

GENERATOR DATA

(AT400240)-ENGINE (BAA126422A)-CEM

NOVEMBER 07, 2023

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Selected Model

Engine: C15 Generator Frame: M3154L4 Genset Rating (kW): 500.0 Line Voltage: 480
Fuel: Diesel Generator Arrangement: 5652331 Genset Rating (kVA): 625.0 Phase Voltage: 277
Frequency: 60 Excitation Type: Self Excited Pwr. Factor: 0.8 Rated Current: 751.8
Duty: STANDBY Connection: - STAR Application: EPG Status: Current

Version: 42423 /44642 /43655 /8556

Spec Information

Generator Specification			Generator Efficiency		
Frame: M3154L4	Type: SR500	No. of Bearings: 1	Per Unit Load	kW	Efficiency %
Winding Type: RANDOM WOUND	Flywheel: 14.0		0.25	125.0	93.3
Connection: - STAR	Housing: 1		0.5	250.0	95.2
Phases: 3	No. of Leads: 6		0.75	375.0	95.4
Poles: 4	Wires per Lead: 0		1.0	500.0	95.1
Sync Speed: 1800	Generator Pitch: 0.6667				

Reactances	Per Unit	Ohms
SUBTRANSIENT - DIRECT AXIS X''_d	0.1161	0.0428
SUBTRANSIENT - QUADRATURE AXIS X''_q	0.1571	0.0579
TRANSIENT - SATURATED X'_d	0.1657	0.0611
SYNCHRONOUS - DIRECT AXIS X_d	2.9397	1.0837
SYNCHRONOUS - QUADRATURE AXIS X_q	1.4993	0.5527
NEGATIVE SEQUENCE X_2	0.1364	0.0503
ZERO SEQUENCE X_0	0.0068	0.0025

Time Constants	Seconds
OPEN CIRCUIT TRANSIENT - DIRECT AXIS T'_{d0}	1.7735
SHORT CIRCUIT TRANSIENT - DIRECT AXIS T'_d	0.1000
OPEN CIRCUIT SUBTRANSIENT - DIRECT AXIS T''_{d0}	0.0142
SHORT CIRCUIT SUBTRANSIENT - DIRECT AXIS T''_d	0.0100
OPEN CIRCUIT SUBTRANSIENT - QUADRATURE AXIS T''_{q0}	0.0955
SHORT CIRCUIT SUBTRANSIENT - QUADRATURE AXIS T''_q	0.0100
EXCITER TIME CONSTANT T_e	0.0220
ARMATURE SHORT CIRCUIT T_a	0.0150

Short Circuit Ratio: 0.4	Stator Resistance = 0.0087 Ohms	Field Resistance = 0.5791 Ohms
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Voltage Regulation		Generator Excitation		
Voltage level adjustment: +/-	5.0%	No Load	Full Load, (rated) pf	
Voltage regulation, steady state: +/-	0.8%		Series	Parallel
Voltage regulation with 3% speed change: +/-	0.8%	Excitation voltage:	10.64 Volts	46.58 Volts Volts
Waveform deviation line - line, no load: less than	2.0%	Excitation current	1.0 Amps	3.6 Amps Amps
Telephone influence factor: less than	50			

**Generator Cooling Requirements -
Temperature - Insulation Data**

Cooling Requirements:		Temperature Data: (Ambient 40 °C)	
Heat Dissipated: 25.8 kW		Stator Rise:	105.0 °C
Air Flow: 66.0 m ³ /min		Rotor Rise:	105.0 °C
Insulation Class: H			
Insulation Reg. as shipped: 100.0 MΩ minimum at 40 °C			

Thermal Limits of Generator

Frequency:	60 Hz
Line to Line Voltage:	480 Volts
B BR 80/40	552.0 kVA
F BR -105/40	627.9 kVA
H BR - 125/40	690.0 kVA
F PR - 130/40	690.0 kVA
H PR - 150/40	731.4 kVA
H PR27 - 163/27	759.0 kVA

