

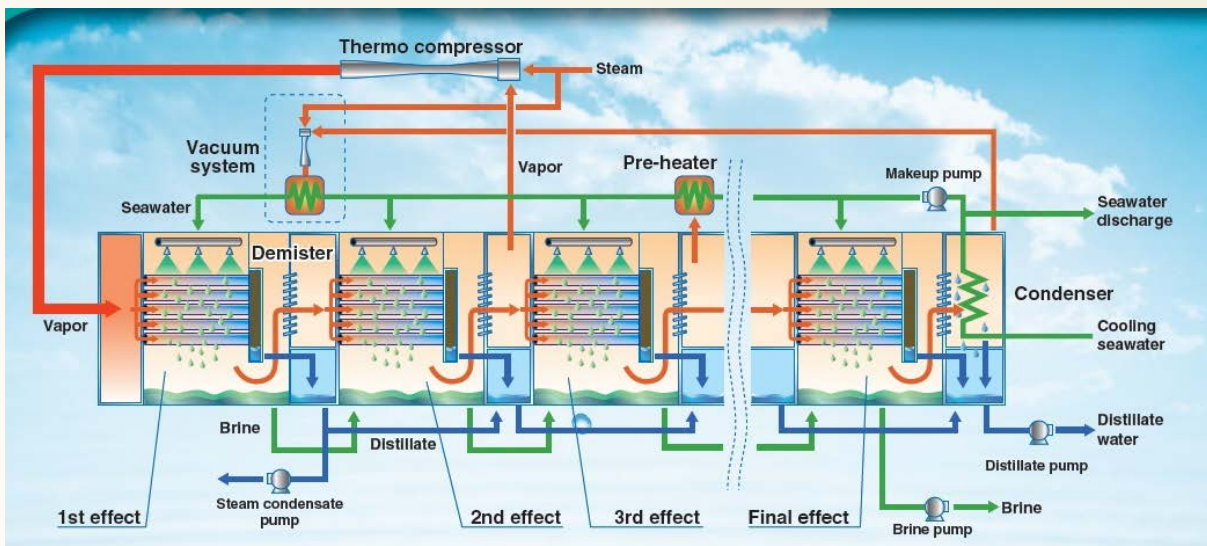
MED (Multiple effect distillation) Desalination Plant

The MED method is an evaporation process for desalination that efficiently produces freshwater through multiple-effect evaporation.

Features

Both Evaporation and membrane methods have their own advantages, however, evaporation methods have been widely used mainly in the Gulf countries today, because of their advantages, i.e., higher resistance to deterioration of raw seawater, and easy operation and maintenance. In particular, the advanced features of MED such as high thermal efficiency and smaller power consumption contribute to significant extension of its market share. Based on extensive experiences, comprehensive engineering capabilities and cutting-edge research & development, Hitachi Zosen Corporation satisfy all client's requirements of MED process.

Overview (Technical principles, actions, etc.)



MED Evaporator consists of some effects (Number of effect is depend on the design condition). Vapor, Heat source, is introduced into the tubes of the 1st effect. Inside tube, Vapor is condense as the cooling seawater drips from tube to tube sprayed from top of spray nozzle and Distillate water is collected into distillate box. Outer surface of the tube on the other hand, some of seawater evaporates and this vapor flows into the tubes of the next effect as heat source. This process repeats in every effect. Seawater is heated by condenser or pre-heater before it reaches to each effect. Thermo compressor enhances the plant efficiency (Gain Output Ratio=GOR) by recycling a part of vapor sucked from low temperature / low pressure effect mixed with high temperature steam to supply to the 1st effect. Recycling low temperature / low pressure vapor contribute to reducing vapor consumption.

Introductory Track Record

Experience of MED Desalination Projects of Hitachi Zosen Corporation

No.	Client	Process	Location	Total Capacity		Completion
				in m ³ /day	In MIGD	
1	Hitachi Zosen Innoshima Works	MED	Japan	500	0.110	1971
2	Kansai Electric Power Company	MED	Japan	1,300	0.286	1973
3	Kansai Electric Power Company	MED	Japan	1,300	0.286	1975
4	Kansai Electric Power Company	MED	Japan	1,300	0.286	1989
5	Kansai Electric Power Company	MED	Japan	1,300	0.286	1990
6	Kyushu Electric Power Company	MED	Japan	800	0.176	1997
7	Kansai Electric Power Company	MED-TVC	Japan	1,300	0.286	2011
8	Kyushu Electric Power Company	VVC	Japan	800	0.176	2012
9	C Corporation	MED-TVC	Taiwan	2,200	0.484	U.C.(2014)
Total				10,800	2.376	

Effects



- High heat-transfer efficiency compare to other thermal processes
- Low vapor consumption and high performance efficiency by using of thermo compressor and seawater pre-heater
- Less scale formation and less maintenance by low temperature operation
- Customize Plant Capacity optimized for the plant's specific environment and site conditions.
- High Gain Output Ratio (GOR>10)
(GOR=Distillate(kg)/vapor supply (kg))
- High Flexibility of operating load range (40% ~ 100%)
- Guaranteed high purity distilled water (TDS <5ppm)
- High anticorrosive material selection for long-life operation
(Duplex, Ti tube and Aluminium Brass tube)

Inquiries

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