FLOOD BARRIER

Introduction - Extreme Climate & Regional Torrential Rain

Description of extreme climate events

The evaluation report published by the U.N. Intergovernmental Panel on Climate Change (IPCC) indicates

that global warming is leading to frequent extreme climate events such as storms, floods, draughts, typhoons, high-temperature heat waves, cold waves, and sand storms in some areas, while their intensity is growing. For this reason, extreme climate events that previously only occurred once every several decades or once per century have now become more and more common. In the future decades, it is expected that climate change will worsen everywhere, leading to more frequent extreme high-temperature and precipitation events.

The Center for Environmental Change also pointed out

that extreme weather is now an unavoidable trend. What we should do now is to make efficient use of our time to set up a sound engineering infrastructure in order to meet the challenges that will be posed by extreme climate events in the future.

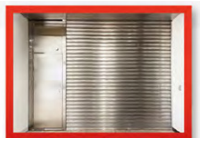
To deal with the precipitation brought by transient torrential rain, we need to think about the construction and deployment of all public works **from the viewpoint of extreme climate** , to raise people's awareness so as to minimize the possibility of losses of people's lives and properties.

*All sizes are subjected to R & R consultation

FLOOD BARRIER

Introduction - Products

1. ***Manual Slot Flood Barrier (MFB)***
2. ***Swing Flood Barrier (SFB)***
3. ***Swing Flood Gate (SFG)***
4. ***Cross Sliding Flood Gate (CSFG)***
5. ***Auto Flip Up Flood Barrier (AFFB)***
6. ***Auto Stacking Flood Barrier (ASFB)***



Comparison tables

Door type / Features	Manual Slot Flood Barrier	Swing Flood Barrier	Auto Flip-up Flood Barrier	Auto Stacking Flood Barrier	Swing Flood Gate	Cross Sliding Flood Gate
Door panel material	Aluminum alloy	Stainless steel	Stainless steel	Aluminum alloy	Stainless steel	Stainless steel
Compression method	Connecting rod type	Buckle type	Hydraulic push rod actuated door panel compression	Electric push rod actuated door panel compression	• Manual Turntable actuated compression • Electric Hydraulic device actuated compression bolt	• Manual Turntable actuated compression • Electric Compression bolt activated by lifts installed around the door body
Opening/closing method	Manual	Manual	Electric	Electric	Electric/Manual	Electric/Manual
Max. water blocking height Unit: mm	1750	2500	2500	5000	No limit	No limit
TUV or third-party certification	third-party certification	TUV	TUV	TUV	third-party certification	third-party certification
Applicable installation sites	• Underground parking lot entrances/exits • Residences/stores • Low-lying areas	• Vehicle lane entrances/exits • Underground parking lot entrances/exits • Sidewalk entrances/exits	• Basement entrances/exits • Parking lot entrances/exits • Pedestrian access entrances/exits	• Commercial building entrances/exits • Underground parking lot entrances/exits	• Important equipment room entrances/exits • Underground power distribution room entrances/exits of buildings	• Important equipment room entrances/exits • Underground power distribution room entrances/exits of buildings
Installation site conditions	Not restricted by the space	• When closing the door, stowage space should be reserved on both sides • No obstacles allowed within the door panel swinging scope	Pit depth should be reserved	-	Bottom plate depth should be reserved	Bottom plate depth should be reserved

*All sizes are subjected to R & R consultation

FLOOD BARRIER

Product Specification

10 sec

Specification:			
Component(s)	**Standard Size**	**Weight**	**Material**
Flood Board	H:250mm Thk:36mm	5.8kg/m	Aluminum
Flush Handle (Flood Board)	N/A	N/A	S.S
Water Tightening Seal	N/A	N/A	EPDM
Side Guide Rail	N/A	11.5kg	Aluminum
Movable Intermediate Post	N/A	15kg/m	Aluminum
Supporting Unit (H.S)	N/A	5kg/m	S.S
Supporting S.S Wire	N/A	N/A	S.S
Threshold Plate	W:93mm Thk:3mm	N/A	S.S

Remarks:

1) For Length over 2.5m, we propose to use Segment Type – Movable Intermediate Post needs to install.
- Fixing by bolt and nuts
- Strengthening by Supporting Unit / S.S Wire
(Depends on site conditions)

2) All water tightening seals are suggested to be replaced every 2 years from the date of installation.
Condition of seals should be checked by client, please replace the seals if there's any damages or aging issue

3) Manual Slot Flood Barrier is for the purpose of preventing flooding but not heavy rains. We suggest client to install S.S cornice above the flood barrier.

