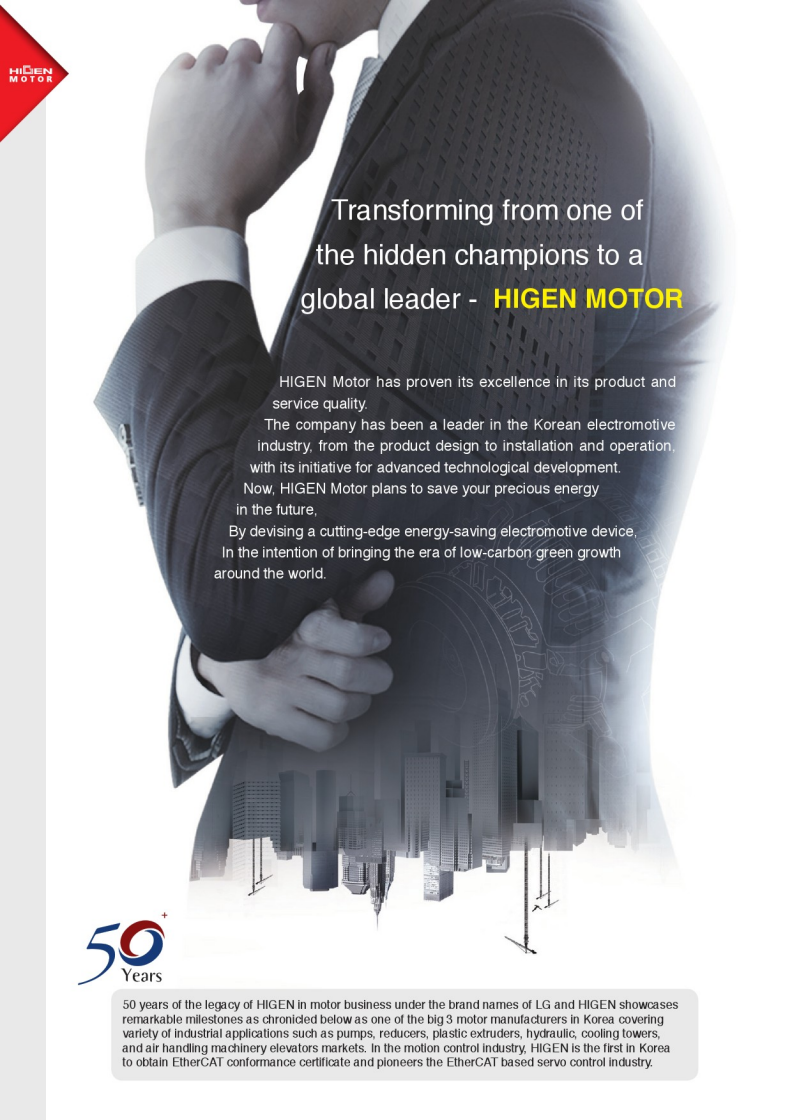


Beyond Technology,
Beyond Future



HIGEN
MOTOR



Transforming from one of the hidden champions to a global leader - **HIGEN MOTOR**

HIGEN Motor has proven its excellence in its product and service quality.

The company has been a leader in the Korean electromotive industry, from the product design to installation and operation, with its initiative for advanced technological development.

Now, HIGEN Motor plans to save your precious energy in the future,

By devising a cutting-edge energy-saving electromotive device, In the intention of bringing the era of low-carbon green growth around the world.

50⁺
Years

50 years of the legacy of HIGEN in motor business under the brand names of LG and HIGEN showcases remarkable milestones as chronicled below as one of the big 3 motor manufacturers in Korea covering variety of industrial applications such as pumps, reducers, plastic extruders, hydraulic, cooling towers, and air handling machinery elevators markets. In the motion control industry, HIGEN is the first in Korea to obtain EtherCAT conformance certificate and pioneers the EtherCAT based servo control industry.

TRUSTWORTHY

- Advanced technology accumulated over 50 years!

▶ Low Voltage Induction Motor

HIGEN based on high technology accumulated since 1963 in producing General Purpose LV Motors through modern equipment. Standard motors meet requirements of IEC, NEMA and are recognized by CSA, UL, CE, ATEX and ISO 9001. To satisfy customer's needs, HIGEN is also producing various Special Purpose Motors.

General Purpose Motors

General Spec

- MOUNTING TYPE : Horizontal, Vertical
- ROTATION : CCW from the view of shaft extension
- RATING : Continuous
- INSTALLATION : Indoor/Outdoor
- AMBIENT TEMPERATURE : -10°C~40°C
- SERVICE FACTOR : 1.0, 1.15
- SITE ALTITUDE Below 1000m
- DEGREE OF PROTECTION : IP44/IP55, IP22(ODP)



TFC Foot-Mounted (B3) TFC Footless-Mounted (B3) ODP Foot-Mounted

Premium Efficiency(IE3) Motors

HIGEN Premium Efficiency Motors are designed with CAD and FEA(Finite Element Analysis) to minimize losses and reduce energy costs.

