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90%+ FLUID RECYCLING AT NISSAN

Any company facing growing demand for its products naturally welcomes the challenge with open arms. But, along with increased production comes the potential for increased waste and that needs dedicated management. Nissan Motor Manufacturing (UK) Limited is a case in point.

At the NMUK plant in Sunderland, increased production of cylinder heads led to its swarf-wringing system extracting upwards of 1000 litres of machining fluids per day. This was disposed of as waste and the cost was spiralling. For a company keen to embrace ISO 14000 – the series of international standards on environment management – a radical re-think became vital.

The Unit Machining Engineering Section was therefore charged with the responsibility of reducing the volume of waste, principally in the form of soluble oil products and wash fluids. Recycling was the obvious conclusion and Master Chemical Europe has provided the solution. The resultant system was installed in March 2004 and it is the first fully automated system of its type in the UK.

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NMUK's introduction to Master Chemical Europe came at a Coolant Management Seminar held at St. James's Park, Newcastle. Master Chemical is unique in the marketplace in that it is both a manufacturer of metalworking fluids and recycling equipment. It therefore had the expertise to tailor a system to meet NMUK's needs precisely.

The Master Chemical approach recognises coolants as a production item, not machine maintenance fluids. Good fluid management requires the monitoring and control of all coolant/wash fluid related variables. This not only results in freedom from coolant/wash fluid waste disposal problems, it also optimises tool life, increases productivity, improves the overall shop environment and adds a regular and significant profit contribution to the bottom line.

At the heart of the system that Master Chemical designed for Nissan Motor Manufacturing (UK) Ltd., is a mobile XYBEX[®] 3000 Autodesludge Centrifuge Recycling System. This is a water miscible fluid recycling system, specifically configured to remove tramp oil and particulate matter from coolant and wash fluids. It accepts fluid from central coolant systems, batch tanks and parts washers using a self-priming centrifugal pump and then returns the recycled fluid to the system or holding tanks by means an in-built centripetal discharge pump.

The unit is equipped for use on high temperature and high pH fluids. And being mobile, it is able to process fluids in different locations within the Sunderland factory. With a flow rate of 750-1400 litres per hour dependant on the type of fluid used, the XYBEX[®] removes both free and emulsified tramp oil to 0.5% or less and particles down to 8 micron or less.

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The associated XYBEX[®] tank system is a Master Chemical standard design and fully automated to operate with the mobile XYBEX[®] system. It holds coolant from NMUK's chip wringer or from standalone machine tools in a 2000 litre capacity holding tank, ready for processing by the XYBEX[®] 3000. The fluid is then pumped to the production fluid top-up tanks or directly to the central system.

The third option open to NMUK is for the fluid to be transferred to a mobile XYBEX[®] Junior System. This is a single product coolant recycling system with a flow rate of 350 – 500 litres per hour and ideal for use with the company's standalone machine tools.

The initial aim of the MCE Waste and Fluid Management System was to reclaim between 60% and 80% of these production fluids. Although still in its trial period, the system is substantially exceeding this target. "We are currently hitting 90% - 95%," NMUK's Steve Tobbell concluded. "A great result for us and for the environment."

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