BATEL
elektromekanik

PRODUCT CATALOGUE

METAL ENCLOSED MODULAR SWITCHGEARS

24kV 630A – 1250A 25kA
36kV 630A – 1250A 16kA

www.batel.com.tr

CONTENTS

ABOUT US

BATEL Elektromekanik is a experienced and dynamic company founded in 1991 by a team that has experience more than 40 years. BATEL Elektromekanik speacilaizes in manufacturing electric distribution products such as MV Switchgears, MV SF6 Gas Circuit Breakers, SF6 Load Break Switch, Disconnectors, Vacuum Circuit Breakers, Vacuum interrupters, Auto-Reclosers and Auto-Sectionalizers.

Our facilities are located in IAOSB / IZMIR and it is made of an enclosed area of 3.500m² for MV Switchgear components and Epoxy production, a enclosed area of 4.000m² for Air and Gas Insulated Metal Enclosed Switchgears production, an enclosed area of 1.000m² for Vacuum Interrupter production and an area of 1.000m² for R&D warehousing and mechanical workshops.

MISSION

As BATEL , our mission is to provide high quality customer service to both national and international markets by developing and producing MV Air and Gas Insulated Switchgears and its valuable components

VISION

As BATEL, our vision is to be a firm that provides switchgear products to customers in economical, fast, high quality and solution oriented way.

QUALITY POLICY

In line with its quality policy, BATEL aims to be able to supply high quality and competitive products to its customers with 100% customer satisfaction and timely delivery.

In line with this goal;

1. To ensure that our customers choose us again;
   - We are giving an importance to produce our products in a smooth and quality manner.
   - We are taking care of our customers after the sale by providing solutions service requests as soon as possible.
   - We are taking into the consideration our customers' feedback.
2. To make a difference with our superior product and service quality;
   - We are always cooperating with our suppliers in order to ensure the continuity of our quality.
   - We are constantly following the technological innovations.
   - As a solution oriented company with a high level of communication, we are giving an importance to warm relationships with our customers.

METAL ENCLOSED SWITCHGEARS

BATEL Air Insulated Metal Enclosed Switchgears are medium voltage switchgear equipment used for reliable distribution of electricity in upto 36 kV secondary distribution systems according to the customer's different requirements. BATEL Air Insulated Metal Enclosed Switchgears are highly suitable for for the use of indoor environments industrial production facilities and compact type substation buildings. Thanks to its modular construction for its easy and quick installation. Add to that, BATEL Air Insulated Metal Enclosed Switchgears can smoothly meet and apply all the clients' requirements. The output busbars of these cells are insulated by air, while, the electrical insulations and the breaking operations are all performed in SF6 gas environment. By this way, a maximum safety operation can be achieved in minimum distances. BATEL Air Insulated Metal Enclosed Switchgears are also preferred by customers as a substation package with its reliable construction and compact dimensions.

ADVANTAGES OF EVA AIR INSULATED METAL ENCLOSED SWITCHGEARS

COMPACT DESIGN

EASY INSTALLATION AND CHANGEABILITY THANKS TO MODULAR CONSTRUCTION

COMPATIBILITY WITH RIGHT-LEFT EXTENSION WHEN NEEDED

INTELLIGENT LOCKING SYSTEMS FOR MAXIMUM OPERATOR SAFETY

RELIABLE SWITCHING WITHIN SF6 GAS ENVIRONMENT

SCADA SYSTEMS

DIFFERENT COMBINATIONS OF FEEDERS ACCORDING TO THE CUSTOMER'S REQUIREMENTS

SUITABLE FOR EASY TRANSPORT AND STORAGE

BATEL AIR INSULATED SWITCHGEARS ARE FLEXIBLE TO ANY KIND OF REQUIREMENT OF A SUBSTATION AND CAN EASILY BE ENERGIZED.

QUALITY MANAGEMENT AND STANDARDS

BATEL Air Insulated Metal Enclosed Switchgears are manufactured based on an integrated quality management system. In all of our production departments' facility at each stage, the quality production of BATEL Air Insulated Metal Enclosed Switchgears is inspected and checked whether the BATEL products are produced according to the relevant standards and customer's requirements or not. After that, all the related documents and test reports are recorded which that ensures all the terms of traceability are met.

