STAMFORD

S1L2-G Winding 06 / 706

S1L2-G - Technical Data Sheet

Standards

STAMFORD industrial alternators meet the requirements of IEC EN 60034 and the relevant section of other international standards such as BS5000, VDE 0530, NEMA MG1-32, IEC34, CSA C22.2-100 and AS1359. Other standards and certifications can be considered on request.

Quality Assurance

Alternators are manufactured using production procedures having a quality assurance level to BS EN ISO 9001.

Excitation and Voltage Regulators

Excitation System	
AVR Type	**AVR Power**
VITA01	Self-Excited / Aux winding
Voltage Regulation	± 0.5%
No Load Excitation Voltage (V)	13 V
Full Load Excitation Voltage (V)	44 V

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Electrical Data		
Insulation System	Class H	
Stator Winding	Double Layer Concentric	
Winding Pitch	Two Thirds	
Winding Leads	4	
Winding Number	06 / 706	
Number of Poles	4	
IP Rating	IP23	
RFI Suppression	EN 61000-6-2 & EN 61000-6-4, refer to factory for others	
Waveform Distortion	NO LOAD < 2% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%	
Short Circuit Ratio	1/Xd	
Steady State X/R Ratio	3.85	
	60 Hz	
Telephone Interference	TIF<50	
Voltage Series	240	240
Power Factor	0.8	1.0
kVA Base Rating (Class H)	27	29.2
Saturated Values in Per Unit at Base Ratings and Voltages		
Xd Dir. Axis Synchronous	1.080	1.168
X'd Dir. Axis Transient	0.145	0.157
X"d Dir. Axis Subtransient	0.125	0.135
Xq Quad. Axis Reactance	1.114	1.205
X"q Quad. Axis Subtransient	0.144	0.156
XL Stator Leakage Reactance	0.079	0.085
X2 Negative Sequence Reactance	0.197	0.213
X0 Zero Sequence Reactance	0.005	0.005
Unsaturated Values in Per Unit at Base Ratings and Voltages		
Xd Dir. Axis Synchronous	1.512	1.635
X'd Dir. Axis Transient	0.167	0.180
X"d Dir. Axis Subtransient	0.146	0.158
Xq Quad. Axis Reactance	1.147	1.241
X"q Quad. Axis Subtransient	0.173	0.187
XL Stator Leakage Reactance	0.089	0.097
X2 Negative Sequence Reactance	0.236	0.256
X0 Zero Sequence Reactance	0.006	0.006
Time Constants (Seconds)		
T'd TRANSIENT TIME CONST.	0.029	
T''d SUB-TRANSTIME CONST.	0.002	
T'do O.C. FIELD TIME CONST.	0.143	
Ta ARMATURE TIME CONST.	0.012	

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Resistances in Ohms (Ω) at 22°C	
Stator Winding Resistance (Ra)	0.080 Ω per phase series connected
Rotor Winding Resistance (Rf)	0.824 Ω
Exciter Stator Winding Resistance	16.3 Ω
Exciter Rotor Winding Resistance	0.094 Ω per phase
Positive Sequence Resistance (R1)	0.100 Ω
Negative Sequence Resistance (R2)	0.115 Ω
Zero Sequence Resistance (R0)	0.100 Ω
Aux Winding Resistance (with winding 706 only)	2.45 Ω

Mechanical data		
Cooling Air	0.215 m³/sec (60Hz)	
Shaft and Keys	All alternator rotors are dynamically balanced to better than BS6861: Part 1 Grade 2.5 for minimum vibration in operation.	
Bearing	1 Bearing	2 Bearing
Weight Complete Alternator	156 kg	178 kg
Weight Wound Stator	60.78 kg	60.78 kg
Weight Wound Rotor	55.08 kg	57.11 kg
Moment of Inertia	0.2575 kgm²	0.2582 kgm²
Shipping weight in a Crate	203kg	225.5kg
Packing Crate Size	1050 x 570 x 960(mm)	1050 x 570 x 960(mm)
Maximum Over Speed	2250 RPM for two minutes	
Bearing Drive End	-	BALL. 6309-2RS (ISO)
Bearing Non-Drive End	Ball Bearing, 6306-2RS1	Ball Bearing, 6306-2RS1

