

HYOSUNG

Power & Industrial Systems
Performance Group





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Power & Industrial Systems Performance Group

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As a leading manufacturer in Asia, HICO has a competitive edge in terms of price, quality, and production capabilities

The Industrial Performance Group of Hyosung Corporation (HICO) ushered in a new era of Korean heavy industry since its establishment in 1962, when the Korean industrial landscape was still barren. Since then, HICO has led the production of heavy electrical equipment in Korea.

HICO's first successful development of 154kV extra high-voltage (EHV) transformers in 1969 hastened the coming of age of the high-voltage grid system in Korea. The subsequent development of 345kV transformers along with 362kV EHV GCB & GIS (Gas Insulated Switchgear) in 1978 demonstrated HICO's highly advanced technological expertise in electrical engineering.

In January of 1999, HICO made big strides in the field of electrical engineering by designing 765kV ultra high-voltage (UHV) transformers, also called a highway of power supply. As a result of ceaseless R&D activities, HICO succeeded in developing 800kV GIS in February 1999.

The continued technological progress has enabled HICO to produce a wide range of products, including electrical motors, gear reducers, electric panels and instrumentation systems. The Company also implemented several turnkey projects, making full use of its comprehensive engineering capacity in heavy electrical equipment and industrial machinery.

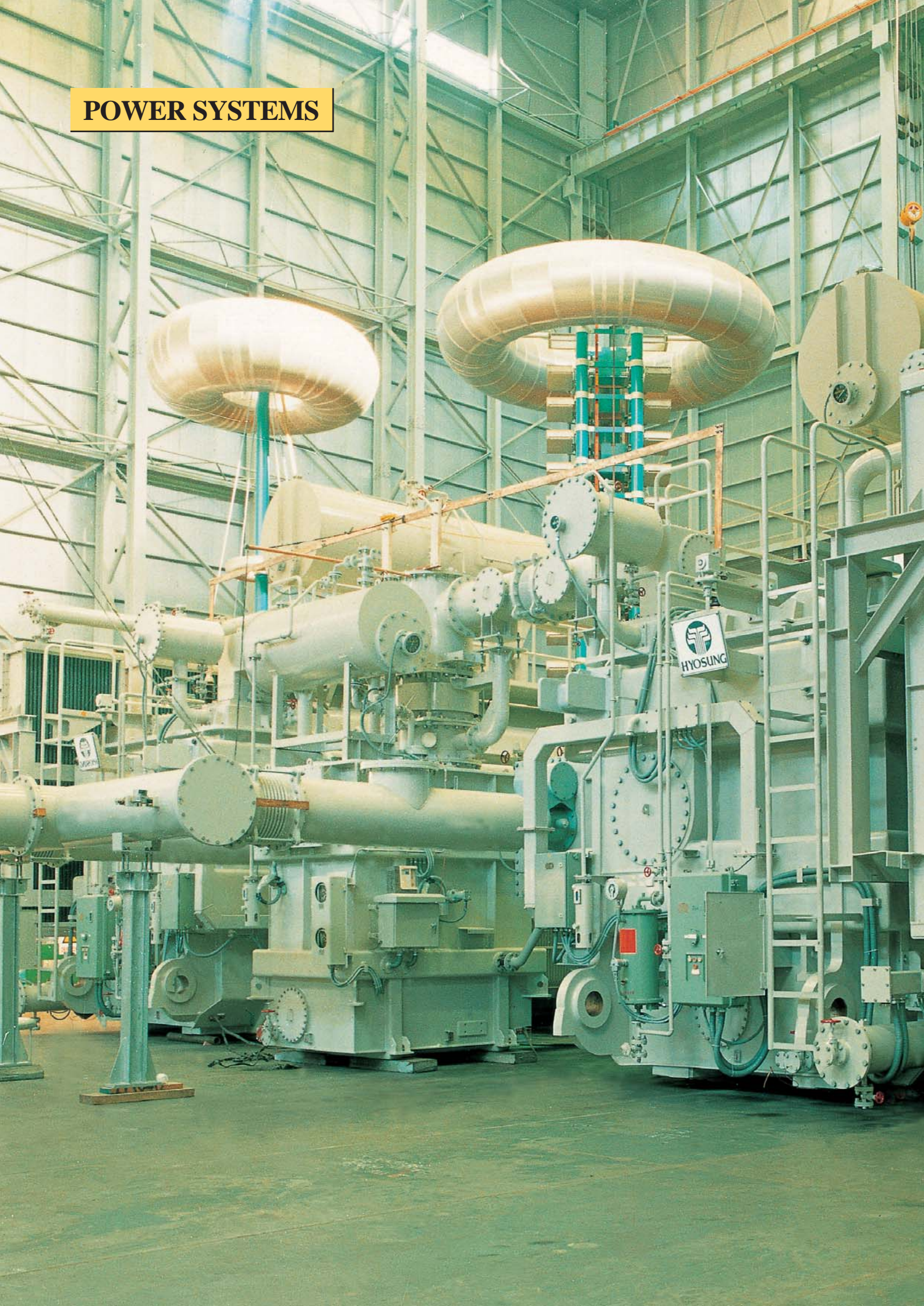
HICO is proud of its superior technology in design, manufacture, and follow-up services, all of which are supported by cutting-edge automation facilities. HICO has set up a total quality management system to ensure the highest level of customer satisfaction. In 1993, HICO received the ISO 9001 Certificate, solidifying its position as Korea's largest manufacturer of integrated heavy electrical equipment.

