

## AQUA-SAVE TECHNOLOGY PROVIDES ANSWER TO

# WASTE WATER DISPOSAL

## AND ENVIRONMENTAL LEGISLATION

Rising costs of storage and disposal of waste water, and a 'duty of care' to the environment, combined with the opportunity for significant cost savings are responsible for the growth in Aqua-Save Technologies

### THE PROBLEM

Hazardous waste produced by production processes, from machine tools to metal-forming and assembly processes, is an unavoidable by-product. The need to address waste water disposal issues in an environmentally responsible and efficient way is therefore being brought into ever sharper focus across manufacturing and engineering. Tighter regulations are combining with the general acceptance of environmental obligations and there is a growing need to avoid the risk of financial penalties and, potentially, even removal from preferred supplier lists for

### Aqua-Save Applications

**Waste Coolants, Wash Solutions,  
Floor Cleaning Waste, Compressed  
Air Condensate, Cooling waters etc.**

non-environmental performance. In addition the cost and space requirements of storing waste water, the risk of ground contamination due to non-efficient or ineffective bunding, and potential downtime a result, and even the possible direct effects on the local environment at a corporate level

are all serious concerns for manufacturing companies. As a result, the benefits of 'building in' effective means by which waste water can be reduced or even eliminated are gaining increasing attention. However, the problems that need to be confronted and the benefits that waste water disposal technology offer are still passing some manufacturers by.

### INCREASING REGULATION ON WASTE DISPOSAL

The Environment Agency's Trade Effluent Regulations require waste to be handled and disposed of according to the Environmental Protection (Duty of Care) Regulations. Permission for the disposal of waste water must be obtained before making any trade effluent discharge to a foul sewer, the limits for which are becoming increasingly stringent. Companies are responsible for waste water management 'from the cradle to the grave' and as such are liable for significant fines if they fail to comply with the regulations. This could potentially lead to serious financial and performance problems for those concerned.

HSE guidance and other regulations, including COSHH and REACH, are further focusing attention on the use and storage of chemicals that cannot be ignored and increasingly need to be addressed by production and process management.



## THE SOLUTION

The Aqua-Save provides a far more effective solution to the problems of disposing of waste water off site. With typical costs for waste water liquid disposal averaging more than £100 per tonne, even medium volume disposal can, during the course of the year, add up to a significant production cost.

Trade effluent in the form of waste coolants, floor scrubbing, liquid process wastes, detergents, condensate water from compressed air installations and cooling waters from a range of manufacturing and processing operations can all be treated in-house through the Aqua-Save with significant benefits and savings.

Attaching a self-contained Aqua-Save to key waste water generation points in an industrial process can directly address this problem. The system processes waste water by evaporation to produce clean water that typically represents 95% of the original

volume, with only 5% as a concentrated waste for safe removal from site. The benefits do not end there, because the recovered water can be re-used on site producing further savings on water and energy bills.

The Aqua-Save system is available in capacities to match process water volumes. The Aqua-Save Junior is a mobile unit that can be plugged into and moved between wash



equipment to maintain solution cleanliness and minimise downtime for cleaning, whereas the Aqua-Save 30, is often located in a fixed position in a waste storage area to process drums and IBC's of waste water.

Although waste water disposal is a potentially complex issue, it is one which can be comprehensively off-set by the installation of an Aqua-Save system to provide a more modern and responsible attitude to environmental issues, whilst also benefitting from operational and cost benefits.

The success already enjoyed by Aqua-Save Technologies in the take-up of its systems by many leading manufacturers in a range of industrial sectors endorses this belief. It is hardly an issue that is going to go away, rather it is one which is going to become even more pressing and challenging.

Aqua-Save Technologies turning waste disposal problems into real and tangible benefits.

# AQUA-SAVE HELPS UNIVERSAL PRECISION ENGINEERS MAKE MAJOR WASTE DISPOSAL SAVINGS

The investment in the Aqua-Save by Universal Engineering Company (Charlstown) Ltd is set to save the precision engineers over £5000 per year by virtually eradicating the amount of waste coolant and wash water taken off site for disposal.

The Precision Engineering Company based in Weymouth is a leading 'complete product life cycle' supplier to the MoD for aerospace, surface and submarine vessels as well as military and civil broadcast and telecommunications equipment. The company carries out high performance machining of exotic alloys such as titanium, high carbon steels and high nickel alloys.

The Aqua-Save Junior is now the central processing point for their waste coolant that is stored in an adjacent 205 litre drum. Universal Engineering already reports confidence that the waste coolants that are processed in the Aqua-Save produce clean water that is set to be passed for disposal to drain.

