Denilco Environmental Technology (Suzhou) Co., Ltd.
Unit D, Block 1, No. 275 Xinglong Street, SIP, Suzhou, Jiangsu, China 215124
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L Shape Mobile and Self-Stable Anti-Flood Barrier

Product Introduction

Design Philosophy：

The "Fin Type Flood Control Barrier" is a 2020 Jiangsu Province Water Resources Science and Technology Plan project. It is a flood control product developed jointly by Nanjing Water Resources Research Institute and Denilco Environmental Technology (Suzhou) Co., Ltd. after two years of research and development, targeting urban waterlogging and dam overflow risks. It has obtained 2 authorized utility model patents and 5 design patents.

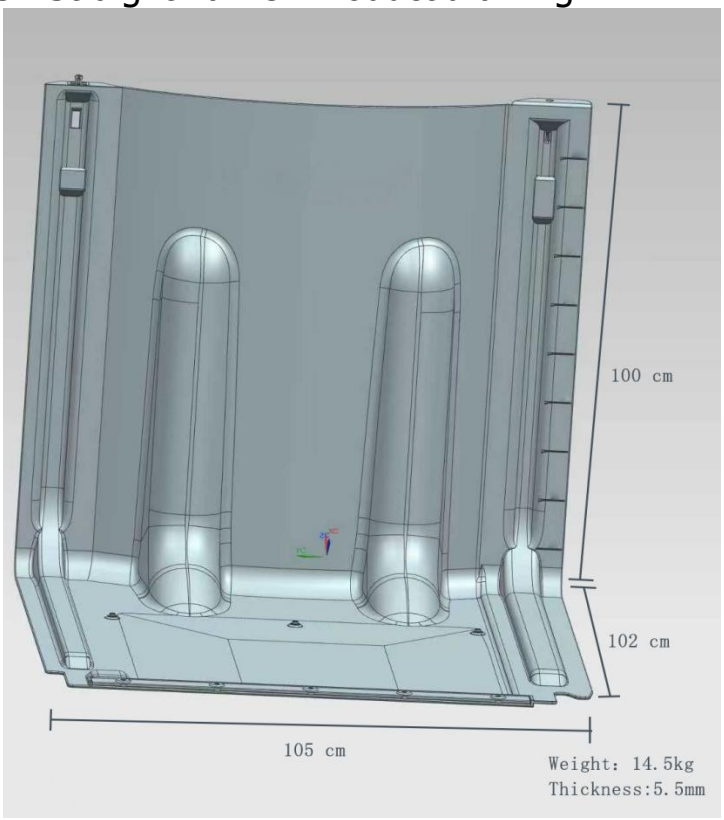
This product innovatively adopts a composite functional design of "L-shaped curved surface structure" and "fin flexible anti-seepage", based on polymer functional materials. The splicing method between the barriers is spring locking, and the bottom is equipped with detachable anti-seepage parts. The bottom is set with anti slip strips and anti-seepage pads, and the anti-seepage effect is more obvious in uneven terrain. It can be applied to common dangers such as urban waterlogging and river embankment overflow during flood season. It has significant characteristics such as fast rescue speed, strong water blocking stability, high terrain adaptability, and reusability.

High flexibility, reliable protection with rapid deployment via Easy-Connect locking mechanism; tool-free operation Rear limit structure

The barrier adopts an Easy Connect quick installation structure. Through a two-step installation method, the two barriers can be quickly assembled and locked, and the installation process can be completed by only one person.

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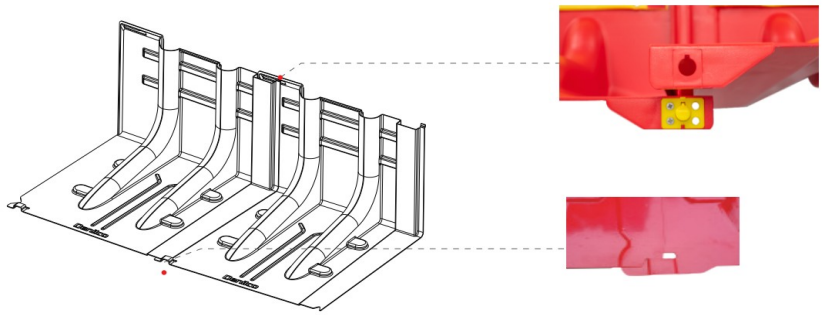
TDS1:Straight Barrier Product drawing



