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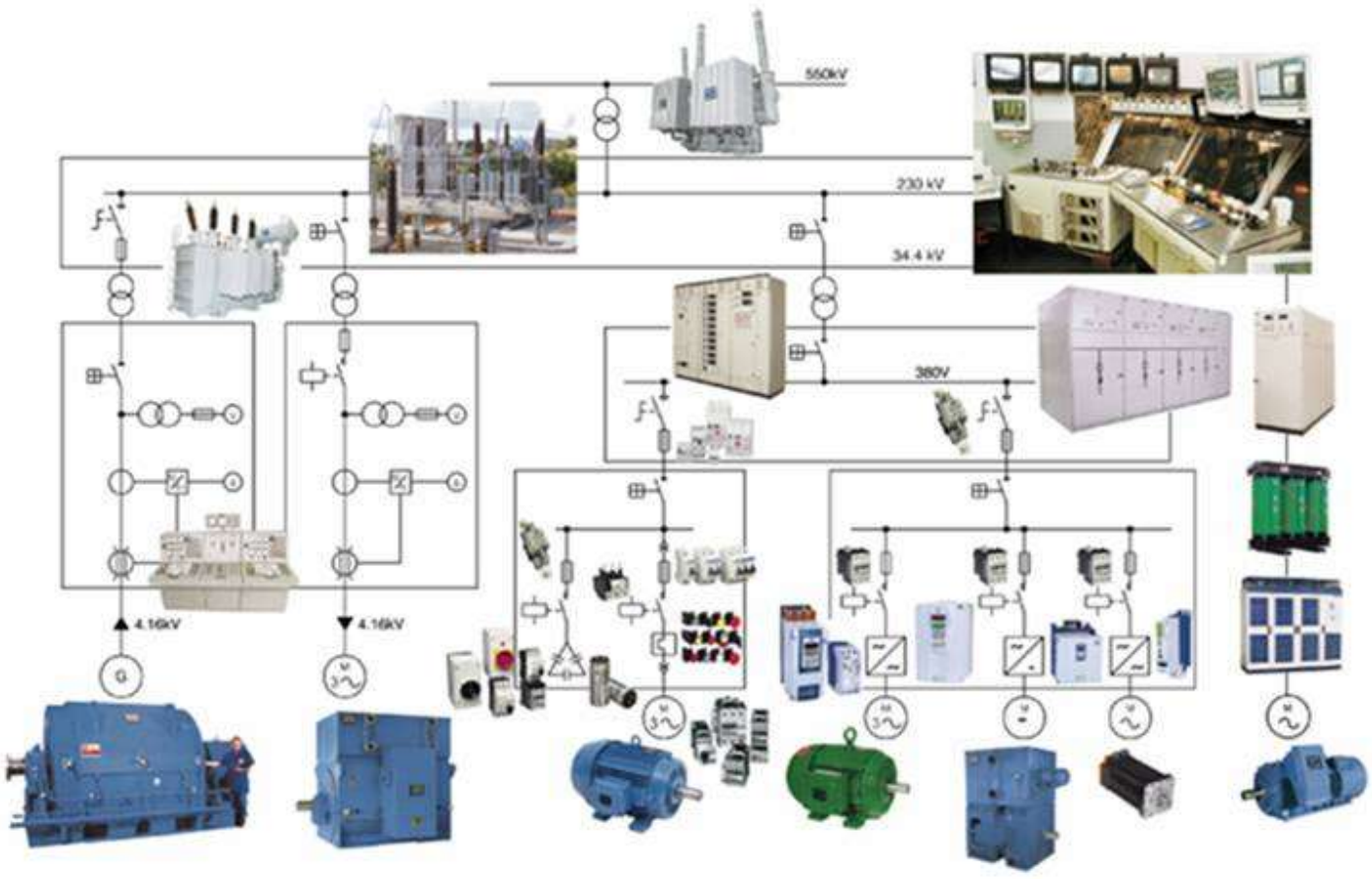
WEG Overview