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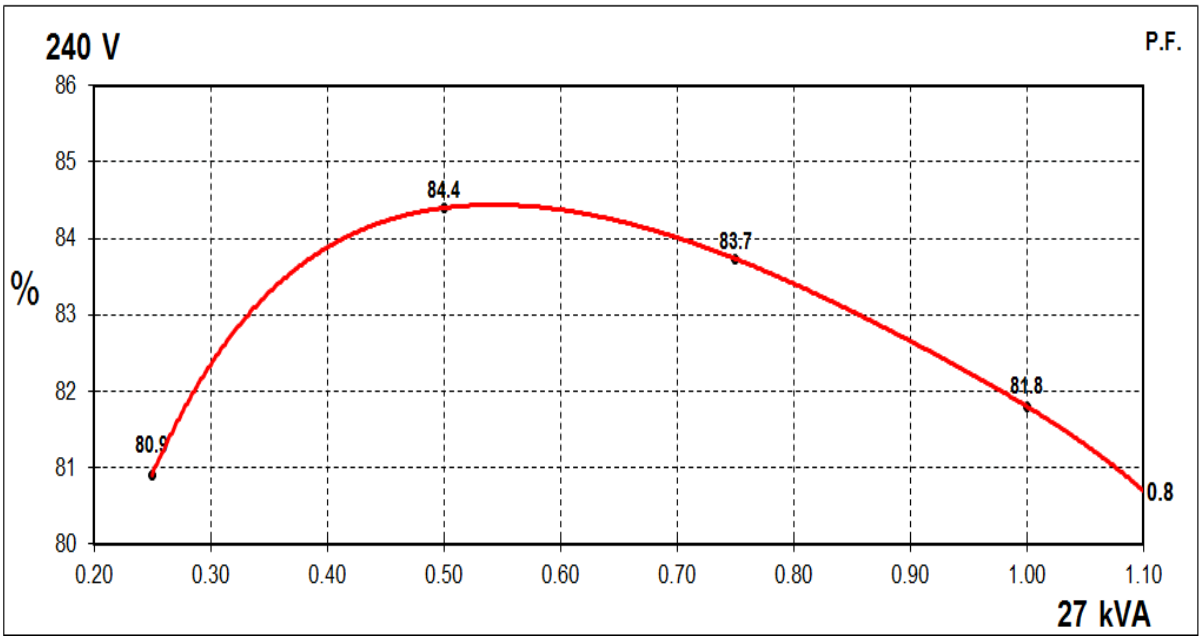
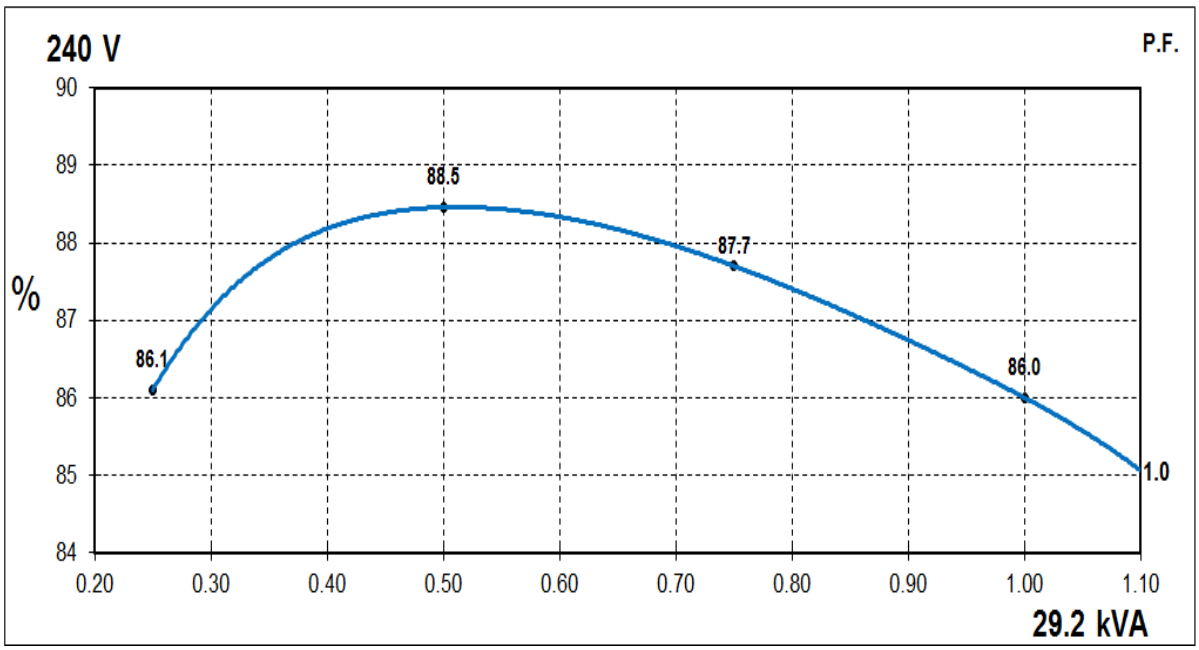
Single Phase Efficiency Curves

