



Medium Voltage Product

Medium Voltage Switchgear (**ABB** Unisafe)

Indoor Type

Agreement Certificates between AGE and Globalize ABB, Switzerland as following technical transfer agreement on March 2017 successfully.



Technical Transfer Agreement for Medium Voltage Switchgear and
Under License Agreement for Low Voltage Switchgear

	
CERTIFICATE ABB Strategic Cooperation Panel Builder	
Asia General Electric Co Ltd No (1 / 89), Zone(1), Ka Naung Min Thar Gyi Road Hlaing Tharyar Township; 11401; Yangon; Myanmar	
has been granted the power by ABB to manufacture:	
Product IEC Medium Voltage Air insulated Switchgear type UniSafe 2.0 12kV ... 2500A ... 31.5kA	
This certificate no. 001370 is valid until: 3/30/2020	
 Martin Stefski Global Product Manager	 Martin Stefski Global Product Manager

Unisafe 2.0

Air insulate Medium voltage Switchgear
for primary distribution
Up to 12kV, 4000A, 31.5kA



Unisafe 2.0 have been type tested in compliance with international standards and hold a wide range of certification.

The switchgear construction is modular and made up by placing standardised unit side by side in a coordinated way. Safety and reliability are key design criteria, so the unit are fully arc-proof. Installation requires very simple civil works.

UniSafe 2.0 switchgear features

- Air insulation of all live part
- LSC-2B/PM classification
- Complete set of apparatus:
 - Vacuum circuit breaker (VD4)
- Apparatus racking in/out with closed door
- Internal arc classification IAC AFLR
- Fitted with safety interlocks
- Wall and free-standing solution
- Putting into service, maintenance and service operation can be carried out from the front
- High customization versions
- Construction with pregalvanized sheet without welding points
- Wide range of functional units for any all installation solutions
- Equipped with traditional CT, VT (fixed and or withdrawable) and sensors.
- Easy-to assemble modular structure

Normal service condition

- Minimum ambient temperature - 5°C
- Maximum ambient temperature + 40°C
- Maximum relative humidity 95%
- Maximum altitude 1000 m s.l.m.
- In presence of unpolluted and non-corrosive atmosphere

