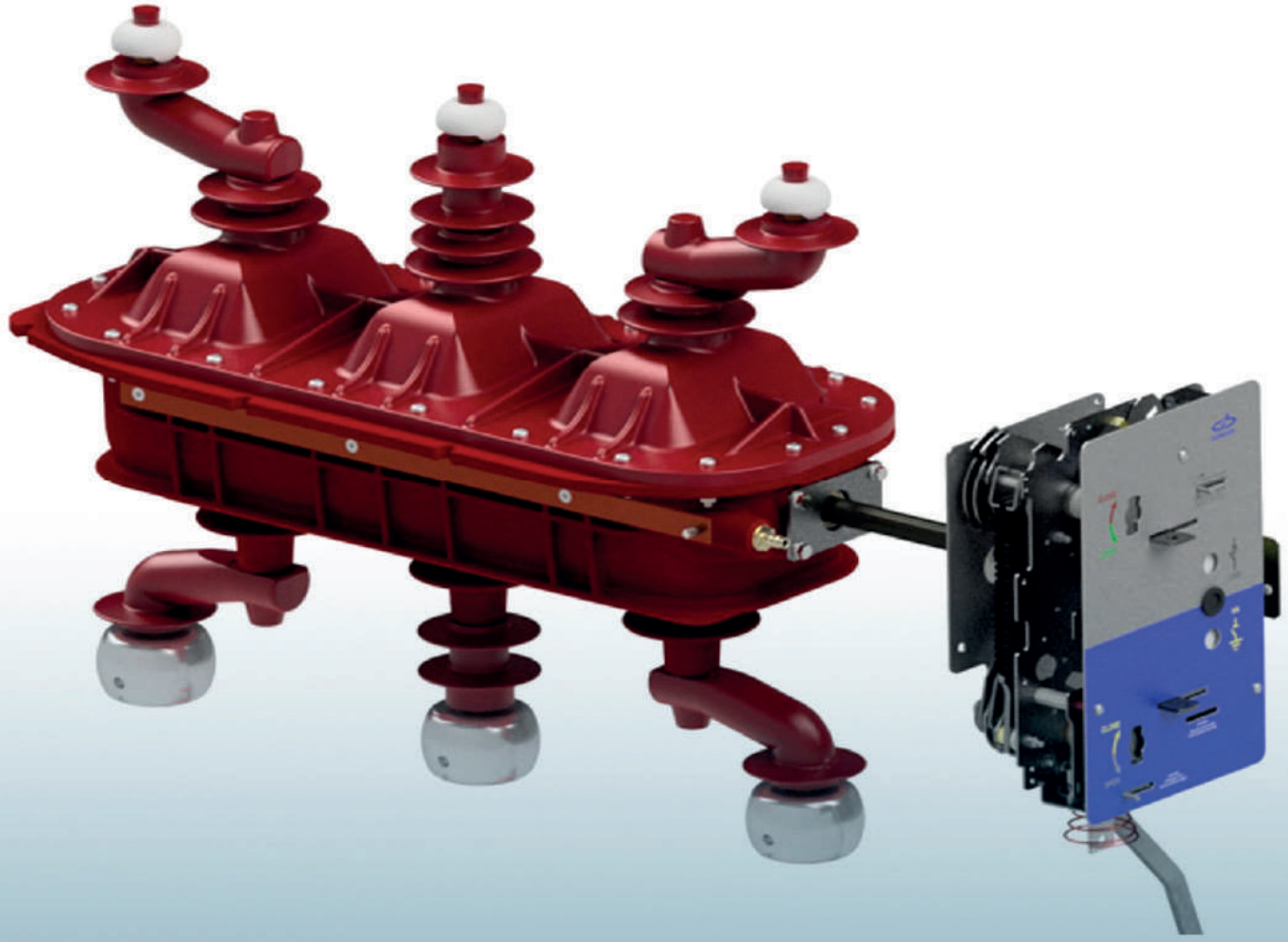
BONOMI



RG SERIES 24 / 36 kV

SWITCH DISCONNECTOR KIT

SF_6 gas insulated three-position load break switch for MV secondary distribution panels

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RG SERIES: OUR NEW SWITCH DISCONNECTOR KIT

The RG series is a three-position load break switch, SF6 gas insulated, suitable for use in medium voltage secondary distribution panels up to 36 kV, 630 A, 20 kA.

