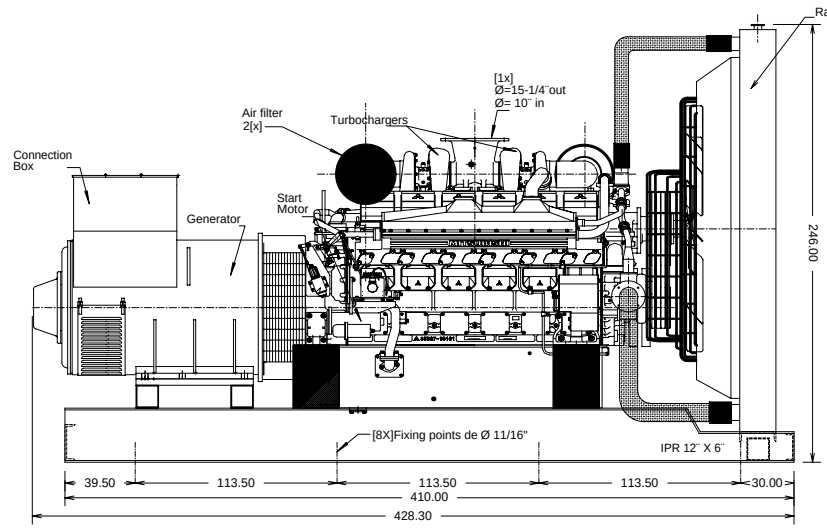
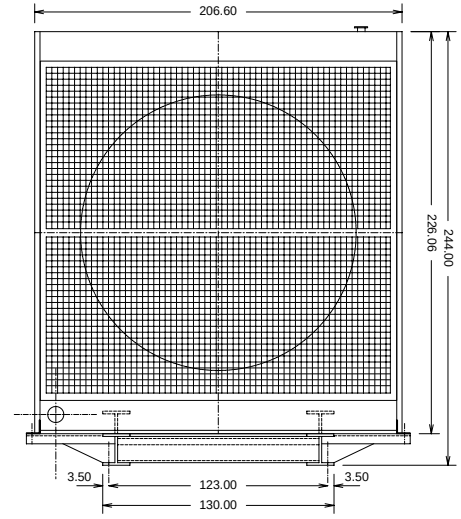
MODELS
MNE1100
MNY1000

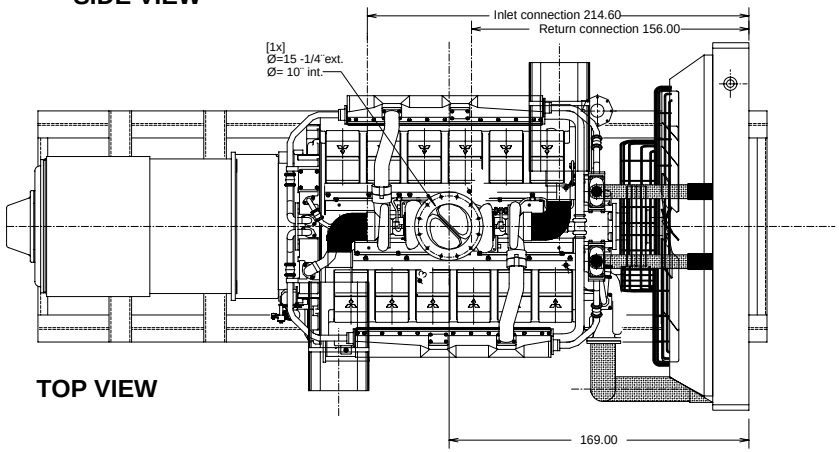


SIDE VIEW



FRONT VIEW

DESCRIPTION	
RADIATOR :	OTT1000TM
ENGINE MOD:	S12H-Y-1PTA3
GENERATOR :	HCI634J
AIR FILTER :	AH1135 (2X)
BASE FRAME:	BP-S12R3-STF
TOTAL WEIGHT :	DRY-4300.00 Kgs. WET-4560.00 Kgs.
AVMS SPRING :	8 PZS.



TOP VIEW

Customer: S/O:

Rev.	Description	Date	Certificated

Reviews

Title: ***MITSUBISHI ENGINE S12H-Y-1PTA-3 / STAMFORD ALTERNATOR***

Draw: R.G.C.	Revised: O.P.V.	Certificated: V.F.F.	Code: **MNE/Y-01**
Date: JUL 03th 2008	Date: JUL 03th 2008	Date: JUL 03th 2008	Dept.: Engineering

ottomotores

Marks: cms | Scale: s/e | Draw: | Of:

GENERAL ENGINE DATA

Type	4-Cycle, Water Cooled	
Aspiration	Turbo-Charged, After Cooler (Jacket water to Cooler)	
Cylinder Arragemen	60°V	
No.of Cylinders	12	
Bore mm(in.)	150	(5.91)
Stroke mm(in.)	175	(6.89)
Displacement liter(in^3)	37.11	(2265)
Compression Ratio	14.5:1	
Dry Weight - Engine only - kg(lb	4300	(9482)
Wet Weight - Engine only - kg(lb	4560	(10055)

