

High Voltage & Low Voltage Switchgear

AL-AHLEIA SWITCHGEAR CO. K.S.C.C.

Kuwait



Our Mission is Customer Satisfaction:

Driven by a vision to pioneer, ASC has risen from its humble beginning more than 25 years ago of a sole factory for LV boards, to an organisation boasting of 11 factories manufacturing LV & HV Switchgear, Transformers and Packaged Sub-stations, establishing itself as the largest power equipment manufacturer in the region.

ASC takes pride for being the leading local manufacturer of HV products, transformers and packaged Sub-Station. Over time, ASC products have attained a reputation for quality, reliability as well as sustainability which gained recognition in the industrial sector in the Middle East.

All products have been developed inside the walls of the factory and will continue to improve, because progress stops once the spirit of pioneering is lost.



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I- HIGH VOLTAGE SWITCHGEAR

1. 36kV GAS INSULATED SINGLE / DOUBLE BUSBAR SWITCHGEAR

Fully type tested gas insulated extensible switchgear offers single / double busbar metal enclosed construction. It consists of fixed VCB, 3 position disconnector, CT/VT (as applicable) and air insulated cable box. A vacuum circuit breaker is used for switching of short circuit / operating currents and SF6 gas is used to insulate all HV parts.

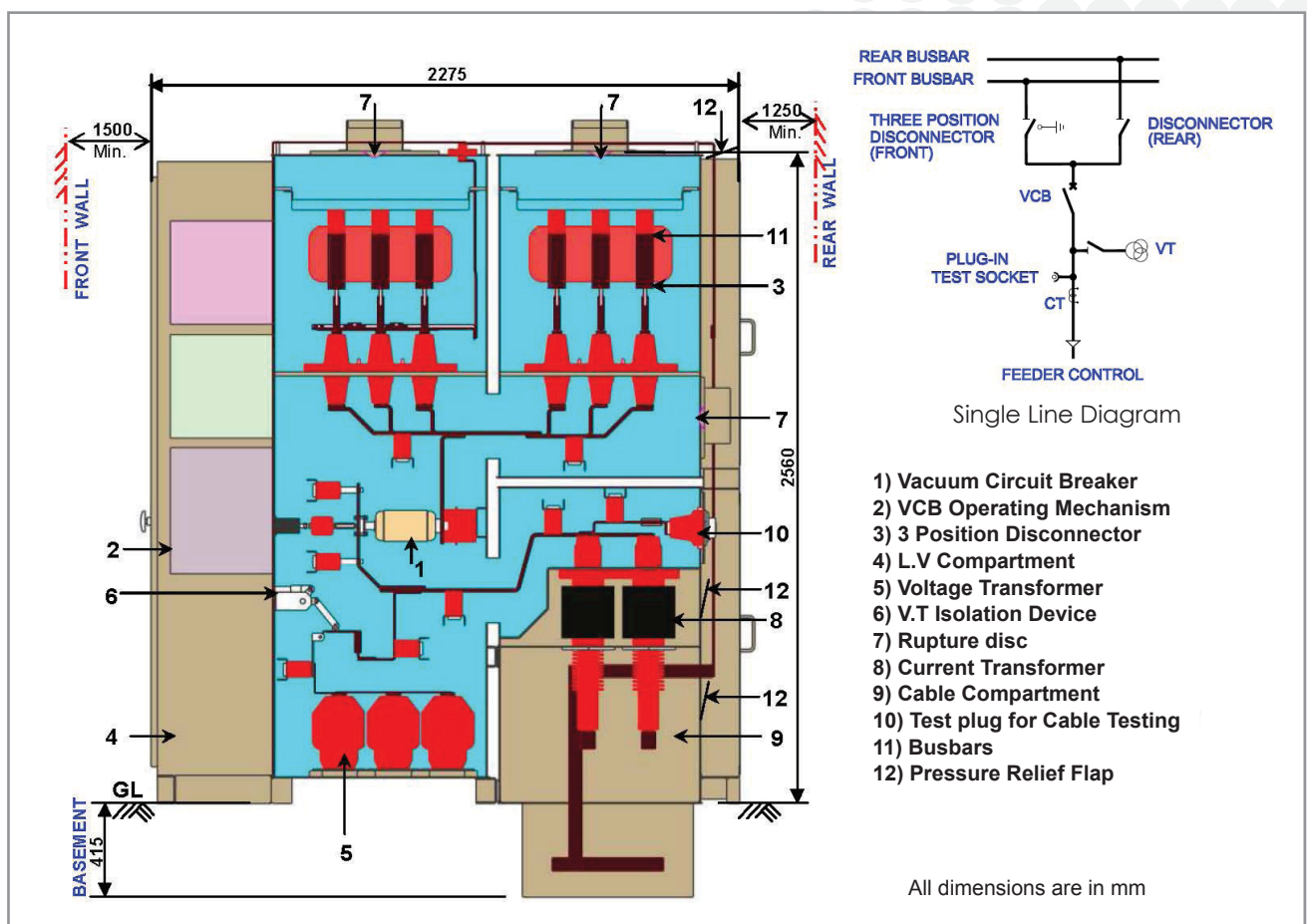


TECHNICAL DATA

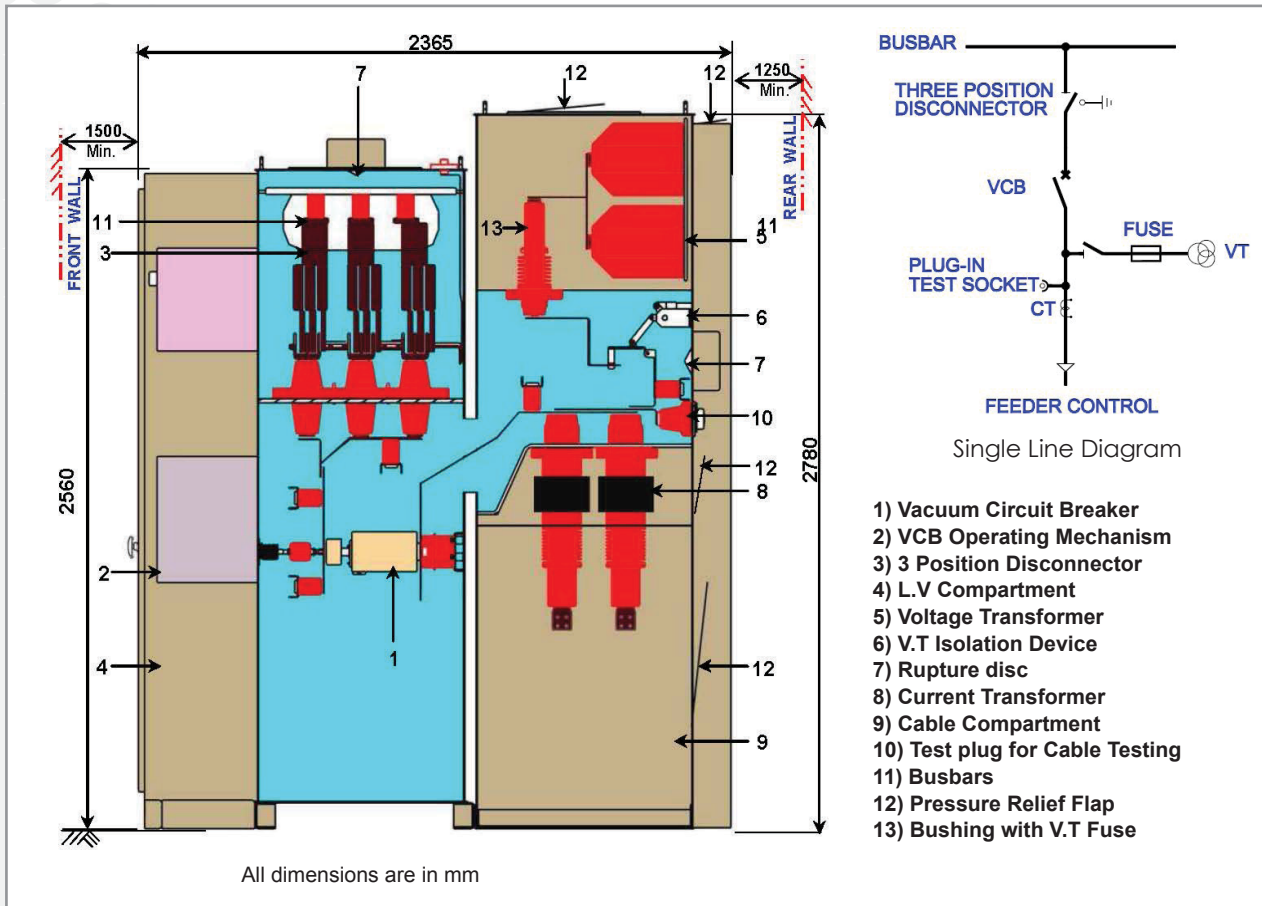
| | |
|-----------------------------------|---|
| Type | : AF36 |
| Voltage Rating | : 36kV |
| Frequency | : 50 Hz / 60 Hz |
| Normal Circuit Current | : Up to 2500A |
| Normal Busbar Current | : Up to 2500A |
| Short Circuit Breaking Current | : Up to 40kA |
| Power Frequency Withstand Voltage | : Up to 70kV R.M.S |
| Impulse Withstand Voltage | : Up to 170kV Peak |
| Degree of Protection | : As required. |
| Applicable Standards | : IEC 62271-200 / IEC 62271-100 / IEC 62271-102 |

