

# PRODUCT INFORMATION PACKET



Model No: LM21088  
Catalog No: LM21088  
20 HP Automotive Duty Motor, 3 phase, 3600 RPM, 460 V, 286U Frame, TEFC  
Automotive Duty Motors



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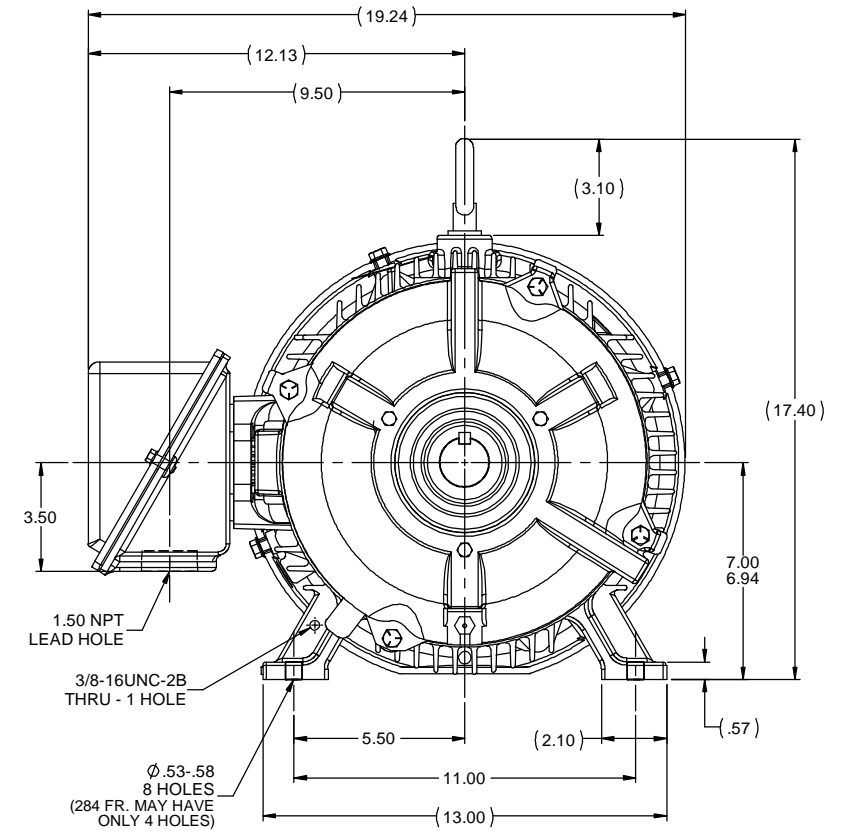
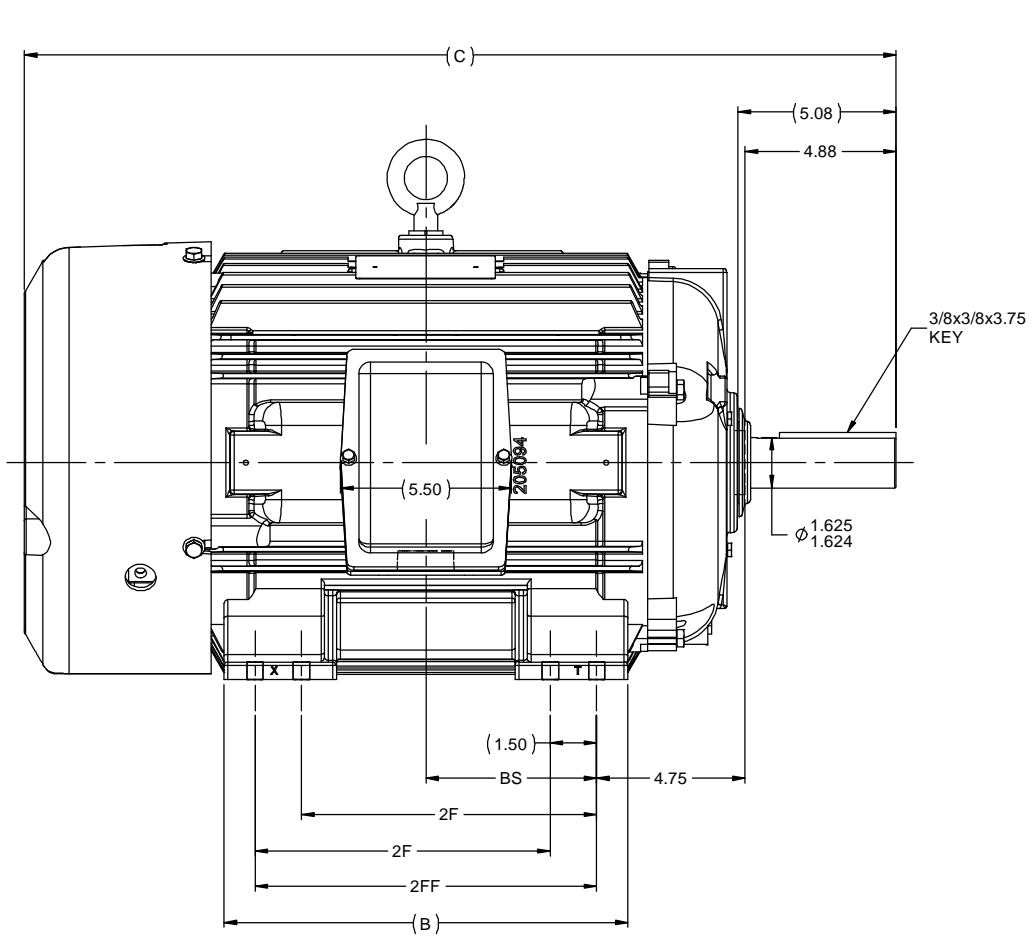
### Nameplate Specifications

