# **PRODUCT INFORMATION PACKET**

Model No: LM21220 Catalog No: LM21220 Speed Ratio Motors, TEFC, 60 HP, 3 Ph, 60 Hz, 230/460 V, 1782 RPM, 364T Frame



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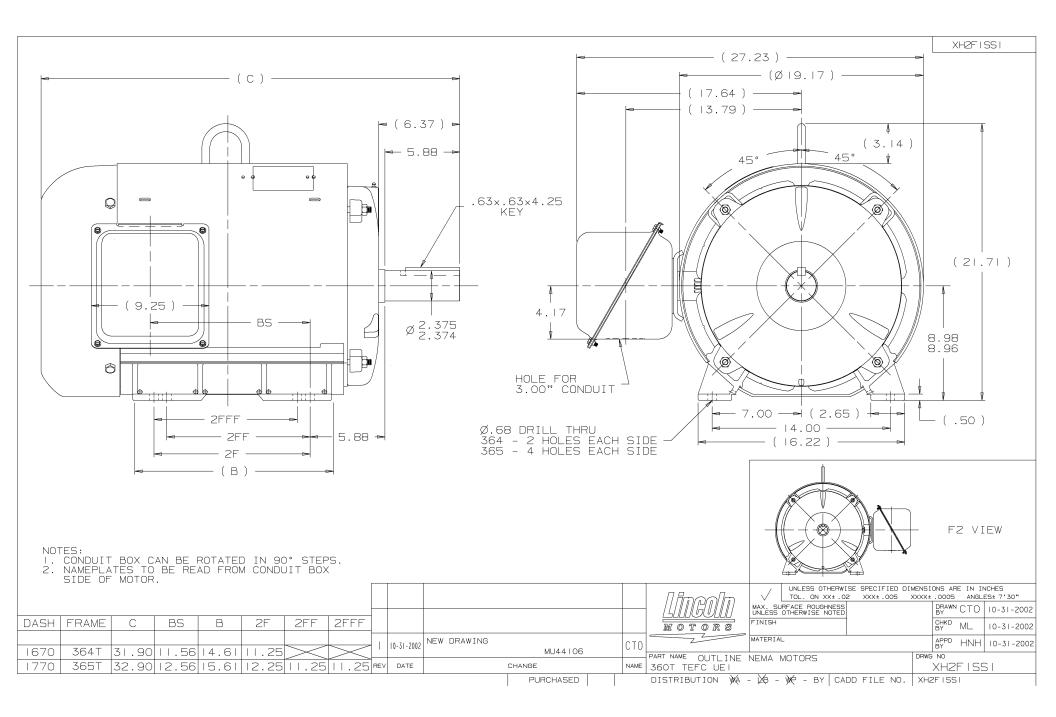
## Nameplate Specifications

Output HP	60 Hp	Output KW	45.0 kW
Frequency	60 Hz	Voltage	230/460 V
Current	145.0/72.5 A	Speed	1782 rpm
Service Factor	1	Phase	3
Efficiency	93.6 %	Power Factor	82.5
Duty	Continuous	Insulation Class	F
Design Code	INV	KVA Code	G
Frame	364T	Enclosure	Totally Enclosed Fan Cooled
Thermal Protection	No Protection	Ambient Temperature	40 °C
Drive End Bearing Size	313	Opp Drive End Bearing Size	311
UL	Recognized	CSA	Y
CE	Y	IP Code	43
Number of Speeds	1		

# **Technical Specifications**

Electrical Type	Squirrel Cage Inverter Duty	Starting Method	Inverter Only
Poles	4	Rotation	Reversible
Resistance Main	.106 Ohms	Mounting	Rigid Base
Motor Orientation	Horizontal	Drive End Bearing	Ball
Opp Drive End Bearing	Ball	Frame Material	Rolled Steel
Shaft Type	т	Overall Length	31.90 in
Frame Length	16.70 in	Shaft Diameter	2.375 in
Shaft Extension	5.88 in	Assembly/Box Mounting	F1 ONLY
Inverter Load	CONSTANT 4:1		
Outline Drawing	XH2F1SS1-1670	Connection Drawing	A-EE7308BZ-LN

