

**TRANSFORMER
&
SWITCHGEAR MANUFACTURER**

CORPORATE PROFILE



2019 EDITION

Rev 04

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CEO's message,

Key To Smart Power

for the right power at the right time



Dear Customers,

These are exciting times for Asia General as we look to embrace and achieve the challenges and goals set out before us. We are one of the most dynamic companies in Myanmar's power industry, leading the way with our **transformers, switchgears, panels and cubicle products** as we move towards a more developed infrastructure and living standard in the country. With our prime focus on superior quality to match international standards paired with our wide array of products, we aim to satisfy our customers' needs with our best efforts, and that is part of what makes us one of the leading and ever-improving manufacturers of transformers and panel technology in Myanmar.

This brochure is designed to provide a comprehensive review of our company, reflecting the pride that we, as employees of Asia General, uphold in our current success, as well as in our continual growth, improvement, and development. We look forward to being your reliable partner and providing you with the services Asia General has to offer. I hope you will get a sense of our company's passion and excellence as you browse through our brochure. Please do not hesitate to contact us for further information about our company.

Management Policy

Knowledge

- Continuous development and always aiming for the top
- Critical thinking and problem solving

Trust

- Work with integrity
- Respecting rules, regulations, and co-workers
- Being responsible
- Safety at work is our priority

Satisfaction

- Products and services that meet and go beyond expectations that merits our customers' trust

Perfection

- High-quality workmanship
- Attention to detail

Mr.Khin Maung Myat

CEO

Founding Period (2008 ~ 2014)

2008

Asia General Electric Co., Ltd was founded to manufacturer transformers and switchgears.

2010

ISO 9001:2008 (SGS) obtained

2014

AG was expanding rapidly with new products in development to provide total power solutions for the customers. To accommodate this expansion, a new factory and diversification is required. Thus, Asia General Electric Co., Ltd was rebranded into AG Holding and two sisters companies Asia General Electric Co.,Ltd (AGE) and Asia General Transformer Co.,Ltd (AGT) were formed.

AGT focuses on Transformers

AGE focuses on Switchgears and Panels

Growth Period (2014 -)

AGT

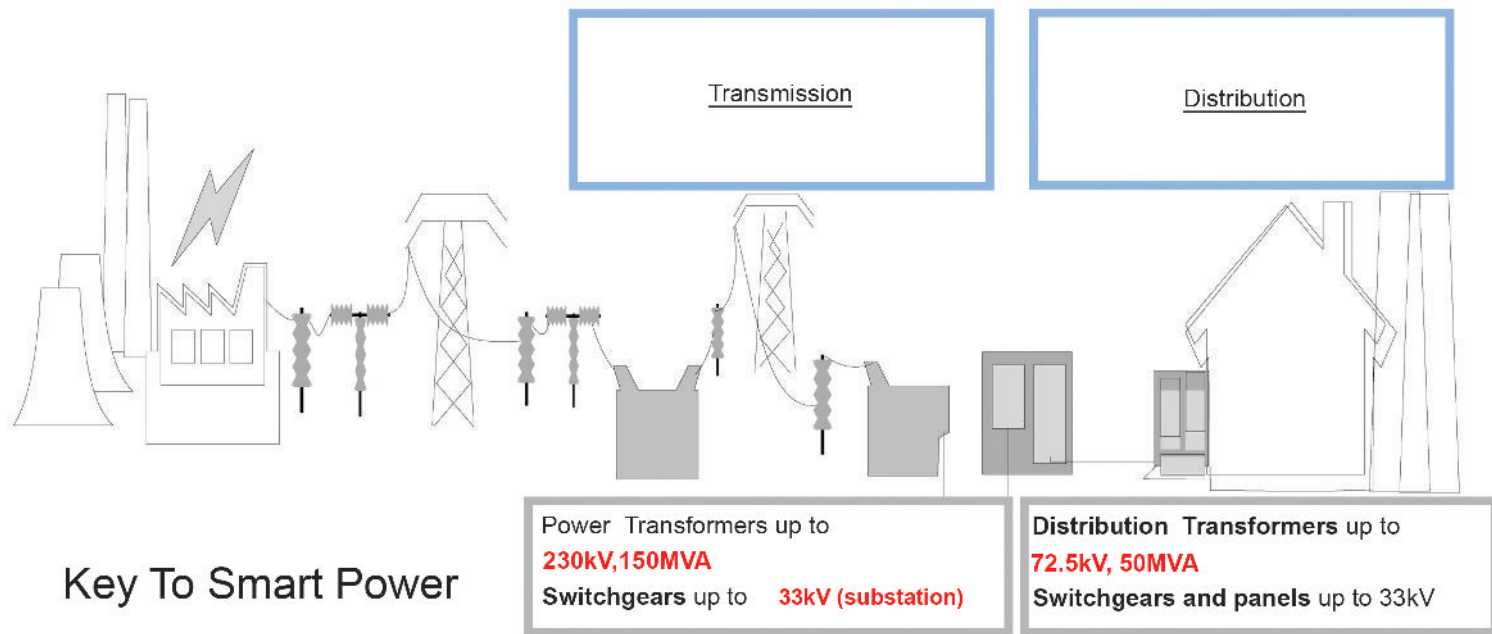
Asia General Transformer Co., Ltd.

