



Smart solutions.
Strong relationships.

Premium Efficiency LV AC Motors
IE3 Efficiency Class
Safe Area / Hazardous Area



Apex Series

a green solution

We put all our energy into saving yours !

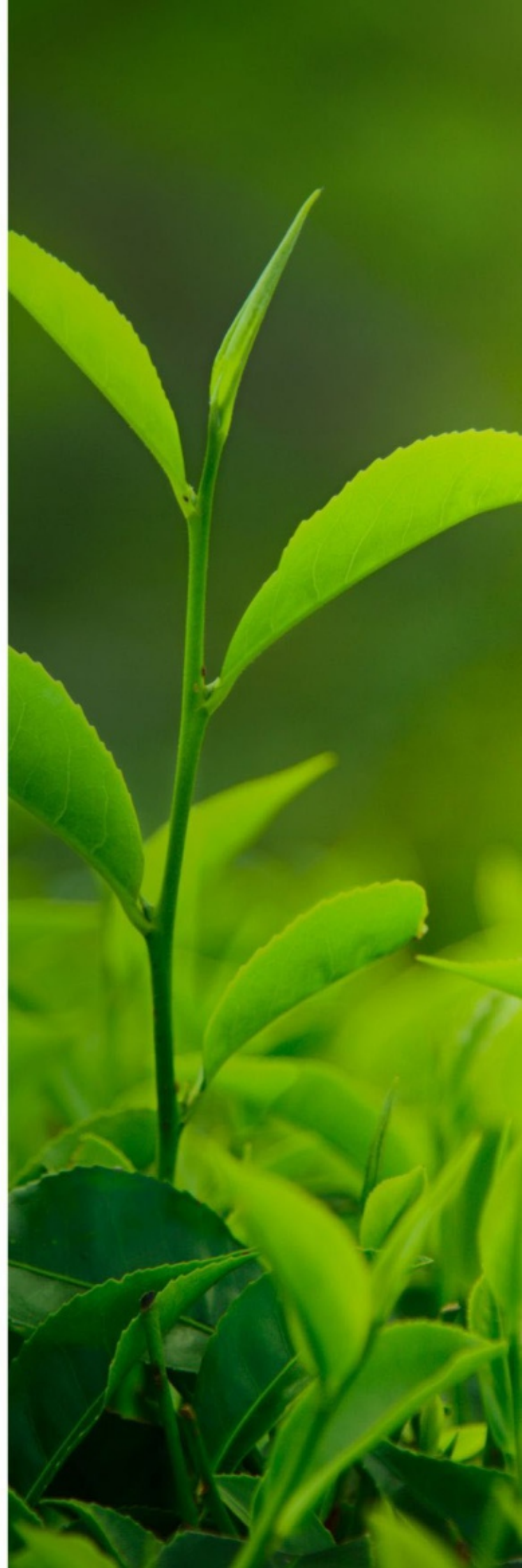


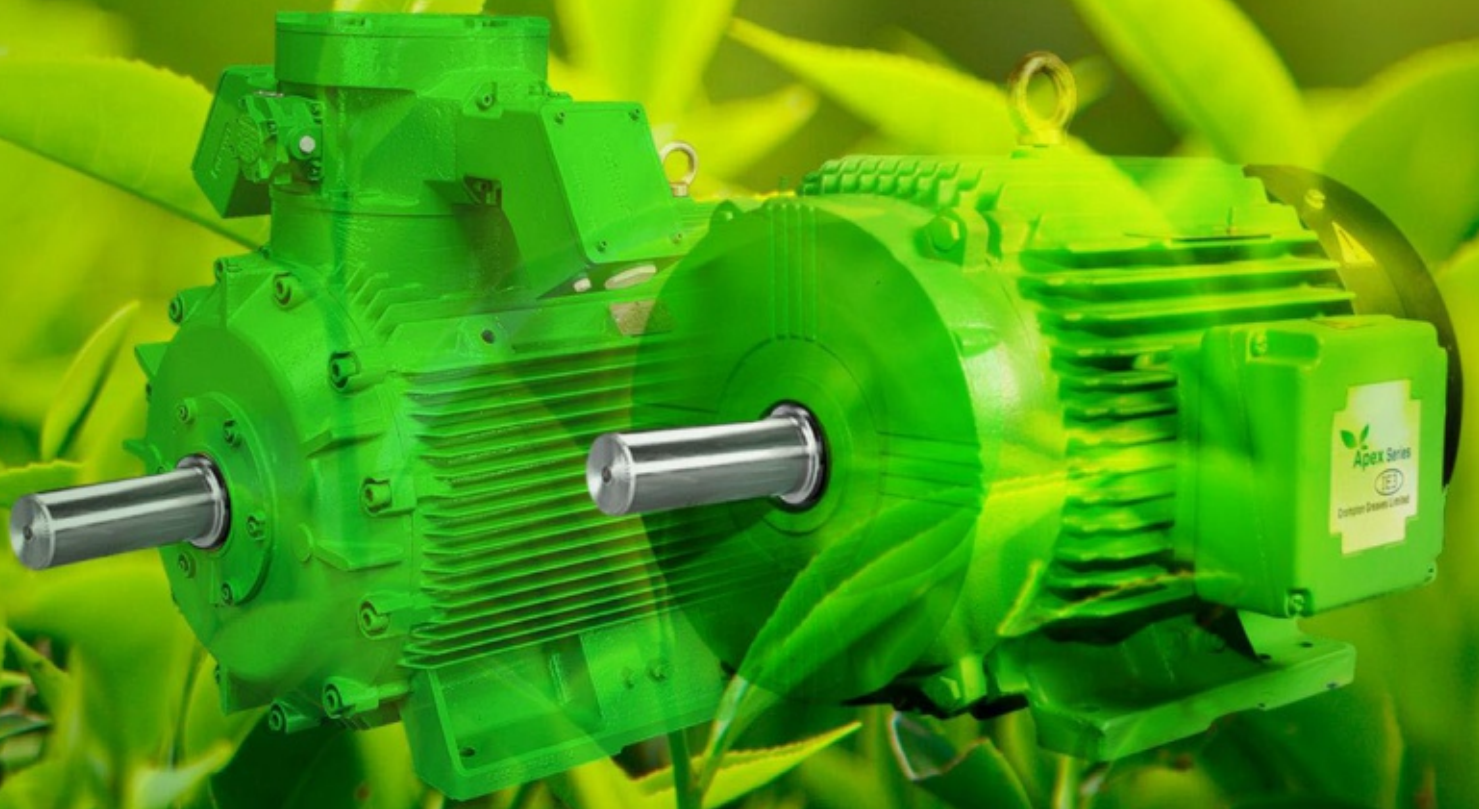
Save today, for better tomorrow.

Out of total electricity generated worldwide, it is estimated that between 30 to 40 % is consumed by industrial electric motors. Given the global concern about diminishing resources, and recent high prices for energy, it is no wonder that there is increasing interest in the energy efficiency of electric motors. Of course the electric motor is only one element in a motor-driven system that offers the potential for savings, but it has been estimated that optimizing motor-driven systems could deliver overall savings of between 30 and 60 per cent.

Apex series, IE3 premium efficiency LV motors, is another green initiative by CG to save energy.

“Saving 1 kWh of electricity produced from a thermal power station saves average 0.82kg of CO₂ emission to the atmosphere”.







SMART SOLUTION

Apex Series, IE3 class LV AC motors, is another green solution by CG. It is designed to save energy and these motors are tested in CSA accredited test facility at CG and validated by TUV for guaranteed efficiency.

CERTIFIED BY



As one of the world's leading engineering corporations, CG provides end-to-end solutions, helping its customers to use electrical power effectively and increase industrial productivity with sustainability. CG was established in 1937; and, since then the company has been a pioneer and has retained its leadership position in the management and application of electrical energy. CG is leading manufacturer of electric motors, with motor solutions which benefits a wide range of customers. Our products are used in almost every industrial application including general manufacturing, petrochemicals, food processing, pharmaceuticals where they drive fans, pumps, compressors, conveyors, lifts and cranes, amongst other things CG Apex series IE-3 motors are designed to fulfill the requirement of various applications they also comply to the requirement of IEC 60034:2008, the new harmonized international efficiency standards for three phase induction motors Motor achieves the benefits by providing energy saving, higher levels of productivity, and extended lifetime operation with minimum maintenance.

Benefits of APEX series motors

Low operating cost

APEX series IE3 motors are complying with new efficiency requirement of IEC60034-30:2008 with lowest payback and low operating cost.

For energy saving & payback calculation please refer details of energy saving chart.

Inverter duty application

APEX series motors are suitable for inverter duty applications*, our insulation system provides key benefit of increasing the dielectric resistance of the motor windings, enabling operation with variable frequency drives. For protecting the motors from bearing currents a phenomena which is generally observed in frames IEC315 S/M and above, CG recommend/provide insulated bearing for VFD compatible motors.

*for details on VFD operation, please contact CG sales.

Low vibration and low noise

APEX series motors are designed to have low vibration, noise and high torque with smooth acceleration throughout the life of the motors. These features makes our motors the most preferred choice for various industrial applications.

In house manufacturing

CG apex series motors are made in the state of the art manufacturing facility with complete in house process die casting, winding, machining, assembly & testing. CG has its own stamping unit where in exclusive CG designed profiles are made.

Other designed features offered in CG APEX series motors

Frames

Frames (cast iron range) are constructed using high grade cast iron, ribbed externally to ensure maximum heat dissipation. All components are machined on CNC that ensures coplanarity of machined surfaces. All components are completely enclosed and air is forced over the stator body by fan, mounted on the shaft and protected by a cowl. The feet are integrally cast with the body. This ensures sturdiness and resistance to vibrations.

Cooling system

APEX series motors are specially design to achieve improved air flow over the motor frames and to maintain low operational temperature and assuring extended life of the motor. APEX series motors comes up with improved aerodynamics that provide effective air flow and minimizing losses due to the recirculation of air between the fan and fan cover.

Shaft and bearings

The shaft is of high grade steel and of appropriate diameter to withstand the bending and torsional stresses. All shafts are ultrasonically tested for any minor flaw in the material. Shafts are machined to extreme fine limits to ensure fit and interchangeability of bearings. The motors are provided with single shaft extension, we comply to the general requirement of IEC60034, We can offer motors with special shaft on request,

- Nonstandard diameter and length
- Taper shaft with threaded end
- Double shaft extension

Terminal box

CG Apex series motor is fitted with terminal box and gives IP55 degree of protection. The box can be rotated through 360 degree in steps of 90 degree to give cable entry from any of four positions. terminal box is designed to provide more space for proper termination of cables inside terminal box.

