

BATOR FOUR-FOLD DOOR CONCEPT

Details & Options

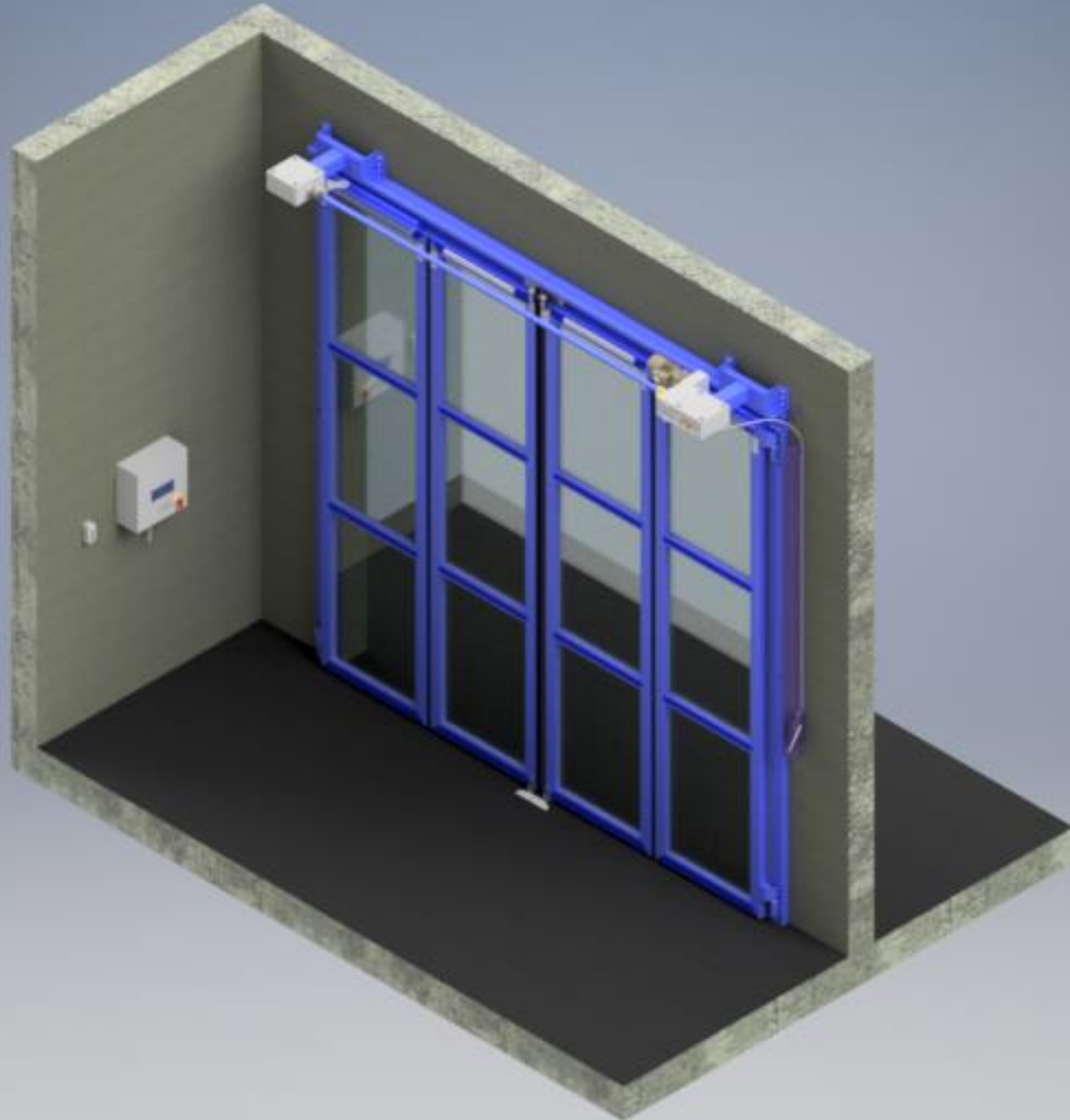


Worldwide over 18,000 installations
Proven Door Systems
since 1956

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BATOR FOUR-FOLD DOOR DIMENSION

CLASSIC



Maximum Dimension

(w) 20' x (h) 26'

Minimum Dimension

(w) 12' x (h) 7'

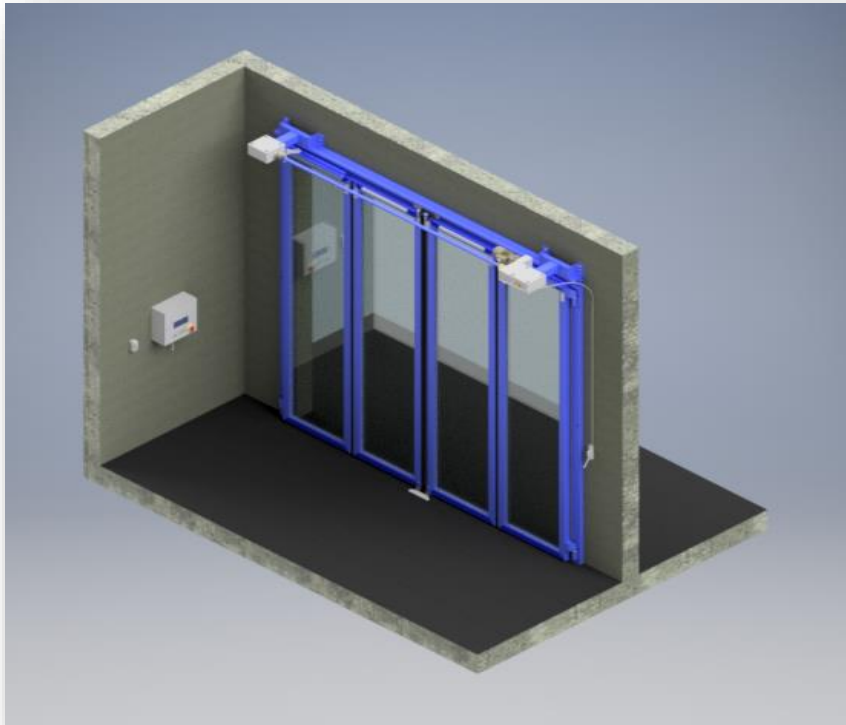
Mounting

Interior side

Exterior side w/ weatherhood

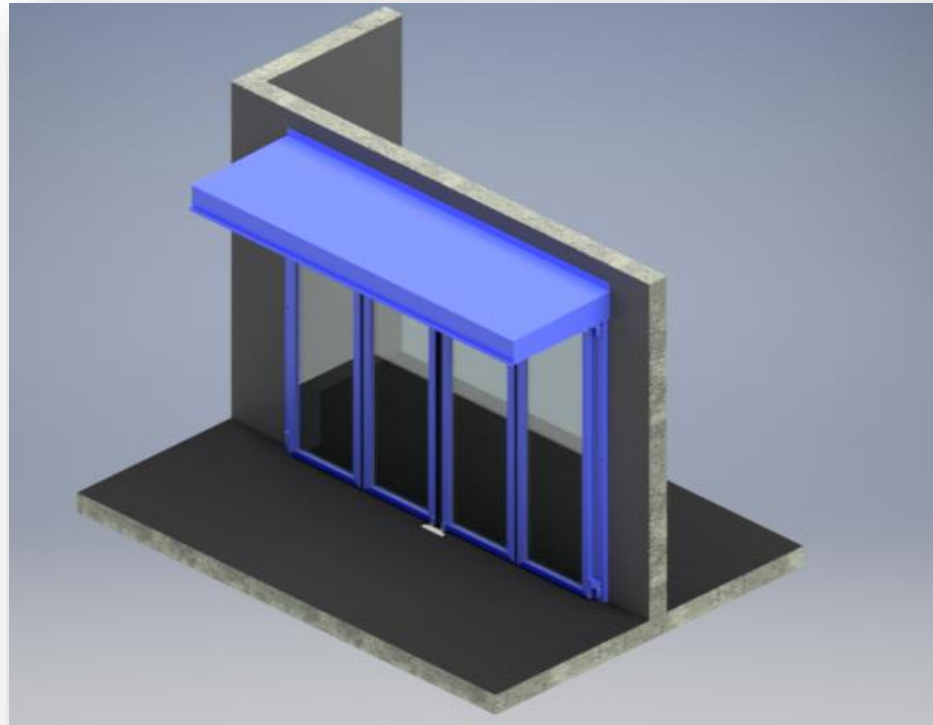
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INTERIOR / EXTERIOR MOUNTED