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		LOW VOLTAGE	A-EE7308BZ-LN
-	<b>—</b> 4	LINE 1	THERMO - PROTECTORS CONNECTED IN SERIES.
-	T2 - T4 - T8 - T10 -	LINE 2	T12 T12 T12 T1 T12 T1 T12 T12 T1
		LINE 3	T6     T7     T4       T3     T10     T10       T10     T2
		HIGH VOLTAGE	$\begin{bmatrix} T_{11} & T_8 \\ T_$
	T12 - T1 - T4 -	LINE 1	PROT. P2
	T7 - T2 - T10 - T5 -	>LINE 2	
	T8 - T3 - T11 -	>LINE 3	VIEW OF TERMINAL END
	Т6 - Т9 -		
			UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOL. ON XX± XXX± ANGLES±
2	08/17/2011	REMOVED NOTE MU10376 '12 LEADS SINGLE VOLTAGE'	S8     RFH     MOTOR     MOTOR     Max. Surface Roughness otherwise Noted       B1     MOTOR     FINISH     B2
1	12-11-2000	NEW DRAWING MU34925	KL Z MATERIAL APPD DJK 12-11-2000
RE∨	DATE	CHANGE	PART NAME EXTERNAL CONNECTION DIAGRAM NAME 3 PHASE - 2/1 DELTA - 12 LEADS □ DRWG NO A-EE7308BZ-LN
I 8/19/2	2011 2:55:0	2 PM	PURCHASED CADD FILE ND. EE7308BZ-LN

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2100 WASHINGTON ST. GRAFTON, WI PH. 262-277-8810

#### CONN. DIAGRAM: A-EE7308BZ-LN

OUTLINE: XH2F1SS1-1670

CATALOG # : LM21220

MOUNTING: F1 ONLY

**WINDING #:** C3644010 R1 1

## TYPICAL MOTOR PERFORMANCE DATA

	HP	kW	SYNC. RPM	F.L. RPM	FRAME	ENCLOSURE	KVA CODE	DESIGN
60 45.0 1800 1782 3641 TEFC G I	60	45.0	1800	1782	364T	TEFC	G	INV

PH	Hz	VOLTS	AMPS	START TYPE	DUTY	INSL	S.F.	AMB°C
3	60	230/460	145/72.5	INVERTER ONLY	CONTINUOUS	F4	1.0	40

FULL LOAD EFF:	93.6	3/4 LOAD EFF:	93.6	1/2 LOAD EFF:	93	GTD. EFF	ELEC. TYPE
FULL LOAD PF:	82.5	3/4 LOAD PF:	78.5	1/2 LOAD PF:	69.5	92.4	SQ CAGE INV DUTY

F.L. TORQUE	LOCKED ROTOR AMPS	LOCKED ROTOR AMPS L.R. TORQUE		F.L. RISE°C
177 <b>LB-FT</b>	870 / 435	340 <b>LB-FT</b> 192 %	425 <b>LB-FT</b> 240 %	65

SOUND PRESSURE @ 3 FT.	SOUND POWER	ROTOR WK^2	MAX. WK^2	SAFE STALL TIME	STARTS / HOUR	APPROX. MOTOR WGT
- dBA	- dBA	0 <b>lb-ft^2</b>	- LB-FT^2	- SEC.	-	- LBS.

**\*\*\* SUPPLEMENTAL INFORMATION \*\*\*** 

DE BRACKET TYPE	ODE BRACKET TYPE	MOUNT TYPE	ORIENTATION	SEVERE DUTY	HAZARDOUS LOCATION	DRIP COVER	SCREENS	PAINT
STANDARD	STANDARD	RIGID	HORIZONTAL	FALSE	NONE	FALSE	NONE	GRAY - LINCOLN

BEAR	INGS	GREASE		SPECIAL DE SPECIAL ODE		SHAFT	FRAME
DE	ODE	GREASE	SHAFT TYPE	SPECIAL DE	SPECIAL ODE	MATERIAL	MATERIAL
BALL	BALL	POLYREX EM	Ŧ	NONE	NONE		ROLLED STEEL
313	311	PULIKEX EM		NONE	NONE	1045 HOT ROLLED (C-204)	ROLLED STEEL

	THERMO-PROTECTORS		TUERMICTOR	CONTROL	CDACE		
THERMOSTATS	PROTECTORS	WDG RTDs	BRG RTDs	THERMISTORS	CONTROL	SPACE	HEATERS
TSTATS (N/C)	NOT	NONE	NONE	NONE	FALSE	NONE	VOLTS

*	INVERTER TORQUE: CONSTANT 4:1 INV. HP SPEED RANGE: NONE
Ν	ENCODER: NONE
0	NONE NONE NONE PPR
т	BRAKE: NONE NONE
	NONE P/N NONE
E	NONE NONE
S	NONE FT-LB NONE V NONE HZ

