DATA SHEET
Synchronous Alternator

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

General data

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

	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
Efficiency (%)	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 20ºC	: 15.26 ohm
Stator winding resistance at 20ºC	: 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

Rev.	Changes Summary	Performed	Checked	Date

Performed by				
Checked by			Page	Revision
Date	10/08/2022		1 /	

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