

MegaSecur^{INC}
SÉCURITÉ ENVIRONNEMENTALE

Barrière d'eau



Manuel de l'utilisateur

Pour les catégories : **WA, WL, WP** et **Water-Plug**

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CE



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- INSTRUCTIONS FOR ALL BARRIER CATEGORIES -

IMPORTANT NOTICE TO READ

ABSOLUTELY LEARN THE RECOMMENDATIONS IN RED TO PROPERLY MASTER THE BASE OF THE WATER BARRIER IN ORDER TO MAKE A SAFE INSTALLATION.

Considering the lack of time to read the entire instruction manual before an emergency installation, this manual is made from 3 color codes to allow adequate understanding.

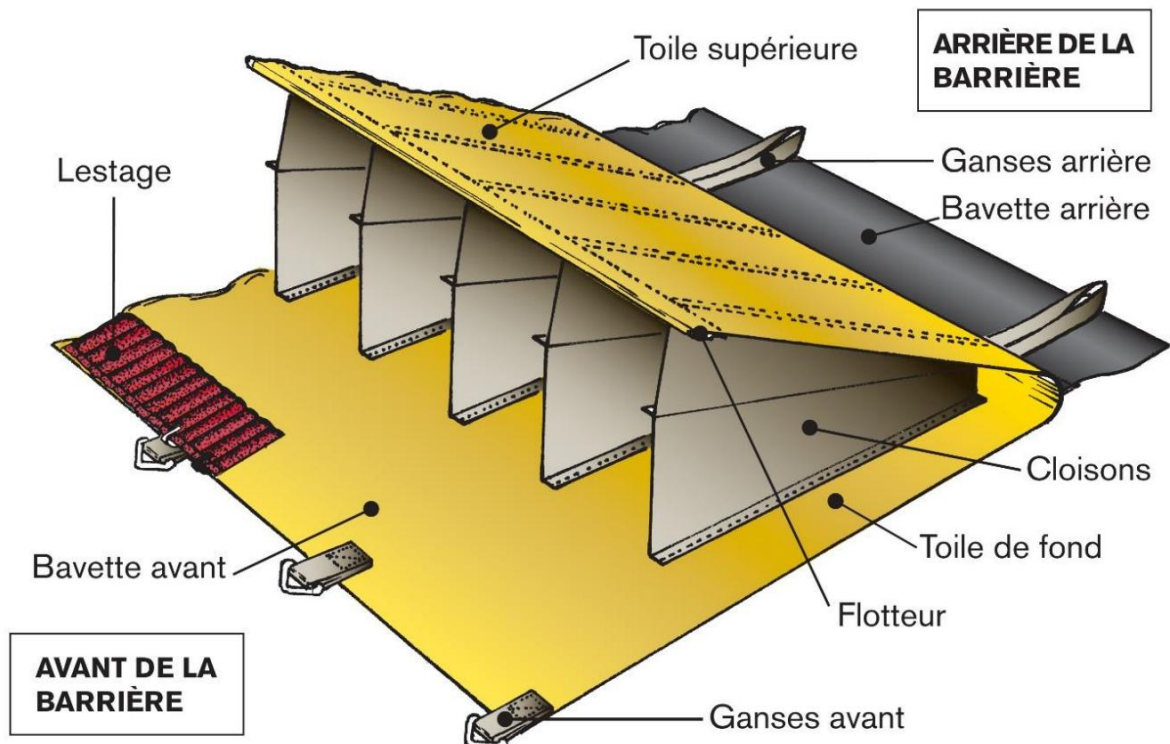
EXTRÊME IMPORTANCE, À LIRE ABSOLUMENT

Important pour la compréhension et selon votre installation

Conseils intéressants à connaître

The simulation of a real installation is strongly recommended in order to properly master the barrier in a timely manner or in the event of an emergency.

DESCRIPTIVE DIAGRAM



- INSTRUCTIONS FOR ALL BARRIER CATEGORIES -

● INTRODUCTION

Congratulations on the acquisition of the Water-Gate water barrier. All our products are made with high quality materials and are inspected to guarantee you increased safety.

◆ RESPONSIBILITY

Before use, you must absolutely read the User's Manual completely and do at least a preliminary test. These operations are intended to ensure that you have mastered all the steps required to install the water barrier. The seller and the manufacturer accept no responsibility for improper installation and/or improper use of the water barrier.

● GUARANTEE

Each barrier is manufactured and inspected according to very rigorous quality standards. A serial number is written on the ends of each barrier, which is guaranteed against any manufacturing defect.

● SAFETY AND SOLIDITY STANDARDS

The water barrier is above all a work tool that must be reliable, safe and durable. According to the safety standards set by MegaSecur, the Water-Gate water barrier is 3 times stronger than necessary, and this, for a minimum holding period of 3 days. For example, if the barrier is amputated by 2 partitions out of 3 and it contains water to its full capacity, the water retention will still be 3 days or more.



● THE CONSTRUCTION OF WATER BARRIERS

The Water-Gate water barrier is made by experienced workers with industrial sewing machines. The sewing stitch used is called "lock stitch". This type of stitch cannot come undone when it is cut or cut. A broken lockstitch will not compromise the next lockstitch.

In addition to using a type of safe seam, we have applied a second seam in parallel to all the partitions of our barriers (except for the WL-06 model), and we finalize the manufacture of each barrier with a rigorous inspection.

● MAIN BARRIER MATERIALS

For categories WA and WL, PVC coated polyester fabrics are used. The main advantage of this type of canvas is its resistance to abrasion. That is to say that if it is slid on the ground, the risk of tearing is very minimal.

For the WP category, only woven polyethylene fabric is used. This canvas resists tearing as well as PVC canvas, but is more sensitive to abrasion.

Partitions for all categories are made with woven polyethylene fabric.

The sewing thread used for all categories is 100% polyester.

Galvanized steel plates serve as ballast for the WL category.

- INSTRUCTIONS FOR ALL BARRIER CATEGORIES -

● DURABILITY

The water barrier being made entirely of polymer, its lifespan is estimated at more than 20 years if it is used for occasional purposes or for short periods of time. Ultraviolet rays are the most harmful to the materials making up the water barrier. However, the polymer fabrics have received treatments to counter the harmful effects of ultraviolet rays.

Since the barrier is made entirely of polymer, there is no risk of degradation due to humidity.

Barrier materials easily withstand temperatures from +50° C/+120° F to -40° C/-40° F. Even stored for several years at these temperatures (maximum of 10 years certification according to material manufacturers), Water-Gate remains just as effective.

● MAINTENANCE

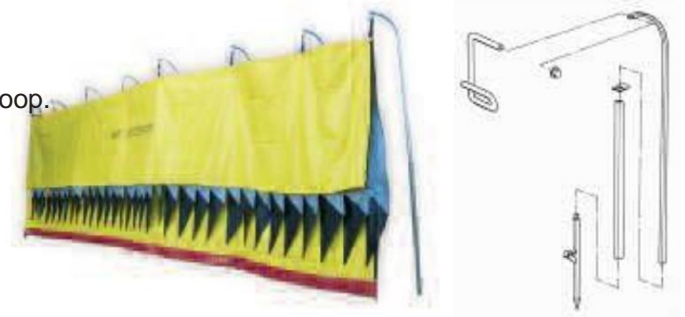
It is strongly recommended to clean and dry the barrier before storing it. This allows you to check the damage it may have suffered during its last use. Pressure washing is the recommended method. Trapped dirt and moisture have no effect on the quality and resistance of the barrier, but unpleasant odors may emerge the next time it is used.

To clean the barrier, hang it from the back, as it has at least one rear loop every 1.52 m / 5 feet. A fence or the side of a garage are excellent places to wash and dry the barrier. Simply install hooks at the top of your fence or on the edge of a garage under gutters. These hooks must be installed on each back loop.



If you plan to make intensive and continuous use of the barrier, it is desirable to be equipped with a good installation for its maintenance. For this purpose, adjustable posts are available for barriers not exceeding 71 cm / 28 inches of restraint. These posts make it easier to hang the gate. Simply attach the back of the gate at shoulder height and then extend the posts higher than your hands. Each post must be installed opposite each loop.

Our suggestion for measuring the exact distance for the installation of hooks or adjustable posts is to unroll the barrier next to the place you have chosen to clean it and place a hook opposite each back loop of the barrier.



