

DATA SHEET

Synchronous Alternator



Customer	:	Notes:
Customer reference	:	
Product line	: AG10-315MI20AI	Product code : 14419197
Area classification	: Safe	1010275140

General data Frame (IEC) : 315 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 : B35T 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 : 1378 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		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)	520		520		494		300		553		582		600		642		346	
	ΔT=105°C (Ta=40°C)	596		596		566		344		633		667		700		736		404	
	ΔT=125°C (Ta=40°C)	650		650		617		375		691		728		750		803		433	
	ΔT=150°C (Ta=40°C)	715		715		679		413		757		794		813		875		469	
	ΔT=163°C (Ta=27°C)	740		740		703		427		773		817		844		906		487	
Electrical data (FP=0.8 / ΔT=125°C / Ta=40°C)	Xd(%) Dir. axis synchronous reactance	258.1		213.3		202.7		344.1		421.4		310.1		287.3		229.29		383.1	
	X'd(%) Dir. axis transient reactance	18.5		16.1		15.3		24.7		25.2		21.1		19.5		17.08		26.0	
	X''d(%) Dir. axis subtrans. reactance	14.8		11.6		11.1		19.8		18.4		15.4		14.3		12.31		19.1	
	Xq(%) Quad. axis sync. reactance	72.8		56.3		53.5		97.1		119.0		109.2		80.0		59.82		106.7	
	X''q(%) Quad. axis subtrans. react.	10.1		8.9		8.4		13.5		13.9		26.3		10.8		9.42		14.4	
	X2(%) Negative sequence reactance	12.5		10.2		9.7		16.6		16.2		20.9		12.6		10.86		16.8	
	X0(%) Zero sequence reactance	2.5		1.9		1.8		3.3		3.1		2.6		2.4		2.05		3.2	
	T'd(ms) Short Circ.Trans.time const.	138.8		135.8		135.8		185.1		141.1		90.6		140.1		135.76		186.8	
	T''d(ms) Short Circ. Sub. time const.	0.9		0.8		0.8		1.2		1.3		1.8		1.0		0.76		1.3	
	T'do(ms) Open Circ. time const Trans	1513		1402		1402		2017		1690		1195		1565		1403.31		2087	
	T''do(ms) Open Circ. time const Subt	1.7		1.7		1.7		2.3		1.8		2.3		1.7		1.7		2.3	
	Ta(ms) Armature time const.	16		14		14		22		22		17		17		14.99		23	
	uc(V) Full load excitation voltage	65.0		55.0		55.0		65.0		60.0		63.4		62.0		70.0		62.0	
	ic(A) Full load excitation current	3.5		3.0		3.0		3.5		3.0		3.3		3.1		3.5		3.1	
	ic(A) No load excitation current	0.8		0.9		0.9		1.1		0.7		0.8		0.8		1.0		1.1	
	Icc(A) Sustained Short-Circ. Current	2963		2815		2575		2815		3150		2926		2952		2897.58		2706	
	Kcc Short-circuit ratio	0.34		0.4		0.49		0.45		0.24		0.28		0.31		0.4		0.41	
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	0.8	1.0
	25% of load	91.2	93.1	90.6	92.7	90.7	92.7	83.9	85.6	92.5	94.1	92.2	93.9	92	93.7	91.5	93.4	84.6	86.2
	50% of load	93.6	95.2	93.4	95.1	93.5	95.1	86.2	87.6	94.4	95.7	94.4	95.7	94.6	95.7	94.2	95.6	87	88.1
	75% of load	93.8	95.5	93.8	95.5	93.9	95.5	86.3	87.8	94.3	95.7	94.5	95.8	94.8	96	94.6	96	87.2	88.3
	100% of load	93.5	95.2	93.6	95.4	93.6	95.4	86	87.6	93.8	95.3	94	95.6	94.3	95.8	94.4	96	86.8	88.1
	125% of load	92.9	94.8	93.1	95.1	93.1	95.1	85.4	87.2	93.1	94.7	93.4	95.1	93.8	95.4	94	95.7	86.3	87.8

Other characteristics Air flow : 2.77 m³/s Exciter stator winding resistance at 20°C : 15.26 ohm Stator winding resistance at 20°C : 0.00466 ohm Rotor winding resistance : 1.85 ohm Stator winding layers : 2 Inertia WR² : 6.71 kgm² NDE Bearing : 6316 2RS DE bearing : 6320 2RS Flange : SAE 1 Coupling disc : WITHOUT	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	10/08/2022			
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