



MOTOR DATA SHEET (INCL. CURVES)

CLIENT	:	Air Products Manufacturing LLC
PROJECT NAME/NO.	:	WEP Renewables
CLIENT PO NO	:	4505608736
HMD DOCUMENT NO	:	HMD-4505608736-C11-01
CLIENT DOCUMENT NO	:	EN207123-SNDYN-9V3-00062
HMD PUMP NO	:	839913 A/B & 839914 A/B
EQUIPMENT TAG NO	:	18-P-1855 A/B & 18-P-1856 A/B

2	31/08/2023	ISSUE FOR REVIEW	AFS	AFS	NW
1	08/11/2022	ISSUE FOR REVIEW	AFS	AFS	NW
0	25/05/2022	ISSUE FOR REVIEW	AN	AFS	NW
REV	DATE	DESCRIPTION	PREPARED BY	CHECKED BY	APPROVED BY

NOTE:

RESOLUTION SHEET				
Comment Number	Document Name: Motor Data Sheet (incl. Curves)		Revision from which comment first appeared	Comment Status: Open\Closed - (Date Closed:)
	CLIENT COMMENT	HMD RESPONSE	Current Rev:	
1	Class null ¹ Division null ²	Noted and updated.	1	Closed (31/08/2023)

 	LOW VOLTAGE MOTOR (IEEE 841)		Contract:		A8KM	
	DATA SHEET		Item No:		18-P-1855A/B ((839915))	
	U.S. CUSTOMARY UNITS		Revision:		1	Date: 8-Nov-22
	APPLICABLE MOTOR SPECIFICATION		Unit:		Utilities and Offsites Firewater	
	A8KM-PP-000-50670-A		RFQ / P.O. No.:		4505608736	
	Doc. No.: EN207123-SNDYN-9V3-00062		Sheet		1	of 1
	Rev					
1	APPLICABLE TO		PROPOSAL		☒ PURCHASE	
2	CLIENT:		World Energy Paramount		SERVICE: Caustic Dilution Pump	
3	PLANT:		World Energy Paramount		MOTOR TAG NO. / NO. REQ'D: 18-P-1855AM/BM / Two (2)	
4	SITE:		Paramount, CA		DRIVEN EQUIPMENT TYPE / TAG NO.: Centrifugal Pump / 18-P-1855A/B	
5	DESIGN DATA AND ACCESSORY EQUIPMENT					
6	NAMEPLATE		15	HP	1.15	S.F.
7	ROTATION (WHEN FACING MOTOR OPPOSITE DRIVE END):		CW		CCW	
8	INSULATION CLASS:		B	☒ F	H	
9	AREA CLASSIFICATION:		CLASS		I	GROUP
10	LOCATION:		INDOOR		☒ OUTDOOR	
11	ENCLOSURE:		☒ TOTALLY-ENCLOSED FAN-COOLED		TOTALLY-ENCLOSED NONVENTILATED	
12	MOUNTING METHOD:		☒ FOOT		FLANGE, TYPE:	
13	MOUNTING ARRANGEMENT:		☒ HORIZONTAL		VERTICAL SHAFT DOWN	
14	BEARING TYPE:		☒ BALL		ROLLER	
15	CONNECTION TO LOAD:		☒ DIRECT CONNECTED		V-BELT	
16	EQUIPMENT OPERATION:		☒ CONTINUOUS		SPARED CONTINUOUS	
17	SOUND PRESSURE LEVEL REQUIREMENTS:		85		dBA @	
18	STARTING:		☒ FULL VOLTAGE		☒ REDUCED VOLTAGE,	
19			UNLOADED		☒ LOADED	
20	SPACE HEATERS		240/120		V	
21	OVERSIZE TERMINAL BOX		☒ DRAIN PLUGS		AUXILIARY NAMEPLATE	
22	SS NAMEPLATE		ROUTINE		COMPLETE	
23	TEST		☒ ROUTINE		VIBRATION	
24			REPORT		FOOT FLATNESS	
25	HMD-450 REMARKS: 2.1) This data sheet applies to motors 1/2 hp through 500 hp with anti-friction bearings.					
	2.2) Space heaters are required for 100 hp and above. Space heaters shall be rated at 240V/1 ph./60Hz for operation at 120V.					
	2.3) IP55 degree of protection is required.					
	2.4) Average relative humidity is 54%.					
	INFORMATION BELOW TO BE COMPLETED BY VENDOR					
	MOTOR MFR.		ABB Baldor		MODEL	
	NAMEPLATE HP		15		FULL LOAD RPM	
	MOTOR OUTLINE DRAWING NO.		09LYJ286		FRAME	
	ROTOR CAGE MATERIAL OF CONSTRUCTION		AI		MOTOR WINDING MATERIAL	
	BEARING MANUFACTURER		SKF		SIZE	
	VERTICAL MOTOR THRUST BEARING:		TYPE		CAPACITY: UP	
	LOAD		FULL		3/4	
	AMPERES		17.3		13.1	
	EFFICIENCY, %		91.3		91.7	
	POWER FACTOR		89		88	
	SPEED, RPM		3522		3544	
	SOUND LEVEL: GUARANTEED		<90		dBA / EXPECTED	
	FAN MATERIAL		Polypropylene MP5000		(NON-SPARKING)	
	LOCKED ROTOR AMPS*		114		AMPS	
	FULL LOAD TORQUE*		22.4		FT-LB	
	LOCKED ROTOR TORQUE*		32.7		FT-LB	
	PULL UP TORQUE*		26		FT-LB	
	BREAKDOWN TORQUE*		87.8		FT-LB	
	ACCEL. TIME W/ LOAD (0 TO FULL SPEED)*				SEC.	
	STALL TIMES AT ZERO RPM* - HOT / COLD				SEC.	
	NUMBER OF CONSECUTIVE STARTS*		1 Hot / 2 Cold			
	* INDICATED AT RATED VOLTAGE					
	INFORMATION BELOW TO BE PROVIDED BY VENDOR AFTER PURCHASE (REFER TO RFQ/PO DOCUMENTS)					
	SAFE TIME - CURRENT CURVE		MAX. SURFACE TEMP. DURING NORMAL STARING OR OPERATION OF:		ROTOR	
	SPEED - TORQUE CURVE		ROTOR		°F	
	SAFE LOCKED ROTOR TIME		HOT		COLD	
	NOTES:					
	1. Motor nameplate shall indicate service factor, area classification and T-rating. T-rating relates to both external and internal components.					
	2. Provide accessory loads on submittal documents, e.g. Volts, HP, kVA, etc.					
	3. All motors shall be rated for Cl. I, Div. 2, Gr. B,C,D and a T3C temperature code for project uniformity.					
	4. An oversized electrical terminations box is required.					
	5. Grounding provisions are required for inside and outside the motor connection box.					