The new solution is used in incoming / outgoing line panels, in combination with a circuit breaker or with fuse links. Typical applications are power supply lines, transformer protection and ring networks.



375 mm
MINIMUM PANEL WIDTH

UP TO 36 kV

Three-position load break switch rated 630 A and 20 kA for secondary distribution panels.

VERSATILE APPLICATIONS

Incoming / outgoing lines, transformer protection with fuse links and ring networks.

COMPACT SIZE

Thanks to its compact size, it can be installed in panels of 375 mm width ormore.

ADVANTAGES

TIME AND COST SAVING

Optimised assembly: the components to be assembled and connected have been optimised to make assembly operations easier and faster.

Integrated VPIS: capacitive sockets for the voltage presence indicating system (VPIS) are integrated into the lower insulators, supplied as accessories.

Pre-mounted interlock: the door interlock is already mounted with the control module.

230 mm

PHASE DISTANCE

24 kV · 300 mm at 36 kV no insulating dividers needed

SERVICE BY YOUR SIDE

Ad hoc projects

- Customers can count on ad hoc projects and interact with our technicians to customise the kit with the various solutions at our disposal.

Constant assistance

- Our technical department is at your service, to ensure constant assistance before, during and after the kit installation.

GUARANTEED PERFORMANCE

Extreme environmental conditions

- Guaranteed performance even in extreme environmental conditions.

Long-lasting protection

- The cast resin shell, filled with SF6, guarantees long-lasting protection against external factors.

SERVICE CONTINUITY AND REDUCED MAINTENANCE

30+ **YEARS**

Main casing "sealed for life", guaranteed for more than 30 years, with a consequent reduction of maintenance work.

0 **MAINTENANCE**

No maintenance required for operating mechanisms.

SAFETY

- Maximum level of safety for operators.
- Operating speed of the actuator independent from the operator.
- Mechanical position indication directly connected to the power shaft.
- Prevention of dangerous operations.
- Interlock between line switch and earthing switch operations (separate operating seats).
- Interlock between the earthing switch and the cable compartment door.



CUSTOMIZED PRODUCT

AIR-ON allows a high degree of customization: the kit, supplied with the basic elements only, can be customized in all its parts according to the needs of each customer.

This guarantees a tailor-made product that perfectly fits the technical, assembly and transport requirements of each application.

DESCRIPTION

One compact unit: a sealed dry-air switch disconnector, a spring-operated mechanism and a built-in safety interlock.



24 / 36 kV	**630** A	**20** kA · 1 s	**230 / 300** mm
Rated voltage	Rated current	Short-time withstand	Phase distance

1

Load break switch

Three positions — closed, open, earthed — in SF_6 gas. Cast epoxy resin casing hermetically sealed for life.

2

Extension kit for 36 kV

Upper and lower bushing extensions for the 36 kV version of the switch.

3

Operation mechanism box

Three-position mechanism with energy storage, for rapid operation independent from the operator.

4

Integrated panel door interlock

The panel door opens only with the switch earthed; no switching is possible with the door open.

STANDARD AND SECURITY

- The load break switch consists of two cast epoxy resin shells hermetically sealed to ensure a more than 30 years operating life.
- Mechanical interlocks for personnel safety.
- The door lock prevents the panel door from being opened when the switch contacts are not earth positioned. The other way around, the block also prevents from switch opening/closing operations when the door compartment is open.

STANDARDS

RG resins are designed and tested according to the following standards:

STANDARD	TITLE
IEC 62271-103	Switches for rated voltages above 1 kV up to and including 52 kV
IEC 62271-102	Alternating current disconnectors and earthing switches
IEC 62271-206	Voltage presence indicating systems
IEC 62271-105	Alternating current switch-fuse combinations
IEC 62271-200	AC metal-enclosed switchgear and controlgear for rated voltages above 1 kV and up to and including 52 kV

SAFETY FOR PEOPLE

1.3 BAR · 24 k V

SF_6 filling pressure of the 24 kV version.

