

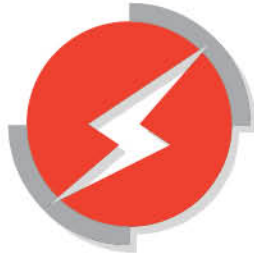


# EGEMAC

Egyptian German Electrical Manufacturing Co.



**EGYPTIAN GERMAN ELECTRICAL  
MANUFACTURING CO.**



# EGEMAC

Egyptian German Electrical Manufacturing Co.

## Certificates







**EGEMAC** (The Egyptian German Electrical Manufacturing Co) was established in compliance with the law No.43 of the year 1974 and the joint investment law no.230 of the year 1989.

- The real production activities have started since January 1979 in technical cooperation with the best international manufacturer of switchboards at that time (SIEMENS AG GERMANY).
- Since that time, **EGEMAC** is still being pioneer in manufacturing Switchboards and control panels for the Egyptian Electricity transmission and distribution networks of different voltage levels from 400 V up to 500 KV.
- The share of **EGEMAC** in the local market is more than 60% of the best quality with the most advanced technology of our products.
- **EGEMAC** has a technical cooperation with the most international producers like Schneider, Alstom, PFIFFNER, SIEMENS, Chint , Elko.
- **EGEMAC** has different ISO certificates ( ISO 9001, 14001 and 18001 ).
- The total area of **EGEMAC** Company is 76,000 square meters with 700 employees.
- **EGEMAC** started with a Capital of EGP 5.5 Millions increased in 2004 to EGP 250 Millions.

#### Founders :

- 62.48 % The Egyptian Electricity Holding Company (EEHC).
- 24.96 % The National Company for Construction and Reconstruction.
- 5.09 % Misr Company for Mechanical and Electrical Projects (KAHROMICA).
- 4.58 % El-Nasr Transformers & Electrical Products Co (ELMACO).
- 2.89 % Siemens Company. ( Munich and Berlin, Germany).

**EGEMAC** contributes in the capital of other electrical and industrial companies with the following shares :

- 79 % of El-Nasr Transformers & Electrical Products Co. (ELMACO).
- 49 % of XD-EGEMAC High Voltage Electric Equipment Co.
- 10 % of The African for Mechanical and Electrical Projects in Libya .
- 8.17 % of the Egyptian Company for Manufacturing Electrical Insulators (ECMEI).
- 5 % of Design and Manufacturing Co. for Investment equipment (DAMCO).



## Organizational Structure

### Staff & Personnel

Due to high technicality of electrical equipment industry, **EGEMAC** is highly concerned with the qualifications of the employees or personnel. Accurate selection, providing sufficient training, social care, promotions, etc. are some of the features in preserving the consistence staff of **EGEMAC**.

A visit to **EGEMAC** factories is welcomed at any time to observe the stable and secure environment.

### EGEMAC Departments :

- Quality control & quality assurance department
- Electrical design department
- Mechanical design department
- Prefabrication department
- Assembly department
- Planning department
- Sales department
- Marketing department
- Research and development department
- Technical office
- Substations department
- Information Technology department
- Legal Affairs department
- Administration department
- Finance department
- Construction department

## Activities

### Manufacturing, Erection, and Commissioning of :

#### Low - Voltage products :

- Motor Control Centers (MCC)
- Protection, control, and marshalling Panels
- Battery Charging Units.
- Distribution Cabine.

#### High - Voltage products :

- SF6 Circuit - Breakers. 72.5-245 KV
- Disconnecter switches. 72.5-245 KV
- Measuring Transformers. 72.5 KV

#### Medium - Voltage products :

- Switchboards.
- Ring Main Units.
- Compact Substation.
- Measuring Transformers (Cast Resin).
- Insulators (Cast Resin).
- Vacuum Circuit - Breakers.
- Load Break Switches (Air, SF6 type).

#### Projects :

- High - voltage Substations.
- Switching Stations.
- Medium - Voltage Projects.
- Rehabilitation and upgrading of existing projects.



## High - Voltage Products

### High - Voltage Circuit - Breakers & Disconnectors [ ALSTOM, France ]

#### Circuit - Breaker 72,5 KV



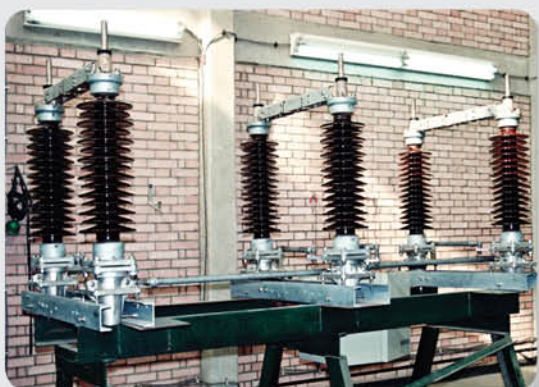
- SF6 Circuit - Breaker type [ 309FI/3120-4031 ]
- Rated Voltage 72,5 KV
- Rated Current 2000 A , 3150 A
- Breaking Capacity 31.5 KA , 40 KA
- Simple operating mechanism

#### Circuit - Breaker 245 KV



- SF6 Circuit - Breaker type [ GL 314 ]
- Rated Voltage 245 KV
- Rated Current 3150 A
- Breaking Capacity 50 KA
- Simple operating mechanism

#### Disconnecter switch 72,5 KV



- Type [ S2DA ]
- Rated Voltage 72,5 KV
- Rated Current 2500 A
- Breaking Capacity 40 KA

#### Disconnecter switch 245 KV



- Type [ S2DA ]
- Rated Voltage 245 KV
- Rated Current 2500 A
- Breaking Capacity 40 KA





