B.B.A – The high performance panel system

- Powering the Future with Precision & Reliability
- Electrical Distribution & Control Solutions Designed for Performance, Safety, and Efficiency
- Smart Power Distribution Systems Innovative. Reliable. Efficient.

Alborz Province, Nazarabad City, Sanat Square, Sanat Street, after Negar 2 Alley, Bolandaye Bargh Alborz Company

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Company Introduction:

Bolandaye Bargh Alborz Company was established with the aim of providing specialized services in the fields of electrical engineering, switchgear, buying and selling electrical equipment, and solar energy systems. The company executes industrial, commercial, and power plant projects according to the highest technical standards, leveraging a team of skilled professionals. With a strong technical and engineering staff, advanced computational and design software, CNC machinery, and an automatic painting line, Bolandaye Bargh Alborz designs and manufactures its products in accordance with international standards, making them competitive with leading global manufacturers. By implementing management systems, establishing high and low voltage laboratories, precise control equipment, and a strong QC team, the company has earned the trust of its customers. To meet client needs efficiently while ensuring economical and high-quality production, the company has established a D&R (Design & Research) unit, enabling it to respond effectively to customer requirements and offer a diverse range of products. Customer support is a core responsibility of the company. Accordingly, the after-sales service unit is always ready to provide assistance to clients

Fields of Activity:

Design and manufacturing of low and medium voltage switchgear Consulting, designing, and implementing residential, industrial, and utility-scale solar power plants Buying and selling electrical equipment, including ACB and MCCB circuit breakers, cables and wires, protective devices, solar panels, and inverters Performing technical calculations, drafting, and preparing engineering documentation for projects Executing electrical contracting projects for buildings, factories, and industrial infrastructures

Competitive Advantages:

- Possessing experienced experts in the field of electrical engineering
- Providing technical services based on the latest standards and reputable brand equipment
- Full project support from design to final delivery
- Speed, accuracy, and competitive total cost

Annual Production Capacity:

Medium voltage switchgear:	220 cells
Low voltage switchgear:	1,000 cells
Automatic capacitor panels:	220 cells
Process control panels:	100 cells

Types of Manufactured Panels:

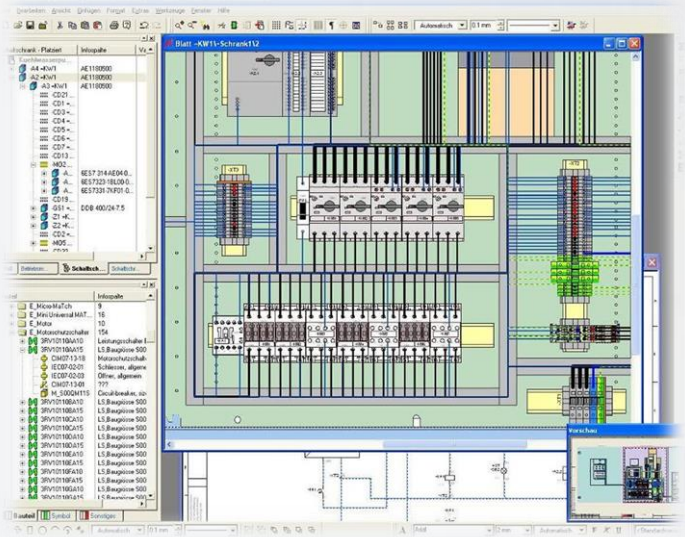
- Medium voltage (MV) and low voltage (LV)
- power distribution panels
- Motor Control Center (MCC) panels
- Process control panels
- Lighting distribution panels
- Power factor correction capacitor banks equipped with regulators
- Transfer switch panels with automatic diesel generator start
- Outdoor distribution panels resistant to water, dust, and rain
- Various types of wall-mounted low voltage panels

