Industrial Motors

Commercial & Appliance Motors

Automation

Digital & Systems

Energy

Transmisssion & Distribution

Coatings

W21 Prime

Three Phase Low Voltage Motors

Cast Iron Frame Technical Catalogue

China Market

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 IS045001 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 Jiewei Electromotor Co., Ltd

Changzhou Yatong Jiewei 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

USA · China · Europe · China · GEMS Australia · France · Norway & Germany · Saudi Arabia · China · Canada

Customs Union Certification · South Korea · South Africa · USA · IEC EX · ISO9001:2015 · ISO45001:2018 · ISO14001:2015

WEG GLOBAL

Argentina · Australia · Belgium · Brazil · Canada · USA

Columbia · France · Germany · Italy · Mexico · United Kingdom

Russia · Saudi Arabien · Spain · South Africa · Norway · Europe

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

W21 Prime_IE3

W21 Prime_IE4

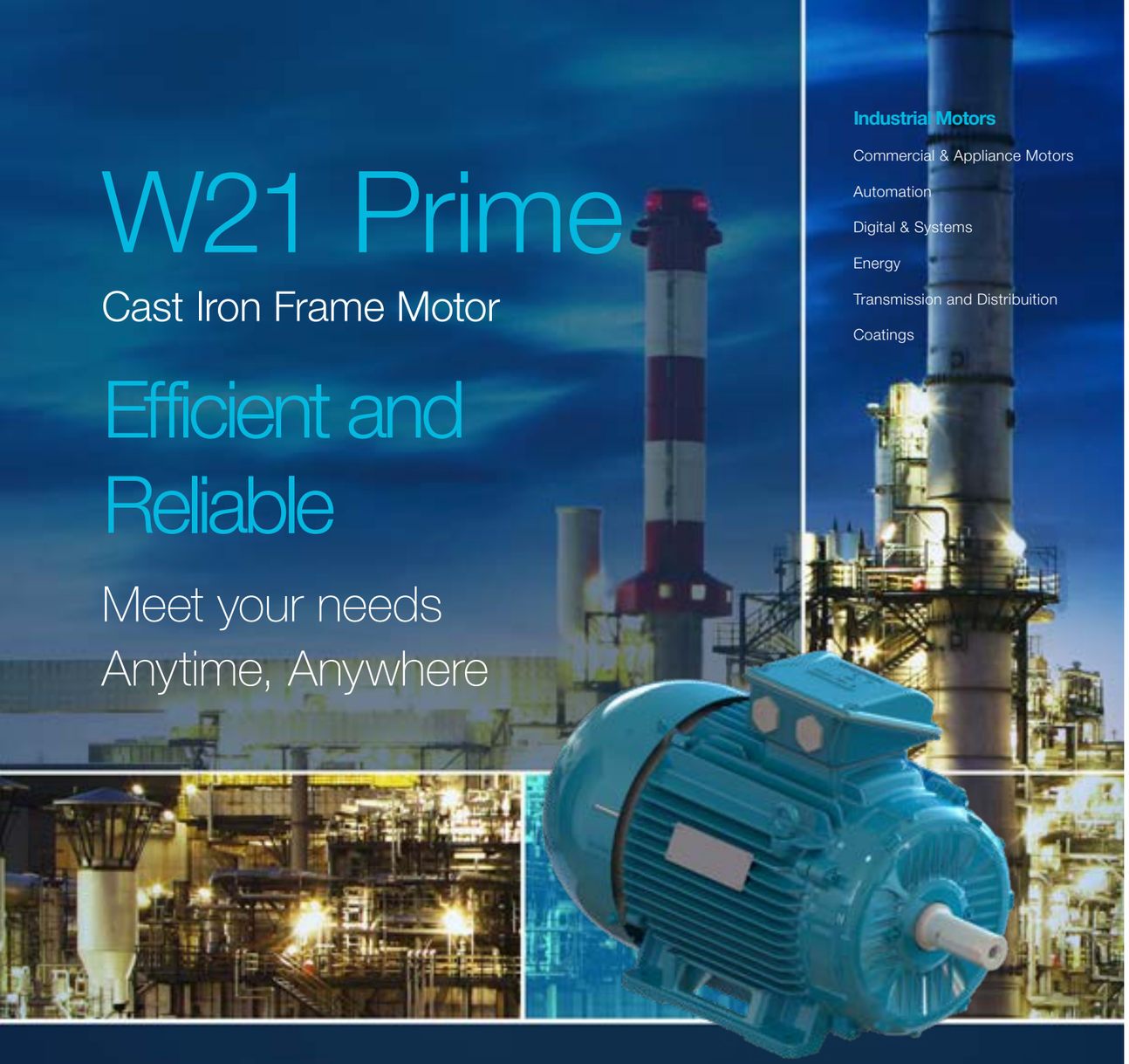
Sustainability and Carbon Emission reduction through Premium Efficiency Motors

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 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 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**



W21 Prime Series Cast Iron Frame Motors

W21 Prime series cast iron 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 maximum extent. W21 Prime series cast iron motors have an energy efficiency of up to IE5 (GB1), can be configured with a variety of installation methods, have a global unified design and global warranty, and are an excellent choice for your application.

Standard Features

- Three-phase cast iron frame induction motor
- Frame size: 160 to 355
- Poles: 2,4,6,8
- Efficiency: IE2, IE3/GB3, IE4/GB2, IE5*
- Frequency: 50Hz
- Voltage: 380-400-415/660-690//460V (IE2 & GB3) | 380/660V (GB2&GB1)
- Service Factor: 1.00
- Winding Thermal Protection: PTC 155°C-shutdown
- Color:IE2/IE3(GB3) is RAL 5009, IE4/IE5 (GB2/GB1*) is RAL 6002
- Certification: CE, UKCA, EAC, MASC, CSA SAFE & UL SAFE (Acc. to market)

*Details in W21 Prime GB1/IE5 catalogue

www.weg.net

Driving efficiency and sustainability

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1. Construction Details

1.1 Frame / endshields

The frame and end covers are made of FC-200 cast iron, which not only improves thermal conductivity but also provides sufficient mechanical strength to meet the most demanding application requirements. For easy installation, models with frame size 160 and above are equipped with lifting rings.
All end covers are designed with drain holes to drain condensed water in the frame. The drain holes are plugged with drain plugs, which can drain condensed water and meet the protection level requirements.

Figure 1. Cast iron frame

1.2 Grounding

W21 Prime cast iron motors 160 to 200 have one ground connection in the terminal box. Frame sizes 225 to 355 are designed with two ground connections, one in the terminal box and one outside the frame.

Figure 2. Grounding

1.3 Fan cover

The standard fan cover of frame 160 to 355 is made of steel plate.

Figure 3. Fan cover in steel plate

1.4 Terminal box

Like the frame and endshields, the terminal box is also made of FC-200 cast iron. 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 - Cast iron terminal box

1.5 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 5 - Six-pin terminal block

1.6 Flange

Based on the product structure, if it is difficult to install the flange motor using external hexagonal bolts, it is necessary to replace it with internal hexagonal bolts or studs.

Figure 6 -Flange

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. The nameplate for IEC frames 160 to 355 is a long strip 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

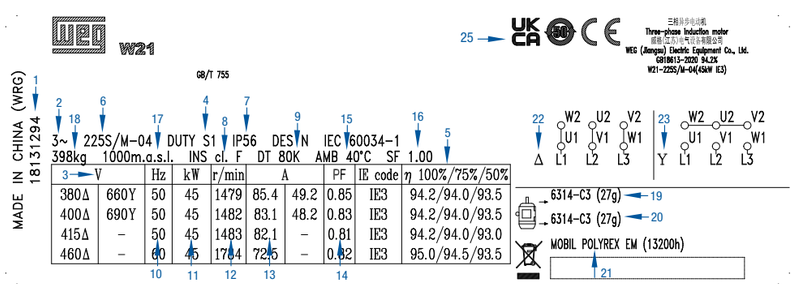


Figure 7 -Nameplate

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 from frame IEC160 to 315 and made of aluminum in frames 355A/B 2P. 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 in dB (A), the permit tolerance is + 3dB).

Frame	2P	4P	6P	8P
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 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	8P
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

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	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

Table 3. Speed and vibration levels

3. Shaft / Bearings / Thrusts

3.1 Shaft

The shaft of W21 Prime motors is made of GB45 steel, in frames IEC 160 to 315S/M, and in 42CrMo steel for frames 315L and 355A/B. When supplied with roller bearings as optional, the shaft material must be 42CrMo. As they are fitted with 42CrMo steel shafts in frames 315L and 355A/B, W21 Prime 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 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 160 to 200 and WEG B type key (China:C type) 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	Size	Depth of thread (mm)
160	All	M16	36
180	All	M16	36
200	All	M20	42
W225S/M	All	M20	42
225S/M	All	M20	42
250S/M	All	M20	42
W280S/M	All	M20	42
280S/M	All	M20	42
W315S/M	All	M20	42
315S/M	All	M20	42
315L	All	M20	42
355M/L	2P	M20	42
	≥4P	M24	50
355A/B	2P	M20	42
	≥4P	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 a regreasing system for motor frame 225 and above. 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 160 and above is with 63 series bearings. 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 and 6. 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-C3 bearings for frames 160 to 200, and open bearing is used for 225 or above. The amount of grease and lubrication intervals are given on the nameplate and are shown in Tables 6 and 7. 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 the internal and external bearing cap in frame size 225 up to 355. The non-drive end bearings are fitted with a spring washer in frame size 160 up to 200, and a pre-load spring in frame size 225 up to 355 to take any axial play. When supplied with roller bearings (an optional feature available from frame 160), the non-drive end bearing is locked and an axial play is compensated by the axial play of the drive end roller bearing.

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
160M	6309	2P	2.9	2.5	2.6	1.7	2.5	2.1	3.0	1.6
		4P	3.6	3.0	3.4	2.5	3.2	3.0	3.9	2.3
		6P	4.1	3.1	4.0	3.1	3.7	3.7	4.6	2.8
		8P	4.5	3.0	4.5	3.6	4.2	4.1	5.0	3.3
160L	6309	2P	2.8	2.5	2.6	1.7	2.4	2.1	3.0	1.5
		4P	3.5	2.7	3.4	2.5	3.1	3.0	3.9	2.2
		6P	4.0	2.7	4.0	3.1	3.6	3.7	4.0	2.6
		8P	4.4	2.7	4.5	3.6	4.2	4.1	5.0	3.3
180M	6311	2P	4.1	3.7	3.3	2.2	3.0	2.9	4.0	1.9
		4P	5.0	4.4	4.5	3.4	4.1	3.9	5.0	3.0
		6P	5.6	4.5	5.2	4.1	4.8	4.8	5.9	3.7
		8P	6.4	4.5	5.9	4.8	5.5	5.3	6.4	4.4
180L	6311	2P	3.9	3.5	3.4	2.3	3.1	2.9	4.0	2.0
		4P	4.9	4.4	4.5	3.4	4.1	3.9	5.0	3.0
		6P	5.6	4.5	5.2	4.1	4.8	4.8	5.9	3.7
		8P	6.1	4.5	5.8	4.7	5.4	5.4	6.5	4.3
200 M/L	6312	2P	4.6	4.2	3.9	2.7	3.4	3.4	4.6	2.2
		4P	5.8	5.3	5.1	3.9	4.0	4.3	5.3	3.0
		6P	6.4	5.8	5.9	4.7	4.7	5.1	6.1	3.7
		8P	7.0	6.3	6.6	5.4	6.0	6.4	7.6	4.8
W225 S/M	6314	2P	5.7	5.2	4.9	3.5	4.3	4.5	5.9	2.9
		4P	7.1	6.4	6.5	5.1	5.9	6.0	7.4	4.5
		6P	8.4	6.8	7.6	6.2	6.8	7.5	8.9	5.4
		8P	9.2	6.7	8.6	7.2	7.8	8.4	9.8	6.4
225 S/M	6314	2P	5.9	5.5	5.0	3.6	4.4	4.5	5.8	3.0
		4P	7.3	6.6	6.5	5.1	5.7	6.2	7.6	4.3
		6P	8.4	6.8	7.6	5.8	6.8	7.5	8.9	5.4
		8P	8.8	6.8	8.9	6.7	7.5	8.6	10.0	6.1
250 S/M	6314	2P	5.9	5.3	4.9	3.5	4.3	4.6	5.9	2.9
		4P	7.3	6.7	6.5	5.1	5.5	6.4	7.8	4.2
		6P	8.5	7.8	7.6	6.2	6.6	7.7	9.1	5.2
		8P	9.4	8.1	8.5	7.1	7.4	8.7	10.1	6.0
W280 S/M	6314	2P	5.4	5.0	4.9	3.5	4.1	4.7	6.1	2.7
	6316	4P	5.6	5.2	7.3	5.7	6.2	7.5	9.1	4.6
		6P	7.4	6.8	7.2	6.4	5.7	8.8	9.6	5.9
		8P	7.6	7.0	8.4	7.6	7.1	9.8	10.5	6.3
280 S/M	6314	2P	5.4	5.0	4.4	3.6	3.8	5.1	4.9	3.5
	6316	4P	7.8	7.1	8.2	6.6	6.1	7.6	9.2	4.6
		6P	9.9	9.1	8.6	7.0	7.2	9.1	10.7	5.6
		8P	10.9	10.1	9.7	8.1	8.3	10.2	11.8	6.7
W315 S/M	6314	2P	5.5	5.0	4.7	3.3	3.1	5.7	7.1	1.7
	6319	4P	8.9	8.2	9.1	7.0	6.2	9.8	11.7	4.3
		6P	11.6	10.6	10.1	8.2	8.1	11.2	13.1	6.2
		8P	13.0	11.7	11.5	9.6	9.6	12.3	14.2	7.7
315 S/M	6314	2P	3.6	2.2	4.7	2.6	2.3	6.5	7.9	0.9
	6319	4P	8.6	6.5	9.0	6.6	5.7	10.2	12.1	3.8
		6P	11.2	10.2	9.9	8.0	7.2	12.0	13.9	5.3
		8P	13.6	12.5	10.8	8.9	7.6	14.0	15.9	5.7
315L	6314	2P	5.2	4.9	4.6	3.2	1.7	7.1	8.5	0.3
	6319	4P	9.0	8.1	9.2	6.8	4.4	11.6	13.5	2.5
		6P	11.1	10.3	9.7	7.8	6.4	12.8	14.7	4.5
		8P	11.9	11.0	10.7	8.8	6.8	14.8	16.7	4.9
355 M/L	6316	2P	5.6	5.3	5.0	3.4	1.7	8.3	9.9	0.1
	6322	4P	8.5	9.3	7.7	7.0	5.6	13.8	16.0	3.4
		6P	13.1	12.0	11.2	9.0	6.1	16.6	18.8	3.9
		8P	14.8	13.6	12.7	10.5	7.8	18.3	20.5	5.6
355 A/B	6316	2P	5.4	5.1	4.8	3.2	0.8	9.3	10.7	-
	6322	4P	11.6	10.7	9.4	7.2	4.3	15.0	17.2	2.1
		6P	12.3	11.4	11.0	8.8	4.9	17.8	20.0	2.7
		8P	14.9	13.8	12.6	10.4	6.6	19.4	21.6	4.5

Table 5 - thrusts for ball bearings
1 kN = 101.97kgf = 224.8 lbf

Lubrication Intervals - Ball bearings

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

Table 6 - Lubrication interval for ball bearings

Lubrication Intervals - Roller bearings

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

Table 7 - Lubrication interval for roller bearings

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 203A(160-355). 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	0.90	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 8 - Correction factors for altitude and ambient temperature

For operating temperatures and altitudes differing from those above, the factors indicated in Table 8 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 △ T (Average value measured by resistance method)	Maximum Temperature Tmax (from amb. temp 40^{0}C)
CLASS B	80K	130^{0}C
CLASS F	105K	155^{0}C
CLASS H	125K	180^{0}C

Table 9 - 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 10.

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 10 - 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 ≥ 160 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.

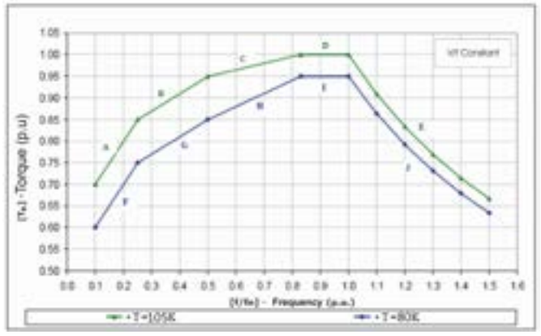


Figure 8 - Derating curves for constant flux condition

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 11 - 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.

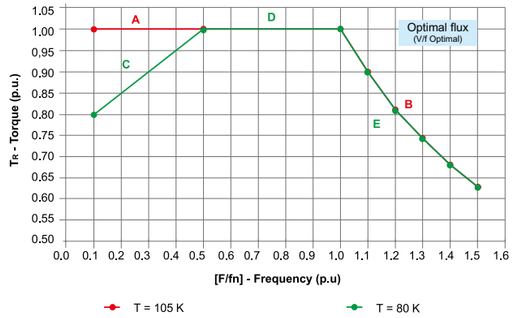


Figure 9 - Derating curves for optimal flux condition

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. Motors with frame sizes 315S/M and above must use additional protection to prevent current from flowing through the bearings. Specific methods include using insulated bearings or insulated end covers (usually the non-drive end cover) and grounding carbon brushes (usually installed on the drive end cover).
If the motor is not equipped with such protection, WEG can provide a kit to install on the motor. Please contact WEG sales staff for details.

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 12.

Figure 10 - W21 Prime motor with forced ventilation 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.

Frame	Poles	Motor Length (L)		Blower motor
		without blower kit	with blower kit	
160M	All	621	846	0.37KW 2P Frame 63
160L	All	665	890	
180M	All	685	917	
180L	All	723	955	
200M/L	All	768	999	
W225S/M*	2	787	1018	
W225S/M	4	817	1048	
225S/M*	2	876	1174	0.75KW 4P Frame 80
225S/M	4	906	1204	
250S/M*	2	982	1273	
250S/M	4			
W280S/M*	2	1010	1302	
W280S/M	4			
280S/M*	2	1059	1335	
280S/M	4			
W315S/M*	2	1110	1385	
W315S/M	4	1140	1415	
315S/M*	2	1232	1447	
315S/M	4	1262	1477	
315L*	2	1342	1557	
315L	4	1372	1587	
355M/L*	2	1406	1774	3KW 4P Frame 100L
355M/L	4	1476	1844	
355A/B*	2	1595	1969	
355A/B	4/6/8	1665	2039	

Table 12 - Total length of motor with / without blower kit

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 13 - 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 14 below:

Frame	Quantities	Total Power rated (W)
160	2	30
180 and 200	2	38
225 and 250	2	56
280 and 315	2	140
355	2	174

Table 14 - 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 go to the website www.weg.net.

10. Packaging

W21 Prime motors 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.