BATEL Air Insulated Metal Enclosed Switchgears are produced according to IEC 62271-200, 60265, 60129, 60694, 62271-100, 62271-102, 62271-105 standards.

The quality of BATEL Air Insulated Metal Enclosed Switchgears are also certified in international accredited laboratories.

TSE

USAGE AREAS

INFRASTRUCTURE AND CONSTRUCTION SECTOR

Ports, train stations, airports, hospitals, schools, hotels, shopping malls, commercial centers, holiday complexes etc.

VARIOUS INDUSTRIES

Water, iron and steel, automotive, oil etc.

ENERGY

Wind power plants, solar energy plants, hydroelectric power plants, MV distribution systems, transformer substations etc.

STRUCTURAL FEATURES

STRUCTURAL PARTS AND SWITCHING DEVICES

BATEL Air Insulated Metal Enclosed Switchgears are made up of four main compartments separated by a metal partition:

1. Busbar connection compartment
2. Switching and cable connection compartments
3. Mechanism compartments
4. Low voltage compartments

1. BUSBAR CONNECTION COMPARTMENT

Access to this compartment is provided from the closure on the cell. Side-by-side installation of BATEL Air Insulated Metal Enclosed Switchgears is carried out through three busbars located in this section.

2 SWITCHING AND CABLE CONNECTION COMPARTMENT

This compartment consists of switching elements such as switch disconnector, disconnector, circuit breaker and earthing switch according to the customer's request. If the cell is a fuse-load break switch combination, then the pin mechanism and MV fuses are included in this compartment. The cable system of the network is connected to the cell at the connection points below the earthing switch in this section.

With the help of the sheet metal partitions between the bar connection part and the cable connection part, disconnector with the epoxy body or the load break switch is securely separated from the busbar. The earthing switch must be set to the ground position so that the cable can be connected safely from the front side.

BATEL SF6 INSULATED LOAD BREAK SWITCHES

BATEL SF6 insulated load break switches provide "switching-disconnecting" characteristics. LBS main circuit contacts are housed in an epoxy cast housing that is filled with 1.5 bar SF6 gas and guaranteed for a lifetime of gas tightness. The main circuit contacts can be found in only one of the two positions "On" or "Off".

The earthing switch is located outside the epoxy body and earthing switch position can be monitored directly, safely and reliably by the user. There is a mechanical locking mechanism that ensures safe operation between the earthing switch and the main circuit contacts. The explosion-proof reliability of the gas-filled epoxy seal is provided by the safety membrane at the rear.

There are auxiliary contact options that indicate the positions of the main circuit contacts and the earthing switch. The control mechanism can be set manualy by using a lever or automatically by using a motor when required. The set mechanism has accumulated energy for closing and tripping purposes. Closing and opening operations can be done with pushbuttons or remote coils, If required, a protective fuse with a trigger pin and tripping system can be applied.

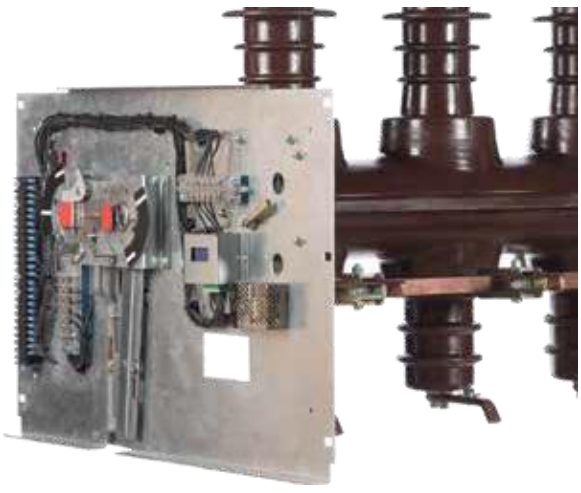
BATEL SF6 INSULATED CIRCUIT BREAKERS

BATEL SF6 gas insulated circuit breakers provide high reliability with applied SF6 gas arc breaking technique. With these features, BATEL SF6 gas insulated circuit breakers guarantee the continuity of energy in electric distribution systems.

