

SVI354D | THREE-PHASE SYNCHRONOUS ALTERNATOR

Product Data Sheet

General Data

Ambient Temperature	40°C	Method of Cooling	Air cooling	
Temperature Rise	125°C	Direction of Rotation	Clockwise	
Insulation Class	H	Maximum Over-speed	2250r/min	
Power Factor	0.8	Degree of Protection / Enclosure	IP23	
Excitation	Brushless	Altitude	1000m	
Winding Pitch	2/3	Stator winding	Double Layer Lap	
Pole	4	Number of Terminal	12	
Duty	S1- Continuous	Rotor	With damping cage	
Waveform	TIF<50			THF<2%
RFI Suppression	BS EN 61000-6-2&BS EN 61000-6-4,VDE 0875G,VDE0874N			
Waveform distortion	Noload<1.5%,Non-distorting balanced linear load<5%			
AVR MODEL	Standard	Selection		PMG
	AS440	KRS440		MX341B MX321
Voltage Regulation - in steady state condition	±1.0	±1.0		±0.5 ±0.5
Short Circuit Current Capacity	Control does not sustain a short circuit current			2400A

Electrical Characteristic

Frequency	Hz	50				60			
Voltage (series star) Y	V	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
Voltage (parallel star) YY	V	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138
Voltage (series delta) Δ	V	220	230	240	254	240	254	266	277
Rated power at Class H (125° C) temperature rise	kVA	500	550	500	500	575	594	625	644
	kW	400.0	440.0	400.0	400.0	460.0	475.2	500.0	515.2
Efficiency at Class H (P.F.=0.8)	4/4%	94.4	94.3	94.8	94.9	94.4	94.6	94.7	94.7
	3/4%	95.1	95.1	95.2	95.2	95	95.1	95.1	95.1
	2/4%	95.1	95.1	95	94.9	94.9	94.9	94.9	94.9
Efficiency at Class H (P.F.=1.0)	4/4%	95.6	95.6	95.9	96	95.6	95.8	95.8	95.8
	3/4%	96.2	96.2	96.2	96.2	96	96.1	96.1	96.1
	2/4%	96.1	96.2	96	96	95.9	95.9	96	96

Reactances (%) at Class H

Direct axis synchronous reactance unsaturated	Xd	3.02	2.99	2.53	2.25	3.52	3.25	3.13	2.96
Direct axis transient reactance saturated	X'd	0.16	0.15	0.13	0.12	0.17	0.16	0.15	0.14
Direct axis subtransient reactance saturated	X''d	0.11	0.11	0.09	0.08	0.12	0.11	0.11	0.1
Quadrature axis synchronous reactance unsaturated	Xq	2.48	2.46	2.08	1.85	2.87	2.65	2.55	2.41
Quadrature axis subtransient reactance saturated	X''q	0.27	0.28	0.23	0.2	0.31	0.29	0.28	0.26
Leakage reactance	Xl	0.05	0.04	0.04	0.04	0.06	0.06	0.05	0.05
Negative sequence reactance saturated	X2	0.19	0.19	0.16	0.14	0.22	0.2	0.2	0.19
Zero sequence reactance unsaturated	X0	0.1	0.1	0.08	0.07	0.1	0.09	0.09	0.08
Short-circuit ratio	Kcc	0.3311	0.3344	0.3953	0.4444	0.2841	0.3077	0.3195	0.3378
Short-circuit transient time constant (sec.)	T'd	0.08							
Subtransient time constant (sec.)	T''d	0.012							
Open circuit time constant (sec.)	T'do	2.2							
Armature time constant (sec.)	Ta	0.018							
Stator Winding Resistance (20 °C) (Ra)	ohm	0.00485							
Rotor Winding Resistance (20 °C) (Rf)	ohm	1.77							
Exciter Stator Resistance (20 °C)	ohm	17							
Exciter Rotor Phase resistance	ohm	0.092							
No load excitation current	io (A)	0.6	0.61	0.65	0.65	0.6	0.6	0.62	0.65
Full load excitation current	ic(A)	2.4	2.4	2.5	2.5	2.4	2.4	2.5	2.5
Cooling air requirement	m³ /sec	1.035m³/s 2202cfm				1.312m³/s 2780cfm			

