

W60

Three-Phase Induction Motor
Technical Catalogue Asian Market



Motors | Automation | Energy | Transmission & Distribution | Coatings

W60 - Three-Phase Induction Motor

The WEG W60 motor line is designed for industrial applications, focused on compressors, pumps and fans, ensuring high performance and reliability even under the most severe operating conditions.

Flexibility is the Key

The W60 is available on four different configurations allowing it to be designed as open self ventilated (IC01, WP-I, WP-II, ODP), or forced cooled (IC06, IC616, IC666), or an enclosed, air-air cooled (IC611, TEAAC) or air-water cooled (IC81W, IC86W, TEWAC) motor.

Compact Design

With its compact design, lightweight components, reduced dimensions and footprint that saves valuable space on the skid or base where the motor is installed, the W60 is the most compact modular motor in the market.



Severe Duty is Standard for W60

A rugged motor, high quality end shields, robust frame design and a true stiff shaft (no critical frequencies below rated speed) on its standard design guarantees the lowest vibration and noise levels.

Outstanding in the Market

WEG engineers have developed a unique product that combines the latest technology of high quality rotor and stator lamination, low losses fans and optimized heat exchanger, increasing considerably the power density rate (output per weight). This combination makes the W60 your best choice for an energy efficient motor.

Reliability Where you Need It

Designed to operate continuously without interruption, the W60 was conceived with unique characteristics: easy to build, easy to assemble, easy to install.

Compatible with VFDs (Inverters)

The W60 can be easily used with any medium voltage drive on the market. The motor is designed to operate at any speed within the rated speed range. If used in conjunction with WEG's medium voltage drive, the motor will have a better performance.



Product Scope

- Rated output: 200 up to 6,300 kW (275 up to 8,460 HP)
- Number of poles: 2, 4, 6, 8, 10 and 12
- Frame sizes: IEC 315 up to 560
- Voltage: 380 up to 10,000 V
- Frequency: 50 or 60 Hz
- Mounting: horizontal
- Bearing type: ball bearings (sleeve bearings available)
- Cooling method: IC01, IC611 and IC81W (WP-I, WP-II, ODP, TEAAC and TEWAC)
- Starting: DOL or VFD

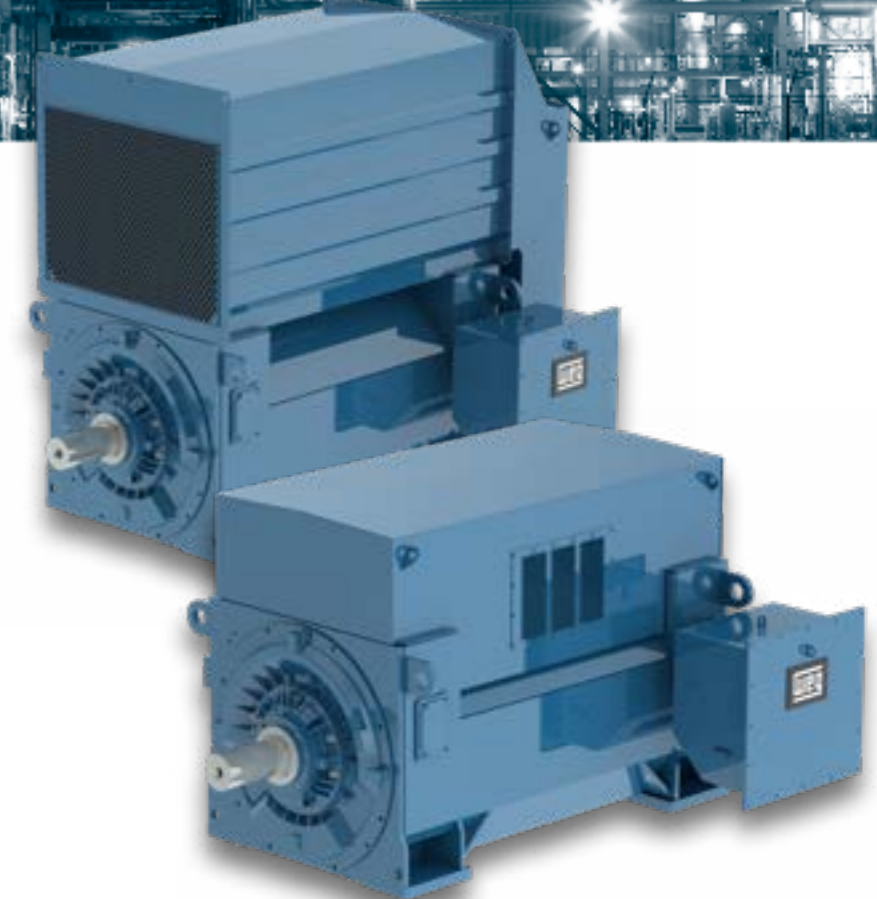
Standard Features

- RTD Pt-100, two per phase
- RTD Pt-100, one per bearing
- Space heater
- 4140 alloy steel shaft



Optional Features

- ATEX / IECEx / INMETRO certified (in Brazil):
Ex nA IIC T3 Gc /
Ex tc IIIB T125 °C Dc /
Ex tb IIIC T125 °C Db
- cCSAus certified (in Brazil):
Class I, Division 2, Groups B, C and D, T3
Class II, Division 2, Groups F and G, T3C
- Differential pressure switch (air cooled)
- Water leakage detector (water cooled)
- Encoder
- Automatic lubrication system (ball bearings)
- Accelerometer (ball bearings)
- Proximity sensors (sleeve bearings)
- Other features available upon request



Components Design

Cooling System

- Optimized heat exchanger
- Increased air flow
- Low losses fans
- Easy assembly
- Increased mechanical strength

Noise Suppressors

- Noise level reduction
- Simplified assembly
- Easy maintenance

Bearings

- Ball bearings as standard
- Sleeve bearings as optional

End Shields

- High quality cast iron or steel plate
- Reinforced structure

Frame

- Rugged design
- Compact and lighter
- Smallest footprint area

Electrical Core

- High quality lamination
- Energy efficient
- Increased power density ratio

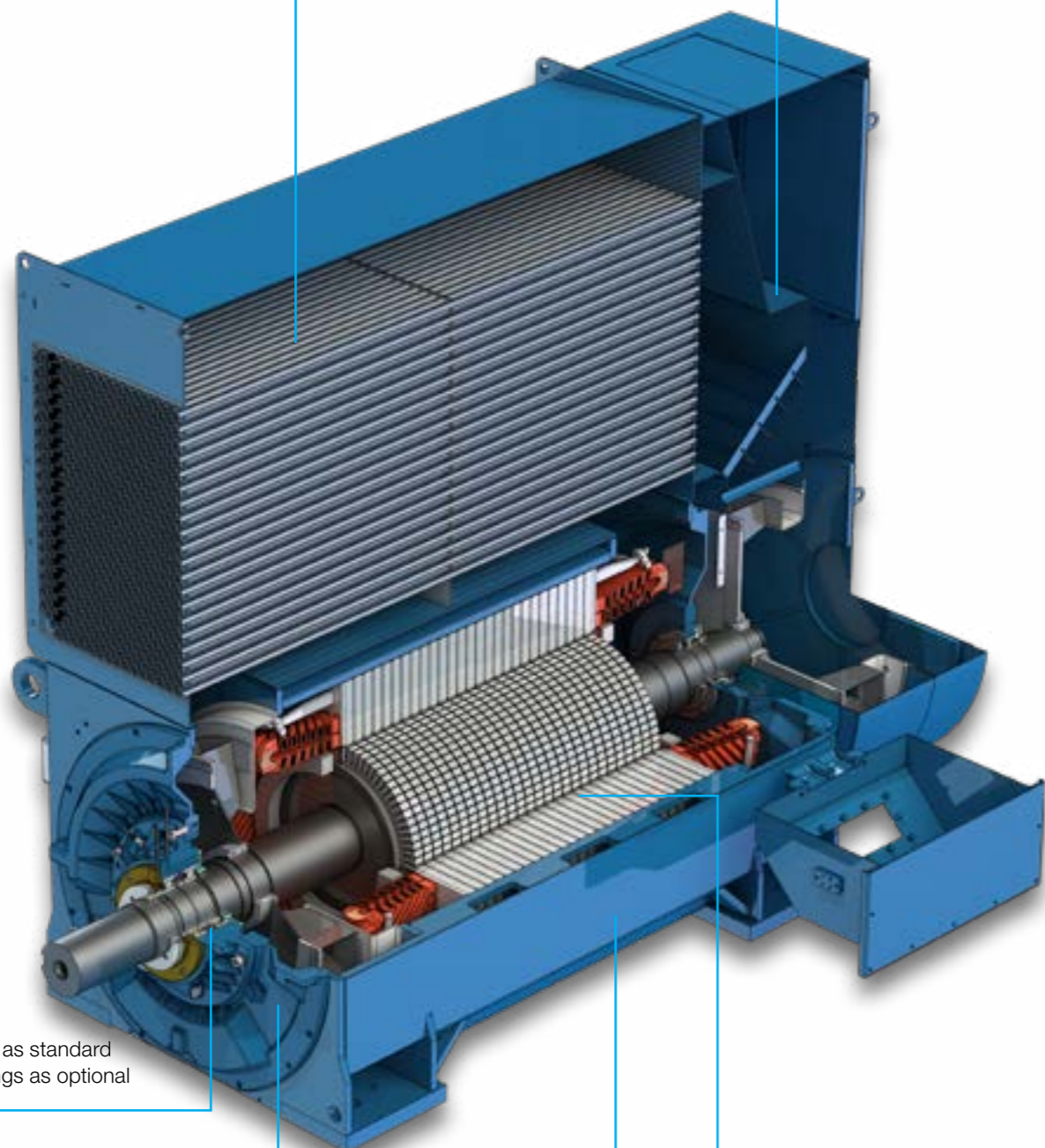


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1. Standards

The W60 motors meet the requirements and regulations of the current versions of the following standards:

Standard	Title
IEC EN 60034-1	Rotating electrical machines Part 1: Rating and performance
IEC 60034-2-1	Rotating electrical machines Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)
IEC 60072-1	Dimensions and output series for rotating electrical machines. Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080
IEC 60072-2	Dimensions and output series for rotating electrical machines. Part 2: Frame numbers 355 to 1000 and flange numbers 1180 to 2360
IEC 60034-8	Rotating electrical machines Part 8: Terminal markings and direction of rotation
IEC 60034-7	Rotating electrical machines Part 7: Classification of types of construction, mounting arrangements and terminal box position (IM Code)
IEC 60034-11	Rotating electrical machines - Part 11: Thermal protection
IEC 60034-6	Rotating electrical machines Part 6: Methods of cooling (IC Code)
IEC 60034-5	Rotating electrical machines Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) - Classification
IEC 60034-14	Rotating electrical machines - Part 14: Mechanical vibration of certain machines with shaft heights 56 mm and higher - Measurement, evaluation and limits of vibration severity
IEC 60034-9	Rotating electrical machines - Part 9: Noise limits
IEC 60034-12	Rotating electrical machines - Part 12: Starting performance of single-speed three-phase cage induction motors
IEC 60038	IEC standard voltages
IEC 60079-0	Explosive atmospheres - Part 0: General requirements
IEC 60079-15	Explosive Atmospheres Part 15: Equipment protection by type of Protection "n"
IEC 62262	Degrees of Protection Provided by Enclosures for Electrical Equipment Against External Mechanical Impacts (IK CODE)
GB 755	Rotating electrical machines-Rating and performance
GB/T 4772	Dimensions and output series for rotating electrical machines
GB/T 997	Rotating electrical machines-Classification of types of construction, mounting arrangements and terminal box positions for (IM code)
GB/T 4942	Degrees of protection provided by the integral design of rotating electrical machines (IP code)-Classification
GB 10068	Mechanical vibration of certain machines with shaft heights 56 mm and higher - Measurement, evaluation and limits of vibration severity

Table 1 - Standards observed in the motor design.

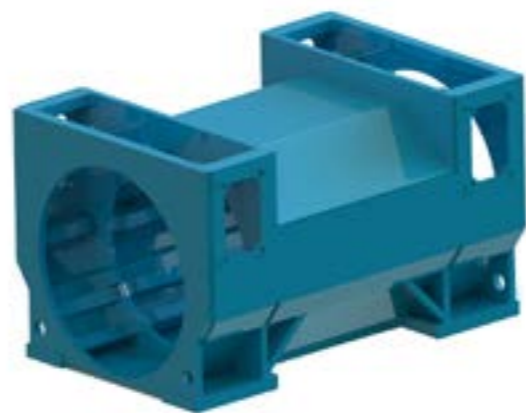


Figure 1 - Frame design.

The motor has solid and integrated feet which provide greater strength (see Figure 2).



Figure 2 - Solid integrated feet ensuring high mechanical strength.

2.2 Steel lugs

To facilitate lifting to the different mounting positions, the W60 motors have equipped with four lifting lugs.

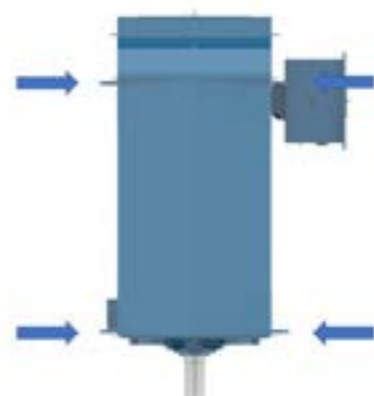


Figure 3 - Lug fixing points for motor with feet.

2. Construction Details

The information contained herein refers to the standard mounting features and the most common variants of the W60 line. Motors for special and/or customized application are also available on request. Please, contact the nearest WEG office.

2.1 Frame

Produced in carbon steel, the frames of the W60 motors withstand high mechanical impacts, ensure maximum air flow and high mechanical strength and reduce mechanical vibration even when transmitted by external sources.

2.3 Grounding Terminals

The W60 motors are fitted with grounding terminals on the frame (see Figure 4) and inside the main terminal box. These terminals can be positioned on the right or left side of the frame and have cross-section from 25 to 185 mm².

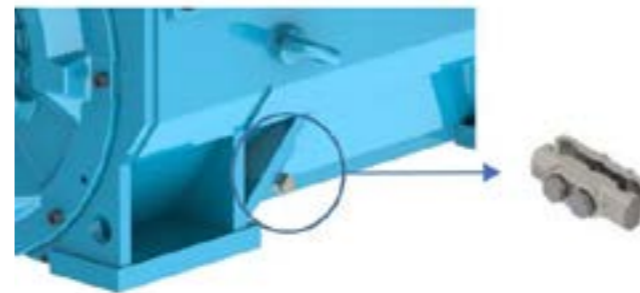


Figure 4 - Detail of the standard grounding terminal for the main terminal box and frame.

2.4 Grounding Brush

The motors can also be supplied with a grounding brush in the drive end as an optional item. For operation with variable frequency inverter, W60 motors are always fitted with shaft grounding brush at motor drive end and insulated non-drive end bearing to avoid current flow along the motor shaft, across the bearing and return to the frame thus preventing premature bearing wear and failure due to electric currents flowing through them.

The motors can optionally be supplied with an AEGIS shaft grounding ring installed on the inner bearing cap for external use can be supplied on request.

Note:

■ The incorrect specification and/or inadequate use of the grounding devices can cause serious damage to the machine and people involved in the operation of the motor. Before powering up the motor, ensure that it is properly grounded and that all grounding components are in perfect operating conditions.

2.5 Terminal Box

The W60 line has specific terminal boxes for motor power cables and accessory cable connections.

2.5.1 Main Terminal Box

It can be manufactured in steel plate or cast iron FC-200, the same material used in the endshields, and due to its mounting, it can be rotated in steps of 90°. The main terminal box has been designed for easier and ergonomically handling during cable connection procedures. (see Figure 5).



Figure 5 - Terminal box's position

The terminal box for high voltage motors is provided with a pressure relief device that ensures component integrity and user safety in case of short circuit. In case of activation of the pressure relief device, please contact WEG authorized servicing center. For safety reasons, this device must never be reassembled and never operate the motor without this safety device installed.

On request, the high voltage motors can also be supplied with an additional terminal box mounted at the opposite side of the main terminal box to enclosure the star point (see Figure 6).

High voltage motors can be also supplied with surge arrester and/or surge capacitors assembled in specific terminal box (see Section 11. Special accessories).



Figure 6 - Motor with access to neutral connection in separated terminal box.

2.5.2 Accessory Terminal Box

The W60 motors have a specific terminal box for connecting accessories.

2.6 Stator Winding

The stator windings of the W60 motors, regardless of voltage, are supplied with Class F insulation system and Class B temperature rise (80 K). Optionally, the motors can be supplied with Class H insulation system and Class B temperature rise (80 K). Other insulation system combinations can be supplied on request.

To monitor the motor heating, the windings are fitted with two sets of Pt-100 per phase and with a set of space heaters in order to prevent water condensation inside the motor. The space heaters are mounted close to the head coil on both sides of the motor, to ensure the protection.



Figure 7 - PT-100

Since the lifetime of the motor is influenced by the temperature at which it operates, thus it is important to constantly monitor the winding temperature.

Note:

- The space heaters must always be switched on when the motor is out of service for long periods and switched off when the motor is running, thereby preventing the deterioration of motor components and possible overheating.

The W60 High Voltage insulation systems are designed with mica tape layers and impregnated with epoxy resin through Vacuum Pressure Impregnation - VPI process and carefully manufactured and tested at factory thus ensuring a end product with high levels of reliability, preventing contamination of the impregnation varnish and ensuring void-free impregnation of windings. For motors that operate with a non sine wave frequency inverter, insulation systems are reinforced to prevent accelerated aging of insulation (available on request).

2.7 Endshields

To improve heat dissipation and ensure lower operating temperatures on the bearing, the DE endshield has been designed to improve the air flow. The endshields are fastened with 8 bolts to ensure maximum rigidity (see Figure 8).



Figure 8 - DE endshield

Depending on its mounting, the W60 can be provided with flange type "FF", as shown in Figure 9.



Figure 9 - DE endshield - Flange "FF".

2.8 Nameplate

2.8.1 Main Nameplate

The main nameplate provides information describing the mounting features and motor performance. It also provides the motor's manufacture year. Figure 10 shows the layout of the nameplate on the W60 motor.

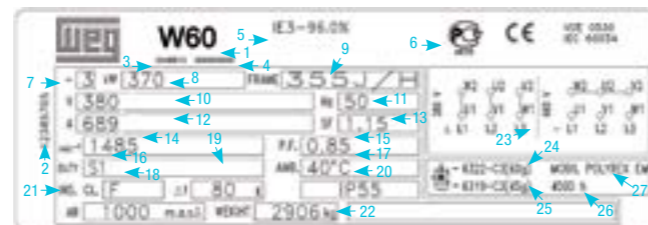


Figure 10 - Main nameplate of the motor

1	Motor line
2	Motor code
3	Manufacturing date
4	Serial number
5	Efficiency level
6	Certification
7	Number of phases
8	Output power
9	Frame model
10	Rated voltage
11	Frequency
12	Rated current
13	Duty factor
14	Speed
15	Power factor
16	Duty cycle
17	Ambient temperature
18	Insulation class
19	Temperature rise of the windings
20	Degree of protection
21	Altitude
22	Weight
23	Wiring diagram
24	DE bearing and grease quantity
25	NDE bearing and grease quantity
26	Bearing's relubrication interval (in hours)
27	Grease type used for bearings

Table 2 - Description of the items on the motor main nameplate

2.8.2 Additional Nameplate

To indicate the available accessories, the W60 motors are supplied with additional nameplates that contain informations on temperature sensors (see Figures 11 and 12), space heaters (see Figure 13), and other accessories supplied on customer request. If required, these nameplates can be used to show the TAG codes specific to the motor.

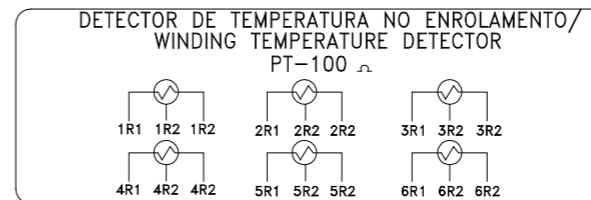


Figure 11 - Additional nameplate for winding temperature detectors (Pt-100).

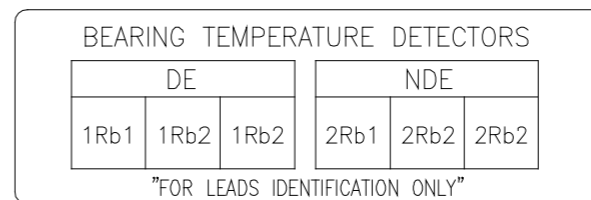


Figure 12 - Additional nameplate of the temperature sensor (Pt-100) for the bearings.

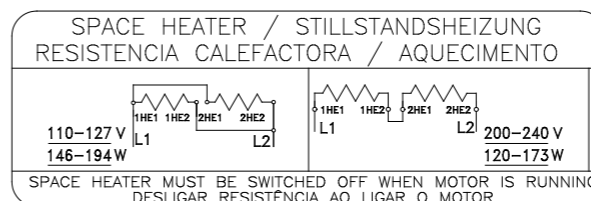


Figure 13 - Additional nameplate for the space heater.

Note:

- When motor is fitted with dual voltage space heaters, WEG supplies the motor connection set for 127 V. If required to connect to 220 V, the wiring diagram must be changed as shown on the additional nameplate of the space heater.

2.8.3 Warning Plate

Motors with rated voltage above 1 kV are supplied with a warning nameplate (see Figure 14), indicating the presence of high voltage on the motor. Never touch any energized circuits or rotating parts of the motor. Maintenance, installation and any interventions must be performed by qualified staff with appropriate tools only. For more details contact WEG technical support.

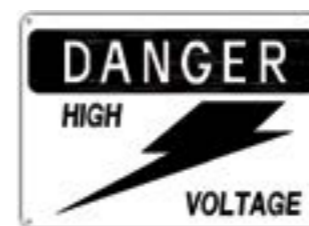


Figure 14 - Warning plate for motors above 1 kV.

3. Ventilation System /Noise Level / Vibration

3.1 Ventilation System

The motors of the W60 line comply with the specification of Totally Enclosed Air-Air Cooled motors (TEAAC - IC611) and Openned Motor (ODP/WP-I/WP-II-IC01). The optional version with Air-Water Cooling (TEWAC - IC81W) can also be provided. On request, WEG can supply the forced ventilation (IC616) option.

3.1.1 Fans

With an innovative ventilation system, W60 motors have a uniform distribution of internal temperature. This system produces a pressure difference between the drive end and non-drive end of the motor, resulting in an air flow through the rotor cooling end channels (see Figure 15). The internal ventilation system results in an homogeneous temperature distribution along the stator, and also helps to reduce the bearing temperature levels.

The internal ventilation system adopted for the W60 motors is simple and compact and provides the required air flow while increasing the cooling efficiency and reducing the vibration levels.

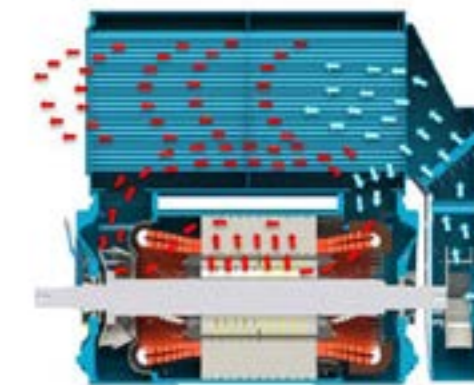
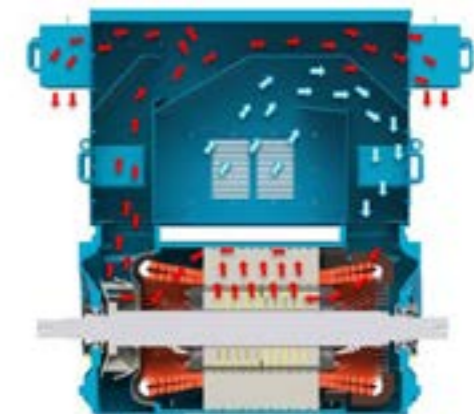


Figure 15 - Airflow channels in the motor frame

3.2 Noise Level

Table below shows the noise levels of the W60 motor platform. The data refers to motors operating at 50 Hz and 60 Hz. For lower speeds, please contact WEG.

Frame	Poles	ODP		WP-II		WP-I		IC611		IC81W
		Noise (dB)	Noise (dB)	Noise With Suppressors (dB)	Noise (dB)	Noise With Suppressors (dB)	Noise (dB)	Noise With Suppressors (dB)	Noise (dB)	
315	2	88	85	82	88	85	87	85	78	
	4	82	85	82	85	82	80	78	78	
	6	77	82	78	82	78	76	-	76	
	8	75	80	76	80	76	74	-	75	
355	2	90	82	78	82	78	90	82	78	
	4	85	81	77	81	77	83	78	78	
	6	78	78	75	78	75	78	-	76	
	8	77	76	74	76	74	78	-	75	
400	2	90	84	82	84	82	88	85	78	
	4	85	82	78	82	78	85	80	78	
	6	78	76	74	76	74	78	77	76	
	8	77	76	74	76	74	77	77	76	
450	2	-	-	-	86	84	84	83	77	
	4	-	-	-	85	83	86	85	76	
	6	-	-	-	83	82	84	83	74	
	8	-	-	-	82	81	83	82	73	
500	2	-	-	-	86	85	85	83	78	
	4	-	-	-	85	83	86	85	76	
	6	-	-	-	84	82	85	84	74	
	8	-	-	-	83	81	84	83	74	
560	2	-	-	-	88	86	86	84	78	
	4	-	-	-	86	84	88	86	76	
	6	-	-	-	84	83	86	84	76	
	8	-	-	-	83	80	84	83	74	

Table 3 - Sound pressure level

Note:
Motor with bi-direction rotation with more 6dB.
The noise level are based on 50 Hz at no load operation. The measurement method is according to ISO1680. With a tolerance of + 3 dB(A). Motor operating at 60 Hz: + 3 dB(A). Special noise level requirement can be evaluated under inquiry.

3.3 Vibration

The vibration of an electrical machine is directly related to its installation conditions. For this reason, it is extremely important that the customer ensures a sturdy base and the required dimensional tolerances.

To prevent equipment damage, vibration levels should be monitored regularly and any abnormal behavior must be immediately reported to the nearest authorized repair shop and/or to WEG. Motors with rolling bearings are highly sensitive to vibrations, and can suffer premature wear if exposed to vibrations above the acceptable limits.

It is recommended that vibration measurements be always performed before and after any maintenance or intervention on the equipment. Whenever possible, the vibrations generated only by the motor must be evaluated by no-load tests, following the procedures described in IEC-60034-14.

According to Table 5 the limits of maximum vibration magnitude in displacement, velocity and acceleration (r.m.s) defined by IEC 60034-14 for motors operating at no-load are classified into vibration grade A and B.

Vibration grade	Mounting	Displacement (1) (rms)	Velocity (1) (rms)	Acceleration (1) (rms)
A	Free suspension (2)	45 µm	2.8 mm/s	4.4 m/s ²
	Rigid mounting (3)	37 µm	2.3 mm/s	3.6 m/s ²
B	Free suspension (2)	29 µm	1.8 mm/s	2.8 m/s ²
	Rigid mounting (3)	24 µm	1.5 mm/s	2.4 m/s ²

Table 5 - Limits of maximum vibration magnitude in displacement, velocity and acceleration according to the IEC- 60034-14.

- (1) Unfiltered values.
- (2) Free suspension mounting measurement can't be performed on WEN motors due to the large size of the motors.
- (3) Vibration limit may be increased for 2-poles motors with electromagnetic excitation at twice the grid frequency (clause 8.2). In these cases, the allowable velocity limit is increased to 2.8 mm/s rms or greater values subjected to prior agreement.

When no special vibration requirements are specified in the Purchase Order, motors will be supplied in conformance with vibration grade A, while motors in conformance with vibration grade B will be supplied only on request.

All rotors of the W60 motors are dynamically balanced with a half key and, as standard, are designed to vibration grade A. According to IEC- 60034-14, the standard motors are balanced to Grade G2.5. For special and lower vibration levels the balance quality grade is G2.5.

For vibration monitoring, the D-endshield of the W60 motors has three M8 threaded holes where vibration sensors can be fitted. Optionally, these holes can be supplied with a threaded adapter for fitting the SPM vibration sensor (see Figure 16 & 17).



Figure 16 - SPM sensors



Figure 17 - Threaded adapter for vibration measurement.

3.3.1 Shaft Relative Vibration Limits

For machines with sleeve bearings with speed over 1,200 rpm and at rated power over 1,000 kW, IEC 60034-14 recommends relative shaft vibration measurements (see Table 6). Sensor readings may be affected by mechanical and magnetic anomalies of the shaft, commonly referred to as runout.

Vibration Grade	Speed Range	Maximum vibration (µm)	Runout (µm) (peak-to-peak)
Grade A	>1,800	65	16
	≤1,800	90	23
Grade B	>1,800	50	12.5
	≤1,800	65	16

Table 6 - Maximum relative shaft displacement.

4. Shaft/Bearings/Stresses

4.1 Shaft

The shafts of the W60 motors comply with IEC 60072 and undergo several numerical analyses until reaching the final dimensioning. Among the evaluation steps are: calculation of fatigue considering the stress concentration, torsion, bending and traction-compression efforts, stress and deformation analysis, torsional and modal analysis. In order to facilitate the maintenance and the coupling of loads, all motors have the shaft with threaded center hole. The standard shaft material is AISI 4140 steel, and supplied with key type "B" according to ISO 2491. On request, WEG can also supply double-end shaft motors, shaft end with special dimensions, and shafts made of other materials. The dimensions for the shaft and key can be found in section 15. Mechanical Data.

4.2 Bearings

The standard motors are supplied with open ball bearings with C3 clearance and lubricated with grease. On request, motors with ball bearings can be supplied with C4 clearance. All motors are supplied with Pt-100 temperature sensors in the windings as standard thus ensuring an efficient method for continuous temperature monitoring during operation. Standard motors are supplied with taconite labyrinth seals and, as an option, they can be supplied with INPRO / SEAL or labyrinth with Teflon Seal. Figure 19 shows the bearing construction form.



Figure 18 - Bearing construction form.

The rated bearing lifetime, L10h, for direct coupling of the W60 line motors is 40,000 hours. Different bearing lifetime L10h can be evaluated on request. The rolling bearing lifetime depends on the type and size of the bearing, the radial and axial loads they are subject, the operating conditions, the speed and grease life. Thus, its lifetime is closely related to its correct use, maintenance and lubrication. When the recommended amount of grease and lubrication intervals are respected, the bearings can reach the lifetime aforementioned.

Note:

- The bearing lifetime, L10h, in terms of operating hour, is the life that 90% of bearings is reached or even exceeded when motors are operated in compliance with the data provided in this catalog.

Table 7 lists the standard rolling bearings for different configurations of the W60 line.

	Frame	Poles	Drive End	Non Drive End
Horizontal Mounting	315	2	6218	6218
		4-6-8	6220	6218
	355	2	6218	6218
		4-6-8	6224	6218
	400	2	6220	6220
		4-6-8	6228	6220
	450	2	6222	6222
		4-6-8	6324	6328
	500	2	6222	6222
		4-6-8	6330	6332
	560	2	6224	6222
		4-6-8	NU1036+6036	NU1032

Table 7 - Standard rolling bearings per frame size.

Optionally, motors with horizontal mounting for applications with high radial loads can be supplied with roller bearings of the NU series. For more details please contact WEG sales.

The W60 motors can also be supplied with sleeve bearings (figure 19) This option ensures lower maintenance and longer bearing life in non-heavy duty applications with direct coupling. Other configurations can be supplied on request of customer.



Figure 19 - Sleeve bearing.

	Frame	Poles	Drive End	Non Drive End
Horizontal Mounting with Sleeve Bearings	315	2	9-80	9-80
		4-6-8	9-80	9-80
	355	2	9-80	9-80
		4 - 8	9-80	9-80
	400	2	9-80	9-80
		4 - 8	9-80	9-80
	450	2	9-100	9-100
		4 - 6	9-100	9-100
	500	2	9-100	9-100
		4 - 6	14-140	9-100
	560	2	9-100	9-100
		4-6	14-140	9-100

Table 8 - Standard sleeve bearings per frame size.



Figure 23 - Insulated NDE endshield

Horizontal motors with sleeve bearings, when required, both endshields may be supplied with insulation. For other configurations, contact WEG.

4.2.3 Lubrication

Bearing Lubrication

The W60 motors are fitted with a lubrication system with grease nipples on the DE and NDE endshields, and a grease outlet drawer system for removing the old grease.

The amount of grease and lubrication intervals are informed on the motor nameplate, and are also specified in Table 9.

	Frame	Poles	DE Bearing	Grease (g)	50 Hz (h)	60 Hz (h)	NDE Bearing	Grease (g)	50 Hz (h)	60 Hz (h)
Horizontal mounting - ball bearings	315	2	6218	24	3800	2500	6218	24	3800	1800
		4-6-8	6220	31	4500	4500	6218	24	3800	1800
	355	2	6218	24	3800	2500	6218	24	3800	1800
		4-6-8	6224	43	4500	4500	6218	24	3800	1800
	400	2	6220	31	3000	2000	6220	31	3000	2000
		4-6-8	6228	52			6220	31		
	450	2	6222	38			6222	38		
		4-6-8	6324	72	4500	4500	6328	93	4500	3400
	500	2	6222	38			6222	38		
		4-6-8	6330	104	4400	3000	6332	116	3900	2600
	560	2	6224	43	4500	4500	6222	43	4500	4500
		4-6-8	NU1036 + 6036	64+64	1700	1000	NU1032	46	2500	1500

Table 9 - Relubrication intervals and amount of grease for grease lubricated bearings.

It is extremely important to follow the lubrication intervals specified on the motor nameplate. An excessive or insufficient lubrication may increase the bearing temperature during operation, resulting in premature wear of the bearings and consequent reduction of their lifetime.

Table 10 specifies the standard type of grease for the motors and indicates some properties of the lubricating grease. Besides the greases already mentioned in the table, there are others that are compatible with the design of the W60 and can also be used. For these cases refer to WEG respective Installation, Operation and Maintenance Manual.

