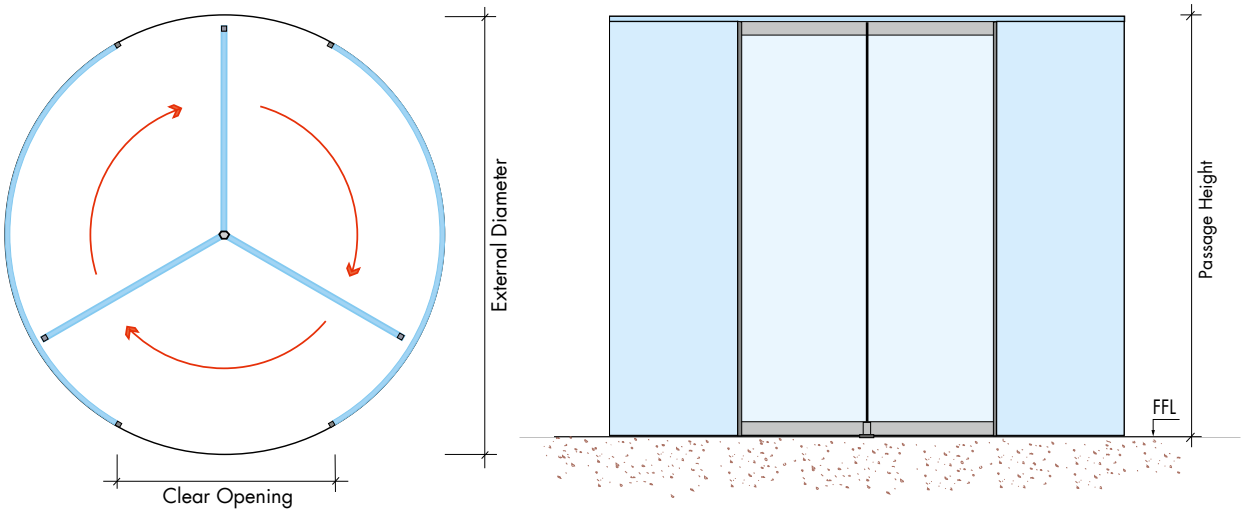
Should a person's foot come into contact with the bottom rail the revolving door will immediately stop.

The system is designed to stop the revolving door should the infrared sensor fail to pick up the obstruction earlier.

The record bottom rail safety sensors comply with the Australian Standard on Revolving Doors AS5007:2007.