- INSTRUCTIONS FOR ALL BARRIER CATEGORIES -

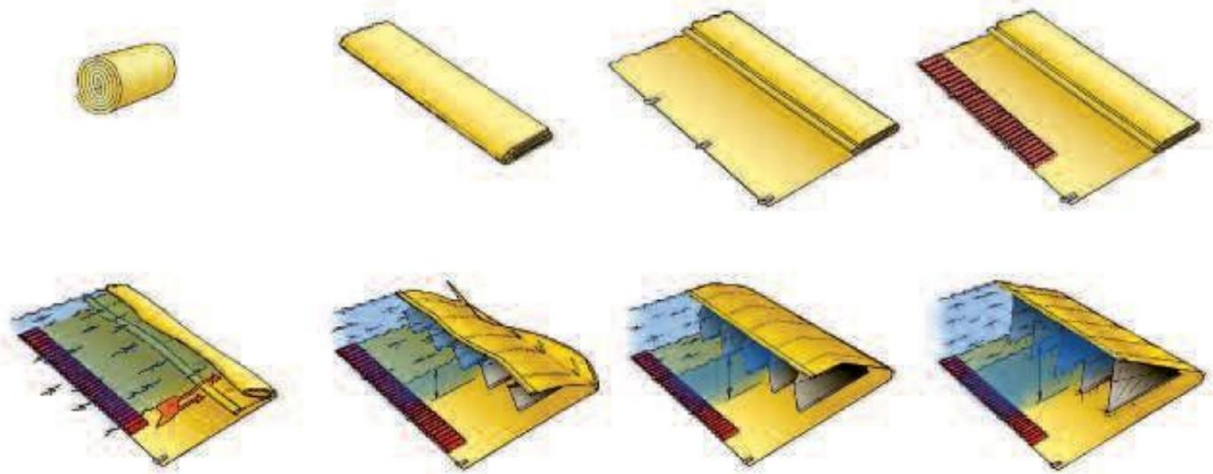
inside the barrier can damage and dry out the fabric, thus shortening its years of use. When properly cleaned and stored, the barrier does not give off an odour. Otherwise, a slight unpleasant odor may emanate when re-deploying.

Each barrier must be stored in its packing bag or box to protect it against ultraviolet rays, dirt and damage, in addition to allowing better handling when moving.

Concerning rodents, they are in no way attracted to shred the polymer webs.

● HOW THE WATER BARRIER WORKS

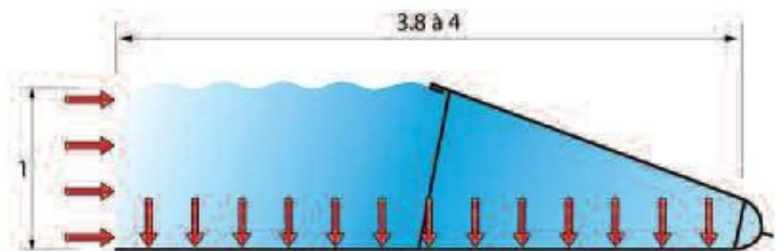
Its operation is simple; it is the water that enters inside and exerts pressure on the bottom of the canvas, keeping it in place. The speed or the direction of the water does not matter, because it is the pressure of the water which allows the opening of the barrier.



◆ WATER THAT RETAINS WATER

The barrier has 4 times more surface on the ground than water retention, therefore 4 times more vertical thrust (or on the ground) than horizontal thrust, which allows good adhesion. For water to retain water on most surfaces such as asphalt or grass, a ratio of 1 to 2½ is usually sufficient for good safety. So for a

ratio of 1 to 4, the Water-Gate water barrier is very safe and the risk of slipping is unlikely. The wider the barrier, the more difficult it is to slide it. In conclusion, the Water-Gate water barrier offers increased security by 33%.



- INSTRUCTIONS FOR ALL BARRIER CATEGORIES -

● CHEMICAL RESISTANCE

Materials have been tested by an independent professional chemist with commercial solvents. The table below indicates the results of the tests carried out with the materials of which the barrier is made. If a single element such that the sewing thread was not satisfactory during the tests, the whole result was rejected. However, it should be taken into account that the chemical properties of certain solvents can change when these solvents are mixed with water, creating a heat reaction that melts the barrier materials.

	Solvent	Categories WA and WL	WP Category
Inorganic acids	Hydrochloric acid	Warranty12 hours	Warranty12 hours
	Hydrofluoric acid or Hydrogen fluoride	Warranty12 hours	Warranty12 hours
	Hydrobromic acid or Hydrobromic acid or Hydrogen bromide	Warranty12 hours	Warranty12 hours
	Nitric acid	Changement de couleur	Warranty12 hours
	AcidephosphoriqueouAcide orthophosphorique	Not recommended	Warranty12 hours
	Sulfuric Acid or Hydrogen Sulfate or Devitriol Oil	Warranty12 hours	Warranty12 hours
		Not recommended	Not recommended
Bases	Hydroxydedesodium	Warranty12 hours	Warranty12 hours
Hydrocarbons	Gasoline, Diesel and Oil	Réparations majeures Warranty12 hours	Réparations majeures Warranty12 hours
Non-polar solvents	Petroleum Ether or Rubber Solvent or Petroleum Distillates	Warranty12 hours	Warranty12 hours
	Hexanes (normal-)	Réparations majeures Warranty12 hours	Warranty12 hours
	p-Xylène or Thinner fast dry TY25635	Réparations majeures Warranty12 hours	Warranty12 hours
	Toluene	Warranty12 hours	Warranty12 hours
	Chloroform or Trichloromethane	Not recommended	Warranty12 hours
	Dichloromethane or Methylene chloride	Not recommended	Warranty12 hours
Polar solvents	Acetone or Dimethyl ketone or Propanone or Dimethyl formaldehyde	Not recommended	Warranty12 hours
	Acetic acid (pure or glacial) or Ethanoic acid	Warranty12 hours	Warranty12 hours
	Ethanol or Ethyl alcohol (anhydrous)	Warranty12 hours	Warranty12 hours
	Methanol or Methyl alcohol	Warranty12 hours	Warranty12 hours
		Vérifications nécessaires Warranty12 hours	Warranty12 hours
	FormaldéhydeouMéthanalouFormol ouAldéhydefornique	Vérifications nécessaires	Warranty12 hours
	Methyl ethyl ketone or Butanone-2	Not recommended	Warranty12 hours
	Tetrahydrofuran or Butane	Not recommended	Warranty12 hours
Others	Ethyl (ethyl) acetate or Ethyl ethanolate	Not recommended	Warranty12 hours
	Acetic anhydride	Warranty12 hours	Warranty12 hours
	Paint thinner	Warranty12 hours	Warranty12 hours
		Vérifications nécessaires	
	Hydroxyded'ammoniumouAmmoniaque	Warranty12 hours	Warranty12 hours
	Hydrogen peroxide or hydrogen peroxide	Warranty12 hours	Warranty12 hours
	Calcium Hydroxide or Hydrated Lime	Warranty12 hours	Warranty12 hours
	Ferric chloride or Iron trichloride	Warranty12 hours	Warranty12 hours
	Sodium hypochlorite (5%) or Bleach	Warranty12 hours	Warranty12 hours

12 hour warranty: The Water-Gate water barrier is solvent resistant for 12 hours.

Not recommended: The Water-Gate water barrier is not solvent resistant.

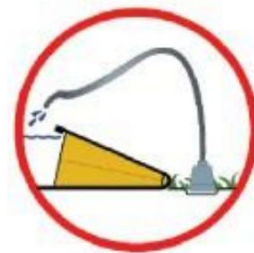
Necessary checks: Minimal alterations to the outer fabric (stiffness, appearance)

Major repairs: Significant alterations to the outer canvas.

- INSTRUCTIONS FOR ALL BARRIER CATEGORIES -

● 4 GOLDEN RULES TO RESPECT FOR ALL CATEGORIES

1. Pump the water from the back of the barrier It is important to leave a reasonable distance between the building and the back of the barrier in order to install a water pump and be able to circulate freely. Water that infiltrates under the barrier must not accumulate behind it; therefore the use of one or more water pumps is necessary to dry out this area.



2. Installation of a uniform weight Do not attach the barrier to the ground since it is the weight of the water that stops the water. However, the installation of a uniform weight over the entire length of the front flap is very important to minimize water infiltration under the barrier and to ensure its maintenance on the ground. Depending on the application, MegaSecur offers models with ballast already integrated for quick installation. Make sure that this weight is properly attached to the front of the flap and that it does not separate from the flap.