Standard Lubricant	Polyrex EM103 (frame up to 400)
	Shell Gadus S3 T100 (Stamina RL2) (frame 450 up to 560)

Table 10 - Typical properties of the standard lubricant.

Note:

- For operation of the motors under other than normal operating conditions, such as: ambient temperature above 40 °C, altitude higher than 1,000 m above sea level and applications with high axial thrust, please contact WEG.

4.2.1 Shaft Locking Device

The W60 motors are fitted with a mechanical shaft locking device to prevent damage to the rotor and bearings during transportation (see Figures 20, 21 and 22). This locking device should only be removed right before installation and stored in a safe location for future transportation of the motor.



Figure 20 - Shaft locking device for motors with rolling bearing.



Figure 21 - Shaft locking device for motors with special bearing.



Figure 22 - Shaft locking device for motors with sleeve bearing.

4.2.2 Insulated endshield

In order to avoid bearing damage caused by electrical discharges generated inside the bearings, the W60 motors are fitted as standard with insulated NDE endshield (Figure 23). Currents flowing through the bearing have the potential of creating premature failure of these bearings, accelerating the degradation of the lubricant and of the bearing rolling elements. For all motors driven by frequency inverter, the electrical insulation of the NDE endshield and grounding between shaft and frame through grounding brush at drive end is mandatory.

- The use of greases not recommended by WEG or in different amounts than specified above may void the product warranty.

Motors with ball bearings at the drive end (DE) and at the non-drive end (NDE) are fitted with bearings caps and locating bearing at DE and non-locating bearing at NDE with preload washer. When motor is fitted with roller bearing at the drive end, special bearing caps are assembled at the non-drive end where the locating bearing is assembled.

Sleeve Bearing Lubrication

Depending on the application the W60 motor can be supplied with sleeve bearings available on request. This type of bearing requires less maintenance ensures longer lifetime and relubrication intervals.

Table 11 provides key information about lubricants for sleeve bearings.

Frame	Poles	DE Bearing	Lubricant (L)	Relubrication interval (h)	NDE Bearing	Lubricant (L)	Relubrication interval (h)
315	2	9-80	2.4	8.000	9-80	2.4	8.000
	4-6-8						
355	2	9-80	2.4	8.000	9-80	2.4	8.000
	4-6-8						
400	2	9-100	2.4	8.000	9-100	2.4	8.000
	4-6-8						
450	2	9-100	2.4	8.000	9-100	2.4	8.000
	4-6-8						
500	2	9-100	2.4	8.000	9-100	2.4	8.000
	4-6-8						
560	2	9-100	2.4	8.000	9-100	2.4	8.000
	4-6-8						
Poles	Lubricant		Lubricant Specification				
2	FUCHS Renolin DTA 10		ISO VG 32 mineral oil with antifoaming agents and antioxidant additives				
4-6-8	FUCHS Renolin DTA 15		ISO VG 46 mineral oil with antifoaming agents and antioxidant additives				

Table 11 - Sleeve bearings specification and lubrication oil used in them

4.3 Maximum Radial load

The tables below show the maximum allowable radial for the W60 motors. The values of the maximum load were calculated considering a L10h bearing lifetime of 40,000 h. The maximum radial load values consider the axial load equal to zero. For applications involving simultaneously axial and radial load, refer to WEG on bearing lifetime.

To determine the maximum allowable radial and axial loads on the motor shaft the following factors must be considered:

- Regular operating conditions.
- Shaft material: AISI 4140.
- 2-pole motors: parabolic torque load.
- 4, 6 and 8-pole motors: constant torque load.
- The values consider the application of a standard bearing for horizontal mounted motors.
- W60 motors are suitable to special load conditions under inquiry.

4.3.1 Radial Loads

The values shown in Tables 12 for the radial loads refer to the force applied to the center of the shaft end, L/2, and the end of the length of the shaft end (Figure 24).

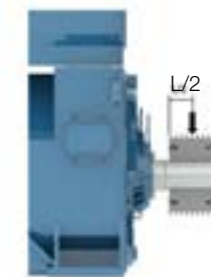


Figure 24 - Radial Load

Model	Poles	W60		
		DE Bearing	NDE Bearing	Maximum Radial Load(kN)
315	4-6-8	6220	6218	6
355		6224	6218	7
400		6228	6220	7
450		6324	6328	4.5
500		6330	6332	7.5
560		NU1036+6036	NU1032	14.5

*Maximum calculated radial load, for higher radial load please consult WEG

Table 12 - Radial Load

5. Degree of protection/Bearing sealing/Painting

5.1 Degree of Protection

Standard IEC 60034-5 defines the degrees of protection of electrical equipment by means of the characteristic letters IP, followed by two characteristic numerals. The W60 motors are supplied with degree of protection IP23, IP24 or IP55.

First characteristic numeral	
1st charact. numeral	Definition
0	No-protected machine
1	Machine protected against solid objects greater than 50 mm
2	Machine protected against solid objects greater than 12 mm
3	Machine protected against solid objects greater than 2,5 mm
4	Machine protected against solid objects greater than 1,0 mm
5	Dust-protected machine
6	Dust-tight machine

Table 13 - First characteristic numeral indicates the degree of protection against the ingress of solid objects and accidental or inadvertent contact.

Second characteristic numeral	
2nd charact. numeral	Definition
0	No-protected machine
1	Machine protected against dripping water
2	Machine protected against dripping water when tilted up to 15°
3	Water falling as a spray at any angle up to 60° from the vertical
4	Water splashing against the machine from any direction
5	Water protected by nozzle against the enclosure from any direction
6	Water from heavy seas or water projected in powerful jets
7	Machine protected against the effects of immersion
8	Machine protected against the effects of continuous submersion

Table 14 - Second characteristic numeral indicates the degree of protection against the ingress of water in the machine.

The W60 motors can also be supplied with higher degree of protection, as indicated below:

- IPW55 for increased degree of protection for outdoor installation.
- IP56 and IPW56 for increased degree of protection against water.
- IP65 and IPW65 for increased degree of protection against dust.
- IP66 and IPW66 for increased degree of protection against dust and water.

Note:

- Letter W means that the motor can be operated in weathering.

5.2 Bearing Sealing

The bearing sealing used on the endshields of the motor is the taconite labyrinth, which ensures the degree of protection IP55 for the motor frame according to IEC 60034-5. This sealing system protects the motor against the ingress of dust and water into the frame present in the environment.

5.3 Painting

The motors can be applied in severe industrial environments, in sheltered locations or outdoors, in the presence of SO₂, steams and solid contaminants, high humidity indexes, alkali and solvent splashes. The painting plan of the motors ensures a minimum of 1,000 hours of corrosion resistance in the test by salt spray chamber according to ASTM B117-03 and corrosion category C5 (I), according to ISO 12944-2.

5.3.1 Internal Anti Corrosive Painting

High humidity indexes can result in premature insulation system deterioration which is the main component that ensures the motor lifetime. Motors applied in environments with relative air humidity of about 95% do not require additional protections beyond the space heater to prevent moisture condensation inside the motor. However, for use in environments with humidity indexes above 95%, it is recommended to apply an epoxy coating on the internal parts of the motor, also known as tropicalized painting.

6. Voltage/Frequency

According to IEC 60034-1, the combinations of voltage and frequency variations are classified as Zone A or Zone B (see Figure 25).

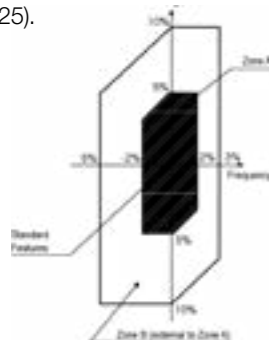


Figure 25 - Limits of voltage and frequency variations under operation.

A motor must be capable of performing its main function continuously at Zone A, however it may not develop completely its performance characteristics at rated voltage and frequency showing few deviations. Temperature rises can be higher than those at rated voltage and frequency. A motor must be capable of performing its main function at Zone B, however it may present higher deviations than those of Zone A in reference to performance characteristics at rated voltage and frequency. Temperature rises can be higher than those at rated voltage and frequency and probably higher than those of Zone A. The extended operation at Zone B is not recommended.

7. Environment

Unless otherwise specified, the rated outputs shown in the electrical data tables in this catalogue refer to continuous duty, S1, according to IEC 60034-1 and under the following operating conditions:

- Ambient temperature range from -30°C to +40°C.
- Altitudes not exceeding 1.000 masl. When the operating temperatures and altitudes differ from those indicated above, you must apply the derating factors indicated in table 15 to determine the useful power output (Pmax).

$P_{max} = P_{nom} \times \text{Derating Factor}$

T (°C)	Altitude (m)								
	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000
10							0.97	0.92	0.88
15						0.98	0.94	0.90	0.86
20					1.00	0.95	0.91	0.87	0.83
25				1.00	0.95	0.93	0.89	0.85	0.81
30			1.00	0.96	0.92	0.90	0.86	0.82	0.78
35		1.00	0.95	0.93	0.90	0.88	0.84	0.80	0.75
40	1.00	0.97	0.94	0.90	0.86	0.82	0.80	0.76	0.71
45	0.95	0.92	0.90	0.88	0.85	0.81	0.78	0.74	0.69
50	0.92	0.90	0.87	0.85	0.82	0.80	0.77	0.72	0.67
55	0.88	0.85	0.83	0.81	0.78	0.76	0.73	0.70	0.65
60	0.83	0.82	0.80	0.77	0.75	0.73	0.70	0.67	0.62
65	0.79	0.76	0.74	0.72	0.70	0.68	0.66	0.62	0.58
70	0.74	0.71	0.69	0.67	0.66	0.64	0.62	0.58	0.53
75	0.70	0.68	0.66	0.64	0.62	0.60	0.58	0.53	0.49
80	0.65	0.64	0.62	0.60	0.58	0.56	0.55	0.48	0.44

Table 15 - Derating factor considering altitude and ambient temperature.

8. Operation Characteristics

During installation and any intervention on the machine, all recommendations for handling, lifting and maintenance must be observed.

8.1 Thermal Protection

In order to monitor the operating condition of the motor, all the W60 motors are fitted with temperature sensors in the windings and on the bearings.

In its standard version, the motors are fitted with two resistance temperature detector (Pt-100) with three wires per phase and

one resistance temperature detector (Pt-100) per bearing (see Figure 7).

Motors with sleeve bearing use Pt-100 with connection head (see Figure 26) fixed directly to the bearing. These devices generally have three wires, but they can be supplied with 2, 4, 6 (duplex) and 8 cables (duplex), and can be supplied with with ATEX or Ex certifications.



Figure 26 - Pt-100 with connection head.

The W60 motors can also be supplied with other accessories:

- **Thermostat:** bimetallic thermal protectors with silver contacts, NC type (normally closed), which open when predetermined temperature rise is reached. When the activation temperature of the bimetal thermal protector decreases, the thermostat will return to its original position instantaneously allowing to close the contact and the consequent restart of the motor. The thermostats are series connected to the motor coil, and thus can be used for switching off the motor. A second set of bimetal thermal protectors can be used for the alarm, however in this case it must be connected to a specific alarm circuit.
- **PTC Thermistors:** increase their resistance very fast with temperature increase. The sudden change in resistance interrupts the current in PTC, activates an output relay, which turns off the main circuit. (see Figure 27).



Figure 27 - PTC Thermistor.

The thermistors have reduced size, do not have mechanical wear, and provide faster response when compared to other temperature sensors. However they do not allow continuous monitoring of the motor heating process. Thermistors with their electronic circuit controls ensure complete protection against overheating caused by phase-fault, overload, under/overvoltages or frequent reversals of direction of rotation or on/off cycles.

8.2 Operation with Frequency Inverter

The W60 motors have a design suitable for applications with variable speed. The standard motor is designed for sine wave filter inverter operation, otherwise a motor with reinforced insulation must be supplied.

All W60 motors fitted with rolling bearings have rigid shafts, avoiding the need of skipping frequencies on the inverter in the operating range; however, for speeds above the catalog limits, contact WEG. The W60 motors can be supplied for high

speed version (up to 5,000 rpm), also on request.

8.2.1 Influence of the Frequency Inverter on Temperature Rise of the Motor

The induction motor may present a higher temperature increase when fed by a frequency inverter, than when fed with sine wave voltage. This overtemperature rise is due to the combination of two factors: the increase of losses on the motor as a function of the harmonic components of the PWM voltage supplied by the inverter, and the reduction of the effectiveness of the ventilation system when the self-ventilated motor operates at low frequencies. Basically the following solutions can be used to prevent the motor overheating :

- Reduction of the rated torque.
- Use of an independent ventilation system (forced ventilation).

Criteria for Torque Reduction

In order to maintain the temperature of the motors within acceptable levels when operating with frequency inverters and without forced ventilation, the load limits shown in Figure 28 must be observed (derating curve of the W60 motor).

This torque reduction is a required solution when the motor drives a load with constant torque.

In order to drive loads with quadratic torque, usually it is not necessary to apply any torque reduction factor.

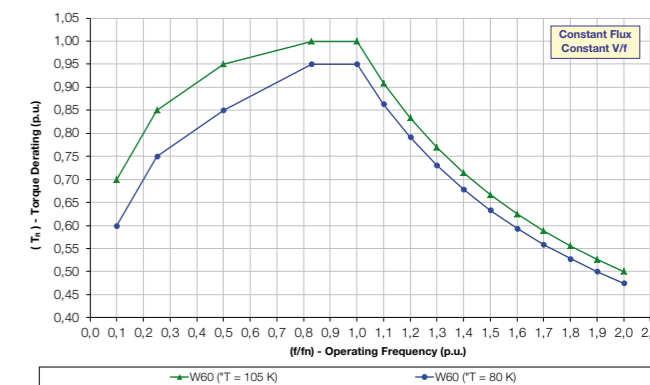


Figure 28 - Derating curve for motors driven by frequency inverter.

For more information on motors operated with frequency inverter, refer to the Technical Guide - Induction motors fed by PWM frequency inverters, which can be found at <http://ecatalog.weg.net/files/wegnet/WEG-induction-motors-fed-by-pwm-frequency-converters-technical-guide-028-technical-article-english.pdf>.

8.2.2 Common-Mode Voltages

The common mode voltages occur when the sum of the voltages at the inverter output is different from zero. They are the main reason why currents flow through the motor bearings driven by static inverter. These currents wear the balls and the ball bearing races, reducing the bearing lifetime and causing premature failures. The W60 motors are supplied with shaft grounding brushes to prevent the current flow through the bearing and this avoid its premature failure, see item 2.4 . Grounding Brush.

9. Installation Characteristics

Some important aspects must be taken into account when dimensioning the installations of the W60 motors, which are described below.

9.1 Strength and Mass of the Motor Mechanical Support System (MSS)

Regardless the mounting type or design of the motor Mechanical Support System (MSS), the assembly must be strong enough with relatively high mass. Several tools can be used to evaluate the strength of the foundation, such as experimental or numerical analysis. The base must present vibration levels less than 30% of the vibration measured on the motor in positions next to the fixation points in the horizontal, vertical and axial directions.

The design of the base must also ensure that its the natural frequencies does not match the running frequency of the motor, also keeping a separation of $\pm 5\%$ from the natural frequency to twice and three times the speed frequency and to once and twice the power line frequency (60 and 120 Hz). Motors that operate with frequency inverter and variable mechanical speed must have the natural frequencies of the system removed from the inverter operating range, so that there are no natural frequencies of the whole system (motor + base + driven equipment) throughout this operating range. Metal fixtures of the motor must feature anchors securely fastened to the foundation anchor plate, avoiding the connection to the motor only with metal parts. Since structural steels absorb little external vibration and do not damp the motor vibrations, the global vibration and noise levels may increase.

The base design must be robust and withstand the motor without significant deformation, taking into account the mass and stresses on the foundation informed by WEG on the motor data sheet.

9.2 Dimensional Control

The dimensional control must be precise, with tolerance for flatness, parallelism and perpendicularity between the supports, avoiding soft foot or motor misalignment.

The area of the motor footrests in the drive end and non-drive end must be identical. The foundation must also ensure 100% support of the DE and NDE foot.

The foot flatness must be controlled for each motor. W60 motors can have flatness of the feet below 0.127 mm according to IEEE 841 standard.

Vertical mounted motors must be mounted on rectangular or round, solid, steel plates with a hole in the center for the shaft extension. The flange support surface must be machined, with threaded or throughout holes, but the fastening screws must be tightened with controlled torque on flat surfaces.

The steel plate must be at least three times thicker than the machine flange (WEG recommend five times). This mounting base plate must be securely fastened to a solid and leveled surface (in compliance with IEC 60034-7 requirements).

10. Special Accessories

Some special accessories can be installed on the W50 motors for specific functions, such as speed control, temperature monitoring, and protection against oscillations of the power line or lightning discharges.

10.1 Encoder

For precise speed and shaft position control in critical applications, the W60 motors can be supplied with an encoder. WEG recommends the use of the following encoders:

- Dynapar- series B58N- 1,024 ppr and 2,048 ppr (hollow shaft). This encoder is easy to mount and ensures good precision (see Figure 29).



Figure 29 - Dynapar B58N Encoder.

- Leine Linde - 861 - 1,024 ppr and 2,048 ppr (hollow shaft). It can also be supplied as an optional item and offers good precision (see Figure 30).



Figure 30 - Leine Linde 861 Encoder.

Other encoder models can be supplied on request.

Note:

- Mounted on the non-drive end of the motor and directly coupled to the shaft extension, the use of this device increases the motor length, which varies according to the encoder.

10.2 Protection Against Voltage Surge

The terminal box of the motor of the W60 high-voltage line can be equipped with an surge arrester per phase (see Figure 31). These components are classified according to the following voltage classes: 3 kV, 6 kV, 9 kV or 12 kV.



Figure 31 - Surge arrester.

Besides the surge arrester, the high-voltage motors also have a surge capacitor per phase as special component (see Figure 32). These devices are installed in the main terminal box and their application recommended in systems potentially subject to voltage peaks during switching operations or lightning discharges. The surge capacitors are installed in a stainless steel enclosure and have the following features:

- Capacitance - 0.5 μ F
- Rate voltage - up to 7.2 kV
- Voltage class - 15 kV



Figure 32 - Surge capacitor used in the W50 line.

10.3 Leveling Screw

In order to ensure perfect alignment between the driven machine and the motor, WEG supplies the leveling screws set as an accessory. These components must be used only during the motor installation and must be removed after the shims are placed between the foundation and the machine.

10.4 Thermometer

In order to monitor the bearing temperature, for both rolling bearing and sleeve bearing, the motors can be fitted with thermometers.

On the rolling bearings, one thermometer can be installed on each endshield, and for sleeve bearings, thermometers can be installed on the bearing shell or oil tank.

10.5 Interchangeability Solutions

With the technological progress, machines are increasingly smaller and more efficient, which consequently results in interchangeability problems, especially for older motors or from different manufacturers. In order to solve this problem, the W60 motors can be supplied with an intermediate base (see Figure 33), or also with dimensional variations, especially on feet and frame.



Figure 33 - Intermediate base.

If the replacement a motor with a frame size (shaft end height) immediately above the output power is required, we supply motors on the frame above with a dedicated design, keeping the mass, length and noise similar to the lower frame size.

If necessary to use the height of two frames above (for example, change the 315 frame by the 400 frame), the motors can be supplied with intermediate steel base. In this case, the upper part of the base features the fixation drilling of the standard motor in the required power, and the lower base the fixation drilling of two frames immediately above.

10.6 Automatic Lubricator

The automatic lubricator available for the W60 motors reduces the motor maintenance, especially in applications in which the motor is in a place with difficult access and high ambient temperature or speeds.

The lubricator, when supplied with the motor, has polyurea based grease and it is configured for the lubrication intervals specified on the motor nameplate. The grease canister must be replaced with the same grease or compatible grease in order to ensure smooth motor operation.

The grease outlet works by the same way of the motors with grease nipple.

Easily-accessible, the lubricator can be mounted on the motor sides or endshields



11. Construction Features

Frame		315	355	400	450	500	560	
Mechanical Features								
Mounting		B3R / B35R / B3L / B35L						
Frame	Material	Carbon Steel / Cast Iron FC-200						
Degree of Protection	WPI/ODP	IP23						
	WPII	IP24			Under Inquiry			
	TEAAC/TEWAC	IP55						
Grounding		Double grounding (1 terminal box + 1 frame)						
Cooling Method		ODP / WPI / WPII (IC01) - TEAAC (IC611) TEWAC (IC81W) - Forced Ventilation (IC06/IC86W/ IC616/IC666)						
Internal Fan	Material	Carbon Steel / Aluminum						
External Fan		Carbon Steel						
Cooling box		Carbon Steel 1010/20						
Endshields		Carbon Steel / Cast Iron (FC-200)						
Drain plug		Plastic threaded plug						
Antifriction Bearing	Shielded/clearance DE 2P		C4					
	Shielded/clearance DE 4P-6P-8P		C3					
	Shielded/clearance NDE 2P		C4					
	Shielded/clearance NDE 4P-6P-8P		C3					
	Locating bearing		Fixed on DE with external and internal bearing cap and preload spring NDE					
	Drive end	2P	6218	6218	6220	6222	6222	6224
4P - 6P - 8P		6220	6224	6228	6324	6330	NU1036 + 6036	
Non-drive end	2P	6218	6218	6220	6222	6222	6222	
	4P - 6P - 8P	6218	6218	6220	6328	6332	NU1032	
Sleeve bearings*	Axial clearance		6mm					
	Locating bearing		Located both bearings					
	Drive end	2P	9-80	9-80	9-80	9-100	9-100	9-100
		4P - 6P - 8P	9-80	9-80	9-80	9-100	14-140	14-140
	Non-drive end	2P	9-80	9-80	9-80	9-100	9-100	9-100
		4P - 6P - 8P	9-80	9-80	9-80	9-100	9-100	9-100
Bearing Seal		Taconite Labyrinth						
Lubrication	Type of grease	2	Polyrex EM103			Shell Gadus S3 T100 (Stamina RL2)		
		4P - 8P	Polyrex EM103			Polyrex EM103		
	Grease fitting		With grease fitting					
Terminal Box	Material		Carbon Steel / Cast Iron (FC-200)					
Lead inlet	Main (medium voltage)	Size	2 x M63 x 1.5					
	Main (high voltage)		3 x M20 x 1.5					
	Additional		Plastic threaded plug					
	Plug							
Shaft	Material		AISI 4140					
	Threaded hole	2P	M20					
		4 - 6 - 8P	M24					
Shaft Key		B key						
Vibration level		Grade A						
Balancing without/half/full key		With 1/2 key						
Nameplate	Material	Laser printed Stainless Steel AISI 304						
Painting	Type	214P						
	Color	RAL 5009						
Electrical Features								
Design		Not applicable						
Voltage	Single Speed	380 V to 6.6 kV	380 V to 10000 V					
Winding	Impregnation	VPI						
	Insulation Class	F (DT 80 K)						
Space Heater		110-127 V / 200-240 / 400-440 V						
Service Factor		1.00						
Ambient Temperature	Maximum	+40 °C						
	Minimum	-20 °C						
Starting Method		DOL						
Rotor		Die cast Aluminium / Copper bar						
Winding thermal protection		Pt-100 - 3 wires (2 per phase)						
Bearing thermal protection		Pt-100 - 3 wires (1 per bearing)						

12. Optional Features

Frame	315	355	400	450	500	560
Mechanical options						
Terminal box type						
Carbon Steel	SD	SD	SD	SD	SD	SD
Cast Iron	O	O	O	O	O	O
Terminal block						
With	O	O	O	O	O	O
Cable Gland						
Without cable gland	SD	SD	SD	SD	SD	SD
Plastic	O	O	O	O	O	O
Brass	O	O	O	O	O	O
Stainless Steel	O	O	O	O	O	O
Fan						
Carbon Steel	SD	SD	SD	SD	SD	SD
Cast Iron	S	S	S	S	S	S
Bronze	S	S	S	S	S	S
Aluminium	O	O	O	O	O	O
Drive end Bearing type						
Ball bearing	SD	SD	SD	SD	SD	SD
Rolling bearing NU design (4p - 6p - 8p)	O	O	O	O	O	O
Sleeve bearing	O	O	O	O	O	O
Non-drive end bearing type						
Ball bearing	SD	SD	SD	SD	SD	SD
Sleeve bearing	O	O	O	O	O	O
Angular contact ball bearing	S	S	S	S	S	S
Insulated drive endshield hub						
Non isolated	SD	SD	SD	SD	SD	SD
Isolated bearing	S	S	S	S	S	S
Isolated end shield	S	S	S	S	S	S
Insulated non-drive endshield hub						
Isolated end shield	SD	SD	SD	SD	SD	SD
Isolated bearing	S	S	S	S	S	S
Non isolated	S	S	S	S	S	S
Drive end bearing seal						
Taconite labyrinth	SD	SD	SD	SD	SD	SD
INPRO/SEAL	O	O	O	O	O	O
Taconite labyrinth with slinger	O	O	O	O	O	O
Mechanical seal	S	S	S	S	S	S
Joint seal						
Loctite 5923 (Permatex) on joints	O	O	O	O	O	O
Shaft						
Material: AISI 4140	SD	SD	SD	SD	SD	SD
Shaft locking device	SD	SD	SD	SD	SD	SD
Threaded center hole (shaft)	SD	SD	SD	SD	SD	SD
Second shaft end	S	S	S	S	S	S
Balance Type						
Normal balance with 1/2 key (for 4 poles on)	SD	SD	SD	SD	SD	SD
Special balance with 1/2 key (for 2 poles)	SD	SD	SD	SD	SD	SD

Note:

- Other optional features, on request;
- Some combinations of optional features are not allowed - then contact WEG;

SD - Standard;

O - Optional

S - Special

Frame	315	355	400	450	500	560
Mechanical Optionals						
Key						
C type key (TYPE A-GB1096)	S	S	S	S	S	S
B type key (TYPE C-GB1096)	SD	SD	SD	SD	SD	SD
Vibration level						
Grade A	SD	SD	SD	SD	SD	SD
Grade B	0	0	0	0	0	0
Lubrication						
Mobil Polyrex EM	SD	SD	SD	0	0	0
Shell Gadus S3 T100 (Stamina RL2)	0	0	0	0	0	0
Isoflex NBU 15	0	0	0	SD	SD	SD
Klubersynth BHP 72-102	0	0	0	0	0	0
ISO VG Oil	0	0	0	0	0	0
Grease fitting						
Carbon steel grease fitting	SD	SD	SD	SD	SD	SD
Threaded grease fitting NPT 1/4"	S	S	S	S	S	S
Grease fitting able to oil mist	S	S	S	S	S	S
Grease outlet						
Grease outlet by plastic slide valve	SD	SD	SD	SD	SD	SD
Grease outlet through endshield	S	S	S	S	S	S
Drain						
Threaded drain plug (closed)	SD	SD	SD	SD	SD	SD
Automatic drain plug	0	0	0	0	0	0
Stainless steel threaded drain plug (closed)	0	0	0	0	0	0
Threaded T-type drain plug (automatic)	0	0	0	0	0	0
Closed plastic drain plug	S	S	S	S	S	S
Degree of Protection						
IP23	SD	SD	SD	SD	SD	SD
IP24	0	0	0	0	0	0
IP55	0	0	0	0	0	0
IP56	0	0	0	0	0	0
IP65	0	0	0	0	0	0
IP66	0	0	0	0	0	0
IPW55	0	0	0	0	0	0
IPW56	0	0	0	0	0	0
IPW65	0	0	0	0	0	0
IPW66	0	0	0	0	0	0
Painting plan						
214P - ISO C5 (I and M) durability class "High" - Indicated for aggressive sheltered and non-sheltered environment. Industrial application that allows SO ₂ , steams, solid contaminant, high humidity and alkali and solvent sprinkles presence	SD	SD	SD	SD	SD	SD
212E - ISO C5 (I and M) durability class "High" - Indicated for marine aggressive environment or marine industrial environment, sheltered allowing high humidity and alkali and solvent sprinkles presence. Indicate to pulp and paper, mining and chemical industrial applications	0	0	0	0	0	0
212P - ISO C5 (I and M) durability class "High" - Indicated for marine aggressive environment or marine industrial environment, sheltered or nonsheltered, allowing high humidity presence. Indicate to pulp and paper, mining and chemical industrial applications	0	0	0	0	0	0

Note:
 1. Other optional features, on request;
 2. Some combinations of optional features are not allowed - then contact WEG;

SD - Standard;
 O - Optional
 S - Special

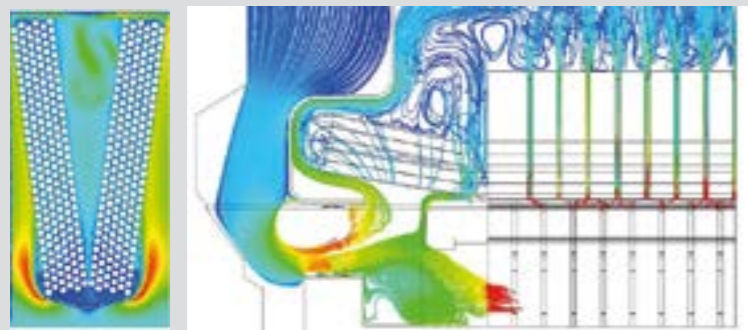
Frame	315	355	400	450	500	560
Electrical optionals						
Winding protection						
3-wire Pt-100, 2 per phase (alarm)	SD	SD	SD	SD	SD	SD
3-wire Pt-100, 2 per phase (tripping)	SD	SD	SD	SD	SD	SD
3-wire Pt-100, 2 per phase, calibrated (alarm)	0	0	0	0	0	0
3-wire Pt-100, 2 per phase, calibrated (tripping)	0	0	0	0	0	0
PTC thermistor - 130 °C (alarm)	0	0	0	0	0	0
PTC thermistor - 155 °C (tripping)	0	0	0	0	0	0
Bimetal thermal protector - 130 °C (alarm)	0	0	0	0	0	0
Bimetal thermal protector - 155 °C (tripping)	0	0	0	0	0	0
Bearing thermal protection						
3-wire Pt-100 - drive end / non drive end	SD	SD	SD	SD	SD	SD
3-wire calibrated Pt-100 - drive end / non drive end	0	0	0	0	0	0
Two 3-wire Pt-100 - drive end / non drive end	0	0	0	0	0	0
Two 3-wire calibrated Pt-100 - drive end / non drive end	0	0	0	0	0	0
Bimetal thermal protector - drive end / non-drive end	0	0	0	0	0	0
Space Heaters						
110-127 V	0	0	0	0	0	0
220-240 V	SD	SD	SD	SD	SD	SD
380-480 V	0	0	0	0	0	0
Insulation Class						
F	SD	SD	SD	SD	SD	SD
H	S	S	S	S	S	S
Forced ventilation kit						
Forced ventilation kit prepared for encoder assembly	S	S	S	S	S	S
Encoder						
Without Encoder	SD	SD	SD	SD	SD	SD
Dynapar B58N	S	S	S	S	S	S
Leine&Linde XH861 900220-1024	S	S	S	S	S	S
Leine&Linde XH861 900220-2048	S	S	S	S	S	S
Grounding brush kit						
Drive end grounding brush	0	0	0	0	0	0

Note:
 1. Other optional features, on request;
 2. Some combinations of optional features are not allowed - then contact WEG;

SD - Standard;
 O - Optional
 S - Special



13. Design Details



Cooling System

With a new and optimized concept for heat exchanging, the W60 allows four different configurations that suits all sort of applications:

- ODP, WP-I, WP-II (IC01)
- TEAAC (IC611)
- TEWAC (IC81W)
- Forced Cooled (IC06, IC86W, IC616, IC666)

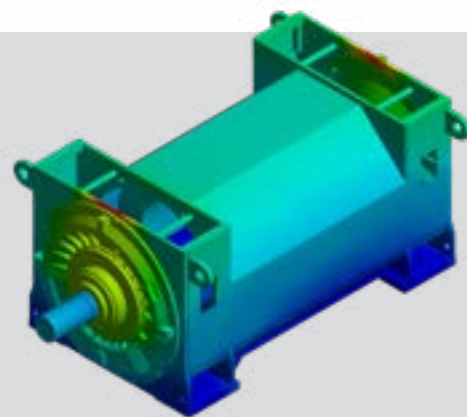


Bearings

Ball bearings are standard for the W60, from 200 kW up to 6,300 kW (275 up to 8,460 HP).

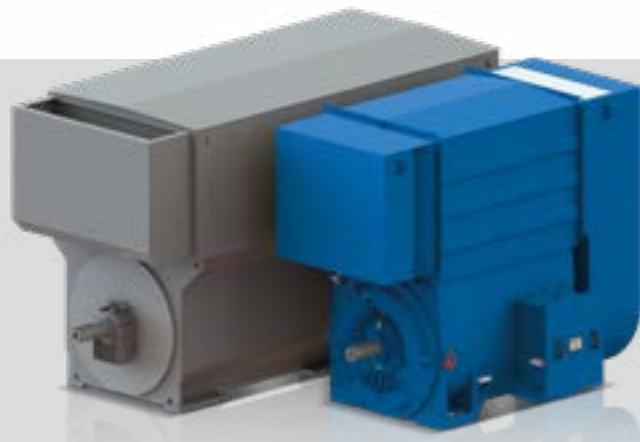
Its compact design allows utilization of antifriction ball bearings where other motors can not.

Sleeve bearings are also available when required.



Frame

Designed using the most advanced software, the W60 new frame design provides a solid structure that allows operation in the most severe environments, suitable for high impact and speed applications.



Compact Design

With the shortest frame available in the market, the W60 requires the smallest footprint installation when compared to similar market products.

