hindustan ELECTRIC MOTORS

*Motoring the wheels of success*

# IE5 Motors

## Unmatched Performance, Unbeatable Savings

From Our Factory to Your Factory

IE6 Coming soon

**Ultra (IE5) & Super (IE4) Premium Efficiency Motors**

# The Future of Energy-Efficient Operations is Here

In a world striving for sustainability, energy efficiency plays a critical role in reducing $CO_2$ emissions and minimising industrial pollution. As one of the most dangerous greenhouse gases, $CO_2$ demands global efforts to curb its impact. Energy-efficient motors are a critical component of modern sustainability efforts. By reducing energy consumption, lowering costs, and minimising environmental impact, these technologies play a vital role in helping businesses achieve their sustainability goals.

Committed to this cause, we at Hindustan Motors have designed and developed IE5 motors with advanced Induction Technology, as well as Permanent Magnet Synchronous Motors (PMSM). Our IE4 Electric Motors are designed to exceed the Minimum Energy Performance Standards (MEPS), helping industries optimise performance while safeguarding the environment.

With our state-of-the art manufacturing facility at Daman, We ensure high-quality steel to make stampings, die-cast, shaft and maintain clear process control at our own fully-equipped machining shop, so that our motors deliver the best performance with the longest life span.

**We are one of India's Largest manufacturers, producing**

**50,000**

**electric motors every month**

# Why Hindustan Motors?

- **A 100% in-house manufacturing process**
- **Over 98% of deliveries are made on time**
- **The fastest in non-standard motor delivery**
- **Technical documents delivered instantly**

## All major approvals and certifications:

BIS · CE · Petroleum and Explosives Safety Organisation · ATEX · IECEx · EIL · MECON मेकॉन ISO 9001 Company · एनटीपीसी NTPC · बीएचईएल BHEL · TOYO ENGINEERING · सेल SAIL · Aker Solutions

# IE5 Motors

## Ultra Premium Efficiency

IE5 motors offer ultra-premium efficiency, with 50% lower losses than IE3 motors and nearly 20% lower losses than IE4. This makes them ideal for energy-sensitive applications.

We are proud to introduce our latest innovation—the IE5 motors—powered by cutting-edge Induction Technology. This new-age motor sets a new standard in energy efficiency, delivering superior performance while significantly reducing energy consumption.

IE5 Induction motors can be started using conventional methods like Direct-On-Line (DOL) and Star-Delta without requiring inverters or additional electronic components.