## High - Voltage Instrument Transformers ( PFIFFNER, Switzerland )

### Current Transformer 72.5 KV



- Type ( JOF-72.5 )
- Rated voltage 72.5 KV
- Oil Immersed
- Oil level indicator

### Potential Transformer 72.5 KV



- Type ( EOF-72.5 )
- Rated voltage 72.5 KV
- Oil Immersed
- Oil level indicator

## Benefits and Features

- Oil-paper insulated current transformer in hairpin design
- High availability by standardized components
- Robust, earthquake resistant design because of low lying centre of gravity
- Metal parts made of aluminum and stainless steel.
- Design according to international and national standards
- Highly flexible, temperature resistant membrane made of fluoroelastomer (Viton®)
- Hermetically sealed and therefore maintenance free
- Simple symmetric primary connection at the transformer head
- Easy and safe cable connections in a large scaled secondary terminal box
- Tight according to IP 54



## Medium - Voltage products

### Medium - voltage switchgear panel SIMOPRIME [ SIEMENS, Germany ]

**EGEMAC** manufactures and assembles in its factories medium-voltage switchgear panel type **SIMOPRIME** with technical cooperation with **Siemens Co.**

The panels are equipped with medium-voltage vacuum circuit-breaker type **3AE (SION)** and **3AH5**

### Benefits and Features

Benefits	Features
<ul style="list-style-type: none"> <li>• Saves lives</li> </ul>	<ul style="list-style-type: none"> <li>• All switching operations including emergency manual operations with high voltage door closed</li> <li>• Interlocking between high-voltage door and switching devices</li> <li>• Rack-in, rack-out operations of the circuit-breaker truck with high-voltage door closed</li> <li>• Metallic, earthed shutters and partitions, partition class : PM</li> <li>• Internal arc tested design according to IEC 62 271 - 200, Annex A</li> <li>• Use of vacuum cercuit-breakers</li> </ul>
<ul style="list-style-type: none"> <li>• Peace of mind</li> </ul>	<ul style="list-style-type: none"> <li>• Factory-assembled, type-tested switchgear according to IEC 62 271 - 200</li> <li>• Type testing of the circuit-breaker inside the panel</li> <li>• Use of standard, worldwide available components</li> <li>• Use of maintenance-free vacuum circuit-breakers</li> <li>• Quality management according to DIN EN ISO 9001</li> <li>• Design based on global best practice sharing and experience</li> <li>• More than 300,000 air-insulated switchgear panels from <b>Siemens</b> in operation world wide</li> </ul>
<ul style="list-style-type: none"> <li>• Increases productivity</li> </ul>	<ul style="list-style-type: none"> <li>• Use of metallic, earthed shutters and partitions between the compartments ensures highest service continuity of the switchgear (LSC2B according to IEC 62 271 - 200) during maintenance</li> <li>• Use of maintenance-free vacuum cercuit-breakers</li> </ul>
<ul style="list-style-type: none"> <li>• Saves money</li> </ul>	<ul style="list-style-type: none"> <li>• Use of maintenance-free vacuum cercuit-breakers</li> </ul>



**3AH5** Vacuum C.B





## Switchgear panel Type SIMOPRIME ( up to 12 KV, Air - Insulated )

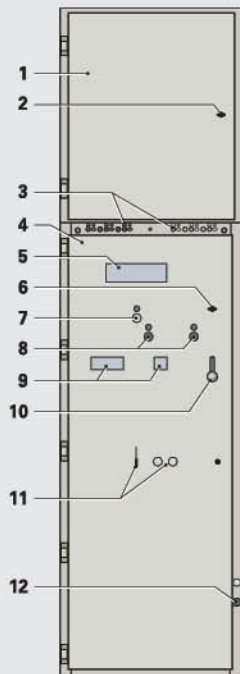
### Panel design

Legend for panel design :

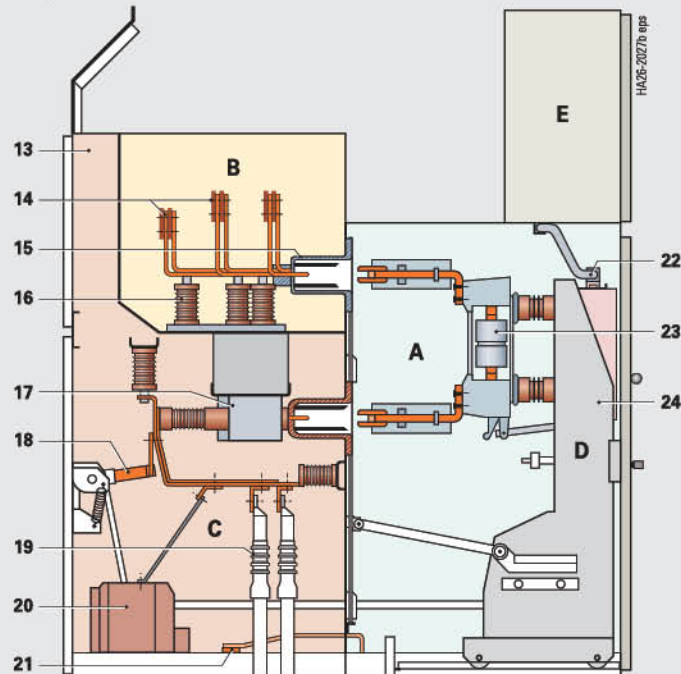
- 1 - Door of low-voltage compartment
- 2 - Opening for locking or unlocking the low - voltage compartment door
- 3 - Option : Capacitive voltage detection system for feeder and busbar
- 4 - High-voltage door of switching-device compartment
- 5 - Inspection window for checking the switching-device truck
- 6 - Opening for locking or unlocking the high-voltage door
- 7 - Opening for mechanical charging of circuit-breaker closing spring
- 8 - Opening for manual operation (ON/OFF) of the circuit-breaker
- 9 - Inspection window for reading the indicators
- 10- Door handle
- 11 - Openings for switching-device truck operation
- 12- Opining for earthing-switch operation
- 13- Pressure relief duct
- 14- Busbars
- 15- Bushings
- 16- Post insulators
- 17- Option : Ring-core or block-type current transformer
- 18- Option : Make-proof earthing-switch
- 19- Cable sealing ends
- 20-Option : Voltage transformer
- 21 - Earthing busbar
- 22-Low-voltage plug connector
- 23-Vacuum interrupters
- 24-Switching-device truck

