



THREE-PHASE SYNCHRONOUS GENERATOR 20170101

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

EG400-720N

Frequency	Hz	50					60				
Rated capacity (kVA)	S	855	900	934	990	941	990	1030	1089	1139	1188
Rated power (kW)	P	684	720	747	792	752	792	824	871	911	950
Voltage (V)	U	380	400	415	440	380	400	416	440	460	480
Short-circuit ratio	Kcc	0.49	0.558	0.625	0.785	0.343	0.364	0.384	0.418	0.451	0.504
Reactance											
Direct axis synchronous reactance	Xd	2.426	2.305	2.221	2.095	3.201	3.042	2.926	2.765	2.646	2.534
Direct axis transient reactance saturated	X'd	0.109	0.104	0.1	0.094	0.144	0.137	0.131	0.124	0.119	0.114
Direct axis subtransient reactance saturated	X''d	0.081	0.077	0.074	0.07	0.107	0.102	0.098	0.092	0.088	0.085
Quadrature axis synchronous reactance	Xq	1.073	1.02	.983	.927	1.416	1.346	1.295	1.223	1.17	1.121
Quadrature axis subtransient reactance	X''q	0.103	0.098	0.094	0.089	0.136	0.129	0.124	0.118	0.112	0.108
Negative sequence reactance saturated	X2	0.09	0.09	0.08	0.08	0.12	0.12	0.11	0.1	0.1	0.1
Zero sequence reactance unsaturated	X0	0.005	0.004	0.004	0.004	0.006	0.006	0.006	0.005	0.005	0.005
Time constant											
Open circuit time constant	T'd0	2.342	2.342	2.342	2.342	2.342	2.342	2.342	2.342	2.342	2.342
Short-circuit transient time constant	T'd	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105	0.105
Subtransient time constant	T''d	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Armature time constant	Ta	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
No load losses	W	8802	9289	9670	10336	11429	11861	12223	12792	13291	13812
Heat dissipation at full load at Class H	W	37666	39296	40918	44767	44019	44919	45708	46986	48196	49810
Efficiency											
PF=0.8 Efficiency of 25% load	%	92.85	92.72	92.56	92.13	92.28	92.37	92.41	92.45	92.46	92.40
50% load	%	94.94	94.90	94.81	94.54	94.61	94.70	94.76	94.83	94.86	94.84
75% load	%	95.24	95.24	95.20	95.00	94.95	95.07	95.15	95.25	95.31	95.33
100% load	%	94.78	94.82	94.81	94.65	94.47	94.63	94.74	94.88	94.97	95.02
110% load	%	94.47	94.53	94.52	94.37	94.14	94.32	94.45	94.61	94.71	94.77
PF=1 Efficiency of 25% load	%	93.36	93.26	93.13	92.78	92.73	92.81	92.86	92.89	92.90	92.86
50% load	%	95.74	95.71	95.66	95.49	95.36	95.43	95.48	95.53	95.56	95.56
75% load	%	96.33	96.34	96.33	96.24	96.01	96.09	96.16	96.23	96.28	96.30
100% load	%	96.21	96.26	96.27	96.23	95.89	96.00	96.08	96.18	96.25	96.30
110% load	%	96.06	96.12	96.14	96.12	95.73	95.85	95.94	96.06	96.14	96.20
No load excitation current	io(A)	1	1	1	1	1	1	1	1	1	1
Full load excitation current	ic(A)	4	4	4	4	4	4	4	4	4	4
Full load excitation voltage	uc(V)	45	45	45	45	45	45	45	45	45	45
Short circuit current capacity	%	>300I _N 10s(with PMG)									
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		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	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023
Rotor winding resistance (20°C)	ohm	0.596	0.596	0.596	0.596	0.596	0.596	0.596	0.596	0.596	0.596
Exciter resistance (20°C)	ohm	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.2
Cooling air requirement	m ³ /min	106	106	106	106	127.2	127.2	127.2	127.2	127.2	127.2
Energy storage constant (H)	sec.	0.297	0.282	0.272	0.257	0.389	0.369	0.355	0.336	0.321	0.308
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									