Degrees of protection

- External enclosure IP 4X
- Inside the compartment IP 2X

Optional for external enclosure

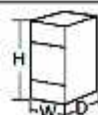
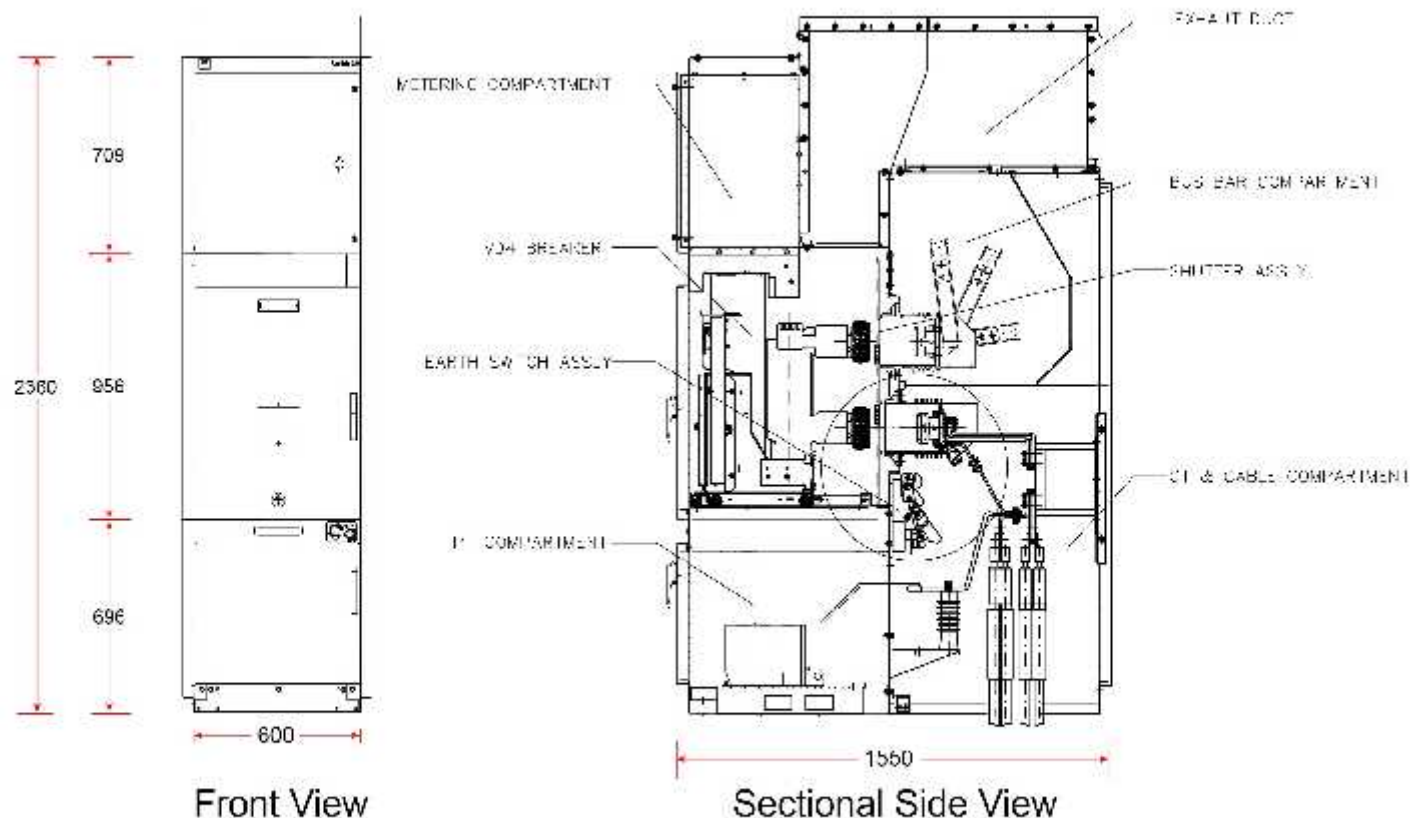
- IP 41
- IP 42
- IP 43

