

Adsorber MA-R

Section 1: Information on the manufacturer

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Section 2: Product overview



Sizes

Size 1	MA-R 1L
Size 2	MA-R 2L
Size 3	MA-R 3M / MA-R 3L
Size 5	MA-R 5M

Materials used

Aluminium, acrylic glass, stainless steel, FKM, EPDM, GIEBEL Xdry®, activated carbon

REACH Note

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

Section 3: Construction and materials

Use	Reusable
Housing material	Aluminium
Adsorbents	GIEBEL Xdry®, activated carbon
Particulate filter	Filter element with 3 µm separation efficiency
Seal material	FKM / EPDM
Operating temperature	-40°C - +80°C
Connection	BSP / NPT / Metric / Slipfit

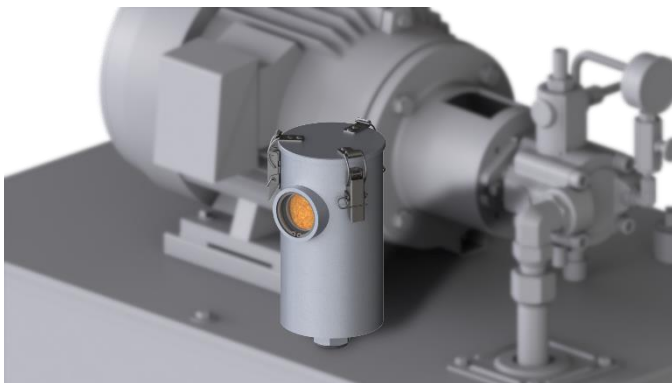
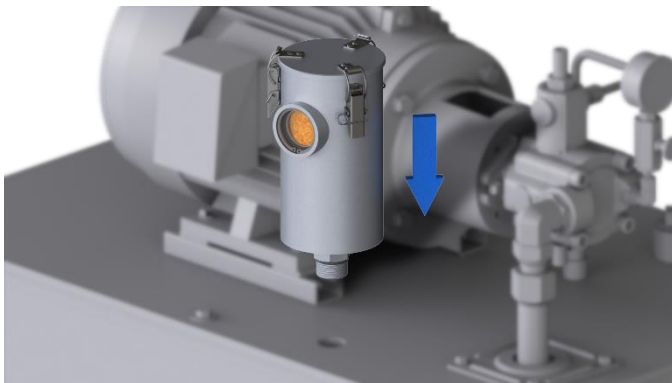
Section 4: Technical data



	MA-R 2L	MA-R 3M	MA-R 3L	MA-R 5M
Total weight [kg]	1,7	2,1	3,0	4,1
Adsorbent [kg]	0,55	0,85	1,45	2,1
Color-change capacity [ml]	193	298	508	735
Height [mm]	232	240	340	270
Housing diameter [mm]	90	110	110	150
Screw-in diameter [mm]	120	140	140	180
Connection	BSP, NPT, Metric, Slipfit	BSP, NPT, Metric, Slipfit	BSP, NPT, Metric, Slipfit	BSP, NPT, Metric, Slipfit
Valves [IN-OUT]	0 – 0	0 – 0	0 – 0	0 – 0

Section 5: Assembly and commissioning

1. Remove protective foil on the underside of the adsorber.
2. Lightly oil the thread.
3. Screw the adsorber onto the system.
The torque should be 5Nm and not exceed 10Nm. "hand-tight"



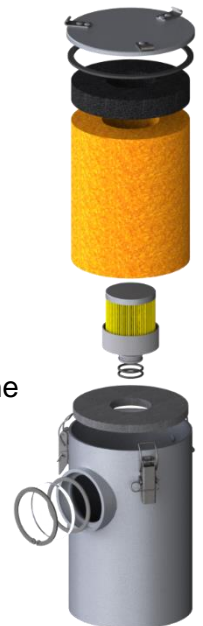
Section 6: Maintenance



0% → 100%

If the color of the GIEBEL Xdry® has completely changed according to the color indicator used, it must be replaced. It's also recommended to use a spare parts kit to replace the wearing parts.

1. Unscrew the adsorber from the system.
2. Open the lid using the clamps.
3. Remove the seal in the cover and replace it with the new one.
4. Remove the activated carbon disc and empty the desiccant.
5. Pull out the filter element.
6. Remove the lower foam disc as well.
7. Insert new foam disk.
8. Insert a new filter element and then fill in fresh desiccant. When filling in the desiccant, lightly tap the housing with a soft object (e.g. the ball of your hand) to compact the bulk material.
9. Insert new activated carbon discs and then close the lid again using the clips
10. Screw the adsorber back onto the system.



Section 7: Spare parts and storage

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

* also as EPDM version



*Exemplary representation
of the spare parts set*

Spare parts kit

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



Desiccant

- GIEBEL Xdry®
- Airtight packaging*

Order of spare parts

For a constant operational readiness of the adsorber and thus the plant, make sure that a spare parts kit is always in stock.

The time until the complete color change from 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 in accordance with EC Directive (67/548/EEC or 1999/45/EC). GIEBEL Xdry® is not considered to be 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 plant.

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. The recommended installation must be observed.

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.

Thread of the adsorber and accessories is damaged

When mounting the adsorber on the system, the threads must be slightly moistened with oil, else they could become damaged while screwing in and get stuck.



Section 10: Maintenance plan

1. Check seals for wear

Check The O-rings installed in the adsorber and the flat gasket must be checked for perfect condition. For this purpose the seals in the lid, on the filter and on the connection should be checked and examined for brittleness.

Cycle Half-yearly

Measures In case of existing damage, a new spare parts kit or a new adsorber should be used.

2. Visual inspection of the desiccant

Check The loading condition of the silica gel must be determined by visual inspection of the adsorber. The color orange indicates that the silica gel can still adsorb water and air is dehumidified. When the GIEBEL Xdry® 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 desiccant to discolor more slowly and unevenly.

Cycle Half-yearly

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

3. Check filter unit for impurities

Check Take off the lid and remove the activated carbon disc. Then empty the desiccant. The filter unit can then be removed. This should be checked for contamination and should be free of dirt for smooth operation.

Cycle Half-yearly

Measures The filter element is part of the spare parts kit and should be replaced if it is contaminated.

4. Visual inspection of the adsorber

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

Zyklus Yearly

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 regarding their condition.

Cycle Every two years

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