Motors

Automation

Energy

Transmission & Distribution

Coatings

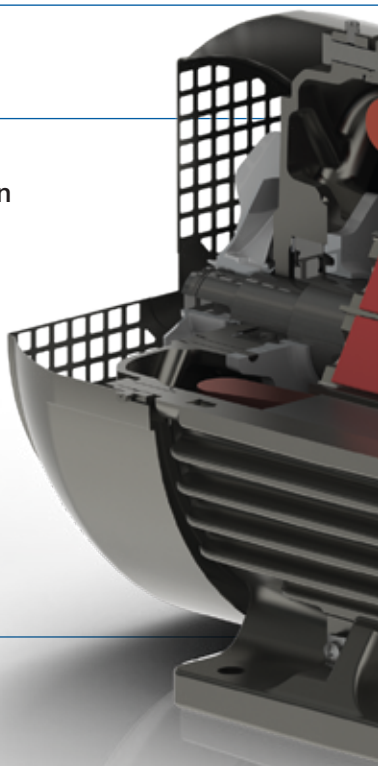
WMagnet Drive System

Permanent magnet motors

Driving efficiency and sustainability

WMagnet Drive System

The WMagnet Drive System composes Super Premium and Ultra Premium efficiency motors with permanent magnets driven by variable frequency inverters. Perfect for applications where speed variation, precise control at low speeds, low noise levels and compact design are critical.

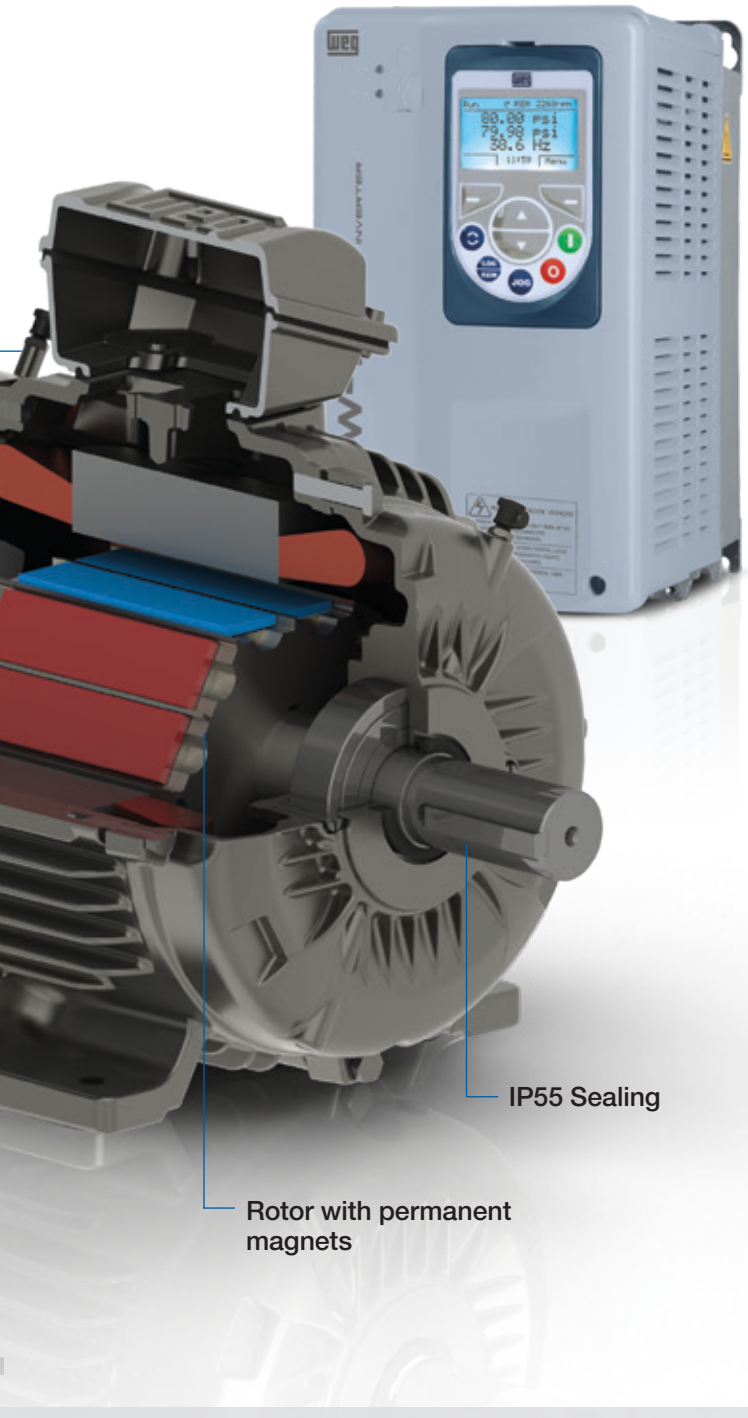


The highest efficiencies on the market

WMagnet 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 WEG CFW11 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. WMagnet motors are available in Super Premium (IE4) and Ultra Premium (IE5) versions.

Applications

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



Characteristics of the CFW11 Inverter

- Power supply: 380 to 480 V
- Sensorless vector control: it allows the CFW11 to control the speed motor from zero up to its rated speed
- Remote Operating Interface (HMI) with backlight, soft keys, graphic display and real time clock.
- Inductors incorporated on the DC Link to improve harmonic mitigation
- Communication protocol and accessories: Profibus, DeviceNet, CANopen, Ethernet / IP, Modbus-RTU
- Version with cabinet with degree of protection IP55 (versions with built-in switch-disconnector)
- Adaptable to all kinds of load
- USB port
- FLASH memory

Characteristics of the WMagnet Motor

- Output: 3 to 630kW
- Frame: 132S to 450J/H
- Speed: 3000, 1500 and 1000 rpm
- Voltage: 400V
- Degree of protection: IP55
- Bearing seal:
  - V´ring (frames 132S to 200L)
  - WSeal (from frame 225S/M to 355M/L)
  - Taconite labyrinth with slinger (for frames 315H/G, 355J/H, 400L/K and up)
- Insulation: F (ΔT 80K)
- Service factor: 1.0
- Thermal protection: PTC up to frame size 355M/L and PT-100 for frames 315H/G, 355J/H, 400L/K and up
- Insulated NDE bearing hub and shaft grounding from frame sizes 225S/M and above
- Mounting: B3T
- TEFC (IC 411) per IEC 60034-6
- Possibility of operation in overspeed
- Optional characteristics on request

WMagnet Super Premium and Ultra Premium

The WMagnet motor line offers two efficiency levels: Super Premium (IE4) and Ultra Premium (IE5). The high technology utilised in permanent magnet motors results in innovation, efficiency and reliability.

WMagnet Super Premium

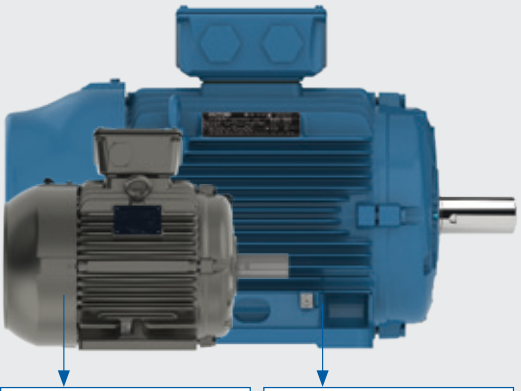
Greater power density - Reduced mass and volume

WMagnet Super Premium motors meet the IE4 efficiency levels according to IEC standard 60034-30-1.
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 WMagnet Super Premium motors is reduced by as much as 77% (refer to example below).
The WMagnet motors operate with lower temperature rise even at low speeds.

Frame size comparison between WMagnet IE4 and W22 Induction Motors.

Output Power (kW)	Frame	
	W22 (Induction)	WMagnet
15	160M	132S
18,5	160L	132S
22	180M	132M
30	200L	132M/L
37	200L	160M
45	225S/M	160L
55	250S/M	180M
75	280S/M	200L
90	280S/M	225S/M
110	315S/M	225S/M
132	315S/M	225S/M
160	315S/M	250S/M
185	315S/M	280S/M
200	315L	280S/M
220	315L	280S/M
260	315L	280S/M
280	315L	315S/M
300	355M/L	315S/M
315	355M/L	315S/M

Volume reduction



WMagnet Motor
Output: 30kW
Speed: 3000 rpm
Frame: 132M/L
Mass: 76 kg
Volume: 24 dm^3

Induction Motor
Output: 30 kW
Speed: 3000 rpm
Frame: 200L
Mass: 265 kg
Volume: 72 dm^3

Mass reduction

WMAGNET
ULTRA PREMIUM

THE HIGHEST EFFICIENCY LEVEL, INTERCHANGEABILITY AND HIGH PERFORMANCE

WMagnet Ultra Premium motors offer the highest efficiency levels in the market and meet the envisaged levels for IE5 as defined in the IEC standard 60034-30-1:2014.