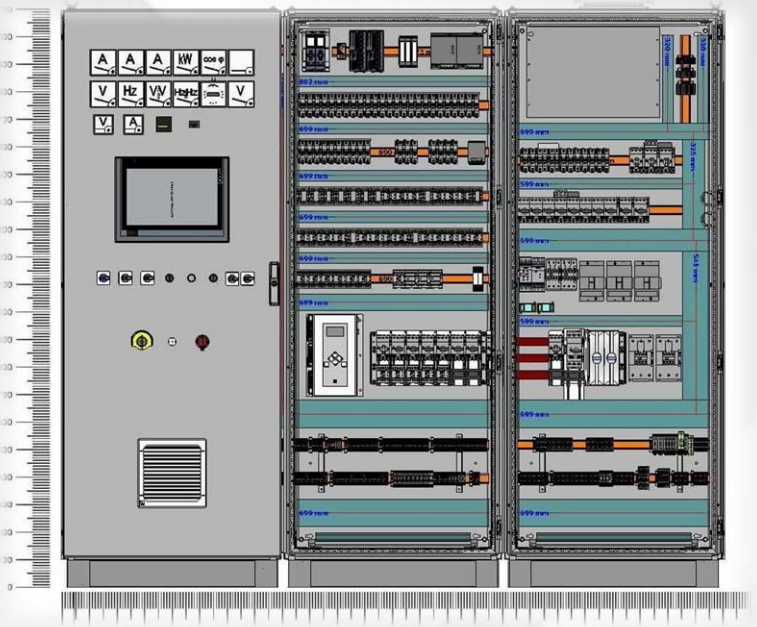
Engineering Design Unit:

The first step in manufacturing a panel is the optimal design of the panel and the arrangement of its components, which is the responsibility of the Engineering Design Unit. Design work is carried out in both the Electrical and Mechanical divisions.

Electrical Division:

This division handles single-line diagrams, schematic drawings of panels, front views of panels including the installed equipment, and the coding of each device according to the IEC international standards. It also reviews the technical specifications of equipment and raw materials to ensure the use of high-quality components that are economically efficient, taking into account the client's requirements. Once the panel design is complete, the final drawings are submitted to the client's designated technical representative for review and approval.





Mechanical Division:

After the design is approved by the client, the drawings are provided to the Mechanical Division for the fabrication of the frame and its components. In this division, the panel frames are constructed from iron sheets of varying thicknesses as follows:

1. Medium voltage panels: minimum 2.5 mm
2. Free-standing low voltage panels: minimum 2 mm
3. Wall-mounted panels: minimum 1.5 mm

The frames are designed based on received technical specifications, considering mechanical structure, painting, assembly, testing, and suitability for continuous operation under the environmental conditions of the installation site.

medium voltage (MV) switchgear:

B.B.A Company, focusing on medium voltage (MV) switchgear, designs and manufactures its products according to the highest international standards. The quality, safety, and durability of these panels meet the requirements of industrial and power plant projects. Our manufactured products are as follows:

- Medium Voltage Switchgear 33KV (ZS3.2 Type)
- Medium Voltage Switchgear up to 24KV (UniSafe Type)
- Compact Medium Voltage Switchgear up to 24Kv (Uniswitch type)

Medium Voltage Switchgear 33KV (ZS3.2 Type)

Rate Voltage	KV	36	40.5
Rated power frequency withstand voltage	KV	80	95
Rated lightening impulse withstand voltage	KV	170	185
Insulation to		DIN VDE/IEC	
Rated frequency	HZ	50/60	50
Rated current of busbars	A	…3150 [3]	…3150
Rated current of tee-offs, circuit - breaker	A	…3150 [3]	…3150 [3]
Rated peak withstand current [1]	KA	…80 [5]	…80
Rated shot – circuit breaking	KA	…31.5 [4]	…31.5
Current of circuit breaker			
Rated shot – time current 3s 1)	KA	…31.5 [4]	…31.5
Auxiliary voltage	V	DC [2] 60,110,125;AC 110,220	DC 110,220

1) Take the short- circuit withstand capability of the instrument transformers into account separately.
2) Special DC voltages on request
3) Up to 3150 A at 40 °c and 2500 A at 55 40 °c with forced ventilation
4) 40KA on request
5) 100KA on request

Medium Voltage Switchgear up to 24KV (UniSafe Type)

Switchboard		12KV	17.5 KV	24KV
Rate Voltage	KV	12	17.5	24
Rated insulation voltage	KV	12	17.5	24
Rated power frequency withstand voltage	KV (1 min)	28(1)	38	50
Rated lightening impulse withstand voltage	KV	75	95	125
Rated short- time withstand current	KA (3s)	31.5	31.5	31.5
Peak current	KA	80	80	80
Rated short- time withstand current	KA (1s)	50	50	-
Peak current	KA	125	125	-
Internal arc withstand current	KA (1s)	31.5-40	31.5-40	31.5
	KA (0.5s)	50	50	-
Branch connectors rated currents	A	630 1250 1600 2000 2500 3150 3600(2) 4000(2)	630 1250 1600 2000 2500 3150 3600(2) 4000(2)	630 1250 1600 2000 2500(2)
Main busbars rated currents	A	1250 1600 2000 3150 3600(2) 4000(2)	1250 1600 2000 3150 3600(2) 4000(2)	1250 1600 2000 2500(2)

(1) Also available at 42 kv (1 min).