Interior Mounted

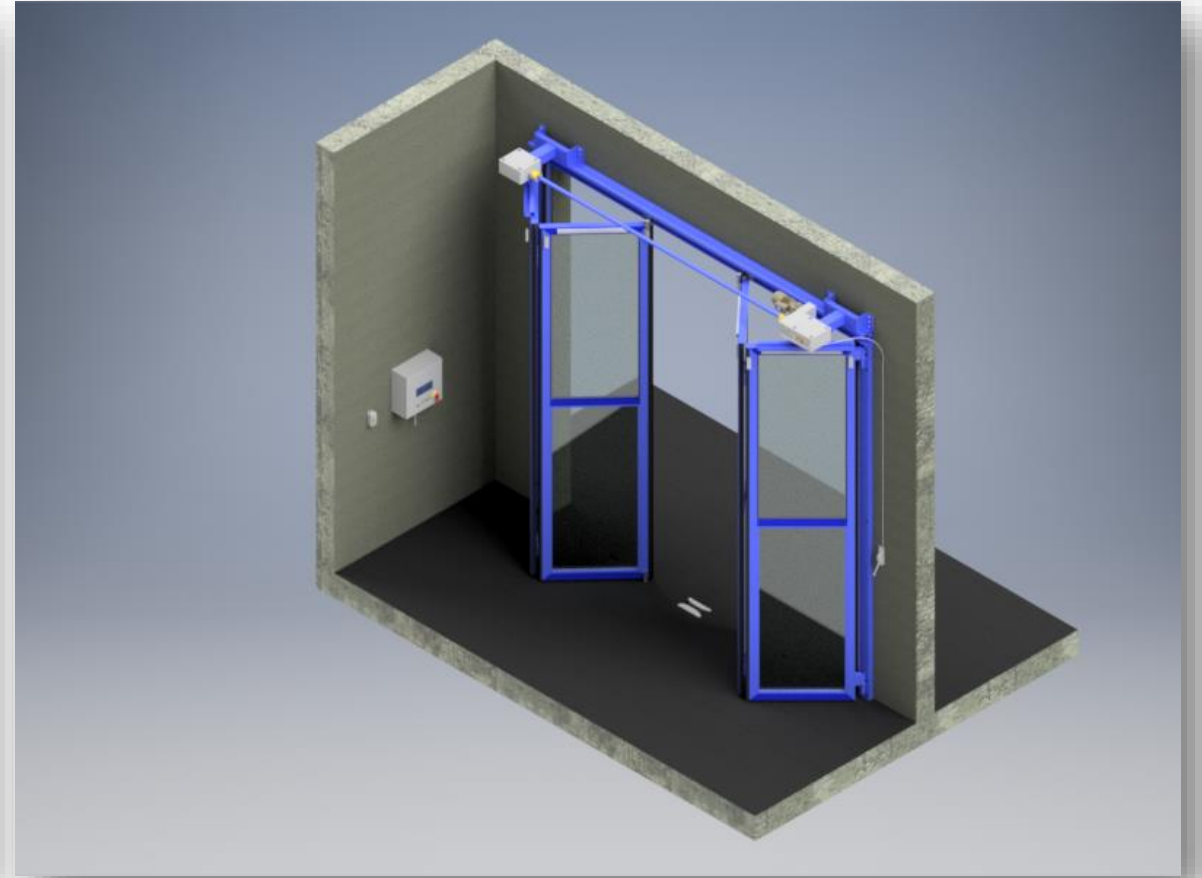
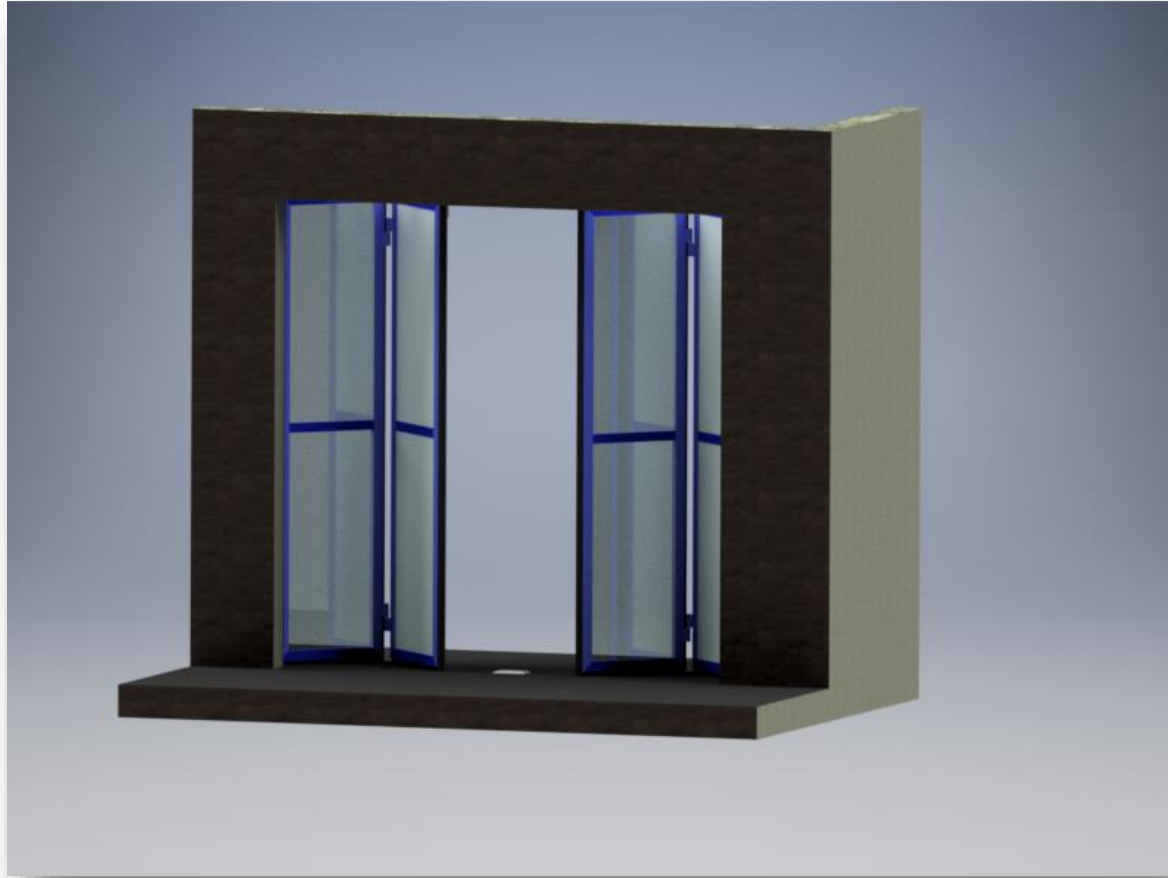
Door mounted on **interior side** of the building and opens inside.



