

DATA SHEET

Synchronous Alternator



Customer	:	Notes:
Customer reference	:	
Product line	: GTA251AIHE	Product code : 14419969
Area classification	: Safe	1010319723

General data Frame (IEC) : 250 Insulation Class : 180°C (H) THD (L-L, no load) : ≤ 3% Stator winding pitch : 2/3 Altitude : up to 1000 m.a.s.l Number of Leads : 12 Power factor : 0.8 to 1.0 Excitation system : Brushless with Auxiliary Coil Cooling : IC01	Degree of protection : IP23 Mounting style : B15T Number of poles : 4 Type of Pole : Salient Rated speed - 50 Hz : 1500 rpm Nominal rotation - 60 Hz : 1800 rpm Overspeed : 2250 rpm Approx. weight : 460 kg Overload : 1.1x In per 1h each 6h Momentary Overload : 1.5x In per 30s
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Frequency and number of phases		50 Hz				60 Hz							
		3ph			1ph	3ph				1ph			
Voltages (V)	Y (series star) connection	380	400	415	-	380	416	440	480	-			
	YY (parallel star) connection	190	200	208	-	190	208	220	240	-			
	Δ (series delta) connection	220	230	239	-	220	240	254	277	-			
	ΔΔ (parallel delta) connection	110	115	120	-	110	120	127	138	-			
	Zig-zag or single phase delta	-	-	-	190 - 200	-	-	-	-	220 - 240			
Output power (kVA)	Continuous 80/40	128.0	143.0	136.0	73.9	154	164	171	180	98.9			
	Continuous 105/40	147.0	164	156	84.7	176	188	196	206	113.3			
	Continuous 125/40	160	180	171	92.4	192	205	214	225	123.6			
	Standby 150/40	165	196	187	101.2	205	220	230	243	135.4			
	Standby 163/27	170	206	195	105.5	214	229	240	252	141.1			
Electrical data (FP=0.8 / Continuous 125/40 (H))	Xd(%) Dir. axis synchronous reactance	366.4	372.6	353.9	488.6	524.9	469.2	438.2	388.07	584.34			
	X'd(%) Dir. axis transient reactance	21.6	21.9	20.8	28.76	31.0	27.6	25.8	22.82	34.44			
	X''d(%) Dir. axis subtrans. reactance	15.0	15.2	14.5	20.02	21.6	19.2	18.0	15.88	23.97			
	Xq(%) Quad. axis sync. reactance	141.3	143.7	136.5	188.46	202.4	200.4	169.0	149.68	225.39			
	X''q(%) Quad. axis subtrans. react.	16.9	17.1	16.3	22.49	24.3	34.6	20.2	17.84	26.92			
	X2(%) Negative sequence reactance	15.9	16.1	15.3	21.18	22.9	26.9	19.0	16.81	25.36			
	X0(%) Zero sequence reactance	2.5	2.5	2.4	3.34	3.6	3.2	3.0	2.65	3.99			
	T'd(ms) Short Circ.Trans.time const.	56.4	56.4	56.4	75.2	56.4	86.9	56.4	56.4	75.2			
	T''d(ms) Short Circ. Sub. time const.	1.6	1.6	1.6	2.13	1.6	2.3	1.6	1.6	2.13			
	T'do(ms) Open Circ. time const Trans	988	990	990	1317.72	983	1732	987	989.61	1316.46			
	T''do(ms) Open Circ. time const Subt	2.2	2.2	2.2	2.89	2.2	3.1	2.2	2.17	2.89			
	Ta(ms) Armature time const.	8	8	8	11.12	8	14	8	8.34	11.12			
	uc(V) Full load excitation voltage	46.0	50.3	50.3	45.96	46.5	47.3	48.2	50.35	48.17			
	ic(A) Full load excitation current	3.8	4.1	4.1	3.78	3.8	3.9	4.0	4.14	3.96			
	ic(A) No load excitation current	0.6	0.8	0.8	0.8	0.6	0.8	0.9	1.3	1.2			
Efficiency (%)	Icc(A) Sustained Short-Circ. Current	729	779	713	692.82	875	807	842	811.9	772.41			
	Kcc Short-circuit ratio	0.29	0.3	0.28	0.38	0.18	0.21	0.23	0.29	0.31			
	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
	25% of load	84.8	88	85.6	88.6	85.9	89	78	80.9	86.7	89.5	87.1	89.8
	50% of load	88.1	90.9	88.4	91.2	88.8	91.5	81	83.6	88.7	91.2	89.2	91.7
	75% of load	87.9	90.9	88	91.1	88.4	91.4	80.9	83.6	87.8	90.6	88.5	91.2
	100% of load	86.9	90.1	86.8	90.2	87.2	90.6	80	82.9	86.3	89.3	87.1	90.1
	125% of load	85.5	89	85.3	89.1	85.6	89.5	78.7	81.9	84.5	87.8	85.5	88.8

Other characteristics Air flow : 1.4 m³/s Exciter stator winding resistance at 20°C : 12.17 ohm Stator winding resistance at 20°C : 0.03877 ohm Rotor winding resistance : 1.0 ohm Stator winding layers : 2 Inertia WR² : 1.42 kgm² NDE Bearing : 6214-2RS/ZZ DE bearing : Flange : SAE 1 Coupling disc : SAE 14	Automatic voltage regulator Accuracy (stability) : +/- 0.5% Rated current : 5 A Analog input : Yes Digital input : No Peak current : 7 A/10 s Droop / TC : Yes Dynamic recovery : 8 to 500 ms U/F : Yes Internal voltage adjustment : +/- 15% External voltage adjustment : +/- 10% Transient recovery time for ΔU=20% : 500 ms	According to: IEC 60034 NBR 5117 NEMA MG1 VDE530 ISO 8528 CSA
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Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by				
Date	25/06/2023			
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