S0L1-S1 - Technical Data Sheet

Standards

Stamford industrial alternators meet the requirements of the relevant parts of the 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**
AS540	Self-Excited
Voltage Regulation	± 1%
No Load Excitation Voltage (V)	11 V
Full Load Excitation Voltage (V)	56 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	05	
Number of Poles	4	
IP Rating	IP 23	
RFI Suppression	EN 61000-6-2 & EN 61000-6-4, refer to factory for others	
Waveform Distortion	NO LOAD < 2.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%	
Short Circuit Ratio	1/Xd	
Steady State X/R Ratio	N/A	
	50 Hz	
Telephone Interference	THF<2%	
Voltage Series	230	230
Power Factor	0.8	1.0
kVA Base Rating (Class H)	10	10.8
Saturated Values in Per Unit at Base Ratings and Voltages		
Xd Dir. Axis Synchronous	1.792	1.935
X'd Dir. Axis Transient	0.093	0.100
X"d Dir. Axis Subtransient	0.086	0.093
Xq Quad. Axis Reactance	0.804	0.868
X"q Quad. Axis Subtransient	0.153	0.165
XL Stator Leakage Reactance	0.052	0.056
X2 Negative Sequence Reactance	0.188	0.203
X0 Zero Sequence Reactance	0.065	0.070
Unsaturated Values in Per Unit at Base Ratings and Voltages		
Xd Dir. Axis Synchronous	2.150	2.322
X'd Dir. Axis Transient	0.107	0.116
X"d Dir. Axis Subtransient	0.101	0.109
Xq Quad. Axis Reactance	0.828	0.894
X"q Quad. Axis Subtransient	0.184	0.198
XL Stator Leakage Reactance	0.059	0.063
X2 Negative Sequence Reactance	0.226	0.244
X0 Zero Sequence Reactance	0.076	0.082
Time Constants (Seconds)		
T'd TRANSIENT TIME CONST.	0.014	
T''d SUB-TRANSTIME CONST.	0.001	
T'do O.C. FIELD TIME CONST.	0.411	
Ta ARMATURE TIME CONST.	0.01	

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Resistances in Ohms (Ω) at 22°C	
Stator Winding Resistance (Ra)	0.265 Ω per phase series connected
Rotor Winding Resistance (Rf)	0.524 Ω
Exciter Stator Winding Resistance	17.638 Ω
Exciter Rotor Winding Resistance	0.101 Ω per phase
Positive Sequence Resistance (R1)	0.331 Ω
Negative Sequence Resistance (R2)	0.382 Ω
Zero Sequence Resistance (R0)	0.331 Ω
Aux Winding Resistance	N/A

Mechanical data	
Cooling Air	0.058 m³/sec (50Hz)
Shaft and Keys	All alternator rotors are dynamically balanced to better than BS6861: Part 1 Grade 2.5 for minimum vibration in operation.
Bearing	Single Bearing
Weight Comp. Alternator	91.5 kg
Weight Wound Stator	35.6 kg
Weight Wound Rotor	32.5 kg
Moment of Inertia	0.080 kgm^2
Shipping weight in a Crate	130 kg
Packing Crate Size	930X590X760 mm
Maximum Over Speed	2250 RPM for two minutes
Bearing Drive End	N/A
Bearing Non-Drive End	Ball Bearing, 6305-2RS1

