



## THREE-PHASE SYNCHRONOUS GENERATOR

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

# EG280M-160N

Frequency	HZ	50				60			
Rated capacity (kVA)	S	200	200	200	200	210	217.5	225	228.75
Rated power (kW)	P	160	160	160	160	168	174	180	183
Voltage (V)	U	380	400	415	440	415	440	460	480
Efficiency of 25% load	%	86.4	86.62	86.66	86.3	86.6	86.9	87	87
50% load	%	90.8	91.1	91.2	91.1	91.1	91.4	91.5	91.6
75% load	%	91.6	91.9	91.92	92.2	92	92.3	92.5	92.6
100% load	%	91.3	91.7	91.97	92.23	91.85	92.22	92.44	92.7
Reactance at Class H									
Short-circuit ratio	Kcc	0.286	0.329	0.369	0.457	0.258	0.287	0.312	0.345
Direct axis synchronous reactance	Xd	4.152	3.747	3.481	3.097	4.387	4.042	3.825	3.572
Quadrature axis synchronous reactance	Xq	1.864	1.683	1.563	1.391	1.97	1.815	1.718	1.604
Direct axis transient reactance saturated	X'd	0.128	0.116	0.107	0.095	0.135	0.125	0.118	0.11
Direct axis subtransient reactance saturated	X''d	0.124	0.112	0.104	0.092	0.131	0.121	0.114	0.107
Quadrature axis subtransient reactance saturated	X''q	0.205	0.185	0.172	0.153	0.216	0.199	0.189	0.176
Zero sequence reactance unsaturated	X0	0.007	0.006	0.006	0.005	0.007	0.007	0.007	0.006
Leakage reactance	X1	0.101	0.091	0.085	0.075	0.107	0.099	0.093	0.087
Negative sequence reactance saturated	X2	0.16	0.15	0.14	0.12	0.17	0.16	0.15	0.14
Open circuit time constant	T'd0	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Short-circuit transient time constant	T'd	0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.052
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	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
No load excitation current	io(A)	1	1	1	1	1	1	1	1
Full load excitation current	ic(A)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
Full load excitation voltage	uc(V)	33	33	33	33	33	33	33	33
No load losses	W	1810	1900	1980	2100	2560	2670	2770	2870
Heat dissipation at full load at Class H	W	15227	14425	13970	13479	14907	14679	14721	14475
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	0.0181	0.0181	0.0181	0.0181	0.0181	0.0181	0.0181	0.0181
Rotor winding resistance (20°C)	ohm	0.576	0.576	0.576	0.576	0.576	0.576	0.576	0.576
Exciter resistance (20°C)	ohm	8.57	8.57	8.57	8.57	8.57	8.57	8.57	8.57
Cooling air requirement	m <sup>3</sup> /min	38.7	38.7	38.7	38.7	46.4	46.4	46.4	46.4
Energy storage constant ( H )	sec.	0.129	0.129	0.129	0.129	0.1779	0.1669	0.1597	0.1547
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							