These documents contain confidential and proprietary information of Fluor Enterprises, Inc. They are provided under a Secrecy or Confidentiality Agreement with Fluor and are to be used solely in accordance with the provisions of the relevant agreement. These documents are copyrighted as an unpublished work. Copyright resides with Fluor Corporation. All Rights Reserved. Unauthorized copying, reproduction or use of these documents may result in copyright infringement or other crimes punishable in both civil and criminal courts.



Notes:	Class 1 Division 2
--------	-----------------------

Nameplate NP3854									
CAT.NO.		CUST. P/N		ENCL	TEFC				
SPEC	09-0000-3828	CC	010A	FRAME	254T	SER.NO.			
HP	15	CLASS	F	HZ	60	ODE BRG	6309	DE BRG	6309
R.P.M.	3520	PH.	3	DES.	B	ABMA DE BRG	45BC03X30X		
VOLTS	460	CODE	G			ABMA ODE BRG	45BC03X30X		
AMPS	17	MOTOR WT.	299			LUBRICATION	POLYREX EM		
RATING	41C AMB-CONT	MAX. KVAR	2.2			BLANK	SFA 19.9		
NEMA NOM. EFF.	91	NO. OF ROTOR BARS	28	SER.F.	1.15	IP	56		
GUAR.MIN.EFF	89.5	NO. OF STATOR BARS	36	P.F.	89				
TEMP CODE	T3C								
TEMP=	160								
VOLTS		AMPS		WATTS		MAX. SPACE HEATER TEMP.			



AC Induction Motor Performance Data
Record # 18022
Typical performance - not guaranteed values

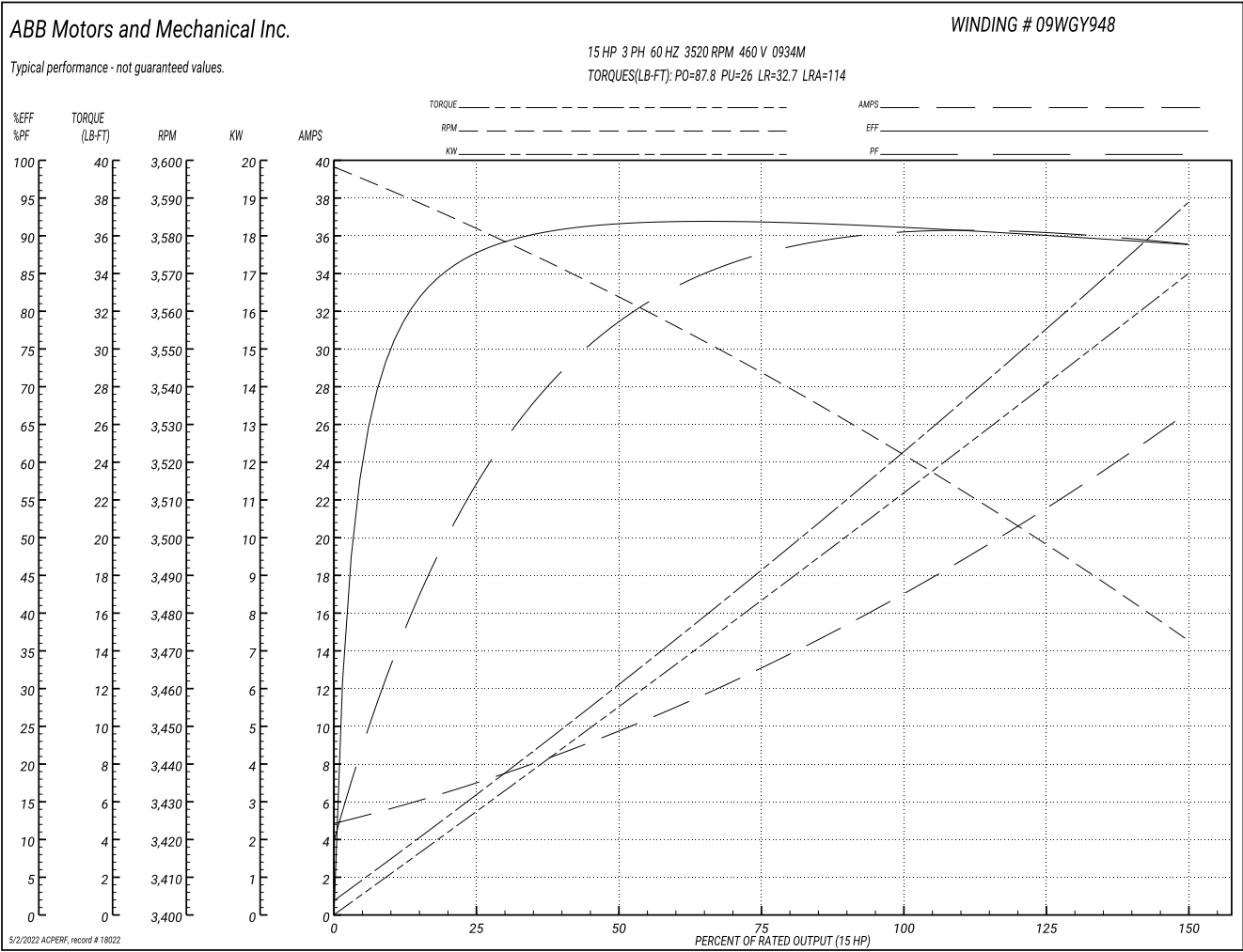
Winding: 09WGY948-R001			Type: 0934M		Enclosure: TEFC		
Nameplate Data			460 V, 60 Hz: Single Voltage Motor				
Rated Output (HP)		15	Full Load Torque		22.4 LB-FT		
Volts		460	Start Configuration		direct on line		
Full Load Amps		17	Breakdown Torque		87.8 LB-FT		
R.P.M.		3520	Pull-up Torque		26 LB-FT		
Hz		60	Phase		3	Locked-rotor Torque	32.7 LB-FT
NEMA Design Code		B	KVA Code		G	Starting Current	114 A
Service Factor (S.F.)		1.15	No-load Current		5.1 A		
NEMA Nom. Eff.		91	Power Factor		89	Line-line Res. @ 25°C	0.622 Ω
Rating - Duty		40C AMB-CONT		Temp. Rise @ Rated Load		54°C	
S.F. Amps				Temp. Rise @ S.F. Load		67°C	
				Locked-rotor Power Factor		28.4	
				Rotor inertia		0.868 lb-ft²	