Exterior Mounted

Door mounted on **exterior side** of the building and opens outside. **Weatherhood** for protection of the drive system required.

EXTERIOR / INTERIOR VIEW



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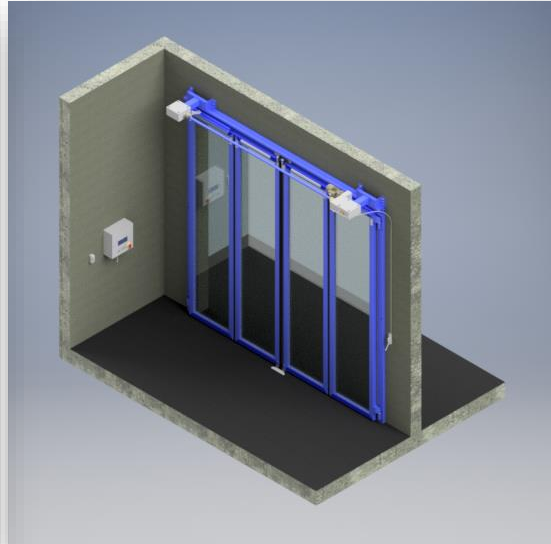
FLEXIBLE INFILLS

4 TYPES OF COATING AVAILABLE



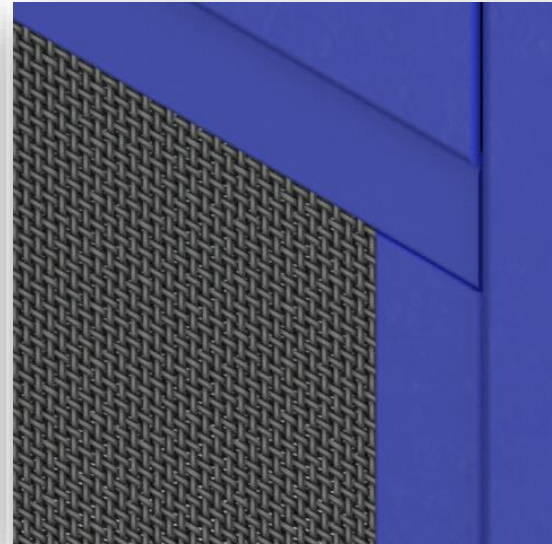
INSULATED PANELS

Partial or 100% infill with insulated panels. Factory-Imperial U-value of the entire door system: **0.32 BTU/h·ft²·F**



GLAZING

Partial or 100% infill with insulated **safety glass sheets**. Imperial U-value of the entire door system: **0.32 BTU/h·ft²·F**



EXPANDED METAL

Cladding or infill with **expanded metal sheets**.



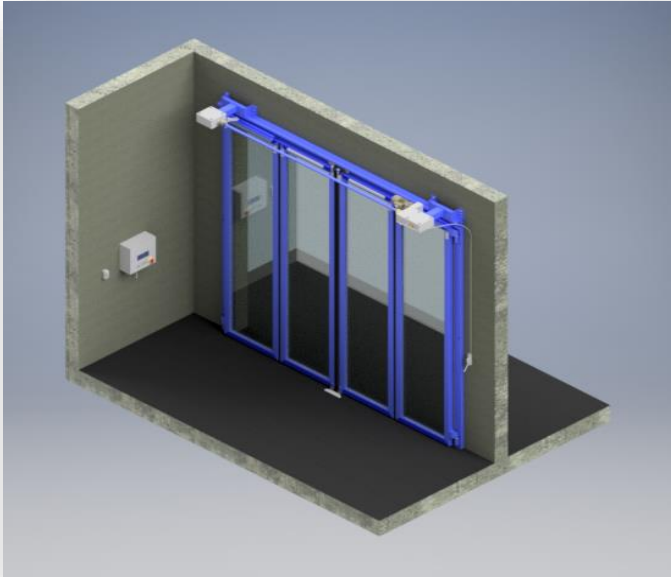
PERFORATED SHEETS

Cladding or infill with **perforated steel or aluminum sheets**

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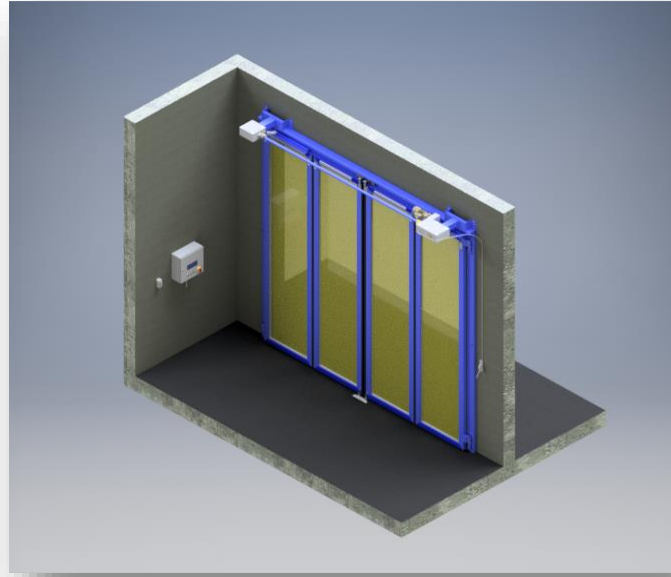
GLAZING

FACTORY-GLAZED OPTIONS



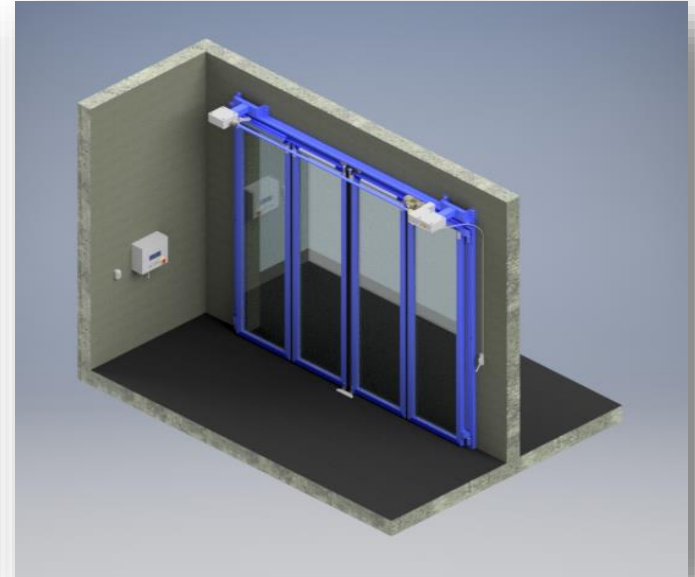
Safety Glazing

1" thick sealed (R=5.7) glazing units made from clear tempered glass



Tinted Glazing

1" thick sealed (R=5.7) glazing units made from tinted tempered glass

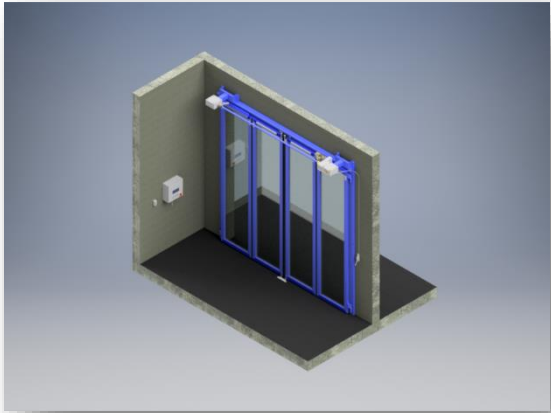


Hurricane Glazing

1-1/2" thick sealed (R=5.7) Hurricane Senti-glazing units made from tempered glass

