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2. Flameproof Motors

3. Motors for Pump

4. Other Products
1. Introduction
1) Overview

47 Years of Experience (Since 1963)

2008 - HIGEN MOTORS

2000 - LG OTIS

1963 - LG

Employees
270 People

Landscape Site
32,058 m²

Production Capacity
800,000 Sets/Year

Products
- Flameproof Motors
- Three Phase Motors
- Vector Motors
- Inverter Motors
- Elevator Motors
- High Voltage Motors
- Spindle / Servo Products
2) Legacy of HIGEN

LG
Started it!

Otis
A United Technologies Company
Joined it!

HIGEN MOTORS
Inspired it!
The legacy of Higen Motor as one of the big 3 motor manufacturers in Korea dates back to 1963 when Goldstar, the pioneer of Korean electronic industry, now renamed as LG, started motor production for import substitution. Most remarkably, Higen Motor enjoys solid market leadership for elevator motors taking more than 60% market share in Korea, and marks the highest market-shares also in pumps, reducers, plastic extruders, hydraulic, cooling towers, and air handling machinery markets.

- **2009** Obtained ATEX certificate for 110kW motor.
- **2008** Separated from Otis and launched as a motor specialty independent company “HIGEN MOTOR”
- **2000** Acquisition by Otis Elevator Company.
- **1997** Developed High Voltage Induction Motor (Under technical cooperation with YASKAWA)
- **1995** Company renamed as LG Electronics.
- **1963** Started motor production under the GoldStar brand
Dear Customer,

HIGEN MOTORS has been in motor manufacturing businesses since 1963 as a business unit of LG Group of Korea, and later since 1999 as a business unit of LG-OTIS, a joint venture company between LG Group and OTIS, a subsidiary of United Technology of U.S.A. In 2008, HIGEN MOTORS was spun off as an independent corporation specializing in motors and energy transfer solutions including products such as general motors, servo drives and servo motors, inverter motors, permanent magnet motors, spindle motors, and related products of industrial grade with power rating of 0.4 kw to 1500 kw. The main factory is located in Changwon Industrial Complex of Korea with a staff of about 270 engineers and technicians. HIGEN MOTORS is a leader of motor industry in Korea and has been supplying its products to Korea’s industrial companies, machinery manufacturers and robotics industry including POSCO, OTIS Elevator, WILO Pump, Samsung, LS and Das Robot. With aspiration to become a global player, we intend to step up our efforts to develop business opportunities with our prospective customers in the international market.

With this aspiration we have begun to pursue our vision for Energy Solution Provider: transformation from a passive component supplier to an energy transfer solution provider specializing in the most energy efficient solution to turn electrical energy into mechanical energy for our customers in various industrial applications. We realize that achieving this aspiration is not an easy task, and yet not an impossible task if we continue to challenge with determination and spirit. The spirit of “Challenge to the World, Challenge to the Future.”

In pursuit of our vision for Energy Transfer Solution Provider, we are presently expanding our export network and invite you to join our export initiative program as an importer, a distributor, a sales representative, and an end user in the industries you are familiar with.

If you are interested in doing business with HIGEN MOTORS, please continue to review our homepage and contact the undersigned to discuss further details. For further information, please refer to www.higenmotor.com/eng.

Sincerely yours, JaeHak Kim CEO
5) CEO Profile

**Education:**
- Seoul National University, Korea, BS
- Massachusetts Institute of Technology, Cambridge, Massachusetts, MS
- University of California, Berkeley, California, Ph. D.
- Harvard University, Graduate School of Business Administration, Boston, Massachusetts, MBA

**Work experience:**

**HIGEN MOTORS CORPORATION (2008.1.1~ )**
Chairman and Founder

President / CEO, Representative Director
Power & Industrial Systems Group

**Doosan Heavy Industries & Construction Co., Ltd. (1999~2001)**
(Formerly Korea Heavy Industries and Construction Co., Ltd.)
Executive Vice President & Chief Operating Officer, Representative Director

Executive Vice President & Head of Overseas Business Division, Member of Board of Directors

Task Manager in China and Mongolia Department, managed industrial and Energy projects in China.

