

Adsorber Technology

by GIEBEL Adsorber

GIEBEL Adsorber.

Save money by avoiding condensation in hydraulics, gears, barrels, IBCs, storage tanks & transformers.

Why is it necessary to avoid condensation?

Oil in hydraulic units, gearboxes and transformers expands during operation due to heat generation and contracts again when a system comes to a standstill due to cooling. Air is forced out of the system, or drawn in, to equalize the pressure. If this air is not filtered, humidity enters the system. It condenses inside and gets into the hydraulic or transmission oil in droplet form. Condensation water damage as well as contamination of the oil are the results. The same happens in tanks, barrels & IBCs when air flows in to equalize pressure during emptying.

How to fix the problem.

By installing a GIEBEL adsorber, the air is dehumidified before it enters the system. Valves on the bottom of the adsorber ensure that the application can be properly ventilated.

A wide variety of connections as well as a comprehensive range of accessories ensure that GIEBEL adsorbers can also be adapted for plants that are difficult to access and those that are operated in particularly harsh environments (e.g. offshore).



Application areas	Page 2	Gears	Page 13
Adsorber series	Page 3	Storage tanks	Page 15
Sustainability	Page 6	Barrels & IBCs	Page 17
Accessories	Page 7	Transformers	Page 19
Special Solutions	Page 8	Services	Page 21
Desiccants	Page 9		
Hydraulic power packs	Page 11		

Adsorbers ensure that moisture and oil mist have no chance of entering the system.

Application areas.



Hydraulic power packs

By drying the incoming air, adsorbers protect hydraulic power packs from condensation damage.



Gears

Sucked in, moist ambient air significantly reduces the service life of a gear oil. Adsorbers can prevent the entry of humidity.



Barrels & IBC

Breathing dryers from GIEBEL can be used to protect hygroscopic substances in barrels and IBCs like isocyanate, oils and biological fuels.



Storage Tanks

When tanks cool, moist air leads to condensate and thus reduces the quality of the substance contained. GIEBEL has developed special tank ventilation dryers to keep the air dry.



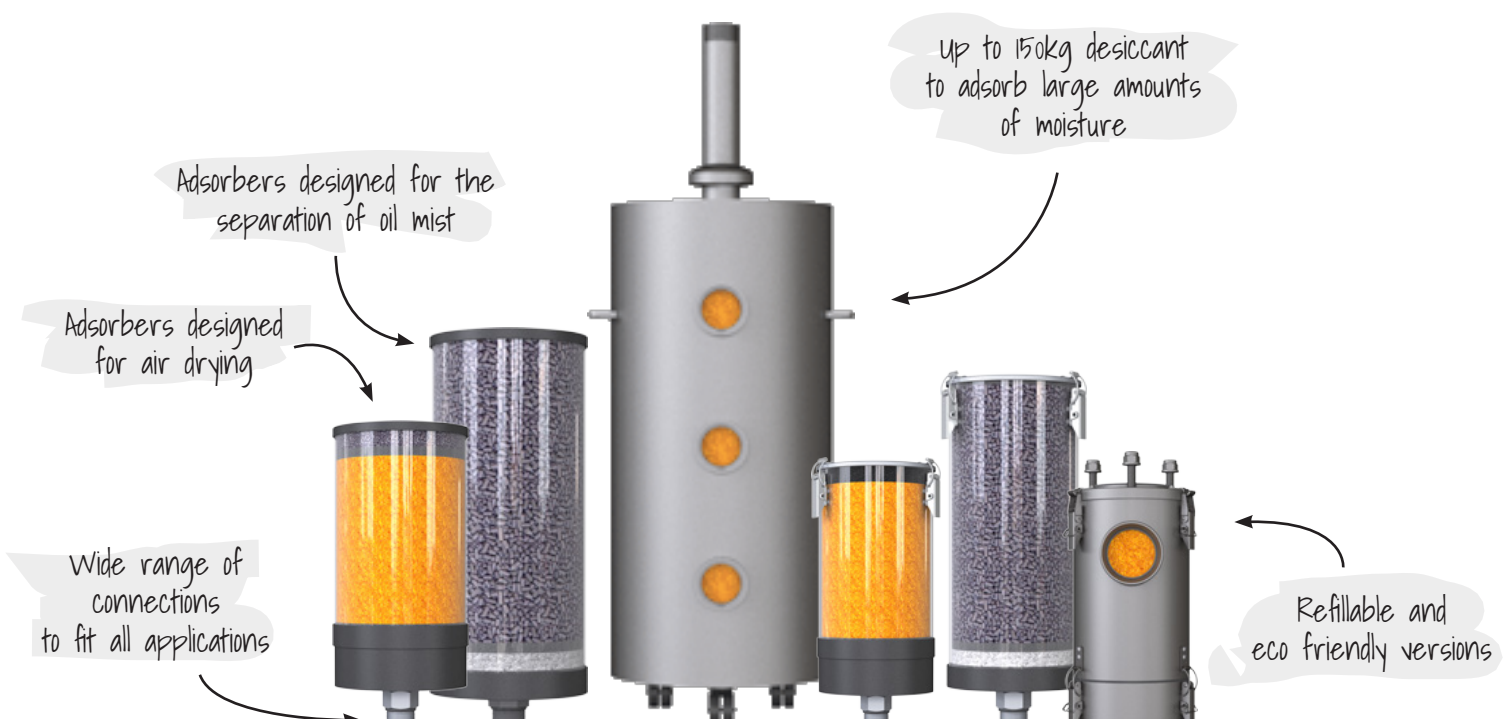
Transformers

GIEBEL dehumidifiers protect transformers from hydrolysis of the cellulose paper in the transformer and thus from a reduction in its degree of polymerisation by effectively drying and filtering the sucked in moist supply air.