SALIENT FEATURES

- All HV parts assembled inside hermetically sealed corrosion proof steel tanks and filled with SF6 gas, hence no effect of external environment.
- Sealed for life as per IEC 62271-200 & IEC 62271-1.
- Safety interlocking between 3P disconnector and VCB.
- VT is provided with disconnector to facilitate cable testing.
- Cable box suitable for Bolted/Plug in cable termination.
- Provision of power cable earthing and busbar earthing through 3 position disconnector switches and VCB.
- Provision for power cable testing.
- Internal fault protection through rupturing discs, gas paths and relief flaps.
- Gas pressure monitoring for each compartment.
- Motorized operating mechanism for 3P disconnector (Optional).
- Motorized / Manual spring closing mechanism for VCB.
- Separate control relay panel (as required).



Typical side view of 36kV, 31.5kA, 2000A, Double Busbar Switchgear



Typical side view of 36kV, 40kA, 2500A Single Busbar Switchgear

Gas Pressure:

- Filling Pressure: 0.04 MPa
- Minimum Functional Pressure: 0.02 MPa

OVERALL DIMENSIONS

| | |
|--------|---------------------|
| Width | : 800mm (Max.) |
| Depth | : 2400mm (Standard) |
| Height | : 2800mm (Max.) |

2. 12kV AIR INSULATED DOUBLE BUSBAR SWITCHGEAR

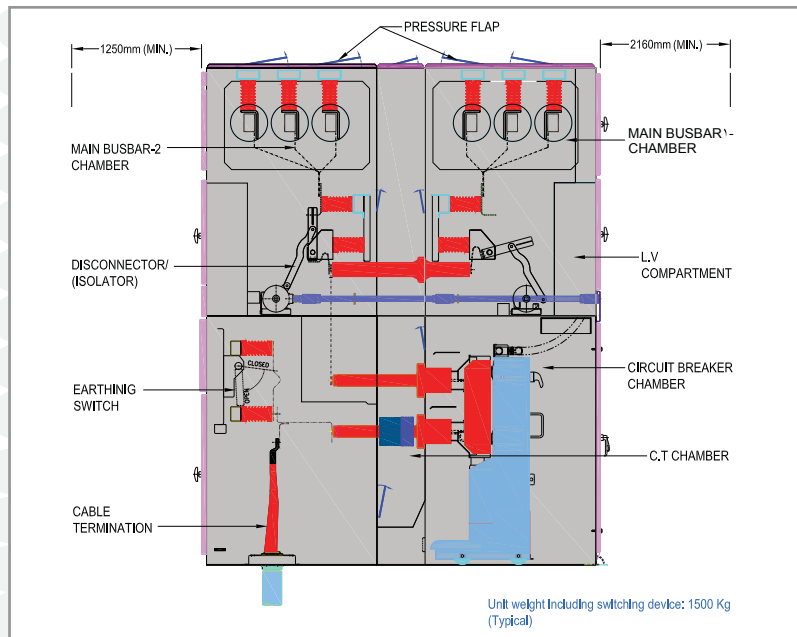
Fully Type tested air insulated, extensible double busbar switchgear comprises of Horizontal Isolation and Horizontal Drawout Vacuum Circuit Breaker, Disconnectors, CTs/PTs (as applicable), earthing switch and cable box.

