

# INFILTRATION DEPOSITS

## INSTALATION RECOMMENDATIONS FOR HIDROCRATE



**STORA s.r.o.**

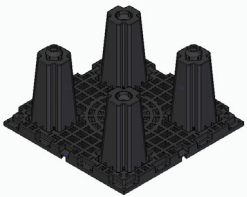




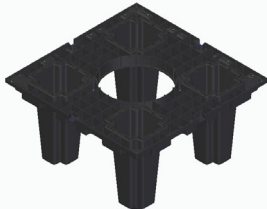
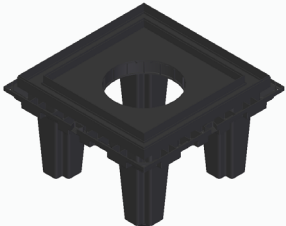
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We recommend the complete Reading of these recommendations before start with the assembly of the Hidrocrate or the excavation.

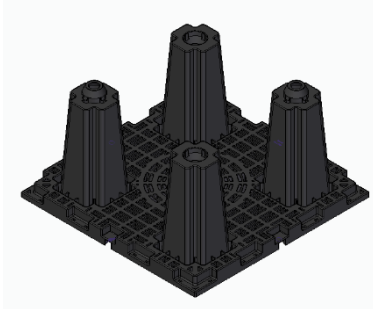
## PRODUCT DESCRIPTION

Hidrocrate is a geo structure made of polypropylene, which is composed of different pieces that assembly among themselves to form infiltration tanks and consist of the following parts

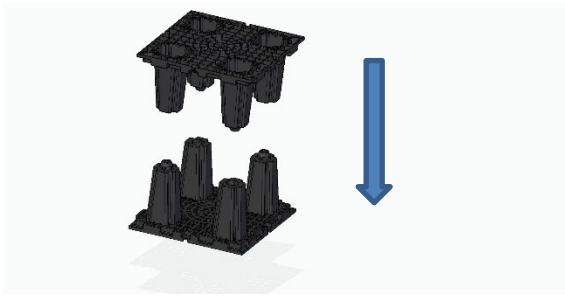
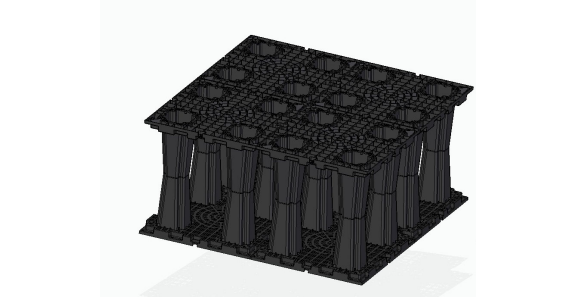
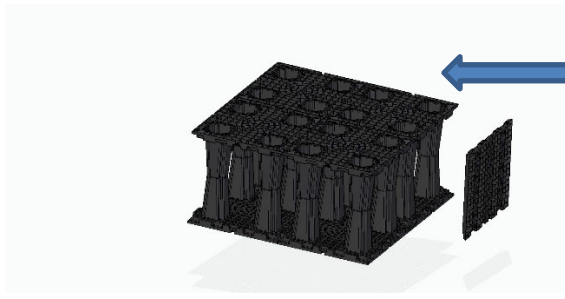
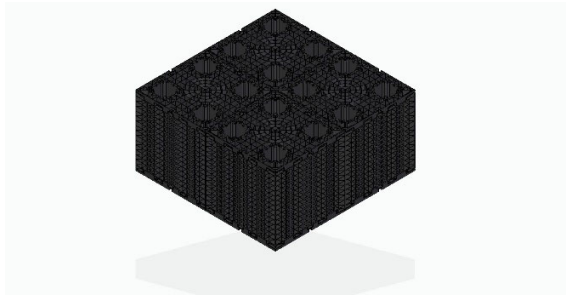
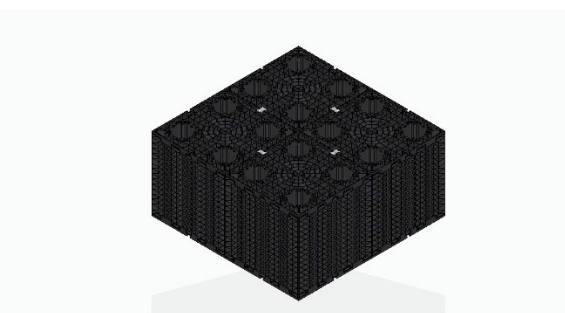
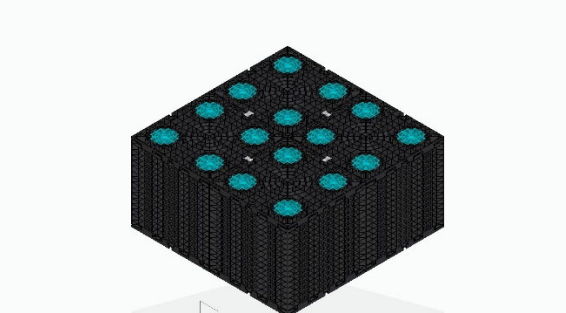
COMPONENTS	
	<b>HI-010</b> Hidrocrate base piece of dimensions 500 x 500 x 250 mm
	<b>HI-011</b> Hidrocrate Side Face Dimensions 500 x 430 mm
	<b>HI-012</b> Hidrocrate cover of dimensions 120x120 mm
	<b>HI-013</b> Hidrocrate Lateral joint piece
	<b>HI-014</b> Hidrocrate Upper joint piece
	<b>HI-015</b> Hidrocrate base piece of dimensions 500 x 500 x 250 mm with upper Access diameter 210 mm
	<b>HI-016</b> Hidrocrate base piece of dimensions 500 x 500 x 250 mm with connection for Inspection Manhole