Closed System

Ambient dryers are used in closed rooms and containers to protect the contents from damage caused by humidity (e.g. in switch cabinets, server cabinets, display cases or storage containers for moisture-sensitive goods).



Adsorber series.

An overview.



VV-D

GIEBEL adsorbers of VV-D series are cost-effective solutions without valves. The adsorbers are filled with 0.1 to 4.6 kg of silica gel and have a water absorption capacity of up to 1.84 l. Thanks to a 3µm filter, the aspirated air is additionally purified. An activated carbon layer adsorbs oil mist and protects the desiccant and the environment from contamination.

After saturation, the adsorber is replaced. Especially for plants with a permanent air exchange and only short maintenance periods, the use of the disposable version makes sense.



VV-DV

Adsorbers of the VV-DV series have a stable valve part and are designed with a disposable replacement cartridge – this ensures effective protection of the system to be aerated as well as simple and quick maintenance.

With the stable and frost-proof valve part, the adsorbers are optimally suited for extreme, dusty ambient conditions. Due to the large valve cross-sections, pressure build-up is minimal even at high air flows. In addition, this series contains a bed of activated carbon granules and slosh protection to separate escaping oil mist.



VV-R

Adsorbers of the VV-R series are cost-effective solutions without valves. Due to the low differential pressure, they can also be used for the aeration of plastic containers. The adsorbers are filled with 0.1 to 4.6 kg of the desiccant silica gel and thus have a water absorption capacity of up to 1.84 l. A 3µm filter cleans the sucked in air and an activated carbon layer adsorbs oil mist and protects the desiccant as well as the environment from contamination.

VV-R adsorbers are refillable. The ability to replace desiccant and wear parts leads to very low operating costs. We recommend their use especially on plants with permanent air exchange and short downtimes.



VV-RV

Adsorbers of the VV-RV series have a stable valve part made of glass fiber reinforced polyamide and are equipped with a refillable adsorber cartridge.

Thanks to the valve part, these adsorbers are optimally suited for extreme, dusty ambient conditions. They are used, for example, on hydraulic power units, gearboxes and storage tanks. Due to the large valve cross-sections, the pressure build-up is minimal even at high air flows. In addition, this series contains an activated carbon layer as well as an overflow protection to separate escaping oil mist. This ensures cyclic self-regeneration and thus very long maintenance intervals.



MA-R

Adsorbers of the all-aluminum MA-R series are particularly robust aeration dryers which, due to their high resistances, are also used when isocyanates, polyols, DOT4, SKYDROL, solvents or oils are to be protected against the entry of moisture. They are often used on 200l barrels and 1000l IBCs and are available with FKM or EPDM seals. They can also be used in accordance to ATEX product directive 2014/34/EU in zone II 2 G / D IIC T4.

Since the MA-R series are refillable adsorbers, the investment pays off after a short time. Desiccant and wear parts can be replaced at low cost. The increasing saturation of the desiccant can be observed through the viewing window by means of a color change from orange to green. If the desiccant is completely colored green, the silica gel must be replaced.



MA-RV

MA-RV adsorbers consist of an aluminum housing with valve section and are used for aerating aggressive substances or for use in harsh environments. The very robust housing withstands the most adverse conditions and optimally protects the system to be aerated from water ingress. The adsorbers are filled with up to approx. 10 kg of desiccant and can also be used with FKM or EPDM seals for the aeration of SKYDROL, DOT4 brake fluids and other hydraulic fluids. In addition to effective air drying, particle separation down to 3µm is achieved.

MA-RV adsorbers can be used in zone II 2 G / D IIC T4 according to ATEX product directive 2014/34/EU. The desiccant's saturation is controlled via a viewing window.



ME-RV

ME-RV adsorbers have a housing made of A4 stainless steel. With up to 5.2 kg of desiccant, they are also suitable for venting large hydraulic tanks in offshore operations, as well as gearboxes in the chemical industry and storage tanks.

Use in accordance with ATEX product directive 2014/34/EU in zone II 2 G / D IIC T4 is possible, as well as in accordance with corrosivity category C5-M. On gearboxes or hydraulic tanks on ship decks, the separate valve part protects the desiccant as well as oils and lubricants from contamination and damage by water during wave action. The adsorber is refillable, making it quick and inexpensive to maintain. Wear parts and desiccant are quickly replaced and the protection of the system to be ventilated is restored.



VG-D

GIEBEL adsorbers of the VG-D series are used for adsorption of oil mists. Thanks to the combination of sloshing protection, oil demister and a high amount of activated carbon, the air flowing out of hydraulic tanks, gearboxes and drums is cleaned and the environment is protected from contamination with oil.

VG-D adsorbers are used, for example, on turbo gearboxes, test benches and circulating oil lubrication systems. The effective design of the series prevents the escape of larger and smaller oil aerosols. The adsorbers are available in a disposable version and are completely exchanged after saturation (discoloration of the white layer). This means that maintenance can be carried out within a short time. The size is selected on the basis of the plant size and the amount of pollutants escaping, in order to ensure high efficiency and a long service life.



VG-R

GIEBEL adsorbers of the VG-R series are refillable oil mist separators. Thanks to the combination of sloshing protection, oil demister and a high amount of activated carbon, the air flowing out of hydraulic tanks, gearboxes and drums is cleaned and the environment is protected from contamination with oil.

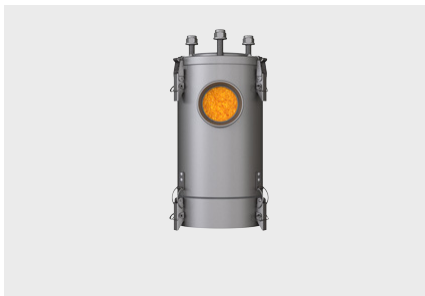
They are used, for example, on turbo transmissions, test benches and oil circulation lubrication systems. The effective design of VG-R adsorbers prevents the escape of larger and smaller oil aerosols. VG-R adsorbers are refillable and can be filled with fresh activated carbon at low cost. The selection is based on the size of the plant and the amount of pollutants discharged to ensure high efficiency and a long service life.