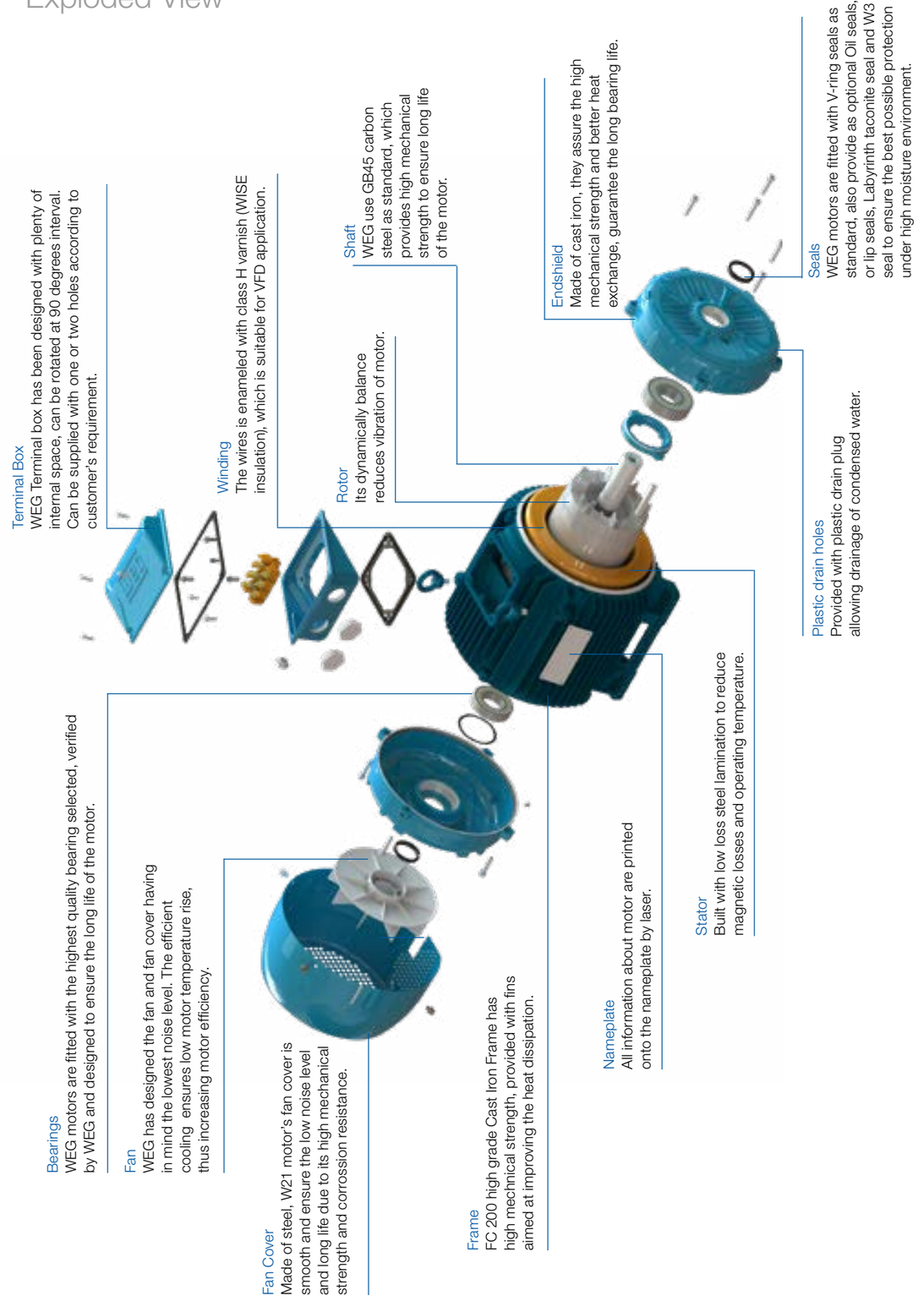
Figure 13-1 - Crate1

Figure 13-2 - Crate2

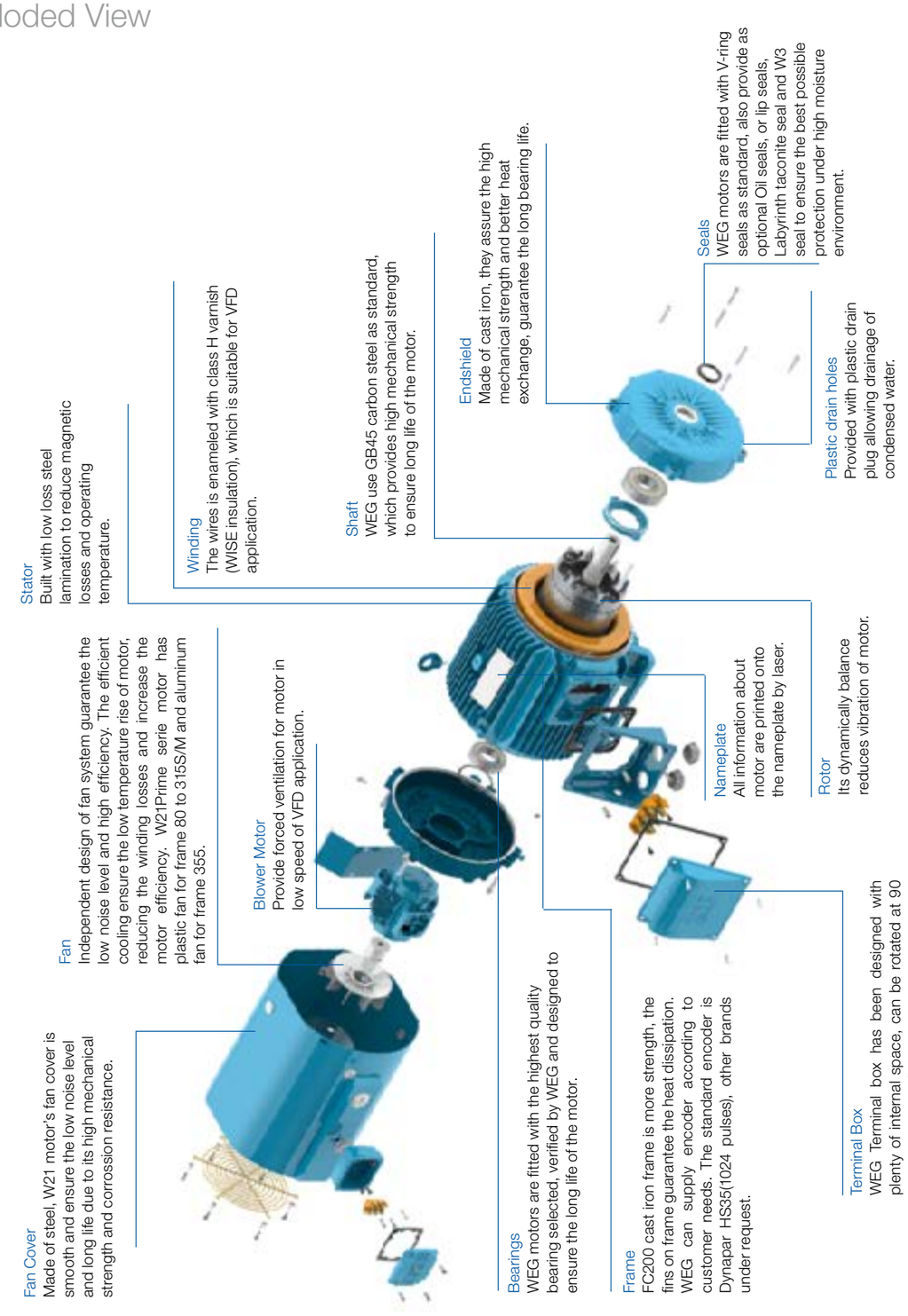
Figure 13-3 - Crate3

Figure 14 - Carton box

W21 Prime Cast Iron Frame Motor
Exploded View



W21 Prime Cast Iron Frame Forced Ventilation Motor Exploded View



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

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

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.

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.

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

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. W21Prime serie motor has plastic fan for frame 80 to 315S/M and aluminum fan for frame 355.

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

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

Rotor
Its dynamically balance reduces vibration of 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 corrosion resistance.

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

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.

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.

Frame			160M	160L	180M	180L	200M/L	W225S/M	225S/M	250S/M
Mechanical Features										
Nameplate Marks			CE; IEC 60034; GB/T 755							
Certificate			CEL							
Mounting			B3T							
Frame	Material		FC-200 Cast iron							
Protection Degree			IP55							
Grounding			Single grounding (Terminal box)					Double grounding (Terminal box+Frame)		
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-C3					C3		
	Clearance (N.D.E)		ZZ-C3					C3		
	Locking		The DE bearing is locked by the inner bearing cap, and the NDE bearing is fixed by the bearing wave ring					The DE bearing is locked by the inner and outer bearing caps, and the NDE bearing is fixed by the bearing wave ring	The DE bearing is locked by the inner and outer bearing caps, and the NDE bearing is fixed by the preload spring	
	Drive End	2P	6309	6309	6311	6311	6312	6314	6314	6314
		4-8P								
	Non Drive End	2P	6209	6209	6209	6209	6209	6212	6314	6314
		4-8P								
Bearing Seal			V-rings							
Joint Seal			None							
Lubrication	Type		Mobil Polyrex EM 103							
	Grease fitting		none					regreasing nipples in DE and NDE endshields		
Terminal block			BMC 6 pins (Orange)							
Terminal Box	Material		FC-200 Cast iron							
Additional terminal box			None							
Lead inlet	Main	Size	2xM40x1.5	2xM40x1.5	2xM40x1.5	2xM40x1.5	2xM50x1.5	2xM50x1.5	2xM50x1.5	2xM63x1.5
	Lateral	Size	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5
	Plug		Equipped with plastic cover for transportation and storage							
Shaft	Material		SAE 1040/45 (China: GB45)							
	Threaded hole	2P	M16	M16	M16	M16	M20	M20	M20	M20
		≥4P								
Key			A type (China : B type)					B type (China: C type)		
Vibration			Grade A							
Balance			1/2 key							
Nameplate	Material		Stainless steel AISI 304							
Painting	Plan		203A							
	Color		IE1/IE2/GB3: RAL 5009; GB2/GB1: RAL 6002							
Packaging			Crates							
Electrical Features										
Design			IE1,IE2,IE3: N; IE4:NE							
Voltage			IE1,IE2,IE3: 380-400-415/660-690//460V with 6 terminals IE4: 380/660V with 6 terminals							
Winding	Impregnation		Continuous vacuum impregnation							
	Insulation Class	IE1	F(DT 105K)							
		IE2,GB3, GB2,GB1	F (DT 80K)							
Service Factor			1.00							
Duty			S1							
Thermal Protection			PTC Thermistor -155 °C							
Ambient Temperature	Maximum		+40°C							
	Minimum		-20°C							
Starting Method			D.O.L							

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

11. Construction Features

Frame			W280S/M	280S/M**	W315S/M	315S/M	315L	355M/L	355A/B**
Mechanical Features									
Nameplate Marks			CE; IEC 60034; GB/T 755						
Certificate			CEL						
Mounting			B3T						
Frame	Material		FC-200 Cast iron						
Protection Degree			IP55						
Grounding			Double grounding (Terminal box+Frame)						
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)		C3						
	Clearance (N.D.E)		C3						
	Locking		The DE bearing is locked by the inner and outer bearing caps, and the NDE bearing is fixed by the preload spring						
	Drive End	2P	6314	6314	6314	6314	6314	6316	6316
		4-8P	6316	6316	6319	6319	6319	6322	6322
	Non Drive End	2P	6314	6314	6314	6314	6314	6314	6314
		4-8P		6316		6316	6316	6319	6319
Bearing Seal			V-rings						
Joint Seal			None						
Lubrication	Type		Mobil Polyrex EM						
	Grease fitting		regreasing nipples in DE and NDE endshields						
Terminal block			BMC 6 pins (Orange)						
Terminal Box	Material		FC-200 Cast iron						
Additional terminal box			None						
Lead inlet	Main	Size	2xM63x1.5	2xM63x1.5	2xM63x1.5	2xM63x1.5	2xM63x1.5	2xM80x2	2xM80x2
	Lateral	Size	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5	M20x1.5
	Plug		Equipped with plastic cover for transportation and storage						
Shaft	Material		SAE 1040/45 (China: GB45)				SAE 4140 (China: 42CrMo)		
	Threaded hole	2P	M20	M20	M20	M20	M20	M20	M20
		≥4P						M24	M24
Key			B type (China: C type)						
Vibration			Grade A						
Balance			1/2 key						
Nameplate	Material		Stainless steel AISI 304						
Painting	Plan		203A						
	Color		IE1/IE2/GB3: RAL 5009; GB2/GB1: RAL 6002						
Packaging			Crates						
Electrical Features									
Design			IE1,IE2,IE3: N; IE4:NE						
Voltage			IE1,IE2,IE3: 380-400-415/660-690//460Vwith 6 terminals IE4: 380/660V with 6 terminals						
Winding	Impregnation		Continuous vacuum impregnation			Dripping			
	Insulation Class	IE1	F(DT 105K)						
		IE2,GB3, GB2,GB1	F(DT 80K)						
Service Factor			1.00						
Duty			S1						
Thermal Protection			PTC Thermistor -155 °C						
Ambient Temperature	Maximum		+40°C						
	Minimum		-20°C						
Starting Method			D.O.L						

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

Optional Features

Frame	160M	160L	180M	180L	200M/L	W225S/M	225S/M	250S/M	W280S/M	280S/M	W315S/M	315S/M	315L	355M/L	355A/B
Mechanical Features															
Flange															
FF Flange	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
C-DIN Flange	O	O	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
C Flange	O	O	O	O	O	NA	O	O	O	O	O	O	O	O	O
Cable Gland															
Plastic	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Brass	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Stainless Steel	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Insulation Class															
F DT 105K	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
H DT 80K	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
H DT 105K	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
H DT 125K	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Painting Plan															
Only Prime	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
202E	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
202P	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
211E	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
211P	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
212E	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
212P	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Fan															
Conductive Plastic	NA	NA	NA	NA	NA	NA	NA	NA	NA	O	O	O	O	O	O
Aluminum	E	E	E	E	E	E	E	E	E	O	O	O	O	O	O
Protection Degree															
IP56	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
IP65	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
IP66	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
IPW55	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
IPW56	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
IPW65	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
IPW66	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Grounding															
Single Grounding	P	P	P	P	P	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Double Grounding	O	O	O	O	O	P	P	P	P	P	P	P	P	P	P
Others															
Drip Cover (Canopy)	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Cooling Method															
TEAO	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
TEBC	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Shaft material															
SAE 1040/45	P	P	P	P	P	P	P	P	P	P	P	P	NA	NA	NA
SAE 4140	O	O	O	O	O	O	O	O	O	O	O	O	P	P	P
Electrical Features															
Winding Thermal protection															
Bimetal 130°C Alarm/trip	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Bimetal 155°C Alarm/trip	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Bimetal 180°C trip	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
PTC-130°C Alarm/trip	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
PTC-180°C trip	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
PT100 2 or 3 wires- Alarm	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
PT100 2 or 3 wires- trip	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Space Heater															
110-127 V	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
200-240 V	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
110-127 / 220-240 V	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
380-480 V	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Rotation Direction															
Clockwise	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Counterclockwise	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Service Factor															
S.F 1.15	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O