(2) Wit with forced ventilation in the circuit-breaker compartment: a further fan is required at the rear of the Switchboard for 4000 A versions.

Compact Medium Voltage Switchgear up to 24Kv (Uniswitch type)

Rate voltage Ur	[kV]	12	17.5
Rated short-duration power-frequency withstand voltage U_d			
Common value	[kV]	28 1)	38 1)
Across the isolating distance	[kV]	32 1)	45 1)
Rated frequency	[Hz]	50/60	50/60
Rated current Ir	[A]	800	800
Rated short-time withstand current	[kA]	25	20
Max. rated duration of short circuit	[s]	2	3
Rated peak withstand current	[kA]	62,5	50
Breaking capacity (IEC 60265-1)			
Mainly active load	[A]	630/800	630/800
Closed-loop distribution circuit current	[A]	630	630
Cable-charging current	[A]	50/10	50/10
Line-charging current	[A]	20	20
Cable and line charging current under earth faults	[A]	87	87
Making capacity (IEC 60265-1)	[kA]	62,5	50
Making and breaking capacity (IEC 60420)			
Withstanding and making the cut-off current of the fuse	[kA]	25	20
Breaking test with long prearcing time of fuse		ok	ok
Breaking capacity at rated transfer current	[A]	1530	1260
Mechanical endurance of switch c/o		5000	5000
Mechanical endurance of earthing switch c/o		1000	1000
Ambient temperature	[°C]		
Maximum value		+ 40	+ 40
Maximum value of 24 h-mean		+ 35	+ 35
Minimum value		- 5 3)	- 5 3)
Altitude above sea level	[m]	≤1000 2)	≤1000 2)

1) Highest values in accordance with national standards.

2) Adjustment is necessary for greater altitudes.

3) Lower ambient temperature on request.

Low Voltage Panels (LV)

The enclosures of low voltage panels are manufactured in two designs — Rittal (Germany) and Siwacon — using a fully bolted structure. The use of perforated profiles in the framework provides high flexibility for equipment arrangement and assembly, allowing easy modification and expansion of the panel when needed.

Technical Specifications of Floor-Standing Panels

The bodies of floor-standing panels are fabricated from cold-rolled steel sheets (ST12) of export-grade quality supplied by Mobarakeh Steel. The panels are made as a single, continuous folded piece with perforations that allow mounting of components at any desired position on the frame.

Sheet thicknesses are as follows: Front door and base chassis plate: 2 mm Side, rear, and roof panels: 1.5 mm All doors and covers are sealed using injected foam or weatherproof gaskets, ensuring protection against moisture and dust. The protection degree of the panels is IP42. The front door lock is a lever or key-type imported lock, which secures the door at four points to the structure using a special locking bar. The hinged front door is attached to the structure with four concealed galvanized steel hinges (3 mm thick). Additionally, four forged lifting hooks are mounted on the top of the panel for easier handling and transportation.

Washing and Painting Process

After completing the fabrication and quality inspection of all metal parts, the washing process is carried out by immersion method prior to paint application, as described below:

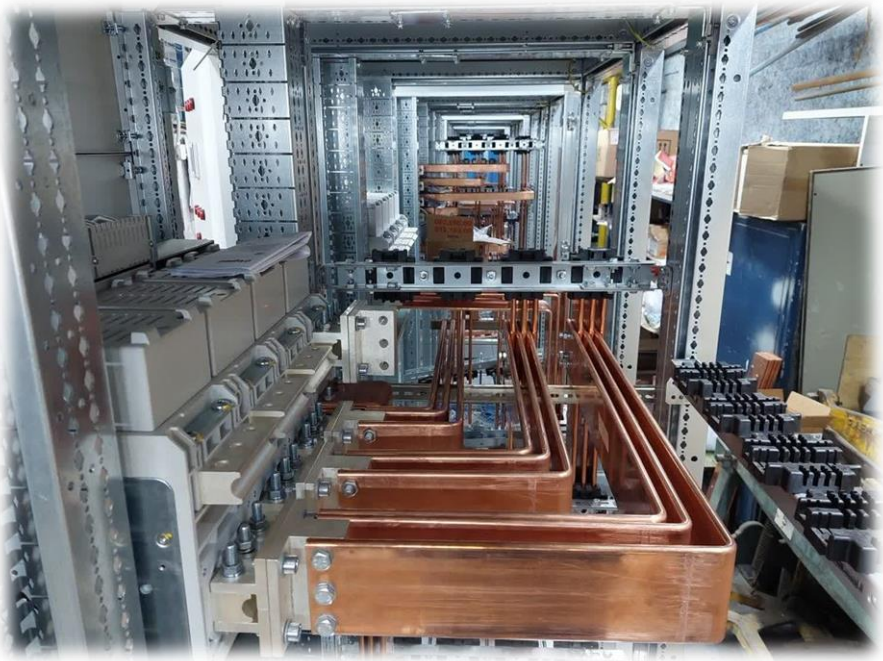
In the first stage, the parts are placed in a degreasing tank at a temperature of 70–75°C for 10–15 minutes to remove all oil and grease residues from the surfaces. Following degreasing, the parts are rinsed with hot water.

Next, the components are immersed in a phosphate (iron phosphate) bath at 50–60°C for 3–4 minutes, during which a uniform crystalline layer forms on the metal surface, providing effective corrosion resistance. After phosphating, the parts are rinsed with cold water.

Upon completion of the washing process, all surfaces are coated using the electrostatic powder coating method, ensuring a minimum coating thickness of 80 microns in a single application.
The selected paint color for the panels and their accessories is typically RAL7035 or RAL7032, depending on client requirements, and is baked in an oven at the temperature recommended by the paint manufacturer to achieve a durable and uniform finish.

Busbar System of the Panel

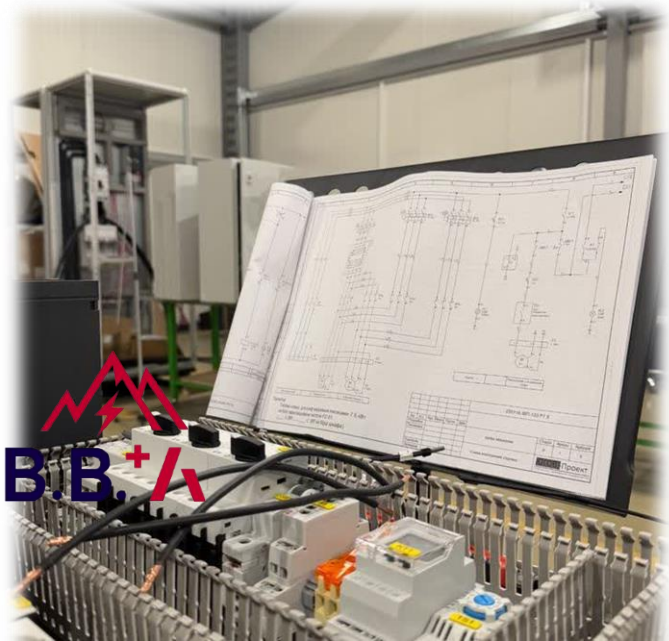
The busbar cross-section is selected based on the rated current of the panel, taking into account the environmental conditions, ensuring a uniform current distribution along the entire panel. The busbars are designed to withstand the short-circuit current for a duration of one second, with both thermal and mechanical stresses considered during design.



Wiring System of the Panel

For interconnection of all equipment, flexible thermoplastic wires or wires with appropriate insulation ratings are used. These wires are routed inside plastic wiring ducts, and the number of conductors in each duct is kept within permissible limits. The cross-sectional area of the wires is determined based on the ambient temperature and the maximum rated current of the protective device associated with each circuit.

