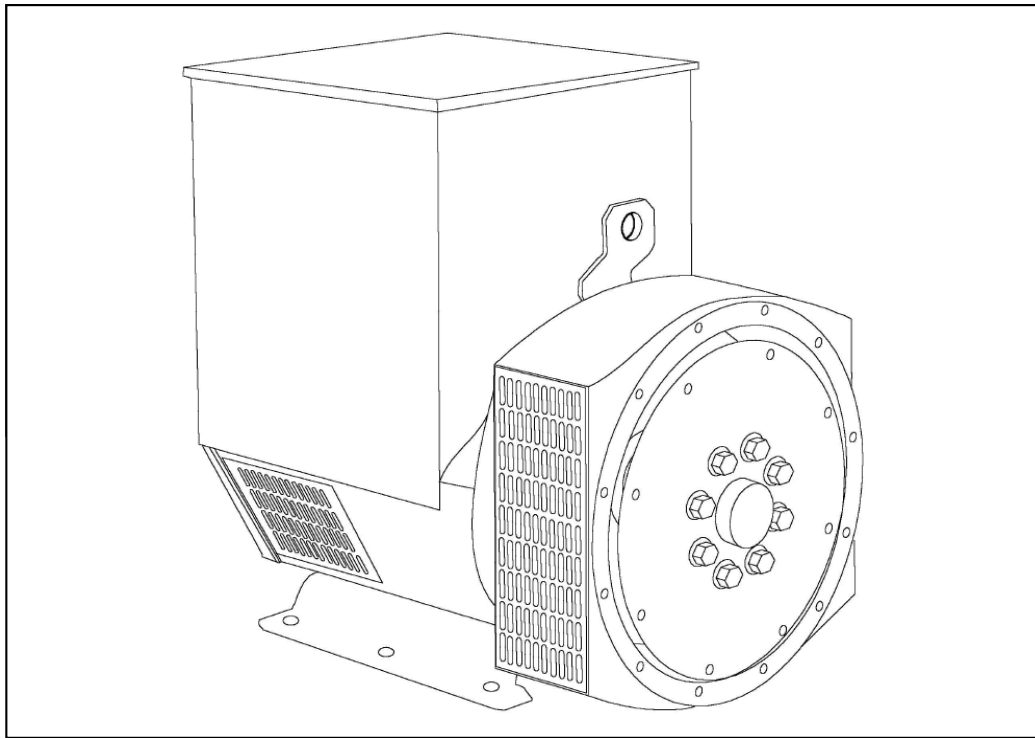


STAMFORD[®]

UCI224G - Winding 06

Technical Data Sheet



SPECIFICATIONS & OPTIONS**STANDARDS**

Stamford industrial generators meet the requirements of BS EN 60034 and the relevant section of other international standards such as BS5000, VDE 0530, NEMA MG1-32, IEC34, CSA C22.2-100, AS1359.

Other standards and certifications can be considered on request.

VOLTAGE REGULATORS**SX460 AVR - STANDARD**

With this self excited control system the main stator supplies power via the Automatic Voltage Regulator (AVR) to the exciter stator. The high efficiency semiconductors of the AVR ensure positive build-up from initial low levels of residual voltage.

The exciter rotor output is fed to the main rotor through a three phase full wave bridge rectifier. This rectifier is protected by a surge suppressor against surges caused, for example, by short circuit.

AS440 AVR

With this self-excited system the main stator provides power via the AVR to the exciter stator. The high efficiency semi-conductors of the AVR ensure positive build-up from initial low levels of residual voltage.

The exciter rotor output is fed to the main rotor through a three-phase full-wave bridge rectifier. The rectifier is protected by a surge suppressor against surges caused, for example, by short circuit or out-of-phase paralleling.

The AS440 will support a range of electronic accessories, including a 'droop' Current Transformer (CT) to permit parallel operation with other ac generators.

MX341 AVR

This sophisticated AVR is incorporated into the Stamford Permanent Magnet Generator (PMG) control system.