Load Characteristics 460 V, 60 Hz, 15 HP

% of Rated Load	25	50	75	100	125	150	S.F.
Power Factor	61	80	88	89	90	90	92
Efficiency	87.5	91.1	91.8	91.2	90.2	88.7	91.3
Speed	3581	3563	3544	3522	3499	3472	3514
Line amperes	6.66	9.71	13.1	17.3	21.7	26.5	19.3



Performance Graph at 460V, 60Hz, 15.0HP Typical performance - Not guaranteed values



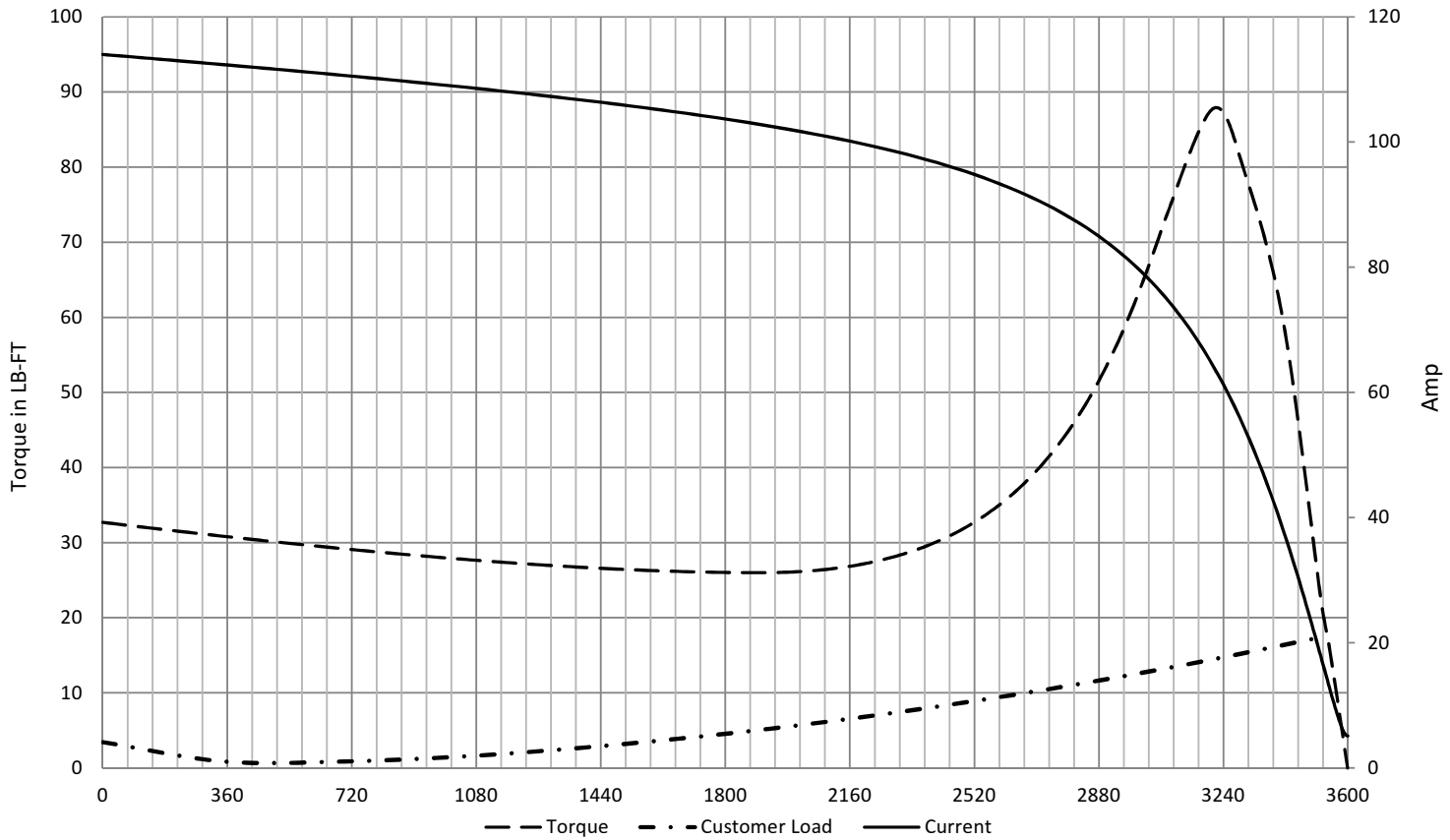


SPEED TORQUE / SPEED CURRENT CURVE



09WGY948

15HP 460V 60Hz



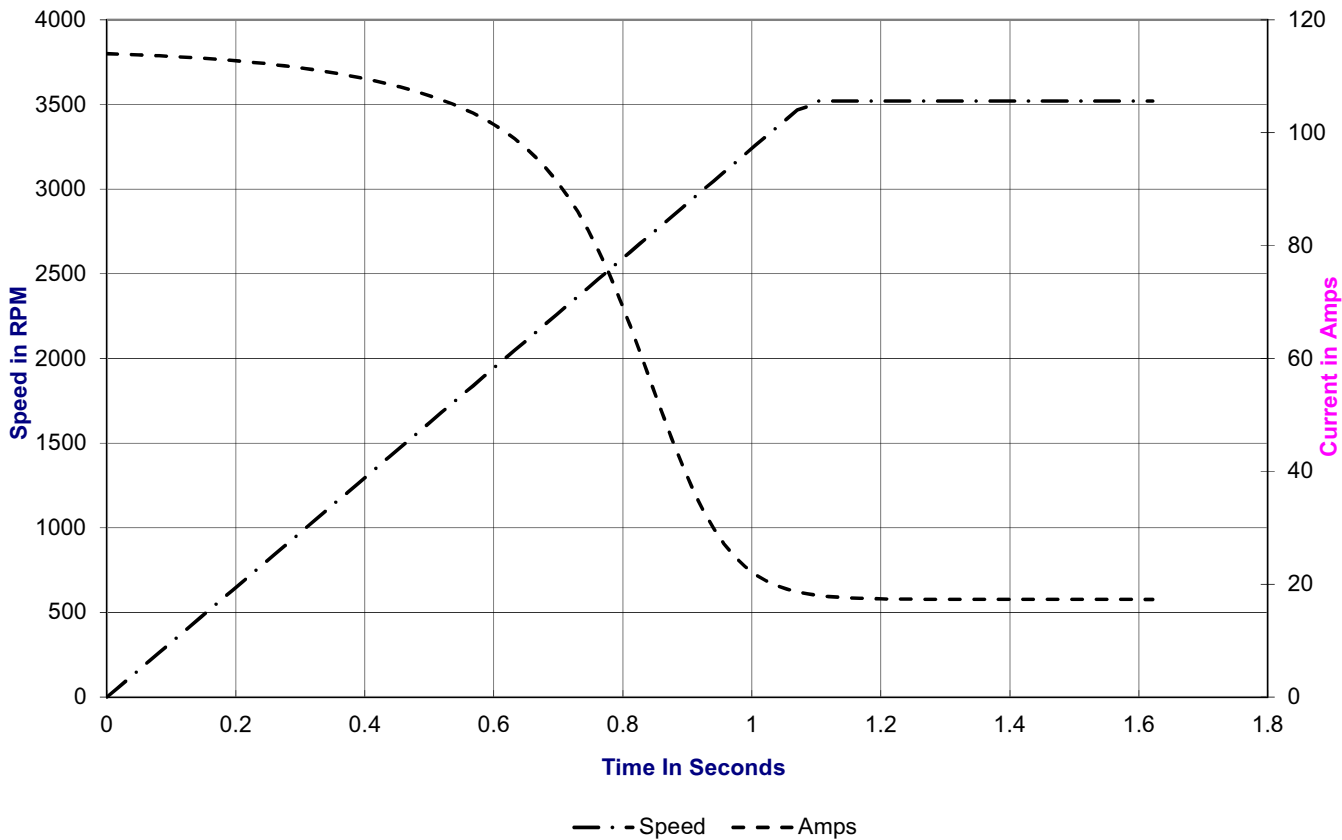


Speed Time / Current Time Curve



09WGY948 : Variable Torque : 4.25 lb-ft² Load Inertia

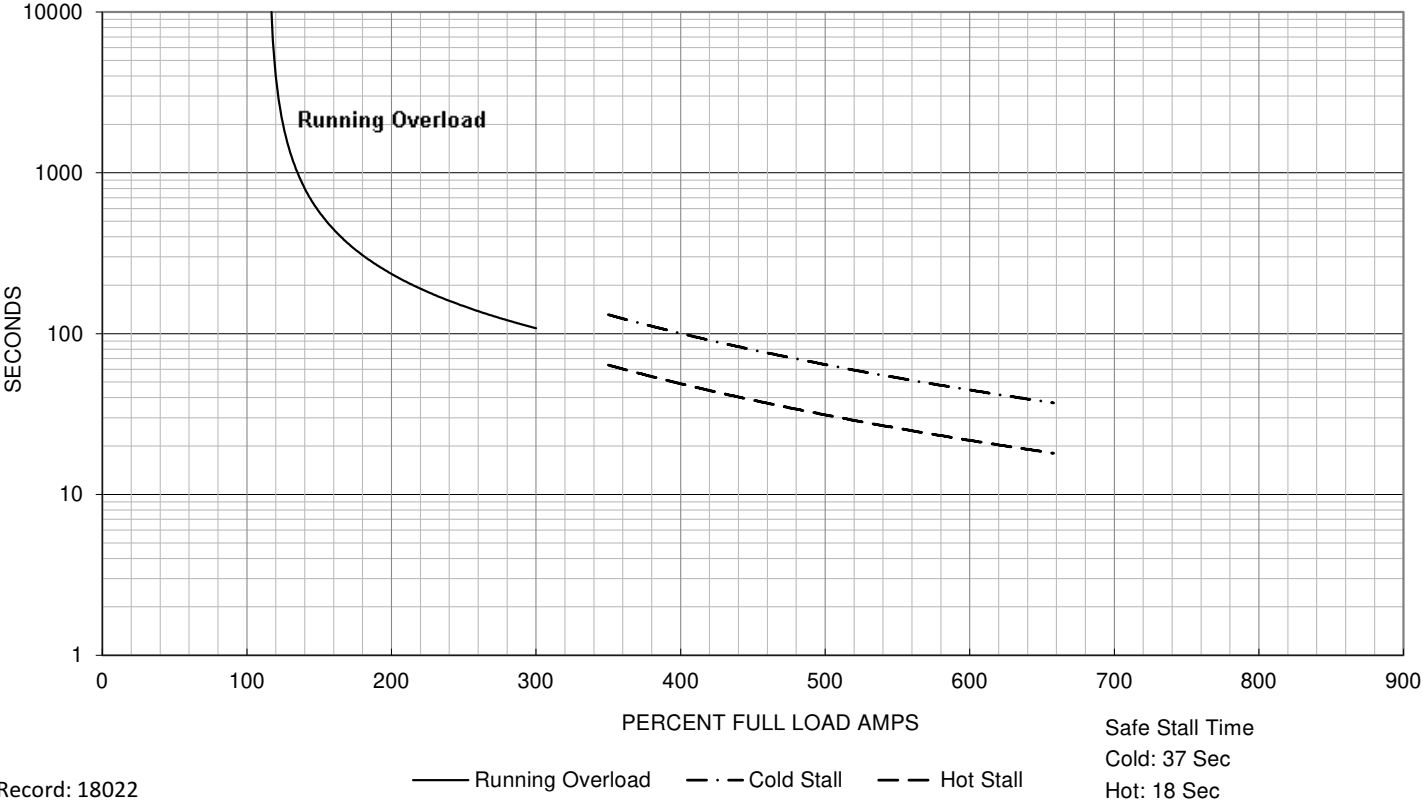
15HP 460V 60HZ



THERMAL LIMIT CURVE

09WGY948

15HP 460V 60HZ



	LOW VOLTAGE MOTOR (IEEE 841)		Contract:		A8KM	
	DATA SHEET		Item No:		18-P-1856A/B ((839914))	
	U.S. CUSTOMARY UNITS		Revision:		1	Date: 25-May-22
	APPLICABLE MOTOR SPECIFICATION		Unit:		Utilities and Offsites Firewater	
	A8KM-PP-000-50670-A		RFQ / P.O. No.:		4505608736	
	Doc. No.: EN207123-SNDYN-9V3-00062		Sheet		1	of 1
	Rev					

1	APPLICABLE TO	☐ PROPOSAL	☒ PURCHASE	AS BUILT		
2	CLIENT:	World Energy Paramount		SERVICE	Caustic Distribution Pump	
3	PLANT:	World Energy Paramount		MOTOR TAG NO. / NO. REQ'D	18-P-1856AM/BM / Two (2)	
4	SITE:	Paramount, CA		DRIVEN EQUIPMENT TYPE / TAG NO.	Centrifugal Pump / 18-P-1856A/B	
5	DESIGN DATA AND ACCESSORY EQUIPMENT					
6	NAMEPLATE	20	HP	1.15	S.F.	3450 RPM
7	ROTATION (WHEN FACING MOTOR OPPOSITE DRIVE END):			CW	CCW	Fans shall be bi-directional
8	INSULATION CLASS:	B	☒ F	H	VPI	TEMP. RISE CLASS B / °C over 40.6 °C AMBIENT
9	AREA CLASSIFICATION:	CLASS I		GROUP	B/C/D	DIV. 2 T-RATING T3C / °F