Epoxy-insulated 3 pole housings are filled with SF6 gas and their sealings are guaranteed for a lifetime. The explosion-proof reliability of gas-filled pole epoxy housings is provided by the safety membrane on the bottom cover.
The control mechanism can be set manualy by using a lever or automatically by using a motor when required. The set mechanism has accumulated energy for closing and tripping purposes. Closing and opening operations can be done with pushbuttons or remote coils. BGK type circuit breakers have front and side mechanism options.
4NO + 4 NC or 6NO + 6 NC auxiliary contact options are available for OPEN and CLOSED positions.

3. MECHANISM COMPARTMENT

There are some mechanisms of switching elements In this compartment such as load break switch, disconnector, circuit breaker and earthing switch. According to the customer's request motor or earthing disconnector can be added to this section.



4 LOW VOLTAGE COMPARTMENT

This compartment contains the LV fuses, protection relays, measuring instruments and connection terminals.

INTERLOCKING SYTEM

BATEL Air Insulated Metal Enclosed Switchgears provide maximum safety of operation. Thanks to the following interlocking mechanisms:

1. The load break switch can not be closed when the cell's door is open.

2. Only when the earthing switch is off, the cell's door can be opened.

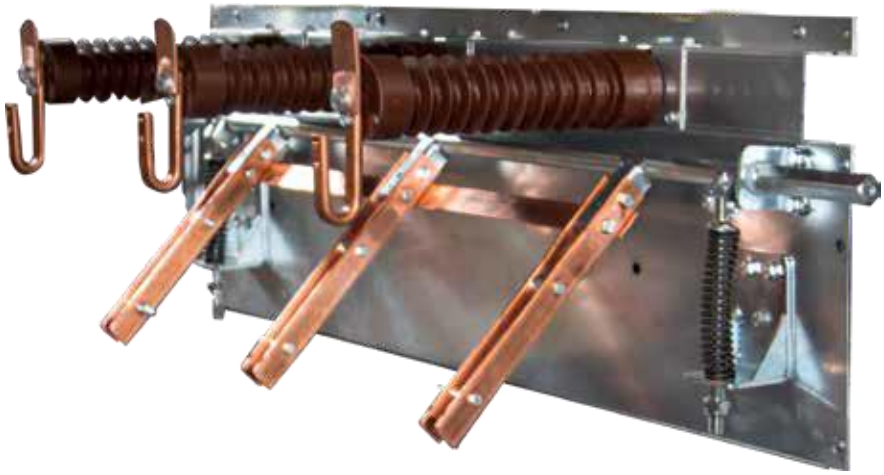
3. The load break switch can be closed only when the earting switch is opened and the cell door is closed.

4. The earthing switch can only be closed when the load break switch is opened.

5. According to the customer's request, it is possible to include an earthing lock on the cell. When the cable is energized, the short circuit earthing of each phase is shut down.

EARTHING SYSTEM

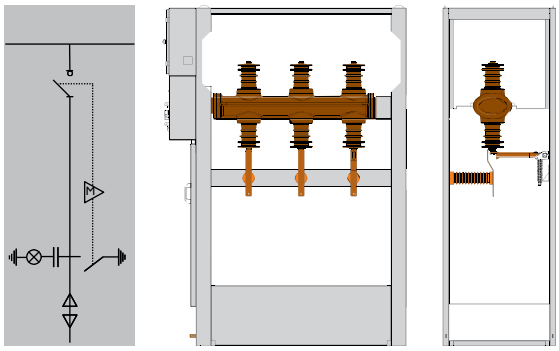
Switching elements such as earth conductors of energy cables, blades of earting switch, breaker, disconnector, load break switch, the classes of current and voltage transformers and the metal parts all should be connected to each other at firts and then all of the previous elements to be connected to the main earthing busbar located in the front of the cell. This will ensure the system's grounding safety.