- A Switching device compartment  
B Busbar compartment  
C Connection compartment  
D Vacuum circuit-breaker truck  
E Low-voltage compartment

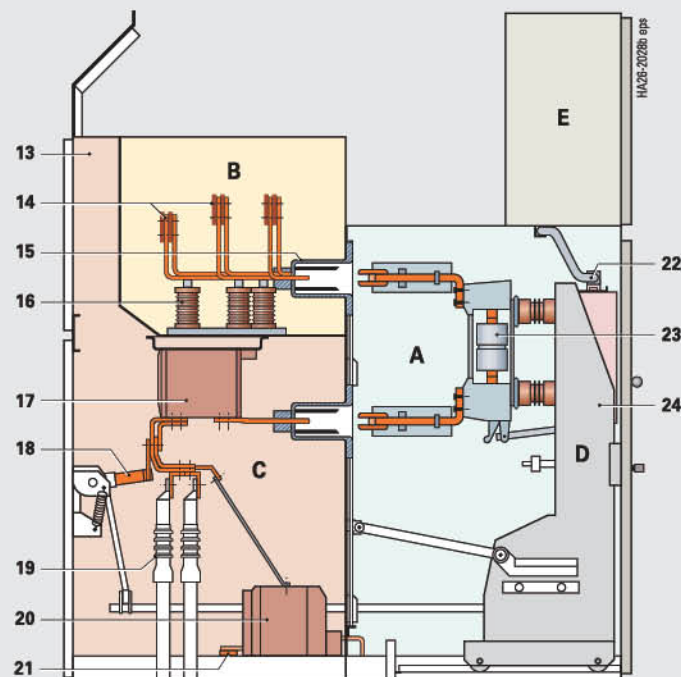
### Basic panel design (example)



Circuit-breaker panel  
12 KV, 1250 A



Front connecton with ring-core current transformer,  
Optionally : with block-type current transformer.



Rear connecton with block-type current transformer,  
Optionally : with ring-core current transformer.





## Switchgear Panel Type SIMOPRIME A4 ( 24 KV )

**SIMOPRIME A4** Panel is designed according to IEC standard 62271-200:

Rated voltage	up to 24 KV.
Short circuit-breaking Capacity	up to 25 KA.
Rated current	up to 2500 A.

**SIMOPRIME A4** Panel saves lives , increases productivity and saves money .

This panel is factory-assembled, type-tested suitable for indoor installation acc. to the latest IEC standard .

### Compartments :

The panel is divided into four compartments :

#### 1- Switching device compartment :

- All switching operations with high-voltage door closed .
- Pressure relief upwards .
- Shutter operating mechanism .
- High-voltage door pressure resistant .
- Interlocking between high-voltage door and circuit-breaker truck.

#### 2- Busbar compartment :

- Pressure relief upwards
- Busbars are made of flat copper for rated nominal current up to 2500 A .
- Optional : insulated busbars

#### 3- Cable compartment :

- Pressure relief upwards through rear pressure relief duct .
- Cast resin current transformer .
- Cast resin voltage transformer .

#### 4- Low-Voltage compartment :

- Accommodates equipment for protection , control , measuring and metering .
- Separated from the high-voltage part of the panel and safe to touch .
- control cables for the panel are flexible and have metallic covers.



**SIMOPRIME A4** Panel  
24 KV / 25 KA / 2500 A

### Typical uses :

The **SIMOPRIME** switchgear panel can be used in the most power applications such as :

- |                           |                          |
|---------------------------|--------------------------|
| • Power supply systems    | • Chemical industry      |
| • Power stations          | • Petroleum industry     |
| • Pipeline installations  | • Cement industry        |
| • Offshore installations  | • Automobile industry    |
| • Electrochemical plants  | • Iron and steel works   |
| • Petrochemical plants    | • Rolling mills          |
| • Shipbuilding facilities | • Mining industry        |
| • Diesel power plants     | • Emergency power supply |