Output HP	<b>20 Hp</b>	Output KW	<b>14.9 kW</b>
Frequency	<b>60 Hz</b>	Voltage	<b>460 V</b>
Current	<b>23.4 A</b>	Speed	<b>3537 rpm</b>
Service Factor	<b>1</b>	Phase	<b>3</b>
Efficiency	<b>92.4 %</b>	Power Factor	<b>86</b>
Duty	<b>Continuous</b>	Insulation Class	<b>F</b>
Design Code	<b>B</b>	KVA Code	<b>G</b>
Frame	<b>286U</b>	Enclosure	<b>Totally Enclosed Fan Cooled</b>
Thermal Protection	<b>No</b>	Ambient Temperature	<b>65 °C</b>
Drive End Bearing Size	<b>311</b>	Opp Drive End Bearing Size	<b>210</b>
UL	<b>Recognized</b>	CSA	<b>Y</b>
CE	<b>Y</b>	IP Code	<b>43</b>
Number of Speeds	<b>1</b>		

### Technical Specifications

Electrical Type	<b>Squirrel Cage Induction Run</b>	Starting Method	<b>Across The Line</b>
Poles	<b>2</b>	Rotation	<b>Reversible</b>
Resistance Main	<b>.394 Ohms</b>	Mounting	<b>Rigid Base</b>
Motor Orientation	<b>Horizontal</b>	Drive End Bearing	<b>Ball</b>
Opp Drive End Bearing	<b>Ball</b>	Frame Material	<b>Cast Iron</b>
Shaft Type	<b>U</b>	Overall Length	<b>28.06 in</b>
Frame Length	<b>14.25 in</b>	Shaft Diameter	<b>1.625 in</b>
Shaft Extension	<b>4.88 in</b>	Assembly/Box Mounting	<b>F1/F2 CAPABLE</b>
Outline Drawing	<b>B-SS311055LN-1425</b>	Connection Drawing	<b>A-EE7300-LN</b>

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- NOTES:  
 1. CONDUIT BOX CAN BE ROTATED IN 90 ° STEPS.  
 2. CONDUIT BOX CAN BE MOUNTED ON OPPOSITE SIDE BY REMOVING BRACKETS AND TURNING FRAME 180 °.  
 3. NAMEPLATES TO BE READ FROM CONDUIT BOX SIDE OF MOTOR.