TECHNICAL DATA

| | |
|-----------------------------------|---|
| Type | : AH12 |
| Voltage Rating | : 12kV |
| Frequency | : 50 Hz / 60 Hz |
| Normal Circuit Current | : Up to 3150A |
| Normal Busbar Current | : Up to 4000A |
| Short Circuit Breaking Current | : Up to 40kA |
| Power Frequency Withstand Voltage | : Up to 38kV R.M.S |
| Impulse Withstand Voltage | : Up to 95kV Peak |
| Degree of Protection | : As required. |
| Applicable Standards | : IEC 62271-200 / IEC 62271-100 / IEC 62271-102 |

SALIENT FEATURES

- Loss of service continuity category : LSC2B (as per IEC 62271-200).
- Partition Class : PM (Metallic) (as per IEC 62271-200).
- Accessibility of compartment:
 - Busbar compartment : Tool based.
 - Cable compartment : Tool based.
 - Switching compartment : Interlock based.
- Fully interlocked VCB, Earthing switch & Disconnecter.
- Pressure relief flap for individual HV compartment. Pressure switches can be given on request.
- Fully insulated / shrouded busbars & bus connections.
- Cable box suitable for heat shrinkable PILC/XLPE cables.
- Motorized disconnecter operation (optional).
- Provision for mounting fire fighting equipment.



Typical cross sectional view Outgoing Panel

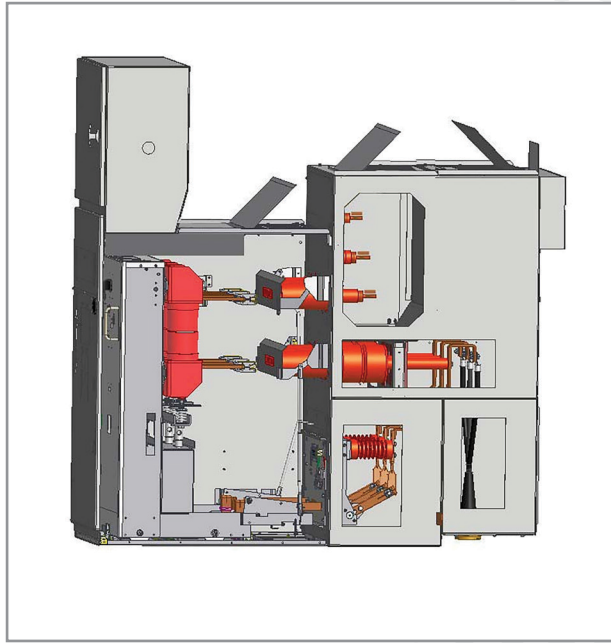
OVERALL DIMENSIONS

| | |
|--------|---------------------|
| Width | : 2000mm (Max.) |
| Depth | : 2200mm (Standard) |
| Height | : 2800mm (Max.) |

3. 12kV AIR INSULATED SINGLE BUSBAR SWITCHGEAR

Fully Type tested air insulated, extensible switchgear comprises of Horizontal Isolation and Horizontal Drawout Vacuum Circuit Breaker, CTs/PTs (as applicable), earthing switch and cable box.

