

# PRODUCT INFORMATION PACKET

Model No: 160MTFC6512

Catalog No: R336A

20 HP General Purpose, 3 phase, 3600 RPM, 230/460 V, 160M Frame, TEFC  
Cast Iron TEFC Motors



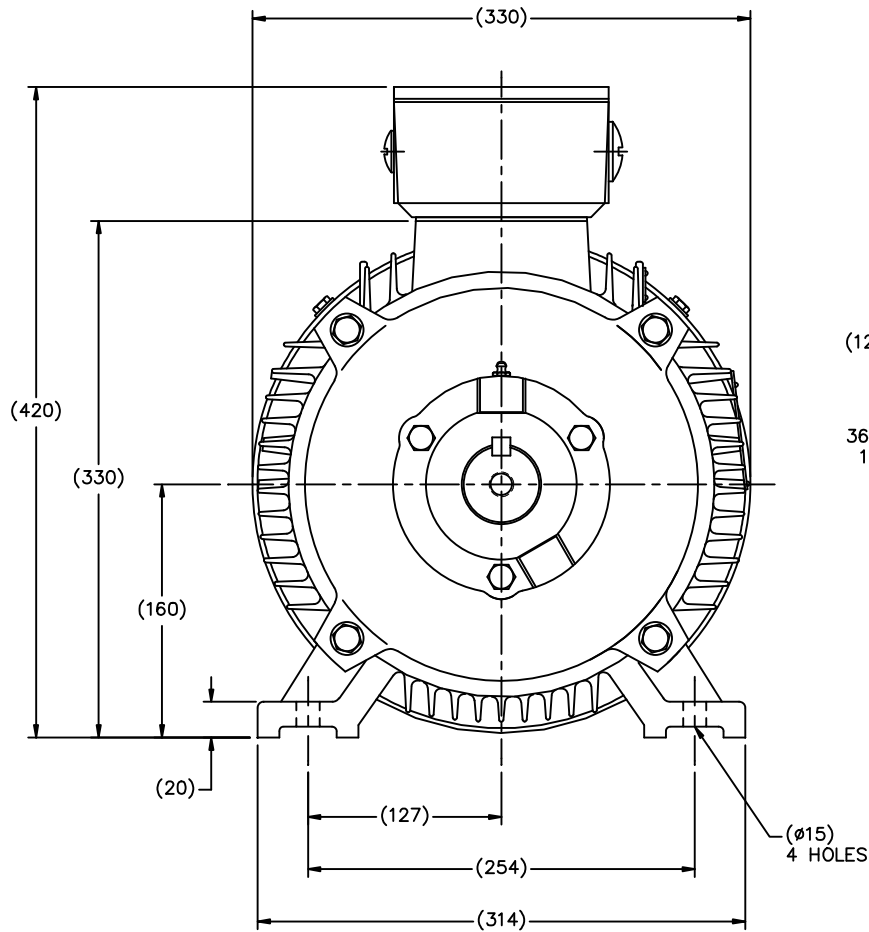
### Nameplate Specifications

Output HP	20 Hp	Output KW	14.9 kW
Frequency	60 Hz	Voltage	230/460 V
Current	47.0/23.5 A	Speed	3545 rpm
Service Factor	1.15	Phase	3
Efficiency	91 %	Power Factor	88
Duty	Continuous	Insulation Class	F
Design Code	B	KVA Code	G
Frame	160M	Enclosure	Totally Enclosed Fan Cooled
Thermal Protection	No	Ambient Temperature	40 °C
Drive End Bearing Size	6209	Opp Drive End Bearing Size	6209
UL	No	CSA	N
CE	Y	IP Code	55