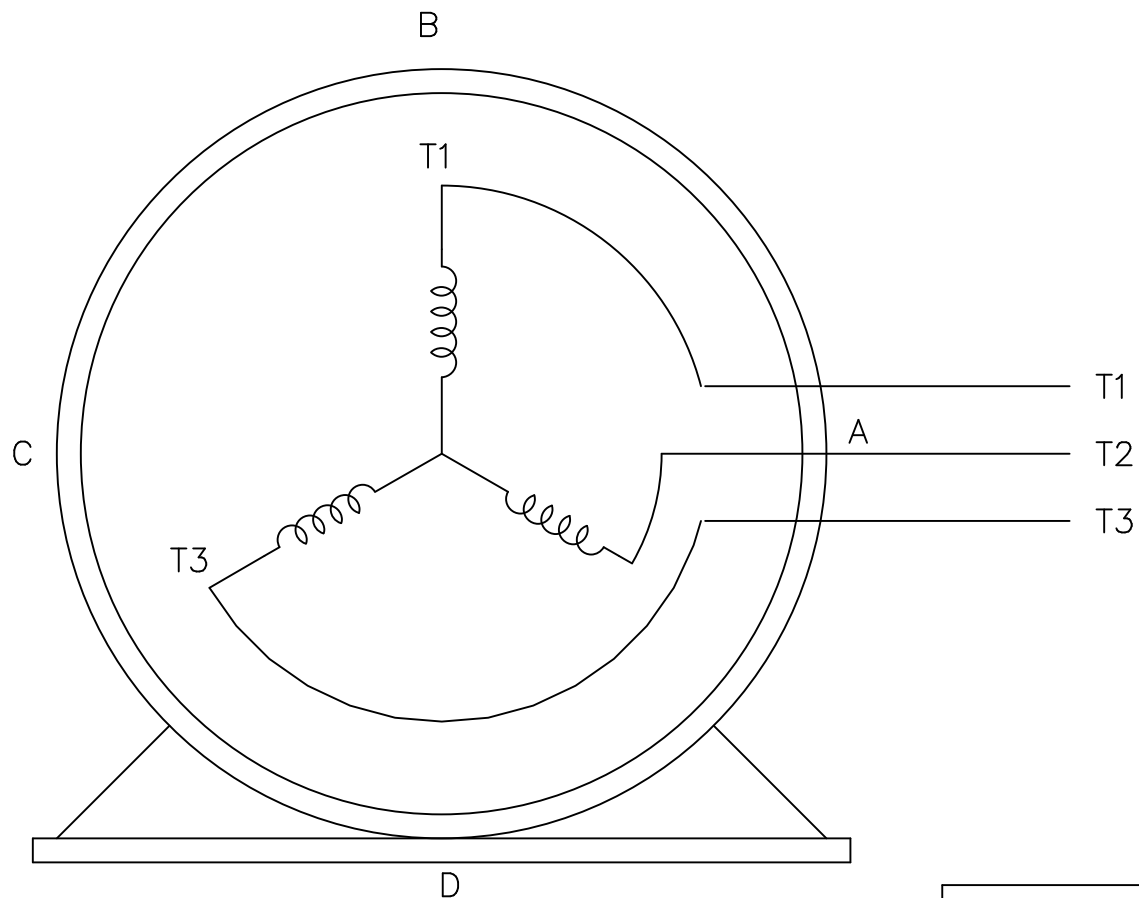
1275	284U	26.56	11.50	9.50	---	4.75
1425	284/286U	28.06	13.00	9.50	11.00	5.50
<b>DASH</b>	<b>FRAME</b>	<b>C</b>	<b>B</b>	<b>2F</b>	<b>2FF</b>	<b>BS</b>

		TOLERANCES UNLESS SPECIFIED				Lincoln Motors		DRAWN HLB 10-10-2000	
		DEC INCHES						CHK ML 10-16-2000	
		X ±.1						APPR TB 10-16-2000	
3	UPDATED TO NEW FRAME DESIGN MU109232	MSG 08-16-2012	TB	XX	±.03	TITLE OUTLINE - TEFC - TFPA			
2	286 FR. WAS 284 FR. (IN NOTE) CN 29200-1344	HLB 01-25-2001	ML	XXX	±.005	280U FR. - STD. - 11.00 LAM. - CAST C' BOX			
1	NEW DRAWING MU33973	HLB 10-16-2000	ML	XXXX	±.0005	MATL		FMF MU33973	
NO	REVISION	BY & DATE	CHK	LANG	±7'30"	FINISH		PAGE OF	
		THIRD ANGLE PROJECTION		RFP 10-16-2000		PREV		SIZE <b>B</b>	DRAWING NO <b>SS311055LN</b>
				NETWORK FILE NAME SS311055LN				REV <b>3</b>	