Standards

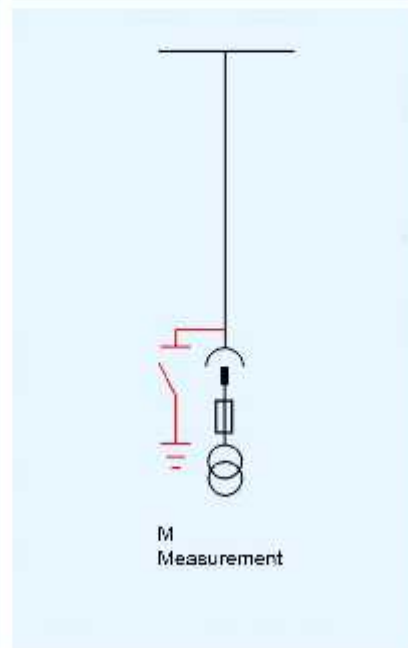
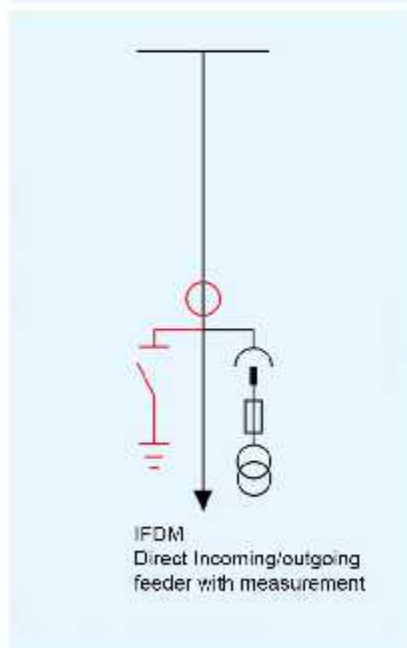
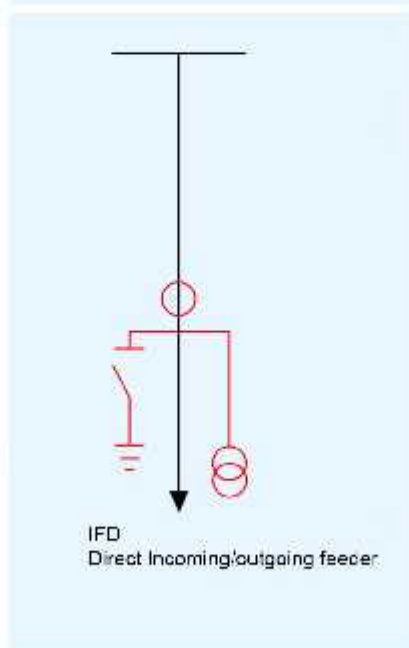
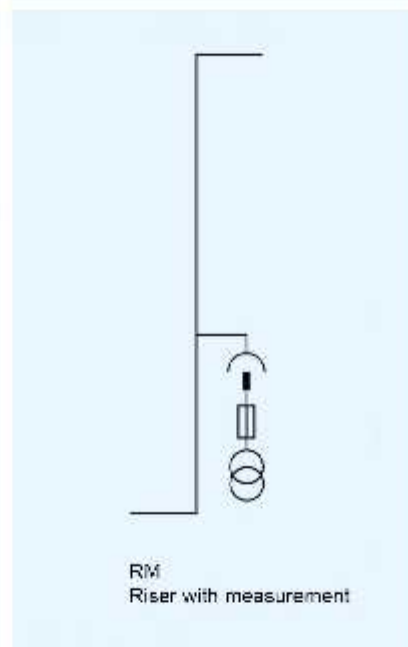
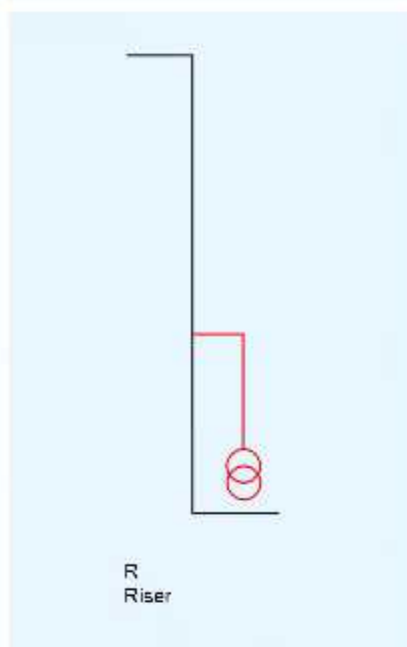
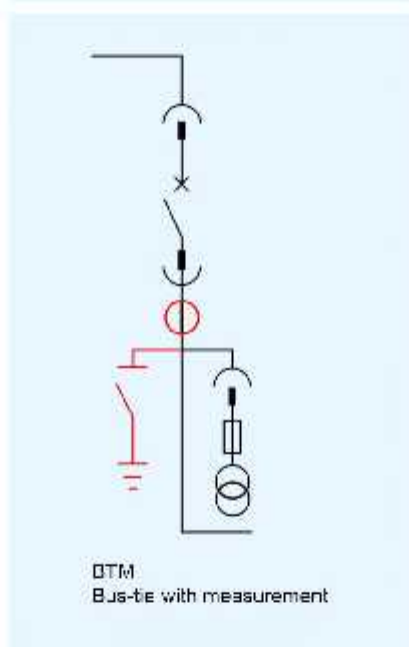
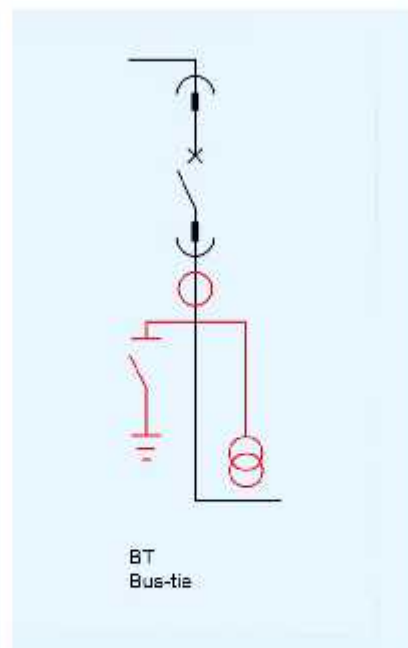