AGE

Asia General Electric Co., Ltd.

- 2014 .Sep** : Technical Agreement with TMC (Australia) for 33/11kV Cast Resin Transformer.
- 2015 .Jun** : 2015.Jun Technical Transfer Agreement with Mitsubishi(Japan) for 230kV Class Power Transformer.
- 2015 .Nov** : AGT obtained Asean Outstanding engineering achievement award.
- 2016 .May** : Passed type test and short circuit test 33/0.4kV, 1,000kVA .
- 2016 .Jun** : Passed type test and Short circuit test 11/0.4kV,315kVA (KERI).
- 2016 .Nov** : Passed Type Test for Dry Type Transformer 2500kVA, 33/11kV from Tecnalia,Spain.
- 2016 .Dec** : Passed Type Test 30MVA, 66/11kV from DEKRA, Netherlands.
- 2016 .Dec** : License partner agreement with Hyundai, Korea for MV panel.
- 2017 .Mar** : Technical Transfer Agreement with ABB (Switzerland) for Medium Voltage Switchgear and License Agreement for Low Voltage switchgear
- 2017 .Aug** : Passed Type Test 100 MVA, 230/66/11 kV from DEKRA, Netherlands.
- 2018 .July** : Passed Type Test 500kVA ,11/0.4kV Oil Immersed Aluminum Transformer from DEKRA, Netherlands.
- 2018 .June** : Awarded Licensed Panel Builder Certificate of ABB (Switzerland) for Medium Voltage Switchgear type Unisafe and System Pro E power

ABOUT AG GROUP



AG Group is the country's leading manufacturer of transformers and switchgears and our products are used in power utilities, infrastructure, industrial enterprises and major mixed used development complexes.

We provide solutions for secure, energy - efficient transmission and distribution of electricity to increase productivity in industrial, commercial and utility operations.

We use only the highest quality materials with suppliers ranging from Japan and Korea, who are providing us with not only products but technical support and transfer, ensuring that our products adhere to world - class specifications and technology.

Our portfolio covers the entire Transmission and Distribution with a complete suite of transformers, switchgears, panels, cubicle solutions including control panels, capacitor banks, plug-in bus duct and cable trunks.

We aspire our customers to face their challenges with maximum safety, maximum productivity and minimum environmental impact. Hence, AG Group stands for "Quality for Safety, Saving & Satisfaction"

Company Information



AGT Factory



AGE Factory

Company Information

Company Name: Asia General Holding Group

AGH Paid Up Capital MMK 36.74 Billion

AGT Paid Up Capital MMK 15.49 Billion

AGE Paid Up Capital MMK 10.01 Billion

Start of Operations 2008

Business Areas Transformers, switchgears, cubicles, and panels manufacturing and installation including turnkey services for both private and public sectors such as residential, commercial and industrial sectors

Number of employees Over 905 persons

AG Group's Strategy

- To continue to lead as a market leader in the power industry
- Shift from a product-oriented business to a customer-oriented business
- Penetrate New Markets by collaborating with multinational companies
- Provide customer satisfaction with the best quality products and services
- Employ and train staff to provide the best service to the customers and to control the product quality to international standards
- Increase operational efficiencies with well trained and qualified staff

Achievement Highlights

World class Quality Management System:

Accredited by KERI : We have passed at the first attempt, **type test including short circuit test** at the world renowned laboratory - Korea Electrotechnology Research Institute (KERI).

