Thought through.

GIEBEL
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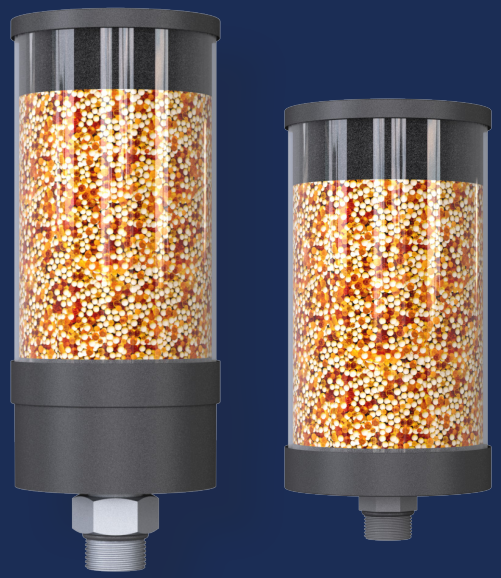
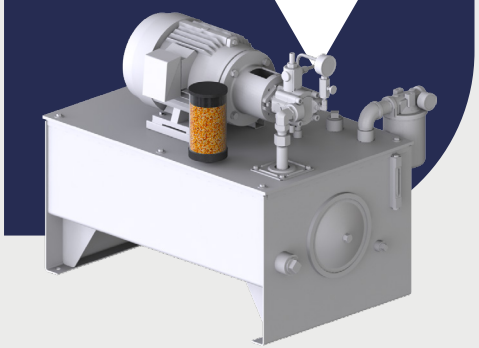
Questions that often remain unanswered in the discussion about sustainability & energy efficiency: **How do we make already existing plants more efficient and durable? Can simple measures extend maintenance intervals and mileage, prevent damage, protect operating fluids? The answer is: YES!**

Adsorber filters extend the service life of your equipment, ensure the quality and longevity of gear & hydraulic oils and eliminate the need to maintain constant room temperatures to prevent condensation. In addition, the refillable series are designed to require replacement and recycling of only those components that have actually reached the end of their product life cycle.

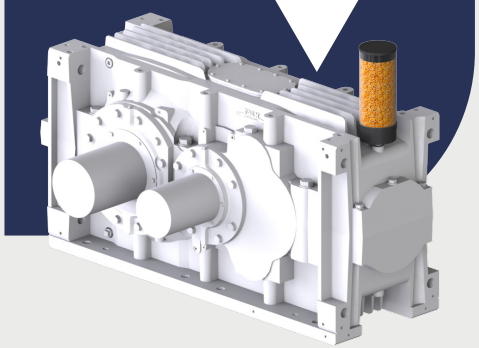
In short: adsorbers make an important contribution to sustainability, resource conservation & energy efficiency.



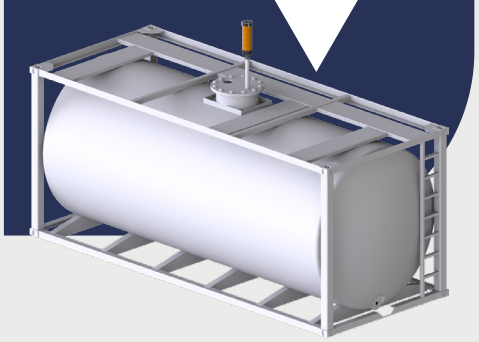
Adsorber filters prevent corrosion in **hydraulic units**, protect the hydraulic oil from contamination with water and dirt particles, and thus increase the service life of the system & oil.



Breather dryers prevent corrosion in **gearboxes**, protect the gear oil from contact with atmospheric moisture as well as contamination by dirt particles, and thus increase the service life of the equipment and the quality of the oil.



Tank ventilation dryers protect hygroscopic substances in **storage tanks** from contact with atmospheric moisture and, on top of that, prevent moisture damage to the tank itself.



Tank aeration dryers protect hygroscopic substances such as isocyanate, oils and biological fuels in **barrels & IBCs** from contact with moisture, thus ensuring consistent quality of the storage medium.

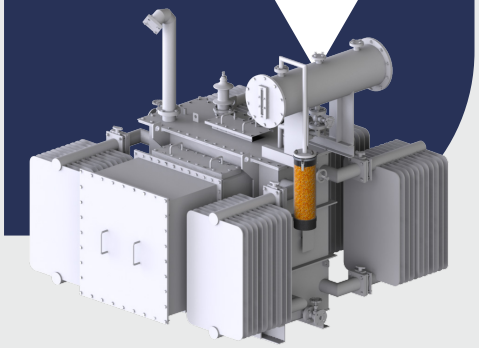
Tank / Pendulum volume	Adsorber filter
0-50 ltr.	VV-DV 1L G1/2"m
50-100 ltr.	VV-DV 2L G1"m
100-400 ltr.	VV-DV 3M G1"m
400-800 ltr.	VV-DV 3L G1"m
800-1800 ltr.	VV-DV 5M G1"m
1800-3600 ltr.	VV-DV 5L G1"m
3600-5400 ltr.	VV-DV 5XL G1"m

Air & Oil volume	Adsorber filter
0-10 ltr.	VV-DV 1L G1/2"m
10-100 ltr.	VV-DV 2M G1"m
100-400 ltr.	VV-DV 2L G1"m
400-1200 ltr.	VV-DV 3M G1"m
1200-2400 ltr.	VV-DV 3L G1"m
2400-... ltr.	VV-DV 5M G1"m

Tank volume	Adsorber filter
1-5 cbm	VV-RV 3L G1"m – IN
5-30 cbm	VV-RV 5L G1"m – IN
30-60 cbm	VV-RV 5XL G1"m – IN
60-120 cbm	MS-R 35L G2"m
120-... cbm	MS-R 50L LBS150 4"

Container volume	Adsorber filter
60 ltr. (Barrel)	VV-D 1L G3/4"m
200 ltr. (Barrel)	VV-D 2L G3/4"m
1000 ltr. (IBC)	VV-D 3M G3/4"m

Dehumidifiers protect transformers from hydrolysis of the cellulose paper in the **transformer** and thus from a reduction in the degree of polymerization by effectively drying and filtering the moist supply air drawn in.