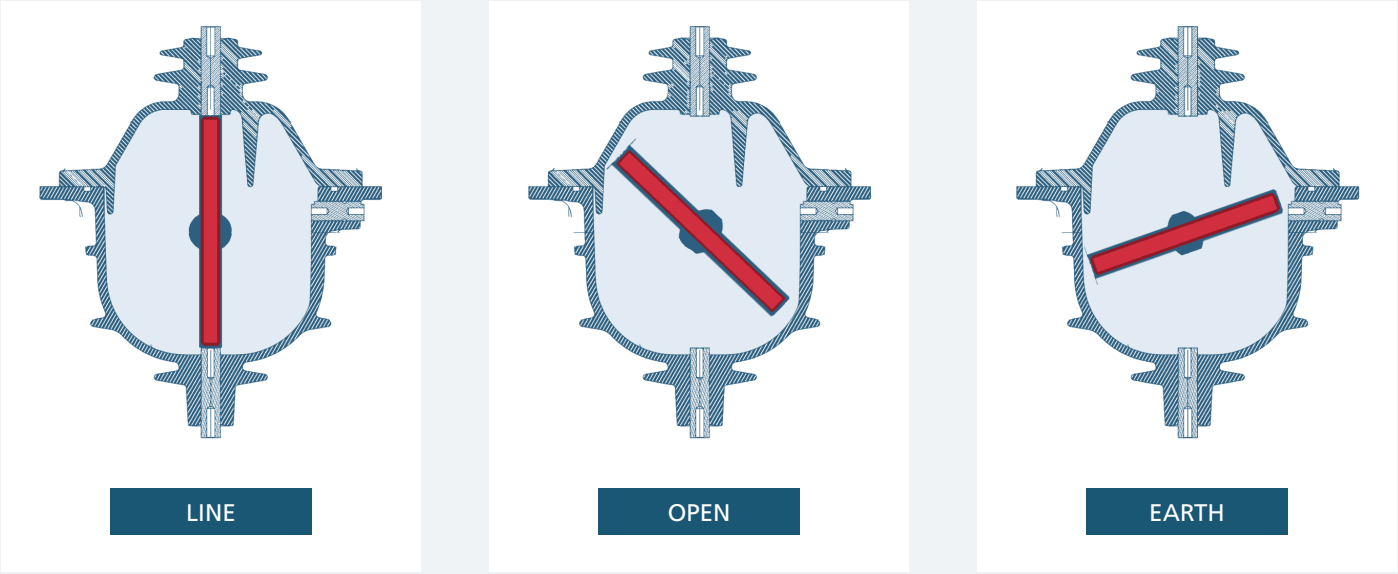
1.9 BAR · 36 k V

SF_6 filling pressure of the 36 kV version.

Inside the casing, a rotating element moves the three main contacts into the closed, open and earthing positions. Thanks to this operating principle the system is intrinsically safe, as dangerous situations and/or incorrect operations cannot occur.

SWITCHING POSITIONS

A single moving contact and a vacuum bottle, coordinated by the mechanism, cover the three operating positions in a fixed, safe sequence.



LINE

Main contacts closed on the line side: the current flows normally.

OPEN

Contacts rotated to the open position, ensuring the isolating distance.

EARTH

Main contacts closed on the earthing side for safe maintenance.

Breaking capacity from stored energy. The RG load break switch is coupled with a three-position control mechanism equipped with an energy storage device, which gives the system its breaking capacity and ensures rapid operations independent from the operator.

Overpressure relief. In the unlikely event of overpressure, the RG load break switch is equipped with a non-replaceable relief valve that vents the gas from the rear part of the casing. On request, the switch can be equipped with a pressure gauge indicating the internal pressure.

