Frac Flowback Test (FFT) Choke Manifold

OVERVIEW
The Well Test Frac Flowback Test (FFT) Choke Manifold is the primary means of controlling the well flow at the surface by the operation (opening or closing) of the adjustable and fixed chokes. The unique FFT choke manifold design enables the operator to stage the pressure drop when flowing solids across multiple choke beans, making it ideal for cleanout operations where high gas rates and solids together are expected.

» Adjustable (Variable) Choke: Helps enable greater flexibility for wellbore cleanup rates
» Fixed (Positive) Choke: Calibrated choke beans that reduce flow velocity to the acceptable levels by stepping down the flow pressure

The operation of the FFT Choke Manifold under the client’s objectives are verified by Halliburton’s Design of Service in accordance to API RP 14E / ISO 13703 to withstand erosion resulting from the very high velocities occurring at and immediately downstream from the choke orifice, thus maintaining equipment integrity and test objectives.

The FFT Choke Manifold design enables for dual-flow paths that control the well flow at surface from the upstream control equipment to the downstream process equipment and enables the operator to perform choke changes without interference with operations or test objectives.

APPLICATIONS
» Exploration and appraisal well testing
» Cleanup and flowback
» Production, in-line testing (including multi-phase flow metering)
» Extended well testing

FEATURES AND BENEFITS
» Constructed with one each adjustable and two each inline chokes on each flow path (limits erosion caused by high flow velocities)
» Includes robust and composite design aids with the maintenance and replacement of parts to minimize the requirement to have backup equipment in the field
» Enables operators to perform efficient choke changes without interference to operations or test objectives
» Offers data headers, which can be integrated into the choke manifold skid (facilitate transportation)
» Composed of standardized equipment to facilitate ease of maintenance and operations, which saves rig time and overall cost of the test
» Designed and operated in accordance with industry standards and best practices to preserve equipment integrity and client test objectives
## Equipment Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Working Pressure psi (bar)</th>
<th>Service Temperature °F (°C)</th>
<th>Inlet Connection</th>
<th>Outlet Connection</th>
<th>Chokes</th>
<th>Data Header</th>
<th>Dimensions in. (m)</th>
<th>Weights lb (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>101788324</td>
<td>3-1/16 in., 10K, 7 Valve FFT Choke Manifold</td>
<td>10,000 (690)</td>
<td>-20 to 350 (-29 to 177)</td>
<td>3-1/16 in., 10K, API 6 Flange × 3 in. Fig. 1502 Female (T)</td>
<td>3-1/16 in., 10K, API 6 Flange × 3 in. Fig. 1502 Male (W)</td>
<td>One Each Positive, One Each Adjustable and Four Inline Chokes</td>
<td>Incorporated Into the Skid Design</td>
<td>201 × 96 × 40 (5.12 × 2.44 × 1.0)</td>
<td>17,000 (7711)</td>
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<tr>
<td>101788314</td>
<td>3-1/16 in., 15K, 7 Valve FFT Choke Manifold</td>
<td>15,000 (1034)</td>
<td></td>
<td>3-1/16 in., 15K, API 6 Flange</td>
<td></td>
<td></td>
<td></td>
<td>201 × 97 × 45 (5.12 × 2.46 × 1.14)</td>
<td>19,500 (8845)</td>
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</tbody>
</table>

Notes:
- Refer to the equipment databook for individual equipment specifications.
- Equipment is designed/certified to API 6A PSL 3 PR-2, NACE MR0175, DNV 2.7-1, 2.7-3, CE / PED, NORSOK.
- Standards as applicable and documented on the individual Equipment Specification Data Sheets (ESDS).
- These ratings are guidelines only.

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com