With a loss reduction of 20% when compared to the Super Premium IE4, WMagnet Ultra Premium IE5 motors feature the same frame size to kW ratio as equivalent induction motors, combining therefore interchangeability with existing installed motors and the benefit of improved product performance. WMagnet Ultra Premium is one more example of WEG technology providing to Industry high efficiency, quality, energy saving and lower overall cost of ownership.

Driving efficiency and sustainability

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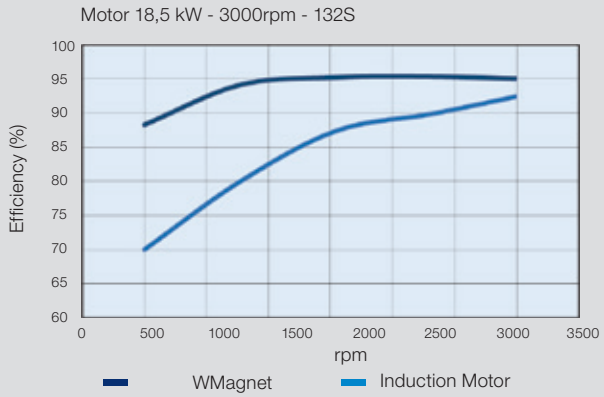
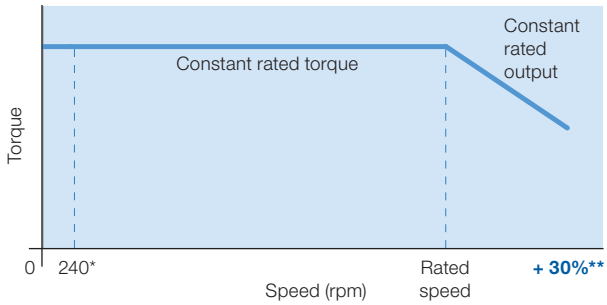
Efficiency x Speed

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





Torque x Speed

WMagnet 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.

WMagnet motors (1000 rpm and 1500 rpm) are able to operate at up to 30% above their rated speed without the necessity to utilise special components.

**Continuous duty at speeds lower than 240rpm under request.*

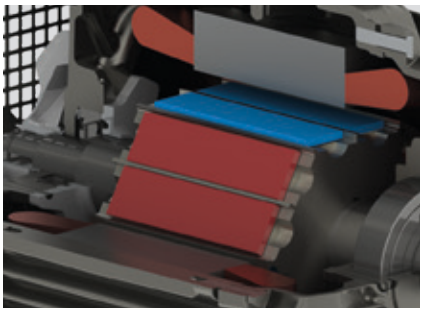
***The 3600 RPM motors, up to 200L frame size, can operate up to 20% above their rated speed. For frame 225S/M and above, at the same speed, contact WEG.*

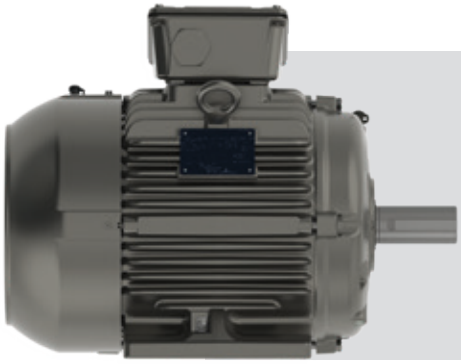
WISE Insulation System

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 WMagnet 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 some 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.





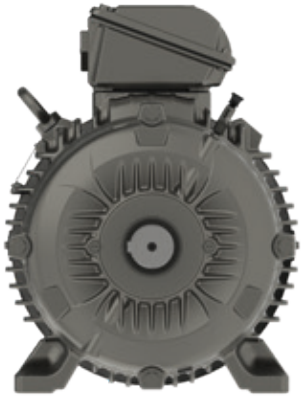
WMagnet Platform

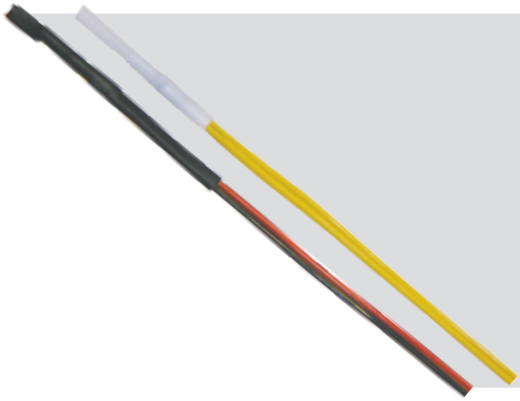
The WMagnet incorporates the same innovative features of the highly successful induction motor line:

- 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

Endshields / Lubrication

The WMagnet 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 lubrication and consequently a reduction in stoppages for maintenance.





Thermal Protection

WMagnet motors up to frame size 355M/L 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.
Motors in frame sizes 315H/G, 355J/H, 400L/K and up are supplied with PT-100 thermal protection with calibrated resistance which varies linearly with the temperature, allowing continuous follow up of motor heating on the controller display, with a high degree of accuracy and response sensitivity.

Bearings

The maximum permissible radial loads for WMagnet motor line are shown in the following table.

Maximum radial load WMagnet - 40.000 hours - Fr (kN)						
Frame	1200 RPM		1800 RPM		3600 RPM	
	L	L/2	L	L/2	L	L/2
132S	1,3	1,5	0,9	1,0	0,9	1,0
132M	1,3	1,5	0,9	1,0	0,9	1,0
132M/L	1,3	1,5	0,9	1,0	0,9	1,0
160M	1,7	1,9	1,1	1,3	1,1	1,3
160L	1,7	1,9	1,1	1,3	1,1	1,3
180M	2,4	2,6	1,6	1,8	1,6	1,8
180L	2,4	2,6	1,6	1,8	1,6	1,8
200M	2,8	3,1	1,9	2,1	1,9	2,1
200L	2,8	3,1	1,9	2,1	1,9	2,1
225S/M	4,1	4,6	3,0	3,2	3,0	3,2
250S/M	4,1	4,5	2,8	3,0	2,8	3,0
280S/M	4,1	4,4	2,5	2,7	2,5	2,7
315S/M	4,5	4,9	2,3	2,5	2,3	2,5
355M/L	4,9	5,3	3,9	4,2	0,54	0,57
315 H/G	7,8	7,3	6,5	6,1	2,7	2,5
355 J/H	8,6	8,0	7,1	6,6	2,3	2,2
400 L/L and 400 J/H	7,5	7,0	6,0	5,6	-------	
450 L/K and 450 J/H	8,7	8,1	6,7	6,2		

Axial loads are as per W22 and W50 induction motors on horizontal application. For vertical application, please consult WEG.