Manual Slot Flood Barrier (MFB)

" Innovative Pressing Technology,
***10 seconds** to complete pressing water,*
the industry's fastest performance "

Baohui Construction CityPark, Taiwan

*All sizes are subjected to R & R consultation

FLOOD BARRIER
Product Specification

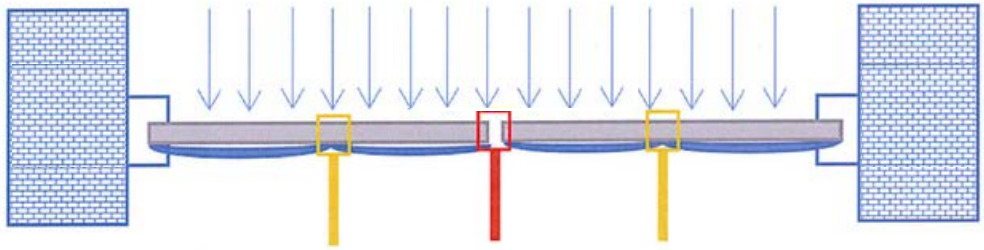
10 sec

Manual Slot Flood Barrier (MFB)

Flood Panel

The flood panels are manufactured through aluminum alloy extrusion in a single piece to resist higher water pressure.

A single flood panel is 250 mm high, the max. width is 6 m and the weight is 5.8 kg/m.



Water Blocking Level (m)	w/o Intermediate Post Assemble (Suggest Distance)	Segment Type Intermediate Post Assemble (Suggest Distance)	Non-Segment Type Intermediate Post Assemble (Suggest Distance)
1.25m	1.7m	1.35m	
1.0m	2.2m	1.75m	
0.75m	2.5m	2m	
0.5m	2.8m	2.25m	

**The thickness is subjected to client's requirement.

All sizes are subjected to R & R consultation

Compression method

Linkage Mechanism:

Modified conventional knob operating type. The innovative linkage mechanism has awarded an invention patent. The operator can complete the compression process easily and quickly in 10 seconds.

Convenient Stowage:

Provided with a removable compression handle that can be conveniently removed and stowed after completing the compression process

Movable Post & Supporting Unit

Material: Stainless steel square pipe
Dimensions*: 60 x 60 x 2.0 mm

*may vary to site condition

Rails and Botton Plate

The rails are made of aluminum alloy. The bottom plate is made of stainless steel with a thickness** of 3.0 mm.

Recommended Installation Locations

Ideal for underground parking lot entrances/exits, residence/store entrances/exits, and low-lying areas.

Basic hazard prevention equipment that can be easily and flexibly Installed without being limited by the space.

FLOOD BARRIER

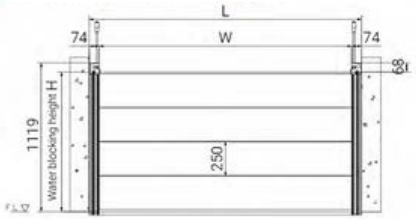
Product Specification

10 sec

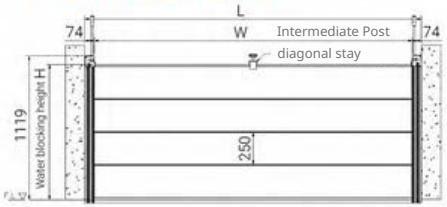
Product dimensions

Unit:mm

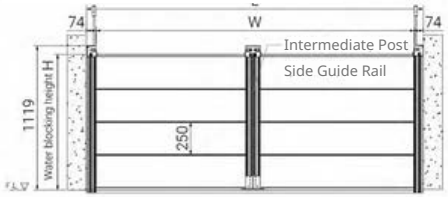
Non-Segment Type w/o Intermediate Post Assemble