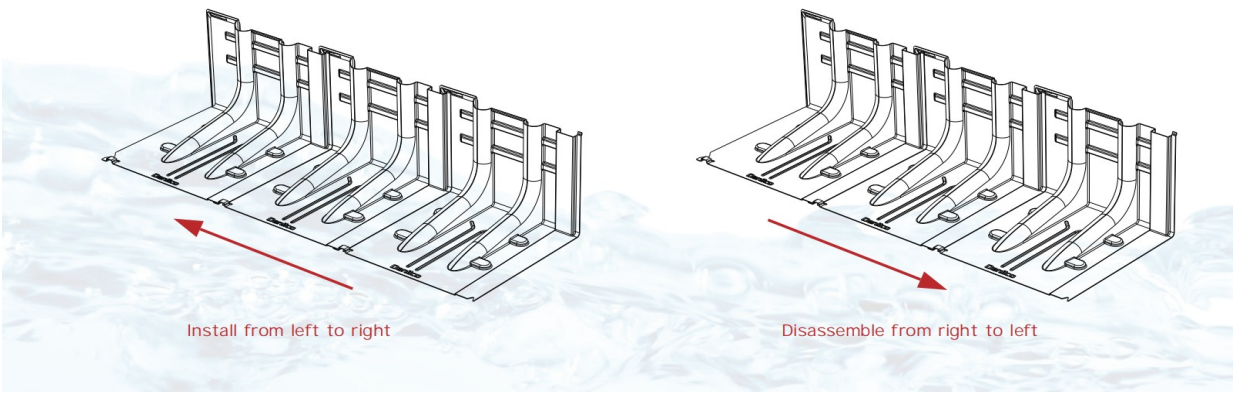
High:	100cm
Width:	105cm
Length:	102cm
Weight:	14.5kg±2%
Thickness:	5.5mm

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1: Install



2: Disassemble







Step 1: is to assemble the bottom socket





Step 2: Press the left and right boards forward and backward

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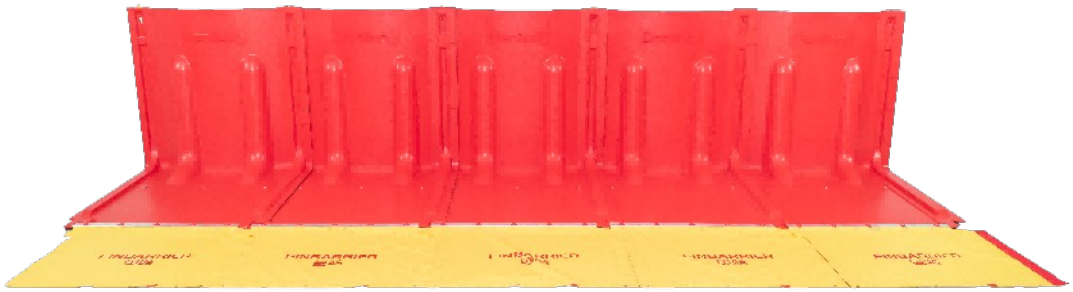
Straight Barrier Model: FF105



Folding state of anti-seepage pad



Unfolding state of anti-seepage pad



Assembly status of anti-seepage pad

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The width can be flexibly assembled according to the requirements of the site, and can be applied to fields such as soil, lawn, gravel, pavement, etc. according to the needs. It can also be combined into curved shapes.

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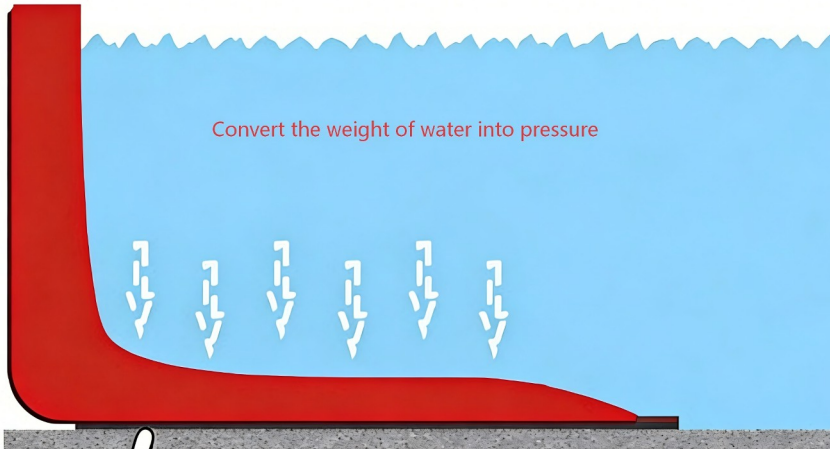




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3.Stabilization Principle:

Uses water pressure itself as natural ballast to stabilize barrier against the ground. The higher the water level, the greater the pressure and the greater the friction with the ground. The weight of water is pressed at the bottom of the barrier, converting the weight into "pressure". Even if the flood reaches the top of the barrier, it is still very stable and will not collapse. The higher the water level, the better the water blocking effect.



