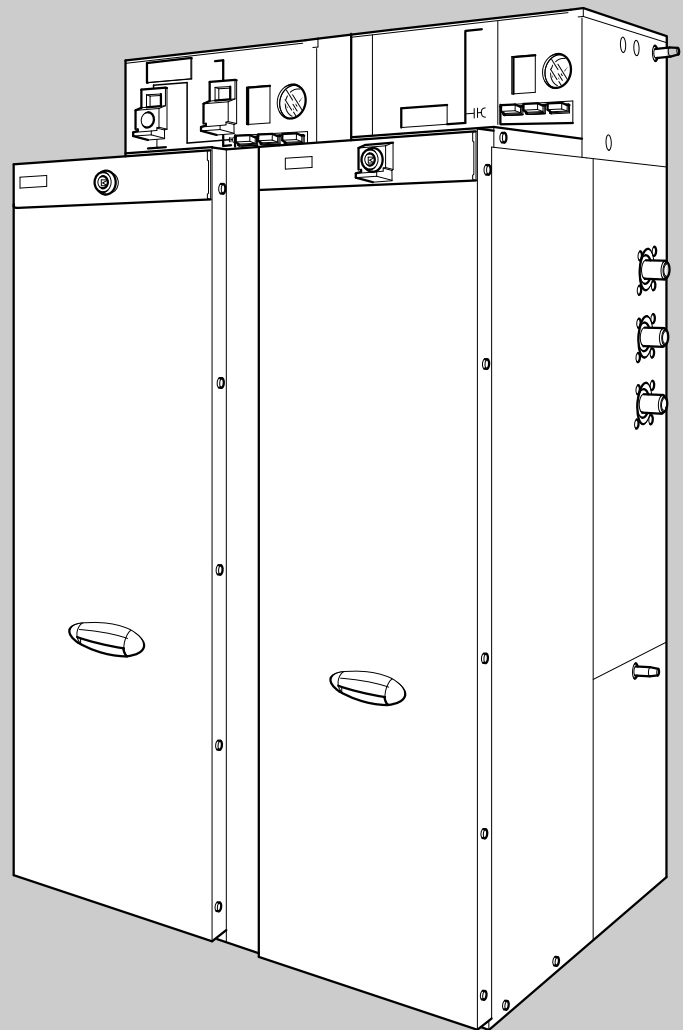


SF₆-insulated, extensible block module bus sectionaliser / bus riser panel

Type GAE630 -1KG/4/-1H1-/4/ for accessible switchgear rooms
for rated voltages of up to 24 kV

OPERATING INSTRUCTIONS





These operating instructions must only be used as a supplement to the operating instructions „SF₆-insulated, extensible ring-cable panel, Type GAE630 -1K-/3/“ (No. 12244745). All information and safety relevant instructions and regulations must also be observed when installing, operating and servicing the block module type GAE630 -1KG/4/-1H1-/4/!

The block module consists of the bus sectionaliser load-break switch panel GAE630 -1KG/4/ and the bus riser panel GAE630 1H1-/4/ and is factory pre-assembled. Both panels are bolted together with an intermediate frame.

The outer and inner construction of the bus riser panel GAE630 1H1-/4/ complies with the cable panel. The job specification for the bus riser panel does not require any circuitry. Therefore the panel is equipped without switching drive.

In combination with a bus sectionaliser load-break switch panel GAE630 -1KG/4/ the bus riser panel is used for separation of the busbar running through the entire switching system into defined sections. The internally routed phase separated busbar (main current path) is guided to the cast resin bushings between bus sectionaliser panel and busbar riser panel. Both panels are joined by means of uncontrolled busbars through the side walls of the connection compartment. Separation of the internal busbar is accomplished by switching of the bus sectionaliser panel.

The connection area of the bus riser panel is designed with a transparent PETG-screen against unauthorized access as standard, which is tightly bolted to the connection compartment behind the front panel. As a measure against the removal of the front panel during operation the fastener on the front panel can be optionally fitted with a lock.