Motor Technical Data

WMagnet Super Premium IE4

Output		Frame	Full load torque (Nm)	Inertia J (kgm²)	Weight (kg)	Service Factor	400 V							Frequency Inverter	
							Rated speed (rpm)	% of full load		Full load current In (A)	Parameters*				
								Efficiency	Power factor						
kW	HP										Ld	Lq	Ke	Code	Size
3000 RPM															
15	20	132S	47.8	0.0223	52.0	1,00	3000	93.3	0.89	27.2	9.10	17.0	120.5	EUCFW110031T4OFASWZ	B
18,5	25	132S	58.9	0.0303	54.0	1,00	3000	93.7	0.90	34.0	7.00	13.3	119.6	EUCFW110038T4OFASWZ	C
22	30	132M	70.1	0.0336	56.0	1,00	3000	94.0	0.90	39.0	6.00	11.5	122.3	EUCFW110045T4OFASWZ	C
30	40	132M/L	95.5	0.0565	76.0	1,00	3000	94.5	0.91	53.5	4.50	8.70	122.8	EUCFW110058T4OFASWZ	C
37	50	160M	118	0.1616	132	1,00	3000	94.8	0.91	67.9	3.60	6.50	114.6	EUCFW110070T4OFASWZ	D
45	60	160L	143	0.2149	159	1,00	3000	95.0	0.90	82.0	3.30	5.80	115.6	EUCFW110088T4OFASWZ	D
55	75	180M	175	0.2252	170	1,00	3000	95.3	0.93	98.0	2.25	3.67	129.0	EUCFW110105T4OSWZ	E
75	100	200L	239	0.4120	263	1,00	3000	95.6	0.96	129	2.10	3.50	133.7	EUCFW110142T4OSWZ	E
90	125	225S/M	287	0.6999	381	1,00	3000	95.8	0.95	163	1.18	2.10	130.6	EUCFW110180T4OSWZ	E
110	150	225S/M	350	0.7595	393	1,00	3000	96.0	0.96	189	0.82	1.47	129.5	EUCFW110211T4OSWZ	E
132	175	225S/M	420	0.8786	419	1,00	3000	96.2	0.96	230	0.90	1.60	132.7	EUCFW110242T4OSWZ	F
160	220	250S/M	510	1.29	505	1,00	3000	96.3	0.84	283	0.90	1.43	134.5	EUCFW110312T4OSWZ	F
185	250	280S/M	589	1.45	665	1,00	3000	96.5	0.96	320	0.61	1.05	120.0	EUCFW110370T4OSWZ	F
200	270	280S/M	637	2.25	717	1,00	3000	96.5	0.96	355	0.66	1.16	135.0	EUCFW110370T4OSWZ	F
220	300	280S/M	701	2.42	740	1,00	3000	96.5	0.94	398	0.44	0.77	120.0	EUCFW110477T4OSWZ	F
260	350	280S/M	828	2.99	807	1,00	3000	96.7	0.95	440	0.48	0.85	130.0	EUCFW110477T4OSWZ	F
280	380	315S/M*	892	4.58	1031	1,00	3000	96.7	0.89	516	0.40	0.70	111.0	EUCFW110515T4OSWZ	G
300	400	315S/M	955	5.12	1085	1,00	3000	97.0	0.93	535	0.40	0.70	117.0	EUCFW110515T4OSWZ	G
315	430	315S/M*	1003	5.39	1112	1,00	3000	97.0	0.94	545	0.44	0.75	122.0	EUCFW110601T4OSWZ	G
330	450	355M/L	1051	9.05	1435	1,00	3000	96.5	0.92	607	0.40	0.63	129.9	EUCFW110720T4SZ	G
355	480	355M/L	1131	10.2	1532	1,00	3000	96.5	0.87	700	0.31	0.48	120.1	EUCFW110720T4SZ	G
370	500	355M/L	1178	10.7	1569	1,00	3000	96.5	0.90	696	0.32	0.51	125.6	EUCFW110720T4SZ	G

Output		Frame	Full load torque (Nm)	Inertia J (kgm²)	Weight (kg)	Service Factor	400 V							Frequency Inverter	
							Rated speed (rpm)	% of full load		Full load current In (A)	Parameters*				
								Efficiency	Power factor						
kW	HP										Ld	Lq	Ke	Code	Size
1500 RPM															
11	15	132S	70.1	0.0401	61.0	1,00	1500	93.3	0.91	19.4	24.2	46.50	244.5	EUCFW110024T4OFAZ	B
15	20	132M	95.5	0.0467	98.0	1,00	1500	93.9	0.91	27.0	17.3	33.2	241.0	EUCFW110031T4OFAZ	B
18,5	25	132M/L	118	0.0631	84.0	1,00	1500	94.2	0.89	33.8	13.8	26.4	235.6	EUCFW110038T4OFAZ	C
22	30	160L	140	0.1921	149	1,00	1500	94.5	0.88	41.0	12.8	22.7	227.9	EUCFW110045T4OFAZ	C
30	40	180L	191	0.2527	185	1,00	1500	94.9	0.97	50.8	9.10	15.3	269.7	EUCFW110058T4OFAZ	C
37	50	180L	236	0.2726	193	1,00	1500	95.2	0.93	66.4	7.10	11.7	256.6	EUCFW110070T4OFAZ	D
45	60	200M	287	0.3462	232	1,00	1500	95.4	0.88	82.0	7.30	11.7	239.8	EUCFW110088T4OFAZ	D
55	75	200L	350	0.3985	256	1,00	1500	95.7	0.89	106	5.80	9.10	233.9	EUCFW110105T4SZ	E
75	100	225S/M	478	0.8488	412	1,00	1500	96.0	0.95	130	3.60	6.50	265.9	EUCFW110142T4SZ	E
90	125	250S/M	573	1.37	520	1,00	1500	96.1	0.92	163	3.30	5.20	256.5	EUCFW110180T4SZ	E
110	150	280S/M	701	2.12	665	1,00	1500	96.3	0.94	189	2.40	4.10	255.7	EUCFW110211T4SZ	E
132	175	280S/M	841	2.58	753	1,00	1500	96.4	0.93	237	2.05	3.60	252.9	EUCFW110312T4SZ	F
160	220	280S/M	1019	2.91	798	1,00	1500	96.6	0.95	285	1.70	2.90	259.0	EUCFW110312T4SZ	F
185	250	280S/M	1178	3.08	819	1,00	1500	96.7	0.95	322	1.50	2.70	264.0	EUCFW110370T4SZ	F
200	270	280S/M	1274	3.41	863	1,00	1500	96.7	0.94	353	1.25	2.20	249.1	EUCFW110370T4SZ	F
220	300	315S/M*	1401	5.52	1125	1,00	1500	97.1	0.86	418	1.16	2.00	210.0	EUCFW110477T4SZ	F
260	350	315S/M*	1656	6.33	1208	1,00	1500	97.2	0.84	510	1.00	1.73	208.0	EUCFW110515T4SZ	G
280	380	315S/M	1784	6.86	1262	1,00	1500	96.9	0.86	530	0.95	1.59	230.1	EUCFW110601T4SZ	G
300	400	315L	1911	10.2	1398	1,00	1500	97.4	0.91	555	0.97	1.65	247.7	EUCFW110601T4SZ	G
315	430	315L	2007	11.1	1472	1,00	1500	97.4	0.92	577	0.88	1.51	248.0	EUCFW110720T4SZ	G
330	450	355M/L	2102	11.4	1623	1,00	1500	97.4	0.87	633	1.12	1.72	234.4	EUCFW110720T4SZ	G
355	480	355M/L	2261	12.6	1715	1,00	1500	97.4	0.86	690	0.92	1.41	223.0	EUCFW110720T4SZ	G
1000 RPM															
7,5	10	132S	71.7	0.0434	63.0	1,00	1000	91.3	0.90	14.0	47.4	90.6	350.0	EUCFW110017T4OFAZ	B
9,2	12,5	132M	87.9	0.0532	73.0	1,00	1000	91.8	0.93	16.0	40.7	79.2	360.0	EUCFW110017T4OFAZ	B
11	15	132M/L	105	0.0565	76.0	1,00	1000	92.3	0.94	19.0	37.6	73.8	270.0	EUCFW110024T4OFAZ	B
15	20	160L	143	0.2080	156	1,00	1000	92.9	0.85	30.5	23.8	42.5	317.9	EUCFW110031T4OFAZ	B
18,5	25	180M	177	0.2252	169	1,00	1000	93.4	0.90	33.7	17.7	29.4	351.9	EUCFW110038T4OFAZ	C
22	30	180L	210	0.2540	185	1,00	1000	93.7	0.85	43.0	14.0	22.8	362.5	EUCFW110045T4OFAZ	C
30	40	200M	287	0.3331	227	1,00	1000	94.5	0.90	59.3	14.6	22.9	337.2	EUCFW110058T4OFAZ	C
37	50	200L	354	0.3985	256	1,00	1000	94.5	0.83	73.0	11.9	18.7	330.7	EUCFW110070T4OFAZ	D
45	60	225S/M	430	0.7893	400	1,00	1000	94.8	0.92	85.8	7.30	12.9	342.1	EUCFW110088T4OFAZ	D
55	75	225S/M	526	0.9084	425	1,00	1000	95.1	0.93	97.5	7.30	13.0	385.1	EUCFW110105T4SZ	E
75	100	280S/M	717	1.53	665	1,00	1000	95.4	0.93	133	4.90	8.60	367.6	EUCFW110142T4SZ	E
90	125	280S/M	860	2.50	741	1,00	1000	95.6	0.92	163	4.11	7.15	361.3	EUCFW110180T4SZ	E
110	150	280S/M	1051	2.91	797	1,00	1000	95.8	0.93	190	3.75	6.59	388.9	EUCFW110211T4SZ	E
132	175	280S/M	1261	3.32	853	1,00	1000	96.0	0.92	235	3.10	5.30	373.6	EUCFW110242T4SZ	F
160	220	315S/M	1529	5.92	1168	1,00	1000	96.6	0.90	290	2.62	4.65	334.0	EUCFW110312T4SZ	F
185	250	315S/M	1768	6.59	1233	1,00	1000	96.8	0.90	330	2.32	4.15	348.0	EUCFW110370T4SZ	F
200	270	315S/M	1911	6.86	1260	1,00	1000	96.3	0.86	368	2.22	3.73	355.3	EUCFW110477T4SZ	F
220	300	315L	2102	10.8	1442	1,00	1000	96.5	0.87	432	1.72	2.89	341.1	EUCFW110601T4SZ	G
250	340	355M/L	2389	11.9	1660	1,00	1000	96.5	0.82	513	1.91	2.91	314.3	EUCFW110601T4SZ	G
260	350	355M/L	2484	12.6	1715	1,00	1000	96.5	0.85	515	2.03	3.10	333.2	EUCFW110720T4SZ	G
280	380	355M/L	2675	13.8	1804	1,00	1000	96.6	0.84	560	4.77	2.70	325.4	EUCFW110720T4SZ	G
300	400	355M/L	2866	15.0	1897	1,00	1000	96.6	0.81	622	1.45	2.22	307.7	EUCFW110720T4SZ	G