- High grade, insulated electromagnetic steel laminations.
- Class F non-hygroscopic insulation with temperature rise.



Premium Effier Motor

Explosion Proof Motors

Explosion Proof

- Ex d IIB, IIC, T4/T5/T6 (ATEX)
0.4kW 2P ~ 260kW 4P, Frame 71 ~ Frame 355
IP55, 56, 65 & 66, B3/B5/V1/B3B5
- Ex tb IIIB, IIIC T125°C Db (IECEX)
Ex tD A21 IP65 T125°C (KGS)
0.75kW ~ 740kW, 2 ~ 10P
Frame 71 ~ Frame 560, IP65



Identification Code

0575 is the identification number of DNV responsible for the approval



Exd 71-250M
0.2-90kW 4p

260M-315M
110-160kW 4p

Exd 355Fr
260kW 4p

Motors for Pumps

The heritage of our solid market leadership in motor/pump industry in Korea dates back to 1969 when LG started pump production. WILO acquired pump business from LG in 2000, and HIGEN supplies 90% of WILO's motor needs. Besides, Young Poong, KSB, Armstrong and other leading pump manufacturer selected HIGEN brand.



Special Purpose Motors

HIGEN is producing many kinds of Special Purpose Motors



Vector Inverter Motor

Single Phase IFO Motor

Hydraulic Unit Motor

TE Air Over Motor
(Cooling Tower Type)

Aluminum Frame Motor

Spindle Motor

Elevator Motor

Hydraulic Elevator Motor

VERIFIED - Technologies qualified and certified by multiple international standards!

► High Voltage Induction Motor

HIGEN has successfully developed a high voltage insulation system of 15,000volts class.

HIGEN's high voltage motor adopts class F, VPI with epoxy resin varnish insulation systems, and its structure is designed and manufactured for low level vibration and noise. Its deep slot, double cage rotor structure and special varnish treatment allows HIGEN HV motor to run perfectly under a variety of load conditions for a wide spectrum.

HIGEN's experience for more than half century has designed, and manufactured high voltage motors in power range up to 3,500kW 2 ~ 28P, 13kV 60Hz.

Reference List

HIGEN has supplied various kinds of HV Motors for Korean/overseas power stations, iron works, water supply stations and other industrial sites proving excellent performance and reliability.



Totally Enclosed Motors

TEFC IEC IP44, IC411/Rib Cooled, IC611/With Air-to-Air Heat Exchanger... For dusty, damp, or corrosive gas environments

-Type FE or NFE: In a cast iron frame motor, fresh air comes from the opposite drive end bracket, is circulated inside the motor, and exhausted through the drive end

-Type HE: A heat exchanger is mounted on top of the motor top to replace the hot inside air with the cool outside air. Features a closed ventilation system utilizing a heat exchanger, which can be cleaned by simply removing a bolted cover



[Type FE, Cast iron Frame]



[Type NFE, Cast iron Frame]



[Type HE, Steel Fabricated Frame]

Open Drip Proof

ODP (NEMA WP-III), IP23/IPW24, IC01/CO5

ODP motors are best suited for indoor applications and applications not exposed to extreme ambient conditions.

The cooling-air paths are arranged to effectively cool the electric parts of a motor by weaving through the coils and core by agitation fan and air baffles. Suitable sound baffles and sound absorbing lining inside the cooling unit minimize noise levels. NEMA WP11 on outdoor use motors also can be supplied by customer's request.



[BDA, Steel Fabricated Frame]



[BDA, Outdoor Use, Sleeve BRQ]



[BDF, Cast Iron Frame]

Polytight-T Insulation system(1)

Process of Coil making



[Coil winding]



[Consolidation]



[Spreading]



[Coils after insulation]



[Straight Part Insulation/Auto]



[Coil End Insulation/Manual]

Polytight-T Insulation system(2)

Process of Coil Assembly Varnish Treatment(VPI)



[Preparing of Core]



[Inserting/Connection]



[After Coil Assembly]



[Insulation Diagnosis]



[VPI Processing]



[VPI Facility (ε3000)]

FIRST IN KOREA - The first company to pass EtherCAT Conformance Test!

▶ Servo Motors and Drives

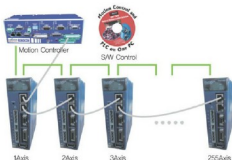
HIGEN EDA 7000 Series opens a new horizon unfolding the era of EtherCAT based Motion Network application.



SYSTEM FEATURE

- **EDA-7000 Series**
Standard EtherCAT communication based product and it supports up to 255 axes of synchronized operation by software, and it is compatible with EtherCAT based products.