Planning of installation – floor fastening measurements

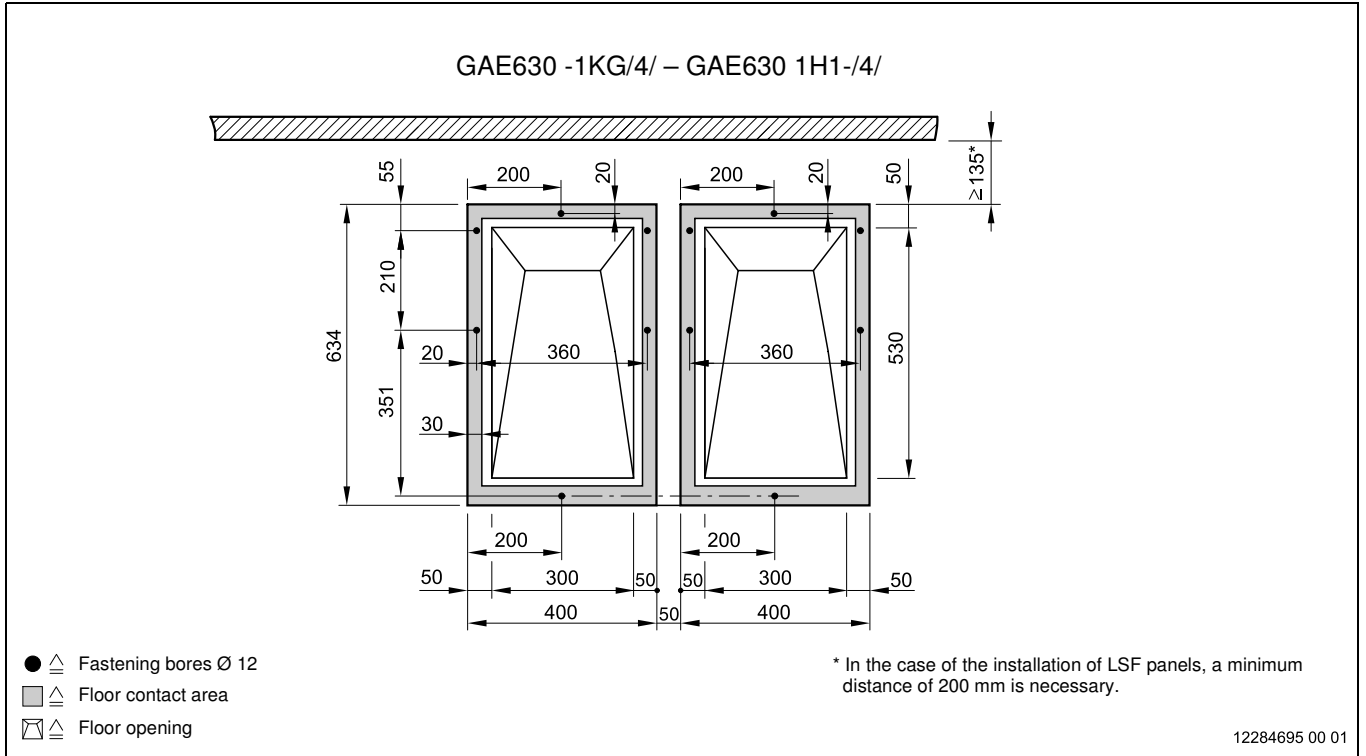


Fig. 1 Floor fastening measurements (all dimensions are nominal dimensions [mm])
 GAE630 -1KG/4/-1H1-/4/ with pressure relief into cable trench / raised floor