TB-RV

GIEBEL adsorbers of the TB-RV series are used for the aeration of transformers. They have a stable valve part made of glass fiber reinforced polyamide and are designed with a refillable adsorber cartridge. The valve part makes them ideal for extreme, dusty environmental conditions.

The hanging version is available with all standard connections for transformers. Due to the large valve cross-sections, pressure build-up is minimal even at high air flows. In addition, this series contains an activated carbon layer to separate escaping oil mist. This ensures cyclic self-regeneration and thus very long maintenance intervals.



TM-RV

TM-RV adsorbers have a housing made of A4 stainless steel. With up to 5.0 kg of desiccant, they can also be used to efficiently ventilate large transformers in offshore applications.

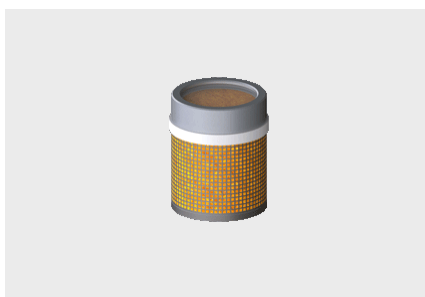
Use according to ATEX product directive 2014/34/EU in zone II 2 G / D IIC T4 is possible as well as according to corrosivity category C5-M. The separate valve part protects the desiccant as well as oils and lubricants from contamination and damage by water during wave action and rain. TM-RV adsorbers are available with all standard connections for transformers and can be maintained very quickly and at low cost. The wearing parts as well as the desiccant are quickly replaced and the protection of the plant to be ventilated is restored.



MS-R

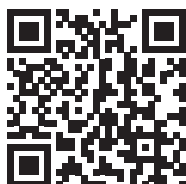
MS-R adsorbers have a housing made of A4 stainless steel and can - with a filling capacity of 50kg or 150kg of desiccant - absorb up to 20l or 60l of water from the air. Thus they have a long maintenance interval and can efficiently ventilate large storage tanks, even in offshore applications.

Use in accordance with ATEX product directive 2014/34/EU in zone II 2 G / D IIC T4 is also possible, as is use in accordance with corrosivity category C5-M. The loaded silica gel can be quickly removed at two large openings and replaced by fresh gel. In combination with a venting system and a supply air valve, the air flow into and out of a tank can be controlled in a targeted manner. Due to their optimized design, these adsorbers can be maintained very quickly and at low cost. The wearing parts and the desiccant are quickly inserted and the protection of the plant to be ventilated is restored.



ES-R

Adsorbers of the ES-R series are used in closed rooms and containers to protect the contents from damage caused by humidity (e.g. in switch cabinets, server cabinets, display cases or storage containers for moisture-sensitive goods). The adsorber indicates by a color change when the desiccant is saturated and needs to be regenerated/replaced.



Adsorbers classified according to area of application

Find out which adsorber series fit your application by scanning the QR code or accessing the following link: <https://giebel-adsorber.com/applications/>.

Sustainability.

Thoroughly thought through.



1. Reusable

To avoid plastic waste as far as possible, we take back adsorber cartridges and reuse them.



2. Long-term use

Our aluminum and stainless steel adsorber series are ideal for a long-term use - even in harsh environments.



3. Rechargeable

With our rechargeable adsorbers in combination with spare parts kits you can use the parts of an adsorber as long as possible.



4. Regenerable

The silica gel in our adsorbers is regenerable - at 120 °C in a commercial oven.



Accessories.

For mounting, monitoring, protecting & venting.



Flange Adapters
for mounting on hydraulic tanks



Sensor
for monitoring the filter loading



IBC Covers
for mounting on IBC Containers



Suction lances
to connect barrel pumps and bypass filter systems to a hydraulic tank and remove substances easily from the bottom



Filling adapters
for easily refilling oil in a hydraulic unit or gearbox



Oil separator
for plants with a high oil mist emission to protect the adsorber from contamination with larger oil particles



Wall mounts
for flexible installation of adsorbers



Valve adapters
for mounting adsorbers on mobile machines with a tank preload of 0.03 and 0.3 and 0.5 bar



Ventilation Systems
for filling a tank without gas recirculation



Mounting adapters
for mounting an adsorber on horizontal barrels and in case of limited space



Protection adapters
for giving an optical or electronic signal if the negative pressure is too high



Protection hoods
for protection adsorbers in harsh environments, e.g. in mines or offshore



Sleeves & reductions
for flexible assembly

More information and technical details

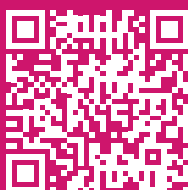
Find out how to upgrade your adsorber with our accessories
by scanning the QR code or accessing the following link:
<https://giebel-adsorber.com/accessories-desiccants/>.



Special solutions.

Adsorbers & accessories perfectly adapted to your needs.

Every plant is different - we know that. As a specialist for aeration dryers and oil separators, we have decades of experience in the industry and use our expert know-how to protect processes from moisture, oil mist or other pollutants. If our standard adsorbers and accessories do not fit your plant, we develop special solutions.



Desiccants.

Centerpiece of our adsorbers.



Silica gel

Silica gel (also called drying beads) is the most commonly used drying agent in aeration drying. It consists of 99% silicon dioxide (SiO_2). Due to its high porosity, narrow-pored silica gel has a large internal surface area of up to $850 \text{ m}^2/\text{g}$. The funnel-shaped openings with a diameter of approx. 2 to 12.5 nm allow water molecules to be loaded in several layers (capillary condensation). This also explains the very high water absorption capacity of this adsorbent.

