

HydroFLOW Scale Prevention

HydroPath Technology prevents the formation of hard scale due to increases of temperature and pressure change, under all normal operating conditions. Users are advised to contact HydroPath Technical Support if they suspect that conditions are unusual.

Scale Removal

Old scale is normally broken down. The time taken depends on the volume of water, the flow of water to remove the excess scale crystals, the porosity of the old scale and variations in the temperature and the pressure of the water. In most cases the process is fairly rapid, and up to 95% or more of old scale is broken down and treated within the first three months. Hard scale may be slow to break down where there is low water volume and little variation of temperature, flow, hardness and pressure. In such cases HydroPath Technology is best fitted from new or after chemical cleaning.

If HydroPath Technology is applied to a heavily-scaled system, where scale may have formed on the inside of a narrow pipe or plate heat exchanger there is a small risk of blockage due to dislodged pieces of scale. The user is advised to have a system cleanse or to install suitable coarse filters prior to fitting HydroPath Technology.

The HydroPath Technology signal is effective both up and down stream, and can cause a large quantity of scale to be broken down. In most cases the only effect may be that users see the crystals as they emerge from open taps. This does not always happen and stops within three months. There will be no adverse effect in a closed recirculation system unless there is significant evaporation or there has previously been some significant leakage.

Corrosion

The application of HydroPath Technology cannot itself cause corrosion or leaks. Scale is a direct cause of corrosion and its removal may reveal leaks. Rust coatings in mild steel pipe work are altered, resulting in a hard black surface deposit, magnetite, rather than normal rust and further corrosion is prevented. This effect is due to an interference with the electro-chemical reaction needed for corrosion to take effect.

Flocculation

HydroPath technology acts as a chemical flocculant without the environmental damage caused by these chemicals. HydroPath technology creates flocks of suspended material by charging individual particles with alternating charged. These particles are moved together by the turbulence and are attracted in to flocks by the electric fields.

Bio fouling control

HydroPath technology acts as bio inhibitor chemicals, without the environmental damage caused by these chemicals. HydroPath technology applies charges to bacteria and algae. These charges form a hydration layer of pure water around the cell. The pure water is forced into the cell creating an osmotic pressure that ruptures the cell membrane causing death of the cell.

Oil and Gas Production

HydroPath technology is used in oilfields to improve production and reduce maintenance. HydroPath technology improves oil production by reducing both scale and waxes deposit without the use of chemical inhibitors.

Maintenance

HydroPath Technology uses solid-state circuitry and does not require maintenance. There is a red light, which is powered directly by the generated signal and is a positive indication of correct operation. If the operation of the device is critical, users should monitor this light as part of a planned maintenance procedure, or connect the available output to a computer monitoring system

Residual Effect

Once water has left the plumbing system or left the protection zone, it can no longer be subjected to the HydroPath Technology conditioning field. 3.5 minutes may be taken as a conservative guide to the time that the water retains its full scale prevention ability.

Soft Scale

Soft scale will only form when HydroPath technology is present. In systems with no turbulence the crystals can settle. The resulting soft scale occurs in commercial kettles, coffee machine reservoirs, large calorifiers and cooling tower pools. This can be removed during maintenance or by using a filter

Recirculating Systems with Evaporation

Where a recirculating system involves evaporation, e.g. cooling towers or humidifiers, the suspended crystals must be removed using filtration (<50 microns) or blow down to avoid concentration. On initial application existing scale will be broken down leading to an excess of precipitate, which users must address. The easiest approach is to increase blow down. A suitable filter with automatic back wash will also control the problem and will reduce water costs. pH can be controlled using sulphuric acid to reduce the rate of precipitation.

Plate Heat Exchangers

When using HydroPath Technology to protect plate heat exchangers, existing scale in the pipes upstream of the device will be broken down. This will lead to excess precipitate in the heat exchangers, which can continue to cause scale for the first few weeks. If the plate heat exchanger is heated using steam, it is advised that the hot steam supply is connected to the same side as the water return. The heat exchanger will give increased performance through the avoidance of boiling.

Steam Boilers

HydroPath technology replaces the complicated water treatment regime required to operate a steam boiler. It eliminates the use of soft water corrosion and scale inhibitors.