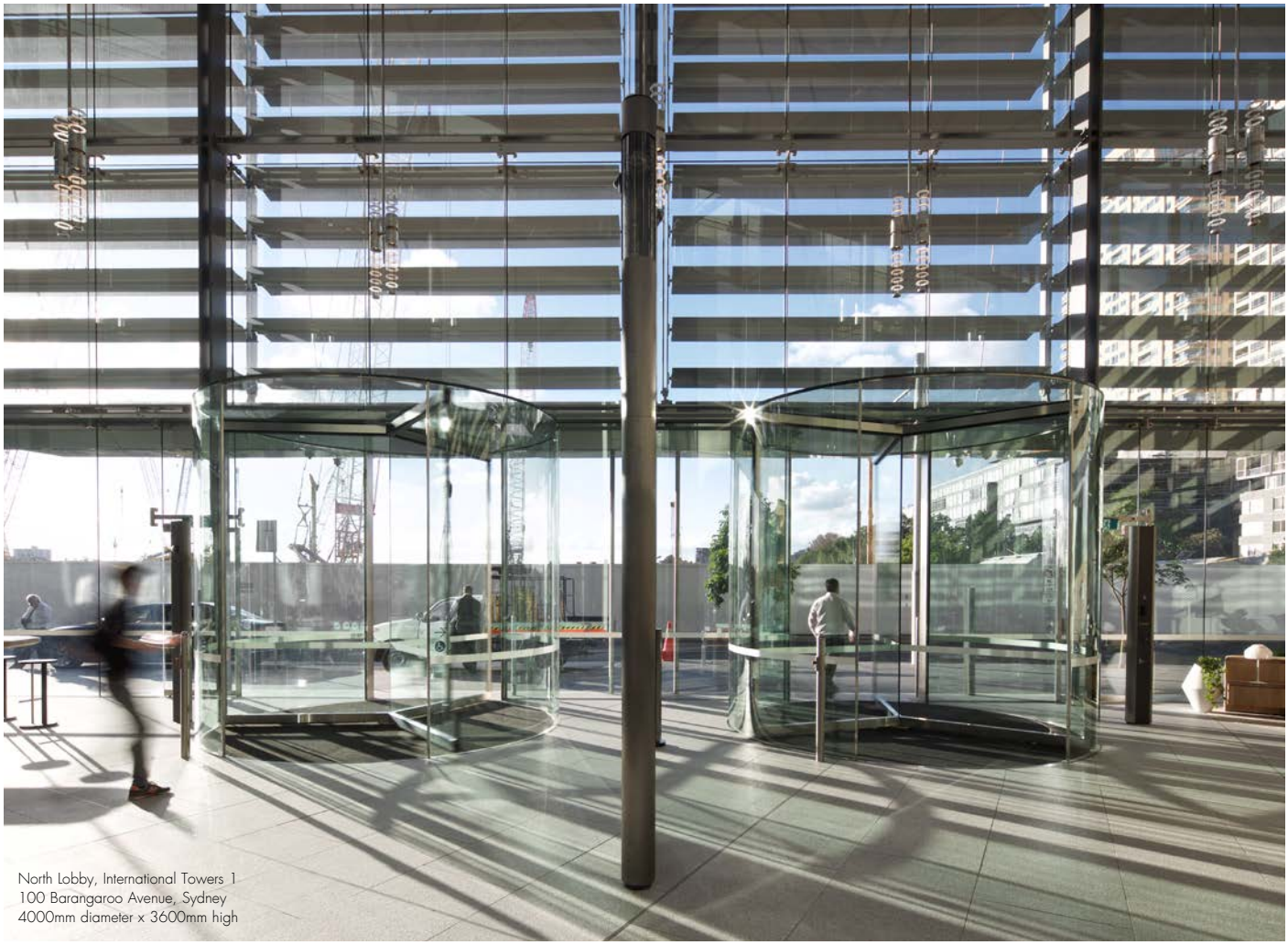


3 WING CAROUSEL



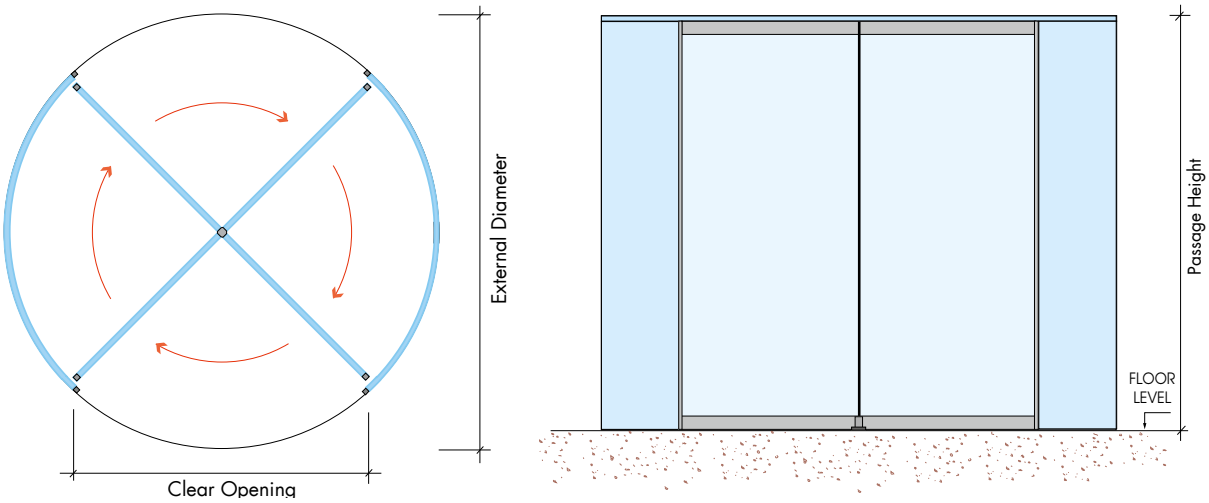
External Diameter	2400	2800	3200	3600	4000
Clear Opening	1200	1400	1600	1800	2000
Passage Height Max	3600	3600	3600	3600	3600

Note: increases in door diameter and height is possible however this would need to be assessed on a project specific basis, with consideration for glass specification, sensor technology and drive motor design.