Due to its extreme hydrophilicity (attraction of polar substances, such as water) and easy regeneration by raising the temperature to approx. 120°C , it is preferably used as a drying agent.

Especially at a relative humidity of approx. 70 % rH, silica gel shows an excellent absorption capacity and adsorbs large amounts of water from the air.

Silica gel orange-green has a strong color indicator. The color change from orange to green occurs at a water loading of 15 to 20%.

Silica gel orange-colorless has a weaker color indicator, which takes place only at a higher loading. It changes color at a water loading of approx. 20-25%.



Activated Carbon

Activated carbon is a carbonaceous product with a porous structure (pore volume $> 0.2 \text{ cm}^3/\text{g}$) and a large internal surface area ($> 400 \text{ m}^2/\text{g}$) with pore diameters between 0.3 nm and several thousand nanometers, to whose surface molecules can attach.

The surface of activated carbon is essentially nonpolar and thus hydrophobic and organophilic, which is why the less water-soluble a substance is, the better it is adsorbed from aqueous phase. The activated carbon surface has an affinity for organic adsorptives such as fatty acids, alcohols and esters.

Due to the hydrophobic nature of the surface, adsorption of water vapor is very low at low concentrations. Only at higher concentrations (higher humidity) does the water loading increase steeply. For this reason, activated carbon is suitable for the treatment of humid gases or air. They are used, among other things, in aeration dryers for hydraulics, in fume hoods or even in respiratory masks.

Molecular Sieve

Molecular sieves are drying agents with very specific properties. They are synthetically produced aluminosilicates. They are differentiated on the basis of their crystal lattice structure, as this results in pores of different sizes.

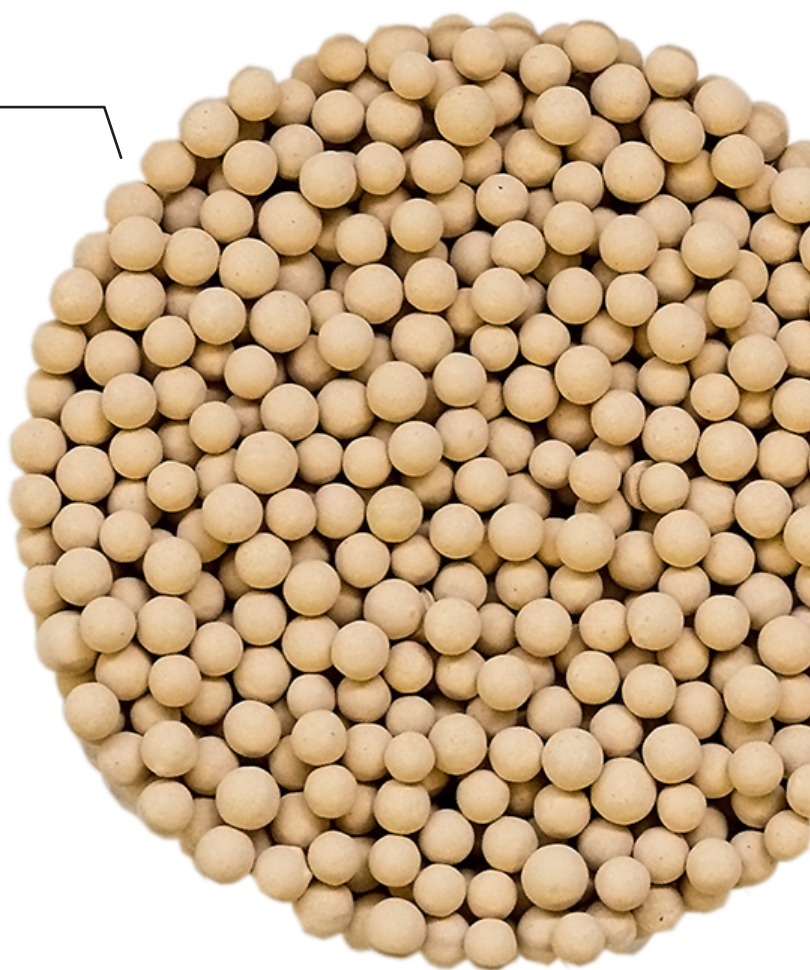
Zeolites of type A contain sodium in their crystal lattice, thus the pore diameter is approx. 0.4 nm (pores 4A).

Zeolites of structure X have a pore diameter of 0.9nm (9A). The constant structure of the crystal lattices allows a very high internal surface area of up to $1000 \text{ m}^2/\text{g}$. Together with high electrostatic adsorption forces, these molecular sieves are therefore ideally suited for air drying.

Even at low relative humidity, molecular sieves achieve a higher absorption capacity. Thus, they are able to dry the supply air very strongly. This makes their use sensible wherever the degree of drying is a decisive selection criterion.

The maximum water absorption in a fully saturated environment is approx. 23% (molecular sieve 4A) up to 27% (molecular sieve 13X). There is no colour indicator to show the loading status.

The regeneration temperature of the molecular sieve is 300°C .