- 315kVA, 11/0.4kV Transformer
- 1,000kVA, 33/0.4kV Transformer

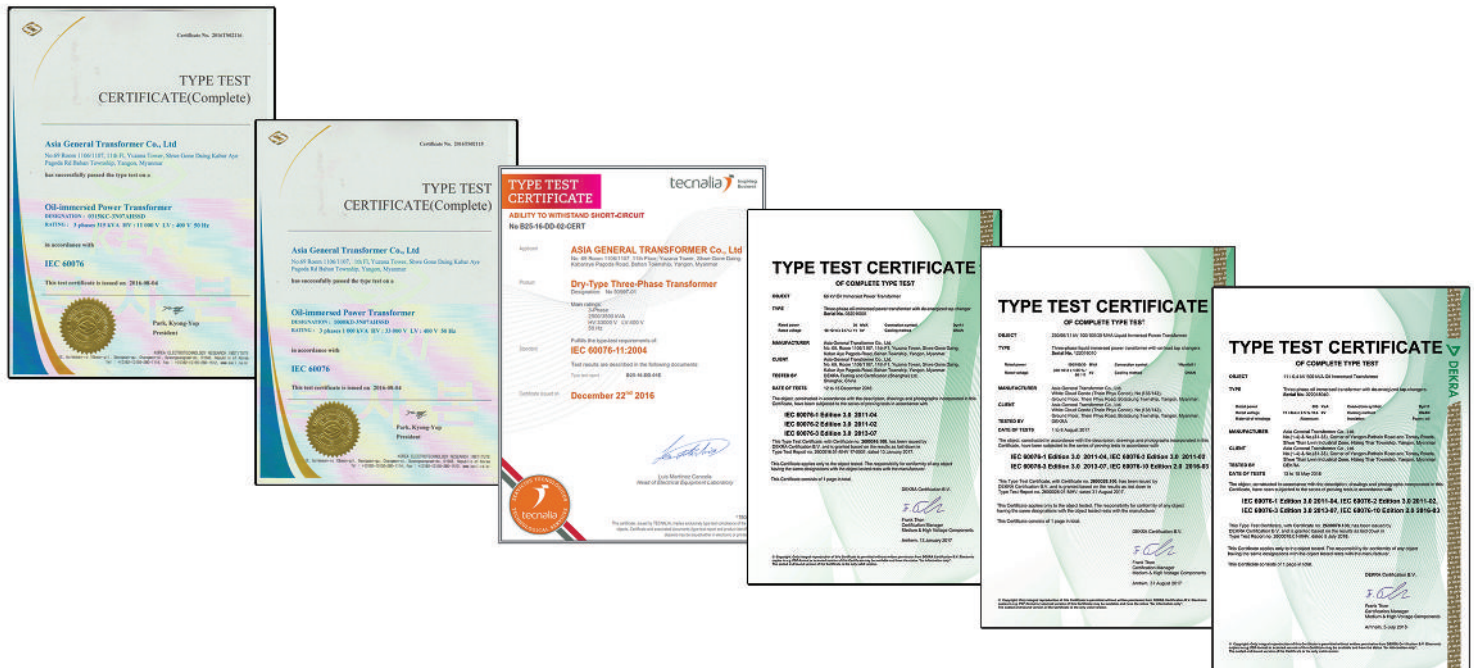
Accredited by DEKRA : We have successfully passed Type Test from DEKRA, Netherlands for

- 30 MVA, 66/11 kV.
- **100 MVA, 230/66/11 kV**
- 500 kVA, 11/0.4kV (Aluminum Transformer)

Accredited by Tecniaia : We have passed the cast-resin Dry Type Transformer, type test at international testing laboratory in Spain-Tecniaia.