Luke Thorpe, Production Manager at Universal Engineering says –

“The Aqua-Save does exactly what we were told it would and the saving against off site disposal of our waste coolants is tremendous. The Aqua-Save is set to give us a payback within 18 months,” he explains, “and will also contribute in our advancement towards ISO 14001 accreditation.”

Paul Jarratt, who heads up Aqua-Save Technologies added –

“The cost of off site disposal of waste water is getting more and more expensive. The Aqua-Save System not only dramatically reduces the volume of waste but also enables companies to manage their own effluent in a more environmentally friendly way.”



# AQUA-SAVE INSTALLATION HELPS BULWELL PRECISION **SAVE £8000 PER YEAR RECYCLING WASTE WATER**

Environmental improvements have followed on directly from the installation of an Aqua-Save waste water treatment unit by one of the country's leading precision engineering companies.

The installation, at Bulwell Precision Engineers, is centred on a self-contained Aqua-Save 30 that has virtually eradicated the need to dispose of waste water off site whilst providing the opportunity to recycle back into the manufacturing process. The investment is anticipated to pay back in under two years.

A leading supplier to high tech industries – such as the military, aerospace and formula one motor racing – Bulwell Precision Engineers has built its reputation on manufacturing quality of the highest level. The organisation, part of the Nasmyth Group, focuses on the production of small/medium engineering components. A full range of materials including aluminium, exotic alloys, titanium and ceramics are utilised, the vast majority of which are subjected to advanced

engineering that is often based on five-axis machining stations. The A380 Airbus is just one example of a resultant application of the company's technology.

"The Aqua-Save installation has now become a key collection point for machining coolant, which contains 4% oil, as well as janitorial and other waste process water," explains Colin Buxton, Project Manager at the site. "This is

**'Waste reduction and recycling' is at the heart of Bulwell Precision Engineers' ISO 14001 accreditation and requires all stages of the manufacturing process to be environmentally friendly'**

now collected from a number of locations and discharged into a 5000 litre holding tank alongside the Aqua-Save unit from where initial oil residues are skimmed. A series of further tanks bring the water holding capacity up to 9000 litres before it is transferred in to the adjacent Aqua-Save.

"The result is clean water that we can either discharge to drain or transfer into IBC's for re-use in various manufacturing processes such as vibratory barrelling," he adds. "We anticipate that in due course 95% of our water usage requirement will be met by the Aqua-Save with only the remaining 5% from the metered mains supply."

"The Bulwell Precision Engineers plant operates 24 hours a day, 7 days a week so there is an ongoing through-put of waste water," comments Paul Jarratt, who heads up the Aqua-Save Technologies Division of MecWash Systems Ltd. "The Aqua-Save 30 can handle the entire site output in just 10 working days each month leaving significant capacity for further application. Furthermore," he continues, "the unit itself is currently processing some 30 litres of waste water per hour but has the ability to increase this to 40 litres."

'Waste reduction and recycling' is at the heart of Bulwell Precision Engineers' ISO 14001 accreditation and requires all stages of the manufacturing process to be environmentally friendly.

"Waste water is an inevitable by-product of our machining processes and day-to-day factory operation," concludes Colin Buxton. "With the Aqua-Save in place, we have a state of the art answer which is not only meeting immediate requirements but is well placed to reflect our continuing growth in the future."



# AQUA-SAVE ON TURBEX WASH EQUIPMENT **SAVES TIME AND MONEY AT EDWARDS**

Increased productivity, lower maintenance costs and environmental improvements have all followed on from the installation of an Aqua-Save System at Edwards Limited based in Shoreham by Sea.

Edwards is a leading supplier of vacuum equipment and related products and services to the world's most advanced industries. The very high standards of cleanliness required on their machined castings had meant that the wash water and the filters from their Turbex needed to be changed every four days. Now, the addition of an Aqua-Save Junior has transformed the machine as Jamie Allan, Maintenance Fitter explains

**“The whole system has performed exactly as we had hoped and will pay for itself in less than seven months of operation,” concludes Pete Smith, Senior Manufacturing Engineer and Facilities Manager at Edwards Ltd**

“The Aqua-Save has kept the wash water clean for over six weeks now and is still as good as day one”, he says. “This has resulted in less downtime, fewer servicing hours, a reduction in the use of filters and the obvious reduction in waste effluent that has to be taken off site.”

“This is one of many applications that are ideal for the Aqua-Save System,” adds Paul Jarratt, who heads up Aqua-Save Technologies. “Removing oils, coolants and contaminants from the wash water is a key function of the Aqua-Save process but it



also automatically doses the correct amount of cleaner back to the wash machine – ensuring optimum cleaning at all times.”

