

W21 Prime

Three Phase Low Voltage Motors

Aluminum Frame
Technical Catalogue
China Market

Industrial Motors

Commercial & Appliance Motors

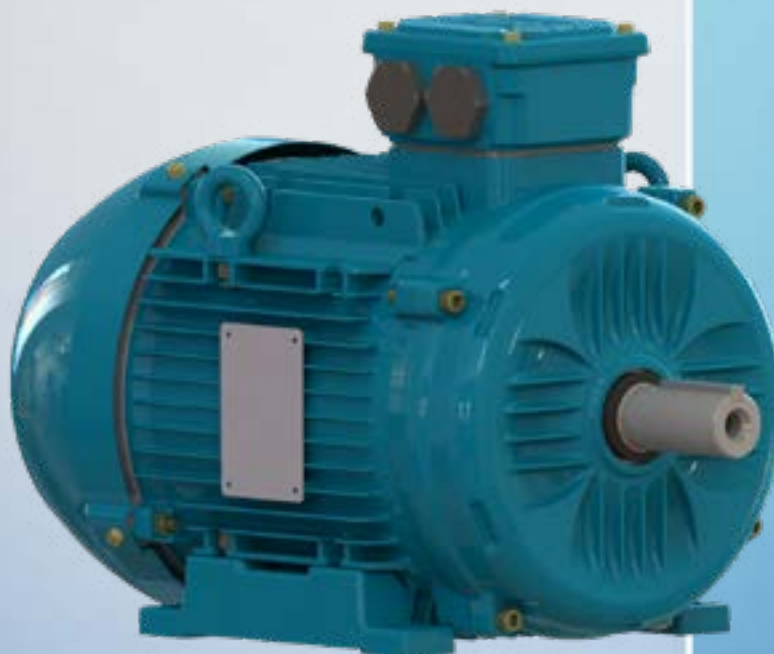
Automation

Digital & Systems

Energy

Transmission & Distribution

Coatings



Driving efficiency and sustainability





About WEG

WEG was founded in 1961 in Jaraguá do Sul, a southern Brazilian city. As one of the world's largest motor manufacturers, it has an area of more than 2,500,000 square meters. WEG has offices in 42 countries on five continents and production bases in 17 countries. It has more than 1,400 service outlets worldwide, and its products are sold in more than 135 countries and regions around the world. It has more than 47,000 employees worldwide and annual sales of more than US\$ 6 billion. WEG has seven major divisions: industrial motors, commercial and appliance motors, automation, digital and systems, energy, transmission and distribution, and coatings.

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 69,769 square meters, with a construction area of 33,500 square meters, and currently employs around 700 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

WEG (Jiangsu) Electrical Equipment Co., Ltd. is the third wholly-owned domestic production base (currently there are 6 factories in China) after the establishment of WEG Nantong Wangao Factory in 2005. It is located at No. 88 Huimin West Road, Rugao Economic and Technological Development Zone, Jiangsu Province, covering a total area of 180,000 square meters. Its first phase project has been completed and officially put into production in November 2015. The second phase project was put into production during the epidemic in April 2020. The third phase project has completed the factory building construction in February 2024, and immediately installed equipment and debugged the production line. It has been put into production in April 2024. The company's annual output of industrial motors will reach 450,000 units and 800,000 sets of parts. WEG is the most automated motor manufacturing base in the group. In addition to highly automated intelligent three-dimensional warehousing, each production station is equipped with 26 sets of automated production equipment such as robots, and it is expected to reach 57 sets in 2026. In 2021, it has obtained the intelligent manufacturing workshop certification, which provides a strong guarantee for the high output and high quality of its products. The ISO9001, ISO14001 and ISO45001 system certification certificates it has obtained are also sufficient to recognize its scientific and complete management system. In addition to supplying the Chinese market, the products are also exported to countries and regions such as Europe, Asia and Africa, and are widely used in various industrial fields, including traditional applications such as fans, pumps and compressors. The company has established an engineering technology low-voltage center, and through the WMS system (WEG manufacturing system), Six Sigma and other lean production systems to ensure that customers are provided with high-quality products and services.

About Changzhou Yatong Jiawei Electromotor Co., Ltd

Changzhou Yatong Jiawei Eletromotor Co., Ltd. is mainly engaged in the research and development, manufacturing and sales of industrial motors, household appliance motors, industrial control and other variable frequency drive systems. The company is in a leading position in variable frequency drive system solutions and mechatronics integration and has core independent intellectual property rights. In the fields of washing machines, dryers, dishwashers, etc., the company has a variety of advanced solutions and cost-effective modular products such as AC variable frequency drive systems, DD direct drive variable frequency drive systems, and DDM variable frequency drive systems. The company's main customers include General Electric and Whirlpool, which are among the world's top 500 companies, and domestic customers include Midea, Skyworth and other companies. The company has a world-class development team and has established three R&D centers for motors, electronic control and mechanical transmission. The company has an industry-leading position in process automation, 6Sigma management and quality control.

CERTIFICATION

WEG CHINA



WEG GLOBAL





W21 Prime - Aluminum Frame Motors (GB3 / IE3, GB2 / IE4)

W21 Prime Series Motor

With the rapid development of the global economy, the demand for electric energy is also increasing, which requires continuous and substantial investment in power production and supply. From the perspective of long-term planning, economic development needs to rely on increasingly depleted natural resources, which is obviously a huge test for the environment. In the short term, we can maintain the supply of energy by avoiding waste and improving energy efficiency. In such a big environment, electric motors play a vital role in energy conservation, because about 40% of the world's energy demand is closely related to motor applications. By using high-efficiency motors and inverters, we can make a significant contribution to reducing global energy consumption.

While energy efficiency initiatives are affecting traditional markets, the application of new technologies in emerging fields is also bringing about major changes in the use and control of motors. Combined with these emerging changes based on the increase in energy demand, WEG accepted the challenge and designed its high-efficiency motor, a motor recognized worldwide for its quality, reliability and efficiency.

WEG designed the W21 Prime series of high-efficiency motors to meet various industrial applications by using its own latest analysis and design software, such as structural analysis software and fluid dynamics and electrical design optimization software.

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

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

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 2.7% 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 CO₂ 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 CO₂ per 1,000kWh, it is possible to reduce CO₂ 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 CO₂ 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**



Meet your needs
Anytime, Anywhere

Industrial Motors

Commercial & Appliance Motors

Automation

Digital & Systems

Energy

Transmission and Distribution

Coatings



Figure 1. AL frame

1. Construction Details

1.1 Frame / endshields

The frame is made of aluminum, and the lightweight, removable foot design not only helps improve thermal conductivity, but also provides sufficient mechanical strength to meet the most demanding application requirements. For easy installation, models with frame sizes 90S/L and above are equipped with lifting rings.

All endshields are designed with drain holes to drain condensed water in the base. The drain holes are plugged with drain plugs, which can both drain condensed water and meet the protection level requirements.



Figure 5. Flange

1.6 Terminal block

The terminal block is not only printed with the IEC 60034-8 standard markings, but also have designated terminals. The W21 Prime motor with a winding voltage of 380V is equipped with glass fiber reinforced unsaturated polyester bulk molding compound (BMC) terminals, as shown below.



Figure 6 - Six-pin terminal block

1.7 Nameplate

The main nameplate and the secondary nameplate are made of AISI 304 stainless steel, and all information is printed on the nameplate by laser. The nameplate contains a lot of important useful information, such as serial number, output power, voltage, frequency, rated current, protection level, power factor, insulation level, bearing model, grease type and lubrication cycle, etc.



Figure 3. Fan cover in steel plate

1.4 Terminal box

the terminal box is also made of aluminum. In order to facilitate wiring, there is ample space inside the junction box and it can be rotated 90 degrees, making it very flexible to install.



Figure 4 - Aluminum terminal box

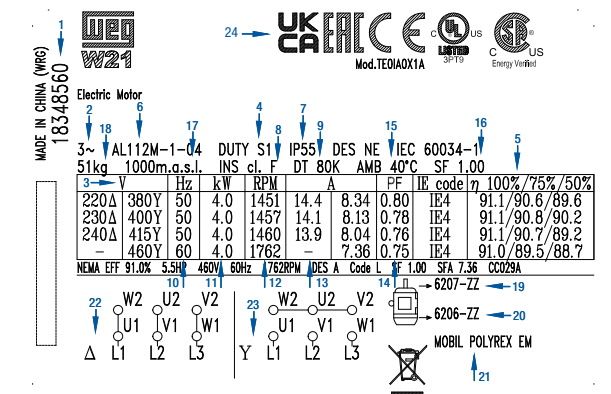


Figure 7 -Nameplate

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. Δ connection diagram
23. Y connection diagram
24. Certification

W21 Prime Series Aluminum Frame Motors

W21 Prime series aluminum frame motors have the advantages of low noise, low vibration, high efficiency and energy saving, reliable and durable, easy to use and maintain, etc. They are suitable for use with frequency converters and can be flexibly designed according to customer requirements to meet the needs of various industrial fields to the greatest extent. W21 Prime series aluminum frame motors have an energy efficiency of up to IE5 (GB1)*, can be configured with multiple mounting methods, have a global unified design and global warranty, and are an excellent choice for your application.

