Specifications

The modular construction at a glance

<table>
<thead>
<tr>
<th>Design</th>
<th>Gas Separator</th>
<th>Phase Separator</th>
<th>Gas Separator with Pressure-Maintaining Device</th>
</tr>
</thead>
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Contact
Cryotherm GmbH & Co. KG
Euteneuen 4
D-57548 Kirchen
Fax: +49 (0)2741 6900
E-Mail: info@cryotherm.de
www.cryotherm.de

Cryo Line Systems
Cold remains cold – wherever you want!

Specifications

Transfer Lines / Systems

<table>
<thead>
<tr>
<th>Rigid Design</th>
<th>Flexible Design</th>
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Cold remains cold – wherever you want!
Cryogenic liquefied gases...

Flexible and rigid line systems

The right module for every task

Super-insulated gas separators and phase separators

Cryotherm offers vacuum super-insulated transfer line systems as well as the appropriate equipment, so that the gases coming from the vessels reach the "point of use" only with low evaporation losses.

In order to ensure that your project can be realised within a very short period of time so that you can make immediate use of the economic benefits, we stand by your side right from the beginning.

Together with you, we carry out the planning, the design and the assembly of the cryogenic line system tailored to your requirements.

A modular construction specially developed for the nominal widths DN 14 and DN 25 is suitable for the most varying tasks and can be supplied from stock in the standard lengths of 3, 6 and 12 metres.

General constructive features

• Welded construction made of non-magnetic, highly corrosion-resistant stainless steel
• In rigid or flexible design
• Super-insulated couplings for flexible possible extension or combination

Flexible line systems

Vacuum super-insulated flexible line DN 20 with plug-in coupling DN 14

Rigid line systems

Vacuum superinsulated straight line elements and angles with plug-in coupling DN 14

The phase separator and the gas separator serve to separate the gas evolving from the liquid phase even with the best insulation and to discharge it from the line system.

They are advantageously arranged directly close to the place of withdrawal.

Super-insulated gas separators

• Efficient with continuous withdrawal
• The complete line between places of filling (e.g. storage tank) and withdrawal is permanently kept cold
• Constant filling pressure (e.g. storage tank) to the place of withdrawal
• Arrangement at the highest point of the system
• Ideal for large-scale consumers

Super-insulated phase separators

• Efficient with discontinuous withdrawal
• The line part between phase separator and place of withdrawal is permanently kept cold
• Low pressure at the place of withdrawal (e.g. geodetic height of the liquid column)
• Arrangement at any place in the line system
• Ideal for small-scale consumers and/or numerous places of withdrawal
• With emergency supply functions

Advantages of flexible and rigid line systems

• Optically appealing
• Made of non-magnetic highly corrosion-resistant stainless steel. Therefore, they can also be used in clean rooms and in food industry
• By the application of plug-in couplings, they are expandable and can be combined without any problems
• Long service life of the vacuum by the application of adsorption material and special getter. Thus, your gas consumption and the maintenance intervals can be optimized

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• Super-insulated couplings for flexible possible extension or combination

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Rigid line systems

Vacuum superinsulated straight line elements and angles with plug-in coupling DN 14

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• Made of non-magnetic highly corrosion-resistant stainless steel. Therefore, they can also be used in clean rooms and in food industry
• By the application of plug-in couplings, they are expandable and can be combined without any problems
• Long service life of the vacuum by the application of adsorption material and special getter. Thus, your gas consumption and the maintenance intervals can be optimized
Cryogenics offers vacuum super-insulated handle line systems as well as the appropriate equipment, so that the gases coming from the vessels reach the “point of use” only with low evaporation losses.

In order to ensure that your project can be realised within a very short period of time and that you can make immediate use of the economic benefits, we stand by your side right from the beginning. Together with you, we carry out the planning, the design and the assembly of the cryogenic line system tailored to your requirements.

A modular construction specifically developed for the nominal widths DN 14 and DN 25 is suitable for the most varying tasks and can be supplied from stock in the standard lengths of 3, 6 and 12 metres.

**Essential constructive features**

- **Welded construction** made of non-magnetic, highly corrosion-resistant stainless steel
- **In rigid or flexible design**
- **Super-insulated coupling** for flexible possible extension or combination

**Coupling types**

- Easily removable plug-in couplings and firmly installed weld couplings
- Long service life of the insulation vacuum by the application of adsorption material and special getter
- Quality control in each production phase
- Leak tests of the inside and outside lines

**High thermal quality**

Thanks to computer-aided optimised thermal design and multi-layer vacuum super-insulation between inside and outside lines.

### Flexible and rigid line systems

#### Essential constructive features

1. Inside the made of highly corrosion-resistant cryogenic steel (1.4301), completely welded
2. Flanged joint consisting of straining ring and fastening screws
3. O-ring seal
4. Cryogenic seal
5. Combined vacuum seal of and pressure relief device protects the vacuum room against unacceptable high pressures
6. Expansion compensator for the compensation of the linear expansion due to heat
7. Distance blocking Distance holder between inside and outside line
8. Adsortion material
9. Super-insulator Multi-layer vacuum insulation by means of computer-optimised thermodynamic design
10. Line parts 1 and 2 (vacuum super-insulated, vacuum system closed in itself)

#### Advantages of flexible and rigid line systems

- Optically appealing
- Made of non-magnetic highly corrosion-resistant stainless steel. Therefore, they can also be used in clean rooms and in food industry
- By the application of plug-in couplings, they are expandable and can be combined without any problems
- Long service life of the vacuum by the application of adsorption material and special getter. Thus, your gas consumption and the maintenance intervals can be optimised