* *Parameters used to set up the motor with the drive:*
Ld - Direct axis inductance
Lq - Quadrature axis inductance
Ke - Generated voltage at 1000 rpm

WMagnet Ultra Premium IE5

Output		Frame	Full load torque (Nm)	Inertia J (kgm²)	Weight (kg)	Service Factor	400 V							Frequency Inverter	
							Rated speed (rpm)	% of full load		Full load current In (A)	Parameters*				
								Efficiency	Power factor						
kW	HP										Ld	Lq	Ke	Code	Size
3000 RPM															
7,5	10	132S	23.9	0.0270	52.0	1,00	3000	93.2	0.97	12.5	12.0	23.6	138	EUCFW110017T4OFASWZ	B
9,2	12.5	132M	29.3	0.0270	52.0	1,00	3000	93.7	0.97	15.5	11.4	22.3	134	EUCFW110017T4OFASWZ	B
11	15	160M	35.0	0.0855	99.0	1,00	3000	94.0	0.97	18.7	10.3	18.1	127	EUCFW110024T4OFASWZ	B
15	20	160M	47.8	0.1159	112	1,00	3000	94.6	0.94	26.5	7.30	13.3	115	EUCFW110031T4OFASWZ	B
18,5	25	160L	58.9	0.1312	119	1,00	3000	94.9	0.95	32.3	6.80	12.3	121	EUCFW110038T4OFASWZ	C
22	30	180M	70.1	0.1482	141	1,00	3000	95.1	0.97	37.0	3.90	6.40	137	EUCFW110045T4OFASWZ	C
30	40	200M	95.5	0.2153	188	1,00	3000	95.6	0.97	51.0	4.40	7.10	138	EUCFW110058T4OFASWZ	C
37	50	200L	118	0.2415	197	1,00	3000	95.8	0.97	63.3	3.60	5.90	128	EUCFW110070T4OFASWZ	D
45	60	225S/M	143	0.4915	336	1,00	3000	96.0	0.97	76.0	2.00	3.60	137	EUCFW110088T4OFASWZ	D
55	75	250S/M	175	0.9584	446	1,00	3000	96.2	0.98	91.5	2.10	3.40	139	EUCFW110105T4OSWZ	E
75	100	250S/M	239	1.59	619	1,00	3000	96.4	0.93	134	1.85	2.85	128	EUCFW110142T4OSWZ	E
90	125	250S/M	287	1.67	631	1,00	3000	96.6	0.94	160	1.62	2.55	136	EUCFW110180T4OSWZ	E
110	150	315S/M	350	2.44	815	1,00	3000	97.1	0.92	178	0.90	1.50	124	EUCFW110211T4OSWZ	E
132	175	315S/M	420	2.71	842	1,00	3000	97.1	0.91	216	0.90	1.40	137	EUCFW110242T4OSWZ	F
160	220	315S/M	510	3.11	882	1,00	3000	97.2	0.90	264	0.80	1.30	116	EUCFW110312T4OSWZ	F
200	250	315L	589	4.27	874	1,00	3000	97.1	0.96	324	0,71	1,17	136	EUCFW110477T4OSWZ	F
220	270	315L	637	4.27	950	1,00	3000	97.2	0.92	366	0,69	1,16	136	EUCFW110477T4OSWZ	F
250	300	315L	701	4.64	979	1,00	3000	97.2	0.96	391	0,52	0,87	135	EUCFW110515T4OSWZ	G
260	350	315L	828	5.57	1053	1,00	3000	97.2	0.91	484	0,46	0,77	122	EUCFW110511T4OSWZ	G
280	380	315H/G	892	6,91	1590	1,00	3000	97,2	0,96	504	0,43	0,72	137	EUCFW110601T4OSWZ	G
300	400	355M/L	955	7,85	1345	1,00	3000	97,2	0,95	536	0,50	0,80	135	EUCFW110601T4OSWZ	G
315	430	315H/G	1003	7,09	1593	1,00	3000	97,2	0,96	567	0,43	0,73	136	EUCFW110601T4OSWZ	G
330	450	355M/L	1051	9,04	1435	1,00	3000	97,2	0,93	600	0,39	0,62	128	EUCFW110720T4OSWZ	G
355	480	315H/G	1131	8,86	1741	1,00	3000	97,2	0,97	639	0,35	0,58	136	EUCFW110720T4OSWZ	G
380	510	315H/G	1210	9,21	1759	1,00	3000	97,2	0,98	680	0,35	0,59	143	EUCFW110720T4OSWZ	G
400	550	355J/H	1274	10,7	2212	1,00	3000	97,2	0,95	744	0,31	0,49	130	Contacte a WEG	
450	610	355J/H	1433	12,0	2335	1,00	3000	97,2	0,97	813	0,36	0,59	145	Contacte a WEG	
500	680	355J/H	1592	14,3	2517	1,00	3000	97,2	0,95	917	0,24	0,38	130	Contacte a WEG	
1500 RPM															
5,5	7.5	132S	35.0	0.0369	59.0	1,00	1500	93.4	0.95	9.40	43.1	84.1	262	EUCFW110010T4OFAZ	A
7,5	10	132M	47.8	0.0500	71.0	1,00	1500	94.0	0.91	13.5	31.4	59.7	239	EUCFW110013T4OFAZ	A
9,2	12.5	132M	58.6	0.0565	76.0	1,00	1500	94.3	0.93	15.5	28.6	55.2	253	EUCFW110017T4OFAZ	B
11	15	160M	70.1	0.1699	136	1,00	1500	94.6	0.88	20.8	18.7	33.3	217	EUCFW110024T4OFAZ	B
15	20	160L	95.5	0.2080	157	1,00	1500	95.1	0.90	28.3	12.9	23.8	235	EUCFW110031T4OFAZ	B
18,5	25	180M	118	0.2329	174	1,00	1500	95.3	0.96	33.0	13.9	22.9	269	EUCFW110038T4OFAZ	C
22	30	180L	140	0.2627	190	1,00	1500	95.6	0.96	37.8	11.0	18.1	264	EUCFW110045T4OFAZ	C
30	40	200L	191	0.3593	244	1,00	1500	95.9	0.85	47.8	10.2	16.7	245	EUCFW110058T4OFAZ	C
37	50	225S/M	236	0.6702	374	1,00	1500	96.1	0.95	64.0	4.60	8.20	257	EUCFW110070T4OFAZ	D
45	60	225S/M	287	0.8488	412	1,00	1500	96.3	0.96	76.6	4.20	7.60	249	EUCFW110088T4OFAZ	D
55	75	250S/M	350	1.08	468	1,00	1500	96.5	0.97	93.7	4.50	7.35	256	EUCFW110105T4SZ	E
75	100	280S/M	478	2.09	686	1,00	1500	96.8	0.97	123	2.80	4.90	273	EUCFW110142T4SZ	E
90	125	280S/M	573	2.33	719	1,00	1500	96.9	0.93	160	1.94	3.47	242	EUCFW110180T4SZ	E
110	150	315S/M	701	4.05	977	1,00	1500	97.2	0.91	191	2.40	3.90	255	EUCFW110211T4SZ	E
132	175	315S/M	841	4.31	1004	1,00	1500	97.3	0.92	224	2.30	3.80	262	EUCFW110242T4SZ	F
150	200	315S/M	955	5.20	1195	1,00	1500	97.2	0.92	274	1.98	3.35	240	EUCFW110312T4OSWZ	F
185	250	315S/M	1178	6.13	1314	1,00	1500	97.3	0.92	340	1.65	2.80	240	EUCFW110477T4OSWZ	F
200	270	315L	1274	7.05	1508	1,00	1500	97.4	0.94	359	1.58	2.70	262	EUCFW110477T4OSWZ	F
220	300	315L	1401	7.43	1553	1,00	1500	97.4	0.89	421	1.21	2.02	235	EUCFW110477T4OSWZ	F
250	340	315H/G	1592	6,20	1516	1,00	1500	97,4	0,96	463	0,63	1,22	251	EUCFW110515T4SZ	G
260	350	315L	1656	8,91	1740	1,00	1500	97,4	0,92	480	1.12	1.89	248	EUCFW110511T4OSWZ	G
280	380	315H/G	1784	7,09	1589	1,00	1500	97,4	0,94	513	0,551	1,05	250	EUCFW110601T4SZ	G
300	400	315L	1911	10,7	1978	1,00	1500	97,4	0,90	564	0.850	1.45	239	EUCFW110601T4OSWZ	G
315	430	315H/G	2007	7,97	1660	1,00	1500	97,4	0,97	564	0,563	1,12	269	EUCFW110601T4SZ	G
330	450	355M/L	2102	11,4	2178	1,00	1500	97,4	0,85	654	1.12	1.72	235	EUCFW110720T4OSWZ	G
355	480	315H/G	2261	9,39	1778	1,00	1500	97,4	0,96	655	0,422	0,835	253	EUCFW110720T4SZ	G
400	550	355J/H	2548	10,7	2210	1,00	1500	97,4	0,91	759	0,443	0,742	244	Contacte a WEG	
450	610	355J/H	2866	14,8	2543	1,00	1500	97,4	0,91	858	0,316	0,534	239	Contacte a WEG	
480	650	355J/H	3058	15,2	2564	1,00	1500	97,4	0,93	885	0,322	0,547	249	Contacte a WEG	
500	680	355J/H	3185	15,9	2633	1,00	1500	97,4	0,95	908	0,341	0,578	258	Contacte a WEG	
560	750	400J/H	3567	20,1	3300	1,00	1500	97,4	0,93	1060	0,360	0,634	253	Contacte a WEG	