The PMG provides power via the AVR to the main exciter, giving a source of constant excitation power independent of generator output. The main exciter output is then fed to the main rotor, through a full wave bridge, protected by a surge suppressor. The AVR has in-built protection against sustained over-excitation, caused by internal or external faults. This de-excites the machine after a minimum of 5 seconds.

An engine relief load acceptance feature can enable full load to be applied to the generator in a single step.

MX321 AVR

The most sophisticated of all our AVRs combines all the features of the MX341 with, additionally over voltage protection built-in and short circuit current level adjustments as an optional facility.

WINDINGS & ELECTRICAL PERFORMANCE

All generator stators are wound to 2/3 pitch. This eliminates triplen (3rd, 9th, 15th ...) harmonics on the voltage waveform and is found to be the optimum design for trouble-free supply of non-linear loads. The 2/3 pitch design avoids excessive neutral currents sometimes seen with higher winding pitches, when in parallel with the mains. A fully connected damper winding reduces oscillations during paralleling. This winding, with the 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.

TERMINALS & TERMINAL BOX

Dedicated Single Phase windings have 4 ends brought out to the terminals, which are mounted on a cover at the non-drive end of the generator. A sheet steel terminal box contains the AVR and provides ample space for the customers' wiring and gland arrangements. It has removable panels for easy access.

SHAFT & KEYS

All generator rotors are dynamically balanced to better than BS6861:Part 1 Grade 2.5 for minimum vibration in operation. Two bearing generators are balanced with a half key.

INSULATION/IMPREGNATION

The insulation system is class 'H'.

All wound components are impregnated with materials and processes designed specifically to provide the high build required for static windings and the high mechanical strength required for rotating components.

QUALITY ASSURANCE

Generators are manufactured using production procedures having a quality assurance level to BS EN ISO 9001.

The stated voltage regulation may not be maintained in the presence of certain radio transmitted signals. Any change in performance will fall within the limits of Criteria 'B' of EN 61000-6-2:2001. At no time will the steady-state voltage regulation exceed 2%.

DE RATES

All values tabulated on page 8 are subject to the following reductions

5% when air inlet filters are fitted.

3% for every 500 metres by which the operating altitude exceeds 1000 metres above mean sea level.

3% for every 5 C by which the operational ambient temperature exceeds 40 C.

Note: Requirement for operating in an ambient exceeding 60 C must be referred to the factory.

NB Continuous development of our products entitles us to change specification details without notice, therefore they must not be regarded as binding.

Front cover drawing typical of product range.