Standard Features

- Three-phase aluminum frame induction motor
- Frame size: 80 to 132
- Poles: 2,4,6
- Efficiency: IE3/GB3, IE4/GB2, IE5*
- Frequency: 50Hz
- Voltage: 380V (Multi-voltage as optional)
- Service Factor: 1.00
- Winding Thermal Protection: PTC 155°C-shutdown
- Color: IE3(GB3) is RAL 5009, IE4/IE5 (GB2/GB1*) is RAL 6002
- Certification: CE, UKCA, EAC, MASC, CSA SAFE & UL SAFE (Acc. to market)

2. Cooling system / Noise level / Vibration level

2.1 Cooling system / Noise level

The W21 Prime 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 Variable Frequency Drive Operation section. Fans are made of polypropylene. Designed for low noise levels, the W21 Prime motors comply with the IEC60034-9 standard and the corresponding sound pressure levels. The tables below show sound pressure levels for 50Hz in dB (A), the permit tolerance is + 3dB).

Frame	2P	4P	6P
80	64	49	45
90	67	53	44
100	64	56	48
112	65	56	52
132	67	60	60

Table 1 -Sound pressure level for 50Hz motors

The noise level figures shown in 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 in table 2.

Shaft height H(mm)	2P	4P	6P
80 ≤ H ≤ 132	2	5	7

Table 2 - Maximum expected increase of sound pressure level for loaded motors

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

2.2 Vibration level

W21 Prime 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 the vibration of Grade B. The RMS speed and vibration levels in mm/s of Grades A and B are shown in Table 3.

Vibration	Shaft height H(mm)	60 ≤ H ≤ 132
	Assembly	Vibration speed RMS (mm/s)
Grade A	Free Suspension	2.8
Grade B	Free Suspension	1.1

Table 3. Speed and vibration levels

3. Shaft / Bearings / Thrusts

3.1 Shaft

The shaft of W21 Prime motors is made of SAE 1040/45 steel. Information about maximum allowable radial and axial loads on shaft ends is given in tables 5.

Important: To modify bearings from a ball into a roller, the drive end and non-drive end bearing caps (internal and external) need to be replaced since the non-drive end bearing remains

locked. If further information is required, please contact WEG Sales support team.

Shafts are supplied with WEG A type key (China:B type) in frame sizes 80 to 132, 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	Size	Depth of thread (mm)
80	All	M6	16
90S/L	All	M8	19
90S/L-1	All	M8	19
100L	All	M10	22
112M	All	M10	22
112M-1	All	M10	22
132S	All	M12	28
132M	All	M12	28

Table 4. Center hole dimensions for Drive end shaft

3.2 Bearings

WEG motors are supplied with ball bearings as standard. WEG cooperates with internationally recognized bearing brands (FAG, SKF, NSK, NTN, C&U, etc), assuring the excellent performance of the motor and longer motor life. If the specific bearing brand is required, please inform WEG before placing an order. The W21 Prime series motors frame 80 to 112 are with 62 series bearings and 63 series for frame 132. The bearing lifetime is L10h with 20,000 hours in conformance with maximum radial and axial loads as described in Tables 5. For direct coupling arrangements (free of radial and axial thrusts), the bearing lifetime will be L10h with 40,000 hours.

Note: Lifetime 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 Tables 5. The values of the maximum radial load consider the axial load as nil. The values of the maximum axial load consider radial load as nil. Contact WEG to get information about bearing lifetime for applications with combined axial and radial loads.

The bearing lifetime depends on the type and size of the bearings, on radial and axial mechanical loads that the motor is submitted to, on operating conditions (ambient, temperature), and the speed and quality of the grease. Therefore, the bearing lifetime is directly related to the correct application, maintenance and lubrication. When the amount of grease and lubrication intervals are followed accordingly, bearings are expected to reach their predefined lifetime. W21 Prime motors are supplied ZZ bearings for frames 80 to 132. 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

The motor is equipped with a wave washer in the non-drive end bearing. For applications with axial play requirements, an additional bearing inner cover is required.

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 catalog.

2 - Roller bearings: Roller bearings require a minimum radial load to ensure correct operation. They are not recommended for direct coupling arrangements or 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 – Tables for radial thrusts: The values given in the tables below for radial thrusts take into consideration the point upon which the load is applied, either at the center of the shaft (L/2) or at the end of the shaft (L).

Thrusts (L10 with 20,000 hours)

Frame	DE Brg.	Poles	Radial Load		Axial Load					
					Horizontal		Vertical Shaft Up		Vertical Shaft Down	
			L/2	L	Push	Pulling	Push	Pulling	Push	Pulling
80	6204	2P	0.6	0.6	0.3	0.4	0.3	0.4	0.3	0.4
		4P	0.7	0.7	0.4	0.6	0.3	0.6	0.4	0.5
		6P	0.8	0.8	0.5	0.7	0.4	0.7	0.5	0.7
		8P	1.0	0.8	0.6	0.8	0.5	0.9	0.6	0.8
90S/L	6205	2P	0.7	0.6	0.4	0.4	0.3	0.5	0.4	0.4
		4P	0.8	0.7	0.5	0.6	0.5	0.7	0.5	0.6
		6P	0.9	0.8	0.6	0.7	0.6	0.8	0.6	0.7
		8P	1.0	0.9	0.8	0.9	0.7	0.9	0.8	0.8
90S/L-1	6205	2P	0.7	0.6	0.4	0.4	0.3	0.5	0.4	0.4
		4P	0.8	0.7	0.5	0.6	0.5	0.7	0.5	0.6
		6P	0.9	0.8	0.6	0.7	0.6	0.8	0.6	0.7
		8P	1.0	0.9	0.8	0.9	0.7	0.9	0.8	0.8
100L	6206	2P	0.9	0.9	0.4	0.6	0.3	0.7	0.4	0.6
		4P	1.0	0.9	0.5	0.8	0.4	0.9	0.5	0.8
		6P	1.2	1.1	0.7	1.0	0.6	1.1	0.7	1.0
		8P	1.4	1.3	0.8	1.2	0.7	1.3	0.8	1.1
112M	6207	2P	1.3	1.2	0.5	1.1	0.5	1.2	0.6	1.1
		4P	1.5	1.4	0.7	1.6	0.7	1.7	0.8	1.5
		6P	1.8	1.6	1.0	1.9	0.9	2.1	1.0	1.9
		8P	1.9	1.7	1.1	2.2	1.0	2.4	1.1	2.1
112M-1	6207	2P	1.3	1.2	0.5	1.1	0.5	1.2	0.6	1.1
		4P	1.5	1.4	0.7	1.6	0.7	1.7	0.8	1.5
		6P	1.8	1.6	1.0	1.9	0.9	2.1	1.0	1.9
		8P	1.9	1.7	1.1	2.2	1.0	2.4	1.1	2.1
132S	6308	2P	2.0	1.8	1.1	1.3	1.0	1.6	1.4	1.1
		4P	2.3	2.0	1.5	1.8	1.3	2.2	1.8	1.7
		6P	2.6	2.3	1.8	2.2	1.6	2.6	2.1	2.2
		8P	2.9	2.6	2.1	2.5	1.8	3.0	2.5	2.5
132M	6308	2P	2.0	1.8	1.1	1.3	1.0	1.6	1.4	1.1
		4P	2.3	2.0	1.5	1.8	1.3	2.2	1.8	1.7
		6P	2.6	2.3	1.8	2.2	1.6	2.6	2.1	2.2
		8P	2.9	2.6	2.1	2.5	1.8	3.0	2.5	2.5

Table 5 - thrusts for ball bearings

$$1\text{ kN} = 101.97\text{kgf} = 224.8\text{ lbf}$$

3.2.2 Bearing temperature monitoring

On request, W21 Prime motors can be equipped with bearing temperature detectors that 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°C and the maximum trip temperature as 120°C.

4. Protection degree / Painting

4.1 Protection Degree

W21 Prime 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 the 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 Prime motors are supplied as standard with WEG internal painting plans 207A(63-132). This plan consists of:

■ Primer: Cast Iron (One-component epoxy ester with a thickness of 20-55µm; Aluminum (no primer);

■ Top coat: Two-component acrylic polyurethane with a thickness of 40-70µm.

For some frame sizes were released water-based paint, and the standard painting plan includes:

■ Primer: Cast Iron (One-component epoxy ester with a thickness of 20-55µm; Aluminum (no primer);

■ Top coat: Two-component acrylic polyurethane with a thickness of 60-80µm.

A) Finish coat color: RAL color or according to the customer's 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 environments 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 paint, 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 catalog 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 meters above sea level
- With related humidity up to 60% (when it is above 60%, we recommend installing a space heater to avoid water condensation inside of the motor).