Reference Standards

| Standards | Description |
|--------------------|--|
| IEC 60034-1:2010 | Rotating electrical machine-Rating & Performance |
| IEC 60034-30:2008 | Rotating electrical machine-IE code for efficiency classes |
| IEC 60034-2-1:2007 | Rotating electrical machine-Determination of losses & efficiency |
| IEC 60034-5:2006 | Rotating electrical machine-Degrees of protection |
| IEC 60034-9:2007 | Rotating electrical machine-Noise limits |
| IEC 60034-14:2007 | Rotating electrical machine-Vibration limits |
| IEC 60072-1:1991 | Rotating electrical machine-Dimension |

Reasons to buy Apex series...

LOW OPERATING COST



APEX series IE3 motors are complying with new efficiency requirement of IEC60034-30:2008 with lowest payback and low operating cost.



LOW VIBRATION

IEC Standard? We set our own standard for vibration much lower than IEC 60034-14.

Rotors are dynamically balanced to G 2.5 class at rated speed ensuring low vibration level.

| Frames | IEC60034-14 | CGL |
|-------------|-------------|---------|
| 63 - 132 | 1.6 | 0.4-1.2 |
| 160-280 | 2.2 | 1.1-1.8 |
| 280 & Above | 2.8 | 1.8-2.0 |

mm / Sec.



Balancing Machine



SUPERIOR AESTHETICS

APEX series motors are having superior aesthetics, with RAL 5021 standard paint shade. We can provide various paint shade and painting scheme according to project requirement including C3M, C4M, & C5M.

Frames (cast iron range) are constructed using high grade FG200 cast iron, ribbed externally to ensure maximum heat dissipation.

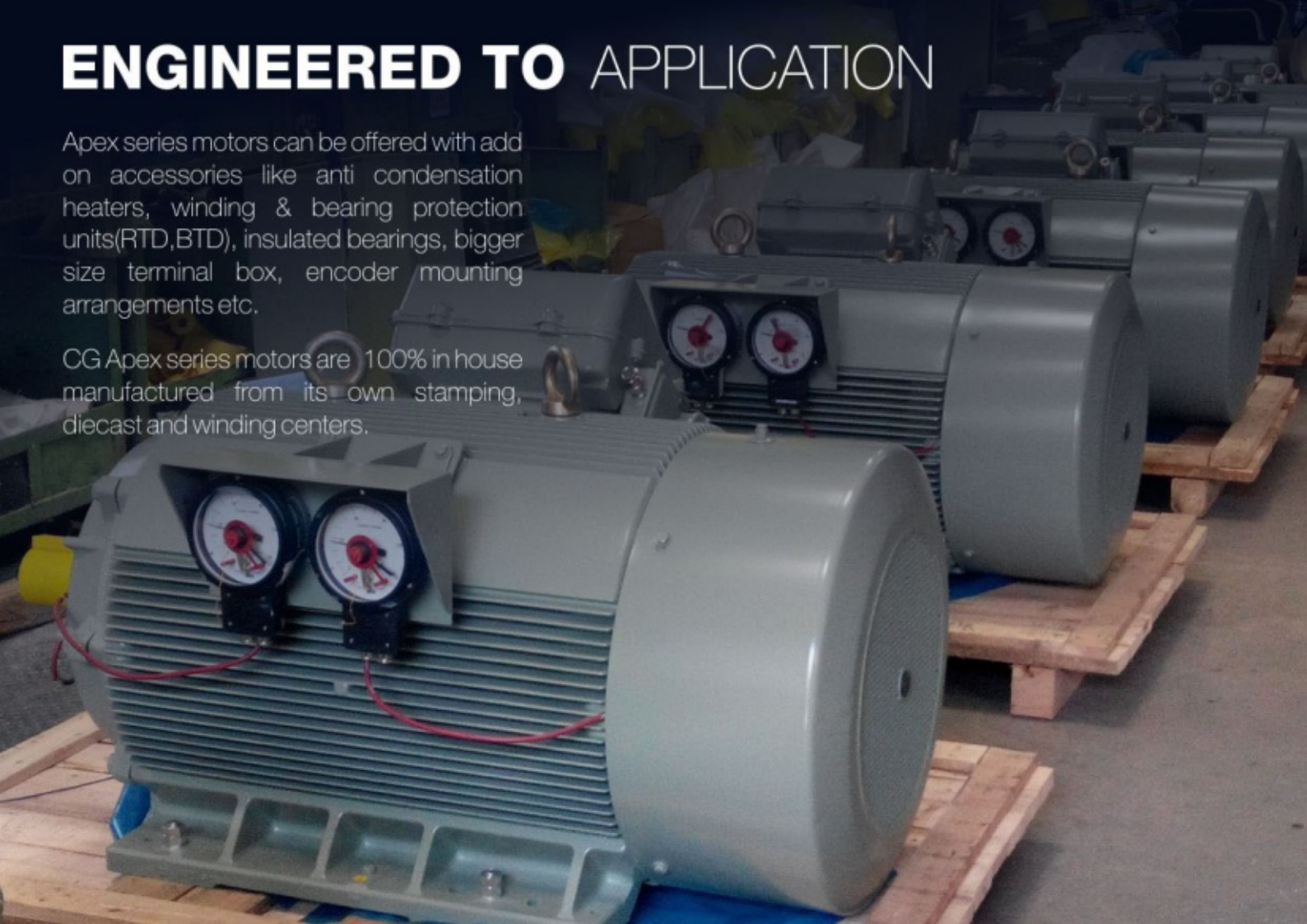
Apex series motor is fitted with terminal box and gives IP55 degree of protection. The box can be rotated through 360 degree in steps of 90 degree to give cable entry from any of four positions. Terminal box is designed to provide more space for proper termination of cables inside terminal box.



ENGINEERED TO APPLICATION

Apex series motors can be offered with add on accessories like anti condensation heaters, winding & bearing protection units(RTD,BTD), insulated bearings, bigger size terminal box, encoder mounting arrangements etc.

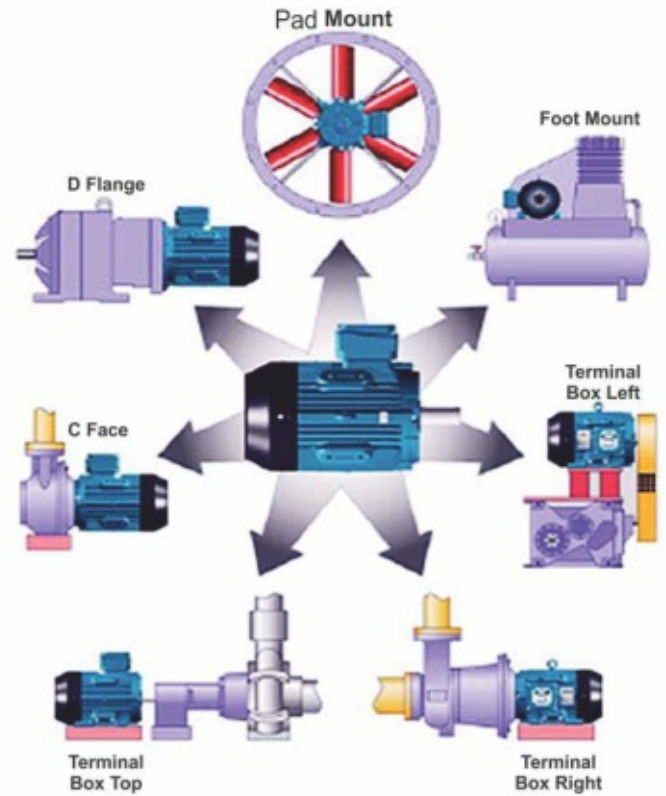
CG Apex series motors are 100% in house manufactured from its own stamping, diecast and winding centers.



MULTI-MOUNT

By simply changing the position of feet, user is able to convert aluminum construction Apex series motor to right, left or top terminal box position and by changing the standard end shield user can change it for flange and face version.

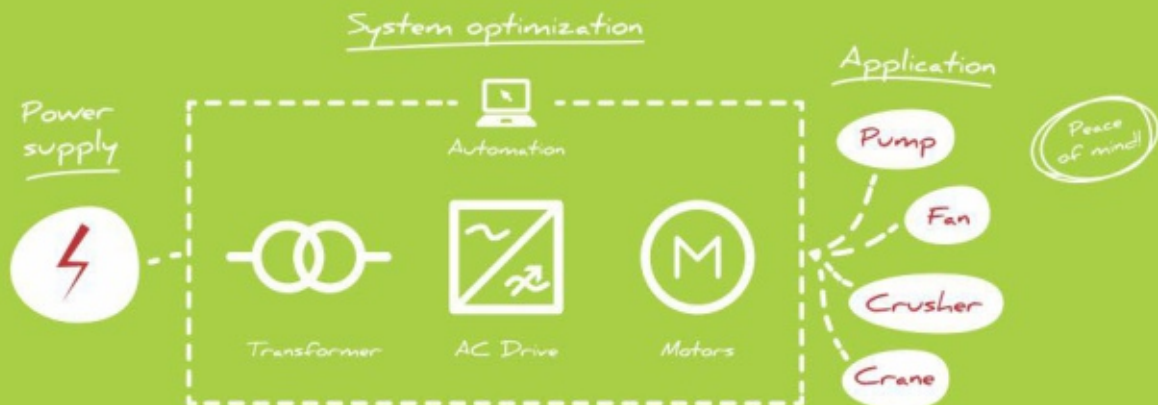
It's special electromagnetic design and cooling fan provide very low noise level (less than 70dB).



INVERTER COMPATIBLE

Apex series motors are wound with dual coat copper wire and NPN insulation paper to have high dielectric strength which makes it inverter compatible.*

Apex series motors are suitable for constant torque 2:1 & variable torque 10:1 application.



*We recommend insulated bearing at NDE for frame 315 and above

TESTING FACILITY

IEC has adopted testing procedure from CSA, IEEE 112-method B i.e measurement of efficiency by actual stray load losses calculation.

It is well known that induction motor testing standards vary significantly in their defined methodologies, instrumentation accuracy, and testing procedures. Sometimes, the efficiency value for the same motor can differ by 5% with different standards. Even though the same standard is used in experimental tests, the machine efficiency can still vary by more than 2 % when performed in different testing sites.

So it becomes important to keep regular check on instrumentation accuracy and testing procedure to ensure guaranteed efficiency.

Our 7 test labs with 0.2 class instrumentation and torque transducers are approved by CSA for accuracy and testing procedure under CPC programme.

In order to qualify for the CPC program, you will need to obtain a certificate of qualification from CSA Group demonstrating:

- Complete knowledge of all applicable product standards
- The ability to design, manufacture and test products that comply with those standards
- Access to suitable testing facilities

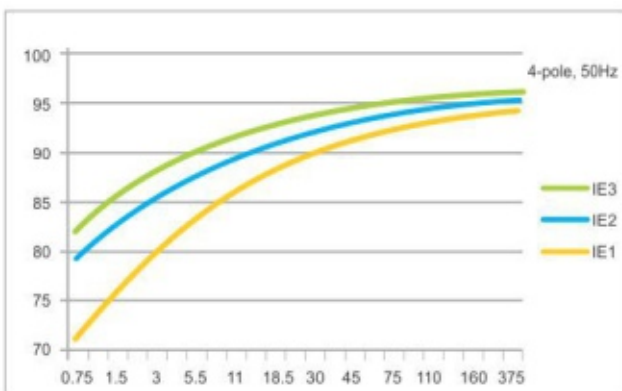
We are the only company in India to have CSA category certificate (CPC).



