

DATA SHEET

Synchronous Alternator



Customer	:	Notes:
Customer reference	:	
Product line	: AG10-315MI40AI	Product code : 14419232
Area classification	: Safe	1010278778

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 : 1658 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)			640	664		631		370		660	720		768		832		443			
	ΔT=105°C (Ta=40°C)			733	761		723		423		756	825		880		953		508			
	ΔT=125°C (Ta=40°C)			800	830		788		462		825	900		960		1040		554			
	ΔT=150°C (Ta=40°C)			865	890		845		499		863	948		1020		1100		589			
	ΔT=163°C (Ta=27°C)			890	920		874		514		900	990		1060		1160		612			
Electrical data (FP=0.8 / ΔT=125°C / Ta=40°C)	Xd(%) Dir. axis synchronous reactance			284.4	228.0		216.6		379.3		422.7	432.9		409.6		267.83		385.5			
	X'd(%) Dir. axis transient reactance			17.4	15.7		14.9		23.2		22.0	18.7		17.7		15.72		23.6			
	X''d(%) Dir. axis subtrans. reactance			12.9	11.6		11.0		17.2		16.4	13.8		13.1		11.58		17.5			
	Xq(%) Quad. axis sync. reactance			72.7	59.8		56.9		96.9		110.6	97.0		77.4		81.51		122.2			
	X''q(%) Quad. axis subtrans. react.			9.6	8.8		8.3		12.8		12.3	23.4		9.8		12.08		22.1			
	X2(%) Negative sequence reactance			11.2	10.2		9.7		15.0		14.3	18.6		11.4		11.83		19.8			
	X0(%) Zero sequence reactance			2.1	1.9		1.8		2.9		2.7	2.3		2.2		1.93		2.9			
	T'd(ms) Short Circ.Trans.time const.			142.3	139.2		139.2		189.7		146.9	83.3		77.5		139.27		111.7			
	T''d(ms) Short Circ. Sub. time const.			0.9	0.8		0.8		1.2		1.2	1.7		1.0		0.8		2.3			
	T'do(ms) Open Circ. time const Trans			1652	1535		1535		2202		1834	1099		1705		1538.45		1473			
	T''do(ms) Open Circ. time const Subt			1.6	1.6		1.6		2.1		1.7	2.1		1.6		1.6		2.9			
	Ta(ms) Armature time const.			15	14		14		20		19	15		16		13.8		21			
	uc(V) Full load excitation voltage			70.0	60.0		60.0		70.0		60.0	63.6		60.0		62.0		53.5			
	ic(A) Full load excitation current			3.5	3.0		3.0		3.5		3.0	3.2		3.0		3.1		3.5			
	ic(A) No load excitation current			0.8	0.9		0.9		1.1		0.6	0.6		0.6		0.9		1.3			
	Icc(A) Sustained Short-Circ. Current			3646	3594		3289		3464		3760	3729		3779		3752.78		3464			
	Kcc Short-circuit ratio			0.36	0.41		0.46		0.48		0.26	0.29		0.32		0.4		0.46			
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	91.4	93.3	91.4	93.4	84.4	86	92.9	94.5	92.7	94.3	92.6	94.2	92.2	93.9	85.2	86.7
	50% of load			94.2	95.7	94.1	95.6	94.2	95.7	86.7	88	94.9	96.2	95	96.1	95.2	96.2	94.7	96	87.6	88.5
	75% of load			94.6	96	94.5	96	94.6	96.1	87	88.3	95.1	96.3	95.2	96.4	95.3	96.4	95.2	96.5	87.7	88.7
	100% of load			94.4	95.9	94.4	96	94.5	96.1	86.8	88.2	94.7	96	94.9	96.2	95	96.3	95	96.4	87.4	88.6
	125% of load			93.9	95.6	94	95.7	94.1	95.8	86.4	87.9	94.2	95.6	94.4	95.8	94.6	96	94.7	96.2	87	88.3

Other characteristics Air flow : 2.81 m³/s Exciter stator winding resistance at 20°C : 15.26 ohm Stator winding resistance at 20°C : 0.00319 ohm Rotor winding resistance : 2.31 ohm Stator winding layers : 2 Inertia WR² : 7.88 kgm² NDE Bearing : 6316 2RS DE bearing : 6320 2RS Flange : SAE 0 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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