



THREE-PHASE SYNCHRONOUS GENERATOR 20170101

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

EG450-1350N

Frequency	Hz	50					60				
Rated capacity (kVA)	S	1602.5	1687.5	1750	1856.3	1763	1856	1931	2042	2135	2228
Rated power (kW)	P	1282	1350	1400	1485	1410	1485	1545	1634	1708	1782
Voltage (V)	U	380	400	415	440	380	400	416	440	460	480
Short-circuit ratio	Kcc	0.392	0.43	0.47	0.555	0.281	0.299	0.313	0.337	0.361	0.391
Reactance											
Direct axis synchronous reactance	Xd	2.927	2.78	2.68	2.528	3.864	3.67	3.528	3.338	3.192	3.058
Direct axis transient reactance saturated	X'd	0.141	0.134	0.129	0.122	0.187	0.177	0.17	0.161	0.154	0.148
Direct axis subtransient reactance saturated	X''d	0.108	0.102	0.098	0.093	0.142	0.135	0.13	0.123	0.117	0.112
Quadrature axis synchronous reactance	Xq	1.303	1.237	1.193	1.125	1.72	1.633	1.57	1.485	1.421	1.361
Quadrature axis subtransient reactance	X''q	0.143	0.136	0.131	0.124	0.189	0.18	0.173	0.163	0.156	0.15
Negative sequence reactance saturated	X2	0.13	0.12	0.11	0.11	0.17	0.16	0.15	0.14	0.14	0.13
Zero sequence reactance unsaturated	X0	0.006	0.006	0.006	0.005	0.008	0.008	0.007	0.007	0.007	0.007
Time constant											
Open circuit time constant	T'd0	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93	2.93
Short-circuit transient time constant	T'd	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142	0.142
Subtransient time constant	T''d	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
Armature time constant	Ta	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
No load losses	W	14710	15376	15899	16813	20234	20825	21322	22102	22785	23498
Heat dissipation at full load at Class H	W	60810	63078	65070	69375	71757	73450	74837	77022	78978	81266
Efficiency											
PF=0.8 Efficiency of 25% load	%	93.80	93.76	93.70	93.52	93.11	93.20	93.27	93.33	93.36	93.36
50% load	%	95.55	95.55	95.53	95.44	95.16	95.24	95.30	95.37	95.41	95.43
75% load	%	95.76	95.79	95.79	95.74	95.44	95.54	95.61	95.70	95.76	95.80
100% load	%	95.47	95.54	95.56	95.54	95.16	95.29	95.38	95.50	95.58	95.64
110% load	%	95.25	95.33	95.36	95.35	94.93	95.07	95.18	95.31	95.40	95.47
PF=1 Efficiency of 25% load	%	94.20	94.17	94.12	93.98	93.46	93.55	93.61	93.67	93.70	93.71
50% load	%	96.16	96.17	96.15	96.10	95.73	95.81	95.85	95.91	95.95	95.97
75% load	%	96.59	96.62	96.63	96.61	96.25	96.33	96.38	96.45	96.50	96.53
100% load	%	96.56	96.61	96.64	96.66	96.24	96.34	96.40	96.49	96.55	96.60
110% load	%	96.46	96.52	96.56	96.59	96.14	96.25	96.32	96.42	96.48	96.54
No load excitation current	io(A)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Full load excitation current	ic(A)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Full load excitation voltage	uc(V)	46	46	46	46	46	46	46	46	46	46
Short circuit current capacity	%	>300I _N 10s(with PMG)									
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		EVC600/EVC800									
Duty		Continuous									
Number of poles		4									
Class of insulation		H									
Altitude		≤1000m									
Rated power factor		0.8									
Excitation		Brushless									
Stator winding		6ends									
Rotor		With damping cage									
Overload	%	110% rated load for 2 hour per 24 hour									
Stator winding resistance (20°C)	ohm	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Rotor winding resistance (20°C)	ohm	0.893	0.893	0.893	0.893	0.893	0.893	0.893	0.893	0.893	0.893
Exciter resistance (20°C)	ohm	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Cooling air requirement	m ³ /min	130	130	130	130	158	158	158	158	158	158
Energy storage constant (H)	sec.	0.406	0.386	0.372	0.351	0.532	0.505	0.486	0.459	0.439	0.421
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									