## Tank assembly



It starts from the base piece HI-010, which has dimensions of 500 mm x 500 mm x 250 mm (Width, Length and Height). The system is made up of a base piece that, when joined with another equal piece placed on top of the first, forms a block (step 1). By adding more blocks, we can increase the surface and consequently the retention volume (step 2). To finish the assembly, the lateral faces are placed only on the perimeter of the tank (step n°3), the union pieces (step n°4), and the upper covers (step n°5).

<p>Step n°1</p> 	<p>Step n°2</p> 
<p>Step n°3</p> 	<p>Step n°3 bis</p> 
<p>Step n°4</p> 	<p>Step n°5</p> 



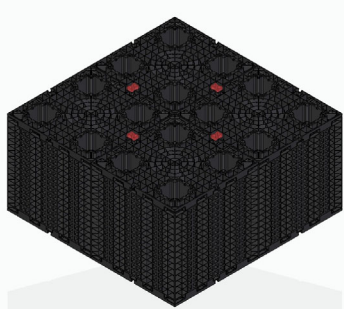
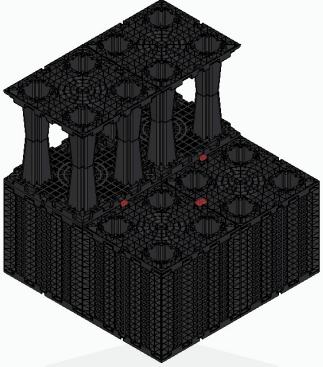
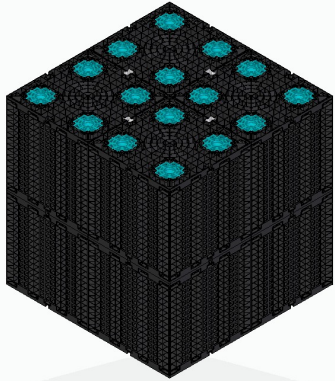
### Combination Model

If due to construction needs, we need to increase the height of the tank, screed connectors are used (step 1), which hold the blocks of two adjoining heights preventing their horizontal

displacement. Next, we start assembling another height of blocks in the same way as the previous assembly of blocks and placing them on the connectors (step 2).

To finish the assembly of the tank, the lateral faces, the union pieces, and the upper covers are placed (step n°3).

For models higher than 6 block heights (3 m high), consult with STORA.

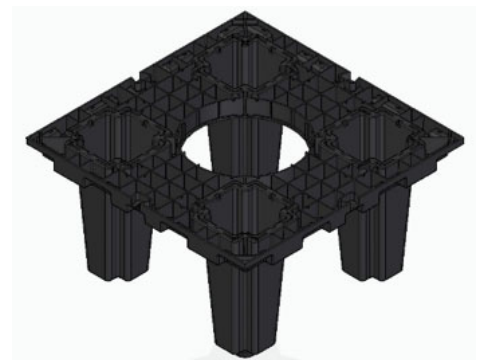
Step n°1	Step n°2	Step n°3
		

### Access Model



The access model, HI-016 upper access piece, allows the incorporation of the manholes that Hidrocrates also provides to the Hidrocrates and thus allows access to the CCTV pipe inspection cameras and cleaning equipment. To materialize it, the upper HI-010 piece is replaced in the access block by the HI-016 piece that incorporates the base to assemble the pieces of the manholes.

