Cold traps out of glass or stainless steel for the vacuum technology
Cold traps: construction, operation and principles

Cold traps are used in conjunction with vacuum pumps to collect condensation produced from humidity or solvents and these cold traps can be used for many different tasks. The most common application is collecting condensation produced from humidity or solvents from rotating discs, vacuum pumps or high vacuum systems that use's oil diffusion or turbo-molecular pumps. In this case a common coolant such as liquid nitrogen (LN2) or dry-ice (CO2) with acetone is normally used.

Another application is the production of condensation from specific substances at a constant, predefined temperature. This can be realised by using a coolant at a constant, predefined temperature, a thermostat or a Kaltgas system.

Cold traps can be manufactured out of glass or metal. The use of glass is advantageous in the chemical sector and when producing condensation from solvents, due to its resistance to chemicals. All glass cold traps listed in this catalogue are produced solely from borosilicate glass 3.3, in compliance with DIN/ISO (DURAN made by Schott). The mechanical design takes into account the wall thickness for use under vacuum.

Material - glass

All the glassware produced by KGW - ISOTHERM are made of borosilicat glass 3.3 DIN/ISO 3585. The glass has the following characteristics:

**Chemical characteristics**

- hydrolytic resistance: according to DIN-ISO 719 (98°C)
- acid resistance: according to DIN-ISO 1776
- alkaline resistance: according to ISO 695-A2

**Physical characteristics**

- linear expansion factor: $3.3 \times 10^{-6}$/K (at 20°C-300°C)
- density: 2.23 g/cm³
- specific thermal capacity: 910 J/kg K
- transformation temperature: 525 °C

**Admissible Operation Conditions for cold traps made of glass**

- Temperature range: -200°C to +200°C
- Pressure range standard: vacuum to atm. pressure
- Special pressure range: vacuum to + 1 bar

**Standards and Guidelines**

All of the KGW glassware are manufactured considering "Guideline of pressure devices", directive 97/23 EC and ISO 16496 "Equipment with vacuum insulation". Under the condition that there are any standards for joint parts such as spherical ground joints or conical ground joints, those will be utilised (e.g. DIN 12242-1 and DIN 12244-1).
Vacuum connection different versions

All cold traps out of glass can be manufactured with different connections. The types of connection listed here are subject to standards or norms, so that they are guaranteed to be compatible with other products and this presents the user with a variety of connection options. As the connection option product pallet is far too extensively for a standard pallet, only cold traps with a fitted connection are shown in this catalogue, however these can be altered without incurring any additional expenditure. The most common connections used in the vacuum sector with glass cold traps are vacuum flanges KF NW16 to KF NW40, glass threads GL14 to GL25 with screw-on cap and olive, spherical ground joints S19 to S40, conical ground joints NS14/23 to NS45/40 and spherical ground joints with O-ring seal S29 Rotulex. There are standard accessory parts available for all these types of connections.
Accessories for vacuum connectors

Glass flange KF NW as vacuum connector

<table>
<thead>
<tr>
<th>Vacuum flange</th>
<th>NW KF 10/16</th>
<th>NW KF 20/25</th>
<th>NW KF 32/40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass flange</td>
<td>17310</td>
<td>17311</td>
<td>17312</td>
</tr>
<tr>
<td>Pertinax clamp</td>
<td>17315</td>
<td>17316</td>
<td>17317</td>
</tr>
<tr>
<td>O-ring with centering</td>
<td>17320</td>
<td>17321</td>
<td>17322</td>
</tr>
</tbody>
</table>

PTFE olive with plastic screw on caps

<table>
<thead>
<tr>
<th>Olive with screw-on cap</th>
<th>Olive diameter</th>
<th>Art.No.</th>
</tr>
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<tbody>
<tr>
<td>GL14</td>
<td>9</td>
<td>17330</td>
</tr>
<tr>
<td>GL18</td>
<td>10</td>
<td>17331</td>
</tr>
<tr>
<td>GL25</td>
<td>13</td>
<td>17332</td>
</tr>
</tbody>
</table>

Fork clamps for spherical joints with locking device

<table>
<thead>
<tr>
<th>Spherical ground joints</th>
<th>Art.No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S19</td>
<td>17340</td>
</tr>
<tr>
<td>S29</td>
<td>17341</td>
</tr>
<tr>
<td>S40</td>
<td>17342</td>
</tr>
</tbody>
</table>

Clips for conical joints made of nichrome wire

<table>
<thead>
<tr>
<th>Tapered joints</th>
<th>Art.No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS14/23</td>
<td>17350</td>
</tr>
<tr>
<td>NS19/26</td>
<td>17351</td>
</tr>
<tr>
<td>NS29/32</td>
<td>17352</td>
</tr>
<tr>
<td>NS45/40</td>
<td>17353</td>
</tr>
</tbody>
</table>
CO2-wire basket for cold traps

If dry ice (CO2) is used as coolant, it might get difficult to exchange the glass cold trap. The CO2 can fill up the existing space inside the Dewar flask. It is nearly impossible to replace the trap into the Dewar flask, then. Therefore we designed a wire basket for easily placing the cold trap into the already filled Dewar flask.

Order example:
Cold trap type KF 29 - GL, Art. No. 1740 with a CO2-wire basket, Art. No. 17570

Art. No.: 1740 + 17570

<table>
<thead>
<tr>
<th>Dewar flasks Type</th>
<th>Art. No.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 C</td>
<td>17570</td>
</tr>
<tr>
<td>18 C</td>
<td>17571</td>
</tr>
</tbody>
</table>
To defrost cold traps safely, you can use a drainer. The frozen cold trap will be replaced from the Dewar flask into the drainer. The cold trap can defreeze in the rack safely. The water formed during defrosting through condensation on the outside of the cold trap can drain into the drainer and will be collected in the tub. The frame is useable for all KGW-Isotherm standard cold traps model series Type S 29 and SL 29 with a diameter of 50mm. Other sizes on request.

Drainer for cold traps with a tub for condensate water

Drainer for cold traps

1) Rack (height = 400mm)
2) Tub
3) Supporting ring for cold traps

Supporting ring for cold traps

Order. No.: 17575-54
Cold traps

Simple cold traps are used in standard applications in conjunction with vacuum pumps and the condensation is forced out of the humidity or solvents used in the chemical applications. The cold trap is used to protect the vacuum pump in this case and the speciality of this type of construction is that the user does not need to use a stand to hold the cold trap. The cold trap has a rim, which is hung inside the Dewar-flask's support ring. The cold trap can be changed very quickly without any problems arising.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Type KF 29-K</td>
<td>150 ml</td>
<td>1000 ml</td>
<td>1731</td>
</tr>
<tr>
<td>Type KF 29-OK</td>
<td>150 ml</td>
<td>1000 ml</td>
<td>1735</td>
</tr>
<tr>
<td>Type KF 29-GL</td>
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**Component parts**

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<td>1741</td>
</tr>
<tr>
<td>1733</td>
</tr>
<tr>
<td>10214</td>
</tr>
</tbody>
</table>

theor. cap. = theoretical capacity

Cold trap S 29 with spherical joints S 29
Cold trap S 29 O with spherical joints S 29 and O-ring seal
Cold trap S 29 GL with threaded glass joint GL 18 and PTFE olive

Cold trap complete Type KF 29-GL
Cold traps with a spout

An upgraded version is a cold trap with an outlet. These cold traps are constructed in the same way as standard cold traps but have a GL32 glass thread together with a screw-on cap, which is the actual spout. With the help of this spout the condensate can easily be poured out of the cold trap. Therefore the cold trap is easily to clean.