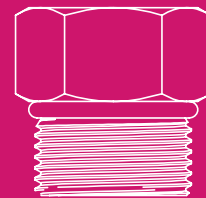
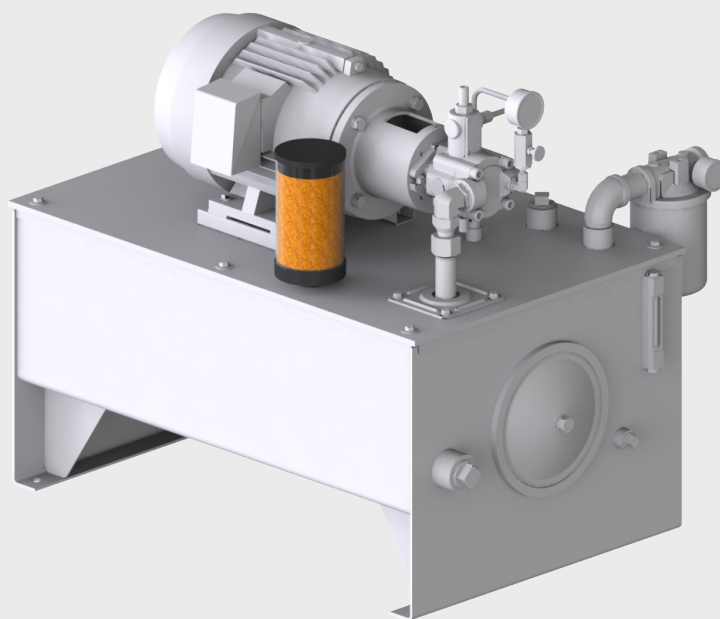
Want to know more?

For more information about desiccants, please scan the QR code or visit the following link:
<https://giebel-adsorber.com/accessories-desiccants/>



Hydraulic power packs.

Adsorbers that fit your application.



Various Connections

BSP, NPT, Metric, Slipfit

GIEBEL offers a wide range of adsorbers specially designed for hydraulic power packs. They are available with and without valves, with FKM or EPDM seals, according to ATEX 2014, for indoor, outdoor and off-shore use, and as disposable or refillable versions.

They are divided into adsorbers for air drying and adsorbers for separation of pollutants.

Adsorbers for drying supply air

Tank- / shuttle volume

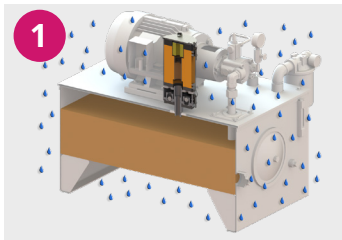
0 - 50 ltr. (up to 10 l/min - max. 30 l/min)
50 - 100 ltr. (up to 20 l/min - max. 100 l/min)
100 - 400 ltr. (up to 40 l/min - max. 260 l/min)
400 - 800 ltr. (up to 80 l/min - max. 490 l/min)
800 - 1800 ltr. (up to 110 l/min - max. 610 l/min)
1800 - 3600 ltr. (up to 160 l/min - max. 930 l/min)
3600 - 5400 ltr. (up to 210 l/min - max. 1250 l/min)

Adsorbers the separation of pollutants

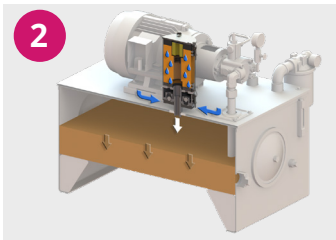
Tank- / shuttle volume

0 - 50 ltr. (up to 10 l/min - max. 30 l/min)
50 - 100 ltr. (up to 20 l/min - max. 100 l/min)
100 - 400 ltr. (up to 40 l/min - max. 260 l/min)
400 - 800 ltr. (up to 80 l/min - max. 490 l/min)
800 - 1800 ltr. (up to 110 l/min - max. 610 l/min)

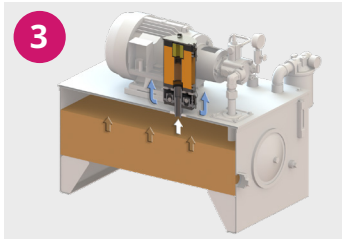
How adsorbers work on hydraulic power packs



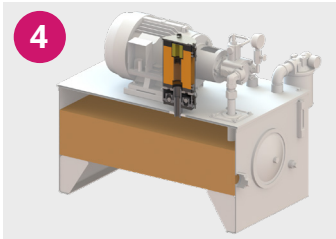
1



2



3



4

1. The adsorber is mounted on the hydraulic power unit. The ambient air is enriched with moisture.

2. Hydraulic oil is removed from the tank, the oil level drops and pressure is equalized by incoming air. The adsorber separates moisture up to 2% rH (10% rH on average).

3. When the hydraulic oil is pumped back into the tank, the oil level rises and the pressure is equalized by escaping dry air.

4. Because the air inside the system always remains dry, no condensation takes place in the hydraulic unit even if the ambient air drops below the dew point.

Adsorbers for use on hydraulic units



VV-D



VV-DV



VV-R



VV-RV



MA-RV



ME-RV



VG-D



VG-R

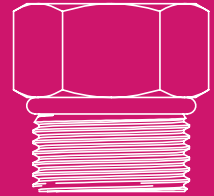
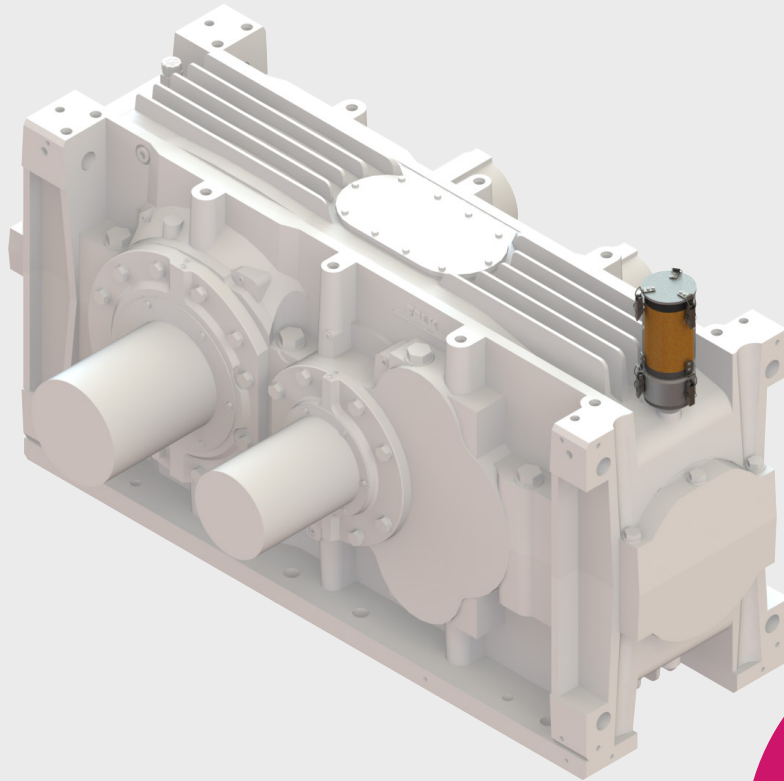
Want to know more?

