



THREE-PHASE SYNCHRONOUS GENERATOR

TCU368C

Datasheet For 4 Poles - 50Hz @ 1500rpm / 60Hz @ 1800rpm

Ambient Temperature	40 °C	Excitation	Brushless	Short Circuit Current Capacity (with PMG)	≥300%
Temperature Rise	125 °C	Winding Pitch	2 / 3	Method of Cooling	IC01
Service Duty	Continuous	Power Factor	0.8	Direction of Rotation	Counter-clockwise
Phase	3	Insulation Class	Class H	Maximum Over-speed	2250 rpm
Pole	4	Waveform : TIF	<50	Degree of Protection	IP21
Voltage Regulation	+/- 0.5%	Waveform : THF	<2%	Radio interference	Class B Group 1
AVR Model	ETC-1	Altitude	≤1000 m.a.s.l	Total Harmonic Content	< 3% - At no load

Electrical and Mechanical Characteristic

Frequency	Hz	50			60				
		1500			1800				
Round per minute	rpm								
Voltage (Y Connection) - Series Star	V	380	400	415	380	416	440	460	480
Voltage (YY Connection) - Parallel Star	V	190	200	208	190	208	220	230	240
Voltage (Δ Connection) - Series Delta	V	220	230	240	220	240	254	266	277
Voltage (ΔΔ Connection) - Parallel Delta	V	110	115	120	110	120	127	133	138
Rated power at Class H (125 °C) temperature rise	kVA	570	600	575	570	625	660	690	720
	kW	456	480	460	456	500	528	552	576
Efficiency at Class H (P.F.=0.8)	4/4%	94.5	94.6	94.6	94.3	94.4	94.5	94.7	94.9
	3/4%	94.7	94.8	94.8	94.5	94.6	94.7	94.9	95.1
	2/4%	94.3	94.4	94.4	94	94.1	94.2	94.4	94.6
Efficiency at Class H (P.F.=1.0)	4/4%	95.5	95.6	95.6	95.3	95.4	95.5	95.7	95.9
	3/4%	95.7	95.8	95.8	95.6	95.7	95.8	96.0	96.2
	2/4%	95.3	95.4	95.4	95.2	95.3	95.4	95.6	95.8

Reactance (%) at Class H

	Kcc	0.3540	0.3720	0.4180	0.2950	0.3230	0.3410	0.3570	0.3720
Short-circuit ratio									
Direct axis synchronous reactance unsaturated	X _d	2.8263	2.6850	2.3905	3.3913	3.1007	2.9289	2.8037	2.6850
Quadrature axis synchronous reactance unsaturated	X _q	1.6979	1.6130	1.4361	2.0373	1.8627	1.7595	1.6843	1.6130
Direct axis transient reactance saturated	X' _d	0.2189	0.2080	0.1852	0.2627	0.2402	0.2269	0.2172	0.2080
Direct axis subtransient reactance saturated	X'' _d	0.1758	0.1670	0.1487	0.2109	0.1929	0.1822	0.1744	0.1670
Quadrature axis subtransient reactance saturated	X'' _q	0.2095	0.1990	0.1772	0.2513	0.2298	0.2171	0.2078	0.1990
Zero sequence reactance unsaturated	X ₀	0.0305	0.0290	0.0258	0.0366	0.0335	0.0316	0.0303	0.0290
Leakage reactance	X _L	0.1253	0.1190	0.1059	0.1503	0.1374	0.1298	0.1243	0.1190
Negative sequence reactance saturated	X ₂	0.1926	0.1830	0.1629	0.2311	0.2113	0.1996	0.1911	0.1830

Open circuit time constant (sec.)	T' _{do}	2.0310							
Short-circuit transient time constant (sec.)	T' _d	0.1030							
Subtransient time constant (sec.)	T'' _d	0.1340							
Armature time constant (sec.)	T _α	0.0275							
No load excitation current	io(A)	0.6			0.6				
Full load excitation current	ic(A)	2			1.9				
Full load excitation voltage	uc(V)	50			48				
Stator Winding Resistance (20°C)	ohm	0.005184							
Rotor Winding Resistance (20°C)	ohm	1.254							
Exciter Stator Resistance (20°C)	ohm	18.54							
Exciter Rotor Phase resistance	ohm	0.0375							
Cooling air requirement	m ³ /sec	1.105			1.326				

Configuration	Single Bearing	Double Bearing
Type of Construction	B2 - SAE	IM B34
Inertia (J) [kgm ²]	9.96	9.85
Total Weight	1333	1359
Drive end bearing / Lubrication	Not supply	6222 C3-2Z / Prelubricated - sealed for life
Non-drive end bearing / Lubrication	6316 C3-2Z / Prelubricated - sealed for life	
Recovery time - sec.	0.5	
Stator winding	DOUBLE LAYER CONCENTRIC	
Number of Terminal	12	
Rotor	with damping cage	
Overload	110% rated load for 1 hour	

STANDARD COMPLIANCE - IEC 60034-1; CEI 2-3; BS 4999-5000; VDE 0530; NF 51-100,111; OVE M-10, NEMA MG 1.22.

Data and Technical Specification are subject to change in order to update or improve the products, without prior notice