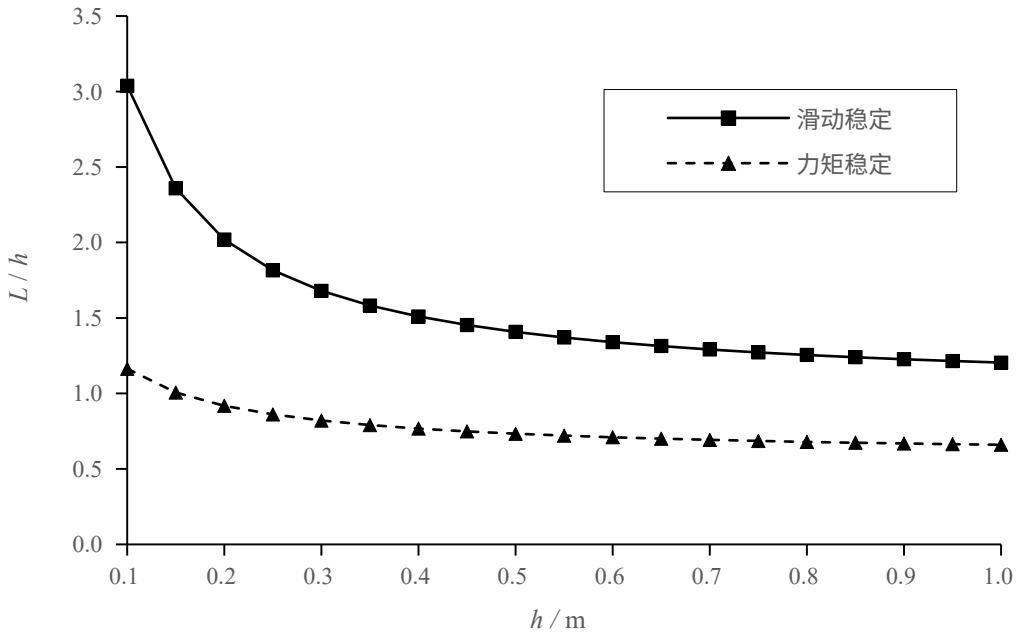
Length to height ratio at different water blocking heights to meet sliding stability (flow rate taken as 1.0m/s)

H(m)	L(m)	$\frac{1}{2}+\left(\frac{V\sin\theta}{\sqrt{gh}}\right)^2$	L/H
0.10	0.30	1.52	3.04
0.20	0.40	1.01	2.02
0.30	0.50	0.84	1.68
0.40	0.60	0.75	1.51
0.50	0.70	0.70	1.41
0.60	0.80	0.67	1.34
0.70	0.90	0.65	1.29
0.80	0.95	0.63	1.25
0.90	1.0	0.61	1.23
1.00	1.05	0.60	1.20

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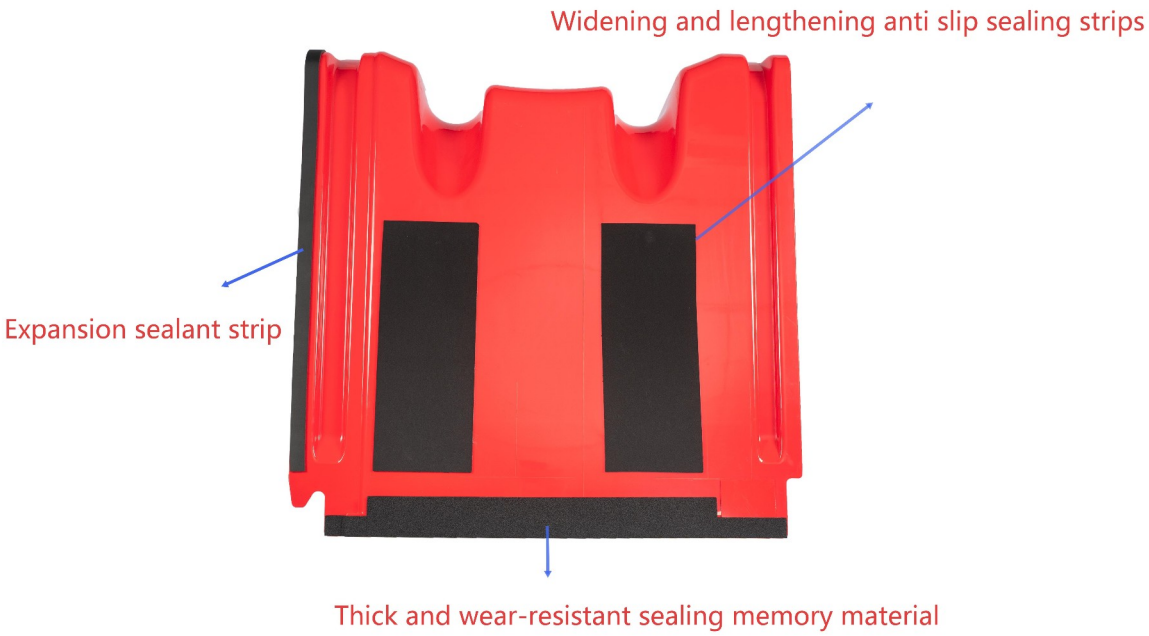
Length to height ratio at different water blocking heights to meet torque stability (flow rate taken as 1.0m/s)