**Korea Heavy Industries and Construction Co., Ltd. (1977~1992)**
(Formerly Doosan Heavy Industries and Construction Co., Ltd.)
Executive Managing Director & Head of Corporate Planning and Control Division.
Member of Board of Directors

**Professional Activities:**

- Presidential Advisory Council for Science & Technology,
  Member of Energy Subcommittee
- Korea Engineers’ Club, Vice Chairman
- The Korean Society of Mechanical Engineers (KSME),
  Vice Chairman,
  Chairman of Pressure Vessel Committee
- National Academy of Engineering of Korea, Full Member
- Seoul National University Alumni Association, Director
- Mechanical Engineering Alumni Association, Vice Chairman
- The Korean Society for New and Renewable Energy, Vice Chairman
- The Korea Association of Machinery Industry (KOAMI), Vice Chairman
- The Korea Electrical Manufacturers Association (KOEMA), Vice Chairman
- Korea Plant Industries Association, Vice Chairman
- The Korea Atomic Industrial Forum, Director
- Korea-U.S. Economic Council, Director
- Korea Electrical Association, Director
- Korea Management Association, Director
- Korea Electrical Engineering & Science Research Institute, Director
- Korea Energy Association, Director
### 6) Product Portfolio

<table>
<thead>
<tr>
<th>Products</th>
<th>Output Range</th>
<th>Production Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flameproof Motors</td>
<td>Ex e &amp; Ex d</td>
<td>0.12 kW ↑</td>
</tr>
<tr>
<td>General Purpose Motors</td>
<td>220~660V</td>
<td>0.1 ~ 200 kW</td>
</tr>
<tr>
<td>Elevator Motors &amp; Traction Machine</td>
<td>Geared Type, Gearless Type (Traction Machine: 11kW, 27kW, 41kW, 76kW)</td>
<td>5.5 ~ 76 kW</td>
</tr>
<tr>
<td>High Voltage Motors</td>
<td>690V ~ 6,600V</td>
<td>55 kW ↑</td>
</tr>
<tr>
<td>Servo Motors &amp; Drives</td>
<td>1,000 ~ 5,000 rpm</td>
<td>0.05 kW ↑</td>
</tr>
<tr>
<td>Spindle Motors</td>
<td>1,500 ~ 8,000 rpm</td>
<td>3.7 ~ 11 kW</td>
</tr>
</tbody>
</table>
7) Corporate Organization

CEO
Dr. Jae Hak Kim

CPO
Young Koo Kang

CMO
Sun Yong Kim

R&D Center Director
Dr. C. Choi

Engineering Dir.
J.H. Kim

Project Development Team
B.S. Park

Product Development Team
T.I. Park

USA Branch Office
Steve Hwang

Export Sales Team
W.H. Moon

Domestic Sales Team
Y.S. Joo

Domestic A/S Team
M.S. Kim

Production Management Team
T.Y. Song

Subcontract Management Team
J.H. Kim

Purchasing Team
G.T. Noh

Quality Assurance Team
H.K. Kim

Production Team
S.A. Shin
8) HIGEN MOTOR Client Lists

**INDUSTRY**

- **Pump**
  - WILLO
  - YOUNG POONG PRECISION CORPORATION
  - HYOSUNG EBARA Co., Ltd.
  - SHIN SHIN MACHINERY CO., LTD
  - DAEYOUNG POWER PUMP Co., LTD.
  - CW-Hydro

- **Government & Public Offices**
  - K Water
  - Korea Rural Community Corporation
  - EWP CORNER EAST-WEST POWER Co., LTD.

- **IRON & STEEL**
  - POSCO
  - Dongbu Steel
  - Korea Zinc Company
  - HYUNDAI STEEL

- **Compressor**
  - HITACHI
  - KwangShin
  - SWC
  - SAMSUNG TECHWIN
  - SAMSUNG
  - HANSHIN
  - SeAH Turbo Engineering

- **Fan**
  - SUEWON POONGRYUK
  - KITURAMI
  - BUMYANG
  - ACE R&A CO., LTD.
  - Tong Yang
  - Environment & Blower
9) Major Customers

POSCO

Korea Zinc

Young Poong Precision

OTIS Elevator
(Seoul Yeouido SIFC)
10) Certifications

- ATEX & IECEx
- Construction and verification test of frame-proof enclosure of electrical apparatus (110kW, 4P, Ex d II B T4)

- UNDERWRITERS LABORATORIES INC. (UL)
  - Hydraulic Elevator Motors (TEFC & ODP)
  - UL Insulation System (F Class)

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

- CANADIAN STANDARDS ASSOCIATION (CSA)
  - Hydraulic Elevator Motors (TEFC)

- TÜV SÜD Product Service GmbH
  - Servo Drives (COC)
  - Induction Motors (DOC)
11) Quality Assurance

