

POWERPACK 9021-HMS and 1220-MS

Case Study: Solar Power Plant



Industry

Energy – Concentrated Solar Power Plant

Customer

Customer is an engineering and technology group and a premier provider of innovative and high-quality solutions in engineering, aerospace, and energy & environment.

Background

This customer's solar power plant with central tower, heliostats and salt receiver technology has a gross production capacity of 150 MW and a storage capacity of 7.5 hours of production.

Molten salts are used as Heat Transfer Fluid (HTF). Any problems with the valves in the HTF pipework have a direct impact in plant output and performance.

Challenges faced

The valve original OEM packing sets (made of vermiculite) were having continuous problems of leakage since the start up of the plant. This required weekly retightening, and packing replacement every few weeks.

Design Conditions

1. HTF: Molten salts
2. Pressure hot salts: up to 76 bar
Pressure cold salts: up to 102 bar
3. Temperature hot salts: up to 585 °C
Temperature cold salts: up to 430 °C
4. Valves hot salts: from 4" #300 to 24" #600"
Valves cold salts: 4" & 14" #900

Solution and Benefits

The customer consulted our Garlock specialists and described the problem. They investigated the issue and came to the conclusion that Garlock POWERPACK was the best solution to solve the problem.

POWERPACK 9021-HMS sets were installed in globe and butterfly valves (motorized & manual) on the hot molten salts circuit coming down from the tower to the hot salts tank.

POWERPACK 1220-MS sets were installed in globe and butterfly valves (motorized & control) in the cold molten salts circuit.

The customer replaced vermiculite packing in all butterfly valves in this plant with Garlock POWERPACK sets and during 12 months continuous operation, molten salts leaks have disappeared and cold and hot circuits have not required any shutdown due to valve leakage problems.

For more information, please visit:

www.garlock.com

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