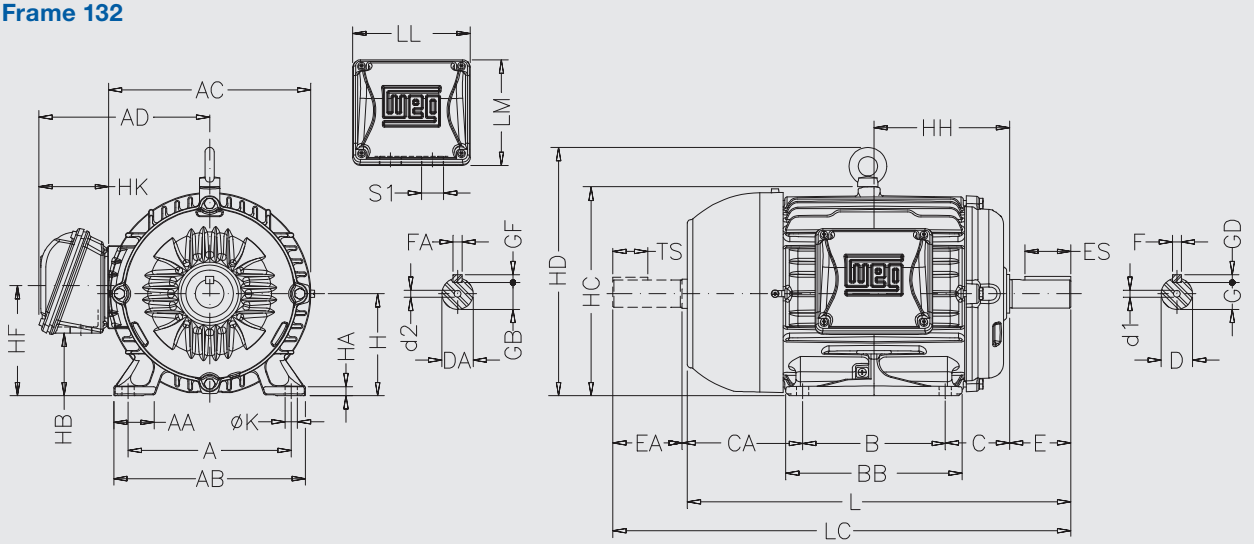
* *Parameters used to set up the motor with the drive:*
Ld - Direct axis inductance
Lq -Quadrature axis inductance
Ke - Generated voltage at 1000 rpm

Output		Frame	Full load torque (Nm)	Inertia J (kgm²)	Weight (kg)	Service Factor	400 V							Frequency Inverter	
							Rated speed (rpm)	% of full load		Full load current In (A)	Parameters*				
								Efficiency	Power factor						
kW	HP										Ld	Lq	Ke	Code	Size
1000 RPM															
3	4	132S	28.7	0.0270	51.6	1,00	1000	90.7	0.97	5.20	103.0	202.0	395	EUCFW110007T4OFAZ	A
4	5.5	132M	38.2	0.0336	56.3	1,00	1000	91.4	0.92	7.00	89.5	171.2	365	EUCFW110010T4OFAZ	A
5,5	7.5	132M/L	52.6	0.0467	68.5	1,00	1000	92.3	0.93	9.70	61.6	119.0	360	EUCFW110010T4OFAZ	A
7,5	10	160M	71.7	0.1547	129	1,00	1000	92.7	0.89	14.5	40.0	71.3	317	EUCFW110017T4OFAZ	B
9,2	12.5	160L	87.9	0.1776	139	1,00	1000	92.9	0.91	16.8	40.6	72.5	349	EUCFW110017T4OFAZ	B
11	15	160L	105	0.2080	157	1,00	1000	93.7	0.91	22.0	36.2	64.8	356	EUCFW110024T4OFAZ	B
15	20	180L	143	0.2252	171	1,00	1000	94.2	0.96	25.6	26.0	42.9	396	EUCFW110031T4OFAZ	B
18,5	25	200M	177	0.3041	219	1,00	1000	94.6	0.85	31.9	19.8	31.6	326	EUCFW110038T4OFAZ	C
22	30	200L	210	0.3311	228	1,00	1000	94.9	0.89	40.5	15.1	31.3	351	EUCFW110045T4OFAZ	C
30	40	225S/M	287	0.7595	393	1,00	1000	95.3	0.94	52.1	10.9	19.5	373	EUCFW110058T4OFAZ	C
37	50	250S/M	354	1.08	468	1,00	1000	95.6	0.93	65.0	11.3	17.9	385	EUCFW110070T4OFAZ	D
45	60	280S/M	430	1.92	664	1,00	1000	95.8	0.96	73.0	6.40	11.3	414	EUCFW110088T4OFAZ	D
55	75	280S/M	526	2.17	697	1,00	1000	96.0	0.97	90.0	6.30	11.2	414	EUCFW110105T4SZ	E
75	100	315S/M	717	3.64	937	1,00	1000	96.5	0.90	132	5.60	9.10	370	EUCFW110142T4SZ	E
90	125	315S/M	860	4.05	977	1,00	1000	96.6	0.90	157	5.10	8.40	375	EUCFW110180T4SZ	E
110	150	315S/M	1051	4.45	1018	1,00	1000	96.8	0.90	180	4.50	7.40	370	EUCFW110211T4SZ	E
185	250	315L	1768	8.91	1300	1,00	1000	97.0	0.90	345	1,40	2,63	376	EUCFW110477T4SZ	F
200	270	355M/L	1911	10.2	1528	1,00	1000	97.0	0.86	392	1,44	2,77	399	EUCFW110515T4SZ	G
220	300	355M/L	2102	10.7	1568	1,00	1000	97.0	0.82	450	2.15	3.28	315	EUCFW110511T4OSWZ	G
250	350	355M/L	2484	12.6	1715	1,00	1000	97.0	0.85	515	0,973	1,87	376	EUCFW110515T4SZ	G
260	350	355M/L	2484	12,6	1715	1,00	1000	97,0	0,85	515	2.03	3,10	333	EUCFW110601T4OSWZ	G
280	380	315H/G	2675	9,74	1808	1,00	1000	97,0	0,97	502	0,972	1,89	394	EUCFW110601T4SZ	G
290	390	315H/G	2771	10,3	1853	1,00	1000	97,0	0,94	544	0,781	1,48	363	EUCFW110720T4SZ	G
300	400	355M/L	2866	14,9	1896	1,00	1000	97,0	0,81	622	1.45	2.22	307	EUCFW110720T4OSWZ	G
315	430	315H/G	3010	10,6	1882	1,00	1000	97,0	0,95	577	0,809	1,52	376	EUCFW110720T4SZ	G
355	480	355J/H	3392	12,9	2389	1,00	1000	97,0	0,92	665	0,972	1,61	371	EUCFW110720T4SZ	G
380	510	355J/H	3631	14,3	2508	1,00	1000	97,0	0,95	693	0,834	1,40	372	Contacte a WEG	
400	550	355J/H	3822	14,8	2546	1,00	1000	97,0	0,86	800	0,849	1,43	389	Contacte a WEG	
450	610	400J/H	4300	20,1	3310	1,00	1000	97,0	0,88	887	0,611	1,01	337	Contacte a WEG	
500	680	400J/H	4777	21,6	3425	1,00	1000	97,0	0,89	977	0,836	1,38	359	Contacte a WEG	
550	740	400J/H	5255	25,2	3790	1,00	1000	97,0	0,83	1160	0,695	1,15	354	Contacte a WEG	
560	750	450L/K	5351	35,4	4848	1,00	1000	97,0	0,90	1070	0,679	1,12	363	Contacte a WEG	
630	850	450J/H	6020	41,4	5293	1,00	1000	97,0	0,88	1220	0,492	0,79	335	Contacte a WEG	