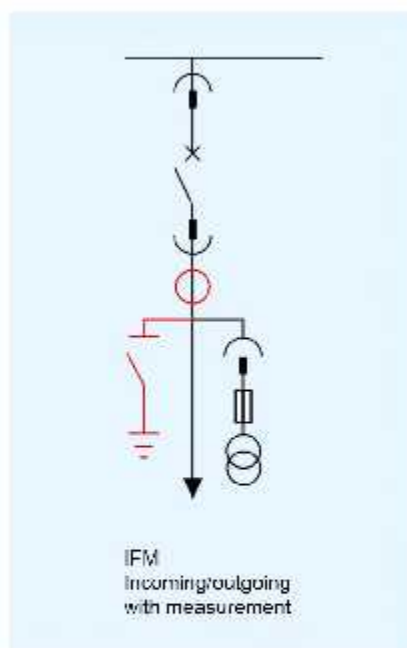
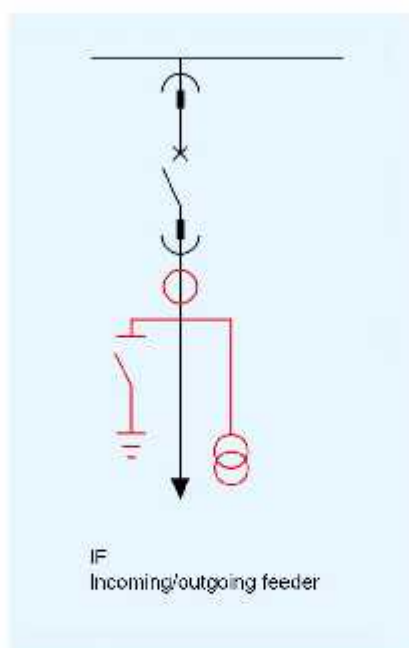
- IEC 62271-1 general application
- IEC 62271-200 for switchgear
- IEC 62271-100 for circuit breaker
- IEC 62271-102 for earthing switch
- IEC 62271-106 for contactor
- IEC 60259 for protection degrees