<table>
<thead>
<tr>
<th>Component parts</th>
<th>Art.No.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>17375</td>
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<tr>
<td>Cold trap S 29 O-A</td>
<td>17376</td>
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<tr>
<td>Cold trap S 29 GL-A</td>
<td>17377</td>
</tr>
<tr>
<td>Plastic ring</td>
<td>1733</td>
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<tr>
<td>Dewar Type 12 C</td>
<td>10214</td>
</tr>
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</table>

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Simple cold traps are used in standard applications in conjunction with vacuum pumps and the condensation is forced out of the humidity or solvents used in the chemical applications. The cold trap is used to protect the vacuum pump in this case and the speciality of this type of construction is that the user does not need to use a stand to hold the cold trap. The cold trap has a rim, which is hung inside the Dewar flask's support ring. The cold trap can be changed very quickly without any problems arising. With glass vacuum flanges you are able to connect this cold trap directly to the metal flanges ISO 2861 of a high-vacuum pump.

**Cold traps with KF NW flanges**

Cold traps complete

<table>
<thead>
<tr>
<th>Type</th>
<th>Condensate</th>
<th>Coolant</th>
<th>Dewar</th>
<th>Cold trap</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typ KF 29-NW 16</td>
<td>150 ml</td>
<td>1000 ml</td>
<td>12 C</td>
<td>KF NW 16</td>
<td>1731-NW16</td>
</tr>
<tr>
<td>Typ KF 29-NW 25</td>
<td>150 ml</td>
<td>1000 ml</td>
<td>12 C</td>
<td>KF NW 25</td>
<td>1731-NW25</td>
</tr>
<tr>
<td>Typ KF 29-NW 16-A</td>
<td>150 ml</td>
<td>1000 ml</td>
<td>12 C</td>
<td>KF NW 16</td>
<td>17370-NW16</td>
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<tr>
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<td>1000 ml</td>
<td>12 C</td>
<td>KF NW 25</td>
<td>17370-NW25</td>
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**Cold trap**

<table>
<thead>
<tr>
<th>Type</th>
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<tbody>
<tr>
<td>Cold trap S 29-NW16</td>
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<tr>
<td>Cold trap S 29-NW25</td>
</tr>
<tr>
<td>Cold trap S 29-NW16-A</td>
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<tr>
<td>Cold trap S 29-NW25-A</td>
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**Art. No.**

<table>
<thead>
<tr>
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<tr>
<td>Cold trap S 29 - NW16</td>
<td>1732-NW16</td>
</tr>
<tr>
<td>Cold trap S 29 - NW25</td>
<td>1732-NW25</td>
</tr>
<tr>
<td>Cold trap S 29-NW16-A</td>
<td>17375-NW16</td>
</tr>
<tr>
<td>Cold trap S 29-NW25-A</td>
<td>17375-NW25</td>
</tr>
</tbody>
</table>

**theoret. cap. = theoretical capacity**

NW 16 = Vacuum flange KF NW 16
NW 25 = Vacuum flange KF NW 25
- A = cold trap fitted with a spout GL 32
Cold traps long version

This cold traps are constructed in the same way as standard cold traps. The condensation area of cold traps has been extended in order to trap a more condensation. In addition to this, these complete cold traps also have a larger plastic ring and a bigger Dewar flask.

Cold trap SL 29 with spherical joints S 29

Cold trap SL 29 O with spherical joints and O-ring seal

Cold trap SL 29 GL with threaded glass joint GL 18 and PTFE olive

<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Type KFL 29-K</td>
<td>250 ml</td>
<td>2000 ml</td>
<td>17360</td>
</tr>
<tr>
<td>Type KFL 29-OK</td>
<td>250 ml</td>
<td>2000 ml</td>
<td>17361</td>
</tr>
<tr>
<td>Type KFL 29-GL</td>
<td>250 ml</td>
<td>2000 ml</td>
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<table>
<thead>
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<tr>
<td>Cold trap SL 29</td>
<td>17365</td>
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<tr>
<td>Cold trap SL 29 O</td>
<td>17366</td>
</tr>
<tr>
<td>Cold trap SL 29 GL</td>
<td>17367</td>
</tr>
<tr>
<td>Plastic ring L</td>
<td>1733-L</td>
</tr>
<tr>
<td>Dewar Type 18 C</td>
<td>10220</td>
</tr>
</tbody>
</table>

theor. cap. = theoretical capacity
Cold traps with a spout, long version

An upgraded version is a long version cold trap with an outlet spout. These cold traps are constructed in the same way as standard cold traps but have a GL32 glass thread together with a screw-on cap, which is the actual spout. With the help of this spout the condensate can easily be poured out of the cold trap. Therefore the cold trap is easily to clean.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type KFL 29-K-A</td>
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<td>2000 ml</td>
<td>17380</td>
</tr>
<tr>
<td>Type KFL 29-OK-A</td>
<td>250 ml</td>
<td>2000 ml</td>
<td>17381</td>
</tr>
<tr>
<td>Type KFL 29-GL-A</td>
<td>250 ml</td>
<td>2000 ml</td>
<td>17382</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Component parts</th>
<th>Art.No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold trap SL 29-A</td>
<td>17385</td>
</tr>
<tr>
<td>Cold trap SL 29 O-A</td>
<td>17386</td>
</tr>
<tr>
<td>Cold trap SL 29 GL-A</td>
<td>17387</td>
</tr>
<tr>
<td>Plastic ring L</td>
<td>1733-L</td>
</tr>
<tr>
<td>Dewar Type 18 C</td>
<td>10220</td>
</tr>
</tbody>
</table>

theor. cap. = theoretical capacity
**Cold traps with KF NW flanges, long version**

Simple cold traps are used in standard applications in conjunction with vacuum pumps and the condensation is forced out of the humidity or solvents used in the chemical applications. The cold trap is used to protect the vacuum pump in this case and the speciality of this type of construction is that the user does not need to use a stand to hold the cold trap. The cold trap has a rim, which is hung inside the Dewar flask’s support ring. The cold trap can be changed very quickly without any problems arising. With glass vacuum flanges you are able to connect this cold trap directly to the metal flanges ISO 2861 of a high-vacuum pump.