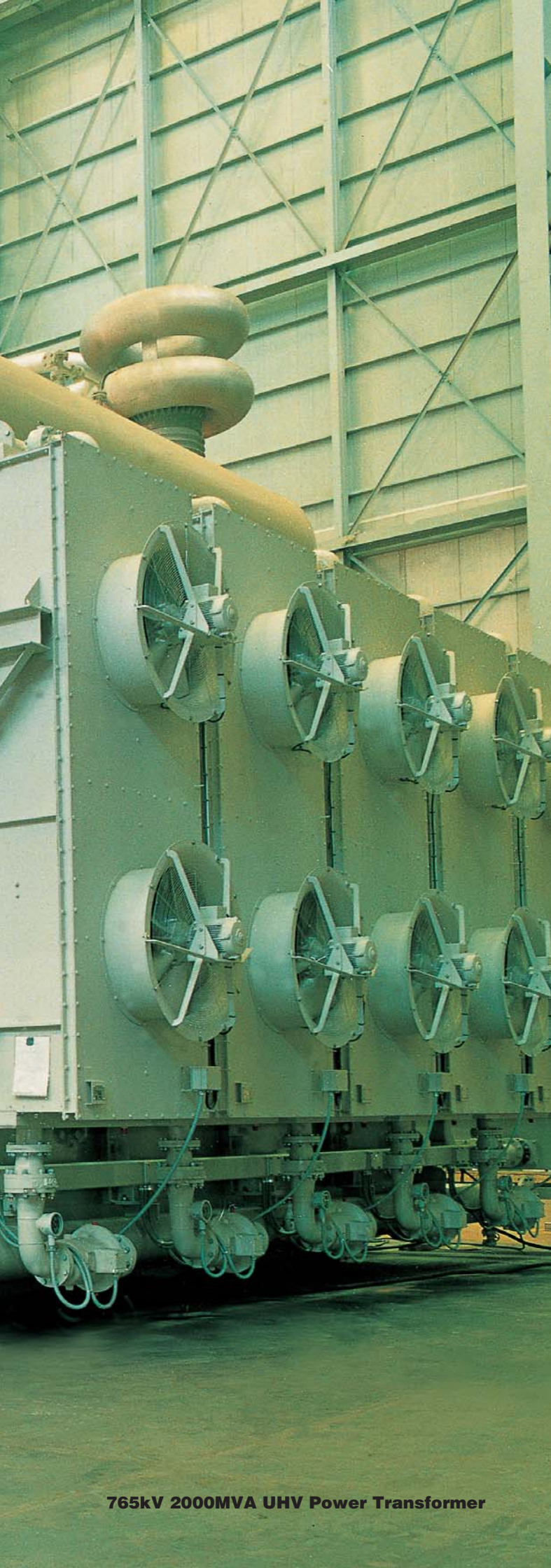
HICO has pursued technological innovations with continued research and development activities

BRIEF HISTORY

- 1962** Established HICO
- 1969** Developed 154kV extra high-voltage (EHV) transformer
- 1978** Developed 362kV gas circuit breaker
- 1978** Developed 345kV 475MVA EHV transformer
- 1983** Received UL certification for safer explosion-proof induction motors
- 1986** Received CSA certification for industrial induction motors
- 1987** Received ASME Stamp for industrial machinery
- 1992** Developed 765kV 3MVA ultra high-voltage (UHV) transformer prototype
- 1993** Received ISO 9001 certification (EHV transformers, GCB/GIS/DS, electric motors)
- 1994** Developed 13.2kV electric motors for nuclear power plants
- 1996** Developed 765kV 1500/3MVA UHV transformer
- 1996** Received ISO 9001 certification for all HICO products
- 1996** Developed 12,000HP electric motor
- 1998** Developed 345kV 100MVAR shunt reactor
- 1998** Received KEMA certification for 300kV 40kA, 2000/3100A GIS
- 1998** Developed 362kV 63kA 8000A GIS with the highest short circuit capacity
- 1998** Developed gas engine equipped with co-generation system
- 1999** Developed 765kV 2000/3MVA UHV transformer
- 1999** Developed 800kV 50kA 8000A UHV GIS
- 2000** Received ISO 14001 certification
- 2001** Developed transformer for 154kV 4000MVA FACTS and 170kV GCB
- 2003** Developed nation's first 362kV 50kA GIS and 154kV 80MVA FACTS pilot plant
- 2005** Developed 750kW wind power system and 100kW power conversion technology for fuel cell

