

Switchgear & Controlgear



INTEGRATION
OF POWER SYSTEM

We Light Up the Taipei 101, Once the highest building in the world



22.8KV Substation in every 10 floor.

- CRTR :3P 22.8KV 2~4MVA * 70 PCS
- PANEL :3P HV&LV* 1780 SETS



161KV Substation in B4 Belong to TPC

- TR :3P 161/22.8KV 60MVA * 4 PCS
- GIS:3P 161/22.8KV 60MVA * 4 PCS



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Oil-Immersed Distribution Transformer

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Company History

(1) In Pursuit Of Growth & Excellence

Shihlin Electric Engineering was established in 1955 , and renamed Shihlin Electric in 1961 . Since then, it started to produce heavy electric equipment through technical cooperation with Mitsubishi Electric. Shihlin has been playing a key role in heavy electric, automobile parts, circuit breakers and factory automation equipment for the past 50 years in Taiwan.

For globalization operation, Shihlin has started to focus on overseas markets, and are ready to face future challenges in pursuit of progress and excellence.

Capital : NTD 520 million

Employees : 1600

Branch office in Taiwan : Taipei; Hsinchu; Taichung; Tainan; Kaohsiung.

Branch office in Mainland China : Shanghai; SuZhou; Changzhou; Changsha; Xiamen; Vietnam.

Factory Introduction

(1) Panelboard System Division Products

Formerly a product of the Division of Power Distribution, after years of continuous expending, the Panelboard System Division of Shihlin Electric has become an integrated and professional manufacturing factory of Switchgear, including design, metalwork, coating, assembly, etc.

Long term technical cooperation with Mitsubishi Electric, from design to entire manufacturing, Shihlin panel board division produces high quality reliable products. Switchgear products have been distributed nationwide, or even exported to Japan, Middle East, Southeast Asia, China, etc. Applications include high-tech electronic factories, nuclear energy power plants, thermal power plants, high-rise buildings, commercial centers, major construction projects certain countries, hydraulic power plants in high mountains, and weather stations.

- Factory area : 8800 m²
- Employees : 150
- Annual capacity : 3000 panels
- Monthly maximum production capacity : 300 panels





Quality Assurance

(1) Certifications & Awards

Certifications from TPC

- Certification of short circuit testing for 13.8kV metal-clad switchgear from Taipower Research and Testing Center in 1987
- Certification of short circuit testing for 23kV metal-clad switchgear from Taipower Research and Testing Center in 1988
- Certification of short circuit testing for 480V motor control center from Taipower Research and Testing Center in 1989
- Type test Certification of LV 480V load center for thermal power plant and nuclear power plant from Taipower Research and Testing Center in 1994
- Type test Certification of 24kV CGIS from Taipower Research and Testing Center in 1999
- Type test Certification of 4.16kV for thermal power plant from Taipower Research and Testing Center in 2004

Awards

- Awarded first-class manufacturer by Industrial Development Bureau in 1985
- Awarded Top Q.A. factory by Bureau of Standard, Metrology and Inspection of Ministry of Economic Affairs in 1986
- Awarded the Certification from Nuclear Energy Power Quality Control Div., TPC 1986
- Awarded the National Q.C. Group Prize in 1991
- Awarded ISO 9001 certification in 1994
- Awarded ISO 14001 certification in 1998
- Awarded OHSAS 18001 certification in 2006
-
- Certifications of GB standards
- 20kV 2500A 31.5kA metal-clad switchgear (VCB technical cooperation with Siemens)
- 20kV 3150A 31.5kA metal-clad switchgear (VCB technical cooperation with Siemens)
- 10kV 2500A 31.5kA metal-clad switchgear (VCB technical cooperation with Siemens)
- 10kV 2000A 25kA metal-clad switchgear (VCB technical cooperation with Mitsubishi)
- 10kV 1250A 40kA metal-clad switchgear (GCB technical cooperation with ABB)
- 10kV 4000A 40kA metal-clad switchgear (GCB technical cooperation with ABB)
- Low voltage switchgear CCC certification (all types)

