VALVE WORLD EXPO DÜSSELDORF

Düsseldorf, Germany
29 Nov – 01 Dec 2016
10. Internationale Fachmesse mit Kongress für Industrie-Armaturen
10th Biennial Valve World Conference & Exhibition
www.valveworldexpo.com

Valve World 2016 CONFERENCE

FA 09 Climate under control

Ventilation and air conditioning is everything but hot air. There is a lot to do, and the sector is tackling all of it. Large-scale projects such as the Dubai airport expansion or subway development in Istanbul create a great climate for business – and the valve industry will be able to profit.

Ventilation and air conditioning technology is nearly omnipresent, but people benefiting from it hardly take notice. This technology certainly deserves special attention. It is always required when air in a building needs to be conditioned in view of temperature, dust load and humidity. Valves and actuators contribute their part to ventilation and air conditioning technology for supplying fresh air. They can, however, also do a lot more.

Preventing catastrophes

Saving lives, for instance. Only working fire safety prevents catastrophes. Otherwise, life-threatening smoke would, for instance, spread in a subway system. Ventilation dampers make sure the dangerous fumes are extracted. Actuators are needed to move them. Rotork received a major contract for several hundred actuators to be used in the expansion of the Istanbul subway system. For fire safety in the new tunnels, Turkish damper manufacturer Klima Sanayi ve Ticaret ordered scotch-yoke pneumatic actuators made by Rotork. As Rotork states, it received the order thanks to the compact design, fast operating capability, long term reliability and minimum maintenance requirement of the actuators.

In view of the high fire safety requirements, the actuators had to be thoroughly tested. They had to withstand temperature levels rise from -5°C to 250°C in just 20 seconds. Furthermore, there had to be no air leakage for a minimum period of one hour at the maximum temperature.

Subway system expansion

The expansion of the Istanbul subway system is an ambitious project. The 141 kilometres long urban rail system is to be expanded by a further 156,8 kilometres by 2019. New subway lines are being built on the Asian and the

Messe Düsseldorf

Messe Düsseldorf GmbH
Postfach 10 10 06
40001 Düsseldorf
Messeplatz
40474 Düsseldorf
Germany

Telefon +49 (0) 2 11/45 60-01
Telefax +49 (0) 2 11/45 60-6 68
Internet www.messe-duesseldorf.de
E-Mail info@messe-duesseldorf.de

Geschäftsführung:
Werner M. Dornscheidt (Vorsitzender)
Hans Werner Reinhard
Joachim Schäfer
Bernhard Stempfle
Vorsitzender des Aufsichtsrates:
Thomas Geisel

Amtsgericht Düsseldorf HRB 63
USt-IdNr. DE 119 360 948
St.Nr. 105/5830/0663

Mitgliedschaften der Messe Düsseldorf:

The global Association of the Exhibition Industry

Ausstellungs- und Messe-Ausschuss der Deutschen Wirtschaft

FKM – Gesellschaft zur Freiwilligen Kontrolle von Messe- und Ausstellungszahlen

Öffentliche Verkehrsmittel:
U78, U79: Messe Ost/Stockumer Kirchstr.
Bus 722: Messe-Center Verwaltung

European side. “The costs for the projects are estimated to be nearly 8.6 billion US dollars,” reports Germany Trade & Invest (GTAI).

An important part of the metro expansion is the creation of a three-storey underwater tunnel under the Bosporus. “The middle storey of the tunnel is intended to be used for the urban rail system,” explains GTAI.

Expanding the subway system in Istanbul is supposed to reduce traffic jams on the roads above. “Each year, around 250,000 additional vehicles drive on the city’s streets,” adds the GTAI. Each day, millions of people spend several hours stuck in traffic jams on the way to work, and back home. “This leads to high economic losses, increased pollution and high energy consumption”.

Expanding airports

Furthermore, a third, new airport will be built in Istanbul, to be constructed north of the existing airport on the coast of the Black Sea. After completion, it will handle up to 150 million passengers a year, ranking it amongst the world’s largest airports. The new airport is set to open in 2017, and by 2020 construction will be completed.

Ventilation and air conditioning for Istanbul’s new airport isn’t the only project to have offered lucrative contracts for valve and actuator manufacturers. German manufacturer of Agromatic shut-off valves, ball and butterfly valves also refers to airport construction in Dubai as a major project. More than 25 billion euro are being invested into the expansion of the Al Maktum airport. Sometime in the 2020s up to 200 million passengers are to be handled in the by then world’s largest airport. Here, valve manufacturers are also posed for lift-off.

Solid growth

Despite being not all that glamorous and spectacular, profitable day-to-day business mainly deals with equipping buildings designed for residential or business purposes. “All in all, the building services sector, including ventilation and air conditioning technology, has been experiencing a solid level of growth in the past years,” states Guenther Merz, director of the German trade association Fachverband Gebäude – Klima e.V (FGK). A

growth driver has especially been stricter energy efficiency requirements for both residential and non-residential buildings, increasing demand for matching solutions. “In increasingly airtight buildings, ventilation and air conditioning technology is building a bridge between energy efficiency, comfort and building protection and can therefore excellently serve demand”.