**Cold traps complete**

<table>
<thead>
<tr>
<th>Type</th>
<th>Condensate theor. cap.</th>
<th>Coolant theor. cap.</th>
<th>Dewar</th>
<th>Cold trap Type</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typ KFL 29-NW 16</td>
<td>250 ml</td>
<td>2000 ml</td>
<td>18 C</td>
<td>KF NW 16</td>
<td>17360-NW16</td>
</tr>
<tr>
<td>Typ KFL 29-NW 25</td>
<td>250 ml</td>
<td>2000 ml</td>
<td>18 C</td>
<td>KF NW 25</td>
<td>17360-NW25</td>
</tr>
<tr>
<td>Typ KFL 29-NW 16-A</td>
<td>250 ml</td>
<td>2000 ml</td>
<td>18 C</td>
<td>KF NW 16</td>
<td>17380-NW16</td>
</tr>
<tr>
<td>Typ KFL 29-NW 25-A</td>
<td>250 ml</td>
<td>2000 ml</td>
<td>18 C</td>
<td>KF NW 25</td>
<td>17380-NW25</td>
</tr>
</tbody>
</table>

NW 16 = Vacuum flange KF NW 16  
NW 25 = Vacuum flange KF NW 25  
- A = cold trap fitted with a spout GL 32  

**Configuration of the KF NW connection**

- knurled nut
- Pertinax plate
- O-ring (Perbunan) with centering
- glass or metal flange NW 16
- Pertinax plate with threaded spindle

- Glass flange NW 16
Cold traps, two sections, in standard and long versions

The two section cold trap is a special design available in both, standard and long version. It has a conical ground joint NS 45/40 as connection part. The condensation area can be separated from the upper section of cold trap. Therefore it is easy to pour out the condensate and to clean the whole cold trap. This version is also perfect, if the cold trap is permanently installed in an apparatus, since the upper section can stay, while the lower section is taken off for cleaning. The connection part NS 45/40 is secured by a spring clamp out of steel that is included in the scope of delivery.

<table>
<thead>
<tr>
<th>Cold trap S 29-Z with spherical joints S 29</th>
<th>Cold trap S 29-O-Z with spherical joints S 29 and O-ring seal</th>
<th>Cold trap S 29 GL-Z with threaded glass joint GL 18 and PTFE olive</th>
</tr>
</thead>
</table>

**Cold traps in standard, two section with Dewar and plastic ring**

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type KF 29-K-Z</td>
<td>200</td>
<td>150 ml</td>
<td>1000 ml</td>
<td>17400</td>
</tr>
<tr>
<td>Type KF 29-OK-Z</td>
<td>200</td>
<td>150 ml</td>
<td>1000 ml</td>
<td>17401</td>
</tr>
<tr>
<td>Type KF 29-GL-Z</td>
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<td>150 ml</td>
<td>1000 ml</td>
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**Component parts**

<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>Cold trap S 29-Z</td>
<td>17405</td>
</tr>
<tr>
<td>Cold trap S 29 O-Z</td>
<td>17406</td>
</tr>
<tr>
<td>Cold trap S 29 GL-Z</td>
<td>17407</td>
</tr>
<tr>
<td>Lower part cold trap</td>
<td>17405-U</td>
</tr>
<tr>
<td>Plastic ring</td>
<td>1733</td>
</tr>
<tr>
<td>Dewar Type 12 C</td>
<td>10214</td>
</tr>
</tbody>
</table>

**Cold traps in long version, two section with Dewar and plastic ring**

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type KFL 29-K-Z</td>
<td>260</td>
<td>250 ml</td>
<td>2000 ml</td>
<td>17410</td>
</tr>
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<td>Type KFL 29-OK-Z</td>
<td>260</td>
<td>250 ml</td>
<td>2000 ml</td>
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<td>Type KFL 29-GL-Z</td>
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**Component parts**

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<tr>
<td>Cold trap SL 29 O-Z</td>
<td>17416</td>
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<tr>
<td>Cold trap SL 29 GL-Z</td>
<td>17417</td>
</tr>
<tr>
<td>Lower part cold trap</td>
<td>17417-U</td>
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<tr>
<td>Plastic ring</td>
<td>1733-L</td>
</tr>
<tr>
<td>Dewar Type 18 C</td>
<td>10220</td>
</tr>
</tbody>
</table>

theor. cap. = theoretical capacity
Cold traps, two sections, in standard and long versions with KF NW vacuum flanges

The two section cold trap is a special design available in both, standard and long version. It has a conical ground joint NS45/40 as connection part. The condensation area can be separated from the upper section of cold trap. Therefore it is easy to pour out the condensate and to clean the whole cold trap. This version is also perfect, if the cold trap is permanently installed in an apparatus, since the upper section can stay, while the lower section is taken off for cleaning. The connection part NS45/40 is secured by a spring clamp out of steel that is included in the scope of delivery. With glass vacuum flanges you are able to connect this cold trap directly to the metal flanges ISO 2861 of a high-vacuum pump.

<table>
<thead>
<tr>
<th>Cold trap complete</th>
<th>Condensate</th>
<th>Coolant</th>
<th>Dewar</th>
<th>Cold trap</th>
<th>Art. No.</th>
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<tr>
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<td>theor. cap.</td>
<td>theor. cap.</td>
<td>Type</td>
<td>connections</td>
<td></td>
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<td>1000 ml</td>
<td>12 C</td>
<td>KF NW 16</td>
<td>17400-NW16</td>
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<tr>
<td>Typ KF 29-NW25-Z</td>
<td>150 ml</td>
<td>1000 ml</td>
<td>12 C</td>
<td>KF NW 25</td>
<td>17400-NW25</td>
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<td>KF NW 25</td>
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Assesoirs | Cold trap | Art. No. |
<table>
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<tr>
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<td>17405-NW16</td>
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<tr>
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<td>KF NW 25</td>
<td>17415-NW25</td>
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</tbody>
</table>

Cold traps complete = cold trap with Dewar flask and plastic ring
NW 16 = Vacuum flange KF NW 16
NW 25 = Vacuum flange KF NW 25
Bigger cold traps, produced to customer’s specifications

Custom-made glass cold trap
Type KFS-6-K25-41X

- a cold trap KS6-K25-41X
- a dewar flask Type 41X (CAL)
- a plastic ring, two-parted

Technical data

Cold trap
- calculated condensate capacity: 0.6 litre at maximum
- realistic condensate capacity: 0.3 litre

Dewar flask
- maximum capacity of coolant: 5.2 litres

Option
Special cold traps are also available with spout

Custom-made glass cold trap,
Type KFS-8-G25-41X

- a cold trap KS-8-G25-44X
- a dewar flask Type 41X (CAL)
- a plastic ring, two-parted

Technical data

Cold trap
- calculated condensate capacity: 1.2 litre at maximum
- realistic condensate capacity: 0.6 litre

Dewar flask
- maximum capacity of coolant: 4.6 litres
Bigger cold traps, produced to customer’s specifications

Custom-made glass cold trap
Type KFS-10-K25-44X

- a cold trap KS-10-K25-44X
- a dewar flask Type 44X (CAL)
- a plastic ring, two-parted

Technical data

Cold trap
calculated condensate capacity: 2.2 litres at maximum
realistic condensate capacity: 1.1 litre

Dewar flask
maximum capacity of coolant: 8.1 litres

Option
Special cold traps are also available with spout

Custom-made glass cold trap
Type KFS-13-K25-44X

- a cold trap KS-13-K25-44X
- a dewar flask Type 44X (CAL)
- a plastic ring, two-parted

Technical data

Cold trap
calculated condensate capacity: 3.8 litres at maximum
realistic condensate capacity: 1.9 litre

Dewar flask
maximum capacity of coolant: 6.5 litres
Cold traps, produced to customer’s specifications

The speciality of cold trap out of glass is the available number of versions, that offers a multitude of design options, by taken the mechanical and thermal stresses into consideration. KGW-ISOTHERM is specialised in manufacturing cold traps according to customer’s specifications. Please send us a simple hand drawing, or your specifications and we are going to make a proposal together with a drawing. Fax: 0049 721 95897-77 or email: info@kgw-isotherm.de
Example of a construction with two cold traps in a Dewar flask

The cold trap assembly consisting of two cold finger / cold traps installed in a Dewar flask. In this variant, only one Dewar vessel has to be filled with coolant, which allows the use of an automatic LN2-filling.

