

COLOANE POWER STATION - MACAU
FRESH WATER GENERATOR PLANT



BUILT IN 2003 FOR



COMPANHIA DE ELECTRICIDADE DE MACAU

BY

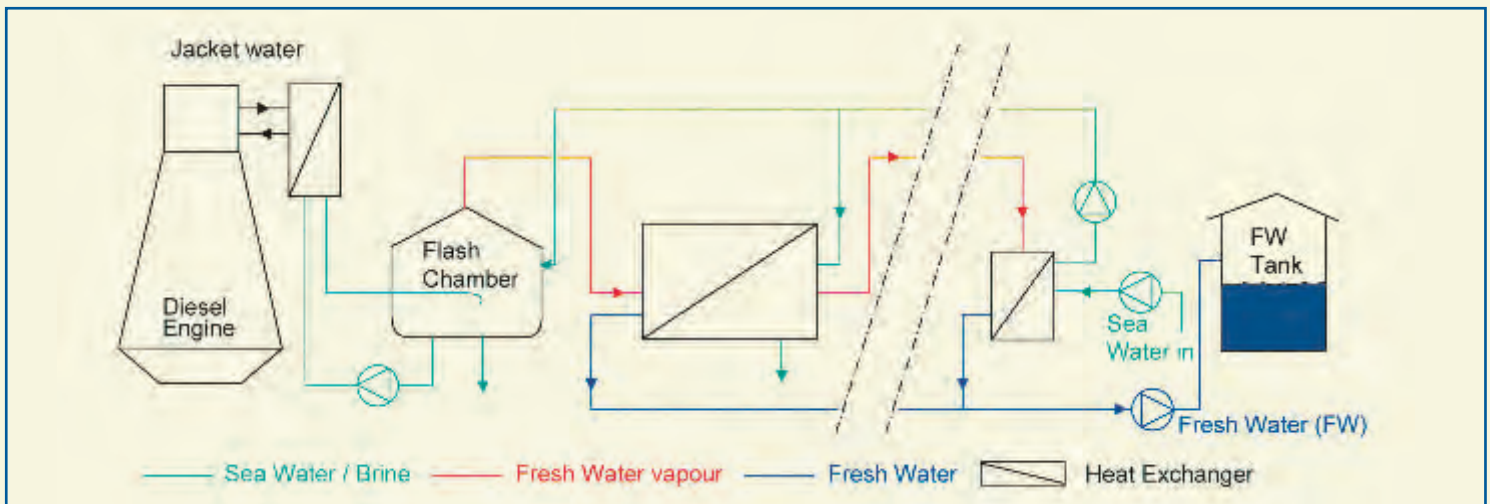


Burmeister & Wain Scandinavian Contractor A/S

Fresh Water Generator (FWG) Plant

Due to increased requirements for freshwater supply to the power plant, CEM has in 2002 decided to install a fresh water generator plant at the Coloane A Power Plant. The FWG utilizes the waste heat energy from the jacket cooling

water system of one of the two 50 MW Mitsui MAN B&W 12K90 diesel engines. Fresh water is produced on a skid mounted Multiple Evaporator Plate-Distiller unit using the principle of multi-effect distillation of seawater.



Technical Data.

| | |
|--|---------------------------|
| Make | Alfa Laval |
| Type | MEP – 4 – 700F |
| Capacity | 700 m ³ / 24 h |
| Heat requirement | 5,400 kW |
| Electric power consumption | 121 kW |
| Specific electric power consumption .. | 4.15 kWh/m ³ |
| Chemical consumption | 920 g/h |
| Jacket water flow | 425 m ³ /h |
| Jacket water temperature | 80°C |
| Seawater supply | 240-550 m ³ /h |
| Seawater inlet temperature | 13-33°C |
| Main dimensions | 4.5/11/ 4 m |
| Operational weight | 32,000 kg |

Operational Features

The FWG plant includes an anti-scaling chemical dosing system, a pH-monitoring and adjustment system as well as a "Cleaning In Place" (CIP) facility. Furthermore, the PLC system for the FWG plant is fully integrated into the main control system for the power plant

Advantages

The operators are able to operate the fresh water generator from the existing control room. The overall flexible concept allows that the FWG can be operated coupled to either diesel engine ensuring a steady fresh water supply.

The water from the FWG can be used directly as technical clean water. Furthermore, the water can be utilized as potable water in accordance with WHO recommendations for drinking water by only adding salt solutions.

The specific energy consumption as well as the cost of chemicals is very low and the yearly maintenance cost for the plant is limited.

The resulting price per produced m³ water is therefore very competitive as the production is based on diesel engine waste heat recovery.



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