

PRODUCT INFORMATION PACKET



Model No: 193351.60

Catalog No: 193351.60

LEESON® PASSPORT 20 HP General Purpose, 3 phase, 3600 RPM, 230/460 V, 160M Frame, TEFC



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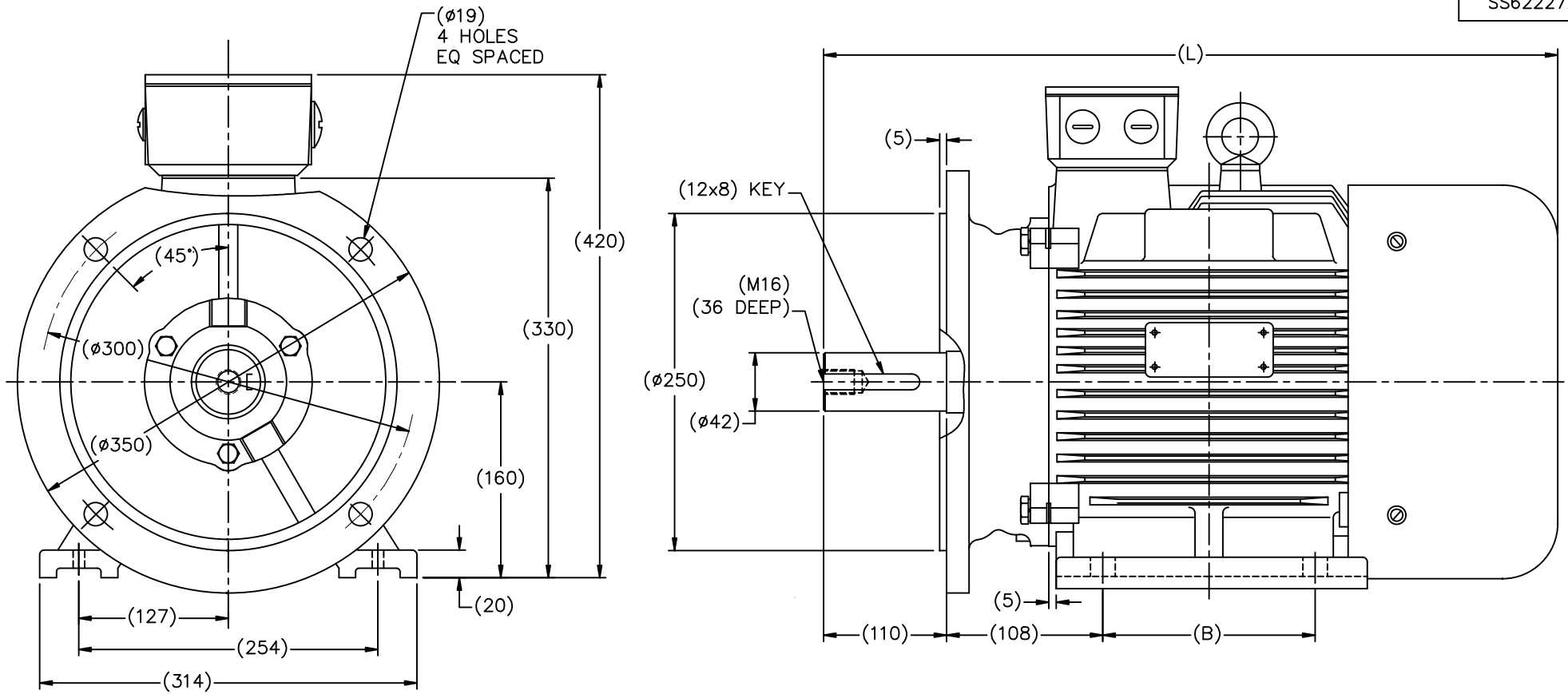
Nameplate Specifications

Phase	3	Output HP	20 & 15 Hp
Output KW	14.9 & 11.2 kW	Voltage	230/460 & 200/400 V
Speed	3545 & 2960 rpm	Service Factor	1.15 & 1.15
Frame	160M	Enclosure	Totally Enclosed Fan Cooled
Thermal Protection	Thermostat	Efficiency	91 & 91 %
Ambient Temperature	40 °C	Frequency	60 & 50 Hz
Current	47/23.5 & 41/20.5 A	Power Factor	88
Duty	Continuous	Insulation Class	F
Design Code	B	KVA Code	G
Drive End Bearing Size	6309	Opp Drive End Bearing Size	6209
UL	Recognized	CSA	Y
CE	Y	IP Code	55
Number of Speeds	1		