In the listed construction, cold traps with vacuum flange KF NW 16 have been used. Please send us your specifications so that we can offer a suitable assembly.

Construction consisting of the following parts:

1) Dewar DSS 6000
2) Two cold fingers type SL29-NW16-A (with GL32 spout)
3) Four KF NW 16 Pertinax clamps
4) Four KF NW 16 Viton seals with outer centering.
3) PE cover with filling bore
4) 0.5 meter metal corrugated hose

Type: DK-17385-NW16-DSS
Art. No.: 17425

Construction consisting of the following parts:

1) Dewar DSS 6000
2) Two cold fingers type SL29-NW16 (without GL32 spout)
3) Four KF NW 16 Pertinax clamps
4) Four KF NW 16 Viton seals with outer centering.
3) PE cover with filling bore
4) 0.5 meter metal corrugated hose

Type: DK-17365-NW16-DSS
Art. No.: 17420
Custom-made design with two cold traps in a stainless steel Dewar DSS 6000
Cold traps made of stainless steel Type KF 54V with Dewar flask

Area of application
For condensing water, solvents or gases in connection with a vacuum pump
• laboratory technology
• medicinal technology
• biotechnology
• vacuum technology

Characteristics
• reliable and easy handling
• no stand material for holding the cold trap necessary
• Glass Dewar flasks according to ISO 16496
• protective casing of Dewar flask made of blue coated metal or aluminum stucco or stainless steel
• for liquid cooling agents, e.g. LN2
• for solid cooling agents CO2 with solvent (CO2-wire basket necessary)
• pressure-free cooling sphere inside the Dewar flask

Description of the Dewar flasks
Dewar flask Type 18 C
Borosilicate glass 3.3 ISO 3585 (DURAN)
pressure-free coolant sphere inside the Dewar flask

Dewar flask Type DSS 2000
stainless steel
pressure-free coolant sphere inside the Dewar flask

Plastic ring = PE, white, two-parted

Description of the cold trap
connectors of the cold trap: KF NW 16(iØ16) / KF NW 25(iØ16)
cold trap two-parted with KF NW 50

Cold trap material
V2A / 1.4301

Pressure range of the cold trap
up to 3 bar excess pressure
vacuum up to $10^{-6}$ mbar
Cold traps made of stainless steel Type KF 54V with Dewar flask

Safety advises and regulations

- always wear protective glasses and protective gloves
- national regulations for laboratories
- company-internal regulations
- safety regulations for handling with liquid gases
- pressure calculation according to “AD Merkblätter”

Technical and order data for cold traps

<table>
<thead>
<tr>
<th>Cold traps complete</th>
<th>Condensate</th>
<th>Coolant</th>
<th>Dewar</th>
<th>Cold trap</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typ KF 54V-K16-Z-18C</td>
<td>200 ml</td>
<td>1,6 Liter</td>
<td>18 C</td>
<td>KF NW 16 (Ø16)</td>
<td>17110</td>
</tr>
<tr>
<td>Typ KF 54V-K16-Z-DSS2000</td>
<td>200 ml</td>
<td>1,2 Liter</td>
<td>DSS 2000</td>
<td>KF NW 16 (Ø16)</td>
<td>17111</td>
</tr>
<tr>
<td>Typ KF 54V-K25-Z-18C</td>
<td>200 ml</td>
<td>1,6 Liter</td>
<td>18 C</td>
<td>KF NW 25 (Ø16)</td>
<td>17112</td>
</tr>
<tr>
<td>Typ KF 54V-K25-Z-DSS2000</td>
<td>200 ml</td>
<td>1,2 Liter</td>
<td>DSS 2000</td>
<td>KF NW 25 (Ø16)</td>
<td>17113</td>
</tr>
</tbody>
</table>

Spare parts

<table>
<thead>
<tr>
<th>Spare parts</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold trap S 54V-K16-Z</td>
<td>17115</td>
</tr>
<tr>
<td>Cold trap S 54V-K25-Z</td>
<td>17114</td>
</tr>
<tr>
<td>Dewar made of glass Type 18 C</td>
<td>10220</td>
</tr>
<tr>
<td>Plastic ring, two-parted for Type 18 C</td>
<td>17116</td>
</tr>
<tr>
<td>Dewar made of stainless steel Type DSS 2000</td>
<td>2103</td>
</tr>
<tr>
<td>Plastic ring, two-parted for Type DSS 2000</td>
<td>17117</td>
</tr>
</tbody>
</table>
Two cold traps made of V2A Type KF 54V-K16-Z in a row in a Dewar flask made of V2A

Technical data of the double cold trap in a Dewar flask made of V2A consisting of:

2 x stainless steel cold trap S54V-K16-Z, with 200ml condensate capacity, each

1 x plastic ring with 2 holes for the cold trap and 2 holes for the LN2-filling

1 x Dewar flask made of stainless steel DSS-D 200/300, coolant capacity 8 liters

Art. No.: 17140

Technical data of the double cold trap in a Dewar flask made of glass consisting of:

2 x stainless steel cold trap S54V-K16-Z with 200ml condensate capacity, each

1 x plastic ring with 2 holes for the cold traps and 2 holes for LN2-filling

1 x Dewar flask type 31 CAL, Coolant capacity 8.5 liters

Art. No.: 17141
Cold traps made of V2A
Type KF 54V-K16-Z-L for larger condensate capacities with Dewar flasks

Technical data of the standard cold trap
Type KF 54V-K16-Z-18C consisting of:
- 1 x stainless steel cold trap S54V-K16-Z
- with 0.2 liter condensate capacity
- 1 x Dewar flask type 18C
- coolant volume 1.6 liters

Art. No.: 17110

Technical data of the cold trap
Type KF 54V-K16-Z-360 consisting of:
- 1 x stainless steel cold trap S54V-K16-Z-360
- with 0.3 liter condensate capacity
- 1 x plastic ring in two parted
- 1 x Dewar flask type S22 CAL, shortened
- coolant capacity 5 liters