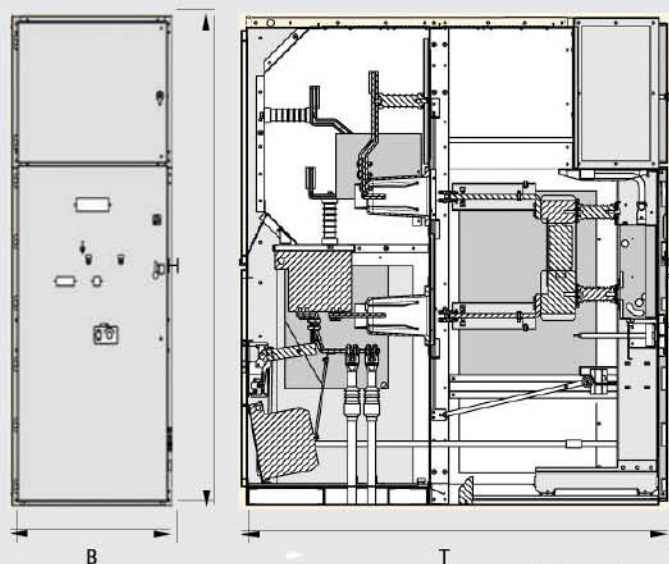


## Technical Data

Electrical data (maximum values) of **SIMOPRIME A4**

Ratings (max.)	Rated values
<b>Switchgear</b>	
Rated voltage 24 kV	24 kV
Rated frequency	50/60 Hz
Rated short duration power frequency withstand voltage	50 kV
Rated lightning impulse withstand voltage	125 kV
Rated short time withstand current, 3 s	25 kA
Rated peak withstand current at 50/60 Hz	63 kA
Rated short circuit breaking current	25 kA
Rated short circuit making current at 50/60 Hz	63 kA
Rated normal current of busbar	2500 A
Rated normal current of feeders	2500 A
- with circuit-breaker	As per fuse
- with fused load break switch	

### Dimensions

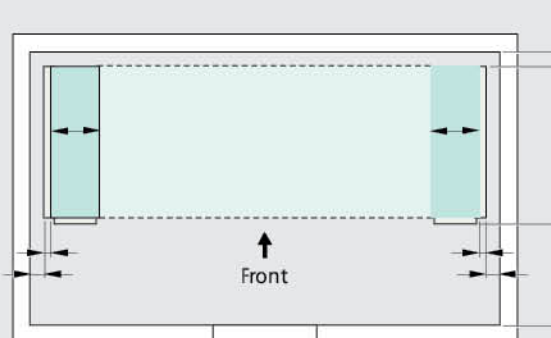


#### All panel types

Dimensions in mm		
Width B	For 1250 A vacuum circuit-breaker	800
	For 2500 A vacuum circuit-breaker	1000
	For load-break switch	500
Height H	With standard low-voltage compartment	2250
Depth T	Standard	1900

Room planning (Minimum room height W 2850 mm)

Front connection



Single row arrangement (plan view)

For dimensions B (width) and T (depth) refer to table on this page

1) For panel replacement : Control aisle w 2000 mm

2) Minimum distance to wall W 150 mm



## SION Vacuum Circuit-Breakers 3AEI and 3AE5 ( 7.2 - 24 kV )

**SION** vacuum circuit-breakers control all switching duties in medium-voltage distribution systems and are suitable for installation in all customary, new, air-insulated medium-voltage switchgear types as well as for retrofitting existing switchgear.

- They are applicable for operation of e.g. overhead lines, cables, transformers, capacitors and motors.
  - The comprehensive installation accessories enable easy integration in the panel, and form ( maximally equipped as a withdrawable module with earthing-switch ) almost the complete circuit-breaker compartment inside the switchgear.
- The comprehensive circuit-breaker product range offers a wide selection for pole center distances and widths across flats as well as various equipments options for voltage levels from 7.2 kV - 24 kV.
  - The withdrawable part, contact arms, contacts and bushings enable easy integration in all customary medium-voltage switchgear types.
  - Identical dimensions and connection dimensions across several voltage levels reduce planning costs and the diversity of panel versions.
  - High reliability and availability are just as much a matter of course as 10,000 maintenance-free operating cycles.

### Fixed Mounting



The **SION** vacuum circuit-breaker can be adjusted to any requirement by means of various equipment options.

This switching-device can be mounted on a withdrawable part.

### Withdrawable Mounting



Furthermore, mountable contact arms, contacts and bushings allows easy integration in the switchgear. The circuit-breaker mounted on a withdrawable part can be supplied both with and without contact arms and contacts.





## 3AH5 circuit - breaker [ up to 24 KV ]

**3AH5** vacuum circuit-breakers control all switching duties in medium-voltage systems. They are applicable for operation of e.g. overhead lines,

cables, generators, capacitors, filter circuits, motors and reactors.

Here, small short-circuit ratings in distribution systems face high breaking currents in industrial systems.

**3AH5** is the universal circuit-breaker in the product range



The **3AH5** vacuum circuit-breaker is a real round device in its field of application. With its compact dimensions, it fits in all customary switchgear types. The comprehensive variety of types with different



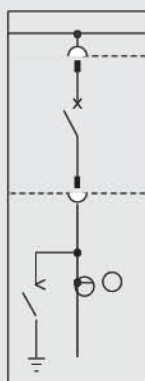
normal currents and short-circuit currents as well as various pole centre distances for voltage levels up to 24 KV enables its universal application for all medium-voltage requirements.



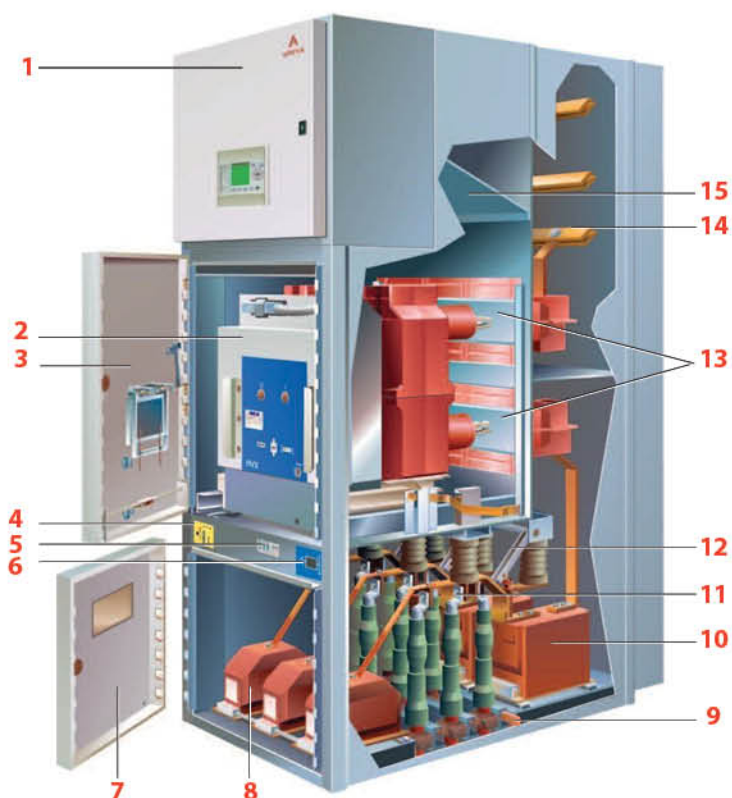
## Medium - Voltage Switchgear Panel PIX [ Schneider, France ]

