

**Special ball valves for extreme conditions ensure energy efficient and economical production**

## Innovative conversion of an ammonia factory



The Yara Brunsbüttel factory next to the Kiel Canal produces ammonia and urea as well as technical gases

### Customer statement

*"We could not accept any risk during this project. With the wrong supplier we would have endangered the conversion, both technically and time-wise."*



Jürgen  
Rommel, ICA  
Engineering,  
Yara  
Brunsbüttel  
GmbH

From 2012 to 2013 Yara Germany realized a comprehensive process optimization at the plant in Brunsbüttel. The ammonia factory is worldwide unique: both gasification lines can either be run on natural gas or oil. One component are the 5" shut-off ball valves from Hartmann Valves. These are especially designed for the challenging combination of pure oxygen, steam and high temperatures. All customer demands have been fulfilled above-average. The energy efficient production secured the economic future of the facility.

Project	Conversion POX-gasification plant, Brunsbüttel factory
Operator/Engineering	Yara Brunsbüttel GmbH
Valves	5" shut-off ball valves (DN 125 PN 160)
Material	Inconel 625® (solid material)
Max. Temperature	+ 400° Celsius
Nominal pressure	160 bar
Operating pressure	64 bar
Media	pure oxygen, steam
Miscellaneous	EIGA-compliant, ATEX Zone 2-approved, approved resistance to internal ignition (BAM)



The four reactors of the POX-gasification plant at Yara Brunsbüttel



Absolutely gastight: the true metal to metal sealing ball valves by Hartmann Valves made of Inconel 625® (solid material)

## Metal sealing ball valves – the maximum safety

Already during the specification phase it was clear for Yara: This conversion is only possible when the shut-off valve is able to handle the extreme requirements (temperature, pure oxygen, steam). While notable competitors had to wave-aside, Hartmann Valves engineered five true metal seated 5“ shut-off ball valves (DN 125 PN 160) made of Inconel 625® (solid material): absolutely gastight (DIN 3230), max. temperature +400°C, nominal pressure 160 bar / working pressure 64 bar, closing time approx. 20 seconds, media: pure oxygen and steam. Implemented as singles, the valves provide two barriers and seal 100% in emergency situations. With the additional Twin Ball Valve, both seals can be tested while the valve is installed. Yara is impressed: all specification have been fulfilled and the design is absolutely in line with the technical guidelines. The combination of all details – starting from the material, via the true metal sealing system, the ability to sustain pressure and temperature and even the operation under pure oxygen and steam – form a special profile which a standard valve can't fulfill. Hartmann valves ensure high efficiency, permanent availability and high reliability of the whole plant. This reference sets the course for similar sophisticated solutions e.g. within the area of blast furnaces and pure oxygen applications.

### Customer statement

*"Hartmann has the reputation being known as the "Mercedes" among the valve suppliers. For this important conversion we have made the decision for a high quality solution!"*



Werner Döring,  
Head of  
Projects and  
Availability, Yara  
Brunsbüttel  
GmbH

## Decision-supporting consultation

"Unreserved recommendation!," states Werner Döring. "Hartmann was always accessible regarding our needs and fast on the spot. Beyond the delivery we have been assisted with dedication and great know-how." Hartmann is characterized as a competent problem solver and has supported Yara's specialist departments with consulting and excellent technical documentation.

## References

Hartmann Valves is a worldwide recognized supplier of system solutions, including ball valves and special valves for the (petro)chemical industry. Within the treatment of products made from natural gas and oil, the highest requirements regarding availability and safety are requested. Our true metal-to-metal sealing ball valves fulfill these requirements and withstand rough conditions caused by aggressive media, extreme temperatures and high pressures. The ball valves are operated maintenance-free over decades, ensure tightness, cost effectiveness and durability. We have realized projects with well-respected chemical enterprises such as Dow Chemicals, Shell, BASF, OMV, Sasol and Vinolit.



Helmut Berger, Registered Manager, Sales Europe, Hartmann Valves GmbH, and Jürgen Rommel, ICA-Engineering, Yara Brunsbüttel GmbH (f.l.t.r.)



Designed for extreme demands:  
High-quality Hartmann ball valves  
with true metal sealing system  
between ball and seats

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