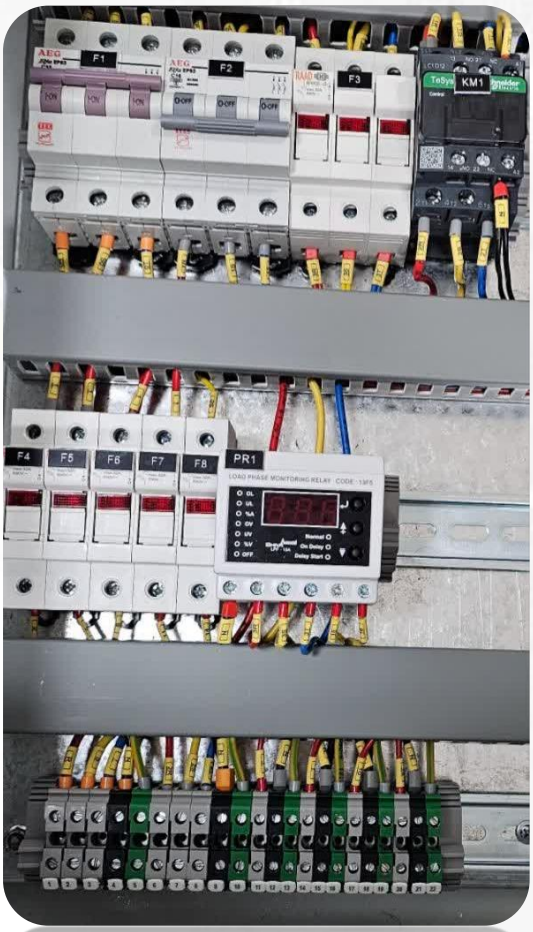
All control and power wires are terminated at both ends with ferrules or cable lugs, and are properly numbered for identification. Appropriate crimping tools are used to ensure secure and reliable connections.

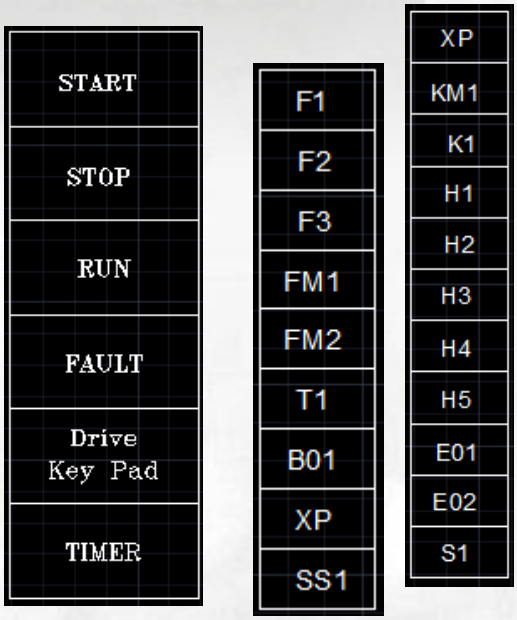


Panel and Equipment Tagging

On the front side of each panel, nameplates indicating the panel type, input/output specifications, and other visible equipment details are installed. These nameplates are made of durable plastic sheets, engraved using a pantograph machine.

Each device and terminal is assigned a unique identification code, which is displayed on high-quality adhesive labels attached to the respective components. These codes are in full accordance with the final schematic drawings and are clearly visible for easy identification and maintenance.





Quality Control and Testing

The QC Unit ensures the proper performance and compliance of panels with customer and standard requirements.

Inspections are carried out after each production stage to detect and correct defects. Tests include checking dimensions, welding, paint thickness, labeling, and wiring according to drawings.

Finally, electrical and mechanical tests such as relay operation, insulation resistance, and current injection tests are performed to verify full panel functionality.

لیست برخی از پروژه ها :

- ساخت و نصب و راه اندازی تابلوهای توزیع شرکت داو سازی کوثر
- ساخت و نصب و راه اندازی تابلوهای توزیع شرکت پترو ایمن شریف فاز 1
- ساخت و نصب و راه اندازی تابلوهای توزیع شرکت پترو ایمن شریف فاز 2
- ساخت و نصب و راه اندازی تابلوهای سوکت باکس شرکت پیشرو قالب
- ساخت تابلواتوماتیک ATS برای شرکت آرام تکمیل
- ساخت و نصب و راه اندازی تابلوهای توزیع شرکت کیمیاران
- ساخت و نصب و راه اندازی تابلوهای اینورتری چاه آب عمیق شرکت بستان
- ساخت و نصب و راه اندازی تابلوهای توزیع و کابلکشی شرکت راهبانان سازه
- ساخت و نصب و راه اندازی تابلوهای کنترل وPLC شرکت کاسپین پلاستیک
- طراحی و محاسبات روشنایی و اجرای شرکت کاسپین پلاستیک
- ساخت و نصب و راه اندازی تابلوهای توزیع فرعی ایران مال