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

12. Electrical Data

W21 Prime Cast Iron Frame - 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 (kg.m²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	400 V						Full load current In (A)
													Efficiency at % Load			Power Factor at % Load			
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2P - 50Hz																			
11	15	160M	3.64	6.8	2.6	3.2	0.0306	15	33	110	69.0	2945	88.8	89.4	89.4	0.73	0.82	0.87	20.4
15	20	160M	4.95	7.9	2.8	3.7	0.0389	11	24	120	69.0	2950	89.9	90.3	90.3	0.71	0.81	0.85	28.2
18.5	25	160L	6.11	8.5	3.7	3.9	0.0472	10	22	140	69.0	2950	90.6	90.9	90.9	0.73	0.82	0.87	33.8
22	30	180M	7.24	7.8	2.2	3.5	0.0973	11	24	170	70.0	2960	90.7	91.3	91.3	0.74	0.83	0.85	40.9
30	40	200M/L	9.87	7.0	3.4	3.2	0.1526	16	35	225	74.0	2960	91.0	92.0	92.0	0.71	0.81	0.86	54.7
37	50	200M/L	12.2	7.1	3.5	3.3	0.1950	14	31	255	74.0	2960	92.5	92.5	92.5	0.73	0.82	0.86	67.1
45	60	225S/M	14.8	7.1	2.6	3.0	0.2471	15	33	335	74.0	2965	92.1	92.9	92.9	0.72	0.81	0.85	82.3
55	75	250S/M	18.1	7.3	2.8	3.0	0.3214	17	37	410	74.0	2965	92.5	93.2	93.2	0.73	0.82	0.85	100
75	100	W280S/M	24.7	8.4	3.0	3.6	0.3891	23	51	480	74.0	2964	93.6	93.8	93.8	0.71	0.81	0.85	136
90	125	W280S/M	29.6	8.3	3.0	3.3	0.5075	24	53	545	74.0	2962	94.1	94.1	94.1	0.79	0.86	0.88	157
110	150	W315S/M	36.0	7.2	2.0	2.6	1.24	27	59	780	77.0	2975	93.5	94.3	94.3	0.79	0.85	0.88	191
132	175	W315S/M	43.2	8.5	2.3	3.0	1.42	21	46	860	77.0	2977	93.8	94.6	94.6	0.80	0.86	0.89	226
160	220	W315S/M	52.4	7.7	2.2	2.9	1.71	21	46	950	77.0	2975	94.6	94.8	94.8	0.80	0.86	0.89	274
185	250	315S/M	60.5	7.9	2.5	3.0	2.74	31	68	1100	77.0	2980	94.5	95.0	95.0	0.85	0.89	0.90	312
200	270	315S/M	65.2	9.9	2.9	4.0	2.69	21	46	1100	77.0	2987	94.8	95.0	95.0	0.73	0.82	0.86	353
250	340	315L	81.6	8.4	2.5	3.0	3.44	23	51	1305	78.0	2986	94.9	95.0	95.0	0.77	0.85	0.88	432
315	430	355M/L	103	8.0	3.1	2.8	5.79	24	53	1780	80.0	2985	95.0	95.0	95.0	0.85	0.89	0.89	538
355	480	355M/L	116	9.3	3.2	3.4	6.01	20	44	1820	80.0	2988	95.0	95.0	95.0	0.80	0.86	0.88	613
370	500	355A/B	121	8.8	2.7	3.2	6.76	40	88	2250	83.0	2986	95.6	95.7	95.7	0.85	0.89	0.90	620
400	550	355A/B	131	8.5	2.4	2.8	6.76	31	68	2400	83.0	2985	95.6	95.7	95.7	0.85	0.89	0.91	663
450	610	355A/B	147	7.5	2.8	2.7	7.40	31	68	2500	83.0	2982	95.0	95.5	95.7	0.85	0.90	0.91	746
High Output Design																			
75	100	250S/M	24.7	8.4	3.0	3.5	0.3891	22	48	480	74.0	2964	93.6	93.8	93.8	0.71	0.81	0.85	136
75	100	280S/M	24.5	6.7	1.9	2.6	0.8541	28	62	710	77.0	2975	92.3	93.6	93.8	0.82	0.87	0.89	130
90	125	280S/M	29.5	7.5	2.0	2.8	0.9386	25	55	745	77.0	2977	94.0	94.6	94.6	0.77	0.85	0.87	158
110	150	280S/M	36.0	7.9	2.1	3.0	1.11	23	51	802	77.0	2977	94.5	94.9	94.9	0.76	0.84	0.87	192
132	175	280S/M	43.2	7.3	1.8	2.7	1.33	18	40	890	77.0	2975	94.5	94.8	94.8	0.80	0.87	0.89	226
160	220	315S/M	52.2	7.2	2.1	2.9	2.02	31	68	970	77.0	2984	94.3	94.8	94.8	0.76	0.84	0.87	280
4P - 50Hz																			
11	15	160M	7.26	6.3	2.6	3.1	0.0633	12	26	115	64.0	1475	88.9	89.8	89.8	0.64	0.76	0.82	21.6
15	20	160L	9.91	7.0	2.6	3.4	0.0925	11	24	145	64.0	1475	89.1	90.4	90.6	0.66	0.77	0.82	29.1
18.5	25	180M	12.2	6.6	3.0	3.1	0.1653	16	35	170	64.0	1475	90.6	91.2	91.2	0.69	0.79	0.84	34.9
22	30	180L	14.5	7.1	3.3	3.5	0.1827	12	26	190	64.0	1475	90.0	91.6	91.6	0.64	0.76	0.82	42.3
30	40	200M/L	19.8	7.0	3.0	3.3	0.2673	13	29	230	70.0	1475	92.1	92.3	92.3	0.65	0.77	0.82	57.2
37	50	W225S/M	24.4	7.1	2.4	2.7	0.3743	13	29	280	70.0	1475	92.5	92.7	92.7	0.71	0.81	0.85	67.8
45	60	225S/M	29.6	7.2	2.5	3.0	0.4669	16	35	325	70.0	1480	92.4	93.1	93.1	0.65	0.76	0.82	85.1
55	75	250S/M	36.1	6.8	2.6	2.9	0.6744	16	35	410	70.0	1485	93.1	93.5	93.5	0.68	0.78	0.83	102
75	100	W280S/M	49.3	7.7	2.6	2.9	1.01	13	29	515	70.0	1482	93.5	94.0	94.0	0.71	0.81	0.85	135
90	125	W280S/M	59.2	7.5	2.6	2.9	1.01	21	46	540	70.0	1481	93.5	94.2	94.2	0.70	0.80	0.84	164
110	150	W315S/M	72.1	7.2	2.4	2.8	2.06	17	37	780	71.0	1487	94.0	94.5	94.5	0.60	0.72	0.79	213
132	175	W315S/M	86.5	7.2	2.5	2.9	2.83	18	40	865	71.0	1487	94.7	94.7	94.7	0.65	0.76	0.81	248
160	220	W315S/M	105	7.8	2.8	3.0	3.36	17	37	1005	71.0	1487	94.9	94.9	94.9	0.68	0.78	0.82	297
185	250	315S/M	121	6.7	2.5	2.5	4.31	31	68	1125	71.0	1489	95.1	95.1	95.1	0.76	0.83	0.86	326
200	270	315S/M	131	7.2	2.7	2.8	4.33	25	55	1125	71.0	1490	95.1	95.1	95.1	0.73	0.81	0.85	357
250	340	315L	163	7.0	2.8	2.6	5.42	25	55	1325	78.0	1490	95.1	95.1	95.1	0.75	0.83	0.86	441
315	430	355M/L	206	7.1	2.5	2.5	8.95	20	44	1670	78.0	1492	95.1	95.1	95.1	0.70	0.80	0.83	576
355	480	355M/L	232	7.6	3.0	2.7	10.7	18	40	1855	78.0	1492	95.1	95.1	95.1	0.73	0.81	0.85	634
400	550	355A/B	261	7.6	2.6	2.9	13.2	20	44	2089	76.0	1490	94.5	95.0	95.5	0.68	0.79	0.84	720
450	610	355A/B	294	7.0	2.7	2.6	13.2	18	40	2089	76.0	1490	94.5	95.0	95.5	0.69	0.80	0.84	810
500	680	355A/B*	326	8.3	2.8	2.8	14.6	17	37	2246	76.0	1492	94.5	95.0	95.5	0.72	0.81	0.85	889
High Output Design																			
37	50	225S/M	24.4	6.7	2.3	3.1	0.4423	25	55	320	70.0	1480	92.2	92.7	92.7	0.67	0.78	0.82	70.3
37	50	200M/L	24.4	7.1	2.4	2.7	0.3743	13	29	275	70.0	1475	92.5	92.7	92.7	0.71	0.81	0.85	67.8
45	60	200M/L	29.7	8.5	3.4	3.6	0.3743	15	33	290	70.0	1478	92.8	93.1	93.1	0.64	0.76	0.82	85.1
45	60	W225S/M	29.7	8.5	3.4	3.6	0.3743	15	33	295	70.0	1478	92.8	93.1	93.1	0.64	0.76	0.82	85.1
75	100	250S/M	49.3	7.7	2.6	2.9	1.01	13	29	515	70.0	1482	93.5	94.0	94.0	0.71	0.81	0.85	135
75	100	280S/M	49.1	7.2	2.2	2.7	1.64	20	44	639	71.0	1488	93.8	94.4	94.4	0.73	0.81	0.84	137
90	125	280S/M	59.0	7.5	2.2	2.6	1.88	22	48	673	71.0	1486	94.1	94.7	94.7	0.72	0.80	0.84	163
110	150	280S/M	72.1	7.6	2.4	2.6	2.27	16	35	735	71.0	1486	94.3	95.0	95.0	0.75	0.83	0.85	197
132	175	280S/M	86.5	7.5	2.4	2.6	2.62	18	40	785	71.0	1486	94.3	94.9	94.8	0.72	0.81	0.84	239
160	220	315S/M	105	6.6	2.5	2.6	3.33	30	66	995	71.0	1490	94.9	94.9	94.9	0.74	0.82	0.85	286

Notes:
(1) Efficiency values are measured in direct start-up according to IEC-60034-2-1 standard.
(*) Insulation class "F" temperature rise is △T 105K.

W21 Prime Cast Iron Frame - IE2 (1)

Output		Rated speed (rpm)	380V						Full load current In (A)	Rated speed (rpm)	415 V						Full load current In (A)
			Efficiency at % Load			Power Factor at % Load					Efficiency at % Load			Power Factor at % Load			
kW	HP		50%	75%	100%	50%	75%	100%			50%	75%	100%	50%	75%	100%	
2P - 50Hz																	
11	15	2935	89.1	89.4	89.4	0.76	0.85	0.89	21.0	2950	88.4	89.4	89.4	0.70	0.80	0.86	19.9
15	20	2940	90.3	90.3	90.3	0.75	0.84	0.88	28.7	2955	89.3	90.3	90.3	0.67	0.78	0.84	27.5
18.5	25	2940	90.9	90.9	90.9	0.76	0.85	0.89	34.7	2955	90.4	90.9	90.9	0.69	0.80	0.86	32.9
22	30	2955	91.0	91.3	91.3	0.78	0.86	0.89	41.1	2965	90.4	91.3	91.3	0.71	0.81	0.86	39.0
30	40	2955	91.3	92.0	92.0	0.76	0.84	0.87	56.9	2965	90.7	92.0	92.0	0.68	0.79	0.84	54.0
37	50	2955	92.5	92.5	92.5	0.77	0.84	0.88	69.1	2965	92.4	92.5	92.5	0.70	0.80	0.85	65.5
45	60	2960	92.3	92.9	92.9	0.76	0.84	0.87	84.6	2965	91.8	92.9	92.9	0.69	0.79	0.84	80.2
55	75	2960	92.6	93.2	93.2	0.77	0.84	0.87	103	2965	92.2	93.2	93.2	0.69	0.79	0.84	97.7
75	100	2959	93.7	93.8	93.8	0.76	0.84	0.87	140	2967	93.4	93.8	93.8	0.67	0.78	0.83	134
90	125	2956	94.1	94.1	94.1	0.82	0.87	0.89	163	2966	94.1	94.1	94.1	0.76	0.84	0.87	153
110	150	2970	93.7	94.3	94.3	0.81	0.87	0.89	199	2975	93.5	94.3	94.3	0.76	0.84	0.87	187
132	175	2975	94.0	94.6	94.6	0.83	0.88	0.89	238	2980	93.5	94.6	94.6	0.78	0.85	0.88	221
160	220	2972	94.6	94.8	94.8	0.83	0.88	0.89	288	2977	94.8	94.8	94.8	0.78	0.85	0.88	267
185	250	2977	94.5	95.0	95.0	0.87	0.90	0.91	325	2982	94.5	95.0	95.0	0.83	0.88	0.90	301
200	270	2985	94.8	95.0	95.0	0.77	0.85	0.88	363	2988	94.6	95.0	95.0	0.69	0.80	0.84	349
250	340	2984	95.0	95.0	95.0	0.80	0.87	0.89	449	2987	94.7	95.0	95.0	0.75	0.83	0.87	421
315	430	2983	95.0	95.0	95.0	0.87	0.89	0.91	554	2987	95.0	95.0	95.0	0.83	0.88	0.88	524
355	480	2987	95.0	95.0	95.0	0.83	0.88	0.89	638	2989	95.0	95.0	95.0	0.78	0.85	0.88	591
370	500	2984	95.6	95.7	95.7	0.86	0.90	0.91	646	2987	95.3	95.7	95.7	0.84	0.88	0.89	604
400	550	2985	95.5	95.7	95.7	0.87	0.90	0.91	698	2985	95.5	95.7	95.7	0.84	0.88	0.91	639
450	610	2979	95.0	95.5	95.7	0.87	0.91	0.91	785	2983	95.0	95.5	95.7	0.84	0.89	0.91	719
High Output Design																	
75	100	2958	93.7	93.8	93.8	0.76	0.84	0.87	140	2966	93.4	93.8	93.8	0.67	0.78	0.83	134
75	100	2970	92.5	93.6	93.8	0.82	0.88	0.89	136	2975	92.1	93.6	93.8	0.80	0.86	0.88	126
90	125	2975	94.2	94.6	94.4	0.81	0.86	0.88	165	2980	93.8	94.5	94.5	0.74	0.82	0.86	154
110	150	2970	94.7	94.9	94.8	0.80	0.86	0.88	200	2979	94.3	94.8	94.9	0.73	0.82	0.86	188
132	175	2970	94.5	94.7	94.7	0.82	0.88	0.90	235	2975	94.4	94.8	94.8	0.77	0.85	0.88	220
160	220	2981	94.6	94.8	94.8	0.80	0.86	0.88	291	2985	94.1	94.8	94.8	0.74	0.82	0.86	273
4P - 50Hz																	
11	15	1470	89.7	89.8	89.8	0.68	0.79	0.85	21.9	1475	87.8	89.8	89.8	0.60	0.73	0.80	21.3
15	20	1470	90.0	90.6	90.6	0.71	0.81	0.86	29.2	1475	88.4	90.4	90.6	0.62	0.74	0.81	28.4
18.5	25	1470	91.1	91.2	91.2	0.72	0.81	0.86	35.8	1475	90.1	91.2	91.2	0.65	0.77	0.83	34.0
22	30	1470	90.8	91.6	91.6	0.69	0.79	0.85	42.9	1475	89.6	91.3	91.6	0.61	0.73	0.80	41.8
30	40	1475	92.3	92.3	92.3	0.70	0.80	0.85	58.1	1480	91.5	92.3	92.3	0.62	0.74	0.80	56.5
37	50	1471	92.5	92.7	92.7	0.75	0.83	0.86	70.5	1477	92.5	92.7	92.7	0.68	0.79	0.83	66.9
45	60	1477	92.4	93.1	93.1	0.70	0.80	0.84	87.4	1481	91.6	92.7	93.1	0.61	0.73	0.79	85.1
55	75	1480	93.5	93.5	93.5	0.72	0.81	0.85	105	1485	92.5	93.4	93.5	0.64	0.75	0.81	101
75	100	1479	93.5	94.0	94.0	0.75	0.83	0.86	141	1484	93.5	94.0	94.0	0.69	0.79	0.84	132
90	125	1478	94.0	94.2	94.2	0.75	0.83	0.85	171	1483	93.5	94.2	94.2	0.67	0.77	0.82	162
110	150	1485	94.0	94.5	94.5	0.65	0.76	0.81	218	1488	94.0	94.5	94.5	0.56	0.70	0.76	213
132	175	1485	94.5	94.7	94.7	0.70	0.79	0.83	255	1488	94.7	94.7	94.7	0.62	0.73	0.80	242
160	220	1485	94.9	94.9	94.9	0.71	0.80	0.84	305	1488	94.9	94.9	94.9	0.65	0.76	0.81	290
185	250	1488	95.1	95.1	95.1	0.78	0.85	0.87	340	1490	95.0	95.1	95.1	0.73	0.82	0.85	318
200	270	1489	95.1	95.1	95.1	0.77	0.84	0.87	367	1491	94.8	95.1	95.1	0.71	0.80	0.84	348
250	340	1488	95.1	95.1	95.1	0.78	0.85	0.87	459	1491	95.1	95.1	95.1	0.72	0.81	0.85	430
315	430	1490	95.1	95.1	95.1	0.75	0.83	0.85	592	1492	95.0	95.1	95.1	0.68	0.78	0.82	562
355	480	1491	95.1	95.1	95.1	0.76	0.83	0.86	659	1493	95.1	95.1	95.1	0.70	0.79	0.84	618
400	550	1490	94.1	94.6	95.1	0.72	0.82	0.86	743	1490	94.1	94.6	95.1	0.65	0.76	0.82	714
450	610	1490	95.8	95.9	95.9	0.73	0.83	0.86	829	1491	94.5	95.0	95.5	0.65	0.77	0.82	799
500	680	1491	94.5	95.1	95.6	0.76	0.84	0.87	913	1493	94.5	95.0	95.5	0.69	0.79	0.84	867
High Output Design																	
37	50	1480	92.6	92.7	92.7	0.71	0.81	0.85	71.3	1485	91.7	92.7	92.7	0.64	0.75	0.81	68.6
37	50	1471	92.5	92.7	92.7	0.75	0.83	0.86	70.5	1477	92.5	92.7	92.7	0.68	0.79	0.83	66.9
45	60	1475	92.8	93.1	93.1	0.69	0.79	0.84	87.4	1479	92.8	93.1	93.1	0.60	0.73	0.79	85.1
45	60	1475	92.8	93.1	93.1	0.69	0.79	0.84	87.4	1479	92.8	93.1	93.1	0.60	0.73	0.79	85.1
75	100	1479	93.5	94.0	94.0	0.75	0.83	0.86	141	1484	93.5	94.0	94.0	0.69	0.79	0.84	132
75	100	1486	93.8	94.0	94.2	0.77	0.83	0.85	142	1489	93.5	94.3	94.4	0.70	0.79	0.83	133
90	125	1484	94.4	94.7	94.5	0.76	0.82	0.85	170	1487	93.8	94.6	94.7	0.69	0.78	0.82	161
110	150	1484	94.5	94.5	94.5	0.79	0.85	0.86	206	1487	94.0	94.9	95.0	0.72	0.81	0.84	192
132	175	1484	94.5	94.7	94.7	0.76	0.83	0.85	249	1487	94.1	94.9	94.9	0.70	0.79	0.83	233
160	220	1488	94.9	94.9	94.9	0.77	0.84	0.87	294	1491	94.5	94.9	94.9	0.70	0.80	0.84	279

Notes:
(1) Efficiency values are measured in direct start-up according to IEC-60034-2-1 standard.
(*) Insulation class "F" temperature rise is △T 105K.

