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Terminology /Glossary
for the Water Tank Industry

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Terminology / Glossary for the Water Tank Industry

Contents.

TERMINOLOGY & GLOSSARY

FOR THE WATER TANK INDUSTRY

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Sectional tank
A modular water tank made up of standard panel sizes. These panels are delivered to site in kit form and bolted together to form varying sizes of tank.

Hot Press Sectional tank
A type of sectional tank that is bolted externally and requires clearance around, above and sometimes below for installation and maintenance purposes.

Totally Internally Flanged (TIF) tank
A type of sectional tank that is bolted internally and requires clearance above and a minimum of one side for pipework.

Feed and expansion tank
A Tank to supply cold water and receiving expansion water from a hot water system. The feed and expansion tank, or feed and expansion cistern as it is technically known, is a cistern which supplies the central heating circuit with water and accommodates the expansion of the water when it is heated by the boiler. It is often informally known as the header tank.

Break tank
A tank that is normally located in either a basement or ground level plantroom and is supplied (by others) with a booster set to provide limited water storage and an air gap between the mains supply and the building services.

Gravity feed tank
A tank that can be used for any purpose but is located in either a roof void, a rooftop plantroom or outside on a roof and uses gravity to feed the building services. Can be connected directly to the mains or fed via a break tank arrangement.

Wet riser tank
A type of sprinkler tank that provides a dedicated water supply to a system that is always primed (all pipework is constantly full of water). A wet riser system should be installed owing to the pressures required to provide adequate fire-fighting water supplies at the landing valves at upper floors (50m from ground level and above), and also to ensure that water is immediately available at all floor levels.

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Sprinkler tank
A Sprinkler Tank is a tank that stores a dedicated quantity of water to supply a fire sprinkler system within a building, Often LPCB approved, but not mandatory (always ask).

Irrigation tank
An irrigation tank is used to store water to feed plants, grass and vegetation when there is either no rain or other means of watering e.g. internal gardens (high-end residential developments, offices etc.).

Rainwater harvesting tank
Rainwater harvesting collects the rain which falls onto roofs, then stores it in a tank until required for use. When required, the water is then pumped to the point of use or to a secondary tank (header tank or break tank), thus displacing what would otherwise be a demand for mains-water. In the process, a volume of water is kept out of the storm-water management system, thereby helping to reduce flooding risks.

Attenuation tank
Works on the same principle as a Rain harvesting tank except the water isn't used but simply managed. On new build developments there must always be an attenuation scheme as the surface area of said development was permeable (absorbent) and rain would simply soak in to the ground. However, when covered with houses or buildings that are non-permeable the water has to go somewhere. The water authorities will only allow a certain flow rate into their drainage systems and therefore the water has to be managed. The tank will normally have multiple large inlets and one smaller outlet. The outlet is either connected to a pump or a hydro-brake that will reduce the flow of the water in accordance with the local water authority's requirements.

Grey Water tank
The tank is used to store filtered and disinfected water that has been collected from bath and shower
use. This water can then be re-used to feed toilets and washing machines. This can reduce an average
buildings water usage by 50%.

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TANK BASE TYPES

EFB
Externally Flanged Base.

IFB
Internally Flanged Base

TANK FOUNDATION

Foundation
Structure on which the tank is constructed.

Theodolite
Instrument used to determine the level of the foundation or pier walls.

TANK COMPONENTS

Bracing system
Internal or external structure to provide support to the side walls, divisions weirs and baffles of a tank.

Baffle
The Internal wall of a tank which partially subdivides the tank in order to increase the length of the flow path between the inlet valve and outlet.

Weir
Internal wall within the tank which divide the tank but to less than its full depth such that the contents can spill over from one side to the other.

Division
The Internal wall of a tank which divides the tank into watertight compartments.

Lid support
Vertical PVC or solid structure used to ensure the lid of the tank does not deflect inwards when subjected to wind/snow loading or personnel working on top of the tank.

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TANK COMPONENTS (CONT.)

Raised level inlet chamber/ball valve housing/ball valve box/RBVB
Enclosed chamber above the level of the tank cover for housing inlet valve. Used to increase the actual capacity of the water inside the tank.

Side access ball valve box
Removable section to one side of the chamber to allow maintenance of the ball valve, can be used where head room is limited.

Cover
Rigid close fitting cover secured to the tank sides which excludes light and ingress of particles and or insects from the tank.

Access hatch
Hinged or removable cover positioned on top of a tank, once opened to allow for full access in and out of a tank.

Side access hatch
Allows safe access into the tank at a low level once the tank is empty for cleaning and maintenance purposes.

