

W21 Magnet

Drive System



Motors | Automation | Energy | Transmission & Distribution | Coatings

W21 Magnet Drive System

The W21 Magnet Drive System features ultra premium GB1 efficiency motors with permanent magnets driven by frequency inverters. Perfect for applications where speed variation, precise control at low speeds, low noise levels and compact design are critical.



The highest efficiencies on the market

W21 Magnet motors feature rotors with permanent magnets. This technology provides the motor with significant advantages such as higher efficiency and a greater power density per frame. They are driven by WEGPM frequency inverters, which offer constant torque across a wide speed range, operating even at low speeds with efficiency levels above induction motors without requiring forced ventilation. W21 Magnet motors are available in Ultra Premium GB1 versions – the highest efficiency available on the market today.

Drive System

Due to the dedicated software application which incorporates the vector control technology for driving permanent magnet motors, the use together of the WEGPM frequency inverter and W21 Magnet motor is recommended.

Applications

Cooling towers, paper machines, paper coil winders, conveyors, pumps, looms, direct current (DC) motor replacements, extruders, compressors, fans, etc.

W21 Magnet Drive System Applications

Extruders, Looms and Wiredrawing Machines

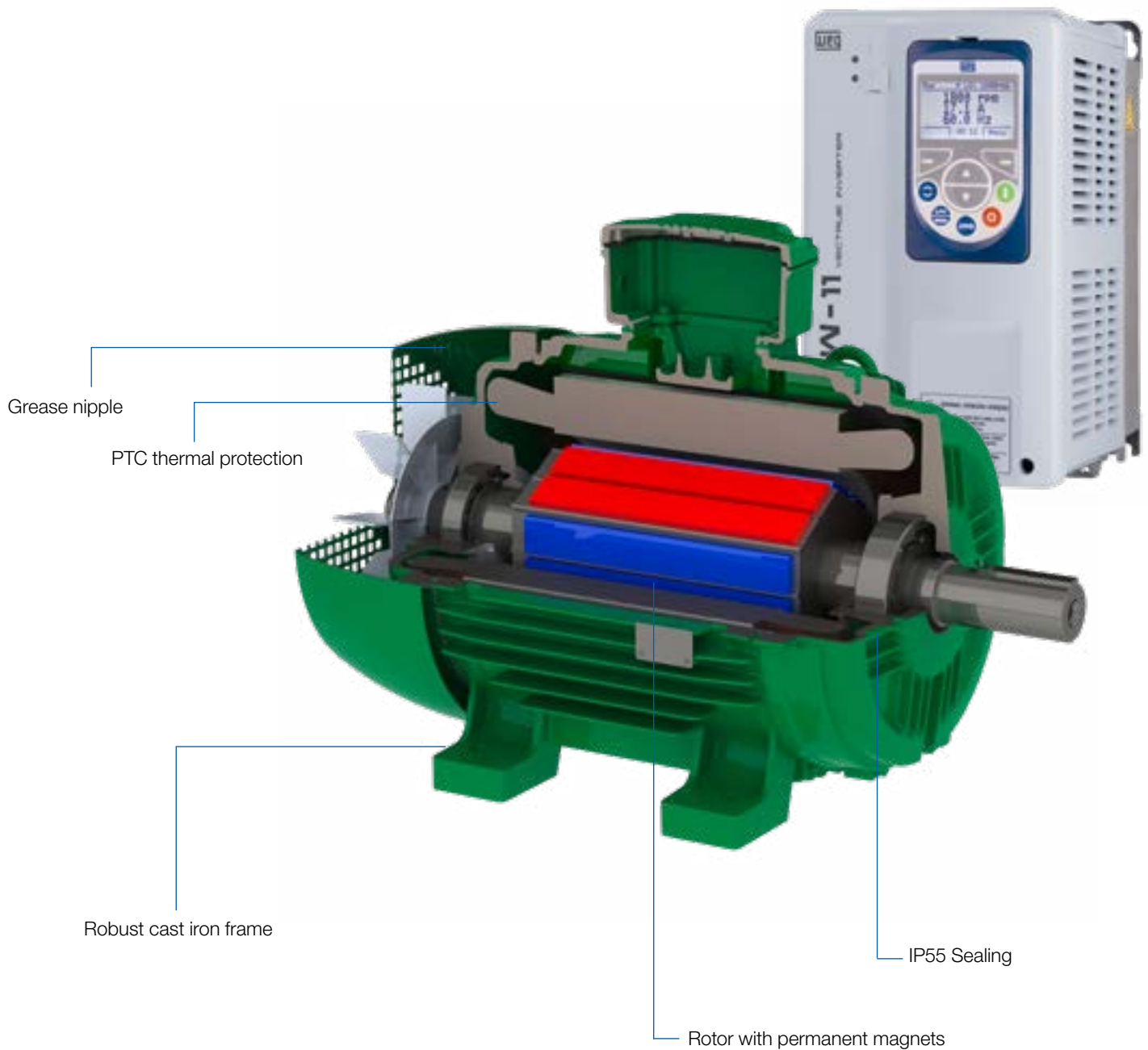
By working together with the WEGPM frequency inverter, the W21 Magnet motor offers precise speed control. Therefore, it is perfectly suited to drive continuous processing machines such as extruders, looms and wiredrawing machines. They offer precise constant torque control even at low speeds, fully satisfying the requirements of these demanding applications.

Compressors

W21 Magnet permanent magnet motors are particularly suited for compressor applications, due to their constructional features, flexibility and efficiency. In the case of the Ultra Premium GB1 design, their reduced size and ability to operate without the need for forced ventilation means that equipment enclosures can also be reduced.

Conveyors

On conveyor applications, W21 Magnet motors stand out due to their capacity to offer high starting torques. Their low operating temperatures allow more starts per hour without oversizing of the motor or use of forced ventilation.



Characteristics of the W21 Magnet Motor

- Output: 4 to 315 kW
- Frame: 132S to 315S/M
- Speed: 3000, 1500, 1000 and 750 rpm
- Voltage: 380 V
- Degree of protection: IP55
- Bearing seal: V-ring
- Insulation: F (ΔT 80K)
- Service factor: 1.00
- Thermal protection: PTC
- Mounting: B3T
- TEFC (IC 411) or TEBC (IC416) per IEC 60034-6
- Possibility of operation in overspeed
- Optional characteristics on request

Characteristics of the WEGPM Frequency Inverter

- Power supply: 380 V
- Sensorless vector control: it allows the WEGPM frequency inverter to control the speed motor from zero up to its rated speed
- Remote Operating Interface (HMI)
- Communication protocol and accessories: Profibus, Modbus-RTU
- Adaptable to all kinds of load

W21 Magnet GB1

The W21 Magnet motor line offers efficiency levels: **GB1**. The high technology applied in permanent magnet motors results in innovation, efficiency and reliability.

W21 Magnet - Ultra Premium GB1

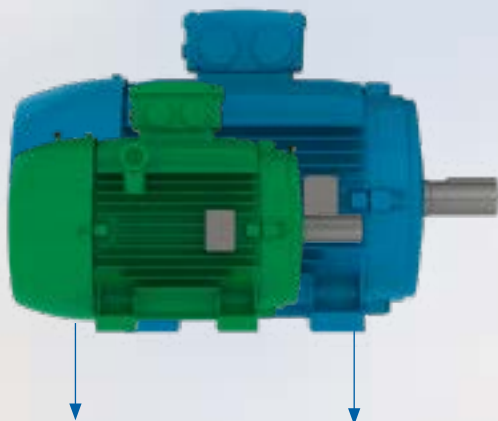
Greater power density - Reduced mass and volume

W21 Magnet Ultra Premium motors meet the GB1 efficiency levels according to the Chinese standard GB30253-2013 (Minimum allowable values of energy efficiency and energy efficiency grades for permanent magnet synchronous motors).

