SUCCESS STORY

COMPRESSOR REVAMP - SUCCESSFUL INCREASE OF MASS FLOW

In 2011, a South Korean LDPE plant conducted a plant capacity increase of 50%. Debottlenecking of the entire compressor system (Hyper Compressor and Booster/Primary Compressor) was needed in order to fit the new operation parameters. Comprehensive engineering services were applied on both compressors and new major components were delivered.

CUSTOMER ISSUE

- The total plant capacity to be increased to its maximum, estimated increase approximately 50%, including all specifications and detailed planning for all project steps. The compressors were built in 1989.
- Shortest possible downtime for project execution
- Continuous reliable operation after revamp and start-up, environmental improvements provided
APPLICATION DESCRIPTION

Capacity increase of reciprocating compressors for LDPE plant

<table>
<thead>
<tr>
<th>Type</th>
<th>Burckhardt Compression Hyper Compressor: F8 Booster/Primary: 6B5A-1.57</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas</td>
<td>Ethylene</td>
</tr>
<tr>
<td>Power</td>
<td>12'700 hp / 9'500 kW</td>
</tr>
<tr>
<td>Suction pressure</td>
<td>250 barg/3'620 psia</td>
</tr>
<tr>
<td>Discharge pressure</td>
<td>2'750 barg/40'000 psia</td>
</tr>
<tr>
<td>Speed</td>
<td>200 rpm</td>
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<tr>
<td>Lubrication</td>
<td>Forced lubrication to cylinder</td>
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</tbody>
</table>

BURCKHARDT COMPRESSION SOLUTION

- Close cooperation with compressor user and process design.
- Debottlenecking of the entire compressor system to fit the new operation parameters to increase the mass flow from 46t/h up to 63t/h by enlargement of plunger diameter, cylinder and replace the main drive.
- Comprehensive engineering services like performance calculations, torsion analysis, pulsation study, vibration study were applied.
- Modernization of defined components like \( N_2 \) buffered low pressure packing and auxiliaries.
- Know-how and experience provided from the market leader in LDPE compressor manufacturing.

CUSTOMER BENEFITS

- Successful increase of the mass flow from 46t/h up to 63t/h
- Increased reliability and lower life cycle costs with the new solution
- Effective environmental improvements in process technology
- Delivery to full customer satisfaction and warranty on our solutions

"This project was finalized seven years ago. Today, I can confirm that both compressors are still running to our full satisfaction. Burckhardt Compression's engineering competence and their pro-active approach fully met our expectations. In 2016, we placed a revamp follow-up order for our K10 Hyper Compressor due to another plant capacity increase of 20%.”

Yungwoo Lee, LDPE Plant Manager