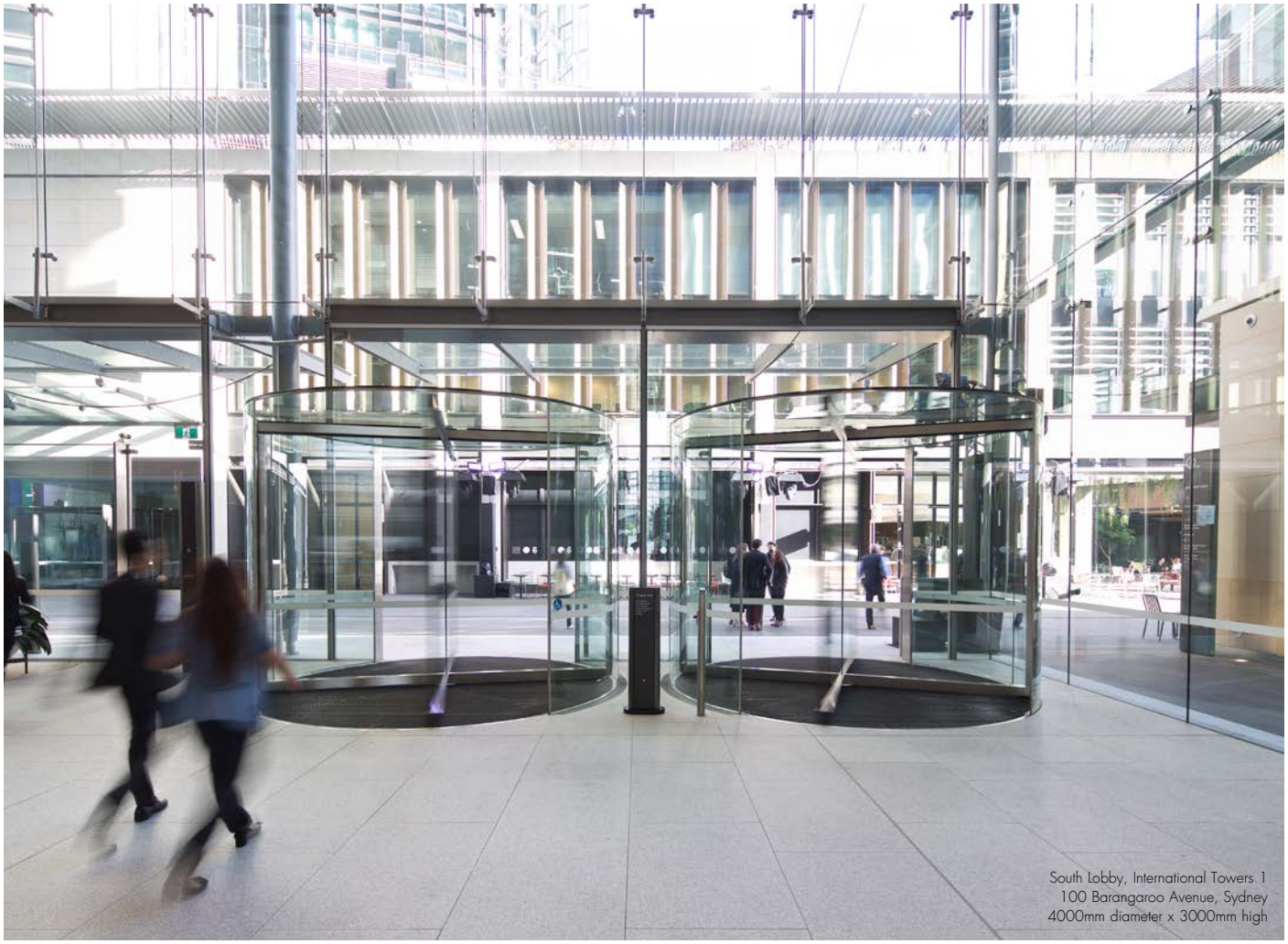


North Lobby, International Towers 1
100 Barangaroo Avenue, Sydney
4000mm diameter x 3600mm high

4 WING CAROUSEL



External Diameter	3000	3200	3600	3800	4000
Clear Opening	2000	2130	2400	2530	2670
Passage Height Max	3600	3600	3400	3200	3000



South Lobby, International Towers 1
100 Barangaroo Avenue, Sydney
4000mm diameter x 3000mm high

STANDARD FEATURES

CLADDING

The protective trims to the curved sidewall edges and door wing cladding pieces can be provided in standard powdercoated or anodised aluminium, or stainless steel in linished, mirror or special coloured finishes.

LOCKING

Electric locking of the carousel is built into the drive wheel to provide a secure entrance at night. This locking is fully concealed and can be activated via the mode key switch or remotely via a signal from the BMS.

DOOR OPERATION

All Diamond Series revolving doors are programmed to operate at a constant run speed during normal operation. Due to the frameless nature of the door, the mounting of radar sensors (for Stop-Run operation) is not possible.

GLASS

All glazing in Diamond Series revolving doors meets the requirements of Australian Standard S1288, with glass specification subject to size and door wing configuration of the door.

The glass to the revolving carousel is 12mm toughened. The glass to the sidewalls is generally 12mm/15mm curved toughened. The glass to the roof is generally 12mm toughened, 17.52mm toughened laminated or 21.52 heat strengthened laminated.

All glass is clear as standard with other options, such as heat soaking, low iron or tinted, available upon request at additional cost.

FLOOR RING

A linished stainless steel floor ring is installed flush with the finished floor level and it incorporates a bottom glazing channel for the sidewall glass panels. This allows the door to be designed without the need for a bottom sidewall rail, increasing it's transparent appearance.

PRESS TO SLOW BUTTON

All revolving doors can be fitted with an illuminated push button that when pressed will slow the door down to half of its normal speed for two revolutions To make the revolving door more safely accessible for wheelchair users and elderly people.

These buttons can be mounted on freestanding bollards or adjacent walls or columns, although because a revolving door cannot be considered a DDA entrance, with alternate swing or sliding door entries required, this button can be deleted, on written instruction from the client.

CONTROL SWITCH PANEL

All record revolving doors are fitted with a stainless steel control switch panel that has a number of features:

A. Mode and Fault Indicator LED's

The 3 indicator LEDs are designed to indicate the current status of the four position mode key switch as well as any fault indications.

The LEDs will either be switched constantly on, slowly flashing or fast flashing and can be in any combination of these to give a particular mode or fault indication.

B. Emergency Stop Button

When the button is pressed the door will stop immediately.

C. Mode Key Switch

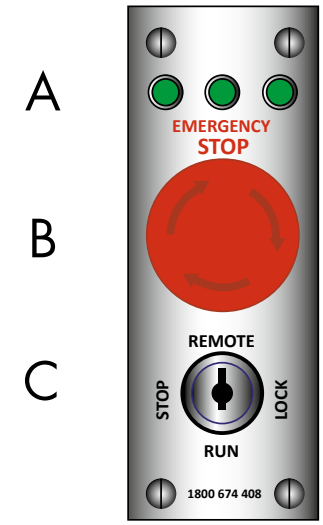
The four position mode switch can have the key removed in any position leaving the door set in that particular operational mode. The functions of the control switch are as follows;

'REMOTE' mode
When connected to a remote security system the door can switch from lock mode to run mode on a programmed basis.

'RUN' mode (automatic operation)
The door will operate automatically and override any remote signals.

