



THREE-PHASE SYNCHRONOUS GENERATOR

TCU368G

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-2	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	712.5	750	722.5	712.5	780	825	862.5	900
	kW	570	600	578	570	624	660	690	720
Efficiency at Class H (P.F.=0.8)	4/4%	94.8	95	94.9	94.7	94.8	95.0	95.2	95.3
	3/4%	95.0	95.2	95.1	94.9	95.0	95.2	95.4	95.5
	2/4%	94.7	94.9	94.8	94.6	94.7	94.9	95.1	95.2
Efficiency at Class H (P.F.=1.0)	4/4%	95.7	95.9	95.8	95.6	95.7	95.9	96.1	96.2
	3/4%	95.9	96.1	96.0	95.8	95.9	96.1	96.3	96.4
	2/4%	95.6	95.8	95.7	95.5	95.6	95.8	96.0	96.1

Reactance (%) at Class H

	Kcc	0.3577	0.3800	0.4207	0.2981	0.3266	0.3452	0.3606	0.3765
Short-circuit ratio									
Direct axis synchronous reactance unsaturated	X _d	2.7958	2.6560	2.3770	3.3547	3.0623	2.8972	2.7734	2.6560
Quadrature axis synchronous reactance unsaturated	X _q	1.4989	1.4240	1.2744	1.7986	1.6418	1.5533	1.4869	1.4240
Direct axis transient reactance saturated	X' _d	0.1758	0.1670	0.1495	0.2109	0.1925	0.1822	0.1744	0.1670
Direct axis subtransient reactance saturated	X'' _d	0.1379	0.1310	0.1172	0.1655	0.1510	0.1429	0.1368	0.1310
Quadrature axis subtransient reactance saturated	X'' _q	0.1695	0.1610	0.1441	0.2034	0.1856	0.1756	0.1681	0.1610
Zero sequence reactance unsaturated	X ₀	0.0242	0.0230	0.0206	0.0291	0.0265	0.0251	0.0240	0.0230
Leakage reactance	X _L	0.0926	0.0880	0.0788	0.1111	0.1015	0.0960	0.0919	0.0880
Negative sequence reactance saturated	X ₂	0.1537	0.1460	0.1307	0.1844	0.1683	0.1593	0.1525	0.1460

Open circuit time constant (sec.)	T' _{do}	2.1940							
Short-circuit transient time constant (sec.)	T' _d	0.0990							
Subtransient time constant (sec.)	T'' _d	0.0147							
Armature time constant (sec.)	T _α	0.0276							
No load excitation current	io(A)	0.6			0.6				
Full load excitation current	ic(A)	2.1			2				
Full load excitation voltage	uc(V)	51			48				
Stator Winding Resistance (20°C)	ohm	0.003558							
Rotor Winding Resistance (20°C)	ohm	1.474							
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]	11.97	11.86
Total Weight	1608	1634
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