10	UNCLASSIFIED					
11	LOCATION:	INDOOR	☒ OUTDOOR	SHELTERED	UNUSUAL CONDITIONS:	DUST OTHER
12	AMBIENT TEMPERATURE: MAX		105 °F	/ MIN.	35 °F	ALTITUDE 69 ft
13	ENCLOSURE:	☒ TOTALLY-ENCLOSED FAN-COOLED	TOTALLY-ENCLOSED NONVENTILATED		EXPLOSION PROOF	
14	MOUNTING METHOD:	☒ FOOT	FLANGE, TYPE:			
15	MOUNTING ARRANGEMENT:	☒ HORIZONTAL	VERTICAL SHAFT DOWN		VERTICAL SHAFT UP	
16	BEARING TYPE:	☒ BALL	ROLLER	BEARING LUBRICATION:	GREASE	OIL PURE OIL MIST
17	CONNECTION TO LOAD:	☒ DIRECT CONNECTED	V-BELT	THROUGH GEAR	CLOSE COUPLED	
18	EQUIPMENT OPERATION:	☒ CONTINUOUS	SPARED CONTINUOUS		INTERMITTENT-CYCLES / DAY	
19	SOUND PRESSURE LEVEL REQUIREMENTS:	85 dBA @		3 FEET		
20	STARTING:	☒ FULL VOLTAGE	☒ REDUCED VOLTAGE,	80 % OF VOLTAGE	Starting Voltage Dip Allowance	
21	UNLOADED		☒ LOADED	CAPACITORS FOR POWER FACTOR CORRECTION		
22	SPACE HEATERS	240/120 V	1 PHASE	°F MAX. TEMP		
23	OVERSIZE TERMINAL BOX	☒ DRAIN PLUGS				
24	SS NAMEPLATE	AUXILIARY NAMEPLATE				
25	TEST	☒ ROUTINE	COMPLETE	VIBRATION	REPORT	FOOT FLATNESS
26	REMARKS:	2.1) This data sheet applies to motors 1/2 hp through 500 hp with anti-friction bearings.				
27		2.2) Space heaters are required for 100 hp and above. Space heaters shall be rated at 240V/1 ph./60Hz for operation at 120V.				
28		2.3) IP55 degree of protection is required.				
29		2.4) Average relative humidity is 54%.				
30	INFORMATION BELOW TO BE COMPLETED BY VENDOR					
31	MOTOR MFR.	ABB Baldor		MODEL	10-0000-2602	SERIAL NO.
32	NAMEPLATE HP	20	FULL LOAD RPM	3520	FRAME	284TS WEIGHT 396 LB
33	MOTOR OUTLINE DRAWING NO.	10LYJ567				