UCI224G WINDING 06

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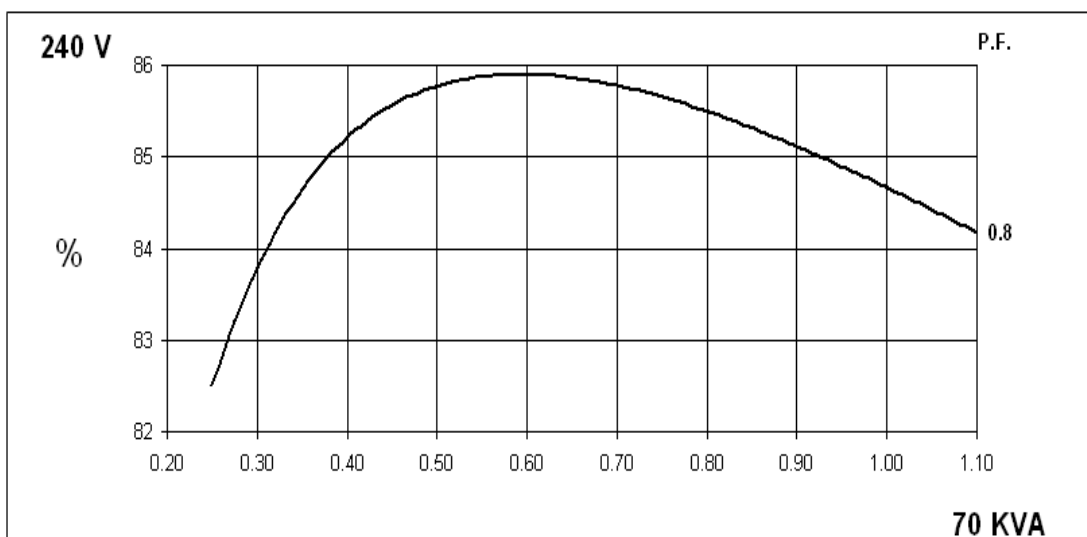
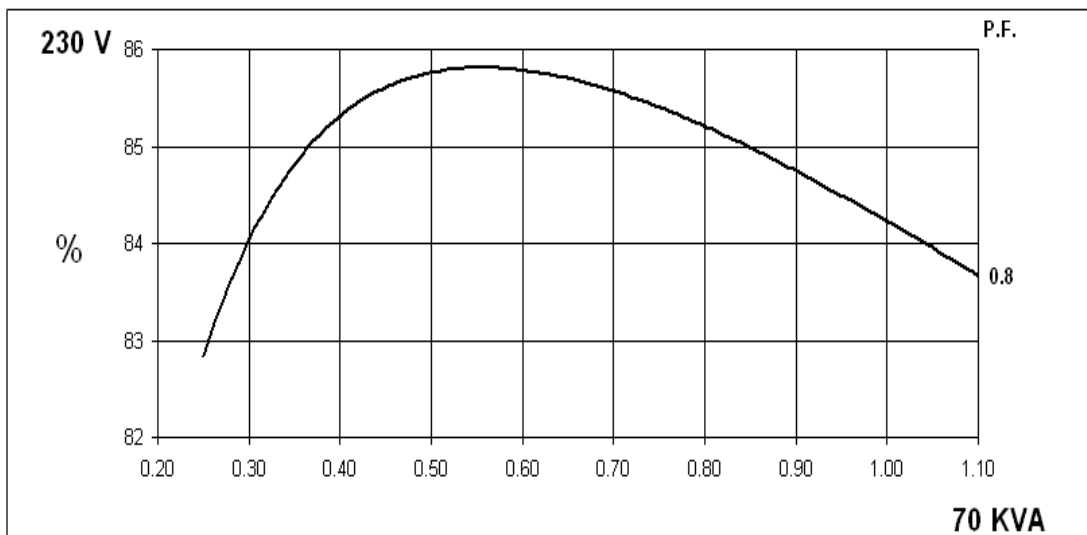
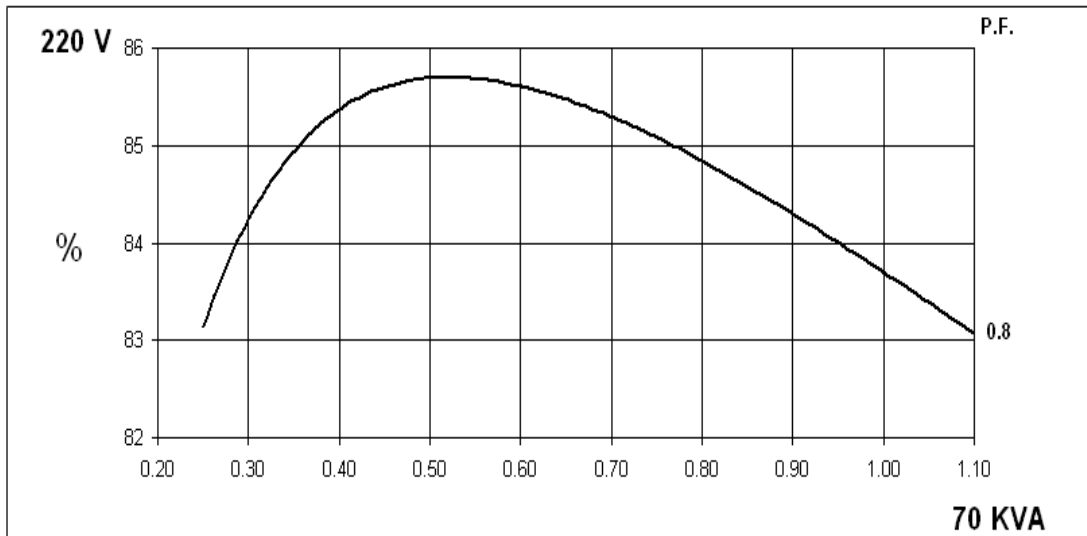
CONTROL SYSTEM		SEPARATELY EXCITED BY P.M.G.					
A.V.R.		MX341		MX321			
VOLTAGE REGULATION		± 1%		± 0.5 %		With 4% ENGINE GOVERNING	
SUSTAINED SHORT CIRCUIT		REFER TO SHORT CIRCUIT DECREMENT CURVES (page 7)					
CONTROL SYSTEM		SELF EXCITED					
A.V.R.		SX460		AS440			
VOLTAGE REGULATION		± 1.0 %		± 1.0 %		With 4% ENGINE GOVERNING	
SUSTAINED SHORT CIRCUIT		SERIES 4 CONTROL DOES NOT SUSTAIN A SHORT CIRCUIT CURRENT					
INSULATION SYSTEM		CLASS H					
PROTECTION		IP23					
RATED POWER FACTOR		0.8					
STATOR WINDING		SINGLE LAYER CONCENTRIC					
WINDING PITCH		TWO THIRDS					
WINDING LEADS		4					
MAIN STATOR RESISTANCE		0.019 Ohms AT 22°C SERIES CONNECTED					
MAIN ROTOR RESISTANCE		0.94 Ohms at 22°C					
EXCITER STATOR RESISTANCE		20 Ohms at 22°C					
EXCITER ROTOR RESISTANCE		0.078 Ohms PER PHASE AT 22°C					
R.F.I. SUPPRESSION		BS EN 61000-6-2 & BS EN 61000-6-4,VDE 0875G, VDE 0875N. refer to factory for others					
WAVEFORM DISTORTION		NO LOAD < 1.5% NON-DISTORTING LINEAR LOAD < 5.0%					
MAXIMUM OVERSPEED		2250 Rev/Min					
BEARING DRIVE END		BALL. 6312-2RS (ISO)					