3. Prevent water from seeping under the barrier Remove all objects likely to cause water to seep under the flap. The barrier is designed to stay in place on all surfaces (asphalt, gravel, grass, paving stones), but if there is too much water circulating under the flap, the barrier has less grip and may slip. It is therefore important to ensure that no object can cause seepage under the barrier.



4. Never try to plug a leak behind the gate If there are leaks, fix them at the front of the gate. In most cases, this problem is caused by water seepage from the front. Attempting to seal water leaks at the back will create a pool of water and make the barrier unstable.



◆ ATTACH 2 WATER BARRIERS

To attach 2 water barriers, **IT IS MANDATORY THAT THEY ARE FULLY UNFOLDED AT THE ATTACHMENT JOINTS.**

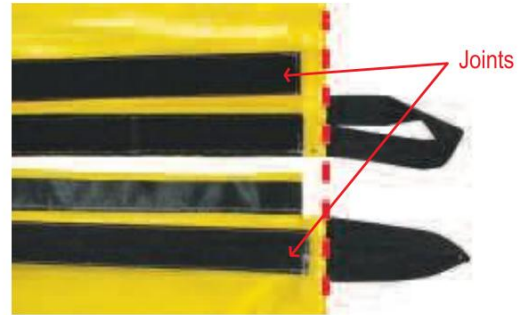
Barriers of all categories and sizes (water retention) attach together, with the exception of the small 15 cm / 6" model. However, these small models attach to each other.

To join 2 water barriers, it is recommended to have a straight surface, mainly where the joint is located. Do not attach barriers in moving water. If the temperature is below freezing, it is very likely that the water freezes into ice in the velvet bands and hooks; in this case it will be impossible to join the barriers.

- INSTRUCTIONS FOR ALL BARRIER CATEGORIES -



1. The first step consists in completely unrolling and unfolding the 2 barriers then placing them opposite each other.



2. The 2 barriers must be aligned at the back. Make sure the seals are open.



3. Open the upper canvases on each side to clear the joints at the bottom and insert the right barrier into the left one.



4. Fold the velor strips and hooks over each other from the back. This technique requires good dexterity to close the back.



5. Continue to close the velvet and hook strips from the back and then finish at the front.



6. When the bottom seam is complete, insert the left handrail partition into the right handrail partition and close the top sections.



7. Close the velvet strips and hooks on top of each other as you did for the bottom joint.

- INSTRUCTIONS FOR ALL BARRIER CATEGORIES -

To attach 2 barriers of different sizes, proceed in the same way. It is important that the 2 barriers are aligned at the back.



Follow the same instructions as in the steps 1,2,3, 4 and 5.

Follow the same instruction as in step 6.

Follow the same instruction as in step 7.

The 2 barriers are now attached. Depending on the desired layout, refer to the category of barrier you have.

● ID NUMBER

To help you correctly identify the barriers, MegaSecur designates a number to determine their category and dimensions. The first 2 letters represent the category and the 2 numbers following the line determine the maximum water retention height in inches. The last 2 digits indicate the length of the barrier in feet.

Example: Model WA-2130

WA= Determines the barrier category. (See below: Applications related to the 3 categories)

21 = Water retention height: 21 inches or 53

cm 30 = Barrier length: 30 feet or 9.1 m

◆ APPLICATIONS RELATED TO THE 3 CATEGORIES

MegaSecur has developed the water barrier whose purpose is to control flooding. Subsequently, users found other applications, which allowed the development of new categories of barriers depending on the application.

1. Category WA: This category is primarily designed for installation in waterways. She can also used for flood control, but is not suitable for this type of application.

a. For firefighters, it is ideal for building up a water supply quickly in the presence of toddlers. streams that are not big enough to fit a suction hose.

b. For contractors, it adapts very well to dry work in streams and rivers, while respecting the environment.

2. Category WL: This category is specifically suitable for flood control and intensive use. Her speed of installation is unmatched.

3. WP Category: This category is also designed for flood control. Its strength is equivalent to that other categories, but it remains more sensitive to abrasion, which explains its lower cost.

Depending on the category of barrier acquired, refer to the appropriate instructions.

----- WA Category -----

● MAIN CHARACTERISTICS FOR CATEGORY WA

Designed for waterways.

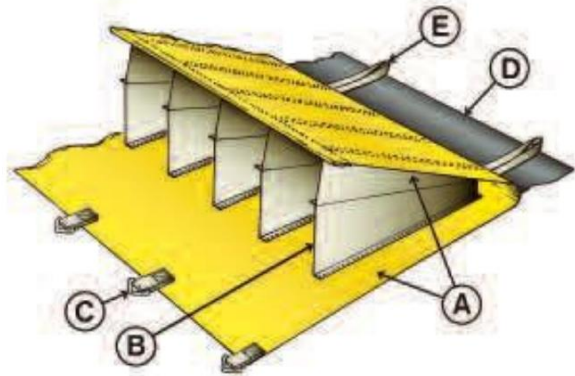
A – Heavy-duty PVC-coated polyester fabric for installations in watercourses with questionable bottoms.

B – Compact partitions leaving the mudflap free for stand up to pump water or cross the stream more safely.

C – Metal rings or polypropylene loops to facilitate certain installations in water.

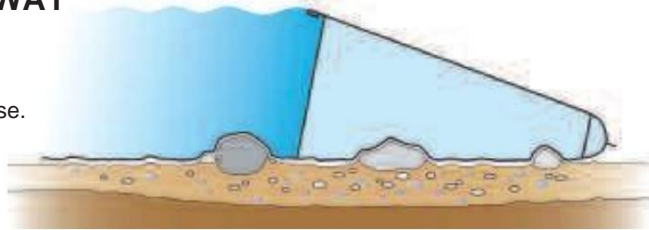
D – Anti-erosion flap to prevent erosion of the bottom of the watercourse if the water passes over the barrier.

E – Heavy-duty polypropylene loops for easy handling.



◆ TWO PRINCIPLES OF ADHESION OF THE BARRIER INSTALLED IN A WATERWAY

1 st Principle: The pressure of the water which rests on the bottom of the fabric of the barrier allows it to hug the entire relief of the bottom of the watercourse. Imagine the barrier with large spikes over the entire surface that is supported. The more uneven the bottom of the stream, the more the barrier adheres perfectly well.



The water barrier has good grip in the vast majority of streams and rivers. However, some streams can be problematic if the bottom is entirely sand or hard, smooth clay. Here are the 3 types of funds that you can encounter during your installations.

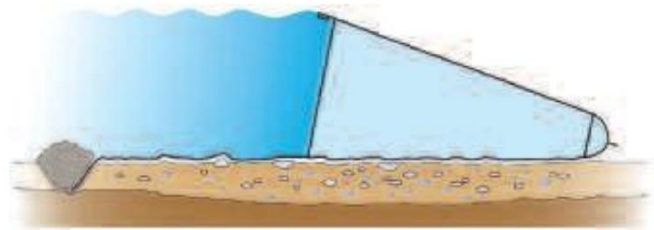
- A. Bottom of a normal stream that is gravel: $\pm 95\%$
- B. Bottom of a watercourse only covered with sand: $\pm 3\%$
- C. Bottom of a clay stream: $\pm 2\%$

A. Bottom of a normal stream that is made up of gravel: This type of bottom is part of the large majority of streams and rivers ($\pm 95\%$ according to our estimate). It is composed of small gravel and/or large rocks. The barrier responds remarkably well in this case. However, if the thickness of the gravel is considerable, water infiltration is probable. So, in order to avoid the passage of water under the barrier, make a trench at across the creek and bury the front of the barrier flap.

B. Bottom of a stream only covered with sand: This type of soil is rarely found in streams water (its frequency is $\pm 3\%$ according to our estimate). The barrier still has a good grip on a sandy bottom. On the other hand, it is necessary to make sure during the installation that there is no infiltration of water under the barrier; otherwise, even if the leak is minimal at the start, it will be difficult to control it and especially to stop it. After a certain time, the leak may become so large that the barrier will sink into the cavity that the leaking water will have undermined, and the

-INSTRUCTIONS COMPLÉMENTAIRES POUR LA CATÉGORIE WA

barrier will eventually slip. This phenomenon is called "fox effect". It is not recommended to install in this type of watercourse. However, if this intervention is necessary, here is what to do: 1) bury the front of the barrier flap at a depth of more than 15 cm / 6 in in sand; 2) place sandbags along the entire length of the barrier skirt, 3) insert a plastic sheet under the joints, if 2 barriers must be attached together, in order to prevent any infiltration that could contribute to cause the fox effect.



