MARATHON ELECTRIC
SYNCHRONOUS AC GENERATOR
TYPICAL DYNAMIC CHARACTERISTICS

Basic Model: **433CSL6220** Winding: **WC1909** Date: **6/16/08**

Kilowatt ratings at	**1800 RPM**		**60 Hertz**			**12 Leads**			
kW (kVA)	**3 Phase**		**0.8 Power Factor**			**Dripproof or Open Enclosure**			
	Class B	**Class F**					**Class H**		
Voltage*	**80º C ① Continuous**	**90º C ① Lloyds**	**95º C ① ABS**	**105º C ② British Standard**	**105º C ① Continuous**	**130º C ① Standby**	**125º C ② British Standard**	**125º C ① Continuous**	**150º C ① Standby**
240/480	310 (388)	340 (425)	352 (440)	375 (469)	375 (469)	411 (514)	391 (489)	403 (504)	430 (538)
230/460	313 (391)	341 (426)	355 (444)	375 (469)	375 (469)	410 (513)	387 (484)	402 (503)	426 (533)
220/440	317 (396)	343 (429)	355 (444)	375 (469)	375 (469)	410 (513)	385 (481)	397 (496)	423 (529)
208/416	315 (394)	335 (419)	345 (431)	362 (453)	362 (453)	400 (500)	379 (474)	385 (481)	417 (521)
190/380	292 (365)	311 (389)	320 (400)	335 (419)	335 (419)	367 (459)	350 (438)	355 (444)	385 (481)

① Rise by resistance method, Mil-Std-705, Method 680.1L *② Rating per BS 5000.*

Submittal Data: 240/480 Volts*, 500 kVA, 1800 RPM, 60 Hz, 3 Phase

Mil-Std-705B			**Mil-Std-705B**		
Method	**Description**	**Value**	**Method**	**Description**	**Value**
301.1b	Insulation Resistance	> 1.5 Meg	505.3b	Overspeed	2250 RPM
302.1a	High Potential Test		507.1c	Phase Sequence CCW-ODE	ABC
	Main Stator	2000 Volts	508.1c	Voltage Balance, L-L or L-N	0.2%
	Main Rotor	1500 Volts	601.4a	L-L Harmonic Maximum - Total	5.0%
	Exciter Stator	1500 Volts		(Distortion Factor)	
	Exciter Rotor	1500 Volts	601.4a	L-L Harmonic Maximum - Single	3.0%
	PMG Stator	1500 Volts**	601.1c	Deviation Factor	5.0%
401.1a	Stator Resistance, Line to Line		---	TIF (1960 Weightings)	<50
	High Wye Connection	0.0124 Ohms	625.1c	Mechanical Strength (High Wye	
	Rotor Resistance	0.991 Ohms		Connection, Sustained 3 Phase	
	Exciter Stator	18.5 Ohms		Short Circuit Current)[3]	< 300%
	Exciter Rotor	0.116 Ohms	652.1a	Shaft Current	< 0.1 ma
	PMG Stator	2.1 Ohms**	652.1a	Main Stator Capacitance to	
410.1a	No Load Exciter Field Amps			Ground	0.028 mfd
	at 480 Volts Line to Line	0.86 A DC			
420.1a	Short Circuit Ratio	0.54		**Additional Prototype Mil-Std Methods**	
421.1a	Xd Synchronous Reactance	2.414 pu		**are Available on Request.**	
422.1a	X2 Negative Sequence				
	Reactance	0.162 pu	--	Generator Frame	433
423.1a	X0 Zero Sequence Reactance	0.039 pu	--	Type	Ext. Voltage Regulated, Brushless
425.1a	X'd Transient Reactance	0.117 pu	--	Insulation	Class H
426.1a	X"d Subtransient Reactance	0.104 pu	--	Coupling - Single Bearing	Flexible
--	Xq Quadrature Synchronous		--	Amortisseur Windings	Full
	Reactance	1.182 sec.	--	Cooling Air Volume	800 CFM
427.1a	T'd Transient Short Circuit		--	Exciter	Rotating
	Time Constant	0.067 sec.	--	Voltage Regulator	SE350***
428.1a	T"d Subtransient Short Circuit		--	Voltage Regulation	1%***
	Time Constant	0.016 sec.	--	Sensing	1 Phase***
430.1a	T'do Transient Open Circuit				
	Time Constant	2.27 sec.			
432.1a	Ta Short Circuit Time				
	Constant of Armature Winding	0.018 sec.			

[3] Excitation support system or PMG required to sustain short circuit currents.

* Voltage refers to wye (star) connection, unless otherwise specified.