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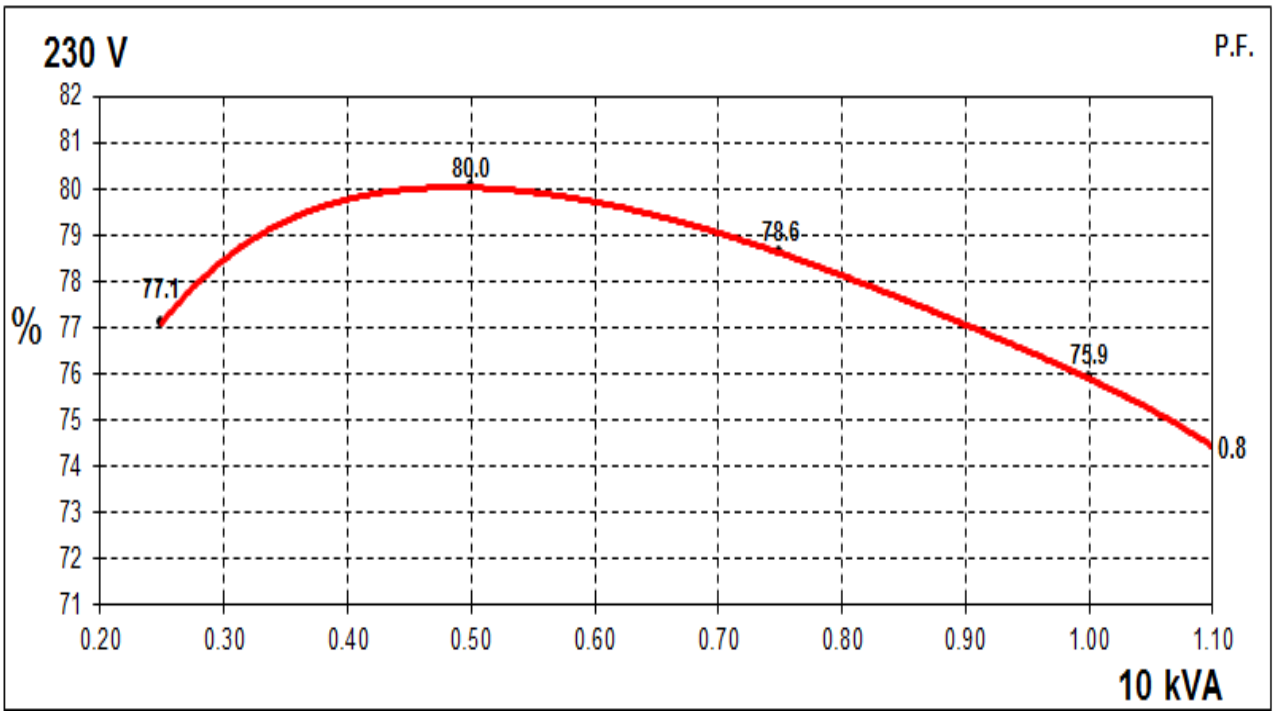
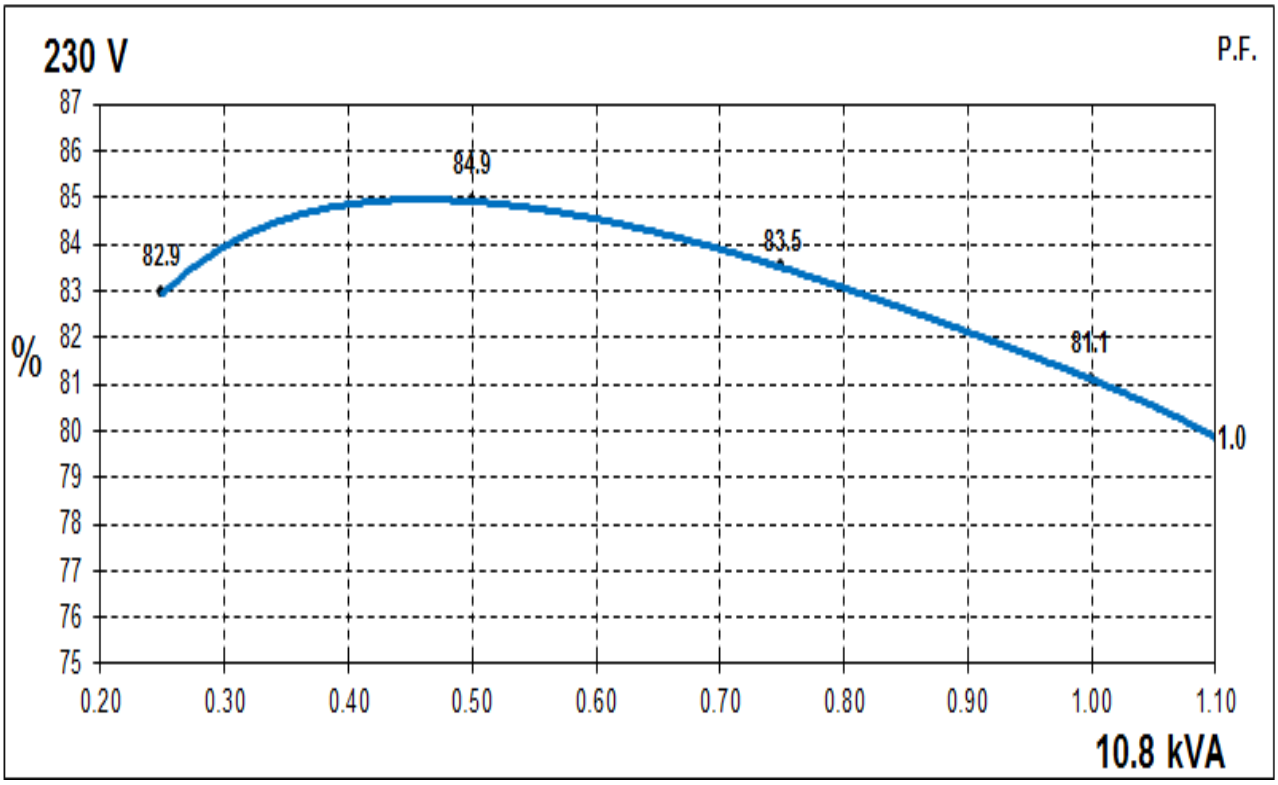
Single Phase Efficiency Curves