Additional Motor Products

W22

Aluminum

W22 Mining

Brake

Exn / DIP

Exd Flameproof

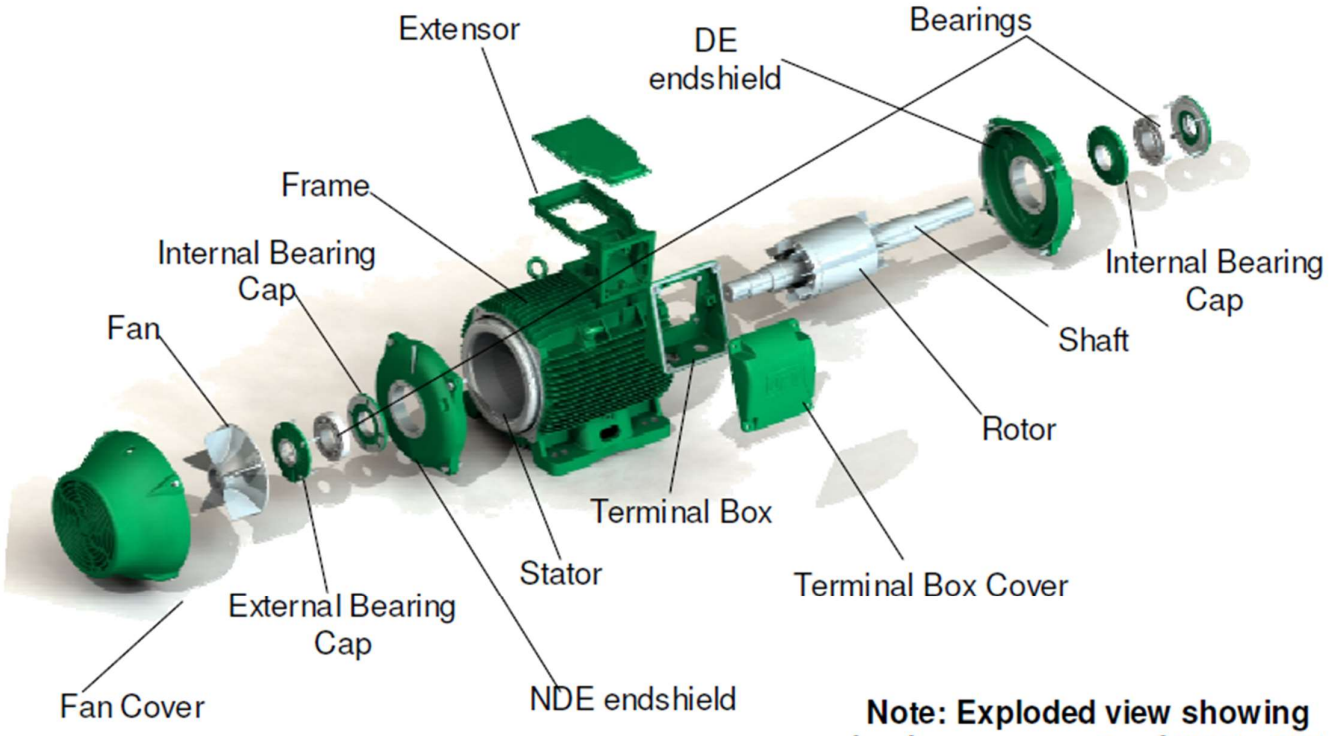
Nema 56 Single Phase

H Line

M Line

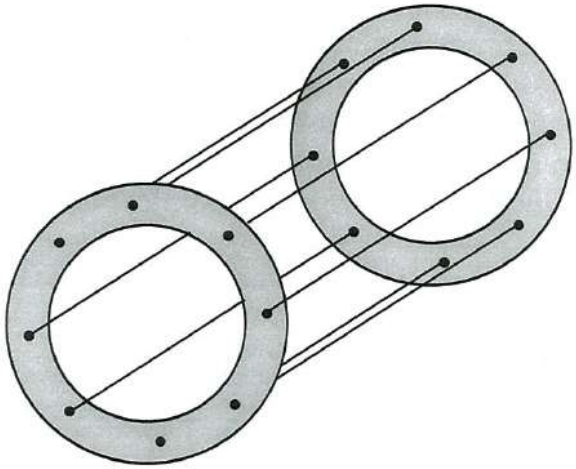
Generator

W22 Motor Exploded View

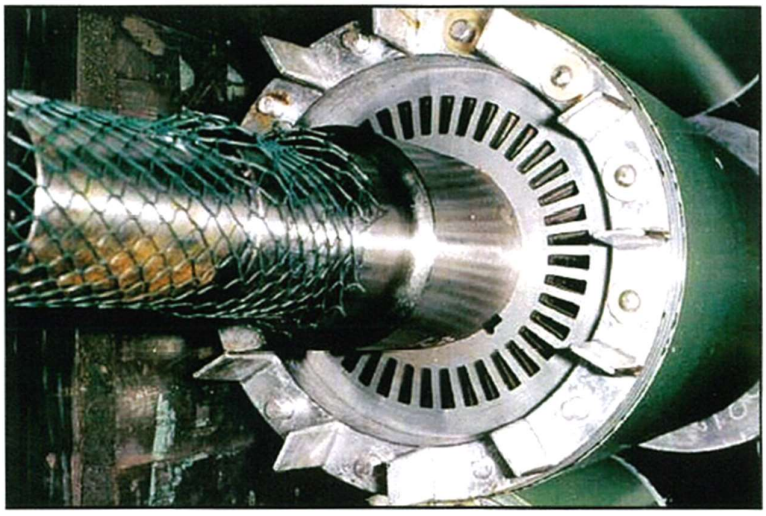


Note: Exploded view showing basic components of 225 to 355 frames.

Squirrel Cage Rotor Construction



Squirrel Cage Rotor Construction means that the rotor is built in a way that it looks like a hamster wheel



WEG W22 Motors have cast / injected aluminum construction

Specifications

WEG W22 Three Phase Electric Motor

T.E.F.C:	Totally Enclosed Fan Cooled
Insulation:	Class H
Voltage:	380-415 Volts 50 Hertz (NZ Standard)
MEPS Efficiency:	Standard to ASNZ 1359.5.2004 or E3
Degree of Protection:	IP66

The all-round design of the W22 range reduces carbon emissions from manufacturing to installation, inventory holdings and ongoing operation. Extra low noise levels will reduce compliance costs with OH&S requirements. High torque helps keep your plant up and running

THIS IS WHAT WE CALL IMPROVING TOTAL EFFICIENCY

The W22 line from WEG is the first complete range of E3 motors available to the Industry……..

