

DATA SHEET

Synchronous Alternator



Customer	:	Notes:
Customer reference	:	
Product line	: GTA251AIHD	Product code : 14417248
Area classification	: Safe	1010325891

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 : 428 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	110.0	110.0	104.0	61.6	110.0	125.0	137.0	140.0	76.8			
	Continuous 105/40	126.0	126.0	120.0	70.6	127.0	144.0	157	161	88.0			
	Continuous 125/40	140.0	140.0	133.0	77.0	142.0	159	171	175	96.0			
	Standby 150/40	145.0	145.0	138.0	84.3	149.0	169	183	188	105.2			
	Standby 163/27	150.0	150.0	142.0	87.9	156	176	190	189	109.6			
Electrical data (FP=0.8 / Continuous 125/40 (H))	Xd(%) Dir. axis synchronous reactance	402.21	363.48	345.31	536.28	486.95	455.2	439.3	378.62	585.72			
	X'd(%) Dir. axis transient reactance	25.24	22.79	21.65	33.65	30.71	28.6	27.6	23.74	36.79			
	X''d(%) Dir. axis subtrans. reactance	17.23	15.55	14.77	22.97	20.96	19.5	18.8	16.2	25.12			
	Xq(%) Quad. axis sync. reactance	155.57	140.58	133.55	207.43	188.34	207.2	169.9	146.44	226.53			
	X''q(%) Quad. axis subtrans. react.	19.16	17.29	16.43	25.55	23.31	35.7	20.9	18.01	27.92			
	X2(%) Negative sequence reactance	18.14	16.37	15.56	24.19	22.07	27.6	19.8	17.06	26.45			
	X0(%) Zero sequence reactance	2.87	2.59	2.46	3.83	3.49	3.2	3.1	2.7	4.19			
	T'd(ms) Short Circ.Trans.time const.	59.5	59.5	59.5	79.33	59.5	96.2	59.5	59.5	79.33			
	T''d(ms) Short Circ. Sub. time const.	1.7	1.7	1.7	2.27	1.7	2.5	1.7	1.7	2.27			
	T'do(ms) Open Circ. time const Trans	980.7	982.0	982.0	1307.6	975.6	1919	980	982.0	1306.4			
	T''do(ms) Open Circ. time const Subt	2.4	2.4	2.4	3.2	2.4	3.5	2.4	2.4	3.2			
	Ta(ms) Armature time const.	8.29	8.29	8.29	11.05	8.29	16	8	8.29	11.05			
	uc(V) Full load excitation voltage	53.82	54.7	54.7	53.82	47.09	52.9	52.2	53.71	52.19			
	ic(A) Full load excitation current	4.42	4.49	4.49	4.42	3.87	4.3	4.3	4.41	4.29			
	ic(A) No load excitation current	0.6	0.8	0.8	0.8	0.3	0.5	0.5	0.7	0.67			
Efficiency (%)	Icc(A) Sustained Short-Circ. Current	638.12	606.22	554.04	577.5	647.24	642	673	631.48	600.0			
	Kcc Short-circuit ratio	0.28	0.33	0.29	0.37	0.21	0.23	0.25	0.31	0.33			
	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	89.8	92.2	89.6	92.1	89.9	92.4	82.6	84.9	90.6	92.8	90.8	93
	50% of load	90.1	92.7	90.3	92.9	90.6	93.1	82.9	85.3	90.7	93	91	93.3
	75% of load	88.7	91.7	89.1	92.1	89.4	92.4	81.6	84.4	89.2	91.8	89.6	92.2
	100% of load	86.9	90.3	87.5	90.9	87.8	91.2	80	83.1	87.4	90.2	87.9	90.8
	125% of load	85	88.8	85.7	89.6	86	89.9	78.2	81.7	85.4	88.7	86	89.4
		85	88.8	85.7	89.6	86	89.9	78.2	81.7	85.4	88.7	86	89.4
		85	88.8	85.7	89.6	86	89.9	78.2	81.7	85.4	88.7	86	89.4
		85	88.8	85.7	89.6	86	89.9	78.2	81.7	85.4	88.7	86	89.4
		85	88.8	85.7	89.6	86	89.9	78.2	81.7	85.4	88.7	86	89.4
		85	88.8	85.7	89.6	86	89.9	78.2	81.7	85.4	88.7	86	89.4
		85	88.8	85.7	89.6	86	89.9	78.2	81.7	85.4	88.7	86	89.4
		85	88.8	85.7	89.6	86	89.9	78.2	81.7	85.4	88.7	86	89.4

Other characteristics Air flow : 1.2 m³/s Exciter stator winding resistance at 20°C : 12.17 ohm Stator winding resistance at 20°C : 0.05089 ohm Rotor winding resistance : 0.91 ohm Stator winding layers : 2 Inertia WR² : 1.3 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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