

More sea to quench the thirst



Around 500 AUMA actuators prove their worth in extreme environmental conditions at the Carlsbad Desalination Plant in California. Source: AUMA

The need for action is growing every year. Because fewer and fewer people have adequate access to water supplies. At the same time, water shortages are harming industry, agriculture, and tourism. Seawater desalination plants offer a way to alleviate this situation. Many countries are therefore convinced that “more sea” is a really promising idea. The valve industry is proving itself to be an enabler of this trend. Because it can handle it – and even better with digitalisation.

The numbers are alarming: According to the UN, more than 3.6 billion people suffer from inadequate water supply for at least one month per


Messe
Düsseldorf

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

Telefon +49 211 4560 01
Telefax +49 211 4560 668
Internet www.messe-duesseldorf.de
E-Mail info@messe-duesseldorf.de


Geschäftsführung:
Wolfram N. Diener (Vorsitzender)
Bernhard J. Stempfle
Erhard Wienkamp
Vorsitzender des Aufsichtsrats:
Dr. Stephan Keller

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

year. And the problem of water scarcity will continue to worsen as, according to WMO (World Meteorological Organization) figures, global fresh water demand grows by one percent annually. At the same time, water reservoir capacities are decreasing. According to the 2021 World Water Development Report, a water deficit of 40 percent will develop by 2030. Increasing droughts as a result of climate change are exacerbating the decline in supply.

A wide range of valves and actuators in use

More and more desalination plants are therefore springing up out of the far-too-dry ground. The valve industry is supplying them with plenty of components, as the systems rely heavily on valves and actuators. Experience in the challenging field of desalination is worth its weight in gold for companies. According to the manufacturer InterApp, “a solid knowledge of the desalination process and a wealth of experience in projects” is important. This is because the requirements for a valve vary according to which part of the system it is used in, such as seawater extraction, treatment stages, and feed-in to the drinking water network, as well as cleaning processes.

High salinity in the air and the sea, along with aggressive media, push the materials to their limits. For example, super-duplex stainless steels with PREN (Pitting Resistance Equivalent Number) values of more than 40 can withstand the considerable corrosion potential. In addition, Halar-coated windows also demonstrate high levels of quality and meet stringent design standards, explains InterApp. Various dimensions are available, as desalination applications involve different pressure ranges.



03 - 05 DECEMBER

2024

DÜSSELDORF GERMANY





03 - 05 DECEMBER

2024

DÜSSELDORF GERMANY



Seawater desalination technology could help to better meet the demand for drinking water globally. Photo: Pixabay



Increase efficiency – reduce energy consumption

The product portfolio must be tailored to seawater desalination. That is why AWS Apparatebau puts such importance on material suitability. “Our range includes resistant super-duplex alloys as a casting material in 1.4469 or as a forging material in 1.4410.” For desalination, the company offers dual-plate check valves, as well as wafer-type check valves and non-return valves.

When planning modern desalination plants, the most important factors are cost-efficient water production, energy consumption and system availability. For this reason, Flowserve, for example, offers complete, integrated flow-control systems that are “energy-efficient and scalable”. This allows desalination plants to operate economically and grow with demand.

Energy consumption is often the biggest operating-cost driver in reverse osmosis systems. Efficiency is therefore key. “Our high-pressure diaphragm pumps and ERDs – including Flowserve FLEX™, Calder® DWEER™ isobaric devices and Calder ERT energy recovery turbines – feature optimised hydraulics and advanced material technologies, which keeps operating costs low and ensures plants can run profitably,” explains Flowserve. For instance, the company has installed seven isobaric Flowserve FLEX™ Energy Recovery Devices (ERDs) for the Las Palmas III seawater reverse osmosis plant in the Canary Islands, “which contribute to significant savings in operating costs and capital expenditure”.

Experts are also currently noting that users' expectations are changing. For example, AWS Apparatebau has recognised that the pressure ranges in certain system areas are increasing; up to ANSI 600 is no longer rare. This results in even more demanding requirements.

Ready for the desalination boom

Expectations are also being fuelled by the growing demand for seawater desalination plants: The market will grow from USD 15.65 billion in 2023 to USD 17.57 billion in 2024, with an average annual growth rate (CAGR) of 12.2 percent, as reported by the Business Research Company (BRC) in its “Water Desalination Equipment Global Market Report 2024”. This growth is attributed to “increasing water scarcity, population growth, government initiatives, rising industrial demand, and increasing urbanisation”.



03 - 05 DECEMBER

2024

DÜSSELDORF GERMANY





At the Keppel Marina East Desalination Plant in Singapore, 156 AUMA actuators are in operation across all treatment stages. Source: AUMA

Companies like AUMA are ready for the ramp up. Its actuators are in demand, for example, at the Keppel Marina East Desalination Plant in Singapore, which has a capacity of 137,000 cubic meters of water per day. 156 AUMA actuators are distributed across the various treatment stages. In the 'Carlsbad Desalination Plant' in California, which supplies 200,000 cubic meters of water per day, there are even around 500 AUMA actuators. In view of the high requirements, the outstanding corrosion resistance, high positioning accuracy and modular design of AUMA actuators proved to be particularly advantageous. "Our actuators are up to any challenge in seawater desalination," explains AUMA.



03 - 05 DECEMBER

2024

DÜSSELDORF GERMANY



High investment in desalination plants

The epicentre of desalination capacity is the Middle East, led by Saudi Arabia and the United Arab Emirates. The Middle East is one of the driest regions in the world and is struggling with ever-increasing shortages of water. The Middle East and North Africa regions account for around 48 percent of the global desalination volume.

For example, Egypt plans to invest billions in the expansion of seawater desalination by 2025 in order to quadruple the corresponding capacities. According to Germany Trade and Invest (GTAI), a total of USD 2.5 billion will be invested in the construction of 17 new seawater desalination plants over the next few years.

Morocco is also investing heavily in desalination. The government plans to build up capacities of more than 1 billion cubic meters per year by 2030. At present, seawater desalination plants only account for three percent of the country's water production. Prolonged droughts have taken their toll on the Moroccan agricultural sector in particular.

Increased digitalisation for lower costs

At the top of the operators' wish list is the highest possible system efficiency in order to reduce costs. For this reason, suppliers in the valve industry are offering components that can be digitalised and automated. The use of digital twins enables simulations to be run to evaluate problem areas and areas for improvement. This extends the service life of membranes and optimises the use of chemicals. Digitalisation is another ground breaking chapter in the success story of desalination. All this will ensure that more people have access to drinking water again...



13TH INTERNATIONAL VALVE
TRADE FAIR & CONFERENCE

**MAKE YOUR
BUSINESS
FLOW**

Trends and highlights from the valve industry can be experienced at VALVE WORLD EXPO from 3 to 5 December 2024 in Düsseldorf. Current industry and product information can be found on the internet portal at www.valveworldexpo.com.

Press contact VALVE WORLD EXPO 2024:

Petra Hartmann Bresgen MA

Ulrike Osahon

Tel.: +49 (0)211/4560-541/-992

E-Mail: HartmannP@messe-duesseldorf.de



03 - 05 DECEMBER

2024

DÜSSELDORF GERMANY