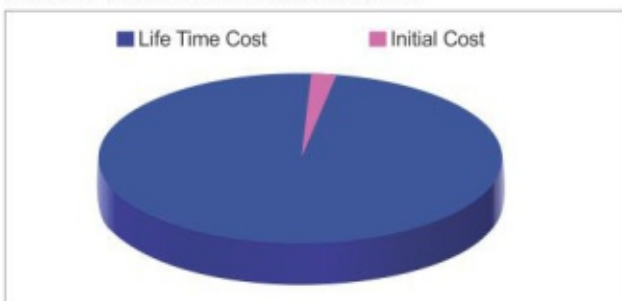
Minimum efficiency values defined in IEC 60034-30:2008 & Annual energy savings

| kW | IE1 | | | IE2 | | | IE3 | | | IE2 Vs IE1 saving in kWh | | | IE3 Vs IE2 Saving in kWh | | | IE3 Vs IE1 Saving in kWh | | |
|------|------|------|------|------|------|------|------|------|------|--------------------------|-------|-------|--------------------------|-------|-------|--------------------------|-------|-------|
| | 2 | 4 | 6 | 2 | 4 | 6 | 2 | 4 | 6 | 2 | 4 | 6 | 2 | 4 | 6 | 2 | 4 | 6 |
| 0.75 | 72.1 | 72.1 | 70 | 77.4 | 79.6 | 75.9 | 80.7 | 82.5 | 78.9 | 624 | 859 | 730 | 347 | 290 | 329 | 971 | 1149 | 1059 |
| 1.1 | 75 | 75 | 72.9 | 79.6 | 81.4 | 78.1 | 82.7 | 84.1 | 81 | 742 | 1010 | 880 | 454 | 380 | 442 | 1196 | 1390 | 1322 |
| 1.5 | 77.2 | 77.2 | 75.2 | 81.3 | 82.8 | 79.8 | 84.2 | 85.3 | 82.5 | 858 | 1151 | 1007 | 557 | 465 | 539 | 1415 | 1616 | 1546 |
| 2.2 | 79.7 | 79.7 | 77.7 | 83.2 | 84.3 | 81.8 | 85.9 | 86.7 | 84.3 | 1017 | 1319 | 1243 | 728 | 633 | 699 | 1745 | 1952 | 1942 |
| 3 | 81.5 | 81.5 | 79.7 | 84.6 | 85.5 | 83.3 | 87.1 | 87.7 | 85.6 | 1182 | 1509 | 1425 | 892 | 771 | 848 | 2073 | 2280 | 2273 |
| 4 | 83.1 | 83.1 | 81.4 | 85.8 | 86.6 | 84.6 | 88.1 | 88.6 | 86.8 | 1327 | 1704 | 1628 | 1066 | 913 | 1050 | 2393 | 2618 | 2678 |
| 5.5 | 84.7 | 84.7 | 83.1 | 87 | 87.7 | 86 | 89.2 | 89.6 | 88 | 1504 | 1946 | 1955 | 1366 | 1165 | 1273 | 2870 | 3111 | 3228 |
| 11 | 87.6 | 87.6 | 86.4 | 89.4 | 89.8 | 88.7 | 91.2 | 91.4 | 90.3 | 2215 | 2695 | 2892 | 2127 | 1878 | 1925 | 4342 | 4573 | 4817 |
| 15 | 88.7 | 88.7 | 87.7 | 90.3 | 90.6 | 89.7 | 91.9 | 92.1 | 91.2 | 2625 | 3107 | 3341 | 2533 | 2362 | 2409 | 5158 | 5469 | 5750 |
| 18.5 | 89.3 | 89.3 | 88.6 | 90.9 | 91.2 | 90.4 | 92.4 | 92.6 | 91.7 | 3194 | 3781 | 3642 | 2894 | 2687 | 2541 | 6089 | 6467 | 6184 |
| 22 | 89.9 | 89.9 | 89.2 | 91.3 | 91.6 | 90.9 | 92.7 | 93 | 92.2 | 3287 | 3979 | 4041 | 3188 | 3167 | 2989 | 6475 | 7146 | 7030 |
| 30 | 90.7 | 90.7 | 90.2 | 92 | 92.3 | 91.7 | 93.3 | 93.6 | 92.9 | 4094 | 5023 | 4766 | 3980 | 3954 | 3702 | 8074 | 8977 | 8468 |
| 37 | 91.2 | 91.2 | 90.8 | 92.5 | 92.7 | 92.2 | 93.7 | 93.9 | 93.3 | 4995 | 5751 | 5420 | 4488 | 4468 | 4145 | 9482 | 10219 | 9565 |
| 45 | 91.7 | 91.7 | 91.4 | 92.9 | 93.1 | 92.7 | 94 | 94.2 | 93.7 | 5553 | 6464 | 6048 | 4966 | 4944 | 4538 | 10518 | 11409 | 10587 |
| 55 | 92.1 | 92.1 | 91.9 | 93.2 | 93.5 | 93.1 | 94.3 | 94.6 | 94.1 | 6174 | 7833 | 6757 | 6030 | 5992 | 5500 | 12204 | 13825 | 12257 |
| 75 | 92.7 | 92.7 | 92.6 | 93.8 | 94 | 93.7 | 94.7 | 95 | 94.6 | 8311 | 9802 | 8329 | 6657 | 7357 | 6671 | 14968 | 17159 | 15000 |
| 90 | 93 | 93 | 92.9 | 94.1 | 94.2 | 94 | 95 | 95.2 | 94.9 | 9910 | 10799 | 9931 | 7937 | 8791 | 7954 | 17847 | 19591 | 17885 |
| 110 | 93.3 | 93.3 | 93.3 | 94.3 | 94.5 | 94.3 | 95.2 | 95.4 | 95.1 | 10952 | 13115 | 10952 | 9660 | 9620 | 8596 | 20613 | 22735 | 19548 |
| 132 | 93.5 | 93.5 | 93.5 | 94.6 | 94.7 | 94.6 | 95.4 | 95.6 | 95.4 | 14380 | 15671 | 14380 | 10250 | 11495 | 10250 | 24630 | 27166 | 24630 |
| 160 | 93.8 | 93.8 | 93.8 | 94.8 | 94.9 | 94.8 | 95.6 | 95.8 | 95.6 | 15762 | 17320 | 15762 | 12372 | 13875 | 12372 | 28134 | 31195 | 28134 |
| 200 | 94 | 94 | 94 | 95 | 95.1 | 95 | 95.8 | 96 | 95.8 | 19619 | 21558 | 19619 | 15401 | 17271 | 15401 | 35020 | 38830 | 35020 |
| 225 | 94 | 94 | 94 | 95 | 95.1 | 95 | 95.8 | 96 | 95.8 | 22072 | 24253 | 22072 | 17326 | 19430 | 17326 | 39397 | 43684 | 39397 |
| 275 | 94 | 94 | 94 | 95 | 95.1 | 95 | 95.8 | 96 | 95.8 | 26976 | 29643 | 26976 | 21176 | 23748 | 21176 | 48152 | 53391 | 48152 |
| 300 | 94 | 94 | 94 | 95 | 95.1 | 95 | 95.8 | 96 | 95.8 | 29429 | 32338 | 29429 | 23101 | 25907 | 23101 | 52530 | 58245 | 52530 |
| 315 | 94 | 94 | 94 | 95 | 95.1 | 95 | 95.8 | 96 | 95.8 | 30900 | 33955 | 30900 | 24256 | 27202 | 24256 | 55156 | 61157 | 55156 |
| 375 | 94 | 94 | 94 | 95 | 95.1 | 95 | 95.8 | 96 | 95.8 | 36786 | 40422 | 36786 | 28876 | 32384 | 28876 | 65662 | 72806 | 65662 |

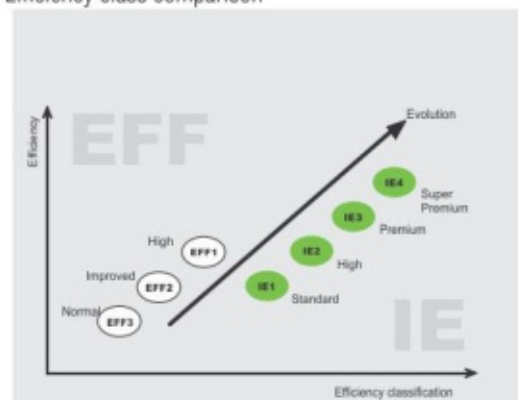
* Annual energy savings are calculated for 8760 hrs/ annum



Initial cost Vs Lifetime cost of induction motor



Efficiency class comparison



Example:

Energy savings by replacing 11kW 2 pole IE1 motor to IE3 motor:

$$\begin{aligned} \text{Annual Savings} &= \text{No. of units energy saved} \times R \\ &= 4342 \times 5 \text{ ₹} \\ &= 27710 \text{ ₹} \end{aligned}$$

*R= Energy Tariff in local currency

$$\text{Payback (months)} = \frac{\text{Cost of energy efficient motor} - \text{cost of standard motor}}{\text{Annual energy savings}} \times 12$$

Over

4,50,00,000 units

energy is saved every year by CG motors in cement, steel, paper, power, oil, gas and other industries ...

Most electricity today is generated by burning fossil fuels and producing steam which is then used to drive a steam turbine that in turn drives an electrical generator. More serious are conversion of carbon to carbon dioxide, which is then released into the atmosphere. The estimated CO₂ emission from the worlds electrical power industry is 10 billion tonnes yearly. This results in an increase in the Earths levels of atmospheric carbon dioxide which enhances the greenhouse effect and contributes to global warming. The linkage between increased carbon dioxide and global warming is well accepted though fossil-fuel producers vigorously contest these findings.

“Saving 1 unit / hr of electricity produced from a coal power station saves 3.50 tons of Coal per year”.