Front flap of the barrier buried in the bottom of the watercourse.

C. Bottom of a clay stream: The bottom of some streams is entirely covered with clay ($\pm 2\%$ according to our estimate). The clay can be either solid and very slippery, or shifting and viscous. This type of bottom is little frequent, but in order to allow a good installation, caution is advised by further insulating the front of the fence.

The Water-Gate water barrier adheres to this type of soil. However, as soon as the water level reaches the full capacity of the barrier, the risk of slipping is increased due to the very slippery surface. The precautions to be taken in these conditions are as follows: 1) install stakes at the back of the barrier so that it can lean on these stakes in the event of a slip; 2) put a ballast on the full length of the flap to prevent any infiltration of water below the barrier or bury the front of the flap.

2nd Principle: The adhesion of the water barrier in a watercourse also depends on other factors, including the following:

- A. Water overflow over barrier.
- B. Excess water behind the barrier.
- C. Overflow over with excess water behind.

The examples below are based on an installation made in a stream whose bottom is covered with medium-sized rocks and gravel. The result can be very different if the surface on which the barrier rests is more uneven or smoother.

A. Water overflow over the barrier:

It is unlikely that the situation illustrated in the figure 1 occurs because there is no water accumulation at the back. In this case, the barrier can handle approximately 33% excess water on the above. This approximate percentage is the point of slippage of the barrier.

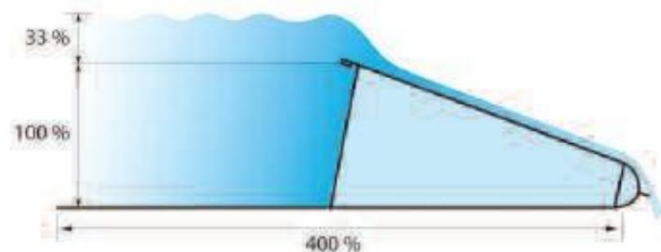


Fig : 1

B. Excess water behind the barrier: The situation illustrated in figure 2 is the inverse of that in the previous figure. The risk of skid is the same as in figure 1, because the maximum amount of water that is acceptable at the back of the barrier is also $\pm 33\%$.

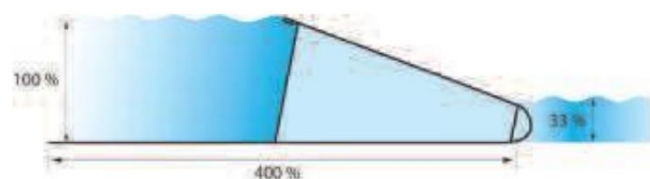


Fig : 2

-INSTRUCTIONS COMPLÉMENTAIRES POUR LA CATÉGORIE WA

C. Overflow over with a surplus

of water behind: The situation illustrated in the figure 3 occurs regularly. The water that is above, added to that which is behind, totals 33%. According to the slope and the flow of the course of water, the upstream surplus may vary, but the total of the two must not exceed 33%.

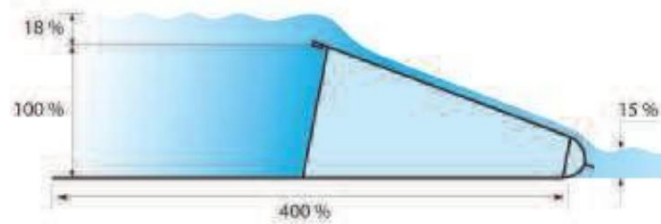
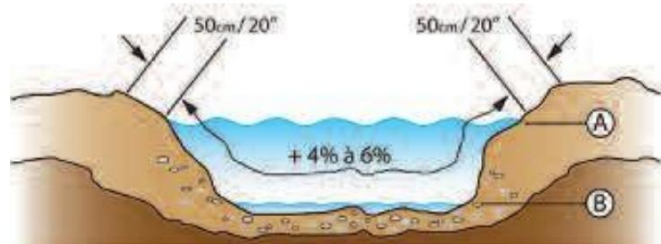


Fig : 3

◆ DETERMINE THE MINIMUM BARRIER LENGTH NEEDED IN A WATERCOURSE

Before deploying and installing the water barrier in a watercourse, it is important to determine the length of barrier needed.

Start by predicting the maximum level A that the water supply can reach at the location where the barrier is to be installed (B = water level before the installation of the dam) and add an additional distance of approximately 50 cm / 20 in on each side. When the distance is determined, add another 4% to 6% to the original measurement. This extra length serves to compensate for the canvas which is spread over an uneven surface and follows the contour of the large rocks which form the bottom of the watercourse.



It is important that the barrier is long enough to prevent water from flowing sideways, otherwise skidding is almost guaranteed. However, an excess of barrier length cannot harm.

The illustration opposite shows the perfect effectiveness of the half-deployed barrier in this situation.



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● TIPS BEFORE INSTALLATION

Some practical advice for a successful installation from the first try.

1. Make sure that the barrier is pointing in the right direction according to the pictogram and the explanatory indications on the barrier.



2. Two comparable good methods for installing the water barrier across the watercourse.

a. From one side of the stream, unroll the barrier flat on the ground and pull it across the stream.



b. Unroll the barrier directly in the water. However, this method is only applicable from one side of the watercourse because of the direction of the water current and the orientation of the rolled-up barrier.



The speed of the current in a watercourse generally does not interfere with the installation of the

barrier. If the water current is very weak, the barrier unrolled on the stream will float; on the other hand, if the water current is strong, the water barrier will settle at the bottom of the watercourse. There is little risk that the barrier will go away with the current or deploy automatically.

3. A final tip before installation: Consider the possibilities for easy barrier removal. There are different ways to remove the barrier but the most used remains the quick removal. To do this, predict on which side the water in the barrier should be released. This side has its end slightly above the limit of the water level reached by the water reserve. By doing so, it becomes as easy to remove the barrier as to install it.



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◆ INSTALLING THE WATER BARRIER IN A WATERCOURSE

After unrolling the water barrier across the watercourse, make sure that water does not come through the sides because the barrier is not long enough (see "Determining the Minimum Barrier Length" section). necessary in a watercourse").

The following step is decisive for a good installation. One installer is recommended for every 3m / 10ft of stream width according to our estimate;

- Watercourse of 3 m / 10 feet = 1 installer is usually sufficient
- Watercourse of 6 m / 20 feet = 2 installers are strongly recommended
- Watercourse of 9 m / 30 feet = 3 installers and more are required

Of course, the presence of an additional person is perfectly useful, especially if the water current is powerful.



1 – Upstream where the barrier will be installed, provide ballast or rocks the size of your fist and even 3 times this size. Count a minimum of one rock (or ballast) every 30 cm / 1 foot along the entire front of the front flap of the barrier that will be submerged.



2 – After having determined the precise location of the installation, begin to deploy the front flap and **ENSURE THAT THERE IS NO WATER ENTERING THE BARRIER** lifting the front flap of the barrier high.



3 – Quickly insert the front flap in front of the barrier into the bottom of the watercourse. After completing this step, it is no longer possible to make adjustments.



4 – At the same time, place the feet on the front flap as a temporary weight by putting on the ballast (rocks, sandbags, etc.) previously collected.

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5 – Continue to place other ballast along the entire length of the front mudflap. Preferably, use the rocks already available in the watercourse to install them on the front of the front flap.



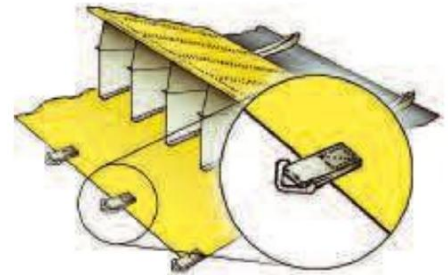
6 – In order to eliminate as much water infiltration as possible below the barrier, pull out long grass, branches and any article likely to create infiltration.

NB: Watertightness depends mainly on the water that infiltrates below the barrier. An installation in a watercourse can be completely watertight since the bottom is usually covered with rocks and gravel. On the other hand, a notch in the bottom of the watercourse, allowing the lip of the barrier to be buried, provides very good watertightness.