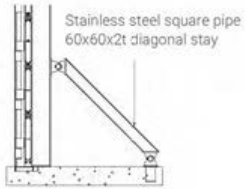
Non-Segment Type w/ Supporting Unit



Segment Type w/ Intermediate Post Assemble

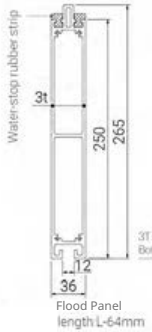


Supporting Unit schematic view



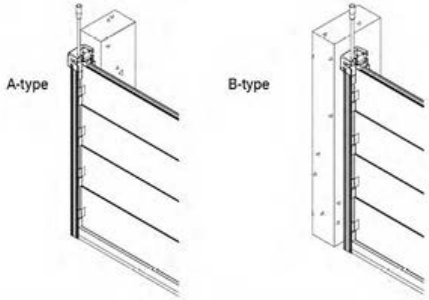
Flood Panel Detail

Material unit: Aluminum alloy



Material unit: Foam rubber (EPDM)

Installation Method



Product testing

Water pressure resistance and water tightness test conditions and results for Manual Stack Flood Barrier (section-free)

Test piece dimensions: 2.0 m wide (net width: 1.852 m)

Test type	Conditions: Item	Conditions: Value	Results: Quantitative test
Water tightness	Test water depth	1.0 m	Measurement result unit: • 0.14 L/ hour
	Test interval	24 hours	
Water pressure resistance test	Test water depth	1.0 m	• Total force sustained by the flood barrier: 977 kg • Water pressure sustained by the unit area of the flood barrier: 500 kg/m²
	Test interval	24 hours	
Deflection	Deformation during the test	1.0 m	Corresponding max. deflection unit: • Left side top, middle, bottom: 0.5, 3.0, 3.0 (mm) • Middle side top, middle, bottom: 1.0, 4.0, 6.0 (mm) • Right side top, middle bottom: 0.3, 2.5, 3.0 (mm) • Max. deflection ratio: 1:308*

- Test date:
  1–3 February, 2021
- Leakage volume calculation:
  Weight before water absorption measuring - Weight after water absorption; the test is to verify the one-hour water leakage value.
- Max. deflection calculation:
  Max. deformation 6.0 mm/Gate full width is 2.0 m, gate panel is 1.852 mm; the calculated deflection value is 1:308.
- After the test, the deformation of the aluminum alloy gate panel can be restored to the original dimension setting point.

*All sizes are subjected to R & R consultation

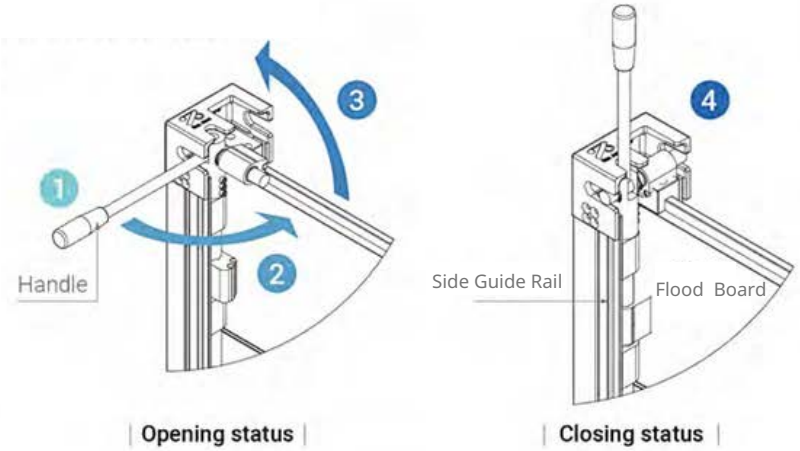
FLOOD BARRIER

10 sec

Product Specification

Description of operation

1. Insert the handle
2. Push the handle horizontally. Push the flood panel with the linkage mechanism in the side guide rail. Repeat the same process for the other flood panel rails.
3. Push the handle vertically. Compress the flood panel water-stop strip with the linkage mechanism in the side guide rail. Repeat the same process for the other flood panel rails.
4. After completing the aforesaid steps, the flood barrier compression device can be properly installed.