“The whole system has performed exactly as we had hoped and will pay for itself in less than seven months of operation,” concludes Pete Smith, Senior Manufacturing Engineer and Facilities Manager at Edwards Ltd.

# HONDA UK MANUFACTURING BENEFITS FROM AQUA-SAVE INSTALLATION

One of the world's most respected and established automotive manufacturers has enhanced a major component washing process as the direct result of installing an Aqua-Save system.

The unit, an Aqua-Save 30, has maximised the use of a washing machine through which some 6,000 petrol and diesel engines are processed each week.

The Aqua-Save evaporation process keeps the wash solution clean allowing extensive water re-usage with only minimal volumes of waste then requiring further handling or disposal. The ability of the system to help maximise production effectiveness in this way goes to the heart of Honda's reputation, not least its commitment to the highest levels of production quality, whilst also bringing significant environmental benefits to the manufacturer.

Before the Aqua-Save unit was installed, Honda had to undertake weekly changes of the wash solution. Disposing of the 1,500 litre wash tank volume required four hours labour time to handle with the machine being non-operational for that period. These issues which have now been almost entirely offset by the installation of the Aqua-Save unit, which to date has allowed the washing machine to run continuously for more than 10 weeks without loss of cleaning performance.

"This is a major facility for Honda and one within which the full range of Civic and CR-V engines are produced" comments Aqua-Save



Technologies' Divisional Manager, Paul Jarratt. "The company's reputation for reliability is well-established in a highly competitive global market whilst pressures relating to processing efficiency and environmental commitment are also at the heart of its track record.

"We are therefore delighted that the Aqua-Save 30 has played a key role in this manufacturing process and helped such a prestigious organisation maintain the highest production standards," he concludes.

## AQUA-SAVE ADDS SIGNIFICANT BENEFITS TO TURNED PARTS PRODUCTION AT H S ROWE & PARTNERS



An Aqua-Save Junior – the smallest waste water recycling unit is now a key processing focal point at H S Rowe and Partners.

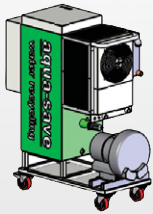
The company, which has developed a leading reputation both in the UK and overseas in the production of sub-contracted turned parts, is taking full advantage of the Aqua-Save concept in order to maximise waste water reuse whilst minimising off site disposal costs.

"We have positioned the Aqua-Save Junior alongside one of our main aqueous-based washing stations allowing it to link directly to that process," comments Mark Statham, General Manager at the Ilkeston-based company. "We also bring in a regular series of IBC's from other processing locations around the site and, with the simple switch of a lever, link these periodically to the Aqua-Save facility. The results in both processing and environmental terms are significant to the extent that complete pay back on the installation will be realised, we believe, within little more than 18 months."

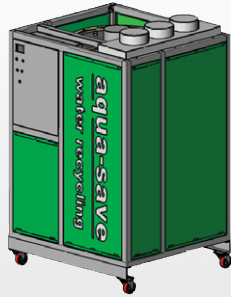
"We undertake an extensive range of machining operations on site using steels and brass working from bar, rod and forgings," continues Mark Statham, "using multi-spindle CNC lathes and machining centres to undertake complete product machining in a single operation. Some 10 million components per year inevitably produce machining swarf and coolant oil which our wash processes then remove. It is the resultant solution, together with liquids collected from elsewhere on site that have become the focus of the Aqua-Save operation."

"The installation at H S Rowe is an excellent example of both the capability of the Aqua-Save Junior and its simple location within a processing environment," comments Divisional Manager at Aqua-Save Technologies, Paul Jarratt.

