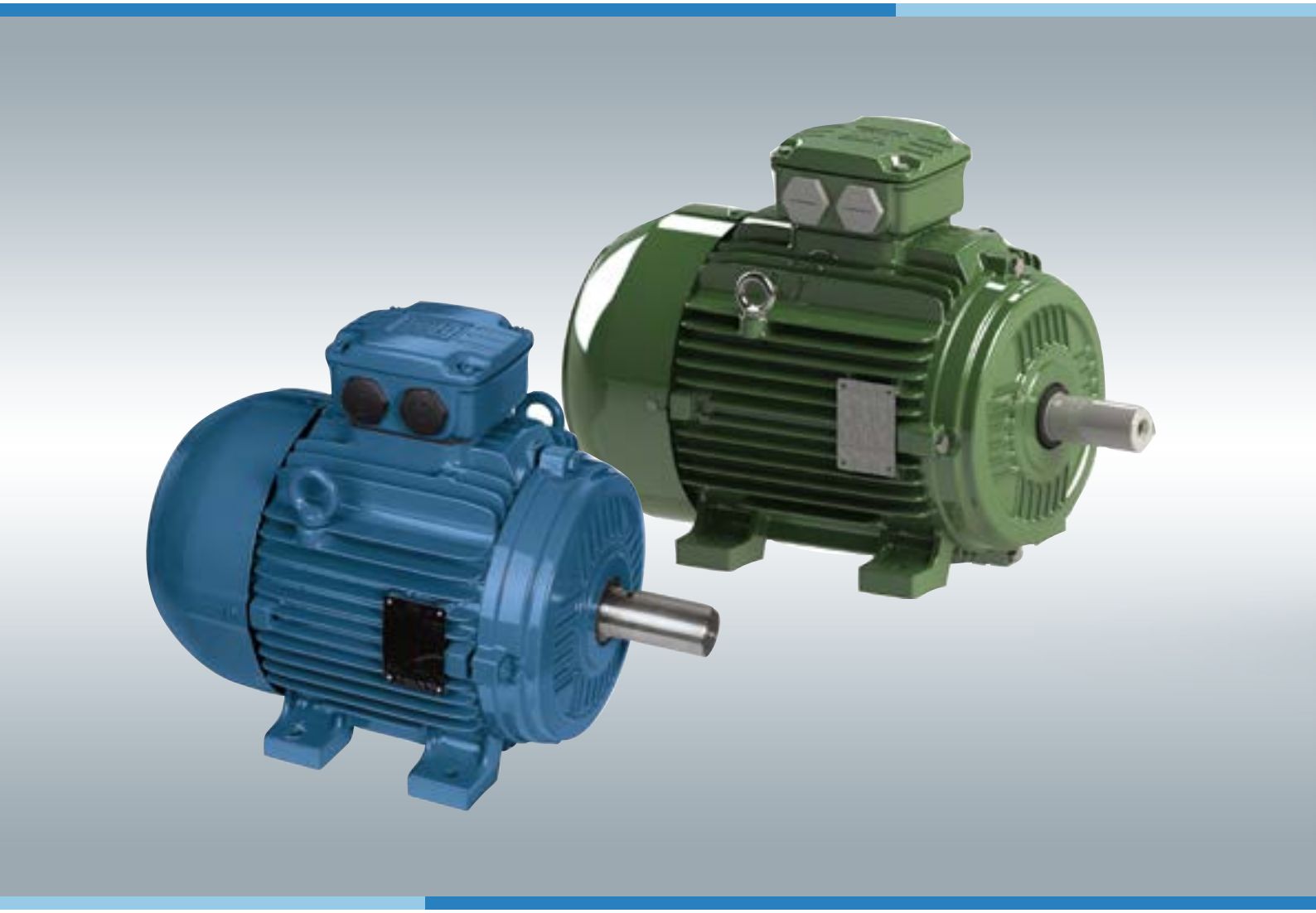
W21

Three Phase LV motors
Technical Catalogue



Motors | Automation | Energy | Transmission & Distribution | Coatings

About WEG

Founded in 1961, WEG is acknowledged today as one of the largest manufacturers of electric motors in the world. More than 33,000 people are employed in the different manufacturing units which cover over 2,500,000 square meters of constructed area.
In support of exports in over 135 countries worldwide, WEG has branch offices located in all five continents and has manufacturing plants in 12 countries supported by more than 1400 service centers around the world.
WEG's great success with export activities is based on the company's willingness to meet worldwide standard requirements, keeping product inventories in strategic locations, personnel training and prompt service.

About WEG (Nantong) Electric Motor Mfg. Co., Ltd

With the expansion of WEG Group's business, in addition to setting up commercial branches around the world, the establishment of factories in
overseas strategic markets has also become a solid backing to support local business growth. WEG Group established the first manufacturing plant in Asia in 2005 in the Nantong Economic and Technological Development Zone, Jiangsu, namely WEG (Nantong) Electrical Motor Manufacturing Co., Ltd. ("WEG Nantong"). The company covers an area of 67,000 square meters, with a construction area of 33,500 square meters, and currently employs 650 people. It is a high-efficiency motor manufacturer integrating R&D, design, production, testing, sales, after-sales service and motor maintenance. The annual production capacity of motors exceeds 3 million kilowatts. The company has a research and development center in collaboration with the headquarters, more than 270 sets of various advanced large and medium-sized production equipment, and a complete and scientific management system. It has successively obtained "ISO9001:2015 Quality Management System Certification" and "ISO14001:2015 Environmental Management System" and "ISO45001-2018 Occupational Health and Safety Management System Certification" provide a strong guarantee for the sustainable development of enterprises. The products sell well in domestic and foreign markets, and are widely used in many industrial segments such as pulp and paper, water treatment, marine, food and beverage, power energy, metallurgy, mining, petroleum and natural gas, urban infrastructure, etc., and are well received by domestic and foreign customers.

About WEG (Jiangsu) Electric Equipment Co., Ltd

Since the establishment of WEG Nantong factory in 2005, WEG brand awareness and market share have been increasing in the Chinese market year by year. WEG Group is optimistic about the development potential and opportunities of the Chinese market. In order to establish a competitive advantage and ensure the sustainable growth of WEG business, the WEG Rugao Greenfield Project with a total investment of US$120 million came into being.
Established in 2015 and located in Jiangsu Rugao Economic and Technological Development Zone, WEG(Jiangsu) Electrical Equipment Co., Ltd. ("WEG Rugao" for short) is the third motor manufacturing plant established by WEG Group in China. Covering a total area of about 180,000 square meters, the second phase of the project has now been completed and officially put into production in 2020. There are about 1000 employees, and the products mainly cover small and medium-sized low-voltage motors and reducers. The annual design capacity of industrial motors is 800,000 units and 200,000 sets of parts. WEG Rugao is the motor manufacturing plant with the highest degree of industrial automation in the group. In addition to highly automated intelligent warehousing, a large number of automated production equipment such as robots are equiped to production,
which provides a strong guarantee for the high volume and high quality of products. The ISO9001, ISO14001 and ISO45001 system certifications obtained are also recognition of its scientific and complete management system. In addition to supplying the Chinese market, the products are also exported to Europe, America, Asia and Africa and other countries and regions. They are widely used in various industrial fields, including traditional applications such as fans, pumps and compressors. The company has established a R&D low-voltage center, through the WMS system (WEG manufacturing system), six sigma and other lean production systems to ensure to provide customers with high-quality products and services.

Certifications

WEG China

Europe · Russian · USA · China · France · Canada · China

China GB2 · China GB3 · China · Africa MASC · USA · IECEx · South Korea · Norway

WEG Global

Argentina	Columbia	Russia	
Australia	France	Saudi Arabien	
Belgium	Germany	Spain	
Brazil	Italy	South Africa	
Canada	Mexico	Norway	
USA	United Kingdom	Europe	

W21 Line - High Efficiency Motors

The increasing demand for electrical energy to sustain global development requires consistent heavy investments in power supply generation. However, in addition to complex medium and long term planning, these investments rely on natural resources, which are becoming depleted due to constant pressures upon the environment. The best strategy, therefore, to maintain energy supply in the short term is to avoid wastage and increase energy efficiency. Electric motors play a major role in this strategy; since around 40% of global energy demand is estimated to be related to electric motor applications. Consequently, any initiatives to increase energy efficiency, by using high efficiency electric motors and frequency inverters, are to be welcomed, as they can make a real contribution to reductions in global energy demand.

At the same time as efficiency initiatives make an impact in traditional market sectors, the application of new technologies in emerging sectors is resulting in profound changes in the way that electric motors are applied and controlled. By integrating these changes together with the demands for increased energy efficiency, WEG has taken up the challenge and produced a new design of high efficiency motor; one motor that recognised worldwide for its quality, reliability and efficiency.

Using the latest generation of computerised tools, such as structural analysis software (finite element analysis) and computer fluid dynamics, as well as electrical design optimisation software, an innovative - next generation - product has been developed: the W21 motor.

Several key objectives have been achieved in the design of the W21 motor:

- Reduction of noise and vibration levels
- Increased energy efficiency
- Compatibility with present & future generations of frequency inverters
- Global design
- Global warranty

W21_IE3

W21_IE4

Sustainability and Carbon Emission reduction through Premium Efficiency Motors

The Premium Efficiency (IE4) level established in IEC 60034-30-1.2014 is considered the highest efficiency class which a squirrel cage induction motor can achieve whilst remaining economically viable.
It is also the optimum solution to increase the efficiency of an existing application through direct replacement.
So, why have IE4 motors not become the Industry standard?
It may be argued that IE4 motors are also premium in price when comparing against IE2 and IE3 efficiency motors.
Whilst this is not strictly untrue, it should be appreciated when considering their lifetime that the cost of acquisition typically represents only 1% of the total cost of ownership of an electric motor. In contrast, the associated energy savings provided by IE4 motors far outweigh this additional investment in purchase price.

The reduction in CO_2 emissions is one of the direct consequences, and therefore benefits, of increasing efficiency in industry.
For example, according to the guidelines set out by the International Energy Agency (IEA) of 504 kg of CO_2 per 1,000kWh, it is possible to reduce CO_2 emissions by approximately 1,000 kg per year with one 3 kW IE3 efficiency motor and by 25,000 kg per year with a 250 kW IE3 efficiency motor, when compared against equivalent standard efficiency (IE1) machines.

Go to our website at www.weg.net to check the potential reduction in CO_2 emissions and the return on investment.
The W21 line from WEG is the first complete range of IE4 motors available to Industry...

...We call it **WEGnology**

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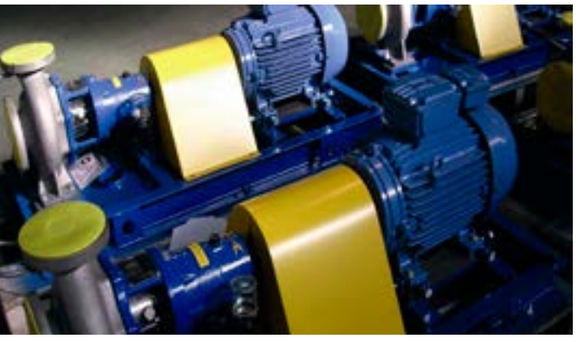


Cast Iron Frame
W21 Multi-voltage Motor

Three phase asynchronous motor, with lower acquisition cost and high technology. Easy to adapt to the most application types, allowing to your company agility during installation, easy operation and low maintenance cost,. The project is according to IEC34 standards, which guarantees higher energy savings. The following types of W21 motors are available: IE1, IE2, IE3, IE4 and suitable for the use with Frequency Inverters.

Standard Features:

Electrical:
Insulation class: F (B, △T=80 K)
Ambient temperature: 40 °C , 1000 m.a.s.l
Voltage:
Frame 80-100,
220-240/380-415V(50Hz) // 440-460V (60Hz)
Connection type △-△/Y-Y//Y-Y
Frame 112 and above,
380-415/660-690 (50Hz) // 440-460V(60Hz)
Connection type △-△/Y-Y//△-△
Service Factor: 1.00
Design: N
Duty: S1
Thermal Protection: frame 160 and above, equipped with PTC Thermistor (one per phase)

Mechanical:
Frame: 80 to 355M/L
Squirrel cage rotor (die aluminum)
Protection Degree: IP55
Cooling Method: TEFC (Totally Enclosed Fan Cooled)
Sealing: V-ring
Paint Color: IE2 - RAL 5009
IE3 - RAL 5009
IE4 - RAL 6002
Frame 225 and above,, with regreasing system
Terminal box with metric threaded holes
Drain hole
Vibration Level A

Optional Features:

Electrical:
Insulation Class: H; Design H
Thermal Protection: frame up to 132(include), with PTC Thermistor, Thermostat or PT100
Mechanical:
Others mountings
Protection Degree: IP56, IP65, IP66, IPW55, IPW56
Sealing: Lip seal, Oil seal, Labyrinth taconite(frame 132 and above)
Space Heater, Double shaft ends
Roller bearings available for frame 160 and above

Features	Benefits
WISE Insulation System	Increase the electrical strength of the stator, allowing the motor to operate with frequency inverters, without damaging by the voltage peaks*.
Efficiency	IE3 and IE4 motors, guarantee a fast return of investment.
Painting plan for Industrial Environments	Suitable for the use in slightly severe and sheltered environments, with low average humidity, regular temperature variations.
Cast Iron Frame	More mechanical strength for your application
State-of-the-art Ventilation System	Uniform refrigeration of the motor with significant temperature reduction in the external surface and bearings, guarantee high performance and energy saving to your application,
Customization	Product suitable to meet the most demanded applications in the industry.

* Notes:

Motor Rated Voltage	Tehcnical Criteria for use of motors fed by inverters			
	Voltage peak in the motor (Maximum)	dV/dt Inverter Outlet (maximum)	Rise Time(*) of Inverter (Minimum)	MTBP(*) Time between pulses (minimum)
Vn < 460V	≤ 1600V	≤ 5200 V/µs	≥ 0,1 µs	≥ 6 µs
460V ≤ Vn < 575V	≤ 2000V	≤ 6500 V/µs		

Aluminum Frame
W21 Multi-Voltage motor

WEG Aluminum Frame motor were specially designed to meet market requirements in reference to mounting flexibility since they allow all mounting positions. The foot mounting system offers great flexibility and it is quite simple allowing change on the mounting configuration without requiring any machining or modification on motor feet.. The terminal box can be rotated in 90 degrees. Besides that, these motors allow great advantage on standardization and stock flexibility due to the fact that just one motor is required with mounting possibility on all positions. Additionally, these motors are fully interchangeable with existing cast iron frame motors.

Standard Features:

Electrical:
Insulation class: F (B, △T=80 K)
Ambient temperature: 40 °C , 1000 m.a.s.l
Voltage:
Frame 80-100,
220-240/380-415V(50Hz) // 440-460V (60Hz)
Connection type △-△/Y-Y//Y-Y
Frame 112 and above,
380-415/660-690 (50Hz) // 440-460V(60Hz)
Connection type △-△/Y-Y//△-△
Service Factor: 1.00
Design: N
Duty: S1
Thermal Protection: frame 160 and above, equipped with PTC Thermistor (one per phase)

Optional Features:

Electrical:
Insulation class:H; Design H
Thermal Protection: Frame132 and below, PTC thermistor, Thermostat or PT100 as optional

Mechanical:
Others Mounting
Protection Degree: IP56, IP65, IP66, IPW55, IPW56
Sealing: Lip seal, Oil seal,, Labyrinth Taconite(frame 132 and above
Space Heater; Double Shaft ends

Mechanical :
Frame: 63 to 200M/L
Squirrel cage rotor (die aluminum)
Protection Degree: IP55
Cooling Method: TEFC (Totally Enclosed Fan Cooled)
Sealing: V-ring
Painting Color: IE2 - RAL 5009; IE3 - RAL 5009
Terminal box metric threaded holes
Drain holes
Vibration Level A

Features	Benefits
Multi-mounting	change the mounting without requiring any machining or modification on motor feet.
Aluminum Frame	better heat dissipation
WISE Insulation System	Increase the electrical strength of the stator, allowing the motor to operate with frequency inverters, without damaging by the voltage peaks*.
Efficiency	IE3 and IE4 efficiency guanrantee the fast return on investment
Painting plan for industrial environment	applicable for severe conditions: low humidity, normal temperature variation
Reinforced Ventilation System	reducing significantly temperature on motor surface and in bearing, guarantee the performance and saving energy
Customization	Suitable for diverse applications in industry

* Notes:

Motor Rated Voltage	Tehcnical Criteria for use of motors fed by inverters			
	Voltage peak in the motor (Maximum)	dV/dt Inverter Outlet (maximum)	Rise Time(*) of Inverter (Minimum)	MTBP(*) Time between pulses (minimum)
Vn < 460V	≤ 1600V	≤ 5200 V/µs	≥ 0,1 µs	≥ 6 µs
460V ≤ Vn < 575V	≤ 2000V	≤ 6500 V/µs		

Optional Features:
Electrical:
Insulation Class: H; Design H
Thermal Protection: frame up to 132(include), with PTC Thermistor, Thermostat or PT100

Mechanical:
Others mountings
Protection Degree: IP56, IP65, IP66, IPW55, IPW56
Sealing: Lip seal, Oil seal, Labyrinth taconite(frame 132 and above)
Space Heater, Double shaft ends
Roller bearings available for frame 160 and above

W21 Cast Iron Frame Inverter Duty

WEG TEBC cast iron motors were designed to meet several applications where wide speed range variation is required. The windings are enameled with class H varnish and exclusive patented WISE insulation. The independent fan system offers low noise level and maximum cooling at low speeds. As additional feature, the W21 TEBC motor can be supplied with encoder which allows perfect motor speed control for critical applications.

Standard Features:
Electrical:
Insulation class: F (B, △T=80 K)
Ambient temperature: 40 °C , 1000 m.a.s.l
Voltage:
Frame 80-100,
220-240/380-415V(50Hz) // 440-460V (60Hz)
Connection type △-△/Y-Y//Y-Y
Frame 112 and above,
380-415/660-690 (50Hz) // 440-460V(60Hz)
Connection type △-△/Y-Y//△-△
Service Factor: 1.00
Design: N
Duty: S1
Thermal Protection: frame 160 and above, equipped with PTC Thermistor (one per phase)

Mechanical:
Frame: 63 to 355M/L
Squirrel cage rotor (die aluminum)
Protection Degree: IP55
Cooling Method: TEFC (Totally Enclosed Fan Cooled)
Sealing: V-ring
Paint Color: IE2 - RAL 5009
IE3 - RAL 5009
IE4 - RAL 6002
Frame 225 and above,, with regreasing system
Terminal box with metric threaded holes
Drain hole
Vibration Level A

Features	Benefits
Reinforced Insulation System	Operating in extreme conditions, protecting the coil winding.and extending the motor's life.
Efficiency	IE3 and IE4 motors, guarantee a fast return of investment.
Painting plan for Industrial Environments	Suitable for the use in slightly severe and sheltered environments, with low average humidity, regular temperature variations.
Cast Iron Frame	More mechanical strength for your application
State-of-the-art Ventilation System	Uniform refrigeration of the motor with significant temperature reduction in the external surface and bearings, guarantee high performance and energy saving to your application,
Customization	Product suitable to meet the most demanded applications in the industry.

* Note: Derating Curve: operateing on rated frequency, use the derating curve to check if the maximum torque was suitable for maximum speed operation.

Motor Rated Voltage	Tehcnical Criteria for use of motors fed by inverters			
	Voltage peak in the motor (Maximum)	dV/dt Inverter Outlet (maximum)	Rise Time(*) of Inverter (Minimum)	MTBP(*) Time between pulses (minimum)
575V ≤ V_{RATED} ≤ 690V	≤ 2400V	≤ 7800 V/µs	≥ 0,1 µs	≥ 6 µs

Fan and Exhaust Motor

Most suitable for OEM customers. Standard cooling method is Totally Enclosed Air Over (TEAO), can supply with terminal box and terminal block, or without terminal box and extended leads (1 meter), which allows long distance connection.

Standard Features:
Electrical:
Insulation class: F (B, △T=80 K)
Ambient temperature: 40 °C , 1000 m.a.s.l
Voltage:
Frame 80-100,
220-240/380-415V(50Hz) // 440-460V (60Hz)
Connection type △-△/Y-Y//Y-Y
Frame 112 and above,
380-415/660-690 (50Hz) // 440-460V(60Hz)
Connection type △-△/Y-Y//△-△
Service Factor: 1.00
Design: N
Duty: S1
Thermal Protection: frame 160 and above, equipped with PTC Thermistor (one per phase)

Mechanical:
Frame: 63 to 200M/L Aluminum frame
80 to 355M/L Cast iron frame
Squirrel cage rotor (die aluminum)
Protection Degree: IP55
Cooling Method: TEFC (Totally Enclosed Fan Cooled)
Sealing: V-ring
Paint Color: RAL 5009
Frame 225 and above,, with regreasing system
Terminal box with metric threaded holes
Drain hole
Vibration Level A
Without Terminal box, with 1 meter extended leads
If separated terminal box was required, please contact WEG Sales.

Features	Benefits
WISE Insulation System	Increase the electrical strength of the stator, allowing the motor to operate with frequency inverters, without damaging by the voltage peaks*.
Efficiency	IE2 and IE3 motors, guarantee a fast return on investment.
Painting plan for industrial environment	Suitable for the use in slightly severe and sheltered environments, with low average humidity, regular temperature variations.
Customization	Product suitable to meet the most demanded applications in the industry.

Smoke Extraction Motor

Assure safety where a large concentration of people in commercial and industrial facilities is present, for exemple : shopping centers, factories, warehouses, covered parking lots, tunnels and other places. The Smoke Extraction motors are certified* for high temperatures and guarantee a fast smoke and heat extraction and delay in fire propagation, allowing free access to the emergency exits.

Standard Features:

Electrical:
Insulation class: F (B, △T=80 K)
Ambient temperature: 40 °C , 1000 m.a.s.l
Voltage:
Frame 80-100,
220-240/380-415V(50Hz) // 440-460V (60Hz)
Connection type △-△/Y-Y//Y-Y
Frame 112 and above,
380-415/660-690 (50Hz) // 440-460V (60Hz)
Connection type △-△/Y-Y//△-△
Service Factor: 1.00
Design: N
Duty: S1
Thermal Protection: frame 160 and above, equipped with PTC Thermistor (one per phase)

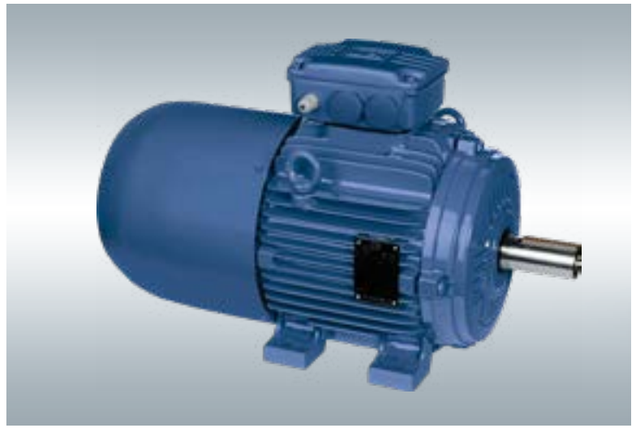
Mechanical:
Frame: 63 to 200M/L Aluminum frame
80 to 355M/L Cast iron frame
Squirrel cage rotor (die aluminum)
Protection Degree: IP55
Cooling Method: TEFC (Totally Enclosed Fan Cooled)
Sealing: V-ring

Paint Color:RAL 5009
Frame 225 and above,, with regreasing system
Terminal box with metric threaded holes
Drain hole
Vibration Level A
Without Terminal box, with 1 meter extended leads
AISI 304 Stainless steel nameplate
Dimensional according to IEC-72 standards
Electrical performance according to IEC34 standards
Regreasing System:
Frame 160 and above (300°C/1hour and 400°C/2hours)
Frame 225 and above (200°C/2hours)
Cooling method: TEFC

Duty	F200	F300	F400
	S1 - 40°C	S1 - 40°C	S1 - 40°C
	S2* - 200°C - 2hours	S2* - 300°C - 1hour	S2* - 400°C - 2hours
Motor Certificate	WEG Declaration	BSRIA-U.K. Frame 80 to 250 Certificate applicable to 300°C/2hours	BSRIA-UK. Frame 80 to 180 Output: 0.75kW-27kW
			CTICM-France Frame: 90 to 280 Poles: IV,VI,VIII,VI/IV,VIII/IV,VIII/VI
Insulation Class	Class F, temp. rise 80K	Class H, temp. rise 80K or 105K	
Standard	EN 12101-3		
Poles/ Frame	2, 4/2 (frame 80 to 315S/M)		
	4, 6, 8, 8/4, 6/4 (frame 80 to 355M/L)		
Cooling Method	TEFC or TEAO (foot mounted or flange mounted/frame 80 to 250)		

* Operate in normal condition and emergency condition.

Features	Benefits
WISE Insulation System	Increase the electrical strength of the stator, allowing the motor to operate with frequency inverters, without damaging by the voltage peaks*.
Painting plan for Industrial Environments	Suitable for the use in slightly severe and sheltered environments, with low average humidity, regular temperature variations.
Cast Iron Frame	More mechanical strength for your application
State-of-the-art Ventilation System	Uniform refrigeration of the motor with significant temperature reduction in the external surface and bearings, guarantee high performance and energy saving to your application,
Customization	Product suitable to meet the most demanded applications in the industry.



W21 Brake Motor

In order to have high performance, it is necessary to have equipment working according to its needs. WEG Brake motor is perfect to equipment where fast safety stops, positioning and time saving are required. WEG braking solutions allows synergy in the production process, helping with agility and safety. WEG Brake motors are available in efficiency up to IE4 and they are suitable for the use with frequency inverters (with independet power supply).* The standard braking torque for each size of motors can be found in the table. If the required braking torque was not listed, please contact WEG sales.

Frame	BKT (Nm)	Frame	BKT (Nm)	Frame	BKT (Nm)	Frame	BKT (Nm)
63	2	71	4	90L	8	132S	60
	4		8		16		80
63	2	80	4	100L	16	160M	80
	4		8		32		150
63	2	80	4	112M	32	160M	80
	4		8		60		150
71	4	90S	8	132S	60	160L	80
	8		16		80		150

** BKT = Braking torque*

Optional Features:

Electrical:
Insulation Class: H; Design H
Thermal Protection: frame up to 132(include), with PTC Thermistor, Thermostat or PT100

Mechanical:
Others mountings
Protection Degree: IP56, IP65, IP66, IPW55, IPW56
Sealing: Lip seal, Oil seal, Labyrinth taconite(frame 132 and above)
Space Heater
Roller bearings available for frame 160 and above

Standard Features:

Electrical:
Insulation class: F (B, △T=80 K)
Ambient temperature: 40 °C , 1000 m.a.s.l
Voltage:
Frame 63-100,
220-240/380-415V(50Hz) // 440-460V (60Hz)
Connection type △-△/Y-Y//Y-Y
Frame 112 and above,
380-415/660-690 (50Hz) // 440-460V (60Hz)
Connection type △-△/Y-Y//△-△
Service Factor: 1.00
Design: N
Duty: S1
Thermal Protection: frame 160 and above, equipped with PTC Thermistor (one per phase)

Mechanical:
Frame: 63 to 200M/L Aluminum frame
80 and above Cast iron frame
Squirrel cage rotor (die aluminum)
Protection Degree: IP55
Cooling Method: TEFC (Totally Enclosed Fan Cooled)
Sealing: V-ring
Frame 225 and above,, with regreasing system
Terminal box with metric threaded holes
Ball bearings
Drain hole
Vibration Level A

Feature	Benefits
High Performance Braking system	IE3 and IE4 motors, guarantee a fast return of investment.
Manual Braking Release (Optional)	Possibility to keep the motor free switching during emergency or necessary situations
WISE Insulation System	Increase the electrical strength of the stator, allowing the motor to operate with frequency inverters, without damaging by the voltage peaks*.
Efficiency	IE3 and IE4 motors, guarantee a fast return of investment.
Painting plan for Industrial Environments	Suitable for the use in slightly severe and sheltered environments, with low average humidity, regular temperature variations.
State-of-the-art Ventilation System	Uniform refrigeration of the motor with significant temperature reduction in the external surface and bearings, guarantee high performance and energy saving to your application,
Customization	Product suitable to meet the most demanded applications in the industry.