PERFORMANCE DATA

Steady State Speed Stability Band at any Constant Loac		
Electric Governor - %	±0.25 or better	
Maximum Overspeed Capacity - rpm	2000	
Moment of inertia of Rotating Components - kg･m^2(lbf･ft^2) (Includes Std.Flywheel)	55.6	(1320)
Cyclic Speed Variation with Flywheel a 1800rpm	1/559	

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Flywheel Housing - kg･m(lbf･ft)	200	(1447)

AIR INLET SYSTEM

Maximum Intake Air Restriction (Includes piping		
With Clean Filter Element - mm H_2O (in.H_2O)	400	(15.7)
With Dirty Filter Element - mm H_2O (in.H_2O)	635	(25.0)

EXHAUST SYSTEM

Maximum Allowable Back Pressure - mm H_2O (in.H_2O)	600	(23.6)

LUBRICATION SYSTEM

Oil Pressure at ldle - kgf/cm^2(psi)	2～3	(29～43)
at Rate Speed - kgf/cm^2(psi)	5～6	(71～86)
Maximum Oil Temperature -°C(°F)	110	(230)
Oil Capacity of Standard Pan High - liter (U.S.gal)	180	(47.6)
Low - liter (U.S.gal)	150	(39.6)
Total System Capacity (lncludes Oil Filter) - liter (U.S.gal	200	(52.8)
Maximum Angle of lnstallation (Std. Pan) Front Down	9.5°	
(Engine Only) Front Up	11°	
Side to Side	22.5°	

COOLING SYSTEM

Coolant Capactiy (Engine only) - liter (U.S.gal	100	(26.4)
Maximum External Friction Head at Engine Outlet - kgf/cm^2(psi)	0.35	(5.0)
Maximum Static Head of Coolant above Crankshaft Center - m(ft	10	(32.8)
Maximum Outlet Pressure of Engine Water Pump - kgf/cm^2(psi)	2	(28.6)
Standard Thermostat (modulating)Range -°C(°F)	71～85	(160～185)
Maximum Coolant Temperature at Engine Outlet -°C(°F)	98	(208)
Minimum Coolant Expansion Space - % of System Capacity	10	
Maximum Coolant Temperature at Intercooler lnlet, TK type -°C(°F)		
Maximum Air Restriction on Discharge Side of Radiator and Fan - mm H_2O(in.H_2O)	10	(0.4)

FUEL SYSTEM

Fuel Injector	Mitsubishi Unit injector × 12	
Maximum Suction Head of Feed Pump - mm Hg (in. Hg	75	(3.0)
Maximum Static Head of Return Pipe - mm Hg (in.Hg	220	(8.7)

STARTING SYSTEM

Battery Charging Alternator - V- Ah	24-30
Starting Motor Capacity - V - kW	24-7.5 × 2
Maximum Allowable Resistance of Cranking Circuit - mΩ	1.5
Recommended Minimum Battery Capacity	
At 5°C (41°F) and above - Ah	300
Below 5°C (41°F) through - 5°C (23°F)	600

ENGINE RATING

All data represent net performance with standard accessories such as air cleaner, inlet /exhaust manifolds, fuel oil system, L.O. pump, etc. under the condition of 100kPa(29.6inHg) barometric pressure, 77 °F(25°C) ambient temperature and 30% relative humidity.

ITEM	UNIT	STAND-BY POWER	PRIME POWER	CONTINUOUS C	CONTINUOUS D
		60Hz	60Hz	60Hz	60Hz
Engine Speed	rpm	1800	1800	1800	1800
No. of Cylinders		12			
Bore	mm (in.)	150 (6.69)			
Stroke	mm (in.)	175 (6.89)			
Displacement	liter ($in.^3$)	37.11 (2265)			
Brake Horse power without Fan	HP (kW)	1528 (1140)	1389 (1036)	1095 (817)	956 (713)
Brake Mean Effective Pressure without Fan	kgf/cm^2 (psi)	20.9 (297)	19.0 (270)	15.0 (213)	13.1 (186)
Mean Piston Speed	m/s (ft/min)	10.5 (2067)	10.5 (2067)	10.5 (2067)	10.5 (2067)
Maximum Regenerative Power Absorption Capacity without Fan	HP (kW)	145 (108)	145 (108)	145 (108)	145 (108)
Intake Air flow	m^3/min (CFM)	101 (3566)	91 (3213)	71 (2507)	63 (2225)
Exhaust Gas Flow	m^3/min (CFM)	266 (9392)	241 (8510)	188 (6638)	166 (5861)
Coolant Flow	liter/min (U.S. GPM)	1450 (383)	1450 (383)	1450 (383)	1450 (383)
Coolant Flow to Intercooler (TK only)	liter/min (U.S. GPM)	–	–	–	–
Cooling Air Flow (Std. Fan)	m^3/min (CFM)	1800 (63558)	1800 (63558)	1800 (63558)	1800 (63558)
Fan Loss Horse Power (Std. Fan)	HP (kW)	53 (40)	53 (40)	53 (40)	53 (40)
Radiated Heat to Ambient	kcal/hr (BTU/min)	75753 (5010)	68460 (4528)	53620 (3546)	47262 (3126)
Heat Rejection to Coolant	kcal/hr (BTU/min)	631279 (41752)	570501 (37732)	446831 (29553)	393851 (26049)
Heat Rejection to Inter Cooler (TK Version)	kcal/hr (BTU/min)	–	–	–	–
Heat Rejection to Exhaust	kcal/hr (BTU/min)	837876 (55416)	752259 (49753)	584392 (38651)	521232 (34474)
Noise Level (1 m height & distance) (excludes, lntake,Exhaust & Fan)	dB(A)	113	111		