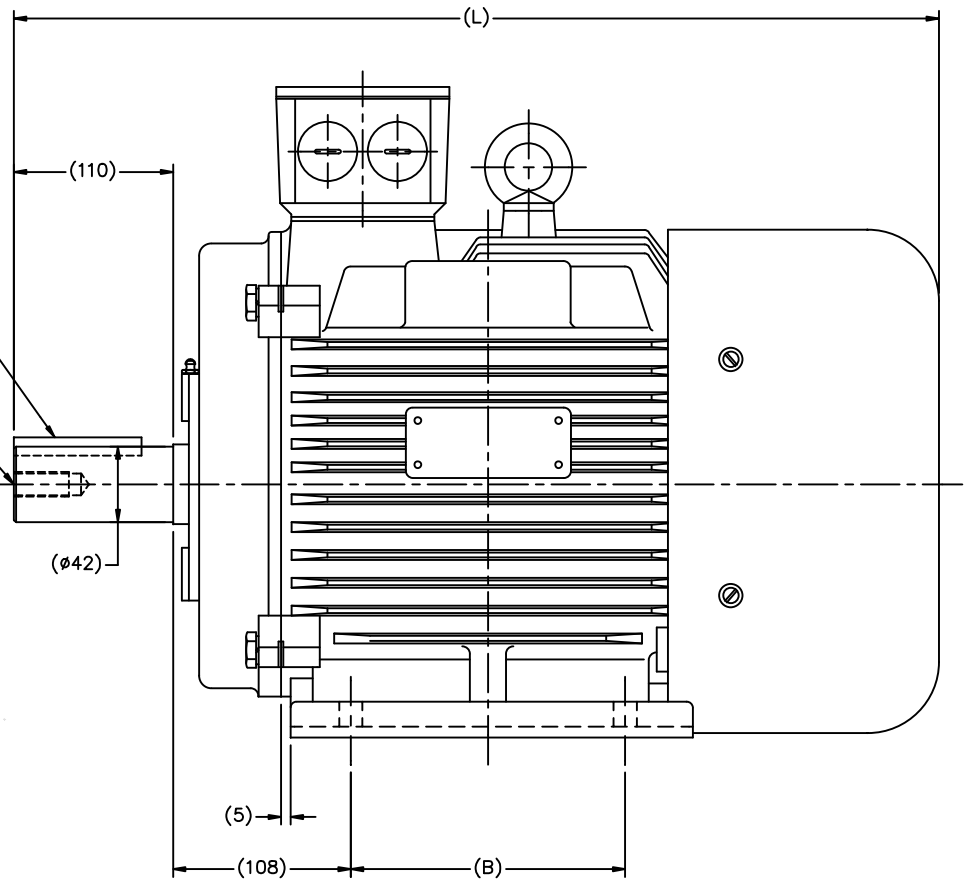
### Technical Specifications

Electrical Type	Squirrel Cage Inverter Rated	Starting Method	Part Wdg Start & 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	1.666 in
Shaft Extension	4.33 in	Assembly/Box Mounting	F3
Outline Drawing	SS622239	Connection Drawing	004172.03

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(12x12x84)  
KEY  
M16  
36 DEEP  
1 HOLE



(MAY NOT BE DRAWN TO SCALE)

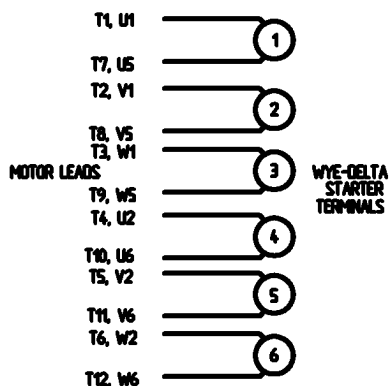
(DIMENSIONS ARE IN MILLIMETERS)

DF160M1-2R	193315.60	600	210
DF160M2-2R	193318.60	600	210
DF160M-4R	193316.60	600	210
DF160L-2R	193321.60	645	254
DF160L-4R	193319.60	645	254
DF160M-6R	193314.60	600	210
FRAME	PART #	L	B

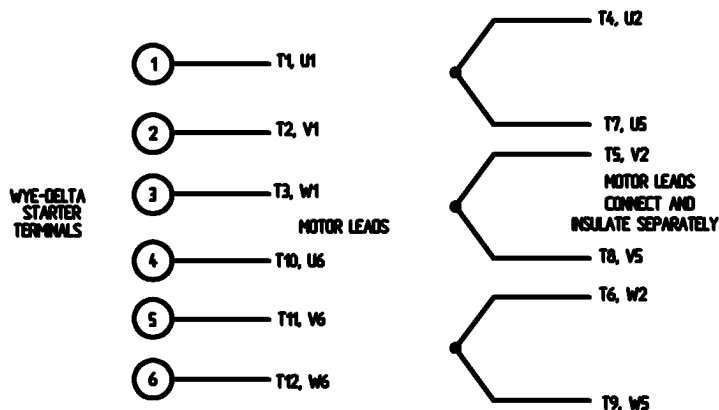
				TOLERANCES UNLESS SPECIFIED				DRAWN MSG 11-17-2010						
				DEC.	METRIC			CHK MJS 11-18-2010						
				.X	±2.5	TITLE OUTLINE - IEC PREMIUM		APPD SB 11-18-2010	SCALE 5=16					
				.XX	±.76	DF160-R (II)		REF						
				.XXX	±.127	MAT'L		FMF	HEBEI					
				.XXXX	±.0127	FINISH		PREV						
NO.	REVISION	BY & DATE	CHK	ANG	±7'30"	RFP	11-18-2010	CAD FILE	ss622239	SIZE	DRAWING NO.	PAGE	OF	REV.
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										B	SS622239			