Motor Protection

(As per IEC 60034-5)

International standard IEC 60034-5 precisely defines the degrees of protection for electric motors and is defined by the letters IP and is followed by two numbers.

First Number:	This indicates the degree of protection against contact with live/ moving parts and protection against solid bodies
Second Number:	This indicates the degree of protection against the harmful entry of water

DEGREE OF PROTECTION

WEG Three Phase **W22** Motors are all **IP66** which means:

First numeral 6:	Dust tight machine. The enclosure provides full protection against ingress of dust
Second numeral 6:	Machine protected against heavy seas. Water from heavy seas or water projected in powerful jets shall not enter the machine in harmful quantities

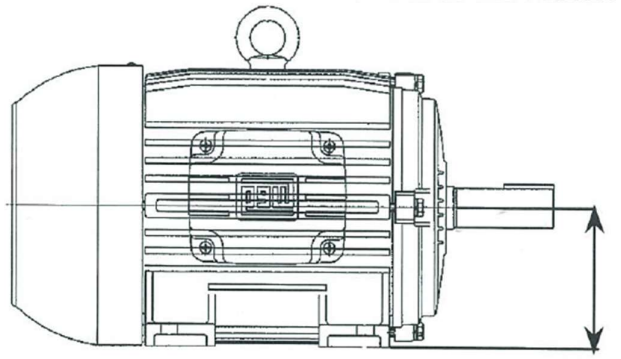
I.E.C Frame Numbers

I.E.C (International Electro / Technology Commission)

The WEG W22 motors are constructed to the I.E.C standards

This means that the WEG Electric Motor has the same physical mounting and shaft dimensions, and is a direct replacement for any other brand of I.E.C Frame Electric Motor

The frame number is the measurement in millimetres from the centre of the shaft to the feet of the motor



The I.E.C frame numbers are: 63, 71, 80, 90, 100, 112, 132, 160, 180, 200, 225, 280, 315, and 355

At the end of the frame size could be one or two letters, i.e. S, M, L, S/M OR M/L. The letters explain the distance between mounting holes in the feet.

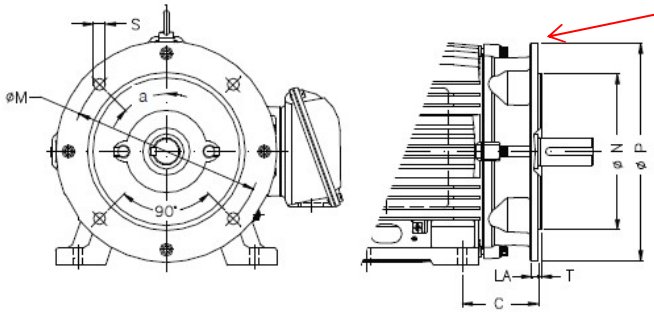
S: Small
M: Medium
L: Large
S/M: Mounting to suit both Small and Medium Frames
M/L: Mounting to suit both Medium and Large Frames

Some frame sizes for the W22 Industrial and W22 Mining may have a prefix attached, such as L90L, meaning that they have a longer stator stack or longer coil tip-to-tip length in order to meet the high Efficiency (E3) Levels. Also, these frame sizes will also have an extended N.D.E shield.

Flange Identification

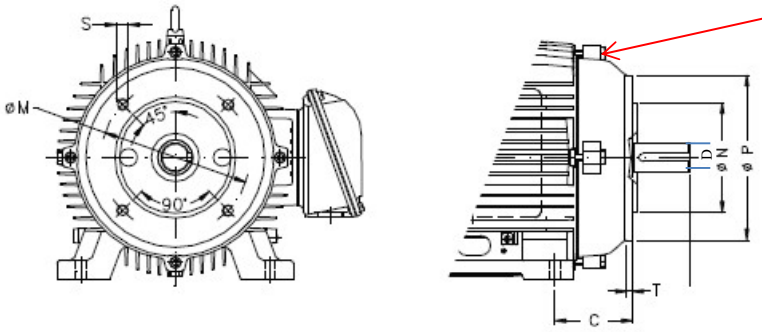
"A" TYPE FLANGE

- The Flange OD is larger than the motor body
- The motor is attached to the driven equipment by bolts and nuts or studs protruding from the driven equipment



"C" TYPE FLANGE

- The Flange OD is smaller than the motor body and has 4 threaded holds in it
- The driven equipment is attached by bolts only or customer supplied studs which screw into the flange



CRITICAL DIMENSIONS:

"N" Which is the outside diameter of the spigot

"M" Which is the flange mount holes PCD (pitch circle diameter) measured across the hole centres

"D" Motor shaft diameter

"P" Flange face outside diameter

Mounting Terminology

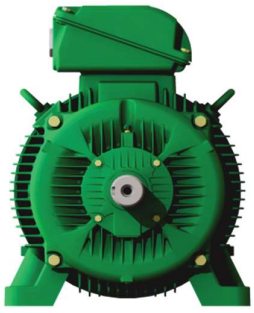
STANDARD MOUNTING CONFIGURATION AND SYMBOLS