The magnets inserted into the rotor ensure a significant reduction in electric losses, and thus the motor temperature, enabling smaller frame sizes to be utilised. Compared to induction motors of the same output and speed, the weight and volume of the equivalent W21 Magnet Super Premium motors is reduced by as much as 70% (refer to example below). The shaft and bearings of W21 Magnet are able to withstand the higher power and torque in the reduced frame.

The W21 Magnet motors operate with lower temperature rise even at low speeds.

Volume reduction



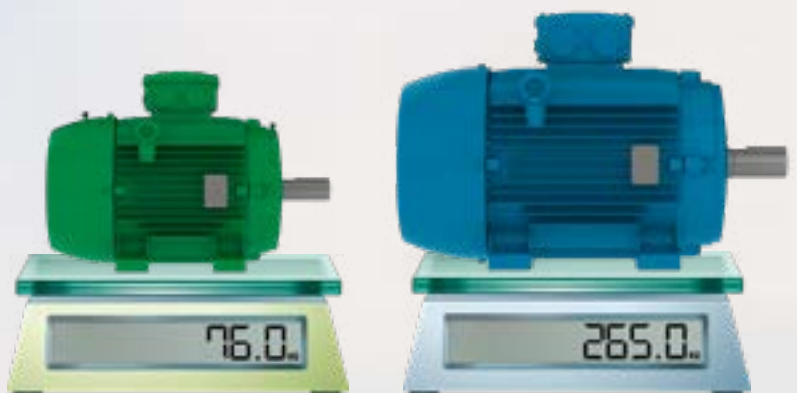
W21 Magnet Motor

Output: 30kW
Speed: 3000 rpm
Frame: 132M/L
Volume: 24 dm³

Induction Motor

Output: 30 kW
Speed: 3000 rpm
Frame: 200L
Volume: 72 dm³

Weight reduction



76.0

265.0

When replacing an IE2 induction motor with a **W21 Magnet motor**, can reach up to **12 dBA*** noise reduction, contributing to hearing protection of workers in operation environment.

** Comparison between IE2 induction motor and W21 Magnet motor - 45 and 55kW*

W21 Magnet - Ultra Premium (GB1)

The highest efficiency level, frame reduced and high performance

W21 Magnet Ultra Premium motors offer the highest efficiency levels in the market. W21 Magnet Ultra Premium motors feature one frame reduced in comparison to induction motors. W21 Magnet Ultra Premium is one more example of WEG technology providing to Industry high efficiency, quality, energy saving and lower overall cost of ownership.



Output Power (kW)	Frame		Noise Level (dBA)	
	IE2 (Induction)	W21 Magnet GB1	IE2 (Induction)	W21 Magnet GB1
11	160M	132S	70	67
15	160M	132S	70	67
18,5	160L	132M	70	67
22	180M	132M	70	67
30	200L	132M/L	74	67
37	200L	160M	74	70
45	225S/M	160L	82	70
55	250S/M	180M	82	70
75	280S/M	200L	83	74
90	280S/M	W225S	83	82
110	315S/M	W225S	84	82
132	315S/M	225M	84	82
150	315S/M	225M	84	82
160	315S/M	250M	84	82
185	315S/M	250M	84	82
200	355M/L	W280S	85	83
220	355M/L	W280S	85	83
260	355M/L	280M	85	83
280	355M/L	280M	85	83
300	355M/L	280M	85	83
315	355M/L	315S/M	85	83

Frame size comparison between induction IE2 motor 2 poles and W21 Magnet GB1 - 3000rpm.

When replacing an IE2 induction motor with a **W21 Magnet Ultra Premium**, the energy **cost saved** in one year would be approximately **9000 RMB***.

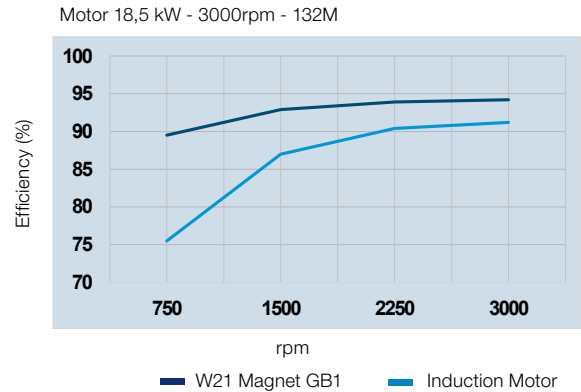
**Comparison between 37kW 1500 rpm motors, considering 24hours 365 days in operation and average energy cost as 1 RMB/kWh.*



Attributes and advantages of the W21 Magnet motor

Superior efficiency regardless of speed or load

W21 Magnet motors present superior efficiency regardless of speed or load, saving up to 30% in comparison to induction motors driven by frequency inverters.



Motor Losses Reduction

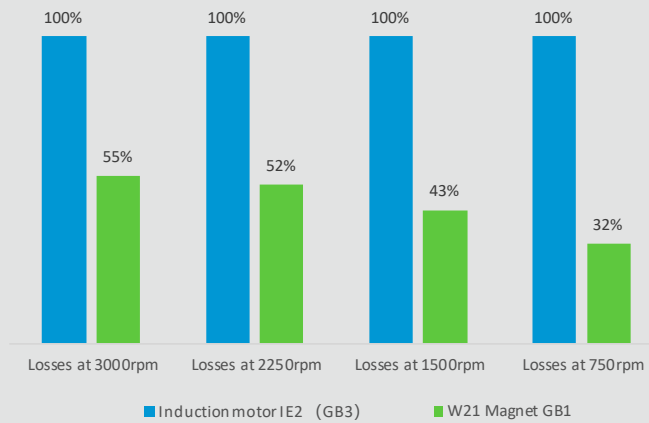
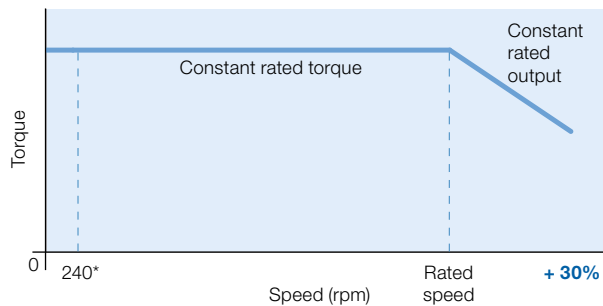


Figure: Comparison between Cast Iron IE2, W21 Magnet GB1 - 18.5 kW - 3000 RPM



*Continuous duty at speeds lower than 240rpm under request

Constant torque in a wide speed range

W21 Magnet motors can operate over a wide speed range at constant torque, without the use of forced ventilation. This characteristic makes them ideal for applications requiring speed variation and constant torque, even at low speeds, without the need for an encoder.

W21 Magnet motors are able to operate at up to 30% above their rated speed without the necessity to utilise special components.