** Note:*

Motor Rated Voltage	Tehcnical Criteria for use of motors fed by inverters			
	Voltage peak in the motor (Maximum)	dV/dt Inverter Outlet (maximum)	Rise Time(*) of Inverter (Minimum)	MTBP(*) Time between pulses (minimum)
Vn < 460V	≤ 1600V	≤ 5200 V/µs	≥ 0,1 µs	≥ 6 µs
460V ≤ Vn < 575V	≤ 2000 V	≤ 6500 V/µs		

Cast Iron Frame
Ex ec - Non Sparking Motor

The installation of electric motors where a flamable mixture is not frequently present but may represent risks, must comply to the most demanded safety standards for the protection of life, machines and environment. Following the highest safety standards, WEG Ex nA motors are flexible to adapt to various applications allowing to your company agility during installation, easy operation, low maintenance cost and safety. WEG Ex nA motors are available in efficiency IE1, IE2 and IE3 and suitable for the use with frequency inverters.

Standard Features:

Electrical:
Insulation class: F (B, △T=80 K)
Ambient temperature: 40 °C , 1000 m.a.s.l
Voltage:
Frame 63-100,
220-240/380-415V(50Hz) // 440-460V (60Hz)
Connection type △-△/Y-Y//Y-Y
Frame 112 and above,
380-415/660-690 (50Hz) // 440-460V(60Hz)
Connection type △-△/Y-Y//△-△
Service Factor: 1.00
Design: N
Duty: S1
Thermal Protection: frame 160 and above, equipped with PTC Thermistor (one per phase)
Zone 2: Temperature class T3
Zone 22: Maximum temperature of motor surface T125°C

Mechanical
Frame material: cast iron
Squirrel Cage Rotor (Die aluminum)
Protection Degree: IP55
Cooling Method: TEFC(Totally Enclosed Fan Cooled)
Sealing: V-ring
Frame 160 and above with regreasing system
Terminal box with metric threaded holes
Drain Holes
Vibration Level A
IECEx certification

Optional Features:

Electrical:
Insulation Class: H; Design H
Thermal Protection: frame up to 132(include), with PTC Thermistor, Thermostat or PT100

Mechanical:
Others mountings
Protection Degree: IP56, IP65, IP66, IPW55, IPW56
Sealing: Lip seal, Oil seal, Labyrinth taconite(frame 132 and above)
Space Heater,
Roller bearings available for frame 160 and above

Features	Benefits
Reduced surface temperature	Do not allow conductive dust ignition in contact with the motor or during suspension in the air.
Certification for the use with frequency inverter	Guarantee applications in speed variation and hazardous area such as Zone 2 according to certification
Efficiency	IE2 and IE3 efficiency motors, guarantee a fast return on investment
WISE Insulation System	Increase the electrical strength of the stator, allowing the motor to operate with frequency inverters, without damaging by the voltage peaks*.
Painting plan for Severe Environment	Special for industrial severe environments, sheltered or not, which may contain SO2, steam, solid contaminants and high humidity.
Flexibility	Product suitable to meet the most demanded applications in the industry.

Notes:
Classification
WEG Ex nA motor line, which was up to now designed to operate at areas classified as Zone 2 (combustible gas), are now suitable to operate also at Zone 22 containing non-conductive combustible dusts. Based on a careful design carried out in conformance with pre-established requirements of applicable European Standards and Directives these motors offer you the reliability and safety that you need.
IEC Standard: CENELEC Standard:
Zone 2 (gas) and 22 (non-conductive dust); Group II Group II; Category 3G (gas) and 3D (non-conductive dust)
Certification
WEG non sparking motors meet standard EN IEC 60079-0 and EN IEC 60079-15 (no-sparking), as well as EN 61241-0 and EN 61241-1 (Zone 22 - non-conductive dust and as customer option, they are certified by BASEEFA. WEG Manufacturing System meets ATEX Directive 94/9-EC and is certified by PTB (Physikalisch-Technische Bundesanstalt).

Cast Iron Frame
Ex d/Ex de - Explosion Proof Motor

The installation of electric motors where flamable products are continuously handled, processed or storaged, must comply with the most demanding safety standards in order to guarantee life protection, machines and environment. Following to the highest safety standards WEG explosion proof motors are made of robust construction, modern system of flame retention with joint parts carefully designed, precision machining in the T-box eliminating imperfections in the joint parts and fixation with high mechanical strengh bolts.

Standard Features:

Electrical:
Output range: 0.55kW to 315kW
Insulation class: F(B, △T=80 K)
Ambient temperature: 40 °C , 1000 m.a.s.l
Voltage:
Frame 90-100L,
220-240/380-415V(50Hz) // 440-460V (60Hz)
Connection type △-△/Y-Y//Y-Y
Frame 112 and above,
380-415/660-690 (50Hz) // 440-460V(60Hz)
Connection type △-△/Y-Y//△-△
Service Factor: 1.00
Design: N
Duty: S1
Thermal Protection: frame 160 and above, equipped with PTC Thermistor (one per phase)

Mechanical
Frame size: 90 to 355M/L
Squirrel Cage Rotor (Die aluminum)
Protection Degree: IP55
Cooling Method: TEFC(Totally Enclosed Fan Cooled)
Sealing: V-ring
Frame 225 and above with regreasing system
Paint color: RAL5009
Terminal box with metric threaded holes

Optional Features:

Electrical:
Insulation Class: H; Design H
Thermal Protection: frame up to 132(include), with PTC Thermistor, Thermostat or PT100
Mechanical:
Others mountings; Protection Degree: IP56, IP65, IP66, IPW55, IPW56
Sealing: Lip seal, Oil seal, Labyrinth taconite (frame 132 and above)
Space Heater, Roller bearings available for frame 160 and above

Feature	Benefits
Modern flame retention system with robust frame, end shields and T-box.	Avoid flame propagation from inside the motor to the external side, guaranteeing safety protection to the life, machines and environment.
Certification for the use with frequency inverters – T4	Guarantee in speed variation applications and hazardous areas such as Zone 1 and Zone 2, according to CESI certification.
Additional nameplate for the use with frequency inverters.	Easy identification of the conditions of operation temperature (speed and torque range)
Efficiency	Premium Efficiency (EFF1) motors, guarantee a fast investment pay back.
Painting Plan for Severe Environments	Special for industrial severe environments, sheltered or not, which may contain SO2, steam, solid contaminants and high humidity.
Customization	Product suitable to meet the most demanding applications in the industry.

*Notes:

Motor Rated Voltage	Tehcnical Criteria for use of motors fed by inverters			
	Voltage peak in the motor (Maximum)	dV/dt Inverter Outlet (maximum)	Rise Time(*) of Inverter (Minimum)	MTBP(*) Time between pulses (minimum)
Vn < 460V	≤ 1600V	≤ 5200 V/µs	≥ 0,1 µs	≥ 6 µs
460V ≤ Vn < 575V	≤ 1800V	≤ 6500 V/µs		

Classification:
IEC Standard CENELEC Standard
Zone 1; Group IIB Group IIB; Category 2
The classification for Zone 1 means that the motor is suitable to operate also in Zone 2 once Zone 1 represents an operating condition worse than Zone 2. The same applies to Groups and Categories: Ex d and Ex de motors are suitable to operate also in Group IIA and Category 3.
Certification:
WEG explosion proof motors (Ex d) with increased safety terminal boxes (Ex de) are manufactured according to standard EN IEC 60079-0 and EN IEC 60079-1 and have EC-Type Examination Certificate from CESI (Centro Elettrotecnico Sperimentale Italiano S.P.A). WEG Manufacturing System meets ATEX Directive 94/9-EC and is certified by PTB (Physikalisch-Technische Bundesanstalt).

Cast Iron Frame
Ex e Increased Safety Motor

The installation of electric motors where flamable products are continuously handled, processed or storaged, must comply with the most demanded safety standards in order to guarantee life protection, machines and environment.
WEG increased safety motors are certified by PTB – Physikalisch - Technische Bundesanstalt. The PTB certificates of conformity for explosion proof in increased safety enclosure “e” as per EN50014/ EN50019 are:

Ex e – Increased safety motors (class of temperature T3 / T4).

Standard Features:

Electrical:
Output Range: 0.18kW to 100kW
Insulation class: F (B, △T=80 K)
Ambient temperature: 40 °C , 1000 m.a.s.l
Voltage: 218-242/380-420/655-690V
Design: N
Duty: S1
Temperature rise: T1/T2/T3/T4

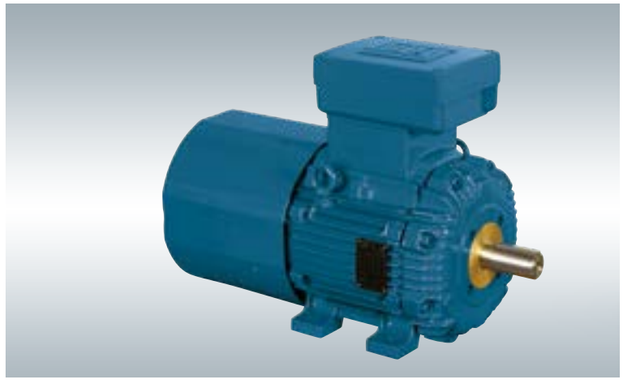
Mechanical:
Frame: 80 to 315S/M
Squirrel Cage rotor (die aluminum)
Protection Degree: IP55
Sealing: V-ring
Paint color: RAL 5010
Thermal Protection: Frame 160 and above, 110°C/T4 (one per phase)
Terminal box with increased safety
Cooling method: TEFC (totally enclosed fan cooled)
Fan material: Aluminum

Optional Features:

Mechanical:
Others Mountings
Protection Degree: IP56, IP65, IP66
Sealing: Lip seal, Oil seal, Labyrinth taconite
Roller bearings available for frame 160 and above

Features	Benefits
WISE Insulation System	Increase stator electrical strength, allowing the motor to operate with frequency inverters, without damaging by the voltage peaks.
Painting Plan for Industrial Environments	Suitable to be used in slightly severe and sheltered environments, with low average humidity, regular temperature variations.
Cast Iron Frame	More strength for your application
State-of-the-art Ventilation System	Uniform refrigeration of the motor with significant temperature reduction in the external surface and bearings, guarantee high performance and energy saving to your application.
Customization	Product suitable to meet the most demanded applications in the industry.

Notes:
Classification:
IEC Standard: CENELEC Standard:
Zone 1 and 2, Group II Group II; Category 2 and Zone 1
The classification in Zone 1 means that the motor is suitable to operate also in Zone 2 Category 3) once Zone 1 represents an operating condition worse than Zone 2.
WEG increased Safety motors (Ex e) are manufactured according to standard EN IEC 60079-0 and EN IEC 60079-7 and have EC-Type Examination Certificate from PTB (Physikalisch-Technische Bundesanstalt). WEG Manufacturing System meets ATEX Directive 94/9-EC and is certified by PTB (Physikalisch-Technische Bundesanstalt).



Cast Iron Frame
Ex d Brake Motor

The installation of electric motors where flamable products are continuously handled, processed or storaged must comply with the most demanding safety standards in order to guarantee life protection, machines and environment. Following to the highest safety standards WEG explosion proof motors integrate the high performance of the brakes. Proper solution to equipment where fast safety stops are required, as well as precise positioning with safety in hazardous areas such as Zone 1 and Zone 2. WEG Exd motors with brake are available in IE2 efficiency and are certified to operate with frequency inverters.*

Standard Features:

Electrical:
Output range: 2.2kW to 18.5kW
Insulation class: F(B, △T=80 K)
Ambient temperature: 40 °C , 1000 m.a.s.l
Voltage:
380-415/660-690V(50Hz) // 440-460V(60Hz)
Connection Type △-△/Y-Y//△-△
Design: N
Duty: S1
Temperature class: T3 or T4
Thermal Protection: PTC thermistor130°C/T4 and 155°C T3,
Thermostat 140°C-Brake

Mechanical:
Frame: 132S to 160L
Squirrel Casge rotor (die aluminum)
Protection Degree: IP55
Cooling method: TEFC: (Totally enclosed fan cooled)
Painting plan: 202P
Paint Color: RAL 5009
Terminal box with metric threaded holes

Mechanical:
Others Mountings
Protection degree: IP56, IP65, IP66
Sealing: Lip seal, oil seal, labyrinth taconite

Features	Benefits
High performance braking system	Guarantee precise braking, fast and safe with easy maintenance.
Manual brake release	Possibility to keep the motor free during emergency situations or whenever necessary.
Modern flame retention system with robust frame, end shields and T-box.	Avoid flame propagation from inside the motor to the external side, guaranteeing safety life protection, machines and environment.
Certification for the use with frequency inverters – T4.	Guarantee in speed variation applications and hazardous areas such as Zone 1 and Zone 2, according to CESI certification.
Additional nameplate	Easy identification of the motors in the factory and traceability.
Efficiency	Premium Efficiency (EFF1) motors, guarantee a fast investment pay back.
Painting Plan for Severe Environments	Special for industrial severe environments, sheltered or not, which may contain SO2, steam, solid contaminants and high humidity.
Customization	Product suitable to meet the most demanded applications in the industry.

** Notes:*

Motor Rated Voltage	Tehcnical Criteria for use of motors fed by inverters			
	Voltage peak in the motor (Maximum)	dV/dt Inverter Outlet (maximum)	Rise Time(*) of Inverter (Minimum)	MTBP(*) Time between pulses (minimum)
Vn < 460V	≤ 1600V	≤ 5200 V/µs	≥ 0,1 µs	≥ 6 µs
460V ≤ Vn < 575V	≤ 1800V	≤ 6500 V/µs		

Classification:
IEC Standard CENELEC Standard
Zone 1; Group IIB Group IIB; Category 2
The classification in Zone 1 means that the motor is suitable to operate also in Zone 2 once Zone 1 represents an operating condition worse than Zone 2.
The same applies to Groups and Categories: Ex d and Ex de motors are suitable to operate also in Group IIA and Category 3.
Certification:
WEG explosion proof motors (Ex d) with increased safety terminal boxes (Ex de) are manufactured according to standard EN IEC 60079-0 and EN IEC 60079-1 and have EC-Type Examination Certificate from CESI (Centro Elettrotecnico Sperimentale Italiano S.P.A). WEG Manufacturing System meets ATEX Directive 94/9-EC and is certified by PTB (Physikalisch-Technische Bundesanstalt).

Motor for zone 21 Dust Ignition Proof

WEG WDIP line (Dust Ignition Proof) has been specially designed to maximize safety and quality of hazardous area motors – Zone 21 (grain processing, cereals, textile fibers, powder coating, polymers, etc.)

Reliability and safety under the presence of conductive dust in suspension in the air (cloud) or layer (up to 5mm), according to IEC standards.

Standard Features:
Electrical:
Output range: 0.12kW to 250kW
Insulation class: F (B, △T=80 K)
Ambient temperature: 40 °C , 1000 m.a.s.l
Voltage:
Frame 80-100,
220-240/380-415V(50Hz) // 440-460V (60Hz)
Connection type △-△/Y-Y//Y-Y
Frame 112 and above,
380-415/660-690 (50Hz) // 440-460V(60Hz)
Connection type △-△/Y-Y//△-△
Service Factor: 1.00
Design: N
Duty: S1

Mechanical:
Frame: 80 to 355M/L
Squirrel cage rotor (die aluminum)
Protection Degree: IP66
Sealing: frame 80, oil seal
frame 90S to 355M/L, W3 seal
Paint color: RAL 5009
Thermal protection: 140°C (one per phase)
Cooling method: TEFC (Totally enclosed fan cooled)

Optional features:

Electrical:
Insulation class: H; Design H
Thermal Protection: PTC thermistor, thermostat or PT100
Mechanicall:
Protection degree: IP65
Sealing: frame 90S to 355M/L, oil seal
Space heater; Roller bearings available for frame 160 and above.

Features	Benefits
WISE Insulation System	Increase stator electrical strength, allowing the motor to operate with frequency inverters, without damaging by voltage peaks.
Efficiency	Premium Efficiency (EFF1) motors, guarantee a fast investment pay back.
Painting Plan for Industrial Environments	Suitable to be used in slightly severe and sheltered environments, with low average humidity, regular temperature variations.
Cast Iron Frame	More strength for your application
State-of-the-art Ventilation System	Uniform refrigeration of the motor with significant temperature reduction in the external surface and bearings, guarantee high performance and energy saving to your application.
Customization	Product suitable to meet the most demanded applications in theindustry.

Notes:
Classification:
IEC Standard: 61241-1 CENELEC Standard: 61241-1
Zone 21 (dust); Group II Group II; Category 2 Zone 21 (dust)
Certification:
WEG Cast iron Multivoltage Motors for Zone 21 meet ATEX Directive 94/9/EC 94/4EC and have EC-Type Examination Certificate from CESI (Centro elettrotecnico Sperimentale Italiano S.P.A. as per EN 60079-15 and EN 61241-1.
WEG Motors for Zone 21 of WDIP Line (Dust Ignition Proof) are manufactured according to Standard EN 61241-0, EN 61241-1, EN IEC 60079-0 and EN IEC 60079-1 and have EC-Type Examination Certificate from CESI (Centro Elettrotecnico Sperimentale Italiano S.P.A). WEG Manufacturing System meets ATEX Directive 94/9-EC and is certified by PTB (Physikalisch-Technische Bundesanstalt).

1. Construction Details

1.1 Frame / endshields

The frames can be cast iron or aluminum. The cast iron frame and endshields are manufactured with FC-200 cast iron and they were designed in such a way to improve the heat exchange and to provide enough mechanical strength to meet the most critical applications. Frame 112 and above are fitted with lifting eyebolts for easier handling on installation.

Figure 1. Cast iron frame (left) and Aluminum frame (right)

All endshields are designed with drain holes to allow drainage of condensed water out of frame. These drain holes are fitted with rubber plugs that allow draining such condensed water and comply with the degree of protection.

1.2 Grounding

The W21 cast iron motor, frame 80 to 200 are designed with two grounding lugs: one is placed inside the terminal box, another one is on the frame. Frame 225-355 are designed with three grounding lugs: one is inside the terminal box and the other two are on the frame.

Figure 2. Grounding

1.3 Fan cover

The standard fan cover is made of steel plate.

Figure 3. Fan cover in steel plate

1.4 Terminal box

The terminal box is made of aluminum. It is designed with plenty internal space for easier cable connection and it allows rotation in 90 degrees steps which results in flexibility on installation. Cast iron terminal box is optional if required.

Figure 4.1 - Aluminum Terminal box

Figure 4.2 - Cast iron terminal box

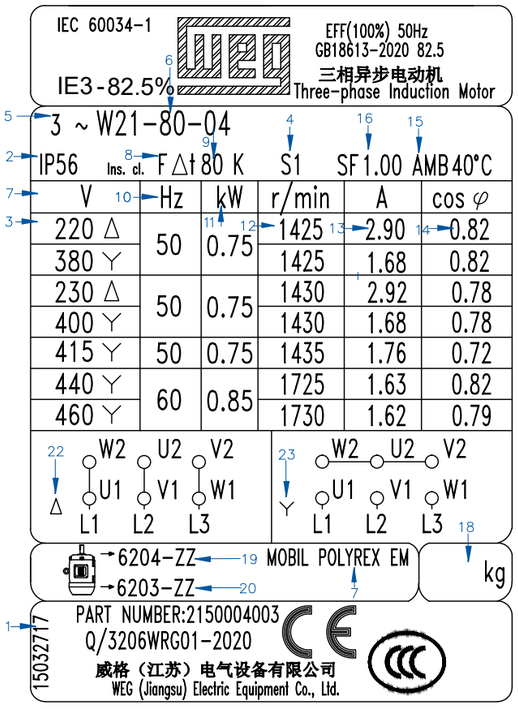
1.5 Connection Leads

The connection leads are marked in accordance with IEC 60034-8 and are supplied with specific connection terminals. W21 motors wound for 380V are fitted with polyester made BMC(Bulk Moulding Compound) terminal blocks, which are reinforced with fiber glass, as shown on the figure below.

Figure 5 - Six-pin terminal block

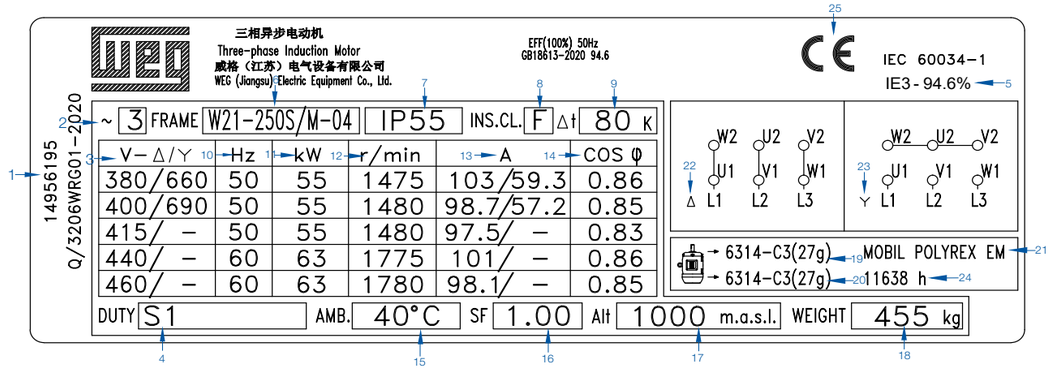
1.6 Nameplate

Nameplates are made of AISI 304 stainless steel. All the information are printed onto the nameplates by laser. Nameplate included main informations of motor, such as: serial number, output, voltage, current, frequency, protection degree, power factor, insulation class, bearings type, grease and regreasing interval, etc. IEC frame up to 200 has vertical nameplate and frame 225 and above has horizontal nameplate.



Details on nameplate

1. Motor material number
2. Three phase
3. Rated voltage
4. Duty
5. Efficiency
6. Frame size
7. Protection degree
8. Insulation class
9. Temperature rise
10. Frequency
11. Rated output
12. Full load speed (rpm)
13. Rated Current
14. Power factor
15. Ambient temperature
16. Service factor
17. Altitude
18. Weight
19. DE bearing type
20. NDE bearing type
21. Bearing grease type
22. △ connection diagram
23. Y connection diagram
24. Regreasing interval
25. Certification



2. Cooling system / Noise level / Vibration level

2.1 Cooling system / Noise level

The W21 standard motor line is totally enclosed fan cooled TEFC (IC411), as per IEC60034-6. Non-ventilated TENV (IC410), air over TEAO (IC418) and forced ventilation (TEBC) are available on request. More information about IC416 can be found in the section about Variable Frequency Drive Operation. Fans are made of polypropylene from frame IEC63 to 315 and made of aluminum in frames 355M/L. Designed for low noise level, the W21 motors comply with IEC60034-9 standard and the corresponing sound pressure levels. Tables below shown sound pressure levels in dB (A), the permit tolerance is + 3dB).

Frame	2 Poles	4 poles	6 poles	8 poles
63	52	44	43	-
71	56	43	43	41
80	59	44	43	42
90	64	49	45	43
100	67	53	44	50
112	64	56	48	46
132	68	60	52	48
160	70	67	56	51
180	70	64	56	51
200	74	69	58	53
225	82	70	61	56
250	82	70	61	56
280	83	76	66	59
315	84	77	69	62
355	81	79	73	70

Table 1 -Sound pressure level for 50Hz motors

The noise level figures shown on the table above are taken at no load. Under load the IEC 60034-9 standard foresees an increase of the sound pressure levels as shown on table 3.

Table 3 - Maximum expected increase of sound pressure level for loaded motors

Shaft height H(mm)	2 poles	4 poles	6 poles	8 poles
90 ≤ H ≤ 160	2	5	7	8
180 ≤ H ≤ 200	2	4	6	7
225 ≤ H ≤ 280	2	3	6	7
H = 315	2	3	5	6
355 ≤ H	2	2	4	5

Note: with canopy can decrease the noise level in 2 dBs.

2.2 Vibration level

W21 motors are dynamically balanced with half key and the standard version meets the vibration levels of Grade A (without special vibration requirements) described in IEC 60034-14 Standard. As an option, motors can be supplied in conformance with vibration of Grade B. The RMS speed and vibration levels in mm/s of Grades A and B are shown in table 4.

Table 4. - Speed and vibration levels

Vibration	Shaft Height (mm)	60 ≤ H ≤ 132	132 < H ≤ 280	H > 280
	Assembly	Vibration speed RMS (mm/s)		
Grade A	Free Suspension	2.8	2.8	2.8
Grade B	Free Suspension	1.1	1.8	1.8

3. Shaft / Bearings / Thrusts

3.1 Shaft

The shaft of W21 standard motors is made of GB45 steel, in frames IEC 63 to 315S/M, and in GB45 steel or 42CrMo steel for frames 355M/L. When supplied with roller bearings as optional, the shaft material must be 42CrMo . As they are fitted with 42CrMo steel shafts in frames 355M/L, W21 motors can employ roller bearings, making them suitable for heavy duty applications such as pulley and belt applications. Information about maximum allowable radial and axial loads on shaft ends is given in tables 6, 7 and 8.

Important: To modify bearings from ball into roller, drive end and non-drive end bearing caps (internal and external) need to be replaced since non-drive end bearing remains locked. If further information is required, please contact WEG service Department.

Shafts are supplied with A type key in frame sizes 63 to 200 and type B in frames 225 to 355, and with dimensions shown in section 14- Mechanical data. All these shafts are supplied with threaded center holes with dimensions that comply with table 4.

Frame	Poles	Dimension	Depth of thread (mm)
63	All	M4	7
71	All	M5	12.5
80	All	M6	16
90	All	M8	19
100	All	M10	22
112	All	M10	22
132	All	M12	28
160	All	M16	36
180	All	M16	36
200	All	M20	42
225S/M	All	M20	42
250S/M	All	M20	42
280S/M	All	M20	42
315S/M	All	M20	42
355M/L	2 poles	M20	42
	Others Poles	M24	50

Table 4. Center hole dimensions for Drive end shaft

3.2 Bearings

WEG motors are supplied with ball bearings as standard. and have regreasing system for motor frame 225 and above. WEG cooperate with international recognized bearing brands (FAG, NSK, NTN, C&U etc), assuring the excelent performance of motor and longer motor life. If specific bearing brand was required, please inform WEG before placing order. The W21 series motors frame 63 to 100 are supplied with 62 series bearings on drive end, and for frame 112 and above with 63 series bearings.

Bearing life time is L10h with 20,000 hours in conformance with maximum radial and axial loads as described in tables 5 and 6. For direct coupling arrangements (free of radial and axial thrusts), bearing life time will be L10h with 40,000 hours.

Note: Life time L10 means that at least 90% of the bearings submitted to maximum indicated loads will reach the numbers of predicted hours. The maximum allowable radial and axial loads for standard configuration are given in table 5 and 6. The values of the maximum radial load consider axial load as nil. The values of the maximum axial load consider radial load as nil. Contact WEG to get information about bearing life time for applications with combined axial and radial loads.

The bearing life time depends on the type and size of bearings,

on radial and axial mechanical loads that the motor is submitted to, on operating conditions (ambient, temperature), and on speed and quality of the grease. Therefore, the bearing life time is directly related to correct application, maintenance and lubrication. When amount of grease and lubrication intervals are followed accordingly, bearings are expected to reach their pre-defined life time. W21 motors are supplied with ZZ bearings (sealed for life) ZZ-C3 bearing is used for 160-200, and open bearing is used for 225 or above. Amount of grease and lubrication intervals are given on the nameplate and are shown in tables 8 and 9. Excess of grease, which is an amount of grease exceeding what is indicated on the nameplate, can result in bearing over temperature.

3.2.1 Bearing locking

For the standard line, the drive end bearing is locked axially with the external bearing cap in frame size 160 up to 200, and with internal and external bearing cap in frame size 225 up to 355. The non drive end bearings is fitted with a spring washer in frame size 63 up to 200, and pre-load spring in frame size 225 up to 355 to take any axial play. When supplied with roller bearings (optional feature that is available from frame 132), the non-drive end bearing is locked and an axial play is compensated by axial play of the drive end roller bearing. The minimum allowable radial loads for roller bearing are shown in table 7.

Important:

1 - **Special applications**: Motor operation under adverse operating conditions, such as higher ambient temperatures and altitudes or abnormal axial / radial loads, may require specific lubrication measures and alternative relubrication intervals to those indicated in the tables provided within this technical catalogue.

2 - **Roller bearings**: Roller bearings require a minimum radial load so as to ensure correct operation. They are not recommended for direct coupling arrangements, or for use on 2 pole motors.

3 - **Frequency inverter driven motors**: Bearing life may be reduced when a motor is driven by a frequency drive at speeds above nominal. Speed itself is one of the factors taken into consideration when determining motor bearing life.

