S200SA

Carbon Filtration Unit

Magnaflux carbon filtration units are designed to remove penetrants from post-rinsewater. Once clean, the rinsewater can be pumped to drain/waste (subject to local authority requirements) or recycled to another process.

The S200SA consists of a unique activated carbon filter unit through which penetrant rinsewater is circulated. A pump circulates the rinsewater from the holding tank through the carbon filter, and then back to the holding tank. This process is repeated until the rinsewater is clean. Once clean, the rinsewater can be pumped to drain/waste simply by moving the control valve to the drain position.

The S200SA is also configured to allow rinsewater to be pumped directly from a holding vessel or storage container to the filter by changing the control valve position manually. Once the waste water has been transferred, you simply switch the valve to the recirculate position.

Alternatively, you can manually add process rinsewater to the main process tank and operate the unit in the normal way.

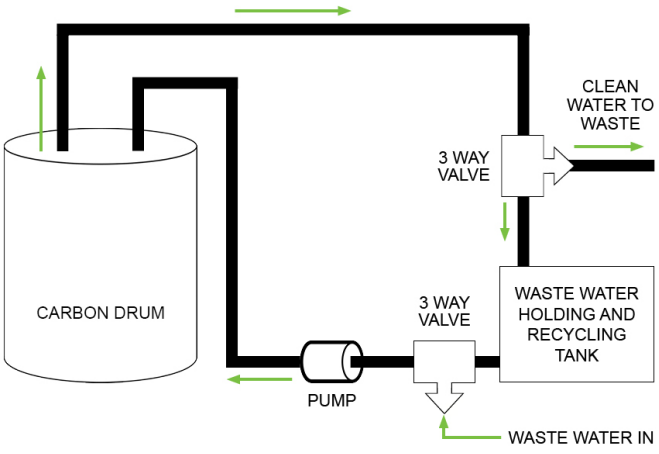
The S200SA needs only occasional monitoring while it is processing.The time needed for the rinsewater to clear will depend on the concentration of the penetrant in the waste water and the level of carbon filter saturation.

The S200SA performs best when processing no more than 75 - 100 litres of rinsewater per day (depending on the level of contamination).

The S200SA unit is mounted on a sturdy stainless steel frame, with fitted wheels for extra mobility. All units carry the CE mark and conform to the appropriate EU directives.

FEATURES

- Low-cost and economical to run
- Self-contained and portable
- Easy to use



Carbon filtration general flow diagram

S200SA

PRODUCT PROPERTIES

Floor space	1,500 x 700 mm
Height	1,300 mm
Holding tank capacity	200 litres
Recommended working volume	100 litres
Construction	Stainless steel
Electrical connections	220/240 Volts, single phase
Average re-circulation flow rate	15 litres/minute
Carbon volume	200 litres
Processing time	2 - 6 hours
Typical input COD* (0.5% ZL-60C)	14,000 mg/litre
Typical output COD (no visual turbidity in water)	65 mg/litre
Typical volume of waste water treated (0.5% ZL-60C)	3,000 litres

* Actual figures obtained will depend on penetrant make-up and concentration

USER RECOMMENDATIONS

Accessories	Replacement 200 litre carbon drum: (015F029)

PART NUMBER

009Z014

What is activated carbon?

Activated carbon is a crude form of graphite, the substance used for pencil leads. It differs from graphite by having a random imperfect structure which is highly porous over a broad range of pore sizes, from visible cracks and crevices down to pores of molecular dimensions. This graphite structure gives the activated carbon its very large surface area, which allows the carbon to adsorb a wide range of chemical compounds.

What is activated carbon made from?

Activated carbon can be made from many substances containing a high carbon content, such as coal, wood and coconut shells. The raw material used has a big influence on the characteristics and performance of the activated carbon.

What makes it activated?

Activation refers to the development of the adsorption properties of the carbon. Raw materials such as coal and charcoal have some adsorption capacity, but this is greatly enhanced by the activation process.

What is adsorption?

Adsorption is the process by which liquid or gaseous molecules are concentrated on a solid surface, in this case activated carbon. This is different from absorption where molecules are taken up by a solid, liquid or gas.

Activated carbon has the strongest physical adsorption forces and the highest volume of adsorbing porosity of any material known to mankind.

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What compounds are adsorbed?

All compounds are absorbable to some extent. In practice, activated carbon is used for the adsorption of mainly organic compounds, along with some larger molecular weight inorganic compounds such as iodine and mercury. In general, the absorbability of a compound increases with:

- Increasing molecular weight.
- A higher number of functional groups, such as double bonds or halogen compounds.
- Increasing polarisability of the molecule. This is related to the electron clouds associated with the molecule.

Penetrant rinsewater before and after treatment.

Discharge to waste

In use, the circulated water will gradually clear as the contaminants are removed. A simple visible check for clarity should give a general indication of water quality. The clearer the water, the less organic contamination is present. Since no two waste streams will be identical in terms of contaminants and concentration, we advise that, when the unit is initially installed and operational, the treated water is analysed for Chemical Oxygen Demand (COD) to check it meets the local authority discharge requirements if discharge is direct to drain. Thereafter, periodic checks can be made as and when required.

Carbon replacement

As the activated carbon adsorbs more and more of the penetrant contamination, it will eventually become saturated and need replacement. When processing times become too long or the treated water does not fully clear, it is time for replacement. The carbon drum is a sealed unit and is replaced as a complete unit, thus minimising workplace and operator exposure to messy carbon.

Control of bacterial growth

Penetrant rinsewater is vulnerable to microbial degradation. This should be controlled when necessary by the addition of sodium hypochlorite (bleach) or slow-release disinfectant tablets. When undertaking this process, please refer to the instructions of the provider of the bleach or disinfectant.