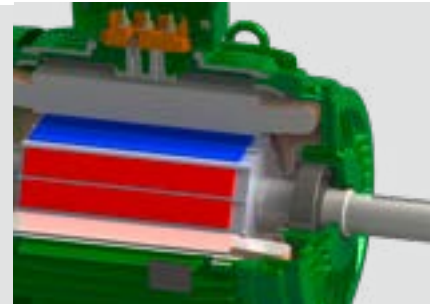
WISE Insulation System

Exclusive WISE insulation system (WEG Insulation System Evolution). Aiming at maximizing the durability and reliability of the motors when operated with a frequency inverter, WEG developed the WISE system, resulting in improvement of the materials in all productive stages related to the motor insulation system, such as wires, insulating films, impregnation system, impregnating material, cables and other components present in the process.

Permanent Magnets

The W21 Magnet utilises powerful permanent magnets made from a combination of neodymium, iron and boron (NdFeB), and commonly referred to as rare-earths magnets. These magnets are around eighteen times stronger than traditional Ferrite Magnets.

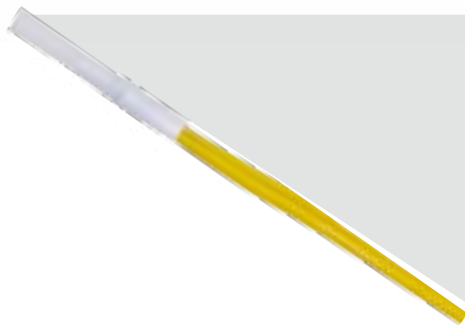
In order to provide superior mechanical strength and corrosion resistance, the Neodymium/Iron/Boron magnets are covered with a protective epoxy coating.



New W21 Platform

The new W21 Magnet incorporates the same innovative features of the highly successful W21 induction motor line:

- Frame structure that reduces air dispersion and improves the cooling
- Terminal box with greater internal space for easier cable management
- Solid feet that simplify the motor alignment and installation
- Robust cast iron construction providing high mechanical strength and low vibration levels



Thermal Protection

W21 Magnet motors have PTC (Positive Temperature Coefficient) thermistors embedded in their windings which offer full protection against overheating produced by phase loss, overload and under or overvoltage.

Bearing life up to 100,000 hours

The W21 Magnet motors are equipped with bearings offering an L10 life of up to 100,000 hours. All motors feature open bearings and endshields with grease nipples which permit re-lubrication and consequently a reduction in stoppages for maintenance. Axial loads are as per W21 general purpose induction motors on horizontal application.

Frame	Maximum radial load – 100,000 hours – Fr (kN)					
	1000 rpm		1500 rpm		3000 rpm	
	L	L/2	L	L/2	L	L/2
132S	1,4	1,6	0,9	1	0,9	1
132M	1,4	1,6	0,9	1	0,9	1
132M/L	1,4	1,6	0,9	1	0,9	1
160M	1,9	2,1	1,2	1,4	1,2	1,4
160L	1,9	2,1	1,2	1,4	1,2	1,4
180M	2,5	2,8	1,7	1,9	1,7	1,9
180L	2,6	2,8	1,7	1,9	1,7	1,9
200M	3	3,3	2	2,2	2	2,2
200L	3	3,3	2	2,2	2	2,2
W225S	4,6	5,2	6,4	5,8	2,6	2,8
225M	6,2	6,5	6,1	5,4	3,7	3,3
250M	5,8	6,3	5,9	4,3	4,4	4,1
W280S	6,1	6,5	7,1	6,5	4,4	4,1
280M	6,5	7,1	6,8	6,2	1,5	1,4
315S/M	4,9	5,4	2,5	2,7	2,5	2,7



* Considering continuous operation, i.e. 24 hours 365 days operation.



W21 Magnet Motor - Optional Features

Frame	132S	132M	132M/L	160M	160L	180M	180L	200M	200L	W225S	225M	250M	W280S	280M	315S/M
Mechanical Options															
Flange															
Flange FF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Flange C-DIN	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Flange C	0	0	0	0	0	0	0	0	0	NA	NA	NA	NA	NA	0
Cooling Fan															
Plastic	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Aluminum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bearings															
Ball bearings-C3(ND/NDE)	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Ball bearings-C4(ND/NDE)	E	E	E	0	0	0	0	0	0	0	0	0	0	0	0
Bearing Seal															
'V' Ring	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Nitrillic rubber lip seal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
Nitrillic rubber oil seal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
Bearing Cap															
Bearing cap	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Circlip	E	E	E	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Shaft															
GB 45	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
42 CrMo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Degree of Protection															
IP55	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
IP56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IP65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IP66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IPW55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IPW56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IPW65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IPW66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grounding															
Single grounding	S	S	S	S	S	S	S	S	S	NA	NA	NA	NA	NA	NA
Double grounding	0	0	0	0	0	0	0	0	0	S	S	S	S	S	S
Larger Grounding	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Mechanical Options															
Drip cover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Electrical Options															
VFD (Variable Frequency Drive)															
With VFD	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Without VFD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Winding thermal protection															
Thermistor (PTC)	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Tripping thermistor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PT-100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bimetallic tripping thermal protector	E	E	E	0	0	0	0	0	0	0	0	0	0	0	0
Space Heaters															
110-127 V	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200-240 V	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110-127 / 220-240 V	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
380-480 V	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Service Factor															
Service factor 1.00	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Service factor > 1.00	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

Note: S = Standard Feature
 O = Optional Feature
 E = Especial Feature
 NA = Not Available