4 - **Motors with modified mounting configurations**: For motors supplied with horizontal mounting but working vertically, lubrication intervals must be reduced by half.

5 - **Figures for radial thrusts**: The figures given in the tables below for radial thrusts take into consideration the point upon which the load is applied, either at the centre of the shaft (L/2) or at the end of the shaft (L), figure 25.

Axial thrust (L10 with 20,000 hours)

50 Hz - Fr (kN*) - 20,000 hours								
Frame	2Poles		4Poles		6Poles		8Poles	
	L/2	L	L/2	L	L/2	L	L/2	L
63	0.35	0.28	0.40	0.28	0.40	0.28	0.40	0.28
71	0.47	0.43	0.53	0.48	0.66	0.55	0.74	0.55
80	0.64	0.58	0.72	0.65	0.84	0.76	0.98	0.79
90	0.66	0.60	0.76	0.69	0.90	0.81	1.03	0.94
100	0.94	0.85	1.03	0.93	1.22	1.10	1.40	1.26
112	1.66	1.50	1.96	1.72	2.24	1.76	2.58	1.80
132	1.94	1.75	2.25	2.03	2.58	2.33	2.88	2.60
160	2.50	2.25	2.87	2.58	3.20	2.65	3.81	2.76
180	4.27	3.87	3.98	3.61	4.70	4.15	5.06	4.10
200	4.01	3.67	4.57	4.19	5.19	4.75	5.81	5.31
225	5.23	4.81	5.92	5.33	6.67	6.01	7.54	6.18
250	5.12	4.66	5.52	5.03	6.48	5.91	7.15	6.51
280S/M	4.92	4.54	6.41	5.91	7.37	6.79	7.57	6.98
315S/M	4.48	4.16	7.01	6.42	7.83	7.17	8.49	7.78
355M/L	4.03	3.79	8.53	7.83	9.33	8.56	11.4	10.5

Table 5 - Maximum axial thrusts for ball bearings

Radial thrust (L10 with 20,000 hours)

50 Hz - Fr (kN*) - 20,000 hours							
Frame	Poles	Horizontal		Vertical with shaft upwards		Vertical with shaft downwards	
		Pushing	Pulling	Pushing	Pulling	Pushing	Pulling
63	2	0.19	0.19	0.18	0.20	0.19	0.19
	4	0.27	0.27	0.26	0.29	0.28	0.26
	5	0.34	0.35	0.33	0.37	0.35	0.34
	8	0.34	0.35	0.33	0.37	0.35	0.34
71	2	0.20	0.28	0.19	0.30	0.20	0.27
	4	0.29	0.40	0.27	0.42	0.29	0.38
	6	0.35	0.49	0.35	0.52	0.37	0.48
	8	0.46	0.60	0.44	0.63	0.46	0.59
80	2	0.26	0.42	0.25	0.43	0.27	0.40
	4	0.35	0.56	0.32	0.60	0.36	0.53
	6	0.45	0.70	0.42	0.74	0.46	0.67
	8	0.55	0.83	0.53	0.88	0.56	0.80
90	2	0.37	0.43	0.34	0.47	0.38	0.40
	4	0.51	0.59	0.48	0.65	0.53	0.55
	6	0.63	0.71	0.58	0.79	0.64	0.67
	8	0.76	0.86	0.72	0.93	0.78	0.82
100	2	0.37	0.59	0.32	0.67	0.38	0.55
	4	0.50	0.81	0.44	0.90	0.52	0.75
	6	0.65	1.02	0.58	1.14	0.68	0.95
	8	0.78	1.19	0.71	1.32	0.81	1.12
112	2	0.54	1.14	0.48	1.23	0.56	1.08
	4	0.73	1.55	0.66	1.67	0.76	1.47
	6	0.96	1.94	0.89	2.05	0.99	1.86
	8	1.07	2.15	0.97	2.35	1.11	2.05
132	2	0.72	1.32	0.61	1.51	0.76	1.21
	4	0.99	1.81	0.84	2.05	1.03	1.66
	6	1.22	2.20	1.05	2.45	1.27	2.05
	8	1.37	2.45	1.16	2.80	1.44	2.25
160	2	2.40	1.69	2.20	2.05	2.75	1.48
	4	2.95	2.25	2.65	2.65	3.40	1.95
	6	3.40	2.70	3.10	3.25	3.95	2.40
	8	3.85	3.15	3.55	3.70	4.40	2.85
180	2	3.20	2.30	2.90	2.75	3.65	2.00
	4	3.90	3.00	3.55	3.65	4.55	2.65
	6	4.65	3.75	4.20	4.45	5.30	3.30
	8	5.20	4.35	4.80	5.10	6.00	3.90
200	2	3.55	2.55	3.10	3.25	4.25	2.10
	4	4.45	3.45	3.95	4.25	5.30	2.95
	6	5.20	4.20	4.65	5.10	6.10	3.65
	8	6.00	5.00	5.50	5.90	6.90	4.50
225	2	4.35	3.55	3.65	4.60	5.40	2.90
	4	5.50	4.70	4.70	6.00	6.80	3.95
	6	6.60	5.80	5.80	7.20	8.00	5.00
	8	7.50	6.70	6.60	8.20	8.90	5.90
250	2	4.30	3.50	3.55	4.65	3.55	2.75
	4	5.30	4.45	4.30	6.10	6.90	3.50
	6	6.40	5.60	5.40	7.30	8.10	4.60
	8	7.30	6.50	6.30	8.20	9.00	5.50
280	2	4.15	3.35	3.00	5.10	5.90	2.20
	4	5.80	5.00	4.35	7.40	8.20	3.55
	6	7.20	6.40	5.70	8.80	9.60	4.90
	8	8.40	7.60	7.10	9.80	10.5	6.30
315	2	3.65	2.85	1.91	5.60	6.40	1.13
	4	6.10	5.40	3.85	9.10	9.80	3.10
	6	7.40	6.60	4.75	10.90	11.7	3.95
	8	8.50	7.70	5.70	12.2	13.0	4.95
355	2	3.70	2.95	0.75	7.50	8.30	-
	4	6.60	5.80	2.10	12.5	13.2	1.37
	6	7.70	7.00	2.75	14.7	15.4	2.00
	8	7.70	7.00	2.75	14.7	15.4	2.00

Table 6 - Maximum radial thrusts for ball bearings

**1 kN = 101.97 kgf = 224.8 lbf*

Axial thrusts (L10 with 20,000 hours)

50 Hz - Fr (kN*) - 20,000 Hours						
Frame	4Poles		6 Poles		8 Poles	
	L/2	L	L/2	L	L/2	L
160	6.01	3.69	5.91	3.62	6.05	3.71
180	10.5	5.78	10.4	5.69	10.3	5.65
200	13.4	8.40	13.3	8.34	13.5	8.43
225	17.1	8.73	16.9	8.56	17.0	8.66
250	16.8	10.3	16.7	10.2	16.6	10.1
280	23.4	14.5	23.2	14.4	22.9	14.2
315	28.6	14.3	27.4	13.7	27.9	14.0
355	40.2	25.4	40.2	25.2	39.6	24.8

Table 7 - Maximum radial thrust for roller bearing

** 1 kN = 101.97kgf = 224.8 lbf*

Lubrication Intervals - Ball bearings

Lubrication intervals (50Hz)			
Frame	Poles	Bearing	Hours
160	2	6309	18100
	4		20000
	6		20000
	8		20000
180	2	6311	13700
	4		20000
	6		20000
	8		20000
200	2	6312	11900
	4		20000
	6		20000
	8		20000
225	2	6314	4500
	4		11600
	6		16400
	8		19700
250	2	6314	4500
	4		11600
	6		16400
	8		19700
280	2	6314	4500
	4	6316	10400
	6		14900
	8		18700
315	2	6314	4500
	4	6319	9000
	6		13000
	8		17400
355	2	6316	3520
	4	6322	7200
	6		10800
	8		15100

Table 8 - Lubrication interval for ball bearings

Lubrication Interval (50Hz)			
Frame	Poles	Bearing	Hours
160	4	NU309	20000
	6		20000
	8		20000
180	4	NU311	20000
	6		20000
	8		20000
200	4	NU312	20000
	6		20000
	8		20000
225	4	NU314	8900
	6		13100
	8		16900
250	4	NU314	8900
	6		13100
	8		16900
280	4	NU316	7600
	6		11600
	8		15500
315	4	NU319	6000
	6		9800
	8		13700
355	4	NU322	4400
	6		7800
	8		11500

Table 9 - Lubrication interval for roller bearings

3.2.2 Bearing temperature monitoring

On request, W21 motors can be equipped with bearing temperature detectors which monitor bearing operating conditions. The most commonly used accessory is the Pt-100 temperature detector for continuous monitoring of bearing operating temperature.

This type of monitoring is extremely important considering that it directly affects the grease and bearing lives particularly on motors equipped with regreasing facilities. For motors with insulation class F, it is recommended to set up the maximum bearing Pt-100 Alarm temperature as 110°Cand the maximum trip temperature as 120°C.

4. Protection degree / Painting

4.1 Protection Degree

W21 motors are supplied with degrees of protection in conformance with IEC 60034-5. As standard, they are IP55, which means:

a) First characteristic numeral 5: machine protected against dust. The enclosure is protected against contact with moving parts. Ingress of dust is not totally prevented, but dust does not enter in sufficient quantity to interfere with satisfactory operation of the machine.

b) Second characteristic numeral 5: Machine protected against water jets. Water projected by a nozzle against the machine from any direction shall have no harmful effect.

4.2 Painting

W21 motors are supplied as standard with WEG internal painting plan 207A(80-132) and 203A(160-355). This plan consists of:

- Primer: Cast Iron (One-component epoxy ester with thickness 20-55µm); Aluminum (no primer);
- Top coat: Two-component acrylic polyurethane with thickness 40-70µm.

A) Finish coat color: RAL color or according to the customer

definition.
B) Gloss level: 30-60°.
C) Adherence grade: Gr0-Gr1.
D) Resistance to salty spray: No.

Recommended for applications in rural, urban and industrial environment indoor or outdoor, with low contamination of corrosive agents and low relative humidity and with normal variations of temperature.

Note:

These painting plans are not recommended for direct exposure to acid steam, alkalis, solvents and salty environments.

Alternative painting plans are available on request, which are suitable to guarantee additional protection in aggressive environments, either protected or unprotected.

4.2.1 Tropicalized painting

The integrity of the insulation system is the primary consideration when determining the lifetime of an electric motor. High humidity can result in premature deterioration of the insulation system, therefore for any ambient temperature with relative humidity above 95%, it is recommended to coat all internal components of the motor with an epoxy painting, also known as tropicalization. If the application has relative humidity above 95%, please inform WEG to ensure the tropicalization painting for the motor.

5. Ambient / Insulation

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

- With ambient temperature range -20°C to +40°C
- With altitudes up to 1000 metres above sea level
- With related humidity up to 60% (when it is above 60%, we recommend to install space heater in order to avoid water condensation inside of motor).

For operating temperatures and altitudes differing from those above, the factors indicated in table 150 must be applied to the nominal motor power rating in order to determine the derated available output (Pmax).

Pmax = Pnom x correction factor

T (°C)	Altitude (m)								
	1000	1500	2000	2500	3000	3500	4000	4500	5000
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 10 - Correction factors for altitude and ambient temperature

W21 motors are supplied with class F insulation and Class B (80 K) temperature rise at normal operating conditions (unless otherwise specified).The difference between the temperature of the class F insulation (155 K) and the temperature rise of the design (80 K) means that, in practice, W21 motors are suitable to supply output ratings 15% above the rated values up to a limit where the temperature rise reaches the temperature rise value of the insulation class.

All W21 motors are wound with the WISE® insulation system which consists of enamelled wire meeting temperatures up to 200°C and impregnated with solvent free resin. The WISE® system also permits motor operation with variable speed drives.

IEC	Temperature rise (Average value measured by resistance method)	Maximum Temperature Tmax (from amb. temp 40C)
Class B	80K	130°C
Class F	105K	155°C
Class H	125K	180°C

6. Variable speed drive application

6.1 Considerations about rated voltage

The stator windings of W21 motors are wound with class F insulation (class H optional) and are suitable for either DOL starting or via a variable speed drive. They incorporate the WEG exclusive insulation system - WISE® (WEG Insulation System Evolution) - which ensures superior electrical insulation characteristics.

The stator winding is suitable for variable speed drive application, taking into account the limits shown in table 11.

Motor rated voltage	Voltage Spikes at motor terminals (phase-phase)	*dV/dt* * at motor terminals (phase-phase)	*Rise time**	Time between pulses
Vn < 460V	≤ 1600 V	≤ 5200 V/µs	≥ 0.1 µs	≥ 6 µs
460V ≤ Vn < 575V	≤ 2000 V	≤ 6500 V/µs		
575 V ≤ Vn < 690 V	≤ 2400 V	≤ 7800 V/µs		

Table 11 - Limit conditions for variable frequency drive operation without application of filter

* : dV/dt and Rise time are in accordance with NEMA standard MG1-Part 30

Notes:

1 - In order to protect the motor insulation system, the maximum recommended switching frequency is 5 kHz.
2 - If one or more of the above conditions is not attended, a filter (load reactor or dV/dt filter) must be installed in the output of the VSD.
3 - General purpose motors with rated voltage greater than 575 V, which at the time of purchase did not have any indication of operation with VSD, are able to withstand the electrical limits set in the table above for rated voltage up to 575 V. If such conditions are not fully satisfied, output filters must be used.
4 - General purpose motors of the multi-voltage type, for example 380-415/660//440-460V or 380/660 V, which at the time of purchase did not have any indication of operation with VSD, are able to be driven by a VSD in the higher voltage only if the limits set in the table above for rated voltage up to 460 V are fully attended in the application. Otherwise, a load reactor or a dV/dt filter must be installed in the VSD output.

6.2 Torque derating criteria

In order to keep the temperature rise of WEG motors within acceptable levels, when under VSD supply, the speed range-related loadability limits established in figures 7 (for operation under constant flux condition) or 8 (for operation under optimal flux condition) must be observed.

Notes:

1 - The derating curves below are related to the motor thermal capability only and do not concern the insulation class. Speed regulation will depend on VSD mode of operation and proper adjustment.
2 - Torque derating is usually required when the motor drives constant torque loads (e.g. screw compressors, conveyors, extruders, etc.). For squared torque loads, such as pumps and fans, no torque derating is normally required.
3 - W21 motors of frame sizes ≥ 90S can be blower cooled (independently ventilated) under request. In such case, the motor will be suitable for VSD operation without torque derating regardless the load type.
4 - For operation above base (nameplate) speed, mechanical issues must be also observed. Please contact WEG.
5 - Applications with motors rated for use in hazardous areas must be particularly evaluated - in such case please contact WEG.

Constant flux condition

Applicable when the motor is supplied by any commercial drive operating with any control scheme other than the Optimal Flux® available in WEG drives.

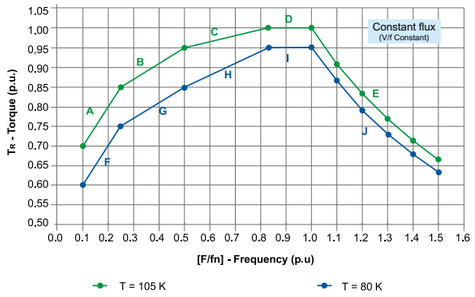


Figure 7 - Derating curves for constant flux condition

Derating curve for insulation class F(DT=105K)*		
Interval	Frequency Range	Torque Calculation
A	0.10 ≤ f/fn < 0.25	T_R = (f/fn) + 0.60
B	0.25 ≤ f/fn < 0.50	T_R = 0.40 (f/fn) + 0.75
C	0.50 ≤ f/fn < 0.83	T_R = 0.15 (f/fn) + 0.87
D	0.83 ≤ f/fn ≤ 1.0	T_R = 1.0
E	f/fn >1.0	T_R = 1/ (f/fn)
Derating curve for insulation class F(DT=80K)*		
Interval	Frequency Range	Torque Calculation
F	0.10 ≤ f/fn < 0.25	T_R = (f/fn) + 0.50
G	0.25 ≤ f/fn < 0.50	T_R = 0.40 (f/fn) + 0.65
H	0.50 ≤ f/fn < 0.83	T_R = 0.30 (f/fn) + 0.70
I	0.83 ≤ f/fn ≤ 1.0	T_R = 0.95
J	f/fn >1.0	T_R = 0.95/ (f/fn)

Table 12 - Torque calculation for derating curves

Optimal Flux® condition

The study of the composition of the overall motor losses and its relation to operation parameters such as the frequency, the magnetic flux, the current, and the speed variation led to the determination of an optimal flux value for each operating frequency. The implementation of this solution within the CFW09 and CFW11 control algorithms allow that the motor optimal flux condition be automatically applied by the drive throughout the speed range, resulting in a continuous minimization of losses. As a consequence of this loss minimization, the use of the optimal flux control provides higher efficiency and lower temperature rise. Therefore, the torque derating factors for this operation condition are milder than for constant V/f, as shown in figure 8.

The optimal flux solution was developed for low frequency applications with constant torque loads and it should neither be used with variable torque loads nor when the operating range includes points above the base (rated) frequency.

The Optimal Flux Solution® may be only applied under the following conditions:

- The motor attends at least IE3 efficiency class;
- The motor is fed by a WEG drive (CFW11, or CFW09 from version 2.40 or higher);
- Sensorless vector control type is used.

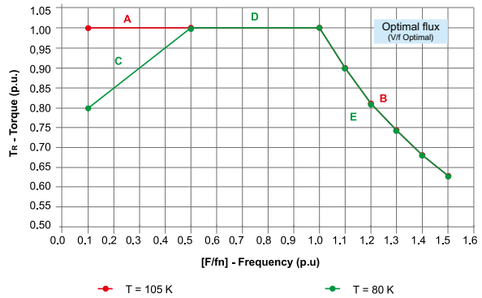


Figure 8 - Derating curves for optimal flux condition

6.3 Considerations regarding bearing currents

Motors up to frame size 280S/M generally do not require special features with respect to the bearings for variable speed drive application. From frame size 315S/M upwards additional measures should be taken in order to avoid detrimental bearing currents. This can be accomplished by means of the use of an insulated bearing or an insulated hub endshield in the non drive end side and a shaft grounding brush mounted on the drive endshield.

6.4 Forced ventilation kit

For those cases where an independent cooling system is required, the W21 motors can be supplied with a forced ventilation kit, as shown in figure 9. When the forced ventilation kit is assembled on the motor in the factory, the overall motor length will be as shown in table 13 .

(Note:The size in the description table is for reference only, please contact the sales for exact size)

Frame	Poles	Motor Length (L)		Blower motor
		without blower kit	with blower kit	
90S	All	304	548	0.37kW 2P frame 63
90L		329	573	
100L		376	646	
112M		393	660	
132S		452	715	
132M		490	753	
160M		598	855	
160L		642	899	
180M		664	908	
180L		702	946	
200M		729	976	
200L		767	1014	
225S/M	2	817	1116	0.75kW 4P Frame 80
	4-8	847	1146	
250S/M	2	923	1222	
	4-8	923		
280S/M	2	1036	1332	
	4-8			
315S/M	2	1126	1422	
	4-8	1156	1452	
355M/L	2	1396	1793	3kW 4P Frame 100L
	4-8	1466	1868	

Table 13 - Total length of motor with / without blower kit

Figure 9 - W21 motor with forced ventilation kit

7. Tolerances for electrical data

The following tolerances are allowed in accordance with IEC 60034-1:

Efficiency (η)	-0.15 (1-η) for Pnom ≤ 150 kW / -0.1 (1-η) for Pnom > 150 kW Where η is a decimal number
Power factor	$\frac{1 - \cos \varnothing}{6}$ Minimum 0.02 and Maximum 0.07
Slip	± 20% for Pnom ≥ 1 kW and ± 30 % for Pnom < 1 kW
Starting current	20% (without lower limit)
Starting torque	- 15% + 25%
Breakdown torque	- 10 %
Moment of inertia	± 10 %

Table 14 - Tolerances for electrical data

8. Space heaters

The use of space heaters are recommended in two situations:

1. Motors installed in environments with relative air humidity up to 95%, in which the motor may remain idle for periods greater than 24 hours;
2. Motors installed in environments with relative air humidity greater than 95%, regardless of the operating schedule. It should be highligthed that in this situation it is strongly recommended that an epoxy paint known as tropicalized painting is applied in the internal components of the motor. More information can be obtained in section 4.2.1.

The supply voltage for space heaters must be defined by the Customer. For all frame sizes, W21 motors can be provided with space heaters suitable for 110-127 V, 220-240 V and 380-480 V. The power rating and number of space heaters fitted depends on the size of the motor as indicated in table 15 below:

Frame	Quantities	Total Power rated (W)
63 to 80	1	7.5
90 and 100	1	11
112	2	22
132 and 160	2	30
180 and 200	2	38
225 and 250	2	56
280 and 315	2	140
355	2	174

Table 15 - Power and quantity of space heaters

9. Thermal protections

9.1 Pt-100

These are temperature detectors with operating principle based on the properties that some materials vary the electric resistance with the variation in temperature (usually platinum, nickel or copper). They are also fitted with calibrated resistances that vary linearly with temperature, allowing continuous reading of motor operating temperature through a monitoring display, with high precision rate and response sensitivity.

The same detector can serve as alarm (with operation above the regular operating temperature) and trip (usually set up for the maximum temperature of the insulation class).

Figure 10 - Pt-100

9.2 Thermistor (PTC)

Figure 11 - Thermistor (PTC)

These are thermal protectors consisting of semiconductor detectors with sudden variation of the resistance when reaching a certain temperature.

PTC is considered a thermistor with the resistance increasing drastically to a well defined temperature figure. This sudden resistance variation blocks the PTC current, causing the output relay to operate, and the main circuit to switch-off.

The thermistors are of small dimensions, do not wear and have quicker response if compared to other protectors, although they do not allow continuous monitoring of motor operating temperature.

Together with their electronic circuits, these thermistors provide full protection against overheating caused by overload, under or overvoltage or frequent reversing operations.

Where thermistor protection is required to provide both alarm and trip operation, it is necessary for each phase of the motor winding to be equipped with two sets of appropriately rated thermistors.

WEG Automation has a product called RPW which is an electronic relay intended specifically to read the PTC signal and operate its output relay. For more information go to the website www.weg.net.

9.3 Bimetallic thermal protectors (Thermostat)

These are silver-contact thermal sensors, normally closed, that operate at certain temperature rise. When their operating temperature decreases, they go back to the original position instantaneously, allowing the silver contact to close again.

The bimetallic thermal protectors are series-connected with the contactor coil, and can be used either as alarm or trip.

There are also other types of thermal protectors such as Pt-1000, KTY and thermocouples. Contact your local WEG office closest to you for more information.

10. Packaging

W21 motors frame 63 to 132 have carton box as standard packaging (figure 12). Frame 160 to 355, the packaging of motor are carton box or wooden box WEG choose different packaging according to the mounting and frame size of motors). The WEG packaging is under continuous improvement, it is subject to change without previous notifications.

Figure 12 - Carton box

Figure 13 - Crate 1

Figure 13 - Crate 2

Figure 13 - Crate 3

Figure 14 - Carton box 2

Bearings
WEG motors are fitted with the highest quality bearing selected, verified by WEG and designed to ensure the long life of the motor.

Fan Cover
Made of steel, W21 motor's fan cover is smooth and ensure the low noise level and long life due to its high mechanical strength and corrossion resistance.

Fan
WEG has designed the fan and fan cover having in mind the lowest noise level. The efficient cooling ensures low motor temperature rise, thus increasing motor efficiency.

Frame
FC 200 high grade Cast Iron Frame has high mechnical strength, provided with fins aimed at improving the heat dissipation.

Nameplate
All information about motor are printed onto the nameplate by laser.

Terminal Box
WEG Terminal box has been designed with plenty of internal space, can be rotated at 90 degrees interval.Can be supplied with one or two holes according to customer's requirement.

Winding
The wires is enameled with class H varnish (WISE insulation), which is suitable for VFD application.

Rotor
Its dynamically balance reduces vibration of motor.

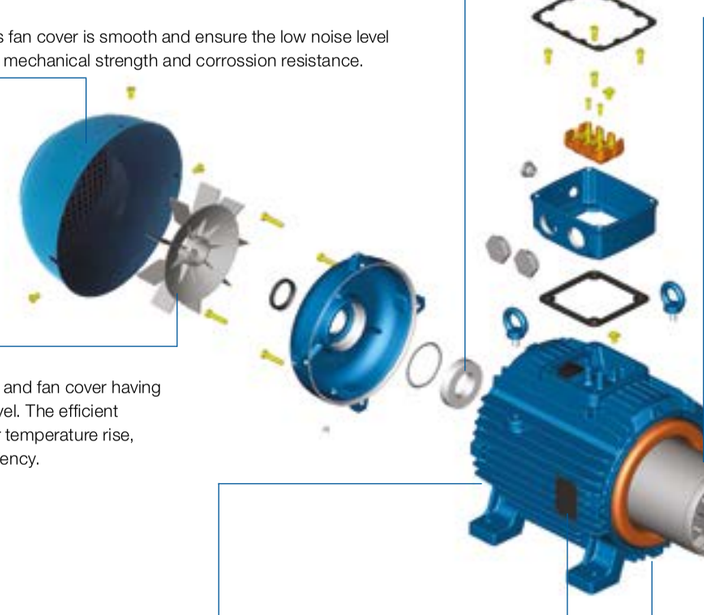
Shaft
WEG use GB45 carbon steel as standard, which provides high mechanical strength to ensure long life of the motor.

Endshield
Made of cast iron, they assure the high mechanical strength and better heat exchange, guarantee the long bearing life.

Stator
Built with low loss steel lamination to reduce magnetic losses and operating temperature.

Plastic drain holes
Provided with plastic drain plug allowing drainage of condensed water.

Seals
WEG motors are fitted with V-ring seals as standard, also provide as optional Oil seals, or lip seals, Labyrinth taconite seal and W3 seal to ensure the best possible protection under high moisture environment.



Fan Cover
Made of steel, W21 motor's fan cover is smooth and ensure the low noise level and long life due to its high mechanical strength and corrossion resistance.

Fan
Independent design of fan system guarantee the low noise level and high efficiency. The efficient cooling ensure the low temperature rise of motor, reducing the winding losses and increase the motor efficiency. W21 serie motor has plastic fan for frame 63 to 315S/M and aluminum fan for frame 355.

Terminal Box
WEG Terminal box has been designed with plenty of internal space, can be rotated at 90 degrees interval.Can be supplied with one or two holes according to customer's requirement.

Winding
The wires is enameled with class H varnish (WISE insulation), which is suitable for VFD application.

Blower Motor
Provide forced ventilation for motor in low speed of VFD application.

Shaft
WEG use GB45 carbon steel as standard, which provides high mechanical strength to ensure long life of the motor.

Bearings
WEG motors are fitted with the highest quality bearing selected, verified by WEG and designed to ensure the long life of the motor.

Endshield
Made of cast iron, they assure the high mechanical strength and better heat exchange, guarantee the long bearing life.

Frame
FC200 cast iron frame is more strength, the fins on frame guarantee the heat dissipation. WEG can supply encoder according to customer needs. The standard encoder is Dynapar HS35(1024 pulses), other brands under request.

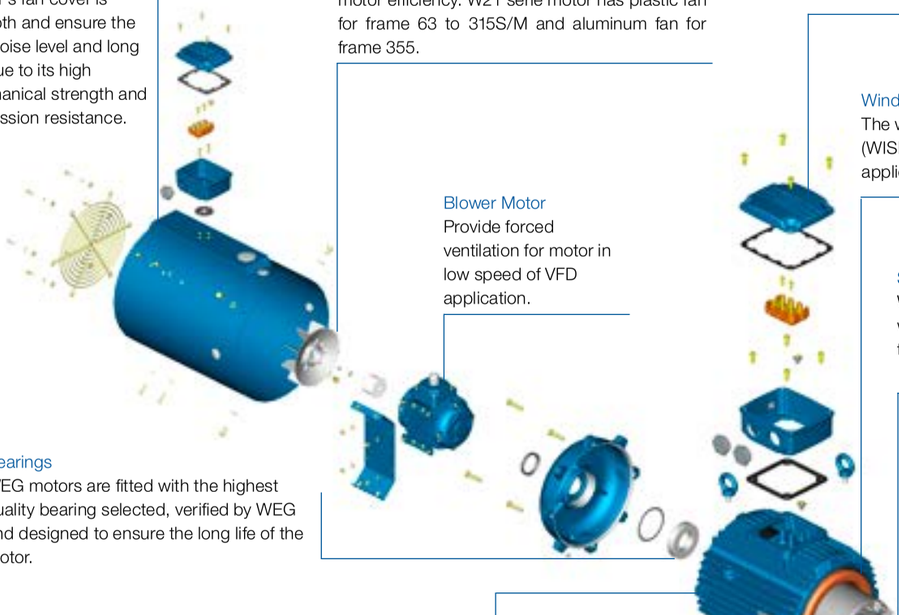
Nameplate
All information about motor are printed onto the nameplate by laser.