POWER SYSTEMS





765kV 2000MVA UHV Power Transformer

Products & Services

UHV Power Transformer Power TR(500kV~765kV)

EHV Power Transformer Power TR(115kV~450kV)

Distribution Transformer

Cast Resin Transformer

Shunt Reactor

Substation Equipment

Steel Tower & Structure

Gas Circuit Breaker

Gas Insulated Switchgear

Disconnecting Switch

Digital Relay

SCADA System

Control Panel

MCSG

HV/LV Switchgear

MCC

IPB

HISMAC(Substation Man Machine Console)

Welder & Automatic Welding System

Distribution Control System

Substation and Turnkey Project for Electric System



EHV Transformer Assembly Shop

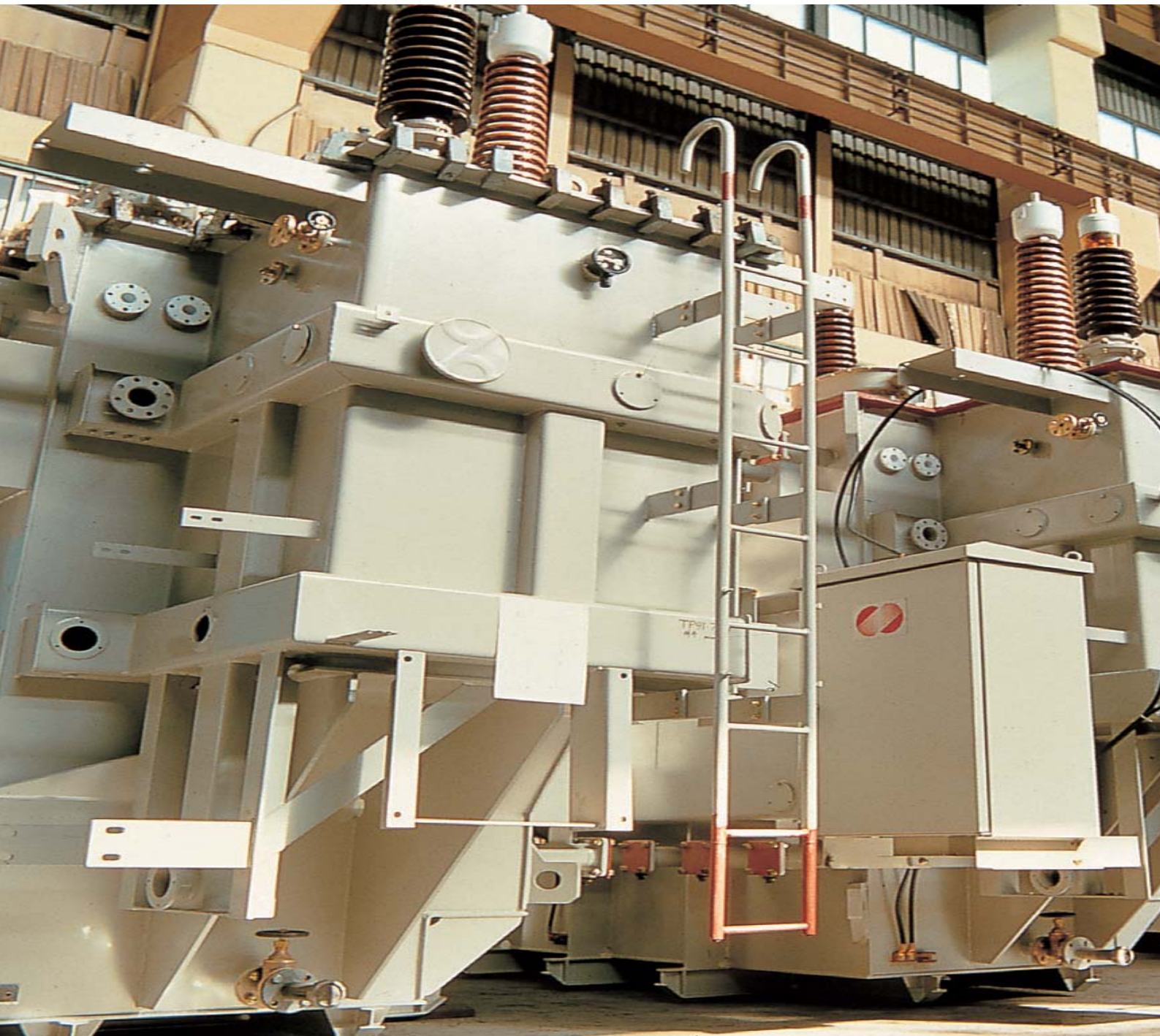
POWER SYSTEMS



Cast Resin Transformer

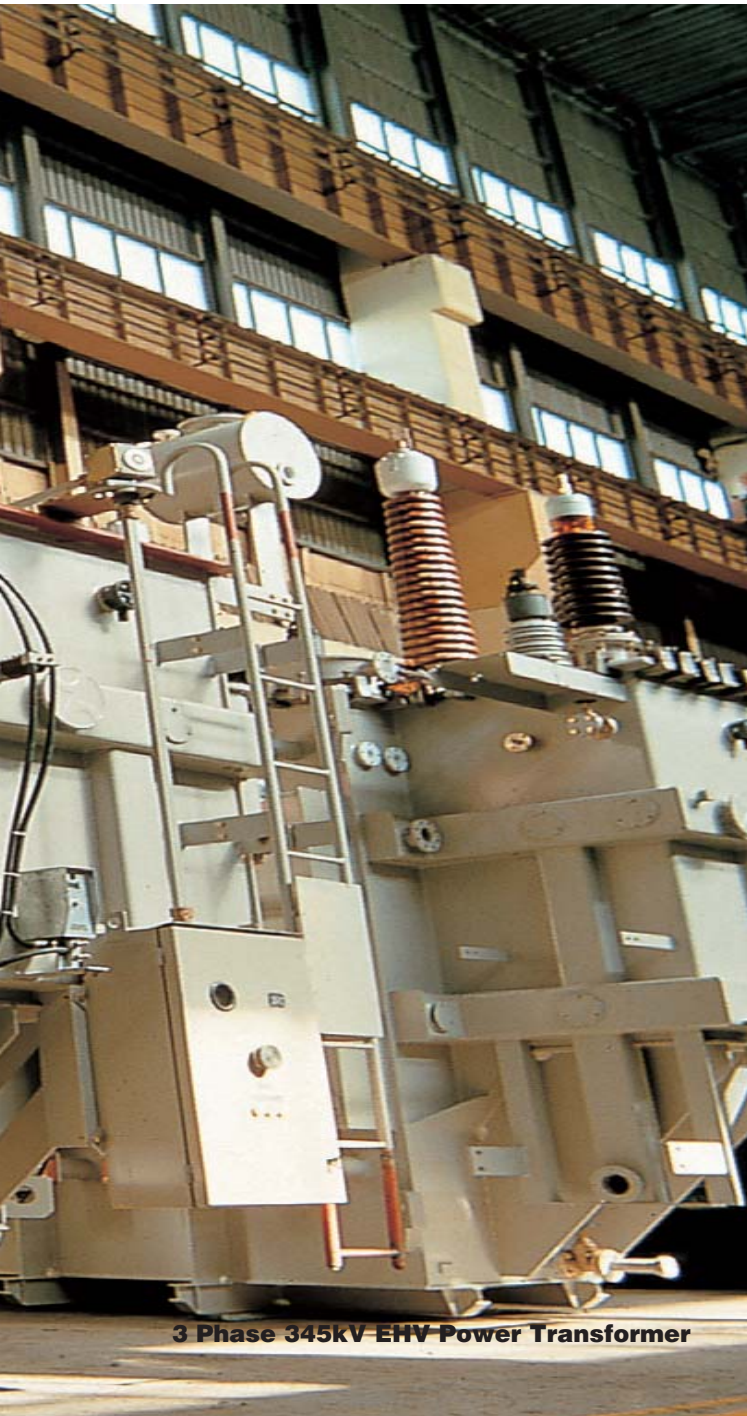


Distribution Transformer





Pipe Tower for 800kV Transmission Line



3 Phase 345kV EHV Power Transformer