UNISAFE 2.0 - AIR INSULATED MEDIUM VOLTAGE SWITCHGEAR FOR PRIMARY DISTRIBUTION**Technical data**

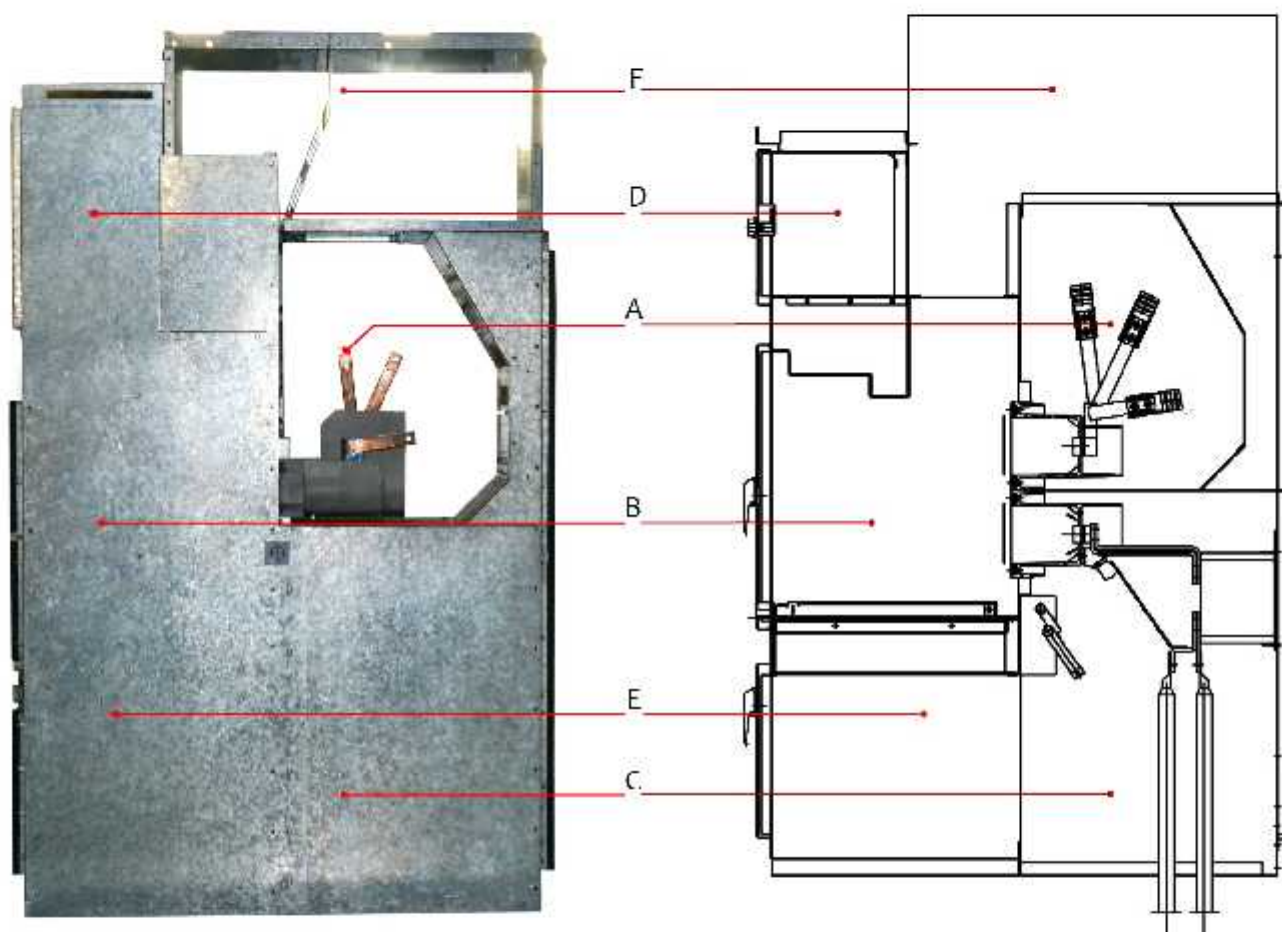
Switchgear	UniSafe 2.0	
Type of construction – Internal Arc Classification	IAC AFLR	IAC AFLR
Rated voltage	[kV]	12
Insulation levels/power frequency/lightning impulse	[kV]	12/28/75
Rated frequency	[Hz]	50/60
Rated main busbars current (40°)	[A]	
Rated feeder current (40°C)	[A]	
Rated short-time current	[kAx3s]	...31.5/40*
Rated short-time current	[kAx1s]	50*
Arc proof withstand current (IEC 62271-200)	[kAx1s]	...31.5/40*
Arc proof withstand current (IEC 62271-200)	[kAx0.5s]	50*
Tested in according to	IEC	
Overall dimensions Of the basic cubicle	H [mm]	2160...2510
	W [mm]	600/750/1000
	D [mm]	1550/2000
Technical guide	No. 1VCP000555	