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

LOW VOLTAGE CONNECTION

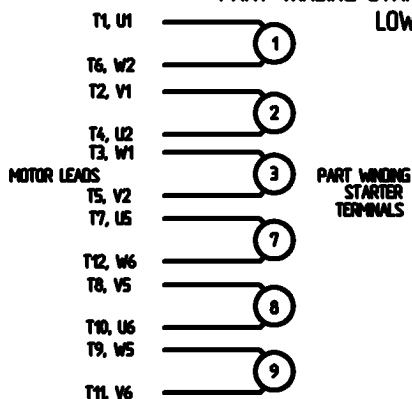


HIGH VOLTAGE CONNECTION



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

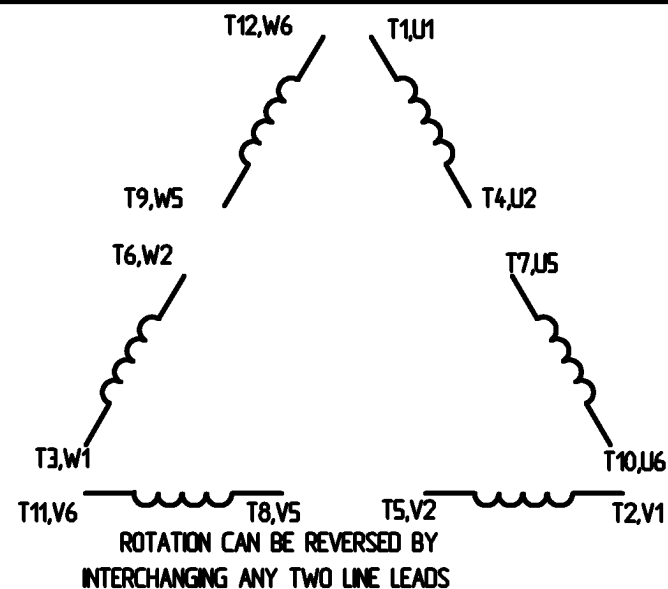
PART WINDING START USABLE ON 4 & 6 POLE MOTORS  
LOW VOLTAGE CONNECTION ONLY



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.

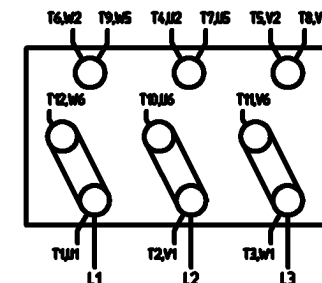
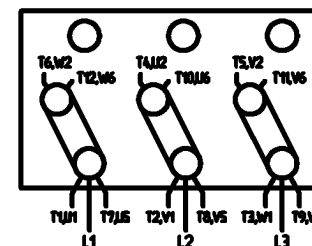
LINE LEADS



12 LEAD DELTA CONNECTION ACROSS THE LINE START  
(FOR Y START DELTA RUN, REMOVE THE JUMPERS)

LOW VOLTAGE  
MUST BE REWIRED  
AS SHOWN

HIGH VOLTAGE  
FACTORY WIRED FOR HIGH  
VOLTAGE AS SHOWN



				TOLERANCES UNLESS SPECIFIED		<p><b>ELECTRIC MOTORS GEARMOTORS AND DRIVES</b></p>	DRAWN	CJW 08/28/02
				DEC.	INCHES		CHK	
				X	+ .1		APPO	
				XX	+ .01		SCALE	1:1
				XXX	+ .005		REF	
				XXXX	+ .0005	FINISH		
NO.	REVISION	BY & DATE	CHK	ANG	+ 1/2°	TITLE	DELTA - WYE CONNECTION DIAGRAM IEC CAST IRON MOTORS	
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				DST			A	004172-03
								REV.

