

## Adsorber VV-DV

### Section 1: Information on the manufacturer

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### Section 2: Product overview



Sizes

Sizes	
Size 1	VV-DV 1M / VV-DV 1L
Size 2	VV-DV 2M / VV-DV 2L
Size 3	VV-DV 3M / VV-DV 3L
Size 5	VV-DV 5M / VV-DV 5L / VV-DV 5XL

#### Materials used

Acrylic glass, polyamide (PA), polyvinyl chloride (PVC), aluminium, FKM, GIEBEL Xdry®, activated carbon

#### REACH Note

No ingredients requiring disclosure under Regulation (EC) No 1907/2006.

## Section 3: Construction and materials

<b>Use</b>	Reusable
<b>Housing material</b>	Acrylic glass, PA
<b>Adsorbents</b>	GIEBEL Xdry®, activated carbon
<b>Particulate filter</b>	Filter element with 3 µm separation efficiency
<b>Seal material</b>	FKM
<b>Operating temperature</b>	-30°C - +70°C
<b>Connection</b>	BSP / NPT / Metric / Slipfit

## Section 4: Technical data



	VV-DV 1M	VV-DV 1L	VV-DV 2M	VV-DV 2L	VV-DV 3M	VV-DV 3L	VV-DV 5M	VV-DV 5L	VV-DV 5XL
Total weight [kg]	0,2	0,3	0,9	1,1	1,6	2,4	3,4	4,9	6,3
Adsorbent [kg]	0,1	0,15	0,32	0,55	0,8	1,4	2,15	3,35	4,6
Color-change capacity [ml]	28	53	112	193	280	490	753	1173	1610
Height [mm]	97	141	205	263	283	383	321	421	521
Housing diameter [mm]	60	60	90	90	110	110	150	150	150
Screw-in diameter [mm]	63	63	94	94	114	114	154	154	154
Connection	BSP, NPT, Metric	BSP, NPT, Metric	BSP, NPT, Metric, Slipfit	BSP, NPT, Metric, Slipfit	BSP, NPT, Metric, Slipfit	BSP, NPT, Metric, Slipfit	BSP, NPT, Metric, Slipfit	BSP, NPT, Metric, Slipfit	BSP, NPT, Metric, Slipfit
Valves [IN-OUT]	1 - 1	1 - 1	1 - 1	1 - 1	2 - 2	2 - 2	3 - 3	3 - 3	3 - 3

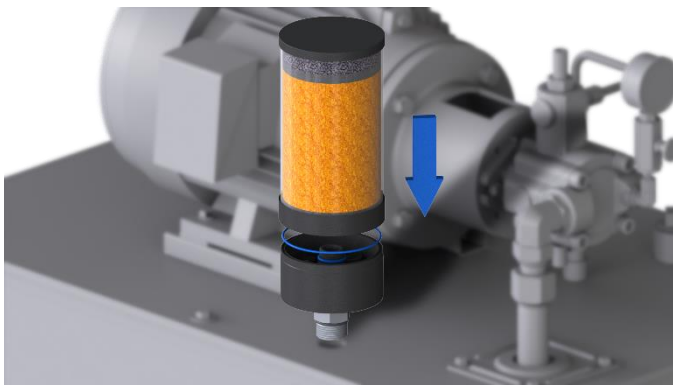
## Section 5: Assembly and commissioning

1. If it is a metal connection, the thread must be slightly oiled before screwing in
2. Screw the adsorber together with the valve section (ready for installation) onto the system.

If the valve part has been unscrewed, make sure that the O-rings (highlighted blue in the picture) are in the correct position. The outer O-ring must be in the groove of the valve part and the inner O-ring in the groove below the thread.

The torque should be 5Nm and not exceed 10Nm. "hand-tight"

Adsorbers of the series VV-DV 1M, or VV-DV 1L do not have a valve part since the valves are already installed in the cartridge.



## Section 6: Maintenance

When the color of the desiccant has completely changed according to the color indicator used, the cartridge must be replaced.

If it is an adsorber of the VV-DV 1M or VV-DV 1L series, the entire adsorber is replaced by a new one.



0% → 100%

1. Unscrew the adsorber section (cartridge) from the valve section and dispose of.

2. Remove the protective plug of the new cartridge.



3. Make sure that the O-ring of the valve part sits in the groove and then screw the new cartridge tightly onto the valve part.



## Section 7: Spare parts and storage

If the adsorber is completely saturated, the cartridge must be replaced with a new one.

Adsorbers of the VV-DV 1M and VV-DV 1L series are excluded. These are replaced by a new adsorber.

Adsorber	Cartridge
VV-DV 1M	-
VV-DV 1L	-
VV-DV 2M	VV-D 2M
VV-DV 2L	VV-D 2L
VV-DV 3M	VV-D 3M
VV-DV 3L	VV-D 3L
VV-DV 5M	VV-D 5M
VV-DV 5L	VV-D 5L
VV-DV 5XL	VV-D 5XL



### Cartridge

- GIEBEL Xdry®
- Activated carbon
- Filter element
- Seal

*Pre-assembled in housing and packed airtight.*

### Order of spare parts

For a constant operational readiness of the adsorber and thus of the plant, make sure that a replacement cartridge or a replacement adsorber is always in stock.