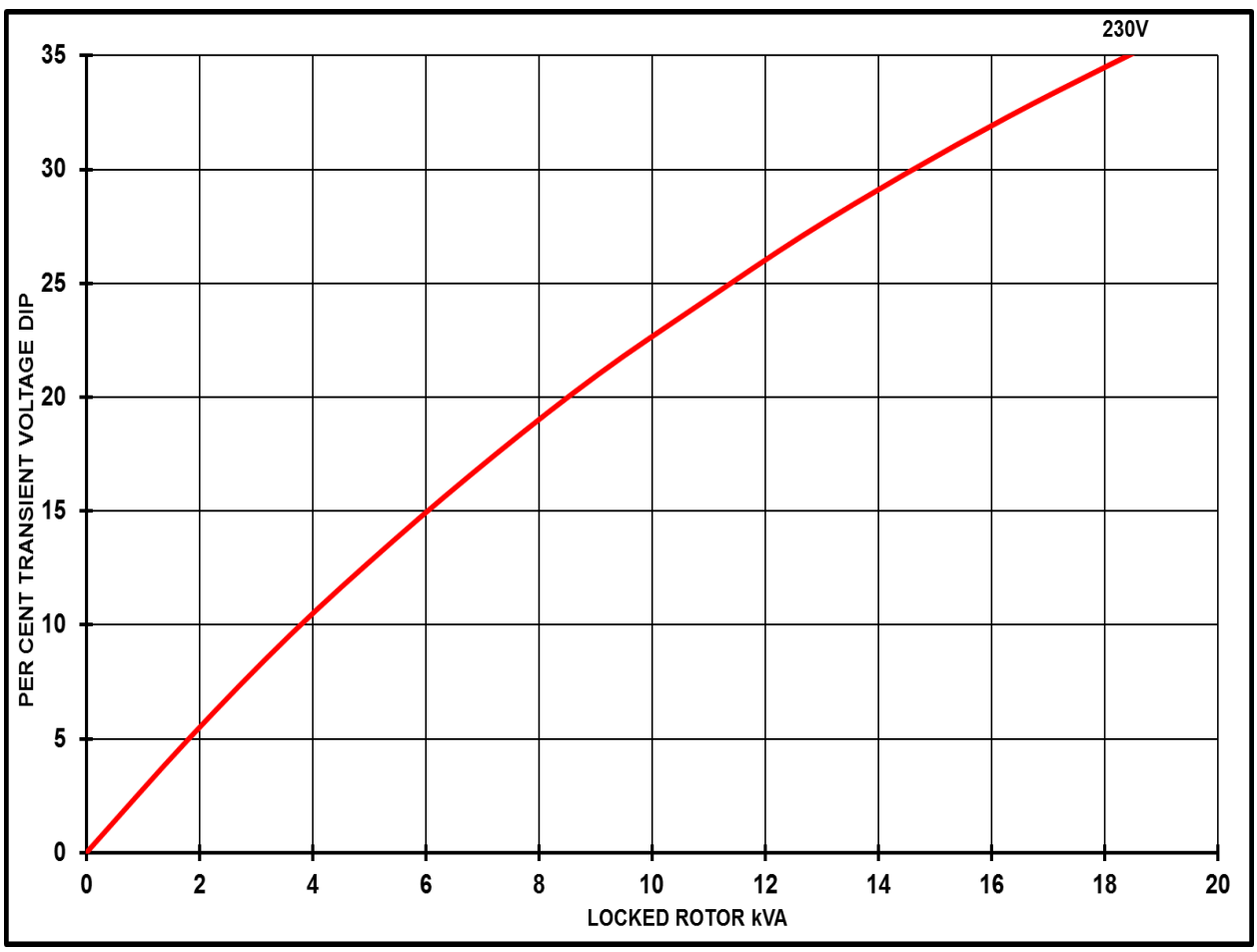
50Hz





Locked Rotor Motor Starting Curves

50Hz



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