Apex Series Aluminium construction motor (safe area)

| Range | |
|--------|--------------------|
| Output | 0.75 kW to 7.50 kW |
| Frames | 80 TO 132 |
| Poles | 2,4,6 |



| Specification | Standard Product | Option |
|-----------------------------|--|-------------------------|
| Frame sizes | 80 - 132 | - |
| Enclosure | IP55 | IP56, IP65, IP66 |
| Mounting option | Foot (B3) | Flange (B5), Face (B14) |
| Terminal box position | Top | LHS,RHS |
| Voltage | Upto 3kW 415V Δ Above 3kW 415V Δ | other on request |
| Frequency | 50 Hz | 60 Hz |
| Cooling | IC411 | IC410 |
| Lubrication | Frame 80 - 132 double-shielded bearings | |
| Insulation | Class F | Class H |
| Temperature rise | Class B | Class F |
| Paint colour | Water blue (RAL 5021) | other on request |
| Fan cover | Steel | - |
| Thermal protection(PTC150) | - | 80-132 |
| Anti condensation heaters | - | 132 |
| Inverter Duty (with derate) | Variable Torque: 10:1,Constant Torque: 2:1 | Alternative speed range |
| Ambient temperature | - 20°C to + 50°C | - 40°C, up to 60°C |

The above specification and options give a brief summary of features available for the Apex series aluminum range.

For a full listing of optional features, please contact CG sales.



Marine Application Certificate



APEX SERIES

SPECIFICATION

Apex Series Cast Iron construction motor (safe area)

| Range | |
|--------|-------------------|
| Output | 0.75 kW to 315 kW |
| Frames | 80 TO 355 |
| Poles | 2,4,6 |



| Specification | Standard Product | Option |
|-----------------------------|--|---------------------------------|
| Frame sizes | 80 - 355 | - |
| Enclosure | IP55 | IP56, IP65, IP66 |
| Mounting option | Foot(B3) Flange | (B5), Face(B14) up to 132 frame |
| Terminal box position | Top | LHS,RHS |
| Voltage | Upto 3kW 415V Δ | other on request |
| | Above 3kW 415V Δ | |
| Frequency | 50 Hz | 60 Hz |
| Cooling | IC411 | IC410 |
| Lubrication | Frame 80 - 225 double-shielded bearings | |
| | Frame 250 to 355 online greasing | |
| Insulation | Class F | Class H |
| Temperature rise | Class B | Class F |
| Paint colour | Water blue (RAL 5021) | On request |
| Fan cover | Steel | - |
| Thermal protection(PTC150) | - | 80-355 |
| Anti condensation heaters | - | 132-355 |
| Inverter Duty (with derate) | Variable Torque: 10:1,Constant Torque: 2:1 | Alternative speed range |
| Ambient temperature | -20°C to +50°C | -40°C, up to 60°C |

The above specification and options give a brief summary of features available for the Apex series cast iron range.

For a full listing of optional features, please contact CG sales.



Performance data for Apex series motor (safe area)



Efficiency values complying to IE3 class of IEC 60034-30:2008

| PRODUCT CODE | RATED POWER | | FRAME | FULL LOAD CURRENT (AMP) | | | FL SPEED RPM | FLT M _N kg-m | EFFICIENCY % | | | POWERFACTOR | | | D.O.L STARTING | | PULLOUT POT %FLT | GD ² KGM ² |
|-------------------|-------------|--------|-------|-------------------------|-------|-------|--------------|-------------------------|--------------|------|------|-------------|------|------|----------------|----------|------------------|----------------------------------|
| | KW | HP | | 380 V | 400 V | 415 V | | | FL | 3/4L | 1/2L | FL | 3/4L | 1/2L | STT %FLT | SCC %FLA | | |
| 2 POLE : 3000 RPM | | | | | | | | | | | | | | | | | | |
| 0.75KP2 | 0.75 | 1.00 | 80 | 1.64 | 1.56 | 1.50 | 2820 | 0.26 | 80.7 | 79.8 | 77.3 | 0.88 | 0.84 | 0.75 | 175 | 600 | 225 | 0.004 |
| 1.10KP2 | 1.10 | 1.50 | 80 | 2.35 | 2.23 | 2.15 | 2870 | 0.38 | 82.7 | 81.6 | 80.1 | 0.86 | 0.84 | 0.72 | 250 | 650 | 300 | 0.005 |
| 1.50KP2 | 1.50 | 2.00 | 90L | 3.15 | 2.99 | 2.88 | 2860 | 0.51 | 84.2 | 84.2 | 83.5 | 0.86 | 0.80 | 0.70 | 250 | 650 | 300 | 0.006 |
| 2.20KP2 | 2.20 | 3.00 | 90L | 4.58 | 4.35 | 4.19 | 2850 | 0.75 | 85.9 | 85.9 | 85.5 | 0.85 | 0.80 | 0.70 | 275 | 700 | 300 | 0.008 |
| 3.00KP2 | 3.00 | 4.00 | 100L | 5.88 | 5.59 | 5.38 | 2890 | 1.01 | 87.1 | 87.1 | 87.1 | 0.89 | 0.85 | 0.76 | 300 | 700 | 350 | 0.027 |
| 3.70KP2 | 3.70 | 5.00 | 100L | 7.11 | 6.76 | 6.51 | 2875 | 1.26 | 87.8 | 87.6 | 86.1 | 0.90 | 0.87 | 0.80 | 300 | 650 | 350 | 0.032 |
| 4.00KP2 | 4.00 | 5.50 | 112M | 7.7 | 7.3 | 7.0 | 2870 | 1.36 | 88.1 | 88.1 | 88.1 | 0.90 | 0.88 | 0.82 | 275 | 750 | 350 | 0.041 |
| 5.50KP2 | 5.50 | 7.50 | 132S | 10.6 | 10.1 | 9.7 | 2900 | 1.86 | 89.2 | 89.2 | 88.2 | 0.88 | 0.84 | 0.78 | 275 | 700 | 300 | 0.093 |
| 7.50KP2 | 7.50 | 10.00 | 132M | 14.4 | 13.7 | 13.2 | 2890 | 2.50 | 90.1 | 90.1 | 89.5 | 0.88 | 0.86 | 0.80 | 200 | 600 | 250 | 0.11 |
| 11KP2 | 11.00 | 15.00 | 160M | 21 | 20 | 19 | 2925 | 3.65 | 91.2 | 91.2 | 90.0 | 0.89 | 0.85 | 0.82 | 225 | 700 | 275 | 0.19 |
| 15KP2 | 15.00 | 20.00 | 160M | 28 | 26 | 25 | 2920 | 4.98 | 91.9 | 91.9 | 90.5 | 0.90 | 0.86 | 0.81 | 225 | 700 | 275 | 0.23 |
| 18.5KP2 | 18.50 | 25.00 | 160L | 34 | 32 | 31 | 2920 | 6.14 | 92.4 | 92.4 | 91.0 | 0.90 | 0.86 | 0.82 | 225 | 700 | 275 | 0.28 |
| 22KP2 | 22.00 | 30.00 | 180M | 40 | 38 | 37 | 2940 | 7.28 | 92.7 | 92.7 | 91.3 | 0.90 | 0.86 | 0.80 | 175 | 700 | 225 | 0.44 |
| 30KP2 | 30.00 | 40.00 | 200L | 54 | 52 | 50 | 2955 | 9.87 | 93.3 | 93.3 | 92.5 | 0.90 | 0.85 | 0.80 | 200 | 700 | 250 | 1.04 |
| 37KP2 | 37.00 | 50.00 | 200L | 67 | 63 | 61 | 2950 | 12.17 | 93.7 | 93.5 | 92.5 | 0.90 | 0.85 | 0.80 | 225 | 700 | 275 | 1.14 |
| 45KP2 | 45.00 | 60.00 | 225M | 81 | 77 | 74 | 2965 | 14.82 | 94.0 | 94.0 | 92.6 | 0.90 | 0.86 | 0.82 | 200 | 700 | 250 | 1.74 |
| 55KP2 | 55.00 | 75.00 | 250MX | 96 | 92 | 88 | 2955 | 18.00 | 94.3 | 94.3 | 93.0 | 0.92 | 0.88 | 0.80 | 200 | 700 | 250 | 2.53 |
| 75KP2 | 75.00 | 100.00 | 280M | 131 | 124 | 120 | 2970 | 24.501 | 94.7 | 94.5 | 93.2 | 0.92 | 0.88 | 0.82 | 200 | 700 | 250 | 5.67 |
| 90KP2 | 90.00 | 120.00 | 280M | 156 | 149 | 143 | 2975 | 29.40 | 95.0 | 95.0 | 94.0 | 0.92 | 0.88 | 0.82 | 200 | 700 | 250 | 6.21 |
| 110KP2 | #110.00 | 150.00 | 315S | 195 | 185 | 179 | 2980 | 35.934 | 95.2 | 95.2 | 93.8 | 0.9 | 0.85 | 0.81 | 200 | 700 | 250 | 9.76 |
| 132KP2 | #132.00 | 180.00 | 315M | 234 | 222 | 214 | 2980 | 43.121 | 95.4 | 95.4 | 94.8 | 0.9 | 0.88 | 0.84 | 200 | 700 | 250 | 10.70 |
| 160KP2 | #160.00 | 215.00 | 315L | 296 | 281 | 271 | 2980 | 52.27 | 95.6 | 95.6 | 95.0 | 0.86 | 0.82 | 0.76 | 200 | 700 | 250 | 12.33 |
| 180KP2 | #180.00 | 240.00 | 315L | 314 | 298 | 288 | 2980 | 58.80 | 95.7 | 95.5 | 95.0 | 0.91 | 0.88 | 0.84 | 180 | 700 | 225 | 13.08 |
| 200KP2 | #200.00 | 270.00 | 315L | 349 | 331 | 319 | 2980 | 65.34 | 95.8 | 95.8 | 95.0 | 0.91 | 0.88 | 0.84 | 200 | 700 | 250 | 13.79 |
| 225KP2 | *225.00 | 300.00 | 355L | 396 | 377 | 363 | 2980 | 73.50 | 95.8 | 94.8 | 93.3 | 0.9 | 0.86 | 0.8 | 175 | 750 | 225 | 17.79 |
| 250KP2 | *250.00 | 335.00 | 355L | 441 | 419 | 403 | 2980 | 81.67 | 95.8 | 95.5 | 94.5 | 0.9 | 0.88 | 0.8 | 160 | 700 | 225 | 18.76 |
| 275KP2 | #275.00 | 370.00 | 355L | 490 | 466 | 449 | 2980 | 89.84 | 95.8 | 95.5 | 94.5 | 0.89 | 0.85 | 0.8 | 160 | 700 | 225 | 19.68 |
| 315KP2 | *315.00 | 425.00 | 355L | 555 | 527 | 508 | 2980 | 102.90 | 95.8 | 95.5 | 94.5 | 0.9 | 0.86 | 0.8 | 180 | 650 | 225 | 20.48 |

- This rating is suitable for Amb 40 with 70 degree rise

* - This rating is with class F Temp rise

Tolerances are applicable as per IEC 60034-1 :2010

Full load currents indicated are given for respective design voltage

Note: for other ratings upto 375 kW please contact CG sales

Performance data for Apex series motor (safe area)