14. Electrical and Mechanical Data

W60 / IC81W / 50 Hz / 380 V - IP55

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	904	5.5	1.1	2.2	1.6	15	24	1749	78	2959	94.8	95.1	94.8	0.80	0.87	0.89	503.7
315	430	315F	1019	4.9	1.0	2.0	1.6	15	24	1749	78	2953	95.0	95.1	94.6	0.82	0.88	0.90	564.8
355	480	315F	1151	4.2	0.8	1.6	1.8	17	28	1824	78	2944	95.3	95.1	94.3	0.90	0.90	0.91	628.7
400	550	315F	1295	4.7	0.9	1.9	1.9	14	22	1885	78	2950	95.7	95.5	94.8	0.89	0.90	0.91	704.5
450	610	315F	1453	5.6	1.1	2.2	2.1	11	17	1960	78	2957	96.0	95.9	95.4	0.87	0.90	0.91	787.8
500	680	355G	1610	5.8	0.9	2.1	3.4	15	24	2712	78	2966	95.8	95.7	95.2	0.89	0.90	0.91	876.7
560	750	355G	1805	5.6	0.9	1.9	3.7	15	23	2781	78	2963	95.9	95.8	95.1	0.90	0.90	0.91	982.9
630	850	355G	2030	5.6	0.9	2.0	4.0	14	22	2894	78	2964	96.2	96.1	95.5	0.90	0.90	0.91	1101.5
710	970	400F	2284	5.3	0.7	1.9	6.1	17	28	3576	78	2969	96.4	96.2	95.6	0.89	0.90	0.91	1239.5
800	1100	400F	2580	4.4	0.6	1.6	6.9	20	32	3790	78	2961	96.6	96.1	95.3	0.90	0.90	0.91	1401.7
900	1250	400F	2895	5.5	0.7	2.0	7.3	15	24	3897	78	2969	96.8	96.6	96.0	0.90	0.90	0.91	1565.6
1000	1350	400F	3219	5.3	0.7	1.9	7.7	14	23	4007	78	2967	96.9	96.5	95.9	0.90	0.90	0.91	1741.2
4 poles																			
280	380	315F	1812	4.5	0.8	1.8	3.0	24	36	1878	78	1476	94.9	95.0	94.5	0.88	0.90	0.91	495.0
315	430	315F	2038	4.8	0.8	1.9	3.2	26	32	1952	78	1476	95.3	95.4	94.9	0.88	0.90	0.91	554.4
355	480	315F	2295	5.0	0.9	2.0	3.6	19	29	2010	78	1477	95.5	95.5	95.0	0.87	0.90	0.91	624.0
400	550	315F	2583	5.6	1.0	2.2	3.8	16	24	2076	78	1479	95.8	95.8	95.4	0.85	0.90	0.91	700.0
450	610	315F	2900	6.5	1.2	2.6	4.1	14	19	2156	78	1482	96.0	96.2	95.9	0.81	0.88	0.90	791.2
500	680	355G	3226	5.0	0.8	1.9	6.7	23	29	2963	78	1480	95.9	96.0	95.6	0.87	0.90	0.91	875.6
560	750	355G	3623	4.1	0.6	1.5	7.1	26	32	3040	78	1476	96.0	95.9	95.2	0.89	0.90	0.90	990.9
630	850	355G	4062	5.2	0.8	1.9	7.6	19	24	3132	78	1481	96.3	96.3	95.9	0.87	0.90	0.91	1099.2
710	970	400F	4578	4.9	0.7	1.8	13.4	23	32	3942	78	1481	96.7	96.5	96.0	0.90	0.90	0.91	1234.4
800	1100	400F	5155	5.1	0.8	1.9	14.3	21	28	4061	78	1482	96.9	96.7	96.3	0.89	0.90	0.91	1387.7
900	1250	400F	5791	5.7	0.9	2.1	15.0	17	23	4151	78	1484	97.0	96.9	96.5	0.88	0.90	0.91	1557.5

W60 / IC81W / 50 Hz / 3300 V - IP55

Output		Frame	Full load torque (Nm)	Locked rotor current I/In	Locked rotor torque Tl/Tn	Break-down torque Tb/Tn	Inertia J (kg.m²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current In (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	901	5.7	0.9	2.2	1.7	15	25	1760	78	2967	93.5	94.0	93.7	0.81	0.87	0.89	58.7
315	430	315F	1013	6.1	1.0	2.4	1.7	13	21	1762	78	2970	94.6	94.9	94.5	0.79	0.86	0.89	65.6
355	480	315F	1141	6.2	1.1	2.6	1.7	11	17	1765	78	2970	93.5	94.2	94.0	0.62	0.74	0.80	82.5
400	550	315F	1287	6.1	1.0	2.4	2.0	11	18	1841	78	2969	94.3	94.7	94.4	0.75	0.84	0.87	85.0
450	610	315F	1449	5.9	1.0	2.3	2.1	11	18	1902	78	2966	94.7	94.9	94.5	0.80	0.87	0.89	93.6
500	680	315F	1610	5.7	0.9	2.2	2.3	11	18	1977	78	2965	95.1	95.1	94.6	0.84	0.89	0.91	101.9
630	850	355G	2028	5.4	0.9	2.2	3.5	11	17	2832	78	2966	95.7	95.8	95.4	0.84	0.89	0.90	127.9
710	970	355G	2287	5.5	0.9	2.1	3.8	10	16	2891	78	2965	95.8	95.8	95.3	0.87	0.90	0.91	143.2
800	1100	400F	2577	5.2	0.8	2.0	5.7	10	14	3440	78	2965	95.6	95.7	95.3	0.83	0.88	0.89	164.2
900	1250	400F	2903	4.8	0.8	1.8	6.1	10	15	3549	78	2961	95.9	95.8	95.3	0.86	0.90	0.90	182.7
1000	1350	400F	3221	4.8	0.8	1.9	6.0	10	16	3567	78	2965	96.1	96.1	95.6	0.84	0.89	0.90	203.5
1120	1515	400F	3601	5.8	1.0	2.3	7.4	8	13	3905	78	2970	96.3	96.4	96.1	0.85	0.90	0.91	224.2
1250	1700	400F	4018	6.0	1.0	2.5	7.8	7	12	4009	78	2971	96.4	96.5	96.2	0.83	0.89	0.91	250.3
4 poles																			
280	380	315F	1810	4.7	0.8	2.0	2.5	22	30	1745	78	1477	95.0	95.1	94.6	0.79	0.86	0.88	59.0
315	430	315F	2038	4.6	0.8	2.0	2.7	24	28	1812	78	1476	95.3	95.3	94.8	0.80	0.86	0.88	66.1
355	480	315F	2297	4.5	0.8	1.9	3.0	25	28	1887	78	1476	95.5	95.5	94.9	0.82	0.87	0.89	73.8
400	550	315F	2590	4.8	0.8	2.1	3.1	19	19	1889	78	1475	95.5	95.5	95.0	0.80	0.86	0.88	83.6
450	610	315F	2919	4.0	0.7	1.7	3.2	24	27	1949	78	1472	95.8	95.5	94.7	0.85	0.88	0.89	93.5
500	680	315F	3233	5.3	1.0	2.3	3.6	15	16	2021	78	1477	95.7	95.8	95.3	0.77	0.85	0.88	104.8
560	750	355G	3611	5.2	0.9	2.2	5.5	13	19	2812	78	1481	95.4	95.5	95.1	0.78	0.85	0.87	117.9
630	850	355G	4062	5.3	0.9	2.2	6.0	12	17	2892	78	1481	95.6	95.7	95.2	0.79	0.85	0.88	131.8
710	970	355G	4575	5.7	1.0	2.4	7.0	11	16	3066	78	1482	95.7	95.9	95.5	0.78	0.85	0.88	148.3
800	1100	355G	5155	5.8	1.0	2.4	7.5	10	15	3150	78	1482	95.9	96.0	95.6	0.77	0.84	0.87	167.6
900	1250	400F	5791	5.1	0.7	2.3	11.9	16	22	3786	78	1484	96.1	96.2	95.8	0.80	0.86	0.89	185.6
1000	1350	400F	6435	5.1	0.7	2.2	13.4	15	22	4017	78	1484	96.2	96.3	96.0	0.81	0.87	0.89	204.3
1120	1515	400F	7207	5.1	0.7	2.3	14.2	14	20	4130	78	1484	96.3	96.4	96.1	0.81	0.87	0.89	229.2
1250	1700	400F	8033	5.3	0.8	2.2	14.8	15	21	4204	78	1486	96.5	96.5	96.2	0.79	0.85	0.88	258.7
6 poles																			
355	480	355G	3442	5.3	1.0	2.3	8.3	15	22	2862	76	985	94.4	94.7	94.4	0.66	0.77	0.81	81.1
400	550	355G	3882	5.0	0.9	2.1	8.9	16	22	2938	76	984	94.6	94.8	94.4	0.69	0.78	0.82	90.3
450	610	355G	4367	5.0	0.9	2.1	10.2	16	22	3109	76	984	94.8	95.0	94.5	0.69	0.79	0.82	101.0
500	680	355G	4847	5.2	1.0	2.3	10.2	13	19	3119	76	985	94.9	95.1	94.7	0.66	0.77	0.81	113.7
560	750	355G	5418	5.3	1.0	2.3	10.1	15	22	3229	76	987	95.1	95.4	95.0	0.66	0.77	0.81	127.0
630	850	400F	6083	6.2	1.1	2.7	16.4	11	15	3729	76	989	95.4	95.7	95.4	0.65	0.76	0.82	141.5
710	970	400F	6855	6.0	1.0	2.7	17.4	11	16	3817	76	989	95.8	96.2	96.1	0.65	0.76	0.81	159.0
800	1100	400F	7740	5.1	0.8	2.2	18.6	13	19	3931	76	987	96.1	96.3	96.0	0.73	0.81	0.85	171.8
900	1250	400F	8708	5.2	0.8	2.3	19.7	12	16	4029	76	987	96.2	96.3	96.0	0.71	0.80	0.84	194.9
1000	1350	400F	9665	5.6	0.9	2.5	20.9	10	14	4141	76	988	96.2	96.4	96.1	0.68	0.78	0.83	219.3
8 poles																			
250	340	355G	3226	5.0	1.0	2.1	10.8	31	44	2779	75	740	93.6	94.1	93.8	0.64	0.74	0.79	59.1
280	380	355G	3608	5.2	1.1	2.2	11.6	27	39	2840	75	741	93.6	94.2	93.9	0.61	0.72	0.77	67.5
315	430	355G	4059	5.6	1.2	2.5	12.5	23	33	2924	75	741	93.7	94.3	94.1	0.57	0.69	0.75	77.8
355	480	355G	4581	5.1	1.1	2.2	12.5	23	33	2924	75	740	94.0	94.4	94.1	0.60	0.72	0.77	85.5
400	550	355G	5162	5.0	1.0	2.1	13.3	22	32	2992	75	740	94.2	94.5	94.2	0.61	0.72	0.77	96.1
450	610	400F	5815	5.1	1.0	2.1	21.0	21	30	3563	76	739	94.8	94.9	94.4	0.68	0.78	0.82	102.2
500	680	400F	6444	5.5	1.0	2.5	22.6	20	28	3674	76	741	94.8	95.1	94.8	0.63	0.75	0.80	115.3
560	750	400F	7226	5.2	1.1	2.3	23.7	16	23	3757	76	740	95.0	95.2	94.8	0.66	0.76	0.81	127.7
630	850	400F	8130	5.3	1.1	2.3	25.3	15	21	3868	76	740	95.1	95.3	94.9	0.65	0.76	0.81	144.0
710	970	400F	9150	5.5	1.1	2.4	26.9	13	19	3977	76	741	95.2	95.4	95.0	0.62	0.74	0.79	164.8

W60 / IC81W / 50 Hz / 6000 V - IP55

Output		Frame	Full load torque (Nm)	Locked rotor current I/In	Locked rotor torque Tl/Tn	Break-down torque Tb/Tn	Inertia J (kg.m²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current In (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	902	5.0	0.9	1.9	1.7	15	24	1752	78	2963	93.4	93.7	93.3	0.84	0.89	0.90	32.1
315	430	315F	1016	5.0	0.8	1.9	1.7	10	16	1738	78	2962	93.5	93.7	93.1	0.83	0.88	0.89	36.5
355	480	315F	1144	5.0	0.8	1.9	2.0	10	16	1816	78	2962	94.0	94.1	93.4	0.86	0.90	0.90	40.4
400	550	315F	1286	6.3	1.1	2.6	1.7	8	12	1765	78	2971	93.2	93.9	93.7	0.63	0.75	0.81	50.5
450	610	315F	1451	5.0	0.8	1.9	2.0	9	14	1823	78	2961	94.5	94.4	93.7	0.83	0.88	0.89	51.7
500	680	315F	1611	5.4	0.9	2.1	2.1	8	12	1882	78	2964	94.7	94.7	94.1	0.80	0.87	0.89	57.6
560	750	355G	1804	5.1	0.8	2.1	3.2	13	20	2721	78	2965	95.4	95.5	95.1	0.85	0.89	0.90	62.7
630	850	355G	2028	5.5	0.9	2.2	3.5	11	17	2802	78	2967	95.6	95.7	95.3	0.85	0.89	0.91	70.1
710	970	355G	2287	5.5	0.8	2.0	4.1	11	16	2960	78	2965	95.8	95.8	95.2	0.88	0.90	0.91	78.8
800	1100	400F	2574	4.9	0.8	2.0	5.6	12	20	3461	78	2968	95.6	95.8	95.4	0.83	0.88	0.90	90.0
900	1250	400F	2896	5.1	0.8	2.1	6.0	11	17	3555	78	2968	95.8	95.9	95.6	0.82	0.88	0.89	101.3
1000	1350	400F	3217	5.2	0.8	2.1	6.5	10	16	3687	78	2968	96.0	96.1	95.8	0.84	0.89	0.90	111.1
1120	1515	400F	3600	5.9	1.0	2.4	7.4	8	13	3893	78	2971	96.2	96.3	96.0	0.83	0.89	0.91	124.0
1250	1700	400F	4023	5.6	1.0	2.3	7.6	7	10	3882	78	2967	96.3	96.3	95.9	0.82	0.88	0.90	139.3
1400	1900	450A	4487	4.7	0.7	1.8	15.9	16	23	4118	79	2980	96.4	96.5	96.2	0.88	0.90	0.91	154.5
1600	2200	450A	5125	5.2	0.7	2.0	17.1	14	20	4269	79	2981	96.6	96.7	96.4	0.87	0.90	0.91	175.8
1800	2500	450A	5766	5.1	0.7	1.9	18.9	13	17	4522	79	2981	96.8	96.9	96.5	0.87	0.90	0.90	199.4
2000	2700	450A	6408	5.2	0.7	1.9	20.0	12	17	4637	79	2980	96.9	96.9	96.6	0.90	0.90	0.91	219.0
2240	3043	450A	7179	5.1															

W60 / IC81W / 50 Hz / 6000 V - IP55

W60 / IC81W / 50 Hz / 6000 V - IP55

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
6 poles																			
355	480	355G	3445	4.9	0.9	2.1	9.1	19	27	3025	76	984	94.3	94.6	94.1	0.71	0.80	0.83	43.7
400	550	355G	3882	5.0	0.9	2.2	9.2	16	23	3036	76	984	94.5	94.7	94.2	0.69	0.79	0.82	49.5
450	610	355G	4367	4.9	0.9	2.1	9.6	16	22	3102	76	984	94.6	94.8	94.3	0.70	0.79	0.83	55.7
500	680	355G	4852	4.8	0.8	2.0	9.9	16	22	3085	76	984	94.9	94.9	94.4	0.70	0.79	0.83	61.7
560	750	355G	5435	4.9	0.9	2.1	10.8	13	19	3182	76	984	95.0	95.0	94.5	0.69	0.78	0.82	69.3
630	850	400F	6095	4.8	0.7	2.1	16.4	16	22	3703	76	987	95.3	95.4	95.0	0.73	0.82	0.85	75.2
710	970	400F	6876	4.9	0.8	2.2	17.4	14	20	3801	76	986	95.5	95.5	95.1	0.72	0.81	0.85	84.9
800	1100	400F	7740	5.0	0.8	2.2	18.6	13	19	3913	76	987	95.6	95.6	95.2	0.72	0.81	0.84	95.9
900	1250	400F	8708	5.1	0.8	2.3	19.8	12	17	4018	76	987	95.9	96.1	95.9	0.70	0.80	0.84	107.9
1000	1350	450C	9634	4.4	0.6	1.8	27.6	19	27	4385	76	991	95.3	95.7	95.4	0.73	0.81	0.84	120.7
1120	1515	450C	10791	4.3	0.6	1.8	31.2	20	28	4639	76	991	95.6	95.9	95.6	0.76	0.83	0.84	133.5
1250	1700	450C	12034	4.5	0.6	1.9	36.6	20	28	4995	76	992	95.7	96.0	95.7	0.76	0.83	0.85	148.3
1400	1900	450C	13475	4.7	0.6	1.9	38.4	18	25	5144	76	992	95.8	96.2	96.0	0.74	0.82	0.84	166.6
1600	2200	450C	15388	5.1	0.7	2.1	47.3	18	25	5755	76	993	95.9	96.3	96.2	0.74	0.82	0.85	189.5
1700	2300	450C	16357	4.8	0.6	2.0	47.3	18	25	5755	76	992	96.1	96.4	96.2	0.75	0.82	0.85	200.6
1800	2500	500C	17308	5.8	0.8	2.5	62.2	18	19	6403	76	993	95.9	96.3	96.2	0.73	0.82	0.85	210.7
2000	2700	500C	19244	5.5	0.8	2.3	59.8	17	17	6271	76	992	96.0	96.4	96.2	0.73	0.81	0.85	235.7
2240	3043	500C	21549	5.5	0.8	2.3	73.9	19	20	7047	76	993	96.3	96.5	96.4	0.77	0.84	0.87	257.3
2500	3380	500C	24040	5.8	0.9	2.5	73.9	15	16	7078	76	993	96.3	96.6	96.5	0.72	0.81	0.85	294.8
2650	3600	500C	25494	5.6	0.8	2.3	73.9	15	16	7078	76	993	96.4	96.7	96.5	0.73	0.82	0.85	310.7
2800	3800	560C	26898	5.5	0.7	2.4	91.5	14	18	7919	78	994	96.8	96.9	96.8	0.69	0.79	0.83	336.8
3150	4255	560C	30263	5.2	0.7	2.3	98.9	13	19	8286	78	994	96.9	96.9	96.8	0.69	0.79	0.83	378.2
3550	4800	560C	34080	5.8	0.8	2.5	122.8	14	19	9458	78	995	96.9	96.9	96.9	0.69	0.79	0.83	425.3
4000	5500	560C	38442	4.9	0.6	2.0	130.7	17	22	9841	78	994	96.9	96.9	96.9	0.77	0.84	0.86	462.7
4500	6100	560C	43272	4.7	0.6	1.9	130.7	19	20	9954	78	993	96.9	96.9	96.9	0.78	0.84	0.86	519.6
8 poles																			
250	340	355G	3222	5.1	1.0	2.1	11.3	21	34	2797	75	741	93.3	93.7	93.4	0.62	0.73	0.78	32.8
280	380	355G	3613	5.0	0.9	2.0	12.2	21	34	2880	75	740	93.6	93.9	93.5	0.64	0.75	0.79	36.3
315	430	355G	4065	4.9	0.9	2.0	13.0	25	40	2969	75	740	94.0	94.2	93.8	0.65	0.75	0.79	40.7
355	480	355G	4581	5.1	1.0	2.1	13.9	26	39	3054	75	740	93.9	94.3	93.9	0.63	0.74	0.79	46.1
400	550	355G	5169	4.6	0.9	1.9	13.9	26	39	3054	75	739	94.2	94.4	93.8	0.67	0.76	0.80	51.3
450	610	400F	5807	5.1	0.9	2.2	21.8	22	35	3650	76	740	94.6	94.7	94.2	0.68	0.78	0.82	55.8
500	680	400F	6452	5.1	0.9	2.3	23.1	21	32	3744	76	740	94.7	94.8	94.4	0.67	0.77	0.82	62.3
560	750	400F	7226	5.3	1.0	2.3	24.7	20	29	3855	76	740	94.8	95.0	94.5	0.66	0.77	0.81	70.0
630	850	400F	8119	5.4	1.0	2.4	26.3	18	26	3962	76	741	94.9	95.1	94.7	0.64	0.75	0.80	79.8
710	970	450C	9131	5.0	0.9	2.1	36.9	19	28	4164	75	743	95.1	95.3	94.9	0.70	0.79	0.82	87.4
800	1100	450C	10293	4.8	0.9	1.9	42.2	21	30	4393	75	742	95.4	95.5	95.1	0.74	0.82	0.84	96.2
900	1250	450C	11569	5.1	1.0	2.1	47.5	20	28	4614	75	743	95.4	95.6	95.3	0.72	0.81	0.84	108.8
1000	1350	450C	12841	5.6	1.0	2.2	60.8	21	29	5182	75	744	95.5	95.8	95.5	0.74	0.82	0.85	118.7
1120	1515	450C	14388	5.4	0.9	2.1	66.1	21	30	5398	75	743	95.6	95.9	95.6	0.76	0.83	0.86	131.9
1250	1700	500C	16046	5.4	0.9	2.2	75.2	15	19	5685	76	744	95.9	96.1	95.8	0.71	0.80	0.83	151.2
1400	1900	500C	17968	5.5	0.9	2.1	91.4	17	22	6281	76	744	96.1	96.3	96.0	0.74	0.82	0.85	165.8
1600	2200	500C	20527	5.7	0.9	2.2	111.6	18	22	7035	76	744	96.3	96.5	96.2	0.76	0.83	0.85	187.5
1800	2500	500C	23119	5.1	0.8	1.9	111.6	18	22	7035	76	743	96.5	96.5	96.1	0.78	0.84	0.86	210.3
2000	2700	560C	25621	6.6	1.0	2.8	154.5	12	14	7622	76	745	96.0	96.4	96.3	0.68	0.78	0.83	241.4
2250	3000	560C	28848	5.9	0.9	2.5	154.5	12	14	7622	76	745	96.2	96.5	96.3	0.71	0.80	0.84	267.5
2500	3380	560C	32067	5.6	0.8	2.3	168.0	13	15	7984	76	744	96.4	96.6	96.4	0.74	0.82	0.85	292.5
2800	3800	560C	35859	6.7	1.0	2.8	221.7	14	14	9443	76	746	96.3	96.7	96.7	0.70	0.80	0.84	331.0
3000	4000	560C	38452	6.0	0.9	2.4	235.2	16	17	9801	76	745	96.6	96.8	96.7	0.76	0.84	0.86	346.3

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
10 poles																			
500	680	450C	8081	3.6	0.6	1.5	41.6	37	53	4332	75	591	95.1	94.9	94.0	0.73	0.80	0.81	63.0
560	750	450C	9046	3.7	0.6	1.5	44.2	34	49	4446	75	591	95.1	94.9	94.2	0.72	0.79	0.81	70.5
630	850	450C	10169	3.8	0.7	1.6	46.8	31	44	4563	75	592	95.2	95.1	94.4	0.71	0.79	0.81	79.4
710	970	450C	11439	4.2	0.7	1.7	62.5	34	48	5239	75	593	95.3	95.3	94.8	0.70	0.78	0.81	88.7
800	1100	450C	12899	4.0	0.7	1.6	67.8	32	49	5435	75	592	95.4	95.4	94.7	0.72	0.79	0.82	99.6
900	1250	500C	14485	5.5	1.0	2.4	82.3	23	25	6025	76	593	95.1	95.4	95.1	0.65	0.76	0.81	113.1
1000	1350	500C	16115	5.0	0.9	2.1	98.4	29	31	6625	76	593	95.5	95.6	95.2	0.72	0.81	0.84	120.8
1120	1515	500C	18051	4.9	0.9	2.0	106.4	29	30	6921	76	593	95.6	95.7	95.3	0.73	0.81	0.84	135.1
1250	1700	560C	20111	4.8	0.8	2.0	113.9	15	21	6506	76	594	95.8	95.8	95.3	0.70	0.79	0.82	153.4
1400	1900	560C	22484	5.4	1.0	2.3	134.1	14	19	7048	76	595	95.7	95.9	95.6	0.65	0.75	0.80	175.7
1600	2200	560C	25688	5.5	1.0	2.3	174.4	13	21	8073	76	595	95.9	96.1	95.7	0.69	0.79	0.83	194.9
1800	2500	560C	28857	6.4	1.1	2.8	214.8	13	20	9146	76	596	95.8	96.2	96.0	0.65	0.76	0.81	223.1
2000	2700	560C	32082	6.1	1.0	2.6	234.9	14	21	9674	76	595	96.0	96.3	96.1	0.68	0.78	0.83	242.7
12 poles																			
400	550	450C	7756	4.0	0.8	1.7	59.7	44	63	5109	75	493	93.9	94.2	93.7	0.61	0.71	0.75	54.4
450	610	450C	8729	4.0	0.8	1.7	64.9	44	62	5346	75	492	94.1	94.4	93.8	0.62	0.72	0.76	60.8
500	680	450C	9696	4.0	0.8	1.7	70.1	42	60	5573	75	492	94.1	94.4	93.9	0.62	0.72	0.76	67.6
600	810	450C	11637	4.0	0.8	1.7	72.7	36	51	5693									

W60 / IC81W / 50 Hz / 10000 V - IP55

W60 / IC81W / 50 Hz / 10000 V - IP55

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _N	Locked rotor torque T _L /T _N	Break-down torque T _B /T _N	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _N (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
315	430	355G	1011	6.3	1.0	2.5	2.9	16	26	2569	78	2974	93.7	94.4	94.2	0.82	0.88	0.90	21.4
355	480	355G	1141	5.8	1.0	2.3	3.2	15	24	2639	78	2971	94.1	94.4	94.1	0.85	0.90	0.91	24.0
400	550	355G	1285	6.1	1.0	2.4	3.2	14	23	2647	78	2972	94.5	94.9	94.6	0.83	0.89	0.90	27.0
450	610	355G	1448	5.4	0.9	2.1	3.2	14	23	2647	78	2968	94.7	94.9	94.5	0.85	0.90	0.91	30.3
500	680	355G	1609	5.3	0.8	2.0	3.2	12	19	2642	78	2967	94.9	95.0	94.4	0.85	0.89	0.90	33.8
560	750	355G	1802	5.5	0.9	2.0	3.5	11	18	2736	78	2967	95.2	95.2	94.7	0.86	0.90	0.91	37.5
630	850	355G	2027	5.7	0.9	2.1	3.8	10	17	2815	78	2968	95.4	95.4	94.9	0.86	0.90	0.91	42.1
710	970	400F	2281	5.6	0.9	2.3	6.0	13	21	3479	78	2973	95.1	95.4	95.2	0.82	0.88	0.90	48.1
800	1100	400F	2571	5.5	0.9	2.2	6.5	12	20	3593	78	2971	95.4	95.6	95.3	0.85	0.89	0.90	53.6
900	1250	400F	2892	5.8	0.9	2.3	6.9	11	17	3676	78	2972	95.6	95.8	95.4	0.83	0.89	0.90	60.4
1000	1350	400F	3215	5.5	0.8	2.1	7.4	10	16	3803	78	2970	95.8	95.9	95.5	0.85	0.89	0.90	66.9
1120	1515	450A	3592	5.1	0.8	2.0	11.0	15	25	4290	79	2978	95.8	96.0	95.7	0.86	0.90	0.91	74.4
1250	1700	450A	4009	5.1	0.8	2.0	11.9	14	23	4427	79	2978	96.1	96.2	95.9	0.88	0.90	0.91	82.7
1400	1900	450A	4490	5.1	0.8	2.0	12.6	14	23	4536	79	2977	96.3	96.4	96.0	0.88	0.90	0.91	92.5
1600	2200	450A	5127	5.9	0.9	2.4	14.2	12	19	4848	79	2980	96.5	96.6	96.4	0.86	0.90	0.91	105.3
1800	2500	450A	5766	6.3	0.9	2.5	15.9	11	16	5091	79	2981	96.4	96.6	96.4	0.85	0.90	0.91	118.4
2000	2700	450A	6401	6.0	0.8	2.2	22.2	10	14	5257	79	2984	96.7	96.8	96.6	0.87	0.90	0.91	131.4
2250	3000	500A	7217	5.2	0.8	2.1	17.4	10	16	6207	79	2977	96.6	96.8	96.6	0.85	0.89	0.90	148.7
2500	3380	500A	8023	4.9	0.7	1.9	18.3	10	15	6321	79	2975	96.8	96.8	96.6	0.87	0.90	0.91	164.9
2650	3600	500A	8493	6.0	0.8	2.3	20.4	8	12	6620	79	2980	96.8	96.9	96.8	0.84	0.89	0.90	175.0
2800	3800	500A	8966	5.5	0.7	2.1	26.5	11	16	6594	79	2982	96.9	96.9	96.8	0.87	0.90	0.91	183.6
3150	4255	500A	10089	5.4	0.7	2.1	27.7	10	14	6646	79	2982	96.9	96.9	96.8	0.87	0.90	0.91	206.4
3150	4255	560A	10081	5.0	0.6	1.8	31.2	12	16	8031	79	2984	96.8	96.9	96.8	0.88	0.90	0.91	206.8
3550	4800	560A	11356	5.5	0.7	2.0	33.3	10	13	8198	79	2985	96.9	96.9	96.9	0.87	0.90	0.91	232.6
3750	5095	560A	11996	5.6	0.7	2.0	34.8	8	12	8379	79	2985	96.9	96.9	96.9	0.87	0.90	0.91	245.5
4000	5500	560A	12799	5.5	0.7	2.0	37.0	10	12	8680	79	2984	96.9	96.9	96.9	0.90	0.90	0.91	261.9
4250	5774	560A	13586	6.5	0.7	2.3	43.9	9	11	9472	79	2987	96.9	96.9	96.9	0.88	0.90	0.91	278.3
4500	6100	560A	14398	5.9	0.7	2.2	39.5	9	10	9057	79	2985	96.9	96.9	96.9	0.87	0.90	0.91	294.6
4750	6454	560A	15198	5.9	0.8	2.3	41.0	8	9	9269	79	2985	96.9	96.9	96.9	0.87	0.90	0.91	311.0
5000	6755	560A	15987	6.3	0.9	2.4	46.8	8	10	9877	79	2987	96.9	96.9	96.9	0.88	0.90	0.91	327.4
5600	7500	560A	17904	6.6	0.9	2.5	50.4	7	9	10260	79	2987	96.9	96.9	96.9	0.88	0.90	0.91	366.7
4 poles																			
355	480	355G	2284	6.1	1.0	2.5	5.5	17	26	2727	78	1484	94.1	94.5	94.3	0.77	0.85	0.88	24.8
400	550	355G	2575	5.7	1.0	2.3	5.5	15	24	2720	78	1483	94.4	94.7	94.4	0.78	0.85	0.88	27.9
450	610	355G	2897	5.7	0.9	2.3	5.5	15	21	2730	78	1483	94.5	94.8	94.4	0.76	0.84	0.87	31.5
500	680	355G	3219	5.7	0.9	2.3	6.0	14	20	2825	78	1483	94.8	95.0	94.6	0.78	0.85	0.88	34.8
560	750	355G	3612	5.1	0.9	2.1	6.5	15	22	2892	78	1481	95.1	95.1	94.5	0.81	0.87	0.89	38.5
630	850	355G	4058	5.7	1.0	2.4	6.2	12	17	2908	78	1482	95.1	95.2	94.8	0.77	0.85	0.88	43.7
710	970	400F	4558	6.1	0.9	2.7	11.9	13	21	3660	78	1487	95.2	95.5	95.3	0.76	0.84	0.88	49.1
800	1100	400F	5139	5.9	0.8	2.6	12.6	13	21	3749	78	1487	95.4	95.7	95.4	0.77	0.85	0.88	55.0
900	1250	400F	5783	5.7	0.8	2.5	13.4	13	20	3860	78	1486	95.7	95.8	95.5	0.79	0.86	0.89	61.4
1000	1350	400F	6427	5.6	0.8	2.4	14.3	13	21	3972	78	1486	95.8	95.9	95.6	0.79	0.86	0.89	68.1
1250	1700	450C	8018	5.6	0.8	2.3	29.1	10	16	4950	78	1489	95.4	95.7	95.5	0.79	0.86	0.88	86.1
1400	1900	450C	8979	5.8	0.8	2.3	36.1	8	13	5402	78	1489	95.6	95.9	95.6	0.83	0.88	0.89	94.8
1600	2200	450C	10265	5.6	0.8	2.2	39.5	9	14	5647	78	1488	95.9	96.1	95.8	0.84	0.88	0.90	107.8
1800	2500	450C	11548	5.6	0.8	2.2	43.0	8	13	5891	78	1488	96.1	96.2	95.9	0.85	0.89	0.90	120.9
2000	2700	450C	12840	5.1	0.7	2.0	41.3	11	16	5798	78	1487	96.1	96.3	95.9	0.84	0.88	0.89	135.1
2240	3043	500C	14375	4.6	0.5	1.9	47.6	21	28	6973	78	1488	96.2	96.4	96.1	0.88	0.90	0.90	149.7
2500	3380	500C	16042	4.7	0.6	1.9	52.1	20	27	7292	78	1488	96.4	96.6	96.3	0.88	0.90	0.90	166.4
2800	3800	500C	17962	4.8	0.6	2.0	56.5	19	25	7609	78	1489	96.6	96.7	96.4	0.88	0.90	0.90	185.8
3150	4255	560C	20213	4.1	0.5	1.7	61.4	22	23	8053	78	1488	95.3	95.9	96.0	0.83	0.87	0.88	216.0
3550	4800	560C	22751	4.8	0.5	2.1	67.7	18	19	8463	78	1490	95.5	96.2	96.3	0.79	0.85	0.87	244.8
4000	5500	560C	25615	5.3	0.6	2.2	86.4	18	19	9651	78	1491	96.0	96.7	96.8	0.81	0.87	0.88	270.0
4250	5774	560C	27209	5.6	0.6	2.3	92.7	17	17	10012	78	1492	96.1	96.7	96.8	0.81	0.87	0.88	286.6
4500	6100	560C	28795	6.1	0.7	2.6	96.2	15	15	10183	78	1492	96.1	96.8	96.9	0.77	0.84	0.87	307.5
5000	6755	560C	32013	5.5	0.6	2.3	96.2	15	15	10183	78	1491	96.4	96.9	96.9	0.80	0.86	0.88	339.4
5300	7130	560C	33948	5.2	0.6	2.2	95.9	15	16	10257	78	1491	96.4	96.9	96.9	0.81	0.86	0.88	358.2

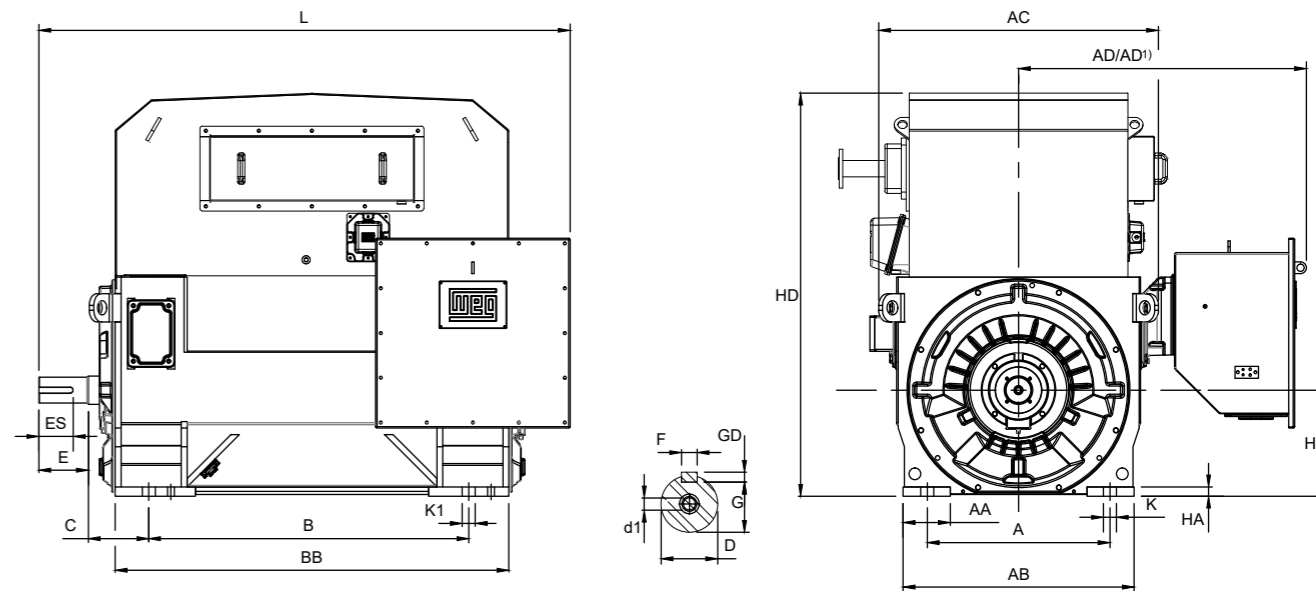
Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _N	Locked rotor torque T _L /T _N	Break-down torque T _B /T _N	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _N (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
6 poles																			
280	380	355G	2716	4.8	0.9	2.0	7.9	22	32	2790	76	985	93.5	93.8	93.2	0.71	0.80	0.83	20.9
315	430	355G	3055	4.9	0.9	2.1	7.9	19	27	2789	76	985	93.6	93.9	93.3	0.69	0.79	0.82	23.6
355	480	355G	3442	5.0	0.9	2.2	7.9	16	23	2806	76	985	93.8	94.1	93.6	0.67	0.78	0.82	26.8
400	550	355G	3881	4.8	0.9	2.1	8.5	16	22	2881	76	984	94.0	94.2	93.6	0.68	0.78	0.82	30.1
450	610	355G	4373	4.6	0.8	1.9	9.6	17	24	3039	76	983	94.4	94.3	93.7	0.72	0.80	0.83	33.3
500	680	400F	4827	5.5	0.8	2.4	17.4	19	26	3733	76	989	94.7	95.0	94.7	0.70	0.80	0.84	36.2
560	750	400F	5407	5.5	0.9	2.4	17.4	12	20	3707	76	989	94.6	94.9	94.5	0.69	0.79	0.84	40.9
630	850	400F	6088	5.2	0.8	2.3	18.6	14	23	3828	76	988	94.9	95.1	94.7	0.72	0.81	0.85	45.3
710	970	400F	6857	5.6	0.9	2.5	20.1	12	19	3944	76	989	95.4	95.					