Art. No.: 17118

Technical data of the cold trap
Type KF 54V-K16-Z-560 consisting of:
- 1 x stainless steel cold trap S54V-K16-Z-560
- with 0.45 liter condensate capacity
- 1 x plastic ring in two parted
- 1 x Dewar flask type S22 CAL (Standard)
- coolant capacity 7.5 liters

Art. No.: 17119
Cold traps made of stainless steel Type KF 54V with Dewar flask for CO2 application

<table>
<thead>
<tr>
<th>Cold traps complete with CO2-wire basket</th>
<th>Condensate</th>
<th>Coolant</th>
<th>Dewar</th>
<th>Cold trap</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>capacity</td>
<td>capacity</td>
<td>Type</td>
<td>connection</td>
<td></td>
</tr>
<tr>
<td>Typ KF 54V-K16-Z-18C-CO2</td>
<td>200 ml</td>
<td>1,6 Liter</td>
<td>18 C</td>
<td>KF NW 16 (iØ16)</td>
<td>17130</td>
</tr>
<tr>
<td>Typ KF 54V-K16-Z-DSS2000-CO2</td>
<td>200 ml</td>
<td>1,2 Liter</td>
<td>DSS 2000</td>
<td>KF NW 16 (iØ16)</td>
<td>17131</td>
</tr>
<tr>
<td>Typ KF 54V-K25-Z-18C-CO2</td>
<td>200 ml</td>
<td>1,6 Liter</td>
<td>18 C</td>
<td>KF NW 25 (iØ16)</td>
<td>17132</td>
</tr>
<tr>
<td>Typ KF 54V-K25-Z-DSS2000-CO2</td>
<td>200 ml</td>
<td>1,2 Liter</td>
<td>DSS 2000</td>
<td>KF NW 25 (iØ16)</td>
<td>17133</td>
</tr>
</tbody>
</table>

Spare parts

| Cold trap S 54V-K16-Z      | 17115 |
| Cold trap S 54V-K25-Z      | 17114 |
| Dewar made of glass Type 18 C | 10220 |
| Plastic ring, two-parted for Type 18 C with CO2-wire basket | 17120 |

| Dewar made of stainless steel Type DSS 2000 | 2103 |
| Plastic ring, two-parted for Type DSS 2000 with CO2-wire basket | 17121 |
Cold traps made of stainless steel
Type ISO-K100-Z with Dewar flask

Area of application

For condensing water, solvents or gases in connection with a vacuum pump

- laboratory technology
- medicinal technology
- biotechnology
- vacuum technology

Characteristics

- baffles for optimized condensation
- reliable and easy handling
- no stand material for holding the cold trap necessary
- Dewar flasks made of glass according to DIN EN ISO 16496
- protective casing of glass Dewar flask made of blue coated metal or aluminum stucco or stainless steel
- for liquid cooling agents, e.g. LN2 (approx. -196°C)
- for solid cooling agents CO2 with solvent (CO2-wire basket necessary)

Description of the Dewar flasks

**Dewar flask Type 33C / 33CAL**
Borosilicate glass 3.3 ISO 3585 (DURAN)
pressure-free coolant sphere inside the Dewar flask

**Dewar flask Type DSS-D250/450**
stainless steel
pressure-free coolant sphere inside the Dewar flask

Plastic ring = PE, white, two-parted

**Description of the cold trap**
connectors of the cold trap: KF NW 25
cold trap two-parted with ISO-K100-Z

**Cold trap material**
V2A / 1.4301 (1.4404 on request)

**Pressure range of the cold trap**
up to 1 bar excess pressure
vacuum up to 10⁻⁷ mbar
Cold traps made of stainless steel
Type ISO-K100-Z with Dewar flask

Safety advises and regulations

• always wear protective glasses and protective gloves
• national regulations for laboratories
• company-internal regulations
• safety regulations for handling with liquid gases
• pressure calculation according to “AD Merkblätter”

Technical and order data for cold traps

<table>
<thead>
<tr>
<th>Cold traps complete</th>
<th>Condensate capacity</th>
<th>Coolant capacity</th>
<th>Dewar Type</th>
<th>Cold trap connections</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typ ISO-K100-Z-33C</td>
<td>1,5 l</td>
<td>16 l</td>
<td>33 C</td>
<td>KF NW 25</td>
<td>17150</td>
</tr>
<tr>
<td>Typ ISO-K100-Z-DSS-D250/450</td>
<td>1,5 l</td>
<td>18 l</td>
<td>DSS-D250/450</td>
<td>KF NW 25</td>
<td>17151</td>
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Spare parts

<table>
<thead>
<tr>
<th>Spare parts</th>
<th>Article No.</th>
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<tbody>
<tr>
<td>cold trap S-K100-Z</td>
<td>17154</td>
</tr>
<tr>
<td>Dewar made of glass Type 33</td>
<td>1244</td>
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<tr>
<td>Plastic ring for Type 33</td>
<td>17155</td>
</tr>
<tr>
<td>Plastic ring for Type DSS-D250/450</td>
<td>17156</td>
</tr>
<tr>
<td>claw clamp for S-K100Z</td>
<td>17159</td>
</tr>
<tr>
<td>O-ring with centerring ring for ISO-K100</td>
<td>17160</td>
</tr>
</tbody>
</table>
Cold traps made of stainless steel
Type ISO-K100-Z with Dewar flask for CO2-aplication

<table>
<thead>
<tr>
<th>Cold traps complete</th>
<th>Condensate</th>
<th>Coolant</th>
<th>Dewar</th>
<th>Cold trap</th>
<th>Art. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>capacity</td>
<td>capacity</td>
<td>Type</td>
<td>connections</td>
<td></td>
</tr>
<tr>
<td>Typ ISO-K100-Z-33CAL-CO2</td>
<td>1,5 l</td>
<td>16 l</td>
<td>33 CAL</td>
<td>KF NW 25</td>
<td>17152</td>
</tr>
<tr>
<td>Typ ISO-K100-Z-DSS-D250/450-CO2</td>
<td>1,5 l</td>
<td>18 l</td>
<td>DSS-D250/450</td>
<td>KF NW 25</td>
<td>17153</td>
</tr>
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</table>

Spare parts

<table>
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<tr>
<td>cold trap S-K100-Z</td>
<td>17154</td>
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<tr>
<td>Dewar made of glas Type 33CAL</td>
<td>1254</td>
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<tr>
<td>Plastic ring for Type 33</td>
<td>17155</td>
</tr>
<tr>
<td>Plastic ring for Type DSS-D250/450</td>
<td>17156</td>
</tr>
<tr>
<td>CO2-wire basket for Type 33</td>
<td>17157</td>
</tr>
<tr>
<td>CO2-wire basket for Type DSS-D250/450</td>
<td>17158</td>
</tr>
<tr>
<td>claw clamp for S-K100Z</td>
<td>17159</td>
</tr>
<tr>
<td>O-ring with centerring ring for ISO-K100</td>
<td>17160</td>
</tr>
</tbody>
</table>
Cold traps with fused Dewar flask

A GKF cold trap is a complete version in which the Dewar flask is bonded to the cold trap. Because of its design, this version has got two free walls for condensation. It is therefore particularly suited for trapping a high level of condensate from humidity, or solvents. This cold trap is equipped with a valve for draining off the condensate. It has got viewing strips as standard so that the LN2 coolant level can easily be monitored. The standard cold trap is provided with conical ground joint connections NS29/32.