Quality Assurance Team

General Manager: H.K. Kim

Parts/Products Quality Assurance, Quality Control, Acquisition of Certificates, Standards, Post Management

Manager: Y.H. Lee
- Construction of Quality Assurance System
- Establishment & Amendment of Department Standards
- Quality Review (Process, System)
- Standards Management
- Post Management of ISO
- Acquisition of ATEX Certification
- Post Management of ATEX
- Post Management of KS
- Management for Measuring Instruments
- Proposal Management

Manager: S.H. Choi
- Managed Product Group (Servo)
  - Motors, Drives, Inverter
  - Integrated Motors and Other Developing Products
  - Inspection
  - Test
  - Servo SVC
  - Facility Investment (Servo)

Manager: Y.H. Lee
- Managed Product Group (Generals Purpose Motors)
  - Low Voltage Motors
  - Single Phase, Three Phase, E/L, Export
  - Inspection
  - Test
  - Witness Inspection (Low Voltage)

Staff: I.S. Lee
- Managed Product Group (General Purpose Motors)
  - Electric Vehicle Motors, High Voltage, Traction Machine
  - Inspection
  - Test
  - Witness Inspection (High Voltage)
  - Technology Consultation for Customers
  - Facility Investment (General Purpose Motor)
  - Job Performance, Team Records

Managed Product Group (Servo)
- Job Performance, Team Records
- Construction of Quality Assurance System
- Establishment & Amendment of Department Standards
- Quality Review (Process, System)
- Standards Management
- Post Management of ISO
- Acquisition of ATEX Certification
- Post Management of ATEX
- Post Management of KS
- Management for Measuring Instruments
- Proposal Management

Managed Product Group (Generals Purpose Motors)
- Low Voltage Motors
- Single Phase, Three Phase, E/L, Export
- Inspection
- Test
- Witness Inspection (Low Voltage)
- Technology Consultation for Customers
- Facility Investment (General Purpose Motor)
- Job Performance, Team Records

Managed Product Group (General Purpose Motors)
- Electric Vehicle Motors, High Voltage, Traction Machine
- Inspection
- Test
- Witness Inspection (High Voltage)
- Technology Consultation for Customers
- Facility Investment (General Purpose Motor)
- Job Performance, Team Records

Service Management

General Purpose Motors
- Site Service
- Technical Assistant for Service
- Repair and Analysis for Claimed Products
- Service Parts

Servo
- Service Agent Management
- Credit Management
- Attendance Management

Receiving Inspection
- Y.G. Kim
- D.G. Cho
- S.Y. Lee

Outgoing Inspection
- J.J. Woo
- H.S. Kim
- K.R. Lee
- H.G. Ha

Receiving / Outgoing Inspection
- K.H. Jeong
2. Flameproof Motors
### Specification & Certification

#### Type of protection

<table>
<thead>
<tr>
<th></th>
<th>Ex e II T3</th>
<th>Ex d IIB T4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>0.12kW ~ 250kW</td>
<td>0.75kW ~ 260kW</td>
</tr>
<tr>
<td>Frequency</td>
<td>60HZ</td>
<td>50HZ or 60HZ</td>
</tr>
<tr>
<td>Zone Classification</td>
<td>Zone 2</td>
<td>Zone 1 or 2</td>
</tr>
<tr>
<td>Temperature classes</td>
<td>T3</td>
<td>T4</td>
</tr>
</tbody>
</table>

#### Certificates

- KGS (Korea Gas Safety Corporation)

### Present Certification (KGS) Status

<table>
<thead>
<tr>
<th>Rated Output (kW)</th>
<th>Ex e II T3</th>
<th>Ex d IIB T4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2P</td>
<td>4P</td>
</tr>
<tr>
<td>0.12</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>0.4</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>0.55</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>0.75</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>1.5</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>2.2</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>3.7</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>5.5</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>7.5</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>11</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>15</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>18.5</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>22</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>30</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>37</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>45</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>55</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>75</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>95</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>110</td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>132</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>185</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>190</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>240</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>250</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>260</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>

- **Note:** 110kW, 4P is certified by ATEX.
ATTESTATION D'EXAMEN CE DE TYPE

2. Type examen: EXATEX 2000

3. Attestation: ATEX (110kW, 4P)

ISO 9001:2000

Design, development, manufacturing, sales and service of motors and controllers

HIGEN Motor Co., Ltd.
Head Office: 110-1, Seongheung-dong, Changwon, Gyeongsangnam-Do Province, Korea

Certificate No.: 21288

ISO 9001:2000

Authorized By: Thomas R. Arnold, President

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ATEX Certification Schedule

HIGEN MOTOR is in the process of certification of ATEX as follows for completion by December 2010.