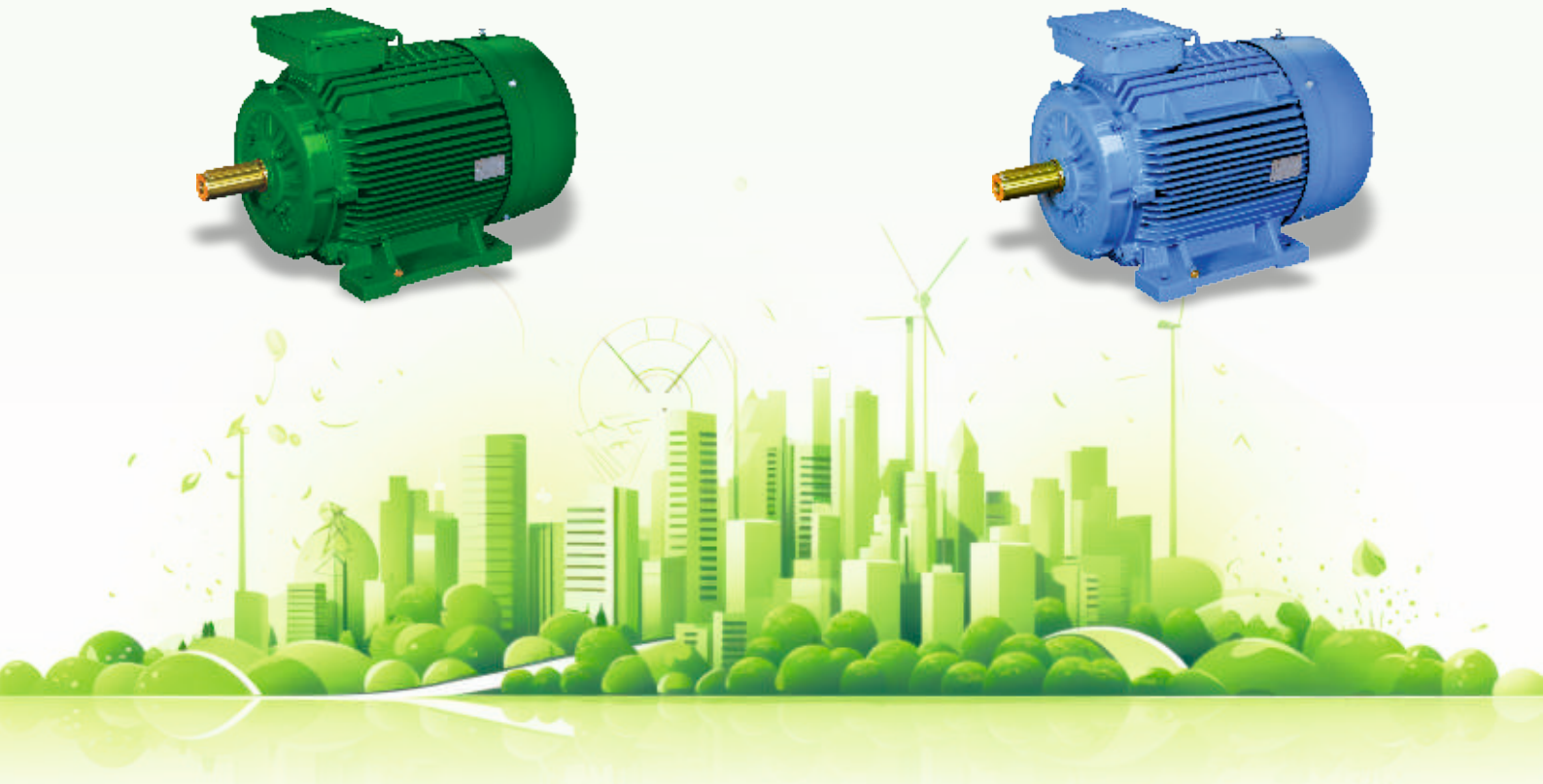
These motors designed by utilising advanced materials and design techniques, including optimized rotor geometry, improved winding configurations, and high-quality magnetic materials, to achieve superior performance.

### IE5 - Induction Technology

| | |
|---|---|
| Frame Size | Up to 280MX |
| Power | Up to 75 kW |
| Polarity | 2 and 4 |
| Mounting | B3, B5, B14 & combinations |
| Voltage | 415V ±10% or as required |
| Frequency | 50Hz ±5% or as required |
| Protection | IP55 or superior on request |
| Ambient | 50°C |
| Altitude | Up to 1000m above m.s.l. |
| Enclosure | IC411, IC416, others on request |
| Ins Class | Class F insulation with temp rise limited to class B |
| Operation | DOL / Star-Delta/ Soft-Starter / Inverter (VFD) |

### IE5 - Permanent Magnet Synchronous Motors (PMSM)

| | |
|---|---|
| Frame Size | Up to 180L |
| Power | Up to 22 kW |
| Polarity | 2 and 4 |
| Mounting | B3, B5, B14 & combinations |
| Voltage | 415V ±10% or as required |
| Frequency | 50Hz ±5% or as required |
| Protection | IP55 or superior on request |
| Ambient | 50°C |
| Altitude | Up to 1000m above m.s.l. |
| Enclosure | IC411, IC416, others on request |
| Ins Class | Class F insulation with temp rise limited to class B |
| Operation | Inverter (VFD) |



# IE5 Motors:
## Key Features and Advantages

**Lowest Cost of Ownership:**
IE5 with Induction Technology shall be an advantage over Synchronous Reluctance (SyRM) and Permanent Magnet (PMSM), where you need an inverter to operate these motors. With inverters, programming expertise and operational investment are required that are not necessary with induction motors.

**Lowest Operating Cost:**
IE5 motors significantly cut down on electricity usage, leading to lower operational costs. IE5 motors convert electrical energy into mechanical energy efficiently, minimising energy waste and heat loss, resulting in direct savings in electricity tariffs.

**Lowest Payback Period:**
With highest efficiency levels, the savings are much higher when compared to IE2 level of motors, hence it provides the lowest payback period and returns on investment are much faster.

**Low Noise and Vibration:**
These motors are designed for smoother operation, ensuring minimal disruptions. These motors feature enhanced design elements that minimise vibration and noise levels during operation, contributing to a more pleasant working environment.

**Reduced Carbon Footprint:**
By consuming less energy, these motors help lower greenhouse gas emissions associated with power generation. This reduction supports your company in meeting sustainability targets and regulatory requirements aimed at combating climate change.

