



**RIB
LOC**

PIPING SYSTEMS
MADE OF PVC AND STEEL-REINFORCED

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RIB LOC PIPING SYSTEMS

RIB LOC is a company that manufactures and sells PVC piping systems. With operations in more than 30 countries, our products range from diameters of 230 mm to 3,000 mm, for free nappe and low pressure flows (up to 20 MCA).

The piping systems sold by RIB LOC are made of rigid spiral PVC with a profile that has a smooth inner wall and T-shaped outside wall, reinforced with steel whenever greater circumferential rigidity is needed.

The RIB LOC system includes all types of holes, connections, shafts, elbows, etc. that are required by the job circumstances, manufactured in any of the wide range of diameters available.

The lightweight nature of the system and its special components, along with the easy and simplicity of assembly and installation, make RIB LOC solutions some of the most efficient on the market.



At RIB LOC we believe in continuous improvement processes, and our values rest upon 3 pillars:

- Innovation
- Quality
- Customer Support

These three principles are present in everything that we do, from receiving raw materials to delivering materials on the job site.



Quality



Customer Support



Innovation

RIB LOC products and systems are certified by independent accredited organisations, both public and private, as well as all of our suppliers of raw materials and complementary products. We are proud to point out that our entire work system and results, our piping systems, meet environmental requirements set forth by current legislation.

Our customer support allows us to have a technical department open to development and cooperation in carrying out projects, offering assistance, guidance and technical experience at the project or installation level.



SANEALOC

The SANEALOC range of pipes are pipes made of reinforced PVC.

SANEALOC pipes come reinforced with a galvanised steel profile that gives them high long-term circumferential rigidity, and are certified as SN8 for their range of diameters (in accordance with UNE9969).

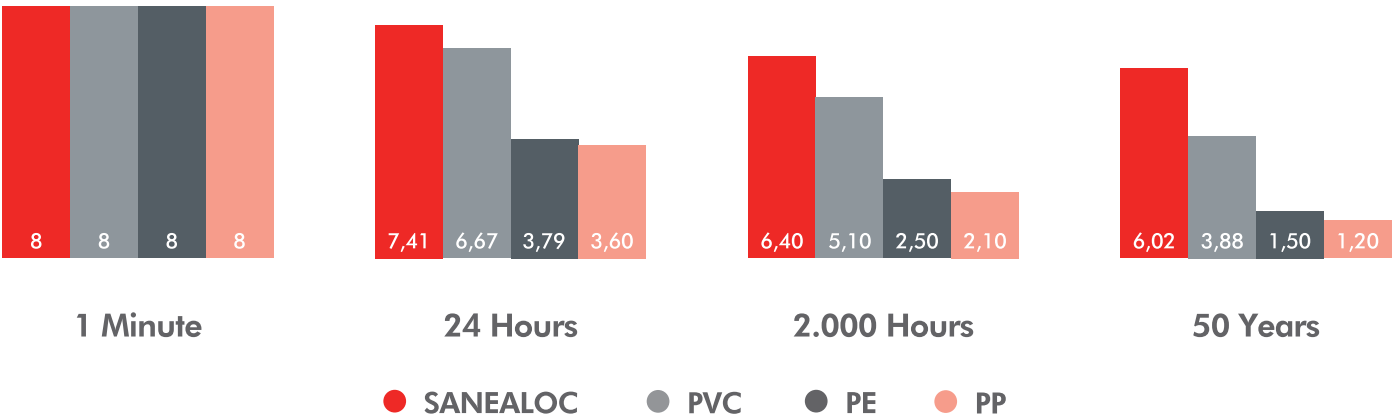
SANEALOC pipes are manufactured following the standards UNE 9969, DIN 16961 and UNE 53331, ensuring that circumferential deformation is less than 5%, with a safety coefficient greater than 2 after 50 years.

The advantage of the self-supporting SANEALOC pipes compared with traditional high-density

polyethylene, polypropylene, and PVC pipes is that deformation caused by external loads remains unchanged over time due to the high level of elasticity of the steel when compared with the other materials mentioned before. This can be seen in the following table on rigidity values according to UNE 9969:

	SANEALOC	PVC	PE	PP
1 Minute	8	8	8	8
24 Hours	7,41	6,67	3,79	3,60
2.000 Hours	6,40	5,10	2,50	2,10
50 Years	6,02	3,88	1,50	1,20

Short- and long-term rigidity according to UNE 9969 and DIN 16961 (kN/m²)



In SANEALOC pipes, the highly corrosion-resistant galvanised steel profile works together with the PVC structure that makes up the pipe, making long-term deformations no worse than the initial ones. This has been proven in tests done by CEDEX (Public Works Ministry), where the entire RIB LOC range was tested, with excellent results.

In this way, our pipes are capable of maintaining their initial rigidity values, and therefore their supporting capacity throughout time is better than pipes that are only made of plastic. The above table refers to these rigidity values over time according to standard tests for plastic pipes and the flow coefficient of the materials compared with the values of SANEALOC pipes.

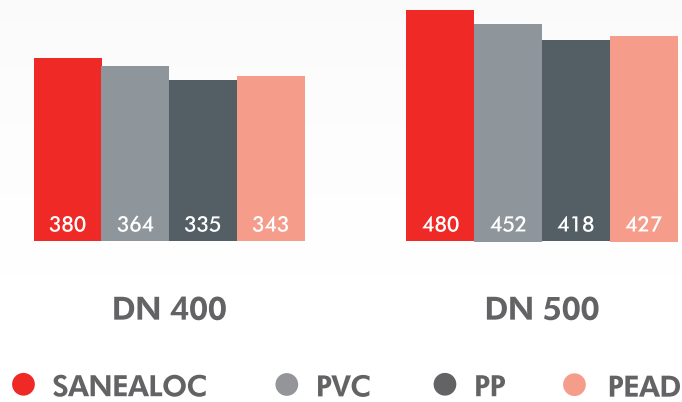
Hydraulic characteristics

SANEALOC pipes are the pipes with the best hydraulic capacity for each diameter on the market, given that for the same diameter they are the ones with the greatest interior diameter, thereby allowing them to transport greater flows than any other PVC, PP, or PE pipe of the same outer diameter and initial rigidity.

In the following comparative table, you can see the differences in interior diameter of the different corrugated pipes manufactured with other plastic materials, compared with the SANEALOC one.