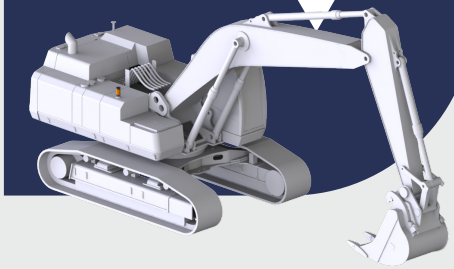


Power / Tank volume	Adsorber filter
0-5 MVA	TB-RV 3M DIN42562
5-10 MVA	TB-RV 3L DIN42562
10-30 MVA	TB-RV 5M DIN42562
30-60 MVA	TB-RV 5L DIN42562
60-100 MVA	TB-RV 5XL DIN42562

Switch cabinet contacts, corrosion-prone housings, moisture-sensitive goods - adsorbers protect containers & contents in **closed systems** from contact with atmospheric moisture.

Container volume	Adsorber filter
0-50 ltr.	ES-R S
50-500 ltr.	ES-R M
500-1000 ltr.	ES-R L
1000-2000 ltr.	ES-R XL

Adsorbers protect biodegradable and water-sensitive bio-oils in hydraulic tanks from contamination with water. **Mobile machines** can thus be operated with the more environmentally compatible bio-oils without any problems.

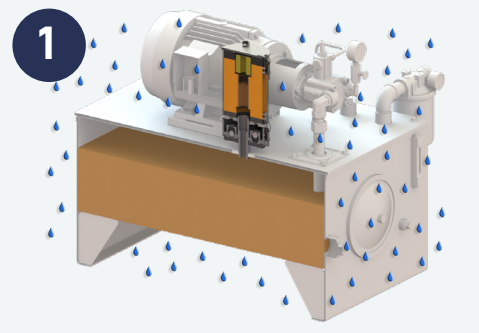


Tank volume	Adsorber filter
0-50 ltr.	VV-RV 1L G1/2“m
50-100 ltr.	MA-RV 2L G1“m
100-400 ltr.	MA-RV 3M G1“m
400-800 ltr.	MA-RV 3L G1“m
800-1800 ltr.	MA-RV 5M G1“m
1800-3600 ltr.	MA-RV 5L G1“m
3600-5400 ltr.	MA-RV 5XL G1“m

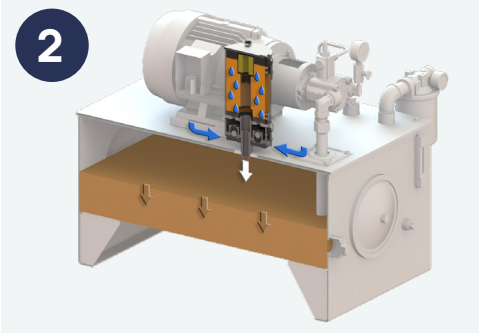
Inline adsorbers are capable of drying **process air** or filtering out pollutants - at up to 10bar (145 psi). This significantly increases the running performance of a plant, as both corrosion and maintenance work are eliminated.

Volume flow	Adsorber filter
30 l/min	VL-D 1L G1/2“f & G1/2“f
100 l/min	VL-D 2L G1“f & G1“f
250 l/min	VL-D 3M G1“f & G1“f
500 l/min	VL-D 3L G1“f & G1“f
1000 l/min	VL-R 5L G2“f & G2“f

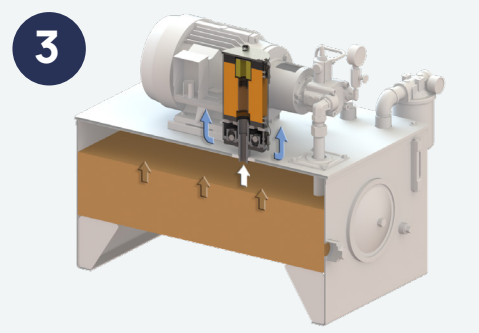
Functionality of an adsorber filter
Example: Hydraulic unit



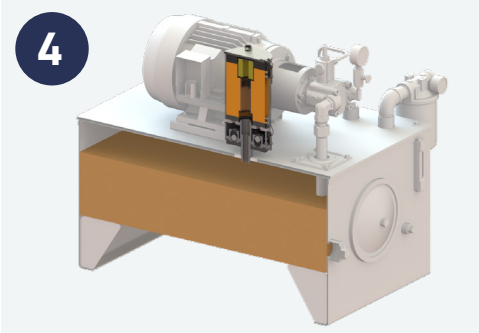
1. The adsorber is mounted on the hydraulic unit. The ambient air is enriched with moisture.



2. Hydraulic oil is removed from the tank, the oil level drops and the pressure is equalized by incoming air. The adsorber separates moisture up to 2% RH (on average 10% RH).



3. When the hydraulic oil is pumped back into the tank, the oil level rises and the pressure is equalized by the escaping dry air.



4. Since the air inside the system always remains dry, no condensation takes place in the hydraulic unit, even if the ambient air falls below the dew point.

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