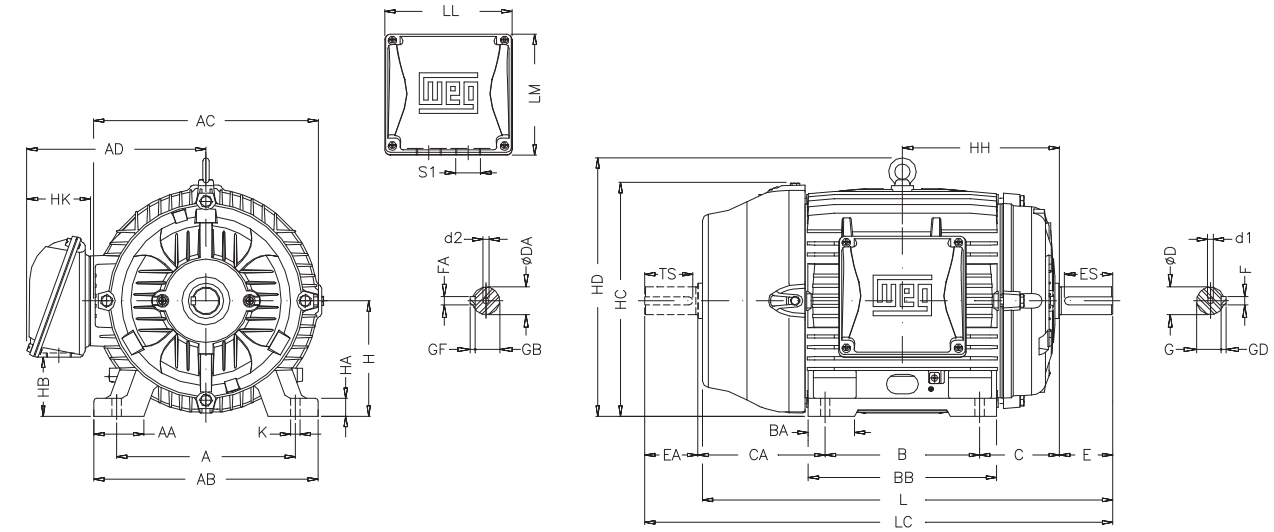
* *Parameters used to set up the motor with the drive:*
Ld - Direct axis inductance
Lq -Quadrature axis inductance
Ke - Generated voltage at 1000 rpm

