

Design | Supply | Manufacture | Install | Commission

DHW & LTHW Generation	Heat Exchangers	Solar Energy
Booster Sets & Pressurisation	Package Plantrooms	Chillers & Heat Pumps
Steam Packages & Equipment	Gas & Biomass Boilers	Buffer Vessels
Condensate Removal & Recovery	CHP & Gasification CHP	Complete HVAC Integration



Stainless Steel Material Description & Protection (AL, ADX, ABX & StorPlate)

Our range of stainless steel cylinders are manufactured only using stainless steel grade 316L. These tanks are manufactured and hydraulically tested (100% of tanks). The cylinders are then treated with a pickling and passivation process which cures the stainless steel welds, ensuring a long life of tank.

Pickling and passivation are two forms of chemical metal finishing. These provide protective properties to stainless steel, to protect against rust etc. Our vessels are submerged in acid baths after manufacture which removes material imperfections and any rust on the surface, usually left behind after welding operations.

Pickling of the vessel uses acids that clean the surface of the stainless steel by removing it to treat any impurities, which leaves a change to the metal.

The passivation process uses a less aggressive acid than the pickling process and does not penetrate the surface. The process leaves an oxide layer on the surface of the stainless steel.

The processes of pickling and passivation leave a clean and smooth surface on the vessels and it protects the metal from pollutants penetrating the surface causing damage and rust in the future, improving durability of the stainless steel.

Hard Water Areas:

In some areas of the UK and the world, the water is hard. Hard water is water that has a mineral content (in contrast to soft water). Hard water is formed when water percolates through deposits of limestone and chalk which are largely made up of calcium and magnesium carbonates. These minerals when exposed to heat can deposit on the shell wall and can form scale and in some cases, corrode the cylinder wall. Corrosion of a metal structure occurs mainly in areas where there is a passage of current (redox process) from the structure to the external medium (water or gas) causing a dissolution process of the structure itself.

Considering the importance of protecting the metal from corrosion, the systematic control of the anode and the immediate replacement in case of consumption is highly recommended. We would recommend the use of cathodic protection within the cylinders by means of electronic anodes which can be supplied as standard in very hard water areas.



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Cathodic protection using impressed current electronic anode

As an alternative to galvanic systems (combination of materials with different electrical potential) another protection method is available, consisting in imparting to the metal structure to be protected a direct current equal and opposite, obtaining this way the neutralization of voltages formed inside the cylinder.

Thanks to modern techniques, an innovative cathodic protection electronic system is available, by impressing direct current. The Main advantages are:

- Active protection by impressing direct current from an external source.
- Excellent operational flexibility, for response to different types of internal lining and to variable mass of water.
- Maintenance costs reduction due to the permanent protection of the system.



Cathodic protection using sacrificial anodes

We also offer sacrificial anodes for our cylinders, our AMA-032 range, available in lengths of 500mm, 600mm and 800mm. Each anode has a 1¼" BSP male thread for installation and can be supplied with testers.

