CFHT Transfer Lines/Systems

- Efficient transfer apparatus for cryogenic liquid gases with low heat of vaporization such as helium, hydrogen or neon
- Carefully fabricated using all welded stainless steel construction
- Super insulated to provide the optimum in thermal performance
- Inner configuration features minimum wall thickness to reduce cool-down losses and heat leak on all assemblies
- Helium mass spectrometer leak tested & fully evacuated before shipping
- Custom built to meet the customer’s specific requirements for configuration, diameter and length
- Special features can be added to enhance the product
- Common applications include MRI and NMR re-filling of superconducting magnets, gas distributor trans-fill stations, instrumentation and experimental transfers

CFHT Series Common Configurations

- Flexible U Tube
- Flexible U Tube with Right Angle Shut Off Valve
- Flexible U Tube with Globe Shut Off Valve*
- Withdrawal Lance with Right Angle Shut Off Valve
- Extension Hose M/M
- Fill Lance
- Fill/Withdrawal Hose with Bayonet Outlet
- Fill/Withdrawal Lance with Globe Shut Off Valve*
- Extension Hose M/F

*Globe valve can be tilted to reduce height.
Withdrawal Hose with Right Angle Shut Off Valve

Withdrawal Hose with Globe Shut Off Valve

Fill Hose with Right Angle Shut Off Valve

Trailer Liquid Hose

Trailer Gas Hose

Cryenco to Linde Bayonet Adapter

Fill/Withdrawal Hose with Tube Outlet

Fill Hose with Globe Shut Off Valve

GE Stinger Assembly

CP-3 Trailer Hose Un-Insulated

CP-3 Trailer Hose Vacuum Insulated

Available Options:

- Pump Out Operator
- Bellows Valve w/KF25
- Threaded Tip
- Extension Tube

*Globe valve can be tilted to reduce height.
CFHT Series Valves Approximate Heat Leak

<table>
<thead>
<tr>
<th>I.D. Inner (IN.)</th>
<th>O.D. Outer (IN.)</th>
<th>Non-braided Inner Hose M.A.W.P.</th>
<th>Braided Inner Hose M.A.W.P.</th>
<th>W/M</th>
<th>BTU/HR/FT</th>
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<tbody>
<tr>
<td>.25&quot;</td>
<td>1.5&quot;</td>
<td>75 PSI</td>
<td>1750 PSI</td>
<td>.68</td>
<td>.71</td>
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<tr>
<td>.375&quot;</td>
<td>1.8&quot;</td>
<td>159 PSI</td>
<td>1450 PSI</td>
<td>.70</td>
<td>.73</td>
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<tr>
<td>.5&quot;</td>
<td>2.25&quot;</td>
<td>90 PSI</td>
<td>1350 PSI</td>
<td>.98</td>
<td>1.02</td>
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<tr>
<td>.75&quot;</td>
<td>2.7&quot;</td>
<td>15 PSI</td>
<td>800 PSI</td>
<td>1.07</td>
<td>1.11</td>
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<tr>
<td>1.0&quot;</td>
<td>3.5&quot;</td>
<td>14 PSI</td>
<td>550 PSI</td>
<td>1.36</td>
<td>1.41</td>
</tr>
</tbody>
</table>

1. Outer jacket enlarges once a certain length is reached

CFHT Series Valves and Bayonet Couplings

VJ Shut Off Valves
- Offered in laboratory style or industrial grade
- Valves supply a means to interrupt or terminate the flow of liquid cryogens and maintain a minimal heat leak

Actuated Valves
- Actuated Valves for remote and unattended filling of cryostats when incorporated with a controller.

Bayonet Couplings
- Available as a set or individually as male and female
- Allows for easy disassembly of transfer equipment without removal of a section from an experiment or storage dewar
- Bayonets transform single construction transfer lines into multiple parts for ease of use and flexibility in tight locations

Approximate Steady State Heat Leak

<table>
<thead>
<tr>
<th>Description</th>
<th>1/4&quot; x 3&quot;</th>
<th>1/4&quot; x 6&quot;</th>
<th>1/4&quot; x 9&quot;</th>
<th>1/2&quot; x 3&quot;</th>
<th>1/2&quot; x 6&quot;</th>
<th>1/2&quot; x 9&quot;</th>
<th>1/2&quot; x 15&quot;</th>
<th>3/4&quot; x 9&quot;</th>
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<tr>
<td>LN₂ (BTU/hr)</td>
<td>7.38</td>
<td>3.45</td>
<td>2.3</td>
<td>7.38</td>
<td>3.45</td>
<td>2.3</td>
<td>1.2</td>
<td>3.6</td>
</tr>
<tr>
<td>LHE (BTU/hr)</td>
<td>8.12</td>
<td>3.79</td>
<td>2.53</td>
<td>8.12</td>
<td>3.79</td>
<td>2.53</td>
<td>1.52</td>
<td>3.96</td>
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