



# THREE-PHASE SYNCHRONOUS GENERATOR 20141201

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

## EG225-60N

Frequency	Hz	50				60					
Rated capacity (kVA)	S	71.3	75	77.8	82.5	78.4	82.5	85.8	90.8	94.9	99
Rated power (kW)	P	57	60	62.2	66	62.7	66	68.6	72.6	75.9	79.2
Voltage (V)	U	380	400	415	440	380	400	416	440	460	480
Short-circuit ratio	Kcc	0.409	0.455	0.511	0.64	0.287	0.305	0.321	0.346	0.372	0.405
<b>Reactance</b>											
Direct axis synchronous reactance	Xd	2.921	2.775	2.674	2.522	3.855	3.662	3.52	3.329	3.185	3.052
Direct axis transient reactance saturated	X'd	0.12	0.114	0.11	0.104	0.159	0.151	0.145	0.137	0.131	0.126
Direct axis subtransient reactance saturated	X''d	0.112	0.106	0.102	0.096	0.147	0.14	0.134	0.127	0.122	0.117
Quadrature axis synchronous reactance	Xq	1.334	1.268	1.222	1.152	1.761	1.673	1.608	1.521	1.455	1.394
Quadrature axis subtransient reactance	X''q	0.184	0.174	0.168	0.159	0.242	0.23	0.221	0.209	0.2	0.192
Negative sequence reactance saturated	X2	0.15	0.14	0.14	0.13	0.19	0.19	0.18	0.17	0.16	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
<b>Time constant</b>											
Open circuit time constant	T'd0	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Short-circuit transient time constant	T'd	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044
Subtransient time constant	T''d	0.001	0.001	0.001	0.001	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	982	1034	1075	1147	1289	1335	1374	1435	1488	1544
Heat dissipation at full load at Class H	W	7352	7721	8113	9144	8674	8576	8807	8878	9086	9447
<b>Efficiency</b>											
PF=0.8 Efficiency of 25% load	%	89.64	89.17	88.63	87.25	90.08	90.10	89.95	89.83	89.62	89.25
50% load	%	90.86	90.65	90.34	89.44	91.54	91.78	91.79	91.91	91.90	91.74
75% load	%	90.05	89.97	89.77	89.06	90.14	90.55	90.67	90.95	91.08	91.04
100% load	%	88.58	88.60	88.46	87.83	87.85	88.50	88.62	89.10	89.31	89.34
110% load	%	87.61	87.68	87.57	86.97	86.43	87.08	87.32	87.83	88.11	88.21
PF=1 Efficiency of 25% load	%	90.62	90.20	89.74	88.57	91.15	91.05	90.88	90.75	90.54	90.28
50% load	%	92.58	92.42	92.21	91.60	93.63	93.71	93.69	93.77	93.75	93.70
75% load	%	92.41	92.39	92.30	91.94	93.14	93.36	93.43	93.66	93.76	93.84
100% load	%	91.65	91.73	91.71	91.49	91.92	92.25	92.35	92.72	92.90	93.12
110% load	%	91.00	91.12	91.14	90.98	90.83	91.22	91.40	91.82	92.06	92.30
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 <sub>N</sub> 10s( with PMG or Auxiliary winding )									
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		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	0.0739	0.0739	0.0739	0.0739	0.0739	0.0739	0.0739	0.0739	0.0739	0.0739
Rotor winding resistance (20°C)	ohm	0.339	0.339	0.339	0.339	0.339	0.339	0.339	0.339	0.339	0.339
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 <sup>3</sup> /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.	0.162	0.154	0.149	0.140	0.213	0.202	0.194	0.184	0.176	0.168
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									