

Gas dehydration system

For SF₆ gas-filled equipment during operation

Model GAD-2000

Application

Reduction of humidity content in SF₆ gas-filled equipment during operation

Special features

- Ensuring system safety through a double safety system
- Efficient reduction of maintenance costs on SF₆ gas-filled equipment (gas dehydration during operation)
- Use of two parallel filters (model GPF-10) for high water absorption capacities
- Low maintenance effort
- Easy and intuitive operation via 7" touchscreen



Gas dehydration system, model GAD-2000

Description

Humidity in SF₆ gas-filled equipment

In medium and high-voltage switchgear of the electricity grid operators, the SF₆ gas acts as an extremely efficient insulation medium and operates as the arc quenching during the switching process.

The reality is usually different, since absolutely pure SF₆ gas is found in very little equipment. Depending on the amount of reactants present, with humidity occurring the most frequently, following energy input, highly toxic decomposition products are formed. In addition, the decomposition products not only strongly attack the surfaces of the tanks, but also progressively reduce the dielectric strength of the insulation materials in the switchgear.

Gas dehydration in equipment during operation

The gas dehydration system, model GAD-2000, can reduce the humidity content of SF₆ gas-filled equipment. It takes the gas out, dries it independently and fills it back to the gas compartment. The double safety system consisting of an implemented SIL2 safety control and a status query of the gas density monitor enables a risk-free and trouble-free execution during the operation of the switchgear.

The gas dehydration system 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.

Specifications

Voltage supply

Voltage supply	
Standard	AC 360 ... 400 V, 3-phase, 50/60 Hz
Option 1	AC 220 ... 265 V, 3-phase, 50/60 Hz
Option 2	AC 190 ... 230 V, 3-phase, 50/60 Hz

Oil-free compressor (SF₆ gas)

Oil-free compressor (SF ₆ gas)	
Gas flow rate	4.4 m ³ /h (with medium suction pressure)
Output pressure	11 bar abs.

Oil-free vacuum compressor (SF₆ gas)

Oil-free vacuum compressor (SF ₆ gas)	
Gas flow rate	3.6 m ³ /h
Final vacuum	< 5 mbar abs.

Vacuum pump (air)

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

Filter system

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 75 g
Max. pressure	50 bar abs.

Integrated tank

Integrated tank	
Volume	15 l
Max. pressure	16 bar abs.

GSM module

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

Safety systems

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. (CON 1)
- 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: -10 ... 40 °C
Storage temperature: -20 ... +60 °C

Permissible air humidity

< 95 % r. h. (non-condensing)

