



# THREE-PHASE SYNCHRONOUS GENERATOR

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

## EG450L-1500N

Frequency	HZ	50				60			
Rated capacity (kVA)	S	1875	1875	1875	1875	1950	2062.5	2156.3	2250
Rated power (kW)	P	1500	1500	1500	1500	1560	1650	1725	1800
Voltage (V)	U	380	400	415	440	415	440	460	480
Efficiency of 25% load	%	91.5	91.3	91.1	91.6	91.1	91.1	91.1	91
50% load	%	94.8	94.8	94.7	95	94.7	94.7	94.7	94.7
75% load	%	95.7	95.7	95.7	95.8	95.6	95.7	95.8	95.8
100% load	%	95.8	95.9	95.9	96	95.9	96	96.1	96.1
Reactance at Class H									
Short-circuit ratio	Kcc	0.407	0.48	0.549	0.398	0.371	0.403	0.436	0.48
Direct axis synchronous reactance	Xd	2.894	2.612	2.427	2.938	3.014	2.85	2.726	2.612
Quadrature axis synchronous reactance	Xq	1.289	1.163	1.08	1.308	1.342	1.269	1.213	1.163
Direct axis transient reactance saturated	X'd	0.136	0.123	0.114	0.138	0.142	0.134	0.128	0.123
Direct axis subtransient reactance saturated	X''d	0.10	0.09	0.08	0.10	0.10	0.10	0.09	0.09
Quadrature axis subtransient reactance saturated	X''q	0.12	0.11	0.10	0.12	0.13	0.12	0.11	0.11
Zero sequence reactance unsaturated	X0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Leakage reactance	X1	0.05	0.05	0.05	0.06	0.06	0.05	0.05	0.05
Negative sequence reactance saturated	X2	0.11	0.10	0.09	0.11	0.11	0.11	0.10	0.10
Open circuit time constant	T'd0	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Short-circuit transient time constant	T'd	0.139	0.139	0.139	0.139	0.139	0.139	0.139	0.139
Subtransient time constant	T''d	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Armature time constant	Ta	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
No load excitation current	io(A)	2.21	2.21	2.21	2.21	2.21	2.21	2.21	2.21
Full load excitation current	ic(A)	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71
Full load excitation voltage	uc(V)	65.84	65.84	65.84	65.84	65.84	65.84	65.84	65.84
No load losses	W	17060	18180	18770	16780	17020	18130	19250	20490
Heat dissipation at full load at Class H	W	67709	66146	65626	67188	62678	64401	66341	68607
Short circuit current capacity	%	>300							
Recovery time	s	1							
Waveform : TIF		<50							
Waveform : THD		<2%							
Winding pitch		2/3							
Voltage regulation		+/- 1%							
A.V.R. model		WT-2							
Duty		Continuous							
Number of poles		4							
Class of insulation		H							
Temperature rise		≤125K							
Altitude		≤1000m							
Rated power factor		0.8							
Excitation		Brushless							
Stator winding		6ends							
Rotor		With damping cage							
Overload	%	110% rated load for 1 hour							
Stator winding resistance (20°C)	ohm	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008
Rotor winding resistance (20°C)	ohm	1.430	1.430	1.430	1.430	1.430	1.430	1.430	1.430
Exciter resistance (20°C)	ohm	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
Cooling air requirement	m <sup>3</sup> /min	130	130	130	130	158	158	158	158
Energy storage constant ( H )	sec.	0.0293	0.0293	0.0293	0.0293	0.4058	0.3835	0.3668	0.3515
Method of cooling		IC 01							
Ambient temperature		40°C							
Sense of rotation		Counter-clockwise							
Type of construction		Single / Double bearing							
Degree of protection / enclosure		IP21 or IP23							
Maximum overspeed	rpm	2160							