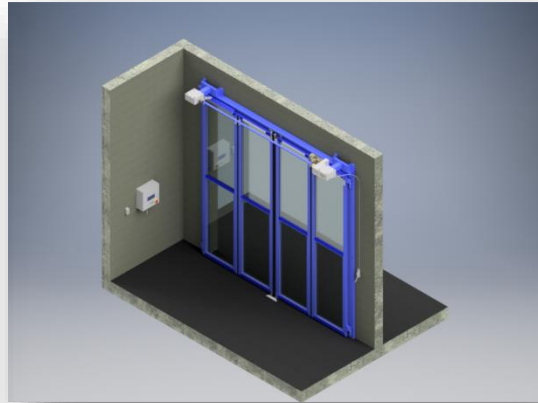
PANEL DIVISION

FACTORY-GLAZED OPTIONS



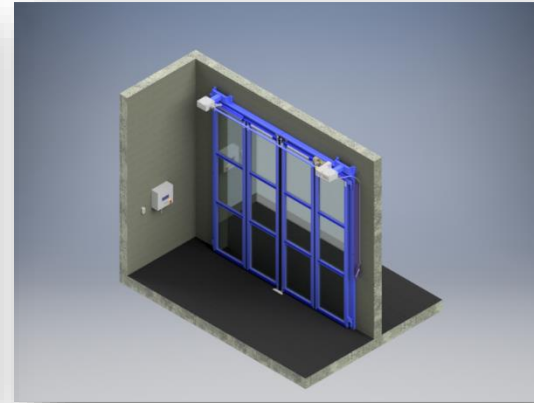
SINGLE GLASS PER PANEL

Factory installed glass sheets and wet silicone sealed on both sides



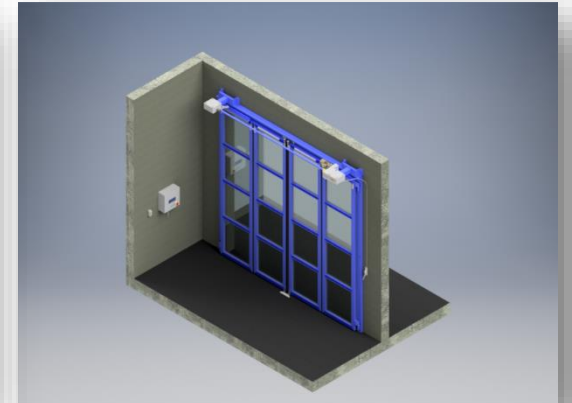
TWO GLASSES PER PANEL

Factory installed glass sheets and wet silicone sealed on both sides



THREE GLASSES PER PANEL

Factory installed glass sheets and wet silicone sealed on both sides




FOUR GLASSES PER PANEL

Factory installed glass sheets and wet silicone sealed on both sides

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HVHZ – HURRICANE RATED FOUR-FOLD DOOR - CERTIFICATES



BUILDING DROPS
A Perfect Solution in Every Drop!
Certificate of Authorization: 29576

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954.744.4738 FX
contact@buildingdrops.com

Product Evaluation Report

of

**Bator North America LLC,
Bator Hurricane Four Fold Door
Steel Bi-Folding Door**

for

**Florida Product Approval
FL# 28451**

Report No. 5907

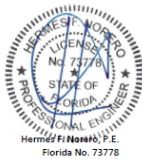
Current Florida Building Code

Method: 1 – A (Certificate Method)
Category: Exterior Doors
Sub – Category: Sectional Exterior Door Assemblies

Product: Bator Hurricane Four Fold Door
Material: Steel
Product Dimensions: See Installation Instructions BNA001

Prepared for:
Bator North America LLC
1451 S. Elm-Eugene St, Suite 2211
Greensboro, NC, 27401

Prepared by:
Hermes F. Norero, P.E.
Florida Professional Engineer # 73778
Date: 11/20/2018



Hermes F. Norero, P.E.
Florida No. 73778

Contents: Pages 1 – 3
Evaluation Report

Digitally signed by Hermes F. Norero, P.E.
Reason: I am approving this document
Date: 2018.12.12 12:11:27 -0500

NOTICE OF PRODUCT CERTIFICATION



CERTIFICATION NO: NI014182-R2
DATE: 08/21/2018
CERTIFICATION PROGRAM: Structural
COMPANY: Bator
CODE: 2452-1
DATE: 12/12/2018

To verify that the "Notice of Product Certification" is valid, please visit www.NAMICertification.com to assure that the product is active and currently listed. This certification represents product conformity to the applicable specification and that certification criteria has been satisfied. A NAMI approved certification label must be applied to the product to claim certification status. Please review and advise NAMI if any corrections are required to this document.

COMPANY NAME AND ADDRESS	PRODUCT DESCRIPTION
Bator North America, LLC 1451 S. Elm-Eugene Street, Suite 2211 Greensboro, NC 27406	Series "Bator Hurricane Four Fold Door" Steel Bi-Folding Door Assembly Configuration: XXXXX Glazing: IG-1/4" Tempered Glass/1/4" Heat Strengthened Glass/0.090" DuPont Sentry-Glass Interlayer/1/4" Heat Strengthened Glass Frame: W-4807mm(189.25") H-4877mm(192") Panel: W-1045mm(41.13") H-4832mm(190.25") DLO: W-838mm(33") H-1473mm(58")

SPECIFICATION	PRODUCT RATING
TAS 201-94 TAS 202-94 (Structural Only) TAS 203-94	Design Pressure: ±5746 Pa (120 psf) Large Missile Impact Rated

Product Tested By: Underwriters Laboratories, LLC
Report No: SV30749-20180601
Expiration Date: May 31, 2022

Administrator's Signature: 

**NATIONAL ACCREDITATION AND
MANAGEMENT INSTITUTE, INC.**
4794 George Washington Memorial Highway
Hayes, VA 23072
Tel: (804) 684-5124
Fax: (804) 684-5122

TDI | Texas Department
of Insurance
PO Box 149104 | Austin, TX 78714 | 1-800-578-4677 | tdi.texas.gov

Product Evaluation
Engineering Services Program

DR1075 | 0120

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at 800-248-6032.

Evaluation ID: DR-1075

Product Name: Series "Bator Hurricane Four Fold Door" Steel Glazed Bi-Folding Door, Impact Resistant

Manufacturer: Bator North America, LLC
1451 South Elm-Eugene Street, Ste. 2211
Greensboro, NC 27406
(336) 209-9485

Effective Date: January 1, 2020
Re-evaluation Date: May 2022

General Description:

System	Description	Label Rating	Drawing Number
1	Series "Bator Hurricane Four Fold Door" Steel Bi-Folding Door (XXXX)	+120 / -120 psf Large Missile Rated	BNA002

Component Dimensions:

System	Overall Size	Panel Size	Maximum Daylight Opening Size
1	189-1/4" x 192"	41-1/8" x 190-1/4" (4)	33" x 58"

1 / 2

Registered Code
FL# 28451

Miami Dade
Large Missile Rated
+120 / -120 psf (DP)