**Excellent Speed Regulation Performance:**
These motors can be used with frequency converters and dynamically adjust speed according to demand, providing higher performance and efficiency in industrial automation and HVAC systems.

**Enhanced Performance & Reliability:**
IE5 ultra-efficient motors are designed with advanced technologies that improve operational efficiency and lifespan. The design and manufacturing of IE5 motors focus on sustainable development, using advanced materials and processes to extend the service life of the motor and reduce maintenance costs.

**Global Compliance:**
Designed to meet and exceed the strictest global energy efficiency standards.

## Segments and applications that benefit the most are:

**Water treatment plants**
Continuous Operating Pumps and Pumping Systems, Process Pumps.

**HVAC Systems**
Perfect for heating, ventilation, and air conditioning systems due to their low energy consumption.

**Blowers and Fans**
and many more

# IE4 Motors

## Super Premium Efficiency Motors - Safe Area

IE4 motors represent the forefront of energy-efficient motor technology. With its advanced design, high efficiency, and numerous benefits, these motors are ideal for organizations seeking to enhance their energy sustainability, reduce operational costs, and comply with environmental regulations.

**We, Hindustan Motor Mfg. Co., one of the Leading In-House Motor Manufacturing Company offers a full Range of IE4 Super Premium Efficiency motors for Safe Area and Hazardous Area Applications.**

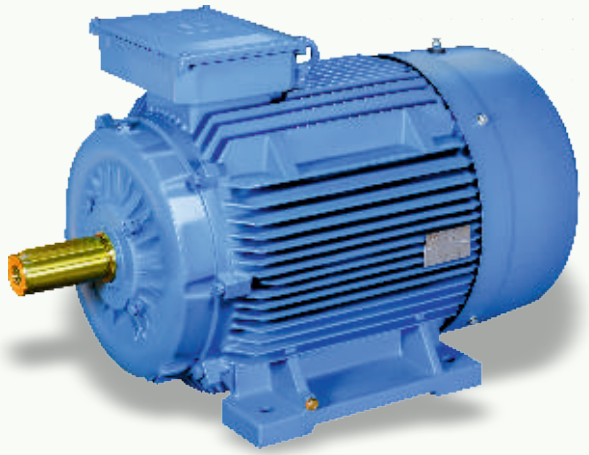
IE4 Electric Motors are built to the highest standards, adhering to IS: 12615 and IEC: 60034-30-1 specifications.

These asynchronous three-phase TEFC squirrel-cage motors feature cast iron construction. Premium bearings are pre-lubricated for life up to frame size 180, with re-lubrication arrangements available for larger frames.

Each motor is thoughtfully engineered with features like fixed bearings at the drive end and a drain hole arrangement to ensure durability and reliable performance.

### IE4 Super Premium Efficiency Motors – Safe Area

| | |
|---|---|
| Frame Size | 71 to 400LX |
| Power | Up to 710 kW |
| Polarity | 2, 4, 6 & 8 |
| Mounting | B3, B5 & B14 (Upto132 frame) & combinations |
| Voltage | 415V ±10% or as required |
| Frequency | 50Hz ±5% or as required |
| Protection | IP55 or superior on request |
| Ambient | 50°C |
| Altitude | Up to 1000 m above m.s.l. |
| Enclosure | IC411, IC416, others on request |
| Ins Class | Class F insulation with temp rise limited to class B |



# IE4 Flameproof Motors

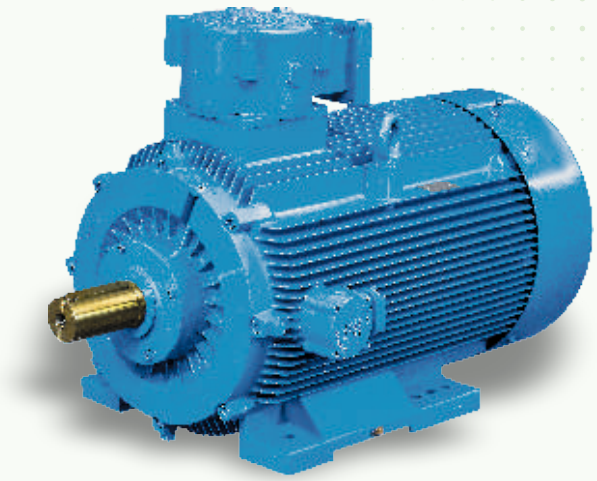
## Safety and Savings Together

### Lower operational costs and improved profit margins with highest energy savings.

IE4 Flameproof Motors present substantial advantages for all hazardous area environments including oil and gas, paint & pharmaceutical, chemical & fertilizers and ethanol & CBG segments. Most of the operations are continuous running and consume large amount of energy for their various motor driven applications. IE4 super premium efficiency, enhanced performance, and compliance with rigorous standards offer significant operational, financial, and environmental benefits.