### Super-insulated gas separators and phase separators

**Super-insulated gas separators**

- Efficient with continuous withdrawal
- The complete line between places of filling (e.g. storage tank) and withdrawal is permanently kept cold
- Constant filling pressure (e.g. storage tank) to the place of withdrawal
- Arrangement at the highest point of the line system
- Ideal for large-scale consumers

**Super-insolated phase separators**

- Efficient with discontinuous withdrawal
- The line part between phase separator and place of withdrawal is permanently kept cold
- Low pressure at the place of withdrawal (geodetic height of the liquid column)
- Arrangement at any place in the line system
- Ideal for small-scale consumers and/or numerous places of withdrawal
- With emergency supply functions

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- Arrangement at any place in the line system
- Ideal for small-scale consumers and/or numerous places of withdrawal
- With emergency supply functions
Cryogenic liquefied gases...

...like nitrogen, oxygen and argon are stored in special storage vessels.

Flexible and rigid line systems

The right module for every task

Super-insulated gas separators and phase separators

Cryotherm offers vacuum super-insulated line systems as well as the appropriate equipment, so that the gases coming from the vessels reach the "point of use" only with low evaporation losses.

In order to ensure that your project can be realised within a very short period of time so that you can make immediate use of the economic benefits, we stand by your side right from the beginning. Together with you, we carry out the planning, the design and the assembly of the cryogenic line system tailored to your requirements.

A modular construction specially developed for the nominal widths DN 14 and DN 25 is suitable for the most varying tasks and can be supplied from stock in the standard lengths of 3, 6 and 12 metres.

General constructive features

- Welded construction made of non-magnetic, highly corrosion resistant stainless steel
- Rigidity for flexible design
- Super-insulated couplings for flexible possible extension or combination
- Coupling types: easily removable plug-in couplings and firmly installed weld couplings
- Long service life of the insulation vacuum by the application of adsorption material and special getter
- Quality control in each production phase
- Leak tests of the inside and outside lines

High thermal quality

Thanks to computer-aided optimised thermal design and multilayer vacuum super-insulation between inside and outside lines.

Flexible line systems

Vacuum super-insulated flexible line DN 20 with plug-in coupling DN 14

Rigid line systems

Vacuum superinsulated straight line elements and angles with plug-in coupling DN 14

Essential constructive features

1. Inside the made of highly corrosion resistant cryogenic steel (1.4301), completely welded
2. Flanged joint consisting of straining ring and fastening screws
3. O-ring seal
4. Cryogenic seal
5. Combined vacuum seal and pressure relief device protects the vacuum room against unacceptable high pressures
6. Expansion compensator for the compensation of the linear expansion due to heat
7. Distance blocking: Distance holder between inside and outside line
8. Adsorption material
9. Super-insulation: Multilayer vacuum insulation by means of computer-optimised thermodynamic design
10. Linen parts 1 and 2
11. Vacuum super-insulated, vacuum system closed in itself

Advantages of flexible and rigid line systems

- Optically appealing
- Made of non-magnetic highly corrosion resistant stainless steel. Therefore, they can also be used in clean rooms and in food industry
- By the application of plug-in couplings, they are expandable and can be combined without any problems
- Long service life of the vacuum by the application of adsorption material and special getter. Thus, gas consumption and the maintenance intervals can be optimised

Super-insulated phase separators

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- Arrangement at any place in the line system
- Ideal for small-scale consumers and/or numerous places of withdrawal
- With emergency supply functions

Super-insulated gas separators

- Efficient with continuous withdrawal
- The complete line between places of filling (e.g. storage tank) and withdrawal is permanently kept cold
- Constant filling pressure (e.g. storage tank) to the place of withdrawal
- Arrangement at the highest point of the system
- Ideal for large-scale consumers
## Specifications

### 10 V GP A 2.2

#### Vertical Station

<table>
<thead>
<tr>
<th>Design</th>
<th>Code</th>
<th>Pressure</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical</td>
<td>10 V GP A 2.2</td>
<td>8</td>
<td>1.5/3</td>
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</table>

#### Horizontal Station

<table>
<thead>
<tr>
<th>Design</th>
<th>Code</th>
<th>Pressure</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal</td>
<td>10 V GP A 2.2</td>
<td>2.2</td>
<td>1.5/3</td>
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</table>

### Transfer Lines / Systems

#### Rigid Design

<table>
<thead>
<tr>
<th>Nominal ø (DN)</th>
<th>14</th>
<th>25</th>
<th>40</th>
<th>50</th>
<th>100</th>
<th>20</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coupling type</td>
<td>1=plug-in; 2=weld</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>2</td>
<td>1 - DN14</td>
</tr>
<tr>
<td>Outer ø of line (mm)</td>
<td>52</td>
<td>76,1</td>
<td>84</td>
<td>104</td>
<td>159</td>
<td>68</td>
<td>86</td>
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<tr>
<td>Outer ø of weld coupling (mm)</td>
<td>76.1</td>
<td>88.9</td>
<td>104</td>
<td>129</td>
<td>204</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ø of wall opening (mm)</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>250</td>
<td>300</td>
<td>150</td>
<td>200</td>
</tr>
<tr>
<td>Smallest laying radius (mm)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>400</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Transmission pipe (mm)</td>
<td>300</td>
<td>400</td>
<td>400</td>
<td>450</td>
<td>-</td>
<td>300</td>
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