Stator
Built with low loss steel lamination to reduce magnetic losses and operating temperature.

Rotor
Its dynamically balance reduces vibration of motor.

Plastic drain holes
Provided with plastic drain plug allowing drainage of condensed water.

Seals
WEG motors are fitted with V-ring seals as standard, also provide as optional Oil seals, or lip seals, Labyrinth taconite seal and W3 seal to ensure the best possible protection under high moisture environment.



11. Construction Features

Frame			63	71	80	90S	90L
Mechanical Features							
Nameplate Marks			CE; IEC 60034; Q/320691AAB10-2020				
Mounting			B3T				
Frame	Material		Aluminum		Cast Iron (or aluminum 80/90S/L)		
Protection Degree			IP55				
Grounding			NA		Single grounding(Terminal box)		
Cooling method			TEFC				
Fan	Material		Plastic				
Fan cover	Material		Steel Plate				
Endshields	Material		FC-200 Cast iron				
Drain hole			NBR black drain				
Bearings	Clearance (D.E)		ZZ				
	Clearance (N.D.E)		ZZ				
	Locking		None				
	Drive End	2P	6201	6203	6204	6205	6205
		4-8P					
	Non Drive End	2P	6201	6202	6203	6204	6204
		4-8P					
Bearing Seal			V-rings				
Joint Seal			None				
Lubrication	Type		Mobil Polyrex EM 103				
	Grease fitting		none				
Terminal block			BMC 6 pins				
Terminal Box	material		Aluminum				
Additional terminal box			None				
Lead inlet	Main	Size	2xM20x1.5			2xM25x1.5	
	Plug		Equipped with plastic cover for transportation and storage				
Shaft	Material		GB45				
	D.E Threaded hole	2p	M4	M5	M6	M8	M8
		4p-8p					
Key			A type (China : B type)				
Vibration			Grade A				
Balance			1/2 key				
Nameplate	Material		Stainless steel AISI 304				
Painting	Plan		207A				
	Color		RAL 5009				
Electrical Features							
Design			N				
Voltage			220-240/380-415V(50HZ)//440-460V(60HZ),6 terminals, connection type Δ-Δ/Y-Y//Y-Y				
Insulation Class			F(DT 80K)				
Service Factor			1.00				
Rotor			Die cast aluminum				
Thermal Protection			None				

Note: For features out of those described on above table, please consult nearest WEG sales office.

Frame			100L	112M	132S	132M	**160M**
Mechanical Features							
Nameplate Marks			CE; IEC 60034; Q/320691AAB10-2020				
Mounting			B3T				
Frame	Material		Cast iron (or Aluminum 100L,112M,132S,132M,160M/L)				
Protection Degree			IP55				
Grounding			Single grounding(Terminal box)				
Cooling method			TEFC				
Fan	Material		Plastic				
Fan cover	Material		Steel plate				
Endshields	Material		FC-200 cast iron				
Drain hole			with automatic plastic drain plug				
Bearings	Clearance (D.E)		ZZ				**ZZ-C3**
	Clearance (N.D.E)		ZZ				**ZZ-C3**
	Locking		None				**Locked on DE with internal and external bearing caps and pre-load springs on NDE**
	Drive End	2P	6206	6307	6308	6308	**6309**
		4-8P					
	Non Drive End	2P	6205	6206	6207	6207	**6209**
		4-8P					
Bearing Seal			V-rings				
Joint Seal			none				
Lubrication	Type		Mobil Polyrex EM 103				
	Grease fitting		None				
Terminal block			BMC 6 pins				
Terminal Box	material		Aluminum				
Additional terminal box			None				
Lead inlet	Main	Size	2xM25x1.5	2xM32x1.5			**2xM40x1.5**
	Plug		Equipped with plastic cover for transportation and storage				
Shaft	Material		GB45				
	D.E Threaded hole	2p	M10	M10	M12	M12	**M16**
		4p-8p					
Key			A type (China : B type)				
Vibration			Grade A				
Balance			1/2 key				
Nameplate	Material		Stainless steel AISI 304				
Painting	Plan		207A				**203A**
	Color		RAL 5009				
Electrical Features							
Design			N				
Voltage			220-240/380-415V (50HZ)//440-460V (60HZ),6 terminals, Connection type Δ-Δ/Y-Y//Y-Y	220-240380-415V(50HZ)//440-460V(60HZ),6 terminals,connection type Δ-Δ/Y-Y//Y-Y			
Insulation Class			F(DT 80K)				
Service Factor			1.00				
Rotor			Die cast aluminum				
Thermal Protection			None				**PTC Thermistor -155 °C**

Note: For features out of those described on above table, please consult nearest WEG sales office.

Frame			160L	180M	180L	200M	200L
Mechanical Features							
Nameplate Marks			CE; IEC 60034; Q/320691AAB10-2020				
Mounting			B3T				
Frame	Material		Cast iron (or Aluminum 160M/L,180M/L,200M/L)				
Protection Degree			IP55				
Grounding			Single grounding(Terminal box)				
Cooling method			TEFC				
Fan	Material		Plastic				
Fan cover	Material		Steel Plate				
Endshields	Material		FC-200 cast iron				
Drain hole			NBR black drain				
Bearings	Clearance (D.E)		ZZ-C3				
	Clearance (N.D.E)		ZZ-C3				
	Locking		Locked on DE with internal and external bearing caps and pre-load springs on NDE				
	Drive End	2P	6309	6311	6311	6312	6312
		4-8P					
	Non Drive End	2P	6209	6211	6211	6212	6212
		4-8P					
Bearing Seal			V-ring				
Joint Seal			None				
Lubrication	Type		Mobil POLIREX EM 103				
	Grease fitting		None				
Terminal block			BMC 6 pins				
Terminal Box	material		Aluminum				
Additional terminal box			None				
Lead inlet	Main	Size	2xM40x1.5			2xM50x1.5	
	Plug		Equipped with plastic cover for transportation and storage				
Shaft	Material		GB45				
	D.E Threaded hole	2p	M16	M16	M16	M20	M20
		4p-8p					
Key			A type (China : B type)				
Vibration			Grade A				
Balance			1/2 key				
Nameplate	Material		Stainless steel AISI 304				
Painting	Plan		203A				
	Color		RAL 5007				
Electrical Features							
Design			N				
Voltage			380-415/660-690V(50HZ)//440-460V(60HZ), 6terminals, connection type Δ-Δ/Y-Y//Y-Y				
Insulation Class			F(DT 80K)				
Service Factor			1.00				
Rotor			Die cast aluminum				
Thermal Protection			PTC Thermistor -155 °C				

Note: For features out of those described on above table, please consult nearest WEG sales office.

Frame			225S/M	250S/M	280S/M	315S/M	355M/L
Mechanical Features							
Nameplate Marks			CE; IEC 60034; Q/320691AAB10-2020				
Mounting			B3T				
Frame	Material		Cast iron				
Protection Degree			IP55				
Grounding			Double grounding(Terminal box+Outside frame)				
Cooling method			TEFC				
Fan	Material		Plastic				Aluminum
Fan cover	Material		Steel plate				
Endshields	Material		FC-200 cast iron				
Drain hole			NBR black drain				
Bearings	Clearance (D.E)		C3				
	Clearance (N.D.E)		C3				
	Locking		Locked on DE with internal and external bearing caps and pre-load springs on NDE				
	Drive End	2P	6314	6314	6314	6314	6316
		4-8P			6316	6319	6322
	Non Drive End	2P			6314	6314	6314
		4-8P			6316	6316	6319
Bearing Seal			V-ring				
Joint Seal			None				
Lubrication	Type		Mobil POLIREX EM 103				
	Grease fitting		regreasing nipples in DE and NDE endshields				
Terminal block			BMC 6 pins				
Terminal Box	material		FC-200 cast iron				
Additional terminal box			None				
Lead inlet	Main	Size	2xM50x1.5	2xM63x1.5			
	Plug		Threaded plug for transport and storage; cable gland as optional				
Shaft	Material		GB45				42CrMo*
	D.E Threaded hole	2p	M20	M20	M20	M20	M20
		4p-8p					M24
Key			B type (China : C type)				
Vibration			Grade A				
Balance			1/2 key				
Nameplate	Material		Stainless steel AISI 304				
Painting	Plan		203A				
	Color		RAL 5007				
Electrical Features							
Design			N				
Voltage			380-415/660-690V(50HZ)//440-460V(60HZ),6 terminals, connection type Δ-Δ/Y-Y//Y-Y				
Insulation Class			F(DT 80K)				
Service Factor			1.00				
Rotor			Die cast aluminum				
Thermal Protection			PTC Thermistor -155 °C				

Note: For features out of those described on above table, please consult nearest WEG sales office.
**According to the market, the shaft material will have different design.*

W21-Cast iron frame motor - IE2 (1)

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current Il/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kgm2)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	400 V							
												Rated speed (rpm)	% of full load						Full load current In (A)
													Efficiency			Power Factor			
kW	HP							Hot	Cold				50	75	100	50	75	100	
2P - 50Hz																			
0.12	0.16	63	0.040	5.5	3.5	3.6	0.0001	22	48	5.7	52.0	2865	55.0	64.0	67.0	0.53	0.65	0.73	0.354
0.25	0.33	63	0.090	4.9	3.0	3.2	0.0002	15	33	6.7	52.0	2750	58.0	63.0	65.0	0.57	0.70	0.80	0.694
0.55	0.75	71	0.190	5.4	2.4	2.5	0.0004	13	29	8.5	56.0	2810	73.0	74.5	75.5	0.63	0.77	0.86	1.22
0.75	1	80	0.260	6.5	2.8	2.8	0.0007	14	31	13.8	59.0	2800	76.0	78.5	79.5	0.67	0.80	0.86	1.58
1.1	1.5	80	0.380	6.5	2.8	2.8	0.0008	10	22	14.3	59.0	2800	78.0	80.0	80.0	0.67	0.79	0.85	2.33
1.5	2	90S	0.510	7.0	2.6	3.1	0.0016	12	26	23.3	62.0	2880	81.5	82.0	82.0	0.66	0.78	0.84	3.14
2.2	3	90L	0.750	6.6	3.0	3.0	0.0022	9	20	24.0	62.0	2840	83.0	83.6	83.6	0.63	0.76	0.83	4.58
3	4	100L	1.00	7.7	2.4	3.4	0.0051	8	18	32.9	67.0	2910	83.0	84.5	85.0	0.63	0.76	0.85	5.99
4	5.5	112M	1.35	7.0	2.0	2.8	0.0066	10	22	40.7	64.0	2880	86.0	86.0	86.0	0.73	0.83	0.88	7.63
5.5	7.5	132S	1.84	6.8	2.2	3.0	0.0162	17	37	62.1	67.0	2910	86.5	88.0	88.0	0.68	0.79	0.85	10.6
7.5	10	132S	2.51	6.8	2.2	2.9	0.0198	13	29	68.4	67.0	2910	88.0	88.5	88.5	0.72	0.82	0.87	14.1
9.2	12.5	132M	3.06	7.8	2.1	3.0	0.0234	7	15	70.0	67.0	2930	88.5	89.0	89.0	0.70	0.81	0.86	17.3
11	15	160M	3.64	8.0	2.7	3.2	0.0421	10	22	103	70.0	2940	88.5	89.4	89.4	0.71	0.81	0.86	20.7
15	20	160M	4.97	8.2	2.8	3.2	0.0506	7	15	111	70.0	2940	89.5	90.3	90.3	0.73	0.82	0.87	27.6
18.5	25	160L	6.13	8.6	3.0	3.3	0.0590	8	18	129	70.0	2940	90.0	90.9	90.9	0.71	0.81	0.86	34.2
22	30	180M	7.24	8.3	2.5	3.0	0.0975	8	18	158	70.0	2960	91.5	91.6	91.6	0.68	0.79	0.84	41.3
30	40	200L	9.87	7.2	2.4	2.8	0.1532	10	22	219	74.0	2960	91.2	92.0	92.0	0.70	0.80	0.84	56.0
37	50	200L	12.1	7.8	2.4	2.7	0.1703	8	18	235	74.0	2965	92.0	92.5	92.5	0.74	0.83	0.86	67.1
45	60	225S/M	14.8	7.5	2.5	3.2	0.3409	12	26	390	82.0	2960	92.0	93.1	93.1	0.78	0.86	0.88	79.3
55	75	250S/M	18.1	8.0	2.3	3.0	0.3934	10	22	420	82.0	2955	93.0	93.2	93.2	0.79	0.86	0.89	95.7
75	100	280S/M	24.6	7.5	1.8	2.8	0.9278	28	62	600	83.0	2970	92.5	93.8	93.8	0.75	0.84	0.87	133
90	125	280S/M	29.5	7.5	1.9	2.8	1.10	20	44	715	83.0	2970	93.5	94.1	94.1	0.77	0.85	0.88	157
110	150	315S/M	36.0	7.0	2.3	2.6	1.20	20	44	770	83.0	2975	94.0	94.6	94.6	0.82	0.87	0.89	189
132	175	315S/M	43.2	7.8	2.2	2.7	1.41	12	26	830	83.0	2975	94.0	94.7	94.7	0.80	0.87	0.89	226
150	200	315S/M	49.1	8.0	2.7	2.7	1.68	15	33	900	83.0	2975	94.9	95.0	95.0	0.80	0.87	0.90	253
160	220	315S/M	52.4	7.8	2.2	2.8	1.68	12	26	900	83.0	2975	94.8	95.1	95.1	0.81	0.88	0.90	270
185	250	315S/M	60.5	8.2	2.4	3.0	1.83	10	22	1000	83.0	2980	95.0	95.2	95.2	0.78	0.85	0.88	319
200	270	315S/M	65.5	7.9	2.4	3.2	2.01	12	26	1050	83.0	2975	95.1	95.3	95.3	0.80	0.87	0.88	344
200	270	355M/L	65.3	7.2	1.8	2.7	4.29	30	66	1420	81.0	2985	95.0	95.4	95.4	0.89	0.90	0.91	333
220	300	355M/L	71.8	8.5	2.2	2.8	4.50	20	44	1500	81.0	2985	95.0	95.5	95.5	0.85	0.90	0.91	365
250	340	355M/L	81.6	7.8	2.2	2.5	4.83	30	66	1650	81.0	2985	95.4	95.6	95.6	0.86	0.89	0.90	419
280	380	355M/L	91.4	8.5	2.3	2.7	5.90	25	55	1850	81.0	2985	95.0	95.6	95.6	0.89	0.91	0.92	462
300	400	355M/L	97.9	7.8	2.0	2.6	5.90	40	88	1850	81.0	2985	95.5	95.8	95.8	0.85	0.90	0.90	502
315	430	355M/L	103	7.6	2.1	2.6	5.90	40	88	1850	81.0	2980	95.5	95.8	95.8	0.86	0.90	0.91	522
330	450	355M/L*	108	7.8	2.0	2.5	5.90	40	88	1850	81.0	2980	95.5	95.8	95.8	0.87	0.90	0.91	546
High Output Design																			
1.1	1.5	90S	0.370	6.1	2.5	2.6	0.0014	12	26	19.2	62.0	2860	80.0	80.5	80.5	0.65	0.77	0.83	2.38
1.5	2	90L	0.510	7.0	2.6	3.1	0.0016	12	26	23.3	62.0	2880	81.5	82.0	82.0	0.66	0.78	0.84	3.14
2.2	3	100L	0.730	7.7	2.0	2.7	0.0043	11	24	27.8	67.0	2920	82.5	83.6	83.6	0.66	0.78	0.85	4.47
4	5.5	100L	1.36	7.8	2.8	3.3	0.0064	9	20	36.4	67.0	2870	85.2	85.8	85.8	0.67	0.80	0.86	7.82
5.5	7.5	112M	1.86	7.3	2.7	3.0	0.0088	11	24	48.4	64.0	2880	86.5	87.0	87.0	0.72	0.82	0.87	10.5
5.5	7.5	132M	1.84	6.8	2.2	3.0	0.0162	17	37	62.1	67.0	2910	86.5	88.0	88.0	0.68	0.79	0.85	10.6
7.5	10	132M	2.51	6.8	2.2	2.9	0.0198	13	29	68.4	67.0	2910	88.0	88.5	88.5	0.72	0.82	0.87	14.1
11	15	160L	3.64	8.0	2.7	3.2	0.0421	10	22	103	70.0	2940	88.5	89.4	89.4	0.71	0.81	0.86	20.7
15	20	160L	4.97	8.2	2.8	3.2	0.0506	7	15	111	70.0	2940	89.5	90.3	90.3	0.73	0.82	0.87	27.6
22	30	180L	7.24	8.3	2.5	3.0	0.0975	8	18	158	70.0	2960	91.5	91.6	91.6	0.68	0.79	0.84	41.3
75	100	250S/M	24.7	8.0	2.7	2.9	0.4807	10	22	540	82.0	2960	93.6	93.8	93.8	0.83	0.87	0.89	130
110	150	280S/M	36.0	7.0	2.3	2.6	1.20	20	44	770	83.0	2975	94.0	94.6	94.6	0.82	0.87	0.89	189

Note:
(1) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - IE2 (1)

Output		380 V								415 V							
		Rated speed (rpm)	% of full load						Full load current In (A)	Rated speed (rpm)	% of full load						Full load current In (A)
			Efficiency			Power Factor					Efficiency			Power Factor			
kW	HP		50	75	100	50	75	100			50	75	100	50	75	100	
2P - 50Hz																	
0.12	0.16	2840	56.7	64.8	67.0	0.57	0.70	0.77	0.353	2880	53.3	62.9	67.0	0.50	0.62	0.70	0.356
0.25	0.33	2710	60.3	64.1	65.0	0.63	0.74	0.83	0.704	2780	55.9	61.7	64.8	0.53	0.67	0.77	0.697
0.55	0.75	2780	73.8	74.4	75.5	0.68	0.80	0.89	1.24	2825	71.8	74.2	76.1	0.59	0.74	0.84	1.20
0.75	1	2770	77.7	78.0	78.0	0.66	0.81	0.87	1.68	2810	75.0	78.5	79.5	0.64	0.77	0.84	1.56
1.1	1.5	2775	78.9	79.2	79.6	0.73	0.83	0.87	2.41	2815	77.1	80.2	80.2	0.62	0.75	0.82	2.33
1.5	2	2865	82.0	81.6	81.6	0.71	0.81	0.86	3.25	2890	80.8	81.9	82.5	0.61	0.75	0.82	3.08
2.2	3	2820	83.7	83.5	83.2	0.69	0.80	0.85	4.75	2855	82.2	83.4	83.9	0.59	0.72	0.80	4.56
3	4	2900	83.9	84.5	85.0	0.69	0.81	0.87	6.16	2915	82.1	84.1	85.0	0.58	0.72	0.81	6.06
4	5.5	2865	86.6	86.0	85.8	0.78	0.87	0.90	7.90	2890	85.3	85.9	86.3	0.69	0.80	0.86	7.50
5.5	7.5	2900	87.1	88.0	87.6	0.74	0.83	0.88	10.8	2915	85.6	87.6	88.0	0.63	0.76	0.83	10.5
7.5	10	2900	88.4	88.4	88.1	0.77	0.85	0.89	14.5	2915	87.3	88.3	88.7	0.67	0.79	0.85	13.8
9.2	12.5	2920	89.1	89.0	89.0	0.75	0.85	0.89	17.6	2935	87.6	88.6	89.0	0.65	0.77	0.84	17.1
11	15	2935	89.0	89.4	89.4	0.77	0.85	0.88	21.2	2945	88.0	89.4	89.4	0.67	0.78	0.84	20.4
15	20	2935	89.5	90.3	90.3	0.78	0.85	0.88	28.7	2945	89.5	90.3	90.3	0.69	0.79	0.85	27.2
18.5	25	2930	90.5	90.9	90.9	0.77	0.85	0.88	35.1	2945	89.5	90.9	90.9	0.66	0.78	0.83	34.1
22	30	2955	91.2	91.5	91.5	0.72	0.82	0.86	42.5	2965	91.5	91.6	91.6	0.64	0.76	0.83	40.3
30	40	2955	91.5	92.0	92.0	0.75	0.83	0.86	57.6	2965	90.5	91.8	92.0	0.65	0.77	0.82	55.3
37	50	2960	92.2	92.5	92.5	0.79	0.85	0.88	69.1	2965	92.0	92.5	92.5	0.69	0.79	0.84	66.2
45	60	2955	92.2	93.0	93.0	0.80	0.87	0.89	82.6	2965	91.9	93.3	93.3	0.75	0.85	0.87	77.1
55	75	2950	93.0	93.2	93.2	0.81	0.87	0.89	101	2960	93.0	93.2	93.2	0.76	0.84	0.88	93.3
75	100	2970	92.5	93.8	93.8	0.78	0.85	0.88	138	2975	92.5	93.8	93.8	0.72	0.81	0.86	129
90	125	2965	93.5	94.1	94.1	0.80	0.87	0.89	163	2975	93.5	94.1	94.1	0.75	0.83	0.87	153
110	150	2970	94.1	94.4	94.4	0.84	0.88	0.90	197	2975	93.9	94.6	94.6	0.80	0.86	0.88	184
132	175	2970	94.1	94.6	94.6	0.83	0.89	0.90	236	2980	93.9	94.9	94.9	0.78	0.86	0.88	220
150	200	2970	94.5	94.9	94.9	0.83	0.88	0.90	267	2975	94.7	95.0	95.0	0.78	0.86	0.89	247
160	220	2970	94.9	95.0	95.0	0.84	0.89	0.91	281	2975	94.8	95.1	95.1	0.79	0.87	0.89	263
185	250	2975	94.9	95.1	95.1	0.81	0.87	0.89	332	2980	95.0	95.2	95.2	0.76	0.83	0.87	311
200	270	2970	95.0	95.2	95.2	0.82	0.88	0.89	359	2980	95.1	95.3	95.3	0.78	0.85	0.87	336
200	270	2980	95.2	95.3	95.3	0.89	0.91	0.92	347	2985	95.1	95.4	95.4	0.87	0.89	0.90	324
220	300	2980	95.1	95.4	95.4	0.87	0.90	0.92	381	2985	95.1	95.5	95.5	0.84	0.90	0.91	352
250	340	2980	95.2	95.4	95.4	0.88	0.90	0.91	438	2985	95.5	95.6	95.6	0.85	0.88	0.89	409
280	380	2980	95.2	95.6	95.6	0.90	0.92	0.92	488	2985	94.8	95.6	95.7	0.88	0.90	0.92	445
300	400	2980	95.6	95.8	95.8	0.87	0.90	0.91	523	2985	95.4	95.8	95.9	0.84	0.89	0.89	489
315	430	2980	95.6	95.8	95.8	0.88	0.91	0.92	543	2985	95.4	95.8	95.9	0.84	0.89	0.90	508
330	450	2980	95.6	95.8	95.8	0.88	0.91	0.92	569	2980	95.4	95.8	95.9	0.85	0.90	0.91	526
High Output Design																	
1.1	1.5	2850	80.7	80.3	79.6	0.70	0.80	0.85	2.47	2870	79.2	80.4	81.0	0.60	0.74	0.81	2.33
1.5	2	2865	82.0	81.6	81.6	0.71	0.81	0.86	3.25	2890	80.8	81.9	82.5	0.61	0.75	0.82	3.08
2.2	3	2910	83.3	83.8	83.2	0.71	0.82	0.87	4.62	2925	81.5	83.2	83.6	0.62	0.75	0.82	4.46
4	5.5	2860	85.5	85.8	85.8	0.73	0.83	0.88	8.05	2880	85.0	86.0	86.0	0.63	0.76	0.83	7.80
5.5	7.5	2865	87.0	86.9	87.0	0.76	0.86	0.89	10.8	2885	85.9	86.8	87.2	0.67	0.79	0.85	10.3
5.5	7.5	2900	87.1	88.0	87.6	0.74	0.83	0.88	10.8	2915	85.6	87.6	88.0	0.63	0.76	0.83	10.5
7.5	10	2900	88.4	88.4	88.1	0.77	0.85	0.89	14.5	2915	87.3	88.3	88.7	0.67	0.79	0.85	13.8
11	15	2935	89.0	89.4	89.4	0.77	0.85	0.88	21.2	2945	88.0	89.4	89.4	0.67	0.78	0.84	20.4
15	20	2935	89.5	90.3	90.3	0.78	0.85	0.88	28.7	2945	89.5	90.3	90.3	0.69	0.79	0.85	27.2
22	30	2955	91.2	91.5	91.5	0.72	0.82	0.86	42.5	2965	91.5	91.6	91.6	0.64	0.76	0.83	40.3
75	100	2950	93.7	93.8	93.8	0.86	0.88	0.90	135	2965	93.4	93.8	93.8	0.80	0.85	0.88	126
110	150	2970	94.1	94.4	94.4	0.84	0.88	0.90	197	2975	93.9	94.6	94.6	0.80	0.86	0.88	184

Note:
(1) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - IE2 (1)