Technical Specifications

Electrical Type	Squirrel Cage Inverter Rated	Starting Method	Wye Start Delta Run Or Inverter
Poles	2	Rotation	Reversible
Mounting	Rigid Base	Motor Orientation	Horizontal
Drive End Bearing	Ball	Opp Drive End Bearing	Ball
Frame Material	Cast Iron	Shaft Type	IEC
Overall Length	23.62 in	Shaft Diameter	1.625 in
Shaft Extension	4.33 in	Assembly/Box Mounting	F3
Connection Drawing	004172.01	Outline Drawing	B-SS622272

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Cat. No	MODEL	B	L
193348.60	DF160M1D-2R	210	600
193351.60	DF160M2D-2R	210	600
193349.60	DF160MD-4R	210	600
193354.60	DF160LD-2R	254	645
193352.60	DF160LD-4R	254	645
193347.60	DF160MD-6R	210	600

(MAY NOT BE DRAWN TO SCALE)

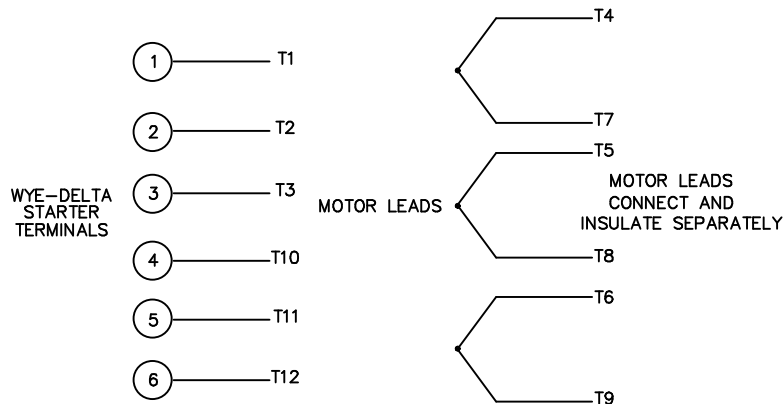
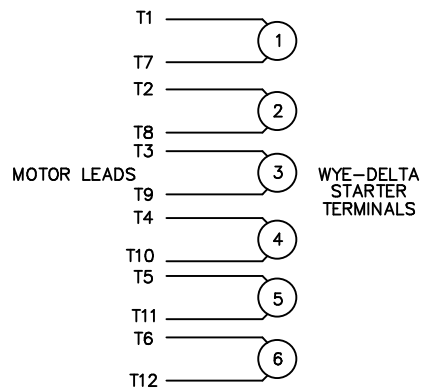
(DIMENSIONS ARE IN MILLIMETERS)

NO.		REVISION	BY & DATE	CHK	ANG	FINISH	TOLERANCES UNLESS SPECIFIED			DRAWN	HLB	12-10-2010			
							DEC.	METRIC		CHK	DJK	12-17-2010			
							.X	±2.5			APPD	SB	12-18-2010		
							.XX	±.76			SCALE		1=18		
							.XXX	±.127		REF					
							.XXXX	±.0127		FMF	HEBEI				
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	12-18-2010	CAD FILE	SS622272	SIZE	DRAWING NO.	PAGE	OF	REV.
							DIST				B	SS622272			

WYE - DELTA STARTING USEABLE ON 2,4 AND 6 POLE MOTORS.