Classification	Contents
Control Module	Standard EtherCAT S/W, Standard EtherCAT PLC
Drive	EDA-7000 Series
Communication	Standard EtherCAT
Communication Speed	100Mbps
Communication Cycle	0.4ms ~ 2.4ms
Communication Distance	Max. 100m
Nos. of Control Station	Max. 255 Axes



Full Digital Servo Drive (ADA7000)

- **Network Communication**
Pulse and Direction, EtherCAT, CANopen, Mechatrolink III
- **Various Motor Type Coupling Function**
 - Cylinder type/Flat-cake
 - Large torque type/high speed type
 - Super-low inertia type/low inertia type/high inertia type
 - Built-in decelerator type/precise analyzing encoding attached type (for Direct-drive)
- **Standard wiring and customized function assignment by applying multi-functional input output selection usage.**
- **Input : 20 Functional Option Type+6 Function Pre-Setting for Each Mode.**
- **Output : 18 Functional Option Type+6 Function Pre-Setting for Each Mode.**
 - Capacity : 50[W] ~ 4.5[kW]
 - Encoder : Absolute serial type : 11, 17, 21[bit/rev]
Incremental type : 2000 ~ 6000[p/rev]
 - Available Torque/Speed/ Position control and their combination
 - Operation by parameter setting
 - Pre-defined motion control(Single axis controller built-in drive model)



ADA7000 Series

HIGEN Servo Motor



Explosion proof servo motor
200W ~ 3kW, certified by ATEX,
IECEX



50W ~ 75kW, 220V, 400V,
Rated 1000, 1500, 2000, 3000 rpm

EXPORTER – EU & USA exporter of the first electric vehicle motor developed by original technology!

► Electric Vehicle Motors / Inverters

FEATURES

- Minimize the size and weight through High Power Density (kW/kg)
- Maximize Cooling Efficiency by High Current Density of Winding through the use of Aluminum Frame and Water Cooling System.
- Application of High Quality Silicon Steel with Low Core-Loss and High Permissible Magnetic Flux.
- Securing of Structural Stability at High Speed
- Spline Shaft Driving Method
- Reinforcement of Insulation Performance for Inverter Voltage Surge
- Output range : 4.5kW ~ 350kW
- Motor types : SPM, IPM, PMA_SynRM, SRM, IM

HIGEN EV Motors and Inverters : Golf cart, NEV, Passenger car, Bus, Truck, Yacht, etc

330 N.m High-speed Motor

- Characteristic
Water-cooled high-speed, high-output density motor suitable for driving passenger cars.
Used for driving 3.5t GVW truck when used with reducer
Voltage : 350Vdc, 700Vdc



600 N.m Truck Motor

- Characteristic
High torque motor suitable for driving 4.5t GVW trucks
Available in axle direct drive system without a reducer
Voltage : 540Vdc



1,000 N.m High speed Motor + Gear Reducer

- Characteristic
High torque high output through integration of high speed motor and reducer
Used for high-performance cars, trucks
Voltage : 350Vdc, 700Vdc



1,000 N.m Pure Electric Motor

- Characteristic
High torque PM motor drives the axle directly without reducer
Used for driving small buses and trucks
Voltage : 400Vdc ~ 700Vdc



ISO QUALITY CERTIFICATIONS

- ISO 9001: Quality assurance in
Design, Development,
Production, Installation,
Servicing



HYUNDAI SQ Certificate

- Electric Vehicle Motors



International Automotive Task Force

- ISO/TS 16949 : 2009
- Electric Vehicle Motors

LEADER – A leading company in the market and pioneer of traction machine in the Korean elevator industry!

► Elevator Traction Machine

HIGEN Motor enjoys solid market leadership for elevator motors and traction machines taking more than 50% market share (installed base) in Korea



Special Features of HIGEN Traction Machine

- Energy saving with high efficiency motor
- 1st development of 1:1 roping system in Korea
- Improve reliability adapting double brake system
- Easy maintenance of sheave

IFC building in Seoul, Korea
Major installation reference of HIGEN Traction Machine



HTL110-NS1 : 11kW, 1:1Roping
HTL110-NS2 : 11kW, 2:1Roping

11kW gearless synchronous traction machine for MR (1:1 roping, Replaceable geared type)



HTL320-NS1 : 32kW, 2:1Roping

32kW synchronous traction machine for MR (2:1 roping)



HTL410-Y11 : 41kW, 2:1Roping

41kW gearless traction machine : HTL410-YS1



HTL760-Y11 : 76kW, 2:1Roping

76kW gearless traction machine : HTL760-Y11

Traction Machine Applymap

Person / Speed	6	8	9	10	11	13	15	17	20	24
	450kg	550kg	600kg	680kg	750kg	900kg	1,000kg	1,150kg	1,350kg	1,600kg
60m/min					HTL110-NS1 HTL110-NS2 (11kW)			N / A		
60m/min								HTL320-NS1 (32kW)		
60m/min								HTL410-YS1 (41kW)		
60m/min								HTL760-Y11 (76kW)		



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