**Not supplied as standard equipment.

***DVR® 2000 voltage regulator supplied with PMG option. DVR® 2000 voltage regulation 1/4%, 1 or 3 Phase sensing.

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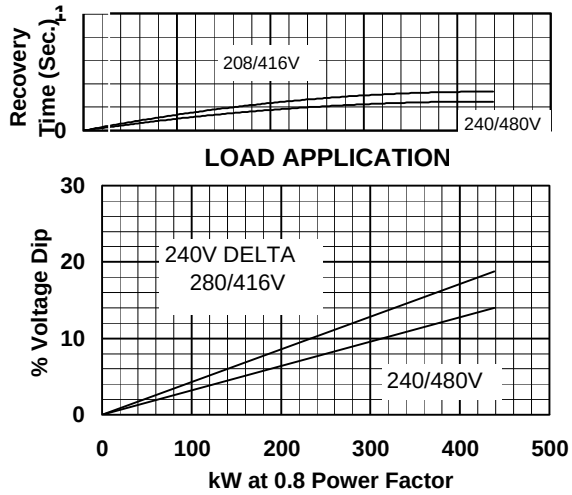
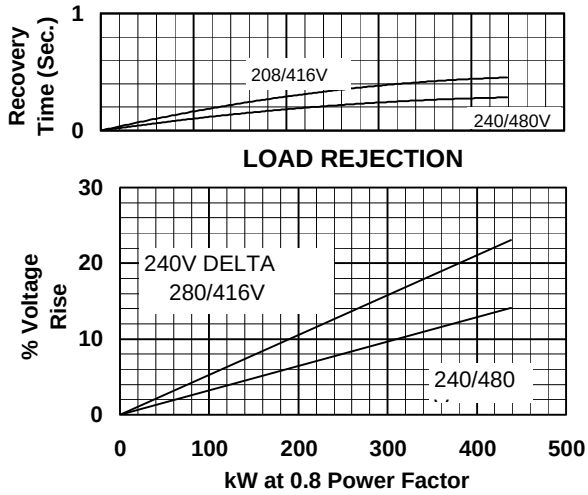
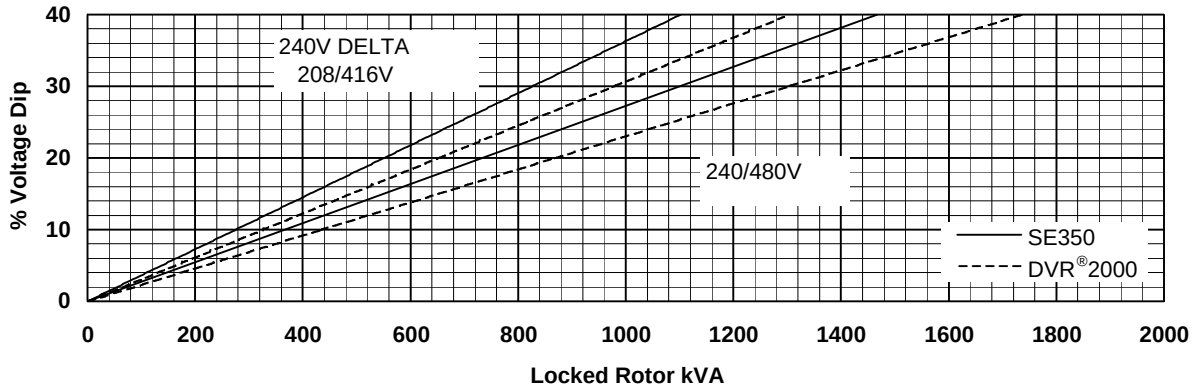
60 HERTZ

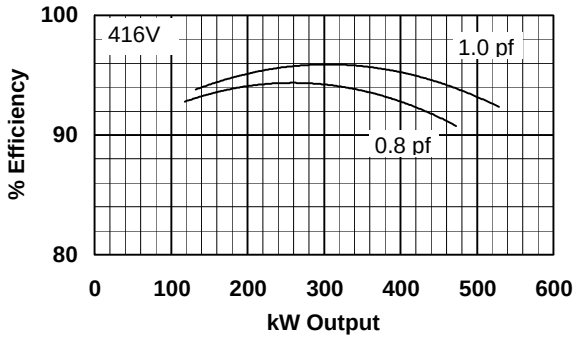


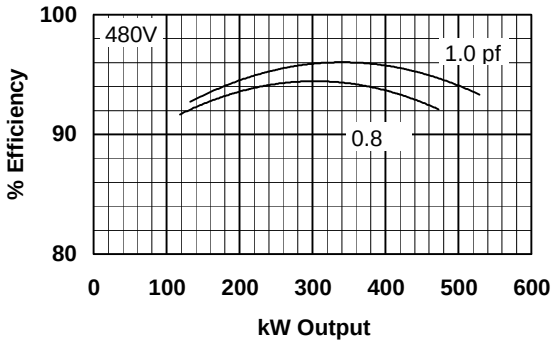


TYPICAL MOTOR STARTING CHARACTERISTICS



TYPICAL GENERATOR EFFICIENCY





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