

IDEAL ELECTRIC CO.

330 EAST FIRST STREET • MANSFIELD, OHIO 44902 • USA
 TELEPHONE (419) 522-3611 • FAX (419) 522-9386

SYNCHRONOUS GENERATOR TECHNICAL DATA

Rating						
kW	10000	Volts	13800	RPM	1800	Temp Rise 105 °C
kVA	12500	Amps	523	Hz.	60	
PF	0.80	Phase	3			

Reactances (per unit)			Time Constants (sec.)		Resistances	
	Saturated	Unsaturated				
Xd	1.684	2.117	Tdo'	7.630	R1	0.0054 pu
Xd'	0.250	0.268	Td'	0.899	R2	0.0104 pu
Xd"	0.209	0.220	Tdo"	0.042	Ro	0.0065 pu
Xq	1.070	1.070	Td"	0.035	Ra	0.0749 ohms
Xq'	1.070	1.070	Tqo'	n/a	Rf	1.763 ohms
Xq"	0.205	0.215	Tq'	n/a		
X2	0.212	0.223	Tqo"	0.128	Short Circuit Ratio	0.594
Xo	0.081	0.085	Tq"	0.025		
Xl	0.109	0.114	Ta	0.104		
Reactance base 12500 kVA			Resistances and time constants at 130 °C			

Transient Voltage Response for Step Loading

0.80 PF Load Applied or Removed				Motor Starting (Code F Inrush)		
Load	kVA	Volt. Dip	Volt. Rise	HP	SkVA	Volt. Dip
100%	12500	14.3%	16.5%	2900	16240	24.5%
75%	9375	10.9%	11.9%	2175	12180	19.6%
50%	6250	7.4%	8.2%	1450	8120	14.0%
25%	3125	3.7%	4.8%	725	4060	7.5%

Efficiency

kW Load	Nominal Efficiency %		kW Load	Guaranteed Efficiency %	
	0.80 PF	1.0 PF		0.80 PF	1.0 PF
115%	97.15	97.69	115%	97.0	97.5
100%	97.15	97.62	100%	97.0	97.5
75%	96.99	97.35	75%	96.8	97.2
50%	96.36	96.60	50%	96.1	96.4
25%	93.92	94.04	25%	93.6	93.8

Losses

in kW at rated load and nominal efficiency

Stator Copper	61.4	Core Loss	69.3
Rotor Copper	27.1	Friction & Windage	77.6
Stray Load	54.7	Exciter	3.0

