Instructions

according to regulation DIN 82079 Version: 04/23

Adsorber TM-RV

Section 1: Information on the manufacturer

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GIEBEL ADSORBER®
DESIGNED AND
PRODUCED
IN GERMANY

Section 2: Product overview

Sizes	
Size 3	**TM-RV 3M / TM-RV 3L**
Size 5	**TM-RV 5M / TM-RV 5L / TM-RV 5XL**

Materials used

Stainless steel, acrylic glass, FKM, GIEBEL Xdry®, activated carbon

REACH Notice

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

Section 3: Structure and materials

Use	Reusable
Housing material	Stainless steel 316L (V4A)
Adsorbent	GIEBEL Xdry®, activated carbon
Particle filter	Filter element with 2 µm separation efficiency
Sealing material	FKM
Operating temperature	-40°C - +80°C
Connection	DIN42562 flange, DIN42567A/B flange, DIN42567C G1" female

Section 4: Technical data

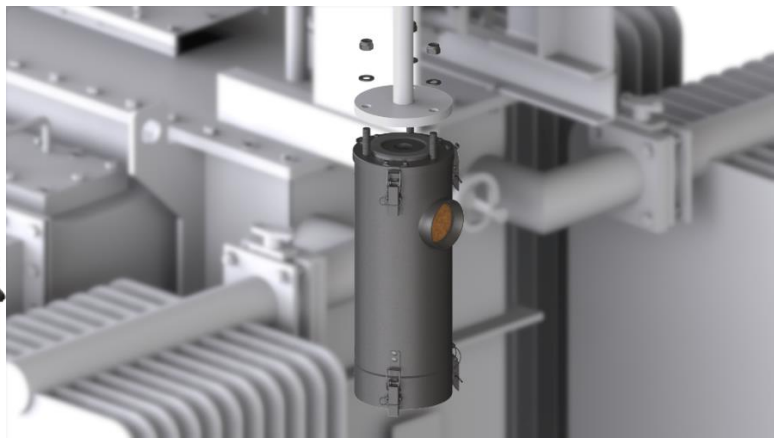
	TM-RV 3M	TM-RV 3L	TM-RV 5M	TM-RV 5L	TM-RV 5XL
Total weight [kg]	5,7	6,8	9,6	11,5	13,8
Adsorbent [kg]	1,1	1,65	2,6	3,6	5,0
Color-change capacity (ml): (ml)	385	578	910	1260	1750
Height [mm]	281	381	308	408	508
Case diameter [mm]	108	108	150	150	150
Insertion diameter [mm]	150	150	180	180	180
Connection	DIN42562 DIN42567A DIN42567B DIN42567C	DIN42562 DIN42567A DIN42567B DIN42567C	DIN42562 DIN42567C	DIN42562 DIN42567C	DIN42562
Valves [IN-OUT]	1 – 1	1 – 1	2 – 2	2 – 2	2 – 2

Section 5: Installation and commissioning

1. Lightly oil the connection before screwing it in, if it is the female threaded version of the Adsorber

2. Place the adsorber part on the valve part and close it using the clamps.

3. Mount the adsorber onto the system.



Section 6: Maintenance

Once the desiccant is completely saturated, a spare parts kit must be used.

0% → 100%

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

1. Securely grasp the adsorber part and detach it from the lid using the clamps.
2. Remove the gasket in the cover and replace it with the new one.
3. Remove filter pad and activated carbon pad and empty the desiccant.
4. Remove the bottom foam pad as well.
5. Insert new foam pad.
6. Fill in the fresh desiccant. When filling the desiccant, lightly tap the housing with a soft object (e.g. ball of the hand) to compact the filling.
7. Insert new activated carbon pad.
8. Insert the new filter pad and then reattach the adsorber pad to the lid using the clamps.
9. Replace O-rings between valve part and adsorber part. Ensure that the O-rings are seated in the groove provided.
10. Place the adsorber part back onto the valve part with the help of the clamps.

Section 7: Spare parts and storage

Adsorber	Spare parts kit	Spare Filling
TM-RV 3M TM-RV 3L	ET TM-R 3	1kg bag
TM-RV 5M TM-RV 5L TM-RV 5XL	ET TM-R 5	4kg canister

Exemplary representation of the spare parts set

Spare parts kit

- Silica gel
- Activated carbon filter disc
- Gasket set

Desiccant

- silica gel

Airtight packaging

Ordering spare parts

To ensure that the adsorber and thus the system are always ready for use, make sure that a spare parts kit, or replacement adsorber, is always in stock.

The time required for a complete color change and thus the service life of the adsorber depend on various factors:

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

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 service life, the device must be disposed of in accordance with the relevant legal regulations. Metal and plastic parts should be separated and disposed of according to type.

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

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

Section 9: Risk and hazard analysis

1. Humid air flows into the system

Porous seals

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

Adsorber part, or gasket is not seated correctly

If the valve part is not sitting correctly on the adsorber part, or if the gasket on the adsorber part isn't attached correctly, moist air may enter the system at the leaking points.

Saturated desiccant

If the desiccant is saturated, it can no longer absorb moisture. As a result, humid air enters 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. As a result, moist air can flow into the system.

Oil on the desiccant

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

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. Overpressure or underpressure builds up in the system

Air flow rate too high

Excessive air flow can cause overpressure or underpressure to build up in the system.

Filter element contaminated

The filter unit can become clogged with dirt particles and can thus build up pressure in the system.

Oil on the desiccant

If oil particles get into the adsorber, the gaps in the desiccant can be filled with oil and it could 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 taken into account. An aggressive environment or liquid in the vessel 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. The recommended installation must be observed.

Strong vibrations

Strong vibrations of the system can damage the adsorber.

Pressure range of the system

The adsorber should not be exposed to overpressure or underpressure of more than 0.5 bar, otherwise the housing may be damaged.

Cleaning of the adsorber

For cleaning the adsorber, the use of a mild soap in combination with water is recommended. The use of brake cleaner might damage the sight glass.

Thread of adsorber and accessories is damaged (threaded version)

When mounting the adsorber on the system, the threads must be slightly lubricated. If the threads are not oiled, this can lead to damages.

Section 10: Maintenance Plan

1. Check seals for wear

Check	The O-rings or gaskets installed on the adsorber must be checked for perfect condition. For this purpose, the seals on the adsorber part and in the lid should be checked for brittleness.
Cycle	Semi-annual
Measures	In case of existing damages, a new spare part kit, or a new adsorber should be used.

2. Check filter disk for contamination

Check	Remove the lid and take out the filter pad. It should be checked for contamination and should be free of dirt for smooth operation.
Cycle	Semi-annual
Measures	The filter pad is part of the spare parts kit and should be replaced if contaminated.

3. Visual inspection of the silica gel

Check — Visually inspect the adsorber to determine the loading condition of the silica gel. 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, they close the pores and the adsorption capacity is reduced. This causes the desiccant to discolor more slowly and unevenly.

Cycle — Semi-annual

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

4. Visual inspection of the adsorber

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

Cycle — Annual

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

5. Replacing the wearing parts

Check — The wearing parts, in particular the seals, the desiccant as well as the adsorber housing, must be checked with regard to their condition.

Cycle — Biennial

Measures — Regardless of the result of the test, it is recommended to replace the wearing parts by using the spare parts kit or a new adsorber to ensure smooth operation.