

DATA SHEET

Synchronous Alternator



Customer		Notes:	
Customer reference			
Product line	: AG10-250SI20AI	Product code	: 14418606
Area classification	: Safe		1010265624

General data		Degree of protection	: IP23
Frame (IEC)	: 250	Mounting style	: B35T
Insulation Class	: 180°C (H)	Number of poles	: 4
Total Harmonic Distortion (no load)	: ≤ 3%	Type of Pole	: Salient
Stator winding pitch	: 2/3	Nominal rotation - 50 Hz	: 1500 rpm
Altitude	: up to 1000 m.a.s.l	Nominal rotation - 60 Hz	: 1800 rpm
Number of Leads	: 12	Overspeed	: 2250 rpm
Power factor	: 0.8 to 1.0	Alternator mass	: 730 kg
Excitation system	: Brushless with Auxiliary Coil	Overload	: 1.1x In per 1h each 6h
Cooling	: IC01	Momentary Overload	: 1.5x In per 30s

Frequency and number of phases		50 Hz				60 Hz													
		3ph			1ph	3ph			1ph										
Voltages (V)	Y connection	380	400	415	-	380	416	440	480	-									
	YY connection	190	200	208	-	190	208	220	240	-									
	Δ connection	220	230	239	-	220	240	254	277	-									
	ΔΔ connection	110	115	120	-	110	120	127	138	-									
	Zig-zag or single phase delta	-	-	-	190 - 200	-	-	-	-	220 - 240									
Output power (kVA)	ΔT=80°C (Ta=40°C)	200	200	190	115.5	205	223	234	250	135.1									
	ΔT=105°C (Ta=40°C)	229	229	217	132.2	235	255	268	288	155									
	ΔT=125°C (Ta=40°C)	250	250	237	144.3	260	278	292	312	169									
	ΔT=150°C (Ta=40°C)	260	260	247	150	275	298	315	345	182									
	ΔT=163°C (Ta=27°C)	277	277	263	160	290	312	330	360	188									
Electrical data (FP=0.8 / ΔT=125°C / Ta=40°C)	Xd(%) Dir. axis synchronous reactance	490.0	415.6	357.4	653.3	593.3	516.4	482.0	428.29	642.7									
	X'd(%) Dir. axis transient reactance	18.7	15.9	13.6	24.93	22.6	19.7	18.4	16.34	24.5									
	X''d(%) Dir. axis subtrans. reactance	13.5	11.4	9.8	18.0	16.4	14.2	13.2	11.68	17.6									
	Xq(%) Quad. axis sync. reactance	135.5	114.9	98.8	180.65	164.1	142.8	133.3	118.43	177.7									
	X''q(%) Quad. axis subtrans. react.	10.8	9.2	7.9	14.4	13.1	24.6	10.6	9.35	14.1									
	X2(%) Negative sequence reactance	17.5	14.9	12.8	23.38	21.2	19.4	17.2	15.27	23.0									
	X0(%) Zero sequence reactance	2.2	1.9	1.6	3.0	2.7	2.4	2.2	1.95	2.9									
	T'd(ms) Short Circ. Trans. time const.	67.6	57.3	48.1	90.09	81.8	66.9	66.5	59.06	88.6									
	T''d(ms) Short Circ. Sub. time const.	1.8	1.5	1.3	2.37	2.1	1.8	1.8	1.55	2.3									
	T'do(ms) Open Circ. time const Trans	1347	1143	960	1796.6	1632	1334	1326	1177.8	1767									
	T''do(ms) Open Circ. time const Subt	2.4	2.1	1.7	3.25	3.0	2.4	2.4	2.13	3.2									
	Ta(ms) Armature time const.	11	9	8	14.91	14	11	11	9.77	15									
	uc(V) Full load excitation voltage	61.3	63.0	68.0	68.1	53.3	57.8	55.8	58.15	55.8									
	ic(A) Full load excitation current	3.7	3.8	4.1	4.09	3.2	3.5	3.4	3.5	3.4									
	ic(A) No load excitation current	0.7	0.8	0.9	0.95	0.6	0.7	0.7	0.87	0.9									
Icc(A) Sustained Short-Circ. Current	1140	1083	989	1082.53	1185	1129	1149	1125.83	1054										
Kcc Short-circuit ratio	0.44	0.38	0.28	0.59	0.54	0.48	0.44	0.39	0.58										
Efficiency (%)	Power factor	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0	0.8	1.0		
	25% of load	91.7	93.5	91.9	93.7	92.3	94.1	84.4	86	92.2	93.7	92.2	93.8	92.2	93.8	92	93.7	84.8	86.3
	50% of load	93	94.7	93.1	94.8	93.5	95.2	85.5	87.1	93.4	94.9	93.5	95	93.7	95.1	93.5	95.1	86.2	87.5
	75% of load	92.4	94.4	92.7	94.6	93.1	95	85	86.8	92.9	94.6	93.1	94.8	93.3	94.9	93.3	95	85.8	87.3
	100% of load	91.6	93.7	92	94.1	92.4	94.4	84.2	86.2	92	93.9	92.3	94.2	92.6	94.4	92.8	94.6	85.2	86.9
	125% of load	90.6	92.9	91.1	93.4	91.5	93.8	81.2	83.7	90.9	93.2	91.3	93.5	91.5	93.6	92	94	84.2	86.2

Other characteristics		Automatic voltage regulator		According to:	
Air flow	: 1.38 m³/s	Accuracy (stability)	: +/- 0.5%	IEC 60034	
Exciter stator winding resistance at 20°C	: 12.17 ohm	Rated current	: 5 A	NBR 5117	
Stator winding resistance at 20°C	: 0.01858 ohm	Analog input	: Yes	NEMA MG1	
Rotor winding resistance	: 1.13 ohm	Digital input	: No	VDE530	
Stator winding layers	: 2	Peak current	: 7 A/10 s	ISO 8528	
Inertia WR²	: 2.36 kgm²	Droop / TC	: Yes	CSA	
NDE Bearing	: 6314 2RS	Dynamic recovery	: 8 to 500 ms		
DE bearing	: 6316 2RS	U/F	: Yes		
Flange	: SAE 2	Internal voltage adjustment	: +/- 15%		
Coupling disc	: WITHOUT	External voltage adjustment	: +/- 10%		
		Transient recovery time for ΔU=20%	: 500 ms		

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