Electrical Performance Data

W21 MAGNET-GB1 - 6P

Output		Frame	Full Load Torque (kgfm)	Inertia J (kgm ²)	Weight (kg)	Sound dB(A)	380 V								Full load current In (A)
							Rated speed (rpm)	% of full load							
								Efficiency			Power Factor				
kW	HP							50	75	100	50	75	100		
6P - 1000 RPM															
7.5	10	132S	7.31	0.0490	55.8	52	1000	94.2	94.5	94.0	0.95	0.96	0.97	13.0	
9.2	12.5	132M	8.96	0.0600	65.4	52	1000	94.2	94.4	94.4	0.93	0.94	0.95	16.4	
11	15	132M/L	10.7	0.0750	76.4	52	1000	94.2	94.5	94.5	0.95	0.96	0.96	19.2	
15	20	160L	14.6	0.1720	128	56	1000	94.6	94.8	94.9	0.94	0.96	0.97	26.3	
18.5	25	180M	18.0	0.3040	166	56	1000	95.1	95.2	95.3	0.95	0.96	0.97	31.7	
22	30	180L	21.4	0.3570	191	56	1000	95.4	95.6	95.6	0.91	0.94	0.95	38.7	
30	40	200L	29.2	0.4290	229	58	1000	95.2	95.7	95.8	0.92	0.94	0.95	53.2	
37	50	200L	36.0	0.5150	256	58	1000	95.5	96.0	96.0	0.91	0.93	0.94	66.1	
45	60	225S/M	43.8	2.30	364	61	1000	96.0	96.2	96.2	0.92	0.93	0.94	80.3	
55	75	225S/M	53.6	1.22	393	61	1000	96.0	96.2	96.3	0.92	0.93	0.94	98.0	
75	100	250S/M	73.1	1.65	456	61	1000	96.0	96.3	96.4	0.91	0.92	0.94	134	
90	125	280S/M	87.7	3.29	666	66	1000	96.1	96.5	96.5	0.90	0.92	0.93	162	
110	150	280S/M	107	3.84	725	66	1000	96.0	96.1	96.2	0.93	0.94	0.95	192	
132	175	280S/M	129	4.39	785	66	1000	96.0	96.3	96.4	0.92	0.94	0.95	219	
160	220	315S/M	156	5.05	916	69	1000	96.4	96.5	96.6	0.90	0.91	0.92	285	
185	250	315S/M	180	5.60	979	69	1000	96.6	96.7	96.8	0.91	0.92	0.93	327	
High-Output Design															
30	40	200M	29.2	0.4290	229	58	1000	95.2	95.7	95.8	0.92	0.94	0.95	53.2	
6P - 1500 RPM															
11	15	132S	7.14	0.0450	57.6	56	1500	93.4	93.6	93.6	0.92	0.94	0.97	19.2	
15	20	132M	9.74	0.0637	72.1	56	1500	93.7	93.8	94.0	0.91	0.92	0.93	27.4	
18.5	25	132M/L	12.0	0.0786	78.9	56	1500	94.1	94.3	94.4	0.90	0.92	0.93	33.7	
22	30	160L	14.3	0.1718	127	62	1500	94.5	94.6	94.8	0.89	0.90	0.91	41.6	
30	40	180M	19.5	0.3303	174	64	1500	94.6	94.7	95.0	0.93	0.94	0.95	53.0	
37	50	180L	24.0	0.3567	191	64	1500	95.1	95.2	95.4	0.90	0.91	0.92	67.4	
45	60	200L	29.2	0.4464	235	67	1500	95.4	95.5	95.6	0.89	0.89	0.90	84.8	
55	75	200L	35.7	0.0000	256	67	1500	95.7	95.8	96.0	0.88	0.88	0.89	106	
75	100	225S/M	48.7	1.13	379	70	1500	96.1	96.2	96.4	0.87	0.88	0.89	147	
90	125	250S/M	58.4	1.58	450	70	1500	96.2	96.3	96.5	0.94	0.95	0.96	157	
110	150	250S/M	71.4	1.67	470	70	1500	96.6	96.7	96.9	0.91	0.92	0.94	195	
132	175	280S/M	85.7	3.07	646	72	1500	96.7	96.8	97.0	0.91	0.92	0.93	236	
150	200	280S/M	97.4	3.40	678	72	1500	96.8	96.9	97.0	0.92	0.93	0.94	265	
160	220	280S/M	104	3.73	716	72	1500	96.7	96.9	97.0	0.91	0.92	0.93	283	
185	250	280S/M	120	4.28	774	72	1500	96.8	96.8	97.0	0.90	0.91	0.92	333	
200	270	280S/M	130	4.61	810	72	1500	96.9	97.0	97.1	0.94	0.95	0.96	344	
220	300	315S/M	143	4.72	879	77	1500	96.9	97.0	97.1	0.92	0.93	0.94	385	
260	350	315S/M	169	5.16	932	77	1500	97.0	97.1	97.2	0.93	0.94	0.95	471	
280	380	315S/M	182	5.60	977	77	1500	97.0	97.1	97.2	0.90	0.91	0.92	502	
High-Output Design															
45	60	200M	29.2	0.4464	235	67	1500	95.4	95.5	95.6	0.89	0.89	0.90	84.8	
6P - 3000 RPM															
11	15	132S	3.57	0.0300	44.1	67	3000	94.2	95.0	95.0	0.92	0.94	0.96	19.4	
15	20	132S	4.87	0.0337	46.5	67	3000	95.1	95.3	95.3	0.89	0.90	0.90	28.5	
18.5	25	132M	6.01	0.0449	55.9	67	3000	95.4	95.6	95.6	0.90	0.92	0.93	33.7	
22	30	132M	7.14	0.0524	60.6	67	3000	95.5	95.9	95.9	0.92	0.95	0.97	37.5	
30	40	132M/L	9.74	0.0637	69.2	67	3000	95.6	96.1	96.1	0.92	0.94	0.95	52.4	
37	50	160M	12.0	0.1444	113	70	3000	96.1	96.3	96.3	0.93	0.95	0.96	63.1	
45	60	160L	14.6	0.1925	136	70	3000	96.2	96.4	96.4	0.94	0.94	0.95	75.4	
55	75	180M	17.9	0.3038	168	70	3000	96.3	96.5	96.5	0.93	0.95	0.96	95.1	
75	100	200L	24.4	0.5151	256	74	3000	96.4	96.6	96.6	0.94	0.95	0.96	129	
90	125	225S/M	29.2	0.9004	343	82	3000	96.5	96.7	96.7	0.94	0.95	0.96	157	
110	150	225S/M	35.7	1.04	365	82	3000	96.5	96.6	96.8	0.93	0.94	0.95	193	
132	175	225S/M	42.9	1.26	400	82	3000	96.6	96.8	97.0	0.91	0.93	0.94	233	
150	200	250S/M	48.7	1.44	436	82	3000	96.8	96.9	97.0	0.92	0.93	0.94	262	
160	220	250S/M	51.9	1.40	443	82	3000	96.9	97.0	97.1	0.92	0.94	0.95	275	
185	250	250S/M	60.1	1.67	472	82	3000	97.0	97.1	97.2	0.93	0.94	0.95	322	
200	270	280S/M	64.9	3.29	669	83	3000	97.0	97.2	97.3	0.94	0.95	0.96	346	
220	300	280S/M	71.4	3.51	689	83	3000	97.2	97.2	97.4	0.91	0.93	0.94	390	
260	350	280S/M	84.4	3.95	734	83	3000	97.0	97.3	97.5	0.93	0.95	0.96	450	
280	380	315S/M	90.9	4.39	845	83	3000	97.2	97.4	97.5	0.93	0.94	0.95	488	
300	400	315S/M	97.4	4.94	907	83	3000	97.3	97.3	97.5	0.94	0.95	0.96	513	
315	430	315S/M	102	5.16	931	83	3000	97.4	97.5	97.6	0.95	0.97	0.98	524	

Note: *Temperature rise is 105K.

The efficiency level of motors up to 90kW (<=90kw) follows the new GB standard (GB30253.2013).
For outputs above 90kW, follows the IEC standard (IEC 60034-30-2).

