DATA SHEET
Synchronous Alternator

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

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	: 1658 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)	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) Satured reactances values	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

	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	91.7	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 20ºC	: 15.26 ohm
Stator winding resistance at 20ºC	: 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

Rev.	Changes Summary	Performed	Checked	Date

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

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