The specifications are subject to change without notice

APPLICATION : GENERATOR

Pub. No. T13-0422-E

Jun. '03 Printed in Japan

FRAME HC634J
WINDING 311/312

RATINGS	REFER TO RATINGS BOOK
OVERLOAD	REFER TO RATINGS BOOK
ALTITUDE	REFER TO RATINGS BOOK
AMBIENT TEMP.	REFER TO RATINGS BOOK

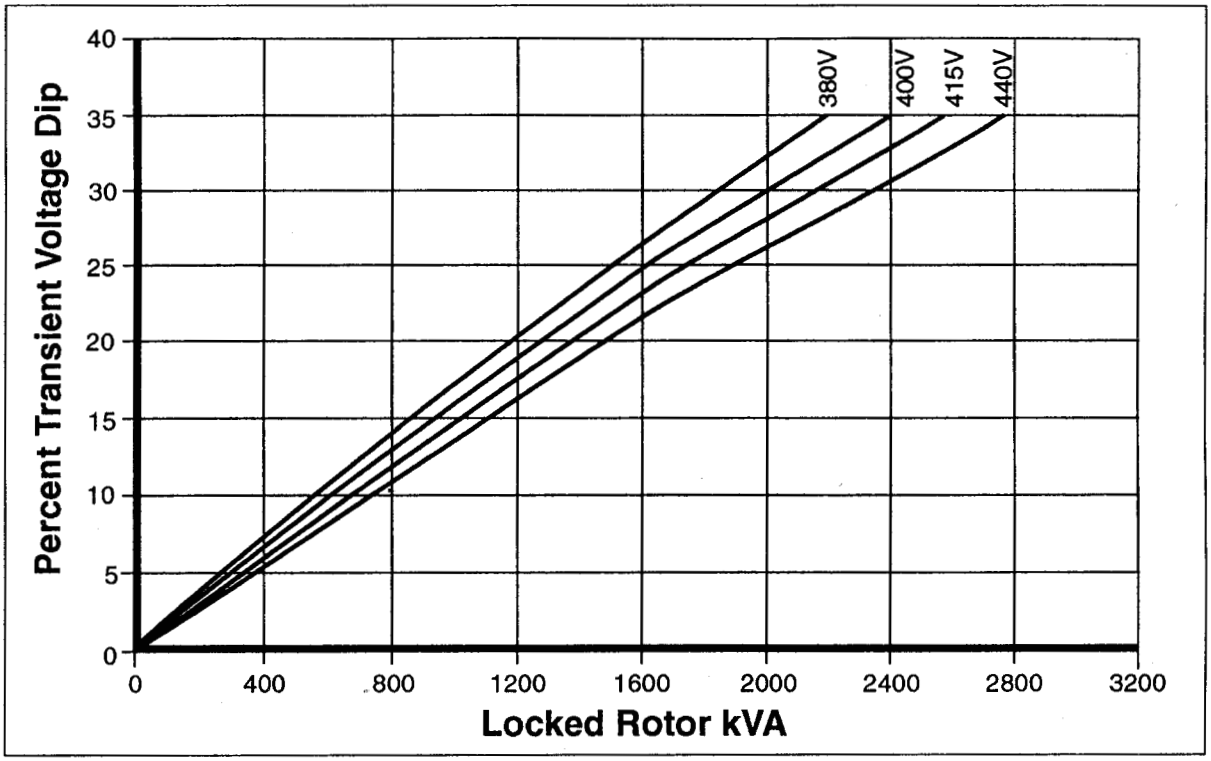
CONTROL SYSTEM SER. 3	SEPARATELY EXCITED BY P.M.G. FRAME DESIGNATION HC634J	
A.V.R.	MX321	
VOLTAGE REGULATION	± 0.5%	WITH 4% ENGINE GOVERNING
SUSTAINED SHORT CIRCUIT	REFER TO SHORT CIRCUIT DECREMENT CURVES OF THIS SECTION	