Cold trap type GKF

Construction details
- Two LN2 condensation walls
- Integrated Dewar flask
- Viewing stripes for observing the LN2 level
- Condensate outlet with O-ring seal
- Protective casing out of aluminium
- Standard joints NS29/32
- Supplied with a lid

Technical data
- Ground joint NS29/32 (cone) to the pump
- Ground joint NS29/32 (socket) to the plant
- Coolant capacity approx. 1 Litre
- Theoret. condensate capacity 250ml

Art. No. 1702

Other connection types:
- screw connections GL18 with 9 mm PTFE olives, type GKF-GL18 (part no. 1702-GL18)
- screw connections GL25 with 13 mm PTFE olives, type GKF-GL25 (part no. 1702-GL25)
- vacuum flanges KF NW16 with clamp and NBR-O ring, type GKF-NW16 (part no. 1702-NW16)
- vacuum flanges KF NW25 with clamp and NBR-O ring, type GKF-NW25 (part no. 1702-NW25)
- spherical ground joints S29, type GKF-S29 (part no. 1702-S29)
Cold traps with fused Dewar-flask

This type of cold trap is constructed in the same way as the GKF model and is also a complete version that has a Dewar flask bonded to the cold trap. Because of its design, this version has got two free walls for condensation. It is therefore particularly suited for trapping a high level of condensate from humidity, or solvents. This cold trap is equipped with a valve for draining off the condensate. It has got viewing strips as standard so that the LN2 coolant level can easily be monitored. The standard cold trap is provided with vacuum flanges KF NW 25 inclusive Pertinax clamps and O-ring with centering.

Cold trap type GKF-10

Technical data
- Connection to pump is KF NW 25 vacuum flange
- Connection to plant is KF NW 25 vacuum flange
- Coolant capacity approx. 4.2 Litre
- Theoret. condensate capacity 550ml

Art. No. 1702-G

Construction details
- Two LN2 condensation walls
- Integrated Dewar flask
- Viewing stripes for observing the LN2 level
- Condensate outlet with O-ring seal
- Protective casing out of aluminium
- Standard KF NW 25 vacuum flange
- Supplied with two Pertinax clamps, two O-ring with centering and a lid
CP 1 and CP 2 pump stands with two cold traps

The CP 1 and CP 2 pump stands are movable chemistry pump stands with two S29-OK cold traps and associated special Dewar flasks, which enables the cold traps to be used in alternate as well as in parallel operation. Turning the 3-way stopcock through its three positions enables the left one to be switched in first and then right one afterwards or both cold traps can operate in parallel. The pump stand's carriage is made from aluminum with plastic plates used as table supports. Model CP 1 has got an additional vacuum flange KF NW 16 with a vacuum gauge. Model CP 2 does not have any vacuum display. A vacuum pump is not included in the scope of delivery for both models, as standard.

Component parts

1) Vacuum tube with pump flange KF-NW16
2) Glass screw GL18 with PTFE olive and screw-on cap
3) Holding device
4) Vacuum gauge (CP1)
5) Glass pipe with spherical joint and 3-way stopcock
6) Cold trap with Rotulex joints and holding device
7) 3-way stopcock out of glass for switching cold traps
8) Glass screw GL 18 with plastic screw on cap
9) PTFE olive for GL 18
10) PE-table plate
11) Aluminium rack
12) Dewar flasks 12CAL-S (17071)
13) Four lockable guide rolls
14) Glass pipe with 3-way stopcock for plant
15) Glass pipe with 3-way stopcock for pump

Type CP 1 with vacuum gauge (Nr.4)
Art. No. 1707

Typ CP 2 without vacuum gauge (Nr.4)
Art. No. 1708
Moveable pump stand with two cold traps and a pump fork

The GP 1 and GP 2 pump stands are movable chemistry pump stands with two S29-OK cold traps and associated special Dewar flasks, connected in series. The mounted pump fork enables the user to choose any of the five application valves for evacuation, since all valves are working independently. The construction and the connections can be altered without any problems. The pump stand’s carriage is made from aluminum with plastic plates used as table supports. Model GP 1 has got a transversally mounted pump fork. The pump fork of model GP 2 is mounted longitudinally. A vacuum pump is not included in the scope of delivery for both models, as standard.

Type GP 1
Art. No. 17500

1) Rubber vacuum tube  D.i.=8mm
2) GL18 - screw connection
3) Holding device for glass pipe
4) Vacuum pump, not included
5) Cold trap KF 29 - OK
6) Plastic ring for Dewar 12CAL-S with longitudinal shift
7) Rubber tube with screw connection
8) Pump fork with valves
9) Produran valve with O-ring seal and GL18 olive
10) Vacuum flange KF NW 16 for vacuum gauge
11) Aeration valve with 6mm O-ring seal and olive
12) PE table plate
13) Aluminium profil rack
14) Four lockable guide rolls
15) Aluminium profil

Type GP 2
Art. No. 17505

1) Rubber vacuum tube  D.i.=8mm
2) Adapter 90° to glass olive 10-16mm
3) Holding device for glass pipe
4) Vacuum pump, not included
5) Cold trap KF 29 - OK
6) Plastic ring for Dewar 12CAL-S with longitudinal shift
7) Pump fork
8) Produran valve with O-ring seal and GL18 olive
9) Vacuum flange KF NW 16 for vacuum gauge
10) Aeration valve with 6mm O-ring seal and olive
11) PE table plate
12) Aluminium profil rack
13) Four lockable guide rolls
Chemistry pump device GP 3 with cold trap and pump fork with aeration

Type GP 3 is a mobile chemistry pump stand with a cold trap and a pump fork with a separate aeration cell.

The pump fork has four independently switched vacuum valves and additionally four independently switched aeration valves, so that every sample holder can get individually evacuated or aerated. Through this type of assembling, every sample holder can get disconnected or aerated separately without affecting the vacuum of the other sample holders.

Type GP 3 has a small flange KF NW 16 with vacuum manometer. Instead of the vacuum manometer you can also connect an electronic vacuum gauge. The pump stand will be delivered as standard without suitable vacuum pump.

Component parts
1) Rubber hose with small flange KF NW 16
2) Rubber hose for 10mm-olives
3) Pump-fork support
4) Vacuum pump (not included in scope of delivery)
5) Cold trap type KFL 29-GL (SP)
6) Bulge on Dewar flask's casing
7) Pump fork with aeration cell
8) 6mm-Produran valve with O-ring seal and GL18-glass screw thread with 10mm-PTFE-olive
9) Vacuum flange with manometer
9a) KF NW 16 with 10mm-olive
10) Aeration port GL18-glass screw thread with 10mm-PTFE-olive (angled)
11) PE-table plate
12) Aluminum-rack
13) Four lockable guide rolls

Technical data
Dewar type 18 CAL-S with bulge (17072)
Effective capacity with cold trap: 2000ml
Theoretical condensat capacity of cold trap: 250ml at maximum
Pump stands, produced to customer’s specifications

The speciality of KGW-ISOTHERM pump stands is the available number of versions, that offers a multitude of design options, by taken the mechanical and thermal stresses into consideration. KGW-ISOTHERM is specialised in manufacturing pump stands according to customer’s specifications. Please send us a simple hand drawing, or your specifications and we are going to make a proposal together with a drawing. Our great depth of manufacturing options (glass forming, metal construction and sheet-metal working) enables virtually all requirements to be met without incurring great expenditure and additional costs.

