

SF₆ service equipment

Automatic SF₆ gas dehydration of assets during operation



WIKAI

Part of your business

SF₆ service equipment

Humidity in SF₆-filled equipment – the root of all evil

In medium and high-voltage switchgear of the electricity grid operators, the gas acts as an extremely efficient insulation medium and operates as the arc quenching during the switching process. Pure SF₆ gas provides the ideal solution due to its high dielectric strength and its ability for recombination.

The reality is usually different, since absolutely pure SF₆ is found in very little SF₆-filled equipment. Depending on the amount of reactants present, with humidity occurring the most frequently, following energy input, highly toxic decomposition products are formed. These decomposition products attack the surfaces of tanks and cause them to corrode. Furthermore, they increasingly reduce the dielectric strength of the insulation materials in the switchgear.

Act in time, without downtimes - gas dehydration of assets during operation

The gas dehydration system model GAD-2000 which enables the reduction of the humidity in your SF₆-filled equipment. The unit takes the gas out of the compartment, dries it independently within the machine and fills it back to the gas compartment. Due to the double safety system, consisting of implemented SIL2 safety control as well as the processing of the signals from the gas compartment monitoring instrumentation, it is possible to carry this out without risk and trouble-free during continuous operation.

Everything at a glance, thanks to GSM data transfer

The GAD-2000 can be equipped, optionally, with a GSM module for data transfer to the mobile device of the operator. For example, information regarding the estimated remaining time of the process or the current humidity values in the gas compartment, as well as information on necessary service operations, such as a filter replacement, are transmitted. Thus, after commissioning, the user can leave the instrument to operate independently and look after other tasks, even at different locations.



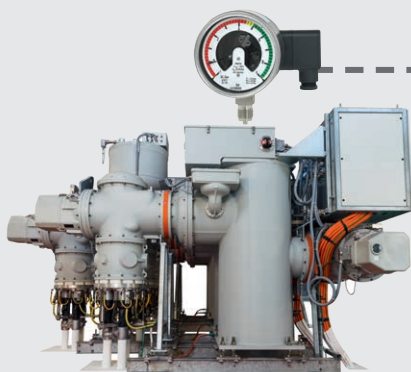
Product characteristics GAD-2000

- Guaranteed plant safety with the help of a double safety system. Continuous checking of monitoring instrumentation from the gas compartment, plus an additionally implemented SIL 2 safety control
- Efficient reduction of maintenance costs on SF₆-filled equipment (gas dehydration during operation of assets)
- Use of two parallel filters (model GPF-10) for high water absorption capacities
- Oil-free compressor
- Oil-free vacuum compressor
- Low maintenance effort
- Easy and intuitive operation via 7" touchscreen



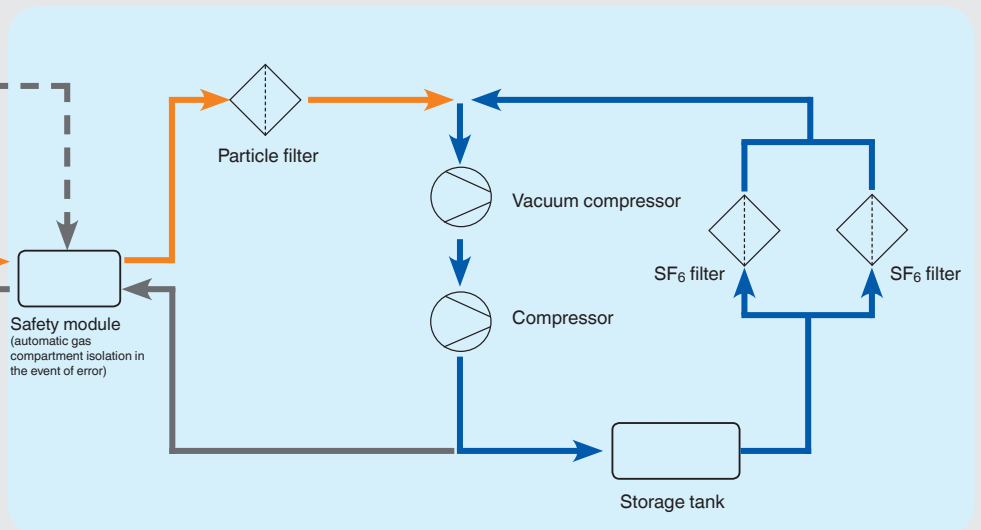
Automatic SF₆ gas dehydration with the GAD-2000

Instrumentation
Gas compartment monitoring



Gas-insulated
switchgear

GAD-2000



Legend

— SF₆ removal

— SF₆ filtering

— SF₆ recirculation

- - - Information flow

Specifications GAD-2000



Voltage supply

Standard	AC 400 V, 3-phase, 50/60 Hz
Option	AC 240 V, 3-phase, 50/60 Hz

Oil-free compressor (SF₆ gas)

Gas flow rate	4.4 m ³ /h (with medium suction pressure, 50 Hz) 5.3 m ³ /h (with medium suction pressure, 60 Hz)
Output pressure	11 bar abs.

Oil-free vacuum compressor (SF₆ gas)

Gas flow rate	3.6 m ³ /h (50 Hz) 4.2 m ³ /h (60 Hz)
Final vacuum	< 5 mbar abs.

Vacuum pump (air)

Standard	without vacuum pump for air	
Option	Gas flow rate	6.0 m ³ /h (50 Hz) 7.2 m ³ /h (60 Hz)
	Final vacuum	< 2 mbar abs.

Filter system

Type of filter	3-in-1 filter (model GPF-10), consisting of: Molecular sieve, aluminium oxide, particle filter 1 µm Absorption of: <ul style="list-style-type: none"> ■ Solids ■ Humidity ■ Decomposition products (HF, SO₂, SOF₂, SO₂F₂, SF₄)
Number of filters	2
Water absorption capacity	2 x 160 g
Max. pressure	50 bar abs.

Integrated tank

Volume	15 l
Max. pressure	16 bar abs.

GSM module

Standard	without GSM module
Option	GSM module for the transmission of relevant data to mobile devices

Safety systems

Standard	Safety control: Based on SIL 2 components
	SF ₆ gas warning equipment: 0 ... 2,000 ppmv, based on IR technology
Option	Additional status query of the gas density monitor

Connections

- Gas compartment connection: DN 8 female, brass, pressure range 0 ... 10 bar abs. (CON1)
- Connection for external compressor: DN 8 male, brass (CON2)
- Filling connection for internal storage tank: DN 8 male, brass, pressure range 0 ... 50 bar abs. (CON3)
- Connection for external vacuum pump: DN 8 male, brass (CON4)

Control element

7" touchscreen

Measuring range SF₆ gas humidity

-50 ... +30 °C atmospheric dew point (Td, atm)

Permissible ambient temperature

Ambient temperature: 5 ... 40 °C
Storage temperature: -20 ... +60 °C

Permissible air humidity

< 80 % r. h.

Ingress protection

IP42

Weight

approx. 275 kg with empty 15-litre tank

Tyres

Solid rubber, Ø 200 mm, with rollover protection