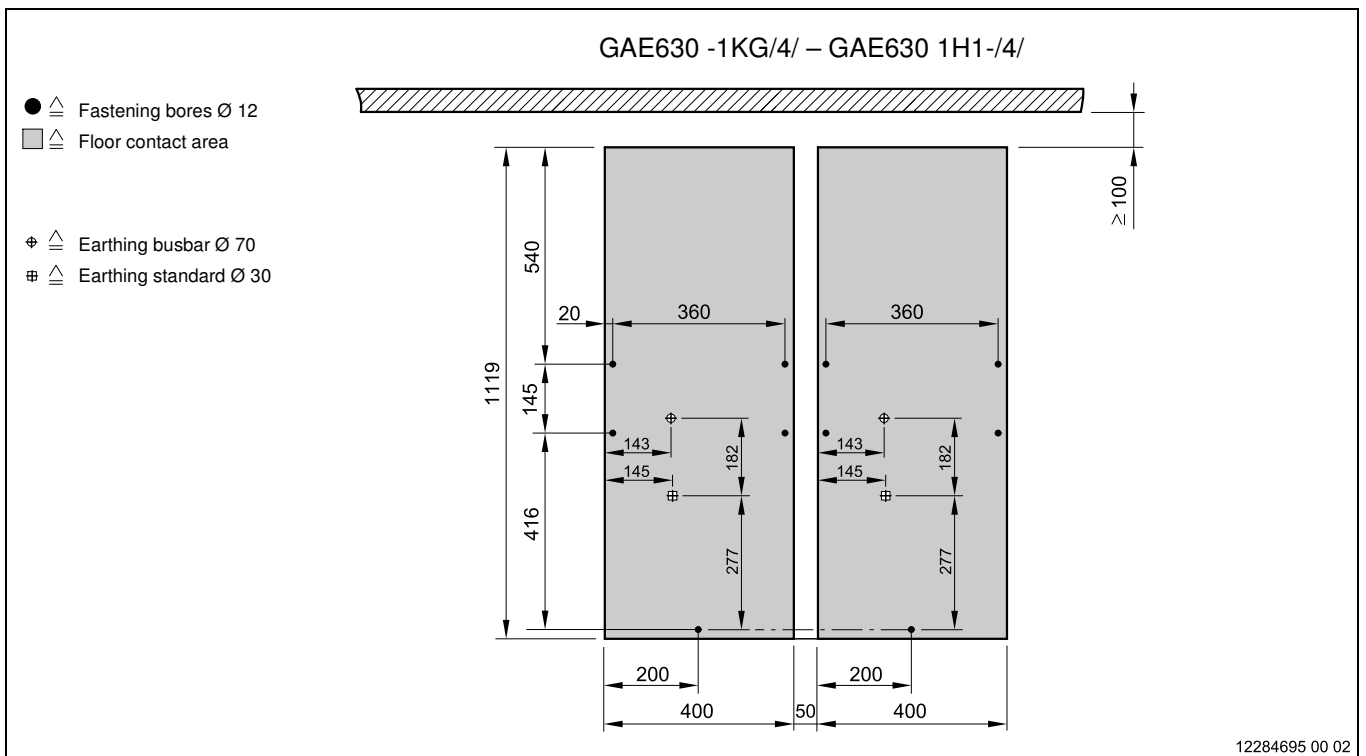
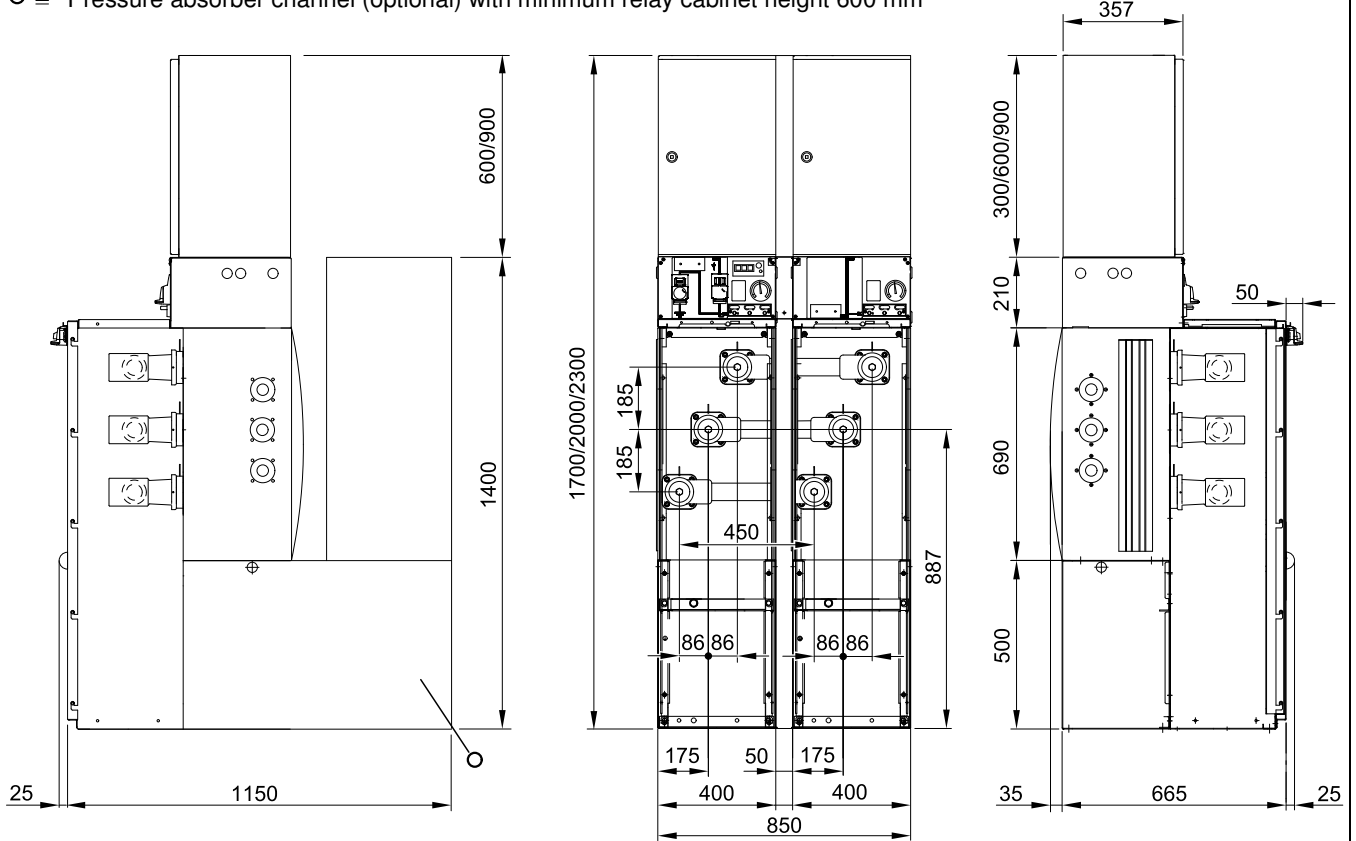