## IE4 Flameproof Motor

| | |
|---|---|
| Frame Size | 80 to 315LX |
| Power | 0.37 to 132 kW |
| Polarity | 2, 4, 6 & 8 |
| Mounting | B3, B5 & combinations |
| Voltage | 415V ±10% or as required |
| Frequency | 50Hz ±5% or as required |
| Protection | IP55 or superior on request |
| Ambient | 50°C |
| Altitude | Up to 1000 m above m.s.l. |
| Enclosure | IS/IEC60079-0 |
| Temp. Class | T6, T5, T4, T3 |
| Ins Class | Class F insulation with temp rise limited to class B |



## Key Features

**High Efficiency:** The super efficiency class currently, IE4 motors, deliver top-notch energy savings.IE4 motors operate at an efficiency level of 87% to 95% or higher, significantly reducing energy losses compared to lower efficiency classes (IE1, IE2, and IE3).

**Consistent Efficiency:** Near-uniform efficiency from 50% to 100% of full load ensures savings even at part load conditions.

**Compliance with Standards & Certifications:** IE4 motors meet stringent international efficiency regulations and standards. Our flameproof motors are checked and approved by certified bodies to guarantee that they meet strict safety standards. The certifications include BIS, PESO, ATEX, IECEx. These motors are approved by eminent consultants like EIL, Jacob & TOYO Engineering.

**Enhanced Performance in Harsh Environments:** Designed to withstand extreme temperatures, vibrations, and corrosive environments, IE4 motors maintain high performance, ensuring continuous operation in challenging conditions.

**Minimised Maintenance Requirements:** The durability and efficiency of IE4 motors result in less wear and tear, reducing the frequency and costs associated with maintenance and repairs, thus minimising downtime.

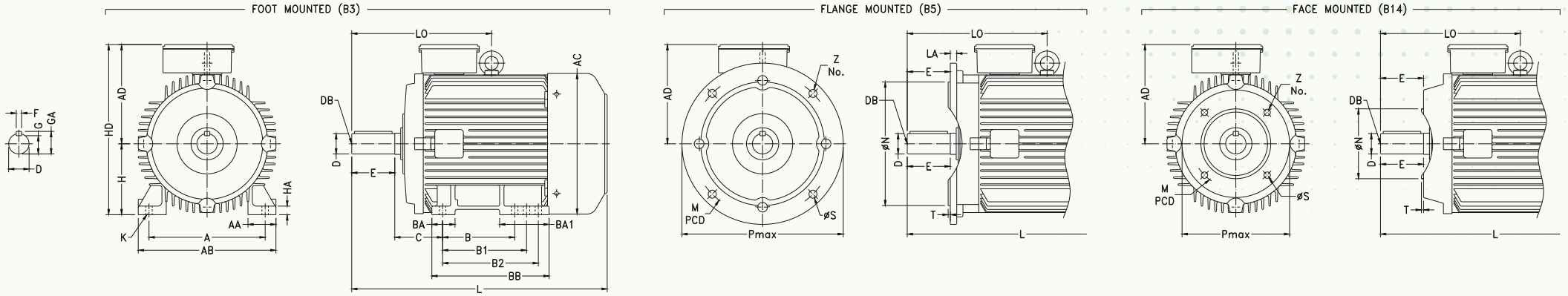
**Improved Process Reliability:** IE4 motors offer superior performance and durability, ensuring reliable operation of critical processes (such as mixing, pumping, and ventilation) that are essential in maintaining the integrity of pharmaceutical manufacturing.

**Robust Construction:** Flameproof motors are constructed with high-quality materials that can withstand extreme environments. They have a sturdy structure, and their compartments are devised to thwart the spread of explosions. The motor's section is securely sealed to deter flammable gases or particles from penetrating. This design controls the ignition of unstable substances.

**Temperature Class T6, T5, T4, T3**: Our flameproof motors are developed to sustain a particular temperature range to dissuade flammable gases and vapour ignition. The motor's compartment is cooled to retain the necessary temperature, which reduces the chances of the motor overheating and firing dangerous substances.