BATOR FOUR-FOLD SERIES

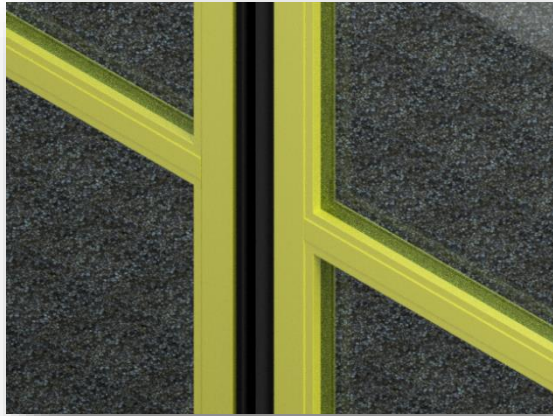
13 MODELS AVAILABLE

LINE	MODEL #	SECTION THICKNESS	OPERATION	MOUNT	PROTECTION	WIND LOAD	OPENING
CLASSIC	AFFD158	1-5/8"	Electric	Interior		25 psf	Max Width 18'-4" Max Height 14'-9"
	AFFD158E	1-5/8"	Electric	Exterior	Weatherhood required		
	MFFD158H	1-5/8"	Hydro-Pneumatic	Interior			
	MFFD158	1-5/8"	Manual	Interior			
	MFFD158E	1-5/8"	Manual	Exterior			
	AFFD238	2-3/8"	Electric	Interior		35 psf	Max Width 18'-4" Max Height 14'-9"
	AFFD238E	2-3/8"	Electric	Exterior	Weatherhood required		
	AFFD238H	2-3/8"	Hydro-Pneumatic	Exterior	Weatherhood required		
	MFFD238	2-3/8"	Manual	Interior			
	MFFD238E	2-3/8"	Manual	Exterior	Weatherhood required		
HURRICANE CERTIFIED	AFFD400	4"	Electric	Interior		120 psf (Design pressure)	Max Width 14'-0" Max Height 16'-0"
	AFFD400E	4"	Electric	Exterior	Weatherhood required		
	AFFD400H	4"	Hydro-Pneumatic	Interior			



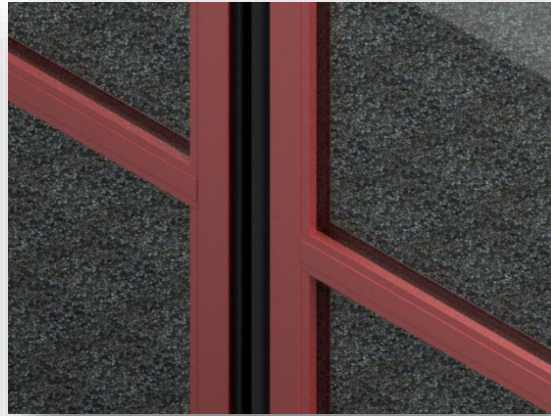
COLOR & TREATMENT OPTIONS

4 TYPES OF COATING AVAILABLE



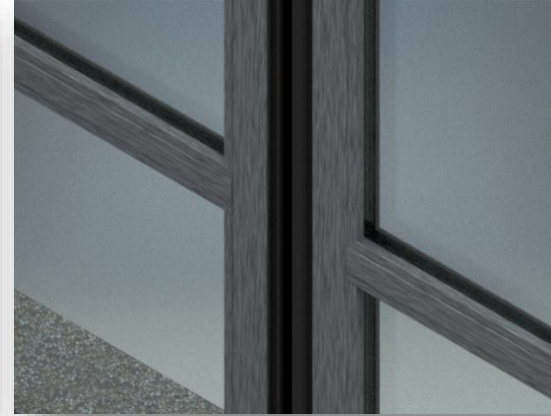
LIQUID PAINT

Factory installed pinch resistant between sections seals, perimeter and between sections weather stripping
RAL, PPG or SW at customer's choice



POWDER COATING

Factory-applied **powder coating**; primer coated min. 80 μm and powder-coating min. 60 μm
RAL, PPG or SW at customer's choice



HOT-DIP GALVANIZING (HDG)

Hot-dip galvanization for increased protection against corrosion; min. 60 μm
No color applied



DUPLEX TREATMENT HDG + POWDER COAT

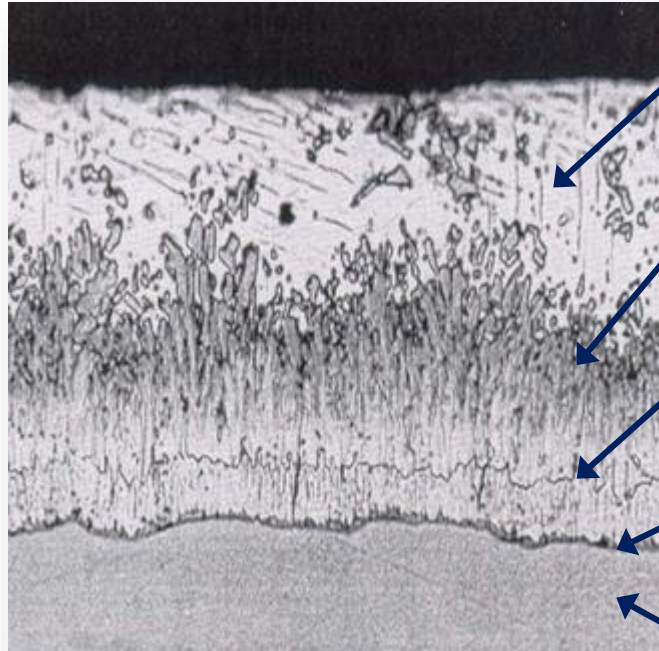
Duplex Treatment (Hot-dip galvanization and powder-coating); min. 185 μm
RAL, PPG or SW at customer's choice

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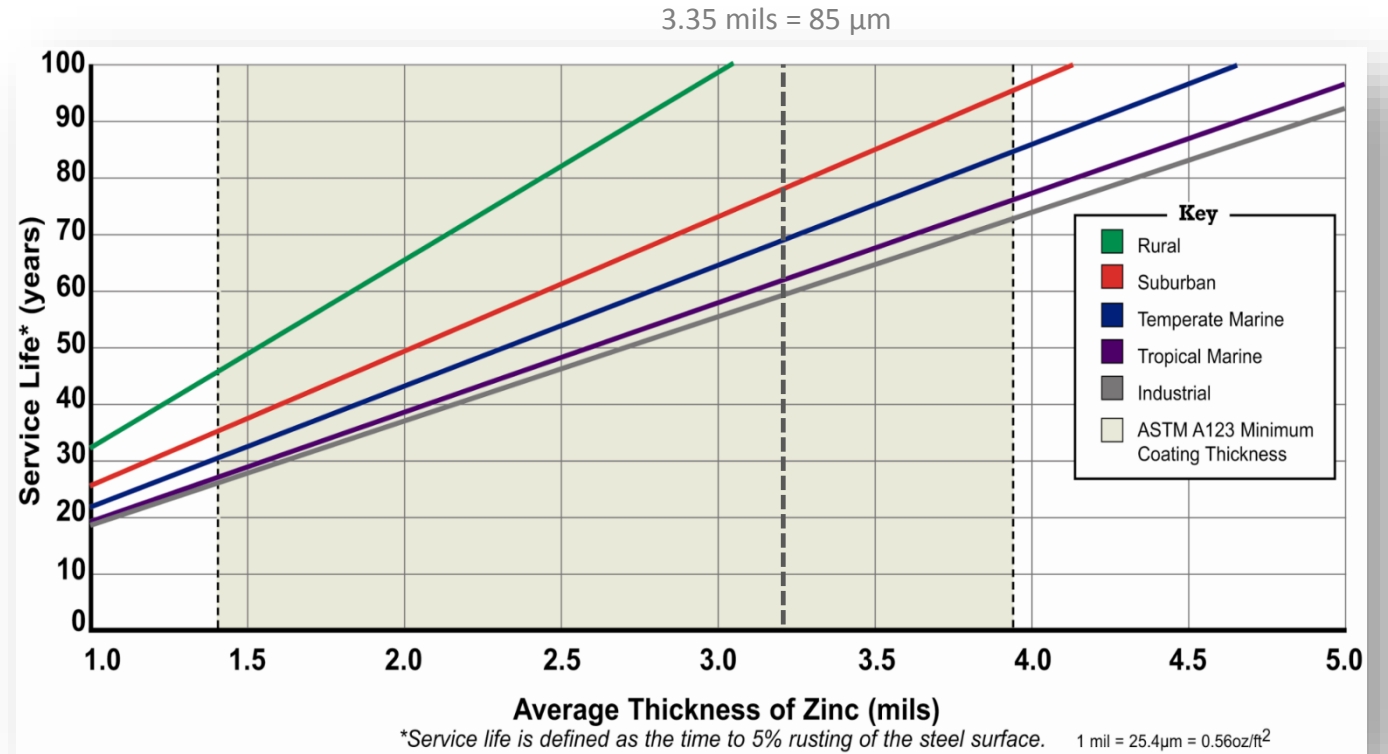
HOT-DIP GALVANIZATION (HDG)