Leading the Global Electric Power Industry with the Development of 800kV Transformer and GIS

Staying At the Top with the Latest Technology

As Korea's leading manufacturer of extra high-voltage (EHV) transformers, gas circuit breakers, and gas insulated switchgears, the Power Systems Performance Unit has been the dominant provider of power transmission and distribution equipment to KEPCO, the national power utility company, and other industrial companies for more than 35 years.

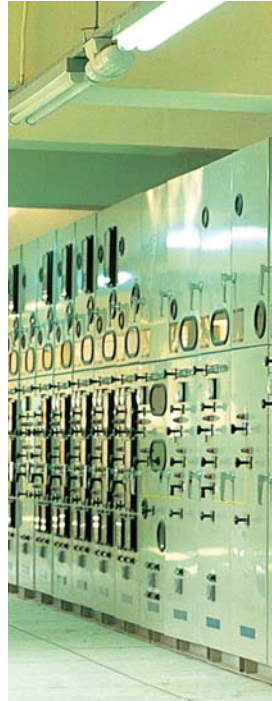
HICO has a long history of setting major product development milestones, including the development of Korea's first and the world's sixth 765kV ultra high-voltage (UHV) transformer in 1992 and the world's third 800kV GIS in 1998. The Company will strive to keep construction new landmarks in the electric power equipment industry in Korea and the world.

