

Case Study

Bartec Keeps Temperature up in one of Austria's Biggest Natural Gas Stations

Paul Rosenberger

The natural gas station Strasshof with its owner OMV Gas & Power is one of the biggest natural gas stations in Austria. The safety technology provider received the order for the engineering and supply of trace heating for the conveyer pipes as well as the condensate pipes. The used cable was the self-limiting parallel heating cable PSB as well as the self-limiting parallel heating cable HSB. The convincing advantage of these two kinds of cables is their ability to be used in explosive atmospheres without any temperature limiter.

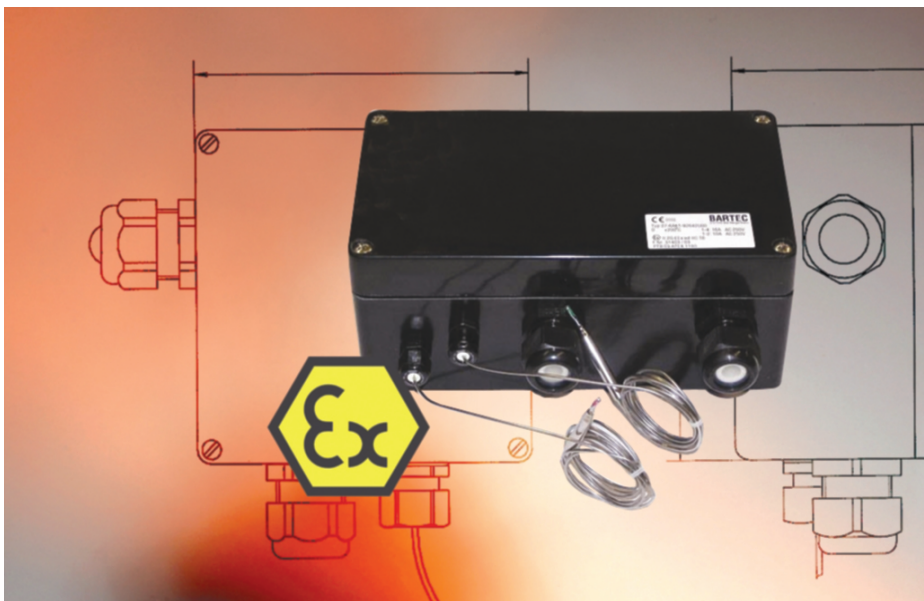
OMV Gas & Power is the leading OMV company in the gas and power business area. Its activities include gas supply, marketing and trading, gas logistics and the central European gas hub making it one of the

leading gas trading and logistics companies in Central Europe. OMV Gas has natural gas storage facilities for a total volume of 2.1 bcm. Following the entry into the power business and the resulting expansion of the value generation

chain, a new business area power has been established. The company is focussing on an international gas business and will be increasing its sales volume to 18 bcm per year. Apart from Austria, natural gas is transported via OMV pipelines to Germany, Italy, France, Slovenia, Croatia and Hungary, making the OMV gas logistics business area an important component of the European natural gas network and a central gas hub in Europe. The Central European Gas Hub handled a trading volume of 17.7 bcm of gas in 2007 and is thus one of the most important trading platforms in continental Europe.

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Bartec Controller

cable was the self-limiting parallel heating cable PSB as well as the self-limiting parallel heating cable HSB. The convincing advantage of these two kinds of cables is their ability to be used in explosive atmospheres without any temperature limiter. Consequently, costs for further components could be saved. 4,000 m of the cables were used. The cable was divided in 280 heating circuits, so that the output power of the heating conductor would not generate an inadmissibly high temperature which, in its turn, reaches or exceeds the temperature limit of temperature class T3 in explosion-hazardous areas.

Both cables have a temperature-dependant resistive element between two parallel copper conductors which regulates and limits the heat output of the heating cable according to the ambient temperature. This output regulation is carried out automatically along the entire length of the heating cable according to the prevailing ambient temperature. As the ambient temperature rises, the heat output of the cable is reduced. This self-limiting property prevents overheating even when the cable are overlapped. A temperature limiter is not required, not even in explosion hazard zones as in the natural gas station Strasshof. The parallel power supply the heating cable can be cut to any required length. This feature considerably simplifies project planning and installation. The heating cable is cut and terminated in accordance with the local requirements directly on the construction site. In cases where the cable may become damaged, it is not necessary to replace the whole circuit but only the affected part. The protective outer jacket of either fluoropolymer or polyolefin protects the inner copper braiding from corrosion and chemical attack. The copper braiding serves as an earth conductor in accordance with VDE 0100 and also increases the mechanical stability of the cable. Under the protective braiding are two synthetic jackets providing

electrical insulation. The inner of the two jackets is thermally fused to the heating element (bonded jacket).

Because the related equipment to the heating pipes has to be also certified for applications in Ex areas, there were two options for connecting the PSB and HSB heating cables: the connection technology heat shrink 'Ex' or the Plexo connection system. The connection technology heat shrink 'Ex' is a reliable technology for connecting heating cables. The principle is easy.

CHALLENGES

- The target was to keep the temperature of the natural gas on a constant level
- To avoid the pipes from getting frozen

After stripping the heating tape, insulation tubes are shrunk over the supply lines and the twisted protective braiding and wire end sleeves are put on. As a basic rule, the heating cable is connected to terminals in an enclosure that has increased safety or flameproof encapsulation protection class. The heating circuit end is also closed with shrinkable tubes. On the other hand, Plexo, the first plug-in connection system for heating cables used in potentially explosive atmospheres, offers substantial reductions in installation time and expense. Maintenance work for future modifications of the heating circuit can be carried out more efficiently. The connection system is well suited for self-limiting parallel heating cables. The heating cable and power supply connection cable are connected via safe spring creating the requisite pressure, eliminating any need for unravelling or twisting. A sophisticated sealing system offers safe and reliable protection against adverse weather conditions. The flexibility of the system allows

direct connection of the heating cable to a supply cable or an Ex junction box. Two similar heating cables can be joined to each other by means of a 'splice' plug and socket connection sleeve. The heating tape remote end termination can be equipped with plug-in contacts for future extensions of the heating circuit. Consequently, the advantages of Plexo convinced the client. The connection system perfectly met the requirements for the application at the natural gas station Strasshof. The system provider Bartec did not only provide the heating cables and the connection kits but also the required control technology in order to offer a complete solution from one hand to OMV. The used BSTW safety temperature monitor, a 16 A Ex temperature monitor, is a change-over controller housed in an EEx e certified polyester enclosure. Heaters, fans, motors and other equipment are energised and de-energised by means of this thermostat when specific temperature ranges are exceeded. This device can also be used to control the temperature in air, liquids or on various surfaces. Any change in temperature at the sensor bulb causes a change in the volume of fluid in the measuring system, which in turn results in a movement of the diaphragm membrane. This membrane is connected to a mechanical device that activates a micro switch. If the temperature at the sensor bulb exceeds the pre-set value, terminals 1 and 4 are opened. By competently handling this project, BARTEC succeeded in laying the foundations for a further cooperation. The German safety technology provider has once again proven its competence to meet the requirements on a variety of markets worldwide. ■



Author Details

*Paul Rosenberger
Managing Director of
BARTEC, Austria*

E-mail: p.rosenberger@bartec.at