BATEL AIR INSULATED METAL ENCLOSED SWITCHGEAR TYPES AND TECHNICAL DETAILS

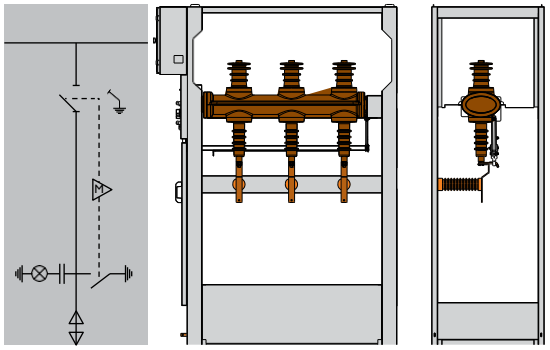
BATEL AIS Switchgears can be classified according to usage areas as follows:

INCOMING-OUTGOING FEEDER WITH LOAD BREAK SWITCH



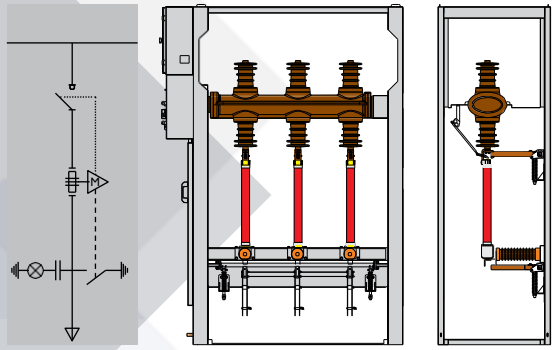
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BYAP-36	36kV	750	1400	2250
BYAP-24	24kV	500	1000	1700

INCOMING-OUTGOING FEEDER WITH DISCONNECTOR



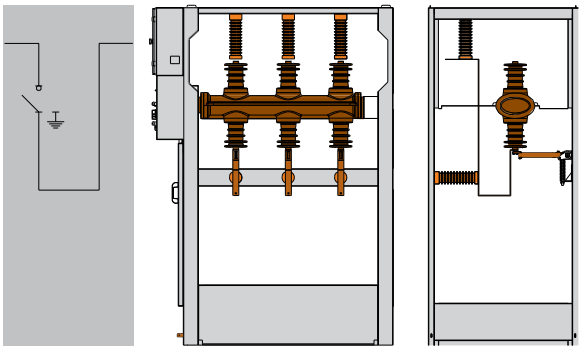
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BNA-36 (a)	36kV	750	1400	2250
BNA-24 (a)	24kV	500	1000	1700

LBS-FUSE COMBINATION TRANSFORMER PROT ECTION FEEDER



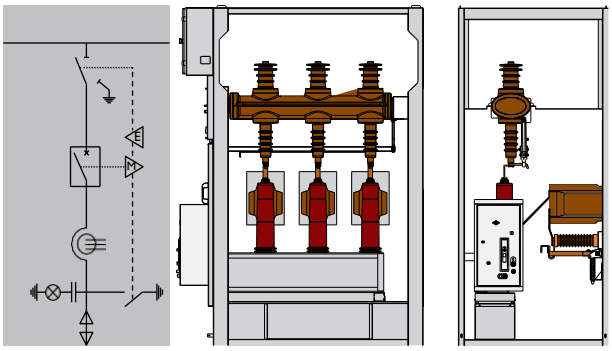
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BYASP-36	36kV	750	1400	2250
BYASP-24	24kV	500	1000	1700

BUSBAR PARTITION CUBICLE WITH LOAD BREAK SWITCH



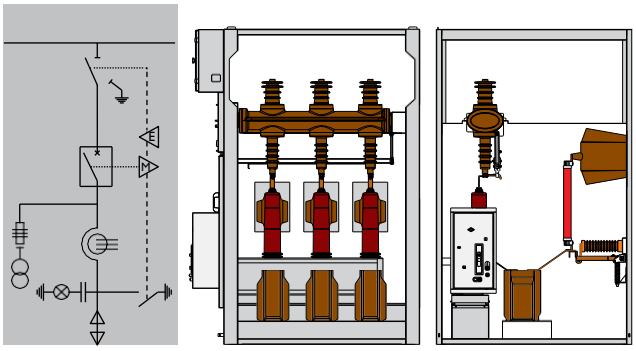
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BYAP-36-DS	36kV	1000	1400	2250
BYAP-24-DS	24kV	750	1000	1700

