



Your Concentrated Solar Power Generation Partner

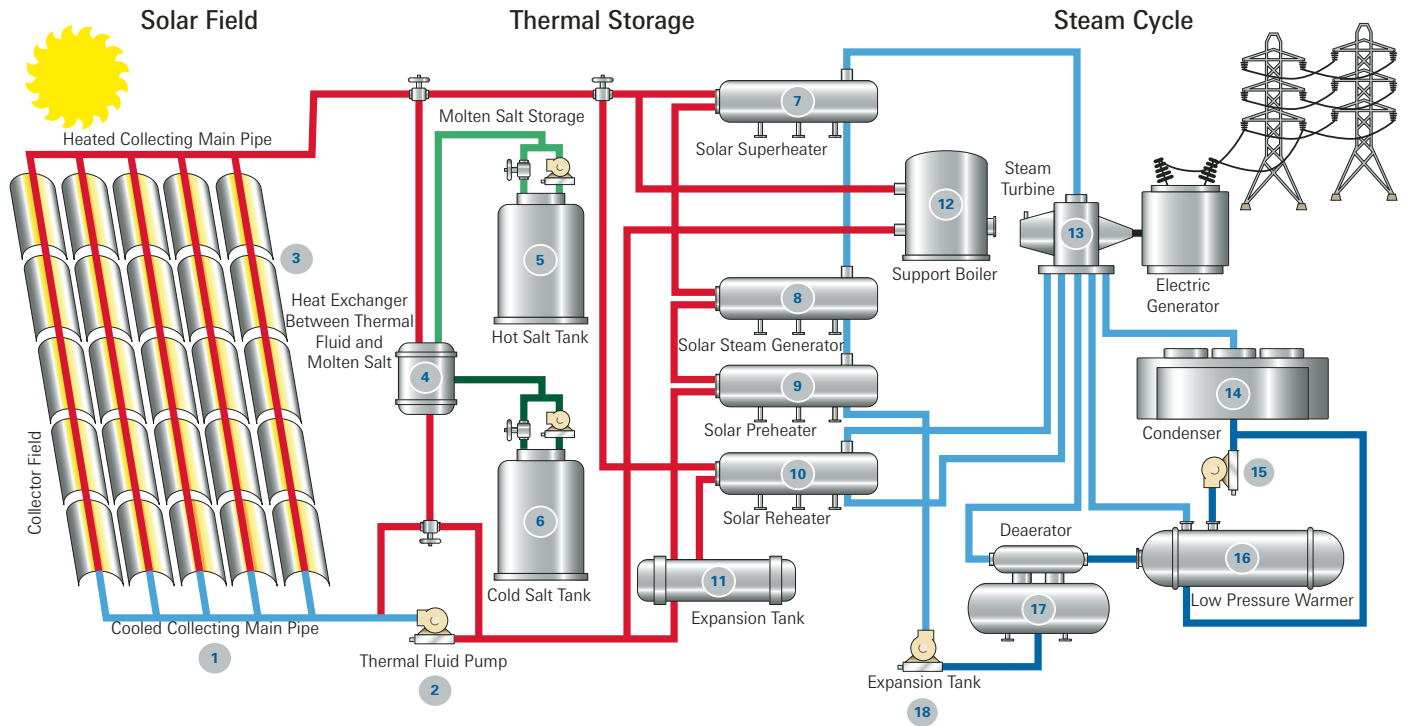
ООО «ТИ-СИСТЕМС» ИНЖИНИРИНГ И ПОСТАВКА ТЕХНОЛОГИЧЕСКОГО ОБОРУДОВАНИЯ
Интернет: www.tisys.ru www.tisys.kz www.tisys.by www.tesec.ru www.ти-системс.рф
Телефоны для связи: +7 (495) 7774788, 7489626, 5007154, 55, 65
Эл. почта: info@tisys.ru info@tisys.kz info@tisys.by

tyco

Generating New Ideas

TFC's experts work closely with the design engineer for concentrated solar power and central receiver systems to reach breakthrough solutions that will enable low cost generation for this exciting, emerging segment. We provide solutions for even the most severe applications in your plant:

Concentrated Solar Power with Thermal Energy Storage

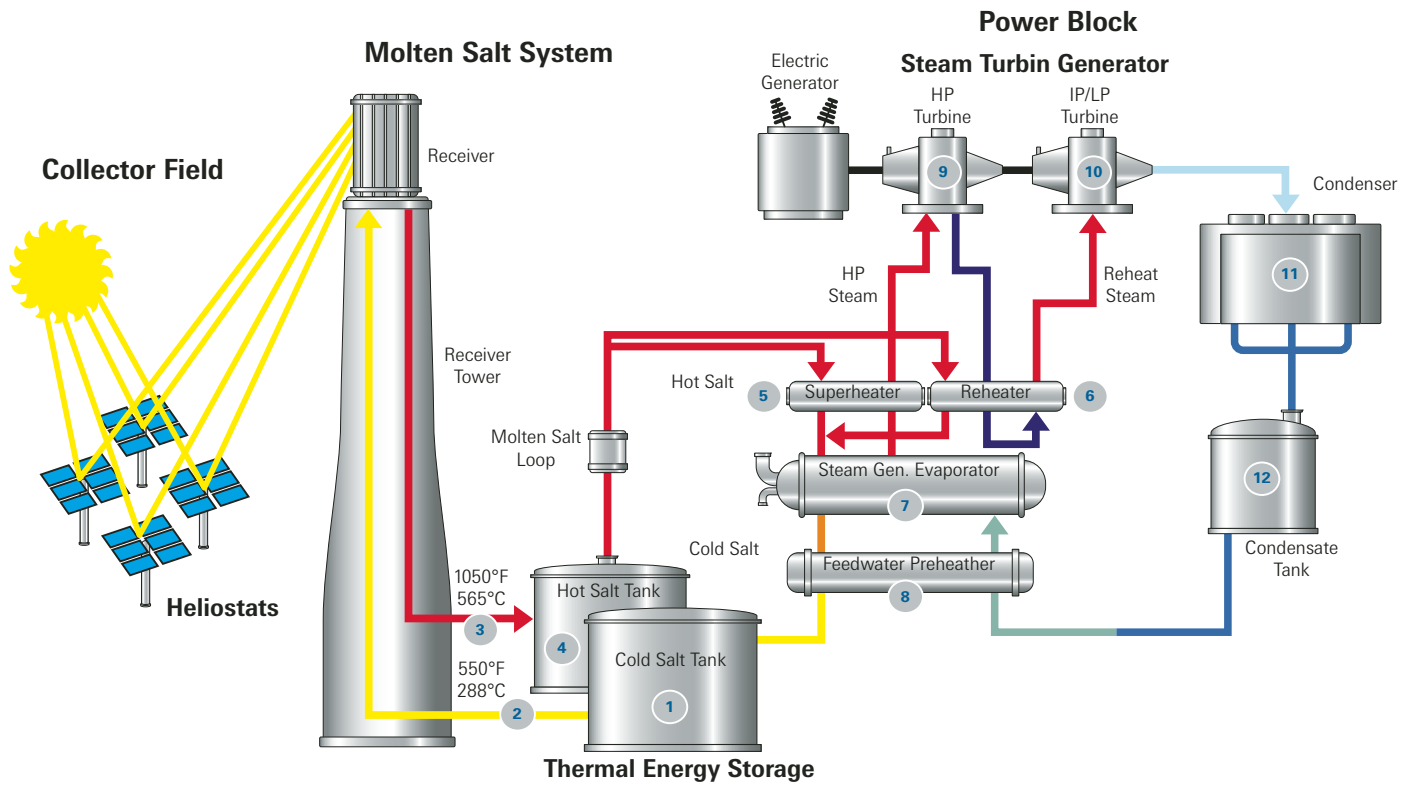


- 1 HTF Pipes**
 - Triple Eccentric Valves
 - Bellows Seal Globe Valves
 - GGC Valves
 - Metal-seated Ball Valves
 - Safety Relief Valves
 - Control Valves
- 2 HTF Pumps**
 - Minimum Flow Valves
- 3 Sun-collectors**
 - Triple Eccentric Valves
 - Bellows Seal Globe Valves
 - Metal-seated Ball Valves
 - Safety Relief Valves
 - Control Valves
- 4 Heat Exchanger**
 - Triple Eccentric Valves
 - Bellows Seal Globe Valves
 - Control Valves
 - Safety Relief Valves
- 5 Hot Molten Salt Tank**
 - Triple Eccentric Valves
 - Bellows Seal Globe Valves
 - Control Valves
 - Safety Relief Valves
 - Blanketing System
 - Breather Valves
- 6 Cold Molten Salt Tank**
 - Triple Eccentric Valves
 - Bellows Seal Globe Valves
 - Control Valves
 - Safety Relief Valves
 - Blanketing System
 - Breather Valves

- 7 Solar Superheater**
 - Isolation Valves
 - Control Valves
 - Safety Relief Valves
 - Liquid Level Gauges
- 8 Solar Steam Generator**
 - Isolation Valves
 - GGC Valves
 - Control Valves
 - Safety Relief Valves
- 9 Solar Preheater**
 - Isolation Valves
 - Preheater Bypass Valves
 - Safety Relief Valves
 - Liquid Level Gauges
- 10 Solar Reheater**
 - Isolation Valves
 - GGC Valves
 - Control Valves
 - Safety Relief Valves
 - Liquid Level Gauges
- 11 Expansion Tank**
 - Isolation Valves
 - Safety Relief Valves
 - Breather Valves
- 12 HTF Boiler/Heater**
 - Isolation Valves
 - Safety Relief Valves
 - Liquid Level Gauges
 - Drain Valves