INSULATION SYSTEM	CLASS H	
PROTECTION	IP22 STANDARD - IP23 OPTIONAL (5% DERATE)	
RATED POWER FACTOR	0.8	
STATOR WINDING	DOUBLE LAYER LAP	
WINDING PITCH	TWO THIRDS	
WINDING LEADS	12 (311) 6 (312)	
STATOR WDG. RESISTANCE	0.0024 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED	
ROTOR WDG. RESISTANCE	1.73 Ohms at 22°C	
R.F.I. SUPPRESSION	BS EN 50081/2-1/2 VDE 0875G VDE 0875N For other standards apply to the factory	
WAVEFORM DISTORTION	NO LOAD < 1.5 % NON-DISTORTING BALANCED LINEAR LOAD < 5.0 %	
MAXIMUM OVERSPEED	2250 Rev/Min	
BEARING DRIVE END	BALL. 6224 (ISO)	
BEARING NON-DRIVE END	BALL. 6317 (ISO)	
EFFICIENCY	REFER TO EFFICIENCY CURVES OF THIS SECTION	
	1 BEARING	2 BEARING
WEIGHT COMP. GENERATOR	2268 kg	2269 kg
WEIGHT WOUND STATOR	1120 kg	1120 kg
WEIGHT WOUND ROTOR	951 kg	885.3 kg
WR^2 INERTIA	19.03 kgm^2	18.26 kgm^2

	50 Hz				60 Hz			
TELEPHONE INTERFERENCE	THF< 2%				TIF< 50			
COOLING AIR	1.614 m^3/sec 3420 cfm				1.961 m^3/sec 4156 cfm			
WINDING 311								
VOLTAGE SERIES STAR (Y)	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
VOLTAGE PARALLEL STAR (Y)	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138
VOLTAGE EDISON DELTA (Δ)	220/110	230/115	240/120	250/125	240/120	254/127	266/133	277/138
WINDING 312								
VOLTAGE SERIES STAR (Y)	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277
VOLTAGE DELTA (Δ)	220	230	240	250	240/120	254/127	266/133	277/138
kVA BASE RATING FOR REACTANCE VALUES	1000	1000	1000	1000	1150	1200	1250	1300
Xd DIR. AXIS SYNCHRONOUS	3.03	2.73	2.54	2.26	3.49	3.25	3.10	2.96
X'd DIR. AXIS TRANSIENT	0.24	0.22	0.20	0.18	0.28	0.26	0.25	0.24
X"d DIR. AXIS SUBTRANSIENT	0.17	0.15	0.14	0.13	0.19	0.18	0.17	0.16
Xq QUAD. AXIS REACTANCE	1.78	1.61	1.49	1.33	2.05	1.91	1.82	1.74
X"q QUAD. AXIS SUBTRANSIENT	0.21	0.19	0.18	0.16	0.25	0.23	0.22	0.21
X_L LEAKAGE REACTANCE	0.090	0.081	0.075	0.067	0.104	0.097	0.092	0.088
X_2 NEGATIVE SEQUENCE	0.21	0.19	0.18	0.16	0.25	0.23	0.22	0.21
X_0 ZERO SEQUENCE	0.026	0.023	0.022	0.019	0.029	0.027	0.026	0.025
REACTANCES ARE SATURATED	VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED							
T'd TRANSIENT TIME CONST.	0.185 sec							
T"d SUB-TRANSTIME CONST.	0.025 sec							
T'do O.C. FIELD TIME CONST.	3.03 sec							
Ta ARMATURE TIME CONST.	0.046 sec							
SHORT CIRCUIT RATIO	1/Xd							