34	ROTOR CAGE MATERIAL OF CONSTRUCTION	Al		MOTOR WINDING MATERIAL	Cu	
35	BEARING MANUFACTURER	SKF		SIZE	6311	
36	VERTICAL MOTOR THRUST BEARING:	TYPE N/A	CAPACITY: UP N/A LBS	DOWN N/A LBS	LOCATION N/A	
38	LOAD	FULL	3/4	1/2	OTHER	LOCKED ROTOR AMPS* 143 AMPS
39	AMPERES	22.8	17.6	12.5	N/A	FULL LOAD TORQUE* 29.9 FT-LB
40	EFFICIENCY, %	91.2	91.3	90.4	N/A	LOCKED ROTOR TORQUE* 45.3 FT-LB
41	POWER FACTOR	90	88	83	N/A	PULL UP TORQUE* 35.3 FT-LB
###	SPEED, RPM	3520	3544	3564	N/A	BREAKDOWN TORQUE* 86 FT-LB
###						ACCEL. TIME W/ LOAD (0 TO FULL SPEED)* 0.9 SEC.
###	SOUND LEVEL: GUARANTEED <90 dBA /	EXPECTED 80 dBA		STALL TIMES AT ZERO RPM* - HOT / COLD 32 / 55 SEC.		
###	FAN MATERIAL Polypropylene MP5000	(NON-SPARKING)		NUMBER OF CONSECUTIVE STARTS* 1 Hot / 2 Cold		
###	* INDICATED AT RATED VOLTAGE					
###	INFORMATION BELOW TO BE PROVIDED BY VENDOR AFTER PURCHASE (REFER TO RFQ/PO DOCUMENTS)					
###	SAFE TIME - CURRENT CURVE		MAX. SURFACE TEMP. DURING NORMAL STARING OR OPERATION OF:			
###	SPEED - TORQUE CURVE		ROTOR °F		STATOR °F	ENCLOSURE °F
###	SAFE LOCKED ROTOR TIME		HOT	COLD		
###	NOTES:					
###	1. Motor nameplate shall indicate service factor, area classification and T-rating. T-rating relates to both external and internal components.					
###	2. Provide accessory loads on submittal documents, e.g. Volts, HP, kVA, etc.					
###	3. All motors shall be rated for Cl. I, Div. 2, Gr. B,C,D and a T3C temperature code for project uniformity.					
###	4. An oversized electrical terminations box is required.					
###	5. Grounding provisions are required for inside and outside the motor connection box.					
###						