TECHNICAL DATA

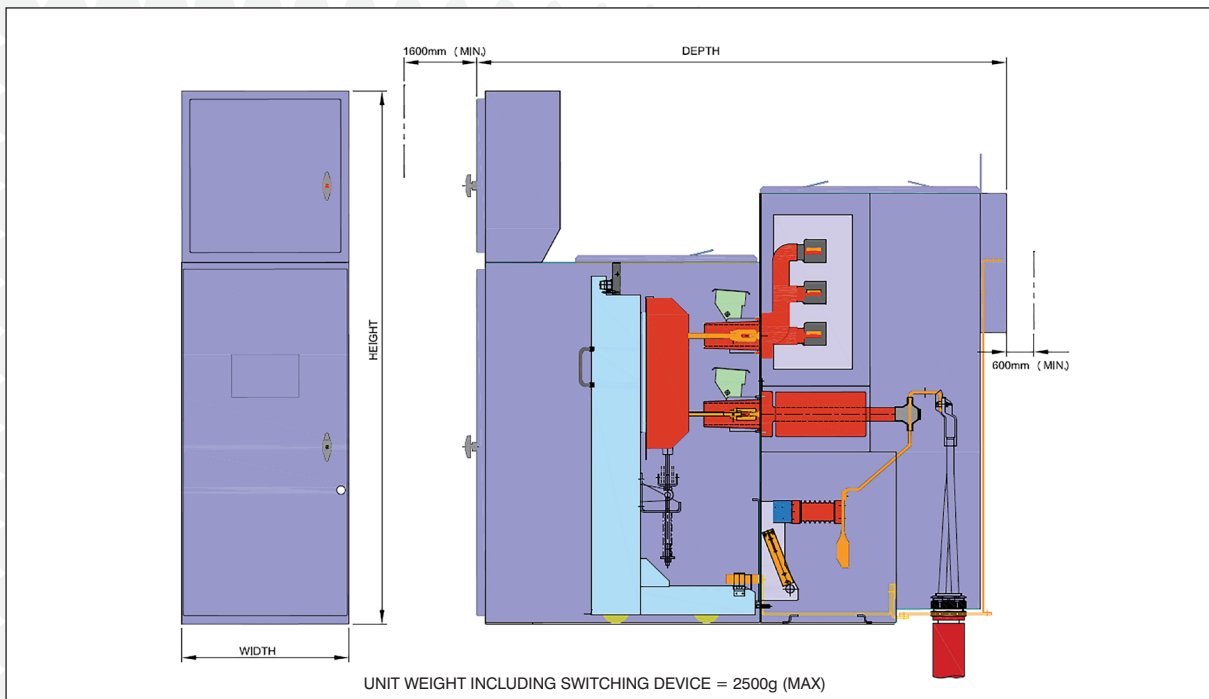


| | |
|-----------------------------------|---|
| Type | : AH12 |
| Voltage Rating | : Up to 12kV |
| Frequency | : 50 Hz / 60 Hz |
| Normal Circuit Current | : Up to 3150A |
| Normal Busbar Current | : Up to 4000A |
| Short Circuit Breaking Current | : Up to 50kA |
| Power Frequency Withstand Voltage | : Up to 38kV R.M.S |
| Impulse Withstand Voltage | : Up to 95kV Peak |
| Degree of Protection | : As required. |
| Applicable Standards | : IEC 62271-200 / IEC 62271-100 / IEC 62271-102 |

SALIENT FEATURES

- Loss of service continuity category : LSC2B (as per IEC 62271-200).
- Partition Class : PM (Metallic) (as per IEC 62271-200).
- Accessibility of compartment:
 - Busbar compartment : Tool based.
 - Cable compartment : Tool based / Interlock based.
 - Switching compartment : Interlock based.
- Fully interlocked VCB trolley & Earthing switch.
- Pressure relief flap for individual HV compartment.
- Fully insulated / shrouded busbars & bus connections.
- Cable box suitable for heat shrinkable PILC/XLPE cable termination.