BEARING NON-DRIVE END		BALL. 6309-2RS (ISO)					
		1 BEARING			2 BEARING		
WEIGHT COMP. GENERATOR		383 kg			400 kg		
WEIGHT WOUND STATOR		139 kg			139 kg		
WEIGHT WOUND ROTOR		126.75 kg			118.38 kg		
WR ² INERTIA		0.7136 kgm ²			0.6818 kgm ²		
SHIPPING WEIGHTS in a crate		404 kg			420 kg		
PACKING CRATE SIZE		105 x 57 x 96(cm)			105 x 57 x 96(cm)		
TELEPHONE INTERFERENCE		THF<2%			TIF<50		
COOLING AIR		0.281 m ³ /sec 595 cfm					
VOLTAGE SERIES		220		230		240	
VOLTAGE PARALLEL		110		115		120	
POWER FACTOR		0.8	1.0	0.8	1.0	0.8	1.0
kVA BASE RATING FOR REACTANCE VALUES		70	75	70	75	70	75
Xd DIR. AXIS SYNCHRONOUS		3.25	3.48	2.97	3.18	2.73	2.93
X'd DIR. AXIS TRANSIENT		0.24	0.26	0.22	0.24	0.20	0.21
X''d DIR. AXIS SUBTRANSIENT		0.17	0.18	0.16	0.17	0.14	0.15
Xq QUAD. AXIS REACTANCE		1.49	1.60	1.36	1.46	1.25	1.34
X''q QUAD. AXIS SUBTRANSIENT		0.19	0.20	0.17	0.18	0.16	0.17
Xl LEAKAGE REACTANCE		0.09	0.10	0.08	0.09	0.08	0.09
X2 NEGATIVE SEQUENCE		0.19	0.20	0.17	0.18	0.16	0.17
X0 ZERO SEQUENCE		0.13	0.14	0.12	0.13	0.11	0.12
REACTANCES ARE SATURATED							
T'd TRANSIENT TIME CONST.		0.03s					
T''d SUB-TRANSTIME CONST.		0.008s					
T'do O.C. FIELD TIME CONST.		0.75s					
Ta ARMATURE TIME CONST.		0.007s					
SHORT CIRCUIT RATIO		1/Xd					