For more information about adsorbers for hydraulic units, please scan the QR code or visit the following link:
<https://giebel-adsorber.com/applications/hydraulic-power-packs/>



Gears.

Adsorbers that fit your application.



Various Connections

BSP, NPT, Metric, Slipfit

GIEBEL offers a wide range of adsorbers specially designed for gears. They are available with and without valves, according to ATEX 2014, for indoor, outdoor and offshore use, and as disposable or refillable versions.

They are divided into adsorbers for air drying and adsorbers for separation of pollutants.

Adsorbers for drying supply air

Air- & oil volume

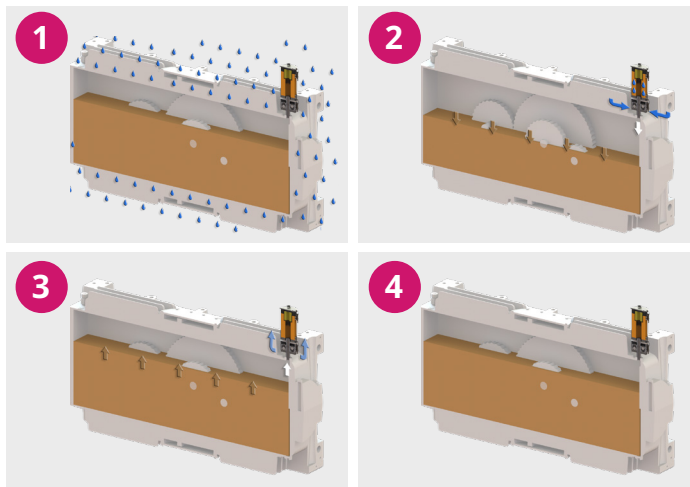
0 - 10 ltr.
10 - 100 ltr.
100 - 400 ltr.
400 - 1200 ltr.
1200 - 2400 ltr.
2400 - ... ltr.

Adsorbers the separation of pollutants

Air- & oil volume

0 - 10 ltr.
10 - 100 ltr.
100 - 400 ltr.
400 - 1200 ltr.
1200 - 2400 ltr.

How adsorbers work on gears



1. The adsorber is mounted on the gear. The ambient air is enriched with moisture.

2. If the gear cools down, the oil level drops and the pressure is equalized by incoming air. The adsorber separates moisture up to 2% rH (10% rH on average).

3. When the gearbox warms up, the oil level rises and the pressure is equalized by escaping dry air.

4. Because the air inside the system always remains dry, no condensation takes place in the gear even if the ambient air drops below the dew point.

Adsorbers for use on gears



VVD



VVDV



VVR



VVRV



MA-RV



ME-RV



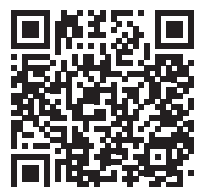
VG-D



VG-R

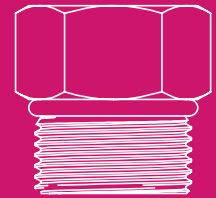
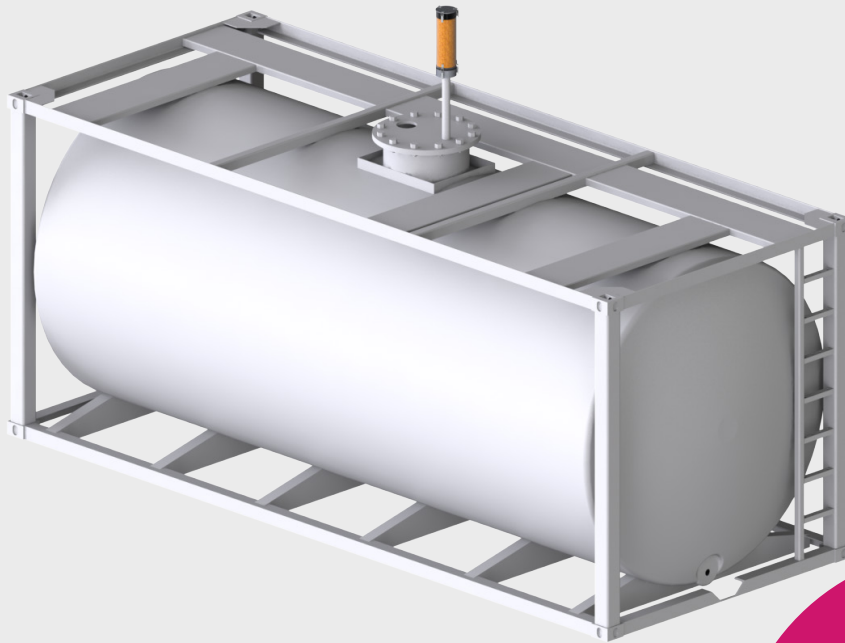
Want to know more?

For more information about adsorbers for gears, please scan the QR code or visit the following link:
<https://giebel-adsorber.com/applications/gears/>



Storage tanks.