Products Introduction

(1) Excellent structure design

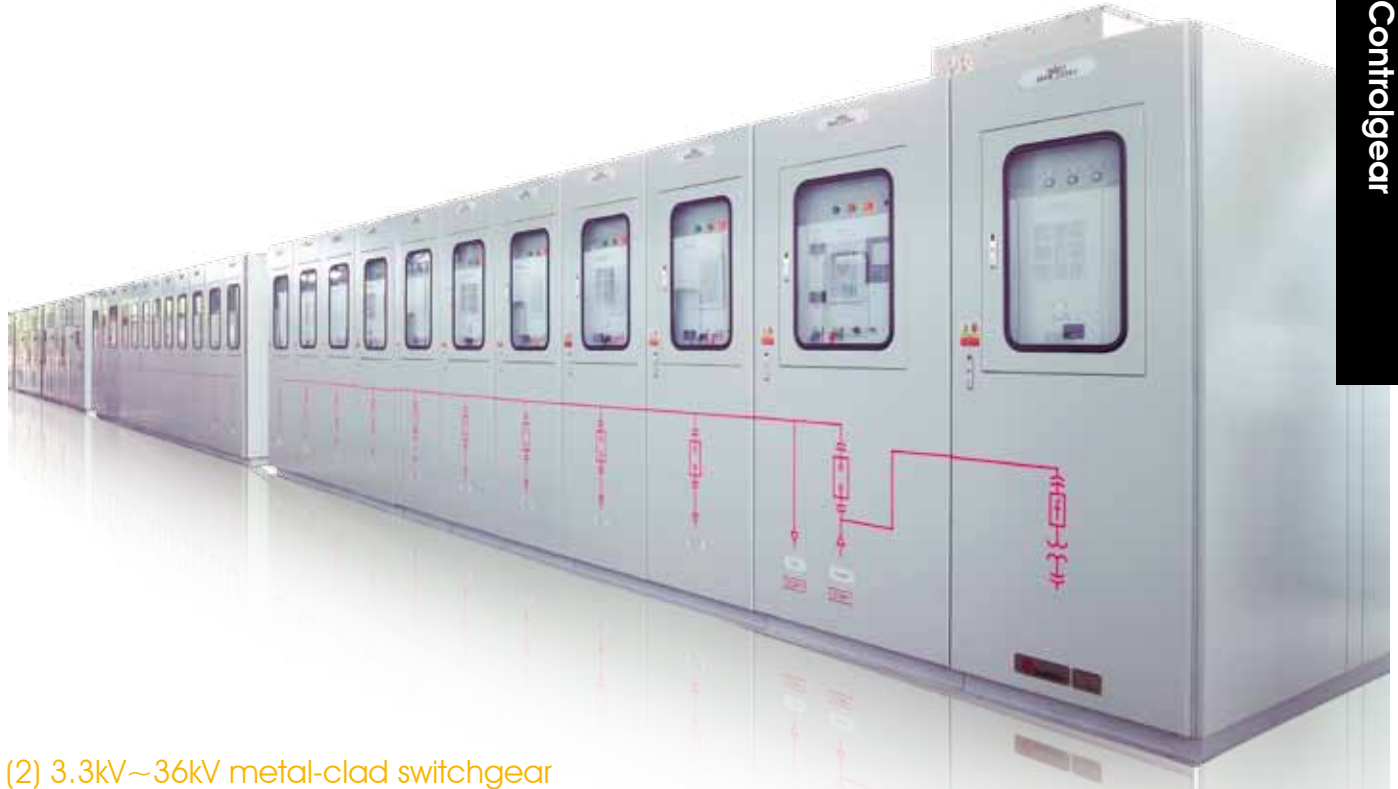
Structure of the cubicle

- Framework structured by formed steel or bent steel plate.
- Door with hidden hinge, stopper, rubber strip for anti-dust & anti-dropping.
- Cubicle is separated into breaker, bus bar, LV metering and power cable connection compartment.
- Hinged rear cover for easy maintenance and to avoid accidental shock.

Features

- Complete standard or customized design suitable for customer integration planning.
- Accumulated manufacturing experiences of 5000 switchgears produce skillful technicians.
- Large factory space to allow mass production in a short term.