◆ USING THE FRONT LOOPS

Here are the main functions of the front loops:

1. Attach our weighting model to ensure its maintenance on the front flap of the barrier. (See the section "Transforming the category WA in category WL")
2. Separate the water from a lake or pond. In this situation, unroll the barrier on the water and tie the front loops of the barrier in the bottom some water. Next, add even ballast across the entire front of the flap and pump the water to the back of the barrier. The barrier attached by stakes at the bottom of the water plays an important role at the beginning of the process of setting up the barrier because the stakes make it possible to hold the barrier in place until the back is almost dry.
3. Hold the ends of the barriers when there are steep slopes on the side of the stream.
4. The front loops should never be used to secure the barrier with stakes in the bottom of a watercourse for the creation of a reserve water. Attaching the barrier with stakes can create water infiltration below it since the stakes prevent the front of the liner from hugging the bottom of the watercourse. Those infiltrations can even grow larger over time and cause the fence.



-INSTRUCTIONS COMPLÉMENTAIRES POUR LA CATÉGORIE WA

● BARRIER REMOVAL



1 – After removing the ballasts, lift the corner of the front flap to let the water enter under the barrier.



2 – Continue by lifting a larger part of the front flap until the barrier begins to slip.



3 – Move forward with the barrier skidding while supporting the front flap out of the water. This perilous maneuver is recommended to prevent the barrier from rolling up on itself and thus facilitate its removal.



4 – As soon as the barrier is stabilized, let the watercourse resume its normal flow.



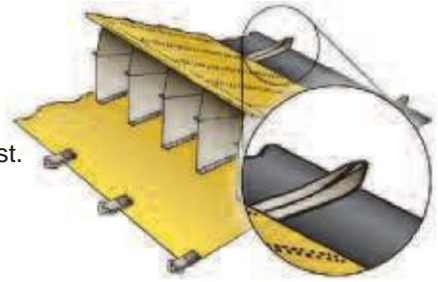
5 – To remove the water barrier, it is absolutely necessary to pull backwards. Loops are specially provided for this maneuver.

-INSTRUCTIONS COMPLÉMENTAIRES POUR LA CATÉGORIE WA

● USING THE REAR GASKETS

The back loops are designed primarily for removing the barrier from the water and hanging it up for easy cleaning and drying.

Do not pull on the rear loops if the weight to be supported is more than 150 kg / 330 lbs. The strength of each back loop has been tested to 200 kg / 440 lbs. With such tension, the braids resist. However, a slight deformation is created in the material.



Under certain conditions, the rear loops can also retain the fabric when a steep slope is present or prevent the barrier from drifting if the water current is directed towards the rear of the barrier.

● TRANSFORM CATEGORY WA INTO CATEGORY WL

If category WA is used for flood control, refer to instructions for categories **WL** and **WP** because it must be taken into consideration that the adhesion of the **WA** category to certain surfaces is less.

To convert the **WA** category into a flood barrier (**WL**), it is mandatory to install a ballast on the front of the flap. This ballast must be heavy enough so that it is not carried away by the water current. In addition, it must be attached to the front of the flap, so that in no case does it slip outside this area. Otherwise, it is very likely that the barrier will slip. The ballast used must be spread evenly over the entire length of the barrier flap .

MegaSecur has innovated by creating a ballast designed to be attached to the loops of the water barrier flap. These weights are made of polyester mesh with cavities filled with small gravel.



-INSTRUCTIONS COMPLÉMENTAIRES POUR LA CATÉGORIE WA

◆ FOLDING THE BARRIER FOR STORAGE

It is very important to fold the fabric correctly, as incorrect folding of the barrier may compromise its installation the next time it is used.



1 - After cleaning and drying the barrier, spread the barrier on a large flat surface.



2 – Using a stick, make sure that all partitions of the barrier are well smoothed.



3 - Before folding, keep all the joints open to facilitate the attachment of another barrier, if necessary.



4 – To begin, fold the anti-erosion flap.



5 – Fold a first rear part of the barrier following the folds already marked on the fabric.



6 – Depending on the barrier model, a second fold is often necessary. The rear folding ends at the barrier float.

-INSTRUCTIONS COMPLÉMENTAIRES POUR LA CATÉGORIE WA



7 – Then, fold a first part of the front flap , always following the folds imprinted on the fabric.



8 – Complete the folding of the front flap by folding it over the entire rear part.



9 – Roll up on the opposite side of the banner.



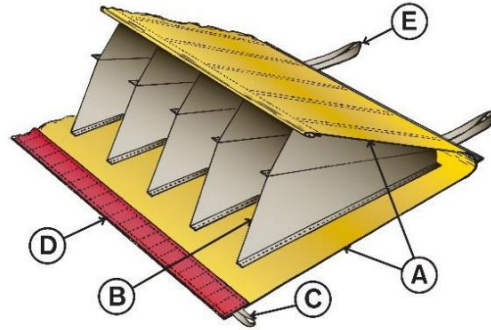
10– The very well rolled up barrier finally looks like this.

-IMPORTANT, TO READ FOR A BETTER UNDERSTANDING-

----- WL and WP categories -----

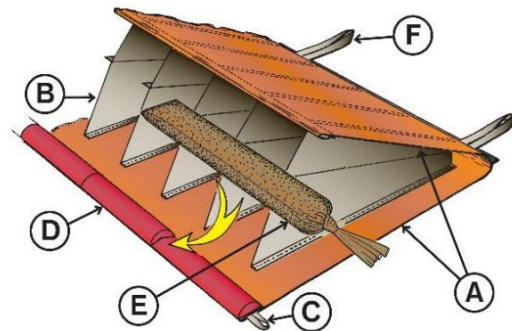
● KEY CHARACTERISTICS FOR THE WL CATEGORY Designed for Flood Control - Heavy Duty.

- A– Heavy-duty PVC-coated polyester fabric offering abrasion resistance for installations on all types of surfaces.
- B – Stretched partitions providing better grip on smooth surfaces.
- C – Polypropylene loops to raise the extremities during special installations.
- D– Ballasting of incorporated galvanized steel plates in a polyester net sewn on the water barrier.
- E– Very resistant polypropylene loops to facilitate the manipulation.



● MAIN CHARACTERISTICS FOR THE CATEGORY WP Designed for flood control - Occasional use.

- A – Heavy-duty polyethylene fabric with the same soundness standards than other categories.
- B – Stretched partitions providing better grip on smooth surfaces.
- C – Polypropylene loops to raise the extremities of the barrier during specific installations.
- D– Polyester net sewn on the water barrier allowing to incorporate weights or small bags of sand serving as ballast.
- E– Small polyethylene bags to fill with sand.
- F– Very resistant polypropylene loops to facilitate the manipulation.



● DIFFERENCES BETWEEN WL AND WP CATEGORY:

The 2 categories are compatible, but have important differences.

- 1. Folding:** Each of these categories is folded differently. When deploying the WL category, the ballast is immediately on the ground while the WP category is folded so as to allow its ballast to be inserted on top of the barrier flap.
- 2. The material:** The strength and safety standards of the 2 categories with different materials are comparable. However, the WL category is made of yellow, highly abrasion-resistant PVC fabric, while the WP category is made of very light, orange-coloured polyethylene fabric.
- 3. Ballast :** A ballast is already included in the WLA category when it is absolutely necessary to insert a ballast in the WP category.
- 4. Application:** The WL category is primarily designed to be boxed for the purpose of covering large distances quickly while the WP category is individually packaged and intended for targeted protection.

-IMPORTANT, READ FOR A BETTER UNDERSTANDING

● **ADHESION OF THE BARRIER INSTALLED ON A SMOOTH SURFACE**

The pressure of the water which is supported on the bottom of the canvas of the barrier is 4 times greater than the pressure exerted by the side (see: **WATER THAT RETAINS WATER, p.6**), which is more than enough for an excellent retention on most surfaces encountered outdoors, such as: asphalt, grass, gravel, paving stones, etc. However, there may be some exceptional surfaces that require special attention, ie, extremely smooth surfaces such as tarmac or polished cement. The phenomenon that occurs with this type of surface is that the water remains trapped between the backing of the barrier and the smooth surface. It's as if your automobile tires were worn to the limit.

The principle of good ground restraint is simple, but extremely important to understand. **THE WATER IN THE BARRIER MUST NOT ACCUMULATE BELOW IT AT ANY TIME.** The barrier deployed on normal asphalt is very safe thanks to small cracks that evacuate the water to the back of the barrier.

If you have to install on an **EXTREMELY SMOOTH surface**, don't worry about the stability of the barrier; there are simply additional precautions to be taken. Here are some solutions:

1. Apply under the ballast and over the entire length a food material such as molasses, caramel or even bread dough. This material will settle between the asperities of your surface (asphalt, paving stone, etc.) and will also stick very well to the fabric of the barrier. This process is ideal for eliminating water infiltration, and moreover, you are assured of a better adhesion. This is a special technique but effective, and not harmful to the environment! If the barrier is installed on the lawn, you can make a trench and bury the front part (or ballast) of the barrier.