INCOMING-OUTGOING TRANSFORMER PROTECTION FEEDER WITH CIRCUIT BREAKER



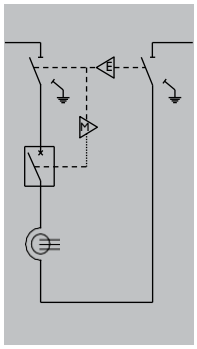
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BVKP-36	36kV	1000	1400	2250
BVKP-24	24kV	750	1000	1700

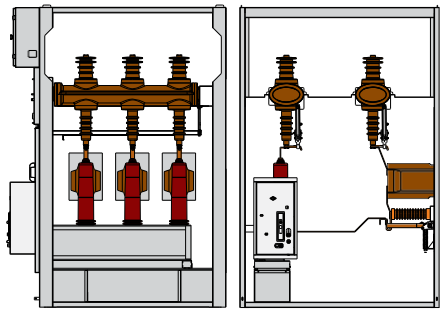
OUTGOING FEEDER WITH CIRCUIT BREAKER AND VOLTAGE TRANSFORMER



PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BVKP-36 Otop	36kV	1400	1400	2250
BVKP-24-Otop	24kV	1100	1000	1700

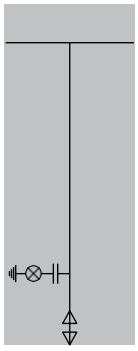
BUS TIE (COUPLER) FEEDER WITH CIRCUIT BREAKER

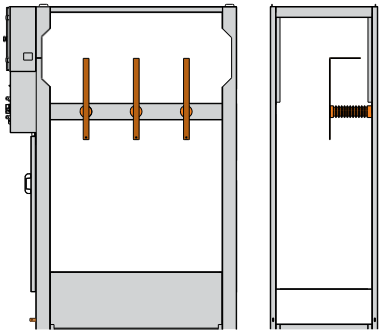




PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BVKP-36-CB	36kV	1500	1400	2250
BVKP-24-CB	24kV	1250	1000	1700

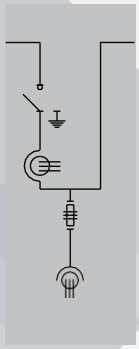
CABLE CONNECTION CUBICLE

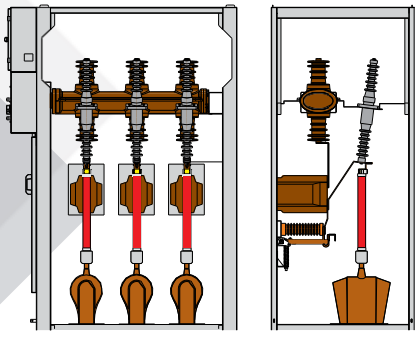




PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
B 36-CR	36kV	750	1400	2250
B 24-CR	24kV	500	1000	1700

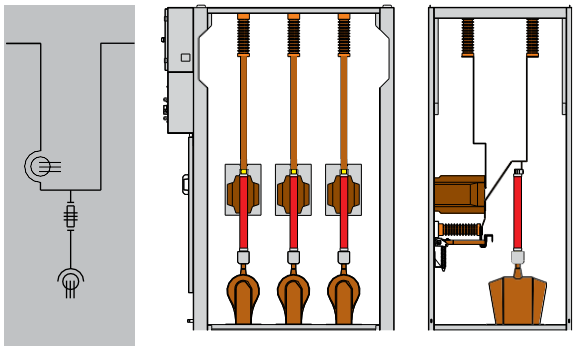
CURRENT & VOLTAGE MEASUREMENT CUBICLE WITH LOAD BREAK SWITCH





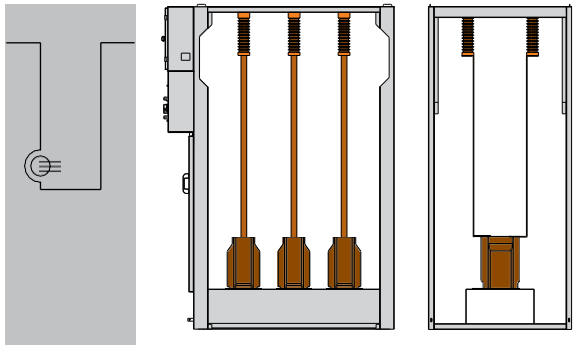
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BYA-36-McvL	36kV	1000	1400	2250
BYA-24-McvL	24kV	750	1000	1700

