

WINGAS – New directions in the supply of energy.

ABB's MEGADRIVE puts the pressure



ABB

Large MEGADRIVE-LCI drives power the WINGAS compressors which are providing peak performance on the WEDAL (Western-German Link Pipeline) long-distance gas pipeline and the natural gas reservoirs at Reden.

The WINGAS natural gas pipelines connect the gas fields of northern Russia and the North Sea with the most important German industrial centers. To transport natural gas efficiently over such great distances it has to be com-



pressed. To achieve this, compressor stations are installed at intervals along the pipelines to build up the required pressure.

High efficiency MEGADRIVE-LCI

One such compressor station is situated at Weisweiler near Aachen. Its 12.5 MW compressor is powered by an ABB drive of the MEGADRIVE-LCI type. The MEGADRIVE-LCI type is characterized - especially when compared with other drive systems - by the following features:

- Efficiency: Compressors, fans and pumps can be operated in a wide speed and power range with a low energy consumption
- Availability: High reliability owing to the use of proven components
- Maintainability: Short maintenance times and long maintenance intervals
- Emissions: Minimum noise levels and no CO₂ emission
- Soft starts: Reduced stress on the mechanical parts of both the motor and equipment
- Process control: Precise speed control, less losses of production and higher quality, shorter production cycles and high availability

The use of a MEGADRIVE-LCI brings considerable savings in energy and maintenance costs and thus high productivity. The MEGADRIVE-LCI drives not only compressors as used in Weisweiler; it is also used in marine propulsion and to drive fans, pumps and rolling mills, punching machines and wind tunnel blowers. For these applications, reliability and availability are of the highest priority.

Electrical current instead of gas

Gas turbines can also be used to drive such compressors and although at first sight a gas turbine would seem to be the logical choice for this particular application, the electrical drive has decisive advantages. When compared with a gas turbine, the MEGADRIVE-LCI is characterized by:

- Lower initial investment cost and operating expenses and, therefore a shorter amortization time
- Lower noise level
- More precise speed regulation
- Shorter start-up time
- Reduced maintenance (lower costs and frequency)
- High availability (shorter down times)
- Reliability

Knowledge and flexibility

It was not just the state of the art technology which persuaded WINGAS to choose the ABB large drive. At the bid stage ABB's engineers had already impressed the customer with their depth of knowledge and flexibility. Throughout the duration of the project the wide experience of the ABB team was always apparent. Relations with the customer were excellent and any questions which arose were dealt with quickly and competently. The drive system chosen by WINGAS has demonstrated its reliability and its proven technology in numerous reference plants. The standardization of this type of large drive has had a fundamental effect on costs, availability and reliability, and enables ABB to put its wide experience at the customer's disposal.

Service on site

Tele-diagnostics mean rapid reaction times to any occurrences and changes in the drive system.

ABB's scope of supply

For the compressor station at Weisweiler (WEDAL), ABB supplied a 12.5 MW drive unit which has now been in operation since the beginning of 1999. For the WINGAS natural gas reservoir at Reden, which with its capacity of 4.2 billion cubic meters of natural gas is the largest in Western Europe, ABB has delivered two more drive units of 12.5 MW each. These power the high-pressure compressors, which increase the gas pressure to 300 bar to enable the gas to be injected into the rock, which serves as the natural gas reservoir.

To date, ABB has supplied and installed more than 120 variable-speed drives for oil, gas and chemical applications. More than 1950 drives, with a total power of 8100 megawatt, are in use world-wide and represent the entire range of variable-speed drives from 300 kilowatt up to 100 megawatt. Customers can choose from various drive systems such as voltage-source converters, thyristor-controlled motors and subsynchronous converter cascades for motors with speeds of up to 7000 rpm.

Further references

Client	Project	Output Power	No. of Drives
Statoil	Troll	41 MW	5
Shell	Pernis	2.5–6 MW	4
Shell	Bonny Island	9 MW	6
Statoil	Veslefrikk/Sleipner	4.5–12 MW	6
Mobil	Ras Laffan	9 MW	2

Natural gas is rising fast

WINGAS is among the major gas suppliers in Germany, with pipelines connected directly to the largest natural-gas deposits in the world. Today, Russia still has reserves of 49200 billion cubic meters of natural gas, one third of the world's total. At this time the gas industry is going through a period of enormous growth and as a result, ABB's compressor drives such as the MEGADRIVE-LCI are the subject of increasing interest all around the world.

WINGAS GmbH is a joint venture between the German Wintershall AG and the Russian OAO Gazprom. The company employs about 200 people and holds a contractually guaranteed 12% share of the German market.





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