



# **Waterwall**

***Products  
For The  
Fire & Emergency  
Services***

***Cintec International Limited***

# Waterwall Isolation Units

## Acetylene Isolator

The Acetylene Isolator was designed and tested to be deployed and inflated around an acetylene cylinder that has been accidentally heated and is considered unstable.

The 335 mm PVC coated and internally reinforced Waterwall comprises of three walls and a roof section with a separate door section that is added once the main structure is in position. All the panels are fitted with pressure relief valves to avoid over filling and indicating when full of water.

The product has been tested by the Royal College of Science test range in Wiltshire United Kingdom in 2008 when acetylene bottles were heated to destruction inside a standard Waterwall unit.

The Waterwall units can be configured to cover acetylene cylinders that are standing prone, laying horizontally or against a wall.

It is recommended that the Waterwall is positioned after the heat source has been removed using the Cintec robot that has been especially designed for the task.



## Specifications:

External Height	External Width	External Depth	Internal Height	Internal Width	Internal Depth
2035mm	1670mm	1470mm	1700mm	1000mm	800mm
80"	66"	58"	67"	39"	31"
Wall Thickness	Water Volume	Weight Empty	Weight Full	Packed size in valise	
335mm	3900 litres	44 kgs	3944 kgs		
13"	1030 US Gal	97 lbs	8695 lbs		

# Waterwall Robotic Deployment

## Remote Deployment Vehicle

This is the first inexpensive robot dedicated to positioning and placing of Waterwall products over suspicious objects located in public areas. The robot is able to carry an un-inflated Waterwall on a portable jig through a standard door opening guided by video cameras that have day and night capability. The robot is able to turn on its tracks and climb a 40 degree pitch or stair way and lift. Connected to the Waterwall is a standard un-inflated water hose or standard garden hose, depending on local source, that is towed behind from a hose reel under the control of an operator.

The robot also has a fire fighting movable spray nozzle. Once the robot is close to the object in question, the Waterwall is inflated with air and positioned over the object. As soon as it is in position water is pumped into the Waterwall under local water pressure until the pressure relief valves are activated indicating that the Waterwall is full.

Sensors can be fitted to the internal sides of the Waterwall to monitor the anticipated threat and relay any information back to the operator.

In most cases the suspicious object will not be an improvised explosive or dirty device and the object may be removed safely. However, should the object present a problem the situation will continued to be monitored until expert help arrives?



Waterwall®



# **CINTEC**

## ***Firemote & Cylinder Isolation Unit***



## ***Remote Deployment & Firefighting***

# **Waterwall**

A joint venture between Cintec International Ltd and Ryland Engineering has produced a complimentary versatile combination of stand-alone fire fighting robot coupled with a blast mitigation product known as Waterwall.

The partnership has produced a robotic vehicle that is small enough to enter narrow entrances such as domestic or small workshop doorways, climb steps and thresholds and manoeuvre around obstacles. With the aid of a camera and/or thermal imager the robot can attack the seat of the fire using an articulated arm that can be elevated and traversed remotely. The water connection is at the rear of the robot and it passes through the body of the robot into the articulated arm at the front. The arm has an electronically controlled valve attached to the end of the arm that can give a variety of spray effects to fight the fire.

Once the fire is under control, the robot is able to search the area for any dangerous acetylene gas bottles that may have been in or adjacent to the fire or any other industrial hazards. Should an acetylene bottle be discovered, the robot identifies the site and position and notes any obstacles that may obstruct clear access to the cylinder. It then returns to the controller to have a quick attachment jig mounted on the front and main body of the robot. Should it be necessary for the robot to return to the cylinder to clear a access area around the cylinder it will be able using the jig as a plough. When a clear area has been formed, the robot returns to the controller for the Waterwall cylinder isolation unit. The Waterwall cylinder isolation unit has been tested to destruction at the Royal College of Science testing range at COTEC West Lavington, Salisbury Plain, England. This test report is available on request.

The Waterwall is attached un-inflated to the front of the robot with water hose and air connections to the rear of the unit.

The controller guides the robot into building and directly in front of the cylinder. Air is pumped into the isolator. The isolation unit is packed in such a way that it inflates to the correct profile and attitude that is needed to position it around the cylinder. When it forms its final shape the robot positions the unit to surround the cylinder on three sides. Usually, gas cylinders are attached to a wall or stand and an added door is not required. However, this can be provided if needed.

When the cylinder is totally encapsulated and the Waterwall is in its final position, water is pumped in displacing all the air in the bag. This is controlled using pressure relief valves positioned at the very top of the bag. When finally inflated the Waterwall surrounding the gas cylinder with 3900 litres or 1030 US gals of water which reduces the stand-off safe distance to less than five metres. The robot is then remotely detached from the unit and can continue to be deployed.