(2) 3.3kV~36kV metal-clad switchgear

Features

- Metal-clad structure to provide safe personnel operation & quick maintenance.
- Little space occupied to substantially reduce the building cost.
- Compatible with a wide variety of breakers & materials.
- Adequate space for switchboard installation and power cable pulling.

Conformed with the following standards

- CNS 3990
- IEC 60298 、60694
- JEM 1425
- GB 3906(Mainland China)



(3) 600V LV Switchgear

Features

- Simple installation and maintenance; power cable pulling and future expansion.
- Strong and heavy-duty structure; framework is made of 3-mm bent steel plate or 4-mm formed steel,
- Beautiful appearance; Semi-gloss or grain painting by static powder coating.
- Extremely safe; Crash-proof device, electrical and mechanical interlock for personnel operation protection.

Conformed with the following standards

- CNS 13542
- IEC 60439-1
- JEM 1265
- GB 7251.1(Mainland China)



(4) 600V Motor control center

Features

- Draw-out type design for 440V 55kW or below unit, easy maintenance & no need to shut down other equipment.
- Complete assembly structure offers flexible arrangement & expansion.
- Guiding Wheel is used for draw-out unit to ensure firm insertion.
- Durable static powder coating.
- Each panel could accommodate 6 draw-out units with switches & lamps for ease of maintenance.

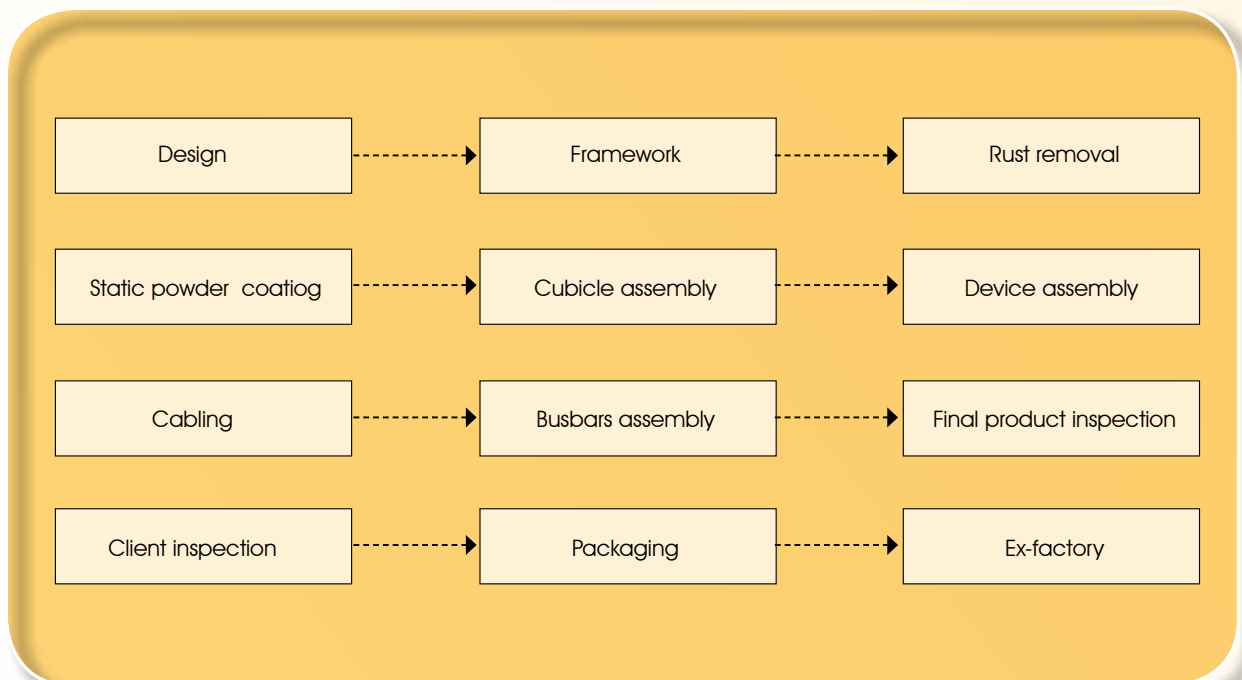
Conformed with the following standards

- CNS 3989
- IEC 60439-1
- JEM 1195



Automatic Manufacturing Equipment

Manufacture Process



Powder Coating Equipment

(1) Automatic manufacture equipment that enables high process speed, precision, and quality