 B 3 R with feet	 B 5 R without feet	 B 35 R with feet	 B 14 R without feet	 B 34 R with feet	 V 6 with feet	 V 5 with feet
 V 1 without feet	 V 3 without feet	 V 15 with feet	 V 36 with feet	 V 18 without feet	 V 19 without feet	 B 8 R with feet

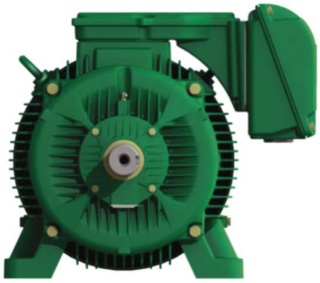
NOTE: The terminal box can be supplied on the top, right or left side viewing the motor from the D.E. shaft. This information must be given when placing an order or when enquiring about special motors.

WEG Motors can mount in any of these positions but occasionally pulley details must be taken into consideration if an oversize pulley is to be fitted

B3L*



B3T*



B3R*

*Look at the shaft end then indicate which side the terminal box is mounted

Frame Sizes

W22

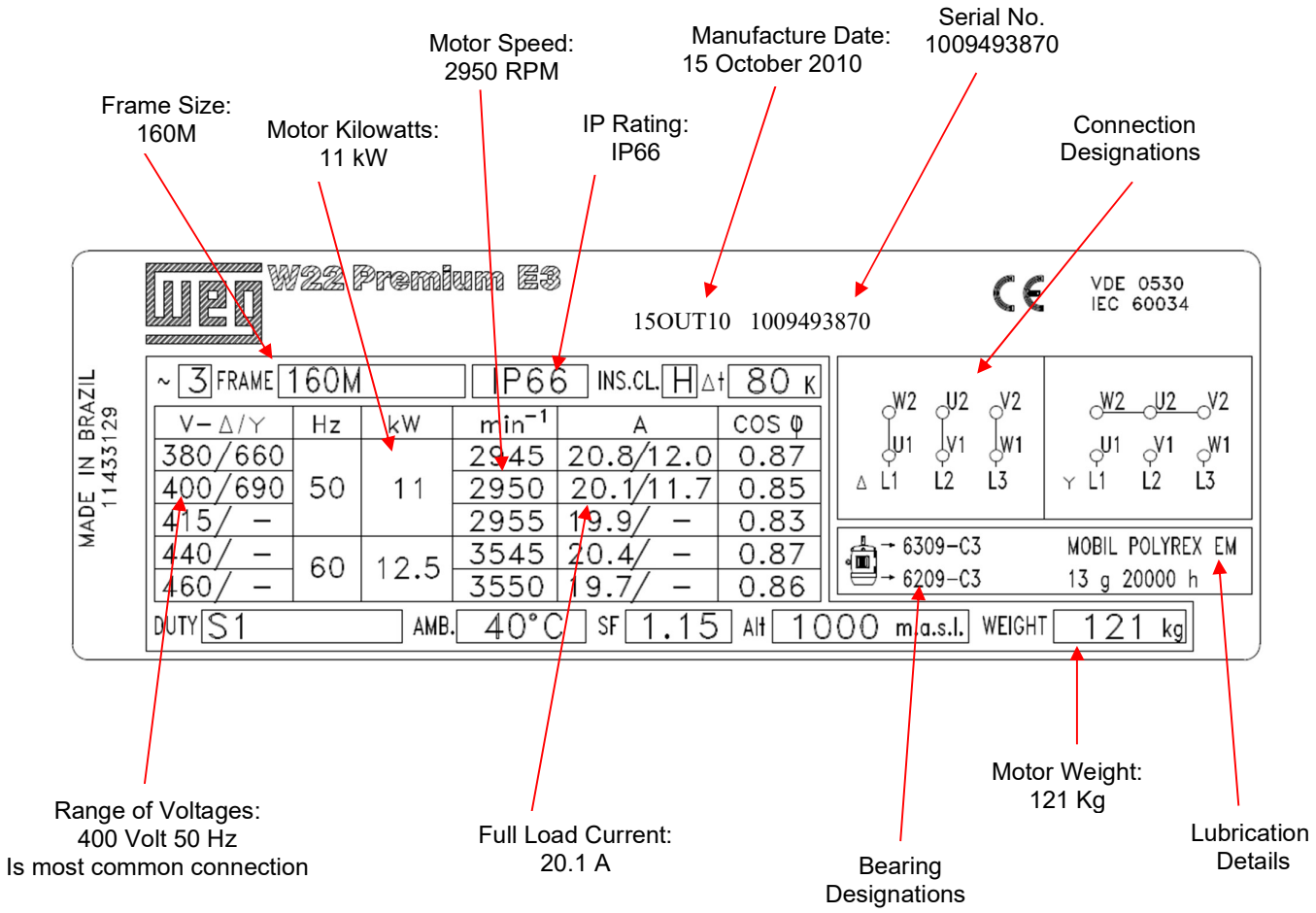
FRAMES 63 UP TO 100
Typically 0.12kW up to 3kW (4pole)

