



## THREE-PHASE SYNCHRONOUS GENERATOR

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

# EG315M-320N

Frequency	HZ	50				60			
Rated capacity (kVA)	S	400	400	400	400	447.5	463.75	477.5	487.5
Rated power (kW)	P	320	320	320	320	358	371	382	390
Voltage (V)	U	380	400	415	440	415	440	460	480
Efficiency of 25% load	%	89.2	89.4	89.5	89.6	89	89.3	89.5	89.7
50% load	%	92.8	93	93.2	93.3	92.8	93	93.2	93.4
75% load	%	93.4	93.7	93.9	94.1	93.5	93.8	94	94.2
100% load	%	93.2	93.5	93.8	94.1	93.3	93.7	93.9	94.2
Reactance at Class H									
Short-circuit ratio	Kcc	0.245	0.276	0.303	0.356	0.214	0.235	0.251	0.272
Direct axis synchronous reactance	Xd	4.541	4.098	3.807	3.387	5.111	4.712	4.439	4.162
Quadrature axis synchronous reactance	Xq	2.056	1.856	1.724	1.534	2.315	2.134	2.01	1.885
Direct axis transient reactance saturated	X'd	0.166	0.149	0.139	0.124	0.186	0.172	0.162	0.152
Direct axis subtransient reactance saturated	X''d	0.15	0.136	0.126	0.112	0.169	0.156	0.147	0.138
Quadrature axis subtransient reactance saturated	X''q	0.228	0.206	0.191	0.17	0.257	0.237	0.223	0.209
Zero sequence reactance unsaturated	X0	0.009	0.008	0.008	0.007	0.01	0.01	0.009	0.008
Leakage reactance	X1	0.106	0.095	0.088	0.079	0.119	0.11	0.103	0.097
Negative sequence reactance saturated	X2	0.19	0.17	0.16	0.14	0.21	0.2	0.18	0.17
Open circuit time constant	T'd0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Short-circuit transient time constant	T'd	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084
Subtransient time constant	T''d	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Armature time constant	Ta	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
No load excitation current	io(A)	1	1	1	1	1	1	1	1
Full load excitation current	ic(A)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Full load excitation voltage	uc(V)	40	40	40	40	40	40	40	40
No load losses	W	3000	3150	3270	3460	4310	4460	4600	4760
Heat dissipation at full load at Class H	W	23532	22063	21151	19955	25503	24945	24643	24189
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		12ends							
Rotor		With damping cage							
Overload	%	110% rated load for 1 hour							
Stator winding resistance (20°C)	ohm	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066
Rotor winding resistance (20°C)	ohm	0.739	0.739	0.739	0.739	0.739	0.739	0.739	0.739
Exciter resistance (20°C)	ohm	9.856	9.856	9.856	9.856	9.856	9.856	9.856	9.856
Cooling air requirement	m <sup>3</sup> /min	54.8	54.8	54.8	54.8	65.8	65.8	65.8	65.8
Energy storage constant ( H )	sec.	0.1246	0.1246	0.1246	0.1246	0.1709	0.1613	0.1552	0.1488
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							