Electrical Performance Data

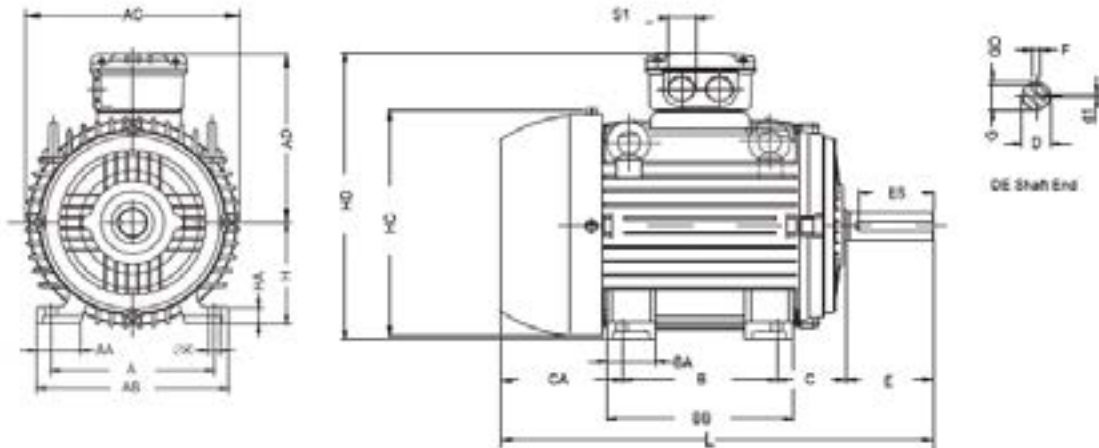
W21 MAGNET- GB1 - 8P

Output		Frame	Full Load Torque (kgfm)	Inertia J (kgm ²)	Weight (kg)	Sound dB(A)	380 V							Full load current In (A)
							Rated speed (rpm)	% of full load			Power Factor			
								50	75	100	50	75	100	
kW	HP													
8P - 750RPM														
37	50	225M	48.1	0.7100	345	60	750	94.5	95.0	95.0	0.95	0.96	0.97	65.2
45	60	250M	58.4	1.08	400	62	750	95.1	95.2	95.2	0.94	0.95	0.96	79.5
55	75	W280S	71.4	1.35	475	62	750	95.2	95.4	95.4	0.95	0.96	0.97	96.9
75	100	280M	97.4	2.32	675	64	750	95.1	95.4	95.6	0.93	0.95	0.97	130
90	125	280M	117	2.95	785	64	750	95.1	95.4	95.6	0.93	0.95	0.97	158
110	150	280M*	143	3.33	865	64	750	95.1	95.4	95.6	0.92	0.94	0.96	190
High-Output Design														
45	60	225M	58.4	0.8800	375	60	750	95.1	95.2	95.2	0.95	0.96	0.97	78.6
55	75	280M	71.4	1.70	620	64	750	95.1	95.4	95.4	0.93	0.95	0.97	95.2
8P - 1000RPM														
45	60	225M	43.8	0.7100	345	63	1000	96.1	96.2	96.2	0.95	0.96	0.97	77.5
55	75	225M	53.6	0.8060	360	63	1000	96.1	96.3	96.3	0.94	0.95	0.96	96.8
75	100	250M	73.1	1.40	440	63	1000	96.3	96.4	96.4	0.95	0.96	0.97	130
90	125	280M	87.7	2.17	660	66	1000	96.2	96.4	96.5	0.93	0.95	0.96	154
110	150	280M	107	2.56	715	66	1000	96.2	96.4	96.5	0.93	0.95	0.97	189
132	175	280M	129	3.09	785	66	1000	96.2	96.4	96.5	0.93	0.95	0.97	225
150	200	280M*	146	3.33	865	66	1000	96.2	96.4	96.5	0.93	0.95	0.97	265
High-Output Design														
90	125	W280S	87.7	1.67	515	63	1000	96.3	96.5	96.5	0.95	0.96	0.97	159
8P - 1500RPM														
75	100	W225S	48.7	0.4721	265	72	1500	95.9	96.0	96.0	0.93	0.95	0.96	130
90	125	225M	58.4	0.8400	365	72	1500	96.1	96.2	96.2	0.94	0.95	0.96	158
110	150	250M	71.4	1.22	420	73	1500	96.3	96.4	96.4	0.95	0.96	0.97	189
132	175	W280S	85.7	1.53	495	73	1500	96.3	96.4	96.4	0.95	0.96	0.97	226
150	200	280M	97.4	2.24	680	77	1500	96.1	96.5	96.7	0.94	0.95	0.96	259
160	220	280M	104	2.34	700	77	1500	96.1	96.5	96.7	0.94	0.96	0.97	272
185	250	280M	120	2.78	735	77	1500	96.2	96.5	96.8	0.94	0.96	0.97	312
200	270	280M	130	3.01	780	77	1500	96.2	96.5	96.8	0.94	0.96	0.97	342
220	300	280M	143	3.25	830	77	1500	96.2	96.7	96.9	0.94	0.97	0.98	372
High-Output Design														
75	100	225M	48.7	0.6720	330	72	1500	95.9	96.0	96.0	0.94	0.96	0.97	131
132	175	280M	85.7	1.93	650	77	1500	96.1	96.5	96.7	0.94	0.97	0.98	225
8P - 3000RPM														
90	125	W225S	29.2	0.3870	240	82	3000	95.1	96.5	96.7	0.93	0.95	0.97	158
110	150	W225S	35.7	0.4470	270	82	3000	95.1	96.5	96.7	0.93	0.95	0.97	190
132	175	225M	42.9	0.8060	350	82	3000	95.1	96.5	96.7	0.95	0.97	0.98	230
150	200	225M	48.7	0.9410	395	82	3000	95.1	96.5	96.7	0.94	0.95	0.96	265
160	220	250M	51.9	1.17	420	82	3000	95.1	96.5	96.7	0.95	0.96	0.97	275
185	250	250M	60.1	1.32	445	82	3000	95.1	96.5	96.7	0.96	0.97	0.98	311
200	270	W280S	64.9	1.53	495	82	3000	95.1	96.5	96.7	0.96	0.97	0.98	342
220	300	W280S	71.4	1.62	510	82	3000	95.2	96.6	96.7	0.95	0.96	0.97	370
250	340	280M	81.2	2.71	730	83	3000	95.5	96.5	96.7	0.92	0.94	0.95	450
260	350	280M	84.4	2.71	735	83	3000	95.5	96.5	96.7	0.92	0.94	0.95	465
280	380	280M	90.9	3.03	780	83	3000	95.6	96.5	96.7	0.93	0.95	0.96	486
300	400	280M	97.4	3.11	790	83	3000	95.6	96.5	96.7	0.93	0.95	0.96	514
315	430	280M*	102	3.25	830	83	3000	95.7	96.5	96.7	0.94	0.96	0.97	539
High-Output Design														
132	175	W225S*	42.9	0.5150	300	82	3000	95.1	96.5	96.7	0.93	0.95	0.96	228
150	200	250M	48.7	1.08	400	82	3000	95.1	96.5	96.7	0.96	0.97	0.98	255

Note: *Temperature rise is 105K.

The efficiency level of motors up to 90kW (<=90kw) follows the new GB standard (GB30253.2013).
For outputs above 90kW, follows the IEC standard (IEC 60034-30-2).

Motor Mechanical Data



Frame Main Dimensions (mm)																				
Frame	A	AA	AB	AC	AD	B	BA	BB	C	CA	H	HA	HC	HD	K	L	S1	*Cable Gland Inner Diam. (mm)	Bearing	
																			DE	NDE
132S	216	51	248	270	212	140	55	187	89	150	132	20	274	344	12	452	2xM32x1.5	18-25	6308 C3	6207 C3
132M	216	51	248	270	212	178	55	225	89	150	132	20	274	344	12	490		18-25	6308 C3	6207 C3
132M/L	216	51	248	270	212	178	55	250	89	150	132	20	274	344	12	515		18-25	6308 C3	6207 C3
160M	254	64	308	312	255	210	65	254	108	174	160	22	317	415	14.5	598	2xM40x1.5	22-32	6309 C3	6209 C3
160L	254	64	308	312	255	254	65	298	108	174	160	22	317	415	14.5	642		22-32	6309 C3	6209 C3
180M	279	80	350	358	275	241	75	297	121	200	180	28	360	455	14.5	664		22-32	6311 C3	6211 C3
180L	279	80	350	358	275	279	75	332	121	200	180	28	360	455	14.5	702		22-32	6311 C3	6211 C3
200M	318	82	385	396	300	267	85	332	133	222	200	30	402	500	18.5	729	2xM50x1.5	32-38	6312 C3	6212 C3
200L	318	82	385	396	300	305	85	370	133	222	200	30	402	500	18.5	767		32-38	6312 C3	6212 C3
315S/M	508	120	628	600	497	406	152	558	216	376	315	52	613	812	28	1126(*)	2xM63x1.5	37-44	6314 C3(*)	6314 C3(*)
						457				325						1156			6319 C3	6316 C3