'LOCK' mode
The door will rotate to the lock position and automatically lock. This mode will override a signal from a remote security system.

'STOP' mode
The door will stop in the locking position but the door will not lock.



BOLLARD OPTIONS

With no steel support structure, alternative means of mounting the press to slow buttons to both entries, and the emergency stop button on the inside, as required under AS/NZ 5007-2007, is needed.

One option is to have these buttons mounted on nearby columns, walls or shopfront mullions however if this is not possible a half height post can be provided by record, or a freestanding bollard can be custom designed and installed by a specialist company to match other bollards in the project.

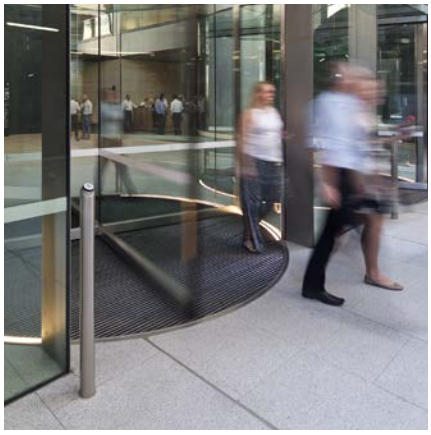
Examples of various options include the following:

HALF HEIGHT SIDEWALL POST (standard)

A 50 x 100 RHS post can be mounted against the glass sidewalls on the left hand side of each entry and clad in aluminium or stainless steel sheeting to match the rest of the revolving door.

TUBULAR BOLLARD

A 75mm diameter tubular bollards, in a linished or mirror stainless steel finish, can be provide by record at additional cost and bolted to the structural slab at a location to suit the project. With this design the press to slow button is mounted on the top of the bollard with the control switch panel on the side.

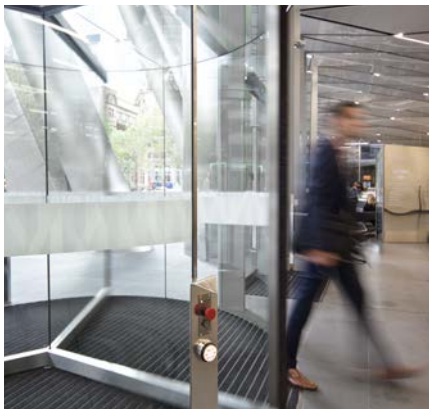


SQUARE SHAPE BOLLARD

A square bollard can provide greater flexibility if a bollard to required to be shared between two Diamond doors, or with adjacent DDA compliant swing door entries.

CUSTOM SHAPE BOLLARD

The bollard design can be customised to suit different architectural styles for the building or to incorporate other design elements, such as signage, speakers and intercoms.



ADJACENT MULLIONS OR FRAMING

To avoid using bollards altogether, the push buttons can be mounted on a nearby wall, mullion or column.

DRIVE MOTOR OPTIONS

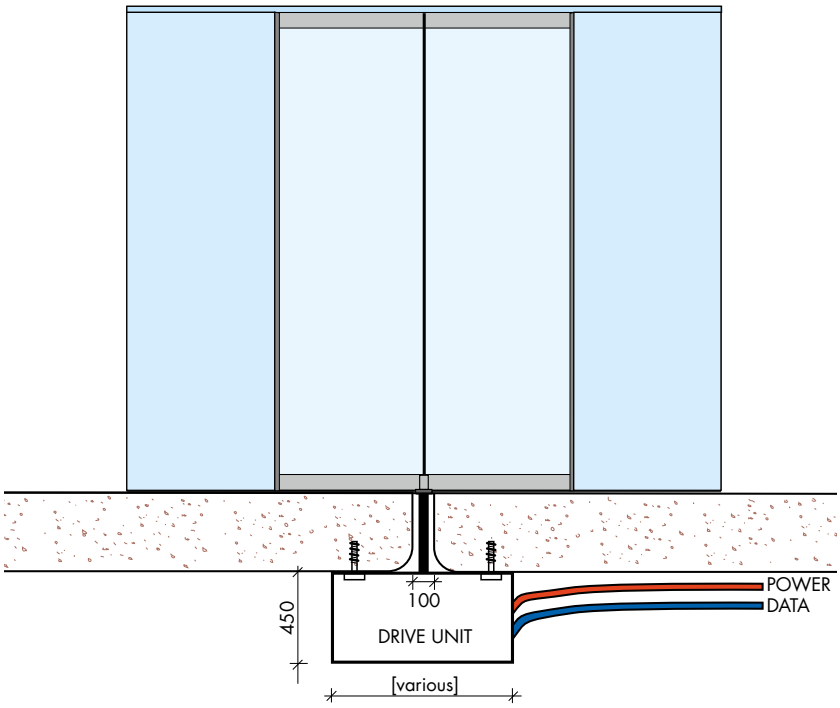
OPTION A - MOUNTED UNDERSIDE OF SLAB

Should the revolving door be located on a suspended slab, with a basement or underground parking below, the preferable option is to mount the drive unit assembly to the underside of this concrete slab with a 100mm diameter core hole drilled in the slab to enable the drive axle of the revolving door to control the door carousel.

A second 75mm core hole will also be required 900mm away for the running of cables from the drive unit to the safety sensors and press to slow buttons.

The minimum required size of the drive enclosure is 1000 x 1400mm (or 1300 x 1700mm for door diameters and/or door heights greater than 3600mm).