OVERALL DIMENSIONS



Typical cross sectional view of Single Busbar Switchgear

Width : 2000mm (Max.)

Depth : 2500mm (Standard)

Height : 2800mm (Max.)

4. CONTROL AND RELAY PANELS

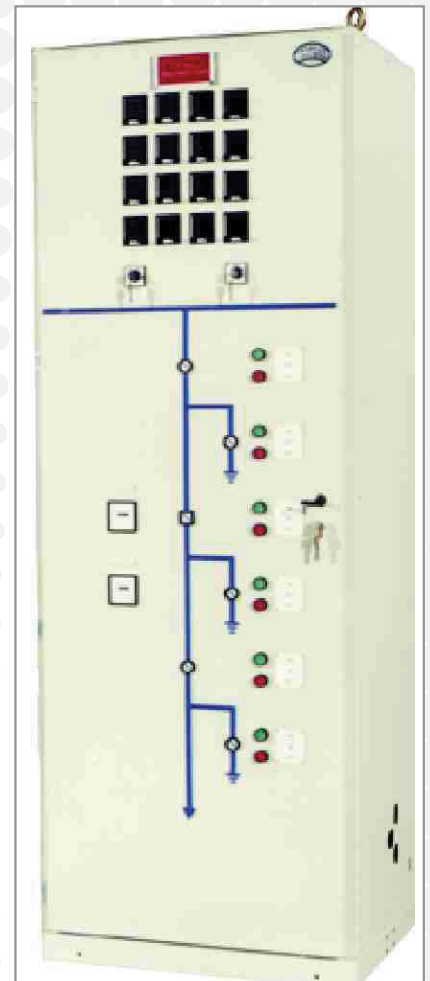
Al-Ahleia Control and Relay Panels for Switchgears up to 400kV are designed, manufactured and supplied to suit requirements of each specification.



11kV Remote Control and Protection Board In 'L' formation

PRODUCT RANGE

- Local Control Panels
- Remote Control Panels
- Relay Panels
- Remote Control & Relay Panels (Combined)
- Tap Changer Control Panels
- Pilot Marshalling Cabinets
- Telemetry Terminal Transfer Cabinets
- Annunciator Panels
- Synchronising Panels
- Interposing Relay Panels



**Local Control Panel for
132kV GIS**

DESIGN AND CONSTRUCTION

A group of specialised Engineers and Draughtsmen having in-depth knowledge do the design of the electrical schemes for control and protection for all types of applications. Al-Ahleia is well equipped with latest E-Plan & CAD/CAM facility to undertake execution of orders for custom-built panels. High quality neatly wired Panel Boards of various sizes with coloured mimic can be provided for various requirements. Construction types include.

- Standard 600/700/800mm wide panels
- Relay panels with glass doors
- Duplex Control Panels with walkway
- Panels in 'L' and 'U' formation.

TECHNICAL SPECIFICATION

| | |
|----------------------|--|
| Reference Standard | : IEC 61439-1 |
| Degree of Protection | : As required |
| Paint Colour Shade | : Light Grey Shade RAL 7032 (Other colours on request) |
| Cable Entry | : Bottom |
| Access | : Front / Rear |

QUALITY ASSURANCE

Al-Ahleia is fully equipped to conduct all tests at works before supply of equipment to site. Testing facility includes primary and secondary injection test equipments for all types of relay testing.

INSTALLATION, TESTING AND COMMISSIONING

A team of professionals is available to undertake complete installation, testing and commissioning of all types of Control and Relay panels at site. Latest equipments are available to undertake complete testing and commissioning of all types of requirements.



5. BATTERY CHARGERS

INTRODUCTION

Al-Ahleia battery chargers are designed and manufactured to suit the load requirements of each specification. Battery charges of rated D.C. voltage 24V, 30V, 50V, 110V, and 220V can be supplied.