H(m)	L(m)	$\frac{1}{3}+\left(\frac{V\sin\theta}{\sqrt{gh}}\right)^2 \le \left(\frac{L}{h}\right)^2$	L/H
0.10	0.12	1.52	1.16
0.20	0.18	1.01	0.92
0.30	0.25	0.84	0.82
0.40	0.31	0.75	0.77
0.50	0.37	0.70	0.73
0.60	0.43	0.67	0.71
0.70	0.48	0.65	0.69
0.80	0.54	0.63	0.68
0.90	0.60	0.61	0.67
1.00	0.66	0.60	0.66



Length to height ratio required at different water blocking depths

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Oversized thick sealing material, more wear-resistant, waterproof, and sealed

4 Sealing & Locking

Robust watertight and locking system for superior defense against extreme flooding; maximum resistance guaranteed

① Spring locking buckle type

Quick installation, sturdy structure, good waterproof sealing, easy to disassemble and operate in high water levels



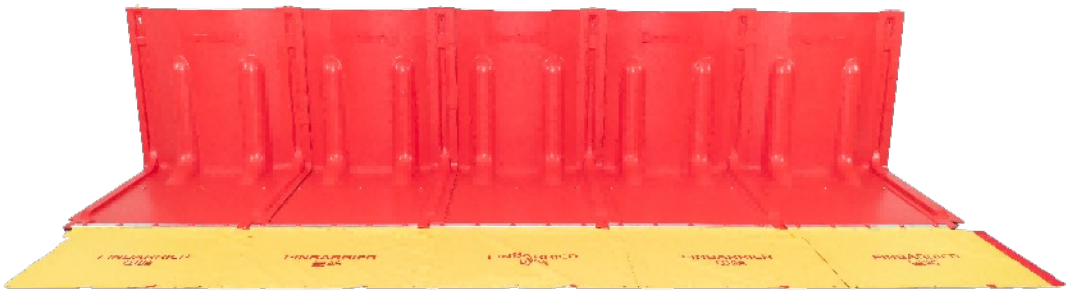
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② The curved arch structure reduces the compression deformation of the high water level barrier, enhances overall stability and water tightness



③ The detachable fish fin structure can be used on surfaces such as sand, gravel, soil, and lawns, greatly improving its sealing performance。



④ The structure on both sides of the product features a concave convex design, which increases sealing and stability。

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⑤ Detachable support structure can prevent water waves and strong winds from causing displacement of the barrier, improving the water blocking support force。



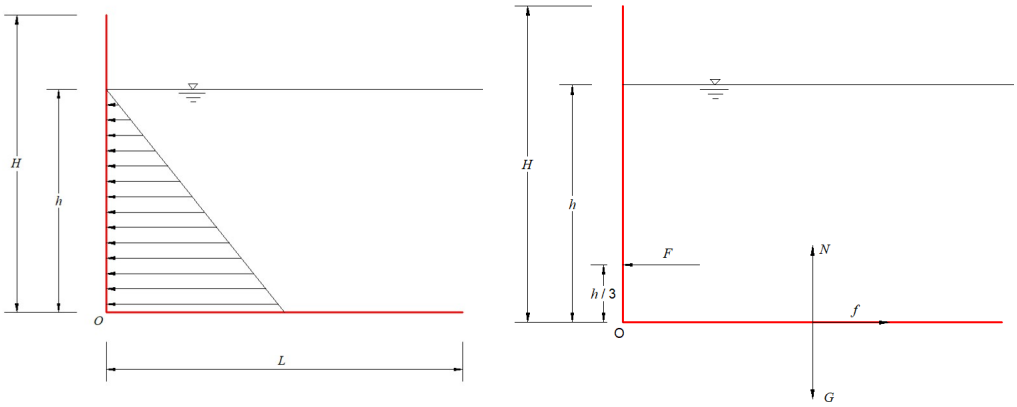
⑥ Structural Integrity

Modular, uniform construction with optimal compressive stability; highly resistant to deformation or failure