Fig. 2 Floor fastening measurements (all dimensions are nominal dimensions [mm])
 GAE630 -1KG/4/-1H1-/4/ with pressure relief via rear pressure absorber channel

Planning of installation – dimensions

○ △ Pressure absorber channel (optional) with minimum relay cabinet height 600 mm



Note: Relay cabinet (300/600/900 mm) optional in case of switchgear without pressure absorber channel

12284695 00 03

Fig. 3 Block module GAE630 -1KG/4/-1H1-/4/ (all dimensions are nominal dimensions [mm])

Planning of installation – installation possibilities

Installation possibilities for block modules in accessible switchgear rooms.

Attention!

During installation make sure not to damage the burst protection in the bottom of the gas tank.

This diaphragm opens in case of an internal arc fault. The gases emerging must be discharged as shown in Fig. 4.

The cable trench must have a defined minimum cross-section. For the optional pressure relief of the cable trench the following rule of thumb must be applied:

- up to 3 panels: one metal cooling stretch arrangement (400 x 600 mm)
- from 4 panels: a second metal cooling stretch arrangement of the same size.

The metal cooling stretch arrangement must be arranged on site in a way that the cable trench is evenly divided.

In order to enhance the stability the back plate of the transformer outgoing panel can be fastened with two steel angles (not included in the scope of delivery). For this purpose use the screws from the transport device.

Please ask for our assistance in the planning and installation of the station.

The construction of the building and the switchgear room must withstand the expected mechanical loads and the internal pressure caused by a short-circuit arc. Appropriate calculations for these purposes are recommended. Switchgear related pressure calculations can be requested as part of the services provided by the sales department at Ormazabal GmbH.