Please send us a drawing or a description of the pump stand that you need and we will work out a proposal together with a drawing.
Fax: 0049 721 95897-77 or per Email info@kgw-isotherm.de

Examples

Type CP GKL 1
Art.No. 17510

Type CP2-S3
Art.No. 17520

Type CP2-S2
Art.No. 17515

Type CP2-S5
Art.No. 17525

Place for the pump with components
Pump stands according to customer’s requirements

Pump stand with Schlenkline, glass cooling traps and detachable Dewar flasks

Pump stand with large metal cooling traps and detachable large Dewar flasks

Pump stand with Schlenkline and GKF-glass cold trap

Pump stand with special metal cooling trap, Dewar flask, automatic LN2 level control and automatic safety shutdown in case of vacuum breakage.
Pump fork for chemical pumps

Pump forks for chemistry pump stands are customer’s specific accessories, the construction of which depends on the user’s requirements. The user stipulates the number of drainage valves as well as the position of the vacuum-measuring flange, fumigating or ventilation valves can also be fitted. Normal 'Produran' valves made by DWK are used as valves. This valve can have an additional O-ring seal in the valve seat in order to increase the vacuum sealing. Vacuum stopcocks can also be used as an alternative.

Please send us a drawing or a description of the part that you need and we will work out a proposal together with a drawing.
Fax: 0049 721 95897-77 oder per Email info@kgw-isotherm.de

Area of application

For condensing water, solvents or gases in connection with a vacuum pump

- laboratory technology
- medicinal technology
- biotechnology
- vacuum technology

Characteristics

- reliable and easy handling
- glass material according to ISO 3585 (DURAN)
- Produran valve with o-ring valve
- easy disassembly and cleaning of the valves
- exchangeable valve stamp
- individually configurable

Description of the glass for the pump fork / schlenkline

Material
- borosilicate glass 3.3 ISO 3585

Chemical characteristics
- hydrolytic resistance: according to ISO 719 (98°C)
- hydrolytic resistance: according to ISO 720 (121°C)
- acid resistance: according to ISO 1776
- alkaline resistance: according to ISO 695-A2

Physical characteristics
- linear expansion coefficient: $3.3 \times 10^{-6}$ 1/K
  (in between 20-300°C)
- density: 2.23 g/cm³
- specific thermal capacity: 910 J/kg K
- transformation temperature: 525°C

Valve structure:
Valve stamp made of PTFE with Viton O-ring seal
Pump forks / schlenklines

Vacuum connections for the pump fork

- glass threads with screw-on cap and PTFE-olive, e.g. GL18
- vacuum glass flanges, e.g. KF NW 16
- plane flanges, e.g. DN25
- conical ground joints NS29/32
- spherical ground joints S29
- spherical ground joints Rotulex S29 with O-ring seal

Safety advises and regulations

- always wear protective glasses and protective gloves
- national regulations for laboratories
- company-internal regulations
- safety regulations for handling with liquid gases
- Pressure calculation according to “AD Merkblätter”

Dimensions and ordering data

<table>
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<tr>
<th>Type</th>
<th>Connection vacuum pump</th>
<th>Connections</th>
<th>side connections</th>
<th>Article No.</th>
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</thead>
<tbody>
<tr>
<td>Pump fork with ventilation</td>
<td>KF NW16</td>
<td>4 x GL18 with olive</td>
<td>1x GL18 with Sealing cap / 1x GL18 with angled olive</td>
<td>17631</td>
</tr>
<tr>
<td>Pump fork HV with ventilation</td>
<td>KF NW16</td>
<td>4 x GL18 with olive</td>
<td>1x GL18 with Sealing cap / 1x GL18 with angled olive</td>
<td>17631-HV</td>
</tr>
<tr>
<td>Pump fork with ventilation</td>
<td>KF NW16</td>
<td>5 x GL18 with olive</td>
<td>1x GL18 with Sealing cap / 1x GL18 with angled olive</td>
<td>17633</td>
</tr>
<tr>
<td>Pump fork HV with ventilation</td>
<td>KF NW16</td>
<td>5 x GL18 with olive</td>
<td>1x GL18 with Sealing cap / 1x GL18 with angled olive</td>
<td>17633-HV</td>
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</table>

Spare parts

<table>
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<th>Spare parts</th>
<th>Article No.</th>
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<td>Pertinax-screw connection KF NW 10/16</td>
<td>17315</td>
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<td>Pertinax-screw connection KF NW 20/25</td>
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<tr>
<td>Centering ring KF NW 10/16</td>
<td>17320</td>
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<td>Centering ring KF NW 20/25</td>
<td>17321</td>
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<tr>
<td>Spare part drain valve</td>
<td>17701</td>
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<td>Replacement o-ring Viton</td>
<td>17702</td>
</tr>
</tbody>
</table>
Schlenk line / pump fork with aeration

Art.No. 17633

Glas DURAN

KF NW 16 flange for vacuum gauge
vacuum-valve 6mm
GL18 with cap
GL18/olive
GL18/olive
GL18 with olive angled

aeration valve 6mm
KGW-ISOTHERM

Viton O-ring
Viton O-ring

GL18/olive

aeration valve 6mm
vacuum-valve 6mm

KF NW 16 flange for vacuum pump
Custom made products

Pump fork connections:
- 1 x GL18
- 1 x GL25
- 1 x NS14/23
- 1 x Kleinfansch KF NW16

Valve design: Standard

Valve design: HV

Pump forks / Schlenklines

Pump fork connections:
- 5 x KF NW16

Special connections:
- 2 x Produran Ventil Ø10mm mit O-Ringdichtung und KF NW16

Valve design: HV
Valve designs

Variant: standard

Variant: HV (for higher vacuum)

Connection variants at the pump fork outlet

Vacuum flange
KF NW16 - NW40
for external centering
ring with Viton O-ring

Plan flange
DN15 - DN25

Glass threads with olive
GL14 - GL25

Spherical ground joint
S13 - S40

Spherical ground joint
S29 - S35
with o-ring seal
Type Rotulex

Conical ground joint
NS14/23 - NS45/40
Example for a pump fork with special valves
Example for a pump fork with aeration stopcocks

stopcocks with 4mm double bore

10er olive

GL18 with olive

KF NW 16

flange for vacuum pump

flange for vacuum gauge

KF NW 16
Example for a pump fork without aeration tube

**Connection components**

* Vacuum flange  KF NW 16 or 25
* Spherical joints
* Rotulex - spherical joints S29 or 35
* Flange  DN 15 or 25
* Tapered joint
* Glass screw with cap and oliven
* Glass tube
* Produran valve with o-ring
* Vacuum valve
Example of a cold trap adapter produced in accordance with customer’s specifications
Cold trap adapters

In addition to the standard cold trap adapters offered here, KGW-ISOTHERM is able to provide you with a variety of adapter options for use as special connecting parts and there are also a wealth of connecting options that cannot be listed here. KGW-ISOTHERM specialises in producing customer specific adapters and pump forks.