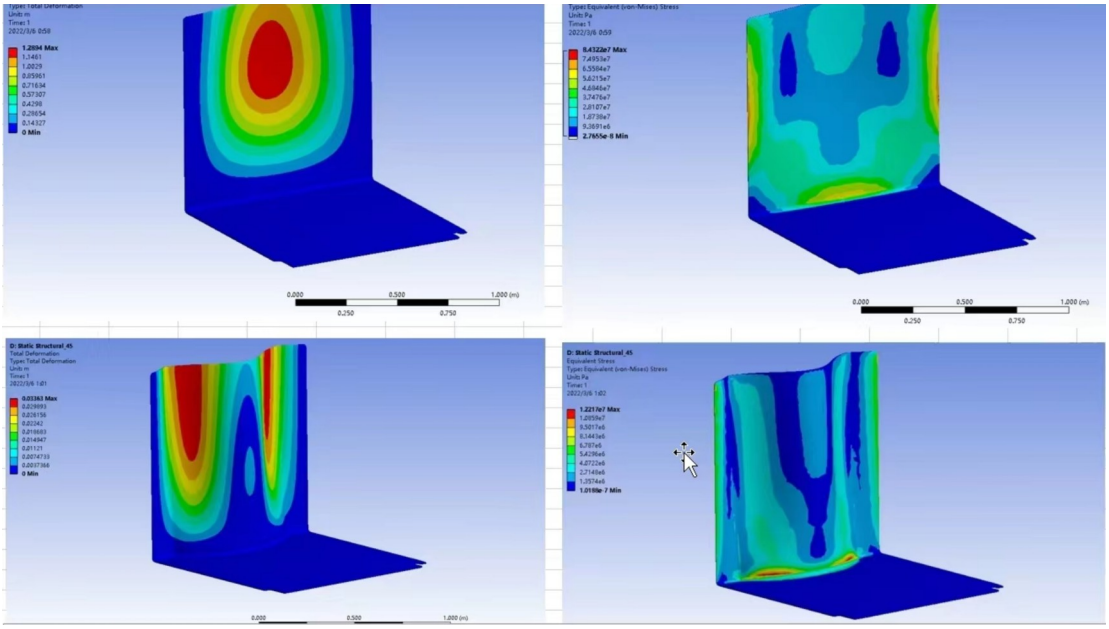
The water blocking plate adopts the same assembly method with three specifications: straight plate, inner rotating plate, and outer rotating plate. Each model can be assembled by splicing together

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Simulation software for force calculation:



⑦ Flood Control Height ≥ 100 cm

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Field River Testing Experiment



The experimental hall tested a water flow rate of 2m/S and a water blocking height of 100cm

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⑧ Storage

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Compact and stackable design for minimal storage footprint

The water blocking plate can be stacked together and can be stacked in two layers。





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One pallet can load 20 or 40 of them

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Material

① Material Type

ABS Plastic — Acrylonitrile Butadiene Styrene thermoplastic polymer

We use LG ABS material as the base material and add functional materials with UV resistance and high concentration colorants to increase outdoor temperature resistance and sun exposure resistance, thereby extending the product's service life



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② Material Properties

Very good impact resistance, relatively rigid, lightweight

LG ABS high-performance functional plastic

LG化学
乐金化学(惠州)化工有限公司

ABS HP181

Injection Molding

Description
High Flow

Application
Electric & Electronic Products, Toys, Miscellaneous Good

Properties	Test Condition	Test Method	Unit	Typical Value
Physical				
Specific Gravity		ASTM D792	-	1.04
Molding Shrinkage (Flow), 3.2mm		ASTM D955	%	0.4~0.7
Melt Flow Rate	220℃/10kg	ASTM D1238	g/10min	43
Mechanical				
Tensile Strength, 3.2mm @ Yield	50mm/min	ASTM D638	kg/cm^2	423
Tensile Elongation, 3.2mm @ Break	50mm/min	ASTM D638	%	36
Flexural Strength, 6.4mm	10mm/min	ASTM D790	kg/cm^2	585
Flexural Modulus, 6.4mm	10mm/min	ASTM D790	kg/cm^2	20,153
IZOD Impact Strength, 6.4mm (Notched)	23℃	ASTM D256	kg·cm/cm	28
Rockwell Hardness	R-Scale	ASTM D785	-	106
Thermal				
Heat Deflection Temperature, 6.4mm (Unannealed)	18.6kg	ASTM D648	℃	82
Flammability		UL94		HB
Relative Temperature Index		UL746B		
Electrical			℃	60
Mechanical with Impact			℃	60
Mechanical without Impact			℃	60

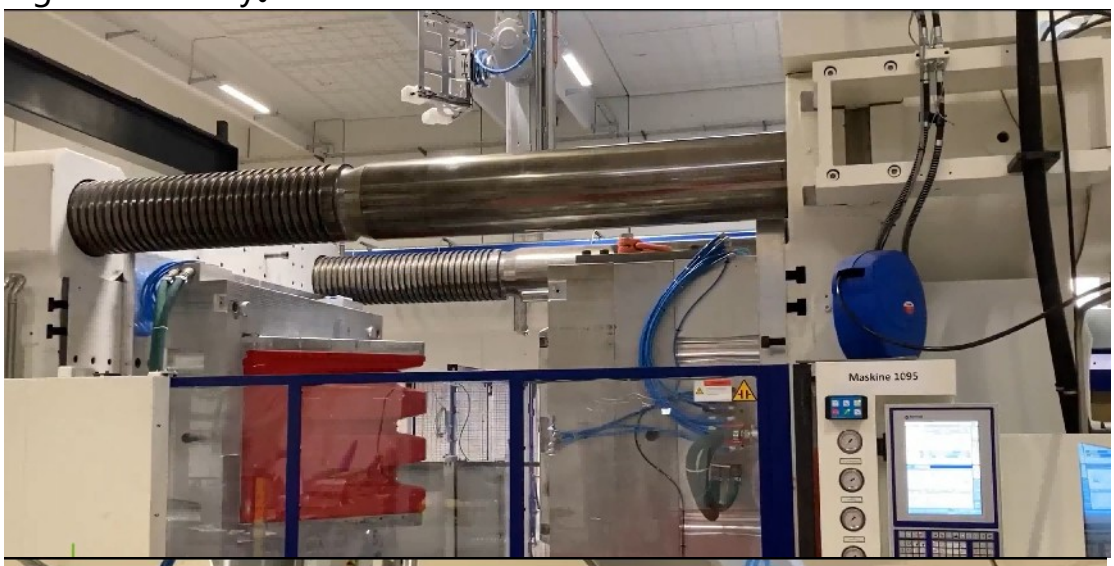
Note) Typical values are only for material selection purpose, and variation within normal tolerances are for various colors.
Values given should not be interpreted as specification and not be used for part or tool design.
All properties, except melt flow rate are measured on injection molulded specimens and after 48 hours storage at 23℃, 50% relative humidty.