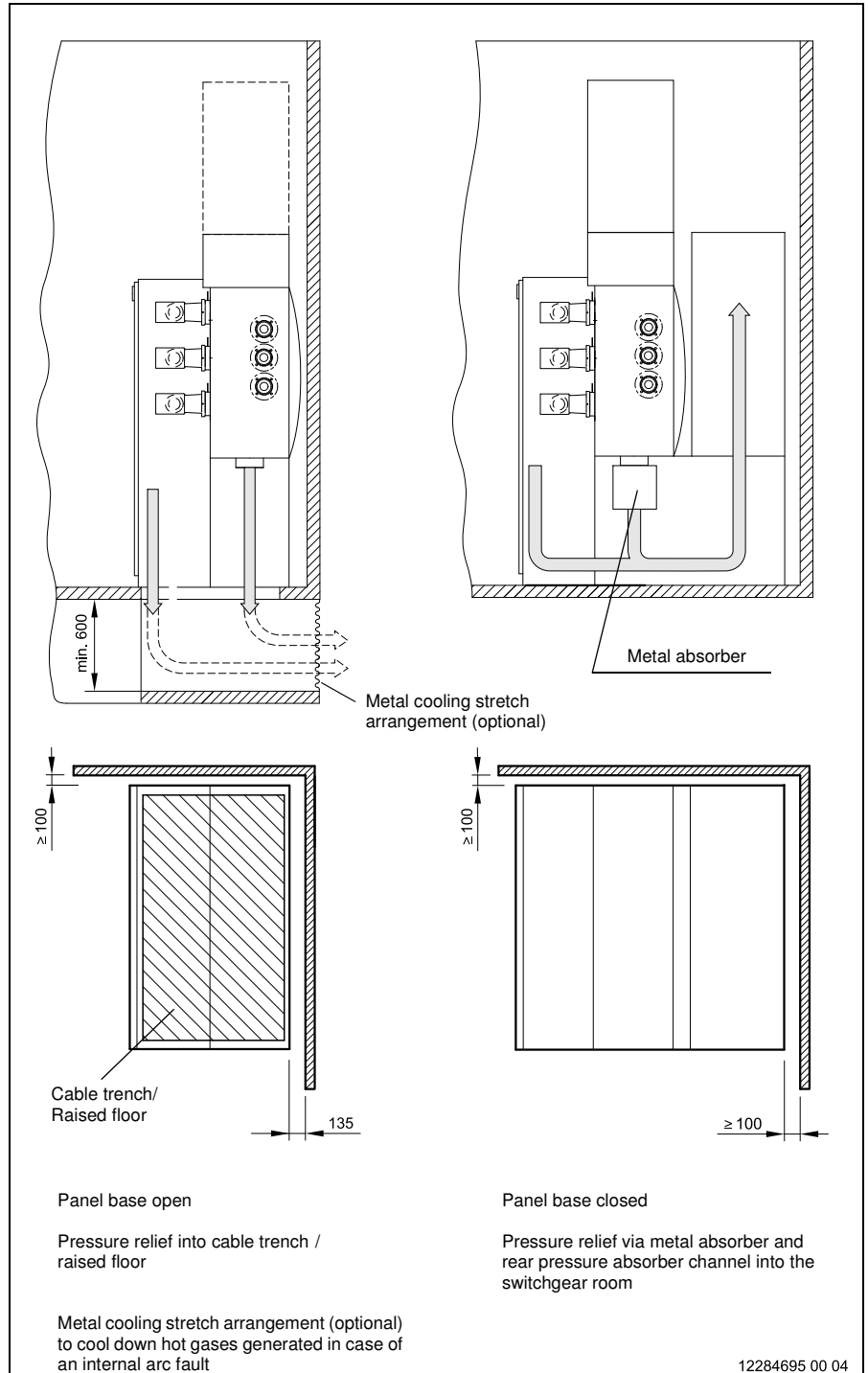


Fig. 4

Technical data

General data

Rated filling pressure of insulating gas at 20 °C and 101.3 kPa		130 kPa (30 kPa overpressure)
Insulating gas		SF ₆
SF ₆ - filling weight at 20 °C and 101,3 kPa		0.7 kg (each gas tank)
Rated density of the insulating gas		7.9 kg/m ³
Ambient temperature	without secondary equipment	-25 to +40 °C (-40 to +40 °C on request)
	with secondary installations ¹⁾	-5 to +40 °C (-25 to +40 °C on request)
	with reduced rated currents	above +40 °C
Relative humidity		max. 95% (indoor conditions)
Enclosure of the HV compartment		sealed pressure system acc. to IEC, IP 65/IP4X
Enclosure of the drive housing		IP44
Enclosure of the connection compartment		IP44
Arc-fault qualification according to VDE 0671 part 200 or IEC 62271-200 respectively		IAC AFL 20 kA 1 s for HV compartment and connection compartment
Coloration of equipment		RAL 7035 (light grey)
Loss of service continuity category		LSC 2A
Partition class		PM
Weight block module GAE630 -1KG/4/-1H1-/4/		approx. 290 kg (approx. 470 kg with pressure absorber channels)

Table 1

1) dependent on the secondary technology used

Rated values – bus sectionaliser load-break switch panel GAE630 -1KG/4/

		Switch	Earthing switch
Rated frequency	f _r	50/60 Hz	50/60 Hz
Rated voltage	U _r	12/24 kV	12/24 kV
Rated normal current	I _r	630 A	-
Rated short-duration power-frequency withstand voltage 1 min	U _d	50 kV	50 kV