<table>
<thead>
<tr>
<th>Fr. Size</th>
<th>Class</th>
<th>Poles &amp; Rated Output</th>
<th>Expected Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2P</td>
<td>4P</td>
</tr>
<tr>
<td>71</td>
<td>II B, II C</td>
<td>0.4 kW</td>
<td>0.4 kW</td>
</tr>
<tr>
<td>80M</td>
<td>II B, II C</td>
<td>0.75 kW</td>
<td>0.75 kW</td>
</tr>
<tr>
<td>90L</td>
<td>II B, II C</td>
<td>1.5 kW, 2.2 kW</td>
<td>1.5 kW</td>
</tr>
<tr>
<td>100L</td>
<td>II B, II C</td>
<td>-</td>
<td>2.2 kW</td>
</tr>
<tr>
<td>112M</td>
<td>II B, II C</td>
<td>3.7 kW</td>
<td>3.7 kW</td>
</tr>
<tr>
<td>132S</td>
<td>II B, II C</td>
<td>5.5 kW, 7.5 kW</td>
<td>5.5 kW</td>
</tr>
<tr>
<td>132M</td>
<td>II B, II C</td>
<td>-</td>
<td>7.5 kW</td>
</tr>
<tr>
<td>160M</td>
<td>II B, II C</td>
<td>11 kW, 15 kW</td>
<td>11 kW</td>
</tr>
<tr>
<td>160L</td>
<td>II B, II C</td>
<td>18.5 kW</td>
<td>15 kW</td>
</tr>
<tr>
<td>180M</td>
<td>II B, II C</td>
<td>22 kW</td>
<td>18.5 kW, 22 kW</td>
</tr>
<tr>
<td>180L</td>
<td>II B, II C</td>
<td>30 kW</td>
<td>30 kW</td>
</tr>
<tr>
<td>200L</td>
<td>II B, II C</td>
<td>37 kW, 45 kW</td>
<td>37 kW, 45 kW</td>
</tr>
<tr>
<td>225S</td>
<td>II B, II C</td>
<td>55 kW</td>
<td>55 kW</td>
</tr>
<tr>
<td>250S</td>
<td>II B, II C</td>
<td>75 kW</td>
<td>75 kW</td>
</tr>
<tr>
<td>250M</td>
<td>II B, II C</td>
<td>90 kW</td>
<td>90 kW</td>
</tr>
<tr>
<td>280</td>
<td>II B</td>
<td>132 kW</td>
<td>132 kW</td>
</tr>
<tr>
<td>315</td>
<td>II B</td>
<td>200 kW</td>
<td>200 kW</td>
</tr>
<tr>
<td>355</td>
<td>II B</td>
<td>-</td>
<td>260 kW</td>
</tr>
</tbody>
</table>
3. Motors for Pump
## Application for Pumps

<table>
<thead>
<tr>
<th>Items</th>
<th>Industrial Pumps</th>
<th>Normal Pumps</th>
<th>In-Line Pumps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Pole : 2, 4, 6</td>
<td>- Pole : 2, 4, 6</td>
<td>- Pole : 2, 4, 6</td>
</tr>
<tr>
<td></td>
<td>- Output : 0.55 ~ 500kW</td>
<td>- Output : 0.55 ~ 185kW</td>
<td>- Output : 0.55 ~ 132kW</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Items</th>
<th>Pumps for Construction</th>
<th>Multistage Pumps</th>
<th>Submersible Pumps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Pole : 2, 4</td>
<td>- Pole : 2</td>
<td>- Pole : 2 ~ 16</td>
</tr>
<tr>
<td></td>
<td>- Output : 1.5 ~ 15kW</td>
<td>- Output : 11 ~ 45kW</td>
<td>- Output : 90 ~ 330kW</td>
</tr>
</tbody>
</table>
Pump Customer Lists of HIGEN

The heritage of our solid market leadership in motor / pump industry in Korea dates back to 1969 when GoldStar, now renamed, LG, started motor and pump production. WILO which acquired pump business from LG in 2000 takes over 90 percent of total supply from HIGEN. Besides, Young Poong, KSB, Armstrong and other leading pump manufacturer selected HIGEN brand.
4. Other Products
Electric Vehicle Motors

