E-Houses
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INTEGRATED ELECTRICAL SOLUTION TO MAKE YOUR BUSINESS MORE FLEXIBLE

TIME
Reduced building time in comparison to masonry.

CONVENIENCE
A single contract to supply a full solution.

WARRANTY
Commissioning at the factory and possibility of platform testing.

FLEXIBILITY
Robust equipment able to efficiently and reliably fulfill the requirements of different applications.
The **ELW E-Houses** are an integrated solution with a customized design and manufacture to meet each customer’s specific needs.

Assembled in a single platform, they may integrate the electrical and automation systems, such as transformers, medium-voltage controlgear and switchgear, medium voltage and low voltage MCCs, PLCs and auxiliary equipment. The units are delivered assembled, interconnected and tested at the factory. They represent a customized solution, eliminating the need of masonry works and different suppliers. In addition, since there are no size limitations, they can be used in small and large installations, in many different environments, even aggressive ones, and industrial activities.

**Advantages**
- Shorter lead time to execute the projects
- Shorter assembly time in field
- Little infrastructure required at the site (lower mobilization and demobilization costs)
- The assembly at the factory and installation in the field are not subject to weather conditions
- Unique engineering for the integration of all the devices and systems
- Reduction of the storage area and works in the field
- Better control of manufacturing process and quality systems
- Reduction of engineering, project management and supply costs (optimization of the procurement process)
- Logistic gain in the manufacturing, platform testing, start-up and commissioning
- Shorter lead time
Applications

Flexible system for specific compartmentalization and projects, such as:

- Transformer unit
- Panel unit
- IT / Operation room
- Automation room
- Restroom
- Battery room
- HVAC room
- Locker room

5 construction types available: Mobile, Semi-Mobile, Fixed, Skid and On-Board

Technical Data

Construction Types

Mobile E-House

Semi-Mobile E-House

Fixed E-House

Onboard E-House
Technical Data

**Typical Components**
- Medium voltage switchgear and controlgear
- Medium and low voltage motor control centers (MCCs)
- Load center
- Dry-type and oil transformers
- Control panels and protection relays
- Auxiliary panels
- Air conditioning and pressurization system
- Fire detection and extinguishing system
- Battery banks and rectifiers
- UPS
- Medium and low voltage soft-starters and frequency inverters
- CCTV
- PLC and field networks
- Busway
- Automation system, including supervisory and control stations

**Mechanical Structure**
- Base made of ASTM A-572 carbon steel beams
- Fixed or removable floor with ribbed or smooth plates, load capacity up to 1,250 kg/m²
- Wall, ceiling and roof frames made of square steel tubes
- Steel quality inspection certificate issued by the manufacturer
- Monitoring and inspection of the weld and painting processes executed by accredited personnel

**Wall Construction**
- Double ASTM A36 steel galvanized sheet
- Lining between sheets - rock wool (thermal insulation)
- Metallic sheets are fastened by self-tapping screws
- The bending system of the external sheets provides excellent resistance against bad weather
- Pads may be supplied for easy back access to the panel boards and fire stop wall
Technical Data

Ceiling
- Frame composed of trusses firmly fastened to the ceiling and 100% galvanized sheets
- Roof load bearing capacity of 200 kg/m² (other values on request)
- Roof with lightning protection system (LPS). The LPS can be made according to the Franklin method or the electrogeometric model
- The roof may be optionally supplied with fascia and gutters for water runoff
- Top catwalk and lifeline anchorage system may be supplied, ensuring quick and safe access to the roof
- Roof and ridge sheet bending system provides excellent resistance under the harshest weather conditions

Coating
- Carbon steel - mechanical cleaning, removal of oils and greases and abrasive blasting
- Galvanized sheets - phosphate conversion coating and powder coating
- Internal / external parts and frame painting - epoxy primer finished with polyurethane paint
- Anti-slippage floor paint (optional)
- Optional coating resistant to acids and corrosive fluids
- Finishing color - gray RAL 7035 (other colors on request)
- Painting scheme according to ISO 12944-5, taking into account the environment characteristics, usage and operating conditions and cost effectiveness, thus providing the most suitable painting system for each customer, with great durability and low cost

