

## Adsorber VM-R

### Section 1: Information on the manufacturer

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### Section 2: Product overview



Sizes	
Size 2	VM-R 2L
Size 3	VM-R 3L
Size 5	VM-R 5L

#### Materials used

Aluminum, stainless steel, FKM, GIEBEL Xdry®

#### REACH Notice

No ingredients to be named according to Regulation (EC) No 1907/2006.

## Section 3: Construction and materials

<b>Use</b>	Refillable
<b>Housing material</b>	AL, SS
<b>Adsorbents</b>	GIEBEL Xdry®
<b>Particulate filter</b>	Filter element with 2 µm separation efficiency
<b>Seal material</b>	FKM
<b>Operating temperature</b>	-40°C - +80°C / 160°C
<b>Connection</b>	BSP

## Section 4: Technical data



	VM-R 2L	VM-R 3L	VM-R 5L
Total weight [kg]	1,6	3,3	6,4
Adsorbent [kg]	0,76	1,8	4,0
Color-change capacity (ml):	266	630	1400
Height [mm]	232	343	383
Housing diameter [mm]	90	110	150
Screw-in diameter [mm]	120	140	180
Connection	BSP G1" F.	BSP G1" F.	BSP G2" F.

## Section 5: Assembly and commissioning

1. Remove the protective plugs on the top and bottom of the adsorber.
2. Screw the adsorber onto the system.  
The torque should be 5Nm and not exceed 10Nm. "hand-tight"

## Section 6: Maintenance

Adsorbers of the VM-R series are refillable.



0% → 100%

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

1. Unscrew the adsorber from the system.
2. Open the lid and take out the top grid plate and foam disc.
3. Pour out the desiccant.
4. Take out the filter disc and the bottom grid plate.
5. Remove the sight glass and gasket and replace it with new ones.
6. Put the new grid plate and filter disc from the spare parts kit into the adsorber.
7. Pour fresh GIEBEL Xdry® into the adsorber.
8. Put the new foam disc and top grid plate into the adsorber and close the lid again.
9. Screw the adsorber back onto the system.



## Section 7: Spare parts and storage

Adsorber	Spare parts kit	Desiccant
VM-R 2L	ET VM-R 2	Spare Filling Xdry 1 kg
VM-R 3L	ET VM-R 3	Spare Filling Xdry 4 kg
VM-R 5L	ET VM-R 5	Spare Filling Xdry 4 kg



*Exemplary representation  
of the spare parts kit*

### Spare parts kit

- Filter discs
- Grid plates
- Seal



### Desiccant

- GIEBEL Xdry®  
*Airtight packaging.*

### Order of spare parts

For a constant operational readiness of the adsorber and thus of the plant, make sure that a spare parts kit and fresh GIEBEL Xdry® 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. Metal and plastic parts should be separated and disposed of separately.

The loaded desiccant GIEBEL Xdry® can be disposed of in household waste.

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

#### Connections not sealed

Moist air can flow into the adsorber or into the plant if the connections to the adsorber aren't sealed (with o-rings or Teflon tape). As a result, complete drying is not possible and moist air enters the system.

#### Porous seals

Moist air can flow into the adsorber or into the plant at the porous points (gaskets of the lid and sight glass). As a result, complete drying is not possible and moist air enters the system.

#### 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. As a result, 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 a positive or negative pressure 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.

## 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 individual thread rubbing off.

## **Section 10: Maintenance plan**

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

Check The O-ring or Teflon tape of the connection used and the gasket in the lid and sight glass must be checked for perfect condition. For this purpose, the seal at the connection should be checked for brittleness.

Cycle Half-yearly

Measures In case of existing damage, a new O-ring, Teflon tape, gaskets or a new adsorber should be used.

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

Check The loading condition of the GIEBEL Xdry® 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.

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

Cycle Half-yearly

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

### 3. Check filter unit for impurities

Check Take off the lid and remove the top foam disc. Then empty the desiccant. The filter disc can then be removed. These should be checked for impurities and should be free of dirt for smooth operation.

Cycle Half-yearly

Measures The filter and foam disc are part of the spare parts kit and should be replaced if contamination is present.

### 4. Visual inspection of the adsorber

Check The adsorber, including the connection, must be visually checked for damage. Damage can occur due to various environmental or operating conditions.

Cycle Yearly

Measures If the adsorber is damaged, it must be completely replaced to ensure full functionality.