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	0.86
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 6 - Correction factors for altitude and ambient temperature

For operating temperatures and altitudes differing from those above, the factors indicated in Table 6 must be applied to the nominal motor power rating to determine the derated available output (Pmax).

Pmax = Pnom x correction factor

W21 Prime 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 Prime 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 Prime motors are wound with the WISE® insulation system which consists of enameled 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 Δ T (Average value measured by resistance method)	Maximum Temperature Tmax (from amb. temp 40°C)
CLASS B	80K	130°C
CLASS F	105K	155°C
CLASS H	125K	180°C

Table 7 - Temperature Rise and Maximum Temp.

6. Variable speed drive application

6.1 Considerations about rated voltage

The stator windings of W21 Prime 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 applications, taking into account the limits shown in Table 8.

Motor rated voltage	Voltage Spikes	dV/dt *	Rise time*	Time between pulses
	at motor terminals (phase-phase)	at motor terminals (phase-phase)		
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 8 - Limit conditions for variable frequency drive operation

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

Notes:

- 1 - 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, can 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//460V or 380/660 V, which at the time of purchase did not have any indication of operation with VSD, can 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 load ability limits established in Figure 8 (for operation under constant flux condition) or Figure 9 (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 the 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 Prime motors of frame sizes ≥ 90 can be blower cooled (independently ventilated) under request. In such case, the motor will be suitable for VSD operation without torque derating regardless of 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.

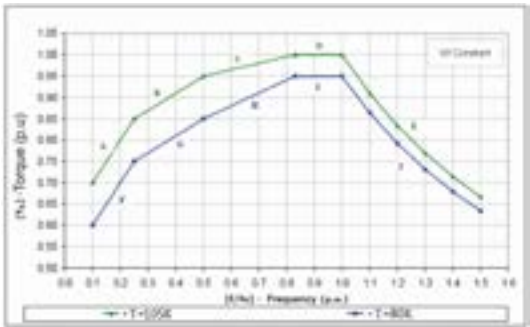


Figure 8 - Derating curves for constant flux condition

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 9 - Torque calculation for derating curves

When using the green curve above, the temperature rise of the motor will be limited by the temperature class of the insulating material. For instance, for a motor with an F insulation class, the temperature rise will be limited to 105°C (with an ambient temperature of 40°C). Only motors with an F insulation class and a B temperature rise class can use this curve to ensure that the motor maintains an F-class temperature rise (greater than 80°C and less than 105°C) when driven by a frequency converter.

When using the blue curve below, it means that even with a frequency converter drive, a motor with an F insulation class and a B temperature rise class will still maintain a temperature rise of 80°C at an ambient temperature of 40°C.

Optimal Flux ®

Variable frequency drive technology for motors is suitable for constant torque loads:

- Outputs rated torque at low speeds without the need for separate ventilation or increasing motor power.
- Saves space and costs in applications.
- Improves the performance of the frequency inverter and motor package (WEG exclusive solution) with optimized magnetic flux function, which is used exclusively with WEG high-efficiency motors + CFW11/09 kit.

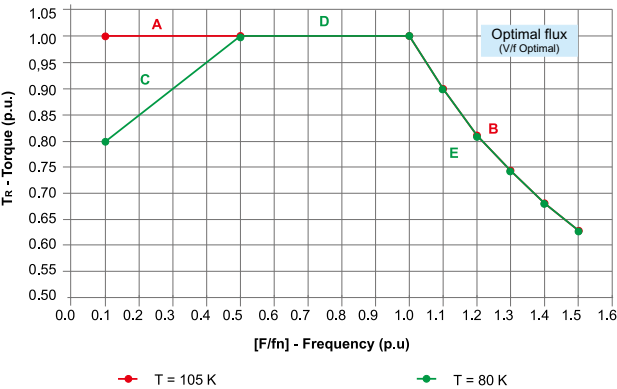


Figure 9 - Derating curves for optimal flux condition

6.3 Considerations regarding bearing currents

Motors with frame sizes up to IEC280S/M do not require additional bearing protection in variable frequency drive applications.

6.4 Forced ventilation kit

For those cases where an independent cooling system is required, the W21 Prime motors can be supplied with a forced ventilation kit, as shown in Figure 10. When the forced ventilation kit is assembled on the motor in the factory, the overall motor length will be as shown in Table 10.



Figure 10 - W21 Prime motor with forced ventilation kit

Frame	Poles	Motor Length (L) (mm)		Blower motor
		without blower kit	with blower kit	
80	All	277	None	0.37kW 2P Frame 63
90S/L	All	330	450	
90S/L-1	All	360	480	
100L	All	376	497	
112M	All	389	536	
112M-1	All	424	571	
132S	All	491	647	
132M	All	491	677	

Table 10 - Total length of motor with / without blower kit

Note: The motor base with * is a 2-pole motor. The fan motors used in the above forced ventilation kits are all IE2 efficiency, suitable for the Chinese market and the main motor does not include CE certification. If you need to meet CE certification, please consult WEG sales staff for the power and model of the forced cooling fan motor.

7. Tolerances for electrical data

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

Efficiency (η)	Pnom ≤150kW : -0.15(1-η) Pnom >150kW : -0.1(1-η) Where η is a decimal number
Power factor	1 - cos Ø 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 11 - 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 highlighted 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 12 below:

Frame	Quantities	Total Power rated (W)
80	1	11
90	1	11
100	1	22
112	1	22
132	1	30

Table 12 - Power and quantity of space heaters

9. Thermal protections

9.1 PT-100



Figure 11 - PT-100

These are temperature detectors with operating principles 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 an alarm (with the operation above the regular operating temperature) and trip (usually set up for the maximum temperature of the insulation class).

9.2 PTC



Figure 12 - Thermistor (PTC)

These are thermal protectors consisting of semiconductor detectors with sudden variations of 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 a 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 please check on the website www.weg.net.

10. Packaging

W21 Prime motors frame 80 to 132, the packaging of motor are carton box.



Figure 13. Carton Box

WEG choose different packaging according to the mounting and frame size of motors.



Figure 14-1 - Crate1



Figure 14-2 - Crate2



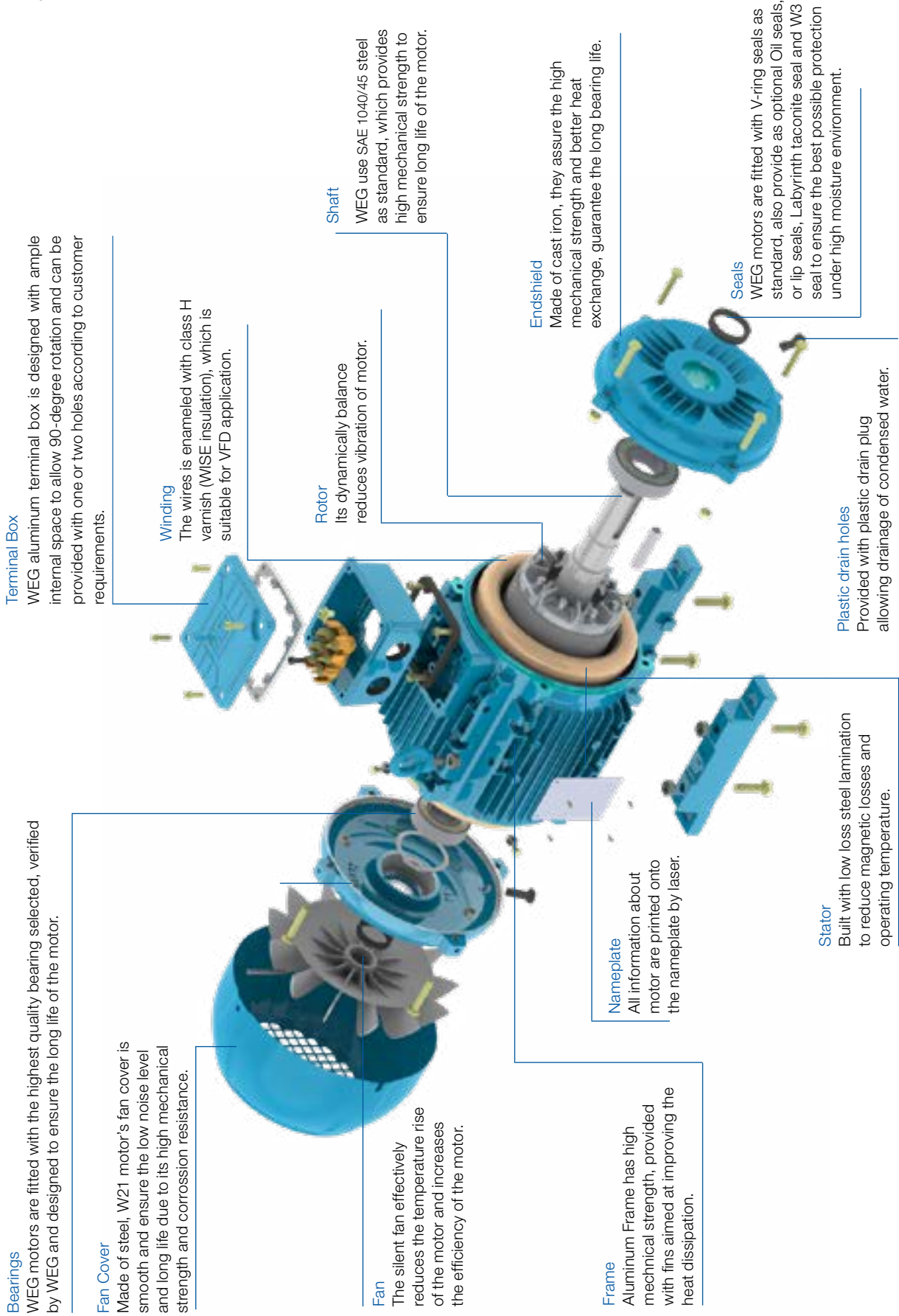
Figure 14-3 - Crate3



Figure 15 - Carton box

The WEG packaging is under continuous improvement, it is subject to change without previous notifications.