Dr. JAE-HAK KIM, CEO of HIGEN MOTOR (seated next to President M.B. Lee) was invited to brief on current policy issues of Korean EV industry at the presidential economic policy board.
• 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
# Electric Vehicle Motor Projects

<table>
<thead>
<tr>
<th>Model</th>
<th>Applicable Vehicle</th>
<th>Structural Characteristic</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.5kW</td>
<td>Golf Cart</td>
<td>Frameless, AL E/B, Internal Spline Shaft</td>
<td>Korea “D” Company</td>
</tr>
<tr>
<td>9kW/18kW</td>
<td>Car</td>
<td>AL Frame, E/B, External Spline Shaft</td>
<td>Italy “P” Company</td>
</tr>
<tr>
<td>15kW/30kW</td>
<td>Car</td>
<td>AL Frame, E/B, Internal Spline Shaft</td>
<td>Italy “P” Company</td>
</tr>
<tr>
<td>30kW/60kW</td>
<td>SUV Car</td>
<td>AL Frame, E/B, Internal Spline Shaft</td>
<td>Korea “S” Company</td>
</tr>
<tr>
<td>30kW/60kW</td>
<td>Car</td>
<td>AL Frame, E/B, Internal Spline Shaft</td>
<td>Korea “H” Company</td>
</tr>
<tr>
<td>30kW/60kW</td>
<td>SUV Car</td>
<td>AL Frame, E/B, External Spline Shaft</td>
<td>USA “P” Company</td>
</tr>
<tr>
<td>30kW/60kW</td>
<td>Sports Car</td>
<td>AL Frame, E/B, Coupling Type</td>
<td>Korea “C” Company</td>
</tr>
<tr>
<td>40kW/80kW</td>
<td>Bus</td>
<td>AL Frame, E/B, Internal Spline Shaft</td>
<td>Korea “A” Company</td>
</tr>
<tr>
<td>50kW/100kW</td>
<td>Dump Truck</td>
<td>AL Frame, E/B, Internal Spline Shaft</td>
<td>Korea “A” Company</td>
</tr>
<tr>
<td>53kW/100kW</td>
<td>SUV Car</td>
<td>AL Frame, E/B, External Spline Shaft</td>
<td>Korea “M” Company</td>
</tr>
<tr>
<td>60kW/120kW</td>
<td>School Bus</td>
<td>AL Frame, E/B, External Spline Shaft</td>
<td>Korea “C” Company</td>
</tr>
<tr>
<td>60kW/120kW</td>
<td>Bus</td>
<td>Summation gear (120kW/240kW)</td>
<td>Korea “D” Company</td>
</tr>
<tr>
<td>45kW/125kW</td>
<td>Bus</td>
<td>AL Frame, E/B, Internal Spline Shaft</td>
<td>USA “E” Company</td>
</tr>
<tr>
<td>350kW</td>
<td>Dump Truck</td>
<td>AL Frame, E/B, Coupling Type</td>
<td>USA “U” Company</td>
</tr>
</tbody>
</table>
Three Phase Motors

Totally Enclosed Fan Cooled

- IEC/NEMA STANDARD.
- Foot/Flange Mounting
- 200W through 450kW
  (2P, 4P, 6P, 8Pole)

Features

- Continuous Duty
- Class “F” Insulation System
- Cast Iron Frames

Open Drip Proof

- IEC/NEMA STANDARD.
- Foot/Flange Mounting
- 200W through 450kW
  (2P, 4P, 6P, 8Pole)

Features

- S.F (Service Factor): 1.15
- Low Temperature Rise
- Inherent Corrosion Resistance
- Low Noise & Vibration
Submersible Pump Motor

FEATURES
- Uses: Pump For Draining
- 1.5kW Through 22kW (2Pole)

In Line Pump Motor

FEATURES
- Uses: In Line Pump
- 1HP Through 40HP (4Pole)
- Frame Material: Aluminum (2~10HP)
Three Phase Motors

**Cooling Tower Motor**

**FEATURES**
- Uses: Cooling Tower
- 1/4 HP through 5HP (6Pole, 8Pole)
- Protection Grade: IP54

**Hydraulic Unit Motor**

**FEATURES**
- Uses: Hydraulic Pump
- 1HP through 10HP (4Pole)
**Totally Enclosed Fan Cooled**

- IEC STANDARD.
- Foot Mounting
- 1/8HP through 1HP 4Pole

**Open Drip Proof**

- IEC STANDARD.
- Foot Mounting
- 1/8HP through 3HP 4Pole

**FEATURES**

- Capacitor start - Induction run or Capacitor start - Capacitor run
- Steel Frame and Cast Iron Endbells
- Class “B” Insulation System

**FEATURES**

- High Starting Torque & Low Starting Current
- Reversible by Reconnection
- Low Noise & Vibration
HIGEN High Efficiency Motors are designed with CAD and FEA (Finite Element Analysis) to minimize losses and reduce energy costs. The motors have been tested by IEEE 112 Method B and the Efficiency values are greater than EPACT’s.