SWITCH DISCONNECTOR ELECTRICAL FEATURES

LINE LOAD BREAK SWITCH			
PARAMETER	UNIT	24 kV	36 kV
Rated voltage U_r	kV	24	36
Rated lightning impulse withstand voltage, phase-to-earth U_p	kV	125	170
Rated lightning impulse withstand voltage, across isolating distance U_p	kV	145	195
Rated short-duration power-frequency withstand voltage, 1 min U_d	kV	50	70
Rated short-duration power-frequency withstand voltage, 1 min, across isolating distance U_d	kV	60	80
Rated frequency f_r	Hz	50 / 60	50 / 60
Rated continuous current I_r	A	630	630
Short-time withstand current I_k	kA	20	20
Peak withstand current I_p	kA	52	52
Short-circuit duration t_k	s	1	1
Degree of protection	-	IP30	IP30
Mainly active load breaking current I_{load}	A	630	630
Closed-loop breaking current Iloop	A	630	630
No-load line breaking current I_{lc}	A	13	13
No-load cable breaking current I_{cc}	A	40	40
Mechanical operation class	-	M1	M1
Electrical operation class	-	E3	E3
Short-circuit making capacity	kA	52	52

EARTHING SWITCHES

LINE EARTHING SWITCH ST1			
PARAMETER	UNIT	24 kV	36 kV
Short time withstand current - I_k	kA	20	20
Current peak value of short duration - I_p	kA	52	52
Short circuit time - t_k	s	1	1
Short-circuit breaking capacity (making)	kA	52	52
Mechanical operation class	-	M2	M2
Electrical operation class	-	E2	E2

TRANSFORMER PROTECTION EARTHING SWITCH ST2			
PARAMETER	UNIT	24 kV	36 kV
Short time withstand current - I_k	kA	1	1
Current peak value of short duration - I_p	kA	2,6	2,6
Short circuit time - t_k	s	1	1
Short-circuit breaking capacity (making)	kA	2,6	2,6
Mechanical operation class	-	M2	M2
Electrical operation class	-	E2	E2

STANDARD COMPONENTS

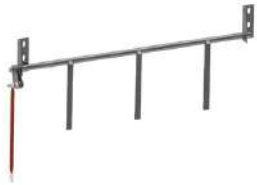
SWITCH DISCONNECTORS AND EARTHING SWITCHES



