



THREE-PHASE SYNCHRONOUS GENERATOR 20141201

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

EG225-70N

Frequency	Hz	50				60					
Rated capacity (kVA)	S	83.1	87.5	90.8	96.3	91.4	96.3	100.1	105.9	110.7	115.5
Rated power (kW)	P	66.5	70	72.6	77	73.1	77	80.1	84.7	88.6	92.4
Voltage (V)	U	380	400	415	440	380	400	416	440	460	480
Short-circuit ratio	Kcc	0.405	0.447	0.494	0.615	0.288	0.306	0.321	0.347	0.372	0.405
Reactance											
Direct axis synchronous reactance	Xd	2.915	2.769	2.669	2.518	3.851	3.656	3.516	3.323	3.181	3.046
Direct axis transient reactance saturated	X'd	0.114	0.108	0.104	0.098	0.151	0.143	0.138	0.13	0.124	0.119
Direct axis subtransient reactance saturated	X''d	0.105	0.1	0.097	0.091	0.139	0.132	0.127	0.12	0.115	0.11
Quadrature axis synchronous reactance	Xq	1.329	1.263	1.217	1.148	1.756	1.667	1.603	1.515	1.45	1.389
Quadrature axis subtransient reactance	X''q	0.176	0.167	0.161	0.152	0.233	0.221	0.213	0.201	0.192	0.184
Negative sequence reactance saturated	X2	0.14	0.13	0.13	0.12	0.19	0.18	0.17	0.16	0.15	0.15
Zero sequence reactance unsaturated	X0	0.005	0.005	0.005	0.004	0.007	0.006	0.006	0.006	0.005	0.005
Time constant											
Open circuit time constant	T'd0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Short-circuit transient time constant	T'd	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047
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	1097	1156	1201	1281	1440	1492	1535	1604	1663	1726
Heat dissipation at full load at Class H	W	7928	8325	8759	9909	9396	9255	9505	9538	9751	10130
Efficiency											
PF=0.8 Efficiency of 25% load	%	90.42	89.95	89.40	88.01	90.86	90.88	90.73	90.61	90.40	90.03
50% load	%	91.66	91.44	91.13	90.22	92.34	92.58	92.59	92.70	92.70	92.54
75% load	%	90.83	90.76	90.55	89.84	90.92	91.34	91.46	91.74	91.87	91.83
100% load	%	89.35	89.37	89.23	88.60	88.61	89.27	89.39	89.88	90.09	90.12
110% load	%	88.37	88.44	88.33	87.72	87.18	87.84	88.08	88.60	88.88	88.97
PF=1 Efficiency of 25% load	%	91.41	90.99	90.52	89.35	91.94	91.85	91.67	91.54	91.33	91.06
50% load	%	93.38	93.23	93.01	92.40	94.44	94.53	94.51	94.58	94.57	94.52
75% load	%	93.21	93.20	93.11	92.74	93.95	94.17	94.24	94.47	94.57	94.66
100% load	%	92.45	92.53	92.51	92.29	92.72	93.05	93.15	93.53	93.71	93.93
110% load	%	91.79	91.92	91.94	91.78	91.62	92.01	92.19	92.61	92.86	93.10
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	0.0583	0.0583	0.0583	0.0583	0.0583	0.0583	0.0583	0.0583	0.0583	0.0583
Rotor winding resistance (20°C)	ohm	0.372	0.372	0.372	0.372	0.372	0.372	0.372	0.372	0.372	0.372
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.	0.155	0.147	0.142	0.134	0.203	0.193	0.185	0.175	0.168	0.161
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									