Make and Life Expectancy

Microscopic view



- Eta**
(100% Zn)
70 DPN Hardness
- Zeta**
(94% Zn 6% Fe)
179 DPN Hardness
- Delta**
(90% Zn 10% Fe)
244 DPN Hardness
- Gamma**
(75% Zn, 25% Fe)
250 DPN Hardness
- Base Steel**
159 DPN Hardness



COATING METHODS COMPARISON

	Advantages	Disadvantages
LIQUID PAINT	<ul style="list-style-type: none">▪ Shop or Field applied▪ Repairs match▪ Lower initial costs	<ul style="list-style-type: none">▪ VOC's▪ Quality Control (contamination, film thickness, cure)▪ Shorter life
POWDER COATING	<ul style="list-style-type: none">▪ No VOC's▪ Quality control▪ Adhesion	<ul style="list-style-type: none">▪ Doesn't fill crevices▪ Castings▪ Field repairs
HOT-DIP GLAVANIZING (HDG)	<ul style="list-style-type: none">▪ Metallurgical bond▪ Durable▪ Interior protection (tube, pipe)	<ul style="list-style-type: none">▪ Venting / Drainage▪ Crevices▪ Deformation▪ Field welds
DUPLEX TREATMENT (HDG + POWDER COAT)	<ul style="list-style-type: none">▪ Service of life▪ Color Choice▪ Smooth finish	<ul style="list-style-type: none">▪ Higher initial costs

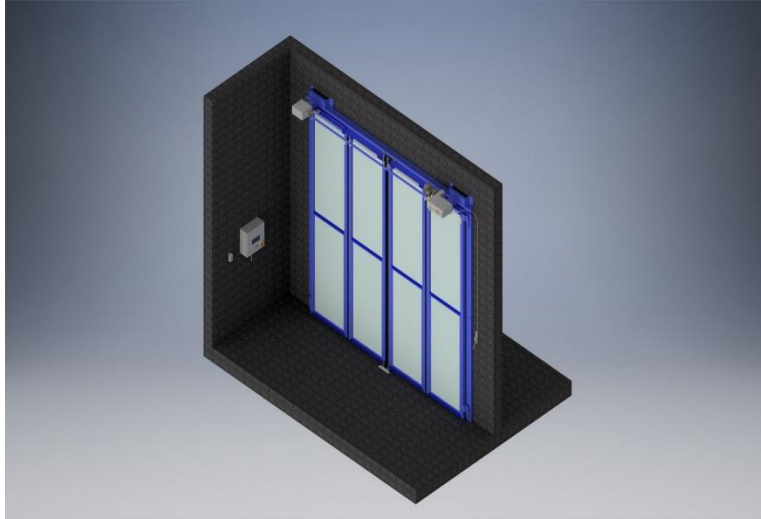
COATING SYSTEM LIFE (YEARS)*

	LIQUID (new)	LIQUID (maintenance)	POWDER	HDG	DUPLEX
Marine	15-25	10-20	15-25	25-40	40-60
Wet Environment	25-35	20-30	25-35	30-50	50-70
Dry Environment	35+	30+	35+	75+	50-100

* Approximate time until corrosion at defects affect structural integrity. Aesthetics may reduce life.

DRIVE SYSTEMS

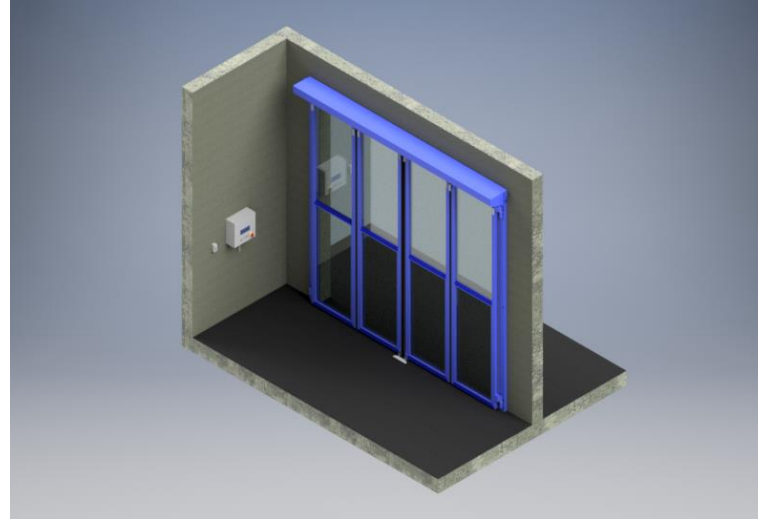
3 OPTIONS AVAILABLE



ELECTROMECHANICAL DRIVE

Overhead mount electromechanical synchronous drive consisting of electric 230 V AC, 60 Hz motor coupled to gear reducer, cross header shaft coupled to control arms, top guide and trolleys.

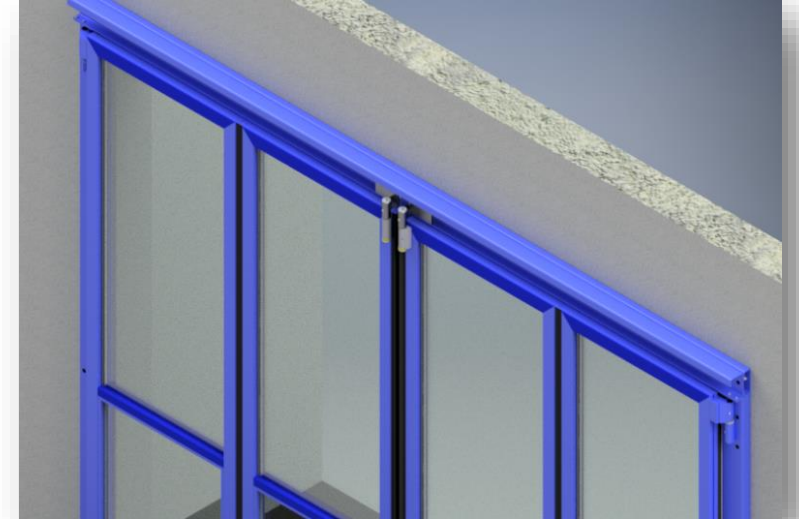
Feeding power options: 120VAC Single Phase, 208VAC Single Phase, 208 / 230VAC 3-Phase



HYDROPNEUMATIC DRIVE

Overhead mount Hydro-Pneumatic Synchronous Drive consisting of piston system, top guide and trolleys.