24 kV three-position load break switch



36 kV three-position load break switch



24 kV earthing switch



36 kV earthing switch

OPERATING MECHANISMS



Line operating mechanism



24 V and 48 V motorized line operating mechanism



Transformer protection operating mechanism
With fuse link



Trip coil
24 · 48 · 110 · 230 V

INSULATOR KITS AND ACCESSORIES



24 kV 3-post insulators kit



24 kV 3 - capacitive insulators kit + VPIS



36 kV 3-post insulators kit

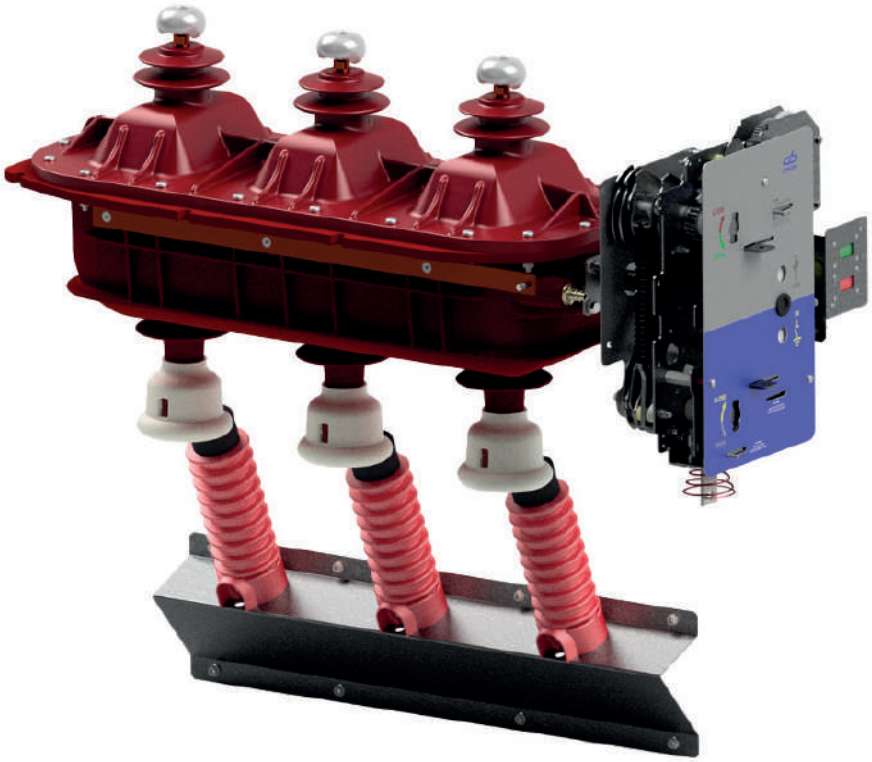


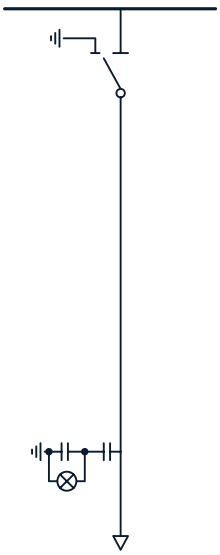
36 kV 3 - capacitive insulators kit + VPIS



Operating lever

24 kV INCOMING / OUTGOING LINE LBS KIT





SINGLE-LINE DIAGRAM

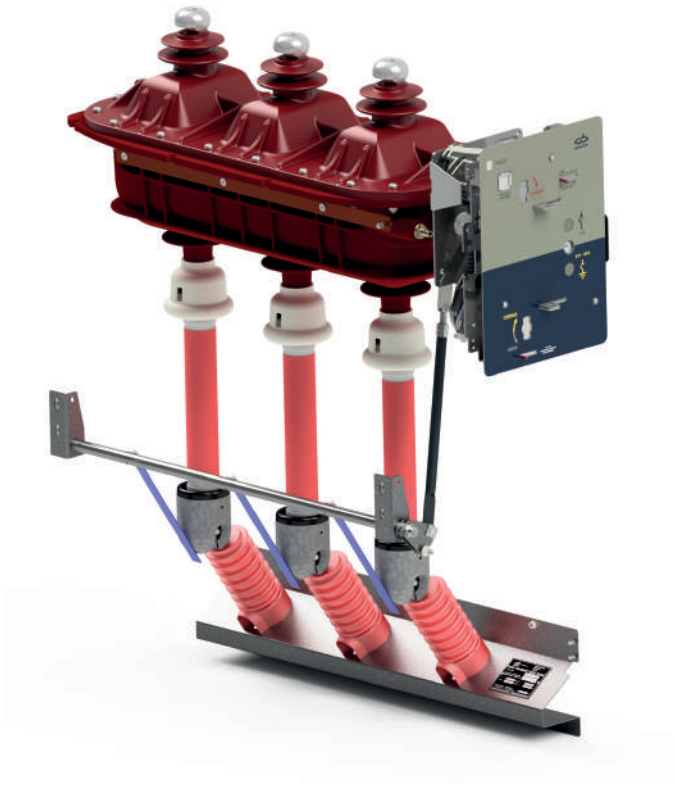
APPLICATION

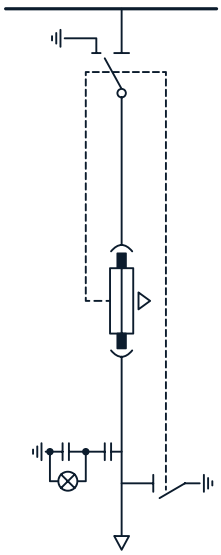
Incoming / outgoing line Line load break switch with capacitive insulators shel	**24** kV	**630** A	**20** kA · 1s	**230** mm phase distance

STANDARD COMPOSITION
24 kV load break switch
Manual or motorized L operating mechanism
Capacitive insulators shelf
Voltage presence indicator device

OPTIONAL ACCESSORIES
Operating lever
Key lock (1 key free with closed LBS)
Key lock (1 key free with open LBS)
Key lock (1 key free with closed ES)
Key lock (1 key free with open ES)

24 kV LBS KIT COMBINED WITH FUSE LINK





SINGLE-LINE DIAGRAM

APPLICATION

Transformer protection

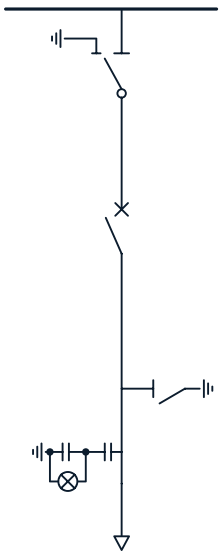
Load break switch combined with fuse link and earthing switch