- 13 Steam Turbine**
 - Extraction Check Valves
 - Safety Relief Valves
 - Bypass Valves
 - Turbine Trip & Throttling Valves
 - Drain & Vent Valves
- 14 Condenser**
 - Large Bore Butterfly Valves
 - Safety Relief Valves
- 15 Condenser Pump**
 - Minimum Flow Valves
- 16 Low Pressure Heater**
 - Isolation Valves
 - GGC Valves
 - Control Valves
 - Safety Relief Valves
 - Liquid Level Gauges
- 17 Deaerator**
 - GGC Valves
 - Safety Relief Valves
 - Vent Valves
- 18 Pump**
 - Minimum Flow Valves

Central Receiver System



- 1 Cold Molten Salt Tank**
 - Triple Eccentric Valves
 - Bellows Seal Globe Valves
 - Control Valves
 - Safety Relief Valves
 - Blanketing System
 - Breather Valves

- 2 Cold Molten Salt Pipes**
 - Triple Eccentric Valves
 - Bellows Seal Globe Valves
 - GGC Valves
 - Metal-seated Ball Valves
 - Safety Relief Valves
 - Control Valves

- 3 Hot Molten Salt Pipes**
 - Triple Eccentric Valves
 - Bellows Seal Globe Valves
 - GGC Valves
 - Metal-seated Ball Valves
 - Safety Relief Valves
 - Control Valves

- 4 Hot Molten Salt Tank**
 - Triple Eccentric Valves
 - Bellows Seal Globe Valves
 - Control Valves
 - Safety Relief Valves
 - Blanketing System
 - Breather Valves

- 5 Solar Superheater**
 - Isolation Valves
 - Control Valves
 - Safety Relief Valves
 - Liquid Level Gauges

- 6 Solar Reheater**
 - Isolation Valves
 - Preheater Bypass Valves
 - Safety Relief Valves
 - Liquid Level Gauges

- 7 Solar Steam Generator**
 - Isolation Valves
 - GGC Valves
 - Control Valves
 - Safety Relief Valves

- 8 Solar Feedwater Preheaters**
 - Isolation Valves
 - Preheater Bypass Valves
 - Safety Relief Valves
 - Liquid Level Gauges

- 9 HP Steam Turbine**
 - Extraction Check Valves
 - Safety Relief Valves
 - Bypass Valves
 - Turbine Trip & Throttling Valves
 - Drain & Vent Valves

- 10 IL/LP Steam Turbine**
 - Extraction Check Valves
 - Safety Relief Valves
 - Bypass Valves
 - Turbine Trip & Throttling Valves
 - Drain & Vent Valves

- 11 Condenser**
 - Large Bore Butterfly Valves
 - Safety Relief Valves

- 12 Condensate Tank**
 - Isolation Valves
 - Safety Relief Valves
 - Breather Valves

Meeting The Challenges

TFC is already meeting the challenges with an extensive range of key products specifically suited for the thermal transfer and high-temperature applications which are required in this rapidly expanding sector of the industry.

Hundreds of our products can be found in CSP plants around the world, where they are delivering unparalleled performance.

Products

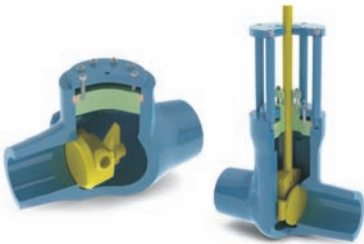
TFC provides you with peace of mind for applications involving heat transfer fluids, steam, feedwater / circulation water and molten salt. Our products are built on the strong foundation of our world-leading brands:



Vanessa Triple-offset Rotary Process Valves



Morin and Biffi Electric and Pneumatic Actuators



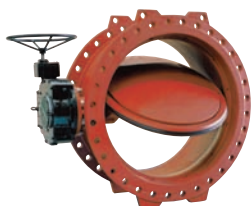
Intervalve, Dewrance and Fasani High Pressure Isolation Valves



Dewrance and Fasani Extraction Steam Check Valves



Crosby Safety Relief Valves



Keystone Butterfly Valves



Case Study

In a large concentrated solar plant in Spain, a Vanessa triple-offset valve (TOV) has successfully replaced two bellows seal globe valves in sun-collector heat transfer fluid applications. The Vanessa TOV is being used as a control valve and isolation valve at the same time, therefore reducing the need of two bellows seal globe valves.

The advantages of this replacement do not end there; there are significant savings in maintenance because bellows are one of the most costly spare parts in a bellows seal globe valve, while the cost of spare parts for a Vanessa TOV is relatively low.

Customers in Spain and United Arab Emirates have tested the Vanessa TOV valve for flow control and Delta-P on this application and found it to perform as well as the two bellows seal globe valves. As a result, the Vanessa TOV is now their standard.

Getting it Right. It's a Tyco Service Tradition.

- Tyco Flow Control (TFC) offers local delivery of parts and valves from our wide network of global resources. With service facilities situated around the world, you can be confident that the parts and support you need are always within reach.
- TFC service locations are fully equipped for pressure, seat leakage, functional, operational and other testing capabilities to ensure your products meet the most stringent industry standards.
- Keeping track of your component parts is critical, especially as increasing durability is being built into your equipment. TFC serializes, or otherwise identifies, products so that we can trace each one back to its original bill of material to ensure that any replacement part matches the original in form, fit and function.

