

Selected Model

Engine: 3512 **Generator Frame:** 1602 **Genset Rating (kW):** 1360.0 **Line Voltage:** 400
Fuel: Diesel **Generator Arrangement:** 2523838 **Genset Rating (kVA):** 1700.0 **Phase Voltage:** 230
Frequency: 50 **Excitation Type:** Internal Excitation **Pwr. Factor:** 0.8 **Rated Current:** 2453.7
Duty: PRIME **Connection:** SERIES STAR **Application:** EPG **Status:** Current

Version: 41205 /41348 /38735 /3639

Spec Information

Generator Specification		Generator Efficiency		
Frame: 1602 Type: SR5	No. of Bearings: 2	Per Unit Load	kW	Efficiency %
Winding Type: RANDOM WOUND	Flywheel: 21.0	0.25	340.0	93.4
Connection: SERIES STAR	Housing: 00	0.5	680.0	95.4
Phases: 3	No. of Leads: 6	0.75	1020.0	95.6
Poles: 4	Wires per Lead: 4	1.0	1360.0	95.4
Sync Speed: 1500	Generator Pitch: 0.6667	1.1	1496.0	95.2

Reactances	Per Unit	Ohms
SUBTRANSIENT - DIRECT AXIS X'' _d	0.1349	0.0127
SUBTRANSIENT - QUADRATURE AXIS X'' _q	0.1689	0.0159
TRANSIENT - SATURATED X' _d	0.2593	0.0244
SYNCHRONOUS - DIRECT AXIS X _d	3.4181	0.3217
SYNCHRONOUS - QUADRATURE AXIS X _q	2.0506	0.1930
NEGATIVE SEQUENCE X ₂	0.1519	0.0143
ZERO SEQUENCE X ₀	0.0319	0.0030

Time Constants	Seconds
OPEN CIRCUIT TRANSIENT - DIRECT AXIS T' _{d0}	2.6600
SHORT CIRCUIT TRANSIENT - DIRECT AXIS T' _d	0.2370
OPEN CIRCUIT SUBTRANSIENT - DIRECT AXIS T'' _{d0}	0.0420
SHORT CIRCUIT SUBTRANSIENT - DIRECT AXIS T'' _d	0.0220
OPEN CIRCUIT SUBTRANSIENT - QUADRATURE AXIS T'' _{q0}	0.1960
SHORT CIRCUIT SUBTRANSIENT - QUADRATURE AXIS T'' _q	0.0190
EXCITER TIME CONSTANT T _e	0.0940
ARMATURE SHORT CIRCUIT T _a	0.0410

Short Circuit Ratio: 0.36	Stator Resistance = 0.0019 Ohms	Field Resistance = 0.42 Ohms
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Voltage Regulation		Generator Excitation		
Voltage level adjustment: +/-	5.0%	No Load	Full Load, (rated) pf	
Voltage regulation, steady state: +/-	0.5%		Series	Parallel
Voltage regulation with 3% speed change: +/-	0.5%	Excitation voltage:	11.0 Volts	51.94 Volts Volts
Waveform deviation line - line, no load: less than	2.0%	Excitation current	1.1 Amps	4.27 Amps Amps
Telephone influence factor: less than	50			

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Generator Mechanical Information

Center of Gravity		
Dimension X	-920.0 mm	-36.2 IN.
Dimension Y	0.0 mm	0.0 IN.
Dimension Z	0.0 mm	0.0 IN.

- "X" is measured from driven end of generator and parallel to rotor. Towards engine fan is positive. See General Information for details
- "Y" is measured vertically from rotor center line. Up is positive.
- "Z" is measured to left and right of rotor center line. To the right is positive.

