THREE-PHASE SYNCHRONOUS GENERATOR 20141201

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

EG225-40N

Frequency	Hz	50				60					
Rated capacity (kVA)	S	47.5	50.0	51.3	55.0	52.3	55.0	57.2	60.5	63.3	66.0
Rated power (kW)	P	38	40	41	44	41.8	44	45.8	48.4	50.6	52.8
Voltage (V)	U	380	400	415	440	380	400	416	440	460	480
Short-circuit ratio	Kcc	0.465	0.539	0.618	0.802	0.318	0.339	0.357	0.392	0.427	0.485
Reactance											
Direct axis synchronous reactance	Xd	2.666	2.533	2.441	2.303	3.519	3.343	3.217	3.039	2.907	2.786
Direct axis transient reactance saturated	X'd	0.129	0.123	0.118	0.112	0.171	0.162	0.156	0.147	0.141	0.135
Direct axis subtransient reactance saturated	X"d	0.121	0.115	0.11	0.104	0.159	0.151	0.145	0.137	0.131	0.126
Quadrature axis synchronous reactance	Xq	1.227	1.166	1.124	1.06	1.62	1.539	1.481	1.399	1.338	1.283
Quadrature axis subtransient reactance	X"q	0.19	0.18	0.174	0.164	0.25	0.238	0.229	0.216	0.207	0.198
Negative sequence reactance saturated	X2	0.16	0.15	0.14	0.13	0.2	0.19	0.19	0.18	0.17	0.16
Zero sequence reactance unsaturated	X0	0.005	0.004	0.004	0.004	0.006	0.006	0.005	0.005	0.005	0.005
Time constant											
Open circuit time constant	T'd0	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932	0.932
Short-circuit transient time constant	T'd	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045
Subtransient time constant	T"d	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Armature time constant	Ta	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
No load losses	W	767	808	840	896	1007	1043	1074	1121	1163	1207
Heat dissipation at full load at Class H	W	5968	6271	6500	7342	6966	6954	7165	7269	7466	7768
Efficiency											
PF=0.8 Efficiency of 25% load	%	87.47	87.00	86.48	85.13	87.89	87.91	87.76	87.65	87.45	87.09
50% load	%	88.66	88.45	88.15	87.27	89.32	89.55	89.56	89.68	89.67	89.52
75% load	%	87.86	87.79	87.59	86.90	87.95	88.35	88.47	88.75	88.87	88.83
100% load	%	86.43	86.45	86.31	85.70	85.72	86.35	86.47	86.94	87.14	87.18
110% load	%	85.48	85.55	85.44	84.85	84.33	84.97	85.20	85.70	85.97	86.06
PF=1 Efficiency of 25% load	%	88.42	88.01	87.56	86.42	88.97	88.88	88.71	88.58	88.38	88.12
50% load	%	90.33	90.18	89.97	89.38	91.39	91.47	91.45	91.53	91.51	91.46
75% load	%	90.17	90.15	90.06	89.70	90.92	91.13	91.20	91.42	91.52	91.60
100% load	%	89.42	89.50	89.49	89.27	89.72	90.04	90.14	90.51	90.68	90.89
110% load	%	88.79	88.91	88.93	88.77	88.66	89.04	89.21	89.62	89.86	90.09
No load excitation current	io(A)	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Full load excitation current	ic(A)	3	3	3	3	3	3	3	3	3	3
Full load excitation voltage	uc(V)	23	23	23	23	23	23	23	23	23	23
Short circuit current capacity	%	>300I_N 10s(with PMG or Auxiliary winding）									
Recovery time	Tr	1 s									
Waveform : TIF		<50									
Waveform : THD		<3%									
Waveform : THF		<2%									
Winding pitch		2/3									
Steady state voltage regulation		+/- 1%									
A.V.R. model		EVC300									
Duty		Continuous									
Number of poles		4									
Class of insulation		H									
Altitude		≤1000m									
Rated power factor		0.8									
Excitation		Brushless									
Stator winding		12ends									
Rotor		With damping cage									
Overload	%	110% rated load for 2 hour per 24 hour									
Stator winding resistance (20℃)	ohm	0.1283	0.1283	0.1283	0.1283	0.1283	0.1283	0.1283	0.1283	0.1283	0.1283
Rotor winding resistance (20℃)	ohm	0.244	0.244	0.244	0.244	0.244	0.244	0.244	0.244	0.244	0.244
Exciter resistance (20℃)	ohm	7.118	7.118	7.118	7.118	7.118	7.118	7.118	7.118	7.118	7.118
Cooling air requirement	m^3/min	22.3	22.3	22.3	22.3	26.8	26.8	26.8	26.8	26.8	26.8
Energy storage constant (H)	sec.	0.202	0.192	0.187	0.174	0.264	0.251	0.241	0.228	0.218	0.209
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									