**EGEMAC** manufactures and assembles the medium-voltage switchgear panels type **PIX** with technical cooperation with **Schneider Electric Co.**

The panels are equipped with medium-voltage air circuit-breaker type **HVX**.



### Feeder panel **PIX 12** with circuit-breaker truck **HVX**



- 1 Low-voltage compartment
- 2 Circuit-breaker truck HVX
- 3 Front door
- 4 Earthing-switch control element
- 5 Voltage indicator
- 6 Position indicator of earthing-switch
- 7 Cable compartment cover
- 8 Voltage transformer (optional)

- 9 Earth bar
- 10 Current transformer
- 11 Cable connections
- 12 Make-proof earthing-switch
- 13 Shutter
- 14 Busbars
- 15 Pressure relief flap of switching-device compartment



## Applied Standards:

**PIX** switchgear units meet the following standards and regulations:

Designation	IEC standard	EN standard
Switchgear	IEC 62271-1 IEC 62271-200	EN 62271-200
Circuit-breaker	IEC 62271-100	EN 62271-100
Vacuum contactor	IEC 60470	EN 60470
Earthing switch	IEC 62271-102	EN 62271-102
Disconnecter truck	IEC 62271-102	EN 62271-102
Current transformers	IEC 60044-1	EN 60044-1
Voltage transformer	IEC 60044-2	EN 60044-2
Voltage Detecting Systems	IEC 61243-5 IEC 61958	EN 61243-5 EN 61958
Protection against accidental contact, foreign bodies and water	IEC 60529	EN 60529
Installation	IEC 61936-1	HD 637 S1
Operation of electrical equipment	–	EN 50110-1

Degree of protection against accidental contact and foreign objects

Degrees of protection against accidental contact and foreign objects according to IEC 60529

external enclosure of panel	IP3X <sup>1</sup>
between the compartments of the panel	IP2X

<sup>1</sup> optional IP4X; other values available on request

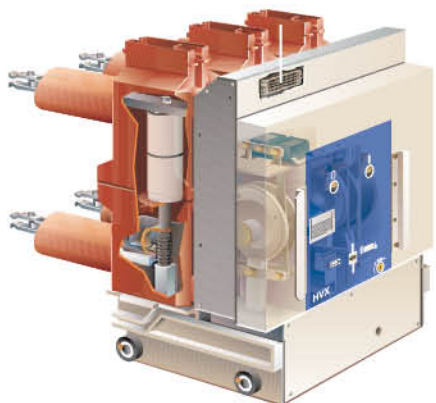
## Ratings of the PIX series :

Switchgear panel		PIX 12	PIX 17	PIX 24	
Rated voltage U <sub>r</sub>	[kV]	12	17.5	24	
Rated lightning impulse withstand voltage U <sub>p</sub>	[kV]	75	95	125	
Rated power frequency withstand voltage U <sub>d</sub>	[kV]	28	38	50	
Rated normal current I <sub>r</sub>	Busbar	[A]	≤ 3150/4000		≤ 2500
	Circuit-breaker	[A]			
	Vacuum contactor	[A]	200-400	—	
Rated peak withstand current I <sub>p</sub>	[kA]	≤ 100			≤ 80
Rated short-time current I <sub>k</sub>	[kA]	≤ 40 (3 s)			≤ 31.5 (3 s)
Rated frequency f <sub>r</sub>	[Hz]	50/60			





## HVX Vacuum Circuit - Breaker ( up to 24 KV )

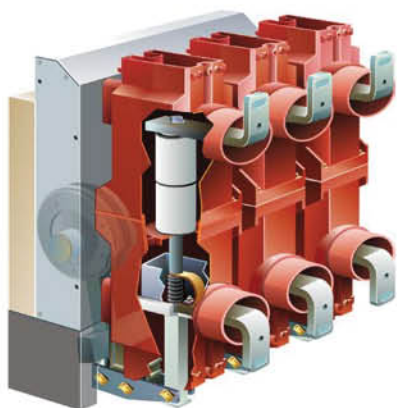


Drawing unit with Vacuum circuit-breaker

### General Description

The **HVX** vacuum circuit-breaker is the result of consistent further development for application in modern air-insulated switchgear units. It is characterized by compact dimensions, good operator guidance and a modern functional industrial design.

The market requirements, especially regarding small functional compartments without additional solid insulating material in the panel to ensure dielectric strength, can be satisfied optimally.



Vacuum circuit-breaker **HVX - F**  
Fixed type model

### Design

The **HVX** vacuum circuit-breaker was designed on the basis of the proven post insulator switch principle, i.e. the pole section is secured to the drive casing in two places.

In addition to providing insulation between the poles and to the ground, the multifunction pole section performs all supporting and protection functions.



