

CONDUCTIVITY CONTROLLED BLOW DOWN EUS

CONDUCTIVITY MEASUREMENT SYSTEM

Steam boilers having feed-water make-up plant using ion exchangers may still see small concentrations of salt in the demineralised water. If this salt concentration increases beyond the manufacturer's recommendations the water may foam and the risk of carry-over from the boiler into the steam distribution system may occur. This will probably lead to deterioration both in the steam distribution and condensate return pipe work. To avoid such risks periodic blowdown of the boiler is necessary. The process of blowdown normally results in wasted energy and the frequency and quantity of water removed needs to be minimized.

SYSTEM DESCRIPTION

The ERAB Conductivity Controlled Blow-down System is designed and constructed to meet the industry's need for optimum automatic and economic running of boiler plant. By continuously monitoring the boiler water's conductivity in μS the amount of blow-down is controlled precisely thus minimizing energy wastage. The ERAB system consists of a sensing probe, amplifying module and a blow-down valve. The probe measures the water's conductivity and through a four wire arrangement processes the reading in the amplifying module. The reading, having automatic compensation for temperature (standard temp. $+25^{\circ}\text{C}$), is displayed on an LED display panel in μS units. The amplifying module has two set point adjustment with potential-free relay outputs for operation of the blowdown valve and alarms. Additionally there is an analogue output of 4-20mA for use with auxiliary instruments or to the control-room. The sensing probe is supplied with 1.1/4" threaded connection and may be mounted vertically or horizontally directly into the boiler. The length and location of the probe should be such that it is at or below the low-low water level of the boiler. If the sensing probe cannot be placed directly into the boiler shell but is installed in a separate external housing then it will be necessary to blow-down regularly the static water head in order that a representative reading is maintained.

BLOW-DOWN VALVE

For boiler plant with maximum working pressures of 10 bar, a solenoid valve type 255 may be used. For boiler plant with working pressures up to 25 bar, a motorized valve type 323 should be used. The system can be controlled in such a way that continuous monitoring and discharge of dissolved salts is possible. NB. It is important to be aware that the ERAB Conductivity Control Blow-down System is not intended for use in place of the boiler primary blow-down valve due to the limited capacity of the valves employed.