Motor Mechanical Data

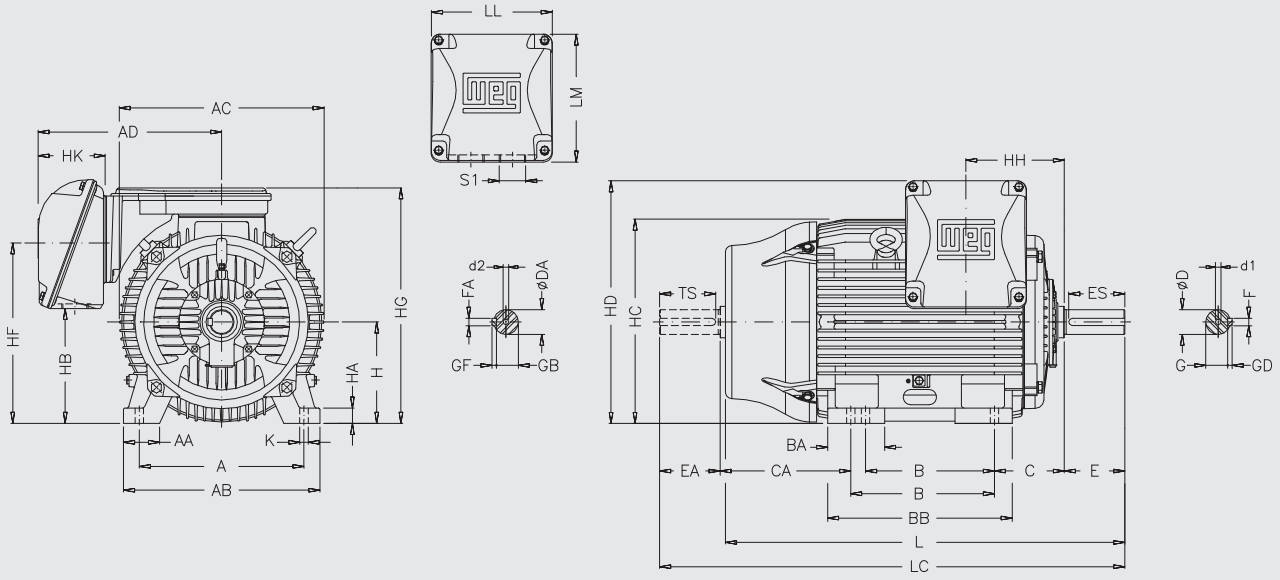
Frame 132



Frames 160M to 200L



Frames 225S/M to 355 M/L

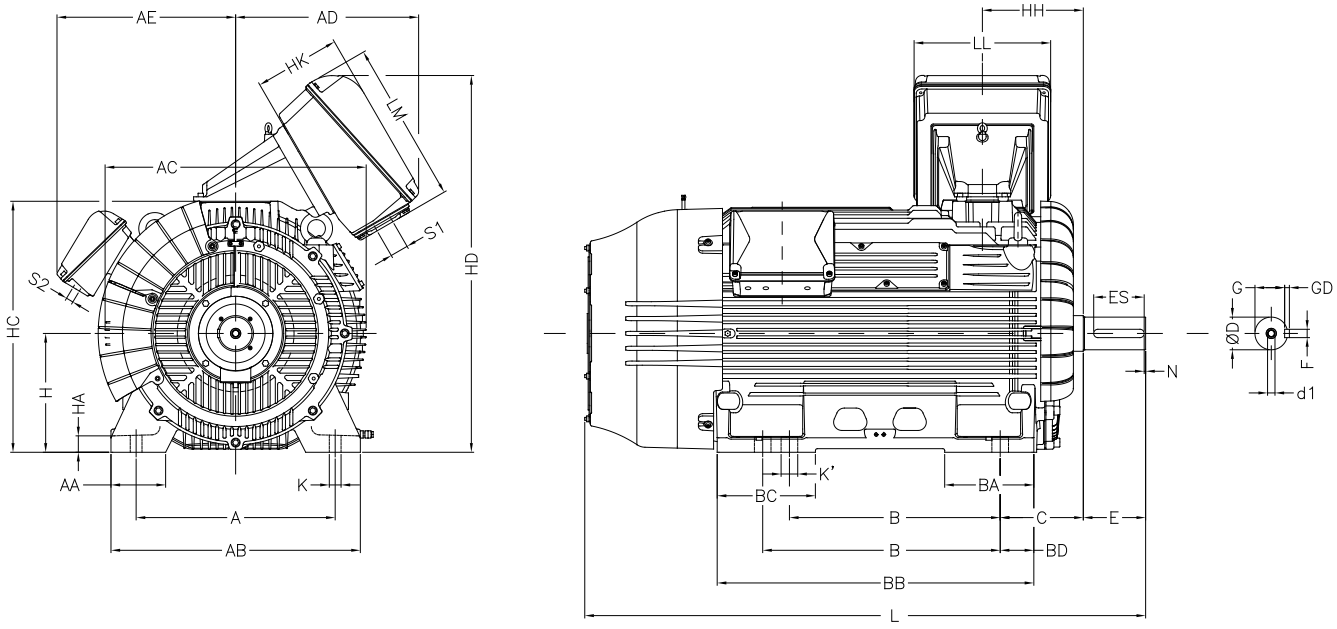


Frame	A	AA	AB	AC	AD	B	BA	BB	BD	C	CA	DE Shaft end						NDE Shaft end					
												D	E	ES	F	G	GD	DA	EA	TS	FA	GB	GF
132S	216	45,4	248	274	220	140	-	187	-	89	150	38k6	80	63	10	33	8	28j6	60	45	8	24	7
132M						178		225															
132M/L						178/203		250															
160M	254	44	292	329	266	210	63	254		108	174	42k6	110	80	12	37		42k6	110	80	12	37	8
160L						254		298															
180M	279	78	350	360	281	241	70	294		121	200	48k6			14	42,5	9	48k6			14	42,5	9
180L						279		332															
200M	318	82	385	402	319	267	82	332		133	222	55m6			16	49	10						
200L						305		370															
225S/M	356	80	436	455	410	286/311	124	412	41	149	319/294	55m6*	110*	100*	16*	49*	10*	55m6*	110*	100*	16*	49*	10*
225S/M												60m6	140	125	18	53	11	60m6	140	125	18	53	11
250S/M	406	100	506	486		311/349	146	467	59	168	354/316	60m6*	140	125	18	53*	11	60m6	140	125	18	53	
250S/M												65m6				58							
280S/M	457		557	599	445	368/419	151	517	49	190	385/334	65m6*	140	125	18*	58*	11*	60m6*				53*	
280S/M												75m6			20	67,5	12	65m6				58	
315S/M	508	120	630	657	525	406/457	184	626	70	216	494/443	65m6*	170*	160*	18*	58*	11*	60m6*				53*	
315S/M												80m6	140	125	22	71	14	65m6				58	
355 M/L	610	140	750	736	609	560/630	230	775	65	254	483/413	65k6			18	58	11	60m6		175		53	

Frame	H	HA	HB	HC	HD	HF	HG	HH	HK	LL	LM	K	L	LC	S1	D1	D2	Bearing	
																		DE	NDE
132S	132	17	75	272	319	132	-	159	80	140	133	12	452	519	RWG(Rp) 1”	-		6308 C3	6207 C3
132M								178					490	557				6308 C3	6207 C3
132M/L								190,5					515	582				6308 C3	6207 C3
160M	160		79	325	380	168		213	101	198,5	190	14,5	598	712	RWG(Rp) 1 1/2”			6309 C3	6209 C3
160L								235					642	756				6309 C3	6209 C3
180M	180	28	92	360	413	180		241,5					664	782				6311 C3	6211 C3
180L								260,5					702	820				6311 C3	6211 C3
200M	200	30	119	400	464	218		266,5	119,5	230	220	18,5	729	842	RWG(Rp) 2”			6312 C3	6212 C3
200L								285,5					767	880				6312 C3	6212 C3
225S/M	225	34	254	457,5	541	421	534	212	153	269	285		856*	974*	2xRWG(Rp) 2”	DM20		6314 C3	6314 C3
225S/M													886	1034				6314 C3	6314 C3
250S/M	250	42	297	500	583	463	577	214				24	965	1113				6314 C3	6314 C3
250S/M																		6314 C3	6314 C3
280S/M	280		386	600	700	572	686	266	151	314	312		1071	1223				6314 C3	6314 C3
280S/M																		6316 C3	6316 C3
315S/M	315	48		644	768	592	751	264	176	379	382	28	1244*	1392*	2xRWG(Rp) 3”			6314 C3	6314 C3
315S/M													1274	1426				6319 C3	6316 C3
355 M/L	355	50	461	723	898	700	885	339	220	404	436	28	1482	1677				6314 C3	6314 C3

Notes:
(*) Dimension applicable to 3000 rpm motors.

Frames 315 H/G to 450 J/H



Frame	A	AA	AB	AC	AD	AE	B	BA	BB	BC	BD	C	Shaft end						
													D	E	ES	N	F	G	GD
315 H/G	508	135	628	706		542	710/800	283	980	283	80	216	65*	140*	125*		18	58	11
													90	170	140		25	81	14
355 J/H	610	150	750	790		569	800/900	298	1082	298	91	254	65*	140*	125*		18	58	11
													100	210	170		28	90	16
400 L/K	686	184	840	880	619[1]	602	710/800	310	1085	340	123	280	80*	170*	160*		22	71	14
													110	210	170		28	100	16
400 J/H							900/1000		1235	310			80*	170*	160*	5	22	71	14
													110	210	170		28	100	16
450 L/K	750	204	940	984		618	800/900	351	1217	386	154	315	85*	170*	140*		22	76	14
													130	250	200		32	119	18
450 J/H							1000/1120		1367	351			85*	170*	140*		22	76	14
													130	250	200		32	119	18

Frame	H	HA	HC	HD	HH	HK	K	K'	L	LL	LM	d1	S1[1]	S2	Bearings	
															DE	NDE
315 H/G	315	50	660	1083	321	290	28	38	1649	460	544[1]	M20x2.5	2xM63x1.5	3xM20x1.5	6314 C3	6314 C3
									1679			M24x3			6320 C3	6316 C3
355 J/H	355		750	1173	349			48	1825			M20x2.5	2xM80x2		6314 C3	6314 C3
									1895			M24x3			6322 C3	6319 C3
400 L/K	400		845	1268	340		36	56	1850			M20x2.5			6218 C3	6218 C3
									1890			M24x3			6324 C3	6319 C3
400 J/H									2000			M20x2.5			6218 C3	6218 C3
									2040			M24x3			6324 C3	6319 C3
450 L/K	450	68	942	1365	350				2024			M20x2.5			6220 C3	6220 C3
									2104			M24x3			6328 C3	6322 C3
450 J/H									2174			M20x2.5			6220 C3	6220 C3
									2254			M24x3			6328 C3	6322 C3

(*) Dimension applicable to 3000 rpm motors.

Attributes and advantages of the CFW11 Frequency Inverter

The CFW11 is a variable-speed drive with state-of-the-art technology and dedicated software application to operate the WMagnet motors. It presents excellent static and dynamic performance, precise control of torque, speed, position and high overload capacity, enabling greater productivity, quality and electrical energy saving in the processes in which it is used.

The CFW11 frequency inverter features a special software application for sensorless drive and control of permanent magnet motors with a special control strategy named “Maximum Torque per Ampere”. This control combines the components of alignment torque with reluctance torque, resulting in an excellent high-efficiency drive system. Other functions and advantages of the CFW11 are described below:

Oriented Start-up
Main parameters grouped in a logical sequence to simplify and speed up the configuration of the system.

Multi-Speed
Up to eight preset speeds.

PID controller (Overlapped to the Speed Control)
Process variable control by means of the motor speed variation.