W60 / IC81W / 50 Hz / 10000 V - IP55

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
10 poles																			
500	680	450C	8036	5.0	0.9	2.1	57.3	13	21	5354	75	594	93.8	94.2	93.7	0.65	0.75	0.80	38.6
560	750	450C	9003	4.8	0.8	2.0	62.5	15	24	5584	75	594	94.2	94.4	94.0	0.66	0.76	0.80	42.8
630	850	450C	10126	4.9	0.9	2.0	65.2	14	22	5697	75	594	94.2	94.5	94.1	0.65	0.75	0.80	48.4
710	970	500C	11419	5.4	1.1	2.2	78.2	13	21	6454	76	594	94.4	94.8	94.4	0.67	0.77	0.81	53.4
800	1100	500C	12871	5.3	1.0	2.1	86.3	14	22	6744	76	594	94.7	94.9	94.5	0.69	0.78	0.82	59.5
900	1250	500C	14487	5.0	1.0	2.0	98.3	16	25	7178	76	593	95.0	95.1	94.6	0.71	0.80	0.83	66.2
1000	1350	500C	16088	5.2	1.0	2.1	106.4	14	23	7462	76	594	95.0	95.2	94.8	0.70	0.79	0.83	73.7
1120	1515	560C	17937	5.6	0.8	2.4	149.0	9	14	8036	76	596	95.5	95.9	95.8	0.64	0.75	0.80	84.0
1250	1700	560C	20018	5.7	0.8	2.4	169.3	9	14	8554	76	596	95.6	96.0	95.9	0.65	0.76	0.81	93.0
1400	1900	560C	22418	5.7	0.8	2.4	196.4	10	16	9271	76	596	95.8	96.2	96.1	0.66	0.76	0.81	103.5
1600	2200	560C	25622	5.7	0.7	2.4	216.7	9	15	9774	76	596	95.9	96.3	96.1	0.67	0.77	0.82	117.6
1800	2500	560C	28828	5.6	0.7	2.4	237.0	12	19	10352	76	596	96.2	96.5	96.4	0.68	0.78	0.82	131.2
12 poles																			
850	1175	500C	16414	4.3	0.8	1.8	119.6	29	46	7975	76	495	94.7	95.0	94.6	0.61	0.71	0.76	68.5
900	1250	560C	17356	4.8	0.9	2.1	153.9	13	21	8146	76	495	94.6	94.8	94.5	0.61	0.72	0.78	70.9
1000	1350	560C	19255	5.4	1.0	2.4	180.7	11	18	8823	76	496	94.4	94.9	94.8	0.56	0.68	0.75	81.2
1120	1515	560C	21571	5.3	1.0	2.4	194.1	11	18	9163	76	496	94.6	95.0	94.8	0.57	0.69	0.76	89.9
1250	1700	560C	24078	5.3	1.0	2.3	207.6	11	18	9513	76	496	94.7	95.2	94.9	0.58	0.70	0.76	100.0
1400	1900	560C	26974	5.1	0.9	2.3	227.7	12	19	10036	76	496	94.9	95.3	95.0	0.59	0.71	0.77	110.7

Mechanical Data

W60 / IC81W / 50 Hz / Ball Bearings - IP55



Frame	Poles	Dimensions													
		A	B	K	C	AB	BB	L ₁	H	HD	HA	AA	K1	AC	AD ₂
315F	2	508	900	35	216	660	1150	1495	315	1425	39.5	130	35	886	783
315F	4/6/8	508	900	35	216	660	1150	1525	315	1425	39.5	130	35	886	783
355G	2	610	1000	35	254	771	1308	1654	355	1635	39.5	170	35	1098	1107
355G	4/6/8	610	1000	35	254	771	1308	1694	355	1635	39.5	170	35	1098	1107
400F	2	686	1250	35	280	866	1508	1911	400	1793	39.5	170	35	1178	1187
400F	4/6/8	686	1250	35	280	866	1508	1991	400	1793	39.5	170	35	1178	1187
450	2	950	1250	35	250	1080	1550	1918	450	1690	58	200	35	1480	1190
450	4/6/8	850	1400	35	250	980	1670	2255	450	1790	39.5	200	35	1187	1221
500	2	1060	1400	42	250	1180	1620	2031	500	1800	58	245	42	1590	1240
500	4/6/8	900	1600	42	260	1080	1835	2465	500	2090	39.5	245	42	1287	1271
560	2	1120	1600	42	-	1290	2030	2412	560	2060	70	245	42	1690	1295
560	4/6/8	1060	1800	42	365	1300	2170	2915	560	2170	53	280	42	1600	1326

Frame	Poles	Shaft End						Ball Bearing		Roller Bearing		Dimension AD ¹				
		E	ES	D	G	GD	F	d1	DE	NDE	DE	NDE	690V	5kV	6kV	10kV
315F	2	140	125	80	71	14	22	M20x2.5	6218	6218	-	-	783	783	783	-
315F	4/6/8	170	140	90	81	14	25	M20x2.5	6220	6218	NU220	-	783	783	783	-
355G	2	170	140	85	76	14	22	M20x2.5	6218	6218	-	-	952	952	945	1107
355G	4/6/8	210	170	110	100	16	28	M24x3.0	6224	6218	NU224	-	952	952	945	1107
400F	2	170	140	95	86	14	25	M24x3.0	6220	6220	-	-	952	952	945	1187
400F	4/6/8	250	200	130	119	18	32	M24x3.0	6228	6220	NU228	-	952	952	945	1187
450	2	210	180	100	90	16	28	M24x3.0	6222	6222	-	-	893	893	893	1190
450	4/6/8	210	160	110	100	16	28	M24x3.0	6324	6328	NU324	-	945	945	945	1221
500	2	210	160	100	90	16	28	M24x3.0	6222	6222	-	-	948	948	948	1240
500	4/6/8	250	200	140	128	20	36	M30x3.5	6330	6332	NU330	-	995	995	995	1271
560	2	210	160	110	100	16	28	M24x3.0	6224	6224	-	-	998	998	998	1295
560	4/6/8	300	240	170	157	22	40	M36x4.0	NU1036	NU1032	-	-	1050	1050	1050	1326

Note:
 - L₁ Motor Without Terminal Box
 - AD₂ Dimension for 10kV Terminal box (6.6kV for frame 315F)

W60 / IC611 / 50 Hz / 380 V - IP55

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	907	4.3	0.8	1.7	1.7	20	44	1703	87	2948	94.9	94.8	94.2	0.90	0.90	0.91	496.4
315	430	315F	1018	5.0	1.0	1.9	1.9	16	35	1770	87	2955	95.3	95.3	94.8	0.90	0.90	0.91	555.0
355	480	315F	1146	5.3	1.0	2.0	2.1	14	31	1833	87	2957	95.6	95.6	95.1	0.90	0.90	0.91	623.2
400	550	315F	1296	4.4	0.8	1.7	2.3	16	35	1904	87	2948	95.7	95.5	94.7	0.90	0.90	0.91	705.2
500	680	355G	1609	6.2	1.0	2.1	4.0	15	23	2798	90	2968	94.9	95.1	94.8	0.90	0.90	0.91	880.6
560	750	355G	1801	6.3	1.1	2.3	4.4	14	22	2911	90	2969	95.3	95.5	95.2	0.90	0.90	0.91	982.1
630	850	400F	2024	5.8	0.8	2.1	7.1	19	30	3792	88	2972	95.5	95.7	95.4	0.89	0.90	0.91	1103.0
710	970	400F	2285	5.0	0.7	1.8	7.6	20	32	3911	88	2967	95.8	95.7	95.2	0.90	0.90	0.91	1245.1
800	1100	400F	2569	6.1	0.8	2.2	8.0	15	24	4010	88	2973	96.0	96.1	95.8	0.89	0.90	0.91	1394.7
900	1250	400F	2893	5.9	0.8	2.1	8.5	14	23	4120	88	2971	96.2	96.2	95.7	0.90	0.90	0.91	1569.5
4 poles																			
280	380	315F	1807	5.3	0.9	2.1	3.6	21	32	1882	80	1480	95.0	95.2	94.9	0.86	0.90	0.91	492.7
315	430	315F	2032	5.7	1.0	2.2	3.9	24	29	1970	80	1481	95.4	95.7	95.4	0.85	0.90	0.91	551.3
355	480	315F	2287	6.3	1.1	2.5	4.2	15	24	2011	80	1482	95.6	95.8	95.5	0.83	0.89	0.91	621.8
400	550	315F	2575	6.2	1.1	2.4	4.5	16	25	2090	80	1483	95.9	96.0	95.8	0.83	0.89	0.91	697.9
500	680	355G	3227	4.7	0.7	1.7	7.8	25	32	3052	83	1479	95.8	95.9	95.4	0.88	0.90	0.91	877.3
560	750	355G	3604	5.9	0.9	2.2	8.3	19	24	3149	83	1484	96.1	96.3	96.0	0.85	0.90	0.91	975.9
710	970	400F	4569	5.5	0.8	2.0	14.8	23	32	4055	85	1484	96.6	96.6	96.2	0.89	0.90	0.91	1231.9
800	1100	400F	5153	5.0	0.7	1.8	15.7	22	33	4159	85	1482	96.7	96.6	96.1	0.90	0.90	0.91	1390.0
900	1250	400F	5801	4.9	0.7	1.8	16.4	25	31	4273	85	1482	96.9	96.7	96.2	0.90	0.90	0.91	1562.0

W60 / IC611 / 50 Hz / 3300 V - IP55

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
315	430	315F	1015	5.1	0.8	2.0	1.9	15	27	1714	87	2963	93.1	93.6	93.2	0.83	0.88	0.89	66.1
355	480	315F	1145	5.0	0.8	1.9	1.9	14	24	1717	87	2962	93.4	93.8	93.4	0.82	0.88	0.89	74.8
400	550	315F	1290	5.0	0.9	2.0	2.2	16	23	1796	87	2962	94.0	94.3	93.8	0.85	0.89	0.90	82.6
450	610	315F	1451	5.3	0.8	2.0	2.3	13	20	1849	87	2963	94.3	94.5	94.0	0.85	0.89	0.90	92.7
500	680	315F	1613	5.0	0.8	1.9	2.6	13	21	1922	87	2960	94.6	94.7	94.1	0.87	0.90	0.91	102.2
560	750	355G	1805	5.3	0.9	2.0	3.5	11	17	2747	90	2962	94.6	95.0	94.6	0.86	0.90	0.91	114.3
630	850	355G	2030	5.5	1.0	2.1	3.9	10	16	2864	90	2963	95.0	95.3	95.0	0.87	0.90	0.91	127.1
710	970	355G	2284	6.7	1.2	2.5	4.5	8	12	3010	90	2969	95.2	95.6	95.3	0.85	0.90	0.92	142.3
800	1100	400F	2573	5.3	0.8	2.1	6.6	12	19	3685	88	2970	95.3	95.7	95.4	0.84	0.89	0.90	162.7
900	1250	400F	2896	5.0	0.8	2.0	7.1	12	18	3822	88	2967	95.7	95.9	95.6	0.87	0.90	0.91	180.8
1000	1350	400F	3216	5.3	0.9	2.1	7.6	10	16	3919	88	2969	95.9	96.1	95.8	0.86	0.90	0.91	200.5
1120	1515	400F	3602	5.7	1.0	2.3	8.1	8	13	4042	88	2969	96.0	96.2	95.9	0.85	0.90	0.91	224.6
4 poles																			
280	380	315F	1809	4.7	0.8	2.0	2.7	25	29	1718	80	1478	93.5	94.1	93.9	0.80	0.86	0.88	59.4
315	430	315F	2034	4.8	0.8	2.1	3.0	21	27	1767	80	1479	93.8	94.4	94.2	0.78	0.85	0.87	67.0
355	480	315F	2293	4.8	0.8	2.0	3.3	22	27	1839	80	1478	94.2	94.6	94.4	0.81	0.86	0.88	74.6
400	550	315F	2584	4.8	0.8	2.1	3.6	21	25	1898	80	1478	94.5	94.9	94.6	0.80	0.86	0.88	83.9
450	610	315F	2910	4.7	0.8	2.0	3.9	23	25	1976	80	1477	94.9	95.1	94.7	0.83	0.88	0.89	93.3
500	680	355G	3222	5.5	1.0	2.3	6.1	18	19	2868	83	1482	94.3	94.8	94.6	0.77	0.85	0.87	105.8
560	750	355G	3604	6.1	1.1	2.6	6.6	16	17	2971	83	1484	94.6	95.1	95.0	0.75	0.83	0.87	119.3
630	850	355G	4057	5.9	1.0	2.5	7.1	15	16	3045	83	1483	94.8	95.2	95.0	0.75	0.84	0.87	133.5
670	900	355G	4315	5.7	1.0	2.3	8.2	17	18	3209	83	1483	95.1	95.4	95.1	0.80	0.86	0.88	139.3
710	970	400F	4569	4.9	0.7	2.1	12.1	20	28	3796	85	1484	95.2	95.6	95.3	0.82	0.88	0.89	146.1
800	1100	400F	5150	4.8	0.7	2.1	13.0	19	27	3926	85	1484	95.5	95.8	95.4	0.83	0.88	0.89	163.9
900	1250	400F	5793	4.9	0.7	2.2	13.8	17	24	4039	85	1484	95.7	95.9	95.6	0.82	0.88	0.89	184.4
1000	1350	400F	6438	4.8	0.6	2.1	14.8	17	24	4160	85	1483	95.9	96.0	95.7	0.83	0.88	0.90	204.2
1120	1500	400F	7206	5.2	0.7	2.3	16.5	20	21	4376	85	1484	96.0	96.2	95.9	0.82	0.88	0.90	228.1
6 poles																			
315	430	355G	3055	4.8	0.9	2.1	8.7	19	28	2816	78	985	94.4	94.7	94.3	0.71	0.80	0.83	70.5
355	480	355G	3442	5.0	0.9	2.2	9.2	17	25	2893	78	985	94.6	94.8	94.4	0.69	0.79	0.82	79.8
400	550	355G	3873	4.7	0.8	2.0	9.7	22	32	2965	78	986	94.9	95.0	94.6	0.71	0.80	0.83	89.3
450	610	355G	4357	4.8	0.9	2.0	9.7	19	27	2980	78	986	95.0	95.2	94.7	0.70	0.79	0.82	101.1
500	680	355G	4838	4.9	0.9	2.1	11.1	19	28	3135	78	987	95.2	95.3	94.9	0.70	0.79	0.82	112.0
560	750	400F	5402	6.7	1.2	2.9	18.1	12	17	3786	78	990	95.1	95.5	95.3	0.65	0.76	0.82	126.0
630	850	400F	6088	5.4	0.9	2.4	20.5	16	22	3885	78	988	95.5	95.6	95.3	0.73	0.82	0.85	135.8
710	970	400F	6862	5.4	0.9	2.4	21.6	14	20	3978	78	988	95.6	95.7	95.4	0.72	0.81	0.85	153.7
800	1100	400F	7729	5.6	0.9	2.5	23.0	13	18	4093	78	988	95.7	95.8	95.5	0.71	0.80	0.84	173.8
900	1250	400F	8682	6.4	1.1	3.0	25.4	10	14	4271	78	990	95.5	95.8	95.6	0.64	0.76	0.82	202.0
8 poles																			
250	340	355G	3219	5.4	1.1	2.4	11.9	27	39	2697	78	742	93.2	93.9	93.8	0.59	0.70	0.76	61.0
280	380	355G	3608	5.2	1.1	2.2	12.8	27	39	2774	78	741	93.6	94.2	93.9	0.61	0.72	0.77	67.5
315	430	355G	4063	5.0	1.0	2.1	13.8	28	40	2854	78	740	94.0	94.4	94.0	0.63	0.74	0.79	74.5
355	480	355G	4582	4.9	1.0	2.0	14.6	27	38	2925	78	740	94.2	94.5	94.1	0.64	0.74	0.79	83.5
400	550	355G	5165	4.7	0.9	2.0	15.7	26	37	3001	78	740	94.4	94.6	94.1	0.65	0.75	0.80	93.5
450	610	400F	5805	5.0	0.9	2.2	24.5	26	37	3754	77	740	94.9	95.0	94.6	0.70	0.79	0.83	100.2
500	680	400F	6450	5.0	0.9	2.2	28.3	25	36	3840	77	740	95.0	95.2	94.7	0.70	0.79	0.83	111.1
560	750	400F	7224	5.1	0.9	2.2	28.8	23	32	3945	77	740	95.1	95.2	94.8	0.69	0.79	0.83	125.0
630	850	400F	8126	4.8	0.8	2.1	30.7	25	36	4065	77	740	95.4	95.5	95.1	0.70	0.79	0.83	140.2

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	902	5.0	0.9	1.9	1.9	13	26	1699	87	2963	92.5	93.1	92.7	0.85	0.89	0.90	32.3
315	430	315F	1014	5.4	0.9	2.1	1.9	11	22	1700	87	2966	92.8	93.4	93.1	0.80	0.87	0.89	36.7
355	480	315F	1142	5.7	1.0	2.2	2.2	11	23	1777	87	2967	93.4	93.9	93.6	0.82	0.88	0.90	40.6
400	550	315F	1289	5.3	0.8	2.0	2.3	10	21	1830	87	2964	93.8	94.1	93.5	0.85	0.90	0.91	45.4
450	610	315F	1449	5.5	1.0	2.2	2.3	9	19	1827	87	2965	94.1	94.3	93.9	0.82	0.88	0.90	51.5
500	680	355G	1609	5.8	1.1	2.3	3.5	12	18	2593	90	2967	94.2	94.7	94.4	0.84	0.89	0.91	56.3
560	750	355G	1801	6.3	1.1	2.4	3.9	10	15	2689	90	2969	94.5	95.0	94.8	0.84	0.89	0.91	62.7
630	850	355G	2027	6.3	1.1	2.4	4.2	9	14	2755	90	2968	94.9	95.2	94.9	0.86	0.90	0.91	70.2
670	910	355G	2156	6.3	1.0	2.3	4.5	9	14	2840	90	2967	95.0	95.3	95.0	0.87	0.90	0.91	74.6
710	970	400F	2280	6.0	1.0	2.5	6.6	12	20	3510	88	2974	95.0	95.5	95.4	0.81	0.87	0.90	79.9
800	1100	400F	2571	5.6	0.9	2.2	7.1	12	20	3614	88	2971	95.3	95.7	95.5	0.86	0.90	0.91	88.6
900	1250	400F	2893	5.5	0.9	2.2	7.6	11	19	3717	88	2971	95.6	95.9	95.6	0.86	0.90	0.91	99.5
1000	1350	400F	3212	6.1	1.0	2.5	8.1	9	16	3832	88	2973	95.8	96.1	95.9	0.84	0.89	0.91	110.3
1120	1515	450A	3588	5.5	0.8	2.1	14.3	16	24	4646	84	2981	94.8	95.5	95.5	0.85	0.90	0.91	124.3
1250	1700	450A	4005	5.3	0.8	2.1	15.2	14	23	4742	84	2980	95.1	95.6	95.5	0.87	0.90	0.91	138.3
1400	1900	450A	4483	5.9	0.9	2.3	16.3	12	19	4893	84	2982	95.3	95.9	95.8	0.85	0.90	0.91	154.5
1600	2200	450A	5121	6.5	0.9	2.5	18.1	11	16	5149	84	2984	95.6	96.2	96.1	0.85	0.90	0.91	176.0
1800	2500	450A	5767	5.5	0.8	2.1	20.6	14	17	5436	84	2980	95.4	95.9	95.9	0.90	0.90	0.91	198.5
2000	2700	450A	6407	5.6	0.9	2.1	21.5	12	15	5550	84	2981	95.6	96.1	96.1	0.90	0.90	0.91	220.2
2250	3000	450A	7208	5.7	0.9	2.1	23.0	11	14	5776	84	2981	95.9	96.3	96.2	0.90	0.90	0.91	247.3
2500	3380	500A	8005	4.9	0.6	1.8	25.4	14	21	6749	84	2982	95.9	96.4	96.3	0.88	0.90	0.90	276.1
2650	3600	500A	8485	4.9	0.7	1.9	26.9	13	20	6972	84	2983	96.1	96.5	96.5	0.89	0.90	0.91	290.5
2800	3800	500A	8963	5.5	0.7	2.1	27.8	12	16	7116	84	2983	96.1	96.6	96.6	0.87	0.90	0.91	306.8
3000	4000	500A	9603	5.4	0.7	2.0	28.2	11	17	7127	84	2983	96.3	96.7	96.6	0.89	0.90	0.91	328.4
3150	4255	560A	10070	5.9	0.6	2.1	37.4	11	18	9046	85	2987	96.1	96.6	96.6	0.89	0.90	0.91	344.7
3350	4551	560A	10713	5.7	0.7	2.0	38.7	11	16	9239	85	2986	96.2	96.7	96.7	0.89	0.90	0.91	366.3
3550	4800	560A	11349	6.2	0.7	2.2	40.7	10	16	9472	85	2987	96.3	96.8	96.9	0.90	0.90	0.91	387.6
3750	5095	560A	11989	5.7	0.7	2.1	44.3	12	17	10062	85	2987	96.4	96.9	96.9	0.90	0.90	0.91	409.2
4000	5500	560A	12782	7.5	0.9	2.7	43.4	7	10	10109	85	2988	96.6	96.9	96.9	0.83	0.89	0.90	440.0
4250	5774	560A	13585	6.5	0.9	2.5	44.9	9	12	10177	85	2988	96.7	96.9	96.9	0.87	0.90	0.91	463.8
4500	6100	560A	14382	7.2	0.8	2.6	50.2	8	10	10865	85	2988	96.8	96.9	96.9	0.88	0.90	0.91	491.1
5000	6755	560A	15978	6.9	0.9	2.6	50.0	8	10	10677	85	2988	96.9	96.9	96.9	0.85	0.89	0.91	546.6
4 poles																			
250	340	315F	1614	4.9	0.8	2.1	2.7	18	31	1805	80	1480	92.9	93.7	93.5	0.79	0.85	0.88	29.3
280	380	315F	1808	4.9	0.8	2.1	3.0	19	30	1868	80	1479	93.3	94.0	93.8	0.80	0.86	0.88	32.6
315	430	315F	2034	4.9	0.8	2.1	3.3	17	29	1937	80	1479	93.7	94.2	94.0	0.81	0.87	0.89	36.4
355	480	315F	2295	5.0	0.9	2.2	3.7	20	23	2012	80	1477	94.1	94.5	94.3	0.82	0.87	0.89	40.7
400	550	315F	2579	6.0	1.1	2.6	4.0	11	18	2062	80	1481	94.1	94.7	94.6	0.77	0.85	0.88	46.3
450	610	355G	2900	5.3	0.9	2.2	6.2	16	23	2863	83	1482	94.1	94.6	94.3	0.80	0.86	0.88	52.1
500	680	355G	3221	5.5	0.9	2.3	6.7	16	22	2947	83	1483	94.4	94.8	94.6	0.80	0.86	0.88	57.6
560	750	355G	3610	5.4	0.9	2.2	7.2	14	20	3028	83	1482	94.6	95.0	94.7	0.80	0.87	0.89	64.3
630	850	355G	4055	6.2	1.0	2.6	7.7	12	17	3105	83	1484	94.8	95.2	95.0	0.76	0.84	0.88	72.9
710	970	400F	4556	6.4	0.9	2.9	13.0	16	22	3896	85	1488	95.0	95.5	95.5	0.74	0.83	0.87	82.3
800	1100	400F	5137	6.1	0.9	2.7	13.8	15	21	3970	85	1487	95.2	95.6	95.5	0.76	0.84	0.88	92.0
900	1250	400F	5777	6.5	1.0	2.9	14.8	13	19	4084	85	1488	95.3	95.8	95.7	0.74	0.83	0.87	104.3
1000	1350	400F	6428	5.5	0.8	2.4	15.7	15	21	4192	85	1485	95.7	95.9	95.7	0.80	0.87	0.89	113.0
1120	1515	450C	7189	4.2	0.5	1.8	24.8	25	40	4292	88	1488	94.5	95.1	94.9	0.83	0.87	0.88	129.5
1250	1700	450C	8021	4.4	0.5	1.8	26.6	24	39	4424	88	1488	94.8	95.4	95.2	0.82	0.87	0.88	143.9
1400	1900	450C	8980	4.6	0.5	1.9	28.4	22	35	4557	88	1489	95.1	95.6	95.5	0.81	0.86	0.87	161.4
1600	2200	450C	10251	5.4	0.6	2.3	31.9	14	23	4765	88	1490	95.2	95.8	95.7	0.77	0.84	0.86	186.2
1800	2500	450C	11531	5.4	0.6	2.2	39.0	17	26	5266	88	1491	95.6	96.1	96.0	0.83	0.88	0.89	202.4
2000	2700	450C	12813	5.3	0.6	2.2	42.6	17	28	5527	88	1491	95.9	96.3	96.2	0.84	0.89	0.90	223.2
2120	2880	450C	13591	5.1	0.6	2.0	43.6	17	27	5626	88	1490	95.9	96.3	96.1	0.86	0.89	0.90	235.9
2250	3000	500C	14427	4.8	0.6	2.0	49.6	23	26	6605	88	1489	94.9	95.6	95.6	0.88	0.90	0.91	250.1
2500	3380	500C	16028	4.9	0.6	2.0	51.8	22	24	6773	88	1490	95.2	95.8	95.8	0.87	0.90	0.90	277.5
2800	3800	500C	17957	4.8	0.6	1.9	58.4	21	25	7230	88	1489	95.5	96.1	96.0	0.89	0.90	0.91	309.2
3150	4255	500C	20190	4.8	0.6	1.9	62.0	16	21	6607	88	1490	95.5	96.0	96.0	0.87	0.90	0.90	349.6
3350	4551	560C	21453	5.3	0.6	2.3	70.9	18	19	8730	90	1491	95.8	96.5	96.7	0.78	0.85	0.87	382.5
3550	4800	560C	22719	5.8	0.6	2.5	77.1	16	17	9175	90	1492	95.8	96.6	96.8	0.75	0.83	0.86	409.0
4000	5500	560C	25602	5.8	0.6	2.5	86.5	16	17	9739	90	1492	96.1	96.8	96.9	0.79	0.85	0.88	453.0
4500	6100	560C	28809	5.6	0.6	2.4	92.7	16	16	10151	90	1492	96.4	96.9	96.9	0.80	0.86	0.88	506.8
5000	6755	560C	32012	5.6	0.6	2.3	99.0	15	16	10519	90	1492	96.5	96.9	96.9	0.81	0.86	0.88	561.9
5250	7120	560C	33622	5.3	0.6	2.2	99.0	15	16	10519	90	1491	96.6	96.9	96.9	0.82	0.87	0.89	589.0

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
6 poles																			
315	430	355G	3049	5.4	1.0	2.4	8.7	17	24	2901	78	987	94.0	94.4	94.1	0.66	0.76	0.81	39.8
355	480	355G	3443	4.8	0.9	2.0	9.0	17	24	2901	78	985	94.3	94.5	94.0	0.70	0.79	0.82	44.1
400	550	355G	3871	5.6	1.1	2.5	10.1	15											