These documents contain confidential and proprietary information of Fluor Enterprises, Inc. They are provided under a Secrecy or Confidentiality Agreement with Fluor and are to be used solely in accordance with the provisions of the relevant agreement. These documents are copyrighted as an unpublished work. Copyright resides with Fluor Corporation. All Rights Reserved. Unauthorized copying, reproduction or use of these documents may result in copyright infringement or other crimes punishable in both civil and criminal courts.



Notes:	Class 1 Division 2
--------	-----------------------

Nameplate NP3854									
CAT.NO.		CUST. P/N		ENCL	TEFC				
SPEC	10-0000-2602	CC	010A	FRAME	284TS	SER.NO.			
HP	20	CLASS	F	HZ	60	ODE BRG	6311	DE BRG	6311
R.P.M.	3520	PH.	3	DES.	B	ABMA DE BRG	55BC03X30X		
VOLTS	460	CODE	G			ABMA ODE BRG	55BC03X30X		
AMPS	23	MOTOR WT.	396			LUBRICATION	POLYREX EM		
RATING	41C AMB-CONT	MAX. KVAR	2.5			BLANK	SFA 26		
NEMA NOM. EFF.	91	NO. OF ROTOR BARS	28	SER.F.	1.15	IP	56		
GUAR.MIN.EFF	89.5	NO. OF STATOR BARS	36	P.F.	90				
TEMP CODE	T3C								
TEMP=	160								
VOLTS		AMPS		WATTS		MAX. SPACE HEATER TEMP.			



AC Induction Motor Performance Data
Record # 72997
Typical performance - not guaranteed values