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ERROR: syntaxerror  
OFFENDING COMMAND: --nostringval--
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STACK:
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/CB  
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/Pscript_WinNT_Compact  
-dictionary-
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P.O. BOX 9003  
WAUSAU, WI 54401-9003  
PH. 715-675-3311

DATA VOLTS: 460

CERTIFICATION DATA SHEET

CUSTOMER: \_\_\_\_\_  
 ORDER #: \_\_\_\_\_  
 CONN. DIAGRAM: 004172.03  
 OUTLINE: SS622239  
 WINDING: T12902029 NONE 3  
 SPEED: \_\_\_\_\_  
 CUSTOMER P.O. #: \_\_\_\_\_  
 REFERENCE MODEL #: 160MTFC6512  
 CAT #: R336A  
 CUSTOMER PART #: \_\_\_\_\_  
 MOUNTING: F3

TYPICAL MOTOR PERFORMANCE DATA

HP	KW	SYNC RPM	FL RPM	FRAME	ENCLOSURE	TYPE	KVA CODE	DESIGN	
20	14.9	3600	3545	160M	TEFC	TEFC	G	B	
PH	HZ	VOLTS	AMPS	START TYPE	DUTY	INSL	S.F.	AMB	ELEV.
3	60/50	230/460#200/400	47/23.5&41/20.5	PWS & YDRUN OR INV	CONT	F	1.15	40	3300

F.L. EFF	91.0	3/4 LD EFF	91.0	1/2 LD EFF	90.2	GTD EFF	82.0	ELECT. TYPE	SO CAGE INV RATED
F.L. PF	88.0	3/4 LD PF	86.5	1/2 LD PF	82.0		89.5		

F.L. TORQUE	LR AMPS @ 460 V	L.R. TORQUE	62.5 LB-FT	211%	75.5 LB-FT	F.L. RISE (°C)	60
29.6 LB-FT	140						

@ 3 FT.	POWER	ROTOR WK <sup>3</sup>	MAX. LOAD WK <sup>2</sup>	SAFE STALL TIME	STARTS/HOUR	MOTOR WGT
999 DBA	1008 DBA	1.41 LB-FT <sup>2</sup>	0 LB-FT <sup>2</sup>	20 SEC.	2	0 LB.

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

DE BRACKET TYPE	ODE BRACKET TYPE	MOUNT TYPE	MOTOR ORIENTATION	SEVERE DUTY	HAZARDOUS LOCATION	DRIP COVER	SCREENS	PAINT
STANDARD	STANDARD	RIGID	HORIZONTAL	UM SEVERE	NONE	NO	NONE	BLUE (ENAMEL)

BEARINGS	GREASE	SHAFT TYPE	SPECIAL DE	SPECIAL ODE	SHAFT	MATERIAL	FRAME MATERIAL
DE ODE BALL BALL 6209	POLYREX EM	STANDARD IEC	NONE	NONE	1045 HOT ROLLED (C-204		CAST IRON

THERMOSTATS	PROTECTORS	WDG RTD's	BRG RTD's	THERMISTORS	CONTROL	SPACE HEATERS
NONE	NOT	NONE	NONE	NONE	FALSE	NA

R1 (ohms/ph)	R2 (ohms/ph)	X1 (ohms/ph)	X2 (ohms/ph)	Xm (ohms/ph)	VIBRATION (in/sec)	FLOAT ODE
0	0	0	0	0	0.080	ODE

INVERTER TORQUE: CONSTANT 10:1  
 INV. HP SPEED RANGE: 1.5X BASE SPEED

ENCODER: NONE	NONE	NONE	NONE	BRAKE: NONE	NONE	NONE	NONE	PPR
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PREPARED BY: EARL BABBITTS  
 DATE: 5/5/2017

U.I.: NONE	NONE	NA	NONE	HZ:
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Data Sheet