Feeding power options: 120VAC Single Phase, 208VAC Single Phase, 208 / 230VAC 3-Phase.
Requires pressurized air of approx. 90 psi (compressor not included)

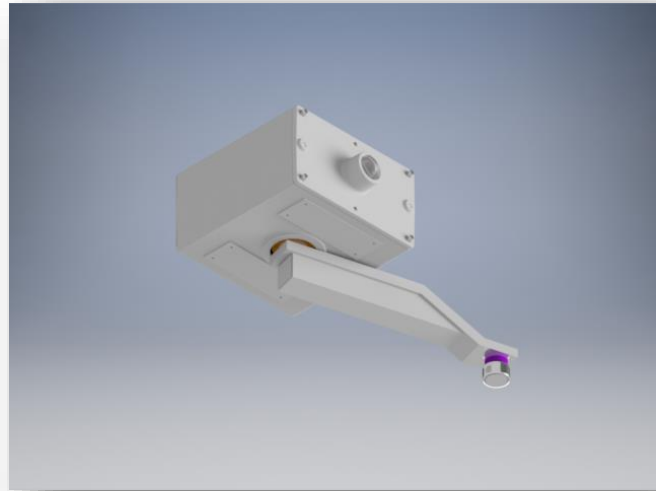
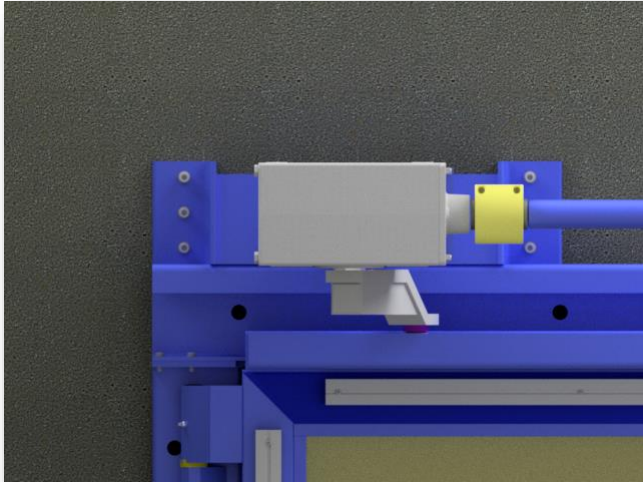


MANUALLY OPERATED

2 lock bars for manual operation
No power required

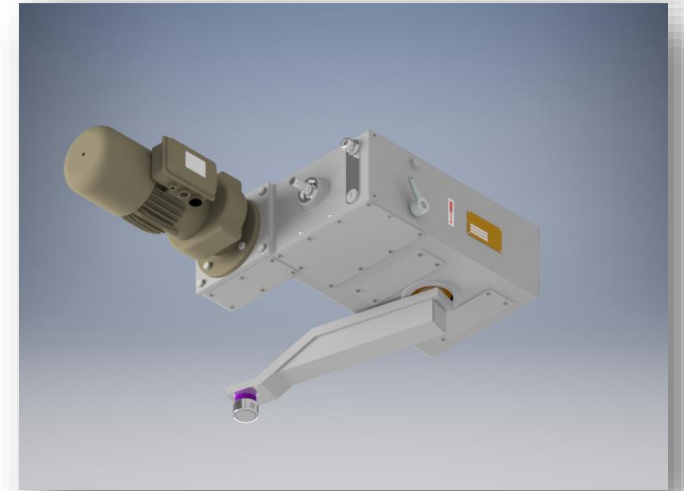
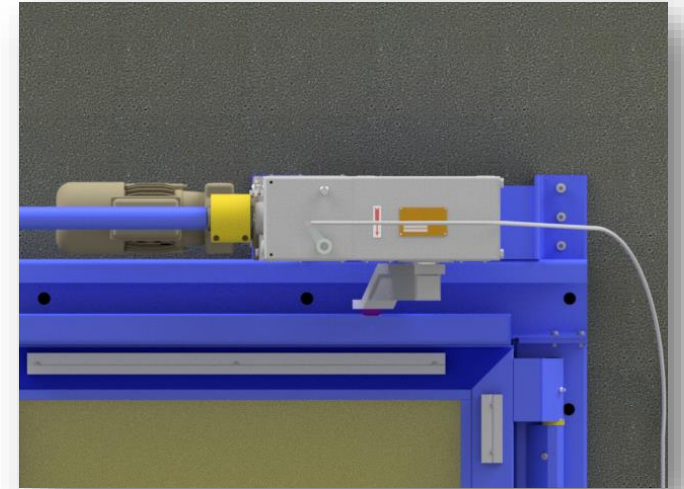
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BATOR ELECTROMECHANICAL DRIVE SYSTEM



MOTOR DRIVE SYSTEM

- **0.36W 230V AC UL drive engine** including gear box with arm. Controlled by frequency converter (Powerflex)
- **Counter-gearbox** with arm on the opposite side.
- **Gear rod** connecting both components
- **Motor release** at man's height
- Release and reconnect of motor at any door position within 1 second possible.
- Pre-assembled, fast and easy installation
- Very robust and reliable system
- Maintenance-free



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CONTROL UNIT FEATURES

VERSATILE & PACKED WITH A LOT OF EXTRAS



Auto / Manual

Activate / Deactivate auto-close function

Panel

parameters and mode setting, state control, error messages, statistics

Push Buttons on Control Unit

Activates door opening, closing and stop

On-Off Switch

Main switch

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PUSH BUTTON PAD

ROBUST AND RELIABLE



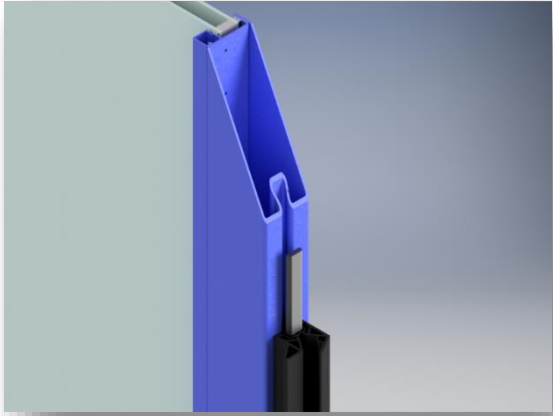
Push Button Pad
3-button system
Open, Stop, Close

NEMA-4 rated

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SAFETY FEATURES

FOUR SAFETY FEATURES



Safety Edges

Factory-applied **Main Safety Edges** are reversing movement of the closing door when detecting an obstacle.

Basic Feature, included



Photo eye

Set of **active photo eye** incorporated in door posts are checking clearance before and during door closure.

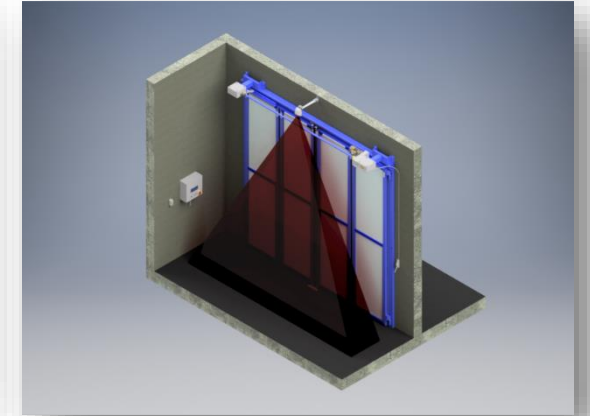
Basic Feature, included



Flatscan

ON both outer panels the **flatscans** are detecting obstacles during opening movement of the door and reverse.