Shaft Dimensions (mm)							
Frame	D	d1	E	ES	F	G	GD
132S	38k6	DM12	80	63	10	33	8
132M	38k6	DM12	80	63	10	33	8
132M/L	38k6	DM12	80	63	10	33	8
160M	42k6	DM16	110	80	12	37	8
160L	42k6	DM16	110	80	12	37	8
180M	48k6	DM16	110	80	14	42.5	9
180L	48k6	DM16	110	80	14	42.5	9
200M	55m6	M20	110	80	16	49	10
200L	55m6	M20	110	80	16	49	10
W225S(*)	55m6	M20	110	100	16	49	10
W225S	60m6	M20	140	125	18	53	11
225M (*)	55m6	M20	110	100	16	49	10
225M	60m6	M20	140	125	18	53	11
250(*)	60m6	M20	140	125	18	53	11
250M	65m6	M20	140	125	18	58	11
W280S(*)	65m6	M20	140	125	18	58	11
W280S	75m6	M20	140	125	20	67.5	12
280M(*)	65m6	M20	140	125	18	58	11
280M	75m6	M20	140	125	20	67.5	12
315S/M (*)	65m6	M20	140	125	18	58	11
315S/M	80m6	M20	170	160	22	71	14

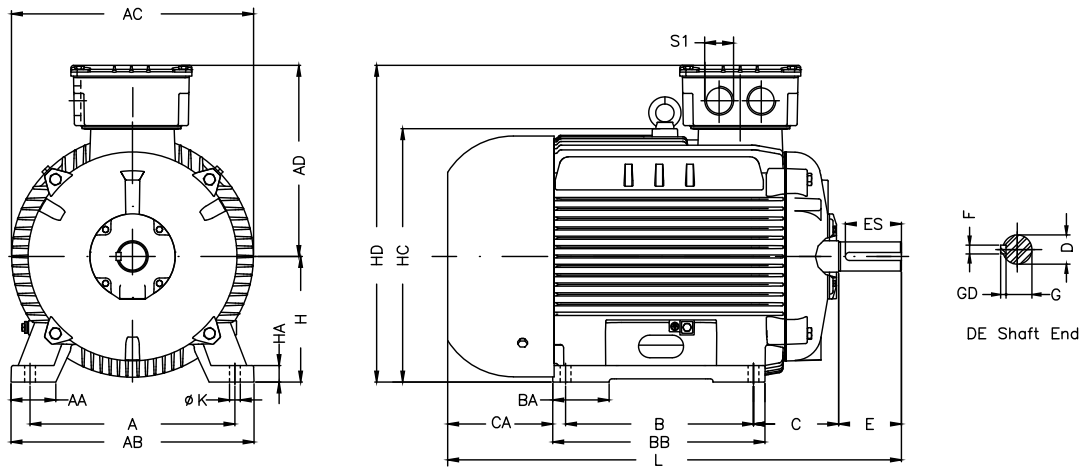


Frame	RPM	Motor Length (L)		
		Without Blower Kit	With Blower Kit	
132S	750, 1000, 1500 and 3000	452	715	
132M		490	753	
160M		598	855	
160L		642	899	
180M		664	908	
180L		702	946	
200M		729	976	
200L		767	1014	
W225S		3000	748	942
		750, 1000 and 1500	778	972
225M	3000	785	1000	
	750, 1000 and 1500	815	1030	
250M	3000	875	1093	
	750, 1000 and 1500			
W280S	3000	945	1163	
	750, 1000 and 1500			
280M	3000	1027	1250	
	750, 1000 and 1500			
315S/M	3000	1126	1422	
	750, 1000 and 1500	1156	1452	

Note: * Cable gland is optional feature, the dimension in above table indicates inner diameter range,, the unit is mm. If the cable size was out of this range, please contact WEG.

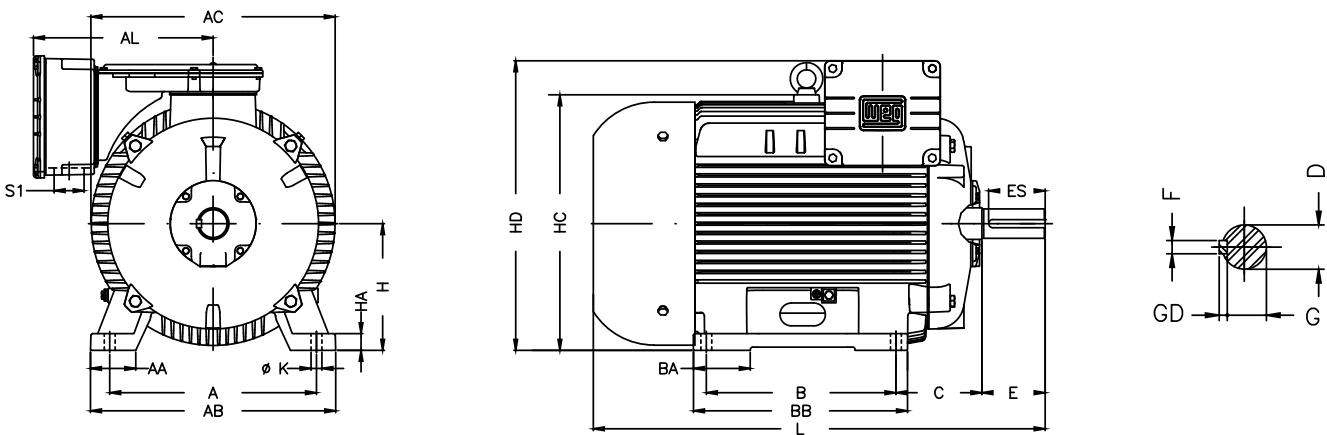
(*) Information related to motor in 3000 rpm

Frame W225S-280M B3T



Frame	A	AA	AB	AC	AD	B	BA	BB	C	CA	H	HA	HC	HD	K	L	S1	*Cable Gland Inner Diam. (mm)	Bearing	
																			DE	NDE
W225S	356	80	436	391	311	286	64	348	149	203	225	29	433	536	18.5	748(*)	2xM50x1.5	32-38	6312 C3(*)	6212 C3
																778			6314 C3	
																785(*)			6314 C3	6314 C3
225M	356	85	432	447	347	311	88	362	149	215	225	31	462	572	18.5	815	2xM63x1.5	37-44	6314 C3	6314 C3
250M	406	95	484	468	354	349	89	424	168	218	250	32	493	604	24	875			6314 C3	6314 C3
																			6314 C3(*)	6314 C3(*)
W280S	457	100	542	482	388	368	101	435	190	247	280	33	525	668	24	945	2xM63x1.5	37-44	6316 C3	6314 C3
280M	457	108	542	541	405	419	129	499	190	278	280	37	565	685	24	1027			6314 C3(*)	6314 C3(*)
																			6316 C3	6316 C3