Raw material	Manufacturer	Exterior (mm)	Interior (mm)	Colour	K	Grade (m/m)	Calado (%)	Flow (l/sec.)	% Flow RIB LOC	V (m/sec.)
PP	A	315	263,0	Brick red	120	0,0100000	75	97	-20,03	2,22
PVC	D	315	285,0	Brick red	120	0,0100000	75	120	-0,93	2,34
PEAD	F	315	272,0	Black	120	0,0100000	75	109	-12,53	2,27
PVC+STEEL	SANEALOC	300	286,0	Brick red	120	0,0100000	75	121	0,00	2,34
PP	A	400	335,0	Brick red	120	0,0100000	75	185	-28,55	2,60
PVC	D	400	364,0	Brick red	120	0,0100000	75	230	-10,84	2,75
PEAD	G	400	343,0	Black	120	0,0100000	75	197	-23,90	2,64
PVC+STEEL	SANEALOC	400	380,0	Brick red	120	0,0100000	75	258	0,00	2,83
PP	A	500	418,0	Brick red	120	0,0100000	75	333	-30,84	3,02
PVC	D	500	452,0	Brick red	120	0,0100000	75	410	-14,81	3,18
PEAD	G	500	427,0	Black	120	0,0100000	75	353	-26,80	3,06
PVC+STEEL	SANEALOC	500	480,0	Brick red	120	0,0100000	75	482	0,00	3,31
PP	A	630	527,0	Brick red	120	0,0100000	75	618	-21,11	3,52
PVC	D	630	590,0	Brick red	120	0,0100000	75	835	6,61	3,80
PEAD	F	630	535,0	Black	120	0,0100000	75	643	-17,87	3,56
PVC+STEEL	SANEALOC	600	576,0	Brick red	120	0,0100000	75	783	0,00	3,74
PP	C	800	692,8	Brick red	120	0,0100000	75	1.282	-24,03	4,23
PVC	D	800	775,0	Brick red	120	0,0100000	75	1.728	2,45	4,55
PEAD	F	800	678,0	Black	120	0,0100000	75	1.210	-28,28	4,17
PVC+STEEL	SANEALOC	800	768,0	Brick red	120	0,0100000	75	1.687	0,00	4,53
PVC	D	1.000	970,0	Brick red	120	0,0100000	75	3.145	0,55	5,29
PEAD	G	1.000	851,0	Black	120	0,0100000	75	2.218	-29,07	4,85
PVC+STEEL	SANEALOC	1.000	968,0	Brick red	120	0,0100000	75	3.127	0,00	5,28
PVC	D	1.200	1.103,0	Brick red	120	0,0100000	75	4.430	-14,16	5,76
PEAD	F	1.200	1.030,0	Black	120	0,0100000	75	3.690	-28,49	5,51
PVC+STEEL	SANEALOC	1.200	1.168,0	Brick red	120	0,0100000	75	5.160	0,00	5,99

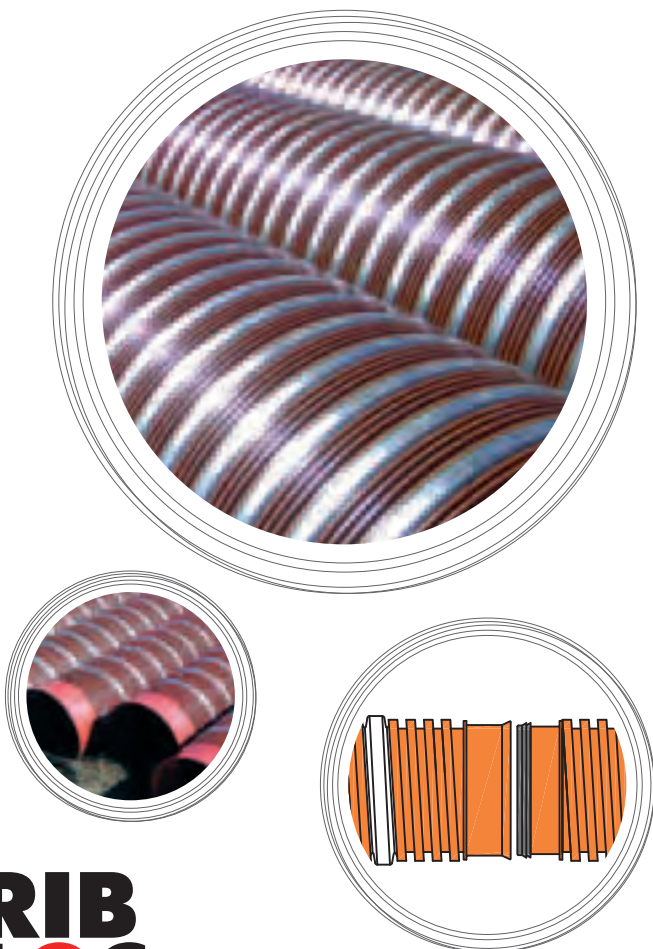
Flow comparison (l/sec.)



Joint systems in accordance with UNE 1610

For our pipes, we offer two different sealed connection systems. For diameters of less than 800 mm, the seal is made using an elastic joint connection system, and for 800 mm and above, it is done by applying a sealant, both of which meet the requirements set forth in the standard UNE-EN 1610:1998. The elastic joint system, for diameters less than 800 mm, allows for the fast and safe connection of pipes. This joint is made using bell coupling joints and a double rubber seal. It is specially

designed so that the coupling is done manually, since it hardly gives the user any resistance, and it offers complete watertightness, as has been demonstrated in numerous tests done on site and by independent laboratories. These advantages provide greater cost savings, since the use of auxiliary machinery is not necessary and the yield is very high.



In addition to the previously mentioned connection system, we offer a sealed joint system for diameters greater than 800 mm, which allows for fast and safe connection between pipes. The connection is done using a sealant ring on the tip and a second ring around the joint, applied externally to ensure the watertightness of the system.

With this type of joint, the installation of the pipes is done as economically as possible, since auxiliary machinery is not needed for large diameter pipes, which thus saves money.

Range

The pipes come in brick red colour, model RAL 8023, and the galvanised steel profile surrounds the pipe in a spiral shape. The outer wall is ribbed in a T shape.

All diameters come with the pieces (shafts, elbows, etc.) necessary for the complete design of the system.

Diameter (mm)	300	400	500	600	700	800	900	1.000	1.100	1.200	1.300	1.400
Interior diameter (mm)	286	386	480	580	680	776	876	974	1.074	1.174	1.274	1.368
Length (m)	6	6	6	6	6	6	4	4	4	4	2,4	2,4
Total usable length (m)	5,90	5,90	5,90	5,90	5,90	5,90	3,90	3,90	3,90	3,90	2,25	2,25
Weight (Kg/ml)	4,07	6,21	10,30	12,40	14,40	22,60	25,40	39,80	43,60	47,80	51,80	55,60



CONCRETLOC

The CONCRETLOC PVC pipe system for poured concrete has been developed to solve problems in special jobs, such as those subject to strong mechanical forces (loads caused by rail or air traffic,

ditches of great or small depth), or to simply ensure uniform stability in situations with land that has low support capabilities.