CURRENT & VOLTAGE MEASUREMENT CUBICLE



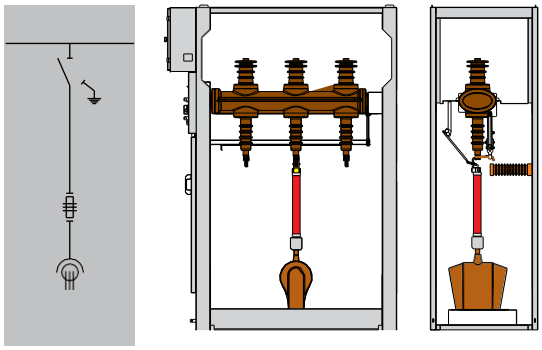
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BYA-36-McvR	36kV	1000	1400	2250
BYA-24-McvR	24kV	750	1000	1700

CURRENT MEASUREMENT CUBICLE



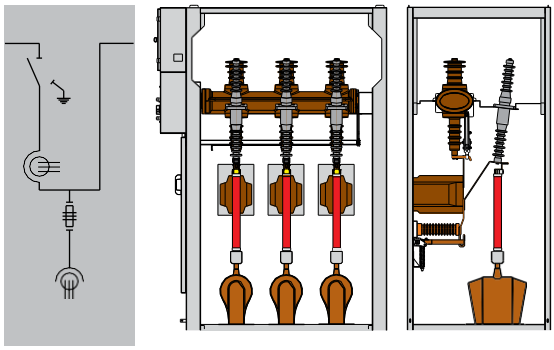
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
B-36-Mc	36kV	1000	1400	2250
B-24-Mc	24kV	750	1000	1700

AUXILIARY TRANSFORMER CUBICLE



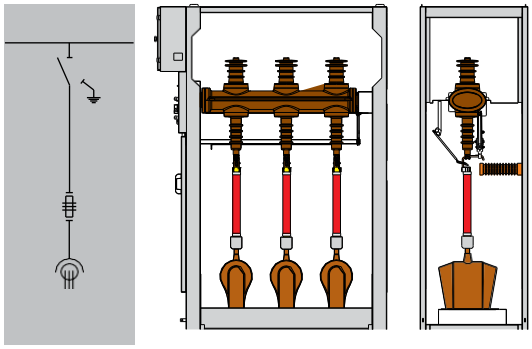
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BNA-36-Mvi	36kV	750	1400	2250
BNA-24-Mvi	24kV	500	1000	1700

CURRENT & VOLTAGE MEASUREMENT CUBICLE WITH DISCONNECTOR



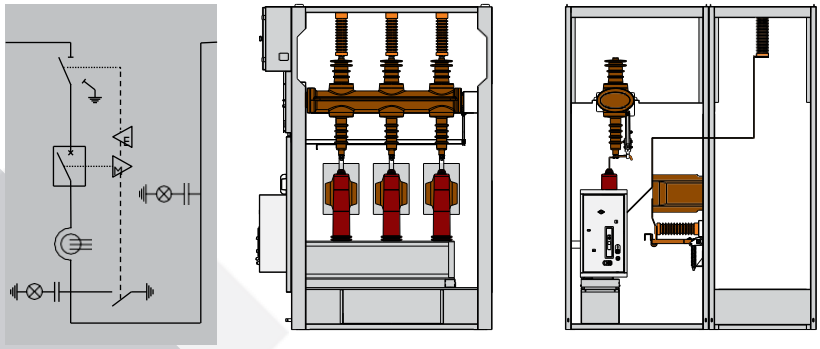
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BNA-36-Mcvs (a)	36kV	1000	1400	2250
BNA-24-Mcvs (a)	24kV	750	1000	1700

