

THREE-PHASE SYNCHRONOUS GENERATOR 20170101

Datasheet For 50Hz @ 1500rpm / 60Hz @ 1800rpm

EG355-450N

Frequency	Hz	50				60					
Rated capacity (kVA)	S	534	563	584	619	588	619	644	681	712	743
Rated power (kW)	P	427	450	467	495	470	495	515	545	569	594
Voltage (V)	U	380	400	415	440	380	400	416	440	460	480
Short-circuit ratio	Kcc	0.423	0.476	0.539	0.662	0.295	0.313	0.33	0.359	0.39	0.432
Reactance											
Direct axis synchronous reactance	Xd	2.823	2.682	2.586	2.438	3.725	3.54	3.405	3.221	3.077	2.95
Direct axis transient reactance saturated	X'd	0.14	0.133	0.129	0.121	0.185	0.176	0.169	0.16	0.153	0.147
Direct axis subtransient reactance saturated	X''d	0.112	0.107	0.103	0.097	0.148	0.141	0.136	0.128	0.123	0.117
Quadrature axis synchronous reactance	Xq	1.265	1.202	1.159	1.093	1.669	1.587	1.526	1.444	1.379	1.322
Quadrature axis subtransient reactance	X''q	0.153	0.145	0.14	0.132	0.202	0.192	0.185	0.175	0.167	0.16
Negative sequence reactance saturated	X2	0.13	0.13	0.12	0.11	0.18	0.17	0.16	0.15	0.14	0.14
Zero sequence reactance unsaturated	X0	0.006	0.006	0.006	0.005	0.008	0.008	0.007	0.007	0.007	0.006
Time constant											
Open circuit time constant	T'd0	2.00	2.00	2.00	2.00	2.009	2.009	2.009	2.009	2.009	2.009
Short-circuit transient time constant	T'd	0.102	0.102	0.102	0.102	0.1	0.1	0.1	0.1	0.1	0.1
Subtransient time constant	T''d	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Armature time constant	Ta	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
No load losses	W	4323	4533	4695	4982	5839	6025	6181	6426	6641	6865
Heat dissipation at full load at Class H	W	27413	28046	28565	29583	32676	33138	33528	34124	34641	35238
Efficiency											
PF=0.8 Efficiency of 25% load	%	93.72	93.74	93.73	93.66	93.03	93.14	93.22	93.32	93.37	93.42
50% load	%	95.02	95.08	95.11	95.13	94.57	94.70	94.79	94.91	94.99	95.06
75% load	%	94.84	94.96	95.02	95.09	94.42	94.59	94.71	94.87	94.99	95.09
100% load	%	93.97	94.13	94.24	94.36	93.50	93.73	93.89	94.10	94.26	94.40
110% load	%	93.48	93.67	93.78	93.93	92.98	93.23	93.41	93.65	93.83	93.99
PF=1 Efficiency of 25% load	%	94.34	94.35	94.34	94.29	93.60	93.71	93.78	93.86	93.91	93.95
50% load	%	96.01	96.06	96.08	96.10	95.55	95.65	95.72	95.81	95.87	95.93
75% load	%	96.23	96.31	96.36	96.41	95.82	95.94	96.03	96.14	96.23	96.30
100% load	%	95.79	95.91	95.99	96.09	95.37	95.53	95.64	95.79	95.90	96.00
110% load	%	95.51	95.65	95.73	95.86	95.07	95.25	95.37	95.54	95.67	95.78
No load excitation current	io(A)	1	1	1	1	1	1	1	1	1	1
Full load excitation current	ic(A)	3	3	3	3	3	3	3	3	3	3
Full load excitation voltage	uc(V)	45	45	45	45	45	45	45	45	45	45
Short circuit current capacity	%	>300I _N 10s(with PMG)									
Recovery time	Tr	1s									
Waveform : TIF		<50									
Waveform : THD		<3%									
Waveform : THF		<2%									
Winding pitch		2/3									
Steady state voltage regulation		+/- 1%									
A.V.R. model		EVC600/EVC800									
Duty		Continuous									
Number of poles		4									
Class of insulation		H									
Altitude		≤1000m									
Rated power factor		0.8									
Excitation		Brushless									
Stator winding		6ends									
Rotor		With damping cage									
Overload	%	110% rated load for 2 hour per 24 hour									
Stator winding resistance (20℃)	ohm	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055
Rotor winding resistance (20℃)	ohm	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928	0.928
Exciter resistance (20℃)	ohm	10.64	10.64	10.64	10.64	10.64	10.64	10.64	10.64	10.64	10.64
Cooling air requirement	m ³ /min	68.9	68.9	68.9	68.9	82.7	82.7	82.7	82.7	82.7	82.7
Energy storage constant (H)	sec.	0.204	0.194	0.187	0.176	0.267	0.254	0.244	0.231	0.221	0.212
Method of cooling		IC 01									
Ambient temperature		40℃									
Sense of rotation		Clockwise-DE									
Type of construction		Single / Double bearing									
Degree of protection / enclosure		IP21 or IP23									
Maximum overspeed		2250 rpm 2minutes									