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current Il/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kgm2)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	400 V							
												Rated speed (rpm)	% of full load						Full load current In (A)
													Efficiency			Power Factor			
kW	HP							Hot	Cold				50	75	100	50	75	100	
4P - 50Hz																			
0.12	0.16	63	0.080	4.5	2.4	2.9	0.0004	30	66	5.7	44.0	1435	51.0	57.0	60.0	0.51	0.60	0.70	0.412
0.25	0.33	71	0.170	4.4	2.2	2.3	0.0006	35	77	7.0	43.0	1400	59.0	65.0	68.5	0.55	0.68	0.76	0.693
0.37	0.5	71	0.260	4.3	2.0	2.0	0.0007	48	106	8.0	43.0	1380	63.0	68.0	72.7	0.50	0.62	0.72	1.02
0.55	0.75	80	0.370	5.8	2.1	2.6	0.0022	18	40	15.6	44.0	1440	73.0	76.0	77.1	0.55	0.68	0.75	1.37
0.75	1	80	0.520	6.0	2.6	2.9	0.0029	15	33	16.6	44.0	1410	79.0	79.5	79.6	0.63	0.76	0.83	1.64
1.1	1.5	90S	0.740	6.5	2.1	2.6	0.0049	14	31	20.6	49.0	1440	81.0	81.8	81.8	0.62	0.75	0.81	2.40
1.5	2	90L	1.01	6.5	2.4	2.8	0.0055	10	22	24.4	49.0	1450	81.5	83.0	83.0	0.57	0.70	0.78	3.34
2.2	3	100L	1.49	8.0	3.0	3.2	0.0082	11	24	36.6	53.0	1435	83.0	84.5	84.5	0.60	0.73	0.80	4.70
3	4	100L	2.04	7.8	2.9	3.3	0.0123	12	26	37.6	53.0	1430	83.0	85.5	86.0	0.64	0.76	0.83	6.07
4	5.5	112M	2.71	6.6	2.0	2.6	0.0156	13	29	43.9	56.0	1440	86.0	86.7	86.7	0.64	0.76	0.82	8.12
5.5	7.5	132S	3.67	7.3	1.9	3.0	0.0416	8	18	60.4	56.0	1460	87.5	88.0	88.1	0.68	0.80	0.86	10.5
7.5	10	132M	4.97	7.8	2.1	3.0	0.0528	7	15	70.5	56.0	1470	86.5	88.0	88.7	0.55	0.69	0.80	15.3
9.2	12.5	160M	6.10	7.1	2.6	2.8	0.0803	8	18	92.5	67.0	1470	87.5	89.0	89.5	0.63	0.76	0.82	18.1
11	15	160M	7.29	6.9	2.5	2.7	0.0779	8	18	119	67.0	1470	87.5	89.0	89.8	0.63	0.76	0.82	21.6
15	20	160L	9.94	7.4	2.7	3.0	0.1023	8	18	134	67.0	1470	89.5	90.6	90.6	0.64	0.76	0.82	29.1
18.5	25	180M	12.2	8.1	3.0	3.4	0.1573	9	20	169	64.0	1475	91.0	91.4	91.4	0.65	0.76	0.82	35.6
22	30	180L	14.6	8.0	2.7	3.3	0.2010	8	18	186	64.0	1470	91.0	91.6	91.6	0.68	0.79	0.84	41.3
30	40	200L	19.8	7.0	2.5	2.6	0.2941	10	22	246	69.0	1475	92.2	92.6	92.6	0.67	0.78	0.83	56.3
37	50	225S/M	24.4	7.2	2.2	2.7	0.6145	10	22	330	70.0	1475	92.6	93.0	93.0	0.76	0.84	0.87	66.0
45	60	225S/M	29.7	7.4	2.4	3.0	0.7169	10	22	385	70.0	1475	93.2	93.4	93.4	0.76	0.83	0.87	79.9
55	75	250S/M	36.2	7.2	2.5	3.0	0.8767	10	22	430	70.0	1480	93.5	93.7	93.7	0.74	0.83	0.87	97.4
75	100	280S/M	49.2	7.2	2.2	2.6	1.80	15	33	600	72.0	1485	94.0	94.2	94.2	0.78	0.86	0.87	132
90	125	280S/M	59.0	7.8	2.6	2.8	2.27	20	44	760	72.0	1485	94.0	94.5	94.5	0.79	0.85	0.88	156
110	150	315S/M	72.2	7.9	2.9	3.6	2.82	10	22	830	72.0	1485	94.4	94.5	94.5	0.77	0.85	0.87	193
132	175	315S/M	86.6	7.8	2.4	2.6	3.48	15	33	1050	72.0	1485	94.0	94.5	95.0	0.77	0.84	0.87	231
150	200	315S/M	98.4	7.5	2.4	2.7	3.77	20	44	1005	72.0	1485	94.1	95.1	95.1	0.78	0.84	0.87	262
160	220	315S/M	105	7.6	2.4	2.6	3.79	20	44	1005	72.0	1485	94.1	95.1	95.1	0.76	0.84	0.87	279
185	250	315S/M	121	9.2	2.9	3.5	3.77	13	29	1005	77.0	1485	94.2	95.0	95.1	0.72	0.81	0.85	330
200	270	355M/L	131	6.6	2.1	2.3	6.86	49	108	1525	79.0	1490	94.9	95.4	95.4	0.80	0.86	0.88	342
220	300	355M/L	144	7.0	2.1	2.4	6.86	38	84	1620	79.0	1490	94.4	95.4	95.4	0.79	0.86	0.88	375
250	340	355M/L	163	6.9	2.2	2.5	8.12	36	79	1615	79.0	1490	94.6	95.4	95.4	0.80	0.86	0.88	425
260	350	355M/L	170	6.5	2.2	2.3	8.12	32	70	1615	79.0	1490	94.6	95.4	95.5	0.80	0.86	0.88	445
280	380	355M/L	183	7.1	2.2	2.4	9.02	39	86	1770	79.0	1490	95.3	95.5	95.5	0.81	0.87	0.88	471
300	400	355M/L	196	6.7	2.2	2.4	9.92	47	103	1770	79.0	1490	95.1	95.6	95.6	0.81	0.87	0.89	504
315	430	355M/L	206	7.0	2.2	2.4	9.92	42	92	1770	79.0	1490	95.1	95.4	95.6	0.79	0.86	0.88	535
330	450	355M/L	216	6.5	2.3	2.3	10.8	32	70	1865	79.0	1490	94.7	95.4	95.7	0.81	0.87	0.89	554
High Output Design																			
0.75	1	90S	0.500	6.6	2.2	2.6	0.0038	11	24	18.0	49.0	1465	78.0	80.0	80.0	0.48	0.61	0.72	1.88
1.1	1.5	90L	0.730	6.5	2.1	2.6	0.0049	8	18	20.6	49.0	1465	77.3	80.8	81.6	0.50	0.64	0.74	2.63
1.5	2	100L	1.01	8.0	2.1	3.1	0.0067	10	22	30.4	53.0	1445	80.8	82.7	82.8	0.53	0.67	0.76	3.44
2.2	3	112M	1.48	6.3	1.9	2.6	0.0117	23	51	41.4	56.0	1445	84.5	85.0	85.0	0.63	0.75	0.81	4.61
4	5.5	132S	2.66	7.2	1.9	3.0	0.0341	8	18	55.6	56.0	1465	85.6	86.6	86.6	0.58	0.72	0.80	8.33
5.5	7.5	132M	3.67	7.3	1.9	3.0	0.0416	8	18	60.4	56.0	1460	87.5	88.0	88.1	0.68	0.80	0.86	10.5
7.5	10	132S	4.99	7.8	2.1	3.0	0.0528	8	18	70.5	56.0	1465	88.7	89.0	89.0	0.68	0.79	0.84	14.5
7.5	10	160M	4.97	6.7	2.3	2.6	0.0783	8	18	95.0	67.0	1470	86.5	88.0	88.7	0.65	0.77	0.84	14.5
9.2	12.5	132M	6.16	7.9	2.4	3.2	0.0604	7	15	75.7	56.0	1455	89.2	89.5	89.5	0.69	0.80	0.85	17.5
15	20	180L	9.94	7.5	2.6	2.8	0.1566	16	35	175	64.0	1470	89.7	91.2	91.2	0.66	0.77	0.82	29.0
15	20	180M	9.94	7.5	2.6	2.8	0.1566	16	35	175	64.0	1470	89.7	91.2	91.2	0.66	0.77	0.82	29.0
37	50	200L	24.4	6.0	2.4	2.7	0.3322	14	31	271	69.0	1475	92.8	93.0	93.0	0.70	0.80	0.83	69.2
37	50	250S/M	24.4	7.2	2.2	2.7	0.6145	10	22	330	70.0	1475	92.6	93.0	93.0	0.76	0.84	0.87	66.0
75	100	250S/M	49.4	7.5	2.7	3.2	1.26	16	35	530	70.0	1480	93.6	94.2	94.3	0.74	0.84	0.87	131
110	150	280S/M	72.2	7.9	2.9	3.6	2.82	10	22	830	72.0	1485	94.4	94.5	94.5	0.77	0.85	0.87	193
185	250	355M/L	121	7.2	2.2	2.6	6.34	53	117	1415	79.0	1490	94.4	95.2	95.3	0.78	0.85	0.87	320
200	270	315S/M*	131	8.0	2.4	2.6	3.80	17	37	1005	77.0	1485	94.6	94.9	95.1	0.76	0.84	0.87	346

Note:
(1) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - IE2 (1)

Output		380 V								415 V							
		Rated speed (rpm)	% of full load						Full load current In (A)	Rated speed (rpm)	% of full load						Full load current In (A)
			Efficiency			Power Factor					Efficiency			Power Factor			
kW	HP		50	75	100	50	75	100			50	75	100	50	75	100	
4P - 50Hz																	
0.12	0.16	1415	52.7	57.7	60.0	0.55	0.64	0.73	0.416	1445	49.3	56.2	60.0	0.48	0.57	0.67	0.415
0.25	0.33	1380	60.0	65.0	68.5	0.59	0.72	0.79	0.702	1410	57.8	64.5	68.5	0.52	0.65	0.74	0.686
0.37	0.5	1360	66.0	68.5	72.7	0.55	0.66	0.76	1.02	1390	63.0	68.0	72.7	0.46	0.58	0.69	1.03
0.55	0.75	1430	75.0	76.5	77.1	0.60	0.72	0.78	1.39	1445	71.0	75.5	77.1	0.51	0.60	0.70	1.42
0.75	1	1400	79.0	79.5	79.6	0.68	0.80	0.86	1.66	1415	77.9	79.2	79.9	0.60	0.73	0.81	1.61
1.1	1.5	1432	81.9	81.8	81.5	0.67	0.78	0.83	2.47	1444	80.1	81.5	82.1	0.58	0.72	0.79	2.36
1.5	2	1440	82.8	83.2	82.8	0.63	0.74	0.80	3.44	1450	80.1	82.3	83.1	0.53	0.67	0.75	3.35
2.2	3	1425	83.5	84.3	84.3	0.64	0.76	0.82	4.84	1440	82.3	84.5	84.9	0.56	0.70	0.78	4.62
3	4	1425	84.0	85.5	86.0	0.68	0.80	0.85	6.24	1435	82.0	85.5	86.0	0.60	0.73	0.81	5.99
4	5.5	1435	86.5	86.6	86.6	0.69	0.80	0.84	8.35	1445	85.3	86.6	87.0	0.60	0.73	0.80	8.00
5.5	7.5	1455	88.1	87.7	87.7	0.73	0.83	0.88	10.8	1460	87.0	87.9	88.3	0.65	0.77	0.84	10.3
7.5	10	1465	87.0	88.2	88.7	0.59	0.71	0.81	15.9	1470	85.3	87.5	88.7	0.50	0.64	0.77	15.3
9.2	12.5	1470	88.0	89.0	89.5	0.68	0.79	0.84	18.6	1475	87.0	88.5	89.5	0.60	0.73	0.80	17.9
11	15	1465	88.5	89.0	89.8	0.68	0.79	0.84	22.2	1475	87.0	88.5	89.8	0.60	0.72	0.80	21.3
15	20	1465	90.0	90.6	90.6	0.70	0.80	0.85	29.6	1470	88.5	90.3	90.6	0.60	0.73	0.80	28.8
18.5	25	1470	91.4	91.5	91.5	0.71	0.81	0.85	36.1	1475	90.7	91.5	91.5	0.62	0.74	0.81	34.7
22	30	1465	91.0	91.6	91.6	0.72	0.82	0.86	42.4	1470	91.0	91.6	91.6	0.64	0.76	0.82	40.7
30	40	1470	93.0	93.1	92.4	0.72	0.81	0.85	58.0	1475	92.0	92.9	92.7	0.63	0.75	0.81	55.6
37	50	1475	93.7	93.6	92.7	0.83	0.88	0.90	67.4	1480	93.1	93.6	93.2	0.77	0.85	0.88	62.8
45	60	1475	93.8	93.7	93.1	0.82	0.88	0.89	82.5	1480	93.1	93.6	93.3	0.75	0.84	0.87	77.1
55	75	1475	94.6	94.4	93.5	0.78	0.85	0.88	100	1480	94.2	94.5	94.0	0.72	0.82	0.86	94.7
75	100	1480	94.5	94.7	94.2	0.82	0.87	0.89	136	1485	94.0	94.6	94.5	0.77	0.84	0.87	127
90	125	1480	95.0	95.2	94.8	0.82	0.87	0.89	162	1485	94.6	95.2	95.1	0.77	0.85	0.88	150
110	150	1485	94.4	94.5	94.5	0.80	0.86	0.88	201	1485	94.4	94.5	94.5	0.75	0.83	0.86	188
132	175	1485	94.0	94.5	95.0	0.79	0.86	0.88	240	1485	94.0	94.5	95.0	0.74	0.83	0.87	222
150	200	1480	94.4	94.9	94.9	0.80	0.86	0.88	271	1485	90.0	94.9	95.0	0.76	0.82	0.86	253
160	220	1480	94.4	95.3	95.3	0.78	0.86	0.88	288	1485	94.0	95.3	95.4	0.74	0.82	0.86	270
185	250	1485	94.6	95.0	95.1	0.75	0.83	0.86	344	1485	94.3	95.0	95.1	0.70	0.79	0.83	326
200	270	1485	94.9	95.2	95.3	0.83	0.87	0.89	357	1490	94.6	95.4	95.6	0.78	0.85	0.87	333
220	300	1490	94.6	95.4	95.4	0.82	0.88	0.89	390	1490	94.2	95.4	95.4	0.77	0.84	0.87	365
250	340	1485	94.6	95.4	95.4	0.82	0.87	0.89	443	1490	94.3	95.3	95.4	0.77	0.85	0.87	415
260	350	1485	94.6	95.4	95.4	0.82	0.87	0.89	463	1490	94.3	95.3	95.4	0.77	0.85	0.87	434
280	380	1485	95.1	95.4	95.4	0.83	0.88	0.89	490	1490	94.9	95.3	95.4	0.79	0.86	0.87	459
300	400	1485	95.3	95.8	95.8	0.83	0.88	0.89	535	1490	94.9	95.8	95.8	0.79	0.86	0.88	495
315	430	1485	95.2	95.4	95.4	0.81	0.87	0.89	557	1490	95.1	95.8	95.8	0.76	0.84	0.87	521
330	450	1485	94.9	95.4	95.5	0.83	0.88	0.90	578	1490	94.6	95.3	95.5	0.79	0.86	0.88	541
High Output Design																	
0.75	1	1465	79.1	79.9	79.6	0.52	0.66	0.75	1.91	1470	76.9	79.6	80.4	0.45	0.58	0.68	1.91
1.1	1.5	1460	79.2	81.8	81.5	0.55	0.68	0.78	2.63	1465	75.5	79.9	81.4	0.46	0.61	0.71	2.65
1.5	2	1440	82.0	82.7	82.8	0.57	0.71	0.79	3.48	1450	79.4	82.1	82.8	0.49	0.63	0.73	3.45
2.2	3	1440	85.0	84.8	84.3	0.67	0.78	0.83	4.78	1450	83.9	84.9	85.4	0.59	0.72	0.79	4.54
4	5.5	1465	86.0	86.6	86.6	0.63	0.76	0.83	8.46	1470	84.7	86.4	86.6	0.55	0.69	0.78	8.24
5.5	7.5	1455	88.1	87.7	87.7	0.73	0.83	0.88	10.8	1460	87.0	87.9	88.3	0.65	0.77	0.84	10.3
7.5	10	1460	89.0	88.7	88.7	0.75	0.83	0.87	14.8	1465	88.3	89.0	89.4	0.63	0.75	0.81	14.4
7.5	10	1465	87.2	88.0	88.7	0.70	0.81	0.85	15.1	1470	86.0	87.5	88.7	0.62	0.74	0.81	14.5
9.2	12.5	1450	89.6	89.4	89.3	0.74	0.82	0.87	18.0	1455	88.7	89.5	89.8	0.65	0.77	0.84	17.0
15	20	1465	90.0	91.0	91.0	0.69	0.79	0.84	29.8	1475	89.5	91.2	91.2	0.64	0.75	0.80	28.6
15	20	1465	90.0	91.0	91.0	0.69	0.79	0.84	29.8	1475	89.5	91.2	91.2	0.64	0.75	0.80	28.6
37	50	1470	93.1	92.9	92.7	0.74	0.83	0.85	71.3	1475	92.5	93.0	93.2	0.67	0.78	0.81	68.2
37	50	1475	93.7	93.6	92.7	0.83	0.88	0.90	67.4	1480	93.1	93.6	93.2	0.77	0.85	0.88	62.8
75	100	1475	93.6	93.8	94.2	0.77	0.85	0.88	137	1480	93.0	94.1	94.2	0.73	0.83	0.86	128
110	150	1485	94.4	94.5	94.5	0.80	0.86	0.88	201	1485	94.4	94.5	94.5	0.75	0.83	0.86	188
185	250	1490	94.6	95.2	95.3	0.80	0.86	0.88	334	1490	94.1	95.2	95.5	0.76	0.84	0.86	312
200	270	1480	94.7	94.9	95.1	0.79	0.86	0.88	363	1485	94.8	94.9	95.1	0.73	0.82	0.86	337

Note:
(1) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - IE2 (1)

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current Il/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kgm2)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	400 V							
												Rated speed (rpm)	% of full load						Full load current In (A)
													Efficiency			Power Factor			
kW	HP							Hot	Cold				50	75	100	50	75	100	
6P - 50Hz																			
0.12	0.16	63	0.130	3.0	1.9	2.0	0.0006	52	114	7.2	43.0	905	42.0	50.0	52.0	0.43	0.53	0.63	0.529
0.18	0.25	71	0.200	3.2	2.0	2.0	0.0008	96	211	9.5	43.0	890	52.0	58.0	59.0	0.40	0.51	0.61	0.722
0.25	0.33	71	0.280	3.0	1.9	1.9	0.0009	25	55	11.5	43.0	865	60.0	63.0	63.0	0.37	0.48	0.59	0.971
0.37	0.5	80	0.400	3.9	1.8	2.0	0.0022	27	59	13.9	43.0	910	63.0	67.0	67.6	0.47	0.62	0.72	1.10
0.55	0.75	80	0.580	4.5	2.1	2.2	0.0030	21	46	17.3	43.0	920	65.0	71.0	73.1	0.50	0.62	0.72	1.51
0.75	1	90S	0.790	4.5	2.0	2.1	0.0055	23	51	21.3	45.0	925	74.5	76.0	76.0	0.51	0.64	0.73	1.95
1.1	1.5	90L	1.16	4.7	2.3	2.2	0.0066	17	37	26.9	45.0	925	76.0	78.1	78.1	0.50	0.63	0.73	2.78
1.5	2	100L	1.55	5.0	2.0	2.4	0.0110	23	51	29.3	44.0	940	79.5	80.0	80.0	0.51	0.64	0.73	3.71
2.2	3	112M	2.26	6.2	2.4	2.6	0.0224	16	35	43.5	49.0	950	80.5	82.7	82.7	0.52	0.64	0.72	5.26
3	4	132S	3.04	5.7	2.0	2.4	0.0359	31	68	61.6	53.0	960	82.5	83.6	83.6	0.50	0.63	0.71	7.30
4	5.5	132M	4.06	6.0	2.1	2.5	0.0453	21	46	63.2	53.0	960	84.0	84.8	84.8	0.51	0.64	0.72	9.46
5.5	7.5	132M	5.58	6.4	2.2	2.7	0.0604	19	42	76.0	53.0	960	85.5	86.1	86.1	0.51	0.64	0.72	12.8
7.5	10	160M	7.45	6.6	2.3	2.9	0.1055	10	22	97.8	57.0	980	86.6	87.2	87.2	0.58	0.71	0.79	15.7
9.2	12.5	160L	9.14	6.8	2.4	3.0	0.1266	8	18	118	57.0	980	86.5	87.5	88.1	0.56	0.70	0.78	19.3
11	15	160L	11.1	6.5	2.4	2.8	0.1407	10	22	132	57.0	970	88.0	88.7	88.7	0.63	0.75	0.81	22.1
15	20	180L	15.0	8.5	2.8	3.5	0.3381	6	13	167	56.0	975	89.0	89.7	89.7	0.68	0.80	0.86	28.1
18.5	25	200L	18.4	6.3	2.3	3.0	0.3335	11	24	212	58.0	980	89.2	90.2	90.4	0.60	0.74	0.79	37.4
22	30	200L	21.9	7.0	2.5	3.1	0.3868	10	22	226	58.0	980	89.3	90.5	90.9	0.59	0.72	0.79	44.2
30	40	225S/M	29.7	7.0	2.3	2.6	0.8328	10	22	330	61.0	985	92.0	92.2	92.2	0.70	0.79	0.84	55.9
37	50	225S/M	36.6	7.0	2.5	2.6	1.02	10	22	400	61.0	985	92.0	92.6	92.6	0.72	0.81	0.84	68.7
37	50	250S/M	36.6	7.0	2.5	2.6	1.02	10	22	400	61.0	985	92.0	92.6	92.6	0.72	0.81	0.84	68.7
45	60	280S/M	44.5	6.8	2.2	2.7	2.02	10	22	550	66.0	985	93.0	93.2	93.2	0.67	0.77	0.82	85.0
55	75	280S/M	54.4	6.7	2.1	2.6	2.26	10	22	610	66.0	985	93.0	93.5	93.5	0.67	0.78	0.82	104
75	100	315S/M	74.2	6.7	2.1	2.4	3.05	10	22	700	69.0	985	93.8	94.0	94.0	0.72	0.81	0.84	137
90	125	315S/M	89.0	6.5	2.2	2.4	3.59	12	26	830	69.0	985	94.0	94.2	94.2	0.71	0.80	0.83	166
110	150	315S/M	109	6.5	2.2	2.4	4.93	12	26	1000	69.0	985	94.1	94.6	94.6	0.69	0.79	0.84	200
132	175	315S/M	131	6.6	2.2	2.5	5.63	12	26	1050	69.0	985	94.0	94.5	94.6	0.70	0.79	0.84	239
150	200	355M/L	148	6.0	1.9	2.2	9.05	81	178	1460	73.0	990	93.5	95.0	95.3	0.65	0.75	0.80	282
160	220	355M/L	157	6.0	1.9	2.1	9.53	76	167	1460	73.0	990	93.8	95.2	95.3	0.65	0.77	0.81	297
185	250	355M/L	182	6.0	1.9	2.1	10.2	76	167	1530	73.0	990	94.2	95.2	95.3	0.65	0.75	0.80	350
200	270	355M/L	197	6.1	2.2	2.3	12.1	28	62	1650	73.0	990	94.5	95.4	95.4	0.66	0.76	0.81	374
220	300	355M/L	215	6.5	2.0	2.3	13.5	25	55	1800	73.0	995	94.5	95.4	95.4	0.64	0.75	0.80	416
250	340	355M/L	246	6.1	1.9	2.1	14.8	64	141	1890	73.0	990	94.6	95.2	95.4	0.69	0.78	0.81	463
260	350	355M/L	256	6.0	1.8	2.0	14.8	64	141	1830	73.0	990	94.6	95.2	95.4	0.69	0.78	0.81	482
280	380	355M/L*	275	6.0	2.1	2.2	14.8	54	119	1890	73.0	990	94.2	95.3	95.4	0.68	0.77	0.80	530
300	400	355M/L*	295	6.4	2.1	2.1	14.8	39	86	1920	73.0	990	93.8	95.0	95.5	0.63	0.73	0.79	574
315	430	355M/L*	310	6.0	1.9	1.9	15.5	38	84	1950	73.0	990	94.2	95.4	95.5	0.69	0.78	0.81	588
High Output Design																			
1.5	2	112M	1.51	5.2	1.7	2.3	0.0156	26	57	36.5	49.0	965	80.5	81.0	80.5	0.51	0.64	0.72	3.74
3	4	132M	3.04	5.7	2.0	2.4	0.0359	31	68	61.6	53.0	960	82.5	83.6	83.6	0.50	0.63	0.71	7.30
5.5	7.5	160M	5.47	6.4	2.1	2.7	0.1436	14	31	106	57.0	980	85.0	85.5	86.0	0.59	0.72	0.79	11.7
7.5	10	160L	7.45	6.6	2.3	2.9	0.1055	10	22	97.8	57.0	980	86.6	87.2	87.2	0.58	0.71	0.79	15.7
132	175	355M/L	130	6.1	1.9	2.2	9.05	90	198	1400	73.0	990	93.4	94.8	95.1	0.67	0.77	0.81	247

Note:
(1) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - IE2 (1)

Output		380 V								415 V							
		Rated speed (rpm)	% of full load					Full load current In (A)		Rated speed (rpm)	% of full load					Full load current In (A)	
			Efficiency			Power Factor					Efficiency			Power Factor			
kW	HP		50	75	100	50	75	100			50	75	100	50	75	100	
6P - 50Hz																	
0.12	0.16	895	45.4	52.1	52.9	0.46	0.57	0.67	0.514	910	39.1	47.5	50.7	0.41	0.50	0.59	0.558
0.18	0.25	875	54.2	59.0	58.7	0.43	0.55	0.65	0.717	900	50.1	56.8	58.6	0.38	0.48	0.58	0.737
0.25	0.33	850	63.7	63.5	63.5	0.41	0.52	0.63	0.949	870	56.7	60.7	63.0	0.35	0.45	0.55	1.00
0.37	0.5	895	65.2	67.7	67.6	0.52	0.66	0.76	1.09	915	60.5	65.9	67.6	0.44	0.58	0.69	1.10
0.55	0.75	905	67.5	71.8	73.1	0.55	0.66	0.76	1.50	930	62.5	69.6	73.1	0.47	0.60	0.70	1.50
0.75	1	915	75.8	75.9	75.9	0.55	0.68	0.76	1.98	930	73.2	75.6	76.4	0.48	0.61	0.71	1.92
1.1	1.5	915	77.9	78.5	78.5	0.55	0.67	0.77	2.76	930	74.3	77.3	78.1	0.46	0.59	0.70	2.80
1.5	2	930	80.7	80.1	79.8	0.55	0.69	0.76	3.76	945	78.3	79.7	80.3	0.48	0.61	0.70	3.71
2.2	3	945	81.5	82.5	82.5	0.55	0.67	0.74	5.42	955	79.5	83.0	83.0	0.48	0.61	0.70	5.21
3	4	955	83.4	83.8	83.3	0.54	0.67	0.74	7.39	960	81.4	83.1	83.6	0.46	0.59	0.68	7.34
4	5.5	955	84.9	85.0	84.6	0.55	0.68	0.74	9.74	960	83.0	84.4	84.9	0.47	0.61	0.69	9.50
5.5	7.5	955	86.4	86.3	86.0	0.56	0.68	0.75	13.0	965	84.6	85.7	86.2	0.47	0.61	0.69	12.9
7.5	10	975	86.8	87.2	87.2	0.62	0.75	0.81	16.1	980	86.0	87.2	87.2	0.55	0.69	0.77	15.5
9.2	12.5	975	87.2	87.7	88.1	0.60	0.73	0.80	19.8	980	85.5	87.1	88.1	0.53	0.67	0.76	19.1
11	15	965	88.0	88.7	88.7	0.67	0.78	0.83	22.7	975	86.8	88.1	88.7	0.59	0.72	0.79	21.8
15	20	975	89.0	89.7	89.7	0.73	0.83	0.88	28.9	980	89.0	89.7	89.7	0.65	0.78	0.84	27.7
18.5	25	980	89.9	90.4	90.4	0.64	0.77	0.82	37.9	980	88.6	90.0	90.4	0.56	0.70	0.77	37.0
22	30	980	90.0	90.7	90.9	0.64	0.76	0.81	45.4	985	88.6	90.2	90.9	0.56	0.69	0.76	44.3
30	40	980	92.5	92.4	91.7	0.76	0.84	0.86	57.8	985	91.5	92.2	91.8	0.67	0.78	0.83	54.8
37	50	982	93.1	92.9	92.2	0.76	0.84	0.87	70.1	986	92.1	92.7	92.4	0.68	0.79	0.83	67.1
37	50	982	93.1	92.9	92.2	0.76	0.84	0.87	70.1	986	92.1	92.7	92.4	0.68	0.79	0.83	67.1
45	60	985	93.5	93.6	93.0	0.70	0.80	0.84	87.5	990	92.8	93.5	93.3	0.63	0.75	0.80	83.9
55	75	985	93.4	93.6	93.1	0.71	0.80	0.84	107	990	92.4	93.2	93.1	0.62	0.74	0.80	103
75	100	985	94.5	94.2	93.7	0.77	0.84	0.86	142	990	94.0	94.2	93.8	0.70	0.80	0.84	132
90	125	985	94.8	94.8	94.3	0.72	0.81	0.84	173	990	94.1	94.7	94.5	0.64	0.76	0.81	164
110	150	985	95.2	95.1	94.5	0.73	0.82	0.85	208	990	94.9	95.2	94.9	0.67	0.78	0.83	194
132	175	985	94.0	94.5	94.6	0.73	0.82	0.85	249	985	94.0	94.5	94.6	0.68	0.77	0.83	233
150	200	990	93.7	95.0	95.3	0.70	0.79	0.82	290	990	93.3	95.0	95.2	0.60	0.72	0.78	279
160	220	990	94.1	95.2	95.2	0.70	0.80	0.82	309	990	93.5	95.2	95.3	0.60	0.74	0.80	290
185	250	990	94.4	95.1	95.3	0.70	0.79	0.82	360	990	94.0	95.4	95.6	0.60	0.71	0.78	345
200	270	990	95.0	95.6	95.6	0.68	0.77	0.81	391	995	94.5	95.4	95.6	0.61	0.72	0.78	372
220	300	995	94.9	95.4	95.4	0.65	0.75	0.80	435	995	94.3	95.3	95.4	0.57	0.69	0.76	420
250	340	990	94.8	95.0	95.4	0.73	0.80	0.82	482	990	94.2	95.2	95.4	0.66	0.76	0.80	452
260	350	990	95.0	95.2	95.4	0.73	0.81	0.83	496	995	94.2	95.2	95.4	0.67	0.76	0.80	470
280	380	985	94.6	95.4	95.4	0.73	0.80	0.81	551	990	94.0	95.2	95.4	0.64	0.74	0.79	517
300	400	990	94.2	95.1	95.5	0.68	0.77	0.81	589	995	93.0	95.0	95.5	0.58	0.70	0.77	568
315	430	985	94.6	95.4	95.5	0.73	0.80	0.82	611	990	93.9	95.4	95.5	0.65	0.76	0.80	574
High Output Design																	
1.5	2	960	81.5	81.0	79.8	0.55	0.68	0.75	3.81	970	79.5	80.7	80.8	0.48	0.61	0.70	3.69
3	4	955	83.4	83.8	83.3	0.54	0.67	0.74	7.39	960	81.4	83.1	83.6	0.46	0.59	0.68	7.34
5.5	7.5	975	85.0	85.5	86.0	0.63	0.76	0.81	12.0	980	85.0	85.5	86.0	0.57	0.70	0.77	11.6
7.5	10	975	86.8	87.2	87.2	0.62	0.75	0.81	16.1	980	86.0	87.2	87.2	0.55	0.69	0.77	15.5
132	175	990	93.8	94.8	95.0	0.72	0.79	0.82	257	990	93.4	94.8	95.1	0.64	0.75	0.80	241

