STAMFORD®

S0L1-H1 - 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
Voltage Regulation	± 0.5%
No Load Excitation Voltage (V)	7.2 V
Full Load Excitation Voltage (V)	37.2 V

STAMFORD

S0L1-H1 Winding 17

| Electrical Data	
Insulation System	Class H
Stator Winding	Double Layer Concentric
Winding Pitch	Two Thirds
Winding Leads	12
Winding Number	17
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 < 2.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%
Short Circuit Ratio	1/Xd
Steady State X/R Ratio	N/A
60 Hz	
Telephone Interference	TIF<75
Voltage Series Star	600
Voltage Parallel Star	300
Voltage Series Delta	346
kVA Base Rating (Class H)	12.5
Saturated Values in Per Unit at Base Ratings and Voltages	
Xd Dir. Axis Synchronous	1.950
X'd Dir. Axis Transient	0.114
X"d Dir. Axis Subtransient	0.105
Xq Quad. Axis Reactance	1.284
X"q Quad. Axis Subtransient	0.189
XL Stator Leakage Reactance	0.069
X2 Negative Sequence Reactance	0.204
X0 Zero Sequence Reactance	0.012
Unsaturated Values in Per Unit at Base Ratings and Voltages	
Xd Dir. Axis Synchronous	2.340
X'd Dir. Axis Transient	0.131
X"d Dir. Axis Subtransient	0.123
Xq Quad. Axis Reactance	1.323
X"q Quad. Axis Subtransient	0.227
XL Stator Leakage Reactance	0.078
X2 Negative Sequence Reactance	0.245
X0 Zero Sequence Reactance	0.014
Time Constants (Seconds)	
T'd TRANSIENT TIME CONST.	0.013
T''d SUB-TRANSTIME CONST.	0.001
T'do O.C. FIELD TIME CONST.	0.345
Ta ARMATURE TIME CONST.	0.004

STAMFORD

S0L1-H1 Winding 17

Resistances in Ohms (Ω) at 22°C	
Stator Winding Resistance (Ra)	1.628 Ω per phase series star connected
Rotor Winding Resistance (Rf)	0.413 Ω
Exciter Stator Winding Resistance	13.989 Ω
Exciter Rotor Winding Resistance	0.093 Ω per phase
Positive Sequence Resistance (R1)	2.035 Ω
Negative Sequence Resistance (R2	2.344 Ω
Zero Sequence Resistance (R0)	2.035 Ω
Aux Winding Resistance	N/A

Mechanical data	
Cooling Air	0.07 m³/sec
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 Complete Alternator	76.1 kg
Weight Wound Stator	27.8 kg
Weight Wound Rotor	25.7 kg
Moment of Inertia	0.062 kgm^2
Shipping weight in a Crate	114 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

STAMFORD

S0L1-H1 Winding 17

Three Phase Efficiency Curves
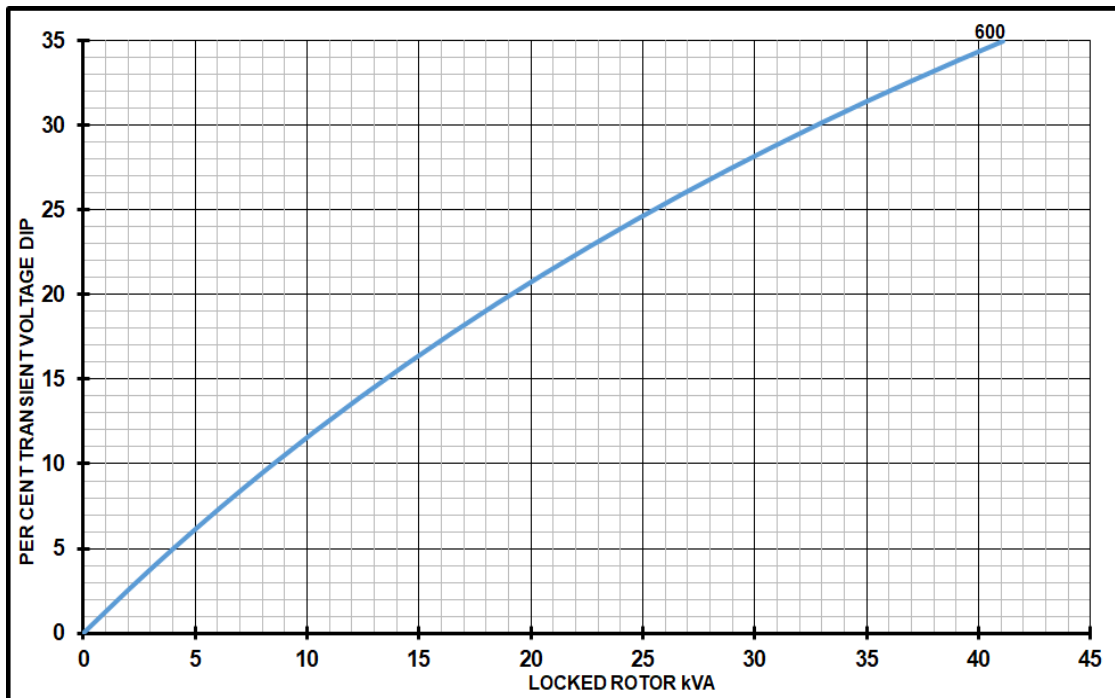
60Hz Curves