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Date:	1/19/	/2018		Data S	ineel			LM2122	0	
24.01	LEESON							Data @ 460 V		
				Moto	r Load Data	ß		Da	ita @ <b>400</b>	v
oad	0%	25%	50%	75%	100%	115%	125%	LR		_
urrent (Amps)	27.0	32.5	43.5	57.0	72.5	81.0	89.5	435		-
orque (ft-lb) PM	0.00	44.0 1795	88.0 1790	132 1787	177 1782	200 1,779	222 1775	340 0		-
fficiency (%)	1800	88.5	93.0	93.6	93.6	93.3	93.0	0		-
F. (%)	5.5	48.5	69.5	78.5	82.5	83.3	84.0	32.0		-
		Motor Speed D	ata							_
	1.5	Dull Un		Datast	Lella					
and (DDM)	LR 0	Pull-Up 900	BD 1700	Rated 1782	1800			Information Block		
peed (RPM) urrent (Amps)	435	900 425	305	72.5	27.0	HP		60.0		
que (ft-lb)	340	300	425	177	0.00	Sync. RPM		1800		
		L				Frame		364		
Ef	ficiency (%)	—— P.F. (%)		Current (Amps)		Enclosure		TEFC		
100.0					100.0	Construction		TFR		
						Voltage		230/460	V	
					90.0	Frequency		60	Hz	
90.0						Design		В		
					80.0	LR Code letter		G		
80.0						Service Factor		1.0		
80.0					70.0	Temp Rise @ I	FL	65	°C	
			/		A M	Duty		CONT		
70.0					60.0 P	Ambient		40	°C	
					S	Elevation	<b>b</b>	1,000	feet	
					50.0	Rotor/Shaft wk	2	0.00 C3644010 R1	Lb-Ft <sup>2</sup>	
60.0					40.0					
					40.0	Sound Pressur	e @1M	999	dBA	
500	1				30.0	VFD Rating		CONSTANT	4:1	
50.0										
					20.0	Outline Dwg Conn. Diag			SS1-1670 308BZ-LN	
40.0						Additional Spec	cifications:	A-LL/X	JUODZ-LIN	
					10.0	0				
						0	5011			
30.0	40%	60% 80%	100%	120% 1	0.0	0 		IV CKT (OHMS / PHASE		x
30.0 0% 20%	40%	60% 80% LOAD	100%	120% 1	0.0	0 <b>R1</b> 0.0760	EQU <b>R2</b> 0.0380	IV CKT (OHMS / PHASE <b>X1</b> 0.3690	<ul> <li>X2</li> <li>0.5630</li> </ul>	
0% 20%	40%					0.0760	R2	X1	X2 0.5630	9.8
	40%			Speed -	40%	0.0760 urve	R2	X1	X2	9.8
450.0	40%			Speed -	40%	0.0760 urve	R2	X1	X2           0.5630	9.8
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2 0.5630	9.8
450.0	40%			Speed -	40%	0.0760 urve	R2	X1	<b>X2</b> 0.5630 500.0 450.0	9.8
450.0	40%			Speed -	40%	0.0760 urve	R2	X1	X2           0.5630	9.8
450.0	40%			Speed -	40%	0.0760 urve	R2	X1	X2           0.5630           500.0           450.0           400.0	9.8
450.0	40%			Speed -	40%	0.0760 urve	R2	X1	<b>X2</b> 0.5630 500.0 450.0	9.8
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2 0.5630 500.0 450.0 400.0 350.0	9.8
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2           0.5630           500.0           450.0           400.0	9.8 9.8
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2 0.5630 500.0 450.0 400.0 350.0	9.8 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2 0.5630 450.0 450.0 350.0 300.0	9.8 9 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2 0.5630 450.0 450.0 350.0 300.0	9.8 9.8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 8
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2 0.5630 500.0 450.0 400.0 350.0 300.0 250.0	9.8 9.8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 8
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2 0.5630 500.0 450.0 400.0 350.0 300.0 250.0	9.8 9.8 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0 9 0
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2 0.5630 450.0 450.0 350.0 350.0 250.0 200.0	9.8 9.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2 0.5630 450.0 450.0 350.0 350.0 250.0 200.0	9.8 9.8 9 9 9 9 9 9 9 9 9
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2           0.5630           500.0           450.0           400.0           350.0           200.0           150.0	9.8 9.8 9 9 9 9 9 9 9 9 9
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2         0.5630           500.0         450.0           450.0         350.0           200.0         250.0           150.0         100.0	9.8 9.8 9 9 9 9 9 9 9 9 9
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2           0.5630           500.0           450.0           400.0           350.0           200.0           150.0	9.8 9.8 9 9 9 9 9 9 9 9 9
0% 20%	40%			Speed -	40%	0.0760 urve	R2	X1	X2         0.5630           500.0         450.0           450.0         350.0           200.0         250.0           150.0         100.0	9.8 9.8 9 9 9 9 9 9 9 9 9