The time until the complete color change and thus the service life of the adsorber depends on various factors:

- Number and duration of flow and loading intervals.
- Air flow volume and flow velocity, relative humidity of ambient air.
- Temperature of the ambient air and the medium to be ventilated.

### Storage of adsorbers

This product can be stored for up to **two years** in dark and dry environments. The temperatures for storage should be between -10° and 30°C.

## Section 8: Disposal

At the end of its useful life, the device must be disposed of in accordance with the relevant legal regulations.

The fully loaded cartridge can be disposed of in household waste.  
This also applies to the entire adsorber.

GIEBEL Xdry® is not classified as a hazardous substance under European Union legislation (Regulation EC No 1272/2008). It is not subject to compulsory labelling according to EC Directive (67/548/EEC or 1999/45/EC). GIEBEL Xdry® is not classified as a substance hazardous to health or the environment.

## Section 9: Risk and hazard analysis

### 1. Moist air flows into the system

#### Porous seals

Moist air can flow into the adsorber or into the plant at the porous points. This means that complete drying is not possible and moist air enters the system.

#### Cartridge or O-ring does not fit properly on the valve part

If the cartridge is not seated firmly enough (well hand tight) on the valve part, or if the outer O-ring of the valve part is not seated in the groove, moist air can enter the system at the leakage points.

Adsorbers of the VV-DV 1M and VV-DV 1L series are excluded.

#### Saturated drying agent

When the desiccant is saturated, it can no longer absorb moisture. This allows moist air to enter the system.

#### Air flow rate too high

If the air flow rate is too high, the contact time between moist air and desiccant is too short. This allows moist air to flow into the system.

## Oil on the drying agent

If too many oil particles enter the adsorber, the oil particles close the pores of the desiccant and thus prevent adsorption.

## Ambient temperature too high

If the ambient temperature exceeds 80°C, the binding forces in the desiccant decrease. This means that the incoming ambient air is only dried to a limited extent.

## **2. Positive or negative pressure builds up in the system**

### Air flow rate too high

Too high an air flow rate can cause over- or underpressure in the system.

### Contaminated filter element

The filter unit can be clogged by dirt particles and can therefore build up pressure in the system.

## Oil on the drying agent

If oil particles get into the adsorber, the spaces in the fill can be filled with oil and the fill will stick together. This can cause pressure to build up in the system.

## **3. Adsorber is damaged**

### Material resistance

When selecting the adsorber, the ambient and operating conditions should be considered. An aggressive environment or liquid in the container can damage the adsorber.

### Temperature range

The ambient and operating temperatures should not exceed or fall below the specified range, otherwise the adsorber may be damaged.

### Improper handling

Incorrect or improper handling can damage the adsorber. Please pay attention to the recommended installation.

### Strong vibrations

Strong vibrations of the plant can damage the adsorber.

## Pressure range of the system

The adsorber should not be exposed to over- or underpressure above 0.5 bar, otherwise the housing may be damaged.

## Cleaning of the adsorber

For external cleaning of the adsorber, the use of a mild soap in combination with water is recommended. The use of brake cleaner will damage the adsorber and is no reason for complaint.

## Thread of the adsorber and accessories is damaged

When mounting the adsorber on the system, the threads must be slightly moistened with oil. If the threads are not oiled, this can lead to the threads rubbing off and getting stuck.



## **Section 10: Maintenance plan**

### **1. Check seals for wear**

Check The O-rings installed on the adsorber must be checked for perfect condition. For this purpose the seals on the valve part (3 in number) should be checked for brittleness.

**If it is an adsorber of the VV-DV 1M, or VV-DV 1L series, only the O-ring at the connection needs to be examined.**

Cycle Half-yearly

Measures In case of existing damage, new O-rings or a new adsorber should be used.

### **2. Visual inspection of the desiccant**

Check The loading condition of the desiccant must be determined by visual inspection of the adsorber. The color orange indicates that the desiccant can still adsorb water and air is dehumidified. If the desiccant is completely saturated, the color changes to green or colorless.

If there are oil particles on the desiccant, these close the pores and the adsorption capacity is reduced. This causes the desiccant to discolor more slowly and unevenly.

Cycle Half-yearly

Measures If the desiccant is loaded or damaged by oil, a new cartridge or a new adsorber with fresh desiccant should be used.



### 3. Visual inspection of the adsorber

<u>Check</u>	The adsorber, including the connection, must be visually checked for damage. Damage can occur due to various environmental or operating conditions.
<u>Cycle</u>	Annually
<u>Measures</u>	If the adsorber is damaged, it must be completely replaced to ensure full functionality.