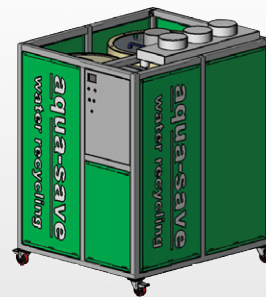
# JUNIOR & 30 LAYOUT/SPECS



**AQUA-SAVE Junior**  
10 - 15 Litres per Hour  
1165mm(L) x 490mm(W) x 1270mm(H)



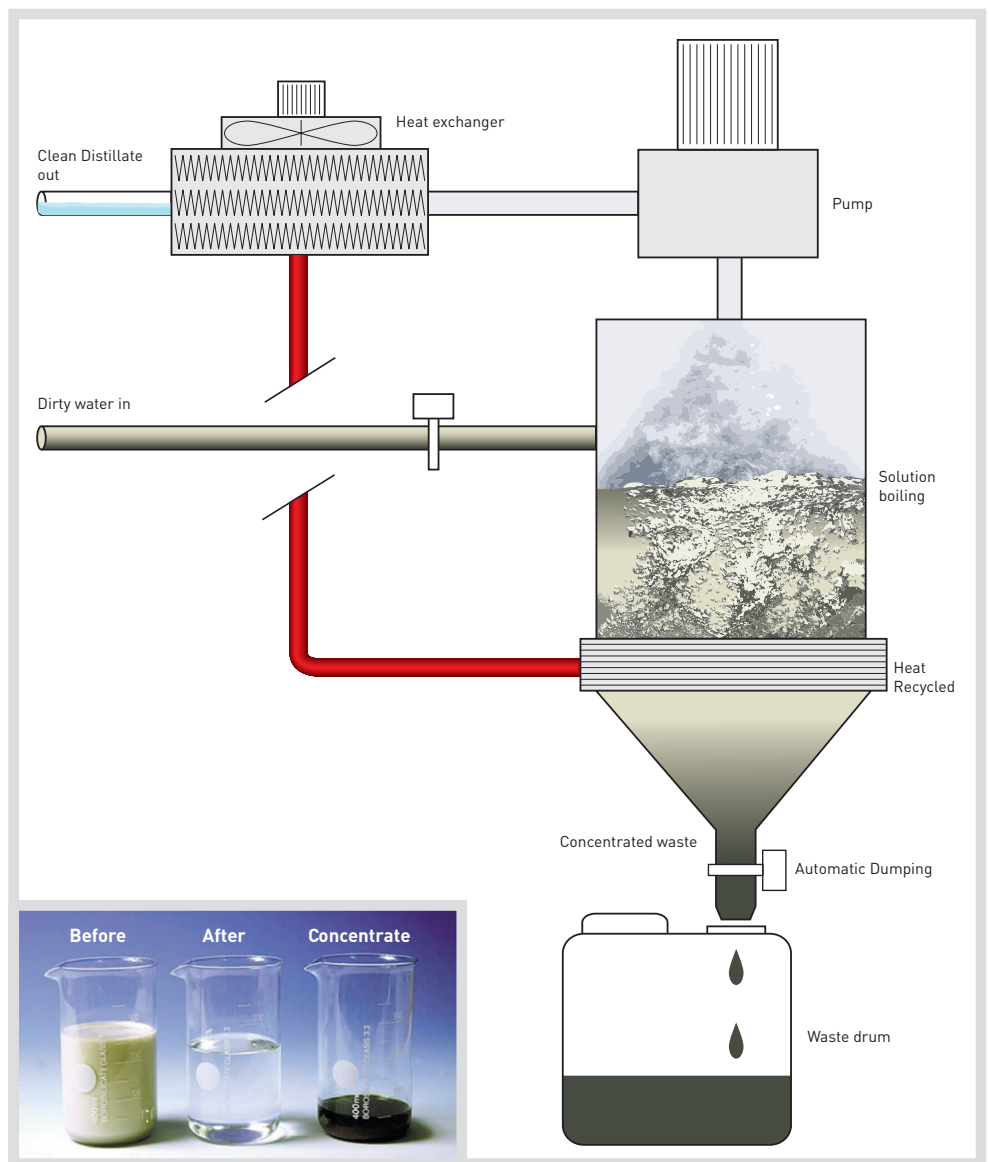
**AQUA-SAVE 30**  
30 - 40 Litres per Hour  
1150mm(L) x 1300mm(W) x 1990mm(H)



**AQUA-SAVE 30 with Pre-Heat Oil Separator**  
30 - 40 Litres per Hour  
1500mm(L) x 1300mm(W) x 1990mm(H)

## THE AQUA-SAVE PROCESS

- Aqua-Save is a fully automatic waste water treatment system requiring no operator input and minimal maintenance or service.
- At the heart of the system is the evaporation unit, which operates at 80°C – 85°C.
- The processing conditions have been established to evaporate the aqueous part of the process solution, with the retention of the higher boiling water-soluble oils and other contaminants.
- The operating conditions can be tightly controlled to suit the particular nature and proportion of the oil contained within the process solution.
- The system is designed for continuous treatment 24 hours a day, 7 days a week.
- The waste oil is concentrated and automatically discharged at regular intervals, which can be set to suit each application.
- The reclaimed water is neutral, permitting re-use or disposal to main drain, subject to permission.
- The energy used in the process is recycled, making the system highly efficient
- The Aqua-Save system can provide indefinite process solution life in aqueous wash equipment.



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