**General arrangement drawing**

Single-line diagram of typical units



Typical feeder unit



- A: Busbars compartment
- B: VCB compartment
- C: CT & Cable compartment
- D: Metering compartment
- E: PT Compartment
- F: Exhaust duct channel

Air insulated indoor switchgear cubicle type Unisafe

The Unisafe cubicle is designed and type tested to meet requirement of IEC 62271 - 200

Metering compartment

- Metering compartment with numerical / static / electromagnetic relays, indicating meters, lamps and control switches
- Protection and measuring apparatus customised as per requirement



VCB compartment

- Test position of circuit breaker behind closed door
- Racking in/out of breaker from 'test' to 'service' position and vice-versa with cubicle door closed
- Mechanical interlock to prevent racking in/out of breaker when breaker is in closed position
- Live parts covered by automatic metallic shutters when breaker is racked out



Busbar compartment

- Spacious busbar compartment for adequate air clearances
- Option for busbar insulation available
- Option for shroud on joints available



CT and Cable compartment

- Spacious compartment to accommodate 1 set of CTs and 2 runs of cable
- adequate height for cable termination

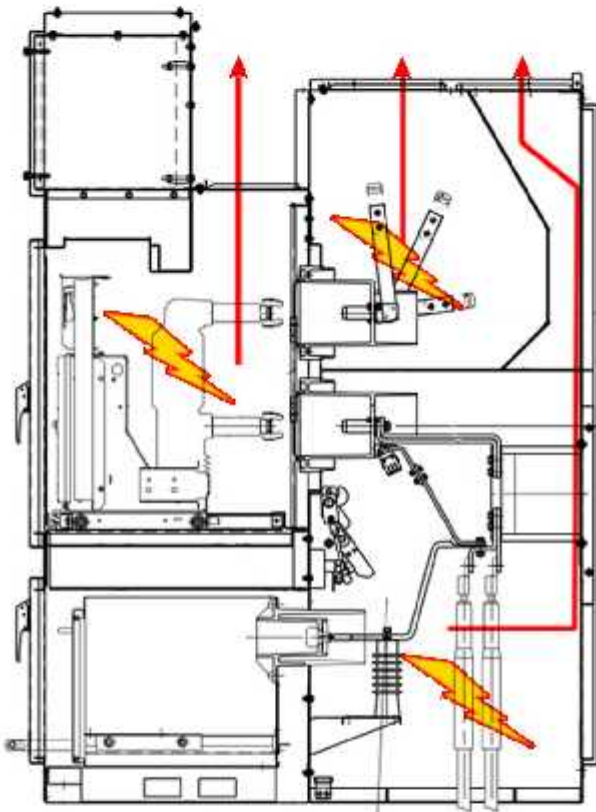


PT compartment

- Withdrawable fixed line PT provided in the breaker panel
- Removal fuse mounted on the PT (for withdrawable)
- Safety shutters between PT and cable compartment close automatically on PT withdrawal