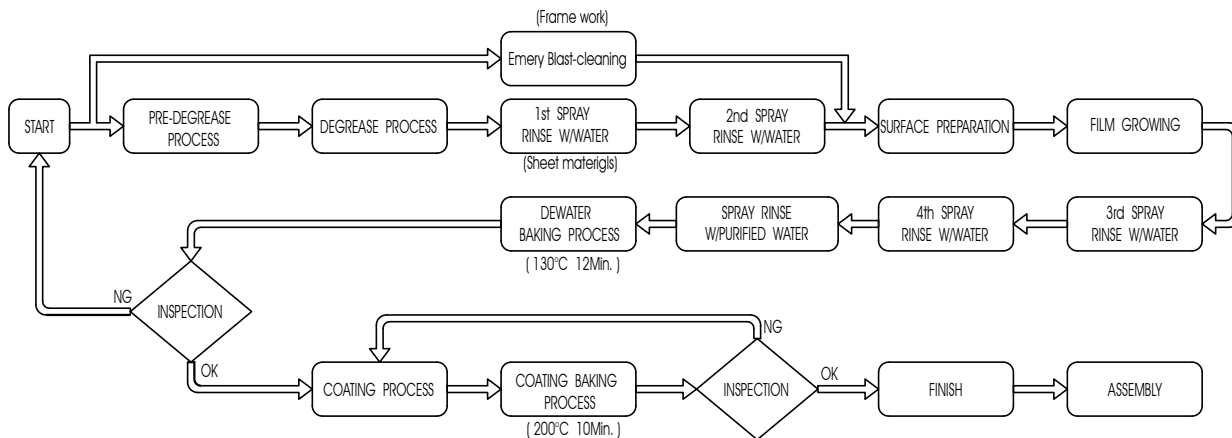
Automatic manufacturing equipment

- This is a fully computer controlled system. When the steel sheet is fed into system, the system automatically select an optimal area and punch the steel sheet into required size. The semi-finished products are sent to the shelf directly by the automatic conveying system for temporary storage. The production process is fully automated includes positioning, feeding, cutting, and punching, that offers not only high production speed but also high-precision products.
- The CNC bending machine Provides high speed and accuracy.

Consistent automatic coating system

- The automatic coating system provides high speed and good quality coating to achieve better coating adhesion.
- Abrasive Blasting Pretreatment, makes better adhesive strength and rust resistance.
- Polyester-epoxy resin powder coatings to prevent scratch, weather damage and corrosion.

Flow chart of static powder coating for Switchgear panel



Automatic Conveying System



Consistent Powder Coating System



Inspection Equipment

(1) High-precision research,inspection equipment

- Dielectrometer
- CT injection tests equipment
- Protection relay & Instrument test equipment
- Testing equipment specifically designed for temperature rise, Power Factor,etc.
- Impulse withstand test equipment



Main Export Customers

(1) Overseas market share

TEMIC (Japan)
NKK steel (Japan)
Sumitomo Densetsu CO. LTD. (Japan)
Kainsai TEC. (Japan)
PT. INDAH KIAT P&P CORP. (Indonesia)
Cheng shin tire(Kunshan)
Maxxis (Thailand)
Maxxis (Vietnam)
VEDAN (Vietnam)
Formosa Chemicals & Fibre(Ningbo)
Toppoly optoelectronics(Nanjing)
HannStar board Corp.(Jiangyin)
Yung Shin pharm. Ind. (Kunshan)
Long chen paper(Wuxi)
COMPEQ Manufacturing (Huizhou)
UNI-PRESIDENT(Kunshan)