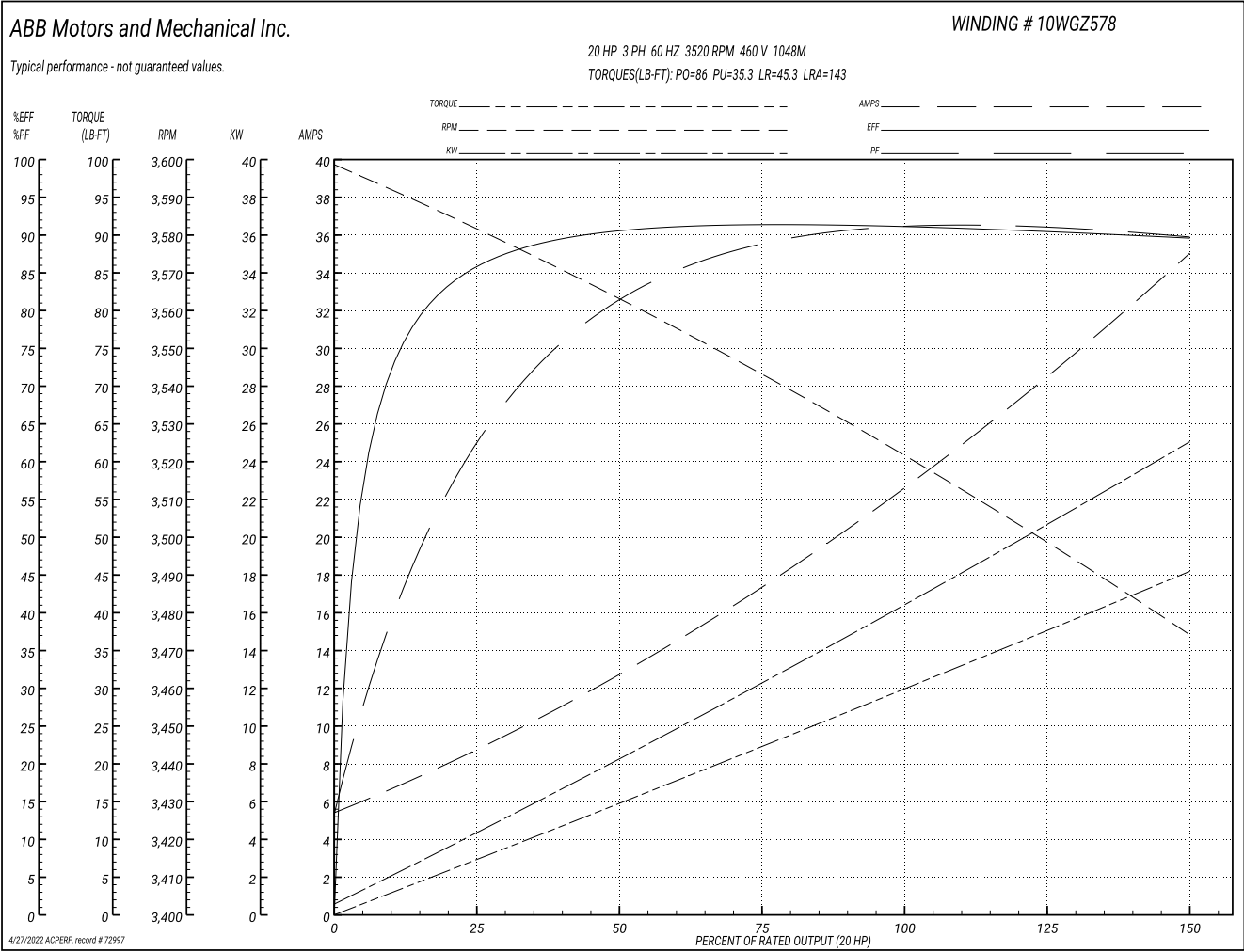
Winding: 10WGZ578-R003			Type: 1048M		Enclosure: TEFC	
Nameplate Data			460 V, 60 Hz: Single Voltage Motor			
Rated Output (HP)		20	Full Load Torque		29.9 LB-FT	
Volts		460	Start Configuration		direct on line	
Full Load Amps		23	Breakdown Torque		86 LB-FT	
R.P.M.		3520	Pull-up Torque		35.3 LB-FT	
Hz	60 Phase	3	Locked-rotor Torque		45.3 LB-FT	
NEMA Design Code		B KVA Code	G	Starting Current		143 A
Service Factor (S.F.)		1.15	No-load Current		5.81 A	
NEMA Nom. Eff.		91 Power Factor	90	Line-line Res. @ 25°C		0.358 Ω
Rating - Duty		41C AMB-CONT	Temp. Rise @ Rated Load		45°C	
S.F. Amps			Temp. Rise @ S.F. Load		56°C	
			Locked-rotor Power Factor		23.5	
			Rotor inertia		2.06 LB-FT2	

Load Characteristics 460 V, 60 Hz, 20 HP

% of Rated Load	25	50	75	100	125	150	S.F.
Power Factor	68	83	88	90	90	90	90
Efficiency	85.8	90.4	91.3	91.2	90.4	89.5	90.7
Speed	3580	3564	3544	3520	3500	3474	3508
Line amperes	8.31	12.5	17.6	22.8	28.6	34.8	26.3



Performance Graph at 460V, 60Hz, 20.0HP Typical performance - Not guaranteed values



