

DATA SHEET

Synchronous Alternator



Customer	:	Notes:
Customer reference	:	
Product line	: GTA161AIHJ	Product code : 14419469
Area classification	: Safe	1010293511

General data Frame (IEC) : 160 Insulation Class : 180°C (H) Total Harmonic Distortion (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 Nominal rotation - 50 Hz : 1500 rpm Nominal rotation - 60 Hz : 1800 rpm Overspeed : 2250 rpm Alternator mass : 145 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 connection						380		400				-		380		416		440		480		-																	
	YY connection						190		200				-		190		208		220		240		-																	
	Δ connection						220		230				-		220		240		254		277		-																	
	ΔΔ connection						110		115				-		110		120		127		138		-																	
	Zig-zag or single phase delta						-		-		-		190 - 200		-		-		-		-		220 - 240																	
Output power (kVA)	ΔT=80°C (Ta=40°C)						16.0		16.0				10.0		17.7		19.1		20.1		21.8		12.0																	
	ΔT=105°C (Ta=40°C)						18.0		18.0				11.5		20.3		21.9		23.0		25.0		13.5																	
	ΔT=125°C (Ta=40°C)						23.0		23.0				12.7		23.0		25.3		27.0		27.3		15.0																	
	ΔT=150°C (Ta=40°C)						23.5		23.5				13.5		25.0		26.8		28.0		30.0		16.0																	
	ΔT=163°C (Ta=27°C)						24.0		24.0				14.0		26.0		27.8		29.0		31.1		17.0																	
Electrical data (FP=0.8 / ΔT=125°C / Ta=40°C)	Xd(%) Dir. axis synchronous reactance						201.28		181.94				268.37		240.04		221.44		211.24		179.97		281.65																	
	X'd(%) Dir. axis transient reactance						13.63		12.31				18.17		16.33		15.01		14.32		12.17		19.09																	
	X''d(%) Dir. axis subtrans. reactance						10.27		9.28				13.69		12.3		11.31		10.79		9.18		14.39																	
	Xq(%) Quad. axis sync. reactance						82.59		74.66				110.12		98.48		85.82		86.68		73.85		115.57																	
	X''q(%) Quad. axis subtrans. react.						10.24		9.24				13.65		12.27		18.76		10.76		9.14		14.35																	
	X2(%) Negative sequence reactance						10.25		9.26				13.67		12.28		15.04		10.77		9.16		14.37																	
	X0(%) Zero sequence reactance						1.71		1.55				2.28		2.05		1.89		1.8		1.53		2.4																	
	T'd(ms) Short Circ.Trans.time const.						35.8		35.8				47.73		35.7		39.34		35.8		35.8		47.73																	
	T''d(ms) Short Circ. Sub. time const.						0.5		0.5				0.67		0.5		0.52		0.5		0.5		0.67																	
	T'do(ms) Open Circ. time const Trans						536.3		537.1				715.07		533.1		562.16		535.7		537.1		714.27																	
	T''do(ms) Open Circ. time const Subt						0.6		0.6				0.8		0.6		0.71		0.6		0.6		0.8																	
	Ta(ms) Armature time const.						3.16		3.16				4.21		3.15		3.56		3.16		3.16		4.21																	
	uc(V) Full load excitation voltage						25.66		25.88				25.66		29.34		29.19		31.85		32.35		31.85																	
	ic(A) Full load excitation current						2.73		2.75				2.73		3.12		3.11		3.39		3.44		3.39																	
	ic(A) No load excitation current						0.9		1.1				1.2		0.5		0.84		0.8		1.0		1.07																	
	Icc(A) Sustained Short-Circ. Current						104.83		99.59				95.25		104.83		100.85		106.28		98.51		93.84																	
	Kcc Short-circuit ratio						0.51		0.58				0.69		0.41		0.45		0.48		0.59		0.65																	
Efficiency (%)	Power factor						0.8		1.0		0.8		1.0		0.8		1.0		0.8		1.0		0.8		1.0															
	25% of load						81.2		85.1		81		84.9				74.7		78.3		82.1		85.8		82.6		86.2		83.2		86.8		83		86.5		76.5		79.8	
	50% of load						84.5		88		84.7		88.2				77.7		81		85.2		88.5		85.8		89		86.3		89.4		86.6		89.8		79.4		82.3	
	75% of load						83.8		87.5		84.3		88				77.1		80.5		84.4		87.8		85.1		88.5		85.6		89		86.4		89.7		78.8		81.8	
	100% of load						82.1		86.1		82.9		86.8				75.5		79.2		82.7		86.4		83.6		87.2		84.1		87.7		85.3		88.8		77.4		80.7	
	125% of load						80.1		84.5		81.1		85.4				73.7		77.7		80.7		84.6		81.7		85.6		82.3		86.2		83.8		87.5		75.7		79.3	

Other characteristics Air flow : 0.3 m³/s Exciter stator winding resistance at 20°C : 9.4 ohm Stator winding resistance at 20°C : 0.45939 ohm Rotor winding resistance : 1.85 ohm Stator winding layers : 2 Inertia WR² : 0.22 kgm² NDE Bearing : 6209-2RS DE bearing : Flange : SAE 4 Coupling disc : SAE 7,5	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 : No 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		 Industrial Machinery Co		
Checked by				
Date	10/08/2022			
		Page	Revision	
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