

DATA SHEET

Synchronous Alternator



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

General data		Degree of protection	: IP23
Frame (IEC)	: 280	Mounting style	: B15T
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	: 1153 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)	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)	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										
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	91.1	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		Automatic voltage regulator		According to:	
Air flow	: 2.52 m³/s	Accuracy (stability)	: +/- 0.5%	IEC 60034	
Exciter stator winding resistance at 20°C	: 20.86 ohm	Rated current	: 5 A	NBR 5117	
Stator winding resistance at 20°C	: 0.00603 ohm	Analog input	: Yes	NEMA MG1	
Rotor winding resistance	: 2.18 ohm	Digital input	: No	VDE530	
Stator winding layers	: 2	Peak current	: 7 A/10 s	ISO 8528	
Inertia WR²	: 5.42 kgm²	Droop / TC	: Yes	CSA	
NDE Bearing	: 6315 2RS	Dynamic recovery	: 8 to 500 ms		
DE bearing		U/F	: Yes		
Flange	: SAE 1	Internal voltage adjustment	: +/- 15%		
Coupling disc	: SAE 14	External voltage adjustment	: +/- 10%		
		Transient recovery time for ΔU=20%	: 500 ms		

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