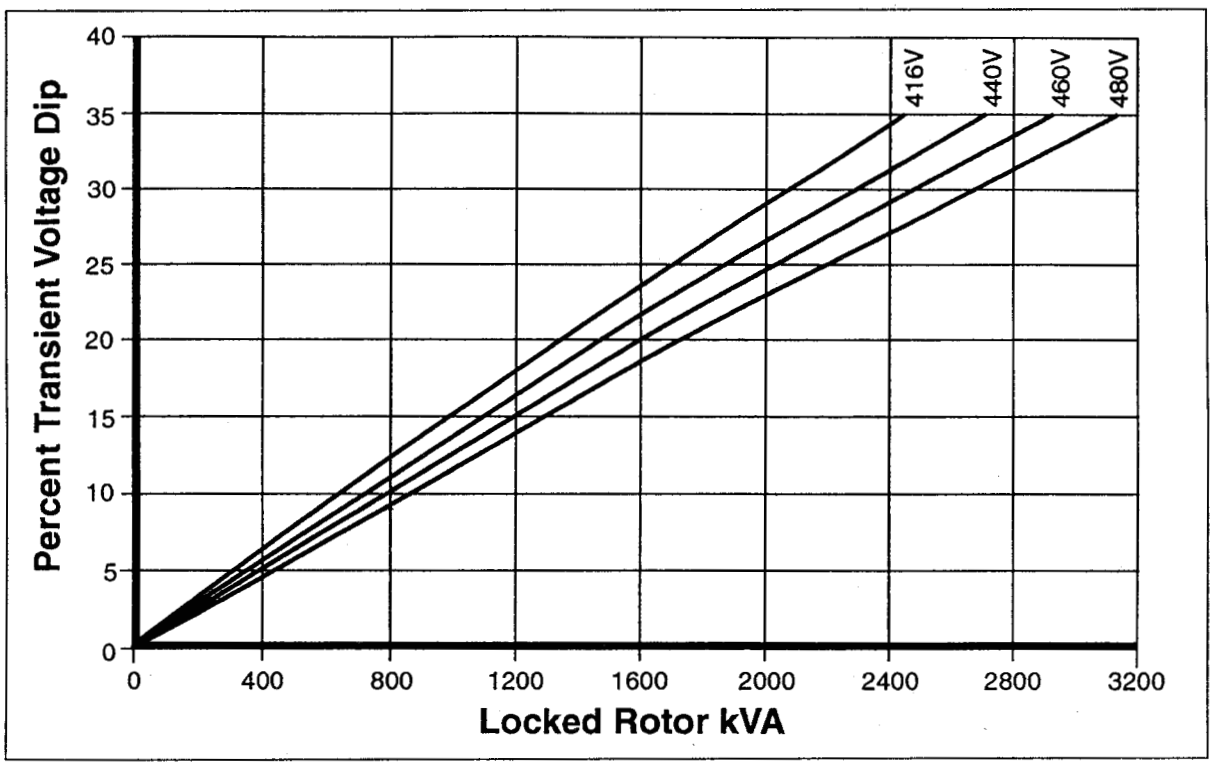
FRAME HC634J 50 Hz

SERIES 3 WINDING 311/312
LOCKED ROTOR MOTOR STARTING CURVE

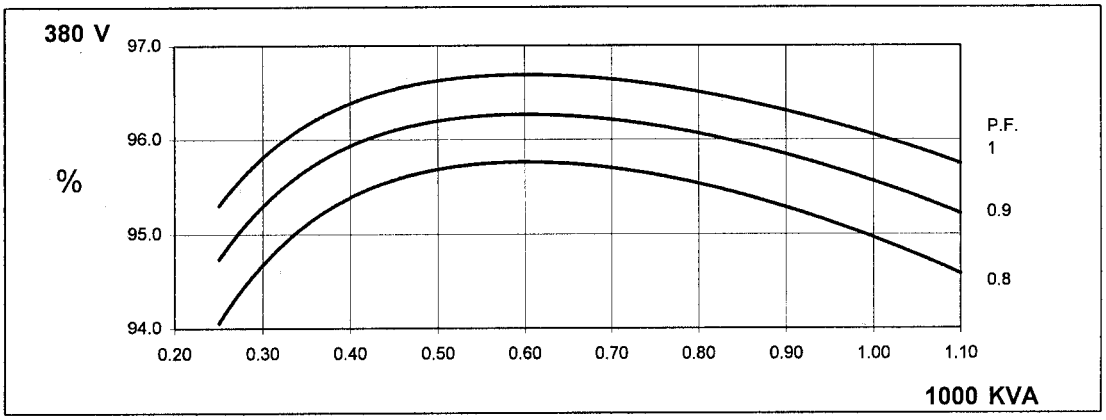