Unisafe safety aspects

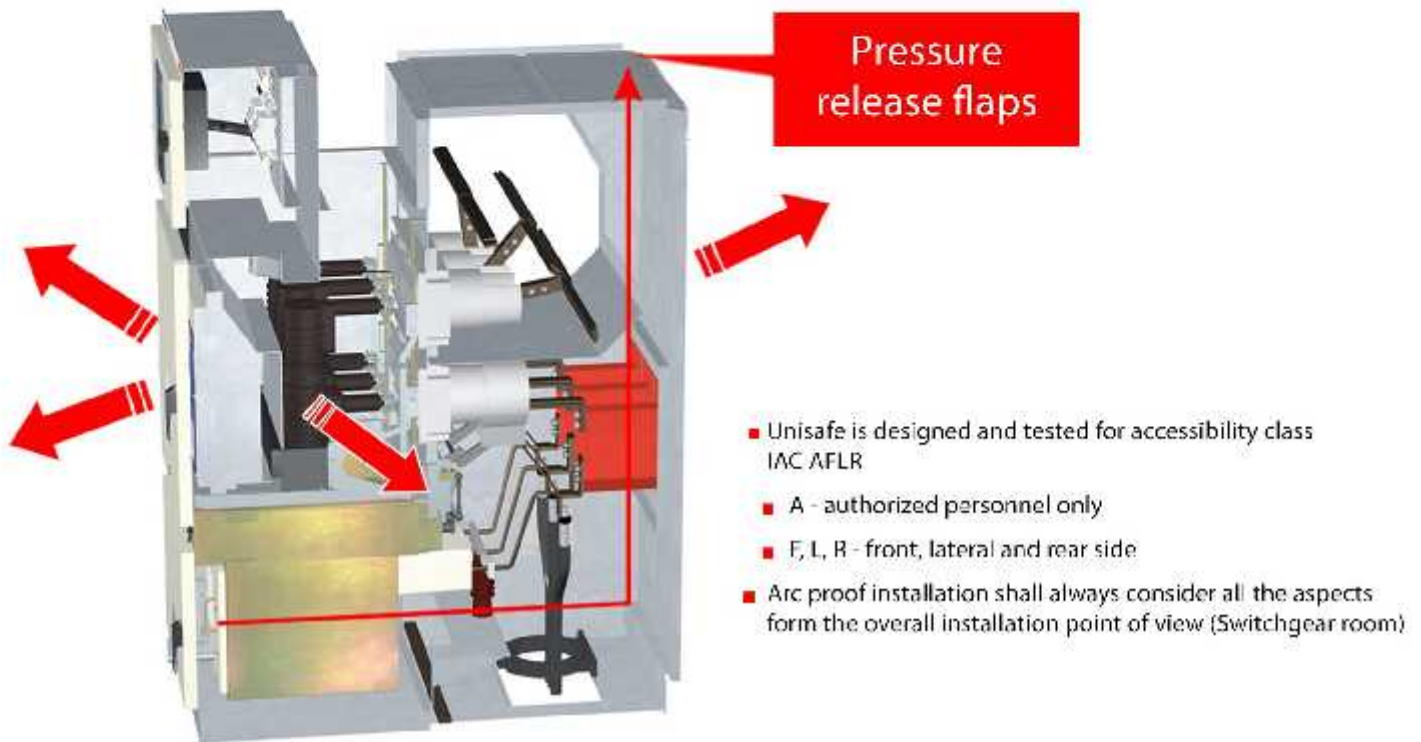
Gas exhaust protection covers



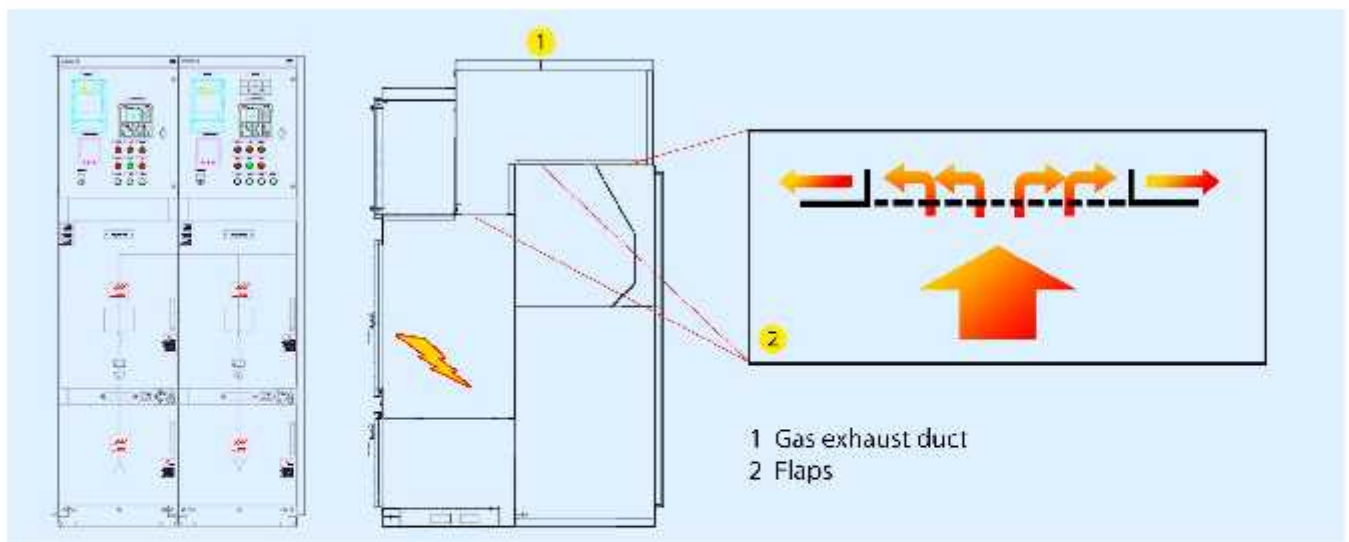
- From safety reasons, most of the installations require use of additional protection covers above the switchgear
- The application of the covers depends on the ceiling height, rated arcing current and arc time duration
- Alongwith the protection covers, detectors for rapid fault clearance times are used with Unisafe

Unsafe safety aspects

Accessibility class IAC AFLR



Gas exhaust protection covers - top chimneys



- Second type are protection covers with top chimneys, without need for outlets from the room
- The solution is tested up to 50kA/0,5s
- In smaller rooms, pressure calculation is recommended
- Used also when a higher IP class is required (up to IP43)

Indoor switchgear – vacuum circuit breaker type VD4

The VD4 type circuit breaker is designed and tested to meet requirements of IEC - 62271 - 100

Salient features

- Vacuum used as insulation and arc interruption medium
- Operationally safe and reliable in a wide range of ambient temperatures ()5° to 40°C
- Capable of interrupting small magnetising and capacitive currents
- Features of operating mechanism:
 - O-C-O operation without recharging
 - Closing spring charged by motor in less than 15 seconds
 - Electrical anti-pumping