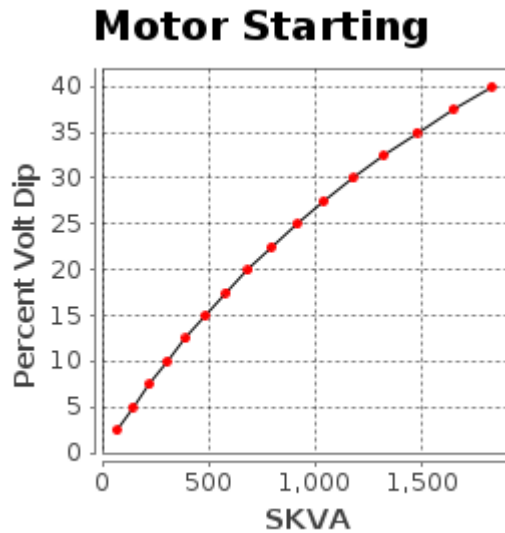
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**Starting Capability & Current Decrement
Motor Starting Capability (0.6 pf)**

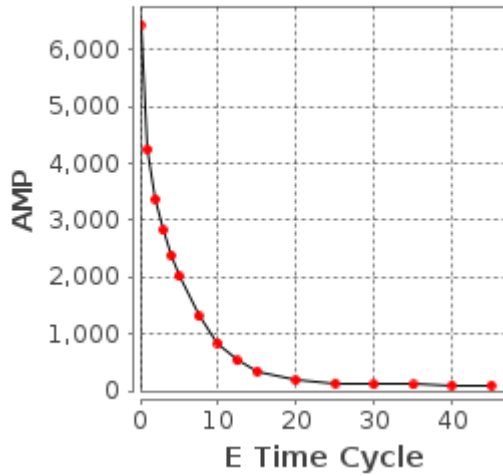
SKVA	Percent Volt Dip
70	2.5
144	5.0
222	7.5
305	10.0
392	12.5
484	15.0
582	17.5
685	20.0
796	22.5
914	25.0
1,040	27.5
1,175	30.0
1,320	32.5
1,476	35.0
1,645	37.5
1,828	40.0



Current Decrement Data

E Time Cycle	AMP
0.0	6,441
1.0	4,242
2.0	3,372
3.0	2,821
4.0	2,385
5.0	2,017
7.5	1,316
10.0	845
12.5	529
15.0	346
20.0	190
25.0	135
30.0	115
35.0	106
40.0	102
45.0	101

Current Decrement



Instantaneous 3 Phase Fault Current: 6441 Amps

Instantaneous Line - Line Fault Current: 5126 Amps

Instantaneous Line - Neutral Fault Current: 8645 Amps

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Phase Voltage: 277

Frequency: 60

Excitation Type: Self Excited

Pwr. Factor: 0.8

Rated Current: 751.8

Duty: STANDBY

Connection: - STAR

Application: EPG

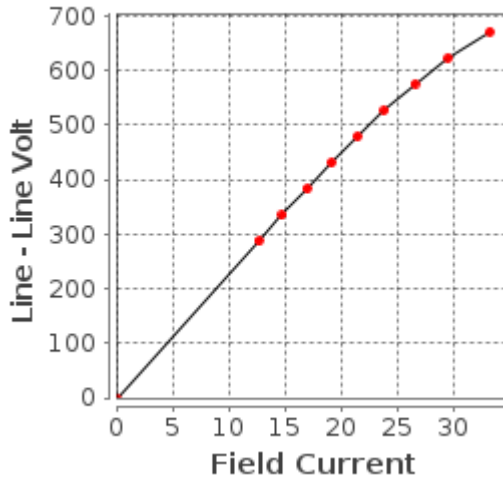
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**Generator Output Characteristic Curves
Open Circuit Curve**