Please send us a drawing or a description of the part that you need and we will work out a proposal together with a drawing.
Fax: 0049 721 95897-77 or per Email info@kgw-isotherm.de

System generating program for adapter with Rotulex

- Rotulex to KF NW16
- Rotulex to DN15
- Rotulex to spherical joint S29
- Rotulex to GL18 with PTFE Olive
- Rotulex to glass Olive 6,7,8,9,oder 10mm
- Rotulex to tapered joint NS29/32

or adapter modification on customer’s request

System generating program for adapter with spherical joints

- Spherical joint to KF NW16
- Spherical joint to DN15
- Spherical joint to GL18 with PTFE Olive
- Spherical joint to glass Olive 6,7,8,9,oder 10mm
- Spherical joint to tapered joint NS29/32

or adapter modification on customer’s request
Automatic LN2 filling of cold traps

For many cryo technical applications, e.g. cooling cold traps with LN2, it is importantly to hold a nearly constant LN2 fluid level. This can be realised with the LN2 Level Control of KGW-ISOTHERM. The LN2 level can be adjusted in between a minimum and a maximum sensor with the help of this Controller and kept constantly. That KGW-ISOTHERM LN2 Level Control can be used with any LN2 container that has a top flange KF NW 50.

The level control works as follows:

The minimum sensor sends a signal to the Level Control as soon as the LN2 level sinks below it. The Control opens the 24 Voltage magnetic valve, then. LN2 will be withdrawn by existing over pressure inside of the LN2 storage container and is led through a transfer line into the cold trap Dewar flask. LN2 is now running into the cold trap Dewar flask until the maximum sensor dives into it. Then, the maximum sensor will be cooled down and sends signal to the Level Control. It will interrupt the power supply of the magnetic valve. It closes automatically. The LN2 supply is now stopped. This above mentioned procedure will be repeated after some time as soon as the level sinks under the minimum sensor again.
Automatic LN2 filling system with a glass cold trap SL 29-GL-A

consisting of:
1) LN2 Aluminium vessel with 25 or 35 litres capacity.
2) Transfer siphon with safety valve and LN2 magnetic valve.
3) LN2 transfer tube with phase separator and insulating.
4) LN2 level controller with cable and two PT100 sensors, metal covered.
5) Dewar vessel made of stainless steel DSS 6000.
6) Lid with screw connections and distance ring for cold trap.
7) Cold trap type SL 29-GL-A.
8) Gas outlet tube made of glass, vacuum insulated.

Art. No.: 2755-25  (25 litres LN2)
Art. No.: 2755-35  (35 litres LN2)

Other capacities and components available on request.

To secure the condensation performance of a cold trap, it is important to maintain a nearly constant LN2 liquid level inside the Dewar flask. With help of a constant LN2 level the entire condensate freeze wall of the cold trap will gain the function and the maximum useable capacity of the cold trap.
The LN2 level can be adjusted with the LN2 level control between a minimum and maximum sensor and will be able to hold the LN2 level constant.

The level control works as follows:
The minimum sensor sends a signal to the Level Control as soon as the LN2 level sinks below it. The Control opens the 24 Voltage magnetic valve, then. LN2 will be withdrawn by existing over pressure inside of the LN2 storage container and is led through a transfer line into the cold trap Dewar flask. LN2 is now running into the cold trap Dewar flask until the maximum sensor dives into it. Then, the maximum sensor will be cooled down and sends signal to the Level Control. It will interrupt the power supply of the magnetic valve. It closes automatically. The LN2 supply is now stopped. This above mentioned procedure will be repeated after some time as soon as the level sinks under the minimum sensor again.
Automatic LN2 filling system with a cold trap KF 54-V-K16-Z

consisting of:
1) LN2 Aluminium vessel with 25 or 35 litres capacity.
2) Transfer siphon with safety valve and LN2 magnetic valve.
3) LN2 transfer tube with phase separator and insulating.
4) LN2 level controller with cable and two PT100 sensors, metal covered.
5) Dewar vessel made of stainless steel DSS 6000.
6) Lid with screw connections and distance ring for cold trap.
7) Cold trap type KF 54-V-K16-Z.
8) Gas outlet tube made of glass, vacuum insulated.

Art. No.: 2750-25 (25 litres LN2)
Art. No.: 2750-35 (35 litres LN2)

Other capacities and components available on request.

The level control works as follows:

The minimum sensor sends a signal to the Level Control as soon as the LN2 level sinks below it. The Control opens the 24 Voltage magnetic valve, then. LN2 will be withdrawn by existing over pressure inside of the LN2 storage container and is led through a transfer line into the cold trap Dewar flask. LN2 is now running into the cold trap Dewar flask until the maximum sensor dives into it. Then, the maximum sensor will be cooled down and sends signal to the Level Control. It will interrupt the power supply of the magnetic valve. It closes automatically. The LN2 supply is now stopped. This above mentioned procedure will be repeated after some time as soon as the level sinks under the minimum sensor again.
Questionnaire concerning the technical requirements of a cold trap

Please answer the questions and fax the filled out questionnaire to us. In consideration of your information we will work out an offer with a drawing and send it to you as soon as possible.

1) Condensate
   a) Condensate material ............................................
   b) Condensate temperature max. ...............................°C
   c) Amount of condensate ................................. ml

2) Kind of cold trap
   a) Cold trap with Dewar (   ) .......................-
   b) Cold trap (similar to type GKF) (   ) .............-

3) Joints
   a) Spherical joint (   ) Size ........
   b) Spherical joint with O-ring (Rotulex) (   ) Size ........
   c) Standard ground joint (   ) Size ........
   d) Glass olive (   ) Size ........
   e) GL with plastic olive (   ) Size ........
   f) Schott flange (   ) Size ........
   g) Small size flange NW (   ) Size ........
   h) Saddle flange DN (   ) Size ........

4) Coolant
   a) Liquid nitrogen (   )
   b) Dry ice (   )
   c) Other coolant (   ) ...................................................

5) Frame
   a) Driveable pump device (   )
   b) Stationary frame (   )

6) Room for notes or additional customer requirements
   ........................................................................................................................
   ........................................................................................................................
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Sender: Company ..............................................................................................
Street ...................................................................................................................
Town .....................................................................................................................
Contact person .................................................................................................
Division ..............................................................................................................
Phone ................................................................................................................. Fax ........................................

Please fax to KGW-ISOTHERM

Fax Number: 00 49 / 721 / 958 97-77
Email: info@kgw-isotherm.de