Taking Multi-faceted Approaches to Improving Product Quality

HICO has earned wide acclaim from both domestic and overseas customers for product and technological excellence in the area of oil-immersed and mold transformers. HICO's products also include a variety of electronic systems for controlling, monitoring, and safeguarding electric power operations. Its technological capability and reliability are evident in the main control board supplied to Youngkwang nuclear power plant in 1994 to monitor the entire plant. In 1995, HICO dedicated a large-scale plant for the production of angle and pipe steel towers used in telecommunication and power transmission. In particular, the full load test facility for steel towers is only the second of its kind in the world, and has greatly contributed to the construction of 765kV UHV pipe steel towers for power transmission.

HICO already enjoys the leading position in the Korean electric equipment industry but also seeks to join the ranks of globally renowned companies in the 21st century. To that end, the Company is implementing strategies based on technological leadership and exceptional product quality, forming a product development partnership with KEPCO, and expanding its presence in key export markets.

POWER SYSTEMS



Gas Insulated Switchgear Assembly Shop

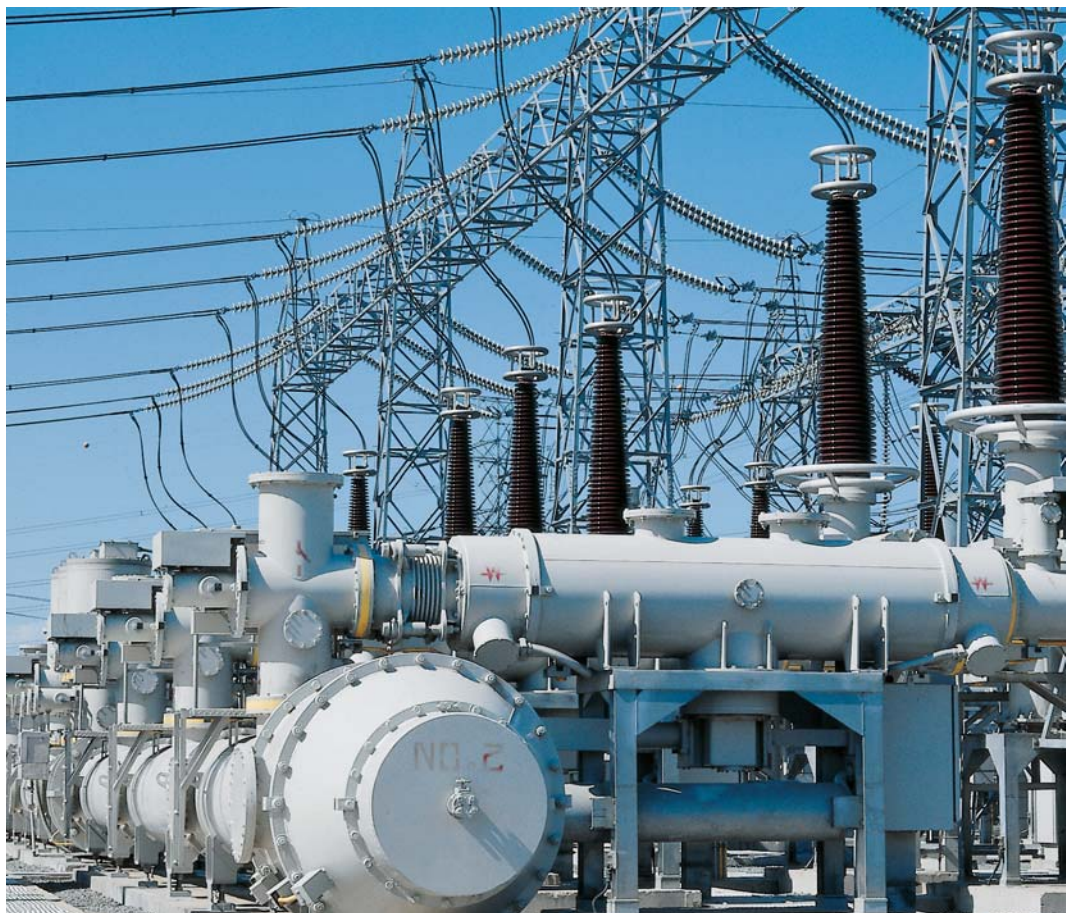
800kV Gas Insulated Switchgear





25.8kV Cubicle Type Switchgear

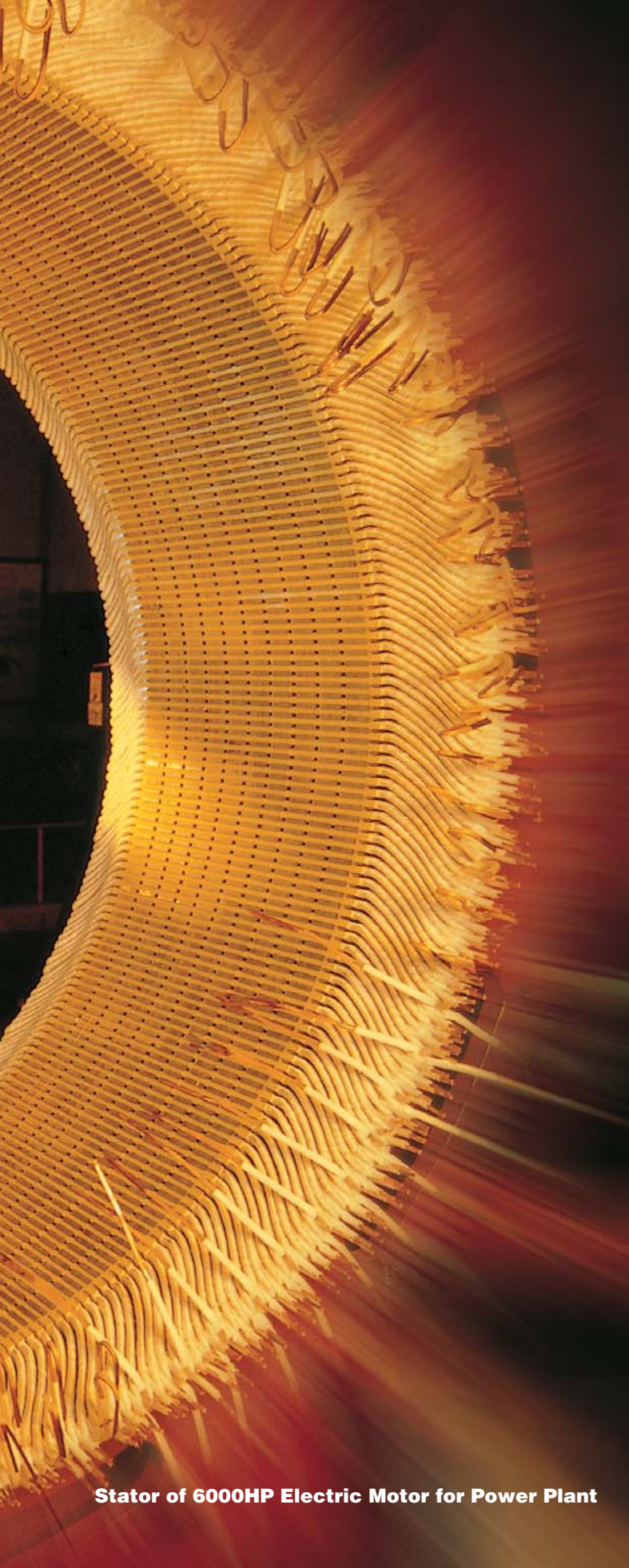
More compactness, Higher reliability, and Less maintenance



362kV Gas Insulated Switchgear

INDUSTRIAL MACHINERY & ENGINEERING





Stator of 6000HP Electric Motor for Power Plant

Focusing on the Development and Introduction of New Technologies for Industrial Machinery & Engineering

A Wide Range of Products