BIS ATEX IECEx EIL

# Mechanical Dimensions - IE4 Motors – Safe Area
# Foot (B3), Flange (B5) & Face (B14) Mounted Motors




| Frame Size | No. of Poles | General | | | | Foot mounted motors (B3) | | | | | | | | | | | | | | DE Shaft | | | | | | Flange mounted motors (B5) | | | | | | | Face mounted motors (B14) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | L | LO | AC | AD | A | B | B1 | B2 | C | H | K | AA | AB | BB | BA | BA1 | HA | HD | D | E | F | GA | G | DB | P max | M PCD | ØN | ØS | Z No. | T max | LA | P max | M PCD | ØN | ØS | Z No. | T max |
| 71 | All | 277 | - | 158 | 121 | 112 | 90 | - | - | 45 | 71 | 7 | 26 | 134 | 112 | 27 | 27 | 8 | 192 | 14 | 30 | 5 | 16 | 11 | M5 | 160 | 130 | 110 | 10 | 4 | 3.5 | 9 | 105 | 85 | 70 | M6 | 4 | 2.5 |
| 80 | All | 323 | 162 | 172 | 128 | 125 | 100 | - | - | 50 | 80 | 10 | 30 | 150 | 124 | 31 | 36 | 8 | 208 | 19 | 40 | 6 | 21.5 | 15.5 | M6 | 200 | 165 | 130 | 12 | | | 10 | 120 | 100 | 80 | | | 3 |
| 90S/L | All | 379 | 203 | 192 | 138 | 140 | 100 | 125 | - | 56 | 90 | 10 | 34 | 168 | 149 | 33 | 62 | 10 | 228 | 24 | 50 | 8 | 27 | 20 | M8 | | | | | | | | 140 | 115 | 95 | M8 | | |
| 100L | All | 414 | 232 | 220 | 163 | 160 | 140 | - | - | 63 | 100 | 12 | 44 | 200 | 180 | 46 | 46 | 13 | 263 | 28 | 60 | | 31 | 24 | M10 | 250 | 215 | 180 | 15 | | 4 | 12 | 160 | 130 | 110 | | | 3.5 |
| 112M | All | 451 | 237 | 257 | 181 | 190 | 140 | - | - | 70 | 112 | 12 | 50 | 230 | 180 | 48 | 48 | 13 | 293 | | | | | | | | | | | | | 11.5 | | | | | | |
| 132S/M | All | 535 | 269 | 300 | 203 | 216 | 140 | 178 | - | 89 | 132 | 12 | 47 | 256 | 218 | 51 | 84 | 14 | 335 | 38 | 80 | 10 | 41 | 33 | M12 | 300 | 265 | 230 | | | | 12 | 200 | 165 | 130 | M12 | | |
| 160M | All | 668 | 360 | 340 | 233 | 254 | 210 | 254 | - | 108 | 160 | 15 | 53 | 304 | 304 | 65 | 104 | 17 | 393 | 42 | 110 | 12 | 45 | 37 | M16 | 350 | 300 | 250 | 19 | | 5 | 14 | | | | | | |
| 160L | All | 723 | 388 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180M/L | All | 785 | 405 | 390 | 254 | 279 | 241 | 279 | - | 121 | 180 | 15 | 59 | 335 | 329 | 65 | 98 | 19 | 434 | 48 | | 14 | 51.5 | 42.5 | | | | | | | | | | | | | | |
| 200L | All | 821 | 421 | 424 | 291 | 318 | 305 | - | - | 133 | 200 | 19 | 72 | 386 | 365 | 72 | 72 | 22 | 491 | 55 | | 16 | 59 | 49 | | 400 | 350 | 300 | | | | 15.5 | | | | | | |
| 225M | 2 | 879 | 456 | 470 | 315 | 356 | 286 | 311 | - | 149 | 225 | 19 | 81 | 428 | 371 | 73 | 93 | 24 | 540 | 60 | 140 | 18 | 64 | 53 | M20 | 450 | 400 | 350 | | 8 | | 16 | | | | | | |
| 225SX/MX | 4,6,8 | 909 | 486 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 250M | 2 | 1020 | 513 | 530 | 343 | 406 | 349 | - | - | 168 | 250 | 24 | 89 | 490 | 433 | 93 | 93 | 32 | 593 | 65 | | | 69 | 58 | | 550 | 500 | 450 | | | | 18 | | | | | | |
| 250MX | 4,6,8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 280S/M | 2 | 1133 | 571 | 600 | 450 | 457 | 368 | 419 | - | 190 | 280 | 24 | 102 | 557 | 483 | 92 | 143 | 36 | 730 | 75 | | 20 | 79.5 | 67.5 | | | | | | | | | | | | | | |
| 280SX/MX | 4,6,8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 315S/M | 2 | 1385 | 691 | 680 | 490 | 508 | 406 | 457 | 508 | 216 | 315 | 28 | 106 | 608 | 616 | 108 | 242 | 40 | 805 | 65 | | 18 | 69 | 58 | | 660 | 600 | 550 | 24 | | 6 | 23 | | | | | | |
| 315L | | | | | | | | | | | | | | | | | | | | 70 | | 20 | 74.5 | 62.5 | | | | | | | | | | | | | | |
| 315SX/MX | 4,6,8 | 1415 | 721 | | | | | | | | | | | | | | | | | 80 | 170 | 22 | 85 | 71 | | | | | | | | | | | | | | |
| 315LX | | | | | | | | | | | | | | | | | | | | 90 | | 25 | 95 | 81 | M24 | | | | | | | | | | | | | |