### Medium - Voltage Switchgear Panel Type 8BD



#### Siemens Design

Withdrawable vacuum circuit-breakers

Rated Voltage	up to 12 KV
Rated Current	up to 3150 A
Rated short-circuit withstand current	up to 50 KA

### Medium - Voltage Switchgear Panel Type 8BK



#### Siemens Design

Withdrawable vacuum circuit-breakers

Rated Voltage	up to 24 KV
Rated Current	up to 3150 A
Rated short-circuit withstand current	up to 31.5 KA

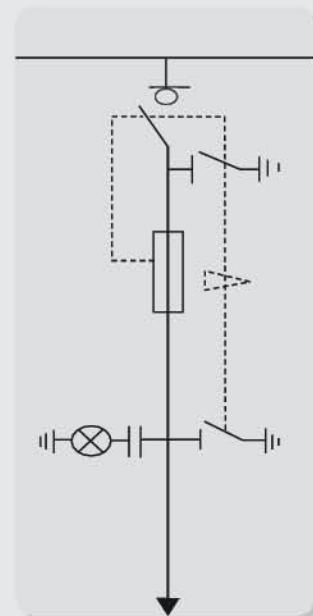
### Typical Uses :

- Power stations
- Automotive industry
- Rolling mills
- Chemical industry
- Electrochemicals
- Pipeline installations
- Offshore installations
- Cement industry
- Iron and steel work
- Food and fiber industry
- Oil industry
- Petrochemicals
- Mining industry
- Shipbuilding facilities



## Ring Main Unit type Airsub 24 [ ELKO, Turkey ]

The RMU is equipped with fixed SF6 load break switch type EGYA 24 of rated voltage up to 24 KV



### Features :

- Simple design indoor type and construction
- Optional dimensions
- High level personal safety
- High level operating reliability
- High level service continuity
- Different functional units allowing individual configurations

### Technical specifications

Item	Unit	Specifications	
Rated Voltage	KV	12	24
Rated lightning Impulse withstand voltage to earth	KV	75	125
Rated short duration power frequency withstand voltage to earth	KV	28	50
Rated normal current	A	630 , 400	630 , 400
Rated short time withstand current	KA	25	25
Duration of short - circuit	Sec.	1	1
Rated peak withstand current	KA	62.5	62.5
Rated short-circuit making current	KA	62.5	62.5





**RMU type 8AS10 with fixed LBS type 3CF**



Rated Voltage	12 & 24 KV
Rated lightning impulse Withstand voltage to earth	75 & 125 KV
Rated short duration power frequency withstand voltage to earth	28 & 50 KV
Rated normal current	400 A (Trans. LBS) 630 A (feeder LBS)
Rated short time withstand current	20 & 16 KA
Duration of short-circuit	1 Sec
Creepage distance	20 mm/KV

**RMU type AEG with fixed LBS type NAL & NALF/ABB**



Rated Voltage	12 & 24 KV
Rated lightning impulse Withstand voltage to earth	75 & 125 KV
Rated short duration power frequency withstand voltage to earth	28 & 50 KV
Rated normal current	400 A (Trans. LBS) 630 A (feeder LBS)
Rated short time withstand current	31.5 KA
Duration of short-circuit	1 Sec
Creepage distance	20 mm/KV

**Metal enclosed transformer substation type 8FJ1**

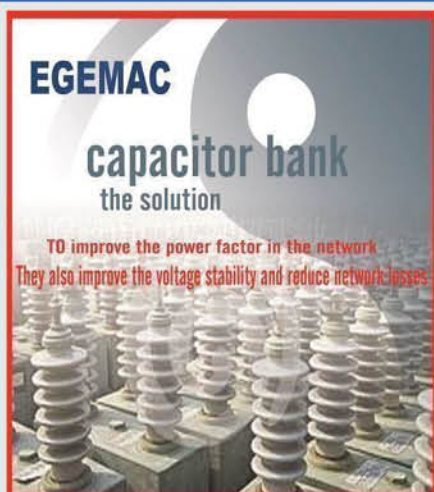


The compact substation type (8FJ1) produced by **EGEMAC** incorporates the following :

- Medium-voltage compartment	12 & 24 KV
- Medium / Low-voltage transformer	up to 2 MVA
- Low-voltage compartment	380 V
- Load break switch ( LBS )	Air or SF6 type



## Medium - voltage Capacitor Bank ( Power Factor Correction ) :



Capacitor Bank  
up to 9 MVAR

Medium-Voltage ( 11 KV & 24 KV ) Capacitor bank for indoor and outdoor installation.

It is made of sheet metal and equipped with SF6 contactor & capacitor units of total power up to 9 MVAR

Specification	Unit	Switchgear 12 KV	Switchgear 24 KV
Rated system voltage	KV	12	24
Rated frequency	HZ	50	50
Rated short duration power frequency Withstand Voltage	KV	28	50
Rated Lightning impulse withstand voltage	KV	75	125
Total power of the bank	MVAR	Up to 9	
No. of steps	step	Up to 3	
Protection degree	IP	54	
Capacitor unit			
Rated system voltage	KV	12	24
Rated line voltage	KV	11	22
Rated phase voltage	KV	6.3	12.7
Rated frequency	HZ	50	50
Insulating material		Poly propylene – film	
		paper insulation	
Bushing	unit	Two bushing porcelain	
Creepage distance	cm/KV	3.5 for outdoor 2.5 for indoor	
Rated Power for unit	MVAR	0.3	
Internal discharge resistance Max. discharge time for 5 min	min	5 min to 50 Volte	
Rated temperature	C°	-5 : 55	
Losses	W	< 0.2	



## Medium - Voltage Instruments Transformers [ PFIFFNER, Turkey ]

### Cast Resin Potential transformer ( 12 - 24 KV )



### Cast Resin Current transformer ( 12 - 24 KV )



### Medium & Low - Voltage Cast Resin Insulators

Medium-Voltage Cast Resin Insulators  
up to 24 KV with creepage distance of 2cm/KV



Low-Voltage Cast resin Insulators  
415 / 690 V







## Low - Voltage Products

### Low - Voltage Distribution Panels ( Chint, China )

**EGEMAC** Manufactures and assembles low-voltage switchgear panels (under license of Chint / China) applicable for the low-voltage system of all power generation, power distribution occasions, Like main and sub-power panels , distribution panels, motor power and motor control center, power system , ships, oil drilling platform, industrial end users, utility users and civil & commercial construction.