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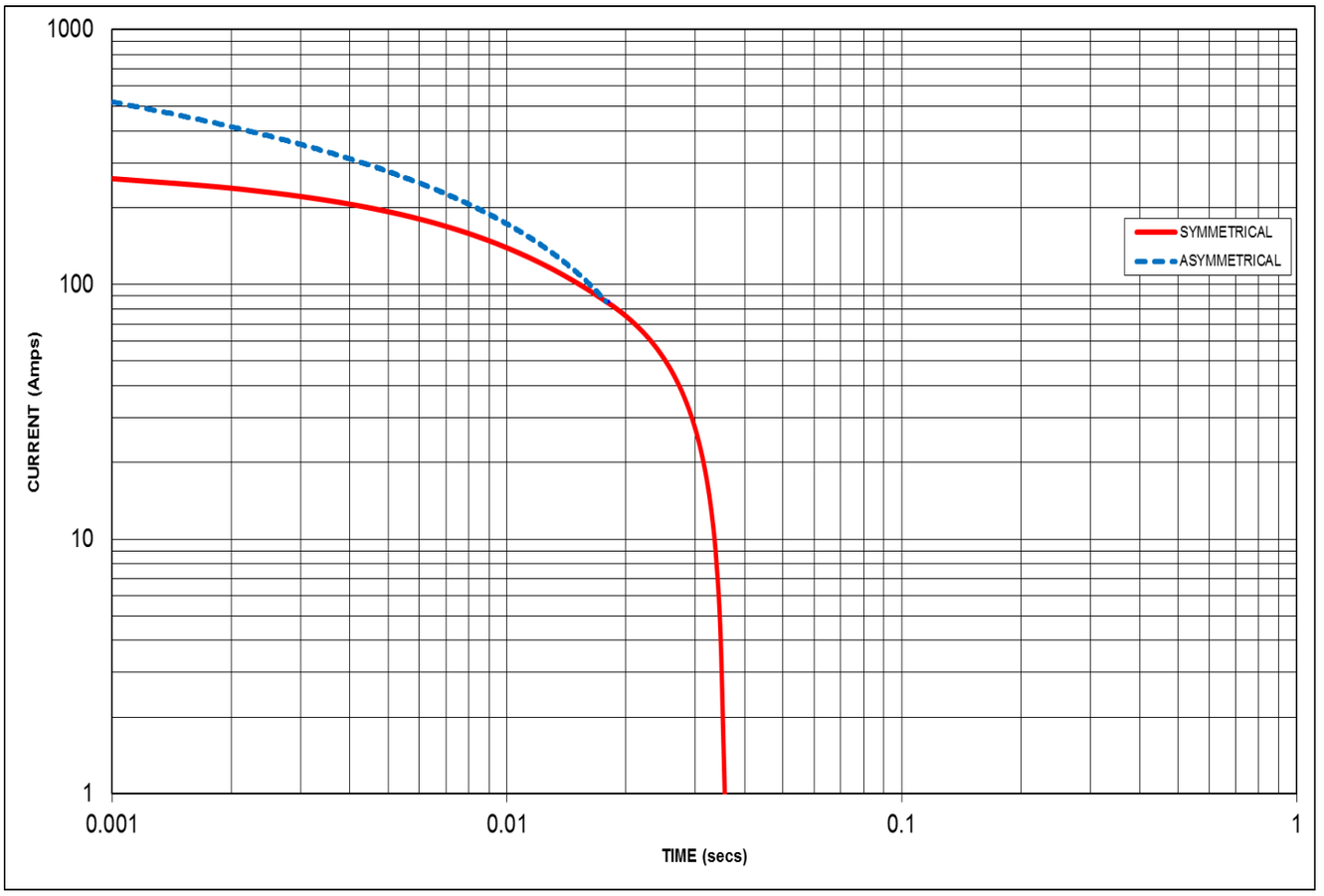
Short Circuit Decrement Curve