W21 Prime Aluminum Frame Motor Exploded View



11. Construction Features - W21 Prime Aluminum Frame Motor

Frame			80	90S/L	90S/L-1	100L	112M	112M-1	132S	132M
Mechanical Features										
Nameplate Marks			CE; IEC 60034; GB/T 755							
Certificate			CCC*, CEL							
Mounting			B3T							
Frame	Material		铝壳							
Protection Degree			IP55							
Grounding			Single grounding (Terminal box)							
Cooling method			TEFC (IC411)							
Fan	Material		Plastic							
Fan cover	Material		Steel Plate							
Endshields	Material		FC-200 Cast Iron							
Drain hole			Automatic T-type labyrinth drain plug							
Bearings	Clearance (D.E)		ZZ							
	Clearance (N.D.E)		ZZ							
	Locking		Non-locking bearings, wave washer in non-drive end bearing							
	Bearing Life		20000h							
	D.E		6204	6205	6205	6206	6207	6207	6308	6308
	N.D.E		6203	6204	6204	6205	6206	6206	6207	6207
Bearing Seal			V-rings							
Joint Seal			None							
Lubrication	Type		Mobile POLYREX EM							
	Grease fitting		None							
Terminal block			BMC 6 Pins (Orange)							
Terminal Box	Material		Aluminum							
Additional terminal box			None							
Lead inlet	Main	Size	2 x M20 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M25 x 1.5	2 x M32 x 1.5	2 x M32 x 1.5	2 x M32 x 1.5	2 x M32 x 1.5
	Lateral	Size	None							
	Auxiliar	Size	None							
	Plug		Equipped with plastic cover for transportation and storage							
Shaft	Material		SAE 1040/45							
	Threaded hole in DE		M6	M8	M8	M10	M10	M10	M12	M12
Key			Type A (China: type B)							
Vibration			Grade A							
Balance			1/2 key							
Nameplate	Material		AISI 304 Stainless steel							
Painting	Plan		207A							
	Color		GB3 / IE3 : RAL 5009				GB2 / IE4: RAL 6002			
	Tropicalized		None							
Packaging			Carton Box							
Electrical Features										
Design			IE3: N IE4: NE							
Voltage			380V with 3 terminals			380V with 6 terminals				
Winding	Impregnation		Continuous vacuum impregnation							
	Insulation Class		F(DT 80K)							
Service Factor			1.00							
Duty			S1							
Thermal Protection			None							
Space Heater			None							
Extended leads			None							
Ambient Temperature	Maximum		+40°C							
	Minimum		-20°C							
Starting Method			D.O.L							
Insulated Endshield			None							

Note: Please contact the relevant sales personnel for requirements other than the above standard structural features.

12. Optional Features - W21 Prime Aluminum Frame Motor

Frame	80	90S/L	90S/L-1	100L	112M	112M-1	132S	132M
Mechanical Features								
Flange								
FF Flange	0	0	0	0	0	0	0	0
C-DIN Flange	0	0	0	0	0	0	0	0
C Flange	0	0	0	0	0	0	0	0
Cable Gland								
Plastic	0	0	0	0	0	0	0	0
Terminal Box								
Base	E	E	E	E	E	E	E	E
W21 Cast Iron	0	0	0	0	0	0	0	0
W21 Cast Iron + Aux T-box	0	0	0	0	0	0	0	0
Stainless steel screw								
304 Stainless Steel	0	0	0	0	0	0	0	0
Bearing Cap								
With Bearing Cap	0	0	0	0	0	0	0	0
Insulation Class								
F DT 105K	0	0	0	0	0	0	0	0
H DT 80K	0	0	0	0	0	0	0	0
H DT 105K	0	0	0	0	0	0	0	0
H DT 125K	0	0	0	0	0	0	0	0
Painting Plan								
203A	0	0	0	0	0	0	0	0
205E	0	0	0	0	0	0	0	0
205P	0	0	0	0	0	0	0	0
Fan								
Aluminum	E	E	E	E	E	E	E	E
Protection Degree								
IP56	0	0	0	0	0	0	0	0
IP65	E	E	E	E	E	E	E	E
IP66	E	E	E	E	E	E	E	E
Others								
Canopy	0	0	0	0	0	0	0	0
Cooling Method								
TEBC	E	E	E	E	E	E	E	E
TEA0	E	E	E	E	E	E	E	E
Shaft material								
SAE 4140	0	0	0	0	0	0	0	0
Electrical Features								
Winding Thermal protection								
Bimetal 130°C Alarm/trip	0	0	0	0	0	0	0	0
Bimetal 155°C Alarm/trip	0	0	0	0	0	0	0	0
Bimetal 180°C trip	0	0	0	0	0	0	0	0
PT100 2 wires - Alarm	0	0	0	0	0	0	0	0
PT100 3 wires - Alarm	0	0	0	0	0	0	0	0
PTC-130°C Alarm/trip	0	0	0	0	0	0	0	0
PTC-155°C Alarm/trip	0	0	0	0	0	0	0	0
PTC-180°C trip	0	0	0	0	0	0	0	0
Space Heater								
200-240 V	0	0	0	0	0	0	0	0
110-127 V	0	0	0	0	0	0	0	0
380-480 V	0	0	0	0	0	0	0	0
Rotation Direction								
Clockwise	0	0	0	0	0	0	0	0
Counterclockwise	0	0	0	0	0	0	0	0
Service Factor								
S.F 1.15	0	0	0	0	0	0	0	0

Note:
P = STANDARD configuration;
O = OPTIONAL configuration;
E = ESPECIAL configuration, please consult;
NA = NOT AVAILABLE configuration is not available

Note: *: Rated power ≤ synchronous speed x1.1kW/1500;
2P:≤2.2kW 4P:≤1.1kW; 6P:≤0.75kW 8P:≤0.55kW