60Hz





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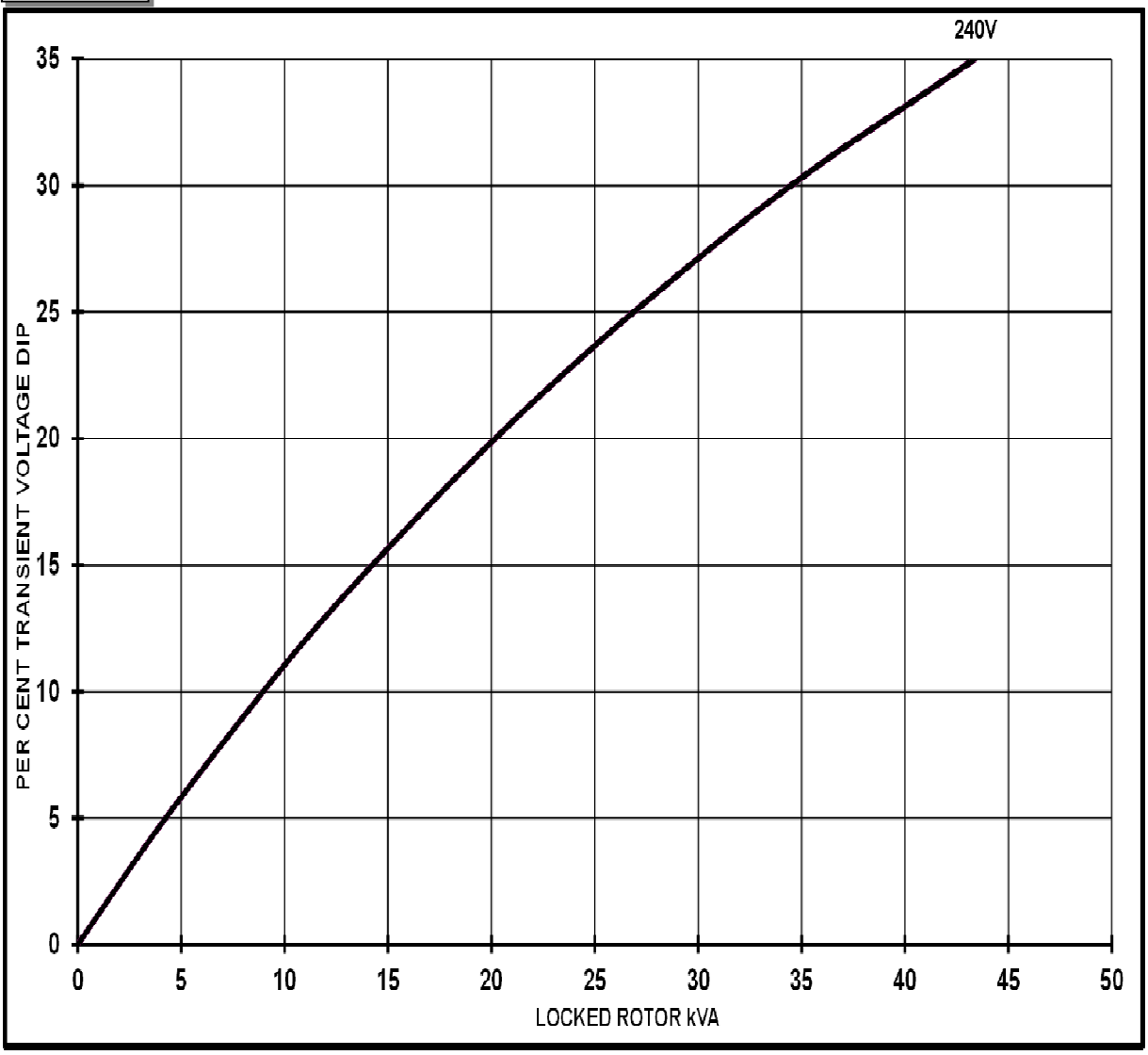
Locked Rotor Motor Starting Curves