2. Place stakes on the back of the barrier at a distance reasonable (1 to 3 meters / 3 to 10 feet) or even, use vehicles to press them against the back of the barrier. That technique provides full assurance that the barrier will not won't slip. If the barrier had to slip, it would lean gently on stakes, stakes or vehicles and would hold back the flood without damaging anything.



Normally, none of these precautions are necessary; however, if you use one or two of these proposed methods at the same time, we believe it is impossible that the barrier cannot be retained in place.

-IMPORTANT, READ FOR A BETTER UNDERSTANDING

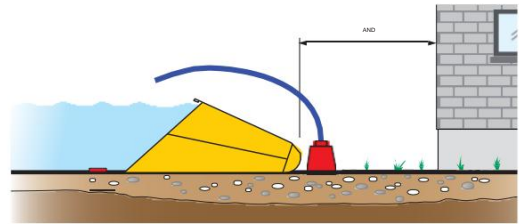
● DETERMINE THE HEIGHT AND LENGTH OF THE NEEDED BARRIERS

Straight lines are easy to determine, however, we recommend adding 1% to 3% more barrier length. This slight extra charge is necessary due to surface imperfections and material which may have shrunk slightly during manufacture.

To go around a building, the calculation is a little more complex, but our instructions will simplify your installation.

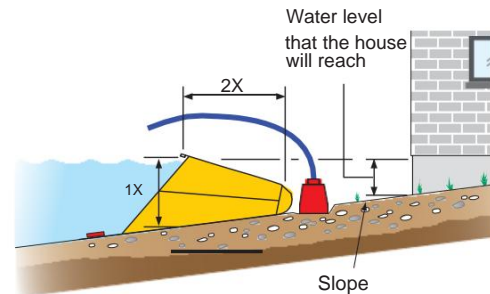
1. Keep a reasonable space between the protective dike and your building:

No matter where you are going to make your protective dike, it is necessary to have a reasonable space \ddot{y} to be able to circulate there and to put pumps of good capacity so that there is no more water at the back barriers. It is important that the back of the barrier is not leaning against the wall. Install the barrier as far as possible from the place to be protected to maximize your protection.



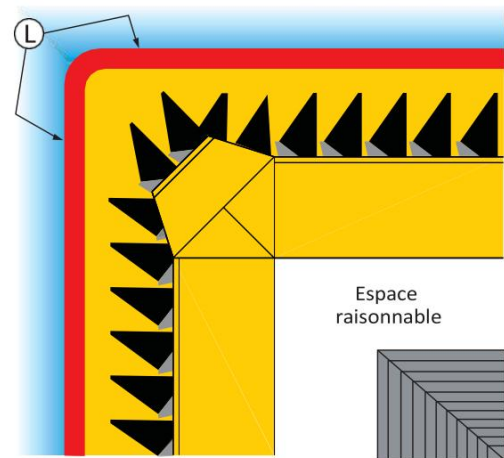
2. Determine the height of the flood water level:

It is important that the chosen barriers are not more smaller than the maximum expected water level. Pay attention to land with a slope, because the water level against the house will certainly be lower than the one where installed water barriers. As soon as the barrier chosen for its water retention, count 2 times its retention to determine where will be located behind the barrier.



3. Determine the length of the barriers:

To determine the required lengths, you must absolutely measure the furthest part \ddot{y} of the barrier and also consider the contours of the terrain. What's more, add 1% to 3% on the length due to imperfections ground. On the opposite illustration, it is the red part \ddot{y} (or the ballast) which determines the length of the barriers required.



Top view

Reference table for accuracy, if needed

Model	Water retention 1X	Half-width 2X	Total width 4X
WL-14etWP-14	35cm / 14"	56cm / 22"	1,5 m / 60"
WL-20etWP-20	50cm/20"	1 m / 39"	1,8 m / 71"
WL-26etWP-26	67cm/26½"	1,3 m / 50"	2,5 m / 98"
WL-39	1 m / 39"	2,3 m / 90"	4 m / 160"

E = Reasonable space behind the barrier.

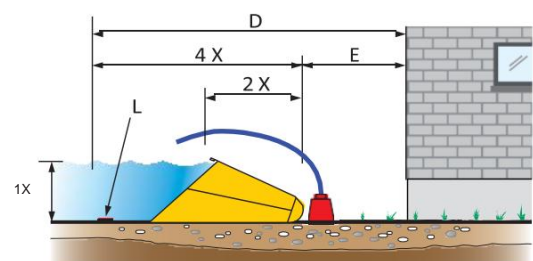
1 X = Dimension of the water reservoir.

2 X = Dimension 2 times larger than the water reservoir.

4 X = Dimension 4 times larger than the water reservoir.

D = Calculation distance for barrier length.

L = Barrier length required.



Side view

-IMPORTANT, READ FOR A BETTER UNDERSTANDING

◆ MAKE A CORNER OR BEND THE WATER BARRIER

To make a corner or bend the barrier, **IT IS MANDATORY THAT IT BE COMPLETELY UNFOLDED** over the entire section forming the corner or the entire rounded section.

As explained in the previous article, it is always the furthest part of the barrier that must be taken into consideration when determining the length of the barriers required. The green dotted line in the photo designates the barrier length required. It is possible to bend the barrier in all angles, however, we recommend that the folding is done to repel water. Otherwise, that is, if you try to make a corner to contain the water, it may have

many losses in these corners, and too much water loss can cause skidding of the water barrier. It is for this reason that we advise against bend the barrier in order to contain the water, even if this method can work very well.

The barrier is better suited and safer to repel water since its front ballast remains even on the ground and is not creased on itself. Thus, water leakage is at a minimum below the barrier.

Here are 4 methods that may be useful to you in your installation. You don't have to worry about deploying the barrier: the water pressure will force the wedge to deploy properly.



Method to contain water
(Installation not recommended)



Method to repel water
(Installation recommended)

1. Square corner to repel water: This method is probably the most used for the protection of a building. You can give all possible angles to the barrier, even angles of more than 90°.



1 - Completely unfold the water barrier.



2 – Place a ballast on the front of the barrier flap and pivot to the desired angle.

-IMPORTANT, READ FOR A BETTER UNDERSTANDING



3 - Bring the material together and smooth out the upper fabric. 4 – You can remove the ballast that was used to make your corner, and your installation should look like this.

2. Square Wedge to Contain Water: This method is used infrequently and is not recommended, but can work very well if you make sure to eliminate infiltration that may occur at the front of the barrier and mainly in the area.



1 – Completely unfold the water barrier.



2 - Place a ballast at the back of the barrier and give the necessary angle to contain the water.



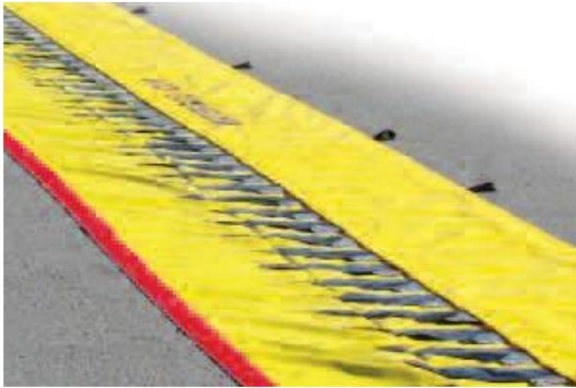
3 - Bring the material together and smooth out the upper fabric.



4 - Place weights on the entire surface of the front flap to avoid creating infiltrations in the joints.

-IMPORTANT, READ FOR A BETTER UNDERSTANDING

3. Round the Barrier to REPEL the Water: Used primarily on winding streets, this deployment is usually made from a box with several barriers attached together. If the curvature is pronounced, it is best to fully unfold the barrier in the rounded section to ensure that the ballast is even on the ground.



1 – Completely unfold the water barrier.



2 – Round your barrier to the desired curve.



3 – Uniform ballasting at the rear is highly recommended to keep the fabric on the ground and prevent the wind from lifting the barrier.



4 – Without ballast, the fold of the fabric is exposed to the wind. This opening may cause the barrier to lift and compromise your installation.

4. Round the barrier to CONTAIN the water: Used on winding streets, but in the opposite direction to that of the previous figure. If the curvature is slightly pronounced, you must completely unfold the barrier in the rounded section. This special attention is necessary so that the back of the barrier is not stretched and to avoid water infiltration below the steel pads which will tend to compress and rise.