Doors
- Manufactured with the same thermal insulation used in the walls and ceiling
- Doors with panic bar
- Double doors for equipment and personnel (optional: panic bar)
- Rubber gasket on the doors to prevent the ingress of water, dust and sand, and to keep the pressure inside the room.
- Drip caps may be installed on the doors
- Stainless steel hinges
Air Conditioning Systems
Designed to provide the suitable temperature for the correct operation of the equipment and comfort of the operator. The system is designed based on the size of the E-House, internal heat generated by the people and thermal conditions of the external environment.
In environments with a high level of contaminants, a pressurization system with filters may be included to prevent the ingress of dust and other contaminants.
Under request redundant equipment and automation systems may be supplied to ensure constant operation of the solution, providing high reliability. Such system allows better control of the equipment operation, monitoring the shift of the cooling machines, temperature, environment humidity and pressure, and also enabling the integration with fire detection and alarm systems and plant control systems.

Fire Detection and Alarm System
The ELW E-House is supplied with a fire detection and alarm system composed by fire alarm, smoke detectors, manual actuators, audiovisual indicators and portable fire extinguishers for manual firefighting. Heat, flame and gas detectors, aspiration and linear detection and automatic firefighting with extinguishing agents such as CO2, FM200, NOVEC 1230, aerosol and ECARO25 may be supplied under request to provide precise detection and immediate firefighting when fire starts. This optional system allows the interconnection with the control system of the customer’s plant with the heating, ventilation and air conditioning system (HVAC). So, in case of fire, the HVAC equipment is immediately shut down, reducing the possibility of fast spread of the fire.

Access Control System and CCTV
The Access Control System and CCTV may be supplied in order to meet the needs of the customer. The access control is composed of a control panel, access reader, electromagnetic door lock and door sensors. This system may be integrated to the control system of the customer’s plant together with the CCTV so that the security staff will have precise control against unauthorized access.
Technical Data

Testing Procedure
- Visual and dimensional inspection
- Electrical continuity
- Insulation resistance
- Withstand voltage test
- Routine tests on the equipment part of the system, according to applicable standards
- Functional tests on the complete assembly (electrical panel boards, lighting systems, air conditioning, firefighting and internal electrical hookups, etc.)

Platforms, Ladders, Railings and Hand Rails
They may be optionally ordered so as to meet the requirements for personnel and equipment access to the room and to the inspection and maintenance areas.

Internal / Emergency / External Lighting and Power Outlets
The internal lighting system is composed of surface-mount lamps designed to meet the specified luminance levels with LED tubes that provide proper lighting, low power consumption and reduced maintenance. The emergency lighting system uses 2 self-contained LED lamps with sealed battery. The external lighting uses lamps installed close to the E-House doors or according to the layout provided by the customer. External and internal power outlets are installed so as to meet the project specifications, with voltage and current levels and models suitable for the intended application.
Technical Data

Structural Calculation
In order to design the frame of the E-House, the following parameters are considered:
- Number of supports on which the E-House will be installed
- Weight of the E-House
- Weight and position of the equipment inside the E-House
- Wind load
- Earthquake condition (if applicable)

Once those parameters are obtained, the structural calculation is done, determining the stresses and deformations to which the E-House frame will be subject in the place of installation, during shipment and hoisting.

Load Plan
FULL SOLUTION WITH SAFETY AND CONVENIENCE

- **TIME**
  Shorter transportation time.

- **CONVENIENCE**
  Flexible modularization to build the E-House.

- **GUARANTEE**
  Better process control and quality systems.

- **FLEXIBILITY**
  The assembly at the factory and installation in the field are not subject to weather conditions.
EMW Modular E-House

The EMW Modular E-Houses have predefined dimensions, suitable for being assembled and coupled, forming rooms with proper dimensions for different requirements.