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③ Manufacturing Process

Advanced injection molding technology

We all use the most advanced 3500T electric servo injection molding machine, which uses a robotic arm to grasp products. We have the most professional equipment and technical personnel, which can improve production and quality with higher efficiency。



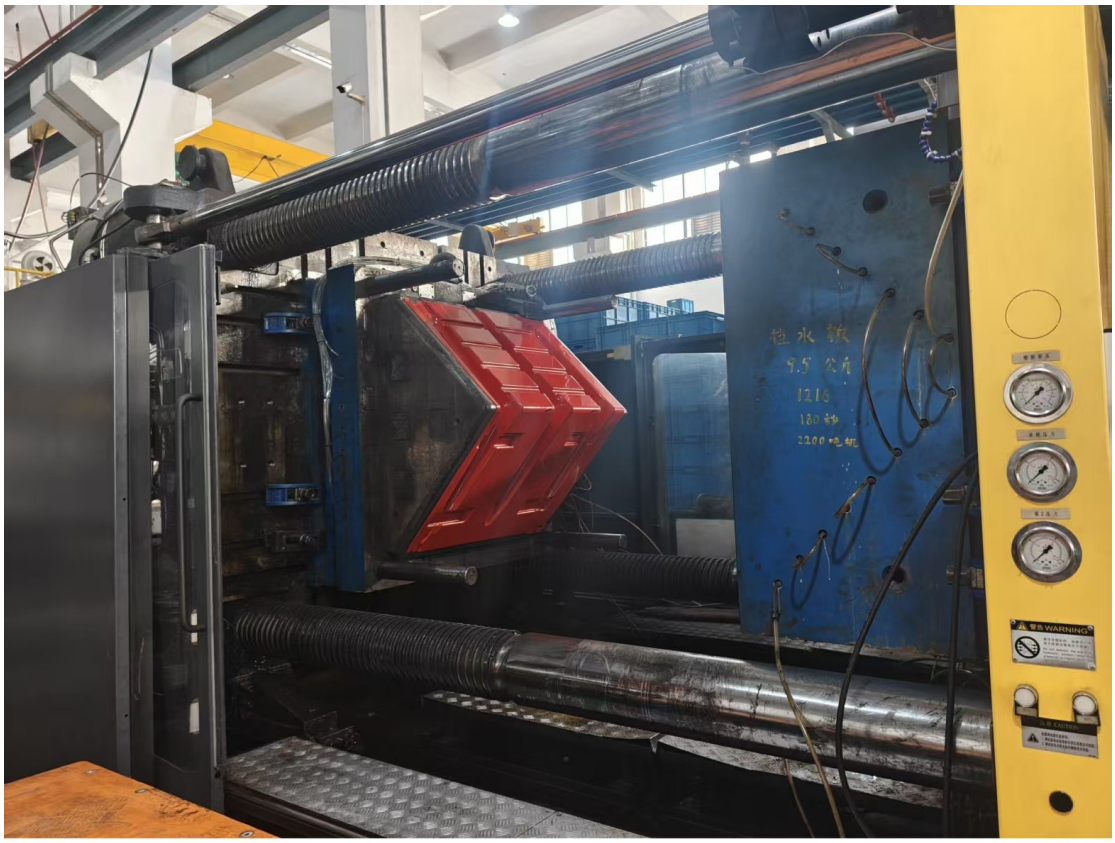


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NIOPhone N24 14MM f2.25 1/33s ISO120 | 2025/12/29

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NIOPhone N24 25MM f1.68 1/33s ISO184 | 2025/12/29

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④ UV Protection

The picture shows the UV material additive used by our company from DOW in the United States





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⑤ Operating Temperature Range