Characteristics

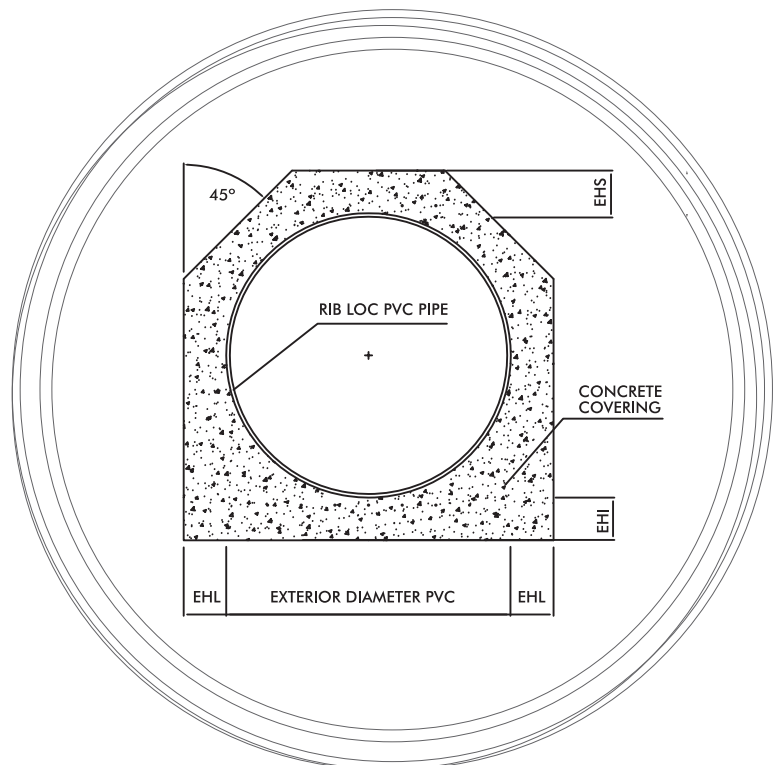
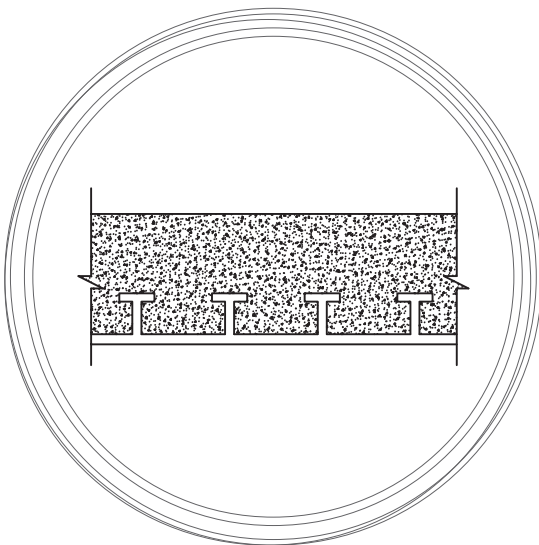
Considering the hydraulic and chemical advantages of PVC pipes with the mechanical protection of the concrete, the CONCRETLOC pipe system can be used in any job where there is covering and free nappe, since the best type of concrete can be chosen for each situation (mass concrete, reinforced concrete, with additives, etc.).

Once installed, the poured concrete PVC pipe (steel-reinforced) is free of joints, which ensures airtightness in the system and uniform behaviour under any mechanical forces that may be present.

The exterior design of RIB LOC with the T-shaped profile makes the joint between the concrete and the PVC firm and long-lasting, which makes the flow

superior to an entirely concrete system, since in the latter, the loss of loads throughout the pipe are greater, slowing the velocity and the flow, emptying smaller amounts of water and thus increasing the chance of sedimentation and therefore flooding above the system. The dependent margin is also greater for the PVC.

Over time, sedimentation in concrete pipes, especially in areas with minimal grade change, considerably reduce the interior diameter of said pipes, which makes the RIB LOC solution even more attractive when compared to the classic concrete solution.



Aplicacion

- Sanitary drains and sewage pipelines.
- Storm drains.
- Channelisation of rivers and dykes.
- Containment of tributaries.
- Hydraulic passages.
- Treatment plants.
- Ventilation of tunnels and buildings.



Advantages

- Smooth inside wall allows drainage to be optimised and reduces retention of deposits.
- Chemical inalterability ensures system durability.
- Lack of joints to avoid differential settling and ensure watertightness.
- Concrete covering can be designed to allow the solution to be used in any type of job.
- Range of intermediate diameters and the lightness of the piping allows for significant savings in cost, time, and system safety.

Range

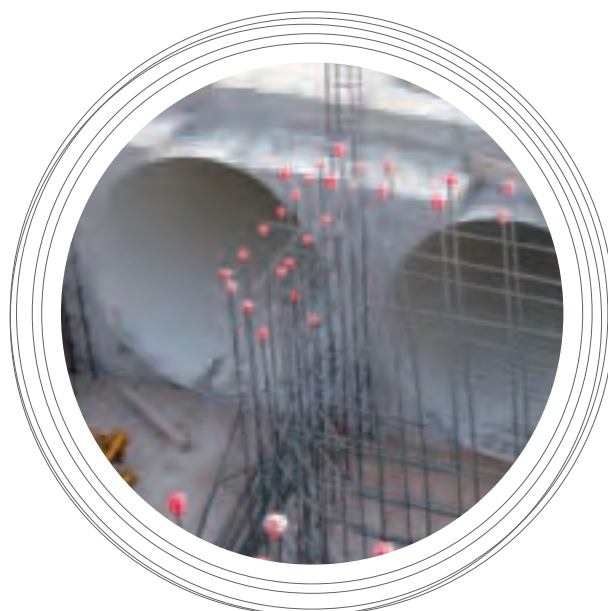
The pipes come with a smooth interior wall and a ribbed T-shaped exterior which fits mechanically with the galvanised steel profile that surrounds the tube in a spiral shape.

The CONCRETLOC piping system for poured concrete includes all kinds of shafts, connections, elbows, etc ..., that are necessary because of the job characteristics,

and are manufactured in the diameters of the range, which go from 300 mm up to 3.000 mm.

The lightweight nature of the pieces, as well as the simplicity and easy of assembly and installation, make this solution a winning choice.

Diameter (mm)	Interior diameter (mm)	Pipe length (m)	Total usable length (m)	Pipe weight (Kg)
300	286	6	5,9	24,5
400	386	6	5,9	32,5
500	480	6	5,90	40,92
600	580	6	5,90	56,13
700	680	6	5,90	65,56
800	776	6	5,90	74,98
900	876	4	3,90	74,41
1.000	968	4	3,90	82,73
1.100	1.068	4	3,90	91,06
1.200	1.168	4	3,90	135,90
1.300	1.268	2,4	2,25	88,37
1.400	1.368	2,4	2,25	95,19
1.500	1.468	2,4	2,25	102,02
1.600	1.568	2,4	2,25	153,19
1.700	1.668	2,4	2,25	162,80
1.800	1.768	2,4	2,25	172,42
1.900	1.868	2,4	2,25	182,03
2.000	1.968	2,4	2,25	191,64
2.100	2.068	2,4	2,25	201,25
2.200	2.168	2,4	2,25	210,86
2.300	2.268	2,4	2,25	220,47
2.400	2.368	2,4	2,25	230,09
2.500	2.468	2,2	1,95	219,72
2.600	2.568	2,2	1,95	228,24
2.700	2.668	2,2	1,95	237,34
2.800	2.768	2,2	1,95	246,16
2.900	2.868	2,2	1,95	254,98
3.000	2.968	2,2	1,95	263,78



CONCRETLOC HYDRAULIC CHARACTERISTICS

As a general rule, pipes should be designed to transport a certain flow with the lowest possible cost, and always with a suitable safety coefficient. Therefore, the material of the pipes, the diameter and the grade are usually the factors that most influence the selection of the type of piping.

Thanks to the internal smoothness of CONCRETLOC pipes, with a Manning coefficient of 0.0083, Strickler K=120, the flow drained by these pipes is 43% greater than a standard concrete pipe of the same diameter, which, assuming an equal flow, CONCRETLOC needs 12% less diameter.

This internal smoothness also makes deposits and sedimentation by sticking nonexistent, maintaining the hydraulic section over time. CONCRETLOC pipes, thanks to their steel reinforcement, have high rigidity levels with maximum efficiency PVC thicknesses, which means that, when comparing nominal diameters, the interior diameters of the pipes in the CONCRETLOC series are the greatest on the market.

These characteristics make the pipes with very smooth interiors highly recommendable when designing hydraulic pipes, both for water flow and drainage, especially in areas with minimal grade change.



Comparative flow table

DI Concrete / DN CONCRETLOC (mm)	300	400	500	600	700	800	900	1.000	1.100	1.200	1.300	1.400	1.500	1.600	1.700	1.800	1.900	2.000
Concrete flow (l/sec)	86	185	336	546	824	1.176	1.610	2.133	2.750	3.468	4.293	5.231	6.288	7.469	8.779	10.225	11.810	13.541
CONCRETLOC flow (l/sec.)	129	276	505	824	1.266	1.808	2.506	3.315	4.313	5.431	6.771	8.300	8.967	11.967	14.124	16.508	19.130	21.997

DRENOLOC

Road drainage is intended to move water away from roadways. This avoids the negative effects, both in terms of the stability of the structure and traffic flows.