FRAMES 112 UP TO 200
Typically 4kW up to 30kW (4pole)

FRAMES 225 UP TO 355
Typically 37kW and above (4pole)

Name Plate Codes & Meanings

11 KW 2 POLE SAMPLE NAME PLATE



Frame sizes 160 and above leave the factory with the lubrication periods written on the nameplate

Grease Maintenance

- WEG Electric motors from Frame sizes 63 to Frame sizes 132 inclusive have factory fitted double shielded bearings greased for life with Polyrex EM grease

  (Life time is considered to be 20,000 hours)

- Frame sizes 160 and above leave the factory with Polyrex EM which is a complex Lithium based grease developed especially for Electric Motors

- This grease is available in 400 gram tubes

- All Lithium based greases are compatible with Polyrex EM

- Polyrex EM grease temperature range is -30°C to 165°C

Kilowatts to Horsepower Conversion Chart

Kilowatts	Horsepower
0.18	0.25
0.25	0.33
0.37	0.5
0.55	0.75
0.75	1
1.1	1.5
1.5	2
2.2	3
3	4
4	5.5
5.5	7.5
7.5	10
9.2	12.5
11	15
15	20
18.5	25
22	30

Kilowatts	Horsepower
30	40
37	50
45	60
55	75
75	100
90	125
110	150
132	175
150	200
185	250
200	265
220	300
250	335
260	350
300	400
335	450
375	500

Poles to Motor R.P.M Conversion Chart

Poles	Motor R.P.M Unloaded (Synchronous Speed) ***50 Hz***	Motor R.P.M Loaded (Average Rated Speed) ***50Hz***	Motor R.P.M Unloaded (Synchronous Speed) ***60Hz***	Motor R.P.M Loaded (Average Rated Speed) ***60 Hz***
2	3000 rpm	2850 rpm	3600	3450
4	1500 rpm	1450 rpm	1800	1710
6	1000 rpm	950 rpm	1200	1140
8	750 rpm	720 rpm	900	855

(Actual R.P.M varies depending on slip)

Starting Method

There are various ways of starting the motor, but typical starting methods are as follows:

- **Direct On Line (DOL) Start**
- Star-Delta Starting
- Reduced Voltage Start
- **Electronic Soft Starting**
- **Variable Speed Drive (VSD)**

(Letters in Bold indicate that the W22 Motors are good for that particular starting method, and we can offer them too, without further evaluation)

On 280 Frame and above, Insulated Bearing Housing (or Insulated Bearing), Shaft Grounding and proper Motor and Variable Speed Drive earthing recommendations are offered as standard when customer specifies motor for use with VSD

Bearing Configurations

Bearings hold the rotor in place

Bearing Coupling			W22
Clearance	Frame	63-132M/L	Normal
		160M-355A/B	C3
Type	Pole		2 - 8
	D.E.		Ball
	N.D.E		

Ball Bearing

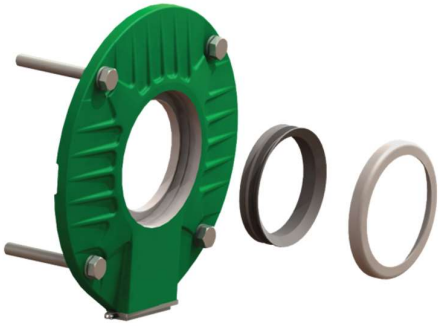
Roller Bearing

Shaft Seals

Systems that protect the motors from exposure to environmental contaminants

Oil Seal

Standard on
63 to 200 Frames



WSeal®

Composed of a V-ring with double lip enclosed by a metallic cap.

Standard on 225 to 355 Frames

Bearing Types and Sizes by Frame Size W22

63 to 132

Frame Size	Shaft Diameter (mm)	Motor Speed	Drive End Bearing	Non Drive End Bearing
63	11	All	6201-ZZ	6201-ZZ
71	14	All	6202-ZZ	6202-ZZ
80	19	All	6204-ZZ	6203-ZZ
90 S & L	24	All	6205-ZZ	6204-ZZ
100 L	28	All	6206-ZZ	6205-ZZ
112 M	28	All	6207-ZZ	6206-ZZ
132 S & M	38	All	6308-ZZ	6207-ZZ

