

The illustration above shows a simple demineralisation plant where anions are exchanged with hydroxyl ions and cations are exchanged with hydrogen ions (by the use of ion exchange resins) to produce pure, mineral-free water.

ABB conductivity monitors are used for continuous monitoring of conductivity at all stages in the treatment process. Regeneration of the ion exchange resins is a separate process using ABB multi-electrode systems; refer to AG/RBRWT for details of this procedure.

## Why monitor for conductivity in water treatment processes ?

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### The customer needs:

- ▶ To detect resin exhaustion and to ensure the process water is pure.
- ▶ To ensure that the plant operates at the maximum efficiency.
- ▶ To allow the plant to be maintained to specific standards.

## Why use ABB Instrumentation ?

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- ▶ ABB offer greater security at a lower cost by having:
  - a worldwide network of companies and agents to ensure backup in most areas,
  - proven reliability – over 100 years of process instrumentation experience,
  - over 40 years experience in on-line conductivity measurement,
  - full installation, commissioning and routine servicing facilities available (in the UK and some other countries this is covered by the **Assist**™ Customer Support Programme).
- ▶ Comprehensive range of field-proven conductivity cells available.
- ▶ Our cells have been successfully used in kidney dialysis machines for more than 15 years with tens of thousands installed.
- ▶ Our transmitters are easily converted for use in high level/multi-electrode, conductivity applications and pH and dissolved oxygen applications.
- ▶ Transmitters and cell designed and manufactured by same company.

## What ABB products are suitable ?

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- ▶ **Model 4620/25 Series Conductivity Transmitters and Type 2042/2078 Conductivity Cells:**
  - well proven electronics,
  - IP66 enclosure suitable for installation in the most demanding environments,
  - easy to read, backlit LCD display and customised display with user friendly software,
  - user selectable 4-language display – English, German, French, Spanish,
  - electronic sophistication permits 100m separation, even for the most sensitive ranges (0 to 0.1µS/cm),
  - true multi-range flexibility without recalibration,
  - unique, highly accurate/repeatable cell contacts (±1%) means that cells are interchangeable without recalibration,
  - ultra-pure water temperature compensation corrects for changes in conductivity in both the impurities and the pure water,
  - our universal transmitter, covers many applications from ultra-pure water to liquids with conductivity up to 10,000µS/cm.

## Other ABB monitoring capabilities suitable for Water Treatment processes ?

### Analytical Applications:

- ▶ Regeneration of the resin beds in both make-up Water Treatment and Condensate Polishing Plants using 4621/26 multi-electrode systems.
- ▶ pH monitoring using type 4630/35 transmitters and associated electrode systems.
- ▶ Sodium monitoring using type 8036 Sodium Monitors.
- ▶ Silica monitoring using type 8241 Silica Monitors.

### Industrial Applications:

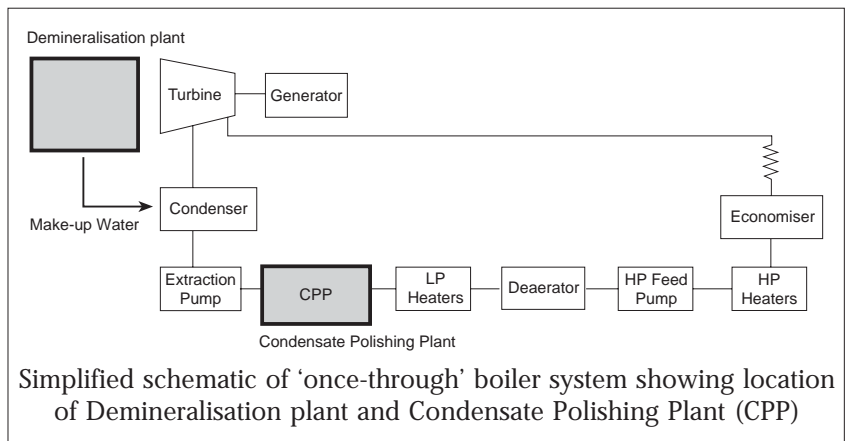
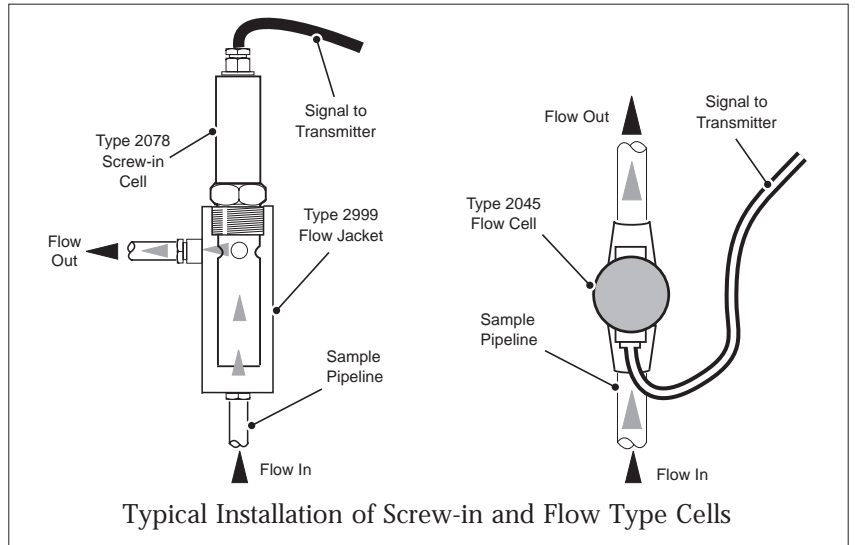
- ▶ Recorders and recorder/controllers (PR100, C1900, C100, C150, C200, C300).

### Flow Applications:

- ▶ MagMaster flowmeters.
- ▶ Type 600T Smart pressure transmitters.

## Installation

- ▶ ABB conductivity cells and transmitters are usually mounted near the sampling point (wall mounted version).
- ▶ Flow line cells are usually mounted vertically with the sample flow entering at the bottom – this minimises problems with air bubbles.
- ▶ It may be necessary to fit a needle valve upstream of the cell to ensure the sample flow remains within the required limits.





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