Electrical Data

W60 / IC611 / 50 Hz / 6000 V - IP55

W60 / IC611 / 50 Hz / 10000V - IP55

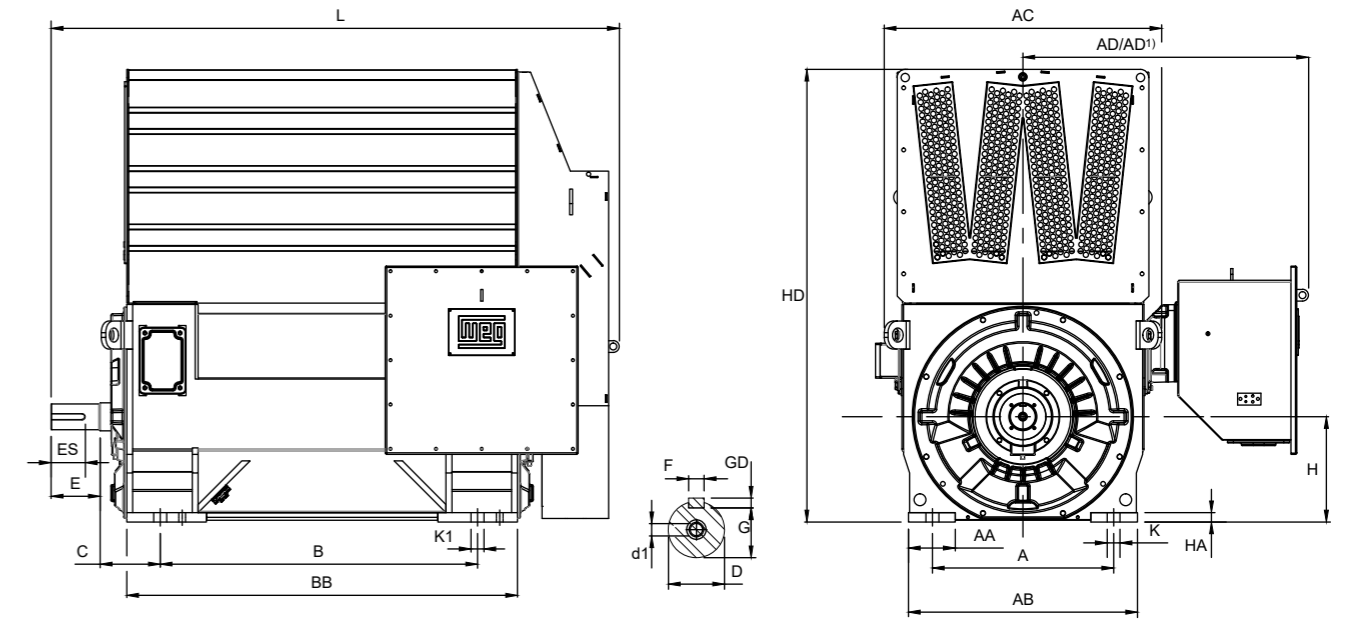
Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
10 poles																			
450	610	450C	7253	4.3	0.8	1.8	39.0	32	45	4309	85	593	94.4	94.7	94.2	0.67	0.76	0.80	57.5
500	680	450C	8062	4.1	0.7	1.7	44.2	34	49	4537	85	592	94.7	94.9	94.3	0.69	0.78	0.81	63.1
560	750	450C	9029	4.1	0.7	1.7	49.4	35	50	4752	85	592	94.8	94.9	94.4	0.70	0.78	0.81	70.3
630	850	450C	10154	4.1	0.7	1.7	54.7	34	48	5000	85	593	95.0	95.2	94.7	0.70	0.78	0.81	78.9
710	970	450C	11427	4.5	0.8	1.9	67.7	31	48	5510	85	593	94.9	95.2	94.8	0.69	0.78	0.81	88.9
800	1100	500C	12859	5.2	1.1	2.1	78.9	27	28	6107	86	594	94.6	95.1	94.9	0.65	0.75	0.80	101.6
900	1250	500C	14461	5.4	1.1	2.1	95.1	28	30	6702	86	594	94.8	95.3	95.1	0.67	0.77	0.81	112.5
1000	1350	500C	16074	5.2	1.0	2.0	107.3	30	31	7145	86	594	95.1	95.5	95.2	0.70	0.79	0.82	123.1
1120	1515	500C	18028	4.7	0.9	1.8	107.3	30	31	7145	86	593	95.3	95.5	95.2	0.73	0.80	0.83	136.9
1120	1515	560C	18007	5.0	0.8	2.1	120.6	19	24	7259	86	594	95.4	95.6	95.2	0.71	0.80	0.83	136.2
1250	1700	560C	20070	5.6	1.0	2.4	134.1	17	21	7616	86	595	95.4	95.7	95.5	0.66	0.77	0.81	155.1
1400	1900	560C	22488	5.3	0.9	2.2	154.3	18	23	8149	86	594	95.6	95.9	95.6	0.71	0.80	0.83	169.6
1600	2200	560C	25654	6.3	1.1	2.7	194.6	14	21	9170	86	596	95.4	95.9	95.8	0.65	0.76	0.81	198.5
1900	2600	560C	30464	6.4	1.1	2.7	234.9	14	21	10228	86	596	95.7	96.1	96.0	0.67	0.77	0.82	232.5
12 poles																			
355	480	450C	6857	5.1	1.2	2.6	48.8	27	39	4727	85	494	91.4	92.8	93.0	0.47	0.60	0.68	54.3
400	550	450C	7749	4.4	0.9	2.0	53.9	35	50	4954	85	493	92.6	93.4	93.2	0.57	0.68	0.74	56.0
450	610	450C	8729	4.1	0.8	1.8	61.7	39	55	5303	85	492	93.1	93.7	93.4	0.60	0.70	0.75	61.7
500	680	450C	9690	4.3	0.9	1.9	64.3	34	49	5416	85	493	93.1	93.7	93.5	0.58	0.69	0.74	69.1
560	750	500C	10811	4.4	0.7	1.8	83.9	46	65	6256	86	495	94.0	94.6	94.4	0.61	0.72	0.76	74.7
630	850	500C	12171	4.1	0.7	1.7	96.0	51	71	6702	86	494	94.4	94.8	94.5	0.64	0.73	0.77	82.8
710	970	500C	13699	4.5	0.8	1.9	108.2	42	63	7130	86	495	94.2	94.8	94.6	0.61	0.72	0.77	94.2
850	1175	500C	16400	4.5	0.8	1.9	116.3	39	57	7431	86	495	94.4	94.9	94.7	0.61	0.71	0.76	113.2
900	1250	560C	17334	5.8	1.1	2.5	154.6	21	29	8108	86	496	95.1	95.8	95.8	0.60	0.72	0.77	116.8
1000	1350	560C	19250	6.0	1.2	2.7	161.3	19	26	8289	86	496	95.0	95.8	95.8	0.56	0.69	0.75	133.3
1120	1515	560C	21558	6.0	1.2	2.7	181.5	18	26	8802	86	496	95.1	95.8	95.9	0.57	0.69	0.76	148.8
1250	1700	560C	24055	6.1	1.2	2.8	207.5	17	27	9486	86	496	95.2	95.9	95.9	0.57	0.69	0.76	165.6
1500	2050	560C	28905	5.4	1.0	2.3	235.4	21	30	10224	86	496	95.7	96.1	96.0	0.63	0.74	0.79	189.8

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
355	480	355G	1141	5.9	1.0	2.4	3.2	14	22	2580	90	2972	92.7	93.5	93.4	0.81	0.87	0.89	24.6
400	550	355G	1285	6.1	1.0	2.4	3.5	14	23	2663	90	2972	93.3	94.1	94.0	0.82	0.88	0.90	27.3
450	610	355G	1447	5.9	0.9	2.3	3.5	12	19	2658	90	2970	93.6	94.2	94.0	0.81	0.87	0.89	30.9
500	680	355G	1609	5.6	0.9	2.2	3.9	14	22	2760	90	2968	94.1	94.5	94.3	0.86	0.90	0.91	33.7
560	750	355G	1800	6.1	1.0	2.4	3.9	11	18	2762	90	2971	94.3	94.8	94.6	0.83	0.89	0.90	37.8
630	850	400F	2022	6.3	1.0	2.6	6.6	13	21	3592	88	2976	94.3	95.0	95.0	0.80	0.86	0.89	43.0
710	970	400F	2279	6.1	1.0	2.5	7.1	12	20	3713	88	2975	94.8	95.3	95.2	0.83	0.88	0.90	47.8
800	1100	400F	2569	5.9	0.9	2.3	7.1	11	18	3705	88	2973	95.0	95.4	95.2	0.82	0.88	0.90	54.0
900	1250	400F	2891	6.1	0.9	2.3	8.1	10	17	3916	88	2973	95.3	95.7	95.4	0.85	0.89	0.91	60.1
1000	1350	450A	3205	6.1	0.9	2.5	12.0	9	15	4705	84	2979	93.0	94.1	94.3	0.87	0.90	0.91	67.3
1120	1515	450A	3593	5.4	0.8	2.2	12.0	9	15	4705	84	2977	93.4	94.3	94.4	0.88	0.90	0.91	75.3
1250	1700	450A	4006	6.3	1.0	2.6	13.9	8	13	4956	84	2979	93.9	94.8	94.9	0.88	0.90	0.91	83.6
1400	1900	450A	4487	6.5	1.0	2.6	14.7	8	12	5064	84	2980	94.2	95.1	95.1	0.87	0.90	0.91	93.4
1600	2200	450A	5130	6.2	0.9	2.5	17.3	8	13	5447	84	2978	94.7	95.4	95.4	0.90	0.90	0.91	106.4
1800	2500	500A	5771	5.3	0.8	2.1	16.3	12	19	6208	84	2978	94.8	95.5	95.6	0.85	0.89	0.90	120.4
2000	2700	500A	6410	5.6	0.9	2.3	17.5	10	16	6398	84	2980	95.1	95.8	95.8	0.84	0.89	0.91	133.1
2250	3000	500A	7205	6.5	1.0	2.7	19.6	8	13	6681	84	2982	95.3	96.0	96.1	0.81	0.88	0.90	150.3
2500	3380	500A	8001	6.4	0.8	2.4	27.5	11	13	6958	84	2984	95.6	96.2	96.2	0.85	0.89	0.91	165.3
2650	3600	560A	8470	6.5	0.8	2.4	33.3	10	15	8524	85	2988	95.3	96.1	96.2	0.85	0.90	0.91	174.8
2800	3800	560A	8951	6.1	0.8	2.3	34.8	12	16	8716	85	2987	95.5	96.2	96.3	0.87	0.90	0.91	184.4
3150	4255	560A	10071	6.1	0.8	2.3	36.9	11	14	8997	85	2987	95.9	96.5	96.6	0.87	0.90	0.91	207.0
3350	4551	560A	10717	6.3	0.9	2.4	37.3	9	10	9273	85	2985	96.1	96.6	96.6	0.86	0.90	0.91	219.9
3550	4800	560A	11353	6.5	1.0	2.5	39.4	8	8	9501	85	2986	96.2	96.7	96.8	0.85	0.89	0.91	234.0
3750	5095	560A	11988	7.2	1.0	2.8	40.7	8	8	9692	85	2987	96.2	96.8	96.9	0.84	0.89	0.91	245.6
4000	5500	560A	12794	6.3	0.9	2.4	48.0	10	11	10550	85	2986	96.6	96.9	96.9	0.89	0.90	0.91	261.9
4250	5774	560A	13588	6.9	1.0	2.6	50.0	9	9	10775	85	2987	96.7	96.9	96.9	0.88	0.90	0.91	278.3
4 poles																			
355	480	355G	2288	5.9	1.0	2.4	6.3	14	20	2789	83	1481	93.0	93.7	93.6	0.78	0.86	0.88	24.8
400	550	355G	2577	6.2	1.1	2.6	6.3	12	17	2792	83	1482	93.2	94.0	93.8	0.76	0.84	0.87	28.2
450	610	355G	2899	6.2	1.1	2.6	6.9	11	16	2886	83	1482	93.6	94.3	94.1	0.77	0.85	0.88	31.5
500	680	355G	3223	6.0	1.1	2.5	7.0	11	16	2959	83	1481	93.8	94.4	94.1	0.77	0.85	0.88	34.9
560	750	355G	3610	6.1	1.1	2.6	7.3	9	13	2957	83	1481	94.1	94.6	94.4	0.76	0.84	0.88	39.2
630	850	400F	4040	6.8	1.0	3.0	13.0	13	21	3805	85	1489	94.3	95.0	95.0	0.73	0.82	0.86	44.3
710	970	400F	4556	6.5	0.9	2.9	13.8	13	21	3893	85	1488	94.6	95.2	95.1	0.74	0.83	0.87	49.5
800	1100	400F	5135	6.3	0.9	2.8	14.8	13	20	4004	85	1488	95.0	95.4	95.3	0.76	0.84	0.88	55.2
900	1250	400F	5779	6.1	0.9	2.7	15.7	13	21	4117	85	1487	95.2	95.6	95.4	0.77	0.85	0.88	61.8
1000	1350	450C	6401	6.0	0.7	2.4	31.9	10	16	4658	88	1492	93.0	94.1	94.4	0.82	0.87	0.89	68.7
1120	1515	450C	7171	5.7	0.6	2.3	35.5	12	19	4914	88	1491	93.6	94.6	94.7	0.85	0.89	0.90	76.0
1250	1700	450C	8006	5.4	0														

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _B /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
6 poles																			
250	340	355G	2418	5.7	1.1	2.5	9.2	22	31	2927	78	987	93.1	93.7	93.5	0.66	0.77	0.82	18.9
280	380	355G	2710	5.5	1.0	2.3	10.0	22	31	3029	78	987	93.5	94.0	93.7	0.68	0.78	0.82	21.0
315	430	355G	3052	5.2	1.0	2.3	9.3	19	27	2947	78	986	93.7	94.0	93.6	0.68	0.78	0.82	23.7
355	480	355G	3436	5.6	1.1	2.4	10.6	17	24	3105	78	987	93.8	94.2	94.0	0.65	0.76	0.81	26.9
400	550	355G	3878	5.1	1.0	2.2	10.6	17	24	3105	78	985	94.1	94.3	93.8	0.69	0.79	0.82	29.8
450	610	400F	4346	5.3	0.8	2.3	18.1	20	29	3784	78	989	94.5	94.9	94.5	0.72	0.81	0.85	32.4
500	680	400F	4822	6.1	1.0	2.7	19.2	12	20	3852	78	990	94.2	94.7	94.5	0.66	0.77	0.82	37.1
560	750	400F	5404	5.7	0.9	2.6	20.5	14	23	3973	78	990	94.7	95.0	94.7	0.69	0.79	0.84	40.8
630	850	400F	6084	5.5	0.9	2.4	21.6	14	22	4060	78	989	94.8	95.1	94.7	0.70	0.80	0.84	45.6
800	1100	450C	7694	6.0	0.9	2.4	31.1	10	17	4604	86	993	94.4	95.0	94.9	0.73	0.82	0.85	57.1
900	1250	450C	8658	5.8	0.9	2.3	32.9	10	16	4725	86	993	94.7	95.2	95.1	0.74	0.83	0.86	63.8
1000	1350	450C	9622	5.5	0.8	2.2	41.9	16	25	5352	86	992	95.2	95.6	95.4	0.80	0.86	0.87	69.2
1120	1515	450C	10765	6.3	1.0	2.5	45.4	15	22	5610	86	994	95.2	95.7	95.7	0.75	0.83	0.86	78.4
1250	1700	450C	12029	5.7	0.9	2.3	44.4	15	22	5568	86	992	95.2	95.7	95.6	0.76	0.83	0.86	88.2
1400	1900	500C	13480	5.8	1.0	2.3	57.3	11	12	6355	87	992	95.0	95.5	95.5	0.73	0.81	0.85	100.1
1600	2200	500C	15399	6.0	1.1	2.4	62.9	10	11	6672	87	992	95.1	95.7	95.7	0.70	0.80	0.84	115.4
1800	2500	500C	17330	5.8	1.1	2.3	68.4	10	11	6985	87	992	95.4	95.9	95.8	0.73	0.81	0.85	128.3
2000	2700	500C	19238	5.7	1.0	2.2	72.0	13	14	7121	87	993	95.5	96.0	95.9	0.74	0.82	0.85	141.4
2240	3043	560C	21528	5.6	0.7	2.4	79.7	12	19	7876	88	994	95.8	96.2	96.1	0.71	0.81	0.85	159.1
2500	3380	560C	24027	5.5	0.7	2.3	99.3	14	22	8831	88	994	96.1	96.5	96.3	0.78	0.85	0.88	171.2
2800	3800	560C	26896	5.9	0.7	2.4	126.6	15	23	10156	88	994	96.3	96.6	96.5	0.79	0.86	0.89	189.2
3150	4255	560C	30268	5.6	0.7	2.3	134.4	14	22	10528	88	994	96.5	96.8	96.6	0.80	0.87	0.89	211.9
3350	4551	560C	32173	6.1	0.7	2.6	134.4	14	21	10585	88	994	96.5	96.8	96.7	0.76	0.84	0.87	228.5
8 poles																			
280	380	400F	3610	5.0	0.8	2.1	22.2	22	35	3639	77	741	93.4	93.6	93.1	0.70	0.80	0.83	20.8
315	430	400F	4062	5.0	0.9	2.1	24.1	22	35	3745	77	741	93.6	93.8	93.3	0.71	0.80	0.84	23.3
355	480	400F	4578	5.0	0.9	2.1	25.4	20	32	3830	77	740	93.9	94.0	93.5	0.71	0.80	0.84	26.2
400	550	400F	5157	5.1	0.9	2.2	27.3	19	30	3936	77	741	94.1	94.2	93.7	0.70	0.80	0.83	29.5
450	610	400F	5795	5.6	1.0	2.5	28.1	16	26	3937	77	742	93.9	94.3	93.9	0.64	0.75	0.81	34.3
500	680	450C	6407	6.9	1.2	2.8	47.5	11	18	4569	85	745	93.0	94.0	94.1	0.67	0.78	0.83	37.1
560	750	450C	7182	6.3	1.1	2.5	47.5	11	18	4569	85	745	93.4	94.2	94.1	0.70	0.80	0.84	40.9
630	850	450C	8078	6.4	1.1	2.5	55.5	13	20	4907	85	745	93.8	94.5	94.5	0.72	0.81	0.85	45.4
710	970	450C	9097	7.0	1.2	2.8	60.8	12	19	5140	85	745	93.8	94.6	94.7	0.68	0.78	0.83	52.2
800	1100	450C	10271	6.1	1.1	2.5	62.8	13	21	5233	85	744	94.3	94.9	94.7	0.74	0.82	0.86	57.0
900	1250	500C	11539	5.9	1.0	2.3	83.3	16	26	6086	86	745	94.4	95.0	95.0	0.71	0.79	0.83	66.2
1000	1350	500C	12823	5.8	0.9	2.3	91.4	17	27	6380	86	745	94.6	95.2	95.2	0.72	0.80	0.83	73.0
1120	1515	500C	14366	5.6	0.9	2.2	103.5	19	30	6818	86	744	94.9	95.5	95.3	0.75	0.82	0.84	80.8
1250	1700	500C	16030	5.8	0.9	2.2	111.6	17	28	7102	86	745	95.0	95.6	95.4	0.74	0.81	0.84	90.3
1400	1900	500C	17987	5.6	0.9	2.2	108.8	15	23	7086	86	743	95.5	95.8	95.5	0.79	0.85	0.87	97.3
1600	2200	560C	20482	7.2	1.1	2.9	181.1	6	10	8738	86	746	95.6	96.0	95.9	0.72	0.81	0.85	113.1
1800	2500	560C	23048	6.9	1.0	2.8	194.5	6	10	9082	86	746	95.8	96.1	96.0	0.73	0.82	0.86	126.4
2000	2700	560C	25609	6.9	1.0	2.8	208.0	7	11	9452	86	746	96.0	96.3	96.1	0.73	0.82	0.86	140.1
2250	3000	560C	28810	6.9	1.0	2.8	221.4	7	10	9807	86	746	96.1	96.4	96.3	0.73	0.82	0.86	157.5
10 poles																			
450	610	450C	7240	4.5	0.8	1.8	59.9	18	28	5068	85	594	93.8	94.0	93.5	0.68	0.77	0.81	34.3
500	680	450C	8032	5.1	0.9	2.1	65.2	16	26	5296	85	594	93.7	94.2	93.9	0.65	0.75	0.80	38.5
560	750	450C	8990	5.4	1.0	2.3	65.2	14	22	5300	85	595	93.6	94.2	94.0	0.61	0.73	0.78	43.9
630	850	500C	10132	5.4	1.1	2.2	74.2	13	21	5832	86	594	93.8	94.3	94.0	0.67	0.77	0.82	47.5
710	970	500C	11407	5.9	1.1	2.4	86.3	14	22	6272	86	594	93.9	94.5	94.4	0.65	0.76	0.81	53.8
800	1100	500C	12855	5.8	1.1	2.4	94.3	14	23	6564	86	594	94.2	94.7	94.5	0.66	0.76	0.81	60.3
900	1250	500C	14463	5.7	1.1	2.3	106.4	14	23	6990	86	594	94.4	94.9	94.7	0.67	0.77	0.82	67.1
1000	1350	560C	16023	5.3	0.7	2.3	142.2	10	16	7678	86	596	95.1	95.6	95.4	0.67	0.77	0.82	74.1
1120	1515	560C	17943	5.4	0.7	2.3	155.8	10	16	8030	86	596	95.2	95.7	95.6	0.67	0.77	0.82	82.9
1250	1700	560C	20018	5.7	0.8	2.4	169.3	9	14	8374	86	596	95.3	95.8	95.7	0.65	0.76	0.81	93.1
1400	1900	560C	22414	5.9	0.8	2.6	189.6	11	18	8955	86	596	95.5	96.1	96.1	0.64	0.75	0.80	104.7
1600	2200	560C	25606	6.2	0.8	2.7	237.0	12	19	10172	86	597	95.7	96.2	96.3	0.64	0.75	0.81	118.9
12 poles																			
750	1000	500C	14483	4.3	0.8	1.8	116.1	27	44	7334	86	495	94.3	94.6	94.3	0.62	0.72	0.76	60.5
800	1100	560C	15424	5.8	1.1	2.6	139.9	10	16	7625	86	495	94.1	94.9	94.8	0.58	0.70	0.77	63.4
900	1250	560C	17337	6.1	1.2	2.8	166.6	8	12	8280	86	496	94.0	94.8	94.8	0.57	0.69	0.76	72.2
1000	1350	560C	19277	5.8	1.1	2.6	186.7	10	15	8812	86	495	94.5	95.1	95.0	0.60	0.72	0.78	77.8
1120	1515	560C	21570	6.3	1.2	2.9	206.8	9	14	9331	86	496	94.4	95.2	95.2	0.57	0.69	0.76	89.4
1250	1700	560C	24078	6.2	1.2	2.8	226.9	9	15	9854	86	496	94.6	95.3	95.3	0.58	0.70	0.77	98.7

Mechanical Data

W60 / IC611 / Ball Bearings - IP55



Frame	Poles	Dimensions														
		A	B	K	C	AB	BB	L	H	HD	HA	AA	K1	AC	AD ₂	
315F	2	508	900	35	216	660	1150	1495	315	1255	39.5	130	35	886	783	
315F	4/6/8	508	900	35	216	660	1150	1525	315	1255	39.5	130	35	886	783	
355G	2	610	1000	35	254	771	1308	1654	355	1465	39.5	170	35	1098	1107	
355G	4/6/8	610	1000	35	254	771	1308	1694	355	1465	39.5	170	35	1098	1107	
400F	2	686	1250	35	280	866	1508	1911	400	1670	39.5	170	35	1178	1187	
400F	4/6/8	686	1250	35	280	866	1508	1991	400	1670	39.5	170	35	1178	1187	
450																

Electrical Data

W60 / IC01 - WP-II / 50Hz / 380V - IP24

W60 / IC01 - WP-II / 50Hz / 3300V - IP24

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	904	5.5	1.1	2.2	1.6	15	24	1639	85	2959	94.8	95.1	94.8	0.80	0.87	0.89	503.7
315	430	315F	1019	4.9	1.0	2.0	1.6	15	24	1639	85	2953	95.0	95.1	94.6	0.82	0.88	0.90	564.8
355	480	315F	1151	4.2	0.8	1.6	1.8	17	28	1713	85	2944	95.3	95.1	94.3	0.90	0.90	0.91	628.7
400	550	315F	1295	4.7	0.9	1.9	1.9	14	22	1775	85	2950	95.7	95.5	94.8	0.89	0.90	0.91	704.5
450	610	315F	1453	5.6	1.1	2.2	2.1	11	17	1849	85	2957	96.0	95.9	95.4	0.87	0.90	0.91	787.8
500	680	355G	1610	5.8	0.9	2.1	3.4	15	24	2624	82	2966	95.8	95.7	95.2	0.89	0.90	0.91	876.7
560	750	355G	1805	5.6	0.9	1.9	3.7	15	23	2693	82	2963	95.9	95.8	95.1	0.90	0.90	0.91	982.9
630	850	355G	2030	5.6	0.9	2.0	4.0	14	22	2806	82	2964	96.2	96.1	95.5	0.90	0.90	0.91	1101.5
710	970	400F	2284	5.3	0.7	1.9	6.1	17	28	3387	84	2969	96.4	96.2	95.6	0.89	0.90	0.91	1239.5
800	1100	400F	2580	4.4	0.6	1.6	6.9	20	32	3601	84	2961	96.6	96.1	95.3	0.90	0.90	0.91	1401.7
900	1250	400F	2895	5.5	0.7	2.0	7.3	15	24	3708	84	2969	96.8	96.6	96.0	0.90	0.90	0.91	1565.6
1000	1350	400F	3219	5.3	0.7	1.9	7.7	14	23	3818	84	2967	96.9	96.5	95.9	0.90	0.90	0.91	1741.2
4 poles																			
280	380	315F	1812	4.5	0.8	1.8	3.0	24	36	1767	85	1476	94.9	95.0	94.5	0.88	0.90	0.91	495.0
315	430	315F	2038	4.8	0.8	1.9	3.2	26	32	1841	85	1476	95.3	95.4	94.9	0.88	0.90	0.91	554.4
355	480	315F	2295	5.0	0.9	2.0	3.6	19	29	1899	85	1477	95.5	95.5	95.0	0.87	0.90	0.91	624.0
400	550	315F	2583	5.6	1.0	2.2	3.8	16	24	1965	85	1479	95.8	95.8	95.4	0.85	0.90	0.91	700.0
450	610	315F	2900	6.5	1.2	2.6	4.1	14	19	2046	85	1482	96.0	96.2	95.9	0.81	0.88	0.90	791.2
500	680	355G	3226	5.0	0.8	1.9	6.7	23	29	2875	81	1480	95.9	96.0	95.6	0.87	0.90	0.91	875.6
560	750	355G	3623	4.1	0.6	1.5	7.1	26	32	2952	81	1476	96.0	95.9	95.2	0.89	0.90	0.90	990.9
630	850	355G	4062	5.2	0.8	1.9	7.6	19	24	3044	81	1481	96.3	96.3	95.9	0.87	0.90	0.91	1099.2
710	970	400F	4578	4.9	0.7	1.8	13.4	23	32	3753	82	1481	96.7	96.5	96.0	0.90	0.90	0.91	1234.4
800	1100	400F	5155	5.1	0.8	1.9	14.3	21	28	3871	82	1482	96.9	96.7	96.3	0.89	0.90	0.91	1387.7
900	1250	400F	5791	5.7	0.9	2.1	15.0	17	23	3962	82	1484	97.0	96.9	96.5	0.88	0.90	0.91	1557.5

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	901	5.7	0.9	2.2	1.7	15	25	1649	85	2967	93.5	94.0	93.7	0.81	0.87	0.89	58.7
315	430	315F	1013	6.1	1.0	2.4	1.7	13	21	1652	85	2970	94.6	94.9	94.5	0.79	0.86	0.89	65.6
355	480	315F	1141	6.2	1.1	2.6	1.7	11	17	1654	85	2970	93.5	94.2	94.0	0.62	0.74	0.80	82.5
400	550	315F	1287	6.1	1.0	2.4	2.0	11	18	1730	85	2969	94.3	94.7	94.4	0.75	0.84	0.87	85.0
450	610	315F	1449	5.9	1.0	2.3	2.1	11	18	1791	85	2966	94.7	94.9	94.5	0.80	0.87	0.89	93.6
500	680	315F	1610	5.7	0.9	2.2	2.3	11	18	1867	85	2965	95.1	95.1	94.6	0.84	0.89	0.91	101.9
630	850	355G	2028	5.4	0.9	2.2	3.5	11	17	2744	82	2966	95.7	95.8	95.4	0.84	0.89	0.90	127.9
710	970	355G	2287	5.5	0.9	2.1	3.8	10	16	2803	82	2965	95.8	95.8	95.3	0.87	0.90	0.91	143.2
800	1100	400F	2577	5.2	0.8	2.0	5.7	10	14	3251	84	2965	95.6	95.7	95.3	0.83	0.88	0.89	164.2
900	1250	400F	2903	4.8	0.8	1.8	6.1	10	15	3360	84	2961	95.9	95.8	95.3	0.86	0.90	0.90	182.7
1000	1350	400F	3221	4.8	0.8	1.9	6.0	10	16	3378	84	2965	96.1	96.1	95.6	0.84	0.89	0.90	203.5
1120	1515	400F	3601	5.8	1.0	2.3	7.4	8	13	3716	84	2970	96.3	96.4	96.1	0.85	0.90	0.91	224.2
1250	1700	400F	4018	6.0	1.0	2.5	7.8	7	12	3820	84	2971	96.4	96.5	96.2	0.83	0.89	0.91	250.3
4 poles																			
280	380	315F	1810	4.7	0.8	2.0	2.5	22	30	1634	85	1477	95.0	95.1	94.6	0.79	0.86	0.88	59.0
315	430	315F	2038	4.6	0.8	2.0	2.7	24	28	1701	85	1476	95.3	95.3	94.8	0.80	0.86	0.88	66.1
355	480	315F	2297	4.5	0.8	1.9	3.0	25	28	1776	85	1476	95.5	95.5	94.9	0.82	0.87	0.89	73.8
400	550	315F	2590	4.8	0.8	2.1	3.1	19	19	1779	85	1475	95.5	95.5	95.0	0.80	0.86	0.88	83.6
450	610	315F	2919	4.0	0.7	1.7	3.2	24	27	1839	85	1472	95.8	95.5	94.7	0.85	0.88	0.89	93.5
500	680	315F	3233	5.3	1.0	2.3	3.6	15	16	1910	85	1477	95.7	95.8	95.3	0.77	0.85	0.88	104.8
560	750	355G	3611	5.2	0.9	2.2	5.5	13	19	2724	81	1481	95.4	95.5	95.1	0.78	0.85	0.87	117.9
630	850	355G	4062	5.3	0.9	2.2	6.0	12	17	2804	81	1481	95.6	95.7	95.2	0.79	0.85	0.88	131.8
710	970	355G	4575	5.7	1.0	2.4	7.0	11	16	2978	81	1482	95.7	95.9	95.5	0.78	0.85	0.88	148.3
800	1100	355G	5155	5.8	1.0	2.4	7.5	10	15	3062	81	1482	95.9	96.0	95.6	0.77	0.84	0.87	167.6
900	1250	400F	5791	5.1	0.7	2.3	11.9	16	22	3597	82	1484	96.1	96.2	95.8	0.80	0.86	0.89	185.6
1000	1350	400F	6435	5.1	0.7	2.2	13.4	15	22	3828	82	1484	96.2	96.3	96.0	0.81	0.87	0.89	204.3
1120	1515	400F	7207	5.1	0.7	2.3	14.2	14	20	3941	82	1484	96.3	96.4	96.1	0.81	0.87	0.89	229.2
1250	1700	400F	8033	5.3	0.8	2.2	14.8	15	21	4015	82	1486	96.5	96.5	96.2	0.79	0.85	0.88	258.7
6 poles																			
355	480	355G	3442	5.3	1.0	2.3	8.3	15	22	2774	78	985	94.4	94.7	94.4	0.66	0.77	0.81	81.1
400	550	355G	3882	5.0	0.9	2.1	8.9	16	22	2850	78	984	94.6	94.8	94.4	0.69	0.78	0.82	90.3
450	610	355G	4367	5.0	0.9	2.1	10.2	16	22	3021	78	984	94.8	95.0	94.5	0.69	0.79	0.82	101.0
500	680	355G	4847	5.2	1.0	2.3	10.2	13	19	3031	78	985	94.9	95.1	94.7	0.66	0.77	0.81	113.7
560	750	355G	5418	5.3	1.0	2.3	10.1	15	22	3141	78	987	95.1	95.4	95.0	0.66	0.77	0.81	127.0
630	850	400F	6083	6.2	1.1	2.7	16.4	11	15	3540	76	989	95.4	95.7	95.4	0.65	0.76	0.82	141.5
710	970	400F	6855	6.0	1.0	2.7	17.4	11	16	3628	76	989	95.8	96.2	96.1	0.65	0.76	0.81	159.0
800	1100	400F	7740	5.1	0.8	2.2	18.6	13	19	3741	76	987	96.1	96.3	96.0	0.73	0.81	0.85	171.8
900	1250	400F	8708	5.2	0.8	2.3	19.7	12	16	3840	76	987	96.2	96.3	96.0	0.71	0.80	0.84	194.9
1000	1350	400F	9665	5.6	0.9	2.5	20.9	10	14	3952	76	988	96.2	96.4	96.1	0.68	0.78	0.83	219.3
8 poles																			
250	340	355G	3226	5.0	1.0	2.1	10.8	31	44	2691	76	740	93.6	94.1	93.8	0.64	0.74	0.79	32.5
280	380	355G	3608	5.2	1.1	2.2	11.6	27	39	2752	76	741	93.6	94.2	93.9	0.61	0.72	0.77	37.1
315	430	355G	4059	5.6	1.2	2.5	12.5	23	33	2836	76	741	93.7	94.3	94.1	0.57	0.69	0.75	42.8
355	480	355G	4581	5.1	1.1	2.2	12.5	23	33	2836	76	740	94.0	94.4	94.1	0.60	0.72	0.77	47.0
400	550	355G	5162	5.0	1.0	2.1	13.3	22	32	290									