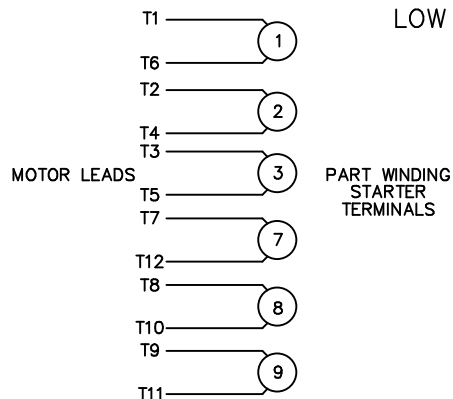
LOW VOLTAGE CONNECTION

HIGH VOLTAGE CONNECTION



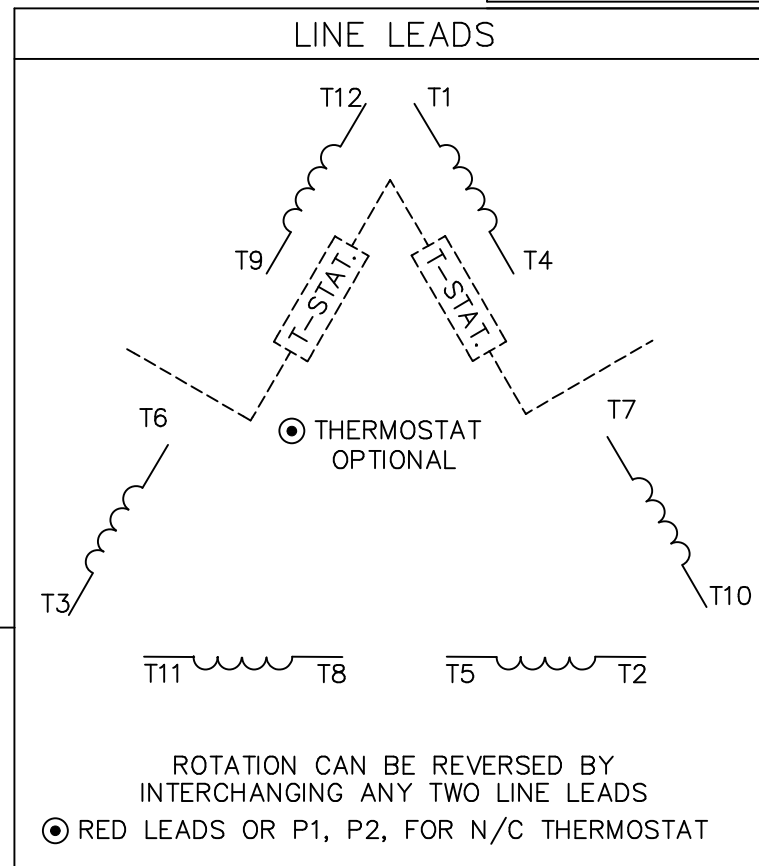
REFER TO THE WYE-DELTA STARTER CONNECTION INSTRUCTIONS FOR PROPER CONNECTION OF POWER LINES TO STARTER.

PART WINDING START USABLE ON 4 & 6 POLE MOTORS
LOW VOLTAGE CONNECTION ONLY



REFER TO THE PART WINDING STARTER INSTRUCTIONS FOR PROPER CONNECTION OF POWER LINES TO STARTER.

REFER TO THE CUTLER - HAMMER OR EQUIV. FOR PROPER SELECTION OF OVERLOAD HEATER COILS.



ACROSS THE LINE START & RUN				
	LINE 1	LINE 2	LINE 3	JOIN & INSULATE SEPARATELY
HIGH VOLT	T1, T12	T2, T10	T3, T11	(T4, T7) (T5, T8) (T6, T9)
LOW VOLT	T1, T6 T7, T12	T2, T4 T8, T10	T3, T5 T9, T11	

NO.	REVISION	BY & DATE	CHK	TOLERANCES UNLESS SPECIFIED		FINISH
				DEC.	INCHES	
				.X	±.1	
03	REV'D LOW VOLTAGE CONN. LEADS PER ELEC.	BJB 06/07/00		.XX	±.01	TITLE DELTA - WYE CONNECTION DIAGRAM
02	ADDED T-STAT. NOTES PER ELECTRICAL	KMM 06/02/98		.XXX	±.005	
01	REDRAWN TO CAD	DBT 06/02/97		.XXXX	±.0005	MAT'L.
				ANG	±1/2'	



ELECTRIC MOTORS
GEARMOTORS
AND DRIVES

DRAWN	WLW 09/08/77
CHK	RPB 09/12/77
APPD	JCW 09/12/77
SCALE	1=1
REF	
FMF	
PREV	

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RFP	CAD FILE	00417201	SIZE	DRAWING NO.	REV.
DIST			A	004172-01	03



CERTIFICATION DATA SHEET

1051 CHEYENNE AVE.
GRAFTON, WI 53024
PH. 262-377-8810

CATALOG #: 193351.60

CONN. DIAGRAM: 004172.01

OUTLINE: B-SS622272

MOUNTING: F3

WINDING #: T12902029 3

TYPICAL MOTOR PERFORMANCE DATA

HP	kW	SYNC. RPM	F.L. RPM	FRAME	ENCLOSURE	KVA CODE	DESIGN
20&15	14.9&11.2	3600	3545&2960	160M	TEFC	G	B

PH	Hz	VOLTS	AMPS	START TYPE	DUTY	INSL	S.F.	AMB°C
3	60/50	230/460&200/400	47/23.5&41/20.5	Y START D RUN OR INV	CONTINUOUS	F5	1.15/1.15	40

FULL LOAD EFF:	91&91	3/4 LOAD EFF:	91	1/2 LOAD EFF:	90.2	GTD. EFF	ELEC. TYPE
FULL LOAD PF:	88&87	3/4 LOAD PF:	86.5	1/2 LOAD PF:	82	89.5	SQ CAGE INV RATED

F.L. TORQUE	LOCKED ROTOR AMPS	L.R. TORQUE	B.D. TORQUE	F.L. RISE°C
29.6 LB-FT	280 / 140	62.5 LB-FT 210 %	75.5 LB-FT 255 %	60

SOUND PRESSURE @ 3 FT.	SOUND POWER	ROTOR WK^2	MAX. WK^2	SAFE STALL TIME	STARTS / HOUR	APPROX. MOTOR WGT
- dBA	- dBA	1.41 LB-FT^2	- LB-FT^2	20 SEC.	2	- LBS.