Ingress protection

IP42

Weight

approx. 275 kg with empty 15-litre tank

Tyres

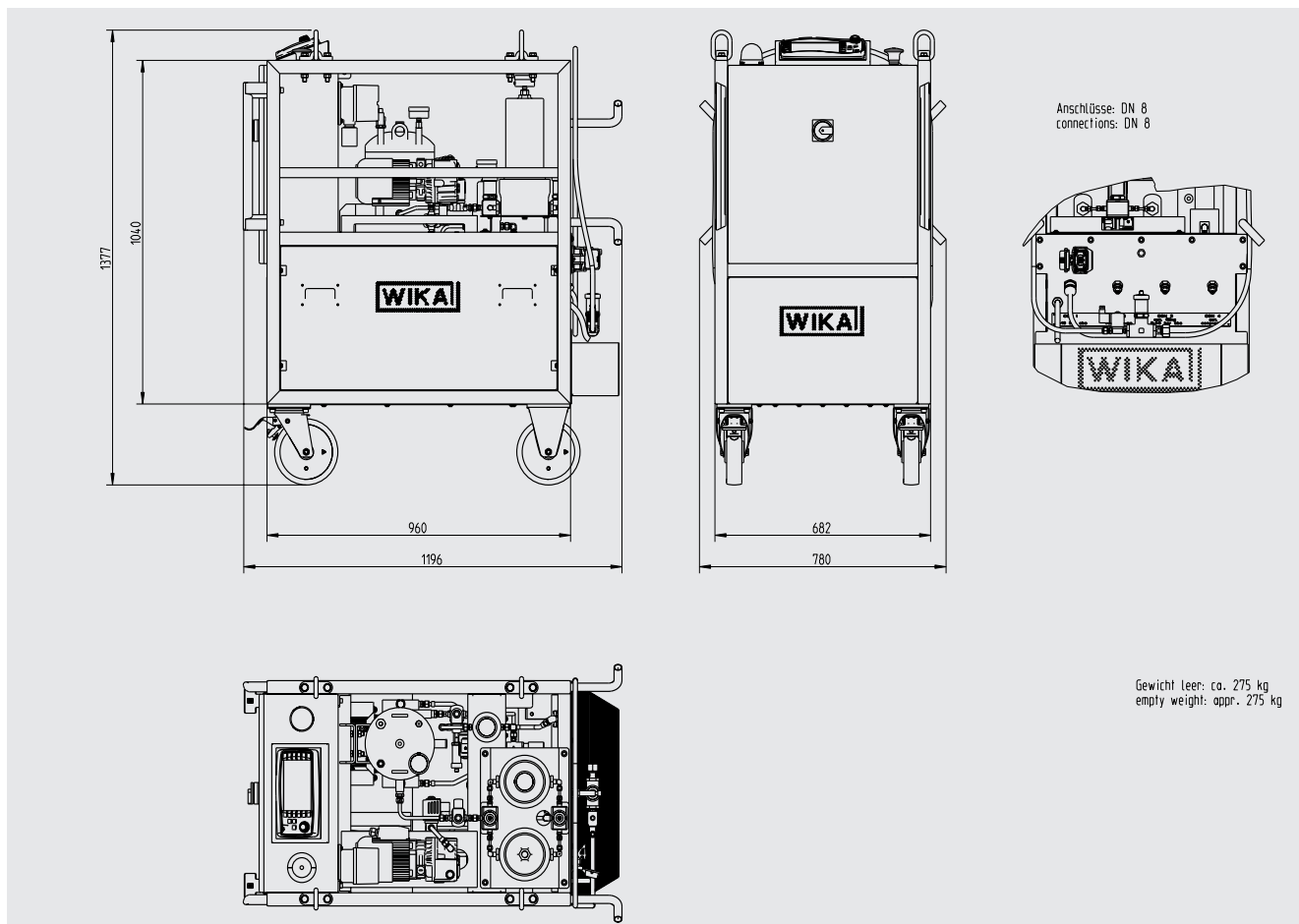
Solid rubber, Ø 200 mm, with rollover protection

Approvals

Logo	Description	Country
CE	EU declaration of conformity <ul style="list-style-type: none"> ■ EMC directive, EN 61326 emission (group 1, class B) and immunity (industrial application) ■ RoHS directive ■ Machinery directive 	European Union

Approvals and certificates, see website

Dimensions



Accessories

Hoses			
Nominal width	Gas bottle connection	Length	Order number
DN 8	W21.80x1/14" – DIN 477 No. 6	3 m	14292056
		5 m	14292082
	1" – DIN 477 No. 8	3 m	14292085
		5 m	14292087
DN 20	W21.80x1/14" – DIN 477 No. 6	3 m	14292023
		5 m	14292034
	1" – DIN 477 No. 8	3 m	14292036
		5 m	14292046

Adapter	Order number
DN 8 (male) to DN 20 (female), brass	14096583
DN 8 (female) to DN 20 (male), brass	14284870

Spare parts and service kits	Order number
Oil for vacuum pump, 1 litre	14199926
Filter cartridge for GPF-10	14118800
Filter cartridge for particle filter	14140385
Service kit for compressor (SF ₆ gas)	on request (serial number of the system is required)
Service kit for vacuum compressor (SF ₆ gas)	on request (serial number of the system is required)
Service kit for vacuum pump (air)	on request (serial number of the system is required)
Rain cover GAD-2000	14328427

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