24	630	20	230
kV	A	kA · 1s	mm phase distance

STANDARD COMPOSITION	OPTIONAL ACCESSORIES
24 kV load break switch	Operating lever
T operating mechanism	24–230 V opening coil
Fuse holder kit	Key lock (1 key free with open LBS)
ST 12/24 earthing switch	Key lock (1 key free with closed ES)
Voltage indicator device	Key lock (1 key free with open ES)

36 kV INCOMING / OUTGOING LINE LBS KIT





SINGLE-LINE DIAGRAM

APPLICATION

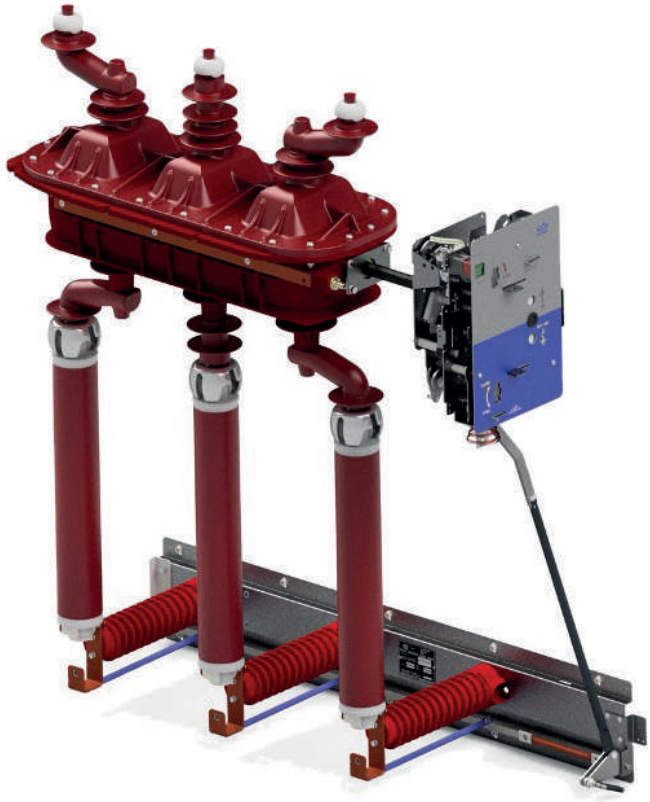
Incoming / outgoing line

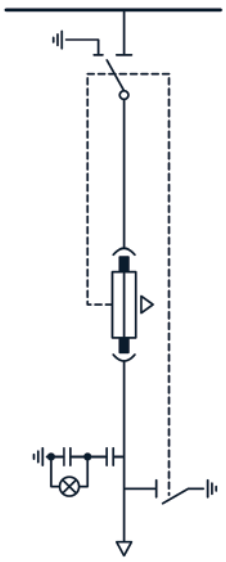
Line load break switch with capacitive insulators shelf

36	630	20	300
kV	A	kA · 1s	mm phase distance

STANDARD COMPOSITION	OPTIONAL ACCESSORIES
36 kV load break switch	Operating lever
Manual or motorized L operating mechanism	Key lock (1 key free with closed LBS)
Capacitive insulators shelf	Key lock (1 key free with open LBS)
Voltage presence indicator device	Key lock (1 key free with closed ES)
	Key lock (1 key free with open ES)

36 kV LBS KIT COMBINED WITH FUSE LINK





SINGLE-LINE DIAGRAM

APPLICATION

Transformer protection

Load break switch combined with fuse link and earthing switch

36	630	20	300
kV	A	kA · 1s	mm phase distance

STANDARD COMPOSITION	OPTIONAL ACCESSORIES
36 kV load break switch	Operating lever
Manual L operating mechanism	Key lock (1 key free with closed LBS)
Voltage presence indicator device	Key lock (1 key free with open LBS)
ST 36 earthing switch + linkage kit	Key lock (1 key free with closed ES)
	Key lock (1 key free with open ES)

ENGINEERING AND DESIGN SUPPORT

Gruppo Bonomi Smart Grid division is also an external partner for specific technical requirements.

FROM DRAWING TO TYPE TEST

Our engineering department can support the customer with project drawings, construction drawings and assistance in the set-up of production for panel builders, also including type tests based on the IEC reference.