Applications

- Intercept and move away underground currents before they reach the road surface.
- In the case of a high water table, DRENOLOC drainage systems keep it at a considerable distance away from the road surface, and this distance is greater than with other drainage systems.

Characteristics

They are rigid PVC pipes, spiral shaped with a profile that has a smooth interior wall and an outside wall with T-shaped stiffeners, and perforations in the direction of the flow.

DRENOLOC drainage piping can be reinforced with a galvanised steel profile, giving it high long-term circumferential rigidity. (ED SN>4 or SN>8).

The diameters of this series are standardised and are manufactured from 230 mm up to 1500 mm.

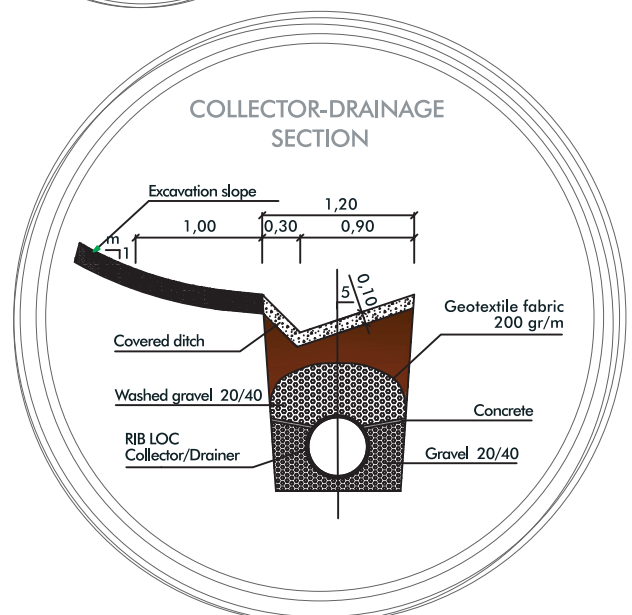
Solutions

The DRENOLOC drainage solution avoids overflow in the perforations because the gravel and pipe are wrapped in geotextile fabric. Both its hydraulic and resistance capacities are excellent, which makes its useful life very long and its installation simpler than that of other dual-pipe systems, drainage ditches with a collector or "drain+sieve". With these cost advantages in time and materials, maintaining and exceeding the hydraulic, drainage and resistance capacities compared to other systems, since it intercepts water coming from the pavement, such as ascending flows due to subpressures or water table levels at a lower elevation.

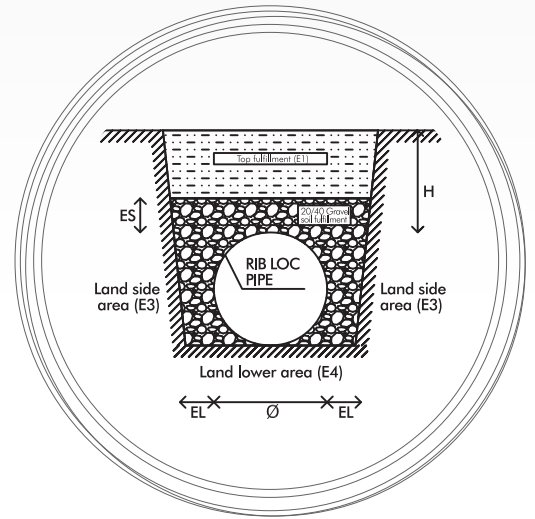
The DRENOLOC "drainage" series pipes (partial or complete) are designed for drainage function, with series that have perforations on the entire surface or with sectional perforation with the angle necessary.

- Drain the surface layers, removing any water that may have infiltrated them.
- Greater cost savings in the operation of the drainage system due to the use of only one pipe that performs the functions of flow and drainage.

The fields of application are highly varied: drainage of roadways, railways, airports, farmland, etc. These pipes are surrounded by 20/40 gravel and geotextile fabric in a ditch with stable walls, whose width shall be 50 cm greater than the width of the pipe.



DRENOLOC solutions also include the elbows and connections necessary for the design of the complete system.



Range

Diameter (m)	230	250	300	350	400	500	600	700	800	900	1.000	1.100	1.200	1.300	1.400	1.500
Interior diameter (mm)	216	236	286	336	386	480	580	680	776	876	968	1.068	1.168	1.268	1.368	1.468
Angle perforation (°)	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240	240
	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360	360
Drainage surface (cm ² /ml)	47	51	61	71	82	119	143	119	136	153	136	149	163	177	190	204
	62	68	82	95	109	158	190	158	181	204	181	199	217	235	254	272
	94	102	122	143	163	238	285	238	272	306	272	299	326	353	380	408
	125	136	163	190	217	317	380	317	362	408	362	399	435	471	507	543
	187	204	245	285	326	475	571	475	543	611	543	598	652	706	761	815
Pipe weight (kg/ml)	2,21	2,41	2,90	3,40	4,64	6,22	7,49	10,55	12,09	13,64	18,48	20,36	29,66	32,17	34,68	37,20
Pipe length (m)	6	6	6	6	6	6	6	6	6	4	4	4	4	2,40	2,40	2,40
Total usable length (m)	5,90	5,90	5,90	5,90	5,90	5,90	5,90	5,90	5,90	3,90	3,90	3,90	3,90	3,90	2,25	2,25



PIPING SYSTEMS
MADE OF PVC AND STEEL-REINFORCED

DOBLELOC

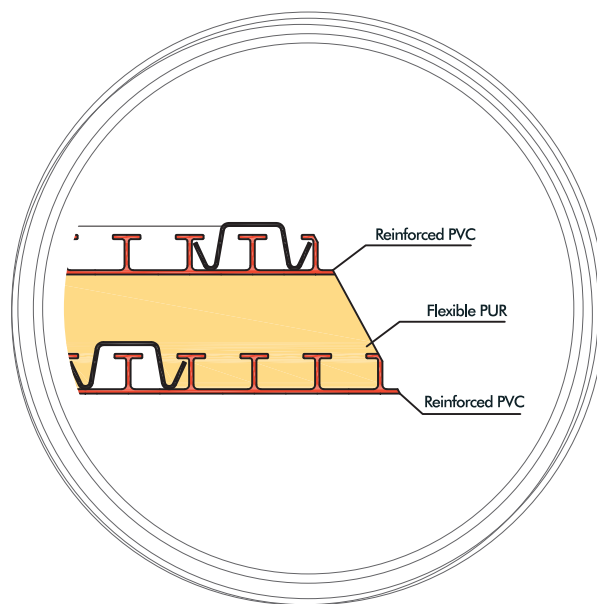
Often times, the conditions of the land where a pipe is to be installed are not the most suitable for ensuring its useful life, which is why the land is either artificially stabilised or alternate paths that allow for good execution are sought after, with the increased costs that entails. In some cases there is no option to stabilise the land, if the pipes must cross through areas that are unstable, fault lines, land with high clay content, sliding slopes, etc...

To solve these civil construction problems, we at RIB LOC have developed the first multi-layer PVC pipe reinforced with galvanised steel, to which an extendible joint has been added which absorbs both longitudinal and transversal movement without the system losing its watertightness.