They are metallic frames on which the devices that compose the control, distribution, supervision, automation, transformation, communication and instrumentation systems are installed. In addition to those devices, auxiliary systems, such as air conditioning, access control, CCTV, fire detection and extinguishing system are also installed. They are delivered assembled, interconnected and tested at the factory, eliminating the necessity of masonry works and the hiring of several suppliers.

Advantages
- Excellent cost-benefit, due to the project standardization
- Transportation without excess of dimensions, using container trucks
- The E-Houses may be expanded in the field as the customer’s demand increases
- Shorter assembly time in the field
- Little construction site infrastructure required
- Unique engineering for the integration of all the equipment and systems
- Reduction of the storage area and works in the field
- Reduction of the customer’s costs with engineering, project management and supplies
- Logistic gain in the manufacturing, platform testing, start-up and commissioning

Modularity

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### Possible dimensions (mm)

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</table>
Technical Data

Mechanical Structure
- Structural base made of welded rectangular ASTM-572 carbon steel beams
- Floor made of galvanized plates with textured powder coating and load capacity of 1,100 kg/m²
- Structural columns on the corners and in the center (removable according to layouts)
- Steel with quality inspection certificate issued by the steel manufacturer
- Monitoring and inspections of the welding and painting processes executed by accredited personnel

Wall Construction
- Rock wool sandwich panels
- The internal and external sheets of the sandwich panels are 0.65 mm thick
- Finishing of galvanized sheets with powder coating

Ceiling
- Structural ceiling made of Metalons squared tubes
- Ceiling/roof made of galvanized sheets
Technical Data

Doors
- Manufactured with the same thermal insulation used in the walls and ceiling
- Doors with panic bar
- Double doors for equipment and personnel (optional: panic bar)
- Rubber gasket on the doors to prevent the ingress of water, dust and sand, and to keep the pressure inside the room
- Drip caps may be installed on the doors
- Stainless steel hinges
- Doors lockable to prevent unauthorized access

Hoisting and transportation
- Upper hoisting without the need of a lifting beam
- Easy assembly and coupling
- Transportation without width/height/length excess using container trucks
- Easy and reduced-time logistics
- Corner Fitting for fastening it to the container truck
Details of E-Houses Assembled in the Field
Sustainability

Sustainability has been an integral part of WEG’s philosophy since its foundation. Therefore, raising the awareness of the importance of protecting the environment by means of the correct use of natural resources has been a great concern in the company.

Half the energy produced in the world is used to operate pumps, while one-third of the world population lives in areas where water is scarce. As all the nations know, the effective use of electric energy significantly reduces the environmental impacts and helps ensure the sustainable use of natural resources for the generations to come.

To ensure the lowest environmental impact of our products and manufacturing processes by means of:

- **Compliance with the applicable environmental legislation**
- **Continuous improvement, establishing environmental goals and objectives**
- **Act in advance so as to protect the environment**
- **Eco-efficient processes and products, while saving natural resources**

**Certifications**
- ISO 50001:2011
- ISO 14001:2014
- ISO 9001:2008
Global presence is essential, as much as understanding your needs.

Global Presence
With more than 30,000 employees worldwide, WEG is one of the largest electric motors, electronic equipments and systems manufacturers. We are constantly expanding our portfolio of products and services with expertise and market knowledge. We create integrated and customized solutions ranging from innovative products to complete after-sales service.

WEG’s know-how guarantees our **E-Houses** is the right choice for your application and business, assuring safety, efficiency and reliability.

- **Availability** is to have a global support network
- **Partnership** is to create solutions that suits your needs
- **Competitive edge** is to unite technology and innovation
Know More

High performance and reliable products to improve your production process.

Excelence is to provide a whole solution in industrial automation that improves our customers productivity.
For those countries where there is not a WEG own operation, find our local distributor at www.weg.net.