60Hz



Transient Voltage Dip Scaling Factor	
PF	Factor
< 0.5	1.00
0.5	0.97
0.6	0.93
0.7	0.90
0.8	0.85
0.9	0.83
1.0	0.80

Transient Voltage Rise Scaling Factor
For voltage rise multiply voltage dip by 1.25

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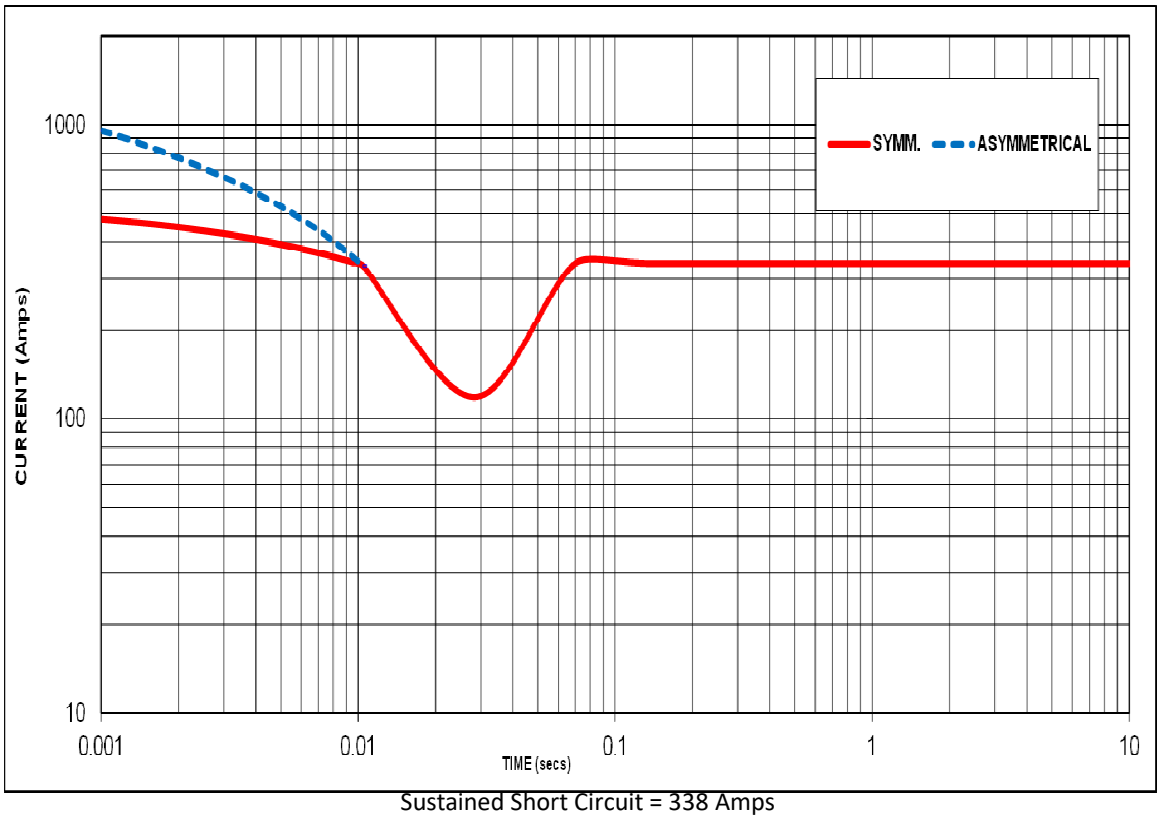
Short Circuit Decrement Curve

Note: Applicable only for Winding 706 (Auxiliary winding).
Winding 311 (no Auxiliary winding) will not provide sustained short circuit capability.