These pipes have a structured outer wall with T-shaped reinforcing bars and reinforcing galvanised steel, a smooth interior layer, with a structured and reinforced outer wall, and between the two a layer of flexible polyurethane, which absorbs the first movement that may occur, absorbs

impact, and is completely impermeable.

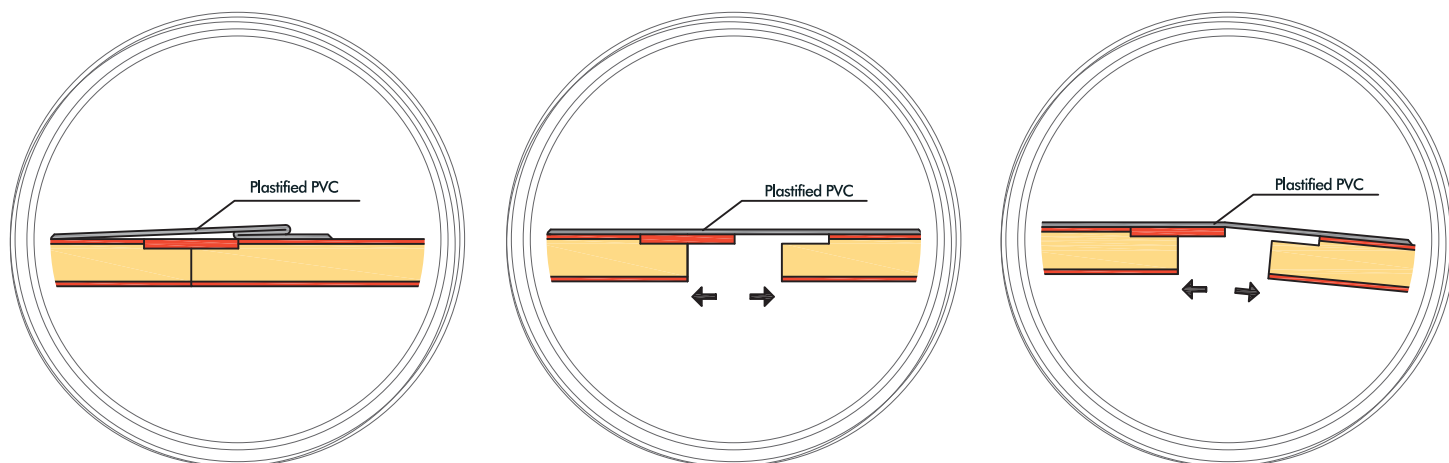
This combination in multilayer DOBLELOC pipes provides cancelling rigidity levels UNE 9969 of greater than 8 Kn/m² with lightness and minimal wall thickness.



Functioning

When movement occurs in the piping system installed in a ditch, caused by settling or shifting in the soil, if they are small they are absorbed by the pipe thanks to the internal layer of flexible PUR, not altering the internal layer through which the waters flow. But if they are greater in size, the high traction-resistance

extendible plastified PVC joint begins to work, providing elasticity to the joints so that no spills occur, maintaining unchanged the watertightness of the system.

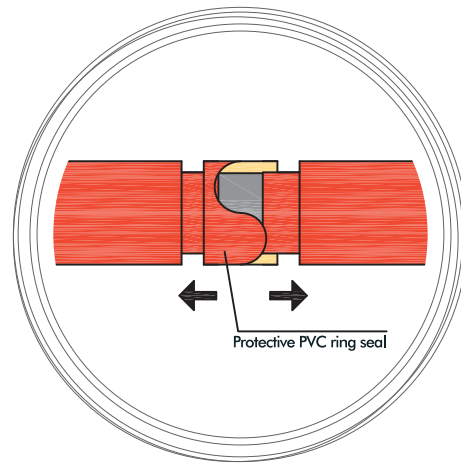
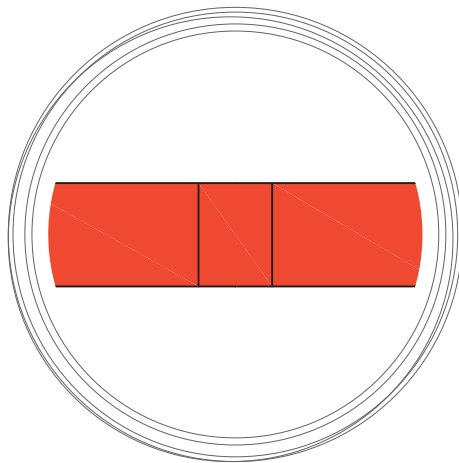


This system allows not only for longitudinal movement in the waste water pipe system, but also for transversal, horizontal and vertical movement, since the joint is made of plastified PVC with high traction resistance, making it the best solution when the stability of the land where the pipe must be installed is not suitable, offering very high joint elasticity with a complete guarantee of proper functioning.

The installation of this type of piping is hardly different from the installation of RIB LOC male/female joint pipes in which the joints are sealed with the provided RIB LOC product in addition to the mechanical

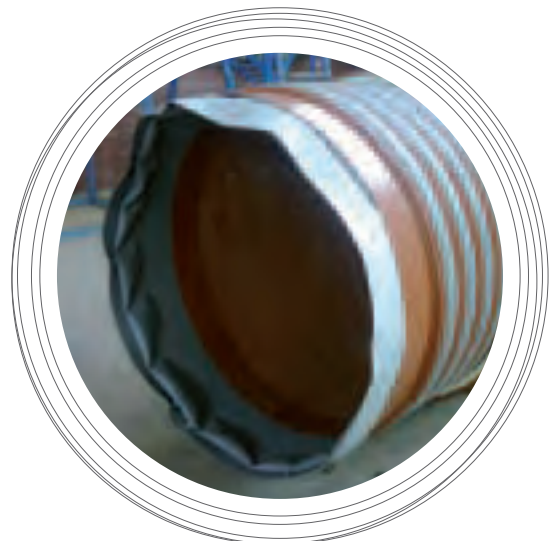
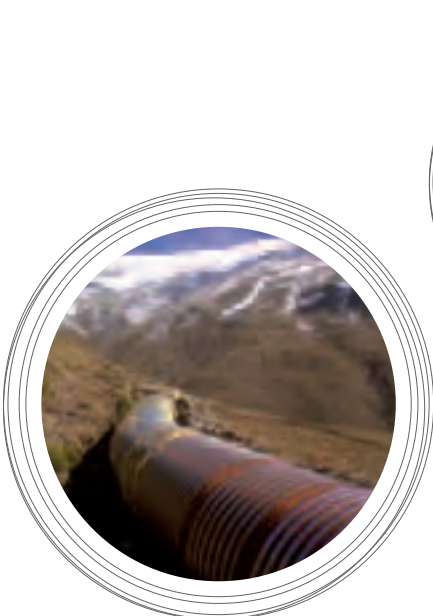
male/female joint. The extensible PVC joint is sealed with an included sealant, leaving the joint finished.

To avoid perforation in the flexible layer of PVC that makes up the joint when movement has already occurred, it is encapsulated on the outside by a multi-layer reinforced PVC ring which always remains over the joint, protecting it even when movement of the pipes is great.



Because the length of this ring is always greater than the maximum length of the joint, it allows repairs of the section to be minor in the event that movements exceed the flexibility of the joint and breakage occurs.

This is because it is not necessary to disrupt the interior filler material, and the waste water pipe will not need to be plugged up.



STORM LOC

The emptying from unitary systems is an important problem at present in the drainage world. The continual increase of impermeable surfaces brings with it the fact that overflows of unitary systems are more and more frequent and uncontrolled, in both quantity and quality.