Efficiency values complying to IE3 class of IEC 60034-30:2008

| PRODUCT CODE | RATED POWER | | FRAME | FULL LOAD CURRENT (AMP) | | | FL SPEED RPM | FLT M _N kg-m | EFFICIENCY % | | | POWERFACTOR | | | D.O.L STARTING | | PULLOUT POT %FLT | GD ² KGM ² |
|-------------------|-------------|--------|-------|-------------------------|-------|-------|--------------|-------------------------|--------------|------|------|-------------|------|------|----------------|----------|------------------|----------------------------------|
| | KW | HP | | 380 V | 400 V | 415 V | | | FL | 3/4L | 1/2L | FL | 3/4L | 1/2L | STT %FLT | SCC %FLA | | |
| 4 POLE : 1500 RPM | | | | | | | | | | | | | | | | | | |
| 0.75KP4 | 0.75 | 1.00 | 80 | 1.89 | 1.80 | 1.73 | 1420 | 0.51 | 82.5 | 82.5 | 81.0 | 0.73 | 0.68 | 0.55 | 225 | 650 | 275 | 0.014 |
| 1.10KP4 | 1.10 | 1.50 | 90L | 2.55 | 2.42 | 2.33 | 1420 | 0.75 | 84.1 | 84.0 | 82.4 | 0.78 | 0.71 | 0.58 | 200 | 600 | 250 | 0.015 |
| 1.50KP4 | 1.50 | 2.00 | 90L | 3.82 | 3.63 | 3.49 | 1430 | 1.02 | 85.3 | 85.3 | 85.0 | 0.70 | 0.60 | 0.50 | 300 | 750 | 350 | 0.019 |
| 2.20KP4 | 2.20 | 3.00 | 100L | 5.14 | 4.88 | 4.71 | 1450 | 1.48 | 86.7 | 86.7 | 85.4 | 0.75 | 0.70 | 0.60 | 200 | 650 | 250 | 0.053 |
| 3.00KP4 | 3.00 | 4.00 | 100L | 7.22 | 6.86 | 6.61 | 1450 | 1.99 | 87.7 | 87.5 | 85.0 | 0.72 | 0.64 | 0.50 | 250 | 750 | 300 | 0.069 |
| 3.70KP4 | 3.70 | 5.00 | 112M | 8.2 | 7.7 | 7.5 | 1435 | 2.48 | 88.4 | 88.4 | 87.4 | 0.78 | 0.75 | 0.65 | 200 | 550 | 250 | 0.086 |
| 4.00KP4 | 4.00 | 5.50 | 112M | 8.6 | 8.1 | 7.9 | 1445 | 2.69 | 88.6 | 88.6 | 88.5 | 0.80 | 0.75 | 0.65 | 225 | 750 | 275 | 0.086 |
| 5.50KP4 | 5.50 | 7.50 | 132S | 11.5 | 10.9 | 10.5 | 1450 | 3.67 | 89.6 | 89.6 | 87.4 | 0.81 | 0.76 | 0.66 | 225 | 600 | 275 | 0.20 |
| 7.50KP4 | 7.50 | 10.00 | 132M | 16.2 | 15.4 | 14.8 | 1455 | 5.00 | 90.4 | 90.4 | 88.0 | 0.78 | 0.74 | 0.62 | 240 | 650 | 290 | 0.23 |
| 11KP4 | 11.00 | 15.00 | 160M | 22 | 21 | 20 | 1465 | 7.28 | 91.4 | 91.4 | 89.4 | 0.84 | 0.80 | 0.72 | 200 | 700 | 250 | 0.47 |
| 15KP4 | 15.00 | 20.00 | 160L | 29 | 28 | 27 | 1465 | 9.93 | 92.1 | 92.1 | 91.0 | 0.84 | 0.80 | 0.70 | 200 | 700 | 250 | 0.59 |
| 18.5KP4 | 18.50 | 25.00 | 180M | 37 | 35 | 34 | 1470 | 12.25 | 92.6 | 92.6 | 91.6 | 0.82 | 0.79 | 0.68 | 200 | 700 | 225 | 0.71 |
| 22KP4 | 22.00 | 30.00 | 180L | 44 | 42 | 41 | 1470 | 14.47 | 93.0 | 93.0 | 92.0 | 0.81 | 0.75 | 0.63 | 200 | 700 | 250 | 0.85 |
| 30KP4 | 30.00 | 40.00 | 200L | 57 | 54 | 52 | 1470 | 19.80 | 93.6 | 93.6 | 92.6 | 0.86 | 0.82 | 0.75 | 225 | 700 | 275 | 1.94 |
| 37KP4 | 37.00 | 50.00 | 225S | 70 | 66 | 64 | 1470 | 24.42 | 93.9 | 93.9 | 93.0 | 0.86 | 0.82 | 0.74 | 225 | 700 | 275 | 3.53 |
| 45KP4 | 45.00 | 60.00 | 225M | 84 | 80 | 77 | 1475 | 29.60 | 94.2 | 94.2 | 93.0 | 0.86 | 0.82 | 0.74 | 250 | 700 | 300 | 3.84 |
| 55KP4 | 55.00 | 75.00 | 250MX | 105 | 100 | 96 | 1480 | 36.18 | 94.6 | 94.6 | 94.0 | 0.84 | 0.81 | 0.75 | 225 | 700 | 275 | 3.84 |
| 75KP4 | 75.00 | 100.00 | 280S | 136 | 129 | 125 | 1485 | 49.33 | 95.0 | 95.0 | 94.0 | 0.88 | 0.84 | 0.78 | 250 | 700 | 300 | 11.14 |
| 90KP4 | 90.00 | 120.00 | 280M | 158 | 150 | 145 | 1485 | 58.88 | 95.2 | 95.2 | 94.0 | 0.91 | 0.88 | 0.82 | 250 | 700 | 300 | 12.26 |
| 110KP4 | 110.00 | 150.00 | 315S | 195 | 185 | 178 | 1485 | 72.11 | 95.4 | 95.2 | 94.6 | 0.9 | 0.86 | 0.8 | 180 | 700 | 225 | 22.10 |
| 132KP4 | 132.00 | 180.00 | 315M | 231 | 219 | 211 | 1488 | 86.36 | 95.6 | 95.6 | 94.8 | 0.91 | 0.87 | 0.83 | 200 | 700 | 250 | 24.22 |
| 160KP4 | 160.00 | 215.00 | 315L | 282 | 268 | 258 | 1485 | 104.89 | 95.8 | 95.8 | 95.0 | 0.9 | 0.86 | 0.82 | 200 | 700 | 250 | 26.68 |
| 180KP4 | 180.00 | 240.00 | 315L | 317 | 301 | 290 | 1488 | 117.76 | 95.9 | 95.9 | 95.2 | 0.9 | 0.86 | 0.82 | 200 | 700 | 250 | 28.23 |
| 200KP4 | 200.00 | 270.00 | 315L | 352 | 334 | 322 | 1490 | 130.67 | 96.0 | 96.0 | 95.3 | 0.9 | 0.86 | 0.82 | 200 | 700 | 250 | 29.76 |
| 225KP4 | #225.00 | 300.00 | 355L | 405 | 384 | 371 | 1488 | 147.20 | 96.0 | 95.8 | 95.3 | 0.88 | 0.86 | 0.82 | 180 | 700 | 225 | 47.75 |
| 250KP4 | 250.00 | 335.00 | 355L | 440 | 418 | 403 | 1488 | 163.56 | 96.0 | 96.0 | 95.5 | 0.9 | 0.88 | 0.84 | 180 | 700 | 225 | 46.75 |
| 275KP4 | #280.00 | 375.00 | 355L | 492 | 468 | 451 | 1488 | 183.18 | 96.0 | 95.8 | 95.5 | 0.9 | 0.86 | 0.82 | 160 | 700 | 225 | 49.56 |
| 315KP4 | *315.00 | 425.00 | 355L | 554 | 526 | 507 | 1488 | 206.08 | 96.0 | 96.0 | 95.8 | 0.9 | 0.88 | 0.84 | 200 | 700 | 250 | 53.05 |