If the tank consists of more than one height of blocks, the HI-016 piece will be located in the upper part of the block placed higher, under it, HI-015 pieces will be placed (piece with circular access in the center, but without the base where the box will be placed) until reaching the lower block where a HI-010 piece will be placed against the bottom of the excavation.



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## DOWNLOAD AND STORAGE

Depending on dimensions and geometry of the deposit, it's important to plan the places of download and assemblies of the materials before downloading them. Please consider that they can be a lot of pieces and unnecessary handlings can affect the costs of installation.

Hidrocrates can be piled up to 6 heights. In case of long-term external storage, be carefully with the wind zones. When the external storage will be more than one year, it's necessary to protect the pieces against UV, covering them completely.

## EXCAVATION



For every project STORA supplies the mounting drawings, with the detail drawings of every module and the position of them. Before starting the excavation, please assure that you have all the necessary materials to complete the installation and that they aren't damaged.

The excavation must be made following the drawings of the Project and attending to the specific security plan on each zone.

## Conditioning and levelling the land

Spread out clean gravel with 6-8 mm arid size until get a well levelled bed of 15 cm thickness on the entire surface, except if it's specified to make it with some slope. Try to avoid more than 0,5% slope. It is very important to achieve a good levelling to facilitate the subsequent assembly of the modules with each other.



## SPREAD UP THE GEOTEXTILE



The structure must be completely enclosed with a suitable geotextile, cut out the different sheets on the way that they cover the entire surface and have the enough length to enclose the entire structure. When it is spreading out over the base, if you need some sheets, it's necessary to overlap them at least 30 cm, and avoid the formation of creases.

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Temporarily, it is convenient to fasten the geotextile from above with anchors around the perimeter to prevent it from falling during the assembly of the blocks so that it remains well extended, avoiding the formation of wrinkles



## INSTALLATION AND ASSEMBLY

The Hidrocrate are supplied disassembly, follow the assembly instructions as the drawings that are supplied with each model.

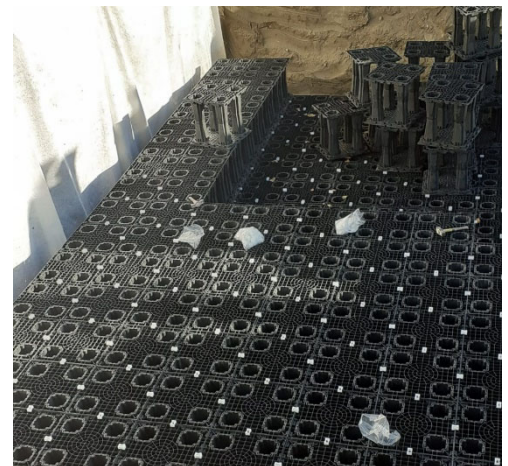


Once the material is available, the pallets of parts must be moved to the excavation with suitable machinery and the Hidrocrates assembled below in the excavation, in this way the movement of materials is minimized. In large tanks, it is advisable to distribute the material in such a way as to minimize movement. Before placing the first block it's advisable to plan the mounting assuring that it respects the alignment and distances of the

deposit to the walls, to check it we can use ropes or also mount two adjacent sides of the deposit to check their alignment and squared, and the planned dimensions to respect. With this check, locate the first block, placing it in the correct position.

When the tank is configured by Hidrocrate of 2.3... heights, it is recommended to assemble blocks and install them, later the union and screed pieces can be placed, and the upper blocks can be placed to form the necessary model.

Another possibility is to assemble all, or part of the blocks outside and then lower them into the trench, although this possibility is not highly recommended since the assembly performance drops significantly. In any case, it is advisable to plan according to each work to optimize mounting.



### Fixing

The union pieces will be placed at the same time as the blocks are placed, in this way the blocks will be in their correct position. The HI-014 union and screed pieces will be placed at each height, placing the HI-013 simple union pieces only on the upper face.

Once all the blocks are assembled, the HI-011 side faces are placed, when access to the sides is not easy on any of the faces, it may be convenient to place the side covers on that side before placing the block, to later place the upper covers HI012.

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## Inlet and outlet pipes. Ventilation stacks

The inlet holes can be made on our factory if they are previously defined or make directly on site.

To place the inlet and outlet pipes of the deposit on site, can be made directly to the cells up to 200 mm diameter using Starret or similar crowns. For bigger diameters (till 400 mm) it will be necessary electric fret saw, to do this, stake out the hole and proceed to cut it. For diameters greater than 500, it is possible to do it in a module that incorporates a 580x580 mm manhole. For larger diameters, manholes outside the tank must be used to distribute the inlet into different tubes of diameters less than 400 mm.