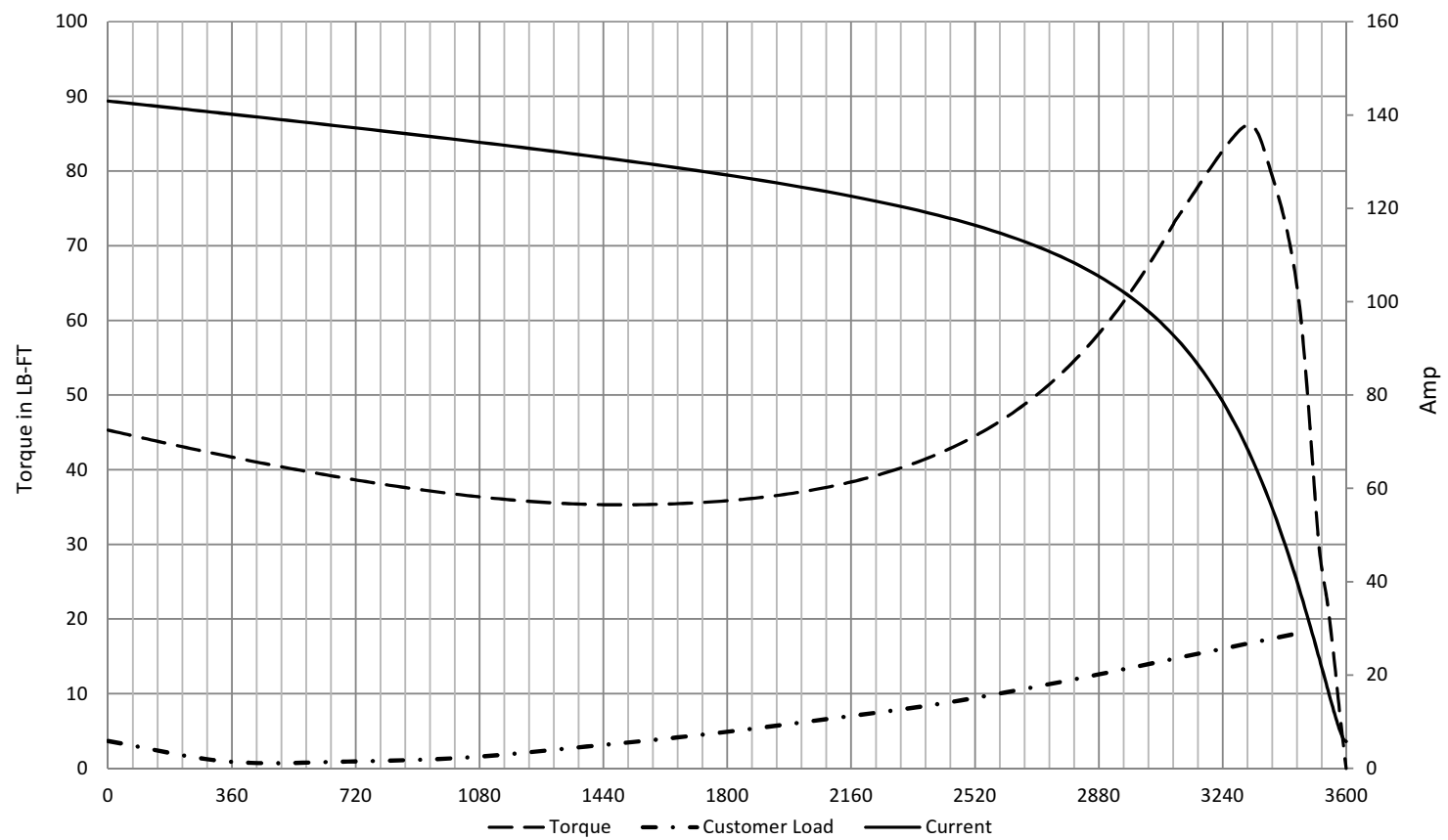


SPEED TORQUE / SPEED CURRENT CURVE



10WGZ578

20HP 460V 60Hz



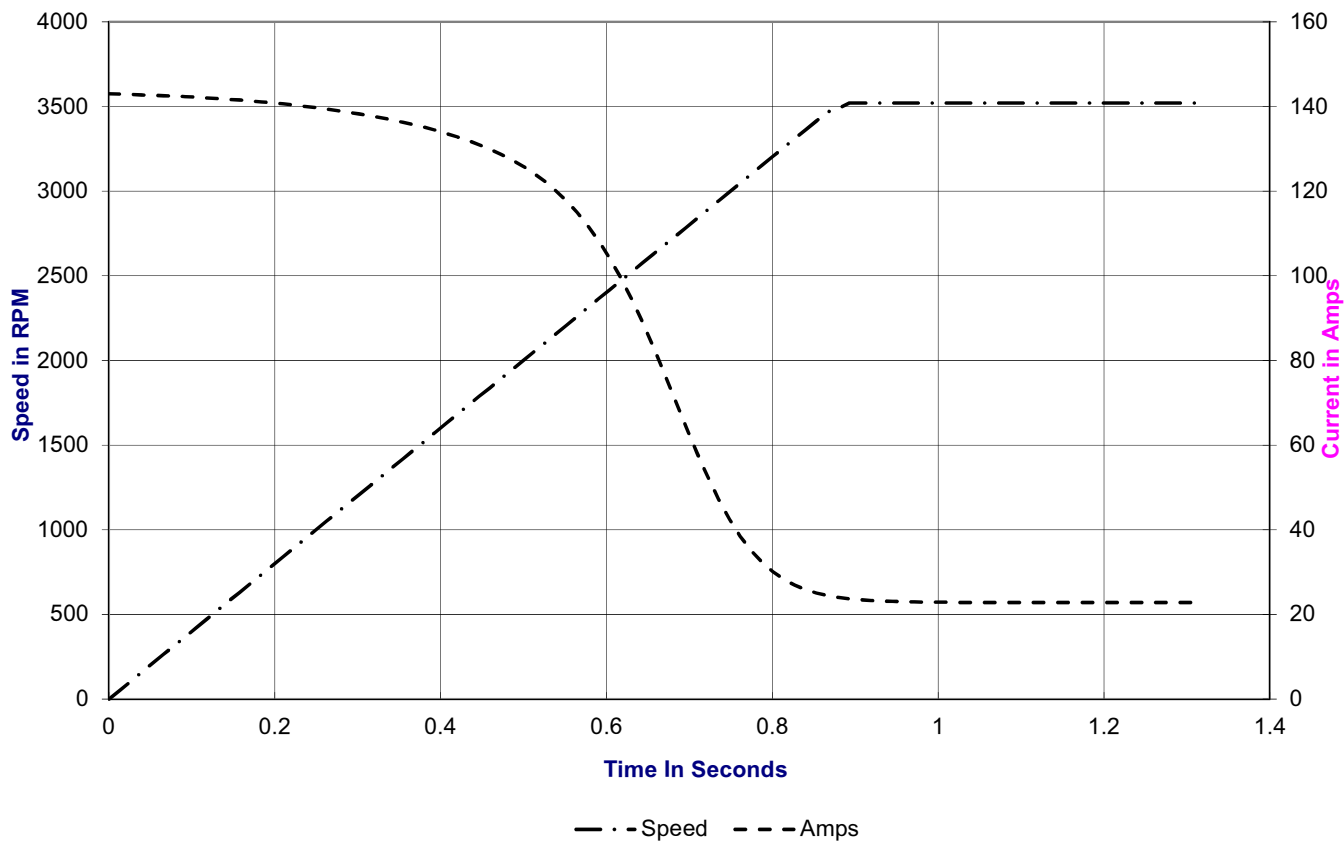


Speed Time / Current Time Curve



10WGZ578 : Variable Torque : 1.8 lb-ft² Load Inertia

20HP 460V 60HZ





THERMAL LIMIT CURVE



10WGZ578

20HP 460V 60HZ

