



# THREE-PHASE SYNCHRONOUS GENERATOR 20141201

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

## EG225-100N

Frequency	Hz	50				60					
Rated capacity (kVA)	S	118.8	125.0	129.7	137.5	130.6	137.5	143	151.3	158.1	165
Rated power (kW)	P	95	100	103.8	110	104.5	110	114.4	121	126.5	132
Voltage (V)	U	380	400	415	440	380	400	416	440	460	480
Short-circuit ratio	Kcc	0.443	0.526	0.612	0.794	0.294	0.315	0.334	0.37	0.413	0.478
<b>Reactance</b>											
Direct axis synchronous reactance	Xd	2.894	2.75	2.65	2.5	3.82	3.629	3.49	3.299	3.156	3.024
Direct axis transient reactance saturated	X'd	0.106	0.101	0.097	0.092	0.14	0.133	0.128	0.121	0.116	0.111
Direct axis subtransient reactance saturated	X''d	0.098	0.093	0.09	0.085	0.129	0.123	0.118	0.112	0.107	0.102
Quadrature axis synchronous reactance	Xq	1.316	1.25	1.205	1.137	1.737	1.65	1.587	1.5	1.435	1.375
Quadrature axis subtransient reactance	X''q	0.167	0.159	0.153	0.144	0.22	0.209	0.201	0.19	0.182	0.174
Negative sequence reactance saturated	X2	0.13	0.13	0.12	0.11	0.17	0.17	0.16	0.15	0.14	0.14
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	1.296	1.296	1.296	1.296	1.296	1.296	1.296	1.296	1.296	1.296
Short-circuit transient time constant	T'd	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048
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	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
No load losses	W	1381	1454	1512	1613	1813	1878	1933	2018	2094	2172
Heat dissipation at full load at Class H	W	10330	10846	11430	12995	12321	12061	12369	12358	12600	13092
<b>Efficiency</b>											
PF=0.8 Efficiency of 25% load	%	91.28	90.79	90.25	88.84	91.72	91.75	91.59	91.47	91.26	90.89
50% load	%	92.52	92.30	91.99	91.07	93.22	93.46	93.47	93.59	93.58	93.42
75% load	%	91.69	91.61	91.41	90.68	91.78	92.21	92.33	92.62	92.74	92.71
100% load	%	90.19	90.22	90.08	89.43	89.45	90.12	90.24	90.73	90.94	90.98
110% load	%	89.21	89.28	89.16	88.55	88.01	88.67	88.92	89.44	89.72	89.82
PF=1 Efficiency of 25% load	%	92.27	91.85	91.38	90.19	92.82	92.72	92.54	92.41	92.20	91.93
50% load	%	94.27	94.11	93.89	93.27	95.34	95.43	95.41	95.48	95.47	95.42
75% load	%	94.10	94.08	93.98	93.61	94.85	95.07	95.14	95.37	95.47	95.56
100% load	%	93.32	93.40	93.39	93.16	93.60	93.93	94.04	94.42	94.60	94.82
110% load	%	92.66	92.79	92.81	92.64	92.49	92.88	93.07	93.49	93.74	93.98
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	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	0.0392	0.0392	0.0392	0.0392	0.0392	0.0392	0.0392	0.0392	0.0392	0.0392
Rotor winding resistance (20°C)	ohm	0.437	0.437	0.437	0.437	0.437	0.437	0.437	0.437	0.437	0.437
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.	0.125	0.119	0.114	0.108	0.164	0.155	0.149	0.141	0.135	0.130
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									