Generator WT = 3830 kg	* Rotor WT = 1365 kg	* Stator WT = 1755 kg
8,444 LB	3,009 LB	3,869 LB

Rotor Balance = 0.0508 mm deflection PTP
Overspeed Capacity = 150% of synchronous speed

Generator Torsional Data						
J1 = Coupling and Fan	J2 = Rotor			J3 = Exciter End		
TOTAL J = J1 + J2 + J3						
K1 = Shaft Stiffness between J1 + J2 (Diameter 1)			K2 = Shaft Stiffness between J2 + J3 (Diameter 2)			
J1	K1	Min Shaft Dia 1	J2	K2	Min Shaft Dia 2	J3
43.8 LB IN. s ²	69.5 MLB IN./rad	8.9 IN.	283.2 LB IN. s ²	142.5 MLB IN./rad	5.5 IN.	8.4 LB IN. s ²
4.95 N m s ²	7.85 MN m/rad	225.0 mm	32.0 N m s ²	16.1 MN m/rad	140.0 mm	0.95 N m s ²
			Total J			
			335.4 LB IN. s ²			
			37.9 N m s ²			

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Generator Cooling Requirements - Temperature - Insulation Data	
Cooling Requirements:	Temperature Data: (Ambient 40 °C)
Heat Dissipated: 65.6 kW	Stator Rise: 125.0 °C
Air Flow: 150.0 m ³ /min	Rotor Rise: 125.0 °C
Insulation Class: H	
Insulation Reg. as shipped: 100.0 MΩ minimum at 40 °C	
Thermal Limits of Generator	
Frequency:	50 Hz
Line to Line Voltage:	400 Volts
B BR 80/40	1440.0 kVA
F BR -105/40	1638.0 kVA
H BR - 125/40	1800.0 kVA
F PR - 130/40	1800.0 kVA
H PR - 150/40	1908.0 kVA
H PR27 - 163/27	1980.0 kVA

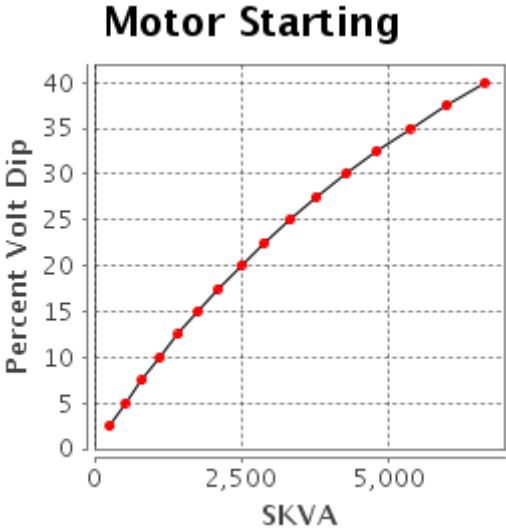
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**Starting Capability & Current Decrement
Motor Starting Capability (0.4 pf)**

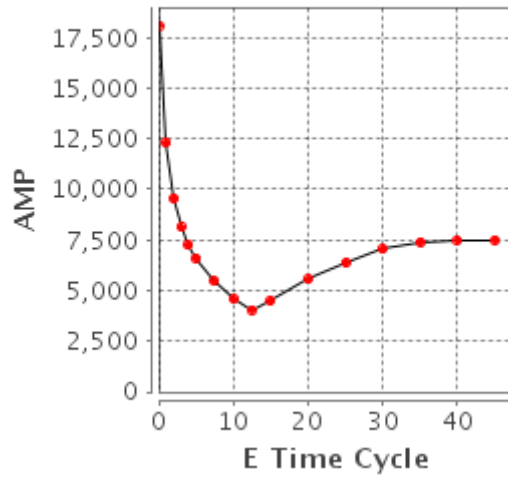
SKVA	Percent Volt Dip
255	2.5
524	5.0
807	7.5
1,106	10.0
1,422	12.5
1,757	15.0
2,112	17.5
2,489	20.0
2,890	22.5
3,318	25.0
3,776	27.5
4,266	30.0
4,793	32.5
5,360	35.0
5,973	37.5
6,636	40.0



Current Decrement Data

E Time Cycle	AMP
0.0	18,098
1.0	12,283
2.0	9,547
3.0	8,116
4.0	7,236
5.0	6,603
7.5	5,450
10.0	4,575
12.5	4,055
15.0	4,506
20.0	5,545
25.0	6,370
30.0	7,052
35.0	7,404
40.0	7,488
45.0	7,494