- This rating is suitable for Amb 40 with 70 degree rise

* - This rating is with class F Temp rise

Tolerances are applicable as per IEC 60034-1 :2010

Full load currents indicated are given for respective design voltage

Note: for other ratings upto 375 kW please contact CG sales

Performance data for Apex series motor



Efficiency values complying to IE3 class of IEC 60034-30:2008

| PRODUCT CODE | RATED POWER | | FRAME | FULL LOAD CURRENT (AMP) | | | FL SPEED RPM | FLT Mn kg-m | EFFICIENCY % | | | POWERFACTOR | | | D.O.L STARTING | | PULLOUT POT %FLT | GD ² KGM ² |
|-------------------|-------------|--------|-------|-------------------------|-------|-------|--------------------|-------------------|--------------|------|------|-------------|------|------|----------------|-------------|------------------------|-------------------------------------|
| | KW | HP | | 380 V | 400 V | 415 V | | | FL | 3/4L | 1/2L | FL | 3/4L | 1/2L | STT %FLT | SCC %FLA | | |
| 6 POLE : 1000 RPM | | | | | | | | | | | | | | | | | | |
| 0.75KP6 | 0.75 | 1.00 | 90S | 2.22 | 2.11 | 2.03 | 950 | 0.77 | 78.9 | 78.9 | 78.8 | 0.65 | 0.58 | 0.45 | 180 | 500 | 225 | 0.019 |
| 1.10KP6 | 1.10 | 1.50 | 90L | 3.03 | 2.88 | 2.78 | 935 | 1.15 | 81.0 | 80.2 | 78.4 | 0.68 | 0.58 | 0.45 | 200 | 600 | 250 | 0.025 |
| 1.50KP6 | 1.50 | 2.00 | 100L | 4.60 | 4.37 | 4.22 | 940 | 1.56 | 82.5 | 82.2 | 81.0 | 0.60 | 0.55 | 0.50 | 200 | 500 | 250 | 0.052 |
| 2.20KP6 | 2.20 | 3.00 | 112M | 5.7 | 5.4 | 5.2 | 950 | 2.25 | 84.3 | 84.3 | 81.0 | 0.70 | 0.65 | 0.50 | 200 | 600 | 250 | 0.095 |
| 3.00KP6 | 3.00 | 4.00 | 132S | 6.8 | 6.5 | 6.3 | 965 | 3.07 | 85.6 | 85.6 | 84.0 | 0.78 | 0.72 | 0.65 | 220 | 650 | 270 | 0.26 |
| 3.70KP6 | 3.70 | 5.00 | 132S | 10.0 | 9.5 | 9.2 | 960 | 3.73 | 86.5 | 86.0 | 84.0 | 0.65 | 0.60 | 0.50 | 250 | 500 | 275 | 0.26 |
| 4.00KP6 | 4.00 | 5.50 | 132M | 9.6 | 9.1 | 8.8 | 965 | 4.04 | 86.8 | 86.8 | 85.0 | 0.73 | 0.66 | 0.54 | 150 | 600 | 200 | 0.26 |
| 5.50KP6 | 5.50 | 7.50 | 132M | 12.8 | 12.2 | 11.8 | 950 | 5.64 | 88.0 | 88.0 | 86.5 | 0.74 | 0.66 | 0.54 | 150 | 600 | 200 | 0.29 |
| 7.50KP6 | 7.50 | 10.00 | 160M | 17 | 16 | 15 | 970 | 7.53 | 89.1 | 89.1 | 88.5 | 0.77 | 0.70 | 0.60 | 175 | 500 | 225 | 0.43 |
| 11KP6 | 11.00 | 15.00 | 160L | 23 | 22 | 21 | 975 | 10.93 | 90.3 | 90.3 | 90.0 | 0.79 | 0.73 | 0.61 | 200 | 600 | 250 | 0.64 |
| 15KP6 | 15.00 | 20.00 | 180L | 30 | 29 | 28 | 980 | 14.82 | 91.2 | 91.2 | 91.0 | 0.82 | 0.77 | 0.67 | 225 | 600 | 250 | 1.26 |
| 18.5KP6 | 18.50 | 25.00 | 200L | 38 | 36 | 35 | 975 | 18.28 | 91.7 | 91.7 | 90.8 | 0.81 | 0.77 | 0.68 | 225 | 600 | 275 | 2.08 |
| 22KP6 | 22.00 | 30.00 | 200L | 45 | 43 | 41 | 975 | 21.74 | 92.2 | 92.2 | 91.0 | 0.81 | 0.77 | 0.68 | 200 | 600 | 250 | 2.33 |
| 30KP6 | 30.00 | 40.00 | 225M | 63 | 60 | 58 | 980 | 29.50 | 92.9 | 92.9 | 91.5 | 0.78 | 0.70 | 0.60 | 200 | 600 | 250 | 3.84 |
| 37KP6 | 37.00 | 50.00 | 250M | 73 | 70 | 67 | 985 | 36.38 | 93.3 | 93.3 | 92.3 | 0.82 | 0.77 | 0.65 | 175 | 600 | 225 | 5.56 |
| 46KP6 | 45.00 | 60.00 | 280S | 91 | 87 | 84 | 985 | 44.47 | 93.7 | 93.7 | 93.0 | 0.8 | 0.76 | 0.7 | 200 | 600 | 250 | 13.04 |
| 55KP6 | 55.00 | 75.00 | 280M | 106 | 100 | 97 | 985 | 54.19 | 94.1 | 94.1 | 93.8 | 0.84 | 0.8 | 0.75 | 200 | 650 | 250 | 14.42 |
| 75KP6 | 75.00 | 100.00 | 315S | 142 | 135 | 130 | 990 | 73.75 | 94.6 | 94.6 | 94.0 | 0.85 | 0.81 | 0.72 | 160 | 600 | 200 | 20.80 |
| 90KP6 | 90.00 | 120.00 | 315M | 168 | 159 | 153 | 990 | 88.50 | 94.9 | 94.9 | 93.0 | 0.86 | 0.82 | 0.74 | 200 | 650 | 250 | 22.79 |
| 110KP6 | 110.00 | 150.00 | 315M | 202 | 192 | 185 | 990 | 108.17 | 95.1 | 95.1 | 94.0 | 0.87 | 0.85 | 0.8 | 160 | 600 | 200 | 25.22 |
| 132KP6 | 132.00 | 180.00 | 315L | 256 | 244 | 235 | 985 | 130.46 | 95.4 | 95.4 | 95.0 | 0.82 | 0.78 | 0.72 | 160 | 600 | 200 | 27.63 |
| 160KP6 | 160.00 | 215.00 | 315L | 296 | 281 | 271 | 990 | 157.33 | 95.6 | 95.6 | 95.0 | 0.86 | 0.82 | 0.74 | 200 | 600 | 250 | 30.43 |
| 180KP6 | 180.00 | 240.00 | 355L | 336 | 319 | 308 | 985 | 177.90 | 95.7 | 95.5 | 95.0 | 0.85 | 0.81 | 0.72 | 160 | 600 | 200 | 30.93 |
| 200KP6 | 200.00 | 270.00 | 355L | 373 | 355 | 342 | 985 | 197.66 | 95.8 | 95.5 | 94.5 | 0.85 | 0.81 | 0.72 | 160 | 600 | 200 | 32.62 |
| 225KP6 | 225.00 | 300.00 | 355L | 420 | 399 | 384 | 985 | 222.37 | 95.8 | 95.8 | 94.8 | 0.85 | 0.81 | 0.72 | 160 | 600 | 200 | 34.60 |
| 250KP6 | 250.00 | 335.00 | 355L | 466 | 443 | 427 | 990 | 245.83 | 95.8 | 95.8 | 94.8 | 0.85 | 0.81 | 0.72 | 160 | 600 | 200 | 36.45 |

Tolerances are applicable as per IEC 60034-1 :2010

Full load currents indicated are given for respective design voltage

Note: for other ratings upto 375 kW please contact CG sales

Apex series Flame proof motors (Cast iron frames)

| Range | |
|--------|----------------|
| Output | 0.75 to 275 kW |
| Frames | E80 TO E355 |
| Poles | 2,4,6 |



| Specification | | | |
|--------------------------------|------------------------------------|----------------|---|
| | Standard Product | | Option |
| Frame sizes | E80 - E355 | | - |
| Enclosure | IP55 | | IP66 |
| Zone | 1 | | |
| Gas group | I IIA IIB IIC | | |
| Temperature class | T4 | | T3 TO T6 |
| Mounting | B3 | | Frame |
| | | | Optional |
| | | | Upto 132 |
| | | 160 TO 315 | B5, B35, B14, B34, V1 |
| | | | B5, B35, V1 |
| Terminal Box Material | Cast Iron | | -- |
| Shaft Material | EN8 | | EN24 |
| Voltage | Upto 3kW | 415V λ | other on request |
| | Above 3kW | 415V Δ | |
| Frequency | 50Hz | | 60Hz* |
| Cooling | IC411 | | |
| Insulation | Class F | | Class H |
| Thermal Protection | -- | | E90 TO E355 |
| Anti Condensation Heater | -- | | E160 TO E355 |
| Paint | Epoxy anti corrosive paint surface | | Other on request |
| Inverter duty (With deration)* | -- | | E80 TO E355 |
| Ambient Temperature | -20°C TO 45°C | | Permissible output as % of Standard output at different Ambient |
| | | | 45°C 50°C 55°C 60°C |
| | | | 100% 92% 85% 78% |
| Altitude | <1000 mtr. | | Other per request |
| Efficiency | IE3 as per IEC60034-2008 | | |
| Approvals | DGMS, PESO, BASEEFA (ATEX, IECEx) | | |



*For more details on VFD compatible flame proof motors please contact CG sales

Performance data for Apex series flame proof motor



Efficiency values complying to IE3 class of IEC 60034-30:2008

| RATED POWER | | FRAME | FULL LOAD CURRENT (AMP) | | | FL SPEED RPM | FLT Mn kg-m | EFFICIENCY % | | | POWERFACTOR | | | D.O.L STARTING | | PULLOUT POT %FLT | GD ² KGM ² |
|-------------------|--------|--------|-------------------------|-------|-------|--------------------|-------------------|--------------|------|------|-------------|------|------|----------------|-------------|------------------------|-------------------------------------|
| KW | HP | | 380 V | 400 V | 415 V | | | FL | 3/4L | 1/2L | FL | 3/4L | 1/2L | STT %FLT | SCC %FLA | | |
| 2 POLE - 3000 RPM | | | | | | | | | | | | | | | | | |
| 0.75 | 1.00 | E80 | 1.7 | 1.7 | 1.6 | 2770 | 0.264 | 80.7 | 80.7 | 80.3 | 0.81 | 0.72 | 0.65 | 240 | 650 | 280 | 0.00 |
| 1.10 | 1.50 | E90L | 2.5 | 2.3 | 2.3 | 2870 | 0.373 | 82.7 | 82.7 | 82.0 | 0.82 | 0.75 | 0.62 | 325 | 650 | 350 | 0.01 |
| 1.50 | 2.00 | E90L | 3.3 | 3.1 | 3.0 | 2870 | 0.51 | 84.2 | 84.2 | 83.5 | 0.82 | 0.75 | 0.62 | 250 | 650 | 300 | 0.01 |
| 2.20 | 3.00 | E90L | 5.0 | 4.7 | 4.6 | 2900 | 0.74 | 85.9 | 85.9 | 85.5 | 0.78 | 0.71 | 0.61 | 300 | 700 | 350 | 0.01 |
| 3.00 | 4.00 | E100L | 5.9 | 5.6 | 5.4 | 2900 | 1.01 | 87.1 | 87.1 | 87.1 | 0.88 | 0.84 | 0.78 | 225 | 650 | 275 | 0.03 |
| 3.70 | 5.00 | E100L | 7.6 | 7.2 | 7.0 | 2890 | 1.2 | 87.8 | 88.1 | 88.1 | 0.84 | 0.8 | 0.72 | 250 | 650 | 300 | 0.03 |
| 4.00 | 5.50 | E112M | 7.8 | 7.4 | 7 | 2910 | 1.3 | 88.1 | 88.1 | 88.1 | 0.88 | 0.84 | 0.75 | 225 | 700 | 275 | 0.04 |
| 5.50 | 7.50 | E132M | 10.6 | 10.1 | 10 | 2910 | 1.8 | 89.2 | 89.2 | 89.2 | 0.88 | 0.84 | 0.8 | 200 | 650 | 250 | 0.10 |
| 7.50 | 10.00 | E132M | 14.7 | 14 | 13 | 2920 | 2.5 | 90.1 | 90.1 | 90.1 | 0.86 | 0.82 | 0.76 | 250 | 700 | 300 | 0.11 |
| 11.00 | 15.00 | E160L | 20 | 19 | 19 | 2925 | 3.7 | 91.2 | 91.2 | 91.0 | 0.9 | 0.86 | 0.82 | 225 | 700 | 275 | 0.17 |
| 15.00 | 20.00 | E160L | 28 | 27 | 26 | 2920 | 5.0 | 91.9 | 91.9 | 91.5 | 0.88 | 0.85 | 0.78 | 250 | 700 | 300 | 0.17 |
| 18.50 | 25.00 | E160L | 35 | 33 | 32 | 2920 | 6.2 | 92.4 | 92.4 | 92.4 | 0.88 | 0.85 | 0.8 | 200 | 700 | 300 | 0.21 |
| 22.00 | 30.00 | E180L | 41 | 38 | 37 | 2940 | 7.3 | 92.7 | 92.7 | 91.5 | 0.89 | 0.85 | 0.77 | 250 | 700 | 300 | 0.44 |
| 30.00 | 40.00 | E200L | 55 | 52 | 50 | 2945 | 9.9 | 93.3 | 93.3 | 92.4 | 0.89 | 0.86 | 0.82 | 180 | 700 | 225 | 0.44 |
| 37.00 | 50.00 | E200L | 68 | 65 | 62 | 2945 | 12.2 | 93.7 | 93.5 | 92.7 | 0.88 | 0.86 | 0.81 | 160 | 650 | 200 | 3.40 |
| 45.00 | 60.00 | E225M | 86 | 81 | 78 | 2960 | 14.8 | 94.0 | 94.0 | 93.5 | 0.85 | 0.8 | 0.78 | 200 | 700 | 250 | 6.65 |
| 55.00 | 75.00 | E250M | 96 | 92 | 88 | 2970 | 18.0 | 94.3 | 94.3 | 93.0 | 0.92 | 0.88 | 0.84 | 250 | 700 | 300 | 6.65 |
| 75.00 | 100.00 | E280M | 131 | 124 | 120 | 2975 | 24.5 | 94.7 | 94.5 | 93.2 | 0.92 | 0.88 | 0.84 | 200 | 650 | 250 | 6.65 |
| 90.00 | 120.00 | E280M | 153 | 145 | 140 | 2975 | 29.5 | 95 | 95 | 94 | 0.94 | 0.9 | 0.82 | 175 | 650 | 225 | 13.31 |
| 110.00 | 150.00 | E315M | 197 | 187 | 181 | 2980 | 35.9 | 95.2 | 95.2 | 93.8 | 0.89 | 0.85 | 0.81 | 200 | 700 | 250 | 13.31 |
| 132.00 | 180.00 | E315M | 234 | 222 | 214 | 2970 | 43.3 | 95.4 | 95.4 | 94.8 | 0.9 | 0.88 | 0.85 | 175 | 600 | 225 | 14.75 |
| 160.00 | 215.00 | E315L | 286 | 271 | 262 | 2977 | 52.3 | 95.6 | 95.6 | 95 | 0.89 | 0.85 | 0.81 | 200 | 700 | 250 | 16.37 |
| 180.00 | 240.00 | E315L | 318 | 302 | 291 | 2977 | 58.9 | 95.7 | 95.5 | 95 | 0.9 | 0.85 | 0.81 | 200 | 700 | 250 | 16.37 |
| 200.00 | 270.00 | E315L | 345 | 328 | 316 | 2980 | 65.3 | 95.8 | 95.8 | 95 | 0.92 | 0.9 | 0.87 | 200 | 750 | 250 | 16.37 |
| 225.00 | 300.00 | E355LX | 392 | 373 | 359 | 2980 | 98.1 | 95.8 | 94.8 | 93.3 | 0.91 | 0.88 | 0.84 | 160 | 650 | 225 | 18.40 |
| 250.00 | 335.00 | E355LX | 441 | 419 | 403 | 2980 | 109.5 | 95.8 | 95.5 | 94.5 | 0.90 | 0.88 | 0.84 | 150 | 650 | 225 | 27.70 |
| 275.00 | 370.00 | E355LX | 490 | 466 | 449 | 2980 | 120.9 | 95.8 | 95.5 | 94.5 | 0.89 | 0.86 | 0.82 | 200 | 650 | 250 | 27.70 |

