



## VENTILATION FANS: BOZSHAKOL COPPER MINE

### Overview

The Bozshakol mine, which is owned by Kazakhmys, is the largest copper mine in the Republic of Kazakhstan and is one of the largest undeveloped copper deposits in the world. These deposits also contain gold and molybdenum.

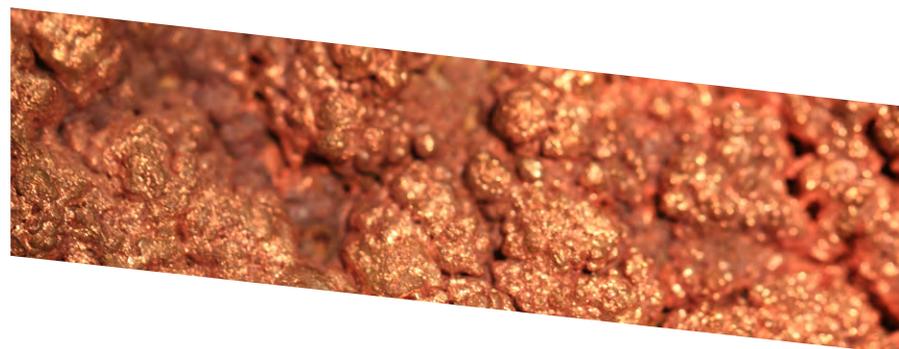
Located in northern Kazakhstan, the newly-developed mine operates two open pits. Conventional drill and blast methods are used to extract the ore. Mined materials are transported by truck to a concentrator plant where the extracted ore is crushed to a particle size of around 50 mm by a primary crusher. Crushed ore is transported to the secondary grinding section where it is pulverized, sized to between 27 and 53 microns, and fed to the slurry flotation section for further processing.

Although the newly-installed equipment is designed for clean operation, the crushing process still produces dust, so the building must be well ventilated. Exhaust fans must be robust and reliable. When Kazakhmys' engineering firm needed a source for these ventilation fans, it turned to their Twin City Fan & Blower representative to supply them.

### Challenges

The ventilation fans for the concentrator plant and secondary grinding section had to be able to stand up to the processes and harsh environment of a mining complex. Kazakhmys stipulated stringent balance specifications for these fans to ensure that vibration would not present problems. In addition, the engineering firm required the ability to fine-tune air flow rates after startup, meaning that adjustable pitch blades would be necessary.

The specification also required comprehensive instruction and operation manuals to be supplied – in both English and Russian. So the final documentation had to be translated.



## Quick Facts

### Industry

Mining

### Application

General ventilation of grinding facility

### Customer

Kazakhmys

### Twin City Fan Representative

Power & Industrial Air Systems  
Allentown, PA

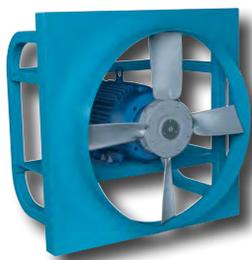
### Challenge

Provide heavy-duty industrial ventilation fans with adjustable blades and dual language documentation

### Solution

Heavy-duty, belt driven, adjustable pitch TCWPX panel fans and belt driven, adjustable pitch TCVX vaneaxial fan

# CASE STUDY



**Model TCWPX**  
**Panel Fan**



**Model TCVX**  
**Vaneaxial Fan**

Twin City Fan & Blower has the engineering and manufacturing capabilities to accommodate virtually every conceivable application. We have completed thousands of successful installations worldwide and have a proven track record for tackling the most technically complex and unique applications.

We separate ourselves from the competition by offering a greater breadth of products and quickly adapting to the needs of our customers. This is truly a testament to our company philosophy – respond to the needs of the customer, the first time, every time.



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## Solution

To meet the general ventilation requirements of the concentrator plant and grinding areas, Twin City Fan supplied 12 TCWPX belt driven, adjustable pitch panel fans with propeller sizes ranging from 24 to 48 inches, and one belt driven, adjustable pitch TCVX vaneaxial fan with a 24-inch propeller.

The TCVX vaneaxial fan and the TCWPX panel fans exhaust dusty air from the facility. The panel fans are mounted in boxes that protrude through the wall to the outside the building. Weatherhoods protect the fans from the elements.

Although the performance requirements were moderate – between 10,000 and 20,000 CFM at fairly low static pressures – the adjustable-pitch blades of both fan types allow air flow rates to be fine-tuned in the field if necessary.

## Results

Kazakhmys' Bozshakol copper mine received TCWPX and TCVX fans from Twin City Fan & Blower to provide effective, reliable and efficient ventilation with sufficient air flow capacity. In addition to meeting the specified performance criteria, the industrial heavy-duty exhaust fans are built to stand up to the facility's processes.

In the mining industry, downtime is not an option. Reliability and ease of maintenance ensure longevity of these robust fans. Supplying a wide variety of fans from a single source – and satisfying the owner's specifications – exemplifies TCF's unique engineering expertise.