160 to 355

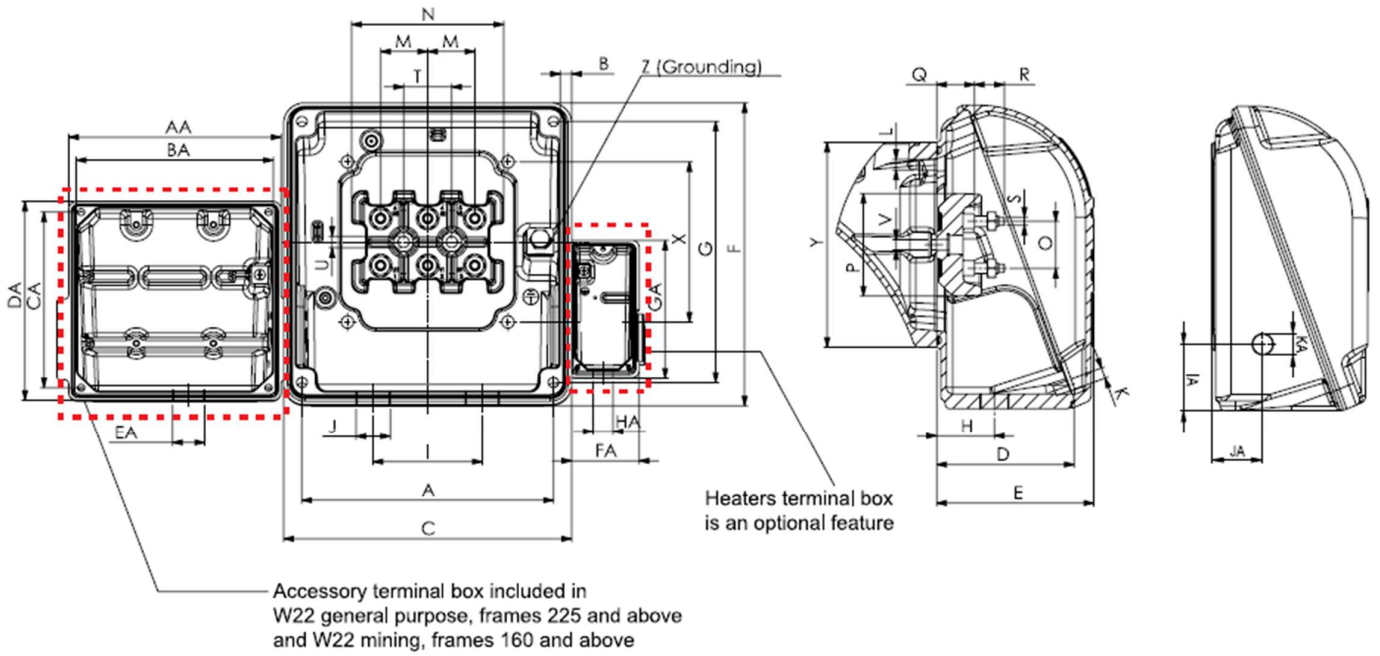
160 M & L	42	All	6309 C3	6209 C3
180 M & L	48	All	6311 C3	6211 C3
200 M & L	55	All	6312 C3	6212 C3
225 S & M	55	3000 RPM	6314 C3	6314 C3
225 S & M	60	All others	6314 C3	6314 C3
250 S & M	60	3000 RPM	6314 C3	6314 C3
250 S & M	70	All others	6316 C3	6314 C3
280 S & M	65	3000 RPM	6314 C3	6314 C3
280 S & M	80	All others	6319 C3	6316 C3
315 S & M	65	3000 RPM	6314 C3	6314 C3
315 S & M	85	All others	6319 C3	6316 C3
315 L	65	3000 RPM	6314 C3	6314 C3
315 L	85	All others	6319 C3	6316 C3
355 M & L	75	3000 RPM	6316 C3	6314 C3
355 M & L	100	All others	6322 C3	6319 C3
355 A & B	75	3000 RPM	6316 C3	6314 C3
355 A & B	100	All others	6322 C3	6319 C3

Fan Blade Dimensions

FAN DIMENSIONS (mm)

Product Code	W21 (Blue) * Before 2006		W21 (Green) * After 2006		W22		A (mm)	B (mm)	Width (mm)	Blades	Material
	Frame Size	Poles	Frame Size	Poles	Frame Size	Poles					
Z046	63	ALL	63	ALL	63	ALL	10	110	18	9	Plastic
Z047	71	ALL	71	ALL	71	ALL	12	120	25	9	
	---	---	80	2	80	2					
Z048	80	ALL	80	4 6 8	80	4 6 8	15	132	25	9	
	---	---	90	2 4	90	2 4					
Z049	90	ALL	90	6 8	90	6 8	17	160	35	9	
Z050	100	ALL	100	ALL	100	ALL	23	175	40	13	
Z051	112	4 6 8	112	6 8	112	6 8	28	190	39	13	
Z051-2	112	2	112	2 4	112	2 4	28	150	39	10	
	---	---	132	2 4	132	2 4					
Z052	132	4 6 8	132	6 8	132	6 8	30	230	41	13	
Z052-2	132	2	---	---	---	---	30	170	40	10	
Z053	160	4 6 8	160	4 6 8	160	4 6 8	44	230	47	9	
Z053-2	160	2	160	2	160	2	44	150	47		
Z054	180	4 6 8	180	4 6 8	180	4 6 8	50	230	47		
Z054-2	180	2	180	2	180	2	50	150	47		
Z055	200	4 6 8	200	4 6 8	200	4 6 8	55	260	58		
Z055-2	200	2	200	2	200	2	55	175	58		
Z056	225/250	4 6 8	225/250	4 6	---	---	65	312	77		
Z056-2		2	225/250	2 4	---	---		212	66		
Z058	280	4 6 8	280	6 8	---	---	75	362	77		
Z11550408	---	---	280	4	---	---	75	242	66		
			315	4	---	---					
Z058-2	280	2	280	2	---	---	65	222	66		
			315	2	---	---					
Z059	315	4 6 8	315	6 8	---	---	75	425	77		
Z059-2		2	---	---	---	---	65	242	66		
Z060	355	4 6 8	355	4 6 8	---	---	85	420	88	7	Aluminium
Z060-2		2		2	---	---	65	230	75	9	
Z11482640	---				225	2	58	192	81	5	Plastic
					250	2					
Z11482641	---				225	4	58	216	83	5	
					280	2					
					315	2					
Z11482642	---				225	6 8	58	295	115	5	
					250	6 8					
					280	4					
					315	4					
Z11482679	---				250	4	58	239	92	5	
					355	2					
Z11482643	---				280	6 8	58	335	105	5	
					315	6 8					
					355	4					
Z11101746	---				355	6 8	65	420	134	5	Aluminium