Electrical Data

W60 / IC01 - WP-II / 50Hz / 6000V - IP24

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _B /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	902	5.0	0.9	1.9	1.7	15	24	1641	85	2963	93.4	93.7	93.3	0.84	0.89	0.90	32.1
315	430	315F	1016	5.0	0.8	1.9	1.7	10	16	1627	85	2962	93.5	93.7	93.1	0.83	0.88	0.89	36.5
355	480	315F	1144	5.0	0.8	1.9	2.0	10	16	1705	85	2962	94.0	94.1	93.4	0.86	0.90	0.90	40.4
400	550	315F	1286	6.3	1.1	2.6	1.7	8	12	1654	85	2971	93.2	93.9	93.7	0.63	0.75	0.81	50.5
450	610	315F	1451	5.0	0.8	1.9	2.0	9	14	1712	85	2961	94.5	94.4	93.7	0.83	0.88	0.89	51.7
500	680	315F	1611	5.4	0.9	2.1	2.1	8	12	1771	85	2964	94.7	94.7	94.1	0.80	0.87	0.89	57.6
560	750	355G	1804	5.1	0.8	2.1	3.2	13	20	2633	82	2965	95.4	95.5	95.1	0.85	0.89	0.90	62.7
630	850	355G	2028	5.5	0.9	2.2	3.5	11	17	2714	82	2967	95.6	95.7	95.3	0.85	0.89	0.91	70.1
710	970	355G	2287	5.5	0.8	2.0	4.1	11	16	2872	82	2965	95.8	95.8	95.2	0.88	0.90	0.91	78.8
800	1100	400F	2574	4.9	0.8	2.0	5.6	12	20	3272	84	2968	95.6	95.8	95.4	0.83	0.88	0.90	90.0
900	1250	400F	2896	5.1	0.8	2.1	6.0	11	17	3366	84	2968	95.8	95.9	95.6	0.82	0.88	0.89	101.3
1000	1350	400F	3217	5.2	0.8	2.1	6.5	10	16	3498	84	2968	96.0	96.1	95.8	0.84	0.89	0.90	111.1
1120	1515	400F	3600	5.9	1.0	2.4	7.4	8	13	3703	84	2971	96.2	96.3	96.0	0.83	0.89	0.91	124.0
1250	1700	400F	4023	5.6	1.0	2.3	7.6	7	10	3693	84	2967	96.3	96.3	95.9	0.82	0.88	0.90	139.3
4 poles																			
250	340	315F	1616	4.6	0.8	2.0	2.1	18	28	1576	85	1477	94.4	94.6	94.0	0.75	0.83	0.86	29.7
280	380	315F	1812	4.4	0.7	1.9	2.5	16	26	1641	85	1476	94.7	94.7	94.0	0.81	0.86	0.88	32.5
315	430	315F	2038	4.5	0.7	1.9	2.5	17	27	1657	85	1476	94.9	94.9	94.3	0.78	0.85	0.87	37.0
355	480	315F	2295	4.8	0.8	2.1	2.7	15	24	1715	85	1477	95.1	95.1	94.6	0.76	0.84	0.87	41.7
400	550	315F	2584	4.9	0.8	2.1	3.0	15	23	1790	85	1478	95.4	95.4	94.9	0.79	0.85	0.88	46.2
450	610	315F	2909	5.1	0.9	2.2	3.7	15	19	1921	85	1477	95.5	95.5	95.0	0.80	0.86	0.89	51.4
500	680	355G	3228	4.8	0.8	2.0	5.6	16	23	2709	81	1479	95.1	95.2	94.7	0.82	0.87	0.88	57.5
560	750	355G	3616	4.9	0.8	2.0	6.1	15	21	2792	81	1479	95.3	95.3	94.8	0.82	0.87	0.89	64.1
630	850	355G	4068	4.8	0.8	2.0	6.5	14	20	2874	81	1479	95.5	95.5	94.9	0.82	0.87	0.89	72.0
710	970	355G	4575	5.6	0.9	2.3	7.0	12	17	2952	81	1482	95.6	95.7	95.3	0.78	0.86	0.88	81.5
800	1100	400F	5141	5.7	0.8	2.5	11.9	16	22	3562	82	1486	95.8	96.0	95.8	0.77	0.85	0.88	91.5
900	1250	400F	5787	5.5	0.8	2.4	12.6	15	21	3637	82	1485	95.9	96.0	95.7	0.79	0.86	0.88	102.3
1000	1350	400F	6426	5.9	0.9	2.6	13.4	13	19	3750	82	1486	96.0	96.2	95.9	0.76	0.84	0.88	114.4
1120	1515	400F	7212	5.0	0.7	2.2	14.3	15	21	3858	82	1483	96.2	96.2	95.8	0.82	0.88	0.89	125.8
6 poles																			
355	480	355G	3445	4.9	0.9	2.1	9.1	19	27	2937	78	984	94.3	94.6	94.1	0.71	0.80	0.83	43.7
400	550	355G	3882	5.0	0.9	2.2	9.2	16	23	2948	78	984	94.5	94.7	94.2	0.69	0.79	0.82	49.5
450	610	355G	4367	4.9	0.9	2.1	9.6	16	22	3014	78	984	94.6	94.8	94.3	0.70	0.79	0.83	55.7
500	680	355G	4852	4.8	0.8	2.0	9.9	16	22	2997	78	984	94.9	94.9	94.4	0.70	0.79	0.83	61.7
560	750	355G	5435	4.9	0.9	2.1	10.8	13	19	3094	78	984	95.0	95.0	94.5	0.69	0.78	0.82	69.3
630	850	400F	6095	4.8	0.7	2.1	16.4	16	22	3514	76	987	95.3	95.4	95.0	0.73	0.82	0.85	75.2
710	970	400F	6876	4.9	0.8	2.2	17.4	14	20	3612	76	986	95.5	95.5	95.1	0.72	0.81	0.85	84.9
800	1100	400F	7740	5.0	0.8	2.2	18.6	13	19	3723	76	987	95.6	95.6	95.2	0.72	0.81	0.84	95.9
900	1250	400F	8708	5.1	0.8	2.3	19.8	12	17	3829	76	987	95.9	96.1	95.9	0.70	0.80	0.84	107.9
8 poles																			
250	340	355G	3222	5.1	1.0	2.1	11.3	21	34	2709	76	741	93.3	93.7	93.4	0.62	0.73	0.78	32.8
280	380	355G	3613	5.0	0.9	2.0	12.2	21	34	2792	76	740	93.6	93.9	93.5	0.64	0.75	0.79	36.3
315	430	355G	4065	4.9	0.9	2.0	13.0	25	40	2881	76	740	94.0	94.2	93.8	0.65	0.75	0.79	40.7
355	480	355G	4581	5.1	1.0	2.1	13.9	26	39	2966	76	740	93.9	94.3	93.9	0.63	0.74	0.79	46.1
400	550	355G	5169	4.6	0.9	1.9	13.9	26	39	2966	76	739	94.2	94.4	93.8	0.67	0.76	0.80	51.3
450	610	400F	5807	5.1	0.9	2.2	21.8	22	35	3461	76	740	94.6	94.7	94.2	0.68	0.78	0.82	55.8
500	680	400F	6452	5.1	0.9	2.3	23.1	21	32	3555	76	740	94.7	94.8	94.4	0.67	0.77	0.82	62.3
560	750	400F	7226	5.3	1.0	2.3	24.7	20	29	3666	76	740	94.8	95.0	94.5	0.66	0.77	0.81	70.0
630	850	400F	8119	5.4	1.0	2.4	26.3	18	26	3772	76	741	94.9	95.1	94.7	0.64	0.75	0.80	79.8

Electrical Data

W60 / IC01 - WP-II / 50Hz / 10000V - IP24

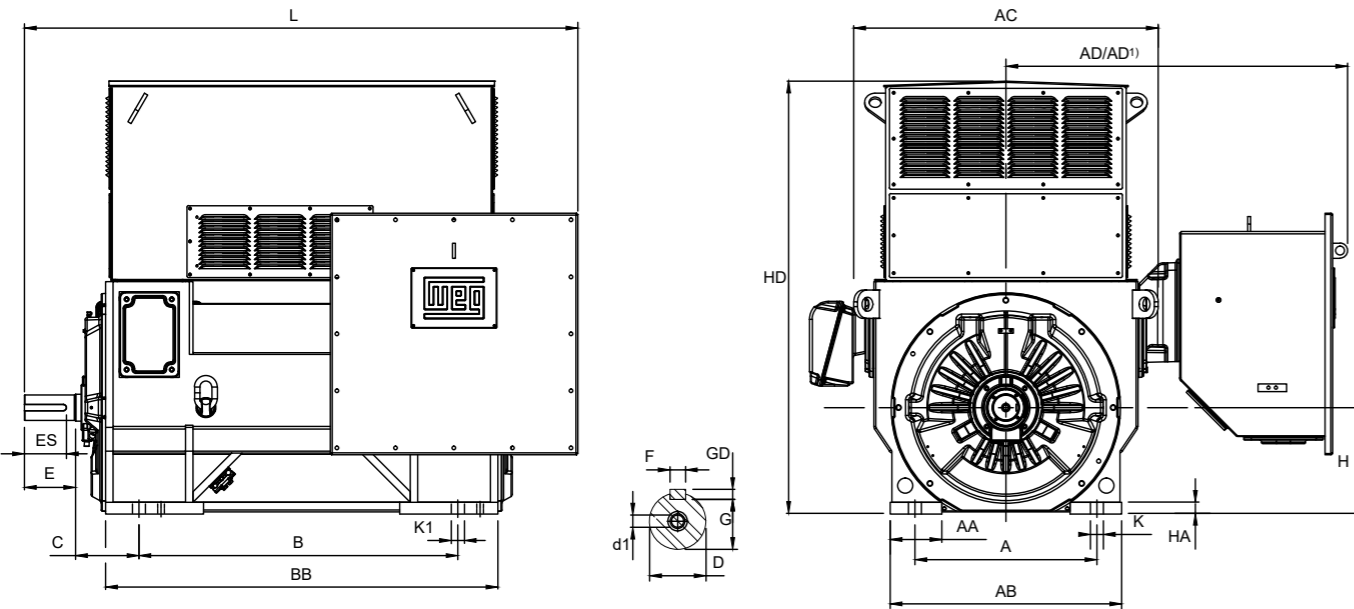
Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _B /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
315	430	355G	1011	6.3	1.0	2.5	2.9	16	26	2481	82	2974	93.7	94.4	94.2	0.82	0.88	0.90	21.4
355	480	355G	1141	5.8	1.0	2.3	3.2	15	24	2551	82	2971	94.1	94.4	94.1	0.85	0.90	0.91	24.0
400	550	355G	1285	6.1	1.0	2.4	3.2	14	23	2559	82	2972	94.5	94.9	94.6	0.83	0.89	0.90	27.0
450	610	355G	1448	5.4	0.9	2.1	3.2	14	23	2559	82	2968	94.7	94.9	94.5	0.85	0.90	0.91	30.3
500	680	355G	1609	5.3	0.8	2.0	3.2	12	19	2554	82	2967	94.9	95.0	94.4	0.85	0.89	0.90	33.8
560	750	355G	1802	5.5	0.9	2.0	3.5	11	18	2648	82	2967	95.2	95.2	94.7	0.86	0.90	0.91	37.5
630	850	355G	2027	5.7	0.9	2.1	3.8	10	17	2727	82	2968	95.4	95.4	94.9	0.86	0.90	0.91	42.1
710	970	400F	2281	5.6	0.9	2.3	6.0	13	21	3290	84	2973	95.1	95.4	95.2	0.82	0.88	0.90	48.1
800	1100	400F	2571	5.5	0.9	2.2	6.5	12	20	3404	84	2971	95.4	95.6	95.3	0.85	0.89	0.90	53.6
900	1250	400F	2892	5.8	0.9	2.3	6.9	11	17	3486	84	2972	95.6	95.8	95.4	0.83	0.89	0.90	60.4
1000	1350	400F	3215	5.5	0.8	2.1	7.4	10	16	3614	84	2970	95.8	95.9	95.5	0.85	0.89	0.90	66.9
4 poles																			
355	480	355G	2284	6.1	1.0	2.5	5.5	17	26	2639	81	1484	94.1	94.5	94.3	0.77	0.85	0.88	24.8
400	550	355G	2575	5.7	1.0	2.3	5.5	15	24	2632	81	1483	94.4	94.7	94.4	0.78	0.85	0.88	27.9
450	610	355G	2897	5.7	0.9	2.3	5.5	15	21	2642	81	1483	94.5	94.8	94.4	0.76	0.84	0.87	31.5
500	680	355G	3219	5.7	0.9	2.3	6.0	14	20	2737	81	1483	94.8	95.0	94.6	0.78	0.85	0.88	34.8
560	750	355G	3612	5.1	0.9	2.1	6.5	15	22	2804	81	1481	95.1	95.1	94.5	0.81	0.87	0.89	38.5
630	850	355G	4058	5.7	1.0	2.4	6.2	12	17	2820	81	1482	95.1	95.2	94.8	0.77	0.85	0.88	43.7
710	970	400F	4558	6.1	0.9	2.7	11.9	13	21	3471	82	1487	95.2	95.5	95.3	0.76	0.84	0.88	49.1
800	1100	400F	5139	5.9															

Mechanical Data

Electrical Data

W60 / IC01 - WP-II / Ball Bearings - IP24

W60 / IC01 - WP-I / 50 Hz / 380 V- IP23



Frame	Poles	Dimensions													
		A	B	K	C	AB	BB	L1	H	HD	HA	AA	K1	AC	AD2
315F	2	508	900	35	216	660	1150	1495	315	1425	39.5	130	35	886	783
315F	4/6/8	508	900	35	216	660	1150	1525	315	1425	39.5	130	35	886	783
355G	2	610	1000	35	254	771	1308	1654	355	1635	39.5	170	35	1098	1107
355G	4/6/8	610	1000	35	254	771	1308	1694	355	1635	39.5	170	35	1098	1107
400F	2	686	1250	35	280	866	1508	1911	400	1793	39.5	170	35	1178	1187
400F	4/6/8	686	1250	35	280	866	1508	1991	400	1793	39.5	170	35	1178	1187

Frame	Poles	Shaft End						Ball Bearing		Roller Bearing		Dimension AD1				
		E	ES	D	G	GD	F	d1	DE	NDE	DE	NDE	690V	5kV	6kV	10kV
315F	2	140	125	80	71	14	22	M20x2.5	6218	6218	-	-	783	783	783	-
315F	4/6/8	170	140	90	81	14	25	M20x2.5	6220	6218	NU220	-	783	783	783	-
355G	2	170	140	85	76	14	22	M20x2.5	6218	6218	-	-	952	952	945	1107
355G	4/6/8	210	170	110	100	16	28	M24x3.0	6224	6218	NU224	-	952	952	945	1107
400F	2	170	140	95	86	14	25	M24x3.0	6220	6220	-	-	952	952	945	1187
400F	4/6/8	250	200	130	119	18	32	M24x3.0	6228	6220	NU228	-	952	952	945	1187

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	904	5.5	1.1	2.2	1.6	15	24	1542	88	2959	94.8	95.1	94.8	0.80	0.87	0.89	503.7
315	430	315F	1019	4.9	1.0	2.0	1.6	15	24	1542	88	2953	95.0	95.1	94.6	0.82	0.88	0.90	564.8
355	480	315F	1151	4.2	0.8	1.6	1.8	17	28	1613	88	2944	95.3	95.1	94.3	0.90	0.90	0.91	628.7
400	550	315F	1295	4.7	0.9	1.9	1.9	14	22	1672	88	2950	95.7	95.5	94.8	0.89	0.90	0.91	704.5
450	610	315F	1453	5.6	1.1	2.2	2.1	11	17	1743	88	2957	96.0	95.9	95.4	0.87	0.90	0.91	787.8
500	680	355G	1610	5.8	0.9	2.1	3.4	15	24	2452	82	2966	95.8	95.7	95.2	0.89	0.90	0.91	876.7
560	750	355G	1805	5.6	0.9	1.9	3.7	15	23	2518	82	2963	95.9	95.8	95.1	0.90	0.90	0.91	982.9
630	850	355G	2030	5.6	0.9	2.0	4.0	14	22	2626	82	2964	96.2	96.1	95.5	0.90	0.90	0.91	1101.5
710	970	400F	2284	5.3	0.7	1.9	6.1	17	28	3180	84	2969	96.4	96.2	95.6	0.89	0.90	0.91	1239.5
800	1100	400F	2580	4.4	0.6	1.6	6.9	20	32	3385	84	2961	96.6	96.1	95.3	0.90	0.90	0.91	1401.7
900	1250	400F	2895	5.5	0.7	2.0	7.3	15	24	3487	84	2969	96.8	96.6	96.0	0.90	0.90	0.91	1565.6
1000	1350	400F	3219	5.3	0.7	1.9	7.7	14	23	3592	84	2967	96.9	96.5	95.9	0.90	0.90	0.91	1741.2
4 poles																			
280	380	315F	1812	4.5	0.8	1.8	3.0	24	36	1744	85	1476	94.9	95.0	94.5	0.88	0.90	0.91	495.0
315	430	315F	2038	4.8	0.8	1.9	3.2	26	32	1818	85	1476	95.3	95.4	94.9	0.88	0.90	0.91	554.4
355	480	315F	2295	5.0	0.9	2.0	3.6	19	29	1876	85	1477	95.5	95.5	95.0	0.87	0.90	0.91	624.0
400	550	315F	2583	5.6	1.0	2.2	3.8	16	24	1942	85	1479	95.8	95.8	95.4	0.85	0.90	0.91	700.0
450	610	315F	2900	6.5	1.2	2.6	4.1	14	19	2023	85	1482	96.0	96.2	95.9	0.81	0.88	0.90	791.2
500	680	355G	3226	5.0	0.8	1.9	6.7	23	29	2820	81	1480	95.9	96.0	95.6	0.87	0.90	0.91	875.6
560	750	355G	3623	4.1	0.6	1.5	7.1	26	32	2897	81	1476	96.0	95.9	95.2	0.89	0.90	0.90	990.9
630	850	355G	4062	5.2	0.8	1.9	7.6	19	24	2989	81	1481	96.3	96.3	95.9	0.87	0.90	0.91	1099.2
710	970	400F	4578	4.9	0.7	1.8	13.4	23	32	3698	82	1481	96.7	96.5	96.0	0.90	0.90	0.91	1234.4
800	1100	400F	5155	5.1	0.8	1.9	14.3	21	28	3816	82	1482	96.9	96.7	96.3	0.89	0.90	0.91	1387.7
900	1250	400F	5791	5.7	0.9	2.1	15.0	17	23	3907	82	1484	97.0	96.9	96.5	0.88	0.90	0.91	1557.5

Note:
 - L₁ Motor Without Terminal Box
 - AD₂ Dimension for 10kV Terminal box (6.6kV for frame 315F)

W60 / IC01 - WP-I / 50 Hz / 3300 V- IP23

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	901	5.7	0.9	2.2	1.7	15	25	1552	88	2967	93.5	94.0	93.7	0.81	0.87	0.89	58.7
315	430	315F	1013	6.1	1.0	2.4	1.7	13	21	1555	88	2970	94.6	94.9	94.5	0.79	0.86	0.89	65.6
355	480	315F	1141	6.2	1.1	2.6	1.7	11	17	1557	88	2970	93.5	94.2	94.0	0.62	0.74	0.80	82.5
400	550	315F	1287	6.1	1.0	2.4	2.0	11	18	1629	88	2969	94.3	94.7	94.4	0.75	0.84	0.87	85.0
450	610	315F	1449	5.9	1.0	2.3	2.1	11	18	1688	88	2966	94.7	94.9	94.5	0.80	0.87	0.89	93.6
500	680	315F	1610	5.7	0.9	2.2	2.3	11	18	1760	88	2965	95.1	95.1	94.6	0.84	0.89	0.91	101.9
630	850	355G	2028	5.4	0.9	2.2	3.5	11	17	2567	82	2966	95.7	95.8	95.4	0.84	0.89	0.90	127.9
710	970	355G	2287	5.5	0.9	2.1	3.8	10	16	2623	82	2965	95.8	95.8	95.3	0.87	0.90	0.91	143.2
800	1100	400F	2577	5.2	0.8	2.0	5.7	10	14	3050	84	2965	95.6	95.7	95.3	0.83	0.88	0.89	164.2
900	1250	400F	2903	4.8	0.8	1.8	6.1	10	15	3155	84	2961	95.9	95.8	95.3	0.86	0.90	0.90	182.7
1000	1350	400F	3221	4.8	0.8	1.9	6.0	10	16	3172	84	2965	96.1	96.1	95.6	0.84	0.89	0.90	203.5
1120	1515	400F	3601	5.8	1.0	2.3	7.4	8	13	3494	84	2970	96.3	96.4	96.1	0.85	0.90	0.91	224.2
1250	1700	400F	4018	6.0	1.0	2.5	7.8	7	12	3594	84	2971	96.4	96.5	96.2	0.83	0.89	0.91	250.3
4 poles																			
280	380	315F	1810	4.7	0.8	2.0	2.5	22	30	1611	85	1477	95.0	95.1	94.6	0.79	0.86	0.88	59.0
315	430	315F	2038	4.6	0.8	2.0	2.7	24	28	1678	85	1476	95.3	95.3	94.8	0.80	0.86	0.88	66.1
355	480	315F	2297	4.5	0.8	1.9	3.0	25	28	1753	85	1476	95.5	95.5	94.9	0.82	0.87	0.89	73.8
400	550	315F	2590	4.8	0.8	2.1	3.1	19	19	1756	85	1475	95.5	95.5	95.0	0.80	0.86	0.88	83.6
450	610	315F	2919	4.0	0.7	1.7	3.2	24	27	1815	85	1472	95.8	95.5	94.7	0.85	0.88	0.89	93.5
500	680	315F	3233	5.3	1.0	2.3	3.6	15	16	1887	85	1477	95.7	95.8	95.3	0.77	0.85	0.88	104.8
560	750	355G	3611	5.2	0.9	2.2	5.5	13	19	2669	81	1481	95.4	95.5	95.1	0.78	0.85	0.87	117.9
630	850	355G	4062	5.3	0.9	2.2	6.0	12	17	2749	81	1481	95.6	95.7	95.2	0.79	0.85	0.88	131.8
710	970	355G	4575	5.7	1.0	2.4	7.0	11	16	2923	81	1482	95.7	95.9	95.5	0.78	0.85	0.88	148.3
800	1100	355G	5155	5.8	1.0	2.4	7.5	10	15	3007	81	1482	95.9	96.0	95.6	0.77	0.84	0.87	167.6
900	1250	400F	5791	5.1	0.7	2.3	11.9	16	22	3542	82	1484	96.1	96.2	95.8	0.80	0.86	0.89	185.6
1000	1350	400F	6435	5.1	0.7	2.2	13.4	15	22	3773	82	1484	96.2	96.3	96.0	0.81	0.87	0.89	204.3
1120	1515	400F	7207	5.1	0.7	2.3	14.2	14	20	3886	82	1484	96.3	96.4	96.1	0.81	0.87	0.89	229.2
1250	1700	400F	8033	5.3	0.8	2.2	14.8	15	21	3960	82	1486	96.5	96.5	96.2	0.79	0.85	0.88	258.7
6 poles																			
355	480	355G	3442	5.3	1.0	2.3	8.3	15	22	2719	78	985	94.4	94.7	94.4	0.66	0.77	0.81	81.1
400	550	355G	3882	5.0	0.9	2.1	8.9	16	22	2795	78	984	94.6	94.8	94.4	0.69	0.78	0.82	90.3
450	610	355G	4367	5.0	0.9	2.1	10.2	16	22	2966	78	984	94.8	95.0	94.5	0.69	0.79	0.82	101.0
500	680	355G	4847	5.2	1.0	2.3	10.2	13	19	2976	78	985	94.9	95.1	94.7	0.66	0.77	0.81	113.7
560	750	355G	5418	5.3	1.0	2.3	10.1	15	22	3086	78	987	95.1	95.4	95.0	0.66	0.77	0.81	127.0
630	850	400F	6083	6.2	1.1	2.7	16.4	11	15	3485	76	989	95.4	95.7	95.4	0.65	0.76	0.82	141.5
710	970	400F	6855	6.0	1.0	2.7	17.4	11	16	3573	76	989	95.8	96.2	96.1	0.65	0.76	0.81	159.0
800	1100	400F	7740	5.1	0.8	2.2	18.6	13	19	3686	76	987	96.1	96.3	96.0	0.73	0.81	0.85	171.8
900	1250	400F	8708	5.2	0.8	2.3	19.7	12	16	3785	76	987	96.2	96.3	96.0	0.71	0.80	0.84	194.9
1000	1350	400F	9665	5.6	0.9	2.5	20.9	10	14	3897	76	988	96.2	96.4	96.1	0.68	0.78	0.83	219.3
8 poles																			
250	340	355G	3226	5.0	1.0	2.1	10.8	31	44	2636	76	740	93.6	94.1	93.8	0.64	0.74	0.79	59.1
280	380	355G	3608	5.2	1.1	2.2	11.6	27	39	2697	76	741	93.6	94.2	93.9	0.61	0.72	0.77	67.5
315	430	355G	4059	5.6	1.2	2.5	12.5	23	33	2781	76	741	93.7	94.3	94.1	0.57	0.69	0.75	77.8
355	480	355G	4581	5.1	1.1	2.2	12.5	23	33	2781	76	740	94.0	94.4	94.1	0.60	0.72	0.77	85.5
400	550	355G	5162	5.0	1.0	2.1	13.3	22	32	2849	76	740	94.2	94.5	94.2	0.61	0.72	0.77	96.1
450	610	400F	5815	5.1	1.0	2.1	21.0	21	30	3319	76	739	94.8	94.9	94.4	0.68	0.78	0.82	102.2
500	680	400F	6444	5.5	1.0	2.5	22.6	20	28	3430	76	741	94.8	95.1	94.8	0.63	0.75	0.80	115.3
560	750	400F	7226	5.2	1.1	2.3	23.7	16	23	3513	76	740	95.0	95.2	94.8	0.66	0.76	0.81	127.7
630	850	400F	8130	5.3	1.1	2.3	25.3	15	21	3624	76	740	95.1	95.3	94.9	0.65	0.76	0.81	144.0
710	970	400F	9150	5.5	1.1	2.4	26.9	13	19	3733	76	741	95.2	95.4	95.0	0.62	0.74	0.79	164.8

W60 / IC01 - WP-I / 50 Hz / 6000 V- IP23

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	902	5.0	0.9	1.9	1.7	15	24	1544	88	2963	93.4	93.7	93.3	0.84	0.89	0.90	32.1
315	430	315F	1016	5.0	0.8	1.9	1.7	10	16	1531	88	2962	93.5	93.7	93.1	0.83	0.88	0.89	36.5
355	480	315F	1144	5.0	0.8	1.9	2.0	10	16	1606	88	2962	94.0	94.1	93.4	0.86	0.90	0.90	40.4
400	550	315F	1286	6.3	1.1	2.6	1.7	8	12	1557	88	2971	93.2	93.9	93.7	0.63	0.75	0.81	50.5
450	610	315F	1451	5.0	0.8	1.9	2.0	9	14	1612	88	2961	94.5	94.4	93.7	0.83	0.88	0.89	51.7
500	680	315F	1611	5.4	0.9	2.1	2.1	8	12	1669	88	2964	94.7	94.7	94.1	0.80	0.87	0.89	57.6
560	750	355G	1804	5.1	0.8	2.1	3.2	13	20	2461	82	2965	95.4	95.5	95.1	0.85	0.89	0.90	62.7
630	850	355G	2028	5.5	0.9	2.2	3.5	11	17	2538	82	2967	95.6	95.7	95.3	0.85	0.89	0.91	70.1
710	970	355G	2287	5.5	0.8	2.0	4.1	11	16	2689	82	2965	95.8	95.8	95.2	0.88	0.90	0.91	78.8
800	1100	400F	2574	4.9	0.8	2.0	5.6	12	20	3071	84	2968	95.6	95.8	95.4	0.83	0.88	0.90	90.0
900	1250	400F	2896	5.1	0.8	2.1	6.0	11	17	3161	84	2968	95.8	95.9	95.6	0.82	0.88	0.89	101.3
1000	1350	400F	3217	5.2	0.8	2.1	6.5	10	16	3286	84	2968	96.0	96.1	95.8	0.84	0.89	0.90	111.1
1120	1515	400F	3600	5.9	1.0	2.4	7.4	8	13	3482	84	2971	96.2	96.3	96.0	0.83	0.89	0.91	124.0
1250	1700	400F	4023	5.6	1.0	2.3	7.6	7	10	3473	84	2967	96.3	96.3	95.9	0.82	0.88	0.90	139.3
1400	1900	450A	4487	4.7	0.7	1.8	15.9	16	23	4118	85	2980	96.4	96.5	96.2	0.88	0.90	0.91	154.5
1600	2200	450A	5125	5.2	0.7	2.0	17.1	14	20	4269	85	2981	96.6	96.7	96.4	0.87	0.90	0.91	175.8
1800	2500	450A	5766	5.1	0.7	1.9	18.9												

W60 / IC01 - WP-I / 50 Hz / 6000 V- IP23

W60 / IC01 - WP-I / 50 Hz / 6000 V- IP23

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
6 poles																			
355	480	355G	3445	4.9	0.9	2.1	9.1	19	27	2882	78	984	94.3	94.6	94.1	0.71	0.80	0.83	43.7
400	550	355G	3882	5.0	0.9	2.2	9.2	16	23	2893	78	984	94.5	94.7	94.2	0.69	0.79	0.82	49.5
450	610	355G	4367	4.9	0.9	2.1	9.6	16	22	2959	78	984	94.6	94.8	94.3	0.70	0.79	0.83	55.7
500	680	355G	4852	4.8	0.8	2.0	9.9	16	22	2942	78	984	94.9	94.9	94.4	0.70	0.79	0.83	61.7
560	750	355G	5435	4.9	0.9	2.1	10.8	13	19	3039	78	984	95.0	95.0	94.5	0.69	0.78	0.82	69.3
630	850	400F	6095	4.8	0.7	2.1	16.4	16	22	3459	76	987	95.3	95.4	95.0	0.73	0.82	0.85	75.2
710	970	400F	6876	4.9	0.8	2.2	17.4	14	20	3557	76	986	95.5	95.5	95.1	0.72	0.81	0.85	84.9
800	1100	400F	7740	5.0	0.8	2.2	18.6	13	19	3668	76	987	95.6	95.6	95.2	0.72	0.81	0.84	95.9
900	1250	400F	8708	5.1	0.8	2.3	19.8	12	17	3774	76	987	95.9	96.1	95.9	0.70	0.80	0.84	107.9
1000	1350	450C	9634	4.4	0.6	1.8	27.6	19	27	4385	85	991	95.3	95.7	95.4	0.73	0.81	0.84	120.7
1120	1515	450C	10791	4.3	0.6	1.8	31.2	20	28	4639	85	991	95.6	95.9	95.6	0.76	0.83	0.84	133.5
1250	1700	450C	12034	4.5	0.6	1.9	36.6	20	28	4995	85	992	95.7	96.0	95.7	0.76	0.83	0.85	148.3
1400	1900	450C	13475	4.7	0.6	1.9	38.4	18	25	5144	85	992	95.8	96.2	96.0	0.74	0.82	0.84	166.6
1600	2200	450C	15388	5.1	0.7	2.1	47.3	18	25	5755	85	993	95.9	96.3	96.2	0.74	0.82	0.85	189.5
1700	2300	450C	16357	4.8	0.6	2.0	47.3	18	25	5755	85	992	96.1	96.4	96.2	0.75	0.82	0.85	200.6
1800	2500	500C	17308	5.8	0.8	2.5	62.2	18	19	6403	86	993	95.9	96.3	96.2	0.73	0.82	0.85	210.7
2000	2700	500C	19244	5.5	0.8	2.3	59.8	17	17	6271	86	992	96.0	96.4	96.2	0.73	0.81	0.85	235.7
2240	3043	500C	21549	5.5	0.8	2.3	73.9	19	20	7047	86	993	96.3	96.5	96.4	0.77	0.84	0.87	257.3
2500	3380	500C	24040	5.8	0.9	2.5	73.9	15	16	7078	86	993	96.3	96.6	96.5	0.72	0.81	0.85	294.8
2650	3600	500C	25494	5.6	0.8	2.3	73.9	15	16	7078	86	993	96.4	96.7	96.5	0.73	0.82	0.85	310.7
2800	3800	560C	26898	5.5	0.7	2.4	91.5	14	18	7919	86	994	96.8	96.9	96.8	0.69	0.79	0.83	336.8
3150	4255	560C	30263	5.2	0.7	2.3	98.9	13	19	8286	86	994	96.9	96.9	96.8	0.69	0.79	0.83	378.2
3550	4800	560C	34080	5.8	0.8	2.5	122.8	14	19	9458	86	995	96.9	96.9	96.9	0.69	0.79	0.83	425.3
4000	5500	560C	38442	4.9	0.6	2.0	130.7	17	22	9841	86	994	96.9	96.9	96.9	0.77	0.84	0.86	462.7
4500	6100	560C	43272	4.7	0.6	1.9	130.7	19	20	9954	86	993	96.9	96.9	96.9	0.78	0.84	0.86	519.6
8 poles																			
250	340	355G	3222	5.1	1.0	2.1	11.3	21	34	2654	76	741	93.3	93.7	93.4	0.62	0.73	0.78	32.8
280	380	355G	3613	5.0	0.9	2.0	12.2	21	34	2737	76	740	93.6	93.9	93.5	0.64	0.75	0.79	36.3
315	430	355G	4065	4.9	0.9	2.0	13.0	25	40	2826	76	740	94.0	94.2	93.8	0.65	0.75	0.79	40.7
355	480	355G	4581	5.1	1.0	2.1	13.9	26	39	2911	76	740	93.9	94.3	93.9	0.63	0.74	0.79	46.1
400	550	355G	5169	4.6	0.9	1.9	13.9	26	39	2911	76	739	94.2	94.4	93.8	0.67	0.76	0.80	51.3
450	610	400F	5807	5.1	0.9	2.2	21.8	22	35	3406	76	740	94.6	94.7	94.2	0.68	0.78	0.82	55.8
500	680	400F	6452	5.1	0.9	2.3	23.1	21	32	3500	76	740	94.7	94.8	94.4	0.67	0.77	0.82	62.3
560	750	400F	7226	5.3	1.0	2.3	24.7	20	29	3611	76	740	94.8	95.0	94.5	0.66	0.77	0.81	70.0
630	850	400F	8119	5.4	1.0	2.4	26.3	18	26	3717	76	741	94.9	95.1	94.7	0.64	0.75	0.80	79.8
710	970	450C	9131	5.0	0.9	2.1	36.9	19	28	4164	84	743	95.1	95.3	94.9	0.70	0.79	0.82	87.4
800	1100	450C	10293	4.8	0.9	1.9	42.2	21	30	4393	84	742	95.4	95.5	95.1	0.74	0.82	0.84	96.2
900	1250	450C	11569	5.1	1.0	2.1	47.5	20	28	4614	84	743	95.4	95.6	95.3	0.72	0.81	0.84	108.8
1000	1350	450C	12841	5.6	1.0	2.2	60.8	21	29	5182	84	744	95.5	95.8	95.5	0.74	0.82	0.85	118.7
1120	1515	450C	14388	5.4	0.9	2.1	66.1	21	30	5398	84	743	95.6	95.9	95.6	0.76	0.83	0.86	131.9
1250	1700	500C	16046	5.4	0.9	2.2	75.2	15	19	5685	85	744	95.9	96.1	95.8	0.71	0.80	0.83	151.2
1400	1900	500C	17968	5.5	0.9	2.1	91.4	17	22	6281	85	744	96.1	96.3	96.0	0.74	0.82	0.85	165.8
1600	2200	500C	20527	5.7	0.9	2.2	111.6	18	22	7035	85	744	96.3	96.5	96.2	0.76	0.83	0.85	187.5
1800	2500	500C	23119	5.1	0.8	1.9	111.6	18	22	7035	85	743	96.5	96.5	96.1	0.78	0.84	0.86	210.3
2000	2700	560C	25621	6.6	1.0	2.8	154.5	12	14	7622	85	745	96.0	96.4	96.3	0.68	0.78	0.83	241.4
2250	3000	560C	28848	5.9	0.9	2.5	154.5	12	14	7622	85	745	96.2	96.5	96.3	0.71	0.80	0.84	267.5
2500	3380	560C	32067	5.6	0.8	2.3	168.0	13	15	7984	85	744	96.4	96.6	96.4	0.74	0.82	0.85	292.5
2800	3800	560C	35859	6.7	1.0	2.8	221.7	14	14	9443	85	746	96.3	96.7	96.7	0.70	0.80	0.84	331.0
3000	4000	560C	38452	6.0	0.9	2.4	235.2	16	17	9801	85	745	96.6	96.8	96.7	0.76	0.84	0.86	346.3