Jointing seal
Material used to effect a watertight seal between tank panels.

Condensation tray
Also known as a drip tray and is positioned beneath a water tank for the capture of condensation and water.

Tie bar
Internal component (threaded bar) which is used as part of the bracing system.

Spreader Plates
Galvanised plates used on the external cruciform (meeting of four panels) points of our Hot Press tanks to equally distribute the pressure created by the stored volume of water to the tie bars. They also provide additional strengthening in these areas.

Self-draining Base
The base panels are bolted externally (EFB) and each has a raised section in the middle to prevent water gathering and make the tank easier to drain and clean.

Sump Panels
The base panel which would be the lowest section of a tank to allow the water to be fully drainable from within the tank and capture any debris or sediment from an incoming water supply.

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TANK CONNECTIONS & ANCILLARY ITEMS

Screened vent
Fitted to the tank cover to provide a protected opening to the atmosphere to allow free movement of air when water level within the tank changes. (Screen size 0.65mm)

Warning pipe
Fitted to any tank over 1,000 litres actual capacity to discharge when contents exceed maximum water level.

Overflow
Fitted to a tank for the effective discharge of water in the event of an inlet valve failure sized at twice the diameter of the inlet.

Ladder
Allow access up to the lid of the tank & inside of the tank for maintenance purposes.

Equilibrium valve
Type of valve which is connected to the incoming water supply, and is opened and closed by the lever which has the float mounted on the end. When the water level rises, the float rises with it; once it rises to a pre-set level, the mechanism forces the lever to close the valve and shut off the water flow.

Connections
Items which are fitted to a tank wall to provide a BSP thread or PN16 ring to allow pipework coupling into and from the tank. Also allows fixing of level switches and temperature sensors etc.

Guardrail
Edge protection designed to be fixed to the top of the tank to prevent the fall of any person who has to climb on top for maintenance purposes.

Kick plate
Fitted in conjunction with guardrail system to prevent tools and small items falling from the tank at a low level.

Up elbow
Internal bend fitted to an overflow or warning pipe to allow the water level of the tank to be maximised.

Delayed action inlet valve
Type of valve which works by the design of the float so once closed provides a pronounced and desired adjustable delay prior to reopening. K/KAX semi delayed adjustable – KB /KP Fully adjustable.

Level Switch
An electromechanical device that opens or closes a digital switch when the fluid in a given area reaches a certain level.

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Contents gauge
These units indicate tank contents volume. Readings are taken by means of a pull and release plunger.

Inlet valves
Mechanism fitted to a water tank to regulate flow from a water source.

Immersion heater
Often fitted to sprinkler tanks for the intention of heating the water in and around the inlet valve, the heater is controlled by a thermostat which is activated at low temperatures to stop the water from freezing.

Vortex inhibitor
This prevents the creation of a vortex (think emptying your bath or sink at home) on the outlet connection to prevent air being sucked into the system and cutting out the pump set. The fitting is a mandatory requirement on sprinkler tanks.

Hydro-brake
This is connected to the outlet on an Attenuation tank to slow the flow of water into the drainage system. It works by creating a vortex of air which restricts the rate at which the water is discharged.

https://www.hydro-int.com/en-gb/products/hydro-brake-optimum

Drop arm
An extended arm fitted to a standard equilibrium valve to enable a greater working range of water level, most often supplied with tanks which have ball valve housings fitted.

Sparge Pipe
A length of internal pipe added to the outlet connection to provide adequate crossflow when both the outlet and inlet connections are on the same side of the tank.

Dosing Inlet
This can be any size of connection that discharges a cleaning agent via a dosing unit into the tank to
inhibit bacterial growth.

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TANK CONNECTIONS & ANCILLARY ITEMS

Bore Hole
An underground source of water that is used as an alternative to the mains water supply. The water is pumped into a tank and is treated prior to use, sometimes before it enters the tank but usually as it is pumped out of the outlet connection.

Sight Glass
A clear PVC tube located on the outside of the tank to provide a visual means of identifying the volume. Not suitable for drinking water tanks as the tube is directly connected to and fed by the stored supply. The water in the tube often becomes stagnant and unfit for human consumption.

Shims
PVC square packing pieces used to level base steels, used in multiples of 3mm & 6mm thicknesses.

Base levelling steels
Box section galvanised steel which is used underneath base panels of a tank which can be levelled true in situations where the foundations are out of tolerance (to a max of 18mm). Spanning and nonspanning available.

RSJ steel
Sometimes referred to as an I-beam, also known as H-beam, Universal Beam (UB), Rolled Steel Joist (RSJ) which can be used when spanning wider sections between supports or piers.