FEATURES
• Type : TEFC
• Output : 0.75kW(1HP) ~ 200kW(270HP)
• 3 Phase, 60HZ, 220/380/440/480V, 2P, 4P or 6Pole
• Ins. Class F(Temp. rise B class)
• Service Factor : 1.15
• Low noise & vibration
The motors are high quality and high reliability corresponding IEC, NEMA standard. “POLYTIGHT T” insulation system and Vacuum pressure impregnation with Epoxy resin varnish guarantee excellent heat-resistance and power-durability.

**FEATURES**
- Output: 75HP(55kW) up to 2,000HP(1,500kW)
- 3 Phase, 60HZ, 3300V or 6600V
- Ins. Class F(Temp. rise B class)
  (Vacuum pressure impregnated with epoxy resin varnish)
- Duty: Continuous

**TEFC TYPE**

**ODP TYPE**

- Output: 75HP(55kW) up to 2,000HP(1,500kW)
- 3 Phase, 60HZ, 3300V or 6600V
- Ins. Class F(Temp. rise B class)
  (Vacuum pressure impregnated with epoxy resin varnish)
- Duty: Continuous
Elevator Motor & Traction Machine

**Elevator Motor**
- Geard Type
  - (5.5kW ~ 22kW 4Pole)

**FEATURES**
- Class “F” Insulation System
- Dynamic Brake
- Variable Voltage Variable Frequency Control

**Traction Machine**
- Foot Type
  - (45kW ~ 75kW 330V, 55.5³)
  - Speed: 240 ~ 420 m/min.

**FEATURES**
- Class “F” Insulation System
- Short Time Duty
- Variable Voltage Variable Frequency
- Low Temperature Rise
- Output: 27kW
  - (Shaft Load: 11 ton)
  - Speed: 120 ~ 180 m/min

**FEATURES**
- High Efficiency Realization by Synchronous Motor usage
- Compact Size
- Battery adoption in Brake for Power Failure
Submersible Type (Hydraulic Motor)

Submersible Oil Motors are connected to the pump units submerged in the hydraulic oil for E/L

FEATURES
- Output: 20HP through 50HP
- 3 Phase, 60HZ, 2Pole, 200V or 230/460V
- Ins. Class F (Vacuum pressure impregnation)
- Duty: 80 starts per hour(40°C oil)  
  120 starts per hour(50°C oil)
- Leads: 87 inches
- 70°C Thermostat on the frame

Dry Type (Hydraulic Motor)

Dimension and Performance are in accordance with NEMA Standard.

FEATURES
- Type: ODP
- Output: 20HP through 75HP
- 3 Phase, 60HZ, 4Pole, 200V or 230/460V
- Ins. Class F(Temp. rise B class) (Vacuum pressure impregnation)
- NEMA Design B
- Duty: 30 Min. or 60 Min.
- Service factor: 1.0
Inverter Motors

Spindle Motor

FEATURES
• Output: 3HP ~ 15HP
• Frameless Type
• Wide Range of Rated Output
  (standard 8,000rpm, special 12,000rpm)
• High Response & Speed Control
• High Torque, Low Inertia
• Low Noise & Vibration (V5)

Vector Motor

FEATURES
• Output: 1HP ~ 200HP
• High Torque
• Excellent Response
• Various Option
**FEATURES**
- Output: 0.05 ~ 15 kW (1/15HP ~ 20HP)
- High Speed (32 bit) DSP Technology
- Rapid Position & Speed Control
- Low Noise by IGBT-IPM
- Feed-forward Compensation Function

**Usage**
- Low Inertia
  - Robot, Chip Mount, Factory - Automation
- High Inertia
  - CNC System, Transfer Machine
Servo Products (Application Area)

- Articulated Robots
- Wafer Handling Robots
- Pick and Place Robots
- Take-Out Robots
- Auto Inspection Equipments

8 Axes Synchronous Control Servo System

64 Axes Control Servo System

LED Line
SMT
Machine Tool
EtherCAT
Motionnet

HiDEN MOTORS
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