Urumqi International Airport, Xinjiang, China

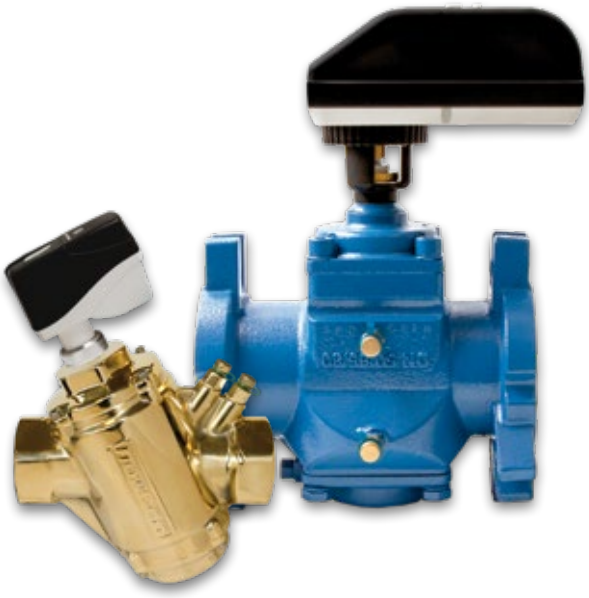
Focus on comfort, energy and flexibility in mega airport terminal.

The Urumqi International Airport North Area Reconstruction and Expansion Project represents a key upgrade to Xinjiang's aviation infrastructure. The project includes two new runways (3,600 m and 3,200 m), a 177-stand apron, a comprehensive transportation center, and a new North Area Terminal covering 500,000 m². The new terminal more than triples the airport's annual passenger and cargo handling capacity, assisting it to play a greater role as a major international aviation hub. The new T4 terminal building includes an advanced HVAC system designed to ensure energy efficiency, climate control, and ease of system management for the massive terminal area.

Application

For a terminal of this size, managing indoor thermal comfort efficiently is non-negotiable. The HVAC system integrates hundreds of air handling units (AHUs) and fan coil units (FCUs), each demanding precise flow control and consistent pressure regulation.

To meet these technical challenges, FlowCon pressure independent control valves (PICVs), differential pressure control valves (DPCVs), and static balancing valves (used as check points) were chosen for key positions in the terminal's HVAC setup. The FlowCon valves serve AHUs and FCUs distributed throughout the terminal building, ensuring stable performance under varying load conditions. With the FlowCon PICV technology embedded into the HVAC system, the project demonstrates how innovative HVAC solutions can scale to meet the demands of mega-projects, while keeping energy efficiency, system flexibility, and operational ease front and center.



Project Configuration:

Project name:
Urumqi International Airport North Area Expansion (Terminal 4)

Client:
Urumqi Airport Development and Construction Investment Group Co., Ltd

Architect:
East China Architectural Design and Research Institute

Contractor:
China Construction Eighth Engineering Bureau Co., Ltd.
ChIna Construction Third Engineering Group Co., Ltd.
and China Construction Zhongxin Construction Engineering Co., Ltd.

Valve model and quantity:
PICVs: FlowCon Green and SM, 200+ pcs
Static balancing valves: FlowCon FSB and DRJT, 100 pcs
DPCVs: FlowCon EDP and FYC, 30 pcs

Application:
New building

FlowCon distributor:
Whcon (Beijing) Fluid Systems Co., Ltd

Date of inauguration:
April 2025

Why was FlowCon Selected?

FlowCon's solutions offered a decisive edge:

Advanced PICV Technology: The unique FlowCon SM actuators allow direct configuration and performance monitoring of flanged PICVs. This made hydraulic commissioning simple and highly accurate - crucial given the HVAC system's physical complexity and scale.

System Scalability and Flexibility:
FlowCon valves are designed for ease of future expansion or modifications without system overhauls.

Efficient Control:
By installing PICVs at coil level and ensuring controlled pressure distribution across zones, the system minimizes energy consumption and maintains optimal comfort throughout the terminal.

Lower Total Cost of Ownership:
Operational cost-efficiency and reduced maintenance needs made the FlowCon solution an obvious choice.