ATEKO a.s.

1949 – 2020

Gas Drying Technology
Absorption technology
➢ Humidity absorption into liquid triethylene glycol (TEG)
➢ The process is held in absorption column
➢ Continuous TEG regeneration by distillation of water in regenerator (up to 200°C)

Adsorption technology
➢ Humidity absorption on solid adsorbent – silicagel, alumina or molecular sieve
➢ The process is held in periodically working adsorbers – cycle phases adsorption, heating, regeneration and cooling
➢ Adsorbent regeneration is done by heated gas (min 150°C)

Low-temperature separation
➢ Humidity condensation by low-temperature and subsequent separation on gas-liquid mixture
➢ Convenient use of „jet-effect“, ie. temperature decline due to expansion
➢ Methanol, DEG injection – protection against hydrate formation
➢ Cold regeneration
### Gas Drying Technology – General Data

<table>
<thead>
<tr>
<th>Typical Operating Data:</th>
<th>Filtration:</th>
<th>Drying:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity:</td>
<td>100 000 – 300 000 Nm³ / hour</td>
<td>100 000 – 300 000 Nm³ / hour</td>
</tr>
<tr>
<td>Pressure:</td>
<td>7 – 20 MPa</td>
<td>6 – 10 MPa</td>
</tr>
<tr>
<td>Temperature:</td>
<td>+3 °C – +40 °C</td>
<td>+15 °C – +25 °C</td>
</tr>
<tr>
<td>Filtration Efficiency:</td>
<td>20 micro meters</td>
<td></td>
</tr>
<tr>
<td>Dew Point:</td>
<td>-7 °C at 4 MPa as minimal</td>
<td></td>
</tr>
</tbody>
</table>
ATEKO Capabilities:

– Turn-key Solutions
– Plant Projects
– Technology Design
– Individual Apparatuses
  - both of design and manufacture
  - Separators
  - Absorption Columns
  - Heat Exchangers
  - Regeneration Units
  - Filters incl. filter elements
  - On-site supervision
– Accessories delivery

Gas Drying Technology - Deliveries
innogy Gas Storage, UGS Tvrdonice, CZ – Gas Drying Equipment refurbishment (Gas drying columns, TEG Regeneration Unit, Breed Vapours Combustion Unit)
Design and manufacture phase (assembly and commissioning expected in 2020)
Gas Drying Technology – References 2018

innogy Gas Storage, UGS Štramberk, CZ – Gas Drying Equipment (Gas drying columns, TEG Regeneration Unit, Breed Vapours Combustion Unit)
innogy Gas Storage, UGS Štramberk, CZ - under development, a complete technology to be delivered
innogy Gas Storage, UGS Háje, CZ – Emission Limits and TEG Regeneration
RWE Gas Storage, UGS Třanovice, CZ, Low Pressure Gas Drying
Gas Drying Technology – References 2015

RWE Gas Storage, UGS Dolní Dunajovice, Filterseparators for Natural Gas
Gas Drying Technology – References 2014

NAFTA, UGS Gajáry, SK, Enerflex Separator Overhaul, A New Gas Heater
Gas Drying Technology – References 2013

RWE Gas Storage, UGS Háje, CZ, Technology Repair and Refurbishment
Gas Drying Technology – References 2012

Plynostav, Powerplant Počerady, CZ, Filterseparators, Filters, Special Heaters
RusGasEngineering Company, Russia, UGS Uhřice, CZ, Audit of the project implementation documentation

Assessment of the project and realization documentation for the construction of a new unit of the natural gas low temperature drying for underground storage NG Uhřice
Gas Drying Technology - References 2010

Plynostav, CZ, UGS Wierzchowice, PL, Design, manufacture, delivery of gas filterseparator with quick-closure, 13 pcs

Design of UGS Wierzchowice,
- main stage 3,5*10^9. Nm³,
- sub-stage 1,2*10^9. Nm³
A deep history because of many projects since 1976 ...
Thank you for your attention

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