FEATURES

- a. Nickel Cadmium or lead acid batteries as required.
- b. Permanent connection of battery to charger.
- c. Automatic high rate / low rate declining current charging or constant voltage charging.
- d. Natural cooling of components.
- e. Ideally suited for switchgear auxiliary supply.
- f. Complete input / output isolation.
- g. DC load normally fed from mains supply.
- h. Wall mounted or floor mounted design.
- i. Test facility for battery charge level (optional).
- j. Replaceable miniature fuses for A.C. and D.C. are provided on front panels for ease of maintenance (optional).



50VDC, 45A Battery Charger

CONSTRUCTION

The enclosures are made out of zinc coated sheet steel and powder coated. Sheet steel fabrication work is done on automated CNC machines ensuring high quality.

QUALITY STANDARDS

AL-AHLEIA is equipped with testing facilities for all routine tests as per IEC/BS standards and customer specifications.



Self Contained Battery and Charger for 50V DC

II- LOW VOLTAGE SWITCHGEAR

1. MAIN LOW TENSION BOARD (MLTB)

INTRODUCTION

Main Low Tension Boards comprise of incoming Air Circuit Breakers, horizontal and vertical busbars and outgoing Air Circuit Breakers / Moulded Case Circuit Breakers / Switch Fuse Units. Al-Ahleia make MLTBs are designed, manufactured and tested for rated current up to 6300A, short circuit current up to 100kA at rated voltages and also internal arc tested up to 100kA as per international standards. 'Intelligent Type' MLTB with device level integration to control, protect and monitor incomers and feeders.



Main Low Tension Board

TECHNICAL SPECIFICATIONS

| | |
|--------------------------|---|
| Type | : LVSG |
| Applicable Standards | : IEC 61439-1 & 2 |
| Rated Insulation Voltage | : 690V, 50Hz |
| Current Rating | : Up to 6300A |
| Short Time Current | : Up to 100kA |
| Internal Arc Test | : 100kA as per IEC 61641 |
| Degree of Protection | : As required |
| Form of Separation | : Up to Form 4b Type 7 |
| Construction | : Indoor / outdoor, cellular cubic type Drawout / Non-drawout, Single front / Double front. |
| Cable Entry | : Bottom (Top entry / exit or bus duct entry on request) |
| Paint Colour / Shade | : As required |

NOTABLE FEATURES

- Excellent short circuit withstand performance of busbar
- Bolted / Riveted modular construction
- Extendable on either side
- Adequate space for connection of cable
- Minimised maintenance and long life of switchgear components
- Easy operation and maintenance
- Interlocked for safety
- Drawout module has three positions viz. service, test and isolated.

DIMENSIONS

| Sl. No | Panel Type | Width(mm) | Depth(mm) | Height(mm) |
|--------|---|--------------------|--------------|---------------------|
| 1 | Outgoing vertical panel (Single Front with front cable access). | 900/1000 | 650/900 | 2200/2300/2400/2500 |
| 2 | Outgoing vertical panel (Single Front with rear cable access). | 700 | 650/900 | 2200/2300/2400/2500 |
| 3 | Outgoing vertical panel (Double Front with front cable access). | 900/1000 | 1050/1250 | 2200/2300/2400/2500 |
| 4 | ACB Incomer panel (Single Front with rear cable access). | 700/850/1000/1250 | 650/900/1300 | 2200/2300/2400/2500 |
| 5 | ACB Bus Tie panel (Single Front). | 850/1000/1150/1600 | 650/900/1300 | 2200/2300/2400/2500 |

2. MOTOR CONTROL CENTRE (MCC)

INTRODUCTION:

Motor Control Centres generally comprise of incoming Air Circuit breakers, main horizontal and vertical busbars, outgoing starter / feeder modules with MCCB / Switch fuse Unit, Contactors, Overload Relays, etc. Al-Ahleia make MCCs are designed, manufactured and tested for rated current up to 6300A, short circuit current up to 100kA at rated voltages and also internal arc tested up to 100kA as per international standards. 'Intelligent Type' MCC with device level integration to control, protect and monitor incomers, motors and feeders.



