

Case Study

Seal-less pumps again preferred in gas dehydration process

When engineers at a gas plant in eastern Romania preferred seal-less Hydra-Cell pumps over conventionally-specified piston plunger pumps for handling TEG on a gas drying installation in 2012 it was not a difficult decision.

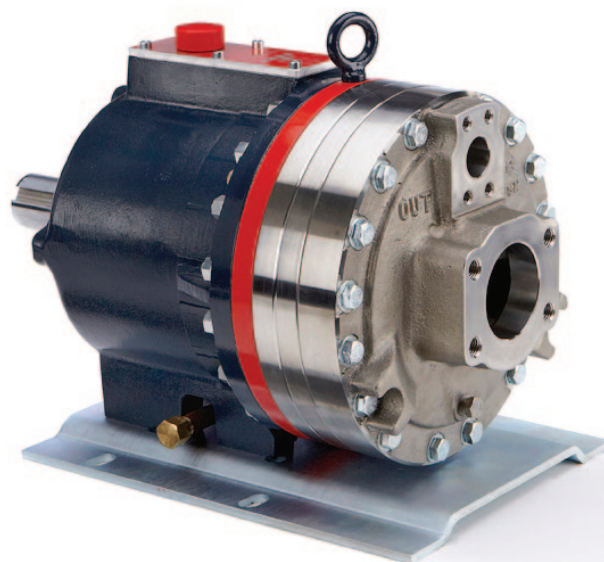
Romgaz, the operating company, is Romania's leading supplier of natural gas. It was already a major user of Hydra-Cell pumps, and the old plunger pumps at this plant had needed maintenance every two months. They were so noisy that a fence had been erected to protect the peace of nearby residents.

Located in eastern Romania, the plant was the latest of the company's facilities to be equipped with seal-less Hydra-Cell pumps for delivering TEG (tri-ethylene glycol) to absorber vessels at the critical final stage of dehydration.

Six Hydra-Cell G35 pumps, two working individually, two sets in parallel, are pumping the liquid at flow rates of 5-6m³/hour and temperatures of 80-90°C. Installed in early 2012 they continued to run quietly and without maintenance, reported the plant manager two years later.

The seal-less pump technology was first introduced to Romgaz several years previously by the German gas engineering specialist EMS, main contractor for the construction in Romania of 12 new gas drying plants.

Operational requirements on that project had been particularly demanding because of their diversity. They had prompted the contractor to find new technical solutions, notably in the pumping technology adopted for feeding TEG to the top of the absorber vessel.



Pump code: G35XKSGHFEHH

Within the absorber, the downward TEG stream meets and dissolves water vapour in the rising stream of gas. Water-rich glycol leaving the bottom of the vertical absorber vessel is then regenerated by 'boiling out' absorbed water, recovered and re-used.

It is a continuous process, operating 24/7 throughout the Romanian winter. The pumping system has the key role in the critical final stages of the process.

In western Europe on previous gas-drying contracts the contractor had normally relied on piston plunger pumps purchased from various well-established manufacturers.

Customer – Romgaz

Romgaz is one of the numerous Hydra-Cell customers who have appreciated the benefits of our seal-less pump technology and subsequently shared their experience with us.



G35 Gas Drying Installation



Absorber unit on a Romanian gas dehydration plant

Though from different sources, all were similar in design and construction. A common limitation was that flow capacity options depended on changing the internals of a basic pump of fixed size. On the 12-plant Romanian contract with widely differing requirements it meant that the customer would be paying for a lot of extra metal – adding substantially to costs all round, including initial purchase and spares.

By contrast, three Hydra-Cell models (G03, G10, G25) between them could cover the flow requirements of all 12 plants. Each pump could deliver controllable flows from 10% up to 100% of its rated capacity.

Flexible performance was by no means the only advantage. The Hydra-Cell also scored in terms of compact size, perceived noise reduction and lower life cycle costs, combining these features with accuracy and established reliability. It was eventually specified for pumping TEG in each of the twelve new dehydration plants.

The successful conclusion of the original project led directly to the use of Hydra-Cell pumps on further gas drying contracts in Romania and elsewhere. For Romgaz, looking to apply the same proven seal-less pumping technology to the higher-flow demands of its east Romanian plant, the Hydra-Cell G35 was a natural choice.

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Seal-less Pump Technology

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