Solutions becoming more efficient

The ventilation and air conditioning sector has to stay in touch with the latest developments, if it wants to remain successful. “Based upon legal requirements, the trend is towards increasingly efficient solutions. As such, systems and components with increased levels of energy efficiency are being used, as one can see by, for instance, taking a look at the heat recovery systems, fans or filters,” explains Merz. At the same time, the integration of renewables in ventilation and air conditioning technology is increasing. “Solar climatisation and ventilation, geothermal climate systems, indirect evaporative cooling or free cooling over water system are only a few examples”. Furthermore, the role of automation and energy management systems is also becoming more important.

Valves and actuators

In addition, demand-actuated control is one of the most important current developments in view of the energy efficient operation of buildings and technical systems for buildings. Merz: “Basic requirements for partial load control for air, heat and cooling media therefore are functioning dampers, valves and flow rate control components, tailored specifically to match user requirements”.

What are the ideal dimensions for valves, in order to meet requirements? “In housing technology valve sizes of DN 15 to DN 50 are mainly used, while nominal diameters ranging from DN 40 to DN 400, or even larger, are used for industrial applications,” explains Ralf Sewing, a sales manager working at Agromatic. Use of materials also varies. Brass and red brass are chiefly used in housing technology, whereas stainless steels and grey cast iron is primarily used in industry. Moreover, higher pressure and temperature levels are found in industrial surroundings. “A steam pipe can even have 8 bar pressure at 170°C”.

Valves release pressure

A further characteristic of valves for ventilation, air conditioning and heating systems: “To reduce the required pulling load most valves are equipped with pressure relief. As such, pulling loads are independent from operational pressures and pressure variation,” says Rene Eisentraut, technical sales, Samson AG. Noise-optimised ball and seat valves are also in demand. A robust design is supposed to ensure a long service life.

It is also important to protect components and systems from negative low pressure resulting from thermally caused volume changes, adds Eisentraut. All relevant valves are therefore fitted with the proper safety devices.

According to Samson, customers expect protection from overpressure and overtemperature, power distribution, demand-driven supply of heat and cooling energy, as well as weather-compensated control and hydraulic balancing. Temperature and pressure protection ensure stable systems operation and prevent damages to people property. “Power distribution, hydraulic balancing and demand-driven supply of energy allows an energy efficient operation of systems, or of installations”.

Networked and easy to use

Here, globe valves, safety valves for thermal protection and pressure protection, electric and electrohydraulic actuators with or without safety functions, as well as regulators without auxiliary power for temperature, pressure, pressure difference and volumetric flow control are required, states Samson. Energy efficient solutions, networked devices, ease of use and all-in-one devices offer what users want.

Private households use one to three valves – the number of households here forms the potential. Depending on size, a company in contrast requires more than 50 valves, for instance for offices with lots of glass, conference rooms and production halls.

Improved standard of living

In air conditioning, ventilation and heating systems, valves also play an important role for compact stations and compact station manufacturers, district heating networks and systems, municipal facilities, public utilities,

airports and shopping centres. Construction of new buildings, use of innovative technologies, such as online control of networked devices, and retrofitting of old systems to make them more energy efficient is fuelling demand for valves.

Demand is high in Germany, France, China, Russia, The Netherlands and Poland, says Samson's Eisentraut. The trend towards energy efficiency isn't the only thing driving demand for ventilation, heating and air-conditioning technology. Behaviour of individuals is also creating demand. Up until a few years ago, it was very seldom buildings or rooms were climatised in Germany. "Through the improved standard of living, people expect higher levels of comfort in their living and office spaces," reports Germany's environmental protection agency, the Umweltbundesamt (UBA).

Avoiding climate-damaging systems

As a consequence, demand for energy is growing. However, according to the UBA, the refrigerants used in air conditioners often enough are highly climate-damaging. "In addition to the indirect CO_2 emissions air conditioners based on the compression principle also harm the climate due to using greenhouse gases". Evaporation of refrigerants in a closed circuit withdraws warmth from a room, and gives it back to the surroundings through mechanical compression, and liquefaction or condensation. "The fluid refrigerant is then evaporated over a throttle valve, closing the cycle".

Germany's environmental protection agency therefore demands not to use fluorinated hydrocarbons, especially as HFC-free air conditioners are available. As such, air conditioning has a green component. If companies in the sector want to stay competitive in the future, they will have to focus on the energy efficiency and environmental friendliness of their products. This would then create an atmosphere for the good of all.

Innovations on valves will be presented at Valve World Expo Düsseldorf from November, 29 until December, 1, 2016 at Düsseldorf Fairgrounds.

Press Contact:
Petra Hartmann-Bresgen M.A.
Ulrike Osahon
0211 4560 541/-992
Hartmannp@messe-duesseldorf.de
Osahonu@messe-duesseldorf.de