Note:
(1) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - IE2 (1)

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current Il/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kgm2)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	400 V							
												Rated speed (rpm)	% of full load						Full load current In (A)
													Efficiency			Power Factor			
kW	HP							Hot	Cold				50	75	100	50	75	100	
8P - 50Hz																			
0.12	0.16	71	0.180	2.3	1.9	2.0	0.0008	60	132	9.5	41.0	650	40.0	48.0	50.0	0.35	0.43	0.52	0.666
0.18	0.25	80	0.260	3.1	1.7	2.1	0.0024	27	59	13.8	42.0	670	34.9	44.1	45.9	0.50	0.59	0.68	0.832
0.25	0.33	80	0.360	3.2	1.9	2.1	0.0029	42	92	14.7	42.0	670	49.0	55.0	57.0	0.43	0.55	0.66	0.959
0.37	0.5	90S	0.520	3.5	2.1	2.5	0.0044	23	51	22.8	44.0	690	46.2	53.3	56.1	0.41	0.52	0.62	1.54
0.55	0.75	90L	0.780	3.5	1.9	2.0	0.0060	31	68	24.3	44.0	685	61.0	64.0	64.0	0.44	0.56	0.66	1.88
0.75	1	100L	1.03	4.4	1.9	2.4	0.0110	25	55	31.8	50.0	710	61.8	66.2	66.2	0.40	0.50	0.59	2.77
1.1	1.5	100L	1.52	4.6	2.1	2.3	0.0127	29	64	34.2	50.0	705	71.0	75.0	75.0	0.40	0.53	0.62	3.41
1.5	2	112M	2.09	4.7	2.4	2.3	0.0202	29	64	39.6	46.0	700	77.0	79.0	79.0	0.44	0.57	0.67	4.09
2.2	3	132S	3.06	5.5	2.2	2.4	0.0592	25	55	57.3	48.0	700	81.0	81.5	81.0	0.52	0.65	0.72	5.44
3	4	132M	4.17	5.5	2.3	2.4	0.0740	19	42	70.1	48.0	700	82.0	82.5	82.0	0.54	0.66	0.73	7.23
4	5.5	160M	5.34	5.5	2.1	3.0	0.0985	13	29	95.5	53.0	730	80.0	81.9	81.9	0.48	0.61	0.70	10.1
5.5	7.5	160M	7.34	5.5	2.1	3.0	0.1266	9	20	118	53.0	730	79.0	81.5	83.8	0.47	0.60	0.69	13.7
7.5	10	160L	10.0	5.6	2.4	3.1	0.1555	15	33	123	53.0	730	84.0	85.3	85.3	0.50	0.63	0.71	17.9
9.2	12.5	180M	12.4	6.2	1.8	2.5	0.1906	8	18	156	51.0	725	85.5	86.2	86.3	0.59	0.72	0.80	19.2
11	15	180L	14.7	7.3	2.0	2.5	0.2620	8	18	183	51.0	730	86.0	86.9	86.9	0.60	0.73	0.80	22.8
15	20	200L	19.9	5.5	2.0	2.5	0.4228	16	35	239	53.0	735	86.3	88.0	88.0	0.51	0.65	0.74	33.2
18.5	25	225S/M	24.7	7.4	2.1	2.8	0.8472	18	40	340	60.0	730	89.7	89.8	89.9	0.62	0.74	0.80	37.1
22	30	225S/M	29.2	7.5	2.2	3.0	0.9884	18	40	365	60.0	735	89.5	90.0	90.5	0.67	0.77	0.82	42.8
30	40	250S/M	40.0	7.5	2.1	2.8	1.22	17	37	440	60.0	730	90.0	90.0	90.4	0.69	0.79	0.83	57.7
37	50	280S/M	48.7	7.5	1.9	2.6	2.37	20	44	540	62.0	740	91.0	91.5	91.5	0.60	0.72	0.77	75.8
45	60	280S/M	59.2	6.5	2.0	2.4	2.83	20	44	640	62.0	740	91.9	92.0	92.1	0.62	0.73	0.79	89.3
55	75	315S/M	72.4	6.5	1.8	2.2	3.17	28	62	680	62.0	740	92.0	92.3	92.4	0.63	0.74	0.79	109
75	100	315S/M	98.7	6.6	1.9	2.4	4.37	20	44	876	62.0	740	92.5	92.6	92.8	0.65	0.75	0.79	148
90	125	315S/M	118	6.8	1.9	2.4	5.29	23	51	970	62.0	740	93.9	94.3	94.5	0.67	0.77	0.81	169
110	150	355M/L	145	6.4	1.5	2.2	12.6	41	90	1430	70.0	740	92.0	92.3	92.3	0.62	0.73	0.79	218
132	175	355M/L	173	6.5	1.6	2.3	13.2	47	103	1445	70.0	745	92.0	92.5	92.6	0.63	0.73	0.79	260
150	200	355M/L	197	7.0	1.6	2.2	15.9	40	88	1600	70.0	740	94.3	95.0	95.2	0.61	0.72	0.78	290
160	220	355M/L	209	6.6	1.5	2.4	16.3	42	92	1590	70.0	745	94.0	94.2	94.2	0.60	0.72	0.78	314
185	250	355M/L	242	6.5	1.6	2.2	17.3	30	66	1730	70.0	745	93.0	94.2	94.4	0.58	0.70	0.78	363
200	270	355M/L	263	6.8	1.6	2.1	19.5	37	81	1830	70.0	740	93.5	94.2	94.5	0.58	0.71	0.78	392
220	300	355M/L	290	6.8	1.6	2.2	20.4	35	77	1930	70.0	740	93.5	94.3	94.5	0.61	0.73	0.77	436

Note:
(1) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - IE2 (1)

Output		380 V								415 V							
		Rated speed (rpm)	% of full load						Full load current In (A)	Rated speed (rpm)	% of full load						Full load current In (A)
			Efficiency			Power Factor					Efficiency			Power Factor			
kW	HP		50	75	100	50	75	100			50	75	100	50	75	100	
8P - 50Hz																	
0.12	0.16	635	42.9	50.1	50.8	0.37	0.47	0.56	0.641	655	37.1	45.7	48.8	0.34	0.41	0.49	0.698
0.18	0.25	660	37.6	46.1	45.9	0.52	0.62	0.72	0.828	675	33.1	42.4	45.9	0.42	0.53	0.62	0.880
0.25	0.33	660	51.1	56.2	56.8	0.47	0.59	0.70	0.955	675	47.0	53.8	56.8	0.42	0.53	0.63	0.972
0.37	0.5	680	49.2	55.0	56.1	0.44	0.56	0.67	1.50	695	43.9	51.6	56.1	0.39	0.49	0.55	1.67
0.55	0.75	675	63.3	65.1	63.5	0.47	0.61	0.70	1.88	690	58.5	62.8	63.9	0.41	0.53	0.63	1.90
0.75	1	705	64.9	66.2	66.2	0.42	0.54	0.63	2.73	715	58.5	65.6	66.2	0.38	0.47	0.55	2.87
1.1	1.5	700	73.6	76.2	74.9	0.45	0.57	0.66	3.38	705	68.8	73.6	74.5	0.37	0.49	0.59	3.48
1.5	2	695	78.8	79.6	78.5	0.49	0.61	0.70	4.15	705	75.3	78.2	78.9	0.41	0.53	0.63	4.20
2.2	3	695	81.8	81.5	79.9	0.57	0.69	0.75	5.58	705	80.1	81.4	81.4	0.49	0.62	0.70	5.37
3	4	690	82.7	82.4	80.8	0.58	0.70	0.75	7.52	705	81.1	82.4	82.5	0.50	0.63	0.71	7.13
4	5.5	730	81.0	81.9	81.9	0.52	0.65	0.73	10.2	735	78.5	81.9	81.9	0.45	0.58	0.68	10.0
5.5	7.5	730	80.5	82.0	83.8	0.51	0.64	0.72	13.8	735	77.0	80.5	83.8	0.44	0.57	0.67	13.6
7.5	10	725	85.0	85.3	85.3	0.54	0.66	0.74	18.1	730	83.0	85.0	85.3	0.46	0.59	0.68	18.0
9.2	12.5	725	86.0	86.3	86.3	0.64	0.76	0.83	19.5	730	84.5	86.3	86.3	0.55	0.69	0.78	19.0
11	15	725	86.0	86.9	86.9	0.65	0.77	0.83	23.2	730	85.7	86.9	86.9	0.56	0.70	0.78	22.6
15	20	730	87.4	88.0	88.0	0.56	0.69	0.77	33.6	735	85.2	88.0	88.0	0.47	0.62	0.71	33.4
18.5	25	730	89.6	89.7	89.8	0.67	0.77	0.82	38.2	735	89.7	89.8	89.9	0.60	0.72	0.78	36.7
22	30	730	89.0	89.5	90.0	0.71	0.80	0.83	44.7	735	88.5	89.5	90.5	0.63	0.74	0.81	41.8
30	40	725	89.9	89.9	90.0	0.73	0.81	0.84	60.3	730	90.0	90.0	90.6	0.65	0.77	0.82	56.2
37	50	735	91.0	91.5	91.5	0.65	0.75	0.79	77.8	740	91.0	91.5	91.5	0.57	0.69	0.75	75.0
45	60	740	91.9	92.0	92.1	0.67	0.76	0.79	94.0	740	91.9	92.0	92.1	0.60	0.71	0.77	88.3
55	75	735	92.0	92.3	92.4	0.68	0.77	0.80	113	740	92.0	92.3	92.4	0.61	0.72	0.77	108
75	100	740	92.5	92.6	92.7	0.69	0.78	0.81	152	740	92.5	92.2	92.8	0.62	0.72	0.78	144
90	125	735	94.2	94.4	94.6	0.71	0.79	0.83	173	740	93.6	94.2	94.7	0.63	0.75	0.80	165
110	150	740	92.1	92.3	92.3	0.65	0.76	0.81	224	745	91.9	92.3	92.3	0.59	0.70	0.77	215
132	175	745	92.0	92.5	92.6	0.66	0.75	0.81	267	745	92.0	92.5	92.6	0.60	0.71	0.77	258
150	200	740	94.8	95.0	95.1	0.63	0.74	0.79	302	745	93.8	95.0	95.2	0.57	0.69	0.76	287
160	220	745	93.8	94.0	94.2	0.66	0.76	0.80	323	745	93.5	94.0	94.2	0.57	0.69	0.76	311
185	250	740	93.0	94.2	94.4	0.63	0.74	0.80	372	745	92.5	94.0	94.4	0.53	0.66	0.76	359
200	270	740	93.5	94.2	94.5	0.63	0.74	0.80	402	745	93.2	94.2	94.5	0.54	0.68	0.76	387
220	300	740	94.0	94.3	94.5	0.64	0.75	0.79	448	745	93.2	94.2	94.5	0.59	0.71	0.76	426

Note:
(1) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - GB3 (1) - IE3 (2)

Output		Frame	Full Load Torque	Locked Rotor Current	Locked Rotor Torque	Break-down Torque	Inertia J	Allowable locked rotor time (s)		Weight	Sound	400 V							
												Rated speed	% of full load						Full load current
													Efficiency			Power Factor			
kW	HP		(kgfm)	Il/In	Tl/Tn	Tb/Tn	(kgm2)	Hot	Cold	(kg)	dB(A)	(rpm)	50	75	100	50	75	100	In (A)
2P - 50Hz																			
0.75	1	80	0.250	7.5	2.4	2.8	0.0008	18	40	13.7	59.0	2870	74.2	78.0	80.7	0.58	0.70	0.79	1.70
1.1	1.5	80	0.380	7.4	3.6	3.6	0.0009	23	51	15.5	59.0	2830	81.0	83.0	83.0	0.63	0.76	0.82	2.33
1.5	2	90L	0.500	7.2	2.2	3.1	0.0020	9	20	21.8	62.0	2910	81.3	83.5	84.2	0.64	0.76	0.83	3.10
2.2	3	90L	0.740	7.5	2.9	3.5	0.0026	12	26	28.5	62.0	2880	83.5	85.5	85.9	0.65	0.77	0.83	4.45
3	4	100L	1.01	8.1	2.9	3.6	0.0064	15	33	32.7	67.0	2900	85.0	86.5	87.2	0.69	0.81	0.86	5.77
4	5.5	112M	1.34	7.7	2.5	3.5	0.0080	14	31	42.6	62.0	2900	87.0	88.0	88.3	0.69	0.80	0.86	7.60
5.5	7.5	132S	1.82	8.5	2.4	3.3	0.0216	15	33	68.7	67.0	2940	87.0	88.0	89.2	0.72	0.82	0.87	10.2
7.5	10	132S	2.50	8.0	2.5	3.2	0.0252	10	22	71.6	67.0	2925	89.5	90.1	90.1	0.68	0.79	0.85	14.1
9.2	12.5	132M	3.06	9.2	2.8	3.5	0.0306	13	29	80.7	63.0	2930	89.5	90.5	91.0	0.68	0.79	0.84	17.4
11	15	160M	3.63	9.3	3.1	3.8	0.0506	12	26	121	70.0	2955	89.0	90.5	91.2	0.70	0.80	0.85	20.5
15	20	160M	4.96	8.9	3.1	3.6	0.0565	11	24	123	70.0	2945	90.0	91.0	91.9	0.69	0.80	0.84	28.0
18.5	25	160L	6.12	8.8	3.1	3.5	0.0650	11	24	137	70.0	2945	90.5	91.5	92.4	0.73	0.82	0.86	33.6
22	30	180M	7.24	8.3	2.6	3.2	0.1192	10	22	182	70.0	2960	92.0	92.7	92.7	0.69	0.80	0.85	40.3
30	40	200L	9.85	7.6	2.4	2.7	0.2063	14	31	239	74.0	2965	92.0	93.0	93.3	0.76	0.84	0.87	53.3
37	50	200L	12.2	7.3	2.2	2.8	0.2242	18	40	263	74.0	2960	92.5	93.5	93.7	0.74	0.82	0.85	67.1
45	60	225S/M	14.8	8.7	2.6	3.2	0.4961	20	44	410	82.0	2965	92.5	93.6	94.0	0.77	0.84	0.87	79.4
55	75	250S/M	18.1	8.0	2.3	3.0	0.5303	10	22	470	82.0	2955	93.5	94.0	94.3	0.77	0.85	0.88	95.7
75	100	280S/M	24.5	7.8	2.0	2.8	1.20	20	44	700	83.0	2975	92.5	94.0	94.7	0.79	0.86	0.89	128
90	125	280S/M	29.5	7.5	2.0	2.7	1.31	20	44	780	83.0	2970	93.5	94.5	95.0	0.80	0.87	0.89	154
110	150	315S/M	36.0	9.0	2.1	3.2	1.40	23	51	830	83.0	2975	94.0	95.0	95.2	0.79	0.87	0.89	187
132	175	315S/M	43.2	8.8	1.9	3.1	1.62	22	48	900	83.0	2975	94.7	95.4	95.4	0.79	0.87	0.90	222
160	220	315S/M	52.4	7.3	2.0	2.8	1.97	30	66	990	83.0	2975	95.0	95.8	95.8	0.79	0.86	0.89	271
200	270	355M/L	65.3	7.7	2.2	2.7	4.85	50	110	1490	81.0	2985	94.0	95.0	95.8	0.88	0.90	0.91	331
High Output Design																			
0.75	1	90S	0.250	8.2	2.6	3.4	0.0015	13	29	17.3	62.0	2920	79.0	82.5	83.0	0.60	0.73	0.81	1.61
1.1	1.5	90S	0.370	7.8	2.2	2.9	0.0018	12	26	19.4	62.0	2895	82.0	84.2	84.5	0.63	0.75	0.82	2.29
1.5	2	90S	0.510	7.6	3.3	3.3	0.0020	15	33	21.8	62.0	2875	83.0	84.0	84.5	0.64	0.76	0.83	3.09
4	5.5	132S	1.32	8.9	2.7	3.7	0.0180	17	37	61.4	63.0	2950	85.1	87.5	88.1	0.70	0.80	0.85	7.71
5.5	7.5	132M	1.82	8.5	2.4	3.3	0.0216	15	33	68.7	67.0	2940	87.0	88.0	89.2	0.72	0.82	0.87	10.2
7.5	10	132M	2.48	8.5	2.5	3.5	0.0252	9	20	71.6	67.0	2940	88.2	89.5	90.1	0.71	0.81	0.86	14.0
11	15	132M	3.66	8.2	2.7	3.0	0.0306	11	24	84.9	63.0	2925	90.6	91.1	91.2	0.75	0.85	0.89	19.6
15	20	160L	4.96	8.9	3.1	3.6	0.0565	11	24	123	70.0	2945	90.0	91.0	91.9	0.69	0.80	0.84	28.0
22	30	180L	7.24	8.3	2.6	3.2	0.1192	10	22	182	70.0	2960	92.0	92.7	92.7	0.69	0.80	0.85	40.3
110	150	280S/M	36.0	9.0	2.1	3.2	1.40	23	51	830	83.0	2975	94.0	95.0	95.2	0.79	0.87	0.89	187
200	270	315S/M	65.4	7.4	2.2	2.6	2.03	49	108	1045	83.0	2980	95.0	95.8	95.9	0.81	0.86	0.88	342
4P - 50Hz																			
0.55	0.75	80	0.380	6.6	2.8	3.0	0.0026	20	44	16.2	44.0	1420	77.0	79.0	80.8	0.61	0.74	0.80	1.23
0.75	1	80	0.510	7.0	3.2	3.4	0.0032	18	40	17.7	44.0	1430	78.0	81.0	82.5	0.54	0.68	0.78	1.68
1.1	1.5	90S	0.740	6.5	2.1	2.7	0.0055	15	33	24.3	49.0	1450	82.2	84.1	84.1	0.59	0.70	0.78	2.42
1.5	2	90L	1.01	7.4	2.6	3.4	0.0066	13	29	25.0	49.0	1450	84.0	86.0	86.0	0.58	0.72	0.80	3.15
2.2	3	100L	1.49	7.4	3.2	3.5	0.0090	18	40	35.1	53.0	1435	86.5	87.0	87.0	0.60	0.73	0.80	4.56
3	4	L100L	2.03	7.8	3.5	3.7	0.0120	15	33	43.5	53.0	1440	87.0	88.0	88.0	0.60	0.73	0.80	6.15
4	5.5	112M	2.69	7.0	2.3	3.1	0.0182	15	33	47.7	56.0	1450	86.0	88.0	88.8	0.60	0.72	0.79	8.03
5.5	7.5	132S	3.66	8.2	2.1	2.9	0.0528	15	33	65.4	56.0	1465	87.5	89.0	89.6	0.67	0.79	0.85	10.4
7.5	10	132M	4.99	8.5	2.5	3.4	0.0642	13	29	76.8	56.0	1465	87.5	90.0	90.6	0.67	0.78	0.84	14.2
11	15	160M	7.29	7.5	2.9	3.1	0.1071	12	26	121	62.0	1470	89.2	90.2	91.4	0.61	0.74	0.80	21.7
15	20	160L	9.97	7.2	2.7	2.9	0.1263	8	18	144	62.0	1465	89.7	90.5	92.1	0.63	0.76	0.82	28.7
18.5	25	180M	12.3	7.8	2.7	3.0	0.2088	12	26	183	64.0	1470	91.0	92.2	92.6	0.70	0.77	0.83	34.7
22	30	180L	14.6	8.0	2.8	3.1	0.2393	20	44	202	64.0	1470	92.0	93.0	93.0	0.68	0.78	0.84	40.6
30	40	200L	19.7	7.5	2.7	3.2	0.3861	9	20	271	67.0	1480	93.0	93.6	93.6	0.64	0.75	0.81	57.1
37	50	225S/M	24.4	8.0	2.8	3.1	0.6999	10	22	380	70.0	1480	93.0	93.9	93.9	0.70	0.80	0.84	67.7
45	60	225S/M	29.6	8.5	2.8	3.2	0.8398	10	22	400	70.0	1480	94.0	94.2	94.2	0.74	0.83	0.86	80.2
55	75	250S/M	36.2	7.5	3.0	3.2	1.15	8	18	470	70.0	1480	94.2	94.6	94.6	0.69	0.80	0.85	98.7
75	100	280S/M	49.2	8.1	2.3	3.2	2.11	22	48	660	72.0	1485	94.5	95.0	95.0	0.70	0.80	0.84	136
90	125	280S/M	59.0	8.0	2.3	3.2	2.72	20	44	800	72.0	1485	95.0	95.2	95.2	0.72	0.81	0.85	161
110	150	315S/M	72.2	8.0	2.5	3.3	3.33	16	35	860	77.0	1485	95.0	95.4	95.4	0.74	0.83	0.86	194
132	175	315S/M	86.6	7.9	2.5	3.0	3.63	18	40	1000	77.0	1485	95.0	95.6	95.6	0.76	0.85	0.87	229
160	220	315S/M	105	8.2	2.4	2.7	3.80	18	40	1000	77.0	1485	95.2	95.7	95.8	0.75	0.84	0.87	277
200	270	355M/L	131	6.6	2.1	2.3	7.58	40	88	1525	79.0	1490	95.0	95.7	96.0	0.79	0.85	0.87	346
250	340	355M/L	163	7.6	2.3	2.5	8.39	27	59	1380	79.0	1490	95.4	96.0	96.0	0.73	0.82	0.85	442
300	400	355M/L	196	8.3	2.4	2.5	10.3	17	37	1750	79.0	1490	95.3	96.0	96.3	0.75	0.83	0.86	523
315	430	355M/L	206	8.1	2.1	2.7	10.8	33	73	1770	79.0	1490	95.4	96.0	96.3	0.78	0.85	0.88	537
High Output Design																			
0.75	1	90S	0.500	7.8	2.4	3.3	0.0049	11	24	22.1	49.0	1475	75.0	80.0	82.5	0.43	0.57	0.67	1.96
1.1	1.5	90L	0.740	6.5	2.1	2.7	0.0055	15	33	24.3	49.0	1450	82.2	84.1	84.1	0.59	0.70	0.78	2.42
1.5	2	100L	1.01	7.8	2.4	3.1	0.0082	10	22	31.3	53.0	1450	84.0	85.5	85.5	0.55	0.68	0.76	3.33
2.2	3	112M	1.48	6.8	2.0	3.0	0.0143	31	68	44.9	56.0	1450	87.5	88.2	88.2	0.62	0.74	0.81	4.44
3	4	112M	2.02	7.8	2.2	2.6	0.0169	15	33	46.0	56.0	1445	87.5	87.7	87.7	0.64	0.76	0.82	6.02
5.5	7.5	132M	3.66	8.2	2.1	2.9	0.0528	15	33	65.4	56.0	1465	87.5	89.0	89.6	0.67	0.79	0.85	10.4
110	150	280S/M	72.2	8.0	2.5	3.3	3.33	16	35	860	77.0	1485	95.0	95.4	95.4	0.74	0.83	0.86	194
200	270	315S/M*	131	9.3	3.2	3.6	3.80	11	24	1005	77.0	1485	95.2	95.7	96.0	0.67	0.78	0.82	367

Note:
(1) According to GB 18613-2020 standard, the efficiency value is measured at direct start-up.
(2) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - GB3 (1) - IE3 (2)