Open Circuit

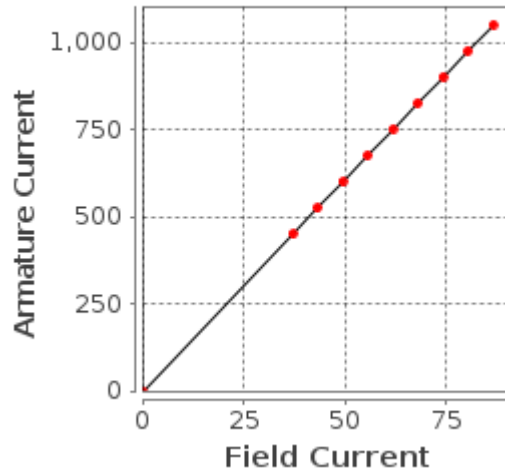
Field Current	Line - Line Volt
0.0	0
12.7	288
14.8	336
17.0	384
19.2	432
21.5	480
23.9	528
26.6	576
29.6	624
33.3	672



Short Circuit Curve

Short Circuit

Field Current	Armature Current
0.0	0
37.2	451
43.3	526
49.5	601
55.7	677
61.9	752
68.1	827
74.3	902
80.5	977
86.7	1,052



Selected Model

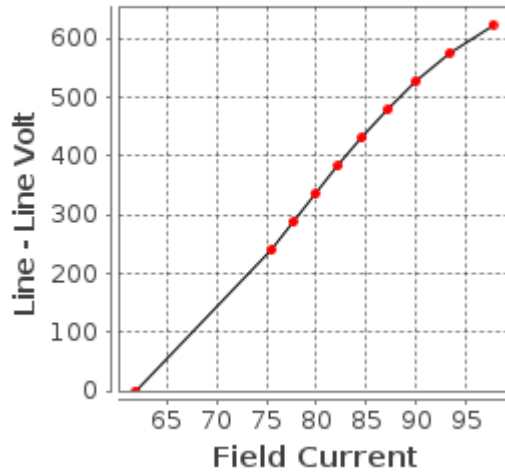
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Generator Output Characteristic Curves
Zero Power Factor Curve

Zero Power

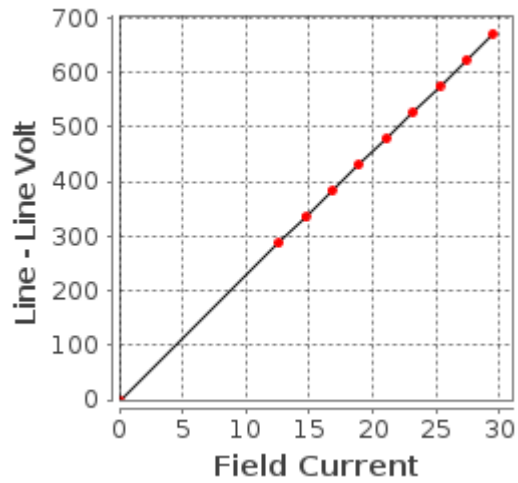
Field Current	Line - Line Volt
61.9	0
75.5	240
77.7	288
79.9	336
82.2	384
84.6	432
87.2	480
90.0	528
93.4	576
97.7	624



Air Gap Curve

Air Gap

Field Current	Line - Line Volt
0.0	0
12.6	288
14.7	336
16.8	384
18.9	432
21.1	480
23.2	528
25.3	576
27.4	624
29.5	672