Consideration needs to be made of the access requirements for installation of this drive unit, as well as for future servicing and maintenance. Should the height of the floor below be greater than 3 metres, scissor lift access would be required. The ceiling below should also be clear of any obstructions such as ducting, cable trays and pipes.

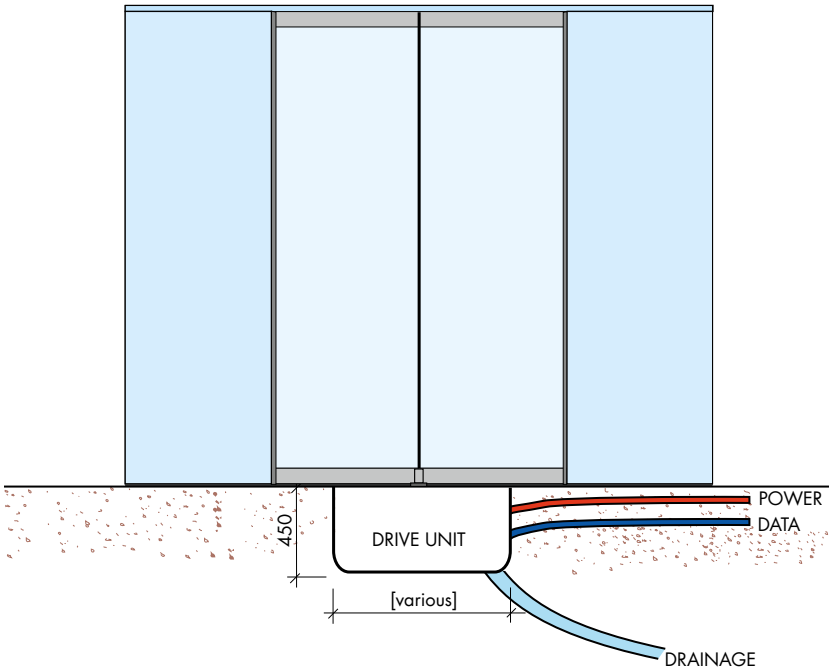


OPTION B - CONTAINED IN A FLOOR PIT

When there is no under slab access, the alternative is to build a pit 1200 x 1200 x 450mm deep (or 1600 x 1600 x 450mm deep for diameters and/or door heights greater than 3600mm) into the concrete slab which will house the drive unit.

Separate conduits will be required to allow power and data cables to be connected to the drive unit, and suitable drainage is recommended should any water penetrate the pit.

A removable floor inside the revolving door is fitted to allow for access to the drive unit for servicing, which is then covered by the selected floor matting.



OPTION C - SLIMLINE DRIVE (sizes below 3000mm)

For smaller Diamond revolving doors we have a new slimline drive system which is housed within a 1300 x 700 x 210mm stainless steel enclosure. This will need to be mounted within a recess at the centre of the door with a removable cover for access to the drive motor provided by record.

Removable floor matting finishes on top of this cover will need to be provided by others, along with provisions for power supply, data cabling and drainage.

CONTROL BOX (by record)

- To provide greater service access, the control box for the revolving door is generally not mounted within the floor pit or to the underside of the control slab. Instead it is recommended that this enclosure is mounted on a wall within a nearby control room or other suitable location, preferably no further than a 25 metre cable run from the motor drive unit.
- The control box enclosure is powdercoated mild steel and is 400mm wide x 500mm high x 200mm deep.
- When mounted the top of the enclosure should be 1800mm above finish floor level.

CABLING & WIRING (by record)

- 2 off 13mm conduits to house leading edge safety sensor cabling.
- To be laid within the matwell to suit specific door installation, before floor topping and mattings are installed.

CABLING & WIRING (by site electrician)

- 2 off conduits are required from the control box to the drive unit. 1 off 25mm conduit to house the motor cable and 1 off 32mm conduit to house the signal cable.
- 2 off 20mm conduits are also required from the drive unit to the press to slow buttons and mode key switch at both sides of the revolving door.

POWER REQUIREMENTS (by site electrician)

- 240VAC 10amp power circuit is required to the control box, where it is connected to a double GPO fitted inside.
- A dedicated circuit is required as the control system may pass up to 20mA to earth due to current leakage of system filters.
- In case of multiple doors, each one must be on its own dedicated circuit.

BUILDING MANAGEMENT SYSTEM CONTROL (by site electrician)

- When the Mode switch is in the REMOTE position the door can be controlled by a BMS signal to enable RUN mode (Day mode) or LOCK mode (night mode).
- The signal must be in the form of an independent, dry, voltage free contact.
- Open the contact to enable Lock mode (night mode). Close the contact to enable Run mode (day mode).
- The BMS signal is to be wired and terminated into the door control box at terminals No. 45 and 46.