Low-voltage switchgear panels are tested in KEMA Laboratories according to the latest IEC standard (61439).



#### • Motor Control Center (MCC)

**EGEMAC** manufactures and assembles MCC panels for rated current up to 4000 A and short-circuit current breaking capacity up to 85 KA, Form 4b

#### • Load Center (LC)

**EGEMAC** manufactures and assembles the load center panels for rated current up to 4000 A and short- circuit current breaking capacity up to 85 KA, Form 4b.

#### • Fields of application

Low-voltage switchgear is the latest development of new products and applies to all occasions of generation and distribution such as:

- Power Distribution Cabinets
- Motor Power Supply and Motor Control Center
- Power Systems
- Ships and oil drilling platform



## Low - Voltage Switch Panel ( Withdrawable ) type NGC8

### 1. General :

This type of low-voltage panels is designed according to the latest IEC standard and suitable for many applications which cover most of Industry and power uses. Customized products are available for special application environments like tropics, earthquakes regions, ships, etc.

### 2. Working Conditions :

Ambient air temperature  
Altitude  
Relative humidity

-5C° : 40 C°  
up to 2000 m  
50% at 40 C°  
90% at 20 C°

### 3. Main Technical Parameters :

- |                                       |              |
|---------------------------------------|--------------|
| - Rated voltage ( main circuit )      | up to 690 V  |
| - Rated insulation voltage            | up to 1000 V |
| - Rated impulse withstand voltage     | up to 12 KV  |
| - Rated current                       | up to 4000 A |
| - Rated voltage ( Auxiliary circuit ) | 220, 380 V   |
| - Frequency                           | 50/60 Hz     |
| - Protection degree                   | IP 54        |
| - Contour dimensions                  |              |

Height : 2200, 2400 mm  
Width : 400, 600 ,800, 1000, 1200 mm  
Depth : 600, 800,1000, 1200 mm

### 4. Advantages :

- Allow front, back, and double-sided operation
- Full series type
- Compact structure
- The cabinet can be installed back to back
- Economic distribution circuit layout
- Arc prevention design
- Meet shake and impact resistance requirements
- Maintenance-free
- High operation continuity and reliability
- High security
- Best temperature control function
- Intelligent system





## Low - Voltage Substation Panels :

### Control Panel



Required  
For Transformer Substations  
220/66/11 KV

### Protection Panel



Required  
For Transformer Substations  
220/66/11 KV

### Marshalling Panel



Required  
For Transformer Substations  
220/66/11 KV

### Battery Charger



110 and 220V DC  
1ph and 3ph  
up to 100 A





## Customer Services :

Customer service is the provision of service to customers before, during and after purchasing.



### Installation

All the products manufactured by **EGEMAC**, are installed and supervised by an experienced staff on site. On site tests of products are precisely carried out according to the international standard specifications and the requirements of the clients.

Commissioning and start-up of projects are carried out in cooperation with the Clients.

### After - Sales Services

**EGEMAC** executes the following services after the delivery :

- Installation and preliminary operating supervision.
- Planning and execution of technical projects.
- Training of the clients Personnel.
- Delivery of spare parts and products maintenance.
- Scheduling maintenance program of each equipment.
- Warranty period scheduling.



## Quality Control :

- The quality control department is responsible for investigation, inspection, testing (in all stages) of all materials, substances, and instruments which compose the products through all different stages of production.
- Also final tests and commissioning are quality control responsibility.
- The procedures of quality control and quality assurance are based on specific measures following IEC specifications and customer requirements.

### EGEMAC is equipped with the following laboratories

- 1- Calibration Lab  
to assure the accuracy of equipment and measuring devices by calibration according to predetermined program
- 2 - Investigation lab;  
This includes the necessary instruments for investigation and testing of materials according to the relevant international standards
- 3 - Switchboards Lab;  
It is equipped with the most recent developed instruments for carrying out the routine test of the distribution panels and substation equipment including control and protection systems of the ring-main units
- 4 - Circuit breakers testing Lab;  
It is equipped with new equipments for testing circuit breakers and disconnector of voltage 11, 22, 66, 220KV. Tests are carried out according to predetermined measures and the IEC standards
- 5 - Instrument transformer testing Lab;  
to test current and voltage transformers of different voltages up to 66KV to have the full satisfaction of our customers and according to the IEC standards.







## XD-EGEMAC :

To achieve our targets by increasing the local portion in high-voltage substations. **EGEMAC** signed a joint venture agreement with XD Company ( one of the leading manufacturers of electric products in China ) to establish an industrial park in Ain Sokhna (Suez) for the Production of power transformers up to 500 KV GIS switchgears 66/220/500 KV Capacitors and surge arresters.

The tentative name of the joint venture Company is **XD-EGEMAC** High-voltage Electric Equipment CO. Ltd  
The plant Will be the first of its kind in the Middle East and Africa and it Will Cover an area of 276000 square meters.