In response to this problem, important storm tank (spillway) projects have been undertaken in recent years all across Spain, aiming to achieve three objectives:

- Regulate the system of flows and pollution that is channeled to waste water treatment stations.
- Minimise pollution dumped into receiving bodies of water.
- Possible reuse of water.

With control systems using storm tanks, initial rainwater, which is the most polluting because it carries away the largest number of solids, can be controlled. These systems also anticipate flooding, since they are designed so that their capacity is great enough to prevent it.

At RIB LOC, we have been manufacturing and supplying PVC and reinforced PVC drainage solutions for more than 30 years, providing practical, economic and lasting solutions. Modular reinforced PVC STORM LOC storm tanks are the product of experience, knowledge and our technology to manufacture large-diameter PVC and reinforced PVC pipes.

The advantages of the STORM LOC tanks compared with traditional concrete tanks are very significant:

PVC, Watertightness and modularity.

Everyone knows about the advantages of PVC as a material: it is completely inert, watertight, lasting, lightweight, resistant, and it has a low friction coefficient, which contributes to its low deposit retention and can therefore be cleaned very easily. Because it is an inert material, the aggressive effects of drain water do not affect it, and the tank's durability is

much greater than that of a concrete one.

STORM LOC tanks can be tailored to the needs of each client and his or her needs. Our technical team can advise you on this, offering a versatility that is superior to any other system on the market. Additionally, the STORM LOC Storm Tank system, owing to its modularity, can be expanded if the need arises, increasing its retention capacity by including new pipes alongside the existing ones (Retention Modules).

The installation of the STORM LOC tank is done, as well as the assembly of the pipes, and it is very simple and fast. Thanks to the lightweight nature of the pieces, the need for auxiliary machinery is minimal. A team of qualified RIB LOC technicians advise the assembler during the entire installation, achieving excellent performance with minimal costs and a high-quality installation.

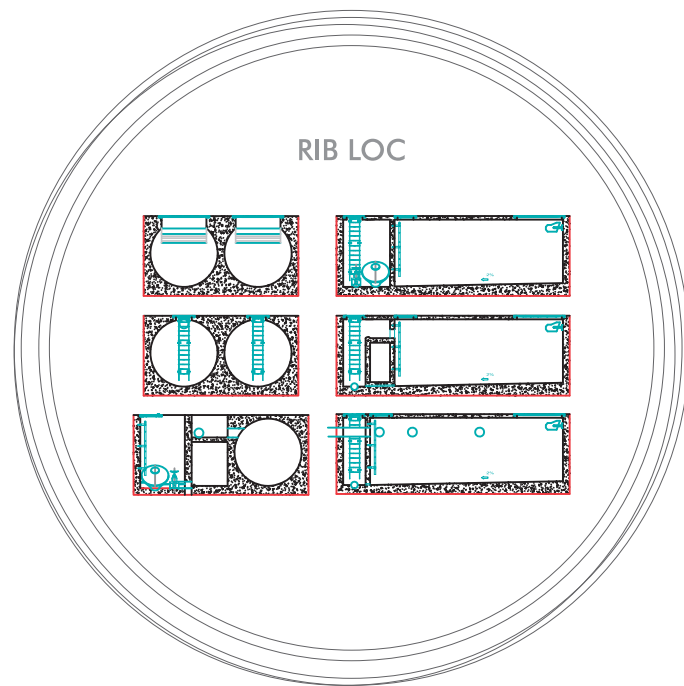
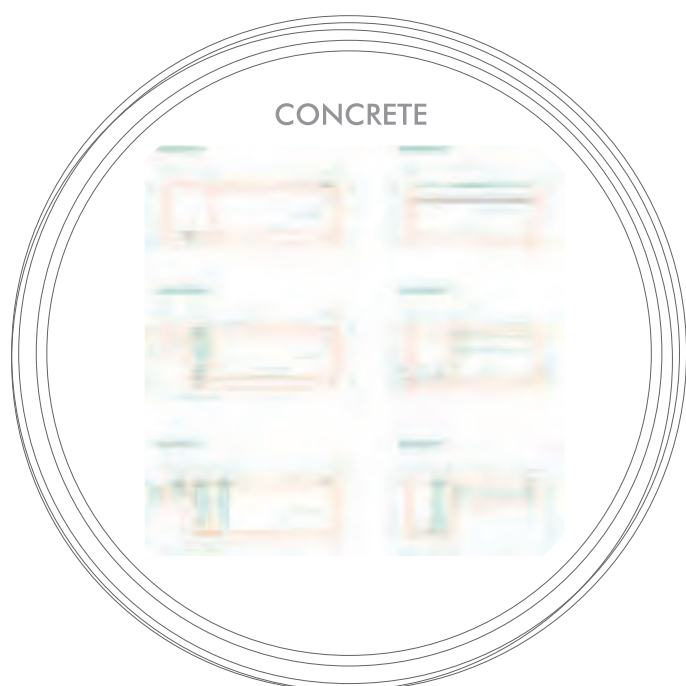
With regard to the cost of the STORM LOC system, compared with other solutions, it is very competitive. The magnitude of the construction jobs is minimal, as is the case of the auxiliary machinery or resources and the performance of the installation. Additionally, because the pieces are modular PVC and can be manufactured on site, the transport costs necessary for other systems are eliminated, which has a positive effect on the total cost of the installation. Also, it should be added that due to the ease of cleaning and the nature of PVC material, maintenance costs are reduced as much as possible.



Concrete - PVC STORM LOC conversion

The conversion of a traditional concrete storage tank to its equivalent in reinforced PVC piping is very simple, although there can be multiple variations, since each tank may be different from the previous one depending on the characteristics of the project. Therefore, the STORM LOC tank can keep the same parts with the same connections to obtain the same

functioning in the concrete version, but constructed entirely using reinforced PVC, which will mean that the system is completely watertight, more long-lasting, inert to corrosion, and faster to execute.



The storm tanks will be design depending on the asked capacity and the space available.

So, we have as an example:

Volume retained (m ³)	N° of STORM LOC modules	Axis dimensions Lenght (m)	Axis dimensions Width (m)	Execution time (Yield 3ml/h)	N° of Pieces of assembly equipment
150	1	21,04	3,50	7,10	1
	2	10,70	6,75	3,60	2
300	1	42,09	3,50	14,30	1
	2	21,40	6,75	7,10	2
500	2	35,07	6,75	11,90	2
	3	23,80	10,00	15,90	2
1.000	3	47,60	10,00	31,70	2
	4	35,70	13,25	23,80	3
2.000	4	71,40	13,25	47,60	3
	5	57,10	16,50	38,10	3

STORM LOC Storm tanks

STORM LOC storm tanks are divided into modules so that, once installed, they can be expanded easily. These modules and all system components are made of PVC reinforced with galvanized steel, creating a large-diameter pipe (up to 3 m in diameter).

The tank is basically divided into 3 modules (although it can be customised for the client):

- **Collector Module:** This is the component of the tank where the filling pipes, sand filter, and connections to the retention module will be located. It will be accessible and will only require maintenance in the event that undissolved solids are retained there, thus preventing them from entering the Retention Module. The dry chambers where the pumps needed to empty the tank can also be located here, depending on if the system is sequential and parallel to the flow or not.
- **Retention Module:** This is made up of reinforced PVC piping with soldered joints using a fitting, which is completely watertight and gives the tank its retention ability. Automatic cleaning components using a wave will be installed at one end of this module, and the gravity emptying or spillway component may also be placed here.