W21 Prime Cast Iron Frame - 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 (kg.m²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	400 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																			
7.5	10	160M	7.45	7.9	1.9	2.8	0.1758	8	18	112	59.0	980	87.2	87.2	87.2	0.61	0.74	0.82	15.1
9.2	12.5	160L	9.13	8.0	1.9	2.9	0.2164	7	15	132	59.0	981	88.0	88.0	88.0	0.61	0.75	0.82	18.4
11	15	160L	10.9	8.0	2.2	2.9	0.2773	7	15	149	59.0	980	88.7	88.7	88.7	0.64	0.77	0.83	21.6
15	20	180L	15.0	7.9	2.3	2.9	0.2694	10	22	182	64.0	976	89.0	89.7	89.7	0.62	0.75	0.81	29.8
18.5	25	200M/L	18.4	6.0	2.0	2.5	0.3329	21	46	221	64.0	981	89.9	90.4	90.4	0.55	0.68	0.75	39.4
22	30	200M/L	21.8	6.2	2.0	2.5	0.3854	17	37	237	64.0	981	90.2	90.9	90.9	0.56	0.69	0.76	46.0
30	40	225S/M	29.8	7.5	2.1	3.0	0.6146	12	26	318	64.0	981	91.5	91.7	91.7	0.61	0.74	0.80	59.0
37	50	225S/M	36.8	7.5	2.1	2.8	0.8194	13	29	361	64.0	980	92.2	92.2	92.2	0.66	0.77	0.82	70.6
45	60	250S/M	44.5	7.5	2.2	3.1	1.19	8	18	463	64.0	984	92.7	92.7	92.7	0.63	0.75	0.81	86.5
55	75	W280S/M	54.5	7.7	2.3	3.2	1.42	12	26	527	64.0	983	93.1	93.1	93.1	0.63	0.75	0.81	105
75	100	W315S/M	73.9	6.7	2.2	2.3	3.03	18	40	798	68.0	989	93.7	93.7	93.7	0.67	0.77	0.81	143
90	125	W315S/M	88.6	7.0	2.1	2.5	3.81	19	42	881	68.0	989	94.0	94.0	94.0	0.68	0.78	0.82	169
110	150	315S/M	108	6.1	2.0	2.2	5.45	20	44	966	68.0	990	94.2	94.2	94.3	0.72	0.80	0.84	200
132	175	315S/M	130	6.4	2.2	2.4	6.35	17	37	1036	68.0	990	94.6	94.6	94.6	0.71	0.80	0.84	240
150	200	355M/L	147	5.6	1.8	2.2	7.41	38	84	1340	73.0	993	94.2	94.5	94.7	0.64	0.74	0.79	289
160	220	315L	157	6.6	2.2	2.4	7.61	14	31	1228	68.0	990	94.8	94.2	94.8	0.70	0.80	0.84	290
185	250	315L	182	6.9	2.3	2.4	8.86	12	26	1358	68.0	990	94.0	94.4	95.0	0.69	0.79	0.83	339
200	270	315L	196	7.7	2.7	3.0	10.1	12	26	1488	68.0	992	94.1	94.4	95.0	0.65	0.77	0.82	371
220	300	315L	216	6.8	2.3	2.3	11.0	14	31	1621	68.0	990	94.2	94.5	95.0	0.69	0.79	0.83	403
250	340	355M/L	245	6.3	2.0	2.3	13.9	48	106	1789	73.0	993	94.0	94.5	95.0	0.66	0.76	0.80	475
260	350	355M/L	255	6.0	1.8	2.0	12.7	34	75	1789	73.0	992	94.3	94.5	95.0	0.66	0.76	0.81	488
280	380	355M/L	275	6.2	2.2	2.2	13.9	27	59	1884	73.0	990	94.4	94.6	95.0	0.64	0.75	0.80	532
300	400	355M/L	294	6.2	2.2	2.2	14.3	30	66	1900	73.0	993	94.4	94.7	95.0	0.63	0.74	0.79	577
315	430	355M/L	309	6.2	2.1	2.2	15.0	28	62	1979	73.0	992	94.4	94.7	95.0	0.66	0.76	0.81	591
355	480	355A/B	348	6.8	2.3	2.5	17.1	29	64	2200	73.0	993	95.2	95.5	95.6	0.63	0.74	0.79	678
370	500	355A/B*	364	6.0	2.2	2.3	18.0	25	55	2300	73.0	990	95.2	95.6	95.7	0.63	0.74	0.79	706
400	550	355A/B*	394	6.1	2.0	2.3	18.9	29	64	2346	73.0	990	95.2	95.6	95.7	0.63	0.74	0.79	764
High Output Design																			
37	50	250S/M	36.6	7.3	2.1	3.1	0.8691	11	24	402	64.0	984	91.7	92.2	92.2	0.58	0.71	0.78	74.3
45	60	280S/M	44.4	6.2	2.0	2.5	2.02	26	57	596	68.0	987	93.4	93.6	93.4	0.65	0.76	0.81	85.9
45	60	W280S/M	44.5	7.5	2.2	3.1	1.19	8	18	484	64.0	984	92.7	92.7	92.7	0.63	0.75	0.81	86.5
55	75	280S/M	54.3	6.2	2.2	2.7	2.36	19	42	629	68.0	987	92.9	93.1	93.1	0.64	0.74	0.80	107
75	100	280S/M	74.2	6.5	2.2	2.4	3.03	17	37	702	68.0	985	93.9	94.3	94.2	0.69	0.79	0.83	138
75	100	315S/M	73.8	5.4	1.9	2.3	3.83	23	51	837	68.0	990	93.7	93.7	93.7	0.70	0.79	0.82	141
90	125	315S/M	88.5	6.0	2.1	2.5	4.54	22	48	893	68.0	991	94.0	94.0	94.0	0.67	0.77	0.81	171
132	175	355M/L	129	5.8	2.0	2.3	7.18	40	88	1300	73.0	994	93.5	94.5	94.6	0.60	0.72	0.77	262
160	220	355M/L	157	5.3	1.8	2.2	8.34	34	75	1453	73.0	992	93.8	94.8	94.8	0.65	0.75	0.80	305
185	250	355M/L	181	5.7	1.8	2.0	9.24	52	114	1521	73.0	993	94.8	94.8	95.0	0.65	0.75	0.80	351
200	270	355M/L	196	5.5	1.9	2.1	10.9	28	62	1643	73.0	993	94.1	94.5	95.0	0.64	0.75	0.80	380
220	300	355M/L	216	6.0	2.0	2.2	11.8	32	70	1795	73.0	993	94.3	94.5	95.0	0.65	0.75	0.80	418
8P - 50Hz																			
4	5.5	160M	5.32	6.0	1.6	2.5	0.1285	11	24	99.0	60.0	733	80.5	81.9	81.9	0.46	0.61	0.71	9.93
5.5	7.5	160M	7.29	6.7	1.9	2.9	0.2029	9	20	119	60.0	735	81.7	83.8	83.8	0.48	0.62	0.71	13.3
7.5	10	160L	9.97	6.7	1.9	2.8	0.2570	9	20	143	60.0	733	85.0	85.3	85.3	0.49	0.63	0.73	17.4
9.2	12.5	180M	12.3	6.2	2.0	2.7	0.2299	15	33	159	64.0	729	85.6	86.2	86.2	0.47	0.61	0.70	22.0
11	15	180L	14.7	6.4	2.2	2.8	0.2705	13	29	182	64.0	731	84.6	86.6	86.9	0.48	0.61	0.70	26.1
15	20	200M/L	19.9	4.3	1.8	2.1	0.4037	31	68	242	64.0	733	87.3	88.0	88.0	0.46	0.59	0.67	36.7
18.5	25	225S/M	24.5	6.3	1.8	2.1	0.5497	20	44	303	64.0	736	87.6	88.6	88.6	0.55	0.68	0.74	40.7
22	30	225S/M	29.2	6.0	1.7	2.0	0.6184	20	44	317	64.0	734	89.1	89.1	89.1	0.57	0.69	0.75	47.5
30	40	225S/M	39.9	6.7	2.0	2.2	0.8588	16	35	368	64.0	733	89.8	89.8	89.8	0.55	0.68	0.74	65.2
37	50	W280S/M	49.0	6.4	2.0	2.7	1.24	13	29	492	64.0	736	90.2	90.3	90.3	0.52	0.65	0.73	81.0
45	60	W280S/M	59.6	6.6	2.1	2.7	1.56	14	31	552	64.0	736	90.7	90.7	90.7	0.53	0.66	0.73	98.1
55	75	W280S/M	73.0	6.7	2.2	2.7	1.79	21	46	619	64.0	734	90.9	91.0	91.0	0.55	0.67	0.74	118
75	100	W315S/M	98.4	6.3	1.9	2.4	3.95	21	46	889	59.0	742	91.6	91.6	91.6	0.57	0.69	0.74	160
90	125	315S/M	118	6.7	2.0	2.2	7.14	28	62	1102	62.0	742	91.9	91.9	91.9	0.65	0.75	0.79	179
110	150	355M/L	144	6.4	1.6	2.1	10.4	56	123	1379	70.0	745	91.8	92.1	92.3	0.63	0.73	0.78	221
132	175	315L	174	6.2	2.0	2.2	9.30	23	51	1352	68.0	740	92.1	92.3	92.6	0.63	0.74	0.79	260
160	220	355M/L	209	6.4	1.4	2.3	14.4	30	66	1616	70.0	744	92.1	92.6	93.0	0.64	0.75	0.79	314
185	250	355M/L	242	6.0	1.4	2.1	16.5	46	101	1691	70.0	745	92.4	92.9	93.3	0.64	0.75	0.80	358
200	270	355M/L	261	6.3	1.6	2.3	18.4	48	106	1765	70.0	745	92.4	92.9	93.5	0.63	0.74	0.80	386
220	300	355M/L	288	6.6	1.9	2.3	19.9	48	106	1875	70.0	745	92.4	92.9	93.5	0.63	0.74	0.79	430
250	340	355A/B	327	6.2	1.5	2.4	21.7	47	103	2092	70.0	745	93.4	93.9	94.4	0.62	0.73	0.79	484
260	350	355A/B	341	6.3	1.6	2.4	21.7	35	77	2092	70.0	743	93.4	93.9	94.4	0.62	0.73	0.79	503
280	380	355A/B	366	7.5	2.0	2.8	25.0	44	97	2279	70.0	745	93.4	93.9	94.4	0.61	0.73	0.79	542
High Output Design																			
30	40	250S/M	39.7	6.2	2.0	2.6	0.9661	12	26	419	64.0	736	88.7	89.8	89.8	0.51	0.64	0.72	67.0
37	50	280S/M	48.8	5.0	1.4	1.8	2.26	26	57	614	59.0	738	90.6	91.1	91.6	0.62	0.72	0.77	75.7
45	60	280S/M	59.3	5.8	1.7	2.3	2.71	20	44	660	59.0	739	91.1	91.3	91.4	0.58	0.68	0.74	96.0
55	75	280S/M	72.6	5.4	1.5	1.9	3.16	20	44	710	59.0	738	91.3	91.8	92.3	0.64	0.75	0.79	109
55	75	W315S/M	72.3	5.6	1.8	2.1	2.71	26	57	760	59.0	741	91.0	91.0	91.0	0.59	0.70	0.75	116
110	150	315L	145	5.8	2.0	2.2	7.84	24	53	1350	68.0	740	92.0	92.0	92.3	0.64	0.73	0.78	221
110	150	315S/M*	145	5.8	2.0	2.2	6.93	24	53	1300	62.0	740	92.0	92.0	92.3	0.64	0.73	0.78	221
132	175	355M/L	173	6.3	1.4	2.1	12.6	43	95	1473	70.0	744	92.2	92.3	92.6	0.62	0.74	0.79	260

Notes:
(1) Efficiency values are measured in direct start-up according to IEC-60034-2-1 standard.
(*) Insulation class "F" temperature rise is △T 105K.

W21 Prime Cast Iron Frame - IE2 (1)

Output		Rated speed (rpm)	380V						Full load current In (A)	Rated speed (rpm)	415 V						Full load current In (A)
			Efficiency at % Load			Power Factor at % Load					Efficiency at % Load			Power Factor at % Load			
kW	HP		50%	75%	100%	50%	75%	100%			50%	75%	100%	50%	75%	100%	
6P - 50Hz																	
7.5	10	977	87.2	87.2	87.2	0.65	0.77	0.84	15.6	982	87.2	87.2	87.2	0.58	0.71	0.80	15.0
9.2	12.5	978	88.0	88.0	88.0	0.65	0.78	0.84	18.9	982	87.6	88.0	88.0	0.58	0.72	0.80	18.2
11	15	977	88.7	88.7	88.7	0.68	0.80	0.85	22.2	982	88.7	88.7	88.7	0.61	0.75	0.82	21.0
15	20	975	89.4	89.7	89.7	0.66	0.78	0.83	30.6	978	88.4	89.6	89.7	0.59	0.72	0.79	29.4
18.5	25	979	90.4	90.4	90.4	0.61	0.73	0.79	39.4	983	89.0	90.4	90.4	0.51	0.64	0.73	39.0
22	30	976	90.9	90.9	90.9	0.61	0.73	0.79	46.5	981	89.3	90.7	90.9	0.51	0.65	0.73	46.1
30	40	981	91.7	91.7	91.7	0.66	0.77	0.82	60.6	983	91.0	91.7	91.7	0.58	0.71	0.78	58.4
37	50	980	92.2	92.2	92.2	0.69	0.80	0.84	72.6	984	92.2	92.2	92.2	0.63	0.75	0.81	68.9
45	60	981	92.7	92.7	92.7	0.67	0.78	0.83	88.9	985	92.7	92.7	92.7	0.60	0.73	0.79	85.5
55	75	982	93.1	93.1	93.1	0.67	0.78	0.83	108	985	93.1	93.1	93.1	0.60	0.73	0.79	104
75	100	988	93.7	93.7	93.7	0.71	0.79	0.83	147	990	93.7	93.7	93.7	0.64	0.75	0.80	139
90	125	988	94.0	94.0	94.0	0.71	0.80	0.83	175	990	94.0	94.0	94.0	0.65	0.76	0.81	164
110	150	990	94.2	94.2	94.3	0.76	0.82	0.85	209	990	94.2	94.2	94.3	0.69	0.78	0.83	196
132	175	990	94.6	94.6	94.6	0.75	0.83	0.85	249	990	94.3	94.6	94.6	0.68	0.78	0.83	234
150	200	992	94.5	94.6	94.7	0.69	0.77	0.81	297	994	93.8	94.4	94.7	0.61	0.71	0.76	290
160	220	990	94.0	94.2	94.8	0.74	0.82	0.85	302	990	94.5	94.1	94.8	0.67	0.78	0.83	283
185	250	990	94.2	94.4	95.0	0.73	0.82	0.84	352	990	94.2	94.3	95.0	0.66	0.77	0.81	334
200	270	991	94.3	94.4	95.0	0.69	0.80	0.84	381	993	94.8	94.8	95.0	0.62	0.74	0.80	366
220	300	985	94.3	94.4	95.0	0.73	0.81	0.84	419	990	94.0	94.5	95.0	0.66	0.77	0.82	393
250	340	993	94.3	94.5	95.0	0.70	0.79	0.82	488	994	94.8	94.8	95.0	0.62	0.73	0.79	463
260	350	990	94.5	94.5	95.0	0.70	0.79	0.83	501	993	94.1	94.4	95.0	0.62	0.73	0.79	482
280	380	990	94.6	94.6	95.0	0.68	0.78	0.82	546	990	94.2	94.5	95.0	0.61	0.72	0.78	526
300	400	993	94.7	94.7	95.0	0.65	0.75	0.80	600	994	94.2	94.6	95.0	0.60	0.70	0.77	571
315	430	991	94.6	94.7	95.0	0.70	0.79	0.83	607	993	94.2	94.6	95.0	0.62	0.73	0.79	584
355	480	992	95.2	95.4	95.5	0.67	0.76	0.80	706	994	94.7	95.3	95.4	0.62	0.73	0.79	655
370	500	990	95.4	95.5	95.6	0.65	0.76	0.81	726	995	95.0	95.5	95.7	0.61	0.72	0.77	699
400	550	990	95.5	95.6	95.7	0.67	0.77	0.81	784	990	95.0	95.5	95.7	0.60	0.71	0.77	755
High Output Design																	
37	50	983	92.2	92.2	92.2	0.63	0.75	0.81	75.3	985	91.1	92.1	92.2	0.54	0.68	0.76	73.5
45	60	986	93.7	93.6	93.1	0.69	0.79	0.82	89.6	988	93.1	93.5	93.5	0.62	0.74	0.79	84.8
45	60	981	92.7	92.7	92.7	0.67	0.78	0.83	88.9	985	92.7	92.7	92.7	0.60	0.73	0.79	85.5
55	75	985	93.1	93.1	93.1	0.68	0.77	0.82	109	988	92.5	93.1	93.1	0.61	0.72	0.78	105
75	100	985	94.1	94.2	93.9	0.73	0.81	0.84	144	988	93.7	94.2	94.3	0.66	0.77	0.82	135
75	100	989	93.7	93.7	93.7	0.73	0.80	0.84	145	990	93.5	93.7	93.7	0.66	0.77	0.81	137
90	125	990	94.0	94.0	94.0	0.71	0.80	0.83	175	992	93.8	94.0	94.0	0.64	0.74	0.80	167
132	175	993	94.0	94.5	94.6	0.64	0.75	0.79	268	994	93.5	94.5	94.6	0.57	0.69	0.75	259
160	220	991	94.0	94.8	94.8	0.71	0.79	0.82	313	993	93.4	94.6	94.8	0.64	0.74	0.77	305
185	250	992	94.4	94.3	95.0	0.70	0.79	0.82	361	993	94.0	94.4	95.0	0.60	0.71	0.78	347
200	270	992	94.0	94.6	95.0	0.70	0.79	0.82	390	993	94.4	94.4	95.0	0.62	0.73	0.79	371
220	300	992	94.2	94.4	95.0	0.72	0.80	0.82	429	994	93.4	94.0	95.0	0.62	0.74	0.79	408
8P - 50Hz																	
4	5.5	731	81.9	81.9	81.9	0.51	0.65	0.74	10.0	734	78.9	81.9	81.9	0.43	0.57	0.68	10.0
5.5	7.5	733	83.0	83.8	83.8	0.52	0.66	0.75	13.3	736	80.4	83.7	83.8	0.45	0.59	0.69	13.2
7.5	10	731	85.3	85.3	85.3	0.53	0.67	0.76	17.6	735	84.0	85.3	85.3	0.46	0.60	0.70	17.5
9.2	12.5	728	86.2	86.2	86.2	0.52	0.65	0.73	22.2	732	84.0	86.2	86.2	0.44	0.57	0.67	22.2
11	15	729	86.0	86.9	86.9	0.53	0.66	0.74	26.0	732	82.8	85.6	86.9	0.44	0.57	0.67	26.3
15	20	728	88.0	88.0	88.0	0.51	0.64	0.70	37.0	732	86.0	87.9	88.0	0.43	0.56	0.64	37.1
18.5	25	734	88.5	88.6	88.6	0.61	0.72	0.77	41.2	737	86.3	88.2	88.6	0.50	0.63	0.71	40.9
22	30	732	89.1	89.1	89.1	0.62	0.73	0.78	48.1	734	88.8	89.1	89.1	0.53	0.66	0.73	47.1
30	40	733	89.8	89.8	89.8	0.60	0.72	0.77	65.9	736	89.0	89.8	89.8	0.51	0.64	0.71	65.5
37	50	734	90.3	90.3	90.3	0.57	0.70	0.76	81.9	737	89.1	90.3	90.3	0.48	0.62	0.70	81.4
45	60	735	90.7	90.7	90.7	0.57	0.70	0.76	99.2	737	90.5	90.7	90.7	0.49	0.62	0.70	98.6
55	75	734	91.0	91.0	91.0	0.59	0.71	0.77	119	736	89.9	91.0	91.0	0.51	0.64	0.72	117
75	100	740	91.6	91.6	91.6	0.62	0.72	0.77	162	742	91.6	91.6	91.6	0.53	0.66	0.72	158
90	125	741	91.9	91.9	91.9	0.69	0.77	0.80	186	743	91.9	91.9	91.9	0.62	0.73	0.78	175
110	150	744	89.7	92.0	92.3	0.65	0.76	0.80	226	745	92.1	92.2	92.3	0.59	0.71	0.76	218
132	175	740	92.3	92.5	92.6	0.68	0.77	0.81	267	740	92.1	92.6	92.6	0.59	0.71	0.77	258
160	220	743	92.9	92.4	93.0	0.68	0.78	0.81	323	745	92.4	92.9	93.0	0.61	0.73	0.77	311
185	250	745	92.2	92.7	93.3	0.69	0.78	0.82	367	745	92.7	93.2	93.3	0.60	0.72	0.78	354
200	270	745	92.2	92.7	93.5	0.68	0.78	0.83	392	745	92.7	93.2	93.5	0.59	0.71	0.78	382
220	300	745	92.2	92.7	93.5	0.68	0.78	0.81	441	745	92.7	93.2	93.5	0.59	0.71	0.77	425
250	340	745	93.2	93.7	94.2	0.67	0.77	0.81	498	745	93.7	94.2	94.5	0.58	0.70	0.77	478
260	350	742	93.2	93.7	94.2	0.67	0.77	0.81	518	744	93.7	94.2	94.7	0.58	0.70	0.77	496
280	380	745	93.2	93.7	94.2	0.66	0.76	0.81	558	745	93.7	94.2	94.5	0.57	0.70	0.77	535
High Output Design																	
30	40	734	89.7	89.8	89.8	0.57	0.69	0.76	66.8	737	87.5	89.3	89.8	0.46	0.60	0.69	67.4
37	50	735	90.4	90.9	91.2	0.66	0.75	0.78	79.0	740	90.4	91.4	91.7	0.60	0.72	0.75	74.8
45	60	738	90.9	91.1	91.2	0.63	0.72	0.77	97.4	740	91.1	91.3	91.4	0.54	0.65	0.71	96.5
55	75	736	91.1	91.6	92.1	0.68	0.78	0.80	113	739	91.6	92.1	92.4	0.60	0.72	0.77	108
55	75	740	91.0	91.0	91.0	0.64	0.74	0.77	119	742	91.0	91.0	91.0	0.55	0.67	0.73	115
110	150	740	92.3	92.3	92.3	0.68	0.77	0.80	226	742	92.1	92.3	92.3	0.60	0.71	0.76	218
110	150	739	92.3	92.3	92.3	0.68	0.77	0.80	226	741	92.3	92.3	92.3	0.60	0.71	0.76	218
132	175	743	92.1	92.1	92.6	0.66	0.75	0.81	267	744	92.1	92.6	92.6	0.60	0.71	0.77	258

Notes:
(1) Efficiency values are measured in direct start-up according to IEC-60034-2-1 standard.
(*) Insulation class "F" temperature rise is △T 105K.