*Length:*1650mm ( 65 " ) *Width:* 685mm ( 27 " ) *Height:*1205mm ( 47 " ) *Weight:* 250kg ( 551lb )

*Run Time:* 2-4 hours, *Speed:* 0-6 mph, *Control Range:* 300 metres ( 328 yards ) line of sight, on board charger

*Water jet Reach:* 30-45 metres ( 32-49 yards ) *Supply Pressure:* 3-12 bar ( 45-175 psi ) Variable spray nozzle

*Radio Link:* 458.6 MHz, *Video Camera:* Colour with IR lighting, Portable 3 axis joysticks control panel

*Data Feedback:* Video feed, battery voltage, monitor angle, spray pattern, water pressure, valve positions and temperature to PC GUI display

*Optional Extras:* Thermal Imaging camera, On-board camcorder, COFDM control and video system for non line of sight operation.





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# Waterwall Water Storage Units

## Hexagon Water Dams

The hexagon water storage dams are designed To provide rapid storage capabilities for fire fighting appliances.

Due to the limited water storage of a fire appliance it is necessary to provide additional water to the appliance if a mains supply is not available. This storage unit allows a bowser or tanker to fill the unit and leave to refill ,while the fire appliance can draw the water from the storage unit.

The Waterwall dam is able to be used even on uneven ground and gentle slopes.

Waterwall dams are bespoke designs that can be made to suit the clients requirements and can vary in size and capacity.

The Waterwall dam comes flat packed in its own valise it is then inflated using an air pump or a compressed air supply. As soon as the dam is inflated it is ready to receive water.



## Specifications: 10,000 Litre Unit

External Height	External Width	External Depth	Internal Height	Internal Width	Internal Depth
1000mm	4346mm	3764mm	1000mm	4000mm	3464mm
39"	171"	148"	39"	157"	136"
Wall Thickness	Water Volume	Weight Empty	Weight Full	Packed size in valise	
150mm	10,392 litres	58kg			
6"	2745 US Gallons	127 lbs			



Waterwall

***Cintec International limited***

# Water Dam Deployment Instructions



# Inflation



Remove ground sheet from valise  
And lay out on floor in required  
position. Remove dam from valise



Lay out main unit, on ground  
sheet, in required position. Do not  
drag on floor



Insert and tighten the 3 A5 valves



Remove internal caps before  
inflation and hang over outside  
edge



Attach air line from cylinder to the  
high pressure fitting (OBAC) and  
inflate the unit.



The pressure relief valve will  
blow when the required pressure  
has been reached.

# Operation



Unscrew protective caps from external male 4" fittings



Attach 4" female butterfly valves  
To each side of dam



Attach suction hoses as required



If two dams are to be deployed,  
join the two units with a short  
male-male suction hose



Tighten all connections with  
suction wrench



Open valves and fill dams



# Emptying



All valves must be removed before the deflation process.



Allow the water to drain out completely before lifting the unit



After the unit has been used ensure as much water as possible has been drained..



Raise the unit and hold to drain more water out. Take care not to damage the outlet pipes.



Turn the unit on its side away from the outlet pipes. And then completely over to remove all the water.



Replace the internal plastic caps Before deflation.

# Deflation



To deflate unit, remove grey protective cover from the B7 valve.



Push in the centre of the grey B7 Valve and turn anti-clockwise to release the initial pressure from the dam



Unscrew the 3 A5 valves to deflate the dam quicker.



Fold each corner of the unit in the same direction and flatten the fold.



Fold the side of the unit into the centre

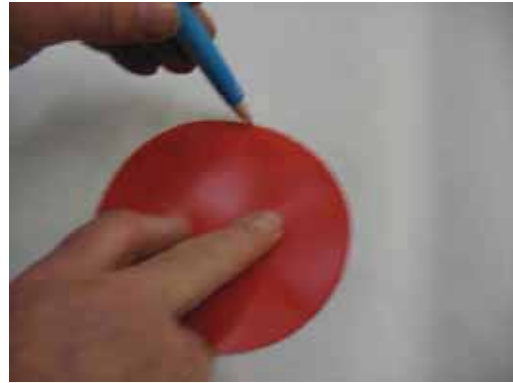


Fold the opposite side over the first fold and roll the unit up. Replace in valise.

# Repairing



Thoroughly clean area around tear.



Place patch over tear and mark around with pen.



Apply glue within the marked area. Wait 20 minutes and apply second coat



Apply glue to the patch. Wait 20 minutes and apply second coat



Once the second coat has become touch dry (about 2 mins.) place over the tear.



Roll the patch firmly. Allow at least 24 hours before inflation and re-use.



# Components

A5 Valve



B7 Valve



OBAC Valve



Pressure Relief Valve



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# Waterwall Water Storage Units

## Pillow Tanks

Robust Portable Pillow tanks for the storage and transportation of water.