Insert at least 10 cm of the pipe inside the Hidrocrate to be sure small movements during the filling and compacting guarantee that the pipe remain inside the deposit.

The Ventilation chimney is made with 35 x 35 cm manholes that can be located at any point on the surface of the tank using part HI016.



Once finished the deposit, proceed to cover it with the geotextile, mark where the inlet and outlet holes are, the coupling piece for the inspection boxes or the holes for the ventilation stacks.

Try to avoid overlaps in the vertical faces, because they can allow the entrance of filling materials.

Once the deposit is wrapped, proceed to cut the geotextil around the inlet and outlet holes, inspection chamber coupling pieces and ventilation stacks, and proceed to

install them. Later they will be embraced to avoid entrance of filling materials through them, with a minimal overlap of 60 cm of geotextile, and fix the geotextile to the pipes or inspection chambers.

## Filling and compacting



Start with the peripheral filling on the four sides and tiers of 40 cm, before the next tier filling proceed to compaction, will be used a flat compaction unit until compacting greater than or equal to 98% of the proctor modified.

Note that keeps the overlap of the geotextile, especially if there have been overlaps in the vertical faces and that there are no wrinkles.

Once finished the peripheral filling and compacting, will proceed to the filling of the top

of the deposit on the same way. For this, a first layer of gravel 15 cm thick must be put on and aggregate size 10/20.

Important: Do not allow the pass of vehicles during filling and compacting or use compactor rollers.

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\*In traffic areas, do not circulate on the cells until the ground or rolling layer is fully consolidated (concrete, asphalt agglomerated pavement...)

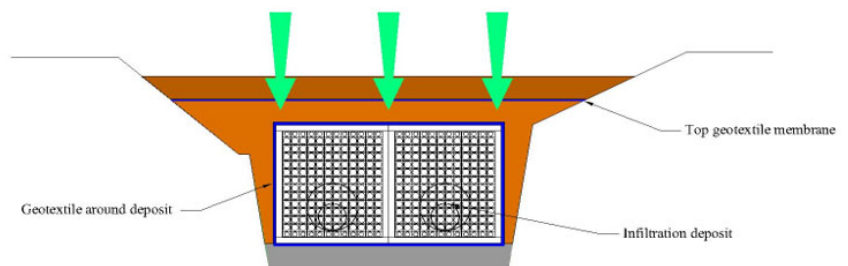


In upper water inlet tanks by infiltration, it is convenient to insert a sheet of geotextile layer over all the surface of the tank to allow that the clogging it's located on it, and if it's necessary to replace it's only necessary to change this geotextile sheet.

Continue with the filling until finish, in case of having inspection chambers

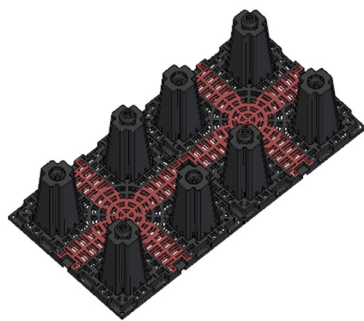
is advisable to install the frames with concrete to fix them.

With the filling of the superficial layer or the spreading of the finishing pavement, the installation work of the rainwater infiltration tank is completed.



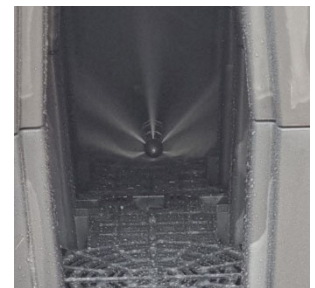
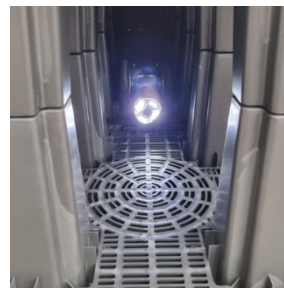
## Maintenance

The blocks are elements that require very little maintenance. If the water enters the tank through a hydrodynamic separator, it will simply be necessary to maintain the separator. If, on the other hand, it enters directly from sand removal wells or scuppers, these must be checked periodically to check their condition and proceed to clean them if necessary.



After the first storms, a visual inspection is recommended through the access manholes to the deposit and, if considered necessary, an inspection of it with a camera through the inspection lanes.

If, during this inspection, we find sedimentation or dirt inside, a sewer cleaning nozzle can be inserted through the manholes and using pressurized water (maximum 100-120 bar) lead it to the downstream manholes, through which, by means of suction to remove accumulated dirt



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