



THREE-PHASE SYNCHRONOUS GENERATOR 20141201

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

EG225-50N

Frequency	Hz	50				60					
Rated capacity (kVA)	S	59.4	62.5	64.8	68.8	65.3	68.8	71.5	75.6	79.1	82.5
Rated power (kW)	P	47.5	50	51.8	55	52.3	55	57.2	60.5	63.3	66
Voltage (V)	U	380	400	415	440	380	400	416	440	460	480
Short-circuit ratio	Kcc	0.466	0.54	0.619	0.801	0.318	0.34	0.359	0.393	0.428	0.486
Reactance											
Direct axis synchronous reactance	Xd	2.656	2.523	2.432	2.294	3.509	3.33	3.202	3.028	2.898	2.775
Direct axis transient reactance saturated	X'd	0.117	0.111	0.107	0.101	0.155	0.147	0.141	0.134	0.128	0.122
Direct axis subtransient reactance saturated	X''d	0.109	0.103	0.1	0.094	0.144	0.137	0.131	0.124	0.119	0.114
Quadrature axis synchronous reactance	Xq	1.217	1.156	1.114	1.051	1.608	1.526	1.468	1.388	1.328	1.272
Quadrature axis subtransient reactance	X''q	0.176	0.167	0.161	0.152	0.232	0.22	0.212	0.2	0.192	0.184
Negative sequence reactance saturated	X2	0.14	0.14	0.13	0.12	0.19	0.18	0.17	0.16	0.16	0.15
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	1.041	1.041	1.041	1.041	1.041	1.041	1.041	1.041	1.041	1.041
Short-circuit transient time constant	T'd	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046
Subtransient time constant	T''d	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Armature time constant	Ta	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
No load losses	W	941	991	1031	1099	1236	1280	1317	1376	1427	1480
Heat dissipation at full load at Class H	W	6427	6751	7085	7971	7573	7499	7710	7783	7980	8292
Efficiency											
PF=0.8 Efficiency of 25% load	%	89.14	88.67	88.13	86.76	89.57	89.59	89.44	89.32	89.12	88.75
50% load	%	90.36	90.14	89.84	88.94	91.03	91.26	91.27	91.39	91.38	91.22
75% load	%	89.54	89.47	89.27	88.56	89.63	90.04	90.16	90.44	90.56	90.53
100% load	%	88.08	88.10	87.97	87.34	87.35	88.00	88.12	88.60	88.81	88.84
110% load	%	87.12	87.19	87.08	86.48	85.94	86.59	86.83	87.34	87.61	87.71
PF=1 Efficiency of 25% load	%	90.11	89.70	89.24	88.08	90.64	90.54	90.37	90.24	90.03	89.77
50% load	%	92.06	91.91	91.69	91.09	93.10	93.18	93.16	93.24	93.22	93.17
75% load	%	91.89	91.88	91.78	91.42	92.62	92.83	92.90	93.13	93.23	93.31
100% load	%	91.14	91.22	91.20	90.98	91.40	91.73	91.83	92.20	92.38	92.59
110% load	%	90.49	90.61	90.63	90.47	90.31	90.70	90.88	91.30	91.54	91.78
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°C)	ohm	0.0881	0.0881	0.0881	0.0881	0.0881	0.0881	0.0881	0.0881	0.0881	0.0881
Rotor winding resistance (20°C)	ohm	0.303	0.303	0.303	0.303	0.303	0.303	0.303	0.303	0.303	0.303
Exciter resistance (20°C)	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.	0.174	0.165	0.159	0.150	0.227	0.216	0.208	0.196	0.188	0.180
Method of cooling		IC 01									
Ambient temperature		40°C									
Sense of rotation		Clockwise-DE									
Type of construction		Single / Double bearing									
Degree of protection / enclosure		IP21 or IP23									
Maximum overspeed		2250 rpm 2minutes									