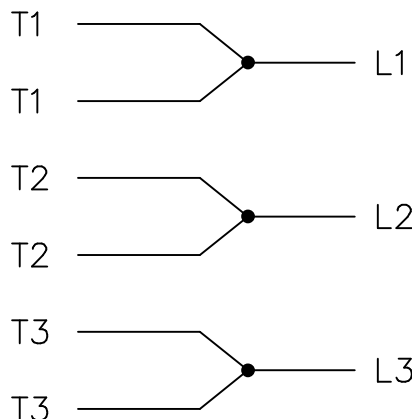
THREE PHASE – SINGLE VOLTAGE  
MOTOR – CONDUIT BOX @ 'A'

EE7300-LN

TO REVERSE ROTATION:  
INTERCHANGE ANY TWO LINE  
LEAD CONNECTIONS




IF MOTOR HAS  
6 LEADS



A-9806 DECAL

OPTIONAL CORD  
CONNECTION

L1 WHITE  
L2 RED  
L3 BLACK

				TOLERANCES UNLESS SPECIFIED			DRAWN BLR 08-13-1999				
				DEC.	INCHES		CHK ML 08-13-1999				
				.X	±.1		APPD GK 08-13-1999				
				.XX	±.02		SCALE 1=1				
2	ADDED OPTIONAL CORD CONNECTION PER MU47226	CTO 03-31-2004	PJB	.XXX	±.005	TITLE CONNECTION DIAGRAM SINGLE VOLT – 3Ø MOTOR	REF				
1	NEW DRAWING	CTO 08-13-1999		.XXXX	±.0005		MAT'L.	FMF			
NO.	REVISION	BY & DATE	CHK	ANG	±7'30"	FINISH	PREV				
THIS DRAWING IN DESIGN AND DETAIL IS OUR PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH OUR WORK ALL RIGHTS OF DESIGN AND INVENTION ARE RESERVED THIS IS AN ELECTRONICALLY GENERATED DOCUMENT – DO NOT SCALE THIS PRINT				RFP	CAD FILE EE7300_LN		SIZE	DRAWING NO.	PAGE	OF	REV.
				DIST WP			A	EE7300-LN			2



CERTIFICATION DATA SHEET

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

CONN. DIAGRAM: A-EE7300-LN

OUTLINE: B-SS311055LN-1425

WINDING #: K256288 R3 7

CATALOG #: LM21088

MOUNTING: F1/F2 CAPABLE

TYPICAL MOTOR PERFORMANCE DATA

HP	kW	SYNC. RPM	F.L. RPM	FRAME	ENCLOSURE	KVA CODE	DESIGN
20	14.9	3600	3537	286U	TEFC	G	B

PH	Hz	VOLTS	AMPS	START TYPE	DUTY	INSL	S.F.	AMB°C
3	60	460	23.4	ACROSS THE LINE	CONTINUOUS	F3	1.0	65

FULL LOAD EFF:	92.4	3/4 LOAD EFF:	91.7	1/2 LOAD EFF:	91	GTD. EFF		ELEC. TYPE	
FULL LOAD PF:	86	3/4 LOAD PF:	85	1/2 LOAD PF:	78	91		SQ CAGE IND RUN	

F.L. TORQUE	LOCKED ROTOR AMPS	L.R. TORQUE	B.D. TORQUE	F.L. RISE°C
29.7 LB-FT	145	55 LB-FT 185 %	84 LB-FT 283 %	45

SOUND PRESSURE @ 3 FT.	SOUND POWER	ROTOR WK^2	MAX. WK^2	SAFE STALL TIME	STARTS / HOUR	APPROX. MOTOR WGT
72 dBA	82 dBA	1.3 LB-FT^2	26 LB-FT^2	20 SEC.	2	480 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

BEARINGS		GREASE	SHAFT TYPE	SPECIAL DE	SPECIAL ODE	SHAFT MATERIAL	FRAME MATERIAL
DE	ODE						
BALL	BALL	POLYREX EM	U	NONE	NONE	1045 HOT ROLLED (C-204)	CAST IRON
311	210						