W21 Prime Cast Iron Frame - 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 (kg.m²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	400 V						Full load current In (A)
													Efficiency at % Load			Power Factor at % Load			
kW	HP							Hot	Cold				50%	75%	100%	50%	75%	100%	
2P - 50Hz																			
11	15	160M	3.63	7.5	2.5	3.6	0.0333	18	40	110	67.0	2950	90.4	91.2	91.2	0.70	0.80	0.86	20.2
15	20	160M	4.95	7.8	2.8	3.7	0.0417	12	26	125	67.0	2950	91.1	91.9	91.9	0.71	0.82	0.87	27.1
18.5	25	160L	6.11	8.3	3.6	3.9	0.0472	11	24	140	67.0	2950	91.6	92.4	92.4	0.71	0.81	0.85	34.0
22	30	180M	7.24	7.8	2.2	3.5	0.0973	12	26	170	67.0	2960	91.6	92.6	92.7	0.72	0.82	0.86	39.8
30	40	200M/L	9.87	6.9	2.8	3.3	0.1611	18	40	230	72.0	2960	92.0	93.1	93.3	0.71	0.81	0.85	54.6
37	50	200M/L	12.2	7.2	3.5	3.3	0.1950	14	31	255	72.0	2960	92.6	93.5	93.7	0.73	0.82	0.86	66.3
45	60	225S/M	14.8	7.8	2.9	3.3	0.2731	17	37	350	74.0	2965	92.3	93.4	94.0	0.72	0.81	0.85	81.3
55	75	250S/M	18.1	7.9	3.0	3.2	0.3553	19	42	425	74.0	2965	92.7	93.8	94.3	0.73	0.82	0.86	97.9
75	100	W280S/M	24.7	8.1	2.9	3.4	0.3891	22	48	480	74.0	2962	93.6	94.4	94.7	0.74	0.82	0.86	133
90	125	W280S/M	29.6	8.3	3.0	3.3	0.5075	24	53	545	74.0	2962	94.2	94.9	95.0	0.79	0.86	0.88	155
110	150	W315S/M	36.0	8.0	2.3	3.1	1.24	27	59	815	77.0	2979	93.5	94.5	95.2	0.79	0.85	0.88	190
132	175	W315S/M	43.2	8.1	2.2	3.0	1.42	22	48	860	77.0	2978	93.8	94.8	95.4	0.80	0.86	0.89	224
160	220	W315S/M	52.4	7.8	2.2	2.9	1.71	21	46	950	77.0	2975	95.0	95.6	95.6	0.80	0.87	0.89	271
185	250	315S/M	60.5	7.9	2.5	3.0	2.74	31	68	1100	77.0	2980	95.2	95.4	95.7	0.85	0.89	0.90	310
200	270	315S/M	65.2	10.0	2.9	4.0	2.69	22	48	1100	77.0	2987	95.2	95.8	95.8	0.73	0.82	0.86	350
250	340	315L	81.6	8.3	2.5	2.9	3.59	25	55	1335	78.0	2986	95.5	95.8	95.8	0.80	0.87	0.89	423
315	430	355M/L	103	8.7	3.3	3.1	6.01	25	55	1820	80.0	2985	95.6	95.7	95.8	0.85	0.89	0.90	527
355	480	355M/L	116	9.3	3.1	3.3	6.01	20	44	1820	80.0	2988	95.4	95.8	95.8	0.80	0.86	0.88	608
370	500	355A/B	121	7.9	2.5	2.8	6.76	40	88	2046	83.0	2985	95.8	95.8	95.8	0.85	0.89	0.90	619
400	550	355A/B	131	8.2	2.9	2.9	6.76	24	53	2250	83.0	2984	95.5	95.8	95.8	0.85	0.89	0.91	662
450	610	355A/B	147	7.5	2.8	2.7	7.40	31	68	2400	83.0	2982	95.5	95.8	95.8	0.85	0.90	0.91	745
High Output Design																			
75	100	250S/M	24.7	8.1	2.8	3.3	0.3891	21	46	480	74.0	2961	93.6	94.4	94.7	0.74	0.82	0.86	133
75	100	280S/M	24.5	7.4	2.0	2.8	0.9386	20	44	680	77.0	2975	92.5	94.0	94.7	0.75	0.83	0.86	133
90	125	280S/M	29.5	7.1	2.1	2.9	1.12	27	59	710	77.0	2976	93.8	94.5	95.0	0.79	0.85	0.88	155
110	150	280S/M	36.0	8.0	2.2	3.1	1.33	20	44	790	77.0	2978	93.0	94.5	95.2	0.80	0.85	0.88	190
160	220	315S/M	52.2	7.2	2.1	3.0	2.02	32	70	970	77.0	2984	94.5	95.5	95.6	0.76	0.84	0.87	278
355	480	355A/B	116	9.0	2.8	3.3	6.25	28	62	2000	83.0	2988	95.0	95.5	95.8	0.82	0.88	0.89	601
4P - 50Hz																			
11	15	160M	7.26	6.9	2.5	3.4	0.0779	13	29	125	59.0	1475	90.4	91.3	91.4	0.64	0.76	0.82	21.2
15	20	160L	9.91	7.6	2.9	3.7	0.1023	11	24	155	59.0	1475	90.9	91.9	92.1	0.63	0.75	0.82	28.7
18.5	25	180M	12.2	7.2	3.3	3.5	0.1740	13	29	175	62.0	1475	91.7	92.4	92.6	0.64	0.75	0.82	35.2
22	30	180L	14.5	7.5	3.0	3.3	0.2262	13	29	215	62.0	1475	92.2	93.0	93.0	0.65	0.76	0.83	41.1
30	40	200M/L	19.7	7.4	2.8	3.6	0.3208	13	29	255	63.0	1480	93.2	93.6	93.6	0.67	0.78	0.82	56.4
37	50	W225S/M	24.4	7.1	2.4	2.8	0.3208	23	51	270	69.0	1475	93.5	93.9	93.9	0.70	0.80	0.84	67.7
45	60	225S/M	29.6	7.9	2.8	3.2	0.5651	21	46	355	64.0	1482	93.5	94.0	94.2	0.67	0.78	0.83	83.1
55	75	250S/M	36.1	7.6	3.0	3.2	0.8430	20	44	450	64.0	1485	94.0	94.6	94.6	0.70	0.80	0.84	100
75	100	W280S/M	49.3	7.7	2.6	3.1	0.8767	14	31	590	64.0	1482	94.5	95.0	95.0	0.69	0.79	0.83	137
90	125	W280S/M	59.2	7.9	3.0	3.1	1.15	24	53	575	64.0	1482	95.0	95.2	95.2	0.71	0.81	0.84	162
110	150	W315S/M	72.1	7.6	2.6	3.1	2.21	21	46	830	71.0	1487	94.0	95.0	95.4	0.63	0.74	0.80	208
132	175	W315S/M	86.5	7.7	2.7	3.0	2.83	21	46	925	71.0	1487	94.5	95.0	95.6	0.66	0.77	0.81	246
160	220	W315S/M	105	7.6	2.4	2.5	3.36	16	35	1005	71.0	1485	95.5	95.8	95.8	0.68	0.78	0.82	294
185	250	315S/M	121	6.8	2.6	2.6	4.31	31	68	1125	71.0	1489	95.5	95.9	95.9	0.76	0.83	0.86	324
200	270	315S/M	131	7.3	2.6	2.6	4.66	30	66	1170	71.0	1490	95.7	96.0	96.0	0.77	0.84	0.87	346
250	340	315L	164	7.1	2.7	2.5	5.64	28	62	1355	73.0	1489	96.0	96.0	96.0	0.76	0.84	0.87	432
315	430	355M/L	206	7.1	2.4	2.4	9.00	21	46	1670	78.0	1492	95.6	96.0	96.0	0.76	0.83	0.86	551
355	480	355M/L	232	7.3	2.9	2.9	11.5	20	44	1930	78.0	1492	95.7	96.0	96.0	0.74	0.82	0.85	628
400	550	355A/B	261	7.5	2.7	2.7	12.5	20	44	2089	76.0	1492	95.7	96.0	96.0	0.68	0.79	0.82	733
450	610	355A/B	294	7.0	2.6	2.6	13.2	20	44	2417	76.0	1490	95.8	96.0	96.0	0.69	0.80	0.84	805
500	680	355A/B*	327	8.3	2.8	2.8	14.6	17	37	2246	76.0	1491	95.5	96.0	96.0	0.72	0.81	0.85	884
High Output Design																			
37	50	225S/M	24.4	7.3	3.0	3.4	0.4914	25	55	335	64.0	1480	92.8	93.8	93.9	0.67	0.77	0.82	69.4
37	50	200M/L	24.4	7.1	2.4	2.8	0.3208	23	51	265	69.0	1475	93.5	93.9	93.9	0.70	0.80	0.84	67.7
45	60	200M/L	29.7	8.6	3.4	3.6	0.3743	15	33	290	69.0	1478	93.5	94.2	94.2	0.64	0.76	0.82	84.1
45	60	W225S/M	29.7	8.6	3.4	3.6	0.3743	15	33	295	69.0	1478	93.5	94.2	94.2	0.64	0.76	0.82	84.1
75	100	250S/M	49.3	7.7	2.6	3.1	0.8767	14	31	590	64.0	1482	94.5	95.0	95.0	0.69	0.79	0.83	137
75	100	280S/M	49.1	7.5	2.2	2.7	2.09	20	44	630	71.0	1487	94.5	95.0	95.0	0.68	0.77	0.82	139
90	125	280S/M	58.9	7.3	2.5	2.9	2.17	20	44	700	71.0	1488	94.0	95.0	95.2	0.65	0.76	0.81	168
110	150	280S/M	72.0	7.3	2.8	3.1	2.21	16	35	830	71.0	1488	94.5	95.4	95.4	0.67	0.79	0.83	201
160	220	315S/M	105	7.0	2.6	2.7	3.44	29	64	1010	71.0	1490	95.1	95.8	95.8	0.73	0.82	0.85	284

Notes:
(1) Efficiency values are based on GB18613-2020 standard and are measured during direct start-up.
(2) Efficiency values are based on IEC-60034-2-1 standard and are measured during direct start-up. (*)
Insulation grade "F" temperature rise is △T 105K.

W21 Prime Cast Iron Frame - GB3 (1) - IE3 (2)

Output		Rated speed (rpm)	380V						Full load current In (A)	Rated speed (rpm)	415 V						Full load current In (A)
			Efficiency at % Load			Power Factor at % Load					Efficiency at % Load			Power Factor at % Load			
kW	HP		50%	75%	100%	50%	75%	100%			50%	75%	100%	50%	75%	100%	
2P - 50Hz																	
11	15	2945	90.5	91.2	91.2	0.73	0.83	0.88	20.8	2955	90.0	91.2	91.2	0.67	0.78	0.84	20.0
15	20	2940	91.4	91.9	91.9	0.75	0.84	0.88	28.2	2955	90.8	91.9	91.9	0.68	0.79	0.85	26.7
18.5	25	2940	91.9	92.4	92.4	0.75	0.84	0.88	34.6	2955	91.3	92.4	92.4	0.68	0.79	0.85	32.8
22	30	2955	91.9	92.6	92.7	0.76	0.84	0.88	41.0	2965	91.3	92.5	92.7	0.69	0.80	0.85	38.8
30	40	2955	92.3	93.1	93.3	0.75	0.83	0.87	56.2	2965	91.8	93.1	93.3	0.68	0.79	0.84	53.3
37	50	2955	92.8	93.4	93.7	0.77	0.84	0.88	68.2	2965	92.4	93.5	93.7	0.70	0.80	0.85	64.6
45	60	2960	92.5	93.4	94.0	0.75	0.84	0.87	83.6	2965	92.1	93.4	94.0	0.69	0.79	0.84	79.3
55	75	2960	92.9	93.7	94.3	0.77	0.84	0.87	102	2970	92.5	93.7	94.3	0.71	0.80	0.85	95.5
75	100	2956	93.7	94.4	94.7	0.78	0.85	0.87	138	2965	93.4	94.4	94.7	0.70	0.80	0.84	131
90	125	2956	94.2	94.8	95.0	0.82	0.87	0.89	162	2966	94.1	94.9	95.0	0.76	0.84	0.87	151
110	150	2976	93.5	94.5	95.2	0.81	0.87	0.89	197	2980	93.0	94.5	95.2	0.76	0.84	0.87	185
132	175	2975	94.0	94.8	95.4	0.83	0.88	0.89	236	2980	93.5	94.8	95.4	0.79	0.85	0.88	219
160	220	2971	95.0	95.6	95.6	0.83	0.88	0.89	286	2977	94.9	95.6	95.6	0.78	0.85	0.88	265
185	250	2977	95.4	95.5	95.7	0.87	0.90	0.91	323	2982	95.4	95.6	95.7	0.83	0.88	0.90	299
200	270	2985	95.1	95.8	95.8	0.77	0.85	0.88	360	2988	94.9	95.7	95.8	0.69	0.80	0.84	346
250	340	2984	95.3	95.8	95.8	0.83	0.88	0.89	445	2987	95.4	95.8	95.8	0.78	0.86	0.88	413
315	430	2983	95.4	95.6	95.8	0.86	0.89	0.90	555	2987	95.4	95.6	95.8	0.84	0.89	0.90	508
355	480	2987	95.6	95.8	95.8	0.83	0.88	0.89	633	2989	95.3	95.8	95.8	0.78	0.85	0.88	586
370	500	2980	95.8	95.8	95.8	0.86	0.90	0.91	645	2985	95.5	95.8	95.8	0.84	0.88	0.89	604
400	550	2982	95.5	95.8	95.8	0.87	0.90	0.91	697	2986	95.5	95.8	95.8	0.84	0.88	0.91	638
450	610	2979	95.5	95.8	95.8	0.87	0.91	0.91	784	2983	95.5	95.8	95.8	0.84	0.89	0.91	718
High Output Design																	
75	100	2955	93.7	94.4	94.7	0.78	0.85	0.88	137	2965	93.4	94.4	94.7	0.70	0.80	0.85	130
75	100	2970	92.8	94.0	94.7	0.78	0.84	0.87	138	2975	92.5	94.0	94.7	0.72	0.81	0.85	130
90	125	2973	93.8	94.5	95.0	0.82	0.87	0.89	162	2978	93.0	94.5	95.0	0.75	0.84	0.87	151
110	150	2975	93.0	94.5	95.2	0.81	0.87	0.89	197	2980	93.0	94.5	95.2	0.76	0.84	0.87	185
160	220	2982	94.8	95.6	95.6	0.80	0.86	0.88	289	2985	94.3	95.4	95.6	0.73	0.82	0.86	271
355	480	2987	95.5	95.5	95.8	0.84	0.89	0.90	626	2990	95.0	95.5	95.8	0.80	0.87	0.89	579
4P - 50Hz																	
11	15	1475	90.9	91.4	91.4	0.68	0.79	0.85	21.5	1480	89.7	91.0	91.4	0.61	0.73	0.81	20.7
15	20	1475	91.4	92.1	92.1	0.68	0.79	0.84	29.5	1480	90.2	91.5	92.1	0.60	0.72	0.80	28.3
18.5	25	1470	92.1	92.6	92.6	0.68	0.78	0.84	36.1	1475	91.1	92.1	92.6	0.60	0.73	0.80	34.7
22	30	1475	92.6	93.0	93.0	0.69	0.79	0.85	42.3	1475	91.9	92.8	93.0	0.62	0.74	0.81	40.6
30	40	1475	93.4	93.6	93.6	0.71	0.80	0.85	57.3	1480	92.8	93.6	93.6	0.64	0.76	0.82	54.4
37	50	1469	93.5	93.9	93.9	0.74	0.82	0.85	70.4	1476	93.5	93.9	93.9	0.67	0.77	0.82	66.9
45	60	1479	93.5	94.0	94.2	0.71	0.81	0.85	85.4	1483	93.0	94.0	94.2	0.64	0.75	0.81	82.1
55	75	1480	94.2	94.6	94.6	0.73	0.82	0.86	103	1485	93.8	94.6	94.6	0.67	0.78	0.83	97.5
75	100	1479	94.5	95.0	95.0	0.73	0.82	0.85	141	1483	94.5	95.0	95.0	0.65	0.76	0.81	136
90	125	1479	95.0	95.2	95.2	0.75	0.83	0.86	167	1484	95.0	95.2	95.2	0.68	0.78	0.83	158
110	150	1486	94.0	95.0	95.4	0.67	0.77	0.82	214	1488	94.5	95.0	95.4	0.60	0.72	0.78	206
132	175	1486	94.0	95.0	95.6	0.70	0.79	0.83	253	1488	94.3	95.0	95.6	0.63	0.75	0.80	240
160	220	1483	95.5	95.8	95.8	0.71	0.80	0.84	302	1486	95.4	95.8	95.8	0.65	0.76	0.81	287
185	250	1487	95.5	95.9	95.9	0.78	0.85	0.87	337	1490	95.5	95.9	95.9	0.73	0.82	0.85	316
200	270	1488	95.9	96.0	96.0	0.80	0.86	0.88	360	1491	95.5	96.0	96.0	0.75	0.83	0.86	337
250	340	1488	96.0	96.0	96.0	0.79	0.86	0.87	455	1490	95.9	96.0	96.0	0.74	0.83	0.86	421
315	430	1490	95.7	96.0	96.0	0.79	0.85	0.87	573	1492	95.3	96.0	96.0	0.73	0.81	0.85	537
355	480	1491	95.8	96.0	96.0	0.77	0.84	0.86	653	1492	95.5	96.0	96.0	0.72	0.80	0.84	612
400	550	1491	95.8	96.0	96.0	0.72	0.82	0.84	754	1492	95.4	95.9	96.0	0.65	0.76	0.80	725
450	610	1490	96.0	96.0	96.0	0.73	0.83	0.86	828	1490	95.5	95.9	96.0	0.65	0.77	0.82	795
500	680	1490	95.5	96.0	96.0	0.76	0.84	0.86	920	1492	95.5	96.0	96.0	0.69	0.79	0.84	863
High Output Design																	
37	50	1480	93.2	93.9	93.9	0.71	0.80	0.84	71.3	1485	92.5	93.6	93.9	0.64	0.75	0.81	67.7
37	50	1469	93.5	93.9	93.9	0.74	0.82	0.85	70.4	1476	93.5	93.9	93.9	0.67	0.77	0.82	66.9
45	60	1475	94.0	94.2	94.2	0.69	0.79	0.84	86.4	1479	93.0	94.0	94.2	0.60	0.73	0.79	84.1
45	60	1475	94.0	94.2	94.2	0.69	0.79	0.84	86.4	1479	93.0	94.0	94.2	0.60	0.73	0.79	84.1
75	100	1479	94.5	95.0	95.0	0.73	0.82	0.85	141	1483	94.5	95.0	95.0	0.65	0.76	0.81	136
75	100	1485	94.7	95.0	95.0	0.72	0.81	0.84	143	1488	94.2	95.0	95.0	0.64	0.75	0.81	136
90	125	1486	94.0	95.0	95.2	0.70	0.79	0.83	173	1489	93.0	94.5	95.2	0.61	0.73	0.79	166
110	150	1487	95.0	95.4	95.4	0.73	0.82	0.85	206	1489	94.5	95.4	95.4	0.67	0.79	0.83	193
160	220	1489	95.4	95.8	95.8	0.77	0.84	0.87	292	1491	94.7	95.6	95.8	0.70	0.80	0.84	277

Notes:
(1) Efficiency values are based on GB18613-2020 standard and are measured during direct start-up.
(2) Efficiency values are based on IEC-60034-2-1 standard and are measured during direct start-up.
(*) Insulation grade "F" temperature rise is △T 105K.