13. Electrical Data

W21 Prime Aluminum Frame GB3 / IE3

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current I/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kg.m²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	380 V						Full load current In (A)
													Efficiency at % Load			Power Factor at % Load			
kW	HP							50%	75%				100%	50%	75%	100%			
2P - 50Hz																			
0.55	0.75	80	0.185	6.6	2.1	2.8	0.0012	25	55	10.5	64	2900	72.3	76.2	77.8	0.57	0.70	0.78	1.38
0.75	1	80	0.253	6.5	2.2	2.8	0.0015	22	48	12.2	64	2893	77.8	80.5	80.7	0.62	0.74	0.81	1.74
1.1	1.5	L80	0.371	6.8	2.2	2.8	0.0021	17	37	14.5	64	2889	81.4	82.1	82.7	0.67	0.78	0.84	2.41
1.5	2	90S/L	0.504	7.3	2.2	3	0.0045	16	35	23.8	67	2898	82.3	83.7	84.2	0.69	0.81	0.86	3.15
2.2	3	90S/L	0.738	7.7	2.4	3.2	0.0053	12	26	25.9	67	2905	83.7	85.1	85.9	0.67	0.79	0.86	4.52
2.2*	3	90S/L-1	0.738	7.7	2.4	3.2	0.0053	12	26	25.9	67	2905	83.7	85.1	85.9	0.67	0.79	0.86	4.52
3	4	100L	1.01	7.3	2.3	3.2	0.0072	18	40	32.0	64	2900	86.4	86.7	87.1	0.67	0.79	0.85	6.16
4	5.5	112M	1.35	7.6	2.6	3.3	0.0070	9	20	36.5	65	2895	86.1	87.7	88.1	0.69	0.80	0.85	8.12
5.5	7.5	132S	1.81	8.0	2.7	3.7	0.0341	24	53	66.3	67	2955	86.5	87.4	89.2	0.65	0.78	0.85	11.0
7.5	10	132S	2.47	8.0	2.7	3.7	0.0398	18	40	71.9	67	2955	88.0	89.2	90.1	0.68	0.79	0.84	15.1
9.2	12.5	L132S	3.03	8.8	2.9	3.6	0.0483	15	33	81.2	67	2957	88.0	89.4	90.7	0.67	0.78	0.84	18.3
11	15	L132S	3.64	7.2	2.7	3.3	0.0483	27	59	81.2	67	2942	88.0	89.4	91.2	0.72	0.82	0.86	21.3
High Output Design																			
1.1	1.5	80	0.375	6.5	2.5	2.8	0.0015	24	53	12.2	64	2860	81.7	82.1	82.7	0.65	0.77	0.83	2.43
1.5	2	L80	0.506	7.0	2.4	3	0.0023	12	26	16.8	64	2887	82.0	83.9	84.2	0.64	0.76	0.83	3.26
3	4	90S/L-1	1.00	7.9	2.5	3.5	0.0064	10	22	30.5	67	2910	85.7	86.9	87.1	0.67	0.79	0.86	6.08
3*	4	L90S/L-1	1.00	7.9	2.5	3.5	0.0064	10	22	30.5	67	2910	85.7	86.9	87.1	0.67	0.79	0.86	6.08
4	5.5	L100L	1.34	7.9	2.6	3.5	0.0094	14	31	38.8	64	2907	86.9	87.5	88.1	0.68	0.80	0.85	8.12
5.5	7.5	132M	1.81	8.0	2.7	3.7	0.0341	24	53	66.3	67	2955	86.5	87.4	89.2	0.65	0.78	0.85	11.0
5.5	7.5	112M-1	1.84	8.5	3.1	3.7	0.0096	14	31	45.0	65	2904	86.1	87.7	89.2	0.69	0.80	0.85	11.0
7.5	10	132M	2.47	8.0	2.7	3.7	0.0398	18	40	71.9	67	2955	88.0	89.2	90.1	0.68	0.79	0.84	15.1
9.2	12.5	132M	3.05	8.5	2.7	3.3	0.0398	23	51	71.9	67	2942	88.0	89.4	90.7	0.72	0.82	0.86	17.9
9.2	12.5	132S	3.05	8.5	2.7	3.3	0.0398	23	51	71.9	67	2942	88.0	89.4	90.7	0.72	0.82	0.86	17.9
9.2	12.5	L132M	3.03	8.8	2.9	3.6	0.0483	15	33	81.2	67	2957	88.0	89.4	90.7	0.67	0.78	0.84	18.3
11	15	L132M	3.64	7.2	2.7	3.3	0.0483	27	59	81.2	67	2942	88.0	89.4	91.2	0.72	0.82	0.86	21.3
4P - 50Hz																			
0.37	0.5	80	0.245	6.4	2.1	3.2	0.0038	28	62	13.0	49	1469	71.3	76.5	77.3	0.45	0.57	0.67	1.09
0.55	0.75	80	0.366	6.3	2	3	0.0049	26	57	14.6	49	1463	77.3	80.6	80.8	0.52	0.65	0.74	1.40
0.75	1	L80	0.500	6.3	1.99	2.9	0.0057	19	42	15.5	49	1462	78.3	81.3	82.5	0.53	0.67	0.75	1.84
1.1	1.5	90S/L	0.740	6.9	2.5	2.8	0.0075	25	55	24.0	53	1447	82.9	83.6	84.1	0.57	0.70	0.78	2.55
1.5	2	90S/L	1.01	7.2	2.6	2.9	0.0075	27	59	24.0	53	1440	83.9	84.7	85.3	0.59	0.72	0.78	3.43
2.2	3	100L	1.47	6.8	2	2.8	0.0169	25	55	33.8	56	1459	85.6	86.8	86.7	0.60	0.73	0.79	4.88
3	4	L100L	2.00	7.7	2.5	3.3	0.0208	18	40	44.8	56	1463	86.2	87.6	87.7	0.57	0.70	0.77	6.75
4	5.5	L100L	2.69	7.2	2.6	2.9	0.0182	20	44	38.5	56	1450	87.6	88.0	88.6	0.61	0.73	0.80	8.57
4	5.5	112M-1	2.68	7.3	2.8	3.2	0.0182	19	42	47.1	56	1452	86.4	87.5	88.6	0.57	0.70	0.77	8.91
5.5	7.5	132S	3.64	8.4	2.5	3.3	0.0453	16	35	62.5	60	1470	87.0	88.2	89.6	0.60	0.73	0.80	11.7
7.5	10	L132S	4.99	8.4	2.6	3.2	0.0642	13	29	81.2	60	1465	89.0	89.9	90.4	0.66	0.77	0.83	15.2
11	15	L132S	7.34	7.6	2.6	3	0.0755	26	57	89.6	60	1460	87.6	89.1	91.4	0.70	0.81	0.85	21.5
High Output Design																			
0.75	1	80	0.503	6.4	2.3	2.9	0.0041	24	53	13.5	49	1452	79.8	82.4	82.5	0.54	0.67	0.76	1.82
1.1	1.5	L80	0.739	6.6	2.6	3	0.0055	21	46	16.4	49	1449	82.9	83.4	84.1	0.57	0.70	0.78	2.55
2.2	3	90S/L-1	1.50	7.1	3.3	3	0.0097	24	53	31.9	53	1430	84.7	85.9	86.7	0.63	0.75	0.81	4.76
2.2	3	L90S/L-1	1.50	7.1	3.3	3	0.0097	24	53	31.9	53	1430	84.7	85.9	86.7	0.63	0.75	0.81	4.76
3	4	100L	2.02	6.4	2.2	2.6	0.0156	32	70	32.8	56	1446	85.9	86.4	87.7	0.65	0.76	0.81	6.42
4	5.5	112M	2.70	7.3	2.7	2.9	0.0143	28	62	39.6	56	1442	86.4	87.5	88.6	0.57	0.70	0.77	8.91
5.5	7.5	132M	3.64	8.4	2.5	3.3	0.0453	16	35	62.5	60	1470	87.0	88.2	89.6	0.60	0.73	0.80	11.7
5.5	7.5	112M-1	3.71	7.4	3	3.1	0.0195	32	70	49.3	56	1442	86.4	88.5	89.6	0.57	0.69	0.76	12.3
5.5*	7.5	L112M-1	3.71	7.4	3	3.1	0.0195	32	70	49.3	56	1442	86.4	88.5	89.6	0.57	0.69	0.76	12.3
7.5	10	132M	5.00	8.4	2.6	3	0.0528	22	48	71.9	60	1462	89.0	89.9	90.4	0.68	0.79	0.84	15.0
7.5	10	132S	5.00	8.4	2.6	3	0.0528	22	48	71.9	60	1462	89.0	89.9	90.4	0.68	0.79	0.84	15.0
7.5	10	L132M	4.99	8.4	2.6	3.2	0.0642	13	29	81.2	60	1465	89.0	89.9	90.4	0.66	0.77	0.83	15.2
11	15	L132M	7.34	7.6	2.6	3	0.0755	26	57	89.6	60	1460	87.6	89.1	91.4	0.70	0.81	0.85	21.5

Note: Standard power is only suitable for standard end cover (no flange design).
Power with * is designed for standard FF flange motor.
L means extended NDE endshield,
-1 means extended frame.

W21 Prime Aluminum Frame GB3 / IE3

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current lI/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kg.m²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	380 V						Full load current In (A)
													Efficiency at % Load			Power Factor at % Load			
kW	HP																		
								Hot	Cold				50%	75%	100%	50%	75%	100%	
6P - 50Hz																			
0.25	0.33	80	0.253	3.9	1.7	2.6	0.0036	37	81	12.5	45	963	64.0	70.1	68.6	0.43	0.55	0.62	0.893
0.37	0.5	80	0.375	4.4	1.9	2.7	0.0049	31	68	14.8	45	962	68.2	73.5	73.5	0.43	0.55	0.63	1.21
0.55	0.75	L80	0.558	4.8	2.2	2.9	0.0060	25	55	18.0	45	960	70.5	75.5	77.2	0.42	0.55	0.62	1.75
0.75	1	90S/L	0.759	4.8	2	2.5	0.0121	46	101	24.8	44	963	75.6	78.1	78.9	0.46	0.59	0.68	2.12
1.1	1.5	90S/L-1	1.11	5.1	2.3	2.6	0.0143	31	68	31.9	44	962	76.0	79.4	81.0	0.45	0.58	0.67	3.08
1.5	2	L100L	1.51	5.5	2	2.4	0.0257	29	64	38.5	48	965	80.0	82.0	82.5	0.49	0.60	0.70	3.95
2.2	3	112M-1	2.24	5.2	1.8	2.1	0.0257	42	92	47.3	52	955	82.3	83.7	84.3	0.57	0.70	0.76	5.22
3	4	112M-1	3.06	5.8	2.5	2.7	0.0275	60	132	49.5	52	956	82.3	84.3	85.6	0.54	0.67	0.74	7.20
3*	4	L112M-1	3.06	5.8	2.5	2.7	0.0275	60	132	49.5	52	956	82.3	84.3	85.6	0.54	0.67	0.74	7.20
3	4	132S	2.97	6.6	2.5	3.3	0.1055	15	33	74.8	60	983	80.8	83.8	85.6	0.50	0.63	0.73	7.29
4	5.5	132S	3.99	6.2	2.5	2.8	0.0844	17	37	63.5	60	976	84.5	86.0	86.8	0.55	0.68	0.76	9.21
5.5	7.5	132S	5.46	7.4	3.2	3.5	0.1196	14	31	80.7	60	981	83.5	87.2	88.0	0.50	0.63	0.72	13.2
High Output Design																			
1.1	1.5	100L	1.11	5.4	2.0	2.5	0.0193	33	73	31.4	48	966	78.2	80.5	81.0	0.47	0.60	0.68	3.03
1.5	2	100L	1.53	5.2	2.2	2.3	0.0165	37	81	29.5	48	953	80.0	82.0	82.5	0.50	0.63	0.71	3.89
1.5	2	90S/L-1	1.54	5.0	2.4	2.4	0.0143	44	97	31.9	44	950	81.3	81.7	82.5	0.50	0.63	0.71	3.89
2.2	3	112M	2.26	5.2	2	2.2	0.0202	68	150	38.0	52	950	83.0	83.7	84.3	0.57	0.70	0.76	5.22
2.2	3	L100L	2.25	5.6	2.4	2.5	0.0257	32	70	38.5	48	953	82.9	83.4	84.3	0.53	0.65	0.73	5.43
3	4	132M	2.97	6.6	2.5	3.3	0.1055	15	33	74.8	60	983	80.8	83.8	85.6	0.50	0.63	0.73	7.29
4	5.5	132M	3.99	6.2	2.5	2.8	0.0844	17	37	63.5	60	976	84.5	86.0	86.8	0.55	0.68	0.76	9.21
5.5	7.5	132M	5.46	7.4	3.2	3.5	0.1196	14	31	80.7	60	981	83.5	87.2	88.0	0.50	0.63	0.72	13.2