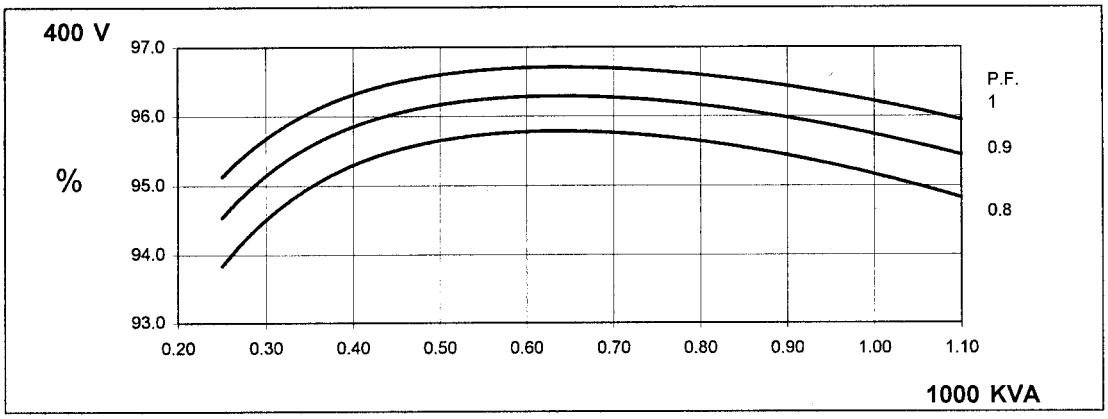
FRAME HC634J 60 Hz

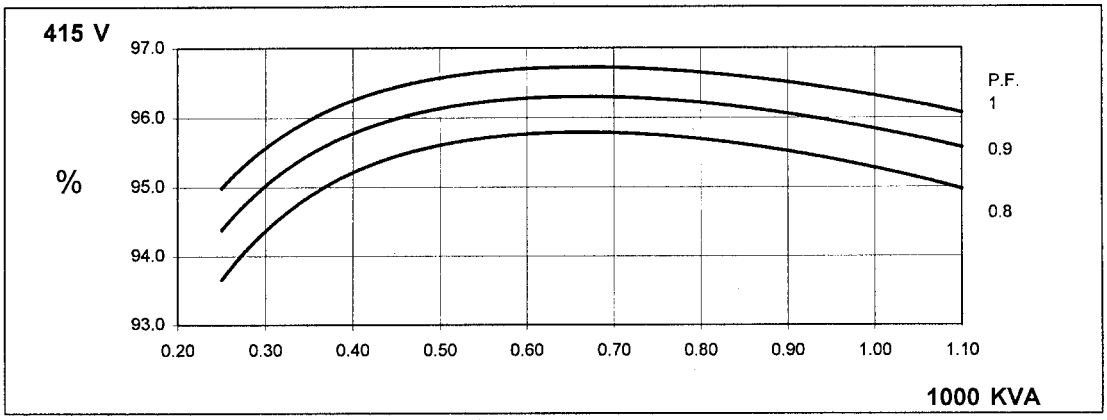
SERIES 3 WINDING 311/312
LOCKED ROTOR MOTOR STARTING CURVE