W21 Prime Cast Iron Frame - 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 (kg.m²)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	Rated speed (rpm)	400 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																			
7.5	10	160M	7.47	7.8	2.1	2.9	0.1488	12	26	110	59.0	978	89.1	89.1	89.1	0.61	0.74	0.81	15.0
9.2	12.5	160L	9.17	7.9	2.2	2.9	0.1623	11	24	122	59.0	977	89.3	89.7	89.7	0.61	0.74	0.81	18.3
11	15	160L	11.0	8.3	2.5	3.0	0.2029	8	18	134	59.0	978	90.3	90.3	90.3	0.64	0.76	0.83	21.2
15	20	180L	15.0	7.7	2.5	3.1	0.2156	16	35	173	64.0	975	90.6	91.2	91.2	0.58	0.71	0.78	30.4
18.5	25	200M/L	18.3	6.2	2.0	2.6	0.4205	30	66	248	64.0	983	91.6	91.7	91.7	0.60	0.72	0.78	37.3
22	30	200M/L	21.9	6.0	2.0	2.5	0.3504	34	75	238	64.0	980	91.4	92.2	92.2	0.57	0.69	0.76	45.3
30	40	225S/M	29.7	7.7	2.1	2.8	1.02	26	57	404	64.0	984	92.9	92.9	92.9	0.68	0.79	0.83	56.2
37	50	225S/M	36.8	7.6	2.2	3.1	0.7511	27	59	365	64.0	980	93.3	93.3	93.3	0.65	0.77	0.82	69.8
45	60	250S/M	44.5	7.7	2.2	3.2	1.51	19	42	523	64.0	984	93.7	93.7	93.7	0.65	0.77	0.82	84.5
55	75	W280S/M	54.5	7.4	2.3	3.1	1.14	20	44	496	64.0	983	93.8	94.1	94.1	0.61	0.73	0.79	107
75	100	W315S/M	73.9	6.7	2.0	2.3	3.03	21	46	799	68.0	989	94.5	94.6	94.6	0.67	0.77	0.81	141
90	125	W315S/M	88.6	7.0	2.1	2.5	3.81	21	46	883	68.0	989	94.5	94.9	94.9	0.68	0.78	0.82	167
110	150	315S/M	108	6.8	2.0	2.5	5.61	27	59	991	68.0	991	95.0	95.1	95.1	0.65	0.76	0.81	206
132	175	315S/M	130	7.5	2.6	2.9	7.23	21	46	1100	68.0	992	94.5	95.0	95.4	0.60	0.72	0.78	256
150	200	315L	148	6.5	2.3	2.5	7.96	25	55	1200	68.0	990	95.4	95.4	95.5	0.67	0.78	0.83	273
160	220	315L	157	7.1	2.5	2.8	6.87	22	48	1230	68.0	990	95.6	95.6	95.6	0.67	0.77	0.82	295
185	250	315L	182	7.1	2.4	2.6	9.22	20	44	1300	68.0	990	95.0	95.5	95.7	0.65	0.76	0.81	344
200	270	355M/L	196	5.8	1.9	2.1	10.4	39	86	1620	73.0	993	94.3	95.3	95.8	0.66	0.76	0.80	377
220	300	355M/L	216	6.5	2.0	2.3	12.0	36	79	1710	73.0	993	95.0	95.5	95.8	0.63	0.74	0.79	420
250	340	355M/L	245	6.0	2.1	2.2	13.9	38	84	1830	73.0	993	94.5	95.5	95.8	0.64	0.75	0.79	477
260	350	355M/L	255	5.7	2.1	2.2	13.9	34	75	1830	73.0	993	94.9	95.7	95.8	0.64	0.74	0.79	496
280	380	355M/L	275	6.4	2.3	2.5	15.0	24	53	1970	73.0	993	95.1	95.1	95.8	0.60	0.71	0.77	548
300	400	355M/L	294	6.3	2.1	2.4	15.0	25	55	2150	73.0	993	95.0	95.0	95.8	0.61	0.73	0.79	572
315	430	355M/L	309	6.1	2.1	2.1	15.0	25	55	2150	73.0	992	95.2	95.8	95.8	0.66	0.76	0.80	593
355	480	355A/B	349	6.2	2.0	2.3	17.1	29	64	2400	73.0	992	95.3	95.7	95.8	0.63	0.74	0.79	677
370	500	355A/B*	364	6.0	2.2	2.3	18.0	25	55	2500	73.0	990	95.4	95.8	95.8	0.63	0.74	0.79	706
400	550	355A/B*	393	6.1	2.0	2.3	18.9	29	64	2620	73.0	992	95.4	95.8	95.8	0.63	0.74	0.79	763
High Output Design																			
37	50	250S/M	36.6	7.5	2.2	3.2	1.23	19	42	471	64.0	985	93.0	93.3	93.3	0.64	0.76	0.81	70.7
45	60	280S/M	44.4	6.6	2.1	2.5	2.35	26	57	640	68.0	988	93.0	93.7	93.7	0.62	0.73	0.80	86.6
45	60	W280S/M	44.5	7.7	2.2	3.2	1.51	19	42	544	64.0	984	93.7	93.7	93.7	0.65	0.77	0.82	84.5
55	75	280S/M	54.2	6.8	2.2	2.5	2.69	18	40	665	68.0	989	93.5	94.1	94.1	0.62	0.74	0.79	107
75	100	280S/M	73.8	7.9	2.5	2.8	4.48	14	31	725	68.0	990	93.8	94.5	94.6	0.63	0.74	0.79	145
150	200	315S/M	148	6.5	2.3	2.5	7.96	20	44	1180	68.0	990	95.4	95.4	95.5	0.67	0.78	0.83	273
150	200	355M/L	147	5.4	1.8	2.3	8.78	76	167	1440	73.0	993	94.5	95.0	95.5	0.65	0.75	0.80	283
160	220	355M/L	157	5.5	1.8	2.1	8.80	33	73	1500	73.0	993	94.9	95.5	95.6	0.63	0.74	0.79	306
185	250	355M/L	181	6.6	2.1	2.3	9.26	34	75	1550	73.0	993	94.5	95.6	95.7	0.62	0.72	0.77	362
8P - 50Hz																			
4	5.5	160M	5.32	6.1	1.7	2.5	0.1285	23	51	102	59.0	732	84.8	84.8	84.8	0.53	0.67	0.75	9.08
5.5	7.5	160M	7.31	6.6	2.1	2.9	0.1488	14	31	108	59.0	733	83.7	86.0	86.2	0.48	0.62	0.71	13.0
7.5	10	160L	10.0	6.6	2.0	2.7	0.2029	13	29	133	59.0	730	86.4	87.3	87.3	0.54	0.67	0.75	16.5
9.2	12.5	180M	12.3	6.4	2.0	2.7	0.2435	16	35	163	64.0	731	86.2	87.7	88.1	0.48	0.62	0.71	21.2
11	15	180L	14.7	6.3	2.0	2.7	0.2840	16	35	186	64.0	729	87.1	88.3	88.6	0.49	0.63	0.71	25.2
15	20	200M/L	19.9	4.5	1.8	2.1	0.4388	40	88	253	64.0	734	88.6	89.6	89.6	0.48	0.61	0.68	35.5
18.5	25	225S/M	24.5	6.7	1.9	2.2	0.5840	22	48	310	64.0	737	88.9	90.1	90.1	0.53	0.65	0.73	40.6
22	30	225S/M	29.2	6.8	1.9	2.2	0.6871	20	44	332	64.0	734	89.7	90.6	90.6	0.54	0.67	0.74	47.4
30	40	225S/M	39.7	6.9	2.0	2.2	0.9963	22	48	397	64.0	736	91.1	91.3	91.3	0.58	0.70	0.76	62.4
37	50	W280S/M	49.0	6.6	2.0	2.6	1.29	15	33	500	64.0	735	90.9	91.6	91.8	0.55	0.67	0.75	77.6
45	60	W280S/M	59.6	6.8	2.1	2.7	1.61	14	31	560	64.0	736	91.2	92.0	92.2	0.54	0.67	0.74	95.2
55	75	W280S/M	72.9	6.6	2.2	2.8	1.79	16	35	619	64.0	735	92.3	92.5	92.5	0.55	0.67	0.74	116
75	100	W315S/M	98.4	6.3	1.9	2.4	3.95	22	48	889	59.0	742	93.1	93.1	93.1	0.57	0.69	0.74	157
90	125	315S/M	118	6.7	2.0	2.2	7.14	33	73	1102	62.0	742	93.4	93.4	93.4	0.65	0.75	0.79	176
110	150	315L	145	6.0	1.9	2.2	9.46	35	77	1367	68.0	741	93.4	93.9	93.7	0.64	0.74	0.79	214
132	175	355M/L	173	6.5	1.2	2.1	12.6	35	77	1587	70.0	742	93.7	94.2	94.0	0.64	0.74	0.79	257
150	200	355M/L	196	6.5	1.7	2.5	13.2	33	73	1540	70.0	744	94.0	94.2	94.2	0.62	0.73	0.78	295
160	220	355M/L	209	6.4	1.4	2.3	17.4	30	66	1747	70.0	744	94.0	94.5	94.3	0.64	0.75	0.79	310
185	250	355M/L	242	6.9	2.0	2.7	18.5	35	77	1819	70.0	745	93.4	94.7	94.5	0.63	0.73	0.78	362
200	270	355M/L	262	6.2	1.4	2.2	18.9	52	114	1891	70.0	744	94.3	94.8	94.6	0.65	0.76	0.80	381
220	300	355M/L	288	7.0	1.8	2.6	19.8	30	66	2020	70.0	744	94.8	95.1	94.6	0.60	0.72	0.77	436
250	340	355A/B	327	6.2	1.6	2.5	21.7	47	103	2092	70.0	744	94.0	94.6	94.6	0.62	0.73	0.79	483
260	350	355A/B	340	6.2	1.5	2.4	21.7	47	103	2092	70.0	745	94.0	94.6	94.6	0.62	0.73	0.79	502
280	380	355A/B	366	7.8	2.2	3.1	25.0	30	66	2279	70.0	745	94.0	94.6	94.6	0.61	0.71	0.77	555
High Output Design																			
30	40	250S/M	39.7	6.3	2.0	2.5	1.01	12	26	427	64.0	736	90.4	91.2	91.3	0.53	0.66	0.74	64.1
37	50	280S/M	48.7	5.5	1.8	2.3	2.82	32	70	673	59.0	740	91.5	91.8	91.8	0.60	0.71	0.77	75.6
45	60	280S/M	59.2	5.8	1.8	2.1	3.49	30	66	720	59.0	740	91.9	92.2	92.2	0.60	0.71	0.77	91.5
55	75	280S/M	72.4	5.8	2.0	2.1	3.38	26	57	812	59.0	740	92.2	92.5	92.5	0.60	0.71	0.77	111
55	75	W315S/M	72.3	5.6	1.6	2.1	2.71	26	57	760	59.0	741	92.5	92.5	92.5	0.59	0.70	0.75	114
110	150	315S/M	145	6.0	1.9	2.2	9.46	35	77	1360	62.0	740	93.4	93.9	93.7	0.64	0.74	0.79	214
110	150	355M/L	144	6.1	1.6	2.3	11.6	44	97	1450	70.0	745	93.4	93.9	93.7	0.64	0.75	0.79	214
132	175	315L	174	6.0	2.0	2.3	11.3	34	75	1508	68.0	740	93.7	94.2	94.0	0.64	0.74	0.79	257

W21 Prime Cast Iron Frame - GB3 (1) - IE3 (2)

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Output		Rated speed (rpm)	380V						Full load current In (A)	Rated speed (rpm)	415 V						Full load current In (A)
			Efficiency at % Load			Power Factor at % Load					Efficiency at % Load			Power Factor at % Load			
kW	HP		50%	75%	100%	50%	75%	100%			50%	75%	100%	50%	75%	100%	
6P - 50Hz																	
7.5	10	975	89.1	89.1	89.1	0.66	0.78	0.84	15.2	980	88.5	89.1	89.1	0.58	0.71	0.79	14.8
9.2	12.5	975	89.7	89.7	89.7	0.66	0.78	0.84	18.6	979	88.6	89.7	89.7	0.58	0.71	0.79	18.1
11	15	974	90.3	90.3	90.3	0.68	0.79	0.85	21.8	980	90.0	90.3	90.3	0.61	0.74	0.81	20.9
15	20	970	91.2	91.2	91.2	0.63	0.75	0.81	30.9	977	89.7	90.9	91.2	0.54	0.67	0.76	30.1
18.5	25	978	91.7	91.7	91.7	0.64	0.75	0.80	38.3	984	91.1	91.7	91.7	0.56	0.69	0.76	36.9
22	30	977	92.0	92.2	92.2	0.62	0.74	0.79	45.9	979	90.5	91.8	92.2	0.52	0.66	0.73	45.5
30	40	982	92.9	92.9	92.9	0.71	0.81	0.85	57.7	984	92.9	92.9	92.9	0.66	0.77	0.82	54.8
37	50	980	93.3	93.3	93.3	0.69	0.79	0.83	72.6	984	93.3	93.3	93.3	0.62	0.74	0.80	69.0
45	60	982	93.7	93.7	93.7	0.69	0.79	0.84	86.9	986	93.7	93.7	93.7	0.63	0.75	0.81	82.5
55	75	980	94.1	94.1	94.1	0.66	0.77	0.82	108	984	93.5	94.1	94.1	0.57	0.70	0.77	106
75	100	988	94.6	94.6	94.6	0.71	0.79	0.83	145	990	94.3	94.6	94.6	0.64	0.75	0.80	138
90	125	988	94.5	94.9	94.9	0.71	0.80	0.83	174	990	94.5	94.9	94.9	0.65	0.76	0.81	163
110	150	990	95.1	95.1	95.1	0.69	0.78	0.82	214	992	94.7	95.1	95.1	0.62	0.74	0.79	204
132	175	991	95.0	95.3	95.4	0.65	0.75	0.80	263	993	94.0	95.0	95.4	0.55	0.68	0.75	257
150	200	990	95.4	95.4	95.5	0.69	0.80	0.85	281	990	95.4	95.5	95.5	0.65	0.76	0.81	270
160	220	990	95.5	95.5	95.6	0.71	0.80	0.84	303	990	95.3	95.5	95.6	0.64	0.75	0.81	287
185	250	990	94.8	95.3	95.7	0.70	0.79	0.83	354	990	94.8	95.3	95.7	0.62	0.74	0.80	336
200	270	992	94.5	95.3	95.8	0.70	0.79	0.82	387	993	94.0	95.0	95.8	0.63	0.74	0.79	368
220	300	992	95.0	95.5	95.8	0.69	0.78	0.81	431	993	95.0	95.5	95.8	0.61	0.72	0.77	415
250	340	992	94.8	95.5	95.8	0.68	0.77	0.80	496	993	94.3	95.4	95.8	0.61	0.73	0.78	465
260	350	992	95.0	95.8	95.8	0.68	0.77	0.80	515	993	94.4	95.5	95.8	0.60	0.71	0.77	490
280	380	992	95.4	95.5	95.8	0.65	0.75	0.79	562	994	94.8	95.5	95.8	0.56	0.68	0.75	542
300	400	992	95.6	95.0	95.8	0.66	0.76	0.80	595	994	95.1	95.0	95.8	0.60	0.71	0.77	566
315	430	992	95.1	95.2	95.8	0.68	0.78	0.81	617	993	95.0	95.0	95.8	0.61	0.73	0.78	586
355	480	991	95.4	95.7	95.8	0.64	0.75	0.79	713	993	95.2	95.7	95.8	0.62	0.73	0.79	653
370	500	990	95.6	95.8	95.8	0.65	0.76	0.81	724	995	95.2	95.7	95.8	0.61	0.72	0.77	698
400	550	991	95.7	95.8	95.8	0.67	0.77	0.81	783	993	95.2	95.7	95.8	0.60	0.71	0.77	754
High Output Design																	
37	50	983	93.0	93.3	93.3	0.67	0.78	0.83	72.6	986	93.0	93.3	93.3	0.61	0.74	0.80	69.0
45	60	985	93.5	93.7	93.7	0.66	0.77	0.81	90.1	988	93.0	93.7	93.7	0.60	0.71	0.78	85.7
45	60	982	93.7	93.7	93.7	0.69	0.79	0.84	86.9	986	93.7	93.7	93.7	0.63	0.75	0.81	82.5
55	75	988	94.0	94.1	94.1	0.67	0.76	0.81	110	990	93.0	94.1	94.1	0.60	0.71	0.78	104
75	100	988	94.4	94.6	94.6	0.67	0.77	0.81	149	990	93.0	94.2	94.6	0.60	0.71	0.78	141
150	200	990	94.6	95.1	95.5	0.72	0.81	0.84	284	990	94.6	95.1	95.5	0.65	0.76	0.81	270
150	200	992	94.5	95.3	95.5	0.69	0.78	0.81	295	994	94.5	95.0	95.5	0.62	0.73	0.78	280
160	220	992	95.0	95.5	95.6	0.67	0.77	0.81	314	993	95.0	95.5	95.6	0.60	0.72	0.77	302
185	250	992	94.9	95.5	95.7	0.65	0.75	0.80	367	993	94.0	95.0	95.7	0.57	0.69	0.75	359
8P - 50Hz																	
4	5.5	728	84.8	84.8	84.8	0.57	0.70	0.77	9.31	733	84.5	84.8	84.8	0.50	0.64	0.73	8.99
5.5	7.5	731	85.1	86.2	86.2	0.53	0.66	0.75	12.9	734	81.9	85.0	86.2	0.44	0.58	0.68	13.1
7.5	10	729	87.1	87.3	87.3	0.58	0.71	0.78	16.7	732	85.5	87.3	87.3	0.50	0.64	0.73	16.4
9.2	12.5	727	87.4	88.1	88.1	0.53	0.66	0.74	21.4	732	85.1	87.2	88.1	0.45	0.58	0.68	21.4
11	15	726	88.1	88.6	88.6	0.54	0.67	0.74	25.5	731	86.0	87.8	88.6	0.46	0.59	0.68	25.4
15	20	731	89.5	89.6	89.6	0.52	0.64	0.71	35.8	735	87.6	89.2	89.6	0.45	0.57	0.66	35.3
18.5	25	735	89.8	90.1	90.1	0.58	0.70	0.76	41.0	736	87.7	89.5	90.1	0.49	0.62	0.70	40.8
22	30	732	90.4	90.6	90.6	0.60	0.71	0.77	47.9	736	88.8	90.2	90.6	0.50	0.63	0.71	47.6
30	40	734	91.3	91.3	91.3	0.63	0.73	0.78	64.0	737	90.6	91.3	91.3	0.55	0.67	0.74	61.8
37	50	734	91.6	91.8	91.8	0.59	0.71	0.77	79.5	737	90.1	91.3	91.8	0.51	0.64	0.72	77.9
45	60	734	91.9	92.1	92.2	0.59	0.71	0.77	96.3	737	90.5	91.6	92.2	0.51	0.64	0.72	94.3
55	75	734	92.5	92.5	92.5	0.59	0.71	0.77	117	736	91.5	92.5	92.5	0.51	0.64	0.72	115
75	100	740	93.1	93.1	93.1	0.62	0.72	0.77	159	742	92.9	93.1	93.1	0.53	0.66	0.72	156
90	125	740	93.4	93.4	93.4	0.69	0.77	0.80	183	743	93.4	93.4	93.4	0.62	0.73	0.78	172
110	150	740	93.4	93.7	93.7	0.68	0.77	0.81	220	742	93.4	93.9	93.7	0.61	0.72	0.78	209
132	175	741	93.7	94.0	94.0	0.66	0.75	0.81	263	744	93.8	94.7	94.0	0.59	0.70	0.76	257
150	200	744	93.8	94.2	94.2	0.66	0.76	0.80	302	745	93.8	94.2	94.2	0.58	0.70	0.76	291
160	220	743	94.0	94.3	94.3	0.68	0.78	0.81	318	745	93.5	94.5	94.3	0.61	0.73	0.77	307
185	250	744	93.6	94.6	94.5	0.67	0.76	0.80	372	745	93.2	94.8	94.5	0.59	0.70	0.76	358
200	270	743	94.3	94.6	94.6	0.69	0.78	0.82	392	744	94.3	94.8	94.6	0.61	0.73	0.78	377
220	300	743	94.8	95.1	94.6	0.65	0.75	0.79	447	745	94.8	95.1	94.6	0.58	0.73	0.75	431
250	340	743	94.0	94.6	94.6	0.67	0.77	0.81	496	745	94.0	94.6	94.6	0.58	0.70	0.77	477
260	350	745	94.0	94.6	94.6	0.67	0.77	0.81	516	745	94.0	94.6	94.6	0.58	0.70	0.77	497
280	380	745	94.0	94.6	94.6	0.65	0.75	0.80	562	745	94.0	94.6	94.6	0.57	0.68	0.75	549
High Output Design																	
30	40	734	91.1	91.3	91.3	0.58	0.70	0.76	65.7	737	89.7	90.8	91.3	0.49	0.63	0.71	64.4
37	50	740	91.5	91.8	91.8	0.64	0.73	0.79	77.5	741	91.5	91.8	91.8	0.58	0.69	0.75	74.8
45	60	740	91.9	92.2	92.2	0.66	0.75	0.79	93.9	740	91.9	92.2	92.2	0.59	0.70	0.75	90.5
55	75	740	92.2	92.5	92.5	0.65	0.74	0.78	116	745	92.2	92.5	92.5	0.57	0.69	0.75	110
55	75	740	92.5	92.5	92.5	0.64	0.74	0.77	117	742	92.5	92.5	92.5	0.55	0.67	0.73	113
110	150	740	93.4	93.7	93.7	0.68	0.77	0.81	220	740	93.4	93.9	93.7	0.61	0.72	0.78	209
110	150	744	93.4	93.7	93.7	0.68	0.77	0.81	220	745	93.4	93.9	93.7	0.61	0.73	0.78	209
132	175	740	93.7	94.0	94.0	0.68	0.77	0.81	263	740	93.7	94.2	94.0	0.61	0.72	0.78	250