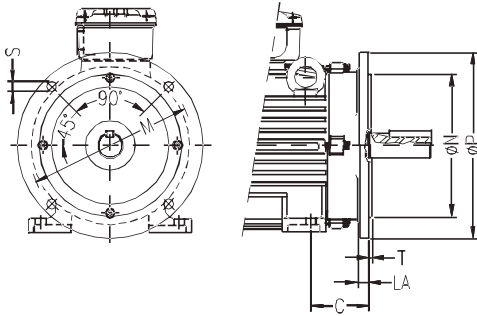
Frame W225S-280M B3D/B3E



机座	A	AA	AB	AC	AL	B	BA	BB	C	CA	H	HA	HC	HD	K	L	S1	*Cable Gland Inner Diam. (mm)	Bearing	
																			DE	NDE
W225S	356	80	436	391	309	286	64	348	149	203	225	29	433	498	18.5	748(*)	2xM50x1.5	32-38	6312 C3(*)	6212 C3
																778			6314 C3	
																785(*)			6314 C3	6314 C3
225M	356	85	432	447	369	311	88	362	149	215	225	31	462	533	18.5	815	2xM63x1.5	37-44	6314 C3	6314 C3
250M	406	95	484	468	369	349	89	424	168	218	250	32	493	564	24	875			6314 C3	6314 C3
																			6314 C3(*)	6314 C3(*)
W280S	457	100	542	482	369	368	101	435	190	247	280	33	525	596	24	945	2xM63x1.5	37-44	6316 C3	6314 C3
280M	457	108	542	541	430	419	129	499	190	278	280	37	565	656	24	1027			6314 C3(*)	6314 C3(*)
																			6316 C3	6316 C3

FLANGE FF (IEC)

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

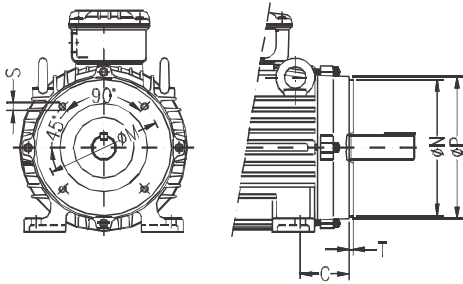


FLANGE FF (IEC)

Frame	"FF" Flange Dimension (mm)								Qty of Holes	
	Flange	C	LA	øM	øN	øP	T	S		α
132S/M	FF-265	89	12	265	230	300	4	15	45°	4
160M/L	FF-300	108	18	300	250	350	5	19		
180M/L	FF-300	121		350	300	400				
200M/L	FF-350	133		400	350	450				
W225S/225M	FF-400	149		500	450	550			22°30'	24
250M	FF-500	168								
W280S/280M	FF-500	190								
315S/M	FF-600	216	22	600	550	660	6	24		

FLANGE FC IEC B14A, B14B & NEMA C

Installation with constructive mountings
B14, B34, V18, V19



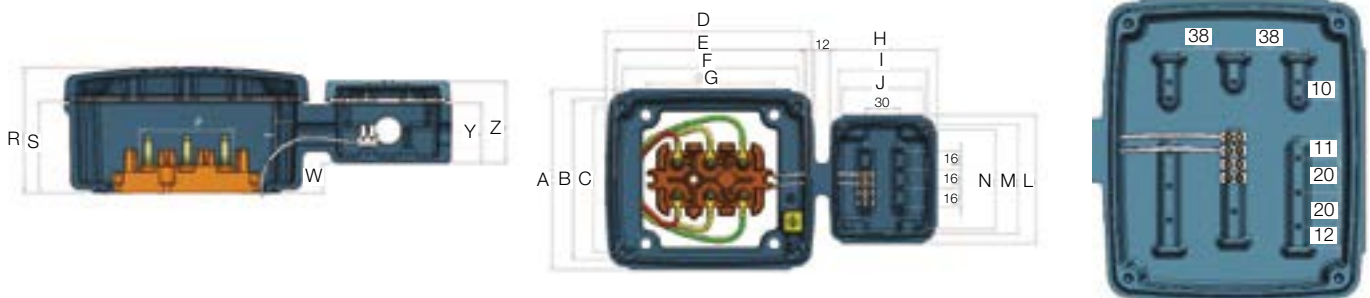
FLANGE FC (NEMA)

Frame	"C-DIN" Flange Dimension (mm)							Qty of Holes
	Flange	C	øM	øN	øP	S	T	
132S/M	FC-184	89	184.2	215.9	225	UNC 1/2" x 13	6.3	4
160M/L	FC-184	108						
180M/L	FC-228	121	228.6	266.7	280			
200M/L	FC-228	133						
315S/M	FC-368	216	368.3	419.1	455	UNC 5/8" x 11	8	

FLANGE C-DIN (DIN 42677) (B14A)

Frame	"C-DIN" Flange Dimension (mm)							Qty of Holes
	Flange	C	øM	øN	øP	S	T	
132S/M	C-200	89	165	130	200	M10	3.5	4
160M/L	C-250	108	215	180	250	M12	4	4

Terminal Box

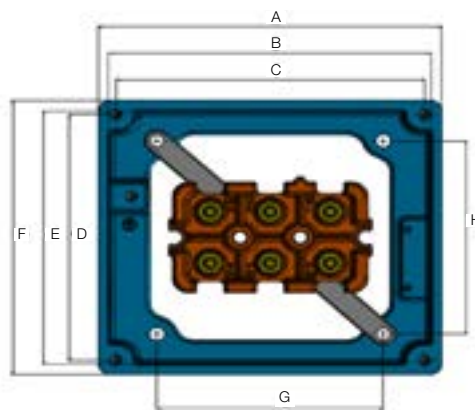


* Additional terminal box is applicable only for frames from 225 to 315

机座	A	B	C	D	E	F	G	H	I	J	L	M	N	P	R	S	T	W	Y	Z
132	117	100	88	137	120	108	70	92	77	70	108	93	85	50	67	49	13.5	7	42	57
160-180	154	137	124	180	163	150	110	92	77	70	108	93	85	67	89	64	13.5	23	42	57
200	170	153	136	200	183	166	120	92	77	70	108	93	85	84	94	78	13.5	37	42	57
315	315	289	260	375	349	318	200	154	137	124	180	163	150	160	172	144	17	82.5	61.5	86.5

Note: All dimensions are in mm

Terminal Box



Note: All dimensions are in mm

机座	A	B	C	D	E	F	G	H	I	K
W225S	200	189	180	168	172	188	132	132	83	101
225M	240	223	214	193	194	217	152	152	94	114
250M										
W280S	260	243	236	269	272	294	152	152	127	147
280M										



Frequency Inverter Technical Data

Power supply	Tolerance: -15% to +10%		
	Frequency: 50Hz +/-5%		
	Typical efficiency above or equal to 97%		
	Power factor (valid for rated condition)	≥ 0.94 with DC reactor	
Overload duty	Heavy = Heavy Overload Duty: 150% of the rated current for one minute or 180% of the rated current for 10 seconds; 200% of rated current for 0.5 seconds;		
Control	Method	Control types: vector with or without encoder	
	Digital inputs: 6 NPN or PNP, 24 V DC		
	Digital outputs: 2 x relay with reverser contact (3A for 240 VAC or 5A for 30VDC, 1 transistor 24 VDC 50mA)		
	Analog Inputs: 1 - 0-10 VDC 1 - 4-20 mA		
	Analog outputs: 2 - 0-10 VDC max 2 mA		
	Function expansion (optional)	Communication networks: Modbus-RTU standard, Profibus with optional card	
		Incremental encoder input	
		Power supply capacity 24 V DC, 100 mA	
Environment	Operating temperature	-10 to 40 °C	
	Degree of protection	IP20	
	Altitude	Altitude: 1,000 m.	
HMI - Human Machine Interface		It enables access to/change all the parameters, Parameter Copy and monitoring the Inverter Status	

