



Multi-Effect Desalination – Thermo Vapour Compression (MED-TVC)

Multi-Effect Desalination (MED) is a thermal desalination technology based on multi-effect horizontal tube thin film evaporation process which produces distilled quality water directly from seawater/brackish water. MED technology along with Thermo Vapour Compressor (TVC), known as MED-TVC, uses medium pressure steam for vapour recompression and reuse for desalination. BARC has successfully demonstrated this technology setting up a skid mounted 240 cu.m/d MED-TVC plant at DD, Trombay.



240 m³/day MED-TVC Plant at DD, BARC, Mumbai

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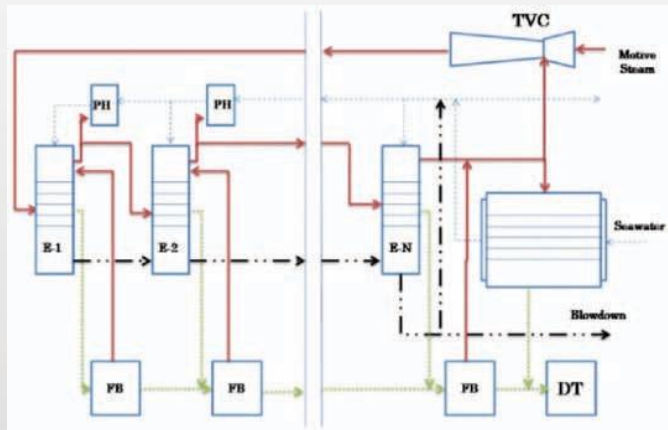
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Salient Features of Steam Driven MED-TVC technology

- MED-TVC desalination technology works on principle of vapour recompression and reuse.
- Coupling MED with TVC lowers the requirement of cooling seawater.
- As vapour from the last stage is compressed by TVC using motive steam at 7-10 bar and reused in the first effect as heating media, overall steam requirement reduces to just 11% of the distillate produced by the plant.
- Pumping energy required is about 2-3 kWh/m³ of distilled water produced.
- Skid mounted MED-TVC plant has lesser footprint area.
- PLC-SCADA system of the plant allows completely automatic operation including its start-up and shut-down.
- Skid mounted 240 m³/day MED-TVC plant developed at BARC can cater to around 2400 people @ 100 litres per capita per day (lpcd).
- Capital cost of skid mounted MED-TVC unit of 240 m³/day capacity is around INR 900 lakhs.
- Product water cost is in the range of 10-20 Paise/litre (Site specific).
- MED-TVC plant can be further scaled up to about 2000 m³/day in a single unit.



Operator Desk of MED-TVC Plant



Flow Sheet of MED-TVC Process

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