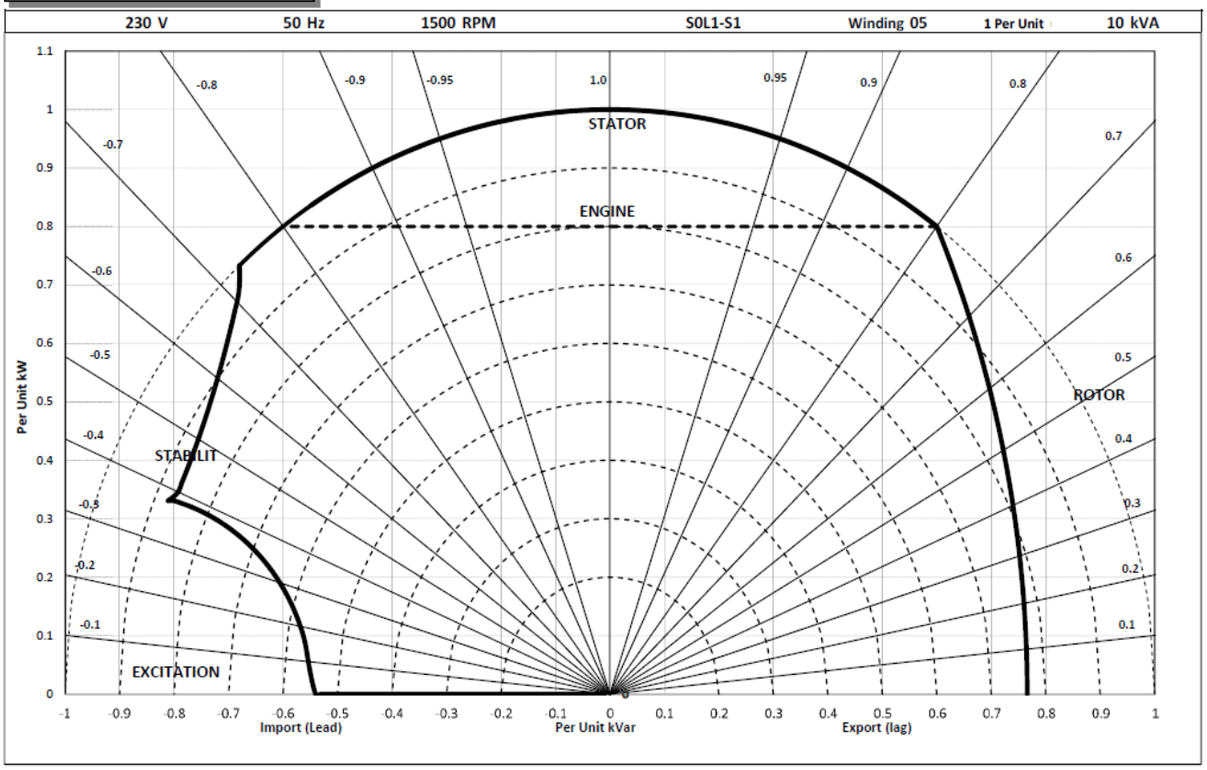
50Hz



Sustained Short Circuit - N/A

Typical Alternator Operating Chart

230V/50Hz



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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	
50 Hz	Series (V)	230	230	230	230	230	230	230	230
	Power Factor	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0
	kVA	11.0	11.9	10.7	11.6	10.0	10.8	9.1	9.8
	kW	8.8	11.9	8.6	11.6	8.0	10.8	7.3	9.8
	Efficiency (%)	74.4	79.8	74.9	80.2	75.9	81.1	76.9	82.0
	kW Input	11.8	14.9	11.4	14.5	10.5	13.3	9.5	12.0

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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