- 2500/3500 kVA , 33/11 kV.

During type tests, our transformers underwent extreme stresses such as short circuit tests which our transformers successfully passed without any failure.



DEKRA is accredited by the Dutch Board of Accreditation (RVA) which is a member of the International Laboratory Accreditation Cooperation (ILAC) and the International Accreditation Forum (IAF).

In addition:

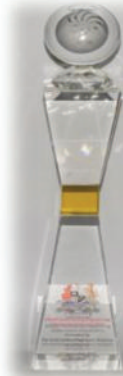
- (1) DEKRA is National Certification Body (NCB) within the IECEE CB scheme and operates CB Testing Laboratories (CBTL) globally
- (2) DEKRA is a Notified Body (NB) for various European Directives
- (3) DEKRA is listed as an approved Certification Body and Testing Laboratory by a wide range of government authorities, end users and consultants.

KERI is a full member of Short-Circuit Testing Liaison (STL) and recognised by the members of International Accreditation Cooperation (ILAC) which means the reports issued by KERI are recognised by member countries including U.S, Japan, Germany and the U.K.

Achievement Highlights

International Recognition:

We were awarded **ASEAN OUTSTANDING ENGINEERING ACHIEVEMENT AWARD** at the 33rd Conference of ASEAN Federation of Engineering Organizations (CAFEO-33), at Hotel Equatorial Penang, in Malaysia



Forged new strategic partnerships

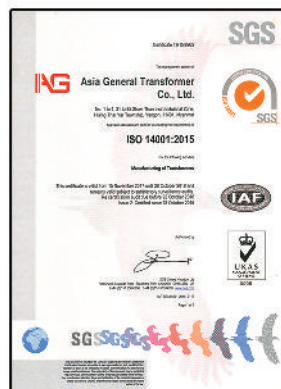
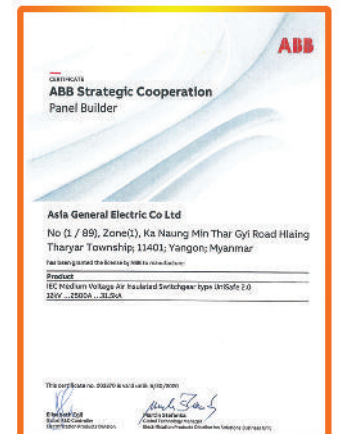
To expand market presence and lower risks, including Technical agreements with:

Mitsubishi Electric Japan for 100MVA, 230kV transformer and 11kV switchgear,



Technical Transfer Agreement

With ABB (Switzerland) for Medium Voltage switchgear and License Agreement for Low Voltage switchgear.



-Awarded ISO 9001:2015

Since 2010 for our commitment to world-class quality control and utmost safety of our products.

-Awarded ISO 14001:2015

Since 2010 for our commitment to environmental protection, management and sustainability.

-Awarded ISO 9001:2015

Since 2017 ensure not only customer reliable but also customer satisfaction in market place. As our AG companies has follow and apply our electrical panel, quality and production system

Power Transformers



Power Transformer (Three Phase)
(50 MVA, 33 / 11 kV)



Power Transformer
(100MVA, 230kV)



Power Transformer
(60MVA, 66/33 kV)

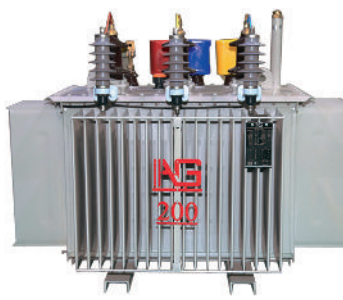
Distribution Transformers



Distribution Transformer
(Auto Tap Changer with Cable Box)



Pole Mounted Transformer
(Single Phase, Three Phaseae)



Distribution Transformer
(Freely Breathing with
Consevor)

Cast Resin Type (Dry Type Transfomer)



Cast Resin Type (Dry Type Transformer)



CSPT (Completely Self
Protected Transformer)

Others



Pad Mounted Transformer

Conducted With Mitsubishi(Japan) for above 66 kV up to 230 kV 100 MVA Oil - Immersed Transformer

Asia General Transformer feel proud to climb up the ladder and Launch a new range of transmission procedure into the Myanmar T & D market. Power transformer market in Myanmar is brought up to a new segment of 100MVA, 230KV class for network application.