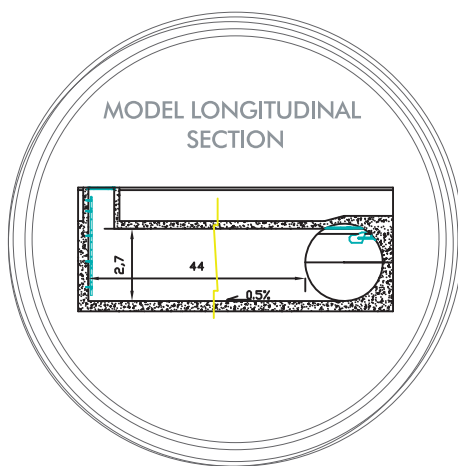
- **Discharge Module:** This component gives the tank additional security in addition to its retention ability, since it is utilised exclusively for discharge by pumping from the tank, eliminating any possibility of deposits inside that may affect the extraction system.

All the modules are accessible via manholes and can include access ladders, lighting systems, cleaning units, valves, etc...

Given the hydraulic and chemical advantages of PVC piping with the mechanical protection of the concrete, the STORM LOC system can be used in any type of system by simply choosing the best type of concrete for each situation (mass concrete, reinforced concrete, with additives, etc...)

Once installed, the PVC pipe (reinforced with steel) that makes up the tank does not have joints, which guarantees watertightness.

The exterior RIB LOC design of the T-shaped profile makes the joint between the concrete and PVC firm and long-lasting, which makes the system superior to those made only of concrete, since cleaning the latter is much more complex, as is constructing.



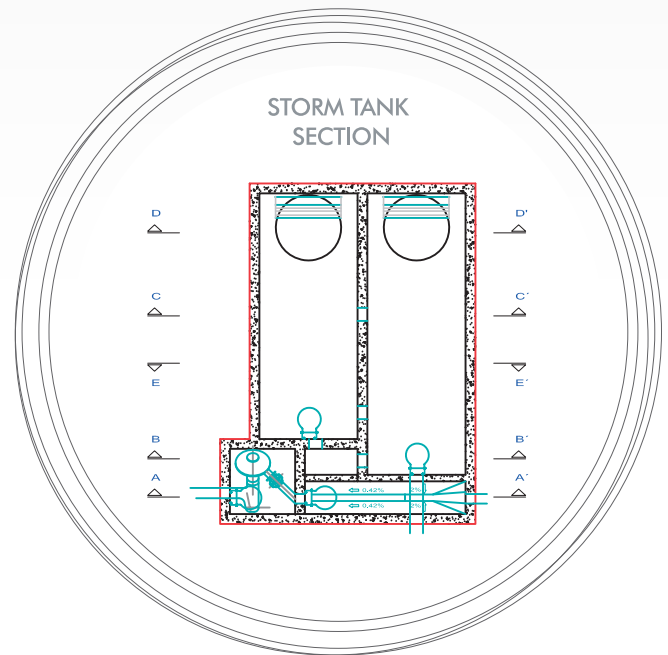
STORM LOC storm tanks can be custom manufactured to be installed alongside the waste water pipe or as an

extension of said pipe, depending on the needs of the client.

Sequential tank

Tanks designed with this format are prepared for the flow to always circulate through the collector module, coming from an automatic flow regulating valve, so that the flow is constant. When the first rainwater arrives, this valve acts to retain, keeping the exit flow constant, so that the water begins to accumulate inside the tank, filling it or the retention modules.

After the rain, this retained flow exits again due to the effects of gravity and passes through the collector module and the automatic flow regulating valve, without needing energy to be emptied, and making the flow entering the water purification station constant and maintaining the minimum rate.

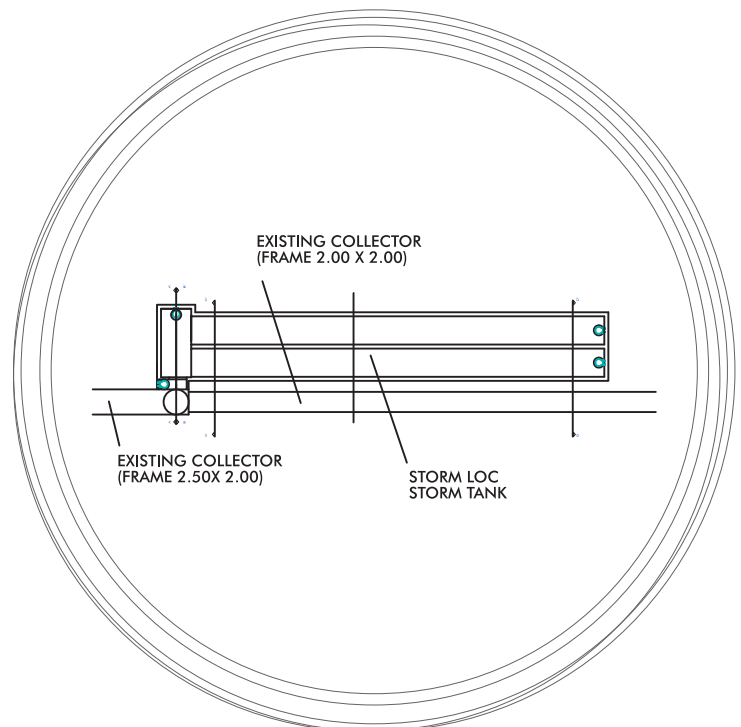


Parallel tank

Tanks designed with this format act as spillways for the general network of collectors. When the rainwater arrives, the flow into the general collector increases, and the sump that connects to the tank overflows. That water begins to enter the collector module of said tank and goes on to fill the retention modules.

After the rain, all of this flow that has been retained must be emptied from the discharge module using pumps, and it is then injected into the general network of collectors again.

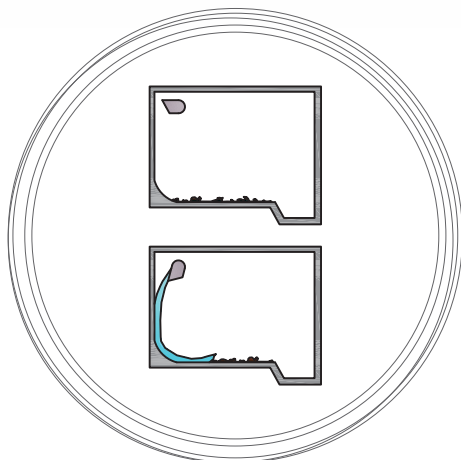
Although these 2 are the basic formats for a storm tank, RIB LOC can customise to fit any needs



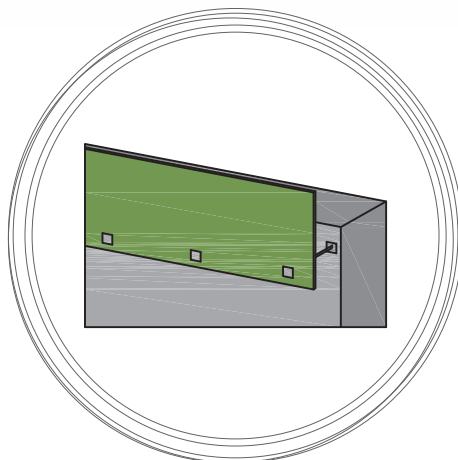
Components

STORM LOC storm tanks that are ordered can include all control and regulation components preassembled to make installation easier. These include regulation systems, valves, floodgates and dry chamber pumps, from where to empty the tank's contents, cleaning

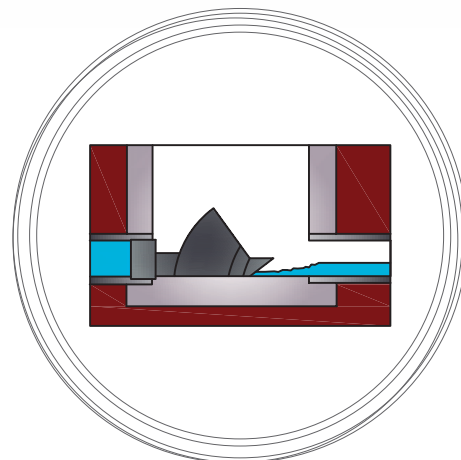
systems that are maintenance-free and do not require human labour, sand filters, deoderisers, volume control panels, manholes, etc...



