



The CO₂ chokehold: Can we clear the sky in coal country?

Taiyuan, China

Millions of tons of CO₂ and thousands of tons of dangerous dust, Sulphur and oxychloride emissions are set to be cut every year thanks to a new power plant in north-east China being fitted with state-of-the-art Alfa Laval technology.



Situated deep in China's coal country, the provincial capital of Taiyuan has been dubbed 'The City of Haze' due to its high level of air pollution. Steel and coal-power plants dot the city's outskirts, and residents light coal-fired boilers each winter to ward off the often frigid northern Chinese winter.

But now the city of Taiyuan is trying to clean up its air

In a major move to reduce air particulates, the power supplier Taiyuan Heating Power Company has partnered with Alfa Laval to make improvements to the Taiyuan Taigu Central Heating Project, one of the world's largest central heating facilities. To improve efficiency of the plant and reduce emissions, 90 large-scale Alfa Laval plate heat exchangers were installed.

Why Alfa Laval?

Alfa Laval was chosen as a technology supplier to the project in large part for its heat exchangers' high efficiency, despite the demanding operational environment, with high temperatures and high pressure. The technology must perform well despite narrow temperature differences and maintain a high Number of Transfer Units (NTUs), ensuring high energy efficiency and optimized investment returns.

The installation is just one of a myriad of projects now underway in China to reduce air pollution in the country after decades of coal-fueled economic growth. This year, the city of Taiyuan is replacing coal-burning household heating equipment with electric and natural gas heaters and has acted to control exhaust and dust from cars and trucks.

So, what will the effect of the Taiyuan central heating project be? Alfa Laval's plate heat exchangers are set to reduce carbon dioxide emissions in Taiyuan by about 2.5 million tonnes, cut sulphur dioxide by app. 4,000 tonnes, oxychloride by 1,000 tonnes and reduce dust emissions by 2,000 tonnes. The reduction in pollutants is aimed at turning Taiyuan into a greener, more liveable city.

China's fight against air pollution

Several decades of economic growth have led to high pollution levels in many Chinese cities. In 2014, the Chinese government declared a war on pollution and has taken tougher action on polluting business.

In 2017, China saw a 23 percent jump in its environmental protection and energy efficiency budget, bringing it to 33.8bn yuan (USD5 billion). More than half of the budget is earmarked for projects to improve air quality.

Fast facts – Taiyuan

The customer – Taiyuan Heating Group Co., Ltd offers heat supply services. The company mainly provides heat supply construction, heat production, transmission, distribution, and other services.

The challenge – The demanding operational environment of Taiyuan Taigu project is high temperature, high working pressure and high NTU. Alfa Laval was chosen as an important technology supplier to the Taiyuan Taigu project for its heat exchangers' high efficiency and high performance.

The solution – Taiyuan Taigu Central heating project transport heat to urban district and heating to urban residents in winter time from the thermal power plant that is 45 kilometers away from the urban district.

Benefits – Taiyuan Taigu Central heating project supply heat to urban residents in the winter time with waste heat from the thermal power plant. It reduces carbon dioxide emissions by about 2.44 million tons every year, cuts sulphur dioxide emissions by about 48,000 tons and nitrogen oxide emissions by 24,000 tons every year, and reduce dust emissions by 21,000 tons every year.

Scope of supply – 90 units of TL35B were installed between 2015-2016.

10 units for expansion will be installed and operated during 2023. The total installations in Taiyuan Taigu will be 100 units.

Energy savings



Emissions reductions



Resource savings



How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com

100016740-1-EN 2309

Alfa Laval reserves the right to change specifications without prior notification.