CFW500 & CFW11 Frequency Inverter Electrical Data

WEG Code	Voltage (V)	Normal Load		Heavy Load	
		Rated Current (A)	Reference Output (kW)	Rated Current (A)	Reference Output (kW)
CFW500 A 06P1 T4 NB20	380~480	6.1	2.2	6.1	2.2
CFW500 B 06P5 T4 DB20	380~480	6.5	3	6.5	3
CFW500 B 10P0 T4 DB20	380~480	10	4	10	4
CFW500 C 14P0 T4 DB20	380~480	14	5.5	14	5.5
CFW500 C 16P0 T4 DB20	380~480	16	7.5	16	7.5
CFW500 D 24P0 T4 DB20	380~480	24	11	24	11
CFW500 D 31P0 T4 DB20	380~480	31	15	31	15
CFW500 E 39P0 T4 DB20	380~480	39	18.5	39	18.5
CFW500 E 49P0 T4 DB20	380~480	49	22	49	22
CFW500 F 77P0 T4 DB20G2	380~480	77	37	61	30
CFW500 F 88P0 T4 DB20G2	380~480	88	45	73	37
CFW500 F 0105 T4 DB20G2	380~480	105	55	88	45
CFW500 G 0142 T4 DB20G2	380~480	142	75	115	55
CFW500 G 0180 T4 DB20G2	380~480	180	90	142	75
CFW500 G 0211 T4 DB20G2	380~480	211	110	180	90
CFW11 0312 T4 SZ	380~480	312	160	242	132
CFW11 0370 T4 SZ	380~480	370	200	312	160
CFW11 0477 T4 SZ	380~480	477	250	370	200
CFW11 0515 T4 SZ	380~480	515	280	477	250
CFW11 0601 T4 SZ	380~480	601	315	515	280
CFW11 0720 T4 SZ	380~480	720	355	560	315
CFW11 0760 T4 OYZ	380~480	760	400	600	330
CFW11 0795 T4 OYZ	380~480	795	450	637	355
CFW11 0877 T4 OYZ	380~480	877	500	691	400
CFW11 1062 T4 OYZ	380~480	1062	560	855	450
CFW11 1141 T4 OYZ	380~480	1141	630	943	500

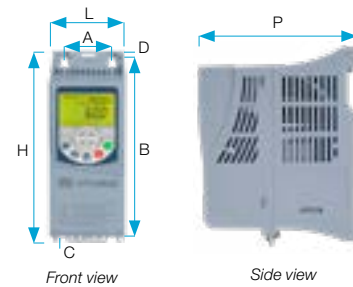
IP55 / NEMA12 Version



Frame	Dimensions mm (in)				Weight kg (lb)
	Height (H)	Width (W)	Depth (D)	Depth With DS (D)	
B	529 (20.83)	273 (10.75)	237 (9.33)	279.1 (10.99)	17.0 (37.4)
C	670 (26.38)	307 (12.09)	306 (12.05)	348.1 (13.7)	30.0 (66.1)
D	754 (29.69)	375 (14.76)	301.3 (11.86)	338.6 (13.33)	49.0 (108.02)
E	1000 (39.37)	430 (16.93)	388.8 (15.31)	419 (16.5)	96.0 (211.64)

CFW500 Frequency Inverter Mechanical Data

IP20 Version



Note: for the dimensions in the NEMA type 1 version, refer to the user manual.

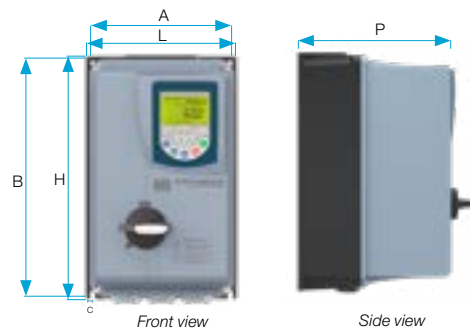
Frame	A	B	C	D	H	L	P	Weight kg [lb]
	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	
A	50 [1.97]	175 [6.89]	11.9 [0.47]	7.2 [0.28]	189 [7.44]	75 [2.95]	150 [5.91]	0.8 [1.76]
B	75 [2.95]	185 [7.3]	11.8 [0.46]	7.3 [0.29]	199 [7.83]	100 [3.94]	160 [6.3]	1.2 [2.65]
C	100 [3.94]	195 [7.7]	16.7 [0.66]	5.8 [0.23]	210 [8.27]	135 [5.31]	165 [6.5]	2 [4.4]
D	125 [4.92]	290 [11.41]	27.5 [1.08]	10.2 [0.4]	306.6 [12.1]	180 [7.08]	166.5 [6.55]	4.3 [9.48]
E	150 [5.9]	330 [13]	34 [1.34]	10.6 [0.4]	350 [13.8]	220 [8.7]	191.5 [7.5]	10 [22.05]
F	200 [7.87]	525 [20.67]	42.5 [1.67]	15 [0.59]	550 [21.65]	300 [11.81]	254 [10]	26 [57.3]
G	200 [7.87]	650 [25.59]	57 [2.24]	15 [0.59]	675 [26.57]	335.3 [13.2]	314 [12.36]	52 [114.64]

CFW11 Frequency Inverter Mechanical Data

Standard Version

Frame	Standard Version					
	Dimension mm (in)			Weight kg (lb)		
	Height (H)	Width (W)	Depth (D)	200-240 V ac	380-480 V ac	500-690 V ac
A	270 (10.61)	145 (5.71)	227 (8.94)	6.3 (13.9)	10 (22.0)	-
B	316 (12.43)	190 (7.48)	227 (8.94)	10.4 (22.9)	10.4 (22.9)	9.1 (20)
C	405 (15.95)	220 (8.67)	293 (11.54)	20.5 (45.2)	20.5 (45.2)	19.6 (43.2)
D	550 (21.63)	300 (11.81)	305 (12.01)	32.6 (71.8)	32.6 (71.8)	34 (75)
E	675 (26.6)	335 (13.2)	358 (14.1)	65 (143.3)	65 (143.3)	64 (141.2)
F	1,234 (48.58)	430 (16.93)	360 (14.17)	-	140 (308.7)	168 (370.5)
G	1,264 (49.76)	535 (21.06)	426 (16.77)	-	215 (474)	258 (569)
H	1,414 (55.67)	626 (27.01)	421 (16.57)	-	220 (485.2)	213 (469.7)

IP66 Version



Frame	A	B	C	D	E	H	L	P		Weight kg [lb]
	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	P1	P2	
	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	mm [in]	
A	150 [5.9]	250 [9.83]	5.7 [0.22]	7.5 [0.3]	225 [8.86]	265 [10.43]	165 [6.5]	227 [8.93]	252.5 [9.94]	10 [22.05]
B	200 [7.86]	325 [12.79]	5.7 [0.22]	7.5 [0.3]	300 [11.82]	340 [13.39]	215 [8.46]	227 [8.93]	252.9 [9.96]	12 [26.5]

Notes: P1 = Measure without disconnect switch.
P2 = Measure with disconnect switch.



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