Main Domestic Customers

(1) Market share in Taiwan Science-based Industrial Park

Metal-enclosed switchgear and controgear for rated voltage up to 24kV		
Taipei 101	VEDAN Enterprise Corp.	Vanguard International Semiconductor
Acer CM Group	ACER Display Technology	ALLIED Material Technology Corp.
AU Optronics Corp.	Cheng Shin Tire	Chi Mei optoelectronics
COMPEQ Manufacturing	Dah-tarn Power Station	First International Computer
Formosa Chemicals & Fibre (Lung Der)	Formosa Chemicals & Fibre (Mai Liao)	Gold Circuit Electronics
Infodisc	Innolux Display	King Yuan Electronics
LeaLea Enterprise Corp.	Lee Chang Yung Technology	Li Peng Enterprise Corp.
MediaTek Incorporation	Mosel Vitric Inc.	Powerchip Semiconductor Corp.
Powertech Technology Inc.	Quanta Computer	Quanta Display
Rexchip Electronics Corp.	Showa Denko	Silicon Integrated Systems
Siliconware Precision Industries	Taiwan Corning Display technologies	Taiwan MSK Corp.
TI-ACER Inc.	Toppoly Optoelectronics	TSMC
Winbond Electronics		

Over 50 Year Experience

Shihline Electric Transformers are in service worldwide



China

FAR EASTERN IND. LTD.
TSMC(SHANGHAI) CO., LTD.
CHICONY CO. LTD.
JUN HUI IND. CO. LTD
ASIA OPTICAL INT'L LTD.
DYNAMIC ELECTRIC CO. LTD.
CHENG SHIN-TOYO TIRE & RUBBER CO. LTD.
LIANZHONG STAINLESS STEEL CORP.
UNIMICRON TECHNOLOGY CORP.
CENSION SEMICONDUCTOR CO. LTD.
QIMONDA TECHNOLOGIES CO. LTD
HAINAM JINHAI PULP & PAPER CO. LTD

South-East Asia

MAXXIX INT'L THAILAND CO. LTD.
PT INDAH KIAT P&P CORP.
PT GUNUNG GARUDA
JSW STEEL LTD.
FORMA PLYWOOD IND. CORP.
RING SHINE TEXTILES
HELIOS TERMINAL CORP.
BANG SAPHAN BAR MILL CO. LTD.
HIEP PHUOC POWER CO. LTD.
POU YUEN VIETNAM ENTERPRISE CORP.
SANYO ELECTRIC VIETNAM WORKS
VEDAN VIETNAM ENTERPRISE CORP.
HUALON CORP.

Philippines

ABOITIZ POWER GROUP CO.
NATIONAL POWER CORP. PHILIPPINES
SIEMENS, INC.
SUMISETSU PHILIPPINES, INC.
TSUNEISHI HEAVY IND.
CATHAY PACIFIC STEEL
SKK STEEL CORP.
YAMAHA INC.
TRUST INT'L PAPER CORP.

Japan

TOKYO ELECTRIC POWER CO.
KANSAI ELECTRIC POWER CO. INC
KYUSHU ELECTRIC POWER CO. INC
OKINAWA ELECTRIC POWER CO. LTD
CHUGOKU ELECTRIC POWER CO. LTD.
MITSUBISHI ELECTRIC CORP.
NIPPON STEEL CORP.
JFE GROUP
TMEIC
TAKENAKA CROP.
MHI, KHI, IHI, SHI
KINDEN CORP.

Mid-East

DEWA
SCECO (EASTERN)
SWCC
MARAFIQ YANBU/JUBAIL
MINISTRY OF ENERGY IN KUWAIT

Australia

POWERCOR
SP-AUSNET
ALINTA ENERGY

Africa

GOVERNMENT OF BENIN
MITSUBISHI ELECTRIC CORP.
SOTCO

Americas

DEPT. OF WATER & POWER LA
PASADENA WATER & POWER
FORMOSA PLASTIC TEXAS
M3 ENGINEERING
DELTA POWER INC.
EMPRESA ELECTRICA GUACOLDA S. A.
INDUSTRIAS JOVIDA C.V. DE S. A.



INTEGRATION OF POWER SYSTEM



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