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Reliable heat for 30 000 inhabitants

Reference Report Bosch Industrial

Five double-flame tube boilers with 190 MW

Shymkent is the 3rd largest city in Kazakhstan, located in the south of the country close to the boarder to Uzbekistan. Due to the growing population a new residential and administrative district called Nursat has been established and provides space to nearly 30 000 inhabitants within an area of 370 hectares (equal to nearly 580 soccer fields). As winter temperatures in Shymkent drop down below –30 °C, providing absolutely reliable heating and hot water supply to the new district was one of the essential tasks during planning.

With it's 190 MW common heat output from five Bosch Unimat UT-HZ fire tube boilers, the boiler house in Nursat is the largest of its kind in Kazakhstan and Central Asia. The boilers with 38 MW each were produced at the Bosch Industrial Boilers factory in Gunzenhausen, Germany (until 2011 known as Loos International). Approximately 6 months after receiving the order the first boiler was delivered. In comparison: The establishment of one large watertube boiler would have taken at least 18 – 24 months and the required reliability (backup) would be lacking.

Main reasons to decide for boilers from Bosch were the famous reliability and 150 years of experience of the large boiler specialist. Further, the high primary efficiency of 96.3 % in combination with the wide modulation range of 1 : 20 (from 5 – 100 %) ensure very low energy costs and extremely low emissions.

To maximize the system's reliability all of the boilers are equipped with dual-fuel burners. They are able to use both gas and diesel fuel in case of a supply shortage. One of the boilers serves as backup and is kept warm at reduced pressure. As soon as the required heat in the district heating network is no longer sufficient, the boiler switches in within a very short time. The installed Bosch system control ensures smooth operation of the multi-boiler plant and provides load-dependent changeover of the master and slave boilers. This avoids standstill corrosion and increases the boiler's service life.

In addition to the sophisticated design, the project is also interesting from the point of its logistics. For the delivery various types of transportation were used.

First, boilers were delivered overland from the factory in Gunzenhausen (Germany) to the river port city of Roth (Germany). On river barges they proceeded to Rotterdam (Netherlands) from where a liner shipped them to St. Petersburg. On the route to Shymkent on a special low loader transport, some bridges had to be drawn, and some power lines had to be temporarily removed due to the height of more than 5 m of the transport. The total distance was about 7 200 km, of which 4 000 km were by land. The transportation company Instar Logistics is experienced with large overweight cargo for spaceports, and other outer space objects in the past. The progress at the construction site went according to plan so that the first two boilers have been successfully put into operation in November 2015 and provide the people of Nursat with heat during Christmas and New Year's Eve.

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