CONFIGURATION RULES

PROJECT DRAWINGS

Layouts and arrangement drawings to integrate AIRON in the customer's switchgear.

CONSTRUCTION DRAWINGS

Detailed drawings for manufacturing the panel around the switch disconnector.

PRODUCTION SET-UP

Assistance to panel builders in setting up and starting production.

IEC TYPE TESTS

Support with type tests based on the applicable IEC standards.

MODULARITY

Thanks to the modular structure of our devices and the ability to produce under licence, OEMs can flexibly choose the solution that best suits their needs.

COMPLETE KITS

Ready-to-install AIR-ON kits.

CONSTRUCTION DRAWINGS

Detailed drawings for manufacturing the panel around the switch disconnector.

LICENSED PRODUCTION

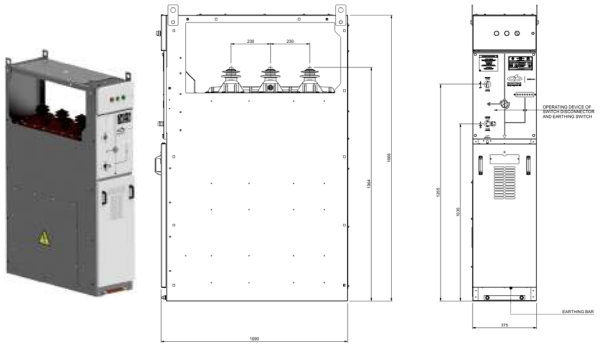
Manufacturing under licence by the OEM.

FEEDER PANELS AND TRANSFORMER PROTECTION UNITS

Reference **panels equipped** with the RG load break switch kit, for incoming / outgoing lines and transformer protection with fuse.

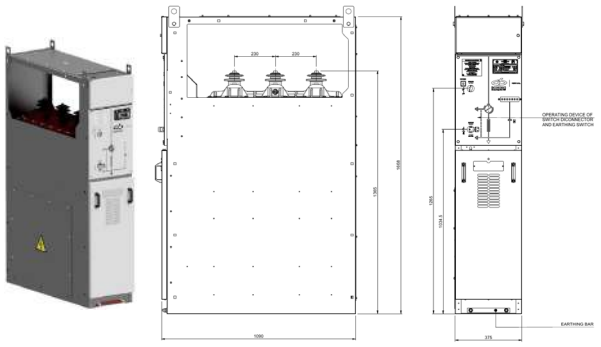
24 kV

Feeder panel



24 kV 375 mm width Overalld imensionsi nm m

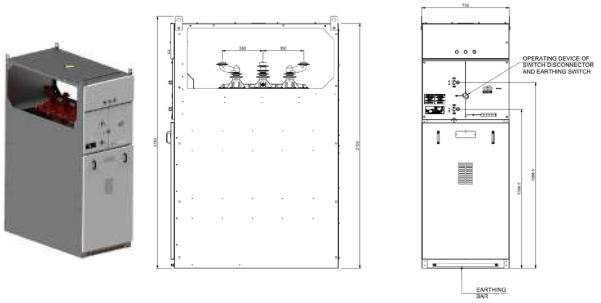
Feeder unit · transformer protection unit with fuse



24 kV 375 mm width Overalld imensionsi nm m

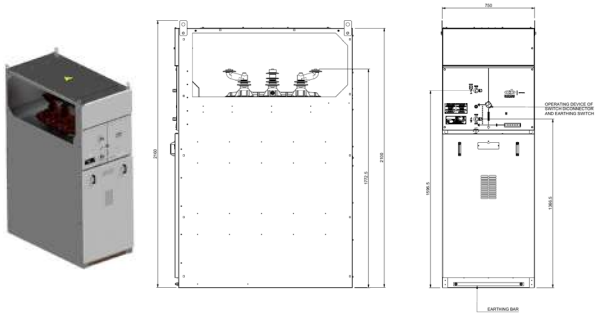
36 kV

Feeder panel



36 kV 750 mm width Overalld imensionsi nm m

Feeder unit · transformer protection unit with fuse



36 kV 750 mm width Overalld imensionsi nm m

BONOMI
moving energy since 1928

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