Note: Suffix "X" denotes motors other than 2 pole motors.

## Nominal Efficiency Values for IE4 Motors as per IS:12615-2018

| Output | | 2P | | 4P | | 6P | | 8P | |
|---|---|---|---|---|---|---|---|---|---|
| KW | HP | Frame Size | Efficiency % | Frame Size | Efficiency % | Frame Size | Efficiency % | Frame Size | Efficiency % |
| 0.18 | 0.25 | – | | – | | 71 | 70.1 | 80 | 67.2 |
| 0.25 | 0.33 | – | | 71 | 77.9 | 71 | 74.1 | 80 | 70.8 |
| 0.37 | 0.50 | 71 | 78.1 | 71 | 81.1 | 80 | 78.0 | 90S | 74.3 |
| 0.55 | 0.75 | 71 | 81.5 | 80 | 83.9 | 80 | 80.9 | 90L | 77.0 |
| 0.75 | 1.0 | 80 | 83.5 | 80 | 85.7 | 90S | 82.7 | 100L | 78.4 |
| 1.1 | 1.5 | 80 | 85.2 | 90S | 87.2 | 90L | 84.5 | 100L | 80.8 |
| 1.5 | 2.0 | 90S | 86.5 | 90L | 88.2 | 100L | 85.9 | 112M | 82.6 |
| 2.2 | 3.0 | 90L | 88.0 | 100L | 89.5 | 112M | 87.4 | 132S | 84.5 |
| 3.7 | 5.0 | 100L | 89.7 | 112M | 90.9 | 132S | 89.3 | 160M | 86.8 |
| 5.5 | 7.5 | 132S | 90.9 | 132S | 91.9 | 132M | 90.5 | 160M | 88.3 |
| 7.5 | 10.0 | 132S | 91.7 | 132M | 92.6 | 160M | 91.3 | 160L | 89.3 |
| 9.3 | 12.5 | 160M | 92.2 | 160M | 93.0 | 160L | 91.9 | 180M | 89.9 |
| 11.0 | 15.0 | 160M | 92.6 | 160M | 93.3 | 160L | 92.3 | 180L | 90.4 |
| 15.0 | 20.0 | 160M | 93.3 | 160L | 93.9 | 180L | 92.9 | 200L | 91.2 |
| 18.5 | 25.0 | 160L | 93.7 | 180M | 94.2 | 200L | 93.4 | 225SX | 91.7 |
| 22.0 | 30.0 | 180M | 94.0 | 180L | 94.5 | 200L | 93.7 | 225MX | 92.1 |
| 30.0 | 40.0 | 200L | 94.5 | 200L | 94.9 | 225MX | 94.2 | 250MX | 92.7 |
| 37.0 | 50.0 | 200L | 94.8 | 225SX | 95.2 | 250MX | 94.5 | 280SX | 93.1 |
| 45.0 | 60.0 | 225M | 95.0 | 225MX | 95.4 | 280SX | 94.8 | 280MX | 93.4 |
| 55.0 | 75.0 | 250M | 95.3 | 250MX | 95.7 | 280MX | 95.1 | 315SX | 93.7 |
| 75.0 | 100.0 | 280S | 95.6 | 280SX | 96.0 | 315SX | 95.4 | 315MX | 94.2 |
| 90.0 | 120.0 | 280M | 95.8 | 280MX | 96.1 | 315MX | 95.6 | 315LX | 94.4 |
| 110.0 | 150.0 | 315S | 96.0 | 315SX | 96.3 | 315MX | 95.8 | 315LX | 94.7 |
| 132.0 | 180.0 | 315M | 96.2 | 315MX | 96.4 | 315LX | 96.0 | – | |
| 160.0 | 215.0 | 315L | 96.3 | 315LX | 96.6 | – | | – | |
| 200.0 | 270.0 | 315L | 96.5 | 315LX | 96.7 | – | | – | |