Manufactured with built in lifting points ,Handles and restraining straps are incorporated in the design as are relief valves to prevent over filling.

Customer specific couplings for filling and discharge.

- ◆ Portable and Lightweight, can be carried by 1-2 persons when empty
- ◆ Constructed from durable materials
- ◆ Variety of filling options
- ◆ Available for portable water
- ◆ Can be used as a water tank on the back of a 4x4



### STANDARD EQUIPMENT

- ◆ Pressure relief valve
- ◆ Deflation plug
- ◆ Inflation valve
- ◆ Crease removing straps
- ◆ Instruction Manual
- ◆ Carrying valise
- ◆ Repair Kit

### CAPACI-

TY L X W X H

◆	Pressure relief valve	100	110 x 80 x 150
◆	Deflation plug	200	130 x 100 x 20
◆	Inflation valve	400	60 x 130 x 30
◆	Crease removing straps	600	200 x 130 x 40
◆	Instruction Manual	800	240 x 150 x 40
◆	Carrying valise	1000	270 x 150 x 50
◆	Repair Kit	1200	300 x 150 x 50
		2000	280 x 230 x 50
		3000	340 x 240 x 50
		4000	350 x 300 x 60
		6000	390 x 340 x 70
		8000	430 x 370 x 80
		10000	450 x 400 x 90

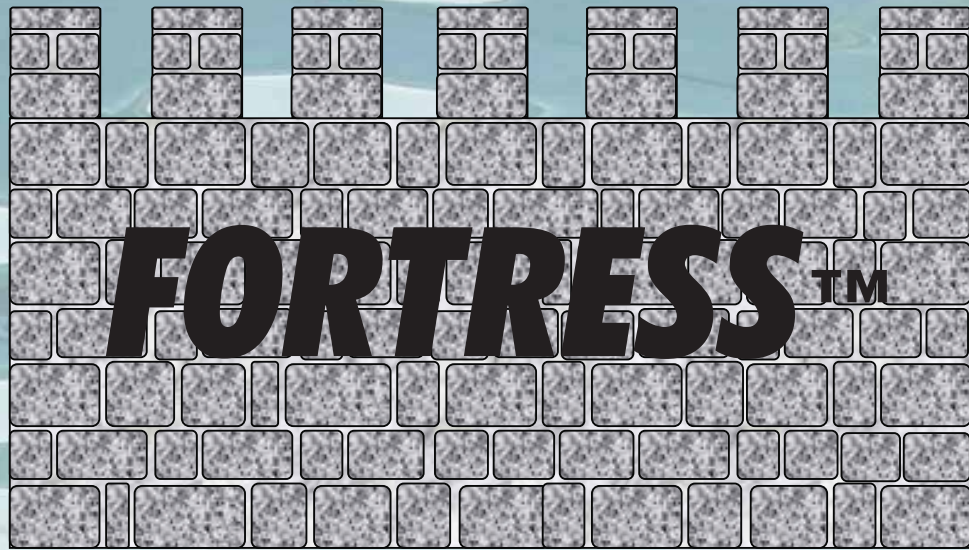
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**CINTEC**

Waterwall®



***Flood Defence System***

***Initial trials***



**CINTEC**





The illustrations show the first Test of the product at Maindee Fire Station on 12th March 2009. The test was achieved by forming the units into an unbroken rectangle to enable water to be introduced into the preformed enclosure that would be sufficiently water tight to enable the barriers to work successfully. The entire exercise took two and a half hours, demonstrating the speed of erection and ease of assembly. The product is very quickly dismantled and stored for future use.





The modular system of 'A' frames which are inflated with air are positioned next to each other across the low lying area, the joins are sealed with PVC strips which are attached to each unit. The bottom edge is fitted with a PVC skirt which spreads in front of the units to form a seal with the ground. Once in position the units are filled with water, displacing the air from the units through pressure relief valves, which maintains the shape during filling.