Adsorbers that fit your application.



Various Connections

BSP, NPT, Metric, Slipfit

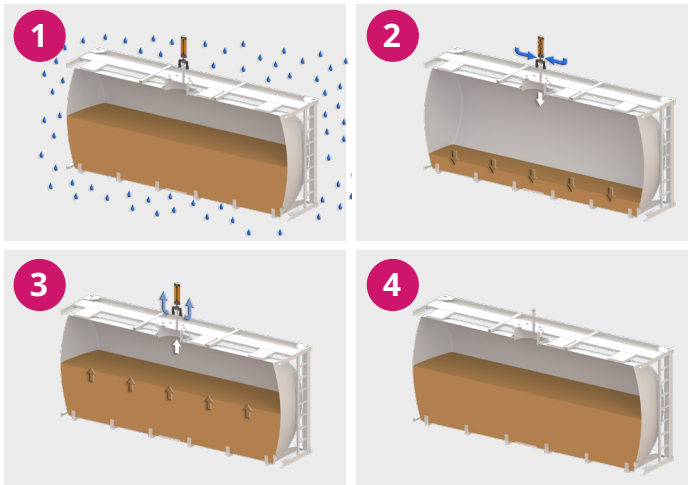
GIEBEL offers a wide range of adsorbers specially designed for storage tanks. They are available with and without valves, with FKM or EPDM seals, according to ATEX 2014, for indoor, outdoor and offshore use, and as disposable or refillable versions.

Adsorbers for drying supply air

Tank volume

- 1 - 5 cbm (approx. 65 cbm drying)
- 5 - 30 cbm (approx. 130 cbm drying)
- 30 - 60 cbm (approx. 175 cbm drying)
- 60 - ... cbm (approx. 2125 cbm drying)

How adsorbers work on storage tanks



1. The adsorber is mounted on the storage tank. The ambient air is enriched with moisture.

2. When medium is taken from the tank, the level decreases and pressure is compensated by incoming air. The adsorber separates moisture up to 2% rH (10% rH on average).

3. When the tank is refilled, the level is rising and pressure is compensated by outgoing dry air.

4. Because the air inside the system always remains dry, no condensation takes place in the storage tank even if the ambient air drops below the dew point.

Adsorbers for use on storage tanks



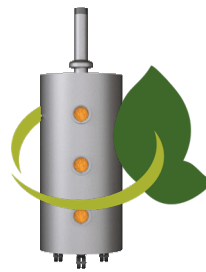
VV-DV



VV-RV



MA-RV



MS-R

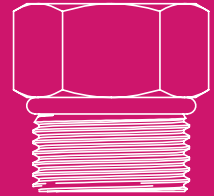
Want to know more?

For more information about adsorbers for storage tanks, please scan the QR code or visit the following link:
<https://giebel-adsorber.com/applications/storage-tanks/>



Barrels & IBCs.

Adsorbers that fit your application.



Various Connections

BSP, NPT, Metric, Slipfit

GIEBEL offers a wide range of adsorbers specially designed for barrels & IBCs. They are available with and without valves, with FKM or EPDM seals, according to ATEX 2014, for indoor and outdoor use, and as disposable or refillable versions.

They are divided into adsorbers for air drying and adsorbers for separation of pollutants.

Adsorbers for drying supply air

Container volume

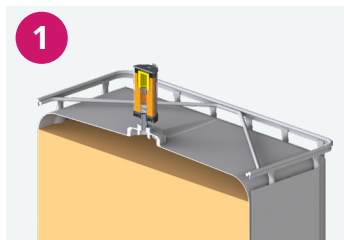
60 ltr. barrel (max. 145 empties)
200 ltr. barrel (max. 110 empties)
1000 ltr. IBC (max. 22 empties)
1000 ltr. IBC (max. 35 empties)

Adsorbers the separation of pollutants

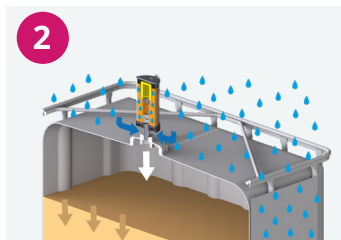
Container volume

60 ltr. barrel (max. 145 empties)
200 ltr. barrel (max. 110 empties)
1000 ltr. IBC (max. 35 empties)

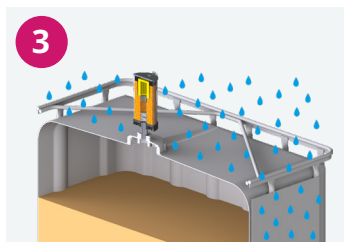
How adsorbers work on barrels and IBCs



1



2



3

1. The adsorber is mounted on the IBC.

2. The ambient air is enriched with moisture. When medium is taken from the IBC, the level decreases and pressure is compensated by incoming air. The adsorber separates moisture up to 2% rH (10% rH on average).

3. The moisture remains in the desiccant of the adsorber. No water gets into the container. No loss of quality of the substance.