-40 ° C to+95 ° C

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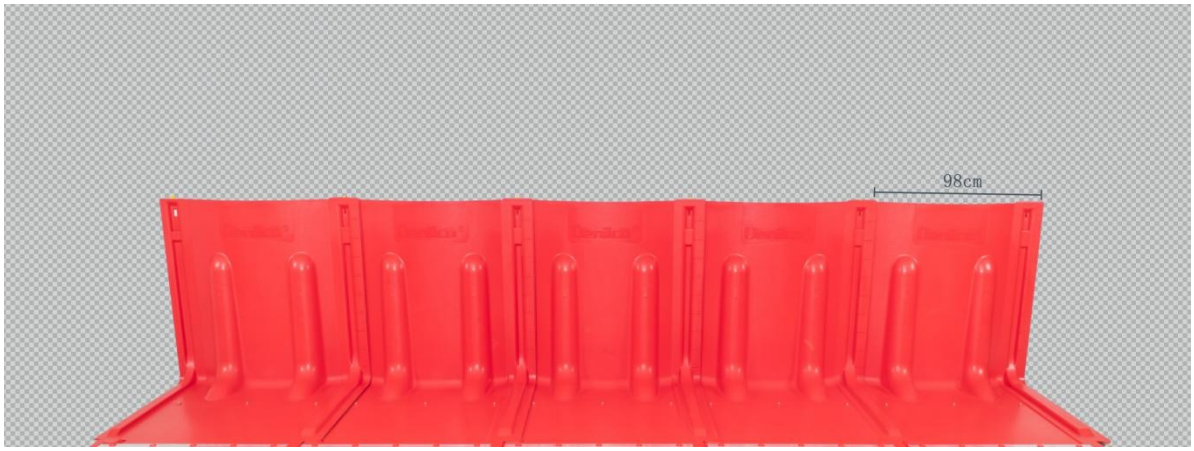




Steel safety bar at rear for stability reinforcement.

Rear security via lift latch with spring-loaded rocker mechanism

preventing barrier separation.



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Locking mechanism

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Deployment & Handling

Team Size

Deployable by small teams without specialized training

Every three people form a group: one person is responsible for transporting to the designated location, one person is responsible for installing the baffle, and one person is responsible for installing the anti-seepage fish fins.

Installation speed: about 20s/pcs, can install 3PCS per minute, can install 180PCS per hour

Installation manual: We will mark a QR code on the back of the product, and you can quickly master the installation skills by watching the video introduction.

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Orientation

Clearly defined orientation marking (top/bottom)

We will print product QR codes and directional identification on the back of the baffle, and can customize exclusive logos and item codes for customers.

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Scale with water level height printed on the side



Locking Mechanism Secure and separate locking system preventing accidental disengagement

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Our product is designed with a quadruple locking system

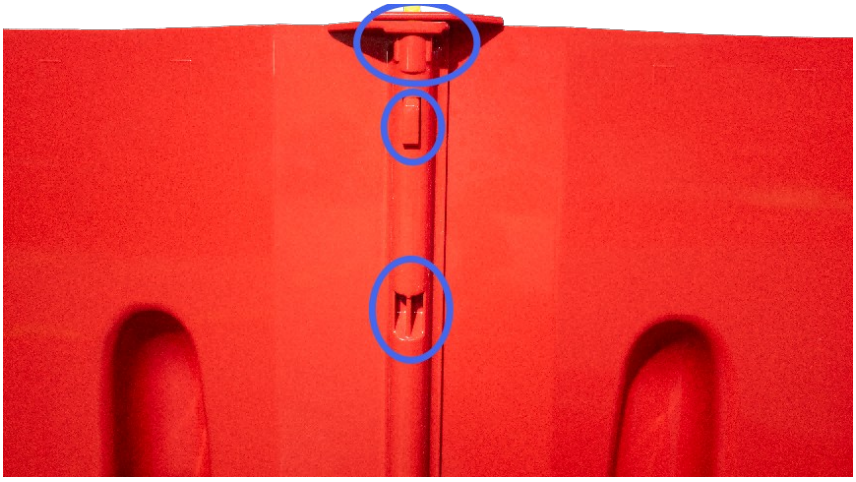
1. Top spring lock locking system, fixing the Y-axis direction of the baffle

(Figure 1)

2. Back hook locking system, fixing the baffle in the X-axis direction

(marked in red in Figure 2)