This 100MVA, 230/66/11kV transformer is equipped with MR type On Load Tap Changer of 245kV, 1300A of Vacuum type, the transformer is with tertiary winding with vector group YNyn0d11. The transformer is core type design with step lap type configuration stacked of 0.27mm laser scribed CRGO material. During design the parameters like cooling of core, harmonic reduction has been deeply analyzed and simulated in high end software's.

The winding which plays a significant role during operation is designed well after a complete analysis. The transformer encloses three separate windings inside of, distinct characteristic. The inner most is helical type then disc type and subsequently the disc type HT winding. During design the complete simulation of MMF plot, Ampere turn balancing, Leakage flux reduction, eddy and stray losses minimization and the cooling of the winding using fluid mechanics theory has been derived. In 230kV rating the most complicated parameter is the calculation of series capacitance between turn and disc which influence the voltage gradient of the high voltage winding. This voltage gradient has been thoroughly studied and smoothened by designing the interleaved type shielded disc winding.

Procedures from Mitsubishi Electric Company Limited Japan (MELCO) has been dedicatedly followed at every stage of core stacking, winding manufacturing, coil assembly, coil sizing, insulation clamping, lead routing, OLTC installation and lead connection, lead termination and yoke filling. Every operational procedure is proven and has been validated in more than hundreds of transformer of similar ranges.

Type Test Accredited By DEKRA, NETHERLANDS.



At the Transformer Testing Stage, It has been a real proud moment for AGT when the transformer successfully passed all the routine test, dielectric tests, and type tests including Lightning Impulse Chopped, Temperature Rise test, Switching Impulse test and Partial Discharge test with far under the limits defined in IEC 60076 Standard.

Power Transformer Completed Project Data

**Shwe Sar Yan Substation , Mandalay
50 MVA,230/33/11 kV, Three Phase (4 Units)**

**Chauk Main Substation
100 MVA,132/66/11 kV, OLTC - 21Tap (2 Units)**

**Tagon Taing Substation
100 MVA,132/33/11 kV,OLTC - 21Tap (1 Units)**



Switchgears and Panels

Switchgears and panels are vital products for protection and control of your electrical systems. By manufacturing these essential products and by design and consultancy support by our team of experienced engineers, AGE contributes to your improve productivity and cost saving.

Medium Voltage Panels

We offer customised and reliable medium voltage panels from 6.6kV to 33kV for substations and various industrial applications.

Under License **ABB**



33kV Switchgear



12kV Switchgear



11kV Load Break Switch Panel



Unisafe

Low Voltage Panels

Our low Voltage panels are suitable for multiple electrical applications from residential homes to offices and industrial buildings.

Under License

ABB



MSB Panel



Capacitor Bank



ATS



Marshalling Kiosk



Pro E Power

Package Substation

Transformers including HT and LT compartments can be assembled under one roof as a package substation, convenient for installation, delivery and safety



Compact Enclosures and other products

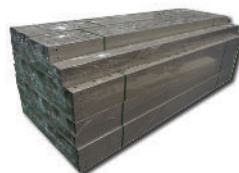
Indoor and Outdoor use enclosures with 7 standard dimensions 'which can be used as instrument enclosures, electric, hydraulic or pneumatic control housings, electrical junction boxes or terminal wiring enclosures. In addition, we manufacture other installation products such as cable trays and bus ducts



Compact Enclosures



Cable Tray



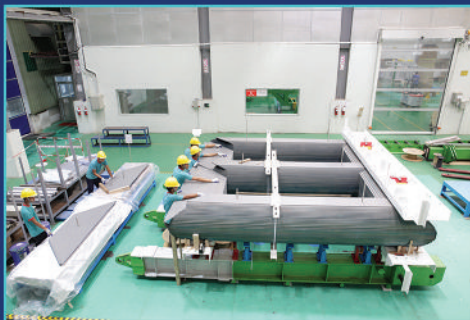
Cable Ladder





We recognised the importance of enclosures in manufacturing panels of the highest quality. That is why we have invested in CNC controlled high precision machinery that enables us to manufacture high quality enclosure panels for both indoor and outdoor uses.