Manual Revolving Door

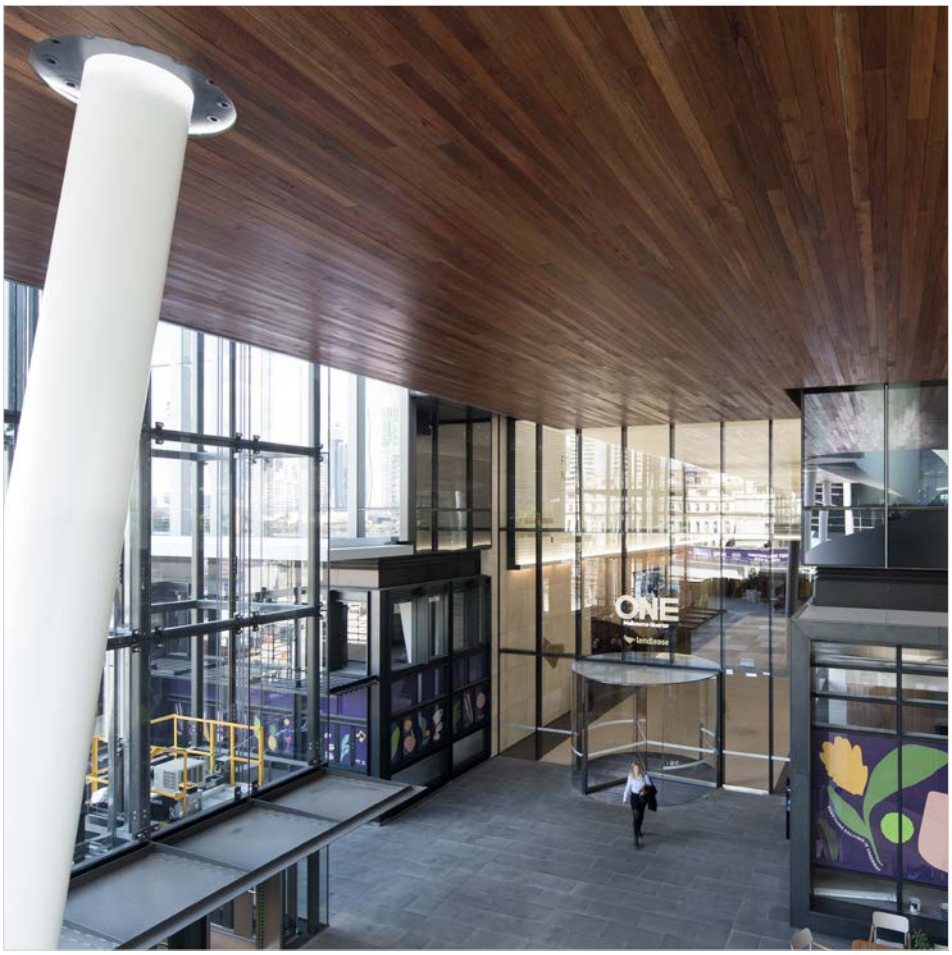
A more cost effective alternative to providing an airlock entry is a manual Diamond Series revolving door which boasts the same full frameless glass construction to the sidewalls and roof, and the same rotating carousel design, but without needing to mount the drive system in the floor and the associated electrical work and servicing requirements.

This type of door design is ideal for low traffic areas or where limited available space restricts the overall size of the door. For smaller entrances, a manually operable revolving door can be more effective as there are no infrared sensors that reduce the usable space within each segment and can slow and stop the door carousel if someone gets too close to the leading door wing.

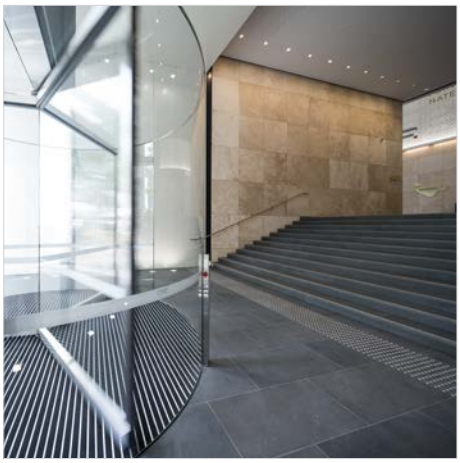
For the revolving doors at Middleman Function Centre & Cafe in Scoresby (pictured right) manual Diamond revolving doors were selected to replace existing automatic swing doors, which were not able to cope with the heavy wind gusts the building was experiencing. The manual Diamond door provides this centre with a functional air lock entrance and a more pleasant internal function space, regardless of the weather conditions.

record Diamond Series
Manual Revolving Door

VIC INSTALLATIONS



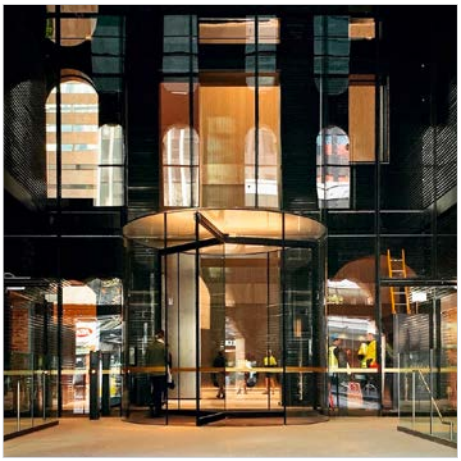
One Melbourne Quarter (Plaza Entry), Docklands