Notes:
(1) Efficiency values are based on GB18613-2020 standard and are measured during direct start-up.
(2) Efficiency values are based on IEC-60034-2-1 standard and are measured during direct start-up.
(*) Insulation grade "F" temperature rise is △T 105K.

W21 Prime Cast Iron Frame - 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 (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%	
2P - 50Hz																			
11	15	160M	3.63	7.7	2.6	3.2	0.0404	30	66	115	67	2950	90.7	92.0	92.6	0.70	0.80	0.85	21.3
15	20	160M	4.95	8.4	2.8	3.4	0.0514	22	48	130	67	2950	92.0	92.9	93.3	0.70	0.81	0.85	28.7
18.5	25	160L	6.12	8.5	3.1	3.4	0.0625	19	42	150	67	2945	92.7	93.4	93.7	0.74	0.83	0.86	34.8
22	30	180M	7.24	8.6	2.6	3.7	0.0973	21	46	180	67	2960	92.4	93.4	94.0	0.71	0.81	0.84	42.3
30	40	200M/L	9.85	7.9	3.2	3.2	0.1695	34	75	250	72	2965	92.8	93.9	94.5	0.70	0.80	0.84	57.4
37	50	200M/L	12.2	8.2	3.5	3.4	0.1865	27	59	265	72	2962	93.3	94.2	94.8	0.73	0.82	0.86	68.9
45	60	225S/M	14.8	8.2	2.5	3.2	0.2861	34	75	375	74	2965	93.1	94.1	95.0	0.73	0.82	0.86	83.7
55	75	250S/M	18.0	8.5	3.1	3.6	0.4060	38	84	475	74	2968	93.5	94.5	95.3	0.75	0.84	0.87	101
75	100	W280S/M	24.6	9.0	3.2	3.7	0.4568	26	57	520	74	2967	93.9	94.7	95.6	0.75	0.83	0.87	137
90	125	W280S/M	29.5	9.5	3.4	3.8	0.5414	20	44	565	74	2968	94.2	95.0	95.8	0.76	0.84	0.88	162
110	150	W315S/M	36.0	8.5	2.4	3.3	1.24	24	53	815	77	2978	94.0	95.0	96.0	0.77	0.85	0.87	200
132	175	W315S/M	43.2	7.8	2.2	2.9	1.47	23	51	875	77	2977	94.7	95.5	96.2	0.80	0.87	0.89	235
160	220	315S/M	52.2	7.0	2.1	2.7	2.24	37	81	1015	77	2983	95.1	95.8	96.3	0.80	0.87	0.88	287
200	270	315S/M	65.2	8.5	2.4	3.3	2.77	23	51	1115	77	2986	95.0	95.9	96.5	0.78	0.85	0.88	358
250	340	315L	81.5	8.8	2.9	3.2	3.59	18	40	1330	78	2986	95.1	96.1	96.5	0.79	0.86	0.89	442
315	430	355M/L	103	8.2	2.6	3	5.25	29	64	1700	80	2985	95.4	96.0	96.5	0.82	0.87	0.89	557
330	450	355A/B	108	8.8	2.7	2.6	6.33	24	53	2000	83	2985	95.5	96.0	96.5	0.82	0.88	0.90	577
355	480	355M/L	116	8.7	2.7	3	6.01	23	51	1825	80	2988	95.3	96.0	96.5	0.81	0.87	0.89	628
High Output Design																			
75	100	280S/M	24.5	8.4	2.5	3.2	1.47	20	44	660	77	2981	93.3	94.0	95.6	0.75	0.83	0.86	139
90	125	280S/M	29.4	8.3	2.4	3.1	1.64	20	44	680	77	2980	93.5	94.8	95.8	0.76	0.84	0.87	164
110	150	280S/M	36.0	7.5	2.3	3	1.38	20	44	755	77	2977	94.8	95.7	96.0	0.76	0.84	0.87	200
132	175	315S/M	43.1	7.8	2.2	3.2	1.88	22	48	940	77	2984	94.6	95.6	96.2	0.76	0.84	0.87	240
355	480	355A/B*	116	9.0	2.6	2.6	6.76	20	44	2043	83	2983	95.5	96.0	96.5	0.82	0.88	0.90	621
4P - 50Hz																			
11	15	160M	7.26	7.0	2.6	3.0	0.1048	28	62	130	59	1476	92.2	93.0	93.3	0.65	0.77	0.82	21.9
15	20	160L	9.88	8.7	3.5	3.9	0.1537	20	44	165	59	1478	92.4	93.5	93.9	0.63	0.75	0.81	30.0
18.5	25	180M	12.2	8.2	3.4	3.4	0.1827	27	59	190	62	1476	92.8	93.8	94.2	0.61	0.73	0.80	37.3
22	30	180L	14.5	8.0	3.2	3.2	0.2175	28	62	220	62	1475	93.5	94.2	94.5	0.64	0.76	0.82	43.2
30	40	200M/L	19.8	8.0	2.8	3.4	0.3074	27	59	265	63	1478	94.1	94.7	94.9	0.67	0.78	0.83	57.9
37	50	225S/M	24.3	7.5	2.4	2.8	0.4914	53	117	360	64	1482	94.1	94.8	95.2	0.68	0.78	0.83	71.2
45	60	225S/M	29.6	7.8	2.7	3	0.5897	46	101	390	64	1482	94.3	95.0	95.4	0.68	0.78	0.83	86.3
55	75	250S/M	36.1	8.7	3.2	3.5	0.8093	35	77	470	64	1485	94.8	95.2	95.7	0.65	0.76	0.82	106
75	100	W280S/M	49.2	9.2	3.6	3.7	1.08	25	55	560	64	1486	95.0	95.6	96.0	0.65	0.77	0.82	145
90	125	W280S/M	59.1	7.9	3.2	3.6	1.21	24	53	595	64	1484	95.0	95.5	96.1	0.66	0.77	0.82	174
110	150	W315S/M	72.0	8.4	3	3.3	2.60	23	51	890	71	1488	95.2	95.8	96.3	0.63	0.75	0.81	214
132	175	W315S/M	86.4	8.0	2.9	3.1	2.83	17	37	925	71	1488	95.3	95.9	96.4	0.66	0.76	0.82	254
160	220	315S/M	104	7.8	3	3	4.22	33	73	1115	71	1492	95.5	96.2	96.6	0.73	0.82	0.86	293
200	270	315S/M	131	7.7	3	2.8	5.33	29	64	1255	71	1491	95.8	96.4	96.7	0.76	0.84	0.87	361
250	340	315L	164	6.8	2.6	2.6	5.64	26	57	1365	73	1489	96.1	96.6	96.7	0.77	0.84	0.87	452
315	430	315L	206	7.9	3.1	2.8	6.85	18	40	1505	73	1490	96.0	96.5	96.7	0.74	0.83	0.86	576
330	450	355A/B	215	7.6	2.6	2.8	12.5	21	46	2062	76	1492	96.4	96.7	96.7	0.70	0.80	0.84	617
355	480	355M/L	232	7.5	2.9	2.9	11.1	20	44	1930	78	1492	95.3	96.2	96.7	0.72	0.80	0.84	664
400	550	355A/B	261	8.3	2.7	2.7	11.9	12	26	2145	76	1492	95.8	96.5	96.7	0.68	0.78	0.83	757
450	610	355A/B	294	8.7	3	2.8	14.8	12	26	2415	76	1492	95.7	96.5	96.7	0.71	0.80	0.84	842
500	680	355A/B*	327	8.2	2.7	2.5	14.8	8	18	2415	76	1491	95.9	96.5	96.7	0.74	0.82	0.85	924
High Output Design																			
75	100	280S/M	49.0	8.2	2.7	3.0	2.78	16	35	685	71	1490	95.0	95.0	96.0	0.68	0.78	0.82	145
90	125	280S/M	58.9	8.7	2.9	3.1	3.40	16	35	720	71	1489	95.0	95.6	96.1	0.67	0.78	0.82	174
110	150	280S/M	72.0	8.5	3	3	3.40	12	26	805	71	1489	95.5	96.0	96.3	0.72	0.80	0.84	206
355	480	355A/B	232	8.8	3.1	3.3	13.5	23	51	2089	76	1493	96.0	96.6	96.7	0.64	0.76	0.82	680

Notes:
(1) Efficiency values are based on GB18613-2020 standard and are measured during direct start-up.
(2) Efficiency values are based on IEC-60034-2-1 standard and are measured during direct start-up. (*)
Insulation grade "F" temperature rise is △T 105K.

W21 Prime Cast Iron Frame - 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 (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																			
7.5	10	160M	7.44	9.2	2.5	3.5	0.1758	14	31	117	59	982	89.9	90.9	91.3	0.59	0.72	0.80	15.6
9.2	12.5	160L	9.12	9.6	2.8	3.6	0.2164	13	29	137	59	983	90.5	91.5	91.8	0.59	0.73	0.80	19.1
11	15	160L	10.9	10.3	3.1	3.9	0.2570	12	26	149	59	983	91.0	91.9	92.3	0.59	0.73	0.80	22.6
15	20	180L	14.9	9.2	3.1	3.9	0.2829	16	35	197	64	981	91.6	92.5	92.9	0.57	0.70	0.78	31.5
18.5	25	200M/L	18.3	6.5	2.3	2.8	0.3679	51	112	240	64	982	92.0	93.0	93.4	0.56	0.69	0.76	39.6
22	30	200M/L	21.8	6.8	2.4	2.9	0.4555	46	101	280	64	982	92.2	93.2	93.7	0.56	0.69	0.75	47.6
30	40	225S/M	29.7	8.5	2.5	3.6	0.7170	33	73	357	64	985	93.3	93.9	94.2	0.61	0.73	0.79	61.3
37	50	225S/M	36.6	9.7	2.9	3.7	0.8877	26	57	396	64	985	93.5	94.2	94.5	0.60	0.72	0.79	75.3
45	60	250S/M	44.4	9.7	2.8	3.8	1.69	17	37	557	64	988	93.9	94.5	94.8	0.58	0.72	0.79	91.3
55	75	W280S/M	54.3	8.7	2.9	3.8	1.42	20	44	552	64	986	94.0	94.5	95.1	0.60	0.72	0.79	111
75	100	W315S/M	73.6	8.3	2.7	3.1	3.36	20	44	835	68	992	94.2	95.0	95.4	0.60	0.72	0.78	153
90	125	W315S/M	88.4	8.2	2.9	3.2	3.92	19	42	895	68	992	94.6	95.0	95.6	0.61	0.73	0.79	181
110	150	W315S/M	108	9.1	3	3.3	4.93	16	35	1001	68	992	94.8	95.5	95.8	0.62	0.74	0.79	221
132	175	315L	129	7.2	2.5	2.7	9.95	24	53	1210	68	993	95.0	95.7	96.0	0.66	0.77	0.81	258
150	200	315L	147	7.3	2.6	2.7	11.0	24	53	1295	68	992	95.0	95.8	96.1	0.67	0.77	0.82	289
160	220	315L	157	7.5	2.7	2.8	11.0	30	66	1375	68	993	95.2	95.9	96.2	0.65	0.75	0.81	312
185	250	355M/L	181	5.6	2	2.2	13.2	30	66	1585	73	993	95.0	95.8	96.3	0.64	0.75	0.80	365
200	270	355M/L	196	5.8	2.1	2.4	14.1	36	79	1595	73	994	94.5	95.5	96.3	0.63	0.74	0.79	399
220	300	355M/L	216	6.6	2	2.4	15.0	20	44	1970	73	993	94.7	95.6	96.4	0.61	0.74	0.70	496
250	340	355M/L	245	6.3	2	2.4	13.1	43	95	1804	73	993	94.8	95.8	96.5	0.61	0.72	0.78	504
260	350	355M/L	255	6.5	2.2	2.6	13.1	41	90	1809	73	994	94.7	95.7	96.5	0.59	0.70	0.76	539
280	380	355M/L	275	6.3	2	2.3	13.8	38	84	1858	73	993	94.8	95.8	96.5	0.61	0.72	0.78	565
300	400	355M/L	294	6.1	2	2.3	15.0	43	95	1955	73	993	95.0	95.9	96.6	0.63	0.74	0.78	605
315	430	355M/L	309	6.3	2	2.1	15.0	38	84	1955	73	992	95.2	96.0	96.6	0.66	0.76	0.80	619
High Output Design																			
37	50	250S/M	36.4	9.5	3.1	4.3	1.37	12	26	497	64	989	93.3	94.1	94.5	0.55	0.69	0.77	77.3
45	60	280S/M	44.3	7.5	2.3	2.8	3.25	31	68	723	68	990	94.0	94.5	94.8	0.61	0.73	0.79	91.3
45	60	W280S/M	44.4	9.7	2.8	3.8	1.69	17	37	579	64	988	93.9	94.5	94.8	0.58	0.72	0.79	91.3
55	75	280S/M	54.1	7.2	2.6	3	3.92	30	66	740	68	990	94.6	95.1	95.1	0.64	0.74	0.80	109
110	150	315S/M	108	6.5	2.1	2.5	5.79	36	79	1008	68	991	94.9	95.4	95.8	0.67	0.77	0.81	216
132	175	315S/M	130	7.3	2.6	2.7	7.41	24	53	1110	68	992	95.2	95.7	96.0	0.64	0.75	0.81	258
150	200	315S/M	147	7.5	2.6	2.9	8.14	20	44	1195	68	992	95.2	95.7	96.1	0.65	0.76	0.81	293
250	340	355A/B	245	6.4	2.4	2.6	17.1	30	66	2246	73	994	94.8	95.8	96.5	0.58	0.70	0.76	518
260	350	355A/B	256	6.5	2.2	2.3	17.1	42	92	2246	73	990	96.1	96.5	96.6	0.66	0.76	0.82	499
280	380	355A/B	275	5.6	2	2.1	18.0	35	77	2300	73	992	95.5	96.2	96.6	0.66	0.76	0.81	544
300	400	355A/B	295	6.5	2.2	2.3	18.9	35	77	2346	73	990	95.9	96.4	96.6	0.65	0.76	0.81	582
315	430	355A/B	309	6.7	2	2.2	18.9	31	68	2346	73	993	95.7	96.3	96.6	0.63	0.74	0.80	619