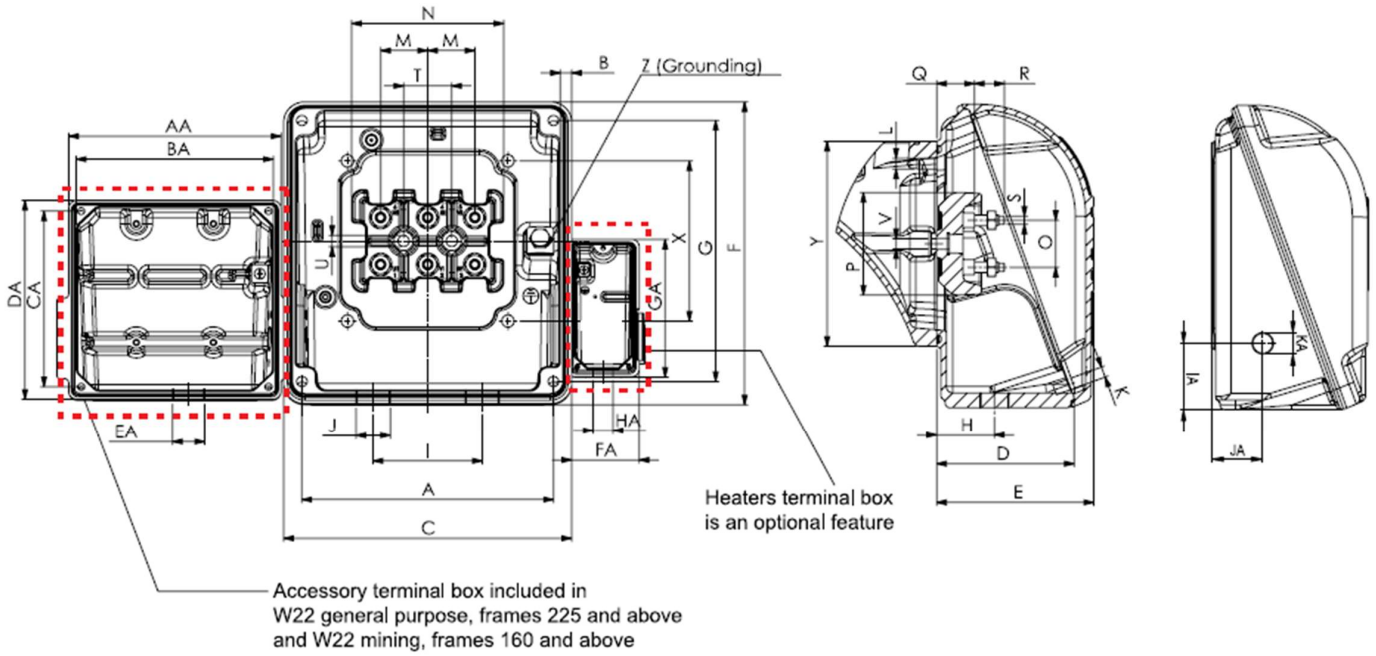
W22 Terminal Box Dimensions



Frame	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
63	90	3.5	108.5	51.5	59	96	85	27	42	2xM20x1.5	M5x0.8	M5x0.8	16	75	16	35	13.5	12	M4x0.7	20	5.8
71	90	3.5	108.5	51.5	59	96	85	27	42	2xM20x1.5	M5x0.8	M5x0.8	16	75	16	35	13.5	12	M4x0.7	20	5.8
80	90	3.5	108.5	51.5	59	96	85	27	42	2xM20x1.5	M5x0.8	M5x0.8	16	75	16	35	13.5	12	M4x0.7	20	5.8
90	98	3	114.5	59.5	67	101	91	31	42	2xM25x1.5	M5x0.8	M5x0.8	16	75	16	35	13.5	12	M4x0.7	20	5.8
100	98	3	114.5	59.5	67	101	91	31	42	2xM25x1.5	M5x0.8	M5x0.8	16	75	16	35	13.5	12	M4x0.7	20	5.8
112	117	2.5	138	71	80	130.5	117	36.5	54	2xM32x1.5	M6x1.0	M6x1.0	23	55	23	52	17	16	M5x0.8	23	6.5
132	117	2.5	138	71	80	130.5	117	36.5	54	2xM32x1.5	M6x1.0	M6x1.0	23	55	23	52	17	16	M5x0.8	23	6.5
160	175	4	198	90	100.5	187.5	175	49	84	2xM40x1.5	M8x1.25	M8x1.25	28	90	28	60	21.5	20.5	M6x1	28	6.6
180	175	4	198	90	100.5	187.5	175	49	84	2xM40x1.5	M8x1.25	M8x1.25	28	90	28	60	21.5	20.5	M6x1	28	6.6
200	204	4.5	228	107	118	216	204	59	94	2xM50x1.5	M8x1.25	M8x1.25	35	112	35	74	24	24	M8x1.25	35	9.5
225S/M	235	12.5	269	133	153	301	260	71	110	2xM50x1.5	M10x1.5	M10x1.5	44	140	44	94	28	28	M10x1.5	45	10.5
250S/M	235	12.5	269	133	153	301	260	71	110	2xM63x1.5	M10x1.5	M10x1.5	44	140	44	94	28	28	M10x1.5	45	10.5
280S/M	275	13.5	314	133	153	311	275	71	126	2xM63x1.5	M12x1.75	M12x1.75	45	153	45	108	34	40	M12x1.75	45	10.5
315S/M	340	14.5	379	162	182	390	345	78	160	2xM63x1.5	M12x1.75	M12x1.75	45	153	45	108	34	40	M12x1.75	45	10.5
315L	365	14.5	404	202	226	422	390	97	200	2xM63x1.5	M12x1.75	M14x2.0	65	210	65	146	48	48	M16x2.0	65	10.5
355M/L	365	14.5	404	202	226	422	390	97	200	2xM63x1.5	M12x1.75	M14x2.0	65	210	65	146	48	48	M16x2.0	65	10.5
355A/B	415	-	442	267	353	729	678	187	140	2xM63x1.5	M10x1.5	M12x1.75	80	-	105	-	-	-	M20x2.5	-	-

W22 Terminal Box Dimensions

