



Assembly and maintenance instructions

according to regulation DIN 82079

Version 12.21
Datum: 12.12.2021
Name: Manual_TM-RV_EN



Adsorber TM-RV

Section 1: Information on the manufacturer

Giebel FilTec GmbH
Carl-Zeiss-Str. 5
74626 Bretzfeld
Germany
Tel. +49 79 46 94 44 01 0
E-Mail info@giebel-adsorber.de



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, silica gel orange, activated carbon

REACH Notice

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



Assembly and maintenance instructions

according to regulation DIN 82079

Version 12.21
Datum: 12.12.2021
Name: Manual_TM-RV_EN

Section 3: Structure and materials

Use	Reusable
Housing material	Stainless steel 316L (V4A)
Adsorbent	Silica gel, 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]	5,1	6,3	9,7	11,7	14,0
Adsorbent [kg]	1,1	1,6	2,5	3,6	5,0
Max. Water absorption (ml)	440	640	1000	1440	2000
Height [mm]	283	383	311	411	511
Case diameter [mm]	108	108	150	150	150
Insertion diameter [mm]	140	140	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



Assembly and maintenance instructions

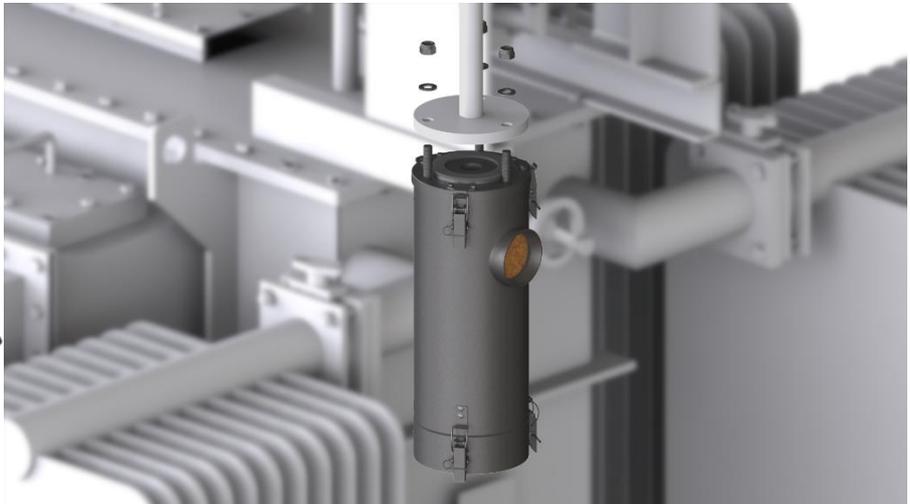
according to regulation DIN 82079

Version 12.21
Datum: 12.12.2021
Name: Manual_TM-RV_EN

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.

Lightly lubricate the thread before assembly or use assembly paste.
Gewinde vor der Montage leicht einölen oder Montagepaste verwenden.
Lubrifier légèrement le fil avant l'assemblage ou utiliser la pâte d'assemblage.
Lubrique ligeramente la rosca antes del montaje o use pasta de ensamble.
Lubrificar ligeiramente a rosca antes da montagem ou usar a pasta de montagem.
Слегка смажьте нить перед сборкой или используйте монтажную пасту.





Assembly and maintenance instructions

according to regulation DIN 82079

Version 12.21
Datum: 12.12.2021
Name: Manual_TM-RV_EN

Section 6: Maintenance

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



0% → 100%

If the color of the silica gel 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 and screw tight by hand.





Assembly and maintenance instructions

according to regulation DIN 82079

Version 12.21
Datum: 12.12.2021
Name: Manual_TM-RV_EN

Section 7: Spare parts and storage

Adsorber	Spare parts kit	Desiccant
TM-RV 3M TM-RV 3L	ET TM-R 3	SOG 4 kg
TM-RV 5M TM-RV 5L TM-RV 5XL	ET TM-R 5	SOG 4 kg



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

All articles filled with desiccant are packed airtight. In order to avoid damage to the desiccant, they must also be stored in dark and dry rooms at -10°C to +30°C.



Assembly and maintenance instructions

according to regulation DIN 82079

Version 12.21
Datum: 12.12.2021
Name: Manual_TM-RV_EN

Section 8: Disposal

Regeneration

In practice, the most common regeneration method is to increase the temperature. When desorbing water vapor from silica gel, the temperature must be above 100°C. For silica gel with color indicators, a regeneration temperature of 120°C should be maintained in order not to damage the applied color indicator.

Nevertheless, it is recommended to use fresh silica gel.

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 Silicagel Orange can be disposed of in household waste.

Silica gel orange 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). Silica gel orange 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 O-ring is not seated correctly on the valve part

If the adsorber part is not tight enough (well hand-tight) on the valve part, or the outer O-ring of the valve part is not seated in the groove, moist air can 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.



Assembly and maintenance instructions

according to regulation DIN 82079

Version 12.21
Datum: 12.12.2021
Name: Manual_TM-RV_EN

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.



Assembly and maintenance instructions

according to regulation DIN 82079

Version 12.21
Datum: 12.12.2021
Name: Manual_TM-RV_EN

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

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 installed on the adsorber must be checked for perfect condition. For this purpose, the seals on the valve part, 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 silica gel can still adsorb water and air is dehumidified. If the silica gel is completely saturated, the color changes to green or colorless.

If there are oil particles on the silica gel, they close the pores and the adsorption capacity is reduced. As a result, the silica gel discolors more slowly and unevenly.



Assembly and maintenance instructions

according to regulation DIN 82079

Version 12.21
Datum: 12.12.2021
Name: Manual_TM-RV_EN

Cycle Semi-annual

Measures If the silica gel is loaded or damaged by oil, a new spare parts kit or a new adsorber with fresh silica gel 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 silica gel 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.