



Valtek® TX3 Molten Salt Triple-offset Butterfly Valve for CSP Applications



Unmatched reliability in critical high-temperature solar energy processes

With concentrated solar power (CSP) plants, companies can harness the power of the sun to provide the energy needed for a broad range of uses. The Valtek TX3 Molten Salt triple-offset butterfly valve is one of many proven solutions from Flowserve that enable CSP plants to reduce costs, maintain high output, and continue to gain efficiencies in molten salt applications in which temperatures can reach as high as 600°C (1,112°F).

Proven design provides tight shut-off

Engineered to provide unmatched reliability, tight shut-off and minimized maintenance, the design and construction of the Valtek TX3 Molten Salt valve eliminate leakage in the most punishing conditions. It's available with standard live-loaded Thermiculite® or hybrid packing.

The energy efficiency plus simplified operation and service of the TX3 Molten Salt valve significantly lower the total cost of ownership (TCO).

Prevent salt solidification and maintain process integrity

CSP operators must avoid salt solidification within the valve stem, packing and waterway that can cause the valve to seize, rendering it inoperable. It can even result in unplanned downtime or shutdown.

The design of the Valtek TX3 Molten Salt triple-offset butterfly valve keeps the molten salt in a fluid state during thermal cycling to ensure reliable performance throughout the CSP plant's operational lifecycle. Electrical heat tracing (EHT) keeps the valve warm, and packing has been located closer to the valve body to minimize thermal losses and prevent the solidification of salt with optimized power consumption.

Ensure process control and leakage resistance

The design and construction of the Valtek TX3 Molten Salt valve also enable CSP plants to assure process control in molten salt applications through optimum leakage resistance during valve shut-off. The shut-off performance reliably complies with FCI 70-2 Class V for control valve applications and API 598 for on-off applications.

Stem sealing options include live-loaded Thermiculite or hybrid packing, which prevents stem leaking caused by thermal swings.

Committed to a clean energy transition

At Flowserve, our approach to energy transition begins and ends with our purpose: to make the world better for everyone. To that end, our valve, pump and seal groups collaboratively work to develop optimally designed and fully integrated fluid motion and control systems that incorporate our unrivaled experience with heat transfer fluids — including molten salt — so CSP generators can efficiently harness the clean energy of the sun.

Constructed on physically optimized global platforms, our product portfolio provides durable functionality and solid stability in challenging CSP applications such as parabolic trough, tower and molten salt thermal energy storage. Flowserve works with our CSP customers to improve efficiency, maximize throughput, and control process quality.



Maximize energy efficiency across extreme conditions

Operators can ensure constant temperature within the valve stem and packing region with a comprehensive solution for packing and heat tracing, including integrated heating, controls and sensors.

In addition, packing has been located closer to the valve body to minimize cooling and prevent the solidification of salt. Moreover, the Valtek TX3 Molten Salt valve has been engineered to minimize power consumption at operating temperatures lower than 400°C (752°F) with EHT and at temperatures above 400°C (752°F) without EHT.

Minimized maintenance

Maintenance complexity can be reduced through in-line maintenance options. Consult with Flowserve technical specialists for details and availability.

Specifications

Body material	<ul style="list-style-type: none"> A or SA-216-WCB carbon steel for cold salt up to 400°C (752°F) A or SA-351-CF8C stainless steel for hot salt above 400°C (752°F)
Body style	<ul style="list-style-type: none"> Butt-weld flanges standard Short pattern standard; long pattern available Others engineered to order (ETO)
Certificates/ approvals	<ul style="list-style-type: none"> Available API 607 and ISO 10497 for fire-safe ISO 15848-1 for fugitive emissions
Pressure class	ASME Class 300 and 600 as standard; Classes 150, 900 and 1500 ETO
Size	NPS 3 to 24; larger sizes ETO
Temperature	260°C to 600°C (500°F to 1,112°F)
Test standards	API 598; FCI 70-2 Class V