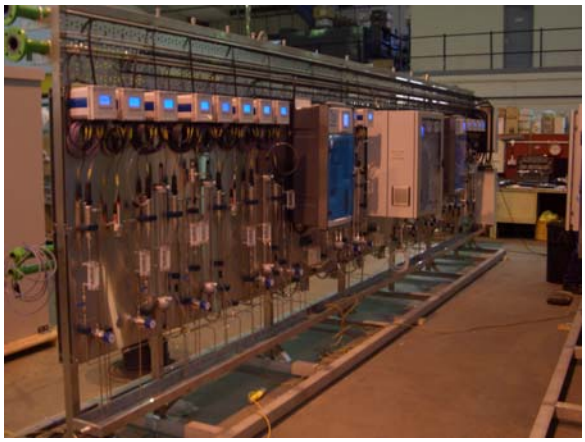
# SWAS

## *New or Refurbished*



***Market Leaders in the provision of : Steam & Water Analysis Systems (SWAS)***

Our sampling systems will consist of all the necessary equipment required to present an analyser/s with a clean consistent, representative sample of the process stream and to dispose of that sample as required. Not only will the sample be presented to analysers correctly it will be safe for operators to take grab samples for LAB analysis comparisons.

When the analysers are part of a continuous/automatic control loop, the design/reliability and safety of the sampling system is as important as the reliability of the analyser or the associated control equipment.

Sampling systems have several functions. The sample must be:

- Withdrawn from the process
- Transported
- Conditioned correctly and safely
- Introduced into the analyser in consistent condition
- Disposed of safely

Probably the most common problem in sample-system design is the lack of realistic information concerning the properties of the process sample being conditioned at the sampling point and short cuts in design to save money. This avenue has proven over many years to be false economics, forcing owners to re-invest far sooner than is necessary.
Once the sampling system is installed the most common problems are usually through a lack of maintenance for the complete system

Above/below : Typical SWAS system for a large power plant 440 MW in Siberia (Surgut) comprising two racks with fully integrated Sample Conditioning and Analysis equipment and chiller.

Lowe provides full after sales and support facilities, covering installation, commissioning, service & maintenance contracts / activity's, through our dedicated service teams. Minimising unnecessary and unscheduled outages. Lowe also offers an extensive refurbishment programme to accommodate changes in plant dynamics (i.e two shifting etc) this facility provides positive commercial advantages to the plant such as, extending the life of existing equipment.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Lowe Sample Coolers (originally developed in association with CEGB), have been the de facto standard for many years in nearly all UK Power Stations and with UK plant builders for both UK and overseas projects.

Their performance and reliability remains unsurpassed. Ever conscious of changing markets LOWE has introduced a wider and upgraded range, retaining many of the outstanding features whilst offering more cost effective solutions.

Large heat capacity: Very large heat transfer area per unit cost with Pressure and Temperature ratings up to 538 Deg C at 333 bar incorporating non asbestos gasket. Designed to cool steam, water or other process sample for either manual grab or on-line continuous analysis.

With very low cooling water pressure drop, allowances for coil & shell fouling at full process conditions resulting in a safely predictable performance with high sample flow rates and minimum coil vibration. Short sample residence time reduces the build up of solids and scale.
Counter-flow cooling: Sample outlet temperature closely approaches the coolant inlet temperature, optimising the use of baffles within the cooler shell to produce full counter-flow cooling and low coolant flow rates.

Coils designed to minimise thermal shock: Reducing stress corrosion and extending coil life. This unique feature has been retained for this new range.

Shell removable: The shell is easily removed without disconnecting the sample lines, for inspection or maintenance purposes to the most commonly fouled area.

Sample coil stainless steel as standard: A single continuous coil with no joints within the cooler minimises maintenance. Optional heat-treated coils, reduces the stresses and increases the coil life. Alternative materials to stainless steel are available ie Inconel, Monel etc.

Compact design: Can be mounted in varying configurations to suit the user.

Shell Relief Valves: Available from Thermal Relief Valve to Full Flow protection, if required against the unlikely event of simultaneous guillotine coil failure and coolant failure.

Alternative designs: Special sample coolers can be designed for non standard applications where necessary including Low Pressure Steam / Water; Multi Steam samples; Multi element Isothermal Bath Type; High Sample Flow and closer approach tolerances.

Cooler Selection: Sample coolers are only one part of the conditioning system and all aspects of the process, sitting and transfer pipe-work etc should be taken into account when selecting the appropriate cooler.