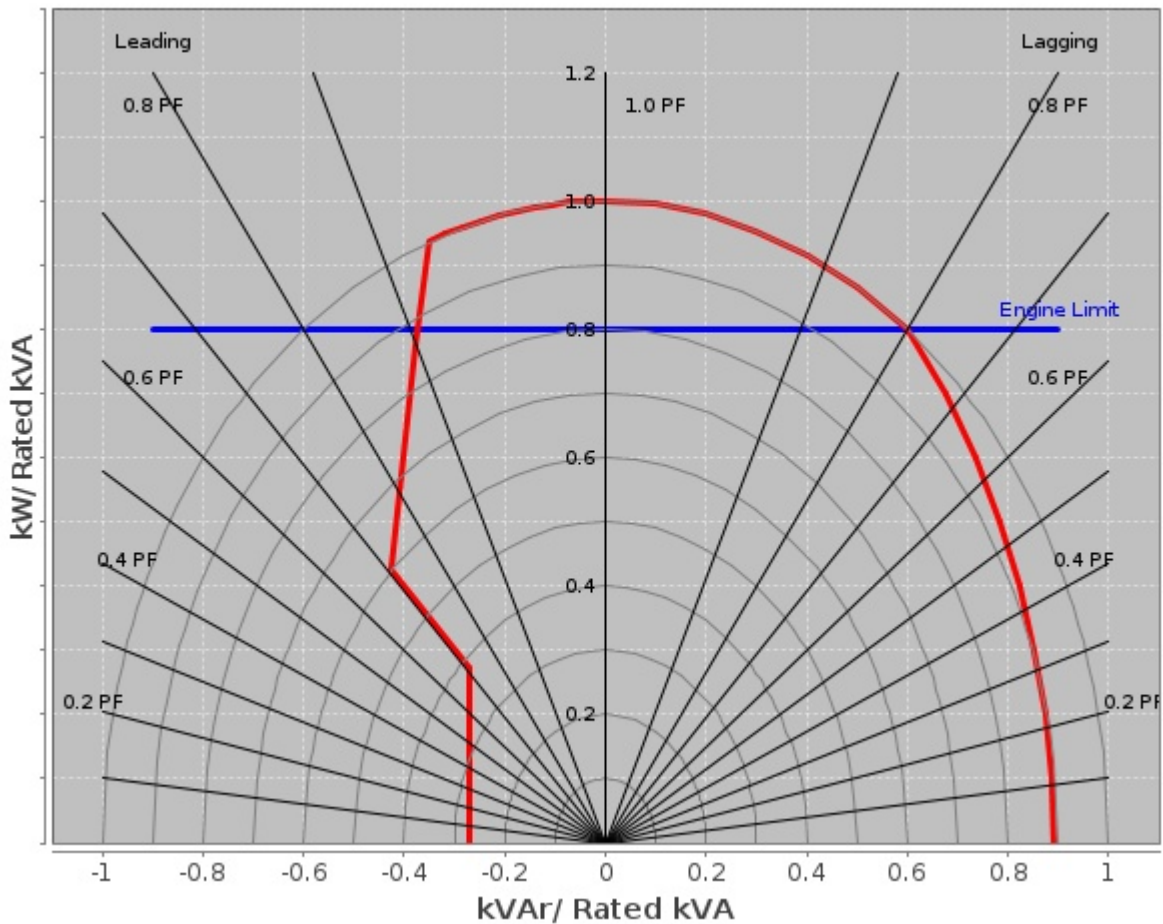


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Reactive Capability Curve Operating Chart



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General Information

GENERATOR INFORMATION (DM7900)

1. Motor Starting

Motor starting curves are obtained in accordance with IEC60034, and are displayed at 0.6 power factor.

2. Voltage Dip

Prediction of the generator synchronous voltage dip can be made by consulting the plot for the voltage dip value that corresponds to the desired motor starting kVA value.

3. Definitions

A) Generator Keys

Frame: abbreviation of generator frame size

Freq: frequency in hertz.

PP/SB: prime/standby duty respectively

Volts: line - line terminal voltage

kW: rating in electrical kilo watts

Model: engine sales model

B) Generator Temperature Rise

The indicated temperature rises are the IEC/NEMA limits for standby or prime power applications. The quoted rise figures are maximum limits only and are not necessarily indicative of the actual temperature rise of a given machine winding.

C) Centre of Gravity

The specified centre of gravity is for the generator only. For single bearing, and two bearing close coupled generators, the center of gravity is measured from the generator/engine flywheel-housing interface and from the centreline of the rotor Shaft.

For two bearing, standalone generators, the center of gravity is measured from the end of the rotor shaft and from the centerline of the rotor shaft.

D) Generator Current Decrement Curves

The generator current decrement curve indicates the generator armature current arising from a symmetrical three-phase fault at the generator terminals. Generators equipped with AREP or PMG excitation systems will sustain 300% of rated armature current for 10 seconds.

E) Generator Efficiency Curves

The efficiency curve is displayed for the generator only under the given conditions of rating, voltage, frequency and power factor. This is not the overall generating set efficiency curve.

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