Opening status | Closing status

Usage examples

Pao Huei City Park

*All sizes are subjected to R & R consultation

FLOOD BARRIER

Product Specification

10 sec

Embedded to Floor Finishing Level

Flush Handle (Standatd)
Can tailor made upon request

Compression Unit

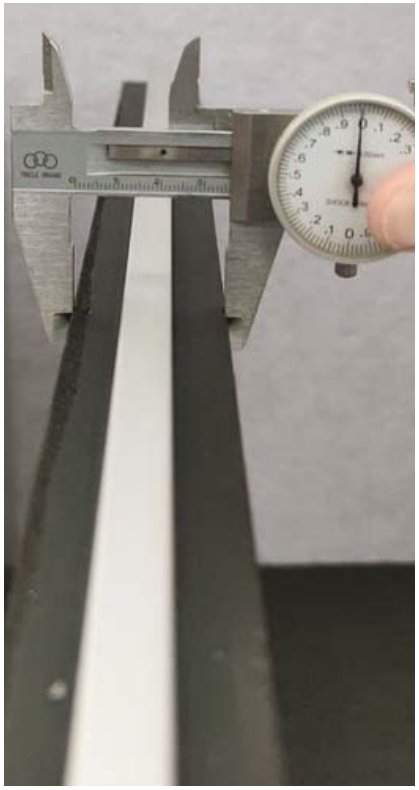
*All sizes are subjected to R & R consultation

FLOOD BARRIER

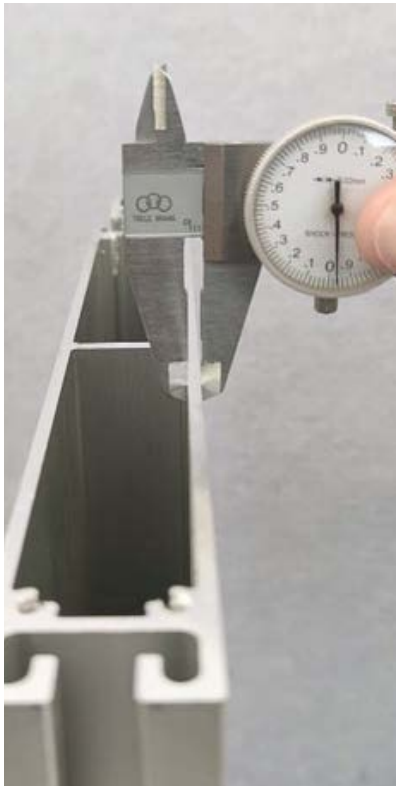
Product Specification

10 sec

Product Measurement :