Our roll formed frame panels enable tremendous flexibility in design and customisation of electrical component types and placements.



High quality electrical steel sheet, most modern core design and optimized lamination enable low loss and noise level. AGT transformers utilize latest technology in design, manufacturing methods and materials.

All AGT transformers are subjected to routine tests including the type test facilities as specified by the international standard IEC 60076.

ABB, Medium Voltage (Unisafe) Switchgear and Low Voltage (Pro - E) Switchgear

Medium Voltage Product

Unisafe 2.0

Air insulate Medium voltage Switchgear

for primary distribution Up to 12kV, 4000A, 31.5kA



Unisafe 2.0 have been type tested in compliance with international standards and hold a wide range of certification.

The switchgear construction is modular and made up by placing standardised unit side by side in a coordinated way. Safety and reliability are key design criteria, so the unit are fully arc-proof. installation requires very simple civil works.



Technical Transfer Agreement

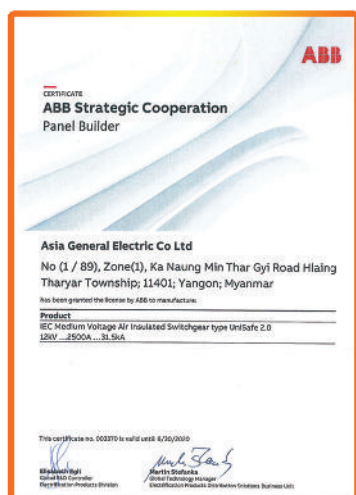
With ABB (Switzerland) for Medium Voltage Switchgear and License Agreement for Voltage Switchgear

Low Voltage Product

System pro E power

ABB presents System pro E power, the new main distribution boards up to 6300A

A complete solution for the main distribution of electric energy for infrastructures and industry & building complexes.



Research and Development

Whilst continuously working to reinforce the basic technology, AG Group is committed to the research and development of cutting-edge products, designs and systems to meet the needs of the society and our customers.

These include:

Type Test: We are one of the first Myanmar companies to begin undertaking type testing of our products. By rising to this challenge, we have furthered enhanced our design principles and manufacturing processes.

Cost efficiency: Leaner product designs to enhance the use of enclosure space and to streamline the product installation to save cost and convenience.

International Collaboration: Incorporating the cutting edge technologies and process to keep up with the current and future trends by consulting and collaborating with our international partners.

- Application Know-how
- Environmental Management
- (ISO 14001)
- Technological development laboratory
- Quality management system (ISO9001)

Competencies

Key to smart power

- Short circuit technology
- Thermal calculation technology
- Magnetic flux distribution technology
- 3D Design / Analysis technology
- Manufacturing technology

Core Technologies

- 230kV Class power transformer (MELCO)
- 11Kv, 33kV Switchgear (MELCO)
- MV / LV Switchgear (ABB)
- 11/33/66/230kV Gas Insulated Switchgear
- 11, 33kV LBS, ASS

Collaboration

Solutions under one roof

Testing

Testing technology of AG Group is equipped with accurate state of the art equipment conducting testing on all AGT transformers in accordance with the latest IEC standards. Qualified and experienced engineers are handling with perfection the Factory Acceptance Tests (FAT) while keeping the high standards of quality assurance.

The products are only delivered to the customer after FATs are passed. Additional tests can also be conducted upon the requirement of the customer.

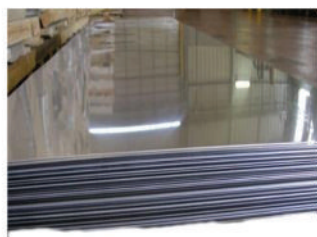


Our testing technologies are designed to complete all routine, type and special tests up to 200MVA, 230kV except from short circuit withstand as per international standards.