HICO's Industrial Machinery & Engineering Performance Unit is the largest and most comprehensive supplier of electric motors and gear products in Korea. The Company has been the leader in Korea's rotating machinery industry since 1962 when it first started to manufacture electric motors. With an annual capacity of 20,000HP, HICO now manufactures more than 40,000 electric motors a month. It also produces a variety of motors, including high-efficiency energy-saving electric motors, traction motors for trains, and special purpose motors for ships and the military. HICO also is a pivotal player in the nation's machinery industry as a major supplier of power generators and gear reducers to public facilities, industrial sites, and power plants.

Industrial Machinery, Chemical Containers & Cableway Equipment for Leisure and Tourism Industry

The Company also provides such chemical process systems as reactors, heat exchangers, and vessels, as well as machinery systems including fans and blowers, cranes, drawing machinery, and stranding machinery. Because HICO also supplies tramways, it has a technical tie in with Garaventa of Switzerland to produce world-class ropeways, ski lifts and gondolas. The Company has contributed immensely to the on-going development of Korea's leisure and tourism infrastructure as well.

Turnkey Base System Engineering Projects

HICO is also actively engaged in several turnkey based system engineering projects: establishment of mail centers; construction of wind tunnels and combined power systems for buildings and thermal power plants; and development of wind-turbine generating systems and CNG recharging systems.

New Technology

Seeking to secure the highest level of quality and technology in the 21st century, the Company is focusing on the development and introduction of new motor technologies, which will set new industrial product standards.