Rated lightning impulse withstand voltage	U _w	125 kV	125 kV
Rated lightning impulse withstand voltage of the isolating gap	U _p	145 kV	-
Rated mainly active load-breaking current	I ₁	630 A	-
Rated cable-charging breaking current	I _{4a}	50 A	-
Rated earth fault breaking current	I _{6a}	160 A	-
Rated cable- and line-charging breaking current under earth fault conditions	I _{6b}	100 A	-
Rated peak withstand current	I _p	50 kA	50 kA
Rated short-time withstand current 1 s, optionally 3 s	I _K	20 kA	20 kA
Rated short-circuit making current	I _{ma}	50 kA	50 kA
Number of switching operations under rated mainly active load-breaking current	n	100	-
Number of switching operations under rated short-circuit making current	n	5	5
Number of mechanical switching operations	n	1000	1000
Class	-	E3 M1	E2

Table 2

Rated values – bus riser panel GAE630 1H1-/4/

Rated frequency	f_r	50/60 Hz
Rated voltage	U_r	12/24 kV
Rated current	I_r	630 A
Rated short-duration power-frequency withstand voltage 1 min	U_d	50 kV
Rated lightning impulse withstand voltage	U_w	125 kV
Rated lightning impulse withstand voltage of the air gap	U_p	145 kV
Rated peak withstand current	I_p	50 kA
Rated short-time current	I_K	20 kA

Table 3



Ormazabal Anlagentechnik GmbH

Am Neuerhof 31
D-47804 Krefeld, Germany

Tel.: +49 2151 7151-0
Fax: +49 2151 7151-75
E-mail: anlagentechnik@ormazabal.de
Internet: www.ormazabal.de