VOLTAGE MEASUREMENT CUBICLE



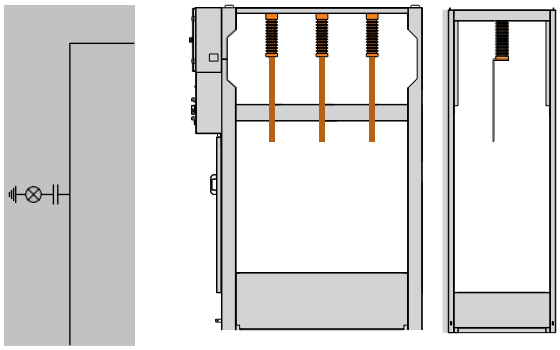
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BNA-36-Mv	36kV	750	1400	2250
BNA-24-Mv	24kV	500	1000	1700

BUS SECTION FEEDER WITH CIRCUIT BREAKER



PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
BVKP-36-DB	36kV	1750	1400	2250
BVKP-24-DB	24kV	1250	1000	1700

BUS RISER CUBICLE



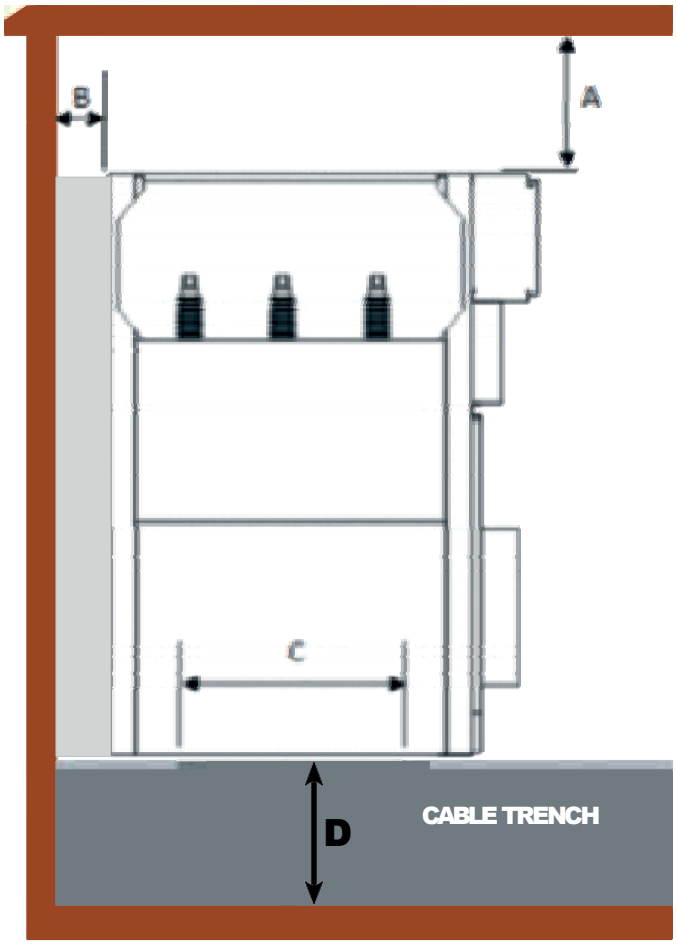
PRODUCT CODE	RATED VOLTAGE	WIDTH (mm)	DEPTH (mm)	HEIGHT (mm)
B-36-BR	36kV	750	1400	2250
B-24-BR	24kV	500	1000	1700

TECHNICAL SPECIFICATIONS

	BAIS-12	BAIS-24	BAIS-36
Rated voltage	12kV	24kV	36kV
Rated power frequency withstand voltage (phase-to-phase) (1min)	28kV	50kV	70kV
Rated power frequency withstand voltage (across isolating distance) (1 min)	32kV	60kV	80kV
Rated lightning impulse withstand voltage (phase-to-phase)	75kV	125kV	170kV
Rated lightning impulse withstand voltage (across isolating istance)	85kV	145kV	195kV
Rated frequency	50/60 Hz		
Rated current	630-1250 A*		
Rated Short Circuit Current (1sec) (3sec)	16-20-25 kA		
Rated Active Load Weighted Cutting Current	630 A		
Rated Current Transfer	630 A		
Rated peak withstand current	40-50-62,5 kA-peak		
Mechanical endurance class	M1/M2		
Electrical endurance class	E3/E2		
Protection class	IP3X		
Internal arc classification	AFL		
Loss of service continuity class	LSC2A-PI		
Fuse Length	358mm	508mm	603mm

* Does not apply to Load Break Switch cells.