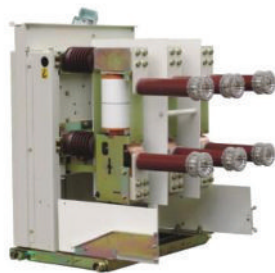
Global Business Partners

World Class Suppliers

All the incoming materials are procured from AG approved sources and are subjected to quality checks as per IEC and ISO standards and consequently selected suppliers from world class companies including Germany, Italy, Japan and Korea.



EGI Sheet (Japan)



VCB (Japan, Italy, Korea)



Capacitor (Japan, Germany, Korea)



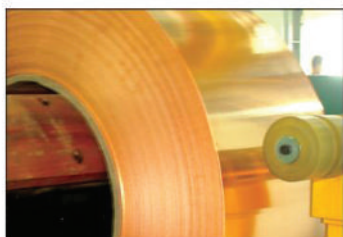
Bus bars (Thailand)



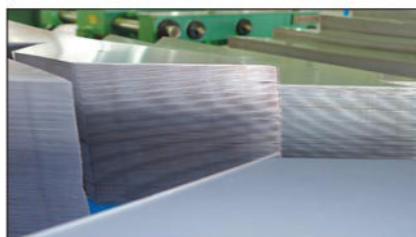
Low Voltage Component
(Japan, Italy, Korea)



Relays (Italy, Japan)



Copper Foil (Germany)



Nippon Steel Hi-B (Japan)



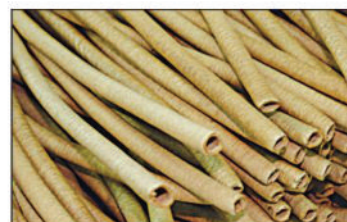
Enameled Wire (Korea)



On Load Tap Change
(Germany)



Low Voltage Bushing (Italy)



Creep Paper Tube (Germany)

Global Business Partners

World Class Machinery

AG has invested heavily in the infrastructure and equipment needed to manufacture our transformers and panels from the ground up giving us the freedom to develop solutions to meet customer needs. Consequently, we have purchased best in class machinery from the world renowned brands.

Foil Winding Machine (Italy)



Robot Welding Machine (USA)



Horizontal Winding Machine (TY Korea)



Vertical Winding Machine (TY Korea)



Bending Machine (Japan)



Shot Blasting Machine (Thailand)



Residential and Commercial Complex



We have been recognised throughout the country for our technical competence and overall competitiveness in supplying customised products in such areas as residential, hotels and mixed used development projects.

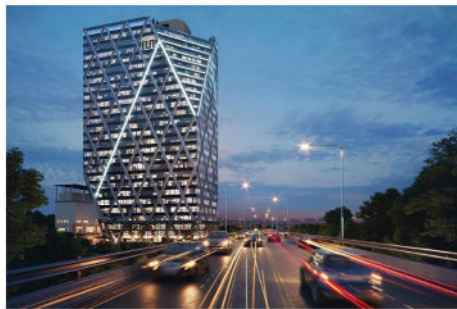
AG Group has completed a number of residential, hotels and mixed used development projects throughout Myanmar in such major cities such as Yangon, Mandalay and Nay Pyi Taw.

Some of our mixed used development complexes includes such landmark projects as Junction City mixed used development complex,

In residential, we are responsible for electrification of condominiums including M Tower, Yoma Central (Grand Meeyahtar) (Landmark Project), Star City Condominium, Time City Condominium, Ayar Chan Thar Condominium and Junction City Supplying transformers and switchgears.

In hotels, we won orders for established hotels such as Sedona Hotelextension.

M Tower



**Yoma Central
(Grand Meeyahtar)
Landmark
Project**



**Star City
Condominium**



**Time City
Condominium**



Ayar Chan Thar Condominium



Junction City



Sedona Hotel Extension



Utilities and Infrastructure



AG Group is carrying out large-scale utilities and infrastructure projects that are essential for smooth operation of the country. Our products are improving the country's productivity and more reliable power distribution.

