



Fertile ground for growth

Fertilizer plant equipped with Neles valves

In the fertilizer industry, Uhde GmbH of Dortmund is known as the world's leading supplier of large-scale plants. The complex equipment required for producing ammonia and urea granules out of natural gas places multilayered, high-level demands on all components. That's why Uhde relies on Neles butterfly valves and ball valves as well as pneumatic actuators, valve positioners and limit switches in this high-end field.

Healthy growth requires the right soil and sufficient nutrients. This principle applies not only to sowing maize and rice, but also to cultivating good business relationships. Uhde GmbH, based in Dortmund, engineers and builds fertilizer plants. These are usually on a large-scale, calling for a reliable partnership with compo-

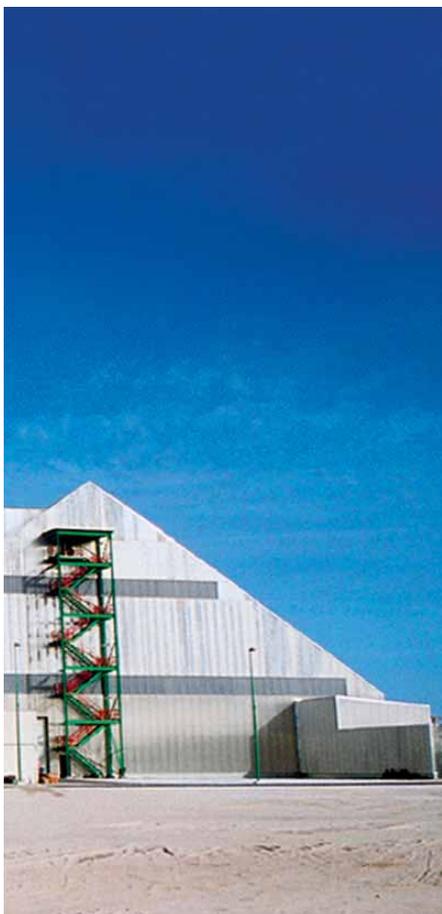
nents and systems suppliers. Metso Automation supplies butterfly and ball valves, pneumatic actuators, valve positioners and limit switches to Uhde.

"Maximizing a plant's uptime is the first priority," explains Dietmar Müller, buyer at Uhde GmbH in Dortmund. "If this kind of plant has to shut down oper-

ations for any length of time, the damage can quickly add up to hundreds of thousands of euros; that's why all components have to be as reliable as possible. This applies in particular to components used in complex applications or difficult media."

A fertilizer complex built by Uhde on the Persian Gulf in Qatar is





B series pneumatic actuators are ideally suited for demanding on/off control service. Depending on their needs, users can choose from single- and double-acting actuators and spring-return actuators.



the most recent example of this kind of application, and the plant is an industry leader in many categories. At the behest of the Qatar Fertilizer Company (QAFCO), Uhde designed and built the “QAFCO 4” complex about 40 kilometers south of the capital of Doha.

World’s highest production rate at a single location

The plant is designed for an annual capacity of 660,000 tonnes of ammonia and 1 million tonnes of urea. No other single plant today produces such immense amounts of fertilizer. Every day, 2,000 tonnes of ammonia and 3,200 tonnes of urea are turned out here by one of the world’s largest single-train plants. No wonder a production breakdown would entail serious financial damage – and that can only be prevented by using sophisticated technology. The Neles valves hence play a role in ensuring stable plant operations. Dietmar Müller speaks from experience: “We’ve been working with Metso Automation for over 20 years and have never had a problem with their butterfly or ball valves.”

Of course, this kind of yearly capacity calls for a plant of a “certain



Natural gas is the raw material used to produce odour-free urea and ammonia, which is used to fertilize maize and rice fields as well as in forestry. Photo: © Uhde

size”, which is quite an understatement considering the actual dimensions at Qatar: besides producing ammonia using a proprietary Uhde process and the production of urea, the complex also encompasses storage facilities for both materials (the urea storage area alone is about the size of five football pitches), steam tanks, demineralization and formaldehyde plants and a sea water intake unit for cooling water. The modern processes used are energy-saving and environmentally friendly.

Optimizing the logistics here involved extending the jetty so that two ships can be loaded simultaneously. The complex is built on 47,000 m³ of concrete. 4,600 tonnes of pipes and 2,000 kilometers of cable were laid.

The processing equipment comprises some 1,000 different stations, all surrounded by over 11,000 tonnes of steel construction.

High-performance Neles valves for high-end sector

In this and other fertilizer plants all over the world, Uhde uses valves, actuators, valve positioners and limit switches from Metso Automation. “Component performance and reliability are the key selection criteria,” explains Dietmar Müller. “The Neles valves are used primarily in the high-end realm where large nominal diameters are required. Moreover, the valves use here must be able to stand up to high pressures and high differential pressures.”

Uhde uses Neles metal-seated butterfly valves from the Neldisc® series up to a nominal diameter of DN 1000, soft-seated valves from the Wafer-Sphere® series up to a nominal diameter of DN 600 and metal and soft-seated ball valves. In addition, a special version of the Neldisc series L4/L5/L10 is deployed which Metso Automation originally developed expressly for special applications such as the one required by Uhde. The metal-seated butterfly valves are available with nominal diameters ranging from

DN 100 to 900 for nominal pressures of PN 100 to 320 (ANSI Class 600 to 2500).

The right choice for complex applications

The valves demonstrate reliable functionality and impressive durability even when used with high cycles. The broad spectrum of materials available and the choice between metal and soft-seated valves means that there is a tailor-made solution for every application. Single- and double-acting pneumatic actuators, analogue and digital valve positioners (depending on application, with interfaces for HART, FOUNDATION Fieldbus or Profibus PA) as well as limit switches and special instruments are also part of Metso Automation’s product range.

“We already deployed this valve technology from Metso Automation in our very first plant in Qatar, which has been in operation since 1997 and set new standards at that time for production volume. Our long years of experience with Neles valves has shown that they are the right choice for complex applications as their quality goes well beyond that of standard components,” sums up Dietmar Müller. At the same time, he underscores his company’s good working relationship with Metso Automation. “Thanks to our close cooperation over so many years, we have been able to build up a relationship based on trust. Each business knows what the other needs and recognizes the significance of this type of project.” ■

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