PLACEMENT AND INSTALLATION



BATEL Air Insulated Metal Enclosed Switchgears should be placed on a cable duct in the building, taking into account the drawings and measurements given below.

Where the cells are to be placed, the distance to the ceiling and back wall of the cell

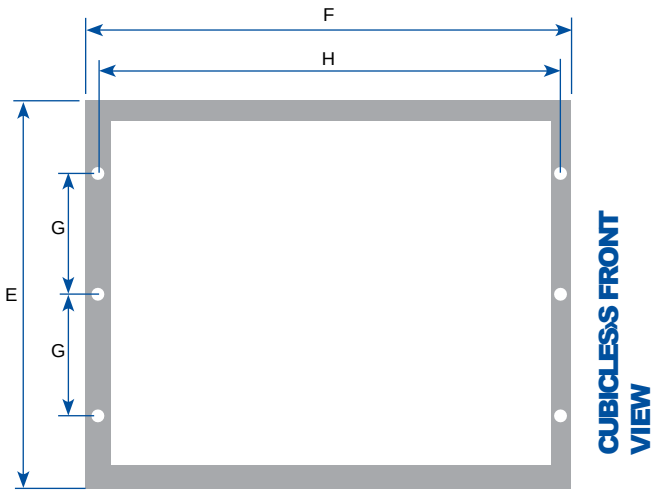
A≥ 400 mm and B = 100 mm

Cable duct dimensions (XLPE insulated, 1 x 240/25 mm2 according to the cable);

C (Cable channel width) = 900 mm and D (Cable channel depth) = minimum 690 mm

FIXING SWITCHGEARS TO THE GROUND

In addition, the cells should be installed with M10 x 30 steel bolts as shown below.



MODEL	HOLE NUMBER	E (mm)	F (mm)	G (mm)	H (mm)
BYAP-24	4	500	1000	370	870
BNAP-24 (a)	4	500	1000	370	870
BYASP-24	4	500	1000	370	870
BYAP-24-DS	4	1000	1000	620	870
BVKP-24-B	4	750	1000	620	870
BVKP-24-Otop	6	1100	1000	485	870
BVKP-24-CB	8	1000	1000	370/370	870
B-CR	4	500	1000	370	870
BYA-24-McvL	4	750	1000	620	870
BYA-24-McvR	4	750	1000	620	870
BNA-24-Mc	4	750	1000	620	870
BNA-24-MVİ	4	500	1000	370	870
BNA-24-McvS (a)	4	750	1000	620	870
BNA-24-Mv	4	500	1000	370	870
BVKP-24-DB	8	1250	1000	620/370	870
B-24-BR	4	500	1000	370	870

Note: **BVKP-24-CB** cell consists of two 500mm cells which they come side by side.

BVKP-24-DB cell consists of one 500mm cell and one 750mm cell which they come side by side.

MODEL	HOLE NUMBER	E (mm)	F (mm)	G (mm)	H (mm)
BYAP-36	4	750	1400	550	1270
BNAP-36-S (a)	4	750	1400	550	1270
BYASP-36	4	750	1400	550	1270
BYAP-36-DS	4	1000	1400	800	1270
BVKP-36-B	4	1000	1400	800	1270
BVKP-36-Otop	6	1400	1400	600	1270
BVKP-36-CB	8	1500	1400	550	1270
B-36-CR	4	750	1400	550	1270
BYA-36-McvL	4	1000	1400	800	1270
BYA-36-McvR	4	1000	1400	800	1270
BNA-36-Mc	4	1000	1400	800	1270
BNA-36-MVİ	4	750	1400	550	1270
BNA-36-McvS (a)	4	1000	1400	800	1270
BNA-36-Mv	4	750	1400	550	1270
BVKP-36-DB	8	1750	1400	800/550	1270
B-36-BR	4	750	1400	550	1270

Note: **BVKP-36-CB** cell consists of two 750mm cells which they come side by side.

BVKP-36-DB cell consists of one 750mm cell and one 1000mm cell which they come side by side.

NOTE:

Switching The Future...

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