TANK CAPACITIES

Nominal capacity
This is the volume of the tank when filled to the brim. Calculated by multiplying the length x width x height e.g. 3m x 2m x 2m = a nominal capacity 12,000 litres.

Actual capacity
This is the top water level volume when you have taken in to account the amount of water lost when fitting an overflow and warning pipe. If the TWL (top water level) loss was 200mm then you would deduct this figure from the overall height. So using a 3m x 2m x 2m tank you would calculate as follows: 3m x 2m x 1.8m = an actual capacity 10,800 litres.

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TANK CAPACITIES

Actual usable capacity
This is the available amount of water you can physically use in the tank before you start taking air into the system. It is calculated between two datum points; the top water level volume (see actual capacity) and a dimension at the bottom of the tank, which is either the top of the outlet or the low-level switch (pump protection). This is often referred to as dead water as you technically can't use it. So if this area of water was 300mm you would add this to the TWL figure and then subtract this from the overall height.

So using a 3m x 2m x 2m tank you would calculate as follows:
200mm (TWL) + 300mm (Dead water) = 500mm
2000mm (2m) – 500mm = 1500mm
3m x 2m x 1.5m = an actual usable capacity of 9,000 litres

Effective Capacity
This is the available amount of water you can physically use in the tank before you start taking air into the system and is calculated in the same manner as an 'Actual useable capacity'. However, the term 'Effective Capacity' is used by sprinkler companies for sprinkler and wet riser tanks.

AIR GAPS

A requirement by water authorities to ensure that there is a clear break between the mains supply and a building or a device within the building itself. This is to prevent any contaminated water from getting back into the mains supply.

At home you are surrounded by them e.g. your taps can never be submerged in your sink or bath because they are positioned above the spill over level of the water. That is an air gap. We tend to use four types on a daily basis and are as follows:-

AA air gap (Fluid Category 5)
An air gap with an unrestricted discharge, not suitable for wholesome/ drinking water use as the hole or slot is completely open and offers no protection to the stored supply from the ingress of dirt, insects etc.

We commonly see this arrangement on Irrigation, Rain harvesting, and Process & Swimming pool make up tanks.

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AB air gap (Fluid Category 5)
An air gap with a screened spill weir (meshed slot) can be used for any application but generally when deemed a high risk of contamination to the mains supply. It is a restricted discharge due to the mesh requirement, but the slots are sized to ensure they cope with flow rated of the incoming water supply. The NHS has their own specification (HTM 04-01) and insist that all tanks have this arrangement. We also see it requested on care homes and process tanks.

AF air gap (Fluid Category 4)
An air gap with a circular overflow that is sized at twice the diameter of the inlet connection e.g. 1 ¼" ball valve would have a 2 ½" overflow. The air gap distance is generally calculated by doubling the size of the inlet and the measurement is applied between the discharge of the valve and the top of the overflow.

Type AG (Fluid Category 3)
Although stated as an air gap arrangement with a minimum size circular overflow, the calculation works out to be the same as an 'AF' air gap. So again the overflow will be twice the diameter of the inlet connection e.g. 1 ¼" ball valve would have a 2 ½" overflow. The air gap distance is generally calculated by doubling the size of the inlet and the measurement is applied between the discharge of the valve and the top of the overflow.

ACCREDITATIONS & STANDARDS

LPCB
Is an acronym for Loss Prevention Certification Board. LPCB is the leading international Certification Body in the fields of security and fire protection.

Red Book Live
The red book live is an online search engine with listings of LPCB approved products.

ATCM
Association of tank and cistern manufacturers

BS EN 13280
Specification for glass fibre reinforced cisterns of one piece and sectional construction for the storage of cold water above ground.

WRAS
Are the approval body for all items which come into contact with wholesome water in the consumer supply. WRAS is an acronym for Water Regulations Advisory Scheme

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Wholesome Water
'Wholesome' water is fit to use for drinking, cooking, food preparation or washing without any potential danger to human health by meeting the requirements of regulations made under Section 67 (Standards of Wholesomeness) of the Water Act 1991. These stipulate the criteria that the water must meet in order to protect the lifelong health of the population.

Dead Water
The water which would be classified as unusable as it would be effectively below the feed outlet connection.

Freeboard
Air space above the water line to the underside of the cover.

Cross Flow
The Correct movement of water between the inlet valve and the feed from the tank to ensure that the water is evenly used and replenished avoiding dead areas.

Chlorination
Water chlorination is the process of adding chlorine (Cl 2) or hypochlorite to water as a method of water purification to make it fit for human consumption.

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