Mechanical Characteristic

Configuration	Single Bearing	Double Bearing
Type of Construction	B2-SAE	IM B34
Total Weight - kgs	1363	1340
Weight wound stator - kgs	635	635
Weight wound rotor - kgs	563	535
Inertia (J) [kgm²]	8.0068kgm²	7.7289kgm²
Drive end bearing / Lubrication		BALL.6220-2RS(ISO)
Non-drive end bearing / Lubrication	BALL.6314-2RS(ISO)	BALL.6314-2RS(ISO)
Packing crate size (cm)	138X80X115	149X80X115

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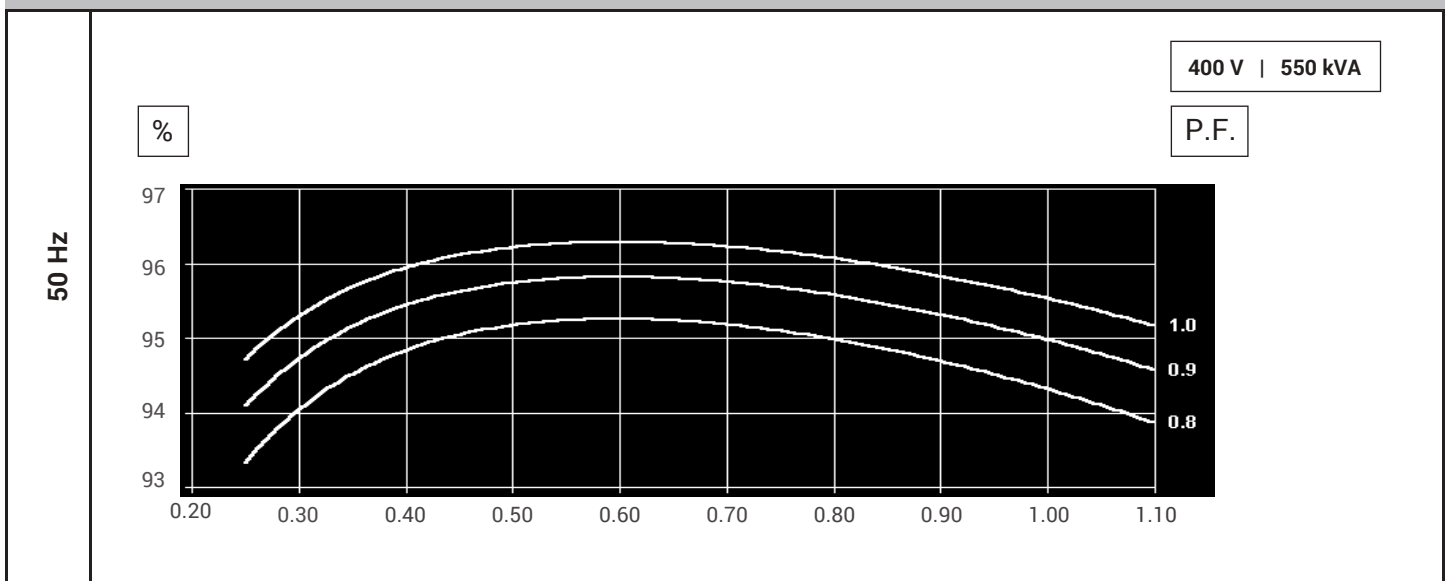
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Ratings

Class Temp-Rise		Cont. F - 105/40 °C				Cont. H - 125/40 °C				Standby - 150/40 °C				Standby - 163/27 °C			
50 Hz	Series Star (V)	380	400	415	440	380	400	415	440	380	400	415	440	380	400	415	440
	Parallel Star (V)	190	200	208	220	190	200	208	220	190	200	208	220	190	200	208	220
	Series Delta (V)	220	230	240	254	220	230	240	254	220	230	240	254	220	230	240	254
	kVA	450	495	450	450	500	550	500	500	515	575	515	515	550	590	550	530
	kW	360	396	360	360	400	440	400	400	412	460	412	412	440	472	440	424
	Efficiency (%)	94.8	94.7	95	95.1	94.5	94.3	94.8	94.9	94.4	94.1	94.7	94.9	94.1	94	94.5	94.8
	kW Input	380	418	379	379	423	467	422	421	436	489	435	434	468	502	466	447

Three Phase Efficiency Curves



Dimensions