W21 Prime Aluminum Frame GB2 / IE4

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current lI/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kg.m²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	380 V						Full load current In (A)
													Efficiency at % Load			Power Factor at % Load			
								Hot	Cold				50%	75%	100%	50%	75%	100%	
2P - 50Hz																			
0.55	0.75	80	0.184	7.5	2.6	3.2	0.0016	28	62	12.8	64	2918	75.3	79.3	81.5	0.60	0.71	0.79	1.30
0.75	1	L80	0.250	8.2	2.8	3.7	0.0020	23	51	14.2	64	2917	79.0	82.1	83.5	0.60	0.71	0.79	1.73
1.1	1.5	80	0.371	7.8	3.3	3.6	0.0019	26	57	13.9	64	2889	83.0	84.9	85.2	0.64	0.76	0.82	2.39
1.5	2	90S/L-1	0.499	9.8	3	4.1	0.0064	13	29	30.5	67	2927	83.7	85.9	86.5	0.66	0.78	0.85	3.10
1.5*	2	L90S/L-1	0.499	9.8	3	4.1	0.0064	13	29	30.5	67	2927	83.7	85.9	86.5	0.66	0.78	0.85	3.10
2.2	3	90S/L	0.738	9.1	3.3	3.8	0.0053	18	40	25.9	67	2905	85.8	87.2	88.0	0.67	0.79	0.85	4.47
2.2*	3	90S/L-1	0.738	9.1	3.3	3.8	0.0053	18	40	25.9	67	2905	85.8	87.2	88.0	0.67	0.79	0.85	4.47
3	4	L100L	0.998	9.1	3	4.2	0.0094	17	37	38.8	64	2929	87.2	88.7	89.1	0.63	0.76	0.82	6.24
4	5.5	112M	1.34	9.3	3.5	3.9	0.0081	31	68	39.5	65	2906	88.1	89.1	90.0	0.70	0.80	0.86	7.85
4*	5.5	112M-1	1.34	9.3	3.5	3.9	0.0081	31	68	39.5	65	2906	88.1	89.1	90.0	0.70	0.80	0.86	7.85
5.5	7.5	L132S	1.81	9.8	3.45	4.56	0.0483	28	62	81.2	67	2965	88.1	89.1	90.9	0.70	0.80	0.85	10.8
7.5	10	L132S	2.48	7.8	2.8	3.6	0.0483	46	101	81.2	67	2951	89.1	90.1	91.7	0.78	0.84	0.88	14.1
High Output Design																			
0.75	1	80	0.252	7.9	3.0	3.6	0.0015	32	70	12.2	64	2900	79.2	82.0	83.5	0.60	0.71	0.79	1.73
1.5	2	90S/L	0.503	9.8	3	3.8	0.0048	20	44	24.5	67	2905	84.2	86.0	86.5	0.68	0.78	0.85	3.10
3	4	100L	1.00	8.3	3	3.8	0.0072	29	64	32.0	64	2913	87.3	88.7	89.1	0.63	0.76	0.82	6.24
4	5.5	L100L	1.34	9.0	3.4	4.3	0.0094	26	57	38.8	64	2912	88.4	89.1	90.0	0.67	0.78	0.84	8.04
5.5	7.5	132M	1.81	9.8	3	4.1	0.0398	44	97	71.9	67	2961	87.6	89.1	90.9	0.70	0.80	0.85	10.8
5.5	7.5	132S	1.81	9.8	3	4.1	0.0398	44	97	71.9	67	2961	87.6	89.1	90.9	0.70	0.80	0.85	10.8
5.5	7.5	L132M	1.81	9.8	3.45	4.56	0.0483	28	62	81.2	67	2965	88.1	89.1	90.9	0.70	0.80	0.85	10.8
5.5	7.5	112M-1	1.84	9.8	3.9	4.5	0.0103	26	57	47.1	65	2909	88.1	89.7	90.9	0.71	0.82	0.86	10.7
5.5*	7.5	L112M-1	1.84	9.8	3.9	4.5	0.0103	26	57	47.1	65	2909	88.1	89.7	90.9	0.71	0.82	0.86	10.7
7.5	10	L132M	2.48	7.8	2.8	3.6	0.0483	46	101	81.2	67	2951	89.1	90.1	91.7	0.78	0.84	0.88	14.1
4P - 50Hz																			
0.37	0.5	80	0.245	6.7	2.1	3.2	0.0049	33	73	41.6	49	1470	74.8	79.0	81.1	0.47	0.60	0.69	1.00
0.55	0.75	L80	0.365	7.0	2.2	3.3	0.0060	28	62	17.9	49	1466	78.5	81.9	83.9	0.51	0.64	0.73	1.36
0.75	1	80	0.504	6.7	2.4	2.8	0.0049	34	75	14.6	49	1450	83.1	84.7	85.7	0.60	0.72	0.79	1.68
0.75	1	90S/L	0.500	8.2	3.1	3.5	0.0082	34	75	24.4	53	1461	81.6	84.4	85.7	0.51	0.65	0.73	1.82
0.75*	1	90S/L-1	0.500	8.2	3.1	3.5	0.0082	34	75	24.4	53	1461	81.6	84.4	85.7	0.51	0.65	0.73	1.82
1.1	1.5	90S/L	0.737	8.5	3.3	3.6	0.0075	38	84	24.0	53	1453	85.0	86.8	87.2	0.54	0.67	0.75	2.56
1.5	2	90S/L-1	1.01	8.9	4.2	3.9	0.0097	32	70	31.9	53	1453	86.2	87.8	88.2	0.55	0.68	0.76	3.40
2.2	3	L100L	1.47	7.4	2.4	3.1	0.0182	53	117	38.5	56	1460	88.2	88.7	89.5	0.61	0.73	0.79	4.73
3	4	L100L	1.99	8.6	3.1	3.7	0.0208	33	73	44.8	56	1465	88.4	89.6	90.4	0.57	0.70	0.77	6.55
4	5.5	112M-1	2.68	8.1	3.2	3.6	0.0208	35	77	51.3	56	1455	89.6	90.6	91.1	0.57	0.70	0.77	8.66
4*	5.5	L112M-1	2.68	8.1	3.2	3.6	0.0208	35	77	51.3	56	1455	89.6	90.6	91.1	0.57	0.70	0.77	8.66
5.5	7.5	132S	3.65	9.0	3	3.7	0.0528	35	77	71.9	60	1469	89.1	90.5	91.9	0.65	0.77	0.82	11.1
7.5	10	L132S	4.96	9.9	3.4	4	0.0755	37	81	89.6	60	1473	90.0	91.2	92.6	0.65	0.76	0.82	15.0
High Output Design																			
0.55	0.75	80	0.367	6.9	2.6	3.2	0.0038	31	68	13.0	49	1460	78.2	81.6	83.9	0.51	0.64	0.73	1.36
1.5	2	L100L	0.994	8.0	2.3	3.4	0.0208	43	95	44.8	56	1470	85.2	87.3	88.2	0.56	0.68	0.76	3.40
4	5.5	132M	2.65	8.7	2.6	3.3	0.0453	44	97	62.5	60	1468	88.0	88.8	91.1	0.63	0.75	0.82	8.14
4	5.5	132S	2.65	8.7	2.6	3.3	0.0453	44	97	62.5	60	1468	88.0	88.8	91.1	0.63	0.75	0.82	8.14
4	5.5	L132M	2.64	9.7	2.9	3.8	0.0642	27	59	81.2	60	1474	88.0	89.1	91.1	0.63	0.75	0.82	8.14
4	5.5	L132S	2.64	9.7	2.9	3.8	0.0642	27	59	81.2	60	1474	88.0	89.1	91.1	0.63	0.75	0.82	8.14
5.5	7.5	132M	3.65	9.0	3	3.7	0.0528	35	77	71.9	60	1469	89.1	90.5	91.9	0.65	0.77	0.82	11.1
7.5	10	L132M	4.96	9.9	3.4	4	0.0755	37	81	89.6	60	1473	90.0	91.2	92.6	0.65	0.76	0.82	15.0

