

DATA SHEET

Synchronous Alternator



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

General data		Degree of protection	: IP23
Frame (IEC)	: 315	Mounting style	: B35T
Insulation Class	: 180°C (H)	Number of poles	: 4
Total Harmonic Distortion (no load)	: ≤ 3%	Type of Pole	: Salient
Stator winding pitch	: 2/3	Nominal rotation - 50 Hz	: 1500 rpm
Altitude	: up to 1000 m.a.s.l	Nominal rotation - 60 Hz	: 1800 rpm
Number of Leads	: 12	Overspeed	: 2250 rpm
Power factor	: 0.8 to 1.0	Alternator mass	: 1378 kg
Excitation system	: Brushless with Auxiliary Coil	Overload	: 1.1x In per 1h each 6h
Cooling	: IC01	Momentary Overload	: 1.5x In per 30s

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		
	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		Automatic voltage regulator		According to:	
Air flow	: 2.77 m³/s	Accuracy (stability)	: +/- 0.5%	IEC 60034	
Exciter stator winding resistance at 20°C	: 15.26 ohm	Rated current	: 5 A	NBR 5117	
Stator winding resistance at 20°C	: 0.00466 ohm	Analog input	: Yes	NEMA MG1	
Rotor winding resistance	: 1.85 ohm	Digital input	: No	VDE530	
Stator winding layers	: 2	Peak current	: 7 A/10 s	ISO 8528	
Inertia WR²	: 6.71 kgm²	Droop / TC	: Yes	CSA	
NDE Bearing	: 6316 2RS	Dynamic recovery	: 8 to 500 ms		
DE bearing	: 6320 2RS	U/F	: Yes		
Flange	: SAE 1	Internal voltage adjustment	: +/- 15%		
Coupling disc	: WITHOUT	External voltage adjustment	: +/- 10%		
		Transient recovery time for ΔU=20%	: 500 ms		

Rev.	Changes Summary				Performed				Checked				Date			
Performed by																
Checked by																
Date																