Panel Thickness: 36mm



Panel Material
Thickness: 3mm

Bottom Gasket
Thickness: 15mm

Connecting Gasket
Thickness: 5mm

*All sizes are subjected to R & R consultation

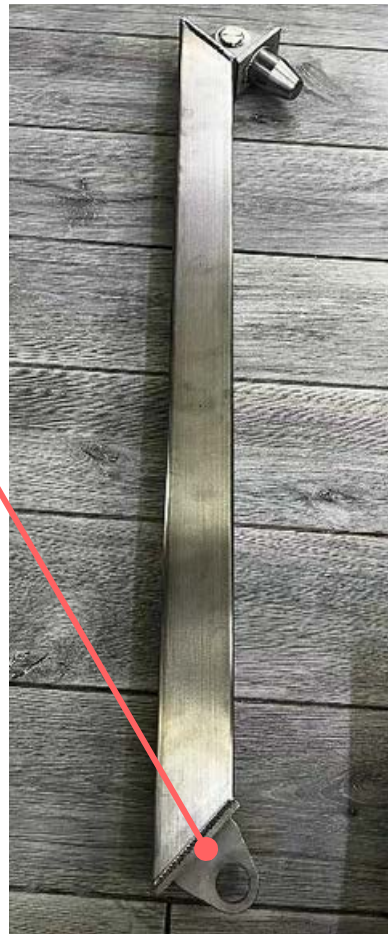
FLOOD BARRIER

Product Specification

10 sec

Intermediate Movable Post

Fixing Lugs for Supporting Unit



Supporting Unit:
#304 S.S Hollow Section
w/ Bolt

*All sizes are subjected to R & R consultation

FLOOD BARRIER

Product Specification

Flood Panels

- Made of stainless steel
- Thickness 30mm

The internal side is fitted with stainless steel square pipes for use as reinforcing skeleton.

U-shape Frame

- Including the stainless steel fixed type bottom frame.
- Thickness 6.0m

Steel Ball Alignment Compression Handle

The alignment handle moves in sections of 45 degrees. This can effective avoid

- Inconvenient operation
- Personnel injury that may be incurred by a loosened compression lever.

Removable Backing Pipe

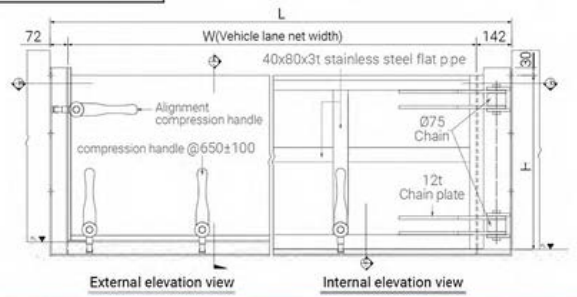
- Made of 40 X 80 X 3.0 mm stainless steel fiat pipe
- It can be stowed on the backside of the flood panel without having to remove the backing pipe and store it elsewhere it not only looks good but is also practical.

EPDM strip

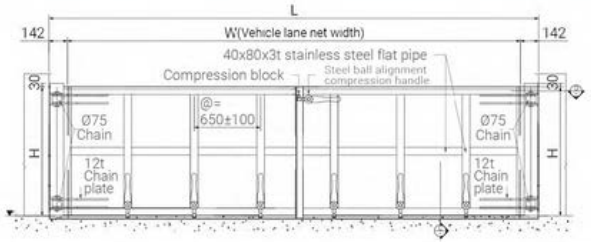
- Provided with high-density waterproofing function. It is designed to resist coone, sunshine, aging, steam, and high temperature (120-130°C) also exhibits excellent elasticity when word in low temperature environments. It also features superior insulation
- With excellent chemical resistance, & can be easily used with skali substances and polar solvents (such as alcohols and ketones It can also stand a variety of low concentration acid substances

Swing Flood Barrier (SFB)

Product dimensions Unit:mm



Single-open (recommended max. installation dimensions: 1,220 mm full width x 1,500 mm full height)



Double-open (recommended max. installation dimensions: 6,100 mm full width x 1,500 mm full height)

Usage examples

Fengyuan Bus Station

One Hyde Park

*All sizes are subjected to R & R consultation

FLOOD BARRIER

Product Specification

Swing Flood Gate (SFG)

Product Specifications

- The flood panel body is made of stainless steel.
- The specifications of the skeleton are designed by calculating the water pressure to ensure that the flood prevention effect meets customer demands.
- All steel pieces are powder-coating over 50 um thick instead of using a liquid coating. (This serves to reinforce the rustproof finish of the steel pieces to extend the service life. It also prevents toxic gas from being produced by high temperatures during the subsequent recovery melting process)

Taipei MRT
Zhongxiao Station

Taipei MRT
Daqiaotou Station

Taipei MRT Songshan
Nanjing Station

Taipei MRT Beimen Station

Taipei MRT Zhongshan
Elementary School Station

*All sizes are subjected to R & R consultation

FLOOD BARRIER

Product Specification

Cross Sliding Flood Gate (CSFG)