± 0.5%
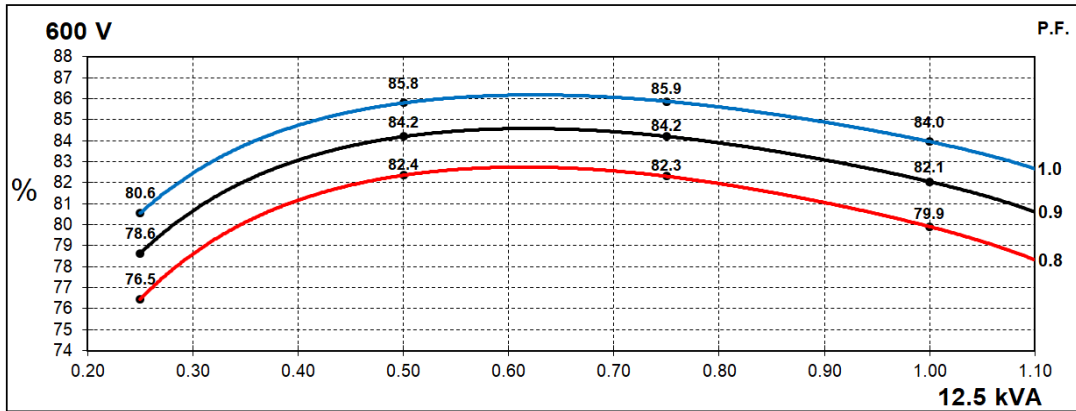
STAMFORD

## S0L1-H1 Winding 17

Locked Rotor Motor Starting Curves

60Hz

Transient Voltage Dip Scaling Factor		Transient Voltage Rise Scaling Factor	
Lagging PF	Scaling Factor	Lagging PF	Scaling Factor
<= 0.4	1.00	<= 0.4	1.25
0.5	0.95	0.5	1.20
0.6	0.90	0.6	1.15
0.7	0.86	± 0.5%	1.10
0.8	0.83	> 0.7	1.00
0.9	0.75		
0.95	0.70		
1	0.65		

Note: To determine % Transient Voltage Dip or Rise at various PF, multiply the % Voltage Dip from the curve directly by the scaling factor.

S0L1-H1 Winding 17
Three-phase Short Circuit Decrement Curve

60Hz
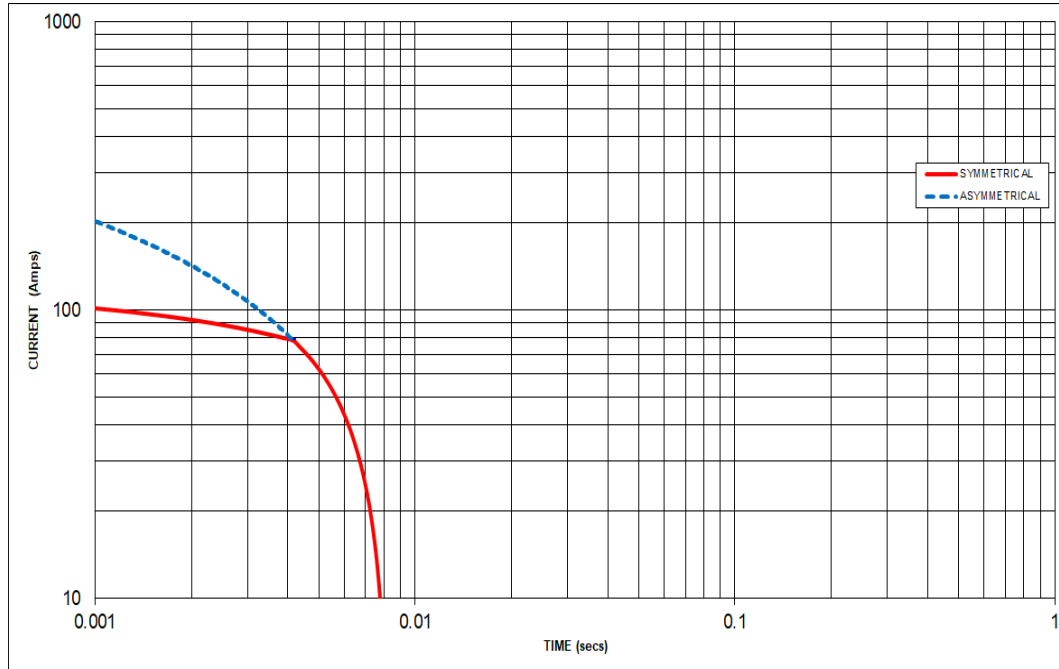
Note 1
The following multiplication factors should be used to adjust the values from curve between time 0.001 seconds and the minimum current point in respect of nominal operating voltage :

50Hz		60Hz	
Voltage	Factor	Voltage	Factor
-	-	600V	X 1.00
-	-	-	-
-	-	-	-
-	-	-	-

The sustained current value is constant irrespective of voltage level

Note 2
The following multiplication factor should be used to convert the values calculated in accordance with NOTE 1 to those applicable to the various types of short circuit :

| ± 0.5%	3-phase	2-phase L-L	1-phase L-N
Instantaneous	x 1.00	x 0.87	x 1.30
Minimum	x 1.00	x 1.80	x 3.20
Sustained	N/A	N/A	N/A
Max. sustained duration	10 sec.	5 sec.	2 sec.

