

Synchronous Condenser Machine Data

Synchronous Condenser	Values	Units
1) Rating	60	MVA
2) Service Factor	1.0	
3) Speed	1800	RPM
4) Number of Poles	4	
5) Number of Phases	3	
6) Frequency	60	Hz
7) Nominal Voltage	12.47	kV
8) Operating Voltage Range	11.22 - 13.72	kV
9) Amps @ Full Load	2778	A
10) Insulation Class Armature Winding/connection	F	
11) Insulation Class Field / Rotating Exciter	F	
12) Temperature rise armature Winding @ rated MVA	80*	°C
13) Temperature rise of rotor @rated MVA	80*	°C
14) Temperature rise of rotating exciter at maximum excitation	80*	°C
15) Maximum excitation input required	65 / 7.0	V/A
16) Response Ratio	1.6	
17) Nominal Ceiling Voltage	132	V
18) Xd (saturated/unsaturated)	1.78 / 1.95	p.u.
19) Xd' (saturated / unsaturated)	0.25 / 0.28	p.u.
20) Xd'' (saturated / unsaturated)	0.12 / 0.14	p.u.
21) Xq (saturated / unsaturated)	0.68 / 0.93	p.u.
22) Xq'(saturated . unsaturated)	0.68 / 0.93	p.u.
23) Xq''(saturated/ unsaturated)	0.14 / 0.16	p.u.
24) X2 (Saturated/Unsaturated)	0.13 / 0.15	p.u.
25) Xo (Saturated/Unsaturated)	0.06 / 0.06	p.u.
26) XI (Saturated/Unsaturated)	0.10 / 0.10	p.u.
27) Reactance Base	60	MVA
28) R1	0.0031	p.u.
29) R2	0.0258	p.u.
30) R0	0.0020	p.u.
31) Ra	0.0018	p.u.
32) Rf	0.0004	p.u.
33) Short circuit Ratio	0.56	
34) Tdo'	15.1	S
35) Td'	2.3	S
36) Tdo''	0.08	S
37) Td''	0.04	S
38) Tqo''	0.20	S
39) Tq''	0.04	S
40) Ta	0.21	S
41) Temperature for resistances and time Constants	25	°C
42) Inertia Constant H	1.95	H
43) Damping Coefficient D	TBD	D

44) Capacitance/phase	0.16	μF
45) Saturation factor S1.0	0.04	
46) Saturation Factor S1.2	0.21	
47) I2 continuous	10	%
48) X/R ratio	41	
49) I22t	40	
50) Excitation system type (provide block diagram and modelling data)	Attached	
51) Total Weights	245000	lb. approx.
52) Rotor weight	69000	lb. approx.
53) Armature weight (stator core + frame)	128000	lb. approx.
54) Heaviest part for crane (stator/rotor packaged assembly as shipped)	Later	lb. approx.
55) Total shipping weight (with packaging)	Later	lb. approx.
56) Audible Sound level @ 2 meters	< 88	dB(A)

* Temperature rise is above maximum 40 °C ambient.