Tolerances are applicable as per IEC 60034-1 :2010

Full load currents indicated are given for respective design voltage.

Performance data for Apex series flame proof motor



Efficiency values complying to IE3 class of IEC 60034-30:2008

| RATED POWER | | FRAME | FULL LOAD CURRENT (AMP) | | | FL SPEED RPM | FLT M _n kg-m | EFFICIENCY % | | | POWERFACTOR | | | D.O.L STARTING | | PULLOUT POT %FLT | GD ² KGM ² |
|-------------------|--------|--------|-------------------------|-------|-------|--------------------|-------------------------------|--------------|------|------|-------------|------|------|----------------|-------------|------------------------|-------------------------------------|
| KW | HP | | 380 V | 400 V | 415 V | | | FL | 3/4L | 1/2L | FL | 3/4L | 1/2L | STT %FLT | SCC %FLA | | |
| 4 POLE - 1500 RPM | | | | | | | | | | | | | | | | | |
| 0.75 | 1.00 | E80 | 2 | 1.8 | 1.7 | 1410 | 0.518 | 82.5 | 82.5 | 81.5 | 0.73 | 0.66 | 0.55 | 200 | 500 | 250 | 0.01 |
| 1.10 | 1.50 | E90L | 3 | 2.6 | 2.5 | 1430 | 0.749 | 84.1 | 84.0 | 82.4 | 0.73 | 0.67 | 0.52 | 200 | 600 | 250 | 0.02 |
| 1.50 | 2.00 | E90L | 4 | 3.6 | 3.5 | 1430 | 1.021 | 85.3 | 85.3 | 85.0 | 0.7 | 0.65 | 0.54 | 200 | 600 | 250 | 0.02 |
| 2.20 | 3.00 | E100L | 5 | 4.7 | 4.5 | 1450 | 1.477 | 86.7 | 86.7 | 86.0 | 0.78 | 0.7 | 0.6 | 200 | 600 | 250 | 0.05 |
| 3.70 | 5.00 | E112M | 8 | 7.7 | 7.5 | 1450 | 2.5 | 88.4 | 88.4 | 88.2 | 0.78 | 0.74 | 0.66 | 200 | 600 | 250 | 0.09 |
| 5.50 | 7.50 | E132M | 11 | 10 | 10 | 1460 | 3.7 | 89.6 | 89.6 | 89.6 | 0.85 | 0.8 | 0.75 | 200 | 650 | 250 | 0.26 |
| 7.50 | 10.00 | E132M | 15 | 14 | 14 | 1457 | 5.0 | 90.4 | 90.4 | 90.0 | 0.83 | 0.77 | 0.66 | 225 | 650 | 275 | 0.26 |
| 11.00 | 15.00 | E160L | 21 | 20 | 19 | 1470 | 7.3 | 91.4 | 91.4 | 91.0 | 0.86 | 0.81 | 0.72 | 250 | 700 | 300 | 0.45 |
| 15.00 | 20.00 | E160L | 30 | 29 | 28 | 1465 | 10.0 | 92.1 | 92.1 | 91.0 | 0.82 | 0.75 | 0.65 | 200 | 650 | 250 | 0.48 |
| 18.50 | 25.00 | E180L | 36 | 34 | 33 | 1470 | 2.3 | 92.6 | 92.6 | 92.0 | 0.85 | 0.8 | 0.75 | 200 | 600 | 250 | 0.81 |
| 22.00 | 30.00 | E180L | 42 | 40 | 39 | 1470 | 14.6 | 93.0 | 93.0 | 92.4 | 0.85 | 0.8 | 0.75 | 225 | 600 | 275 | 0.85 |
| 30.00 | 40.00 | E200L | 57 | 54 | 52 | 1475 | 19.8 | 93.6 | 93.6 | 93.0 | 0.86 | 0.82 | 0.76 | 200 | 650 | 250 | 1.62 |
| 37.00 | 50.00 | E225S | 73 | 69 | 67 | 1470 | 24.5 | 93.9 | 93.9 | 93.0 | 0.82 | 0.75 | 0.72 | 200 | 600 | 250 | 2.70 |
| 45.00 | 60.00 | E225M | 81 | 77 | 74 | 1475 | 29.7 | 94.2 | 94.2 | 93.5 | 0.9 | 0.85 | 0.8 | 225 | 650 | 275 | 3.13 |
| 55.00 | 75.00 | E250M | 100 | 95 | 92 | 1480 | 36.2 | 94.6 | 94.6 | 94.0 | 0.88 | 0.84 | 0.8 | 225 | 600 | 275 | 6.28 |
| 75.00 | 100.00 | E280M | 132 | 125 | 121 | 1485 | 49.2 | 95 | 95 | 94.5 | 0.91 | 0.88 | 0.84 | 200 | 650 | 250 | 11.62 |
| 90.00 | 120.00 | E280M | 163 | 155 | 149 | 1485 | 59.0 | 95.2 | 95.2 | 94.6 | 0.88 | 0.84 | 0.8 | 200 | 700 | 250 | 11.62 |
| 110.00 | 150.00 | E315M | 193 | 183 | 176 | 1488 | 72.0 | 95.4 | 95.2 | 94.6 | 0.91 | 0.88 | 0.82 | 200 | 600 | 250 | 20.31 |
| 132.00 | 180.00 | E315M | 233 | 221 | 213 | 1490 | 86.2 | 95.6 | 95.6 | 94.8 | 0.9 | 0.86 | 0.8 | 180 | 650 | 225 | 20.31 |
| 160.00 | 215.00 | E315L | 279 | 265 | 255 | 1488 | 104.7 | 95.8 | 95.8 | 95 | 0.91 | 0.88 | 0.85 | 200 | 650 | 250 | 25.00 |
| 180.00 | 240.00 | E315L | 313 | 298 | 287 | 1488 | 117.8 | 95.9 | 95.9 | 95.2 | 0.91 | 0.88 | 0.85 | 225 | 700 | 275 | 24.97 |
| 200.00 | 270.00 | E315L | 344 | 327 | 315 | 1489 | 130.8 | 96 | 96 | 95.3 | 0.92 | 0.9 | 0.86 | 200 | 700 | 250 | 27.99 |
| 225.00 | 300.00 | E355LX | 396 | 376 | 362 | 1490 | 196.1 | 96 | 95.8 | 95.3 | 0.90 | 0.88 | 0.84 | 150 | 600 | 225 | 28.00 |
| 250.00 | 335.00 | E355LX | 440 | 418 | 403 | 1490 | 219.0 | 96 | 96 | 95.5 | 0.90 | 0.86 | 0.81 | 180 | 800 | 225 | 29.60 |
| 250.00 | 335.00 | E355LX | 473 | 449 | 403 | 1490 | 219.0 | 96 | 96 | 95.5 | 0.90 | 0.86 | 0.81 | 180 | 800 | 225 | 29.60 |

Tolerances are applicable as per IEC 60034-1 :2010

Full load currents indicated are given for respective design voltage.