continued….



Frame	V	X	Y	Z	Auxiliary Box					Heaters Box			IA	JA	KA	Max number of connectors		
					AA	BA	CA	DA	EA	FA	GA	HA				Main	Accessories	Space Heater
63	M5x0.8	56	77	0.5-6 mm²	109	90	85	98	M20x1.5	-	-	-	-	-	-	4	16	-
71	M5x0.8	56	78	0.5-6 mm²	109	90	85	98	M20x1.5	-	-	-	-	-	-	4	16	-
80	M5x0.8	56	81	0.5-6 mm²	109	90	85	98	M20x1.5	-	-	-	-	-	-	4	16	-
90	M5x0.8	56	77	0.5-6 mm²	109	90	85	98	M20x1.5	-	-	-	-	-	-	4	16	-
100	M5x0.8	56	81	0.5-6 mm²	109	90	85	98	M20x1.5	-	-	-	-	-	-	4	16	-
112	M5x0.8	70	107	2-10 mm²	109	90	85	98	M20x1.5	-	-	-	-	-	-	6	16	-
132	M5x0.8	70	103	2-10 mm²	109	90	85	98	M20x1.5	68	131	M20x1.5	-	-	-	6	16	4
160	M6x1.0	110	140	5.2-25 mm²	139	117	117	133	M20x1.5	68	131	M20x1.5	47	40	M20x1.5	12	26	4
180	M6x1.0	110	140	5.2-25 mm²	139	117	117	133	M20x1.5	68	131	M20x1.5	47	40	M20x1.5	12	26	4
200	M8x1.25	120	155	5.2-35 mm²	139	117	117	133	M20x1.5	68	131	M20x1.5	47	45	M20x1.5	12	26	4
225S/M	M10x1.5	150	192	25-50 mm²	198	175	175	189	M20x1.5	68	131	M20x1.5	62	48	M20x1.5	12	26	4
250S/M	M10x1.5	150	197	25-50 mm²	198	175	175	189	M20x1.5	68	131	M20x1.5	62	48	M20x1.5	16	26	4
280S/M	M10x1.5	150	204	35-70 mm²	198	175	175	189	M20x1.5	68	131	M20x1.5	77	56	M20x1.5	16	26	4
315S/M	M10x1.5	200	260	35-70 mm²	198	175	175	189	M20x1.5	68	131	M20x1.5	82	69	M20x1.5	16	26	4
315L	M10x1.5	260	300	85-120 mm²	198	175	175	189	M20x1.5	68	131	M20x1.5	97	79	M20x1.5	16	26	4
355M/L	M10x1.5	260	300	85-120 mm²	198	175	175	189	M20x1.5	68	131	M20x1.5	97	79	M20x1.5	16	26	4
355A/B	-	290	300	85-120 mm²	198	175	175	189	M20x1.5	68	131	M20x1.5	-	-	-	-	26	4

Notes

What's Important to Know before Ordering a Motor…….

- ❑ kW (Kilowatts) HP (Horsepower)?
- ❑ Speed / Poles?
- ❑ Voltage (3 Phase, 1 Phase or Dual)
- ❑ Mounting?
- ❑ If Flanged what type?
- ❑ Frame Size?
- ❑ Application?
- ❑ Starting Method?
- ❑ Enclosure (TEFC, ODP)