60Hz

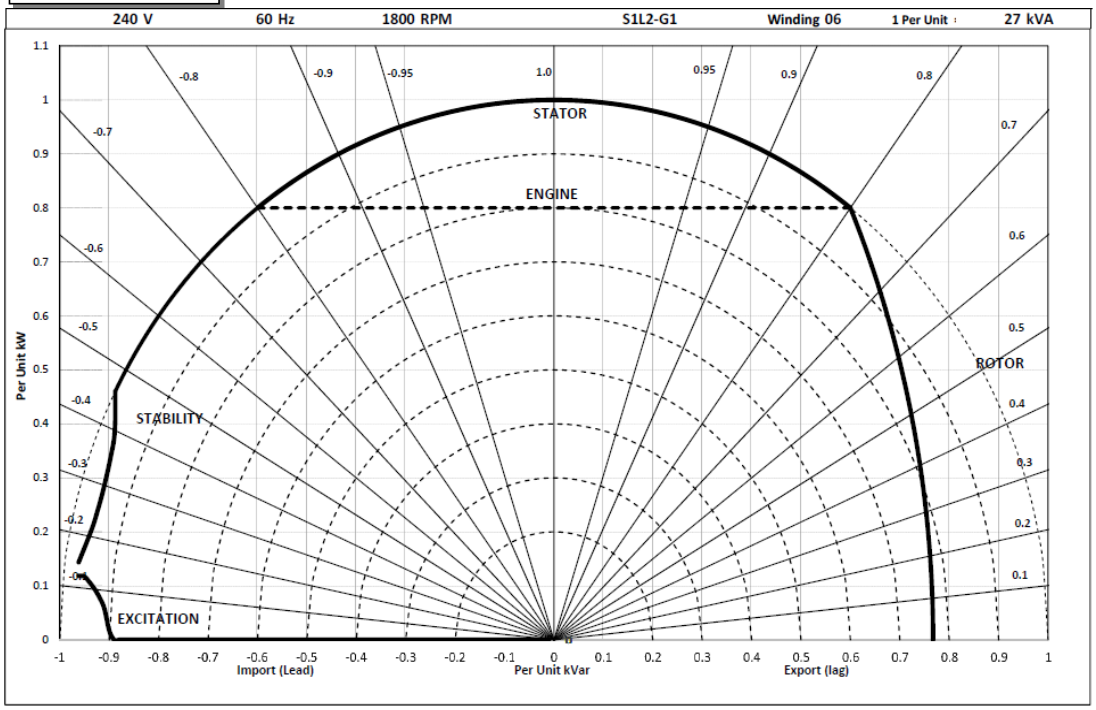


Sustained Short Circuit = 338 Amps

This alternator is capable of achieving a balanced 300% sustained short circuit for up to 10 seconds.

Typical Alternator Operating Chart

240V/60 Hz



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RATINGS AT 0.8/1.0 POWER FACTOR

	Class - Temp Rise	Standby - 163/27°C		Standby - 150/40°C		Cont. H - 125/40°C		Cont. F - 105/40°C	
60 Hz	Series (V)	240	240	240	240	240	240	240	240
	Power Factor	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0
	kVA	30.0	32.4	28.6	30.9	27.0	29.2	24.4	26.4
	kW	24.0	32.4	22.9	30.9	21.6	29.2	19.5	26.4
	Efficiency (%)	80.6	85.0	81.1	85.4	81.8	86.0	82.6	86.7
	kW Input	29.8	38.1	28.2	36.2	26.4	34.0	23.6	30.4

De-Rates

All values tabulated above are subject to the following reductions:

- 3% for every 500 meters by which the operating altitude exceeds 1000 meters above mean sea level
- 3% for every 5°C by which the operational ambient temperature exceeds 40°C
- For any other operating conditions impacting the cooling circuit please refer to applications

Note: Requirement for operating in an ambient exceeding 60°C and altitude exceeding 4000 meters must be referred to applications.

Dimensional and Torsional Drawing

For dimensional and torsional information please refer to the alternator General Arrangement and rotor drawings available on our website (http://stamford-avk.com/)

Note: Continuous development of our products means that the information contained in our data sheets can change without notice, and specifications should always be confirmed with Cummins Generator Technologies prior to purchase.

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news.stamford-avk.com

For Applications Support:
applications@cummins.com

For Customer Service:
service-engineers@stamford-avk.com

For General Enquiries:
info@cumminsgeneratortechnologies.com

Generator Technologies