DATA SHEET
Synchronous Alternator

Customer	:	Notes:	
Customer reference	:		
Product line	: AG10-280MI40AI	Product code	: 14419062
Area classification	: Safe		1010270041

General data

Frame (IEC)	: 280	Degree of protection	: IP23
Insulation Class	: 180°C (H)	Mounting style	: B15T
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	: 1153 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)	400	400	380	231	400	431	456	484	263
	ΔT=105°C (Ta=40°C)	458	458	435	265	450	493	520	565	300
	ΔT=125°C (Ta=40°C)	**500**	**500**	**475**	**289**	**500**	**538**	**570**	**605**	**329**
	ΔT=150°C (Ta=40°C)	530	548	520	306	550	582	600	650	346
	ΔT=163°C (Ta=27°C)	550	571	542	318	571	614	650	691	375
Electrical data (FP=0.8 / ΔT=125°C / Ta=40°C) Satured reactances values	Xd(%) Dir. axis synchronous reactance	196.1	149.8	142.3	261.5	279.3	212.4	199.0	154.44	265.3
	X'd(%) Dir. axis transient reactance	13.3	11.6	11.0	17.7	18.2	14.7	13.8	12.55	18.4
	X"d(%) Dir. axis subtrans. reactance	9.7	8.4	8.0	12.9	13.3	10.7	10.0	9.07	13.3
	Xq(%) Quad. axis sync. reactance	68.2	53.0	50.4	90.9	105.7	0.0	74.0	56.87	98.6
	X"q(%) Quad. axis subtrans. react.	7.7	6.5	6.2	10.3	9.7	18.4	8.0	7.1	10.7
	X2(%) Negative sequence reactance	8.7	7.5	7.1	11.6	11.5	14.5	9.0	8.09	12.0
	X0(%) Zero sequence reactance	1.6	1.4	1.3	2.1	2.2	1.8	1.7	1.51	2.2
	T'd(ms) Short Circ.Trans.time const.	107.0	105.0	105.0	142.7	110.9	64.5	101.0	105.31	134.7
	T"d(ms) Short Circ. Sub. time const.	0.8	0.8	0.8	1.1	1.1	1.3	0.8	0.77	1.1
	T'do(ms) Open Circ. time const Trans	1530	1422	1422	2040	1717	850	1477	1422.24	1969
	T"do(ms) Open Circ. time const Subt	1.6	1.5	1.5	2.1	1.6	1.6	1.5	1.5	2.0
	Ta(ms) Armature time const.	12	10	10	16	16	12	12	11.01	16
	uc(V) Full load excitation voltage	69.0	70.0	70.0	69.0	47.0	59.2	54.0	61.0	54.0
	ic(A) Full load excitation current	2.9	3.0	3.0	2.9	2.0	2.5	2.3	2.6	2.3
	ic(A) No load excitation current	0.8	0.9	0.9	1.1	0.7	0.8	0.8	0.8	1.0
	Icc(A) Sustained Short-Circ. Current	2279	2165	1982	2165	2279	2196	2244	2183.11	2057
	Kcc Short-circuit ratio	0.36	0.43	0.7	0.48	0.26	0.31	0.34	0.42	0.45

	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	91.1	93	90.5	92.5	90.6	92.6	83.8	85.6	92.2	93.9	91.9	93.6	91.8	93.5	91.2	93.1	84.4	86.1
	50% of load	93.8	95.3	93.6	95.2	93.7	95.2	86.3	87.7	94.5	95.8	94.5	95.8	94.7	95.8	94.2	95.6	87.1	88.1
	75% of load	94.2	95.7	94.2	95.7	94.2	95.8	86.6	88	94.7	96	94.8	96.1	95	96.2	94.8	96.1	87.4	88.5
	100% of load	94	95.6	94	95.7	94.1	95.8	86.4	87.9	94.4	95.8	94.6	95.9	94.7	96.1	94.8	96.2	87.1	88.4
	125% of load	93.5	95.2	93.7	95.4	93.8	95.5	86	87.6	93.9	95.3	94.1	95.6	94.3	95.8	94.5	96	86.8	88.1

Other characteristics

Air flow	: 2.52 m³/s
Exciter stator winding resistance at 20ºC	: 20.86 ohm
Stator winding resistance at 20ºC	: 0.00603 ohm
Rotor winding resistance	: 2.18 ohm
Stator winding layers	: 2
Inertia WR²	: 5.42 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

Rev.	Changes Summary	Performed	Checked	Date

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

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