One Melbourne Quarter (Collins St Entry), Docklands

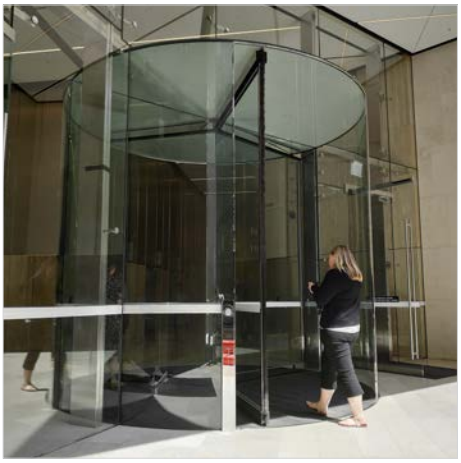
Crown Towers Hotel, Southbank

24-26 Lake Caribbean Boulevard, Scoresby

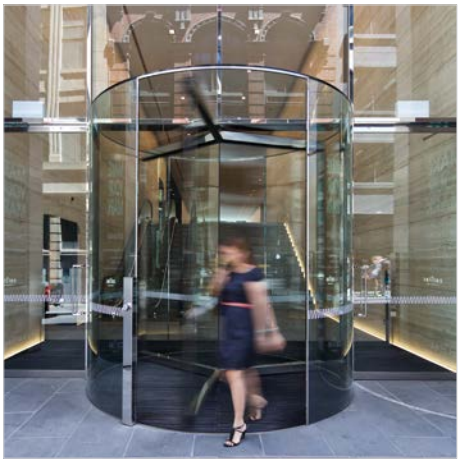


477 Collins Street (Collins St Entry), Melbourne

567 Collins Street, Melbourne



80 Collins Street, Melbourne



171 Collins Street (Flinders Lane), Melbourne

31 Dalmore Drive (Ground Floor), Scoresby

10 Lakeview Drive, Scoresby

31 Dalmore Drive (Lower Ground Floor), Scoresby

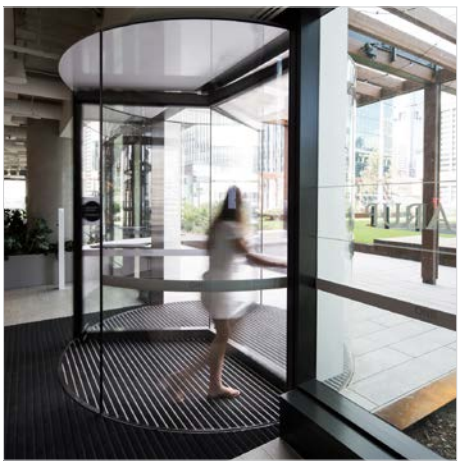
Walter & Eliza Hall Institute, Parkville

839 Collins Street, Docklands

360 Collins Street, Melbourne

477 Collins Street (Flinders Lane Entry), Melbourne

171 Collins Street (Collins St Entry), Melbourne



One Melbourne Quarter (Level 2 Entry), Docklands

Middleman Cafe & Function Centre, Scoresby

NSW INSTALLATIONS

One Farrer Place (West Entry) Sydney

Commonwealth Bank Place (South Tower), Sydney

Commonwealth Bank Place (North Tower), Sydney

Australian Technology Park, Eveleigh

4 Parramatta Square, Parramatta

259 George Street, Sydney

Commonwealth Bank Darling Square, Sydney

International Towers One (North Lobby), Sydney

George Place (363 George Street Entry), Sydney

200 George Street, Sydney

International Towers One (South Lobby), Sydney

George Place (345 George Street Entry), Sydney

International Towers Two (Site Through Link), Sydney

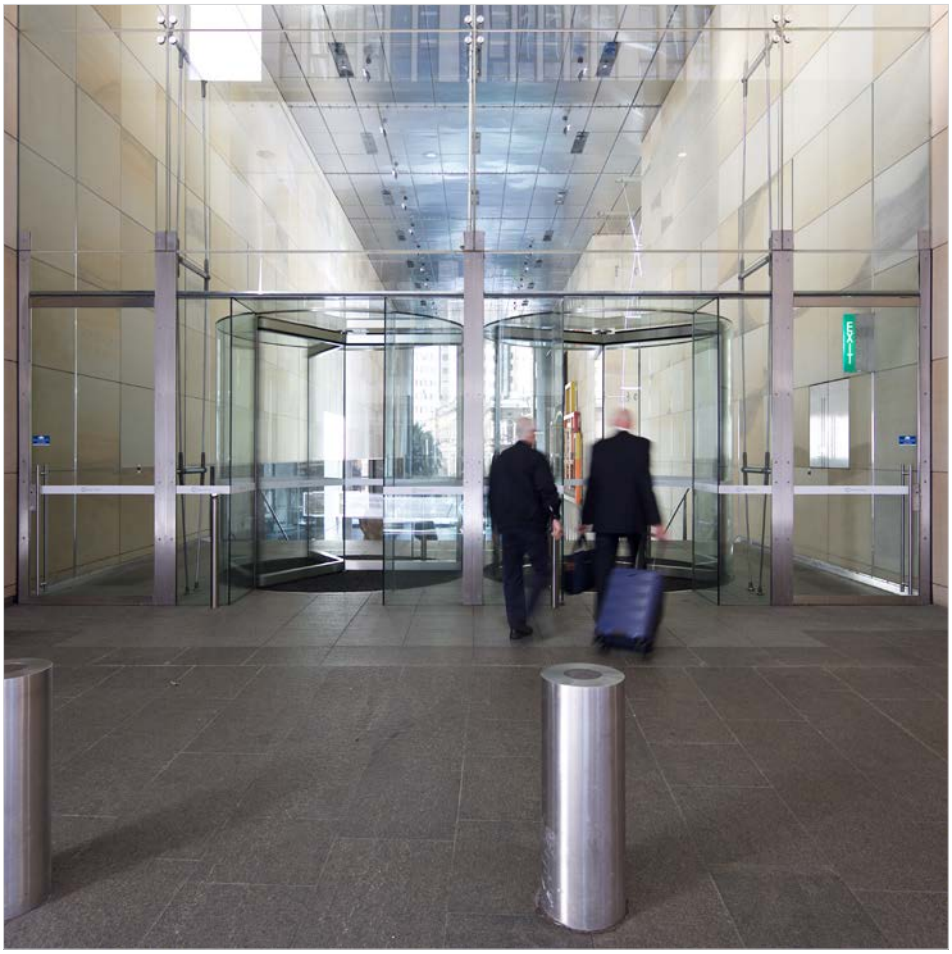
2 Parramatta Square (Main Entry), Parramatta