Output		380 V								415 V							
		Rated speed	% of full load					Full load current		Rated speed	% of full load					Full load current	
			Efficiency			Power Factor					Efficiency			Power Factor			
kW	HP	(rpm)	50	75	100	50	75	100	In (A)	(rpm)	50	75	100	50	75	100	In (A)
2P - 50Hz																	
0.75	1	2855	75.4	78.3	80.7	0.62	0.74	0.82	1.72	2880	73.1	77.4	80.7	0.54	0.68	0.77	1.68
1.1	1.5	2810	81.0	83.0	83.0	0.69	0.80	0.85	2.37	2840	81.0	83.0	83.0	0.58	0.72	0.79	2.33
1.5	2	2895	82.5	83.7	84.2	0.69	0.80	0.85	3.18	2920	80.2	83.2	84.2	0.59	0.72	0.80	3.10
2.2	3	2865	84.0	85.0	85.9	0.70	0.81	0.86	4.52	2890	83.0	85.0	85.9	0.61	0.74	0.81	4.40
3	4	2885	84.5	86.0	87.2	0.75	0.84	0.88	5.94	2905	84.5	86.5	87.2	0.66	0.78	0.84	5.70
4	5.5	2890	87.0	88.0	88.3	0.73	0.83	0.88	7.82	2910	87.0	88.0	88.3	0.65	0.77	0.84	7.50
5.5	7.5	2935	87.0	88.0	89.2	0.76	0.85	0.89	10.5	2945	87.0	88.0	89.2	0.68	0.79	0.85	10.1
7.5	10	2915	89.5	90.1	90.1	0.74	0.83	0.88	14.4	2930	89.5	90.1	90.1	0.64	0.76	0.83	14.0
9.2	12.5	2920	89.5	90.5	91.0	0.73	0.83	0.87	17.7	2935	89.5	90.5	91.0	0.63	0.76	0.82	17.2
11	15	2950	89.5	90.5	91.2	0.75	0.84	0.87	21.1	2960	88.5	90.5	91.2	0.66	0.78	0.83	20.2
15	20	2940	90.5	91.5	91.9	0.75	0.84	0.87	28.5	2950	89.0	91.0	91.9	0.64	0.76	0.82	27.7
18.5	25	2935	91.0	91.5	92.4	0.78	0.85	0.88	34.6	2945	90.0	91.5	92.4	0.68	0.79	0.84	33.2
22	30	2955	92.0	92.7	92.7	0.73	0.82	0.86	41.9	2965	91.5	92.7	92.7	0.66	0.77	0.83	39.8
30	40	2960	92.0	93.0	93.3	0.80	0.86	0.88	55.5	2970	92.0	93.0	93.0	0.73	0.82	0.86	52.2
37	50	2955	93.0	93.5	93.7	0.78	0.85	0.87	69.0	2965	92.0	93.5	93.7	0.69	0.79	0.84	65.4
45	60	2960	92.6	93.6	94.0	0.81	0.86	0.88	82.7	2970	92.4	93.6	94.0	0.76	0.83	0.86	77.4
55	75	2950	93.5	94.0	94.3	0.81	0.87	0.89	99.6	2960	93.5	94.0	94.3	0.74	0.83	0.87	93.3
75	100	2970	92.5	94.0	94.7	0.81	0.87	0.89	135	2975	92.5	94.0	94.7	0.76	0.84	0.88	125
90	125	2970	93.5	94.5	95.0	0.83	0.88	0.90	160	2975	93.5	94.5	95.0	0.78	0.86	0.89	148
110	150	2975	94.0	95.0	95.2	0.85	0.89	0.91	193	2980	94.0	95.0	95.2	0.77	0.87	0.90	179
132	175	2970	94.7	95.4	95.4	0.81	0.88	0.89	236	2975	94.7	95.4	95.4	0.75	0.86	0.88	219
160	220	2975	95.0	95.8	95.8	0.81	0.87	0.90	282	2980	94.8	95.8	95.8	0.77	0.85	0.88	264
200	270	2980	94.0	95.0	95.8	0.89	0.91	0.91	349	2985	94.0	95.2	95.8	0.87	0.89	0.91	319
High Output Design																	
0.75	1	2910	79.5	82.5	82.5	0.68	0.78	0.84	1.64	2925	78.4	82.3	83.1	0.60	0.72	0.79	1.59
1.1	1.5	2880	82.6	84.2	84.0	0.68	0.79	0.84	2.37	2900	81.4	84.0	84.7	0.59	0.72	0.80	2.26
1.5	2	2860	83.0	84.0	84.5	0.69	0.80	0.85	3.17	2885	83.0	84.0	84.5	0.59	0.72	0.80	3.09
4	5.5	2940	85.5	87.5	88.1	0.74	0.83	0.87	7.93	2955	84.7	87.5	88.1	0.67	0.78	0.83	7.61
5.5	7.5	2935	87.0	88.0	89.2	0.76	0.85	0.89	10.5	2945	87.0	88.0	89.2	0.68	0.79	0.85	10.1
7.5	10	2930	88.5	89.4	90.1	0.75	0.84	0.88	14.4	2945	87.8	89.4	90.1	0.67	0.78	0.84	13.8
11	15	2915	90.9	91.0	91.2	0.80	0.87	0.90	20.4	2930	90.2	91.1	91.4	0.72	0.82	0.87	19.2
15	20	2940	90.5	91.5	91.9	0.75	0.84	0.87	28.5	2950	89.0	91.0	91.9	0.64	0.76	0.82	27.7
22	30	2955	92.0	92.7	92.7	0.73	0.82	0.86	41.9	2965	91.5	92.7	92.7	0.66	0.77	0.83	39.8
110	150	2975	94.0	95.0	95.2	0.85	0.89	0.91	193	2980	94.0	95.0	95.2	0.77	0.87	0.90	179
200	270	2975	95.0	95.8	95.9	0.82	0.87	0.89	356	2980	95.0	95.8	95.9	0.78	0.84	0.87	333
4P - 50Hz																	
0.55	0.75	1410	78.0	79.1	80.8	0.65	0.77	0.83	1.25	1430	76.0	78.9	80.8	0.57	0.71	0.77	1.23
0.75	1	1425	79.0	81.5	82.5	0.59	0.73	0.82	1.68	1435	77.0	81.0	82.5	0.50	0.62	0.72	1.76
1.1	1.5	1440	83.5	84.1	84.1	0.64	0.74	0.81	2.45	1455	80.9	84.1	84.1	0.55	0.69	0.76	2.39
1.5	2	1445	85.0	86.2	85.6	0.63	0.76	0.83	3.21	1455	83.1	85.7	86.1	0.54	0.68	0.77	3.15
2.2	3	1430	87.2	87.1	86.7	0.65	0.77	0.83	4.64	1440	85.7	86.8	87.2	0.57	0.70	0.78	4.50
3	4	1430	87.7	88.0	87.7	0.65	0.77	0.83	6.26	1445	86.3	87.7	88.1	0.56	0.70	0.78	6.07
4	5.5	1445	86.0	88.0	88.8	0.65	0.76	0.81	8.25	1455	86.0	88.0	88.8	0.57	0.70	0.77	7.93
5.5	7.5	1460	88.5	89.0	89.6	0.71	0.82	0.87	10.7	1470	86.5	89.0	89.6	0.64	0.76	0.83	10.3
7.5	10	1460	88.5	90.0	90.6	0.71	0.81	0.86	14.6	1470	86.5	90.0	90.6	0.63	0.75	0.83	13.9
11	15	1465	89.8	90.0	91.4	0.66	0.78	0.83	22.0	1470	88.2	89.8	91.4	0.58	0.71	0.78	21.5
15	20	1460	90.2	90.6	92.1	0.68	0.79	0.84	29.5	1465	89.0	90.3	92.1	0.60	0.73	0.79	28.7
18.5	25	1465	91.0	92.2	92.6	0.73	0.80	0.85	35.7	1470	91.0	92.2	92.6	0.65	0.75	0.81	34.3
22	30	1465	92.0	93.0	93.0	0.70	0.80	0.85	42.3	1470	90.9	93.0	93.0	0.66	0.76	0.83	39.7
30	40	1475	93.0	93.6	93.6	0.68	0.79	0.84	58.0	1480	93.0	93.6	93.6	0.60	0.72	0.79	56.4
37	50	1480	93.0	93.9	93.9	0.74	0.83	0.86	69.6	1480	93.0	93.9	93.9	0.66	0.77	0.82	66.9
45	60	1475	94.0	94.2	94.2	0.77	0.85	0.87	83.4	1480	94.0	94.2	94.2	0.71	0.81	0.85	78.2
55	75	1475	94.2	94.6	94.6	0.72	0.82	0.86	103	1480	94.2	94.6	94.6	0.66	0.78	0.83	97.5
75	100	1485	94.5	95.0	95.0	0.74	0.82	0.85	141	1485	94.5	95.0	95.0	0.67	0.78	0.82	134
90	125	1480	95.0	95.2	95.2	0.75	0.83	0.86	167	1485	95.0	95.2	95.2	0.68	0.78	0.83	158
110	150	1480	95.0	95.4	95.4	0.78	0.84	0.87	201	1485	95.0	95.4	95.4	0.72	0.81	0.85	189
132	175	1480	95.0	95.6	95.6	0.78	0.86	0.88	238	1485	95.0	95.6	95.6	0.73	0.84	0.86	223
160	220	1480	95.2	95.7	95.8	0.77	0.85	0.88	288	1485	95.0	95.7	95.8	0.70	0.83	0.85	273
200	270	1485	95.0	95.7	96.0	0.81	0.86	0.88	360	1490	94.7	95.7	96.0	0.77	0.84	0.86	337
250	340	1490	95.4	96.0	96.0	0.76	0.84	0.86	460	1490	95.2	96.0	96.0	0.70	0.80	0.84	431
300	400	1490	95.3	96.0	96.3	0.75	0.83	0.86	550	1490	95.2	96.0	96.3	0.70	0.80	0.84	516
315	430	1490	95.4	96.0	96.3	0.81	0.86	0.88	565	1490	95.4	96.0	96.3	0.75	0.83	0.87	523
High Output Design																	
0.75	1	1450	77.5	81.5	82.5	0.47	0.61	0.71	1.95	1475	73.1	78.8	82.5	0.41	0.53	0.64	1.98
1.1	1.5	1440	83.5	84.1	84.1	0.64	0.74	0.81	2.45	1455	80.9	84.1	84.1	0.55	0.69	0.76	2.39
1.5	2	1440	84.0	85.5	85.5	0.58	0.71	0.79	3.37	1450	83.0	85.5	85.5	0.52	0.66	0.74	3.30
2.2	3	1445	87.9	88.1	87.6	0.66	0.77	0.83	4.60	1455	87.2	88.2	88.5	0.59	0.72	0.79	4.38
3	4	1440	87.5	87.7	87.7	0.68	0.79	0.84	6.19	1450	87.5	87.7	87.7	0.61	0.73	0.80	5.95
5.5	7.5	1460	88.5	89.0	89.6	0.71	0.82	0.87	10.7	1470	86.5	89.0	89.6	0.64	0.76	0.83	10.3
110	150	1480	95.0	95.4	95.4	0.78	0.84	0.87	201	1485	95.0	95.4	95.4	0.72	0.81	0.85	189
200	270	1485	95.5	95.8	96.0	0.71	0.80	0.84	377	1485	95.0	95.6	96.0	0.64	0.75	0.81	358

Note:
(1) According to GB 18613-2020 standard, the efficiency value is measured at direct start-up.
(2) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - GB3 (1) - IE3 (2)

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current Il/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kgm2)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	400 V							
												Rated speed (rpm)	% of full load						Full load current In (A)
													Efficiency			Power Factor			
kW	HP							Hot	Cold				50	75	100	50	75	100	
6P - 50Hz																			
0.25	0.33	80	0.250	4.3	1.7	2.4	0.0029	25	55	12.0	43.0	955	63.6	68.5	68.8	0.47	0.60	0.71	0.739
0.37	0.5	80	0.390	4.5	1.9	2.1	0.0025	25	55	13.9	43.0	925	66.0	69.5	73.5	0.51	0.65	0.75	0.969
0.55	0.75	L80	0.570	5.1	2.9	3.1	0.0034	20	44	18.0	43.0	945	70.5	75.2	77.2	0.45	0.58	0.69	1.49
0.75	1	L90S	0.780	5.2	2.5	2.8	0.0066	31	68	25.7	45.0	940	77.0	78.0	79.0	0.49	0.62	0.71	1.93
3	4	132S	3.01	6.0	1.9	2.5	0.0566	28	62	66.9	53.0	970	84.0	85.0	85.6	0.52	0.65	0.73	6.93
4	5.5	132M	4.06	6.5	2.2	2.5	0.0566	30	66	73.3	53.0	960	85.0	86.0	86.8	0.53	0.66	0.74	8.99
5.5	7.5	132M/L	5.55	7.0	2.5	2.8	0.0755	26	57	79.0	53.0	965	86.0	87.0	88.0	0.50	0.64	0.72	12.5
7.5	10	160M	7.49	6.7	2.5	2.9	0.1614	19	42	129	56.0	975	86.0	88.5	89.1	0.61	0.74	0.80	15.2
11	15	160L	11.0	7.0	2.7	3.1	0.1891	11	24	145	56.0	975	89.0	90.0	90.3	0.58	0.71	0.78	22.5
15	20	180L	15.0	7.7	2.6	3.2	0.3310	10	22	179	56.0	975	90.5	91.0	91.2	0.65	0.78	0.84	28.3
18.5	25	200L	18.5	6.3	2.3	2.5	0.3861	17	37	228	58.0	975	90.5	91.8	92.0	0.65	0.76	0.82	35.4
22	30	200L	22.0	6.2	2.3	2.6	0.4388	15	33	251	58.0	975	90.4	92.0	92.2	0.65	0.75	0.82	42.0
30	40	225S/M	29.7	7.0	2.6	2.6	0.9716	21	46	366	61.0	985	91.0	92.2	93.0	0.73	0.81	0.85	54.8
37	50	250S/M	36.8	7.0	2.6	2.8	1.29	15	33	450	61.0	980	92.5	93.0	93.3	0.72	0.81	0.85	67.3
45	60	280S/M	44.3	6.8	2.1	2.8	2.36	27	59	610	66.0	990	93.2	93.7	93.7	0.67	0.77	0.82	84.5
55	75	280S/M	54.1	6.0	2.3	2.6	2.81	20	44	655	66.0	990	93.5	94.1	94.1	0.67	0.77	0.82	103
75	100	315S/M	73.8	7.5	2.7	3.1	3.59	15	33	725	69.0	990	94.0	94.6	94.6	0.62	0.74	0.80	143
90	125	315S/M	88.6	7.8	2.8	3.3	5.05	16	35	810	69.0	990	94.3	94.8	95.0	0.66	0.77	0.82	167
110	150	315S/M	109	6.5	2.2	2.4	5.14	18	40	980	69.0	985	95.0	95.1	95.1	0.69	0.79	0.84	199
110	150	355M/L	108	6.7	2.2	3.0	9.28	40	88	1460	73.0	995	93.7	95.0	95.2	0.59	0.71	0.78	214
132	175	355M/L	129	6.2	2.0	2.7	10.4	40	88	1600	73.0	995	94.2	95.2	95.5	0.63	0.74	0.80	249
150	200	355M/L	147	6.6	2.2	2.8	11.1	60	132	1650	73.0	995	94.4	95.3	95.7	0.61	0.73	0.79	286
160	220	355M/L	157	6.2	2.0	2.6	11.1	60	132	1650	73.0	990	94.4	95.3	95.6	0.63	0.74	0.80	302
185	250	355M/L	181	6.0	1.9	2.5	11.6	60	132	1700	73.0	995	94.7	95.6	95.8	0.65	0.76	0.81	344
220	300	355M/L	215	5.7	1.9	2.3	13.5	60	132	1795	73.0	995	95.0	95.6	95.8	0.68	0.77	0.82	404
250	340	355M/L	246	6.1	2.1	2.6	14.4	60	132	1890	73.0	990	95.0	95.7	95.8	0.64	0.74	0.80	471
High Output Design																			
0.75	1	90L	0.780	5.2	2.5	2.8	0.0066	31	68	25.7	45.0	940	77.0	78.0	79.0	0.49	0.62	0.71	1.93
1.1	1.5	112M	1.12	5.9	2.3	2.8	0.0220	28	62	36.5	49.0	955	84.0	85.0	85.0	0.52	0.64	0.72	2.59
1.5	2	112M	1.52	6.0	2.1	2.8	0.0202	28	62	39.8	49.0	960	84.5	85.5	85.5	0.51	0.63	0.71	3.57
2.2	3	132S	2.21	5.7	1.8	2.7	0.0491	30	66	60.1	53.0	970	86.0	87.5	87.5	0.52	0.64	0.72	5.04
3	4	132M	3.01	6.0	1.9	2.5	0.0566	28	62	66.9	53.0	970	84.0	85.0	85.6	0.52	0.65	0.73	6.93
5.5	7.5	L132M/L	5.55	7.0	2.5	2.8	0.0755	26	57	79.0	53.0	965	86.0	87.0	88.0	0.50	0.64	0.72	12.5
75	100	280S/M	73.8	7.5	2.7	3.1	3.59	15	33	725	69.0	990	94.0	94.6	94.6	0.62	0.74	0.80	143
8P - 50Hz																			
0.18	0.25	80	0.260	3.3	2.0	2.2	0.0029	30	66	15.0	42.0	680	51.0	57.0	58.7	0.45	0.55	0.65	0.681
0.25	0.33	80	0.350	3.5	2.0	2.2	0.0034	30	66	15.5	42.0	695	53.0	60.0	64.1	0.42	0.52	0.63	0.894
0.37	0.5	90S	0.520	3.7	2.1	2.4	0.0055	30	66	19.0	44.0	690	61.0	66.0	69.3	0.41	0.53	0.62	1.24
0.55	0.75	90L	0.780	3.6	1.8	2.1	0.0066	29	64	23.0	44.0	685	63.0	72.5	73.0	0.44	0.57	0.67	1.62
0.75	1	100L	1.03	4.6	1.9	2.3	0.0127	30	66	33.6	50.0	710	72.5	75.5	75.5	0.41	0.53	0.62	2.31
1.1	1.5	100L	1.52	4.6	2.1	2.4	0.0143	30	66	35.9	50.0	705	73.0	76.0	77.7	0.41	0.53	0.62	3.30
1.5	2	112M	2.07	5.0	2.5	2.8	0.0238	28	62	45.8	46.0	705	79.0	80.5	80.5	0.45	0.59	0.68	3.96
2.2	3	132S	3.02	6.2	2.3	2.5	0.0690	27	59	66.7	48.0	710	82.0	82.6	82.6	0.51	0.65	0.72	5.34
3	4	132M	4.12	7.5	2.4	2.6	0.0838	21	46	74.4	48.0	710	82.5	83.5	83.5	0.51	0.64	0.72	7.20
4	5.5	160M	5.34	5.6	2.1	3.1	0.1221	15	33	107	51.0	730	81.0	83.0	84.8	0.48	0.61	0.70	9.73
5.5	7.5	160M	7.34	5.7	2.4	3.2	0.1652	20	44	130	53.0	730	84.0	86.0	86.2	0.49	0.62	0.71	13.0
7.5	10	160L	10.1	5.3	2.2	2.8	0.1652	19	42	134	53.0	725	86.0	87.0	87.3	0.54	0.66	0.74	16.8
11	15	180L	14.8	7.5	2.6	3.0	0.3034	8	18	183	51.0	725	88.0	88.6	88.6	0.61	0.73	0.80	22.4
15	20	200L	20.0	5.5	2.1	2.2	0.5023	20	44	257	53.0	730	88.0	89.6	89.6	0.52	0.65	0.72	33.6
18.5	25	225S/M	24.5	7.3	1.9	2.8	0.8472	18	40	340	60.0	735	90.5	91.0	91.0	0.65	0.76	0.82	35.8
22	30	225S/M	29.4	7.5	2.0	3.0	1.20	15	33	365	60.0	730	90.8	91.0	91.0	0.60	0.73	0.80	43.6
30	40	250S/M	39.8	8.7	2.5	3.2	1.22	17	37	440	60.0	735	90.3	91.0	91.5	0.62	0.74	0.81	58.4
37	50	280S/M	48.7	7.5	1.9	2.6	2.64	20	44	590	62.0	740	91.8	92.0	92.0	0.58	0.70	0.76	76.4
45	60	280S/M	59.1	6.5	2.0	2.4	3.10	32	70	650	62.0	742	92.5	92.8	93.0	0.55	0.67	0.74	94.4
55	75	315S/M	72.3	5.8	1.7	2.3	3.45	32	70	730	62.0	741	93.0	93.4	93.5	0.63	0.74	0.77	110
75	100	315S/M	98.7	6.6	1.9	2.4	4.37	20	44	876	62.0	740	93.5	93.8	94.0	0.60	0.72	0.77	150
High Output Design																			
55	75	280S/M	72.1	7.0	2.4	2.9	3.38	24	53	730	62.0	743	92.8	93.5	93.6	0.55	0.65	0.72	118

Note:
(1) According to GB 18613-2020 standard, the efficiency value is measured at direct start-up.
(2) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - GB3 (1) - IE3 (2)

Output		380 V								415 V							
		Rated speed (rpm)	% of full load						Full load current In (A)	Rated speed (rpm)	% of full load						Full load current In (A)
			Efficiency			Power Factor					Efficiency			Power Factor			
kW	HP		50	75	100	50	75	100			50	75	100	50	75	100	
6P - 50Hz																	
0.25	0.33	950	65.9	68.0	68.6	0.51	0.64	0.74	0.748	960	61.7	68.2	68.8	0.45	0.57	0.68	0.743
0.37	0.5	915	67.6	69.9	73.5	0.55	0.69	0.79	0.968	930	64.3	68.8	73.5	0.48	0.62	0.72	0.973
0.55	0.75	940	73.4	76.7	77.2	0.49	0.63	0.73	1.48	950	67.9	75.0	77.2	0.42	0.55	0.65	1.52
0.75	1	930	77.0	78.0	79.0	0.53	0.66	0.74	1.95	945	77.0	78.0	79.0	0.46	0.59	0.69	1.91
3	4	965	84.0	85.0	85.6	0.56	0.69	0.76	7.01	975	83.0	85.0	85.6	0.49	0.62	0.71	6.87
4	5.5	955	85.0	86.0	86.8	0.57	0.70	0.76	9.21	965	85.0	86.0	86.8	0.50	0.63	0.71	9.03
5.5	7.5	960	85.5	87.0	88.0	0.55	0.68	0.75	12.7	965	86.0	87.0	88.0	0.47	0.61	0.69	12.6
7.5	10	970	86.5	88.5	89.1	0.65	0.76	0.82	15.6	975	85.5	88.5	89.1	0.58	0.71	0.79	14.8
11	15	970	89.0	90.0	90.3	0.62	0.74	0.81	22.8	975	89.0	90.0	90.3	0.55	0.68	0.76	22.3
15	20	970	90.0	91.0	91.2	0.68	0.80	0.85	29.4	975	90.5	91.0	91.2	0.69	0.80	0.85	26.9
18.5	25	970	90.5	91.8	92.0	0.69	0.79	0.84	36.4	980	90.0	91.8	92.0	0.64	0.75	0.80	35.0
22	30	970	91.0	92.0	92.2	0.70	0.78	0.84	43.2	980	89.5	91.5	92.2	0.60	0.72	0.80	41.5
30	40	980	91.0	92.2	93.0	0.76	0.84	0.86	57.0	985	90.5	92.2	93.0	0.70	0.79	0.84	53.4
37	50	980	92.5	93.0	93.3	0.75	0.83	0.86	70.1	985	92.5	93.0	93.3	0.69	0.79	0.84	65.7
45	60	985	93.2	93.7	93.7	0.70	0.79	0.83	87.9	990	93.0	93.7	93.7	0.64	0.75	0.80	83.5
55	75	985	93.5	94.1	94.1	0.70	0.79	0.83	107	990	93.5	94.1	94.1	0.64	0.75	0.80	102
75	100	990	94.0	94.6	94.6	0.66	0.77	0.82	147	990	94.0	94.6	94.6	0.58	0.71	0.78	141
90	125	990	94.3	94.8	95.0	0.70	0.79	0.84	171	990	94.3	94.8	95.0	0.63	0.75	0.81	163
110	150	985	95.0	95.1	95.1	0.73	0.81	0.85	207	985	94.9	95.1	95.2	0.66	0.77	0.83	194
110	150	995	94.0	95.0	95.2	0.63	0.74	0.80	219	995	93.4	94.5	95.2	0.56	0.68	0.76	212
132	175	990	94.5	95.2	95.5	0.66	0.76	0.81	259	995	94.0	95.2	95.5	0.60	0.72	0.78	247
150	200	995	94.5	95.3	95.7	0.65	0.76	0.81	294	995	94.1	95.2	95.7	0.58	0.71	0.77	283
160	220	990	94.5	95.3	95.6	0.67	0.77	0.82	310	990	94.1	95.2	95.6	0.60	0.72	0.79	295
185	250	995	95.1	95.6	95.8	0.70	0.78	0.82	358	995	94.4	95.4	95.8	0.60	0.74	0.79	340
220	300	995	95.1	95.6	95.8	0.71	0.79	0.83	420	995	94.9	95.6	95.8	0.65	0.75	0.81	394
250	340	990	95.0	95.7	95.8	0.68	0.77	0.82	484	990	94.6	95.7	95.8	0.60	0.72	0.78	465
High Output Design																	
0.75	1	930	77.0	78.0	79.0	0.53	0.66	0.74	1.95	945	77.0	78.0	79.0	0.46	0.59	0.69	1.91
1.1	1.5	950	85.0	85.4	85.0	0.55	0.70	0.77	2.55	955	83.2	84.5	84.9	0.48	0.62	0.70	2.58
1.5	2	955	85.1	85.4	84.9	0.54	0.66	0.74	3.63	960	84.0	85.4	85.8	0.48	0.60	0.69	3.52
2.2	3	965	86.5	87.5	87.1	0.55	0.67	0.74	5.19	973	85.6	87.4	87.7	0.48	0.61	0.70	4.99
3	4	965	84.0	85.0	85.6	0.56	0.69	0.76	7.01	975	83.0	85.0	85.6	0.49	0.62	0.71	6.87
5.5	7.5	960	85.5	87.0	88.0	0.55	0.68	0.75	12.7	965	86.0	87.0	88.0	0.47	0.61	0.69	12.6
75	100	990	94.0	94.6	94.6	0.66	0.77	0.82	147	990	94.0	94.6	94.6	0.58	0.71	0.78	141
8P - 50Hz																	
0.18	0.25	670	52.8	58.0	58.7	0.48	0.59	0.69	0.675	685	49.3	56.0	58.7	0.43	0.53	0.62	0.688
0.25	0.33	685	54.0	60.0	64.1	0.44	0.57	0.67	0.884	705	56.0	62.0	64.3	0.39	0.50	0.60	0.902
0.37	0.5	680	62.9	66.9	69.3	0.44	0.56	0.66	1.23	695	59.0	64.7	69.3	0.39	0.50	0.59	1.26
0.55	0.75	675	64.8	70.0	73.0	0.48	0.61	0.70	1.64	690	61.4	72.5	73.0	0.42	0.54	0.64	1.64
0.75	1	705	73.9	76.1	75.1	0.44	0.57	0.66	2.30	715	71.1	74.8	75.5	0.38	0.50	0.59	2.34
1.1	1.5	700	74.9	76.8	77.7	0.45	0.58	0.66	3.26	710	71.1	74.9	77.7	0.38	0.50	0.59	3.34
1.5	2	700	79.9	80.6	79.8	0.49	0.63	0.71	4.02	710	77.9	80.2	80.8	0.42	0.56	0.65	3.97
2.2	3	705	82.9	82.6	81.9	0.57	0.68	0.76	5.37	715	81.2	82.3	82.9	0.48	0.62	0.70	5.27
3	4	705	83.4	83.5	83.5	0.56	0.68	0.75	7.28	715	81.5	83.2	83.5	0.48	0.61	0.70	7.14
4	5.5	730	82.0	83.5	84.8	0.52	0.65	0.73	9.82	735	80.0	83.0	84.8	0.46	0.59	0.68	9.65
5.5	7.5	725	85.0	86.0	86.2	0.53	0.66	0.73	13.3	730	83.0	85.5	86.2	0.46	0.59	0.68	13.1
7.5	10	720	86.5	87.0	87.3	0.58	0.70	0.76	17.2	730	85.5	87.0	87.3	0.51	0.64	0.72	16.6
11	15	725	88.0	88.6	88.6	0.66	0.77	0.83	22.7	730	88.0	88.6	88.6	0.57	0.70	0.77	22.4
15	20	730	88.5	89.6	89.6	0.58	0.69	0.75	33.9	730	87.0	89.6	89.6	0.48	0.61	0.69	33.8
18.5	25	730	90.8	91.0	91.0	0.69	0.79	0.83	37.2	735	90.0	91.0	91.0	0.61	0.73	0.80	35.4
22	30	730	90.8	91.0	91.0	0.64	0.76	0.82	44.8	735	90.8	91.0	91.0	0.57	0.70	0.78	43.1
30	40	730	90.3	91.0	91.5	0.66	0.77	0.83	60.0	735	90.3	91.0	91.5	0.58	0.71	0.79	57.7
37	50	740	91.8	92.0	92.0	0.62	0.73	0.78	78.3	740	91.8	92.0	92.0	0.54	0.67	0.74	75.6
45	60	740	92.5	92.8	93.0	0.60	0.71	0.77	95.5	743	92.5	92.8	93.0	0.52	0.64	0.71	94.8
55	75	740	93.0	93.4	93.5	0.66	0.75	0.78	115	742	93.0	93.4	93.5	0.60	0.72	0.76	108
75	100	740	93.0	93.5	93.8	0.64	0.75	0.79	154	741	93.5	93.8	94.0	0.56	0.69	0.75	148
High Output Design																	
55	75	742	93.0	93.5	93.6	0.60	0.70	0.76	117	743	92.5	93.5	93.6	0.52	0.63	0.70	117

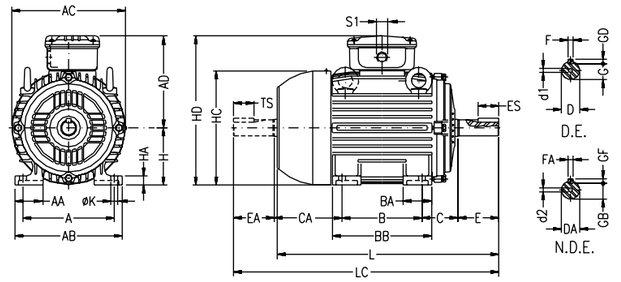
Note:
(1) According to GB 18613-2020 standard, the efficiency value is measured at direct start-up.
(2) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

W21-Cast iron frame motor - GB2 (1) - IE4 (2)