Current Decrement



Instantaneous 3 Phase Fault Current: 18098 Amps

Instantaneous Line - Line Fault Current: 14745 Amps

Instantaneous Line - Neutral Fault Current: 22984 Amps

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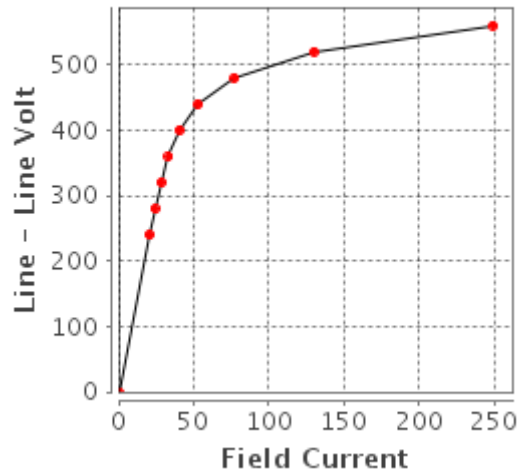
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**Generator Output Characteristic Curves
Open Circuit Curve**

Open Circuit

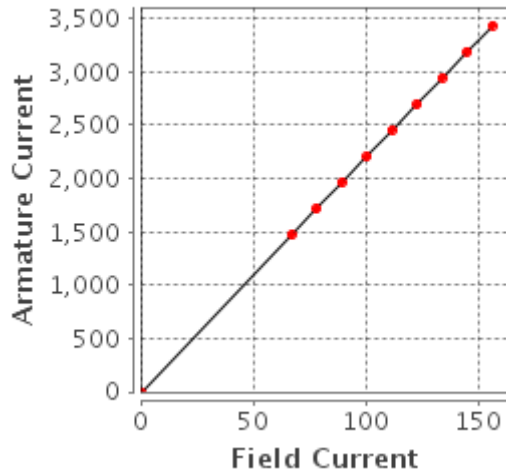
Field Current	Line - Line Volt
0.0	0
20.6	240
24.3	280
28.4	320
33.4	360
40.6	400
53.0	440
77.4	480
130.2	520
249.5	560



Short Circuit Curve

Short Circuit

Field Current	Armature Current
0.0	0
66.9	1,472
78.1	1,718
89.2	1,963
100.4	2,208
111.5	2,454
122.7	2,699
133.8	2,944
145.0	3,190
156.1	3,435



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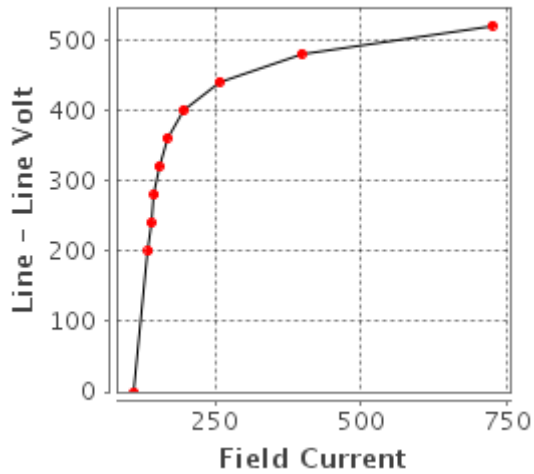
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**Generator Output Characteristic Curves
Zero Power Factor Curve**

Zero Power

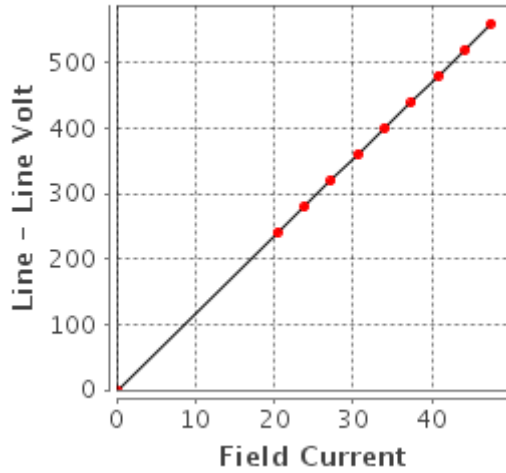
Field Current	Line - Line Volt
111.5	0
135.7	200
140.0	240
145.4	280
153.4	320
167.4	360
195.7	400
257.5	440
398.3	480
724.4	520



Air Gap Curve

Air Gap

Field Current	Line - Line Volt
0.0	0
20.4	240
23.8	280
27.2	320
30.6	360
34.0	400
37.4	440
40.8	480
44.2	520
47.5	560

