

HEATEC BULLETIN

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Chinese engage Heatec to build waste heat recovery units for offshore platform

Schenzhen Petroleum Technology and Development Import and Export Co. engaged Heatec to build two waste heat recovery units (WHRUs) for the Shengli oil field offshore platform in the Gulf of Bo Hai near mainland China. The Schenzhen company is part of the Chinese government and is headquartered in Dong Ying, a city in the Shandong Peninsula in eastern China.

Both units recover waste heat from the exhaust of two gas turbines used aboard the platform to drive electrical generators. Each unit

recovers 11,953,126 Btu (3500 kW) per hour. The heat is used in the processing of oil and gases that come from the offshore well.

The exhaust stack of each generator has a diverter gate that routes the exhaust gases through the Heatec units and into the atmosphere. When heat is not needed, the gate diverts the gases so they bypass the heat exchangers and pass through silencers before entering the atmosphere.

Each of the Heatec units has a finned serpentine coil that scavenges heat from the exhaust gases. The coils, in turn, heat thermal fluid flowing through the coils. The fluid is heated to a temperature of 150–200 degrees C (302–392 degrees F). The thermal fluid passes through heat exchangers that use the heat for heating the crude oil and drying gases that accompany the oil.

Heatec also furnished a pump package and a 5 cubic meter (1320 U.S. gallon) expansion tank for the thermal fluid. The expansion tank is built to ASME code. The pump package includes three pumps rated at 150 cubic meters per hour (660 gpm) with a TDH (total dynamic head) of 50 meters (165 feet). One of the pumps is a backup unit.

Heatec provided electrical and pneumatic controls for the units. They automatically control the temperature set by the operator. And the controls automatically shut down the units in the event of an abnormal operating condition. The controls incorporate a PLC (programmable logic unit).



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Photo at top of page shows the offshore platform with the two Heatec waste heat recovery units. Closeup photo above shows two of the exhaust stacks that include silencers (the black ones) and one of the Heatec units with its exhaust stack.