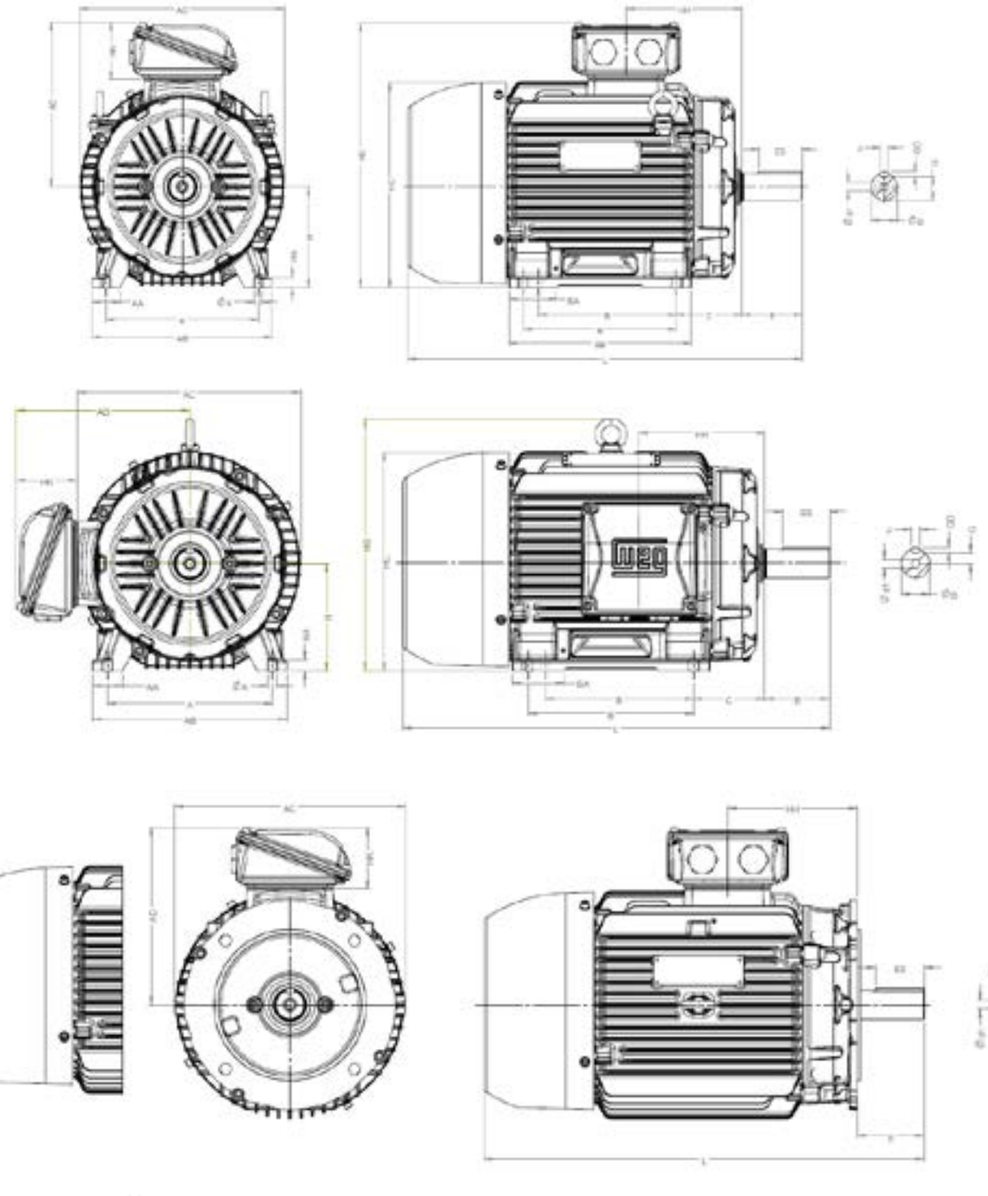
Notes:
(1) Efficiency values are based on GB18613-2020 standard and are measured during direct start-up.
(2) Efficiency values are based on IEC-60034-2-1 standard and are measured during direct start-up. (*)
Insulation grade "F" temperature rise is △T 105K.

W21 Prime Cast Iron Frame - 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 (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%	
8P - 50Hz																			
4	5.5	160M	5.32	6.1	1.7	2.5	0.1285	24	53	102	59	732	85.2	86.7	87.1	0.53	0.66	0.74	9.43
5.5	7.5	160M	7.33	6.3	1.8	2.6	0.1488	18	40	108	59	731	86.8	87.9	88.3	0.51	0.65	0.74	12.7
7.5	10	160L	9.97	7.0	2.3	3	0.2029	15	33	132	59	733	87.1	88.6	89.3	0.48	0.62	0.71	18.0
9.2	12.5	180M	12.2	7.2	2.6	3.4	0.2976	22	48	181	64	735	87.0	88.8	89.9	0.45	0.58	0.68	22.8
11	15	180L	14.6	7.5	2.7	3.4	0.3516	19	42	208	64	735	88.0	89.4	90.4	0.46	0.59	0.68	27.2
15	20	200M/L	20.0	4.1	1.6	2	0.3861	81	178	245	64	731	90.7	91.1	91.2	0.51	0.62	0.69	36.2
18.5	25	W225S/M	24.6	4.4	2	2.1	0.4914	74	163	286	64	733	90.8	91.4	91.7	0.49	0.61	0.68	45.1
22	30	225S/M	29.0	7.3	2.4	2.9	0.8588	29	64	368	64	739	90.3	91.6	92.1	0.52	0.65	0.72	50.4
30	40	225S/M	39.8	7.4	2.3	2.5	0.9276	35	77	400	64	735	91.3	92.3	92.7	0.53	0.66	0.73	67.4
37	50	W280S/M	48.8	7.3	2.2	3	1.56	21	46	552	64	738	91.6	92.5	93.1	0.50	0.64	0.72	83.9
45	60	W280S/M	59.6	6.1	1.9	2.5	1.38	32	70	538	64	735	92.8	93.2	93.4	0.57	0.69	0.75	97.6
55	75	W280S/M	72.7	7.0	2.4	3	1.75	27	59	611	64	737	92.3	93.1	93.7	0.50	0.63	0.71	125
75	100	W315S/M	98.5	6.7	2.2	2.5	4.29	24	53	914	59	742	93.4	94.0	94.2	0.56	0.68	0.74	163
90	125	315S/M	118	6.9	2.1	2.5	6.22	28	62	1032	62	742	94.3	94.4	94.4	0.60	0.71	0.76	191
110	150	315L	145	5.7	1.6	2	7.84	38	84	1146	68	740	94.5	94.7	94.7	0.68	0.77	0.80	221
132	175	355M/L	173	6.3	1.6	2.2	9.80	30	66	1330	70	743	93.9	94.8	94.9	0.61	0.72	0.77	275
150	200	355M/L	196	7.4	1.9	2.6	13.2	31	68	1528	70	745	94.0	95.0	95.1	0.58	0.70	0.76	316
160	220	355M/L	209	7.2	1.9	2.5	12.6	25	55	1492	70	744	93.7	94.8	95.1	0.56	0.68	0.75	341
185	250	355M/L	242	6.6	1.6	2.1	16.5	35	77	1727	70	744	94.6	95.3	95.3	0.66	0.76	0.80	368
200	270	355M/L	262	7.2	1.9	2.4	19.0	32	70	1871	70	744	94.5	95.4	95.4	0.62	0.73	0.78	408
220	300	355M/L	288	6.5	1.6	2	19.9	32	70	1926	70	743	94.8	95.4	95.4	0.68	0.77	0.81	433
250	340	355A/B	327	7.5	2	2.6	21.7	25	55	2187	70	744	94.4	95.4	95.4	0.58	0.70	0.76	524
260	350	355A/B	340	7.3	1.9	2.5	21.7	24	53	2187	70	744	94.5	95.3	95.4	0.59	0.71	0.77	538
280	380	355A/B	367	7.2	1.9	2.5	25.0	27	59	2387	70	744	94.7	95.4	95.4	0.60	0.72	0.77	579
High Output Design																			
18.5	25	225S/M	24.4	7.5	2.2	2.6	0.7214	29	64	339	64	738	89.9	91.2	91.7	0.52	0.65	0.72	42.5
30	40	250S/M	39.6	6.9	2.1	2.9	1.20	22	48	462	64	738	91.1	92.0	92.7	0.50	0.63	0.71	69.3
37	50	280S/M	48.6	6.0	1.9	2.3	2.26	36	79	595	59	741	92.6	93.1	93.1	0.57	0.69	0.74	81.6
45	60	280S/M	59.1	6.6	2	2.5	2.71	30	66	642	59	742	92.5	93.3	93.4	0.53	0.65	0.72	102
55	75	W315S/M	72.2	6.2	2	2.3	2.93	29	64	784	59	742	93.1	93.7	93.7	0.56	0.68	0.74	120
110	150	355M/L	144	7.6	1.6	2.5	11.6	25	55	1431	70	745	93.4	94.4	94.7	0.59	0.71	0.77	229

Notes:
(1) Efficiency values are based on GB18613-2020 standard and are measured during direct start-up.
(2) Efficiency values are based on IEC-60034-2-1 standard and are measured during direct start-up. (*)
Insulation grade "F" temperature rise is △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.

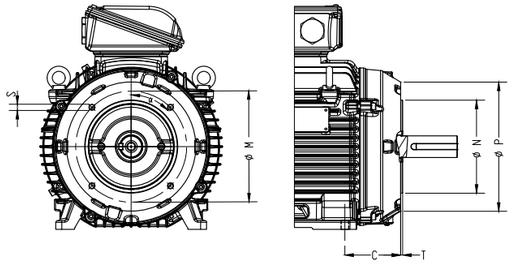
13. Mechanical Data

IEC	Feet										Terminal Box					Keyway			
Frame	A	B	K	C	H	AA	AB	BA	BB	HA	LL	LM	HK	HH	S1 - EUR	F	GD	G	ES
160M	254	210	14.5	108	160	36	292	85	255	17	198.5	190	103	213	2xM40x1.5	12	8	37	80
160L		254						85	299					187					
180M	279	241		121	180	51	329	85	296	19				241.5		14	9	42.5	
180L		279						88	335					212.5					
200M/L	318	267/305	18.5	133	200	65	385	105.5	369	30	228.5	217.5	120	209	2xM50x1.5	16	10	49	
W225S/M*	356	286/311	18.5	149	225	80	436	85	373	25			120	228		16	10	49	100
W225S/M																18	11	53	125
225S/M*								102	395	28	269	285	151	204		16	10	49	100
225S/M																18	11	53	125
250S/M*	406	311/349	24	168	250	90	486	135	447	30				217	2xM63x1,5				
250S/M																		58	
W280S/M*	457	368/419		190	280	100	557	143	509	30				246		20	12	67.5	
W280S/M																			
280S/M*								151	517	42	314	312	155	265		18	11	58	
280S/M																20	12	67.5	
W315S/M*	508	406/457	28	216	315	120	630	167	561	35						18	11	58	
W315S/M																22	14	71	160
315S/M*								184	626	48	379	382	176	264		18	11	58	125
315S/M																22	14	71	160
315L*		508						219	752		404	436	220	285		18	11	58	125
315L																22	14	71	160
355M/L*	610	560/630		254	355	140	750	230	760	50				339	2xM80x2,0	20	12	67.5	125
355M/L																28	16	90	200
355A/B*		710/800						325	955		460	544	328	340		20	12	67.5	125
355A/B																28	16	90	200
Mounting	Only with feet										All								

IEC	Shaft end			Drip Cover		External											Bearings	
Frame	E	D	D1	LCH	CH	L	AC	AD	HC	HD	AC	AD	HC	HD	AC	AD	DE	NDE
160M	110	42k6	DM16	673	52	621	354	278	335	438	354	278	339	392	354	378	6309-ZZ-C3	6209-ZZ-C3
160L				717		665												
180M		48k6		742	57	685	376	294	371	474	376	294	370	423	376	294	6311-ZZ-C3	
180L				780		723												
200M/L		55m6	DM20	835	67	768	414	334	414	534	414	334	414	476	414	334	6312-ZZ-C3	
W225S/M*	110	55m6	M20	854	67	787	422	334	439	559	425	334	439	501	422	334	6314 C3	6212 C3
W225S/M	140	60m6		884	67	817												
225S/M*	110	55m6		958	82	876	488	395	469	620	488	395	469	540	488	395		6314 C3
225S/M	140	60m6		988	82	906												
250S/M*				1064	82	982	528	415	514	665	528	415	508	579	528	415		
250S/M		65m6																
W280S/M*				1092	82	1010			544	695			538	609				
W280S/M		75m6															6316 C3	
280S/M*		65m6		1154	95	1059	599	436	580	751	599	436	575	646	599	436	6314 C3	
280S/M		75m6		1154		1059											6316 C3	
W315S/M*		65m6		1205		1110		471	615	786		471	610	681		471	6314 C3	
W315S/M	170	80m6		1235		1140											6319 C3	
315S/M*	140	65m6		1327		1232	657	526	644	845	657	526	648	738	657	526	6314 C3	
315S/M	170	80m6		1357		1262											6319 C3	6316 C3
315L*	140	65m6		1437		1342		570		891		570		757		570	6314 C3	6314 C3
315L	170	80m6		1467		1372											6319 C3	6316 C3
355M/L*	140	75m6		1501		1406	736	620	723	975	736	620	730	839	736	620	6316 C3	6314 C3
355M/L	210	100m6	M24	1571		1476											6322 C3	6319 C3
355A/B*	140	75m6	DM20	1696		1601		728	723	1083		701				728	6316 C3	6314 C3
355A/B	210	100m6	M24	1766		1671											6322 C3	6319 C3
Mounting	All						Top				Sideway				Footless		All	

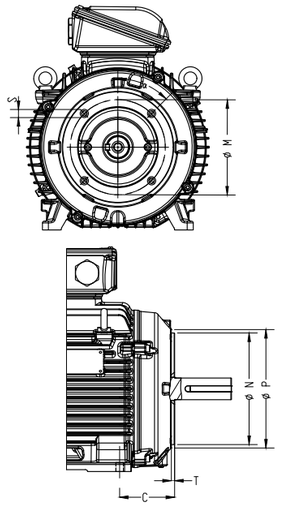
Cast Iron Frame - Flange Dimension

C-DIN Flange Dimension



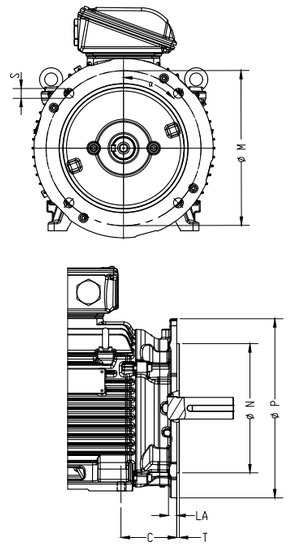
IEC Frame	C-DIN Flange								
	Flange	C	M	N	P	S		T	α
						Qty	Size		
160M	C 250	108	215	180	250	4	M12	4	45°
160L									

FC Flange Dimension



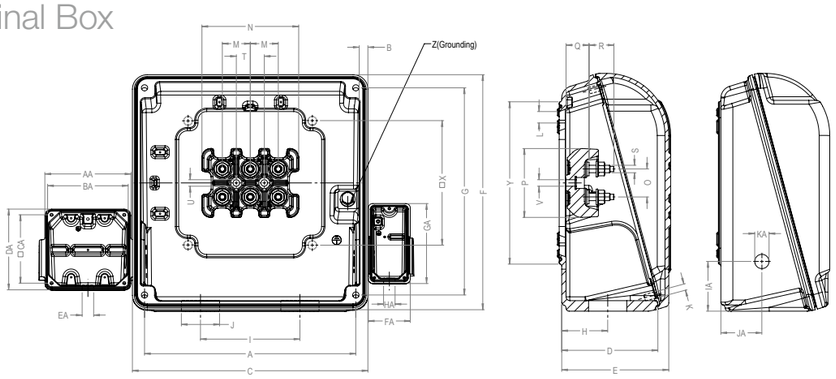
IEC Frame	FC Flange								
	Flange	C	M	N	P	S		T	α
						Qty	Size		
160M	FC-184	108	184.15	215.9	225	4	UNC 1/2''X13	6.35	45°
160L									
180M	FC-228	121	228.6	266.7	280				
180L									
200M/L		133							
225S/M*	FC-279	149	279.4	317.5	395	8	UNC 5/8''X11		22°30'
225S/M									
250S/M*	FC-355	168	355.6	406.4	455				
250S/M									
W280S/M*		190							
W280S/M									
280S/M*									
280S/M									
W315S/M*	FC-368	216	368.3	419.1					
W315S/M									
315S/M*									
315S/M									
315L*									
315L									
355M/L*		254							
355M/L									
355A/B*									
355A/B									

FF Flange Dimension



IEC Frame	FF Flange									
	Flange	C	LA	M	N	P	S		T	α
							Qty	Size		
160M	FF-300	108	16	300	250	347	4	19	5	45°
160L										
180M		121								
180L										
200M/L	FF-350	133	18	350	300	397				
W225S/M	FF-400	149		400	350	448				22°30'
225S/M										
250S/M	FF-500	168	20	500	450	548	8			
W280S/M		190								
280S/M						550				
W315S/M	FF-600	216	16	600	550	660/700*		24	6	
315S/M						660/780*				
315L										
355M/L	FF-740	254	22	740	680	800/880*				
355A/B										

14. Terminal Box



Frame	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
160	175	4	198.5	90	103	190	175	46	84	2xM40x1.5	M8x1.25	M8x1.25	28	90	28	60	21.5	20.5	M6x1.0	28	6.6
180																					
200	204	4.5	230	107	120	217.5	204	59	94	2xM50x1.5			35	112	35	74	24	24	M8x1.25	35	9.5
W225S/M																					
225S/M	235	12.5	269	133	151	285	260	71	110	2xM63x1.5	M10x1.5	M10x1.5	44	140	44	94	28	28	M10x1.5	45	10.5
250S/M																					
W280S/M																					
280S/M	275	13.5	314		155	312	275		126		M12x1.75	M12x1.75	45	153	45	108	34	40	M12x1.75		
W315S/M																					
315S/M	340	14.5	379	162	176	382	345	78	160												
315L																					
355M/L	365		404	202	220	436	390	97	200	2xM80x2.0		M14x2.0	65	210	65	146	48	48	M16x2.0	65	
355A/B																					

Frame	V	X	Y	Z	AA	BA	CA	DA	EA	FA	GA	HA	IA	JA	KA	Max number of connectors		
																Main	Accessories	Space heater
160	M6x1.0	110	140	5.5-25mm²	139	117	117	133	M20x1.5	68	101.4	M20x1.5	47	40	M20x1.5	15	26	4
180																		
200	M8x1.25	120	155	5.5-35mm²										45				
W225S/M																		
225S/M	M10x1.5	150	192	25-50mm²							131.2		62	48				
250S/M			197															
W280S/M																		
280S/M			204	35-70mm²									77	56				
W315S/M																		
315S/M		200	260										82	69				
315L		260	300	25-185mm²									97	79				
355M/L																		
355A/B																		

15. Mountings

The mounting configuration of the W21 Prime motor complies with the IEC 60034-7 standard. The following figure shows the standard mounting configuration of the W21 Prime motor and other configurations. The letter after the specified mounting configuration (as shown in the table below) is used to define the location of the terminal box. Therefore, it can be noticed that the motor mounting in the WEG company document is shown without the IM code, for example IM B3 is written as B3, as shown below:

B3R-the terminal box is located on the right side of the frame when viewed from the motor shaft end.
B3L-the terminal box is located on the left side of the frame when viewed from the motor shaft end.
B3T-the terminal box is located on the top of the frame.

Note:
1.IM B34 and IM B14 (two C-DINs that comply with DIN 42.948) are not suitable for motors with frame sizes above 132.
2. For motors installed vertically with shafts extending downward, it is recommended to use a rain shield to prevent small objects from entering the fan.
3. For motors installed vertically with shafts extending upward and used in liquid environments, it is recommended to use a rubber oil retainer to prevent liquid from entering the motor through the shaft.

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			
					

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:

	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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SERVICE WECHAT

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