**EGEMAC** Share by (49%) and China XD Share by (51%) of The total capital .

\*In July 2012 the factory has been evaluated by a committee from the high level experts of The Egyptian Electricity Transmission Company ( EETC ) and they recommended that : We would like to Express our utmost appreciation towards **XD- EGEMAC** factory for assembling GIS switchgears in Egypt which is similar to international factories abroad. Then **XD-EGEMAC** can participate in EETC's tenders.

Their offer will subject to technical evaluation according to each tender conditions.

Following to that **XD-EGEMAC** won the following contracts :

1 - Ain Sokhna Generation S/S	500 KV (GIS)	[ Erection ]
2- Abu - Ghaleb S/S	220 KV (GIS)	[ Erection ]
3- EL-Mattar S/S	220/66 KV (GIS)	[ Erection and testing ]
4- Damietta S/S ( extention )	66 KV (GIS)	[ Delivery-Erection-testing]
5- Banha S/S	220/66/11 KV (GIS)	[ Turn Key ]
6- Benban ( Four S/S )	220/22/22 KV (GIS)	[ Turn Key ]





## EGEMAC Reference List

EGEMAC has a wide experience in substations projects [ More than 180 substations ]



10th of Ramadan Substation



Smart Village Substation

### I- EGYPT

- |                               |                     |                                  |              |
|-------------------------------|---------------------|----------------------------------|--------------|
| • Ain-Sokhna substation       | 500 KV (GIS)        | • New 10th of Ramadan Substation | 220/66/11 KV |
| • Kafr El-Zayat Substation    | 220/66/11 KV (GIS)  | • El-Motamadia Substations       | 220/66/11 KV |
| • Tura Substation             | 220/66/11 KV (GIS)  | • El-Mansura West Substation     | 66/11 KV     |
| • Abo Ghleb Substation        | 220/66 /11 KV (GIS) | • Smart Village Substation       | 66/11 KV     |
| • El-Matar Substation         | 220/66/11 KV (GIS)  | • El-Minya West Substation       | 66/11 KV     |
| • 6 th of October Substation  | 66/22 KV            | • El-Amreya Petroleum Substation | 66/6.6 KV    |
| • El-Kome El-Ahmer Substation | 66/11 KV            | • Abo Simbel Substation          |              |
| • Ashmoun Substation          | 220/66/11 KV        | • Gohina Substation              | 66/11 KV     |
| • Meet Ghamr Substation       | 220/66/11 KV        | • New Ismailia Substation        | 220/22/22 KV |
| • El- Obour Substation        | 220/66/22 KV        | • New Esna Substation            | 220/66/11 KV |
| • Kom Abo Rady Substation     | 66/22 KV            | • Fayoum Substation              | 66/22 KV     |
| • Tanta South Substation      | 66/11 KV            | • Tafiaaa Switching Station      | 66/6.6 KV    |
| • Abo El-Reesh Substation     | 66/11 KV            | • Edfo East Substation           | 66/ 11 KV    |
| • Asyute Substation           | 66/11 KV            | • New Suez Substation            | 220/66/11 KV |
| • Aswan West Substation       | 66/22/11 KV         |                                  |              |
| • Hurghada airport Substation | 66/11 KV            |                                  |              |
| • Sharm El-Sheikh Substation  | 220/66/22 KV        |                                  |              |
| • El-Qantara East             | 220/66/22 KV        |                                  |              |
| • Nuweiba Substation          | 220/66/22 KV        |                                  |              |
| • Malawy Substation           | 220/66/11 KV        |                                  |              |



## 2- Outside EGYPT :

### LEBANON

- Deir Nebouh (Beirut) 66/11 KV
- El Gomhour Substation (Beirut) 66/11 KV
- SIDA 66/11 KV
- SEBLIN 66/11 KV



LEBANON

### PALESTINE

- Rehabilitation of west GAZA power plant. ( 140M.W ).



PALESTINE

### YEMEN

- Medium - Voltage Switchboard 11 KV



YEMEN



YEMEN





## EGEMAC Customer's list :

### 1 - Electricity Sector

- North Cairo For Electrical Distribution Co.
- Cairo Electricity Distribution Co.
- Alexandria Electricity Distribution Co.
- El-Behira Electricity Distribution
- Canal Electricity Distribution Co.
- North & South Upper Egypt Co.
- Electricity Distribution Co.
- North & South Delta Electricity DistributionCo.
- ELEJECT.
- HIDELECO.
- KAHROMICA.

### 2 - Public Sector

- Egyptian Copper Co.
- Rakta Co. for Paper Industry
- Tractor and Engineering Co.
- Rural Arab Spinning and Weaving CO.
- El-Dakahlia Spinning and WeavingCO.
- Suez Petroleum CO.
- Steel and Iron Co.
- EL-Nasr Fertilizer Co.
- Misr Aluminum Co.
- Nile Co. for Engineering Works.
- El-Mahalah Spinning and Weaving Co.





### 3 - Private Sector

- Egyptian Poultry Co.
- Asfour Crystal Co.
- Dolci Co. for Drinks.
- Suez Canal Bank.
- Misr Reconstruction Co.
- Port Said Co. for Engineering Works
- Berzy Chocolate Co.
- Centech Co.
- Tasty Foods Co.
- Sima Co.
- Covertina Co.
- El-Walis International for commerce
- Uni-Volt Co.
- High Life Co.
- Electro Impex Co.
- Saudi Egyptian Co. for Reconstruction
- Olympic Electric Co.
- Electro Mechanical House Co.
- El-Nabilah Cairo Hotel.
- Ramo Construction Co.
- Siragoi Co.
- El-Saad Co. for Investment..
- Lakaah Steel and Iron Factory
- Madinaty Substation
- The Arab Contractors
- The Egyptian Airports Company
- The Engineering Authority of the armed forces
- The Water Industry Sector





# EGEMAC

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