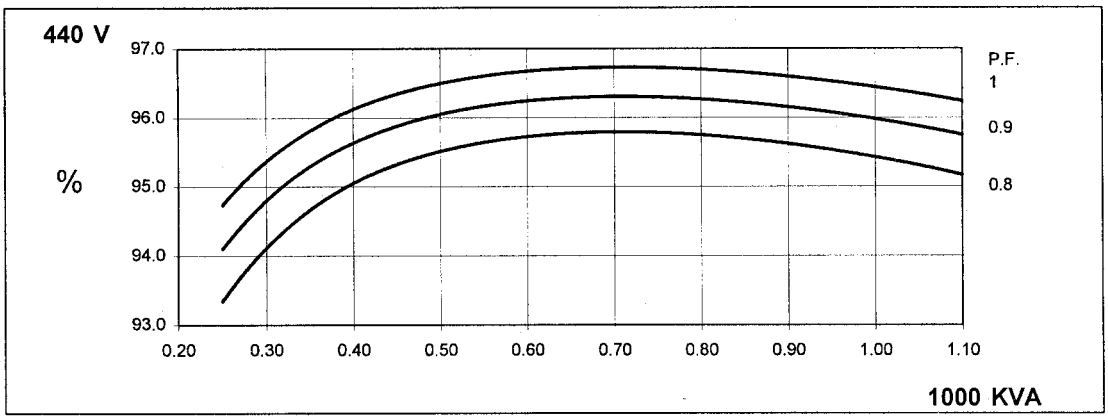


THREE PHASE EFFICIENCY CURVES









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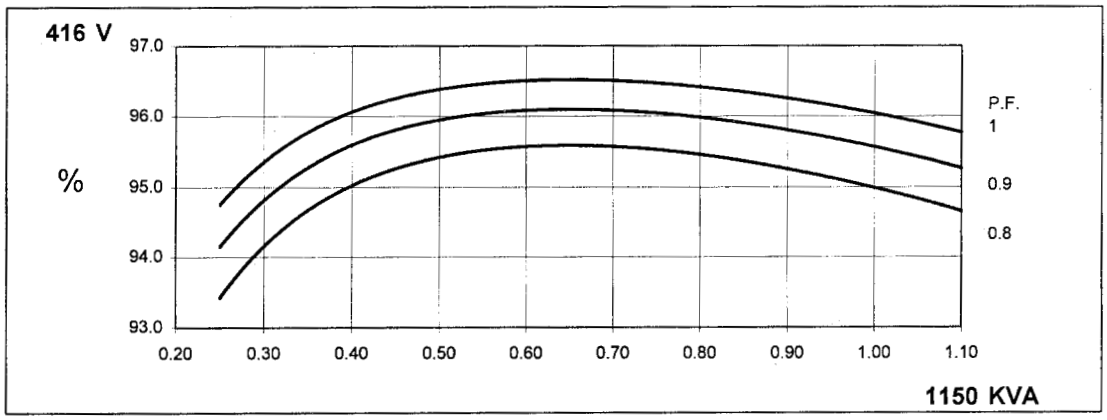
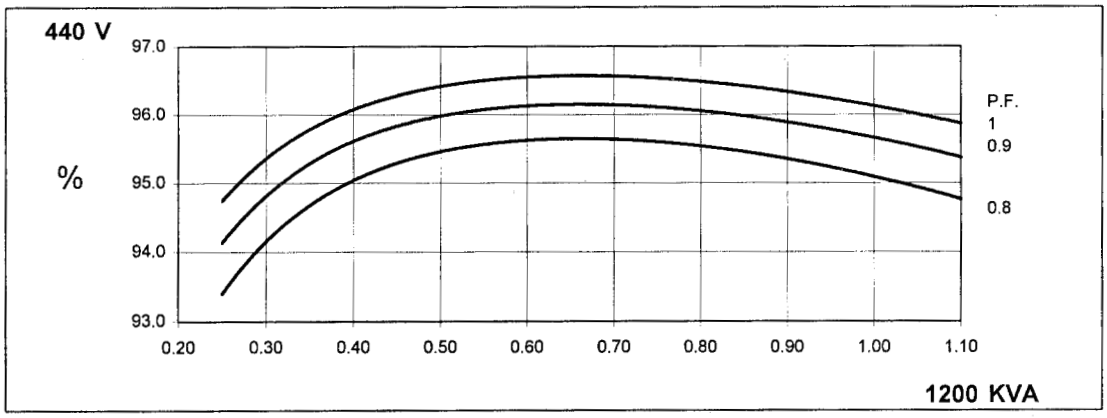
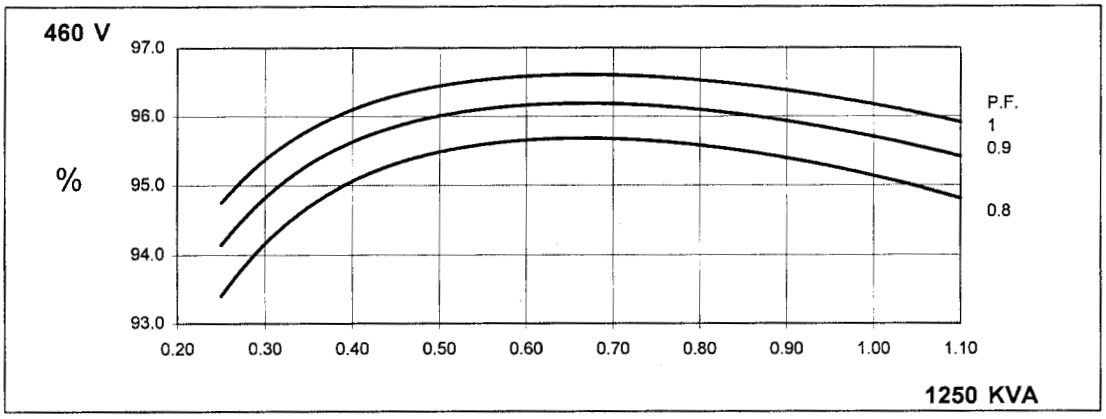
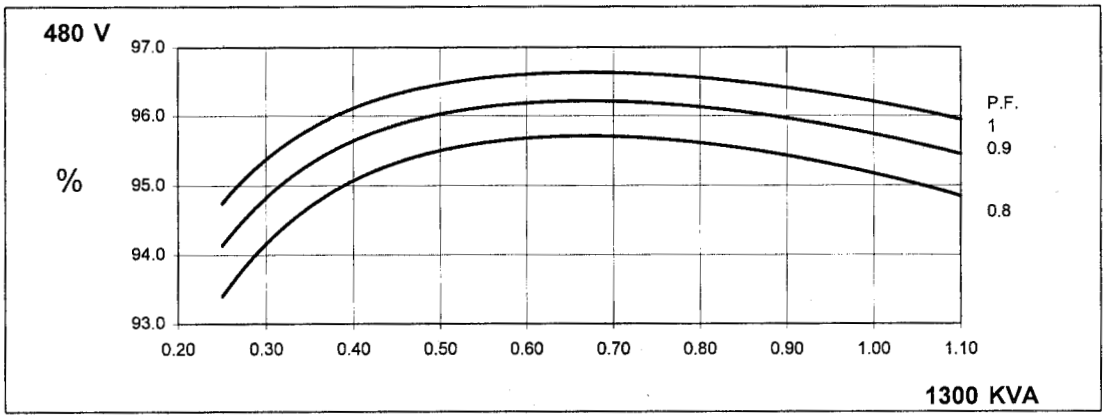