*** SUPPLEMENTAL INFORMATION ***

DE BRACKET TYPE	ODE BRACKET TYPE	MOUNT TYPE	ORIENTATION	SEVERE DUTY	HAZARDOUS LOCATION	DRIP COVER	SCREENS	PAINT
FF-FLANGE-300	STANDARD	RIGID	HORIZONTAL	PREMIUM SEVERE DUTY	NONE	FALSE	NONE	BLUE (ENAMEL)

BEARINGS		GREASE	SHAFT TYPE	SPECIAL DE	SPECIAL ODE	SHAFT MATERIAL	FRAME MATERIAL
DE	ODE						
BALL	BALL	POLYREX EM	STANDARD IEC	NONE	NONE	AISI 1045 (C-240)	CAST IRON
6309	6209						

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

*
N
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E

INVERTER TORQUE: CONSTANT 10:1
INV. HP SPEED RANGE: NONE
ENCODER: NONE
NONE NONE
NONE NONE PPR
BRAKE: NONE NONE
NONE P/N NONE
NONE NONE
NONE FT-LB NONE V NONE Hz

Data Sheet

Date: 1/19/2018

193351.60



Data @ 460 V

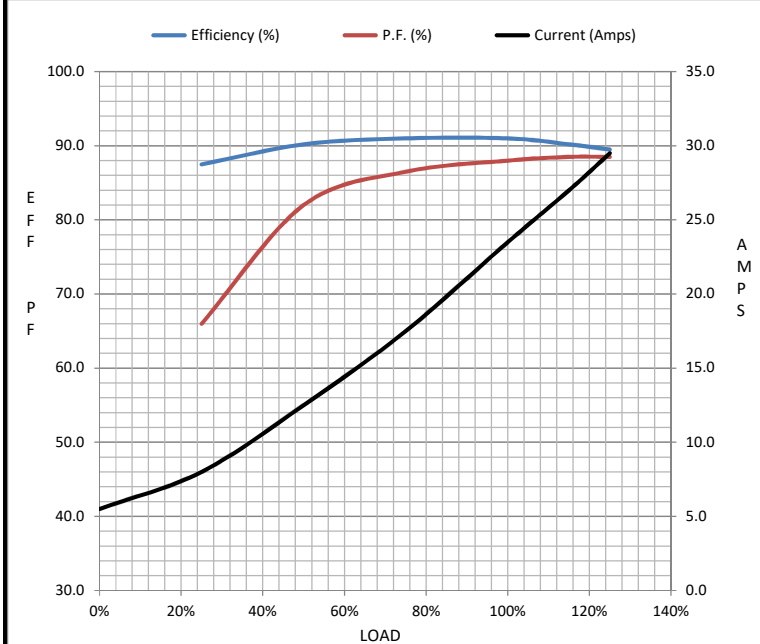
Motor Load Data

Load	0%	25%	50%	75%	100%	115%	125%	LR
Current (Amps)	5.5	8.0	12.5	17.5	23.5	27.0	29.5	140
Torque (ft-lb)	0.00	7.4	14.8	22.2	29.6	34.2	37.2	62.5
RPM	3600	3588	3575	3560	3545	3535	3525	0
Efficiency (%)		87.5	90.2	91.0	91.0	90.2	89.5	
P.F. (%)	11.0	66.0	82.0	86.5	88.0	88.5	88.5	45.0

Motor Speed Data

	LR	Pull-Up	BD	Rated	Idle
Speed (RPM)	0	1800	3400	3545	3600
Current (Amps)	140	125	80.0	23.5	5.5
Torque (ft-lb)	62.5	50.0	75.5	29.6	0.00

Information Block				
HP	20.0			
Sync. RPM	3600			
Frame	256			
Enclosure	TEFC			
Construction	TFC			
Voltage	230/460#200/400 V			
Frequency	60 Hz			
Design	B			
LR Code letter	G			
Service Factor	1.15			
Temp Rise @ FL	60 °C			
Duty	CONT			
Ambient	40 °C			
Elevation	1,000 feet			
Rotor/Shaft wk ²	1.41 Lb-Ft ²			
Ref Wdg	T12902029 NONE			
Sound Pressure @ 1M	999 dBA			
VFD Rating	CONSTANT 10:1			
Outline Dwg	B-SS622272			
Conn. Diag	004172.01			
Additional Specifications:				
0				
0				
EQUIV CKT (OHMS / PHASE)				
R1	R2	X1	X2	Xm
0.0000	0.0000	0.0000	0.0000	0.0000



Speed - Torque Curve