**Automatic cleaner
automatic flow**



**Deflecting floating
screen**



**Regulation
valve**

Installation

For the STORM LOC tank to function correctly, it is necessary that the handling and installation of PVC pieces be adequate. For this purpose, a team of qualified RIB LOC technicians will always be available on-site to advise you during assembly and sealing of the system.

The place where the STORM LOC tank is to be installed does not need to be excavated with extra width or have granular filler material, thus avoiding unnecessary excavation and compacting costs. Our tanks are made of concrete and reinforced PVC, so traffic loads on top of them can be very high without affecting the tank.

The execution process is as simple as that of the collector:

- Concrete base.
- Moorings to avoid flotation when pouring concrete.
- Lowering of pipes into ditch, tying of pipes to moorings, coupling and first seal.
- Concrete pouring, reinforcement (if necessary) and vibrations.
- Interior seal.

For more information about the installation of RIB LOC reinforced PVC pipes for poured concrete, see the technical manual.

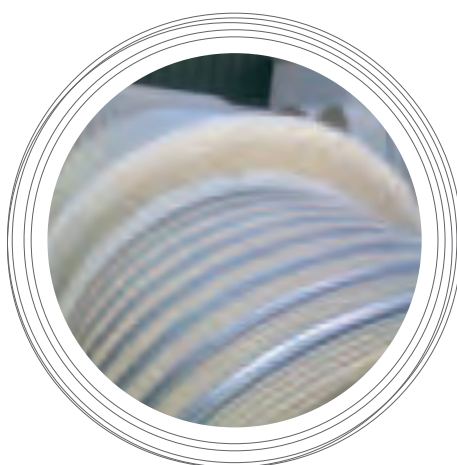
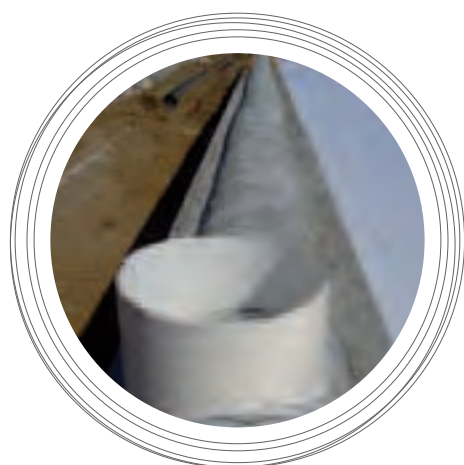


SPECIAL RIB LOC PIECES

As part of the range of RIB LOC pipes and in order to make on-site assembly easier, we offer for order different types of special pieces for simply and quickly carrying out all kinds of steps unique to installation, maintaining the qualities of resistance, watertightness and durability of the materials that we use to manufacture our pipes at an optimum level.

In this way, the RIB LOC system includes all types of shafts, connections, elbows, etc. that might be required by the job site characteristics, manufactured in all diameters and series included in our wide range.

The lightweight nature of the pieces, along with the easy and simplicity of assembly and installation, make these solutions some of the most efficient on the market.



RIB LOC EXPORTATION

Since 2008, with the entrance of new partners into the company, new strategic plans have been drawn up, with internationalisation being the primary path of future development for the company, as well as trying to predict the course that the domestic market will take.

The action plan had two essential areas of action:

- To adapt the RIB LOC System's technology and machinery to an environment of the exportation of products and services.
- To search for a competitive advantage in processes of exportation at the product, logistics and after-sales service level.

The first point presented us with a challenge, even though the RIB LOC system's pipe manufacturing technology, based on the spiral shape of the PVC pipes using a male/female profile joined together chemically and galvanised steel, allowed it to be manufactured on site by virtue of not using direct extrusion (complicated heat processes that entail great investment and complex maintenance).

The machines and manufacturing process were modified to be able to manufacture in accordance with the quality standards required in Europe and any country around the world, with the possible limitations of existing resources in any given country. The mechanical and chemical systems were adapted, and the machines and necessary tools were redesigned, so that maintenance and use was as intuitive as possible

for untrained operators. The result was a manufacturing system that can be sent in a 20-foot container and does not require costly installations or structures in terms of CAPEX. A manufacturing structure was designed that served as a model for implementation in different countries and settings.

The second point, the competitive advantage, comes from the small initial investment required (contract of machinery rental by means of temporary exportation of equipment) and primarily because raw materials (PVC, steel and chemical products) are sent in the container instead of manufactured piping, making each load that is sent more efficient in terms of the space occupied in the container; this point is crucial in projects where shipping costs are high, such as a 40-foot-tall High Cube container. Whereas 48 mi of 1000-mm diameter pre-manufactured piping would fit, by using the RIB LOC system and sending raw materials, we can send enough to manufacture 400 mi of piping on site.



Advantages

- 40 % Decrease on final pipe installation.
- Stock and time control on job site.



To these two primary advantages, we should add others, such as production control (I can manufacture according to the rate at which the job advances), the reduction of stock, and the payment of less tariffs because raw materials are being shipped instead of finished products. There is another intangible benefit if we consider RIB LOC's corporate social responsibility, which is the creation of industry in the countries where the projects are being carried out, as well as the training of people from those countries in technical and production areas.

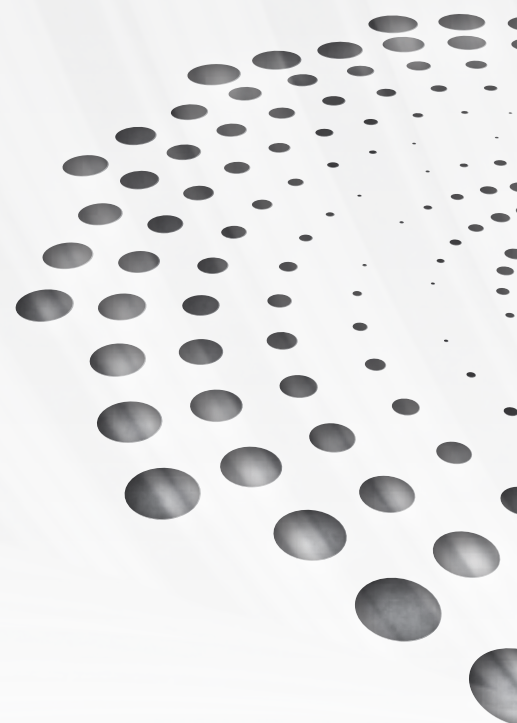
In summary, it can be said that since 2008 we have capitalised on the advantages of the RIB LOC system, but always with the idea of generating benefits for the countries where we are working: an investment in infrastructure that will benefit its users, which are none other than the citizens of those countries.

Our international presence

Since 2007, RIB LOC has been present in projects in more than 20 countries on different continents by virtue of piping manufactured in Spain and using the RIB LOC system, which involves sending machinery for

on-site manufacturing of piping in the countries where these projects are being carried out.





**RIB
LOC**

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