Motor Control Centre

TECHNICAL SPECIFICATIONS

| | |
|--------------------------|---|
| Type | : LVMCC |
| Applicable Standards | : IEC 61439-1 & 2 |
| Rated Insulation Voltage | : 690V, 50Hz |
| Current Rating | : Up to 6300A |
| Short Time Current | : Up to 100kA |
| Internal Arc Test | : 100kA as per IEC 61641 |
| Degree of Protection | : As required |
| Form of Separation | : Up to form 4b type 7 |
| Construction | : Indoor/outdoor, cellular cubic type, Drawout / Non-drawout, Single front / Double front. |
| Cable Entry | : Bottom (Top entry / exit or bus duct entry on request) |
| Paint Colour / Shade | : As required |

NOTABLE FEATURES

- Fully drawout modules for easy maintenance.
- Drawout module has three positions viz. service, test and isolated.
- Excellent short circuit withstand performance of busbars.
- Bolted / Riveted modular construction.
- Extendable on either side.
- Adequate space for connection of cable.
- Minimized maintenance and long life of switchgear components.
- Easy operation and maintenance.
- Interlocked for safety.

DIMENSIONS

| Sl. No | Panel Type | Width(mm) | Depth(mm) | Height(mm) |
|--------|---|--------------------|--------------|---------------------|
| 1 | Outgoing vertical panel (Single Front with front cable access). | 900/1000 | 650/900 | 2200/2300/2400/2500 |
| 2 | Outgoing vertical panel (Single Front with rear cable access). | 700 | 650/900 | 2200/2300/2400/2500 |
| 3 | Outgoing vertical panel (Double Front with front cable access). | 900/1000 | 1050/1250 | 2200/2300/2400/2500 |
| 4 | ACB Incomer panel (Single Front with rear cable access). | 700/850/1000/1250 | 650/900/1300 | 2200/2300/2400/2500 |
| 5 | ACB Bus Tie panel (Single Front). | 850/1000/1150/1600 | 650/900/1300 | 2200/2300/2400/2500 |

SOME OF OUR VALUED CLIENTS

| Government Sector | Oil Sector Companies |
|---|--|
| Ministry of Electricity & Water Ministry of Defense Ministry of Health Ministry of Information Ministry of Public Work Al-Diwan Al-Amiri | Kuwait Oil Company Kuwait National Petroleum Company (KNPC) Kuwait Integrated Petroleum Industries Company (KIPIC) Petrochemical Industries Kuwait Aviation Fuelling Company KGOC (JO Wafra / JO Khafji) Chevron |
| Public Sector | PMC |
| Kuwait Port Authority Director General of Civil Aviation Public Authority of Housing Welfare Kuwait University | Fluor Amec Foster Wheeler Worley Parsons TECHNIP WOOD |
| EPC Contractors | |
| Hyundai Heavy Industries Hyundai Engineering & Contracting Co. Daelim SK Engineering & Contracting Co. Snamprogetti / Saipem SpA. National Contracting Co. Petrofac JGC Corporation GS Engineering & Construction | Tecnicas Reunidas S.A - Group TR Mitsubishi Ganz Areva Siemens ABB Ansaldo Sinopec Hanwha Daewoo |
| Export (Public & Private) | |
| South Oil Company (Basrah, Iraq) Qatar General Electricity & Water Corporation (KAHRAMAA), Qatar Electricity & Water Authority (EWA), Bahrain UNEECO, Bahrain | ITTC, Qatar Voltage Engineering Ltd., Qatar AALCO, Qatar QTEC, Qatar Degremont, France |
| Private Sector | |
| Heavy Engineering Industries & Shipbuilding Company (HEISCO) Kharafi National Integral Services Company W.L.L. (ISCO) Mishrif International For Trading & Contracting Co. | Instruments Installation & Maintenance Co. (IMCO) Almeer Technical Services Company Combined Group Co. For Contracting K.S.C.C. Maschinenfabrik Reinhausen (MR) |



Our Mission is Customer Satisfaction

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GPS Location

29° 13' 59.40" N - 48° 00' 59.76" E