These include Ahlone transmission substation that is powering Yangon city, Hteetan distribution substation in Thanlyin powering Thilawa special economic zone, substations in Myanmar Industrial Port and Ahlone Industrial Port terminal for smooth operations of cargo cranes and electrification of the ports.

We are expanding our product offering to higher voltage ranges and expect to fulfill the needs for High Voltage projects going forward.

MPT Project



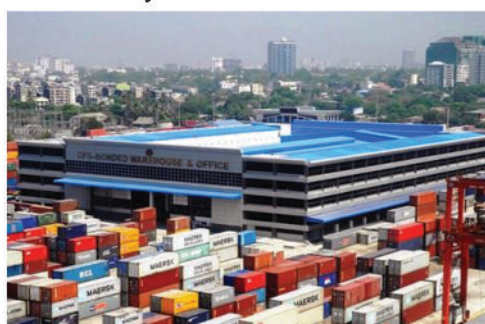
Nay Pyi Daw Substation Project



Ahlone Substation



Myanmar Industrial Port



Ahlone Industrial Port



Industrial Projects



We demonstrated our capability by carrying out turnkey electrification projects for factories as well as for industrial zones.

These include factories in all the major industrial zones including Hlaing Thar Yar industrial zone and Thilawa SEZ. We have won bids for PEB Steel Factory, Foster Factory and Yusen Logistics.

In addition, we are supplying key products for electrification of Thilawa Special Economic Zone. We collaborate closely with our international partners as well as sharing technical expertise and with the government to help develop this critical sector in the country's development.

Fotune Plaza



Foster Factory

PEB Steel Factory



Yusen Logistics

Corporate Social Responsibility



Internship From YTU EP Department

We proud for internship of final year students from YTU EP (Department) to our AGT training.

Flood Relief Efforts

Due to the heavy rain in 2015 throughout Myanmar, widespread flooding were reported in several regions. In response, AG Group donated family kits including water, food, medicines, clothes, and other necessities to the flood victims testament to the great passion and sympathy of our Myanmar people.



Contribution to the flood victims

Our Company Asia General Holding Group donated to families of the flood victims in Rakhine Division as our dedication towards Corporate Social Responsibility (CSR) with great passion and sympathy on our Myanmar people who were affected by the flood.



Leadership Team Building Activities



Fire Drill Activities



Investment And Product Fair



Exhibition



25th Anniversary of
MIA Exhibition



25th Anniversary of MIA Exhibition



25th Anniversary of
MIA Exhibition



Myanmar Hotelier
Association



Myanmar Hotelier Association



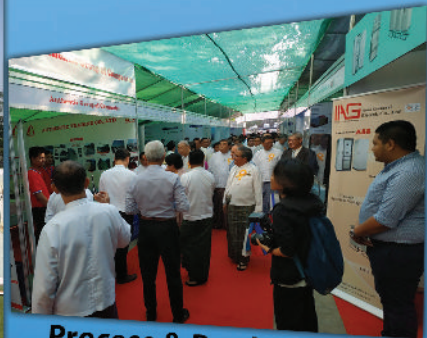
Myanmar Hotelier
Association



Process & Product Show
2019



Process & Product Show 2019



Process & Product Show
2019



ASIA GENERAL HOLDING

SALES AND HEAD OFFICE

No.(501/503),
Pyay Road (Corner of Pyi Yeik Thar Street),
Kamaryut Township,
Yangon, Myanmar.
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Fax : 01 2304274
Email : sales.agh@agholding.com

FACTORY AGT

(Transformers)

No.(1 to 4),(31 to 35),
Corner of Yangon-Pathein Road and Tontay,
Shwe Than Lwin Industrial Zone
Hlaing Tharyar Township, Yangon,
11401, Myanmar
Tel: 09-73020453, 0973020452,
09-73020454
Fax: 01-685982
E-mail: commercial.agh@agholding.com

FACTORY AGE

(Switchgear and Panels)

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Hlaing Tharyar Township
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09-457115599
Fax: 01-681960
E-mail: commercial.agh@agholding.com

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