INDUSTRIAL MACHINERY & ENGINEERING



Three Phase Induction Motor



Diesel Generator in Power Plant



Vertical Squirrel Cage Drip Proof Type 6.6kV 650kW Electric Motors

Satisfying Customer's Needs with High Efficiency

Products & Services

Electric Motor

AC/DC
Squirrel Cage & Wound Rotor
Explosion Proof
Pole Change
Special Purpose
(Hoist/Crane/Elevator/Torpedo)

Gear Reducer

Parallel Shaft
Planetary
Geared Motor
Worm

Chemical Process Equipment

Column & Tower
Pressure Vessel
Reactor
Heat Exchanger

Industrial Machinery

Crane
Steel Cord Drawing & Stranding Machine

Tramway

Ropeway
Chair Lift
Gondola

Specialized System

CNG Refill Station
Automated Inventory System
Automated Post Office
Windmill Power Generation System
Subsonic Wind Tunnel

Casting

Iron
Steel
Copper



Electric Motor Assembly Line



Pulverizer Gear Reducer for Thermal Power Plant

INDUSTRIAL MACHINERY & ENGINEERING



Spherical Tank for Chemical Plant



Big Silo for Polystyrene

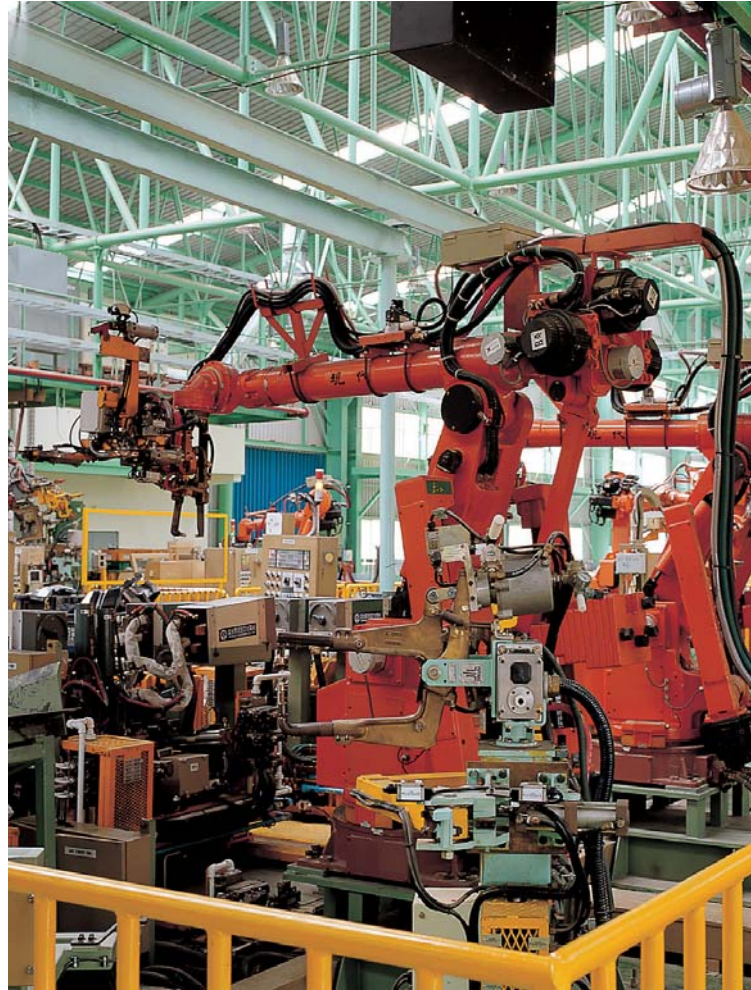


Tramway

**Increased Convenience for Customers,
Enhanced Harmony with Nature**



Distribution Control System



Automatic Welding System



Central Control System for Nuclear Power Plant

Sewage Treatment



HICO's Other Endeavors

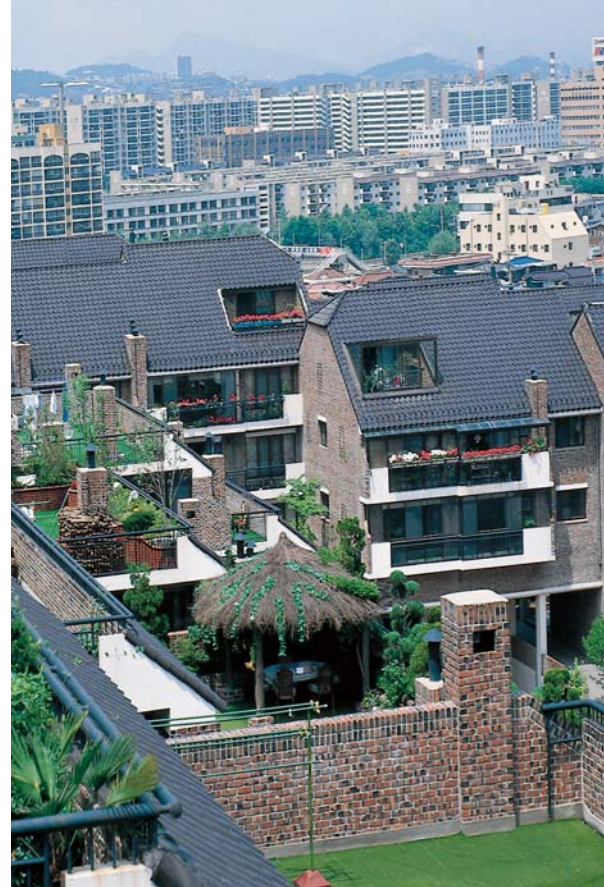
Creating a New Lifestyle

Combining its outstanding technology and construction know-how, HICO has made an impact in the construction industry since 1970, when the Company first started its construction business, by presenting a new concept in living environment, which emphasizes harmonious blending of nature and man-made structures. The Company was the first in the industry to build villa-type housing in Korea, transforming the urban landscape across the nation as well as enhancing comfort and convenience for urbanites. Armed with its extensive experience and solid reputation in the construction industry, HICO played an active role in developing many apartment complexes in Seoul and the surrounding metropolitan area. Even then, as it is now, the Company placed priority on satisfying customers' needs at each construction phase from designing to maintenance.

HICO's commitment to technology and quality has been recognized with several awards. In 1986, the Company received the Construction Culture Award from the municipal government of Seoul and, in 1994, the Best Constructor Award for building first-rate apartment buildings in Korea. More recently, in 1998, HICO was again honored by the government, with the President's Award in recognition of its contribution to improving the nation's residential environment and overall welfare.

Harmonizing the Environment and SOC Projects

Gradually expanding its construction business from traditional housing construction to include large-scale civil engineering and environmental projects as well as SOC and overseas construction projects, HICO will ultimately become a complete construction company, building living and industrial facilities all over the world.



Hyosung Villa

Hyosung Apartment



Products & Services

Apartment

- Villas
- Redevelopment projects
- Office buildings

Industrial and Environmental Projects

- Plants
- Sewage treatment facilities and port facilities

OVERSEAS ACTIVITIES

In Search of an Ultimate Competitive Edge



HICO strives to join the ranks of internationally renowned companies. As a pioneer in the age of globalization, HICO utilizes its accumulated experience and technological capabilities to boost the status of Korean heavy industry in the world market, while earning high praises from the U.S., Southeast Asia, and the Middle East. In addition, the Company works to gain a competitive edge over world-class companies by exporting value-added system units that require advanced technology.