# Efficiency Redefined, Performance Guaranteed.

# Increase Profits by Reducing Energy Costs

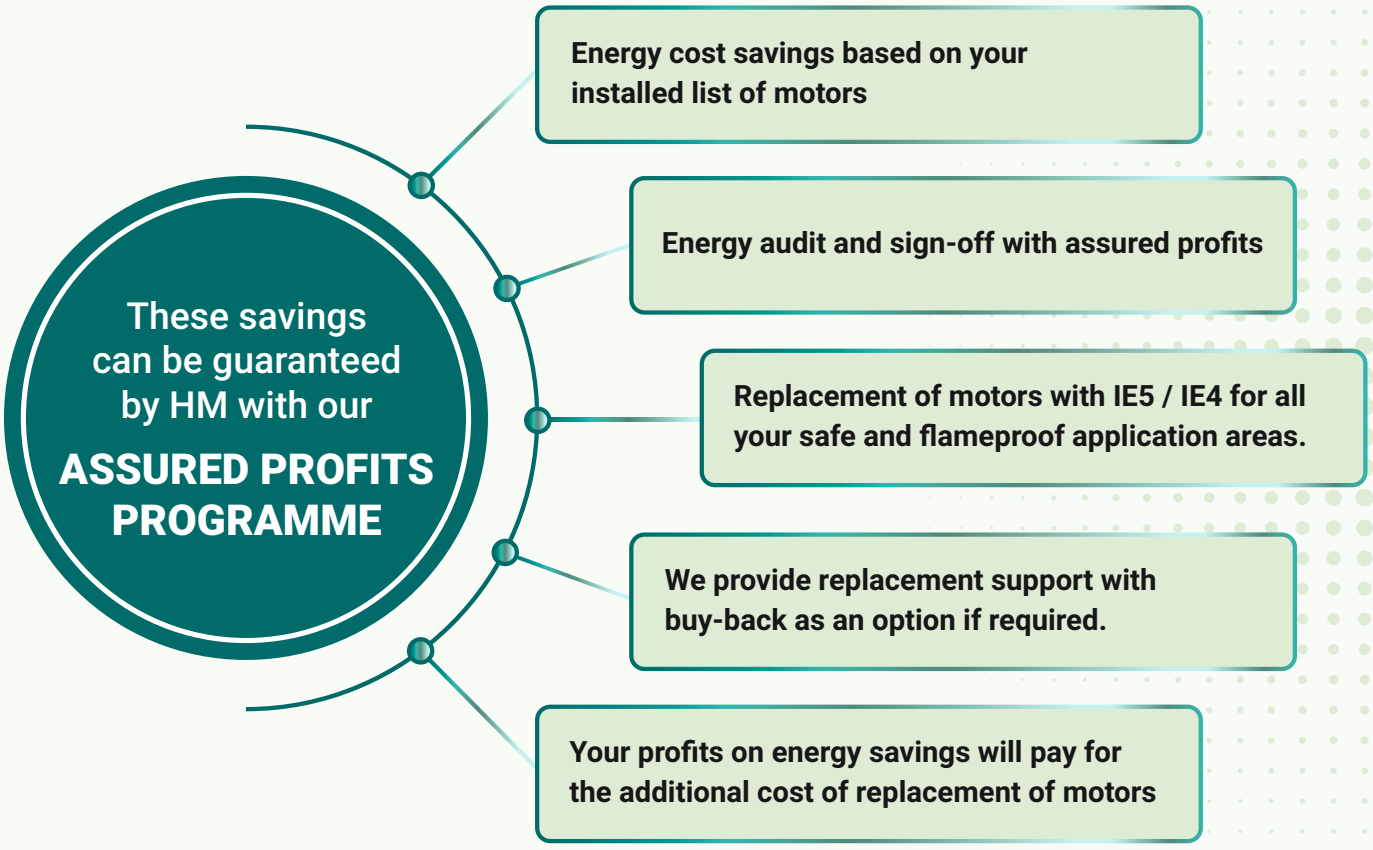
**Effortless Upgrades:**
**Upgrade Your Motors, Unlock Instant Savings, Easy Replacements for a Greener Tomorrow!**

## Replace Your Inefficient Motors with IE4/IE5

Our IE5 and IE4 induction motors can easily replace your existing inefficient motors, providing direct solutions for one-to-one replacements. Without making any changes you will be getting ultra-efficient motors, with the highest savings that are adding to your profits.