Product Specifications

- Cross Sliding Flood Gate is normally used in heavy duty situations or in places which lack space for installing a swing gate. For example, when an entrance needs to be completely sealed, the cross sliding flood gate has to withstand large water pressure.
- It seals with a thick rubber strip around the frame, and the packing system inside the gate automatically steer the pillar outward against the outer frame or outer structure until it's tightly sealed.
- It can be designed in either automatic mode or manual motion. Apart from the gate itself, an automatic floor cover lifter or a manual floor cover casing is also critical.
- The motion begins when a detector is triggered by above-standard water level. The floor cover lifts up, and simultaneously the side winder moves into place. Then, the packing system packs to seal.
- The beeping sound lasts during the whole process in motion with flashing light. When switching to manual motion, simply take away the floor cover casing and slide out the gate. The final packing can be done with a spinning wheel on the gate surface to ensure the gate is fully sealed.

Taoyuan Airport MRT

Taipei MRT Nanjing Sanmin Station

*All sizes are subjected to R & R consultation

FLOOD BARRIER

Product Specification

Customization

The surface is fabricated from stainless steel patterned plate. We also provide customization service to reserve space for adhering tiles.

Standard pit depth

- 280mm
- 330mm

Control Box

The control box is designed through professional engineering. It is operated with a push key to control the ascending and descending of the flood panel with the hydraulic cylinder. When the flood panel ascends to the preset position, the system will actuate the compression process automatically.

If the power supply is abnormal, the hydraulic cylinder also has an emergency manual operation function for raising and lowering the door manually by operating the handle.

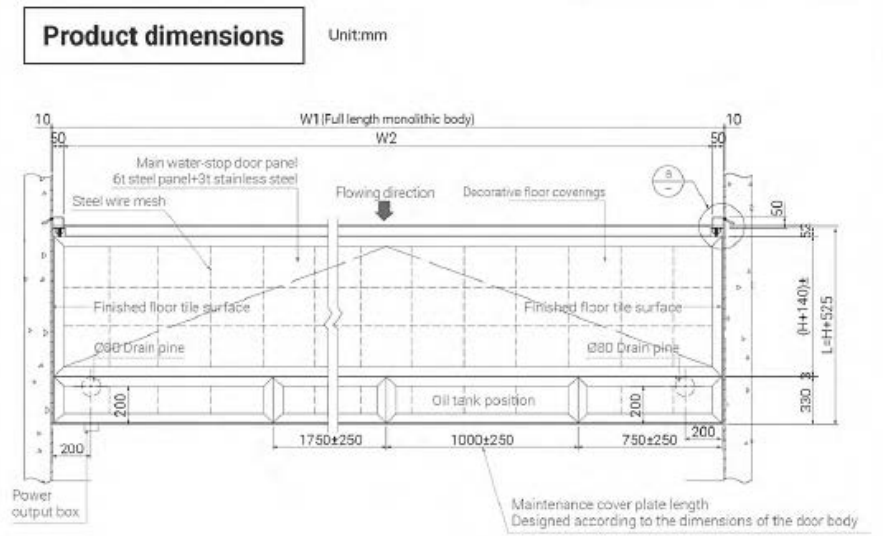
National Taiwan Museum of Fine Arts

Taipei MRT Station

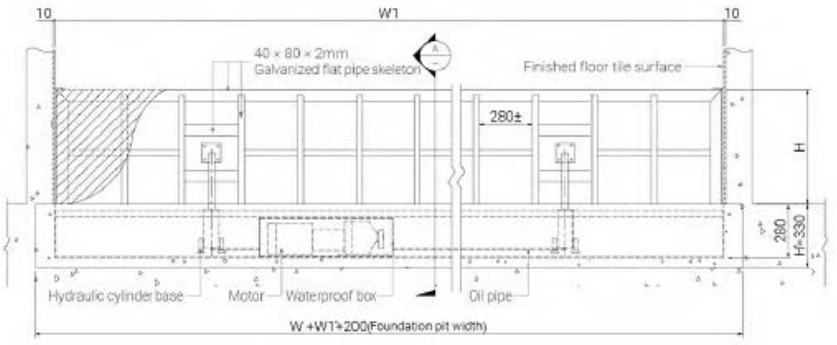
Taoyuan Airport MRT Station

*All sizes are subjected to R & R consultation

Auto Flip-Up Flood Barrier (AFFB)