HICO caters to its international customers with its own unique capabilities and strives to promote welfare in the global community with its ceaseless research and development endeavors in state-of-the-art technology.



145kV GIS in KLCC Building, Malaysia



PRODUCTION FACILITIES

Extra Large-Scaled Manufacturing Facilities with Total Quality Control System

HICO has modernized and specialized its production facilities in Changwon (No. 1, 2, 3, and 4) plants and Jochiwon plant. Changwon plants have several subfactories which include: a foundry capable of producing annually 20,000 tons of various casting products; a fabricating factory equipped to handle a wide range of tasks from surface treatment to painting precision welding frameworks and extra large welding structures; all of which undergo thorough quality control.

Especially noteworthy is an automated motor production line with the U-line layout, which enables full diagnosis of the toll exchange system, and the production line with an output capacity of more than 40,000 standard motors per month.

Transformers, circuit breakers, and other products are tested thoroughly in HICO's in-house laboratories by well-trained professionals, guaranteeing high product reliability. Each product is assigned to its own test laboratory, all of which are equipped with the latest testing equipment. For example, the EHV test room has an impulse generating equipment of up to 3,000kV, a power-frequency-withstand voltage test apparatus with 750kV capacity as well as highly sophisticated measuring instruments.



Overview of HYOSUNG Factory



Testing Laboratory for Gas Insulated Switchgear

R & D

Serving Our Customers with Technological Innovation



To provide products of the best quality, HICO recognizes the importance of not only incorporating the technology imported from well-known companies but also developing its own unique technology and products. Today, the Company shares its world-class technology with many countries in Southeast Asia and the Middle East. Furthermore, it boasts of voluminous research data and papers.

In step with the information age, HICO's highly advanced computer system supports technology development planning and comprehensive management strategy, managed by an internal information management system.

HICO pledges with great pride and a sense of responsibility to utilize its technological innovations so as to fulfill its commitment to the customers and further maximize customer value.

QUALITY MANAGEMENT SYSTEM

Quality Assurance Above the Customer's Needs and Expectations



HICO established a company-wide quality management system to offer complete customer satisfaction. The system allows total quality control and quality assurance for the entire process of design, manufacture, installation, pilot operation and follow-up services.

All HICO employees, from the chief executive officer down to the floor worker, participate in the implementation of the quality management system. The system has won wide recognition for its superior quality and management capability, receiving various international certificates such as ASME, UL, CSA, and other STAMP, as well as domestic certificates, including first-grade Quality Management, KS, Type Approval, and the In-house Calibration Laboratory. HICO was awarded the gold prize of industrial standardization in 1981, the Grand Prize of Quality Management in 1984, the certificate of ISO 9001 in 1993 and ISO 14001 in 2000. Such distinguished achievements clearly demonstrate HICO's excellence in quality management systems and its commitment to provide the best products and services to its customers.