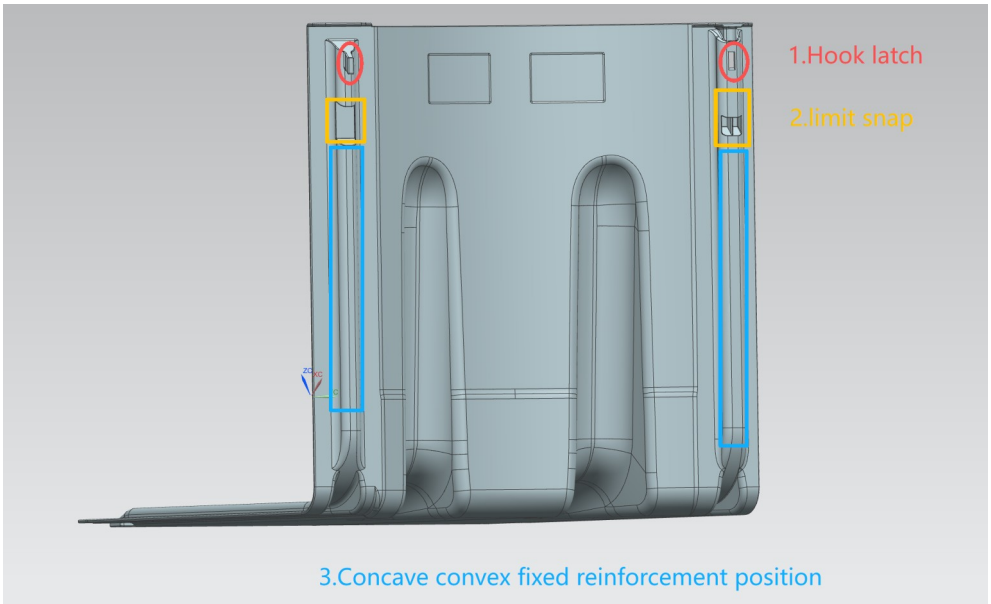
3. Back limit, fix Z-axis direction (blue markings in Figures 2 and3)



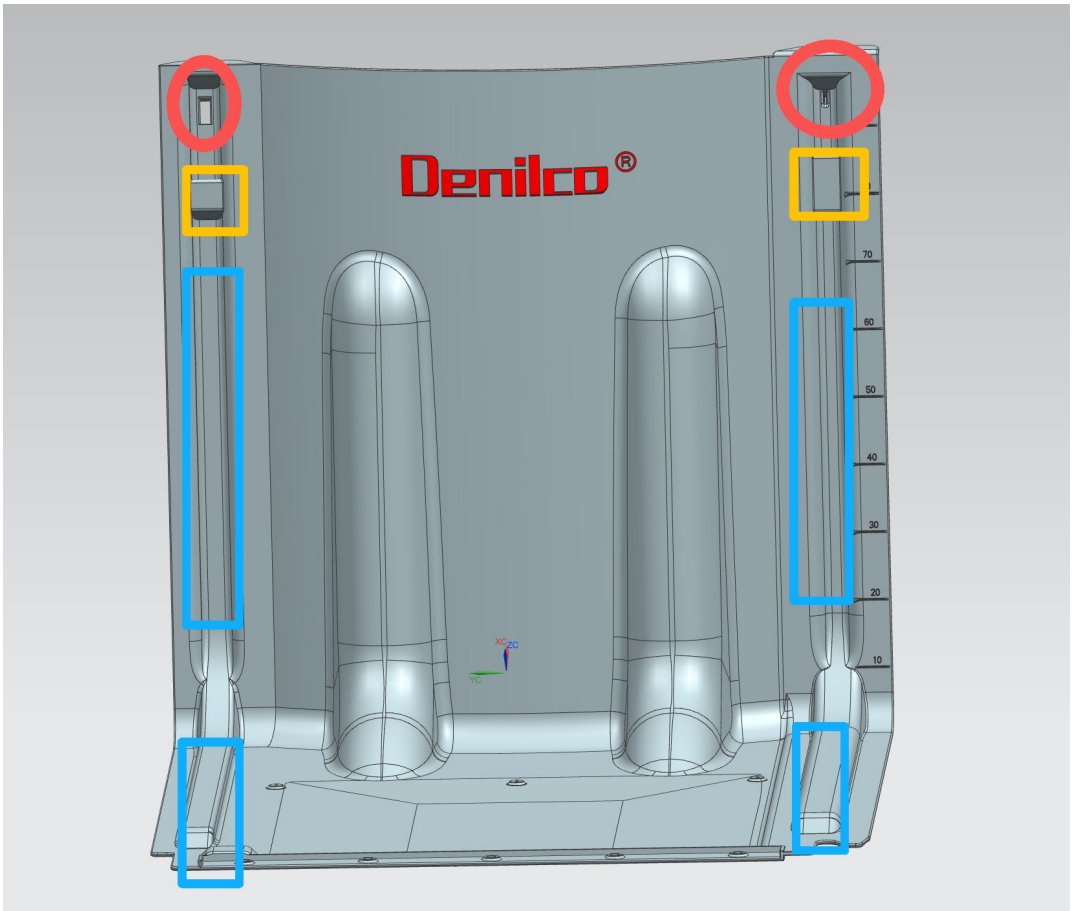


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Figure (1)



(Figure 2)



Connection Uniformity

Uniform connection principle across all modules to minimize installation errors in emergencies

The straight plates, inner corner plates, outer corner plates, and corner seals we produce all have a unified interface for installation, locking, and fixing structures, which can be installed and combined with each other freely.