1 – Completely unfold the water barrier.



2 – Round off to the desired curve, ensuring that the back of the barrier is not stretched.

-IMPORTANT, READ FOR A BETTER UNDERSTANDING



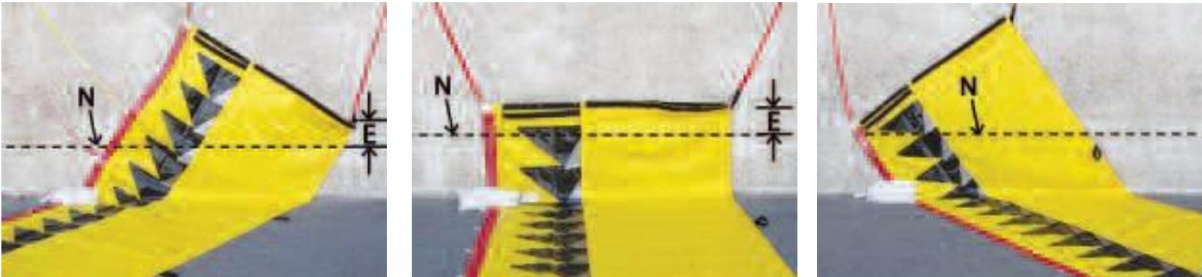
3 – Add a second ballast over the entire length to avoid water infiltration.



4 – Sandbags can also be used to close the cavities of the barrier ballast.

◆ HOW TO TERMINATE THE ENDS OF WATER BARRIERS

The ends of the water barriers are not closed, as they must rise higher than the flood level. Since water flows freely inside the water barrier, it is very important that the front and/or back side of the barrier is higher than the maximum flood level. The 3 photos below show that it is important for the barrier to extend the wall or ledge sufficiently so that water does not come out of the ends. Thus, the extension with an excess of barrier will give you full security.



N = Flood water level or maximum opening of the water barrier.

E = Provide excess barrier. We recommend a minimum excess of 50% more barrier length, depending on the flood water level.

In addition, each time the barrier has to rise suddenly on a wall, a passage is created favoring infiltration in the corner. It is therefore strongly suggested to place one or a few sandbags in this corner. The water pressure that is exerted on the barrier stretches the fabric, creating a larger opening for infiltration in this corner.

● WP CATEGORY MUST HAVE BALLASTING

The WP category has the main advantage of being light and compact.

However, because it is not equipped with (so important) ballast, it requires a different folding than the WL category. For the WP category, you must fully unroll the barrier, unfold the front flap of the barrier and insert a sandbag specially designed for this purpose.

The instructions for filling our sandbags specially adapted for the WP category are printed on these bags.



-IMPORTANT, READ FOR A BETTER UNDERSTANDING

◆ PROTECT AN ENTRY

The water barrier is not designed to be installed in a door frame. For adequate protection, you must go around the door and pull up the ends of the barrier on either side of the wall. This protection requires long barrier lengths, because you have to calculate the outer contour of the barrier.

By using Water-Gate water barriers for your doors, you will be further protected, as you will be able to pump the water that will infiltrate before it reaches your door. You will also have access to the exit of your building in peace.

If you have decided to protect only the entrances instead of protecting all the walls of your building, make sure that there will be no water infiltration through these walls. The attached photo shows an air hole through the brick. There are small ventilation holes in all brick facades that have an insulated wall. Be sure to caulk these small holes before the flood and also plan to clear these same holes after the flood.



◆ INSTALLATION ON A SUMP GRATE

Under no circumstances should you install your water barrier on a sump grate, unless you are certain that it will not back up during flooding. If your water barrier must be installed where there is a sump grate, you definitely need to bypass that sump and find another route. You can install the barrier behind the sump, which would be the simplest solution, or install it in front of the sump. With this second solution, you will have to plug the sump. We also have a product designed for sump discharge. To find out more, see our section **"INSTRUCTIONS AGAINST SUMP BACKUPS"**. p.33



● NEVER PRESS THE BACK OF THE WATER BARRIER ON A WALL

If you lean the back of the water barrier against a wall, water will slowly collect between the wall and the barrier. The water accumulated at the back of the barrier will enter your building, and moreover, the barrier will become unstable.



Wrong method



Good method

-IMPORTANT, TO READ FOR A BETTER UNDERSTANDING-

THE IMPORTANCE OF HAVING WATER PUMPS

Regardless of the dike, it is almost certain that there will be water leaks into the secured area. Water pumps are as important as your dike. they will be in good working order. A generator that can power all your water pumps or gas-powered water pumps is highly recommended .



These leaks will have several origins such as:

- soggy soil that will become permeable,
- small cracks under or through the dam,
- the return pipes,
- Unbalanced water pressures due to flooding.

For the installation of these pumps, it is also important to leave a reasonable distance between the building and the back of the backyard to install one or more water pumps and also to be able to circulate freely in order to regularly check the pumps. Make sure you have pumps powerful enough to pump all the water that seeps under the back and prevent this water from reaching the wall of the building.



It is difficult to predict the quantity of water pumps needed as well as their power, however, we recommend a minimum of 2 pumps, one in your basement and the other between the wall of the building and the protective dike . For water leaks that will cross your dike, provide pumps with a capacity of pumping from 2 to 14 litres/minute for each linear meter of dike. Required pump capacity varies mainly depending on the type of soil where your dike will be installed.

ELIMINATION OF WATER INFILTRATIONS UNDER THE BARRIER

The secret of an installation water barrier safety starts with maximum leakage reduction

of water that occur below the barrier. To do this, it is important to remove any object underneath to then place a ballast uniform.



It is also necessary to take into consider the relief of the terrain.

The barrier may be placed on a surface with a sidewalk, creating a empty space between the sidewalk and the street which will give way to significant water infiltration. In such a case, we recommend installing a sandbag to properly caulk this opening.



Wrong method



Good method

Caution: When flood water enters the barrier, the fabric may contract and create new orifices allowing water to pass below the back. You must always monitor this phenomenon carefully.

-IMPORTANT, READ FOR A BETTER UNDERSTANDING

◆ BARRIER REACTION WITH LEVENT

The water barrier can be installed without too much trouble, even with strong winds. The force of the wind is not on the surface of the ground. All that is in height and is torn off by the wind finds itself on the ground and ceases its course.

As the water barrier is unrolled on the ground, it is less threatened by the wind than objects located at a higher level.

It is therefore easy to maintain the barrier on the ground despite very strong winds. However, important (or additional) precautions must be taken. Despite the reduced wind at the surface of the ground, a vacuum is created on the top of the stern and can cause the stern to lift and move.

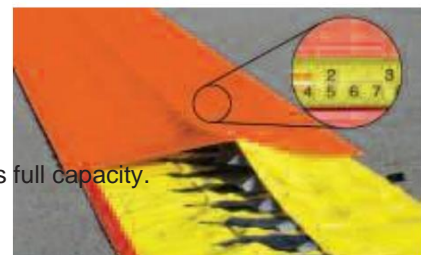
If possible, to minimize the effect of gusts of wind, keep the barrier folded and add appropriate ballast in sufficient numbers to remedy this problem. When the flooding arrives, the barrier can unfold and deploy automatically according to weight arrangement, but you will need to push in harmful weights to ensure proper deployment.

Increase the number of sandbags if the winds rise.

Another solution that we believe can make the water barriers withstand the worst wind experienced so far would be to place a net over the deployed barriers. This net would be attached to the ground in front and behind the barrier. When the flood arrives, the water will pass through the net, enter the barrier and accumulate in sufficient quantities in the barrier to provide protection for several centimeters.

At this time, you can remove the net so that the barrier can deploy to its full capacity.

The water that enters will exert an excellent retention of the water barrier on the ground.



◆ THE IMPORTANCE OF NOT ATTACHING THE WATER BARRIER TO THE GROUND

We advise against attaching the water barrier to the ground for 2 reasons:

- ÿ This tends to contract when it fills with water. Attaching the barrier causes tensions on the front flap, and these tensions create infiltrations since the fabric cannot mold to the ground.
- ÿ The barrier attached to the floor can complicate a new configuration, should it become necessary.



-IMPORTANT, READ FOR A BETTER UNDERSTANDING

◆ FOLDING TO STORE WATER BARRIER

The folding of the WL category is different from the WP category. It is very important that each category of water barrier be bent as required. When deploying the WL category barrier, the ballast sewn on the flap of the barrier immediately reaches the ground when the barrier is deployed, whereas it is necessary to insert ballast with the WP category. It is for this reason that the folding of these 2 categories of barriers is different.

