

DATA SHEET

Synchronous Alternator



Customer	:	Notes:
Customer reference	:	
Product line	: AG10-280MI20AI	Product code : 14418826
Area classification	: Safe	1010268256

General data Frame (IEC) : 280 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 : 1068 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)	320		328		311		185		336		362		380		412		219	
	ΔT=105°C (Ta=40°C)	367		376		357		212		395		414		440		472		254	
	ΔT=125°C (Ta=40°C)	400		410		389		231		420		452		475		515		274	
	ΔT=150°C (Ta=40°C)	430		450		427		248		450		486		515		550		297	
	ΔT=163°C (Ta=27°C)	450		470		446		260		468		506		533		580		308	
Electrical data (FP=0.8 / ΔT=125°C / Ta=40°C)	Xd(%) Dir. axis synchronous reactance	318.1		270.0		256.5		424.2		429.0		360.1		338.0		292.35		450.7	
	X'd(%) Dir. axis transient reactance	16.4		14.8		14.1		21.9		21.6		17.6		16.5		14.91		22.0	
	X''d(%) Dir. axis subtrans. reactance	11.8		10.7		10.1		15.7		15.6		12.7		11.9		10.71		15.9	
	Xq(%) Quad. axis sync. reactance	85.0		76.9		73.1		113.3		136.6		0.0		92.9		104.45		123.9	
	X''q(%) Quad. axis subtrans. react.	9.4		8.4		8.0		12.6		12.5		22.0		9.5		11.7		12.7	
	X2(%) Negative sequence reactance	10.6		9.5		9.0		14.2		14.1		17.4		10.7		11.2		14.3	
	X0(%) Zero sequence reactance	2.0		1.8		1.7		2.6		2.6		2.1		2.0		1.79		2.6	
	T'd(ms) Short Circ.Trans.time const.	110.0		136.0		136.0		146.7		138.0		78.1		137.0		134.03		182.7	
	T''d(ms) Short Circ. Sub. time const.	11.0		1.4		1.4		14.7		2.1		1.6		1.4		1.2		1.8	
	T'do(ms) Open Circ. time const Trans	1584		1951		1951		2112		2102		1030		1998		1874.47		2664	
	T''do(ms) Open Circ. time const Subt	1.7		2.1		2.1		2.3		2.6		2.0		2.0		2.11		2.7	
	Ta(ms) Armature time const.	14		13		13		19		19		14		15		13.09		19	
	uc(V) Full load excitation voltage	60.1		61.6		61.6		60.1		50.5		55.9		53.4		56.66		53.4	
	ic(A) Full load excitation current	2.9		3.0		3.0		2.9		2.4		2.7		2.6		2.72		2.6	
	ic(A) No load excitation current	0.8		0.9		0.9		1.0		0.6		0.7		0.7		0.8		0.9	
Icc(A) Sustained Short-Circ. Current	1823		1775		1624		1732		1914		1855		1870		1858.35		1714		
Kcc Short-circuit ratio	0.31		0.35		0.39		0.41		0.25		0.27		0.29		0.33		0.39		
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	91.1	93	90.8	92.7	90.8	92.7	83.8	85.6	92.3	94	92.1	93.8	92	93.7	91.8	93.5	84.7	86.2
	50% of load	93.8	95.3	93.7	95.2	93.7	95.2	86.3	87.6	94.4	95.7	94.3	95.5	94.2	95.2	94.4	95.7	86.7	87.5
	75% of load	94.1	95.6	94.1	95.6	94.1	95.6	86.5	87.9	94.5	95.8	94.6	95.9	94.7	96	94.8	96.1	87.1	88.4
	100% of load	93.8	95.4	93.9	95.5	93.9	95.5	86.3	87.7	94	95.4	94.3	95.7	94.5	95.8	94.6	96	86.9	88.2
	125% of load	93.2	94.9	93.4	95.2	93.4	95.2	85.8	87.3	93.4	94.9	93.7	95.2	94	95.5	94.2	95.7	86.5	87.8

Other characteristics Air flow : 2.12 m³/s Exciter stator winding resistance at 20°C : 20.86 ohm Stator winding resistance at 20°C : 0.0086 ohm Rotor winding resistance : 1.91 ohm Stator winding layers : 2 Inertia WR² : 4.82 kgm² NDE Bearing : 6315 2RS 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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