Why Reeling Works
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Rigid Pipeline Spooling Operations
Rigid Pipeline Lay Operations
Apache II
Deep Blue
Deep Energy
## Technip Reel Lay Fleet

<table>
<thead>
<tr>
<th>Vessel</th>
<th>Apache II</th>
<th>Deep Blue</th>
<th>Deep Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pipe Diameter</strong></td>
<td>4” to 16”</td>
<td>4” to 18”</td>
<td>4” to 20”*</td>
</tr>
<tr>
<td><strong>PIP Capability</strong></td>
<td>10”/16”</td>
<td>12”/17”</td>
<td>12”/18”</td>
</tr>
<tr>
<td><strong>Payload</strong></td>
<td>2,000te</td>
<td>5,600te</td>
<td>5,600te</td>
</tr>
<tr>
<td><strong>Top Tension</strong></td>
<td>197 te</td>
<td>550 te</td>
<td>450 te</td>
</tr>
<tr>
<td><strong>Main Reel Diameter</strong></td>
<td>16.5m</td>
<td>19.5m</td>
<td>21m</td>
</tr>
<tr>
<td><strong>Piggyback System</strong></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Craneage</strong></td>
<td>100te</td>
<td>400te</td>
<td>150te</td>
</tr>
<tr>
<td><strong>ROV</strong></td>
<td>2 x Work Class (optional)</td>
<td>2 x Work Class</td>
<td>2 x Work Class</td>
</tr>
<tr>
<td><strong>Transit Speed</strong></td>
<td>13 knots</td>
<td>10 knots</td>
<td>20 knots</td>
</tr>
<tr>
<td><strong>DP Class</strong></td>
<td>II</td>
<td>II</td>
<td>III</td>
</tr>
</tbody>
</table>

* Specific assessment required for >18”
Track Record

- Carbon steel - seamless, HFI, UOE >6,000km
  - Corrosion and wet insulation coatings
- 13%Cr, duplex and super duplex 460km
- Metallurgically bonded clad pipe 5 projects
- Plastic lined water injection pipelines 260km
- Steel catenary risers (SCR) 30 risers
- Pipe-in-pipe (PIP) 29 pipelines and risers
- Direct electrically heated pipe (DEH) 7 projects
- Free standing hybrid riser (FSHR) 5 risers

Other Qualified Projects

- Electrically heated PIP
- Plastic lined pipelines for hydrocarbon transport
- Plastic lined water injection SCR
II. Why Reeling Works
The Reeling Process
Why Reeling Works

► Technical
  • Line pipe steel is ductile
  • Pipeline girth welds overmatch strength of pipe
  • Pipe thickness is sufficient to prevent buckling
  • Reeling is a forming process

► Commercial
  • Welding operations onshore
  • High offshore lay rates
  • 98.5% welds off vessel critical path
    – Pipe-in-pipe systems
    – High chrome or clad steels
I. Reeling in Asia-Pacific
Asiaflex Spoolbase
Asiaflex Spoolbase
A Regional Hub
Conclusions

► Proven installation method

► Wide variety of pipeline products installable

► Driving down the cost of developments
  • Corrosion resistant alloys
  • Pipe-in-pipe systems
  • Long small diameter pipelines

► Operations from a central hub at Asiaflex
  • High payload and high speed
  • Rigid and flexible pipe and umbilicals from same location