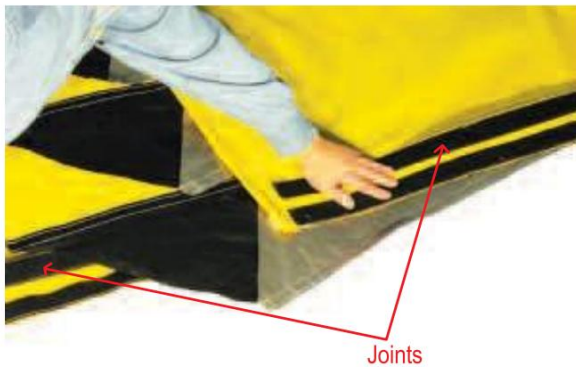
Folding for WL category (model WL-1430 shown)



1 – After cleaning and drying the barrier, spread the barrier on a large flat surface.



2 – Using a stick, make sure that all the partitions are smoothed out to obtain a compact package and thus allow the roll to fit better into its package.



3 – Before folding, keep all the joints open to facilitate the attachment of a second barrier, if necessary.



4 – Bend from the back so that the ballast is in the center and below the barrier. Use the creases already marked on the canvas as a reference.

Notez que pour chaque grandeur de barrière, le pliage et le nombre de plis différent.



Models WL-06 and
WL-14 **1 ply only**



Models WL-20 and
WL-26 **2ply**



Model WL-39
3plis

-IMPORTANT, READ FOR A BETTER UNDERSTANDING



5 – Wrap on the opposite side of the banner indications. 6 – The neatly rolled up barrier should look like this.

Folding for WP category (model WP-2030 shown)



1 – After removing the ballasts and thoroughly cleaning and drying the barrier, lay the barrier on a large flat surface.



2 – Using a stick, make sure that all the partitions are smoothed out to obtain a compact package and thus allow the rolled up barrier to fit better into its packaging bag.



3 – Before folding, be sure to keep all the joints open to facilitate the attachment of a second barrier, if necessary.



4 – Start folding a first part at the back. Use the creases already marked on the canvas as a reference.

-IMPORTANT, READ FOR A BETTER UNDERSTANDING

Note that for each barrier size, the folding and the number of folds differ.

Model WP-14 1
fold at the back
2 folds at the front
Total width: 48cm / 19"

Model **WP-20** 2
folds at the back
2 folds at the front
Total width: 48cm / 19"

Model WP-26
2 pleats at the back
2 pleats at the front
Total width: 64cm / 25"



5-If necessary, depending on the model, fold a second part at the back. The folding ends at the float of the barrier.



6 - Ensuite, multi-dimensionnal free-flowing part-of-a-row.



7-Terminer le pliage de la bavette avant de replier sur la partie arrière entière.



8 - Roll up on the opposite side of the banner.



9 - The tightly coiled barrier finally looks like this.

-IMPORTANT, READ FOR A BETTER UNDERSTANDING



◆ **FOR FM GLOBAL INSTALLATIONS, THE FOLLOWING PRECAUTIONS WILL HELP YOU ACHIEVE THE BEST FLOOD MITIGATION AND PREVENT OVERFLOW.**

During waves, the Water-Gate barrier opens at the same speed as the waves approaching the barrier. Regardless of the speed of the waves, the barrier opens like a parachute in the wind and therefore an overflow can occur. In order to prevent overflow, we recommend the following steps:

1. There are small holes at the bottom and top of the partitions to insert stiff rods or wooden dowels to keep the gate open at all times. Rods or dowels must be installed before the water does not reach the barrier. We suggest putting these (1) inch shorter than required or level of determined retention.



2. During a flood, you may witness water overflowing over the barrier. even if rods or dowels are installed. To solve this problem, you can use a piece of 1" h x 12" w x 3' long styrofoam to provide additional buoyancy at the top of the barrier and thus prevent spills from above.

3. When tested at US Army engineering facilities, the use of a sandbag on all feet was used to reduce the flow under the barrier. Sandbags can also help during hurricanes or strong winds to keep the barrier in place. It was noted that several sandbags placed against each other in the corners greatly help to reduce runoff in general.



-IMPORTANT, READ FOR A BETTER UNDERSTANDING

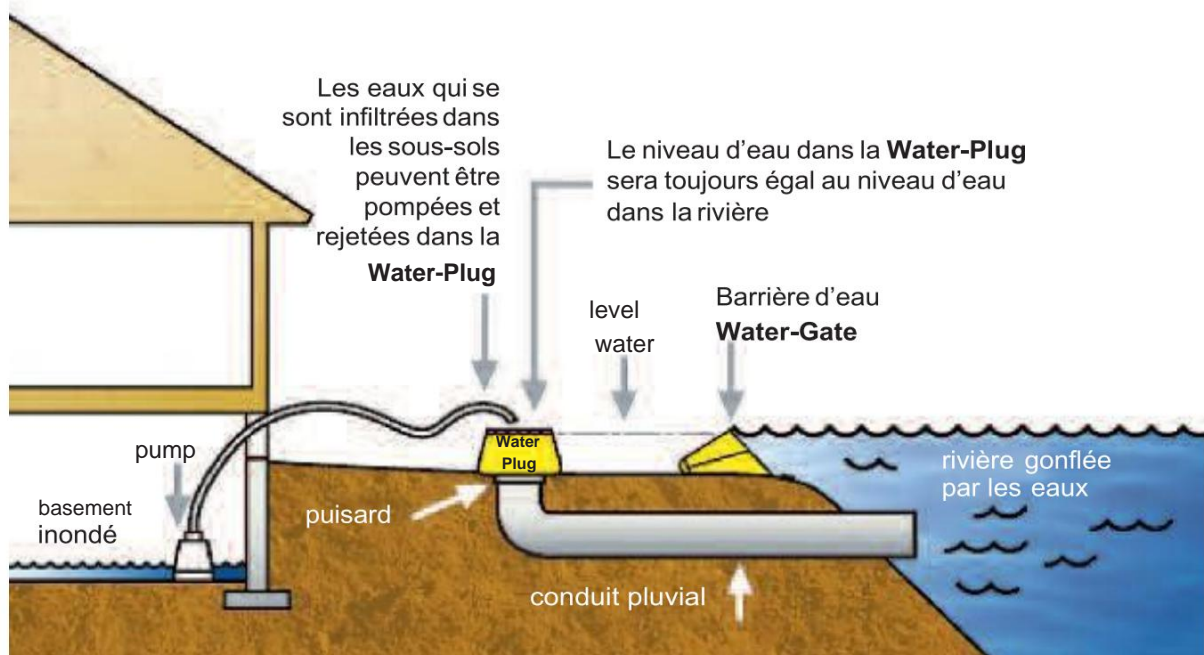
4. The use of wooden dowels, styrofoam and sandbags are required in order to obtain an **FM** installation **Approved** due to flow ratio measured during testing.



● INSTALLATION DE LA WATER-PLUG

To remedy sump backflow problems, we have developed a product called Water-Plug. This product is very quick and easy to install: you just have to deploy the Water-Plug and the position on the sump. The conical shape of the Water-Plug allows its automatic deployment, even if the sump has started to push back the water.

Another advantage offered by the MegaSecur Water-Plug is to reject the water from the various infiltrations due to flooding into the nearest Water-Plug, as shown in the diagram below.



-IMPORTANT, READ FOR A BETTER UNDERSTANDING



National Flood Barrier Product Testing and Certification Program

The Association of State Flood Plain Managers (ASFPM) in conjunction with **FM Approvals** and the **US Army Corps of Engineers National Nonstructural/ Flood Proofing Committee (NFPC)** have implemented the National Barrier Product Testing and Certification Program. to ward off and prevent flooding. This program is currently testing flood products in three categories, temporary flood barriers, closure devices and drain valves.

Our product can be found in the temporary flood barriers category:

Temporary barriers are for temporary use when there is a risk of flooding. These barriers are usually installed just before a flood and are usually removed once the threat of flooding has passed. The installation of these barriers does not require any fixed anchors. We have achieved silver certification.

Our certified products are: WL-3930, WL-3950, WL-5030, WL-5050, WL-6030, WL-6050



Silver: Consists of water (minimum (1) foot hydrostatic test) and material test, plant and product inspection and audit trail.

In order to meet **FM Approved** standards , it took 8.6 man hours to install an 84-foot-long U-shaped barrier.

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www.water-gate.com