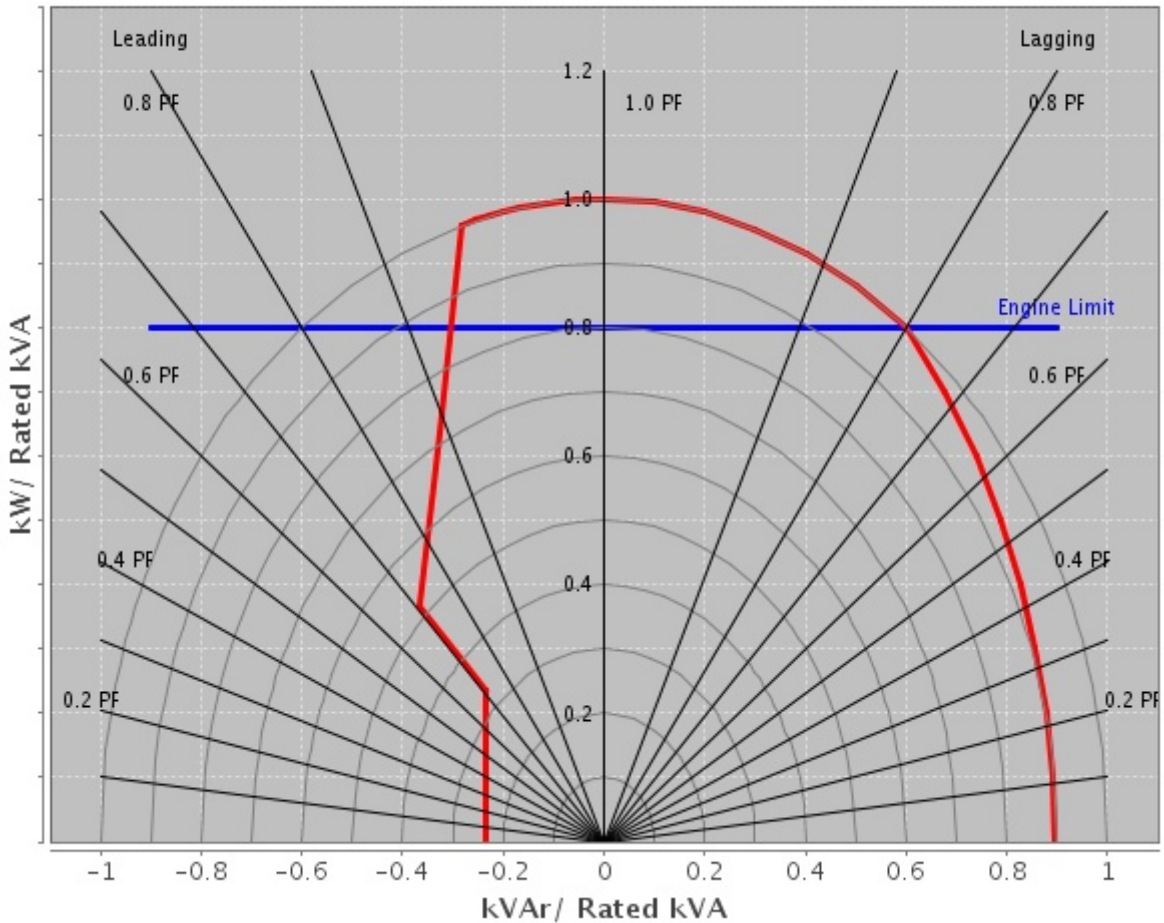


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Reactive Capability Curve Operating Chart



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General Information

DM7825 Caterpillar SR5 Generators (50 Hz, 60 Hz)
Data for 1400, 1600, 1700, 1800 and 1900 frames Caterpillar SR5
generators built by Leroy Somer - USA and Leroy Somer → France.

Refer to DM7821 for explanation of all generator data in Technical
Marketing Information (TMI) except generator efficiency for which the
explanation is given below.

GENERATOR EFFICIENCY

Generator efficiency is the percentage of engine flywheel (or other
prime mover) power that is converted into electrical output. The
generator efficiency shown is calculated by the summation of all
losses method, and is determined in accordance with the IEC Standard
60034. The efficiency considers only the generator. There is no
consideration of engine or parasitic losses here.

Refer to DM7829 for low and medium voltage protective setting values and
limits.

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