

REFERENCE GAS STORAGE MAXIMUM SAFETY FOR NATURAL GAS STORAGE

Reliable isolation for Wolfersberg Gas Storage – Unique Twin Ball Valves designed for space limitation



Since the upper Bavarian gas storage facility of DEA was established in 1973 about 800 Hartmann ball valves have been installed in the various operations. The depleted gas reservoir with depths of 2,900 to 3,000 metre located southeast of Munich is the deepest gas storage in Europe. Besides the 10 wells for injection and production, facilities are run for the compression, pressure reduction, drying and temperature control of the gas. A very high safety level as well as plant availability are critical. When old shut-off valves had to be replaced, Hartmann designed extra compact Twin Ball Valves, which are bubble-tight and solve problems of space limitation.



Technical data of the DEA Wolfersberg pore storage

Working gas capacity	365.000.000 m ³ *
Max. injection rate	140.000 m ³ /h*
Max. withdrawal rate	240.000 m ³ /h*
Valves	approx. 800 Hartmann ball valves, including approx. 40 Twin Ball Valves
Nominal size (DN)	15 – 300 mm
Pressure rating (PN)	100 – 250 bar
Characteristics	Standard or studded flanges, True metal-to-metal sealing, Zero-bubble-tight, Maintenance-free
Design	PED + AD 2000 DIN 3230 part 5 PG3 Inspection 3.2 (TÜV)

„On rare occasion when a Hartmann valve has not immediately been gas tight, we conduct some repeat cycles which allow the valve to settle to complete tightness again. Whereas previously, even when we greased the original valves every half year – they were still leaking.“



Stefan Jirsak
Operations Manager,
DEA Deutsche Erdoel AG

*under standard conditions

SPECIAL VALVES - DURABLE AND WITH LOW MAINTENANCE DEMANDS

Plant Manager Markus Schuster and his colleague Stefan Jirsak are responsible for the availability of the plant. Schuster explains: „We must be able to isolate every part of the plant which needs to be repaired or maintained. Two shut-off valves with the possibility to bleed off pressure in between serve as isolation. Thus we ensure, 100%, that no gas enters the area concerned.“ For 18 years Schuster has fully relied on Hartmann Valves. Hartmann's special valves are able to handle the high pressures of up to 230 bar without any problems. Jirsak, in charge of the maintenance, is particularly impressed by the true metal sealing system.

DOUBLE ISOLATION WITH TWIN BALL VALVES

Most of the Hartmann valves installed are single ball valves. Where even higher safety requirements demand, about 40 Twin Ball Valves (TBV) models have been utilised. These are equipped with a double barrier and two distinctly independent isolating mechanisms in one body. The zero-bubble-tight system provides double safety combined with ease of installation and space savings.

An extra compact special design of the TBV was created when an old isolating section of the main injection line had to be renewed. It consisted of a welded and a flanged ball valve and exchanging the welded valve would have led to a long downtime. Thus Hartmann Valves engineered a TBV version DN 250 PN 250 with the same length of the original standard valve. Following a successful proving period extra compact Twin Ball Valves of exact dimensions as the original valves have also been installed in the gas drying facility. Schuster is excited: „The extreme shortening of the TBV system was a great job. Now we are able to renew the old isolating section without any problems.“

INVESTMENT IN QUALITY PAYS BACK OVER TIME

The lifecycle cost of the high quality special valves convince the plant manager: „The Twin Ball Valves are particularly attractive in terms of the price when compared to the cost of two valves plus the required instrument flange and additional bolts. The savings are completed with the reduced installation effort.“ Furthermore, the Hartmann Valves service made it possible that electric actuators from old valves could be used for the new valves – without any effort for the E/I&C technicians.

Another special Hartmann design can be found in the suction lines. Even the shortest TBVs were too long. „Hartmann again solved this problem – with the double piston system, providing two barriers in one valve“, Schuster states. The system incorporates two seals in flow direction: one on the upstream, the other one on the downstream side. Thus it fulfills the requirement of two barriers including a bleed-off in between.

Pioneer Schuster passes his experiences on: „In the context of workshops we plan a corporate standard within DEA which shut-off systems can be used for the pressure classes.“ Even today the other two Bavarian DEA storage facilities (Breitbrunn and Inzenham-west) are using Hartmann Valves' solutions. Very good technology and employees with excellent qualifications shall continue ensuring highest safety, maximum availability and a failure-free operation for decades in all DEA plants.