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
10 poles																			
500	680	450C	8081	3.6	0.6	1.5	41.6	37	53	4332	84	591	95.1	94.9	94.0	0.73	0.80	0.81	63.0
560	750	450C	9046	3.7	0.6	1.5	44.2	34	49	4446	84	591	95.1	94.9	94.2	0.72	0.79	0.81	70.5
630	850	450C	10169	3.8	0.7	1.6	46.8	31	44	4563	84	592	95.2	95.1	94.4	0.71	0.79	0.81	79.4
710	970	450C	11439	4.2	0.7	1.7	62.5	34	48	5239	84	593	95.3	95.3	94.8	0.70	0.78	0.81	88.7
800	1100	450C	12899	4.0	0.7	1.6	67.8	32	49	5435	84	592	95.4	95.4	94.7	0.72	0.79	0.82	99.6
900	1250	500C	14485	5.5	1.0	2.4	82.3	23	25	6025	85	593	95.1	95.4	95.1	0.65	0.76	0.81	113.1
1000	1350	500C	16115	5.0	0.9	2.1	98.4	29	31	6625	85	593	95.5	95.6	95.2	0.72	0.81	0.84	120.8
1120	1515	500C	18051	4.9	0.9	2.0	106.4	29	30	6921	85	593	95.6	95.7	95.3	0.73	0.81	0.84	135.1
1250	1700	560C	20111	4.8	0.8	2.0	113.9	15	21	6506	85	594	95.8	95.8	95.3	0.70	0.79	0.82	153.4
1400	1900	560C	22484	5.4	1.0	2.3	134.1	14	19	7048	85	595	95.7	95.9	95.6	0.65	0.75	0.80	175.7
1600	2200	560C	25688	5.5	1.0	2.3	174.4	13	21	8073	85	595	95.9	96.1	95.7	0.69	0.79	0.83	194.9
1800	2500	560C	28857	6.4	1.1	2.8	214.8	13	20	9146	85	596	95.8	96.2	96.0	0.65	0.76	0.81	223.1
2000	2700	560C	32082	6.1	1.0	2.6	234.9	14	21	9674	85	595	96.0	96.3	96.1	0.68	0.78	0.83	242.7
12 poles																			
400	550	450C	7756	4.0	0.8	1.7	59.7	44	63	5109	84	493	93.9	94.2	93.7	0.61	0.71	0.75	54.4
450	610	450C	8729	4.0	0.8	1.7	64.9	44	62	5346	84	492	94.1	94.4	93.8	0.62	0.72	0.76	60.8
500	680	450C	9696	4.0	0.8	1.7	70.1	42	60	5573	84	492	94.1	94.4	93.9	0.62	0.72	0.76	67.6
600	810	450C	11637	4.0	0.8	1.7	72.7	36											

W60 / IC01 - WP-I / 50 Hz / 10000 V - IP23

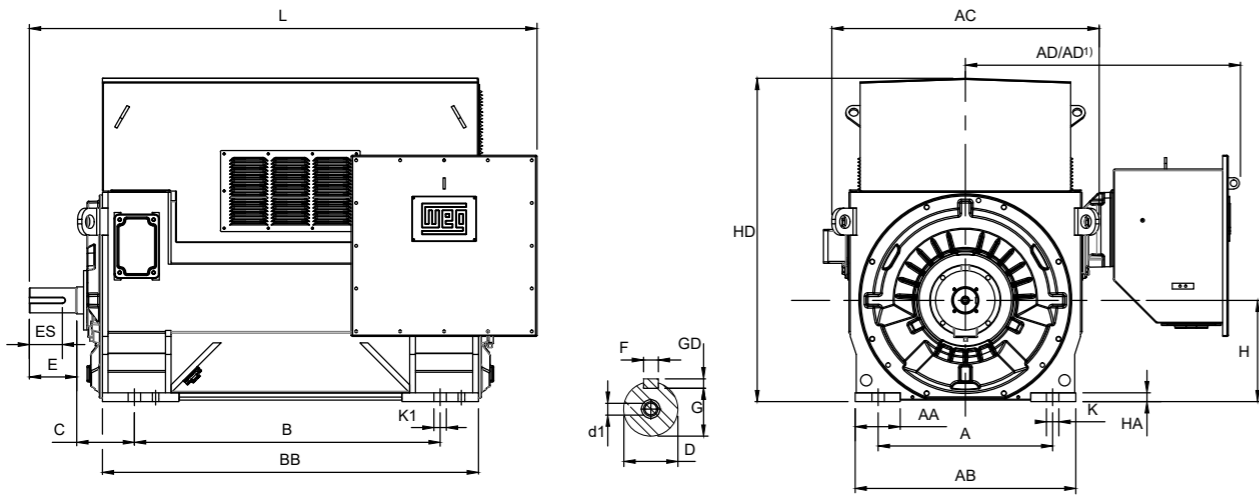
Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
315	430	355G	1011	6.3	1.0	2.5	2.9	16	26	2426	82	2974	93.7	94.4	94.2	0.82	0.88	0.90	21.4
355	480	355G	1141	5.8	1.0	2.3	3.2	15	24	2496	82	2971	94.1	94.4	94.1	0.85	0.90	0.91	24.0
400	550	355G	1285	6.1	1.0	2.4	3.2	14	23	2504	82	2972	94.5	94.9	94.6	0.83	0.89	0.90	27.0
450	610	355G	1448	5.4	0.9	2.1	3.2	14	23	2504	82	2968	94.7	94.9	94.5	0.85	0.90	0.91	30.3
500	680	355G	1609	5.3	0.8	2.0	3.2	12	19	2499	82	2967	94.9	95.0	94.4	0.85	0.89	0.90	33.8
560	750	355G	1802	5.5	0.9	2.0	3.5	11	18	2593	82	2967	95.2	95.2	94.7	0.86	0.90	0.91	37.5
630	850	355G	2027	5.7	0.9	2.1	3.8	10	17	2672	82	2968	95.4	95.4	94.9	0.86	0.90	0.91	42.1
710	970	400F	2281	5.6	0.9	2.3	6.0	16	22	3235	84	2973	95.1	95.4	95.2	0.82	0.88	0.90	48.1
800	1100	400F	2571	5.5	0.9	2.2	6.5	15	21	3349	84	2971	95.4	95.6	95.3	0.85	0.89	0.90	53.6
900	1250	400F	2892	5.8	0.9	2.3	6.9	12	18	3431	84	2972	95.6	95.8	95.4	0.83	0.89	0.90	60.4
1000	1350	400F	3215	5.5	0.8	2.1	7.4	12	18	3559	84	2970	95.8	95.9	95.5	0.85	0.89	0.90	66.9
1120	1515	450A	3592	5.1	0.8	2.0	11.0	15	25	3941	85	2978	95.8	96.0	95.7	0.86	0.90	0.91	74.4
1250	1700	450A	4009	5.1	0.8	2.0	11.9	14	23	4078	85	2978	96.1	96.2	95.9	0.88	0.90	0.91	82.7
1400	1900	450A	4490	5.1	0.8	2.0	12.6	14	23	4187	85	2977	96.3	96.4	96.0	0.88	0.90	0.91	92.5
1600	2200	450A	5127	5.9	0.9	2.4	14.2	12	19	4499	85	2980	96.5	96.6	96.4	0.86	0.90	0.91	105.3
1800	2500	450A	5766	6.3	0.9	2.5	15.9	11	16	4742	85	2981	96.4	96.6	96.4	0.85	0.90	0.91	118.4
2000	2700	450A	6401	6.0	0.8	2.2	22.2	10	14	4908	85	2984	96.7	96.8	96.6	0.87	0.90	0.91	131.4
2250	3000	500A	7217	5.2	0.8	2.1	17.4	10	16	5778	86	2977	96.6	96.8	96.6	0.85	0.89	0.90	148.7
2500	3380	500A	8023	4.9	0.7	1.9	18.3	10	15	5892	86	2975	96.8	96.8	96.6	0.87	0.90	0.91	164.9
2650	3600	500A	8493	6.0	0.8	2.3	20.4	8	12	6190	86	2980	96.8	96.9	96.8	0.84	0.89	0.90	175.0
2800	3800	500A	8966	5.5	0.7	2.1	26.5	11	16	6165	86	2982	96.9	96.9	96.8	0.87	0.90	0.91	183.6
3150	4255	500A	10089	5.4	0.7	2.1	27.7	10	14	6217	86	2982	96.9	96.9	96.8	0.87	0.90	0.91	206.4
3150	4255	560A	10081	5.0	0.6	1.8	31.2	12	16	7276	88	2984	96.8	96.9	96.8	0.88	0.90	0.91	206.8
3550	4800	560A	11356	5.5	0.7	2.0	33.3	10	13	7443	88	2985	96.9	96.9	96.9	0.87	0.90	0.91	232.6
3750	5095	560A	11996	5.6	0.7	2.0	34.8	8	12	7625	88	2985	96.9	96.9	96.9	0.87	0.90	0.91	245.5
4000	5500	560A	12799	5.5	0.7	2.0	37.0	10	12	7926	88	2984	96.9	96.9	96.9	0.90	0.90	0.91	261.9
4250	5774	560A	13586	6.5	0.7	2.3	43.9	9	11	8717	88	2987	96.9	96.9	96.9	0.88	0.90	0.91	278.3
4500	6100	560A	14398	5.9	0.7	2.2	39.5	9	10	8302	88	2985	96.9	96.9	96.9	0.87	0.90	0.91	294.6
4750	6454	560A	15198	5.9	0.8	2.3	41.0	8	9	8514	88	2985	96.9	96.9	96.9	0.87	0.90	0.91	311.0
5000	6755	560A	15987	6.3	0.9	2.4	46.8	8	10	9122	88	2987	96.9	96.9	96.9	0.88	0.90	0.91	327.4
5600	7500	560A	17904	6.6	0.9	2.5	50.4	7	9	9505	88	2987	96.9	96.9	96.9	0.88	0.90	0.91	366.7
4 poles																			
355	480	355G	2284	6.1	1.0	2.5	5.5	17	26	2584	81	1484	94.1	94.5	94.3	0.77	0.85	0.88	24.8
400	550	355G	2575	5.7	1.0	2.3	5.5	15	24	2577	81	1483	94.4	94.7	94.4	0.78	0.85	0.88	27.9
450	610	355G	2897	5.7	0.9	2.3	5.5	15	21	2587	81	1483	94.5	94.8	94.4	0.76	0.84	0.87	31.5
500	680	355G	3219	5.7	0.9	2.3	6.0	14	20	2682	81	1483	94.8	95.0	94.6	0.78	0.85	0.88	34.8
560	750	355G	3612	5.1	0.9	2.1	6.5	15	22	2749	81	1481	95.1	95.1	94.5	0.81	0.87	0.89	38.5
630	850	355G	4058	5.7	1.0	2.4	6.2	12	17	2765	81	1482	95.1	95.2	94.8	0.77	0.85	0.88	43.7
710	970	400F	4558	6.1	0.9	2.7	11.9	13	21	3416	82	1487	95.2	95.5	95.3	0.76	0.84	0.88	49.1
800	1100	400F	5139	5.9	0.8	2.6	12.6	13	21	3505	82	1487	95.4	95.7	95.4	0.77	0.85	0.88	55.0
900	1250	400F	5783	5.7	0.8	2.5	13.4	13	20	3615	82	1486	95.7	95.8	95.5	0.79	0.86	0.89	61.4
1000	1350	400F	6427	5.6	0.8	2.4	14.3	13	21	3728	82	1486	95.8	95.9	95.6	0.79	0.86	0.89	68.1
1250	1700	450C	8018	5.6	0.8	2.3	29.1	10	16	4476	87	1489	95.4	95.7	95.5	0.79	0.86	0.88	86.1
1400	1900	450C	8979	5.8	0.8	2.3	36.1	8	13	4929	87	1489	95.6	95.9	95.6	0.83	0.88	0.89	94.8
1600	2200	450C	10265	5.6	0.8	2.2	39.5	9	14	5173	87	1488	95.9	96.1	95.8	0.84	0.88	0.90	107.8
1800	2500	450C	11548	5.6	0.8	2.2	43.0	8	13	5417	87	1488	96.1	96.2	95.9	0.85	0.89	0.90	120.9
2000	2700	450C	12840	5.1	0.7	2.0	41.3	11	16	5324	87	1487	96.1	96.3	95.9	0.84	0.88	0.89	135.1
2240	3043	500C	14375	4.6	0.5	1.9	47.6	21	28	6290	87	1488	96.2	96.4	96.1	0.88	0.90	0.90	149.7
2500	3380	500C	16042	4.7	0.6	1.9	52.1	20	27	6609	87	1488	96.4	96.6	96.3	0.88	0.90	0.90	166.4
2800	3800	500C	17962	4.8	0.6	2.0	56.5	19	25	6926	87	1489	96.6	96.7	96.4	0.88	0.90	0.90	185.8
3150	4255	560C	20213	4.1	0.5	1.7	61.4	22	23	7318	88	1488	95.3	95.9	96.0	0.83	0.87	0.88	216.0
3550	4800	560C	22751	4.8	0.5	2.1	67.7	18	19	7728	88	1490	95.5	96.2	96.3	0.79	0.85	0.87	244.8
4000	5500	560C	25615	5.3	0.6	2.2	86.4	18	19	8916	88	1491	96.0	96.7	96.8	0.81	0.87	0.88	270.0
4250	5774	560C	27209	5.6	0.6	2.3	92.7	17	17	9277	88	1492	96.1	96.7	96.8	0.81	0.87	0.88	286.6
4500	6100	560C	28795	6.1	0.7	2.6	96.2	15	15	9448	88	1492	96.1	96.8	96.9	0.77	0.84	0.87	307.5
5000	6755	560C	32013	5.5	0.6	2.3	96.2	15	15	9448	88	1491	96.4	96.9	96.9	0.80	0.86	0.88	339.4
5300	7130	560C	33948	5.2	0.6	2.2	95.9	15	16	9522	88	1491	96.4	96.9	96.9	0.81	0.86	0.88	358.2

W60 / IC01 - WP-I / 50 Hz / 10000 V - IP23

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
6 poles																			
280	380	355G	2716	4.8	0.9	2.0	7.9	22	32	2647	78	985	93.5	93.8	93.2	0.71	0.80	0.83	20.9
315	430	355G	3055	4.9	0.9	2.1	7.9	19	27	2646	78	985	93.6	93.9	93.3	0.69	0.79	0.82	23.6
355	480	355G	3442	5.0	0.9	2.2	7.9	16	23	2663	78	985	93.8	94.1	93.6	0.67	0.78	0.82	26.8
400	550	355G	3881	4.8	0.9	2.1	8.5	16	22	2738	78	984	94.0	94.2	93.6	0.68	0.78	0.82	30.1
450	610	355G	4373	4.6	0.8	1.9	9.6	17	24	2896	78	983	94.4	94.3	93.7	0.72	0.80	0.83	33.3
500	680	400F	4827	5.5	0.8	2.4	17.4	19	26	3489	76	989	94.7	95.0	94.7	0.70	0.80	0.84	36.2
560	750	400F	5407	5.5	0.9	2.4	17.4	12	20	3463	76	989	94.6	94.9	94.5	0.69	0.79	0.84	40.9
630	850	400F	6088	5.2	0.8	2.3	18.6	14	23	3584	76	988	94.9	95.1	94.7	0.72	0.81	0.85	45.3
710	970	400F	6857	5.6	0.9	2.5	20.1	12	19	3700									

Mechanical Data

W60 / IC01 - WP-I / Ball Bearings - IP23



Frame	Poles	Dimensions													
		A	B	K	C	AB	BB	L ₁	H	HD	HA	AA	K1	AC	AD ₂
315F	2	508	900	35	216	660	1150	1495	315	1175	39.5	130	35	886	783
315F	4/6/8	508	900	35	216	660	1150	1525	315	1175	39.5	130	35	886	783
355G	2	610	1000	35	254	771	1308	1654	355	1275	39.5	170	35	1098	1107
355G	4/6/8	610	1000	35	254	771	1308	1694	355	1275	39.5	170	35	1098	1107
400F	2	686	1250	35	280	866	1508	1911	400	1360	39.5	170	35	1178	1187
400F	4/6/8	686	1250	35	280	866	1508	1991	400	1360	39.5	170	35	1178	1187
450	2	950	1250	35	250	1080	1550	2053	450	1303	58	200	35	1480	1190
450	4/6/8	850	1400	35	250	980	1670	2255	450	1435	39.5	200	35	1187	1221
500	2	1060	1400	42	250	1180	1620	2183	500	1443	58	245	42	1590	1240
500	4/6/8	900	1600	42	260	1080	1835	2465	500	1540	39.5	245	42	1287	1271
560	2	1120	1600	42	-	1290	2030	2595	560	1613	70	245	42	1690	1295
560	4/6/8	1060	1800	42	365	1300	2170	2915	560	1655	53	280	42	1600	1326

Frame	Poles	Shaft End						Ball Bearing		Roller Bearing		Dimension ^{AD1}				
		E	ES	D	G	GD	F	d1	DE	NDE	DE	NDE	690V	5kV	6kV	10kV
315F	2	140	125	80	71	14	22	M20x2.5	6218	6218	-	-	783	783	783	-
315F	4/6/8	170	140	90	81	14	25	M20x2.5	6220	6218	NU220	-	783	783	783	-
355G	2	170	140	85	76	14	22	M20x2.5	6218	6218	-	-	952	952	945	1107
355G	4/6/8	210	170	110	100	16	28	M24x3.0	6224	6218	NU224	-	952	952	945	1107
400F	2	170	140	95	86	14	25	M24x3.0	6220	6220	-	-	952	952	945	1187
400F	4/6/8	250	200	130	119	18	32	M24x3.0	6228	6220	NU228	-	952	952	945	1187
450	2	210	180	100	90	16	28	M24x3.0	6222	6222	-	-	893	893	893	1190
450	4/6/8	210	160	110	100	16	28	M24x3.0	6324	6328	NU324	-	945	945	945	1221
500	2	210	180	100	90	16	28	M24x3.0	6222	6222	-	-	948	948	948	1240
500	4/6/8	250	200	140	128	20	36	M30x3.5	6330	6332	NU330	-	995	995	995	1271
560	2	210	160	110	100	16	28	M24x3.0	6224	6224	-	-	998	998	998	1295
560	4/6/8	300	240	170	157	22	40	M36x4.0	NU1036	NU1032	-	-	1050	1050	1050	1326

Note:
 - L₁ Motor Without Terminal Box
 - AD₂ Dimension for 10kV Terminal box (6.6kV for frame 315F)



Electrical Data

W60 / IC01 - ODP / 50 Hz / 380 V - IP23

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	904	5.5	1.1	2.2	1.6	15	24	1474	88	2959	94.8	95.1	94.8	0.80	0.87	0.89	503.7
315	430	315F	1019	4.9	1.0	2.0	1.6	15	24	1474	88	2953	95.0	95.1	94.6	0.82	0.88	0.90	564.8
355	480	315F	1151	4.2	0.8	1.6	1.8	17	28	1549	88	2944	95.3	95.1	94.3	0.90	0.90	0.91	628.7
400	550	315F	1295	4.7	0.9	1.9	1.9	14	22	1610	88	2950	95.7	95.5	94.8	0.89	0.90	0.91	704.5
450	610	315F	1453	5.6	1.1	2.2	2.1	11	17	1685	88	2957	96.0	95.9	95.4	0.87	0.90	0.91	787.8
500	680	355G	1610	5.8	0.9	2.1	3.4	15	24	2294	90	2966	95.8	95.7	95.2	0.89	0.90	0.91	876.7
560	750	355G	1805	5.6	0.9	1.9	3.7	15	23	2363	90	2963	95.9	95.8	95.1	0.90	0.90	0.91	982.9
630	850	355G	2030	5.6	0.9	2.0	4.0	14	22	2476	90	2964	96.2	96.1	95.5	0.90	0.90	0.91	1101.5
710	970	400F	2284	5.3	0.7	1.9	6.1	17	28	3057	90	2969	96.4	96.2	95.6	0.89	0.90	0.91	1239.5
800	1100	400F	2580	4.4	0.6	1.6	6.9	20	32	3271	90	2961	96.6	96.1	95.3	0.90	0.90	0.91	1401.7
900	1250	400F	2895	5.5	0.7	2.0	7.3	15	24	3378	90	2969	96.8	96.6	96.0	0.90	0.90	0.91	1565.6
1000	1350	400F	3219	5.3	0.7	1.9	7.7	14	23	3488	90	2967	96.9	96.5	95.9	0.90	0.90	0.91	1741.2
4 poles																			
280	380	315F	1812	4.5	0.8	1.8	3.0	24	36	1603	82	1476	94.9	95.0	94.5	0.88	0.90	0.91	495.0
315	430	315F	2038	4.8	0.8	1.9	3.2	26	32	1677	82	1476	95.3	95.4	94.9	0.88	0.90	0.91	554.4
355	480	315F	2295	5.0	0.9	2.0	3.6	19	29	1735	82	1477	95.5	95.5	95.0	0.87	0.90	0.91	624.0
400	550	315F	2583	5.6	1.0	2.2	3.8	16	24	1801	82	1479	95.8	95.8	95.4	0.85	0.90	0.91	700.0
450	610	315F	2900	6.5	1.2	2.6	4.1	14	19	1881	82	1482	96.0	96.2	95.9	0.81	0.88	0.90	791.2
450	610	355G	2898	5.6	0.9	2.1	6.2	23	26	2457	85	1483	95.6	95.9	95.7	0.85	0.89	0.90	790.5
500	680	355G	3226	5.0	0.8	1.9	6.7	23	29	2545	85	1480	95.9	96.0	95.6	0.87	0.90	0.91	875.6
560	750	355G	3623	4.1	0.6	1.5	7.1	26	32	2622	85	1476	96.0	95.9	95.2	0.89	0.90	0.90	990.9
630	850	355G	4062	5.2	0.8	1.9	7.6	19	24	2714	85	1481	96.3	96.3	95.9	0.87	0.90	0.91	1099.2
710	970	400F	4578	4.9	0.7	1.8	13.4	23	32	3423	85	1481	96.7	96.5	96.0	0.90	0.90	0.91	1234.4
800	1100	400F	5155	5.1	0.8	1.9	14.3	21	28	3541	85	1482	96.9	96.7	96.3	0.89	0.90	0.91	1387.7
900	1250	400F	5791	5.7	0.9	2.1	15.0	17	23	3632	85	1484	97.0	96.9	96.5	0.88	0.90	0.91	1557.5

Electrical Data

W60 / IC01 - ODP / 50 Hz / 3300 V - IP23

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	901	5.7	0.9	2.2	1.7	15	25	1485	88	2967	93.5	94.0	93.7	0.81	0.87	0.89	58.7
315	430	315F	1013	6.1	1.0	2.4	1.7	13	21	1487	88	2970	94.6	94.9	94.5	0.79	0.86	0.89	65.6
355	480	315F	1141	6.2	1.1	2.6	1.7	11	17	1490	88	2970	93.5	94.2	94.0	0.62	0.74	0.80	82.5
400	550	315F	1287	6.1	1.0	2.4	2.0	11	18	1566	88	2969	94.3	94.7	94.4	0.75	0.84	0.87	85.0
450	610	315F	1449	5.9	1.0	2.3	2.1	11	18	1627	88	2966	94.7	94.9	94.5	0.80	0.87	0.89	93.6
500	680	315F	1610	5.7	0.9	2.2	2.3	11	18	1702	88	2965	95.1	95.1	94.6	0.84	0.89	0.91	101.9
630	850	355G	2028	5.4	0.9	2.2	3.5	11	17	2414	90	2966	95.7	95.8	95.4	0.84	0.89	0.90	127.9
710	970	355G	2287	5.5	0.9	2.1	3.8	10	16	2473	90	2965	95.8	95.8	95.3	0.87	0.90	0.91	143.2
800	1100	400F	2577	5.2	0.8	2.0	5.7	10	14	2921	90	2965	95.6	95.7	95.3	0.83	0.88	0.89	164.2
900	1250	400F	2903	4.8	0.8	1.8	6.1	10	15	3030	90	2961	95.9	95.8	95.3	0.86	0.90	0.90	182.7
1000	1350	400F	3221	4.8	0.8	1.9	6.0	10	16	3048	90	2965	96.1	96.1	95.6	0.84	0.89	0.90	203.5
1120	1515	400F	3601	5.8	1.0	2.3	7.4	8	13	3386	90	2970	96.3	96.4	96.1	0.85	0.90	0.91	224.2
1250	1700	400F	4018	6.0	1.0	2.5	7.8	7	12	3490	90	2971	96.4	96.5	96.2	0.83	0.89	0.91	250.3
4 poles																			
280	380	315F	1810	4.7	0.8	2.0	2.5	22	30	1470	82	1477	95.0	95.1	94.6	0.79	0.86	0.88	59.0
315	430	315F	2038	4.6	0.8	2.0	2.7	24	28	1537	82	1476	95.3	95.3	94.8	0.80	0.86	0.88	66.1
355	480	315F	2297	4.5	0.8	1.9	3.0	25	28	1612	82	1476	95.5	95.5	94.9	0.82	0.87	0.89	73.8
400	550	315F	2590	4.8	0.8	2.1	3.1	19	19	1614	82	1475	95.5	95.5	95.0	0.80	0.86	0.88	83.6
450	610	315F	2919	4.0	0.7	1.7	3.2	24	27	1674	82	1472	95.8	95.5	94.7	0.85	0.88	0.89	93.5
500	680	315F	3233	5.3	1.0	2.3	3.6	15	16	1746	82	1477	95.7	95.8	95.3	0.77	0.85	0.88	104.8
560	750	355G	3611	5.2	0.9	2.2	5.5	13	19	2394	85	1481	95.4	95.5	95.1	0.78	0.85	0.87	117.9
630	850	355G	4062	5.3	0.9	2.2	6.0	12	17	2474	85	1481	95.6	95.7	95.2	0.79	0.85	0.88	131.8
710	970	355G	4575	5.7	1.0	2.4	7.0	11	16	2648	85	1482	95.7	95.9	95.5	0.78	0.85	0.88	148.3
800	1100	355G	5155	5.8	1.0	2.4	7.5	10	15	2732	85	1482	95.9	96.0	95.6	0.77	0.84	0.87	167.6
900	1250	400F	5791	5.1	0.7	2.3	11.9	16	22	3267	85	1484	96.1	96.2	95.8	0.80	0.86	0.89	185.6
1000	1350	400F	6435	5.1	0.7	2.2	13.4	15	22	3498	85	1484	96.2	96.3	96.0	0.81	0.87	0.89	204.3
1120	1515	400F	7207	5.1	0.7	2.3	14.2	14	20	3611	85	1484	96.3	96.4	96.1	0.81	0.87	0.89	229.2
1250	1700	400F	8033	5.3	0.8	2.2	14.8	15	21	3685	85	1486	96.5	96.5	96.2	0.79	0.85	0.88	258.7
6 poles																			
355	480	355G	3442	5.3	1.0	2.3	8.3	15	22	2444	78	985	94.4	94.7	94.4	0.66	0.77	0.81	81.1
400	550	355G	3882	5.0	0.9	2.1	8.9	16	22	2520	78	984	94.6	94.8	94.4	0.69	0.78	0.82	90.3
450	610	355G	4367	5.0	0.9	2.1	10.2	16	22	2691	78	984	94.8	95.0	94.5	0.69	0.79	0.82	101.0
500	680	355G	4847	5.2	1.0	2.3	10.2	13	19	2701	78	985	94.9	95.1	94.7	0.66	0.77	0.81	113.7
560	750	355G	5418	5.3	1.0	2.3	10.1	15	22	2811	78	987	95.1	95.4	95.0	0.66	0.77	0.81	127.0
630	850	400F	6083	6.2	1.1	2.7	16.4	11	15	3210	78	989	95.4	95.7	95.4	0.65	0.76	0.82	141.5
710	970	400F	6855	6.0	1.0	2.7	17.4	11	16	3298	78	989	95.8	96.2	96.1	0.65	0.76	0.81	159.0
800	1100	400F	7740	5.1	0.8	2.2	18.6	13	19	3411	78	987	96.1	96.3	96.0	0.73	0.81	0.85	171.8
900	1250	400F	8708	5.2	0.8	2.3	19.7	12	16	3510	78	987	96.2	96.3	96.0	0.71	0.80	0.84	194.9
1000	1350	400F	9665	5.6	0.9	2.5	20.9	10	14	3622	78	988	96.2	96.4	96.1	0.68	0.78	0.83	219.3
8 poles																			
250	340	355G	3226	5.0	1.0	2.1	10.8	31	44	2361	77	740	93.6	94.1	93.8	0.64	0.74	0.79	59.1
280	380	355G	3608	5.2	1.1	2.2	11.6	27	39	2422	77	741	93.6	94.2	93.9	0.61	0.72	0.77	67.5
315	430	355G	4059	5.6	1.2	2.5	12.5	23	33	2506	77	741	93.7	94.3	94.1	0.57	0.69	0.75	77.8
355	480	355G	4581	5.1	1.1	2.2	12.5	23	33	2506	77	740	94.0	94.4	94.1	0.60	0.72	0.77	85.5
400	550	355G	5162	5.0	1.0	2.1	13.3	22	32	2574	77	740	94.2	94.5	94.2	0.61	0.72	0.77	96.1
450	610	400F	5815	5.1	1.0	2.1	21.0	21	30	3044	77	739	94.8	94.9	94.4	0.68	0.78	0.82	102.2
500	680	400F	6444	5.5	1.0	2.5	22.6	20	28	3155	77	741	94.8	95.1	94.8	0.63	0.75	0.80	115.3
560	750	400F	7226	5.2	1.1	2.3	23.7	16	23	3238	77	740	95.0	95.2	94.8	0.66	0.76	0.81	127.7
630	850	400F	8130	5.3	1.1	2.3	25.3	15	21	3349	77	740	95.1	95.3	94.9	0.65	0.76	0.81	144.0
710	970	400F	9150	5.5	1.1	2.4	26.9	13	19	3458	77	741	95.2	95.4	95.0	0.62	0.74	0.79	164.8

Electrical Data

W60 / IC01 - ODP / 50 Hz / 6000 V - IP23

Output		Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
280	380	315F	902	5.0	0.9	1.9	1.7	15	24	1477	88	2963	93.4	93.7	93.3	0.84	0.89	0.90	32.1
315	430	315F	1016	5.0	0.8	1.9	1.7	10	16	1463	88	2962	93.5	93.7	93.1	0.83	0.88	0.89	36.5
355	480	315F	1144	5.0	0.8	1.9	2.0	10	16	1541	88	2962	94.0	94.1	93.4	0.86	0.90	0.90	40.4
400	550	315F	1286	6.3	1.1	2.6	1.7	8	12	1490	88	2971	93.2	93.9	93.7	0.63	0.75	0.81	50.5
450	610	315F	1451	5.0	0.8	1.9	2.0	9	14	1548	88	2961	94.5	94.4	93.7	0.83	0.88	0.89	51.7
500	680	315F	1611	5.4	0.9	2.1	2.1	8	12	1607	88	2964	94.7	94.7	94.1	0.80	0.87	0.89	57.6
560	750	355G	1804	5.1	0.8	2.1	3.2	13	20	2303	90	2965	95.4	95.5	95.1	0.85	0.89	0.90	62.7
630	850	355G	2028	5.5	0.9	2.2	3.5	11	17	2384	90	2967	95.6	95.7	95.3	0.85	0.89	0.91	70.1
710	970	355G	2287	5.5	0.8	2.0	4.1	11	16	2542	90	2965	95.8	95.8	95.2	0.88	0.90	0.91	78.8
800	1100	400F	2574	4.9	0.8	2.0	5.6	12	20	2942	90	2968	95.6	95.8	95.4	0.83	0.88	0.90	90.0
900	1250	400F	2896	5.1	0.8	2.1	6.0	11	17	3036	90	2968	95.8	95.9	95.6	0.82	0.88	0.89	101.3
1000	1350	400F	3217	5.2	0.8	2.1	6.5	10	16	3168	90	2968	96.0	96.1	95.8	0.84	0.89	0.90	111.1
1120	1515	400F	3600	5.9	1.0	2.4	7.4	8	13	3373	90	2971	96.2	96.3	96.0	0.83	0.89	0.91	124.0
1250	1700	400F	4023	5.6	1.0	2.3	7.6	7	10	3363	90	2967	96.3	96.3	95.9	0.82	0.88	0.90	139.3
4 poles																			
250	340	315F	1616	4.6	0.8	2.0	2.1	18	28	1412	82	1477	94.4	94.6	94.0	0.75	0.83	0.86	29.7
280	380	315F	1812	4.4	0.7	1.9	2.5	16	26	1476	82	1476	94.7	94.7	94.0	0.81	0.86	0.88	32.5
315	430	315F	2038	4.5	0.7	1.9	2.5	17	27	1492	82	1476	94.9	94.9	94.3	0.78	0.85	0.87	37.0
355	480	315F	2295																