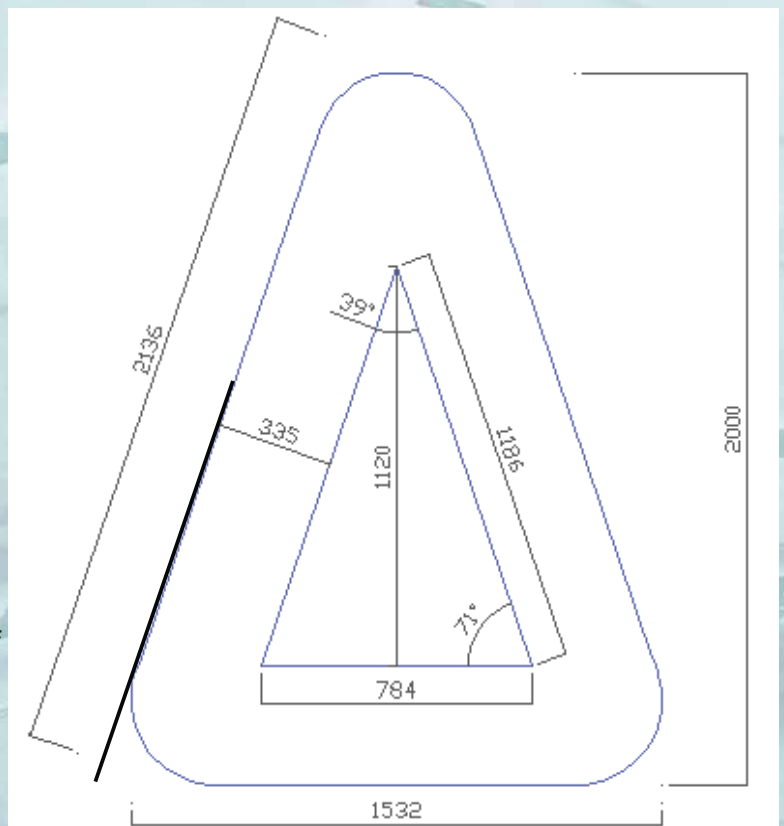




Cintec International Ltd. Have extended its pneumatic and fabric technology to produce a bespoke, novel, temporary flood barrier known as Fortress.

The newly patented system is designed to create internal shear into fabric walls using internal reinforcement that allows water to form walls of the desired shape and size. The individual wall sections come flat packed in a valise and are quickly inflated to the desired shape using an air pump. Once the walls have been erected they are joined together to form a wall similar to a castle fortress. This can be in a straight line or in the shape of a coffer dam or any other configuration that may be required. Once in position the units are individually pumped with water, displacing the air through relief valves and providing a solid structure that is capable of withstanding water pressure to a height of 60 ". If additional support is required, the inner triangle section can also be air or water filled to give additional strength and support. The construction joints are waterproofed using PVC flaps attached to the Waterwalls using velcro strips at both sides and the base of each unit, covering ' T ' shaped PVC profiles.

Each unit measures 79 " high x 60 " deep x 61 " wide and holds 449 US gallons of water, which forms a solid wall of water able to withstand water to a height of 60 ". Each unit weighs 71 lbs and can be easily transported and erected. The units can be formed into a straight wall or, using the shaped corner units, be placed completely around a building or structure, to create a dry area within.





# Waterwall Rescue Units

## Pathway

This enhanced pathway with increased stability, can be used in unstable conditions such as waterways, mud and ice. The two runners below the unit are simultaneously inflated with the main unit. This increases the stiffness and stability in the pathway. The external netting provides grab points along the pathway and reduces the slip hazard. The unit can be fitted with a built in air cartridge for inflation if required. The standard unit uses a quick release fitting to enable filling from an air bottle.

The unit comes rolled up in its own carry valise and can be secured at one end, if required, then inflated over the hazard. The next unit is then attached to the first unit using the built in clips and then inflated. Additional units can be attached and inflated in this manner to bridge most hazards. The units can also be joined side ways as a stable platform.

An optional add on will allow a small outboard motor to be attached.



## Specifications:

External Height	External Width	External Depth	Internal Height	Internal Width	Internal Depth
300mm	1200mm	3000mm	NA	NA	NA
Wall Thickness	Air Volume	Weight Empty	Weight Full	Packed size in valise	
150mm	810 Litres	22kgs	NA		

# Waterwall Inflatable Shelter

Deployed in minutes the unique rapid response shelter for the Military and Emergency services world wide.

Available in arrange of sizes and colours requires no continuous inflation.

• Multi purpose, rapid response shelters can be used for:

- Storage Areas
- Vehicle Maintenance
- Field Hospital
- Portable Morgue
- Casualty Holding Area
- Forward Advance Post
- Command Centres
- Crime Scene Preservation

• Can be carried by 2 – 8 persons, dependant on size of shelters

• Can be anchored on hard or soft standing

• Supplied to army, navy, air forces and emergency

Surface Area	20M squared	25 M squared	30 M squared	40 M squared
Width (m)	4.90	4.90	6.10	6.10
Length (m)	4.50	6.00	6.00	8.40
Height (m)	2.40	2.90	2.90	2.90
Weight (Kg)	68	91	95	101
Set up time min	2	2.5	3	5

• relief valves to prevent over inflation (0.2 bar)

• high pressure inflation valve

• inflate / deflate valve

• heater sleeves

• removable end panels

• adjustable zipped entrances front and rear

• air vents

• guy lines with adjusters

• easy lift carrying valise

• steel securing picket set

• suspension hooks (drips etc.)

• repair kit



Waterwall®





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