5 Rider Boulevard, Rhodes

2 Parramatta Square (Rear Entry), Parramatta

International Towers Two, Sydney

International Towers Three (North Lobby), Sydney



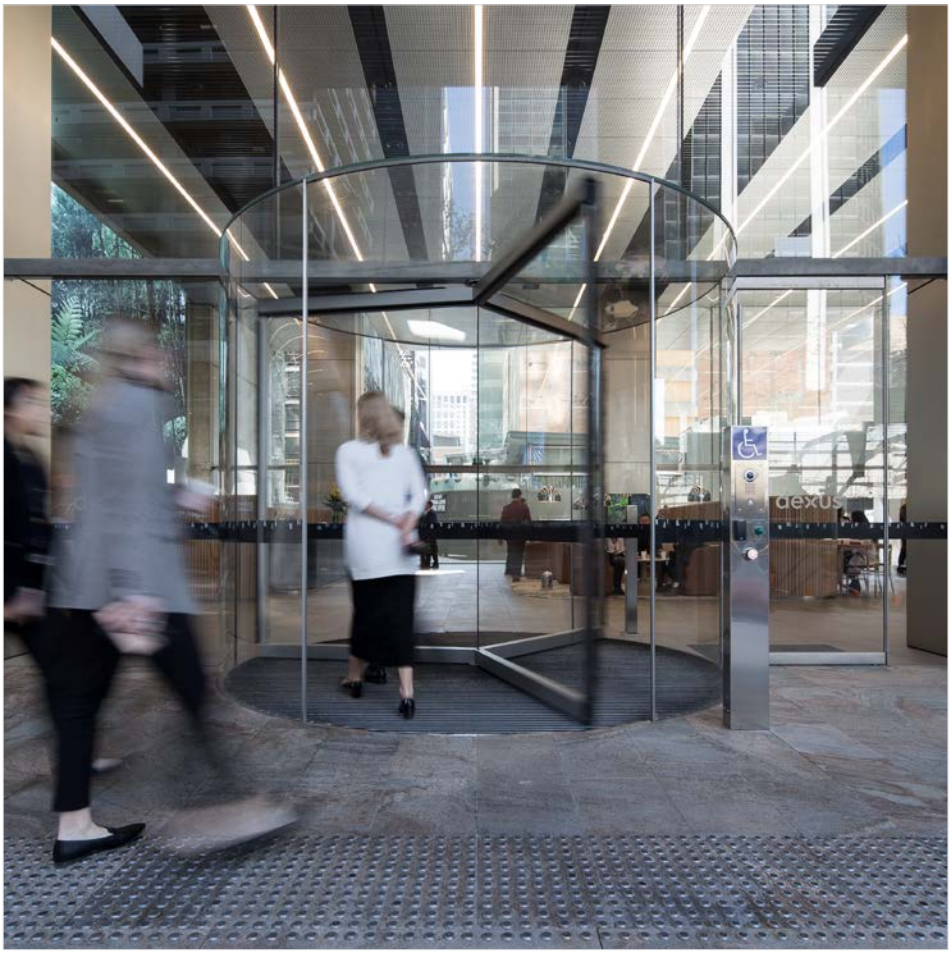
One Farrer Place (East Entry), Sydney

NSW INSTALLATIONS

60 Martin Place (Martin Place Entry), Sydney

60 Martin Place (Macquarie Street Entry), Sydney

The Branksome Apartments, Mascot



100 Mount Street, North Sydney

International Tower Three (South Lobby), Sydney

1 Sussex Street, Sydney

Sovereign at The Star (Outdoor Gaming), Pyrmont

Sovereign at The Star (Outdoor Garden), Pyrmont

WA/SA INSTALLATIONS

Brookfield Place Tower 2 (West Entry), Perth

Brookfield Place Tower 2, Perth

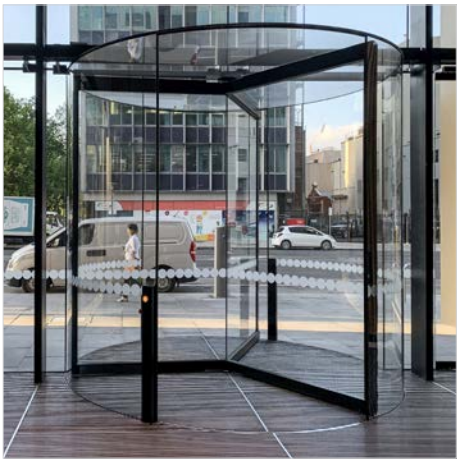
200 St Georges Terrace, Perth

Exchange Tower, Perth

Central Park, Perth

St Georges Square, Perth

Brookfield Place, Perth



GPO Tower, Adelaide

Contact

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