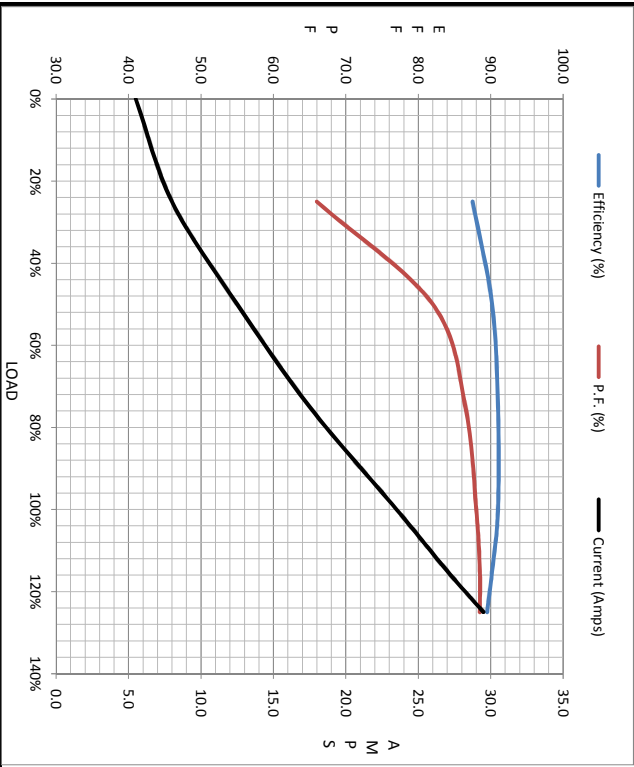
160MTFC6512

Submital  
Data @ 460 V

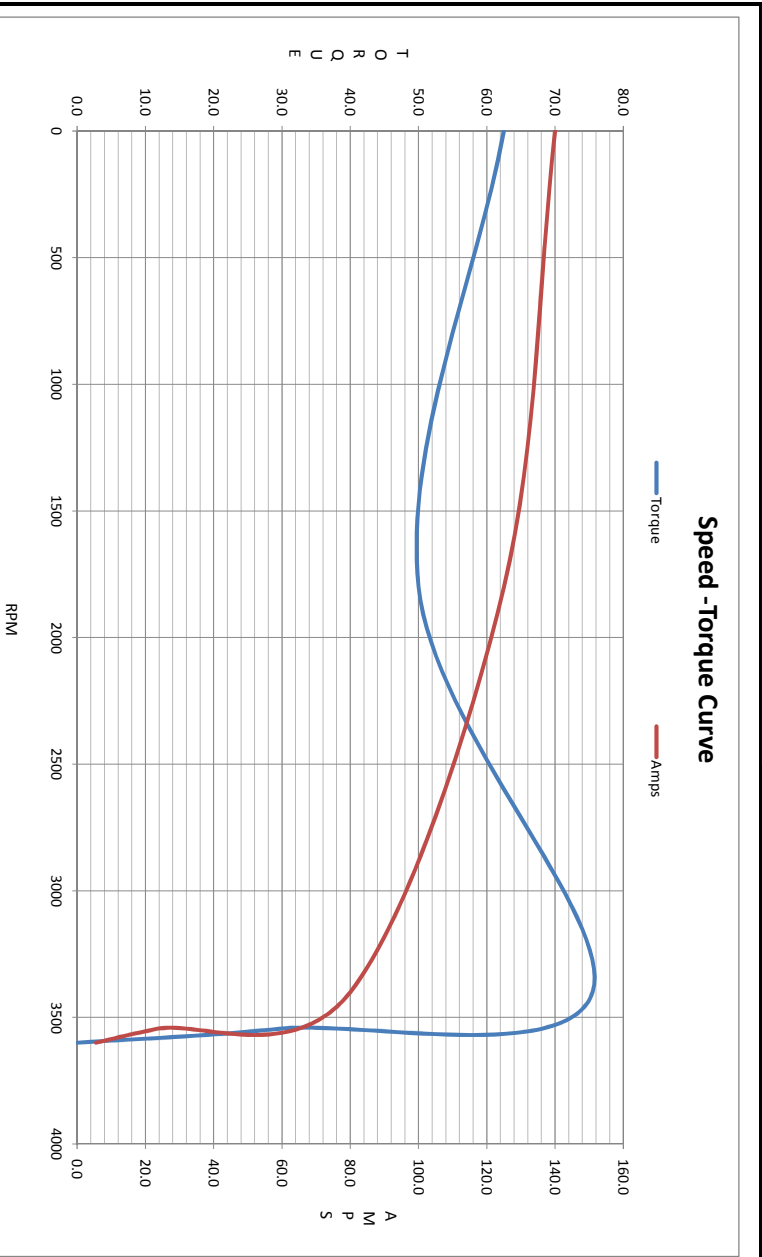
Date: 5/5/2017  
Customer: EARL BABBITTS  
Attention: EARL BABBITTS  
Submitted by:

		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	14.0			
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	3.535	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					Information Block																				
	LR	Pull-Up	BD	Rated	Idle	HP	Frame	Enclosure	Construction	Voltage	Frequency	Design	LR Code letter	Service Factor	Temp Rise @ FL	Duty	Ambient	Elevation	Motor/Shaft wk <sup>2</sup>	Ret Wdg	Sound Pressure @ 1M	VFD Rating	Outline Dwg	Conn. Diag	Additional Specifications:		
Speed (RPM)	0	1800	3400	3545	3600	20.0	256	TEFC	TFC	30/460#200/40 V	60	B	G	1.15	60	CONT	40 °C	1,000 feet	1.41 Lb-Ft <sup>2</sup>	T12902029	NONE	999	dbA	CONSTANT 10:1	SS622299	004172.03	
Current (Amps)	140	125	80.0	23.5	5.5		3600																				
Torque (ft-lb)	62.5	50.0	75.5	29.6	0.00																						



		EQUIV CKT (OHMS / PHASE)			
	R1	R2	X1	X2	Xm
	0.0000	0.0000	0.0000	0.0000	0.0000



Date: 5/5/2017  
 Customer: EARL BABBITTS  
 Attention: EARL BABBITTS  
 Submitted by:

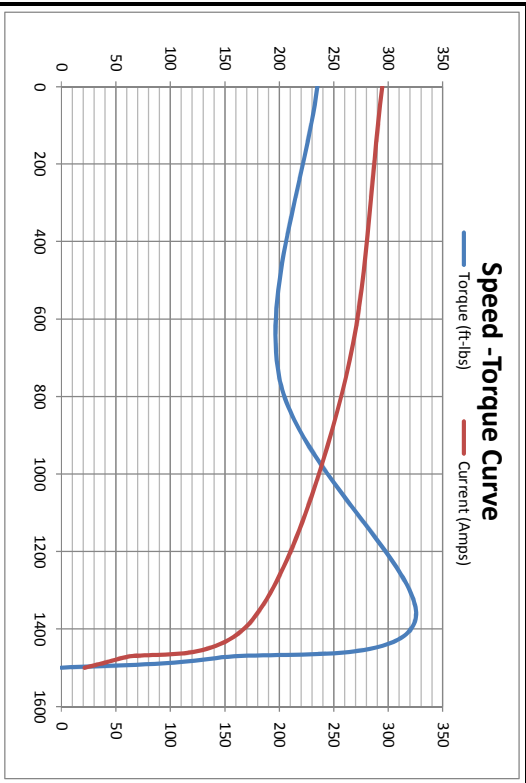


REF: 160MTFC6512  
**Torque Capability Curve**  
 Data @ 460 Volts

HP	0.00	0.70	20	20	20	125
Min CT RPM						
Base RPM	460	460	460	460	460	460
CHP RPM	2	60	66	67	44	
Max CHP RPM		3,545	4,000	4,000	2,682	
Current (Amps)	0	125	23.5	23.5	23.5	158
Rated Tq (ft-lb)	14.5	23.5	29.6	26.2	24.5	
Peak Tq (ft-lb)	69.5	69.5	69.5	53.9	53.9	125

Motor Speed Data

	Locked Rotor	Pull-Up	Breakdown	Rated Load	Idle	Information Block
Speed (RPM)	0	750	1375	1475	1500	HP 20.0
Current (Amps)	295	261	176	55.1	21.4	Sync. RPM 3,600
Torque (ft-lbs)	235	200	325	142	0.00	Frame 256
						Enclosure TEFC
						Construction TFC
						Voltage 230/460#200/400
						Frequency 60 Hz
						Duty CONT
						Design B
						LR Code letter G
						Poles 2
						Temp Rise @ FL 60 °C
						Ambient 40 °C
						Elevation 1,000 feet
						Ref Wdg T12902029
						R # NONE
						dBa @ 1M 999
						VFD rating CONSTANT 10:1
						OUTLINE: SS622239
						CONN DIAG: 004172.03
						0



HP	20.0
Sync. RPM	3,600
Frame	256
Enclosure	TEFC
Construction	TFC
Voltage	230/460#200/400
Frequency	60 Hz
Duty	CONT
Design	B
LR Code letter	G
Poles	2
Temp Rise @ FL	60 °C
Ambient	40 °C
Elevation	1,000 feet
Ref Wdg	T12902029
R #	NONE
dBa @ 1M	999
VFD rating	CONSTANT 10:1
OUTLINE:	SS622239
CONN DIAG:	004172.03
	0

