

DATA SHEET

Synchronous Alternator



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

General data Frame (IEC) : 280 Insulation Class : 180°C (H) Total Harmonic Distortion (no load) : ≤ 3% Stator winding pitch : 2/3 Altitude : up to 1000 m.a.s.l Number of Leads : 12 Power factor : 0.8 to 1.0 Excitation system : Brushless with Auxiliary Coil Cooling : IC01	Degree of protection : IP23 Mounting style : B15T Number of poles : 4 Type of Pole : Salient Nominal rotation - 50 Hz : 1500 rpm Nominal rotation - 60 Hz : 1800 rpm Overspeed : 2250 rpm Alternator mass : 1153 kg Overload : 1.1x In per 1h each 6h Momentary Overload : 1.5x In per 30s
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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)	Saturated 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			
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	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 Air flow : 2.52 m³/s Exciter stator winding resistance at 20°C : 20.86 ohm Stator winding resistance at 20°C : 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
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Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by				
Date	10/08/2022			



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