Optional Feature



Presence sensor

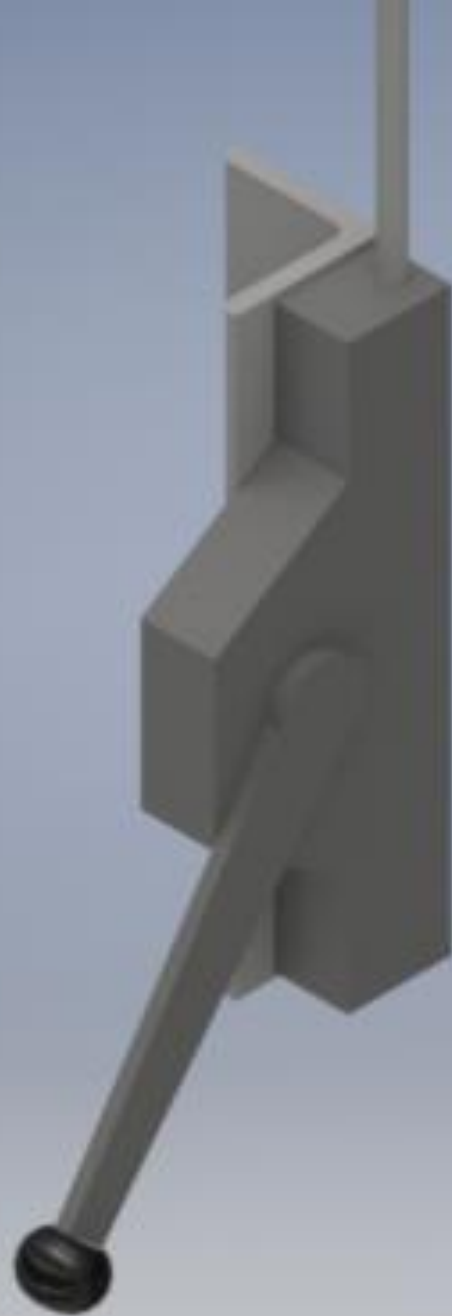
The **presence sensor** installed above the top center of the door verifies the clearance in front of the door before and during each movement (opening / closing).

Optional Feature

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DOOR DISENGAGER

MOTOR DISENGAGER



MOTOR DISENGAGER

In case of power failure, door can be disengaged and re-engaged at any position **within 1 second**.

During loss of power, door is manually operable and lockable.

Re-engaging at man's height within **1 second** in every door position.

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OPTIONAL FEATURES

PLENTY OF FEATURES

REMOTE RECEIVER & HAND SENDER

Single Button or 3-button hand sender

SONOR SIGNAL

KEY SWITCH

CLOSE ON EXIT FUNCTION

Door closes automatically after the vehicle passed the opening

EMERGENCY BUTTON

Single button opens all doors simultaneously

FLASH LIGHT



Traffic Lights

DETECTION LOOP

ACCESS CONTROL

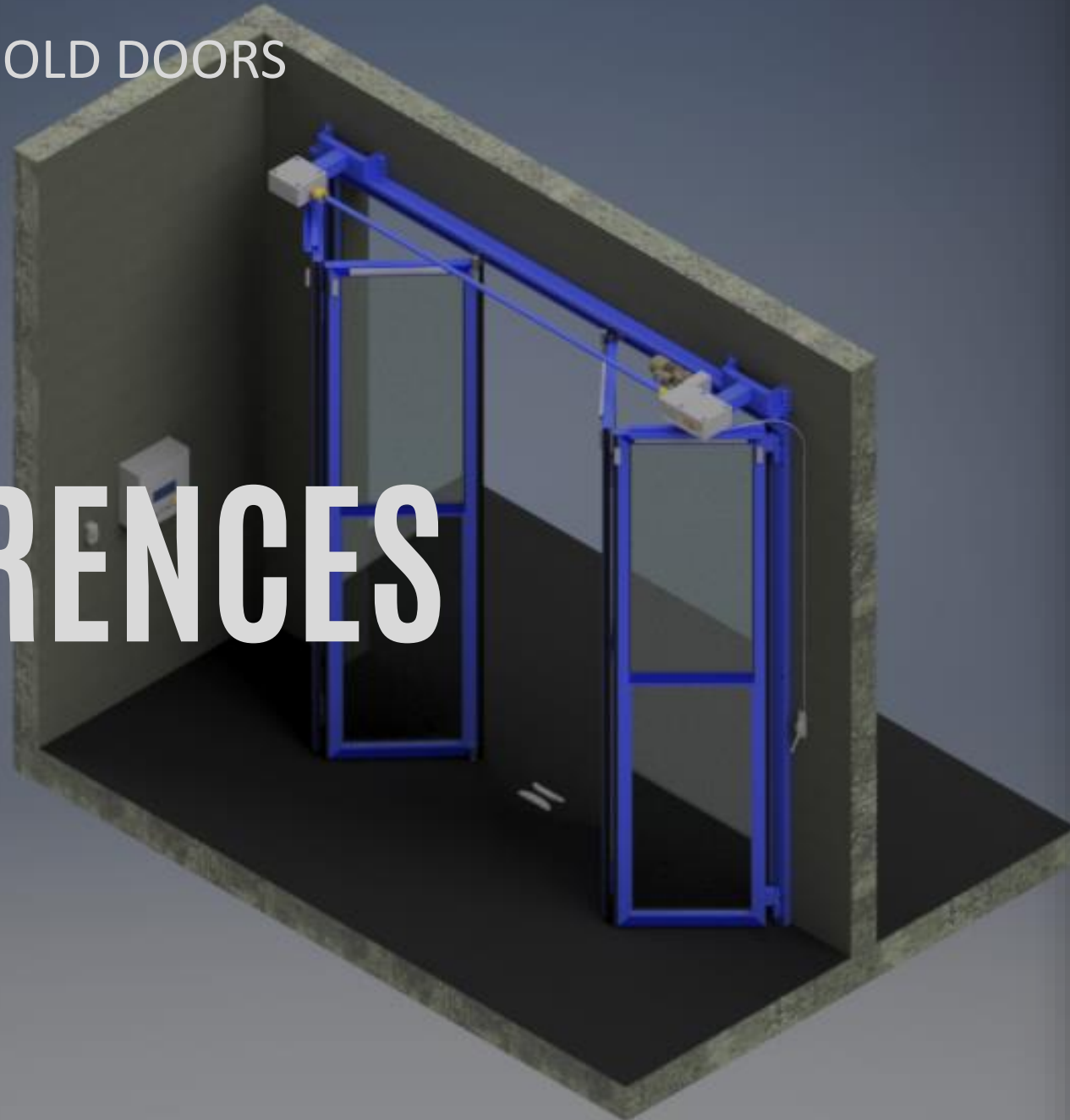
Finger print, badge reader

INTERNET OF THINGS

Digital Industry 4.0 solutions

BATOR FOUR-FOLD DOORS

REFERENCES



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BATOR FOUR-FOLD DOORS

Folsom Fire 39



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Folsom Fire 39



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BATOR FOUR-FOLD DOORS



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BATOR FOUR-FOLD DOORS



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BATOR FOUR-FOLD DOORS

4 electrical four-fold door systems
w/ expanded metal cladding
@ Mulhouse, France

A close-up, low-angle shot of a Bator four-fold door system. The door is partially open, revealing the internal mechanism. The door panels are covered in a brown, diamond-shaped expanded metal mesh. The frame is made of dark grey or black metal. A red electrical connector is visible on the right side of the door. The background shows a clear sky.

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BATOR FOUR-FOLD DOORS

Fire Station Hyannis, MA



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BATOR FOUR-FOLD DOORS

Fire Station Hyannis, MA



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BATOR FOUR-FOLD DOORS

Installation of 6 hydro-pneumatic four-fold doors @ Fire Station, St. Louis



BATOR FOUR-FOLD DOORS



BATOR FOUR-FOLD DOORS



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