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current Il/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kgm2)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	380 V							
												Rated speed (rpm)	% of full load						Full load current In (A)
													Efficiency			Power Factor			
kW	HP							Hot	Cold				50	75	100	50	75	100	
2P - 50Hz																			
2.2	3	L100L	0.729	9.5	3.2	4.0	0.0075	20	44	40.0	67	2940	87.0	87.5	88.0	0.66	0.78	0.84	4.52
3	4	L100L	1.00	9.5	3.8	3.8	0.0080	15	33	41.0	67	2915	88.5	89.0	89.1	0.74	0.84	0.88	5.81
4	5.5	L112M	1.33	9.5	3.2	4.3	0.0109	27	59	54.0	62	2930	88.2	90.1	90.3	0.65	0.77	0.83	8.11
5.5	7.5	132S	1.83	9.5	3.1	3.8	0.0252	25	55	69.0	63	2935	88.6	90.0	90.9	0.70	0.80	0.85	10.8
7.5	10	132M	2.48	8.4	2.8	3.4	0.0285	25	55	73.0	63	2940	90.2	91.4	92.1	0.70	0.80	0.85	14.6
9.2	12.5	L132M/L	3.05	8.7	2.7	3.4	0.0356	20	44	79.0	63	2940	91.3	92.2	92.5	0.72	0.83	0.87	17.4
11	15	160M	3.64	8.5	3.5	3.5	0.0557	25	55	120	70	2945	91.0	92.2	92.6	0.72	0.81	0.86	21.0
15	20	160L	4.95	9.2	3.3	3.8	0.0641	17	37	126	70	2950	91.0	92.3	93.4	0.71	0.80	0.85	28.7
18.5	25	L160L	6.11	9.3	3.3	3.7	0.0752	15	33	144	70	2950	91.5	92.5	93.8	0.73	0.82	0.86	34.8
22	30	180L	7.21	9.5	2.9	3.6	0.1301	20	44	176	70	2970	92.7	93.8	94.4	0.68	0.79	0.84	42.2
30	40	200L	9.84	7.8	3	3.5	0.2119	26	57	265	74	2970	93.4	94.4	94.5	0.70	0.81	0.85	56.7
37	50	200L	12.1	7.5	3	3.2	0.2373	22	48	275	74	2970	93.2	94.1	94.8	0.74	0.83	0.86	69.0
45	60	225S/M	14.7	8.5	3	3.9	0.4924	34	75	425	82	2975	94.4	95.1	95.1	0.78	0.86	0.89	80.8
55	75	250S/M	18.0	7.8	2.9	3.4	0.6068	32	70	520	82	2970	95.2	95.4	95.4	0.80	0.87	0.90	97.3
75	100	280S/M	24.5	7.9	2.6	3.3	1.47	56	123	800	83	2980	93.4	94.8	95.6	0.80	0.87	0.90	132
90	125	280S/M	29.4	7.8	2.5	3.3	1.62	44	97	890	83	2980	94.2	95.3	95.8	0.80	0.87	0.90	159
110	150	315S/M	35.9	8.0	2.3	3.4	1.53	78	172	992	83	2985	94.6	95.7	96.0	0.76	0.84	0.89	196
132	175	315S/M	43.1	7.5	2.3	3	1.62	65	143	1095	83	2980	95.3	96.0	96.2	0.82	0.88	0.91	229
150	200	315S/M	49.0	7.8	2	3	2.06	50	110	1197	83	2980	95.4	96.1	96.3	0.78	0.86	0.90	263
160	220	315S/M	52.3	8.5	3.1	4	2.10	40	88	1197	83	2980	95.7	96.2	96.3	0.78	0.87	0.90	280
280	380	355M/L	91.4	7.5	2.1	3	5.36	43	95	1664	81	2985	96.0	96.5	96.5	0.86	0.91	0.91	484
300	400	355M/L	97.9	7.0	2	3	5.68	41	90	1751	81	2985	96.0	96.5	96.5	0.88	0.92	0.92	513
315	430	355M/L	103	7.5	2.4	3	6.01	30	66	1838	81	2985	96.0	96.5	96.5	0.89	0.92	0.92	539
4P - 50Hz																			
1.1	1.5	L90L	0.736	8.0	2.9	3.4	0.0077	20	44	30.0	49	1455	86.0	87.0	87.4	0.55	0.68	0.76	2.52
1.5	2	L100L	1.00	8.0	4	4	0.0112	20	44	39.0	53	1455	87.5	88.1	88.2	0.55	0.68	0.76	3.40
2.2	3	112M	1.46	8.0	2.5	3.5	0.0169	25	55	49.0	56	1465	88.8	89.7	89.7	0.58	0.71	0.78	4.78
3	4	L112M	1.99	7.5	2.8	3.8	0.0206	20	44	53.0	56	1465	88.9	89.5	90.4	0.55	0.68	0.74	6.81
5.5	7.5	L132S	3.63	8.8	2.9	3.5	0.0638	19	42	78.0	56	1475	91.4	92.1	92.1	0.61	0.74	0.82	11.1
7.5	10	L132M/L	4.95	9.3	3.2	4	0.0788	16	35	84.0	56	1475	91.6	92.6	92.6	0.60	0.73	0.81	15.2
9.2	12.5	160M	6.08	8.6	3.4	3.6	0.1071	18	40	115	67	1475	90.0	91.5	93.1	0.60	0.72	0.80	18.8
11	15	L160L	7.26	8.7	3.4	3.6	0.1409	18	40	152	67	1475	90.5	92.0	93.6	0.61	0.73	0.80	22.3
15	20	180M	9.87	8.0	3	3.2	0.2088	27	59	170	64	1480	92.4	93.4	94.0	0.64	0.76	0.82	29.6
18.5	25	180L	12.2	7.8	2.9	3.2	0.2437	27	59	185	64	1475	92.9	93.7	94.3	0.66	0.77	0.84	35.5
22	30	200L	14.5	7.6	3.3	3.8	0.3743	33	73	284	69	1480	93.6	94.5	94.7	0.64	0.76	0.82	43.0
30	40	200L	19.7	7.6	3	3.2	0.3979	19	42	284	69	1480	93.6	94.4	95.0	0.60	0.73	0.81	59.2
37	50	225S/M	24.3	8.5	2.9	3.3	0.9810	28	62	430	70	1485	94.8	95.3	95.3	0.68	0.79	0.84	70.2
45	60	L225S/M	29.5	8.5	2.9	3.3	1.04	22	48	440	70	1485	94.8	95.4	95.6	0.64	0.76	0.82	87.2
55	75	250S/M	36.1	8.2	3	3.4	1.21	20	44	530	70	1485	95.0	95.5	95.8	0.67	0.78	0.83	105
75	100	280S/M	49.0	7.9	2.9	2.9	2.78	45	99	830	72	1490	95.6	96.0	96.0	0.70	0.80	0.84	141
90	125	280S/M	58.8	9.8	3.1	3.7	3.40	33	73	895	72	1490	95.5	96.2	96.2	0.70	0.80	0.85	167
110	150	315S/M	71.9	7.4	2.7	3.3	3.33	31	68	1150	72	1490	96.3	96.4	96.4	0.75	0.83	0.86	202
132	175	315S/M	86.3	8.0	2.8	3.5	3.40	22	48	1332	72	1490	96.1	96.4	96.5	0.71	0.81	0.86	242
220	300	355M/L	144	7.0	2.6	2.8	8.95	52	114	1670	79	1490	95.9	96.5	96.7	0.75	0.83	0.85	407
250	340	355M/L	163	7.0	2.7	2.8	9.84	48	106	1730	79	1490	96.1	96.6	96.7	0.75	0.83	0.88	446
260	350	355M/L	170	7.0	2.7	2.8	9.84	44	97	1730	79	1490	96.2	96.7	96.8	0.76	0.84	0.85	480
280	380	355M/L	183	7.5	2.7	2.7	10.5	33	73	1772	79	1490	96.2	96.7	96.8	0.72	0.82	0.85	517
300	400	355M/L	196	7.5	2.7	2.6	11.1	38	84	1825	79	1490	96.3	96.8	96.8	0.73	0.82	0.86	548
315	430	355M/L	206	7.5	2.9	2.6	11.6	33	73	1878	79	1490	96.4	96.8	96.8	0.73	0.82	0.86	575
6P - 50Hz																			
1.1	1.5	100L	1.12	6.5	2.6	3.5	0.0143	35	77	34.0	44	960	82.0	84.0	84.5	0.52	0.64	0.72	2.75
2.2	3	L112M	2.22	7.0	2.8	3.2	0.0293	26	57	48.0	49	965	85.0	87.0	87.4	0.50	0.62	0.71	5.39
3	4	132S	3.00	6.3	2	2.8	0.0568	58	128	61.0	53	975	87.9	89.3	88.7	0.53	0.65	0.73	7.04
4	5.5	132M	4.00	6.6	2.2	3	0.0643	42	92	68.0	53	975	88.3	89.7	89.7	0.52	0.65	0.73	9.28
5.5	7.5	L132M/L	5.49	7.3	2.5	3.2	0.0833	31	68	84.0	53	975	88.7	89.5	90.5	0.50	0.63	0.71	13.0
7.5	10	160L	7.45	8.2	3.3	3.8	0.1755	18	40	130	54	980	89.5	91.0	91.3	0.52	0.66	0.74	16.9
11	15	180M	10.9	10.0	3.2	4.5	0.3111	17	37	150	56	980	91.0	91.5	92.3	0.72	0.82	0.86	21.1
15	20	L180L	14.9	8.2	3.2	4.5	0.4057	12	26	210	56	980	91.0	91.5	92.9	0.72	0.82	0.85	28.9
18.5	25	200L	18.3	6.6	2.4	3	0.4914	31	68	235	58	985	92.5	93.1	93.4	0.62	0.75	0.81	37.2
22	30	200L	21.8	7.0	2.6	3	0.5246	25	55	250	58	985	92.6	93.4	93.9	0.59	0.72	0.79	45.1
30	40	225S/M	29.5	7.5	2.4	3.1	1.33	35	77	430	61	990	93.5	94.2	94.3	0.68	0.79	0.84	57.5
37	50	250S/M	36.4	7.5	2.6	3	1.65	34	75	520	61	990	94.0	94.5	94.6	0.69	0.80	0.85	69.9
45	60	280S/M	44.3	7.0	2.3	2.8	3.25	43	95	723	66	990	94.0	94.7	94.9	0.66	0.77	0.82	87.9
55	75	280S/M	54.1	7.2	2.6	3.1	3.92	44	97	740	66	990	94.2	95.1	95.2	0.63	0.75	0.81	108
75	100	315S/M	73.8	7.5	2.3	3.2	5.14	38	84	1106	69	990	94.6	95.4	95.4	0.61	0.73	0.81	147
90	125	315S/M	88.5	7.4	2.2	3.1	5.48	33	73	1180	69	990	94.9	95.6	95.6	0.63	0.75	0.82	174
110	150	315S/M	108	7.3	2.5	3	5.70	26	57	1106	69	990	95.1	95.6	95.8	0.64	0.76	0.82	213
185	250	355M/L	181	6.6	2.1	2.4	13.2	64	141	1854	73	995	95.4	96.1	96.3	0.63	0.74	0.80	365
200	270	355M/L	196	6.6	2.2	2.3	14.1	61	134	1912	73	995	95.5	96.1	96.3	0.63	0.74	0.80	394
220	300	355M/L	215	6.5	2.1	2.3	15.0	60	132	1970	73	995	95.6	96.1	96.3	0.63	0.74	0.80	434

Note:
(1) According to GB 18613-2020 standard, the efficiency value is measured at direct start-up.
(2) According to IEC-60034-2-1 standard, the efficiency value is measured at direct start-up.
(*)Insulation class "F" with temperature rise △T 105K.

13. Mechanical Data



Notes:
** Shaft dimensions for II pole motors, only for direct coupling.*
- All dimensions are in millimeters.
- Larger and smaller flanges on request.
- The data for frame 355M/L shown above are for B3T horizontal mounting applications under standard coupling loads.
The customer must inform when application is vertical or under special coupling loads.
- The AC dimension for B3L or B3R mounting on frame 355M/L is 740mm.
- The values shown are subject to change without prior notice.
To obtain guaranteed values please contact our nearest sales office.

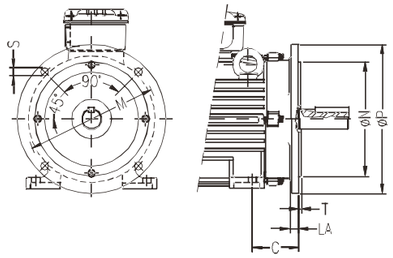
Frame	A	AA	AB	AC	AD	B	BA	BB	C	CA	H	HA	HC	HD	K	L	LC	S1	CG***	d1	d2	Bearing	
																						DE	NDE
80	125	35	149	159	136	100	40	125.5	50	93	80	13	157	216	10	276	313	2xM20x1,5	6-12	DM6	DM4	6204 ZZ	6203 ZZ
L80	125	35	149	159	136	100	40	125.5	50	117	80	13	157	216	10	334	345	2xM20x1,5	6-12	DM6	DM4	6204 ZZ	6203 ZZ
90S	140	38	164	179	155	100	42	131	56	104	90	15	177	245	10	304	350	2xM25x1,5	13-18	DM8	DM6	6205 ZZ	6204 ZZ
L90S	140	38	164	179	155	100	42	131	56	134	90	15	177	245	10	334	380	2xM25x1,5	13-18	DM8	DM6	6205 ZZ	6204 ZZ
90L	140	38	164	179	155	125	42	156	56	104	90	15	177	245	10	329	375	2xM25x1,5	13-18	DM8	DM6	6205 ZZ	6204 ZZ
L90L	140	38	164	179	155	125	42	156	56	104	90	15	177	245	10	359	405	2xM25x1,5	13-18	DM8	DM6	6205 ZZ	6204 ZZ
100L**	160	49	188	199	165	140	50	173	63	118	100	16	198	265	12	376	431	2xM25x1,5	13-18	DM10	DM8	6206 ZZ	6205 ZZ
L100L	160	49	188	199	165	140	50	173	63	160	100	16	198	265	12	418	469	2xM25x1,5	13-18	DM10	DM8	6206 ZZ	6205 ZZ
112M	190	48	220	222	184	140	50	177	70	128	112	18.5	235	296	12	393	448	2xM32x1,5	18-25	DM10	DM8	6307 ZZ	6206 ZZ
L112M	190	48	220	222	184	140	50	177	70	163	112	18.5	235	296	12	423	478	2xM32x1,5	18-25	DM10	DM8	6307 ZZ	6206 ZZ
132S	216	51	248	270	212	140	55	187	89	150	132	20	274	344	12	452	519	2xM32x1,5	18-25	DM12	DM10	6308 ZZ	6207 ZZ
L132S	216	51	248	270	212	140	55	187	89	190	132	20	274	344	12	478.5	545.5	2xM32x1,5	18-25	DM12	DM10	6308 ZZ	6207 ZZ
132M	216	51	248	270	212	178	55	225	89	150	132	20	274	344	12	490	557	2xM32x1,5	18-25	DM12	DM10	6308 ZZ	6207 ZZ
L132M	216	51	248	270	212	178	55	225	89	190	132	20	274	344	12	515	582	2xM32x1,5	18-25	DM12	DM10	6308 ZZ	6207 ZZ
132M/L	216	51	248	270	212	178/203	55	250	89	150	132	20	274	344	12	515	582	2xM32x1,5	18-25	DM12	DM10	6308 ZZ	6207 ZZ
L132M/L	216	51	248	270	212	178/203	55	250	89	190	132	20	274	344	12	540	607	2xM32x1,5	18-25	DM12	DM10	6308 ZZ	6207 ZZ
160M	254	64	308	312	255	210	65	254	108	174	160	22	317	415	14.5	598	712	2xM40x1,5	22-32	DM16	DM16	6309 ZZ-C3	6209 ZZ-C3
L160M	254	64	308	312	255	210	65	254	108	208	160	22	317	415	14.5	632	746	2xM40x1,5	22-32	DM16	DM16	6309 ZZ-C3	6209 ZZ-C3
160L	254	64	308	312	255	254	65	298	108	174	160	22	317	415	14.5	642	756	2xM40x1,5	22-32	DM16	DM16	6309 ZZ-C3	6209 ZZ-C3
L160L	254	64	308	312	255	254	65	298	108	208	160	22	317	415	14.5	676	790	2xM40x1,5	22-32	DM16	DM16	6309 ZZ-C3	6209 ZZ-C3
180M	279	80	350	358	275	241	75	297	121	200	180	28	360	455	14.5	664	782	2xM40x1,5	22-32	DM16	DM16	6311 ZZ-C3	6211 ZZ-C3
L180M	279	80	350	358	275	241	75	297	121	226	180	28	360	455	14.5	690	808	2xM40x1,5	22-32	DM16	DM16	6311 ZZ-C3	6211 ZZ-C3
180L	279	80	350	358	275	279	75	332	121	200	180	28	360	455	14.5	702	820	2xM40x1,5	22-32	DM16	DM16	6311 ZZ-C3	6211 ZZ-C3
L180L	279	80	350	358	275	279	75	332	121	226	180	28	360	455	14.5	728	846	2xM40x1,5	22-32	DM16	DM16	6311 ZZ-C3	6211 ZZ-C3
200M	318	82	385	396	300	267	85	332	133	222	200	30	402	500	18.5	729	842	2xM50x1,5	32-38	M20	M20	6312 ZZ-C3	6212 ZZ-C3
200L	318	82	385	396	300	305	85	370	133	222	200	30	402	500	18.5	767	880	2xM50x1,5	32-38	M20	M20	6312 ZZ-C3	6212 ZZ-C3
225S/M*	356	80	436	476	373	286/311	105	391	149	280/255	225	34	466	598	18.5	817	935	2xM50x1,5	32-38	M20	M20	6314 C3	6314 C3
225S/M	356	80	436	476	373	286/311	105	391	149	280/255	225	34	466	598	18.5	847	995	2xM50x1,5	32-38	M20	M20	6314 C3	6314 C3
250S/M*	406	100	506	476	373	311/349	138	449	168	312/274	250	42	491	623	24	923	1071	2xM63x1,5	37-44	M20	M20	6314 C3	6314 C3
250S/M	406	100	506	476	373	311/349	138	449	168	312/274	250	42	491	623	24	923	1071	2xM63x1,5	37-44	M20	M20	6314 C3	6314 C3
280S/M*	457	100	557	600	468	368/419	142	510	190	350/299	280	42	578	748	24	1036	1188	2xM63x1,5	37-44	M20	M20	6314 C3	6314 C3
280S/M	457	100	557	600	468	368/419	142	510	190	350/299	280	42	578	748	24	1036	1188	2xM63x1,5	37-44	M20	M20	6316 C3	6316 C3
315S/M*	508	120	628	600	497	406/457	152	558	216	376/325	315	52	613	812	28	1126	1278	2xM63x1,5	37-44	M20	M20	6314 C3	6314 C3
315S/M	508	120	628	600	497	406/457	152	558	216	376/325	315	52	613	812	28	1156	1308	2xM63x1,5	37-44	M20	M20	6319 C3	6316 C3
355M/L*	610	140	750	774	685	560/630	200	760	254	458/388	355	50	725	1040	28	1396	1561	2xM63x1,5	37-44	M20	M20	6316 C3	6314 C3
355M/L	610	140	750	774	685	560/630	200	760	254	458/388	355	50	725	1040	28	1466	1661	2xM63x1,5	37-44	M24	M20	6322 C3	6319 C3

*** Cable gland is optional feature. CG is inner diameter range in milimeters. If the cable size is out of this range, please contact WEG before order.

Frame	D	E	ES	F	G	GD	DA	EA	TS	FA	GB	GF
80	19j6	40	28	6	15.5	6	14j6	30	18	5	11	5
L80	19j6	40	28	6	15.5	6	14j6	30	18	5	11	5
90S	24j6	50	36	8	20	7	16j6	40	28	5	13	5
L90S	24j6	50	36	8	20	7	16j6	40	28	5	13	5
90L	24j6	50	36	8	20	7	16j6	40	28	5	13	5
L90L	24j6	50	36	8	20	7	16j6	40	28	5	13	5
100L**	28j6	60	45	8	24	7	22j6	50	36	6	18.5	6
L100L	28j6	60	45	8	24	7	22j6	50	36	6	18.5	6
112M	28j6	60	45	8	24	7	24j6	50	36	8	20	7
L112M	28j6	60	45	8	24	7	24j6	50	36	8	20	7
132S	38k6	80	63	10	33	8	28j6	60	45	8	24	7
L132S	38k6	80	63	10	33	8	28j6	60	45	8	24	7
132M	38k6	80	63	10	33	8	28j6	60	45	8	24	7
L132M	38k6	80	63	10	33	8	28j6	60	45	8	24	7
132M/L	38k6	80	63	10	33	8	28j6	60	45	8	24	7
L132M/L	38k6	80	63	10	33	8	28j6	60	45	8	24	7
160M	42k6	110	80	12	37	8	42k6	110	80	12	37	8
L160M	42k6	110	80	12	37	8	42k6	110	80	12	37	8
160L	42k6	110	80	12	37	8	42k6	110	80	12	37	8
L160L	42k6	110	80	12	37	8	42k6	110	80	12	37	8
180M	48k6	110	80	14	42.5	9	48k6	110	80	14	42.5	9
L180M	48k6	110	80	14	42.5	9	48k6	110	80	14	42.5	9
180L	48k6	110	80	14	42.5	9	48k6	110	80	14	42.5	9
L180L	48k6	110	80	14	42.5	9	48k6	110	80	14	42.5	9
200M	55m6	110	80	16	49	10	48k6	110	80	14	42.5	9
200L	55m6	110	80	16	49	10	48k6	110	80	14	42.5	9
225S/M*	55m6	110	100	16	49	10	55m6	110	100	16	49	10
225S/M	60m6	140	125	18	53	11	60m6	140	125	18	53	11
250S/M*	60m6	140	125	18	53	11	60m6	140	125	18	53	11
250S/M	65m6	140	125	18	58	11	60m6	140	125	18	53	11
280S/M*	65m6	140	125	18	58	11	60m6	140	125	18	53	11
280S/M	75m6	140	125	20	67.5	12	65m6	140	125	18	58	11
315S/M*	65m6	140	125	18	58	11	60m6	140	125	18	53	11
315S/M	80m6	170	160	22	71	14	65m6	140	160	18	58	11
355M/L*	75m6	140	125	20	67.5	12	60m6	140	125	18	53	11
355M/L	100m6	210	200	28	90	16	80m6	170	200	22	71	14

FLANGE FF (IEC)

Installation wih constructive mountings
B35, B5, V1, V3, V15, V36

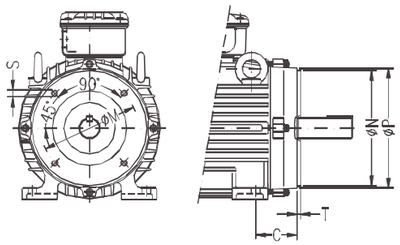


FLANGE FF (IEC)

IEC Frame	"FF"Flange									Nº of Holes
	Flange	C	LA	M	N	P	T	S	a	
63	FF-115	40	9	115	95	140	3	10	45º	4
71	FF-130	45		130	110	160	3.5			
80	FF-165	50	10	165	130	200		12		
90S/L		56								
100L	FF-215	63	11	215	180	250	4	15		
112M		70								
132S/M	FF-265	89	12	265	230	300				
160M/L	FF-300	108	18	300	250	350	5	19		
180M/L		121								
200M/L	FF-350	133		350	300	400				
225S/M	FF-400	149		400	350	450				
250S/M	FF-500	168		500	450	550				
280S/M		190								
315S/M	FF-600	216	22	600	550	660	6	24	22°30'	8
355M/L	FF-740	254		740	680	800				

FLANGE FC IEC B14A,B14B & NEMA C

Installation wih constructive mountings
B14, B34, V18, V19



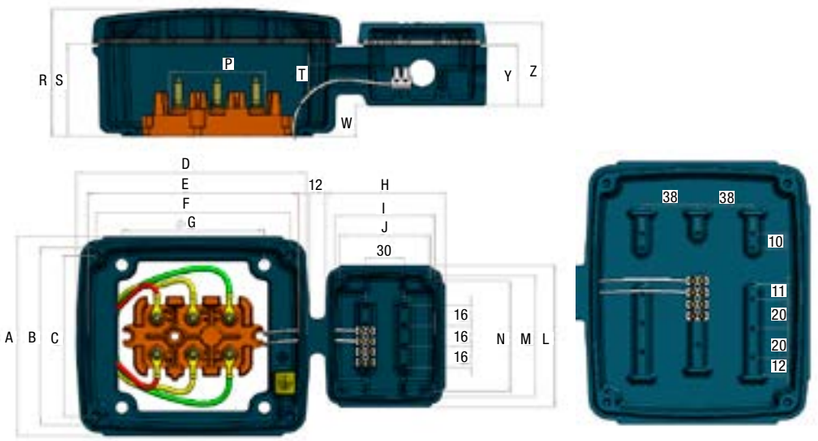
FLANGE C-DIN (DIN 42677) (B14A)

IEC Frame	"C" DIN Flange							Nº of Holes
	Flange	C	M	N	P	S	T	
63	C-90	40	75	60	90	M5	2.5	4
71	C-105	45	85	70	105	M6		
80	C-120	50	100	80	120		3	
90S/L	C-140	56	115	95	140	M8		
100L	C-160	63	130	110	160		3.5	
112M		70						
132S/M	C-200	89	165	130	200	M10		
160M/L	C-250	108	215	180	250	M12	4	

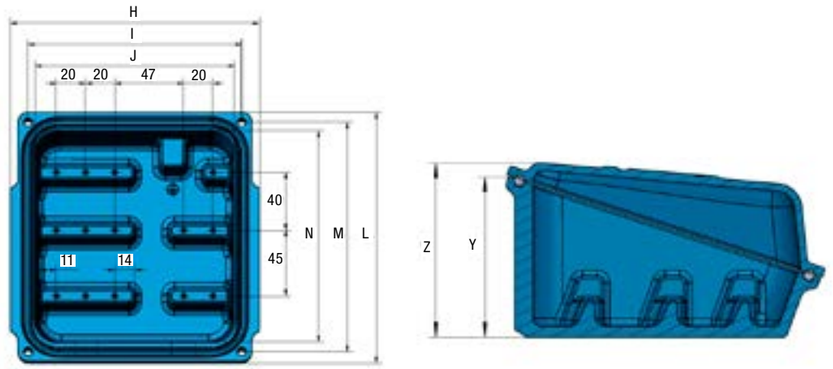
FLANGE FC (NEMA)

IEC Frame	"FC" Flange							Nº of Holes
	Flange	C	M	N	P	S	T	
63	FC-95	40	95.2	76.2	143	UNC 1/4" x20	4	4
71		45						
80		50						
90S/L	FC-149	56	149.2	114.3	165	UNC 3/8" x16		
100L		63						
112M	FC-184	70	184.2	215.9	225	UNC 1/2" x13	6.3	
132S/M		89						
160M/L		108						
180M/L	FC-228	121	228.6	266.7	280			
200M/L		133						
225S/M	FC-279	149	279.4	317.5	395	UNC 5/8" x11		8
250S/M	FC-355	168	355.6	406.4	455			
280S/M		190						
315S/M	FC-368	216	368.3	419.1	455			
355M/L		254						

14. Terminal Box



* Addtional terminal box is applicable only for frames from 225 to 355



*355 Additional Terminal Box

Frame	A	B	C	D	E	F	G	H	I	J
63-100*	85	74	65	100	88	80	56	-	-	-
63-100	92	77	70	108	93	85	56	85	71	65
112-132	117	100	88	137	120	108	70	92	77	70
160-180	154	137	124	180	163	150	110	92	77	70
200	170	153	136	200	183	166	120	92	77	70
225-250	212	190	172	250	228	208	150	154	137	124
280	265	243	214	315	298	264	150	154	137	124
315	315	289	260	375	349	318	200	154	137	124
355	355	322	286	425	397	352	260	170	146	136

Frame	L	M	N	P	R	S	T	W	Y	Z
63-100	100	86	80	42	59	44	10	3	42.5	57.5
112-132	108	93	85	50	67	49	13.5	7	42	57
160-180	108	93	85	67	89	64	13.5	23	42	57
200	108	93	85	84	94	78	13.5	37	42	57
225-250	180	163	150	100	114	94	17	32.5	61.5	86.5
280	180	163	150	126	143	125	17	63.5	61.5	86.5
315	180	163	150	160	172	144	17	82.5	61.5	86.5
355	171	157	144	163	232	197	23	140	85	95

* The size of single terminal box

15. Mounting forms

The mounting configuration for the W21 motor lines comply with IEC 60034-7 standard. Standard mounting forms and their variations are shown in table 14. After the designation, a characteristic letter is used to define the terminal box position. So, the mounting code IM B3 can be seen in WEG documents as detailed below (without IM code).
B3L - terminal box on left hand side of the motor frame
B3T - terminal box on top of the motor frame
B3R - terminal box on right hand side of the motor frame
Note: The terminal box position is defined viewing the motor from the shaft end (figure 26).

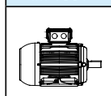
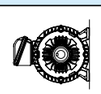
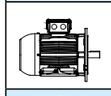
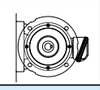
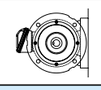
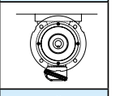
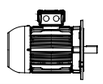
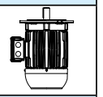
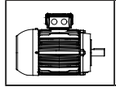
Basic mountings	Other type of mounting				
IM B3	IM V5	IM V6	IM B6	IM B7	IM B8
IM 1001	IM 1011	IM 1031	IM 1051	IM 1061	IM 1071
					
IM B35	IM V15	IM V36	- *)	- *)	- *)
IM 2001	IM 2011	IM 2031	IM 2051	IM 2061	IM 2071
					
IM B34	IM V17	IM V37	- *)	- *)	- *)
IM 2101	IM 2111	IM 2131	IM 2151	IM 2161	IM 2171
IM B5	IM V1	IM V3			
IM 3001	IM 3011	IM 3031			
					
IM B14	IM V18	IM V19			
IM 3601	IM 3611	IM 3631			
					

Table 16 - Mountings configurations
** Non-defined mountings by IEC 60034-7*

Important:

1. The mountings IM B34 and IM B14 with C-DIN flange, in accordance with DIN standard EN 50347, are limited to frame size 132; C flange in accordance with NEMA MG 1 Part 4 standard is available for frames 63 to 355M/L.
2. For motors mounted vertically shaft down fitting of a drip cover is recommended to prevent ingress of small objects into the fan cover. The increase in total length of the motor with drip cover is shown in the section 19.
3. For vertically shaft up mounted motors installed in environments containing liquids, the use of a rubber slinger is recommended to prevent the ingress of liquid into the motor through the shaft.

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:

	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

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.

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

Explosive Atmospheres

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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