Floor view



Elevation view

FLOOD BARRIER

Product Specification

Lee Nam Road, Ap Lei Chau, Hong Kong

Product Specifications

- Max. usage dimensions: Less than 5 m high and less than 8m wide
- All steel pieces are coated with powder paint-baking finish over 50 μm thick instead of using a liquid paint-baking finish (This serves to reinforce the rustproof finish of the steel pieces to extend the service life. It also prevents toxic gas from being produced by high temperatures during the subsequent recovery melting process)

Flood Panel

- The Flood Panels art manufactured through aluminum alloy extrusion in a single piece to resist higher water pressure.
- Each Flood Panel is 340 mm high

Rail

- Made of steel.
- The rails on both sides are 250 mm wide.

Base and Rolling Door Box

- The base is made of stainless steel.
- The rolling door box is made of steel.

Sliding Middle Pole

When installing the sliding middle poles of the auto flood barrier shutter, the quantity required should be calculated according to the water pressure tolerance in order to achieve the intended waterproofing function. *The middle pole is operated using a convenient labor-saving slide rail method while also being convenient to stow.

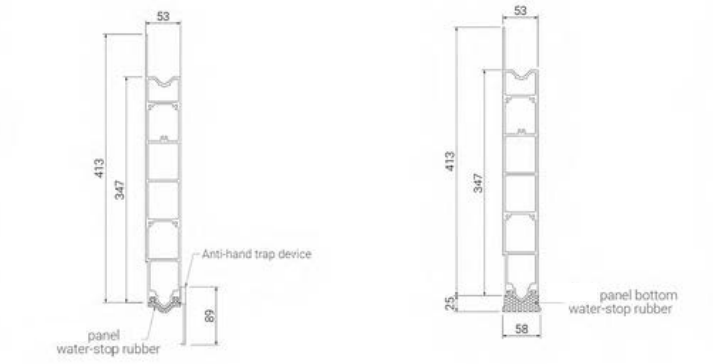
Water Level Sensing

Designed with a water level sensing function. Once the system detects that the water level has reached the set height, it will trigger the compression function automatically to achieve the intended flood prevention quickly and effectively.

*All sizes are subjected to R & R consultation

Auto Stacking Flood Barrier (ASFB)

Product dimensions Unit:mm



Aluminum alloy panel

Aluminum alloy bottom panel

Usage examples

taipei MRT Zhongshan Station

Public housing at the D.E. Section of Fai Chi Kei Terminal

Features

Unprecedented innovation. The flood panel body is designed with practical flood prevention and control functions, and both functions can be freely switched through the system layout.

Compression Mechanism

Patent certification has been granted in Taiwan, Japan, and China for the compression mechanism of the flood panel body (top) and the compression mechanism in the door rails deployed on both sides.

FLOOD BARRIER

Job Reference (Hong Kong)

Lee Nam Road, Ap Lei Chau (ASFB)

Jockey Club Sai Kung Outdoor Training Camp (SFG)

Water Supplies Dept., Tseung Kwan O (MFB)

*All sizes are subjected to R & R consultation

FLOOD BARRIER

Job Reference (Overseas)

Year	Project Name	Construction
2022	Advantech Co.,Ltd in Linkou	CHUNG-LIN General Contractors, LTD
2022	Kuang Tien parking lot	Zhong Hong Construction
2022	Taoyuan Municipal Main Library	Chunyuan Construction
2021	Shining Building Business Co.,Ltd in Hsinchuang, New Taipei City /Shining.Truelife	Taiyu Construction
2021	SEN MEI GUAN	Jiuh Horng Construction
2019	Baohui Construction CityPark	Shiming Construction
2019	Taiwan Paiho Limited	True-Dreams Construction






*All sizes are subjected to R & R consultation