All other times are unchanged

Note 3
Curves are drawn for Star connected machines under no-load excitation at rated speeds. For other connection the following multipliers should be applied to current values as shown :
Parallel Star = Curve current value X 2
Series Delta = Curve current value X 1.732

STAMFORD

S0L1-H1 Winding 17

Typical Alternator Operating Charts

600V/60Hz

S0L1-H1_wdg17_ES10456868_Rev_B_04.10.2024
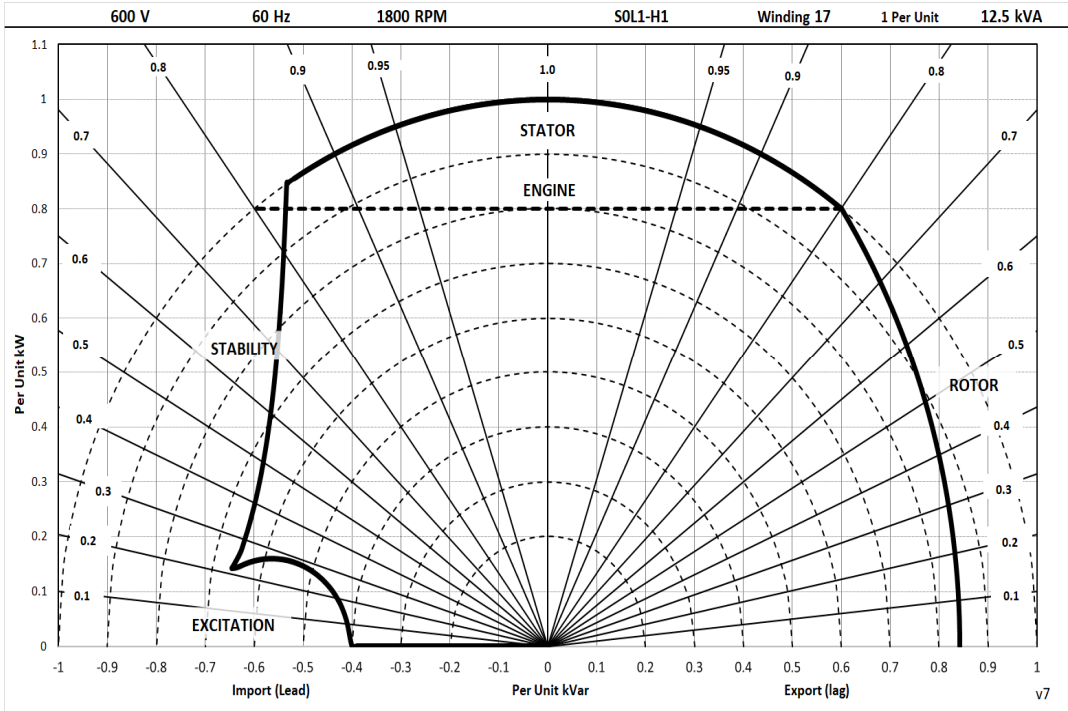
STAMFORD®

S0L1-H1 Winding 17

RATINGS AT 0.8 POWER FACTOR

	Class - Temp Rise	Standby - 163/27℃	Standby - 150/40℃	Cont. H - 125/40℃	Cont. F - 105/40℃
5	Series Star (V)				
	Parallel Star (V)	N/A	N/A	N/A	N/A
	Series Delta (V)				
	kVA				
	kW	N/A	N/A	N/A	N/A
	Efficiency (%)				
	kW Input				

	Class - Temp Rise	Standby - 163/27℃	Standby - 150/40℃	Cont. H - 125/40℃	Cont. F - 105/40℃
6	Series Star (V)	600	600	600	600
	Parallel Star (V)	300	300	300	300
	Series Delta (V)	346	346	346	346
	kVA	13.6	13.1	12.5	11.3
	kW	10.9	10.5	10.0	9.0
	Efficiency (%)	78.6	79.2	79.9	81.0
	kW Input	13.8	13.2	12.5	11.2

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℃ by which the operational ambient temperature exceeds 40℃
- For any other operating conditions impacting the cooling circuit please refer to applications

Note: Requirement for operating in an ambient exceeding 60℃ 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.

± 0.5%

Follow us @stamfordavk

Cummins Generator Technologies

View our videos at youtube.com/stamfordavk

news.stamford-avk.com

For Applications Support: ± 0.5%
applications@cummins.com

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

For General Enquiries:
info@cumminsgeneratortechnologies.com

Generator Technologies