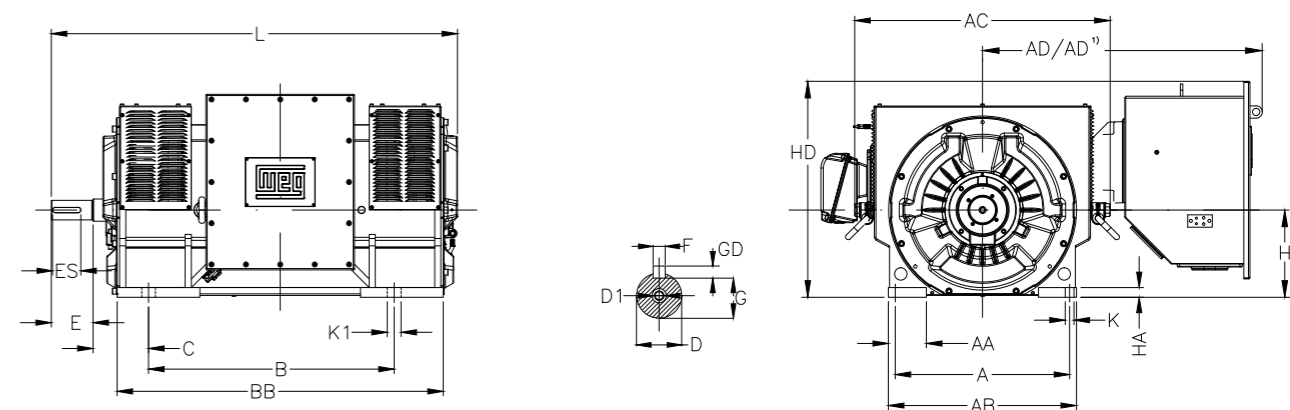
Electrical Data

W60 / IC01 - ODP / 50 Hz / 10000 V - IP23

Output kW	HP	Frame	Full load torque (Nm)	Locked rotor current I _L /I _n	Locked rotor torque T _L /T _n	Break-down torque T _b /T _n	Inertia J (kg.m ²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	Efficiency			Power Factor			Full load current I _n (A)
								Hot	Cold				50%	75%	100%	50%	75%	100%	
2 poles																			
315	430	355G	1011	6.3	1.0	2.5	2.9	16	26	2151	90	2974	93.7	94.4	94.2	0.82	0.88	0.90	21.4
355	480	355G	1141	5.8	1.0	2.3	3.2	15	24	2221	90	2971	94.1	94.4	94.1	0.85	0.90	0.91	24.0
400	550	355G	1285	6.1	1.0	2.4	3.2	14	23	2229	90	2972	94.5	94.9	94.6	0.83	0.89	0.90	27.0
450	610	355G	1448	5.4	0.9	2.1	3.2	14	23	2229	90	2968	94.7	94.9	94.5	0.85	0.90	0.91	30.3
500	680	355G	1609	5.3	0.8	2.0	3.2	12	19	2224	90	2967	94.9	95.0	94.4	0.85	0.89	0.90	33.8
560	750	355G	1802	5.5	0.9	2.0	3.5	11	18	2318	90	2967	95.2	95.2	94.7	0.86	0.90	0.91	37.5
630	850	355G	2027	5.7	0.9	2.1	3.8	10	17	2397	90	2968	95.4	95.4	94.9	0.86	0.90	0.91	42.1
710	970	400F	2281	5.6	0.9	2.3	6.0	13	21	2960	90	2973	95.1	95.4	95.2	0.82	0.88	0.90	48.1
800	1100	400F	2571	5.5	0.9	2.2	6.5	12	20	3074	90	2971	95.4	95.6	95.3	0.85	0.89	0.90	53.6
900	1250	400F	2892	5.8	0.9	2.3	6.9	11	17	3156	90	2972	95.6	95.8	95.4	0.83	0.89	0.90	60.4
1000	1350	400F	3215	5.5	0.8	2.1	7.4	10	16	3284	90	2970	95.8	95.9	95.5	0.85	0.89	0.90	66.9
4 poles																			
355	480	355G	2284	6.1	1.0	2.5	5.5	17	28	2309	85	1484	94.1	94.5	94.3	0.77	0.85	0.88	24.8
400	550	355G	2575	5.7	1.0	2.3	5.5	15	24	2302	85	1483	94.4	94.7	94.4	0.78	0.85	0.88	27.9
450	610	355G	2897	5.7	0.9	2.3	5.5	15	24	2312	85	1483	94.5	94.8	94.4	0.76	0.84	0.87	31.5
500	680	355G	3219	5.7	0.9	2.3	6.0	14	23	2407	85	1483	94.8	95.0	94.6	0.78	0.85	0.88	34.8
560	750	355G	3612	5.1	0.9	2.1	6.1	15	24	2474	85	1481	95.1	95.1	94.5	0.81	0.87	0.89	38.5
630	850	355G	4058	5.7	1.0	2.3	6.1	11	18	2490	85	1482	95.1	95.2	94.8	0.76	0.84	0.87	44.1
710	970	400F	4558	6.1	0.9	2.7	11.9	13	21	3141	85	1487	95.2	95.5	95.3	0.76	0.84	0.88	49.1
800	1100	400F	5139	5.9	0.8	2.6	12.6	13	21	3230	85	1487	95.4	95.7	95.4	0.77	0.85	0.88	55.0
900	1250	400F	5783	5.7	0.8	2.5	13.4	13	20	3340	85	1486	95.7	95.8	95.5	0.79	0.86	0.89	61.4
1000	1350	400F	6427	5.6	0.8	2.4	14.3	13	21	3453	85	1486	95.8	95.9	95.6	0.79	0.86	0.89	68.1
6 poles																			
280	380	355G	2716	4.8	0.9	2.0	7.9	22	35	2372	78	985	93.5	93.8	93.2	0.71	0.80	0.83	20.9
315	430	355G	3055	4.9	0.9	2.1	7.9	19	30	2371	78	985	93.6	93.9	93.3	0.69	0.79	0.82	23.6
355	480	355G	3442	5.0	0.9	2.2	7.9	16	26	2388	78	985	93.8	94.1	93.6	0.67	0.78	0.82	26.8
400	550	355G	3881	4.8	0.9	2.1	8.5	16	25	2463	78	984	94.0	94.2	93.6	0.68	0.78	0.82	30.1
450	610	355G	4373	4.6	0.8	1.9	9.6	17	27	2621	78	983	94.4	94.3	93.7	0.72	0.80	0.83	33.3
500	680	400F	4827	5.5	0.8	2.4	17.4	19	30	3214	78	989	94.7	95.0	94.7	0.70	0.80	0.84	36.2
560	750	400F	5407	5.5	0.9	2.4	17.4	12	20	3188	78	989	94.6	94.9	94.5	0.69	0.79	0.84	40.9
630	850	400F	6088	5.2	0.8	2.3	18.6	14	23	3309	78	988	94.9	95.1	94.7	0.72	0.81	0.85	45.3
710	970	400F	6857	5.6	0.9	2.5	20.1	12	19	3425	78	989	95.4	95.5	95.0	0.69	0.79	0.83	51.7
8 poles																			
280	380	400F	3606	5.3	0.9	2.3	18.7	18	29	2876	77	741	93.1	93.5	93.1	0.66	0.77	0.82	21.3
315	430	400F	4058	5.3	0.9	2.3	20.0	19	30	2968	77	741	93.3	93.7	93.3	0.66	0.77	0.82	23.8
355	480	400F	4574	5.3	0.9	2.3	21.6	17	27	3065	77	741	93.6	93.9	93.5	0.67	0.77	0.82	26.7
400	550	400F	5153	5.4	1.0	2.4	23.0	16	25	3151	77	741	93.8	94.1	93.7	0.66	0.76	0.82	30.3
450	610	400F	5795	5.6	1.0	2.5	24.6	16	26	3273	77	742	93.9	94.3	93.9	0.64	0.75	0.81	34.3
500	680	400F	6448	5.1	0.9	2.2	25.6	16	26	3271	77	740	94.2	94.4	93.8	0.67	0.77	0.82	37.5

Mechanical Data

W60 / IC01 - ODP / Ball Bearings - IP23



Frame	Poles	Dimensions														
		A	B	K	C	AB	BB	L ₁	H	HD	HA	AA	K1	AC	AD ₂	
315F	2	508	900	35	216	660	1150	1495	315	805	39.5	130	35	886	783	
315F	4/6/8	508	900	35	216	660	1150	1525	315	805	39.5	130	35	886	783	
355G	2	610	1000	35	254	771	1308	1654	355	890	39.5	170	35	1098	1107	
355G	4/6/8	610	1000	35	254	771	1308	1694	355	890	39.5	170	35	1098	1107	
400F	2	686	1250	35	280	866	1508	1911	400	960	39.5	170	35	1178	1187	
400F	4/6/8	686	1250	35	280	866	1508	1991	400	960	39.5	170	35	1178	1187	

Frame	Poles	Shaft End						Ball Bearing		Roller Bearing		Dimension AD ¹				
		E	ES	D	G	GD	F	d1	DE	NDE	DE	NDE	690V	5kV	6kV	10kV
315F	2	140	125	80	76	14	22	M20x2.5	6218	6218	-	-	783	783	783	-
315F	4/6/8	170	140	90	81	14	25	M20x2.5	6220	6218	NU220	-	783	783	783	-
355G	2	170	140	85	76	14	22	M20x2.5	6218	6218	-	-	952	952	945	1107
355G	4/6/8	210	170	110	100	16	28	M24x3.0	6224	6218	NU224	-	952	952	945	1107
400F	2	170	140	95	86	14	25	M24x3.0	6220	6220	-	-	952	952	945	1187
400F	4/6/8	250	200	130	119	18	32	M24x3.0	6228	6220	NU228	-	952	952	945	1187

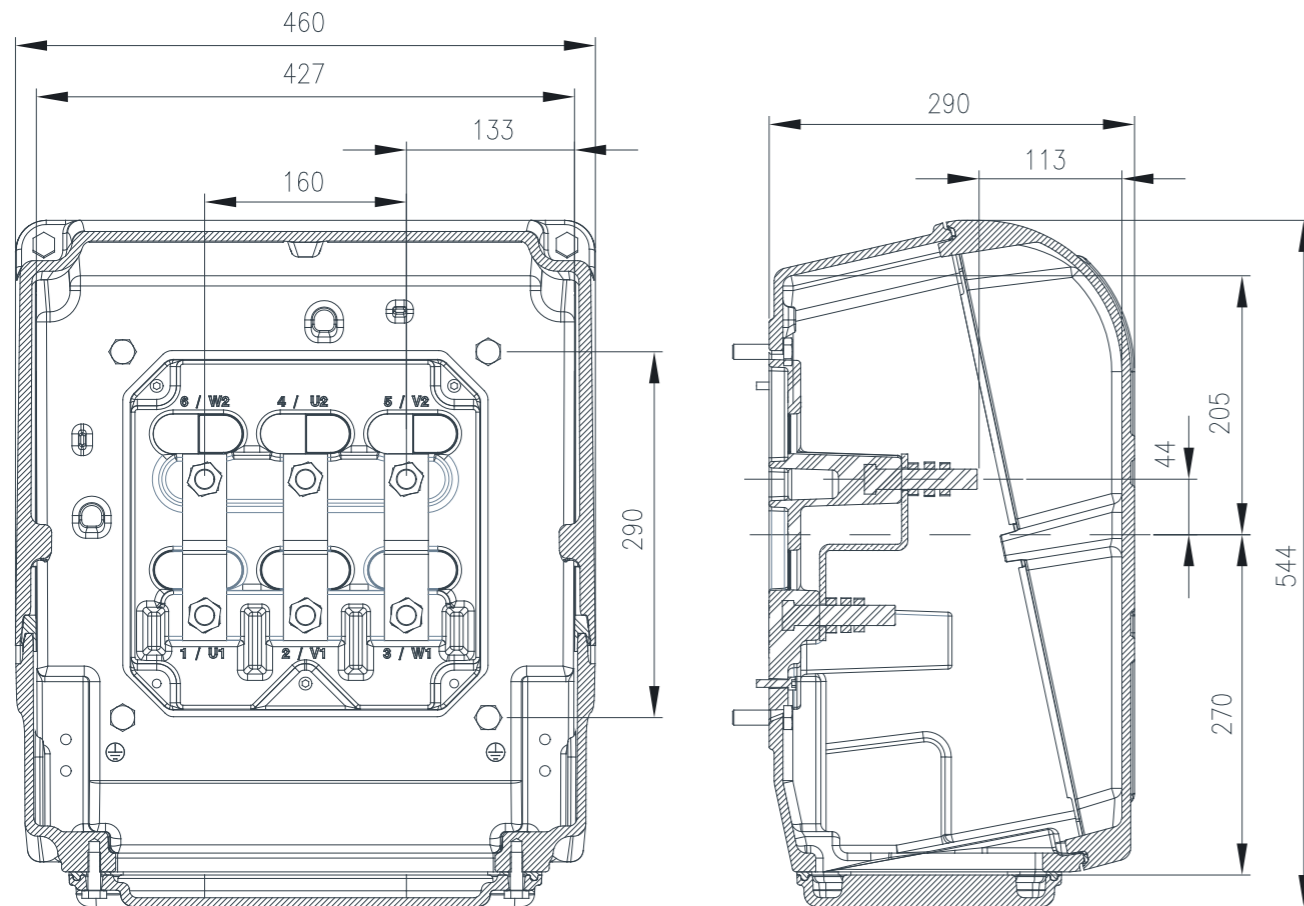
Note:
 - L₁ Motor Without Terminal Box
 - L₂ Motor With Terminal Box
 - AD₂ Dimension for 10kV Terminal box (6.6kV for frame 315F)

15. Terminal Boxes

The terminal boxes can be manufactured in cast iron FC-200, the same material used in the frame and endshields, or manufactured in steel plate. Below see the external dimensionals and some technical features.

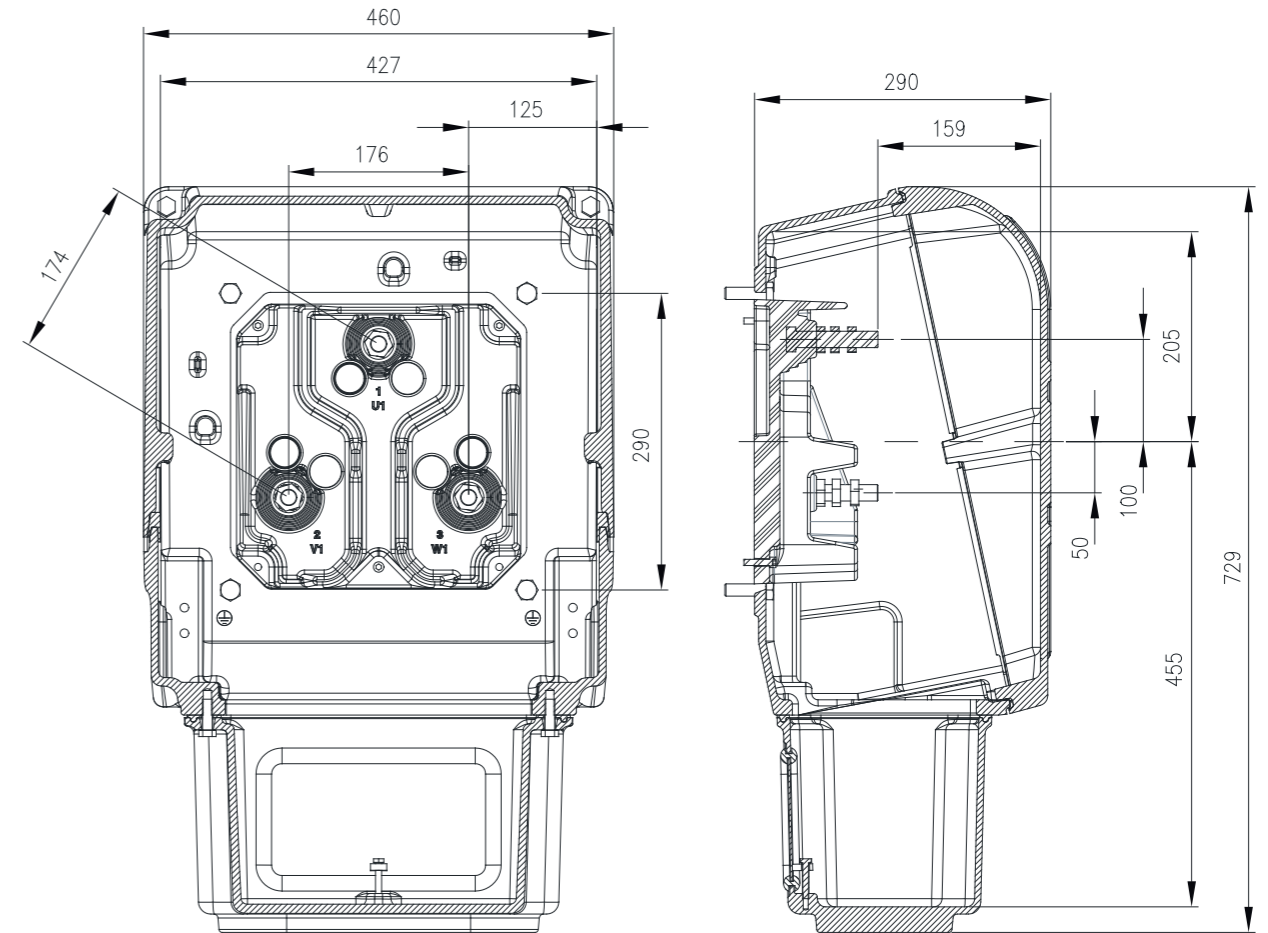
15.1 Cast Iron Terminal Boxes

15.1.1 Iron 01



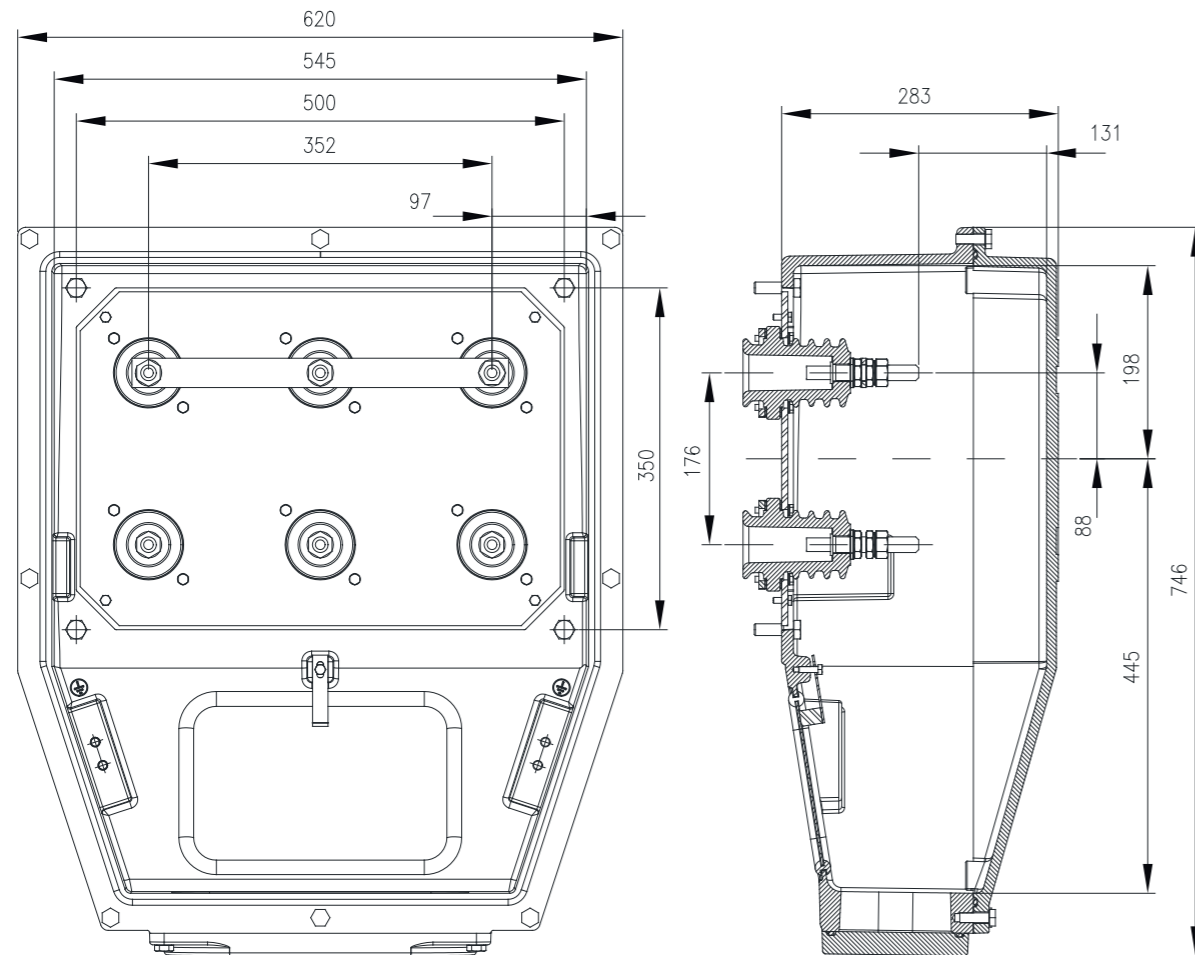
Technical data	
Rated Voltage	690 V
Maximum quantity of leads	1 per phase
Entry plates for leads designation	Type 01
Internal volume	51 dm ³
Connecting bolt	M16 x 2
Tightening torque of the terminals	30 Nm
Grounding terminal	Internal
Approximate weight	75 kg
Degree of protection	IP66
General data	
Minimum terminal box thickness	7 mm
Rotate in steps of 90°	Yes

15.1.2 Iron 02



Technical data	
Rated Voltage	6000 V
Maximum quantity of leads	1 per phase
Entry plates for leads designation	Type 02
Internal volume	64.7 dm ³
Connecting bolt	M16 x 2
Tightening torque of the terminals	30 Nm
Grounding terminal	Internal
Approximate weight	75 kg
Degree of protection	IP66
General data	
Minimum terminal box thickness	7 mm
Rotate in steps of 90°	Yes
Pressure relief device in the back of the terminal box in case of short circuit	Yes

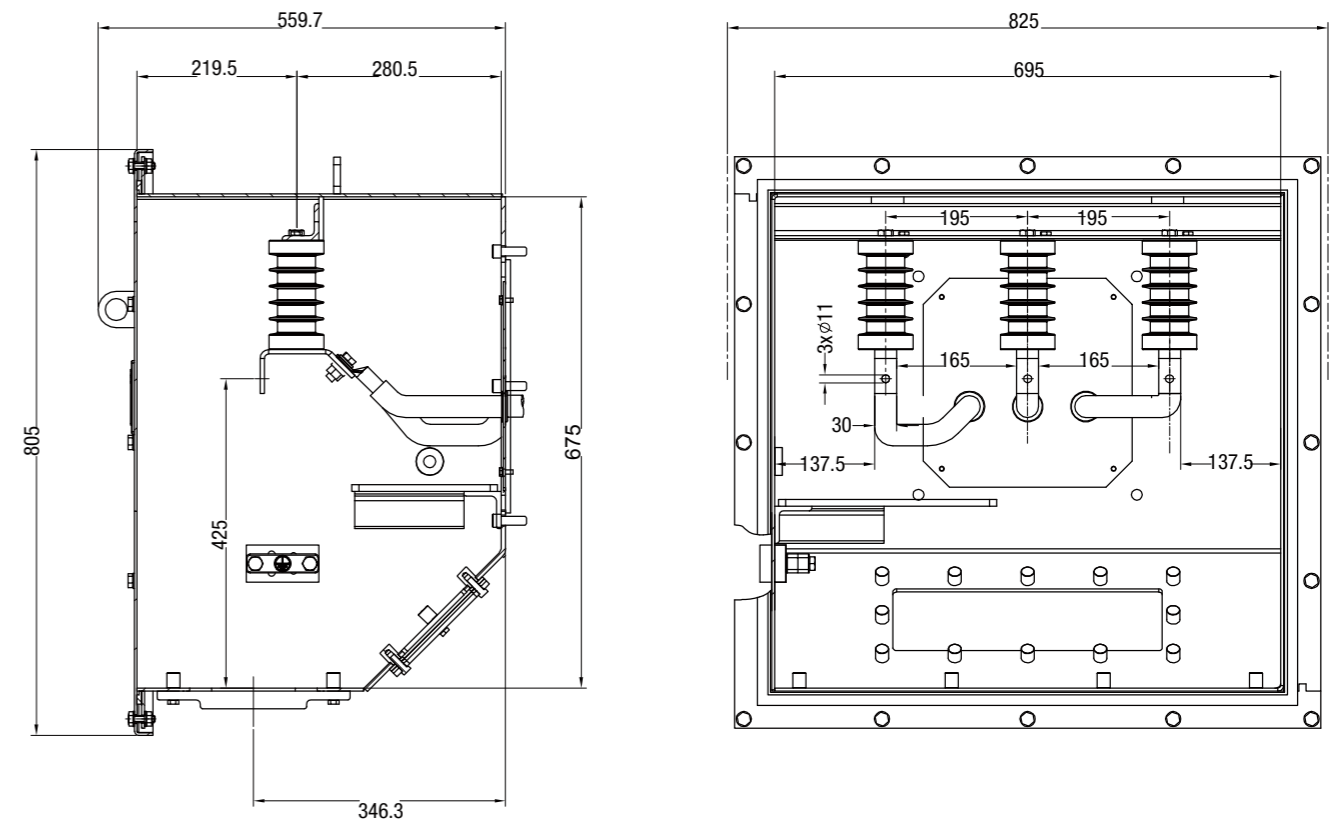
15.1.3 Iron 05



Technical Data	
Rated Voltage	6600V
Maximum quantity of leads	2 per phase
Entry plates for leads designation	Type 03
Internal volume	81.2 dm ³
Connecting bolt	M16 x 2
Tightening torque of the terminals	30 Nm
Grounding terminal	Internal
Approximate weight	120 kg
Degree of protection	IP66
General Data	
Minimum terminal box thickness	8 mm
Rotate in steps of 90°	Yes
Pressure relief device in the back of the terminal box in case of short circuit	

15.2 Steel Plate Terminal Boxes

15.2.1 Steel 12



Note: 1) Dimensions of the terminal box cover.

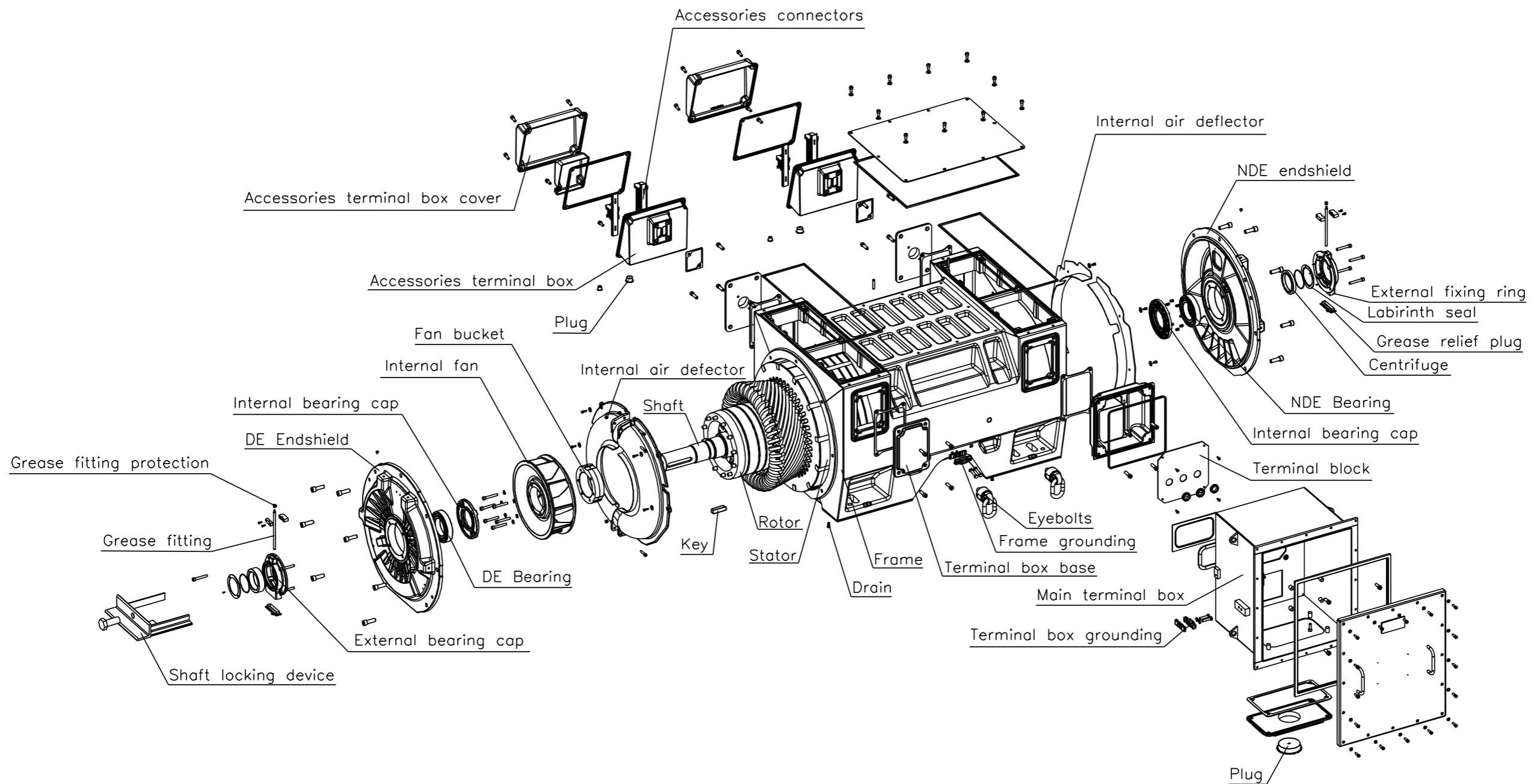
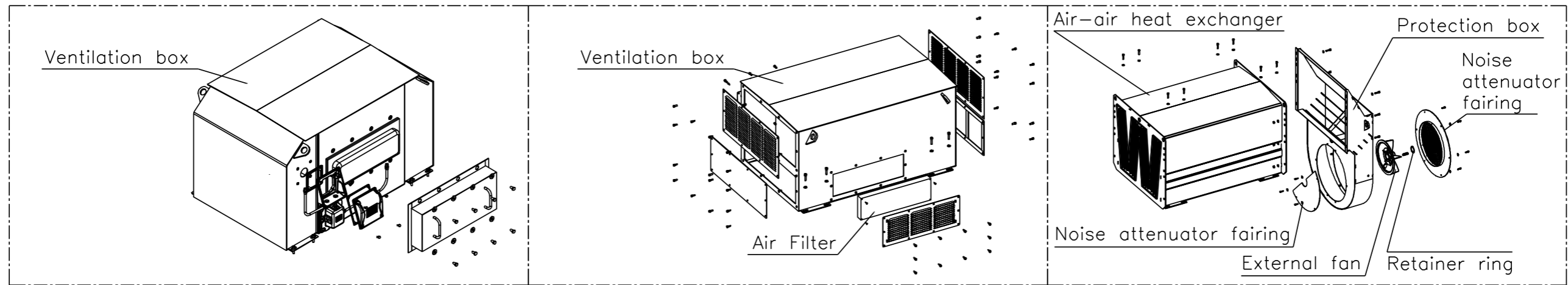
Technical data	
Rated Voltage	10000 V
Maximum quantity of leads	2 per phase
Entry plates for leads designation	Type 01
Internal volume	231.6 dm ³
Connecting bolt	M10
Tightening torque of the terminals	30 Nm
Grounding terminal	Internal or external
Approximate weight	110 kg
Degree of protection	IP66
General data	
Minimum terminal box thickness	3.35 mm
Rotate in steps of 90°	Yes
With eyebolts	2 eyebolts
Pressure relief device in the back of the terminal box in case of short circuit	Yes

16. Visual Index

COOLING METHOD IC81W

COOLING METHOD IC01

COOLING METHOD IC611





Global presence is essential, as much as understanding your needs.


Global Presence

With more than 33.000 employees worldwide, WEG is one of the largest electric motors, electronic equipments and systems manufacturers. We are constantly expanding our portfolio of products and services with expertise and market knowledge. We create integrated and customized solutions ranging from innovative products to complete after-sales service.

WEG's know-how guarantees our **W60 three-phase induction motor** is the right choice for your application and business, assuring safety, efficiency and reliability.

 **Availability** is to have a global support network

 **Partnership** is to create solutions that suits your needs

 **Competitive edge** is to unite technology and innovation



SERVICE



From our wide Services portfolio, stands out the list of interventions on products from WEG activity areas: Electric Motors, Energy and Automation, being the most common:

Inspection, Tests and Technical Analyses

From all the inspections, tests and technical analyses we have capacity to offer, we emphasize the following:

- Production and expedition of spare parts to all over the world;
- Application diagnosis on site or in our factory;
- Technical advise on best, reliable and efficient solutions on energy saving.



	Products		Procedure	
	Automation	Motor	Internal	External
General Repair and overhaul	X	X	X	X
Product repair that may include the replacement of the components by original parts	X	X	X	X
Commissioning and start up	X	X		X
Repair of electrical machines (Ex and Safety)		X	X	X
Inspection and/or replacement of sleeve bearing or bearings		X	X	X
Repair of the sleeve bearings shell		X	X	X
High, Medium and Low Voltage rewinding		X	X	
Stator or rotor core replacement		X	X	
Brushes and brushes holder replacement		X	X	X
Shaft complete replacement or repair of shafts with grinding finishing of complete rotor		X	X	
Dynamic balancing of rotor (Maximum speed 1600 rpm 20T)		X	X	
Field dynamic balancing		X		X
Centring service		X		X
Painting (standard and special plan)		X	X	X
Inspection, tests and technical analysis	X	X	X	X
Energy Efficiency Study	X	X		X
Training of product maintenance	X	X		X

Automation

- Analysis of application improvements and technical assessment to the client, helping on the choice of the most appropriate equipment, targeting the application/optimizing installation efficiency
- Manufacturing, Installation, Modification, Start-Up and Maintenance of Electrical Panels
- Support on the settings parametrization of Variable Speed Drives and Soft Starters
- Commissioning and Start-Up of applications with Variable Speed Drives
- WEG Products Training



Electric Motors

- Commissioning and Start-Up of applications with electric motors
- Alignment applications with electric motors
- Vibration analysis and failures diagnosis
- Dimensional check of Electric Motors and Components/Spare Parts
- Electric Motors maintenance
- Electric Motors Mechanical and Electrical refurbishment:
 - Replacement of bearings / sleeve bearings
 - Recovery of sleeve bearings
 - Rewinding of Electric Motors (stator/rotor) - in Low, Medium and High Voltage (up to 11KV)
 - Recover / Refurbishment / replacement of spare parts
 - Replacement of rotor shafts
 - Repair and replacement of accessories, temperature sensors and anti-condensation heaters and other auxiliaries
- Balancing in factory up to 1600 rpm (20T, Ø Max. 4640 mm)
- Dynamic balancing on site
- Electric Motors modification to new operating conditions (IP protection, cooling system, auxiliaries mounting form, terminal boxes, external loads, etc)
- Painting and finishing recovery
- Customer training on electric motors
- Repair electric machines (Ex and Safety)
- Energy analysis and efficiency of electric motors



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The information contained is reference values.