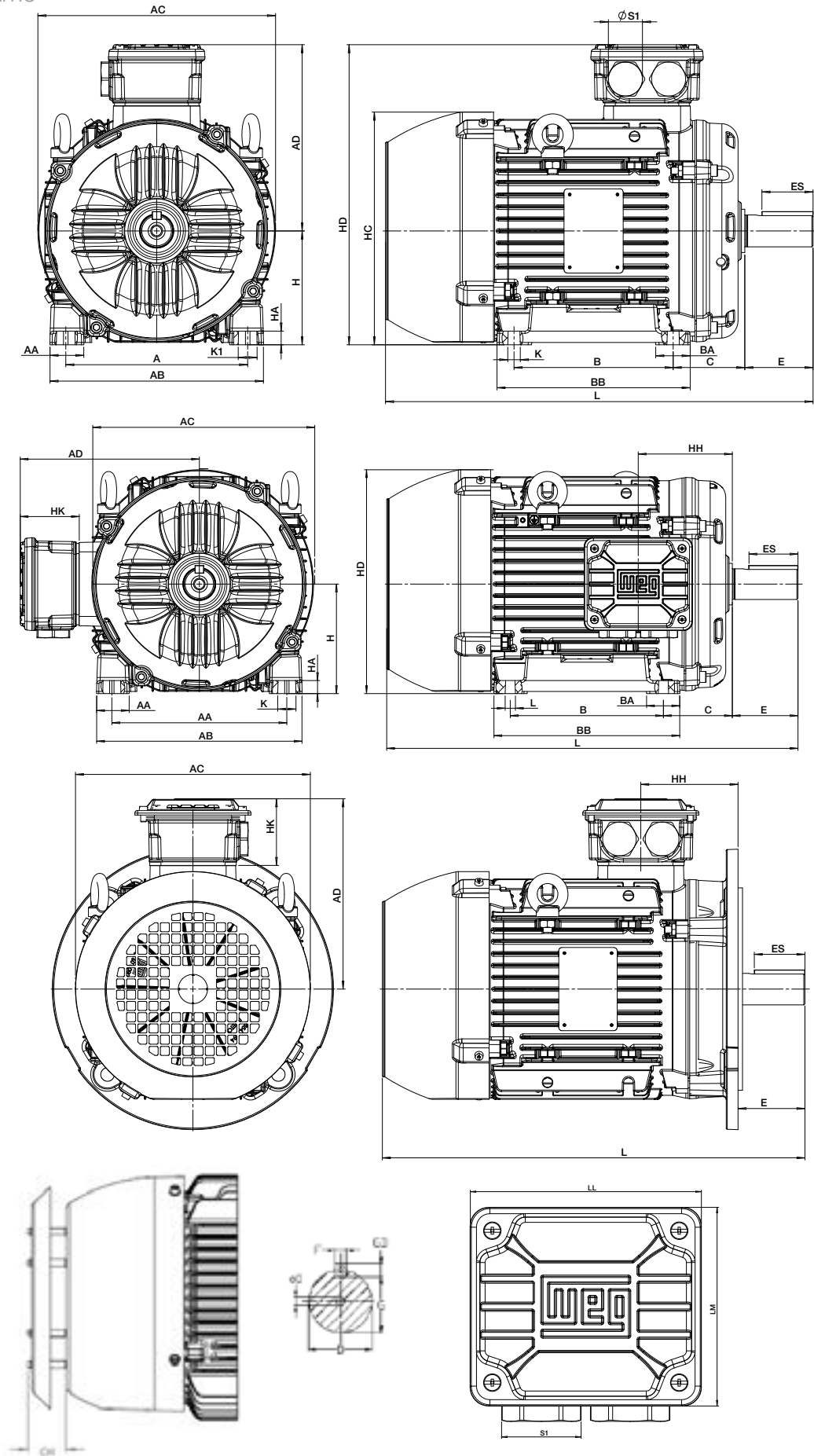
Note: Standard power is only suitable for standard end cover (no flange design).
Power with * is designed for standard FF flange motor.
L means extended NDE endshield,
-1 means extended frame.

W21 Prime Aluminum Frame GB2 / IE4

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current lI/In	Locked Rotor Torque TI/Tn	Break-down Torque Tb/Tn	Inertia J (kg.m²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	380 V						Full load current In (A)
													Efficiency at % Load			Power Factor at % Load			
													Hot	Cold	50%	75%	100%	50%	
kW	HP																		
6P - 50Hz																			
0.25	0.33	80	0.252	4.5	2.0	2.9	0.0049	57	125	14.8	45	965	70.5	75.4	74.1	0.43	0.55	0.62	0.827
0.37	0.5	L80	0.375	4.6	1.9	2.7	0.0060	46	101	18.0	45	960	73.5	77.4	78.0	0.45	0.58	0.65	1.11
0.55	0.75	L80	0.562	5.2	2.7	3	0.0060	48	106	18.0	45	954	77.8	79.4	80.9	0.47	0.60	0.66	1.57
0.75	1	90S/L	0.763	4.8	2	2.3	0.0121	95	209	24.8	44	957	80.3	81.6	82.7	0.50	0.63	0.71	1.94
1.1	1.5	90S/L-1	1.12	5.2	2.4	2.6	0.0143	62	136	31.9	44	958	80.8	82.8	84.5	0.48	0.61	0.69	2.87
1.5	2	100L	1.53	5.5	2	2.3	0.0238	61	134	33.8	48	957	82.7	84.7	85.9	0.54	0.66	0.73	3.63
2.2	3	112M-1	2.22	6.5	2.8	3	0.0257	65	143	47.3	52	964	84.7	85.2	87.4	0.50	0.63	0.70	5.46
3	4	132S	2.98	7.3	3.2	3.8	0.0915	22	48	69.1	60	982	84.1	86.9	88.6	0.49	0.62	0.71	7.25
4	5.5	132S	3.99	6.2	2.4	2.6	0.1196	26	57	80.7	60	977	87.0	88.5	89.5	0.61	0.73	0.80	8.49
5.5	7.5	L132S	5.46	7.3	3	3.1	0.1407	19	42	89.6	60	981	87.0	88.9	90.5	0.54	0.67	0.75	12.3
High Output Design																			
0.37	0.5	80	0.377	4.9	2.3	2.8	0.0041	55	121	13.7	45	955	76.0	77.7	78.0	0.44	0.57	0.64	1.13
0.55	0.75	90S/L-1	0.552	5.3	2.1	2.9	0.0143	73	161	31.9	44	970	75.1	79.2	80.9	0.43	0.55	0.64	1.61
1.1	1.5	100L	1.11	5.5	1.9	2.4	0.0202	68	150	31.8	48	962	82.9	84.7	84.5	0.51	0.63	0.69	2.87
1.1	1.5	L100L	1.11	5.5	1.8	2.4	0.0293	55	121	44.8	48	968	81.1	83.4	84.5	0.49	0.61	0.69	2.87
2.2	3	L100L	2.22	6.6	3.2	3.3	0.0293	34	75	44.8	48	965	84.0	85.9	87.4	0.47	0.59	0.67	5.71
3	4	132M	2.98	7.3	3.2	3.8	0.0915	22	48	69.1	60	982	84.1	86.9	88.6	0.49	0.62	0.71	7.25
4	5.5	132M	3.99	6.2	2.4	2.6	0.1196	26	57	80.7	60	977	87.0	88.5	89.5	0.61	0.73	0.80	8.49
5.5	7.5	L132M	5.46	7.3	3	3.1	0.1407	19	42	89.6	60	981	87.0	88.9	90.5	0.54	0.67	0.75	12.3

