

Package Substations **DESERT SERIES**



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Plugged into your needs

Al Hamad is the leading manufacturing enterprise specialized in Low voltage to Medium voltage electrical products.

Headquartered in Abu Dhabi, UAE, the company covers entire MENA region and provide expert solutions in view of the local environment, requirements and necessities.

With an extensive experience of more than 2 decades and a thorough knowledge on Low and Medium voltage products, the team at Al Hamad understand

the increased demands of the products in upcoming years and worked collaboratively to manufacture and provide high quality solutions in utilities and many industrial applications.

The team is dedicated to providing Electrical Solutions to multiple sectors including utilities, Oil & Gas, Defense & infrastructure segment.



INTRODCUTION

Al Hamad Switchgear a division of Al Hamad Industries International offers a complete line of compact substations and walk-in substations to meet IEC standards. These innovative substations represent a unique concept, which is introducing new standards with a broader, modular product range and shorter delivery times. All products are based on the latest technology and the result is a safe energy supply and a reduction in operating costs for the grid. Compact substations are designed for outdoor applications and typically include a Medium Voltage Switchgear, Oil Immersed Transformer, Low Voltage Distribution Panel connections and associated equipment in an enclosed Unit.

In accordance with the IEC 61330 standard, Prefabricated Secondary Substations are defined as substations with type-tested equipment comprising distribution transformer, medium-voltage switchgear, low-voltage switchboard, connections and associated equipment in an enclosed unit. Substations are located in places to which the general public has access, and hence must provide a high level of personal safety.

Al Hamad Switchgear (AHS) manufacture a complete line of compact Package substations in conformance with IEC 61330 standards and customer's specification. The range of Package substations continue to evolve to meet the changing needs of our customers and the design and flexibility of the AHS package substation conforms to local and international standards, AHS's own demanding quality standards, overall product reliability for the MV Switchgear, Transformer and LV equipment and functionality of the complete package substation.

The AHS Package substations with Voltages up to 15kV and ratings up to 2,500kVA are outdoor compartmental type

substations consisting of three key interconnected electrical components namely the incoming medium voltage section the transformer section and the low voltage distribution section.

Al Hamad Switchgear Package substations are designed and manufactured for outdoor use, all components are housed in a building (housing), which protects the equipment against climate effects and unauthorised access. The housing will typically be divided into three compartments for the medium voltage switchgear, low-voltage switchboard and distribution transformer. A substation may be operated from the inside (Walk-in) or from the outside (Non Walk-in). The electrical equipment is cooled

by natural ventilation through vents in the substation.

The MV Switchgear, Transformer and LVDB are interconnected in the outdoor housing and mounted on a common base by AHS and after a routine factory acceptance test ready for network connection. Safety is a high priority as all live parts in the Package substation are protected against unintentional contact by means of lockable doors. Cable connections and fuses in the medium-voltage room are also protected against unintentional contact. Anti-contact protection is tested in accordance with international standards.

STANDARD FEATURES

Medium Voltage Switchgear typically a Ring Main Unit (RMU) of SF6 (optional oil type), as per customer requirements. The RMU offered is typically a type tested SF6 Ring Main Unit manufactured for Middle East conditions and specific reputable brands may be supplied as specified by customers.

Step-down Transformer (MV to LV) - shall be a type tested Oil filled type (optional dry type) transformer to suit the application and/or specification. AHS offer our partners transformers designed and manufactured in the UAE or Saudi to meet Middle East conditions.

LV Distribution Board (LVDB) - is Al Hamad Switchgears type tested and approved LV distribution board with main incoming low voltage circuit breaker (fed from the transformer) and multiple low voltage feeders can be accommodated, the feeder circuits to be flange connected or cable connected type as per customer requirement.

The Low Voltage switchgear offered can be circuit breakers or isolators but other solutions may be supplied as specified by customers. Other LV arrangements and components can be offered such as fuse switches in line with customer requirements.



Al Hamad Switchgear is a single source supplier providing high quality package substations tailored to the customer or project specifications. The Ring Main Unit, Transformer and LV Feeder equipment are all IEC conforming devices and housed in a AHS designed and manufactured outdoor enclosure, based on AHS's more 30 years of experience in building power distribution equipment in the United Arab Emirates.

Al Hamad Switchgear offers the ultimate for maximum customer benefits:

- Single point of contact and contract handling
- Better follow up and improved co-ordination between supplier and customer
- Minimum time for installation and commissioning
- Reduced operating costs and logistics
- Ring Main Units from reputed suppliers
- Transformers from approved and reputed manufacturers, up to 2500 kVA
- Low voltage switchgear, components.
- All assembled on a common skid with steel housing fully painted and protected against environmental conditions.
- High protection of personnel



SPECIFICATIONS

EXTENSIBLE AND NON EXTENSIBLE RMU

- System Voltage up to 15kV
- Impulse withstand voltage 95kV (Peak)
- Rated Frequency 50/60Hz
- Switch connection to MV network 630Amps (Ring Switches)
- Tee-off feed connection to Transformer
- 200Amps (circuit breaker or fuse-switch)
- Short circuit peak making current 50KA (Ring Switches & Circuit Breaker)
- Short circuit breaking current 25kA for 1s (Circuit Breaker) or 21kA for 3s

OIL IMMERSED TRANSFORMER (MV TO LV STEP DOWN)

- Rated power up to 2500 kVA
- Rated secondary voltage 400/415V
- Vector Group Dyn

LOW VOLTAGE DISTRIBUTION

- Main incomer 400 to 4000Amps (switch or circuit breaker)
- Dependent on transformer rating
- Feeders 60 to 1600Amps subject to customer requirement

GENERAL CHARACTERISTICS

- Compartmented (MV/Txf/LV) - Outdoor operation & Naturally vented.
- Ambient Temperature - normal operating conditions up to 40 °C.
- Optional 50deg C on request (derating of equipment required).
- Hot-dip Galvanised sheet steel - base frame and corner posts.
- Housing Walls - Single or Double Wall options (Double Wall Sandwich panels with rockwool insulation of 50mm).
- Standard Colour - RAL 7032 (Optional other colours on request).
- Degree of Protection MV & LV compartments - IP43 up to 54 subject to customer requirement.
- Degree of Protection Transformer compartment - IP21.
- All components fully earthed to common earth.

OPTIONAL

- Metering devices (LV & MV)
- Automation solutions
- Primary Voltages up to 33Kv
- Transformer ratings > 2500 kVA
- External Earth Indication in IP55 enclosure
- Capacitor bank arrangement in LV compartment
- MV/LV Switchroom (Walk-in) with External Transformer
- Non-standard Lifting arrangements can offered to customer requirement Safe and intelligent power distribution





ALHAMAD

SWITCHGEAR

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