Performance data for Apex series flame proof motor



Efficiency values complying to IE3 class of IEC 60034-30:2008

| RATED POWER | | FRAME | FULL LOAD CURRENT (AMP) | | | FL | FLT | EFFICIENCY % | | | POWERFACTOR | | | D.O.L STARTING | | PULLOUT | GD ² |
|--------------------------|--------|-------|-------------------------|-------|-------|-----------|---------------------|--------------|------|------|-------------|------|------|----------------|----------|----------|------------------|
| KW | HP | | 380 V | 400 V | 415 V | SPEED RPM | M _N kg-m | FL | 3/4L | 1/2L | FL | 3/4L | 1/2L | STT %FLT | SCC %FLA | POT %FLT | KGM ² |
| 6 POLE - 1000 RPM | | | | | | | | | | | | | | | | | |
| 0.75 | 1.00 | E90L | 2 | 2.1 | 2.0 | 935 | 1.0 | 78.9 | 78.9 | 78.8 | 0.65 | 0.56 | 0.48 | 175 | 500 | 225 | 0.02 |
| 1.10 | 1.50 | E90L | 3 | 2.8 | 2.7 | 935 | 1.6 | 81.0 | 80.2 | 78.4 | 0.69 | 0.6 | 0.47 | 180 | 500 | 250 | 0.03 |
| 1.50 | 2.00 | E100L | 4 | 4 | 3.9 | 940 | 2.1 | 82.5 | 81.5 | 80.4 | 0.65 | 0.59 | 0.48 | 200 | 500 | 250 | 0.04 |
| 2.20 | 3.00 | E112M | 6 | 5.4 | 5.2 | 960 | 3.0 | 84.3 | 84.3 | 84.0 | 0.7 | 0.66 | 0.56 | 200 | 550 | 250 | 0.11 |
| 3.70 | 5.00 | E132M | 8 | 7.5 | 7.3 | 960 | 5.1 | 86.5 | 86.5 | 86.0 | 0.82 | 0.76 | 0.64 | 175 | 550 | 250 | 0.21 |
| 5.50 | 7.50 | E132M | 13 | 10 | 11.6 | 965 | 7.6 | 88.0 | 88.0 | 86.5 | 0.75 | 0.7 | 0.6 | 175 | 550 | 250 | 0.33 |
| 7.50 | 10.00 | E160L | 16 | 15 | 14.3 | 975 | 10.0 | 89.1 | 89.1 | 88.5 | 0.82 | 0.76 | 0.64 | 225 | 600 | 275 | 0.46 |
| 11.00 | 15.00 | E160L | 23 | 22 | 21.2 | 975 | 15.0 | 90.3 | 90.3 | 90.0 | 0.8 | 0.75 | 0.65 | 200 | 600 | 250 | 0.64 |
| 15.00 | 20.00 | E180L | 32 | 30 | 29 | 975 | 20.0 | 91.2 | 91.2 | 91.0 | 0.78 | 0.71 | 0.58 | 225 | 600 | 250 | 1.16 |
| 18.50 | 25.00 | E200L | 36 | 35 | 33.4 | 975 | 25.0 | 91.7 | 91.7 | 90.8 | 0.84 | 0.8 | 0.72 | 200 | 600 | 250 | 1.69 |
| 22.00 | 30.00 | E200L | 43 | 41 | 39.5 | 975 | 30.0 | 92.2 | 92.2 | 91.0 | 0.84 | 0.8 | 0.7 | 200 | 550 | 250 | 2.04 |
| 30.00 | 40.00 | E225M | 58 | 55 | 52.9 | 980 | 39.8 | 92.9 | 92.9 | 91.5 | 0.85 | 0.81 | 0.73 | 200 | 600 | 250 | 3.70 |
| 37.00 | 50.00 | E250M | 72 | 68 | 65.7 | 975 | 49.9 | 93.3 | 93.3 | 92.3 | 0.84 | 0.8 | 0.78 | 200 | 600 | 250 | 7.51 |
| 45.00 | 60.00 | E280M | 89 | 85 | 81.5 | 988 | 59.1 | 93.7 | 93.7 | 93 | 0.82 | 0.78 | 0.7 | 200 | 650 | 250 | 14.15 |
| 55.00 | 75.00 | E280M | 110 | 104 | 100.4 | 990 | 73.8 | 94.1 | 94.1 | 93.8 | 0.81 | 0.78 | 0.74 | 200 | 700 | 250 | 14.15 |
| 75.00 | 100.00 | E315M | 140 | 132 | 128.3 | 990 | 98.4 | 94.6 | 94.6 | 94 | 0.86 | 0.82 | 0.74 | 160 | 600 | 200 | 24.20 |
| 90.00 | 120.00 | E315M | 168 | 159 | 153.4 | 990 | 118.1 | 94.9 | 94.9 | 93 | 0.86 | 0.82 | 0.74 | 175 | 600 | 225 | 24.20 |
| 110.00 | 150.00 | E315L | 204 | 194 | 187.1 | 985 | 148.3 | 95.1 | 95.1 | 94 | 0.86 | 0.82 | 0.74 | 175 | 600 | 225 | 33.33 |
| 132.00 | 180.00 | E315L | 244 | 232 | 223.8 | 990 | 177.1 | 95.4 | 95.4 | 95 | 0.86 | 0.82 | 0.74 | 200 | 600 | 250 | 33.33 |
| 160.00 | 215.00 | E355L | 296 | 281 | 270.7 | 990 | 211.5 | 95.6 | 95.6 | 95 | 0.86 | 0.82 | 0.74 | 200 | 600 | 250 | 35.60 |
| 180.00 | 240.00 | E355L | 328 | 312 | 300.8 | 990 | 236.1 | 95.7 | 95.5 | 95 | 0.87 | 0.85 | 0.78 | 175 | 600 | 250 | 35.60 |
| 200.00 | 270.00 | E355L | 373 | 355 | 341.7 | 990 | 265.6 | 95.8 | 95.5 | 94.5 | 0.85 | 0.81 | 0.75 | 130.00 | 600 | 225 | 39.70 |

Tolerances are applicable as per IEC 60034-1 :2010

Full load currents indicated are given for respective design voltage

Bearing details

Aluminium Motors

| FRAME | Pole | Driving End | Non-Driving End |
|-------|------|-------------|-----------------|
| 80 | ALL | 6204ZZ | 6003ZZ |
| 90 | ALL | 6205ZZ | 6203ZZ |
| 100 | ALL | 6206ZZ | 6205ZZ |
| 112 | ALL | 6206ZZ | 6205ZZ |
| 132 | ALL | 6208ZZ | 6305ZZ |

Cast Iron Motors

| FRAME | Pole | Safe Area Motors | | Flameproof Motors | |
|-------|------|------------------|-----------------|-------------------|-----------------|
| | | Driving End | Non-Driving End | Driving End | Non-Driving End |
| 80 | ALL | 6204ZZ | 6203ZZ | 6304ZZ | 6304ZZ |
| 90 | ALL | 6205ZZ | 6203ZZ | 6205ZZ | 6205ZZ |
| 100 | ALL | 6206ZZ | 6205ZZ | 6206ZZ | 6206ZZ |
| 112 | ALL | 6206ZZ | 6205ZZ | 6306ZZ | 6306ZZ |
| 132 | ALL | 6208ZZ | 6305ZZ | 6308ZZ | 6208ZZ |
| 160 | ALL | 6309ZZ | 6209ZZ | 6309-2RS | 6309-2RS |
| 180 | ALL | 6310ZZ | 6210ZZ | 6310-2RS | 6310-2RS |
| 200 | ALL | 6312ZZ | 6212ZZ | 6312-2RS | 6312-2RS |
| 225 | ALL | 6313ZZ | 6213ZZ | 6313-2RS | 6313-2RS |
| 250 | ALL | 6314 | 6314 | 6315-C3 | 6315-C3 |
| 280 | 2 | 6314 | 6314 | 6315-C4 | 6315-C4 |
| 280 | 4&UP | 6318 | 6318 | 6318-C3 | 6318-C3 |
| 315 | 2 | 6315 | 6315 | 6315 | 6315 |
| 315 | 4&UP | 6319 | 6319 | 6319 | 6319 |
| 355 | 2 | 6316 | 6316 | 6318 | 6318 |
| 355L | 4&UP | 6321 | 6321 | NA | NA |
| 355LX | 4&UP | 6322 | 6322 | 6322 | 6322 |

Packing case details

| FRAME | Safe Area Motors | | | Flameproof Motors | | | Packing case type |
|-------|------------------|--------|--------|-------------------|--------|--------|-------------------|
| | L | B | H | L | B | H | |
| 80 | 360 | x 225 | x 240 | 380 | x 300 | x 345 | Carton |
| 90 | 390 | x 220 | x 260 | 455 | x 425 | x 320 | Carton |
| 100 | 460 | x 320 | x 285 | 470 | x 440 | x 350 | Carton |
| 112 | 460 | x 320 | x 285 | 500 | x 490 | x 395 | Carton |
| 132 | 485 | x 350 | x 320 | 570 | x 340 | x 440 | Carton |
| 160 | 800 | x 585 | x 615 | 770 | x 700 | x 570 | Steel |
| 180 | 900 | x 685 | x 640 | 850 | x 730 | x 570 | Steel |
| 200 | 1000 | x 775 | x 665 | 1020 | x 790 | x 670 | Steel |
| 225 | 1050 | x 800 | x 725 | 1070 | x 890 | x 800 | Steel |
| 250 | 1150 | x 925 | x 850 | 1120 | x 960 | x 850 | Steel |
| 280 | 1250 | x 975 | x 890 | 1275 | x 1050 | x 950 | Steel |
| 315 | 1620 | x 1170 | x 1030 | 1550 | x 1370 | x 1100 | Steel |
| 355 | 1870 | x 1345 | x 1180 | 1950 | x 1600 | x 1350 | Steel |

Note : Insulated bearing and roller bearings for frame 200 & above are available on request

Shipping details

Shipping dimensions & weights

| FRAME | NET WT(Kg) | GR WT (Kg) |
|-------|------------|------------|
|-------|------------|------------|

Aluminium Motors

| | | |
|------|----|----|
| 80 | 9 | 10 |
| 90S | 13 | 14 |
| 90L | 15 | 16 |
| 100L | 27 | 29 |
| 112M | 33 | 36 |
| 132S | 54 | 56 |
| 132M | 54 | 56 |

Cast Iron Motors

| FRAME | Safe Area Motors | | Flameproof Motors | |
|-------|------------------|------------|-------------------|------------|
| | NET WT(Kg) | GR WT (Kg) | NET WT(Kg) | GR WT (Kg) |
| 80 | 17 | 21 | 23 | 27 |
| 90L | 25 | 29 | 40 | 44 |
| 100L | 32 | 37 | 54 | 59 |
| 112M | 35 | 40 | 73 | 78 |
| 132M | 79 | 89 | 110 | 120 |
| 160M | 121 | 151 | NA | NA |
| 160L | 143 | 173 | 188 | 218 |
| 180M | 174 | 208 | NA | NA |
| 180L | 204 | 238 | 256 | 290 |
| 200L | 254 | 291 | 263 | 300 |
| 225S | 350 | 430 | 330 | 410 |
| 225M | 380 | 460 | 400 | 480 |
| 250M | 500 | 575 | 680 | 755 |
| 280S | 620 | 761 | NA | NA |
| 280M | 700 | 841 | 966 | 1107 |
| 315S | 900 | 1020 | NA | NA |
| 315M | 950 | 1070 | 1136 | 1256 |
| 315L | 1200 | 1480 | 1752 | 2032 |
| 355L | 1500 | 1800 | NA | NA |
| 355LX | 2020 | 2425 | 2150 | 2555 |

Eco Friendly Packaging Scheme



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Due to continuous product improvements and its incorporation, CG reserves the right to change the design, technical specification and dimensions without prior notice.