Adsorbers for use on barrels and IBCs



VV-D



VV-R



MA-R



VG-D



VG-R

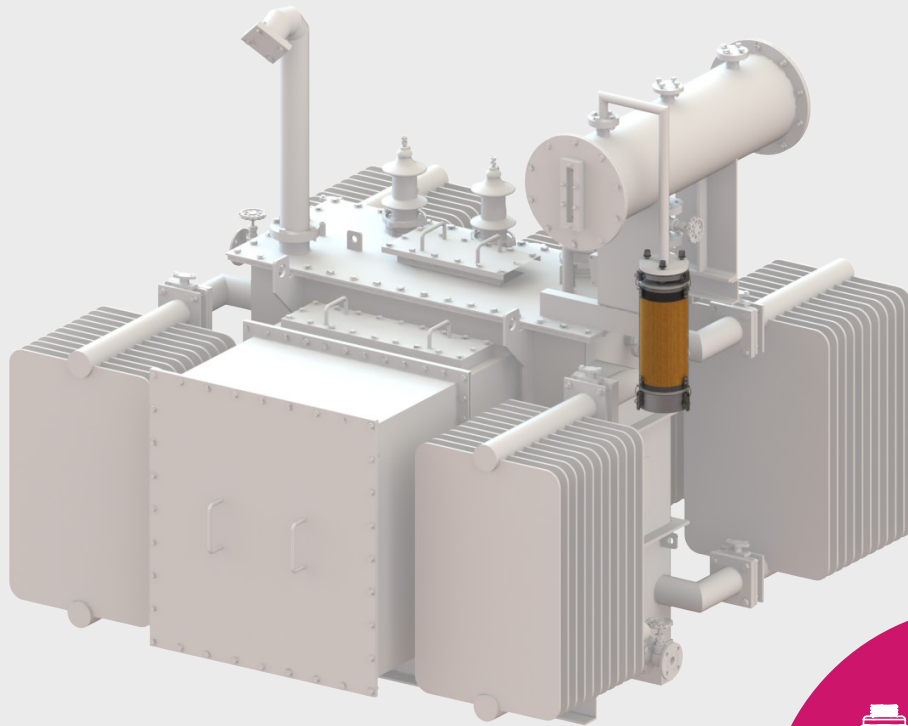
Want to know more?

For more information about adsorbers for barrels & IBCs, please scan the QR code or visit the following link:
<https://giebel-adsorber.com/applications/barrels-ibc/>



Transformers.

Adsorbers that fit your application.



Various Connections

DIN42562, DIN42567A
DIN42567B, DIN42567C

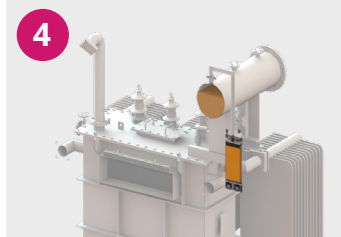
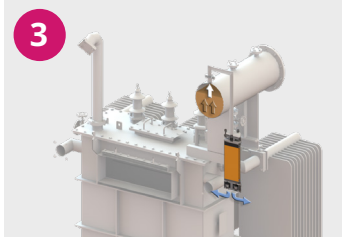
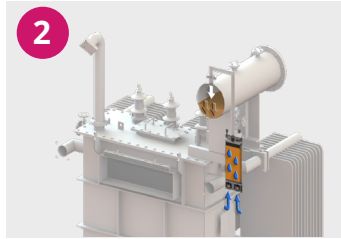
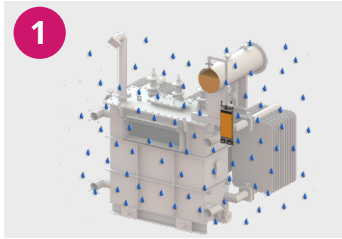
GIEBEL offers a wide range of adsorbers specially designed for transformers. They are available for hanging and standing installations, according to ATEX 2014, for indoor, outdoor and offshore use, and as disposable or refillable versions.

Adsorbers for drying supply air

Power- / oil volume

- 0 - 5 MVA (up to approx. 2.500 ltr. oil)
- 0 - 10 MVA (up to approx. 5.000 ltr. oil)
- 10 - 30 MVA (up to approx. 15.000 ltr. oil)
- 30 - 60 MVA (up to approx. 30.000 ltr. oil)
- 60 - 100 MVA (up to approx. 50.000 ltr. oil)

How adsorbers work on transformers



1. The adsorber is mounted on the transformer. The ambient air is enriched with moisture.

2. If the transformer cools down, the oil level drops and the pressure is equalized by incoming air. The adsorber separates moisture up to 2% rH (10% rH on average).

3. When the transformer warms up, the oil level rises and the pressure is equalized by escaping dry air.

4. Because the air inside the system always remains dry, no condensation takes place in the transformer even if the ambient air drops below the dew point. Water ingress into the insulating oil is prevented.

Adsorbers for use on transformers



TB-RV



TM-RV

Want to know more?

For more information about adsorbers for transformers, please scan the QR code or visit the following link:
<https://giebel-adsorber.com/applications/transformers/>



Services.

Our services at a glance.

Send & Refresh

Already during the development of our GIEBEL adsorbers, we pursue the goal of avoiding waste. This includes reusing those components of an adsorber that have a long service life (for example, the housing). Adsorber cartridges marked with the Send & Refresh symbol can be returned to us. We will remanufacture the adsorber for the price of a spare parts package – this is inexpensive and protects the environment.



Testing

Inspection and recommendation for action: You are not sure whether your adsorber is working properly?

It can happen that ...

... an adsorber still has free capacities and can be used longer.
... escaping oil mists stick the silica gel and another model should be used.

... an adsorber is selected too small and cannot reach the required maintenance time.

... leaks change the functioning and measures have to be taken on the plant.

By dissecting the adsorber, regenerating the desiccant and checking the functionality, we can recommend a course of action to improve your system.



Labeling

Adsorber cartridges in your company colors and with your logo imprinted on them – we manufacture customized ventilating filters and oil separators for you.

This is especially convenient if you distribute our adsorbers as a reseller and do not want us to be recognized as the manufacturer.

In addition to individual adsorbers, we also offer to individualize the packaging materials.

Want to know more?

For more information about our services, please scan the QR code or visit the following link:
<https://giebel-adsorber.com/services/>





DELTAFLUID

Via Luciano Lama 2/4
50019 Sesto Fiorentino

(+39) 055 421 5022
info@deltafluid.com

www.deltafluid.com



**Sales Partner
Italy**
GIEBEL FilTec GmbH