14. Mechanical Data

Aluminum Frame

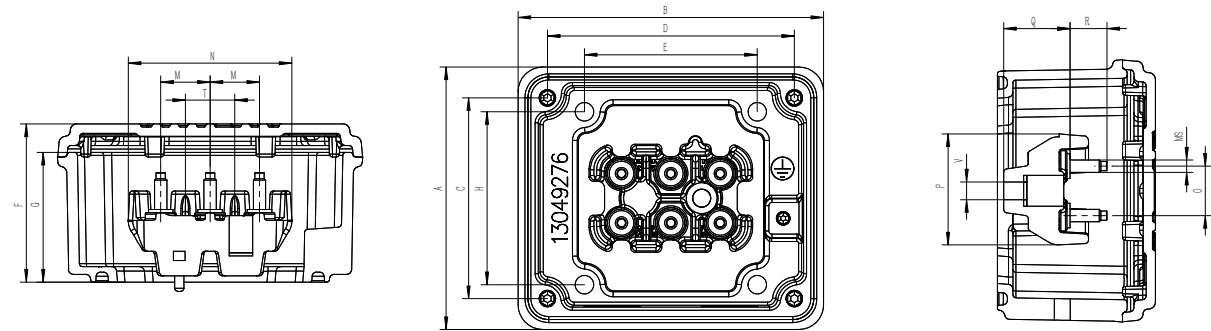


IEC	Feet											Keyway			
Frame	A	B	K	K1	C	H	AA	AB	BA	BB	HA	F	GD	G	ES
80	125	100	10	13	50	80	24	150	29	124	8	6	6	15.5	28
90S/L	140	100 / 125	10	13	56	90	24	164	25	146	9	8	7	20	36
90S/L-1	140	100 / 125	10	13	56	90	24	164	25	146	9	8	7	20	36
100L	160	140	12	16	63	100	30	188	30	170	12	8	7	24	45
112M	190	140	12	18	70	112	37.5	219	36	170	12	8	7	24	45
112M-1	190	140	12	18	70	112	37.5	219	36	170	12	8	7	24	45
132S	216	140	12	18	89	132	35.5	248	37	170	12	10	8	33	63
132M	216	178	12	18	89	132	35.5	248	39.5	210	12	10	8	33	63
Mounting	Only with feet											All			

IEC	Shaft end			Drip Cover		External										Bearings		
Frame	E	D	d1	LCH	CH	L	L*	AC	AD	HC	HD	AC	AD	HD	AC	AD	DE	NDE
80	40	19j6	DM6	296	19	277	300	163	145	170	225	163	145	162	163	145	6204	6203
90S/L	50	24j6	DM8	349	19	330	/	186	155	190	245	186	155	187	186	155	6205	6204
90S/L-1	50	24j6	DM8	378	19	360	389	186	155	190	245	186	155	187	186	155	6205	6204
100L	60	28j6	DM10	407	31	376	411	209	165	210	265	209	165	205	209	165	6206	6205
112M	60	28j6	DM10	424	35	389	/	230	197	237	309	230	197	227	230	197	6207	6206
112M-1	60	28j6	DM10	459	35	424	457	230	197	237	309	230	197	227	230	197	6207	6206
132S	80	38k6	DM12	526	35	491	518	271	222	282	354	271	222	268	271	222	6308	6207
132M	80	38k6	DM12	526	35	491	518	271	222	282	354	271	222	268	271	222	6308	6207
Mounting	All							Top				Sideway			Footless		All	

Note: L* is the total length of the motor with the extended rear cover.

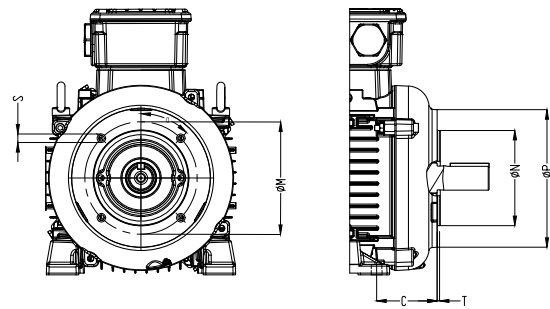
W21 Prime Aluminum Frame- T-box



IEC	Terminal Box Dimensional																
Frame	A	B	C	D	E	F	G	H	M	N	O	P	Q	R	S	T	V
80-100	85	99	79	77	56	51.2	42	56	16	53	16	35	19.5	8.5	4	16	5.8
112-132	117	137	88	108	70	67.7	58	70	23	75	23	51.3	23	10.5	5	23	5.8
Mounting	All																

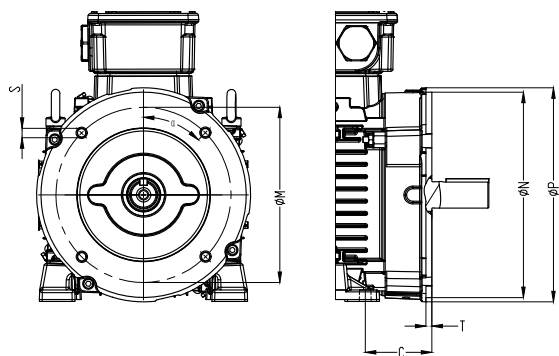
Flange Dimension

C-DIN Flange dimension



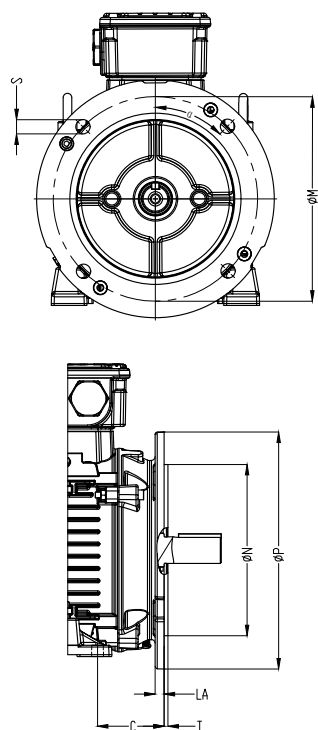
C-DIN Flange dimension											
IEC Frame	Bearings		Flange	C	M	N	P	S		T	α
	DE	NDE						Qty	Size		
80	6204	6203	C-120	50	100	80	120	4	M6	3	45°
90S/L	6205	6204	C-140	56	115	95	140	4	M8	3	45°
90S/L-1	6205	6204	C-140	56	115	95	140	4	M8	3	45°
100L	6206	6205	C-160	63	130	110	160	4	M8	3.5	45°
112M	6207	6206	C-160	70	130	110	160	4	M8	3.5	45°
112M-1	6207	6206	C-160	70	130	110	160	4	M8	3.5	45°
132S	6308	6207	C-200	89	165	130	200	4	M10	3.5	45°
132M	6308	6207	C-200	89	165	130	200	4	M10	3.5	45°

FC Flange dimension



FC Flange dimension											
IEC Frame	Bearings		Flange	C	M	N	P	S		T	α
	DE	NDE						Qty	Size		
80	6204	6203	FC-95	50	95.2	76.2	143	4	UNC1/4"×20	4	45°
90S/L	6205	6204	FC-149	56	149.2	114.3	165	4	UNC3/8"×16	4	45°
90S/L-1	6205	6204	FC-149	56	149.2	114.3	165	4	UNC3/8"×16	4	45°
100L	6206	6205	FC-149	63	149.2	114.3	165	4	UNC3/8"×16	4	45°
112M	6207	6206	FC-184	70	184.2	215.9	225	4	UNC1/2"×13	6.3	45°
112M-1	6207	6206	FC-184	70	184.2	215.9	225	4	UNC1/2"×13	6.3	45°
132S	6308	6207	FC-184	89	184.2	215.9	225	4	UNC1/2"×13	6.3	45°
132M	6308	6207	FC-184	89	184.2	215.9	225	4	UNC1/2"×13	6.3	45°

FF Flange dimension



FF Flange dimension												
IEC	Bearings		Flange	C	LA	M	N	P	S		T	α
Frame	DE	NDE							Qty	Size		
80	6204	6203	FF-165	50	10	165	130	200	4	12	3.5	45°
			FF-215		11	215	180	250	4	15	3.5	45°
90S/L	6205	6204	FF-165	56	10	165	130	200	4	12	3.5	45°
			FF-215		11	215	180	250	4	15	3.5	45°
90S/L-1	6205	6204	FF-165	56	10	165	130	200	4	12	3.5	45°
			FF-215		11	215	180	250	4	15	3.5	45°
100L	6206	6205	FF-215	63	11	215	180	250	4	15	4	45°
			FF-265		12	265	230	300	4	15	4	45°
112M	6207	6206	FF-215	70	11	215	180	250	4	15	4	45°
			FF-265		12	265	230	300	4	15	4	45°
112M-1	6207	6206	FF-215	70	11	215	180	250	4	15	4	45°
			FF-265		12	265	230	300	4	15	4	45°
132S	6308	6207	FF-265	89	12	265	230	300	4	15	4	45°
			FF-300		18	300	250	350	4	19	5	45°
132M	6308	6207	FF-265	89	12	265	230	300	4	15	4	45°
			FF-300		18	300	250	350	4	19	5	45°



SERVICE Driving efficiency and sustainability



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

Inspection, Tests and Technical Analyses

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

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



Automation

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



Electric Motors

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

	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



The WEG Group's scope of solutions is not limited to the products and solutions presented in this catalog.

**To learn more about our portfolio,
contact us.**

**For WEG's worldwide
operations visit our website**



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Wechat Public Account



WEG Website

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The values shown are subject to change without prior notice.
The information contained is reference values.