 - Provision for manual charging
 - Synchronisation and fast auto reclosure duty



Technical details

Description	Unit	Rating						
Type	VD4	12.00.25 P150 12.08.32 P150	12.12.25 P150 12.12.32 P150	12.16.25 P210 12.16.32 P210	12.20.25 P210 12.20.32 P210	12.25.25 P275 12.25.32 P275	12.32.32 P275	12.32.32 P275
Rated Voltage	kV	12						
Insulation Levels	kVrms/kVp	28/75						
Normal Current (40°C amp.)	A	630	1250	1600	2000	2500	3150	4000
Breaking Capacity	kA	25 / 31.5	25 / 31.5	25 / 31.5	25 / 31.5	25 / 31.5	25 / 31.5	25 / 31.5
Making Capacity	kAp	63	63	63	63	63	63	63
Short time withstand current	kA(3sec)	25 / 31.5	25 / 31.5	25 / 31.5	25 / 31.5	25 / 31.5	31.5	31.5
Opening time	ms	33 ~ 60						
Arcing time	ms	10 ~ 15						
Total Break time	ms	43 ~ 75						
Making time	ms	30 ~ 60						
Operating Sequence	-	O - 3min - CO - 3min - CO/ O - 0.3sec - CO - 15 S - CO						
Weight (approx.)	Kg	116	116	180	190	225	240	240



Transport

- Airports
- Port installations
- Underground railways

Service sector

- Supermarkets
- Shopping malls
- Hospitals
- Large infrastructures

Industry

- Pulp and paper
- Textile
- Chemical
- Food and beverage
- Automotive
- Petrochemical

Utilities and Power Plants

- Power generation stations
- Transformer stations
- Switching stations
- Main and auxiliary switchgear

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