

# DATA SHEET

## Synchronous Alternator



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

<b>General data</b>		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	: 1658 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)	640	664	631	370	660	720	768	832	443									
	ΔT=105°C (Ta=40°C)	733	761	723	423	756	825	880	953	508									
	<b>ΔT=125°C (Ta=40°C)</b>	<b>800</b>	<b>830</b>	<b>788</b>	<b>462</b>	<b>825</b>	<b>900</b>	<b>960</b>	<b>1040</b>	<b>554</b>									
	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)	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										
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	91.7	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

<b>Other characteristics</b>		<b>Automatic voltage regulator</b>		<b>According to:</b>	
Air flow	: 2.81 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	: 0.00319 ohm	Analog input	: Yes	NEMA MG1	
Rotor winding resistance	: 2.31 ohm	Digital input	: No	VDE530	
Stator winding layers	: 2	Peak current	: 7 A/10 s	ISO 8528	
Inertia WR²	: 7.88 kgm²	Droop / TC	: Yes	CSA	
NDE Bearing	: 6316 2RS	Dynamic recovery	: 8 to 500 ms		
DE bearing	: 6320 2RS	U/F	: Yes		
Flange	: SAE 0	Internal voltage adjustment	: +/- 15%		
Coupling disc	: WITHOUT	External voltage adjustment	: +/- 10%		
		Transient recovery time for ΔU=20%	: 500 ms		

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