We provide all the required assistance and support for all your existing motor replacements with IE5 and IE4 motors - making your processes highly efficient.

Energy savings would be more than 40% over existing consumption, let's understand the same with our Energy Saving Calculator – **www.hindmotors.com**




**Maximise Your Savings, Accelerate Your Returns:**
**Invest in Energy Efficiency Today.**

| CENTRAL | NORTH | EAST | SOUTH | WEST |
|---|---|---|---|---|
| Bhilai | Delhi | Assam | Bengaluru | Ahmedabad |
| Bhopal | Faridabad | Bhubneshwar | Belgaum | Ahmednagar |
| Indore | Ghaziabad | Guwahati | Calicut Kerala | Ambernath |
| | Gorakhpur | Jamshedpur | Chennai | Ankleshwar |
| | Greater Noida | Kolkata | Cochin | Aurangabad |
| | Gurugram | Patna | Coimbatore | Bhiwandi |
| | Haridwar | Raipur | Erode | Daman |
| | Jannu | | Hyderabad | Goa |
| | Kanpur | | Secunderabad | Jaipur |
| | Mohali | | Vellkovil | Jalgaon |
| | | | Vijaywada | Kolhapur |
| | | | Vishakapatnam | Mehsana |
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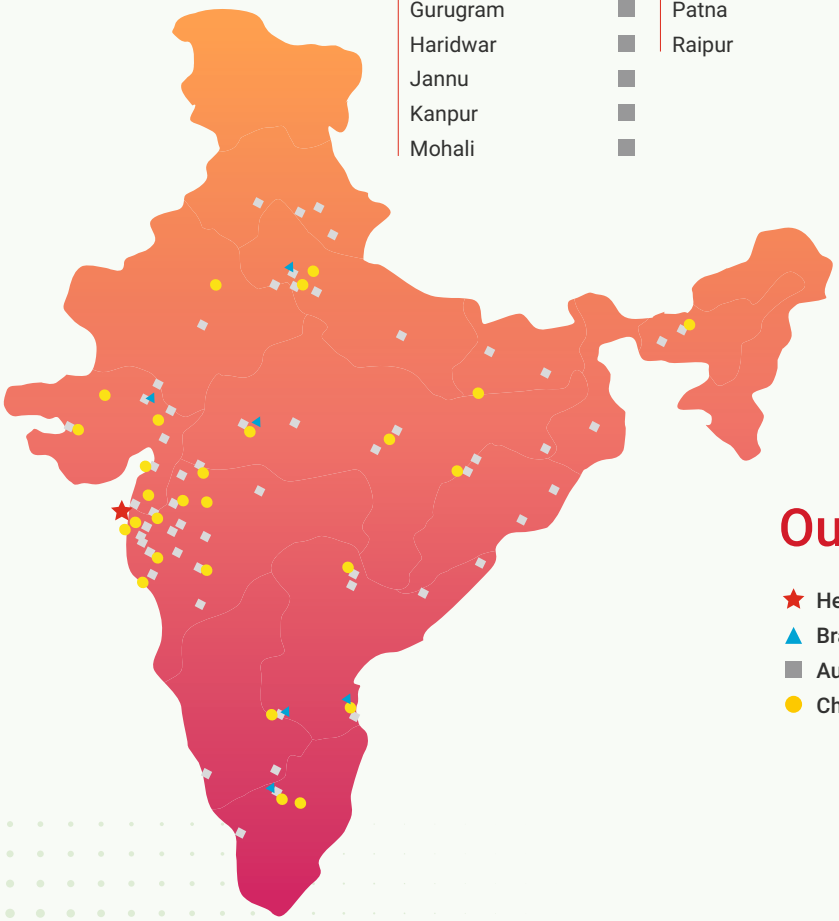

## Our Presence

- Head Office
- Branches
- Authorised Service Centres
- Channel Partner (Dealers)

Manufacturing Facility, Vapi, Daman

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