Electronic Potentiometer
It allows setting the speed reference via digital inputs.

“S” Ramp
Reduction of mechanical shocks during accelerations/decelerations.

Skip Speed Function
It prevents the motor from operating permanently at speed values in which the mechanical system goes into resonance, causing vibration or excessive noise.

Smart Motor Overload Protection
Based on curves that simulate the motor heating and cooling in cases of overload, according to IEC 60947-4-2 and UL 508C.
It allows setting the motor thermal class.

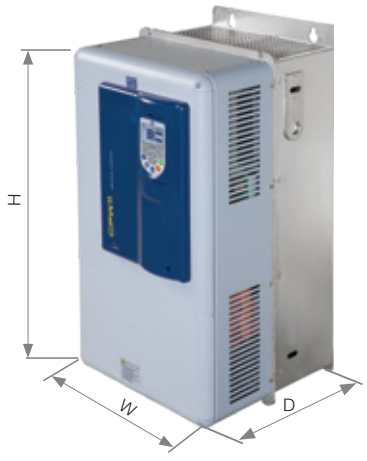
Smart Inverter Overload Protection
It protects the IGBTs and the rectifier diodes of the inverter in case of overload.

Ride-Through
It allows recovering the inverter, with no locking by undervoltage, when a drop in the supply line occurs.

Operating Interface (HMI)
The navigation is similar to the logic used in cell phones, with the option of sequential access to the parameters or by means of groups (Menu) using the function access keys on the display (soft-keys). It may be installed on panel doors or machine consoles, and it has IP56 degree of protection.

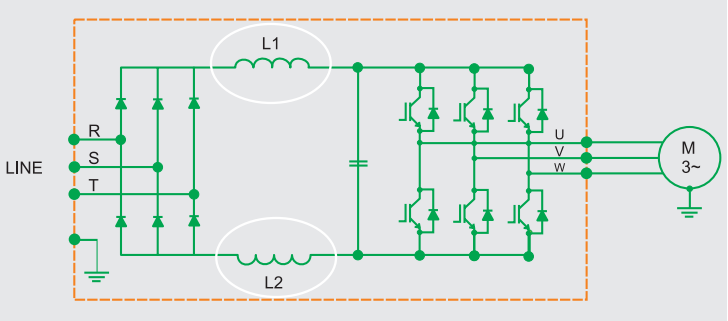
CFW11 Frequency Inverter Mechanical Data

Standard version			
Size	Dimensions mm (in)		
	Height (H)	Width (W)	Depth (D)
A	270	145	227
B	316	190	227
C	405	220	293
D	550	300	305
E	675	335,2	358,2
F	1234	430	360
G	1264	535	426
H	1414	686	420,8



Built-In DC Link Reactor

- Allows the VSD to be installed in any network (there is no minimum impedance restriction)
- Typical power factor (PF) for rated condition: 0.94 for models with three-phase supply 0.70 for models with single-phase 0.70 for models with single-phase supply/three-phase supply = 0.94
- Displacement power factor > 0.98
- Meets the 61000-3-12 standard, related to low order current harmonics in the network



Space Saving

Reduced size and side-by-side mounting.

SoftPLC Function

It is a resource that provides PLC features to the CFW11 without the addition of any accessories. It provides flexibility to the product, allowing the user to create his/her own applicative software (user's program).

The SoftPLC main features are:

- Ladder language programming using WLP software
- Access to all VSD parameters and I/Os
- Configurable PLC, mathematical and control blocks
- Applicative software download, upload and online monitoring via USB connection
- Storage of user application in the CFW11 flash memory module (see below)
- Memory capacity of 15 kB for user application storage

Safe Torque Off (STO)
Module of Safety Stop (Optional)

- According to EN954-1 / Protection category 3 (under certification).
- Additional board with two safety relays (SRB2) and cable for interconnection with the power circuit.

CFW11 Frequency Inverter Technical Data

Power supply		Tolerance: -15% to +10V%	
		Frequency: 50/60 Hz (48 Hz to 62 Hz)	
		Maximum of 60 connections per hour	
		Typical efficiency above or equal to 97%	
		Power factor (valid for rated condition)	≥ 0.94 for models with three-phase power supply and ≥ 0.70 for models with single-phase power supply
		Overvoltages according to category III (EM 61010/UL 508C)	
		Transient voltages according to category III	
Power supply	**Three-phase**	380...480 V AC / 3,6...720 A ND – 3.6...560 A HD	
		Referential values, valid for WEG three-phase, 4-pole induction motors and power supply of 220 V AC or 440 V AC. The sizing must be done according to the rated current of the motor used	
Overload duty		Normal = Normal Overload Duty (ND): 110% of the rated output current for one minute or 150% of the rated output current for three seconds every ten minutes. Heavy = Heavy Overload Duty: 150% of the rated output current for one minute or 200% of the rated output current for three seconds every ten minutes.	
Control		Method	Control types: vector with or without encoder for WMagnet, PWM SVM and regulators (current, flux and speed) in software
		Digital inputs: 6 - bidirectional, isolated, 24 V DC, programmable functions	
		Digital outputs: 3 x relay with reverser contact (240 V AC/1 A)	
		Analog Inputs: 1 (-10 to +10 V DC or 0/4 to 20 mA) 11 bits + signal ; 1 (0 to 10 V or 0/4 to 20 mA) 12 bits	
		Analog outputs: 2 isolated (0 to 10 V or 0/4 to 20 mA) 11 bits	
		Flash memory card: included in the standard product (slot 5)	
		Function expansion (optional)	Inputs and outputs: slot 1
			Communication networks: WEG (slot 3): CAN (CANopen; DeviceNet); Profibus-DP; RS232 and RS485 (Modbus) Anybus-DC (slot 4): DeviceNet; Profibus-DP; EtherNet/IP; RS232 and RS485 (Modbus)
			Incremental encoder input: slot 2
			PLC: slot 1, 2 and 3
		Power supply capacity 24 V DC (+/- 20 %), 500 mA	
Power	**Minimum**	Not necessary; without restrictions	
	Incorporated DC link inductor	2 inductors symmetrically connected with voltage drop equivalent to 6% for all three-phase models. Models with single-phase power supply, drop equivalent to 2%	
Environment	**Operating temperature**	-10...50 °C, for frames A, B, C and D (limited to 60°) -10...45 °C for frames E, F and G (except for model CFW110720..., 720 A, frame G: -10...40 °C) (limited to 55 °C for frames E, F and G and 50 °C for model CFW110720...) -10...40 °C for frames 1, 2 and 3 IP 54 (limited to 50 °C) For operation up to the temperature limit, the rated output current must be derated by 2% for each degree Celsius above the rated temperature	
	Degree of protection	IP20: Frames A, B, C, F, G without upper cover and without conduit kit and Frame E without NEMA 1; IP21 kit: Frames A, B and C with upper cover and without conduit kit; Nema 1/IP20: Frame D without IP21 kit and Frame E with NEMA 1 kit; Nema 1/IP21: Frames A, B, C with upper cover and conduit kit and frame D with IP21 kit; IP54: Frames 1, 2 and 3; IP00: special DC Hardware (Frames F and G)	
	Altitude	Altitude: 1,000 m. For applications above 1,000 m up to 4,000 m, the rated output current must be derated by 1 % for each 100 above 1,000 m	
Software		WEG Ladder Programmer - WLP (free download at www.weg.net) SuperDrive G2 with Trace function (free download at www.weg.net) Soft-PLC function (included in the standard product)	
Connection to computer (desktop or notebook)		USB port incorporated to the standard product (communication with WLP and SuperDrive software applications) Standard USB connector Rev. 2.0 (basic speed), B-type plug; Shielded interconnection cable	
Standards		Electromagnetic Compatibility (EMC): EN 61800 (part 3), EN 61000 (parts 4-2, 4-3, 4-4, 4-5, 4-6), CISPPR11, EN 55011	
		Electrical, mechanical and safety construction: EN 60204-1, EN61800-5-1, UL 508C, UL 840, EN 50178, EN 60146 (IEC 146), EN 61800-2, EN 60529, UL 50	
HMI - Human Machine Interface		It enables access to/change of all the parameters. LCD Option of external mounting	
Braking modes		With resistor	Available in the standard product for frames A, B, C and D Available as optional item for frames E, F and G
Braking resistor		External	Not supplied
		Internal	Not supplied

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