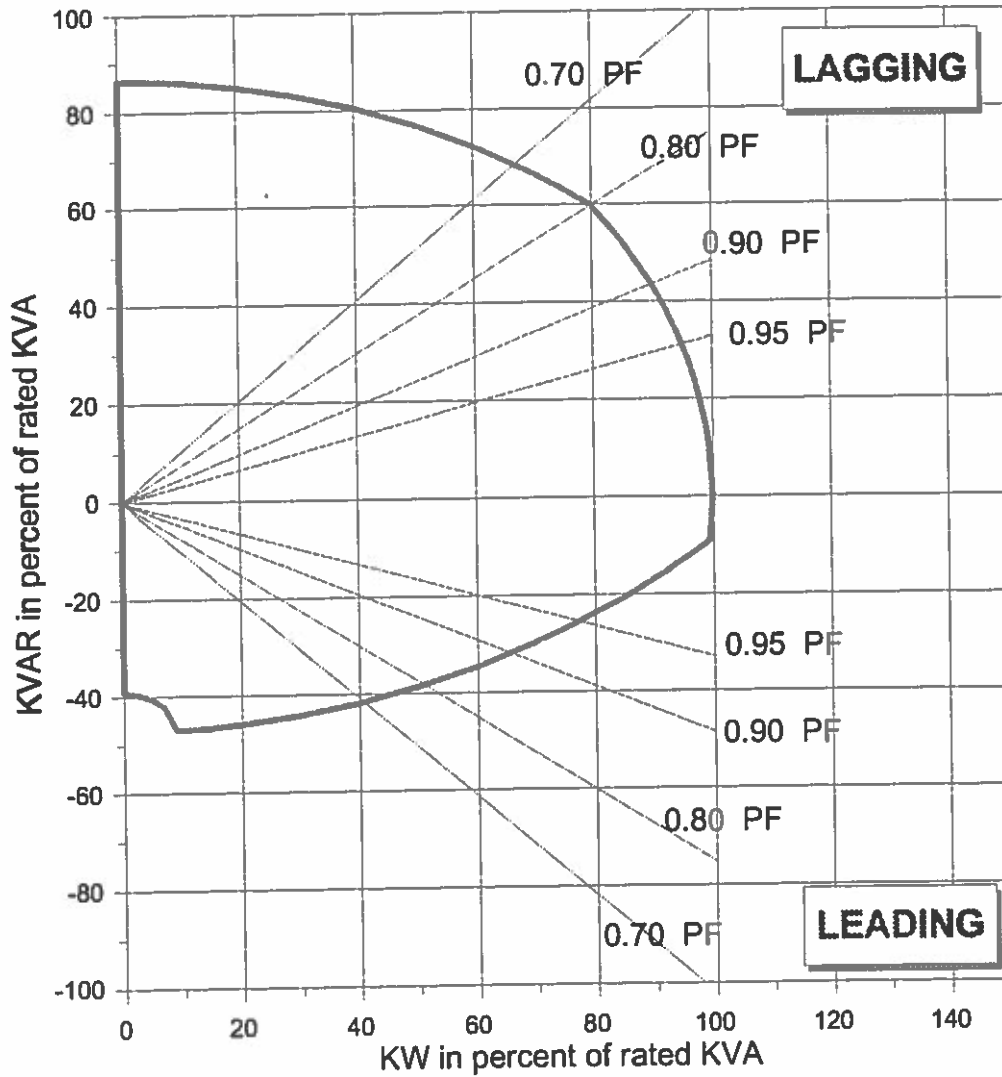
Additional Data

Saturation factor	S1.0	1.256	x/r ratio	38.7
	S1.2	1.880	2 ^t =	40 (K)
Inertia Constant	H	0.825	I2	10.0% continuous
Damping Coefficient	D	12.4%		
Capacitance/phase	C	0.040 mFd		
Motoring Power		150.8 kW		

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REACTIVE CAPABILITY CURVE



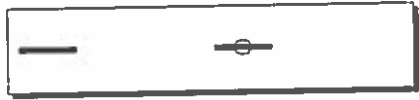
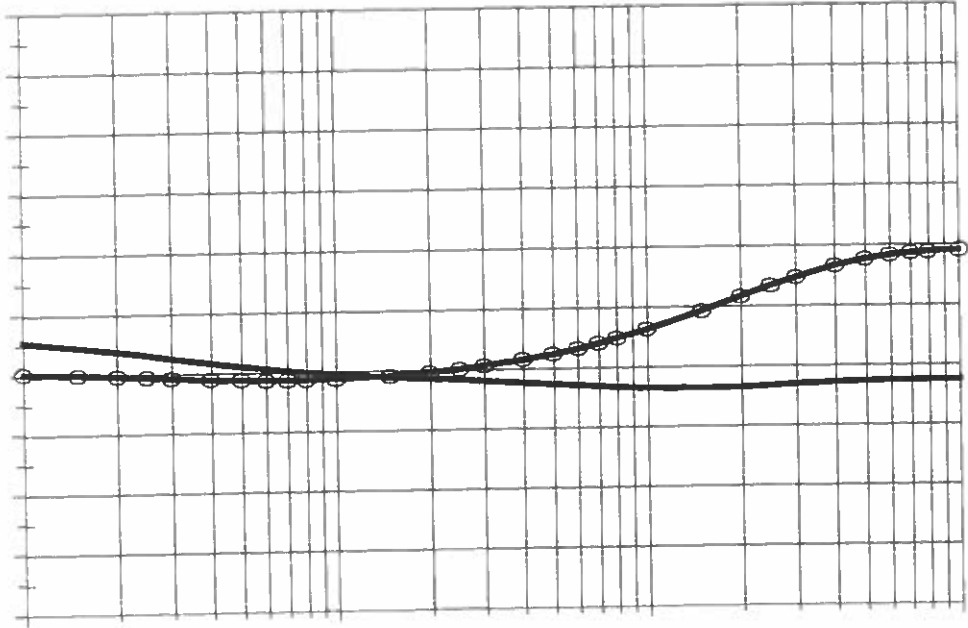
Rating:

12500 KVA
13800 Volts
523 Amps
0.80 P.F.
1800 RPM

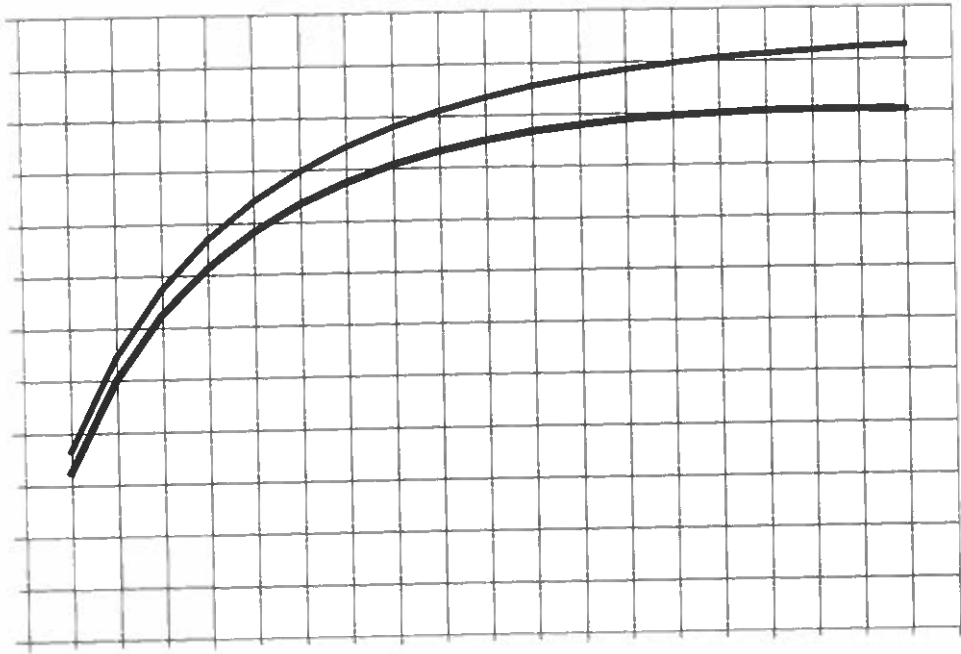
Class F rise

EE- 3402A

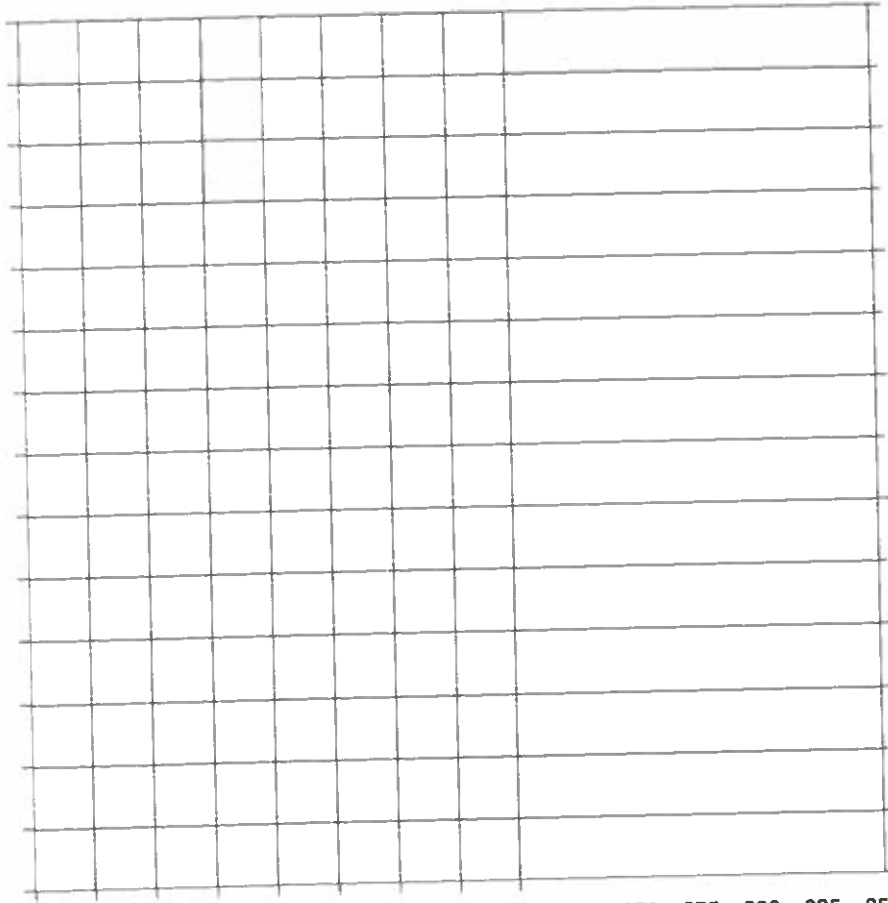
Current in per unit



Percent Efficiency



Voltage in percent of Rated



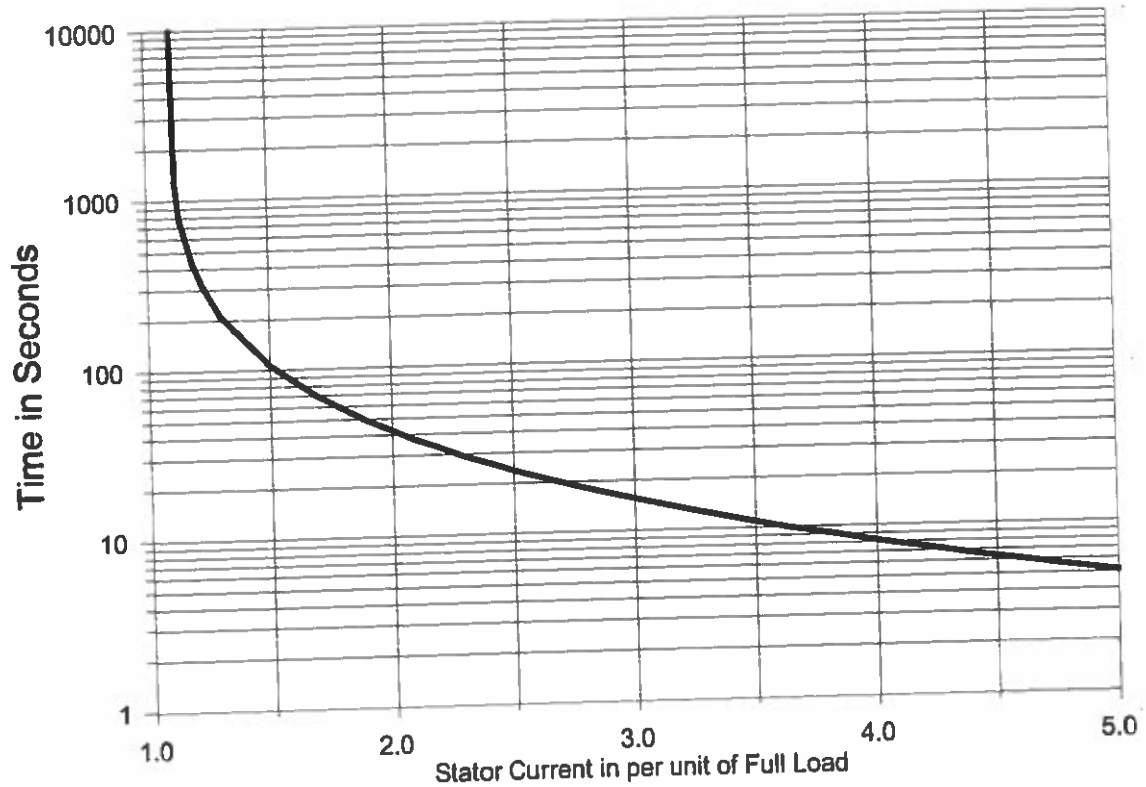
200 225 250 275 300 325 350
Field Current in percent of No Load

Current in percent of Rated

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STATOR THERMAL LIMIT CURVE



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1800 RPM

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EE- 3402E