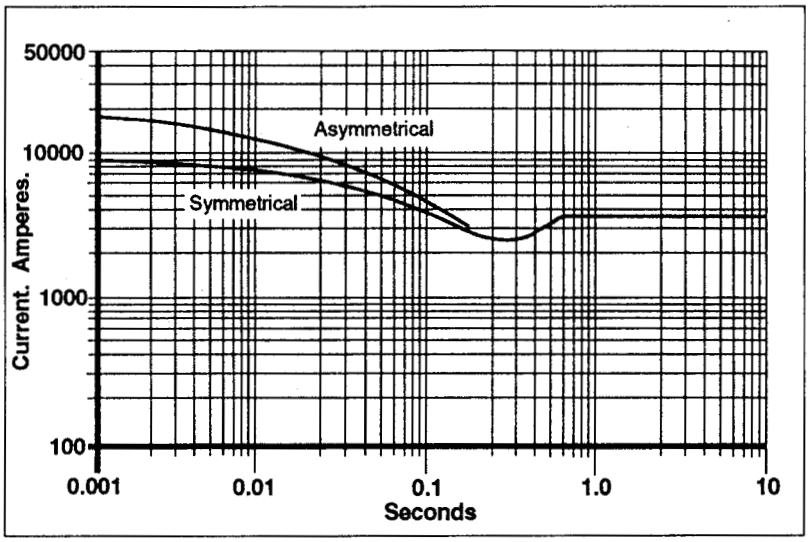




FRAME HC634J 50 Hz

SERIES THREE
Three Phase Short Circuit Decrement Curve
No-load Excitation at Rated Speed

Based on series star (wye) connection



Note 1

The following multiplication factors should be used to adjust the values from curve between time 0.001 seconds and the minimum current point in respect of nominal operating voltage :

VOLTAGE	FACTOR
380 V	X 1.0
400 V	X 1.07
415 V	X 1.12
440 V	X 1.18

The sustained current value is constant irrespective of voltage level.

Note 2

The following multiplication factors should be used to convert the values calculated in accordance with NOTE 1 to those applicable to the various types of short circuit :

	3 PHASE	2 PHASE L-L	1 PHASE L-N
Instantaneous	X 1.00	X 0.87	X 1.30
Minimum	X 1.00	X 1.80	X 3.20
Sustained	X 1.00	X 1.50	X 2.50
Max. sustained duration	10 sec.	5 sec.	2 sec.

All other times are unchanged.

Note 3 Winding 311 Only

Curves are drawn for Series Star (Wye) connected machines. For other connections the following multipliers should be applied to current values shown :

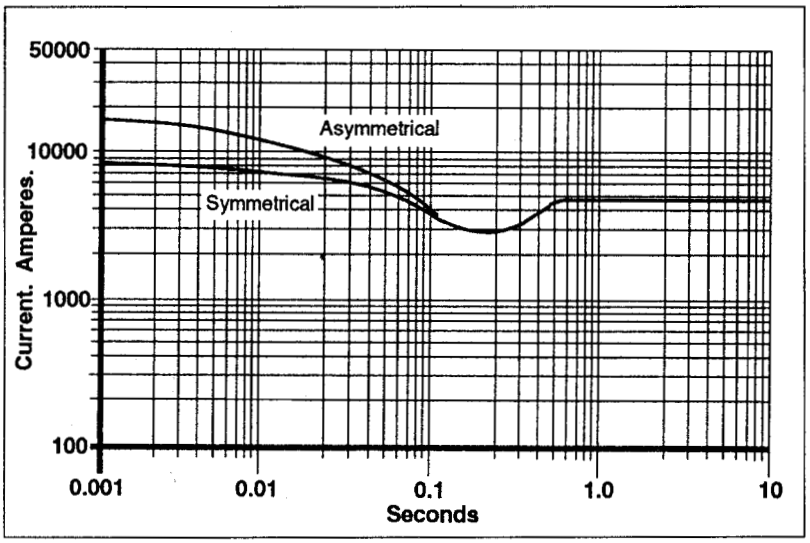
Parallel Star (Wye) Curve current value X 2
Series Delta (Δ) Curve current value X 1.732

Times are unchanged.

FRAME HC634J 60 Hz

SERIES THREE
Three Phase Short Circuit Decrement Curve
No-load Excitation at Rated Speed

Based on series star (wye) connection



Note 1

The following multiplication factors should be used to adjust the values from curve between time 0.001 seconds and the minimum current point in respect of nominal operating voltage :

VOLTAGE	FACTOR
416 V	X 1.0
440 V	X 1.06
460 V	X 1.12
480 V	X 1.17

The sustained current value is constant irrespective of voltage level.

Note 2

The following multiplication factors should be used to convert the values calculated in accordance with NOTE 1 to those applicable to the various types of short circuit :

	3 PHASE	2 PHASE L-L	1 PHASE L-N
Instantaneous	X 1.00	X 0.87	X 1.30
Minimum	X 1.00	X 1.80	X 3.20
Sustained	X 1.00	X 1.50	X 2.50
Max. sustained duration	10 sec.	5 sec.	2 sec.

All other times are unchanged.

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Series Delta (Δ) Curve current value X 1.732

Times are unchanged.

NEWAGE
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