THERMO-PROTECTORS				THERMISTORS	CONTROL	SPACE HEATERS
THERMOSTATS	PROTECTORS	WDG RTDs	BRG RTDs			
NONE	NOT	NONE	NONE	NONE	FALSE	NONE VOLTS

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<b>INVERTER TORQUE:</b> NONE
<b>INV. HP SPEED RANGE:</b> NONE
<b>ENCODER:</b> NONE NONE NONE NONE NONE PPR
<b>BRAKE:</b> NONE NONE NONE P/N NONE NONE NONE FT-LB V NONE Hz

Data Sheet

Date: 1/19/2018

LM21088



Data @ 460 V

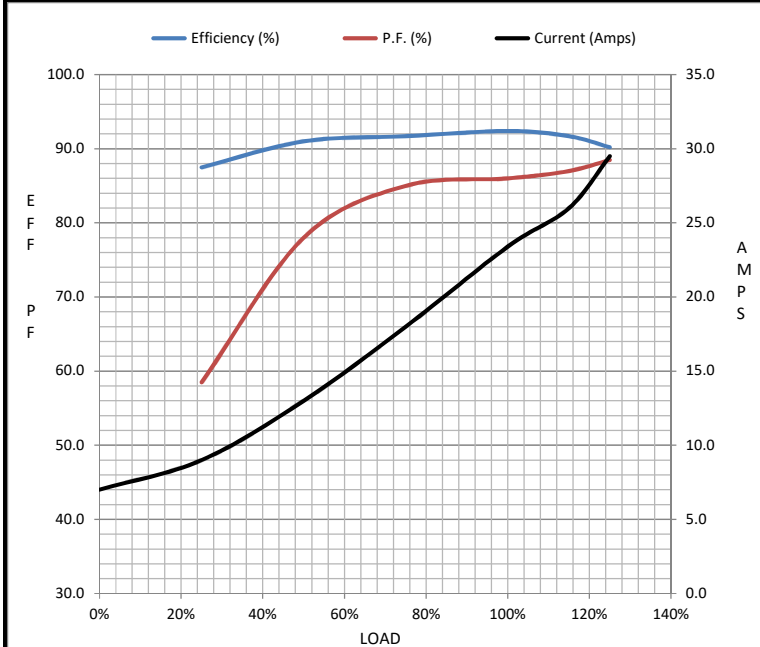
Motor Load Data

Load	0%	25%	50%	75%	100%	115%	125%	LR
Current (Amps)	7.0	9.0	13.0	18.0	23.4	26.0	29.5	145
Torque (ft-lb)	0.00	7.5	15.0	22.0	29.7	31.0	37.5	55.0
RPM	3600	3585	3570	3555	3537	3,525	3515	0
Efficiency (%)		87.5	91.0	91.7	92.4	91.7	90.2	
P.F. (%)	10.5	58.5	78.0	85.0	86.0	87.0	88.5	37.0

Motor Speed Data

	LR	Pull-Up	BD	Rated	Idle
Speed (RPM)	0	1800	3155	3537	3600
Current (Amps)	145	131	100	23.4	7.0
Torque (ft-lb)	55.0	50.0	84.0	29.7	0.00

Information Block				
HP	20.0			
Sync. RPM	3600			
Frame	286			
Enclosure	TEFC			
Construction	TFP			
Voltage	460 V			
Frequency	60 Hz			
Design	B			
LR Code letter	G			
Service Factor	1.15			
Temp Rise @ FL	45 °C			
Duty	CONT			
Ambient	40 °C			
Elevation	1,000 feet			
Rotor/Shaft wk <sup>2</sup>	1.30 Lb-Ft <sup>2</sup>			
Ref Wdg	K256288 R3			
Sound Pressure @ 1M	72 dBA			
VFD Rating	NONE			
Outline Dwg	B-SS311055LN-1425			
Conn. Diag	A-EE7300-LN			
Additional Specifications:				
0				
0				
EQUIV CKT (OHMS / PHASE)				
R1	R2	X1	X2	Xm
0.2530	0.2230	1.0790	1.1190	37.7720



Speed - Torque Curve