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Winding 06 / 0.8pf

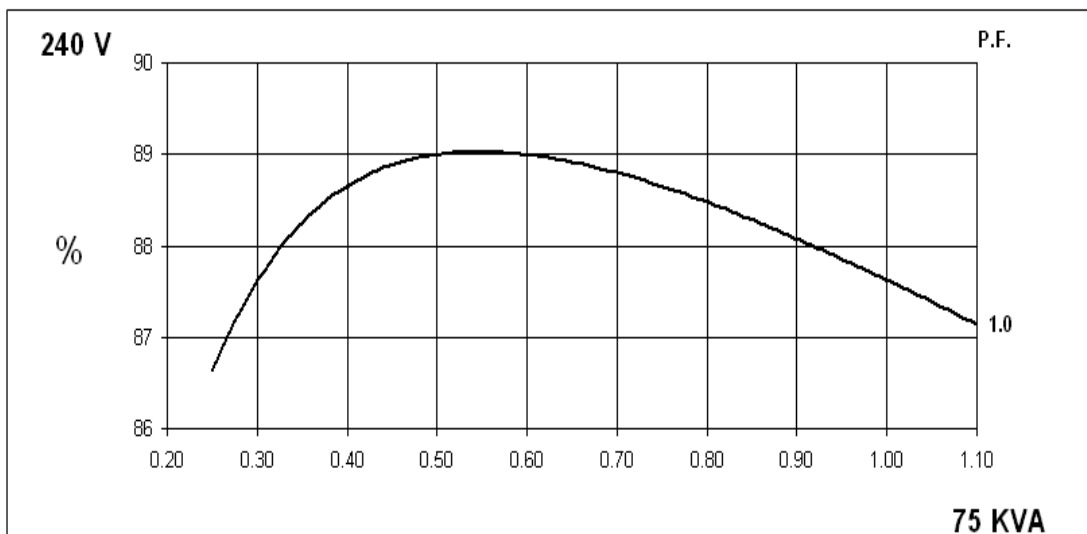
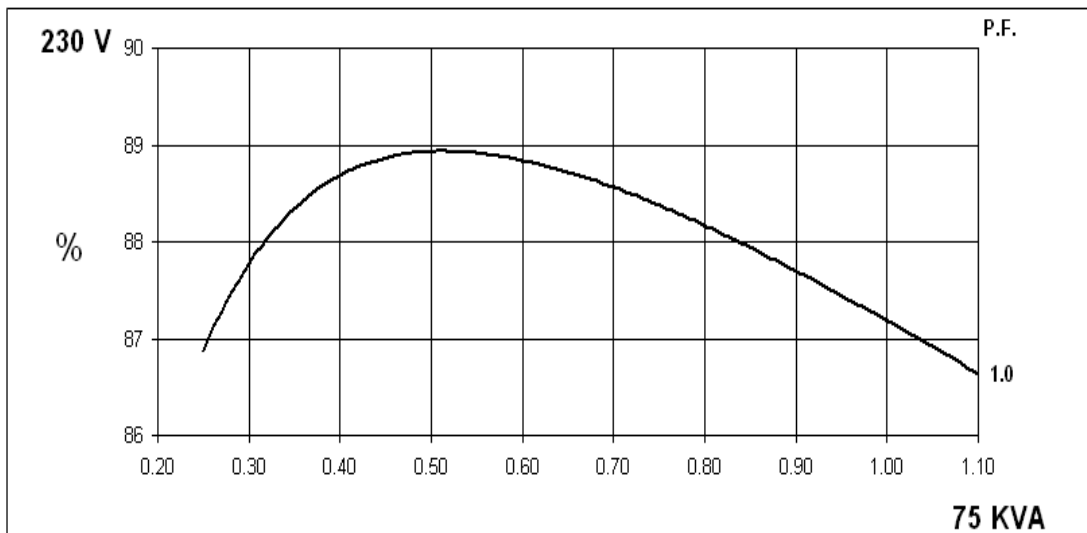
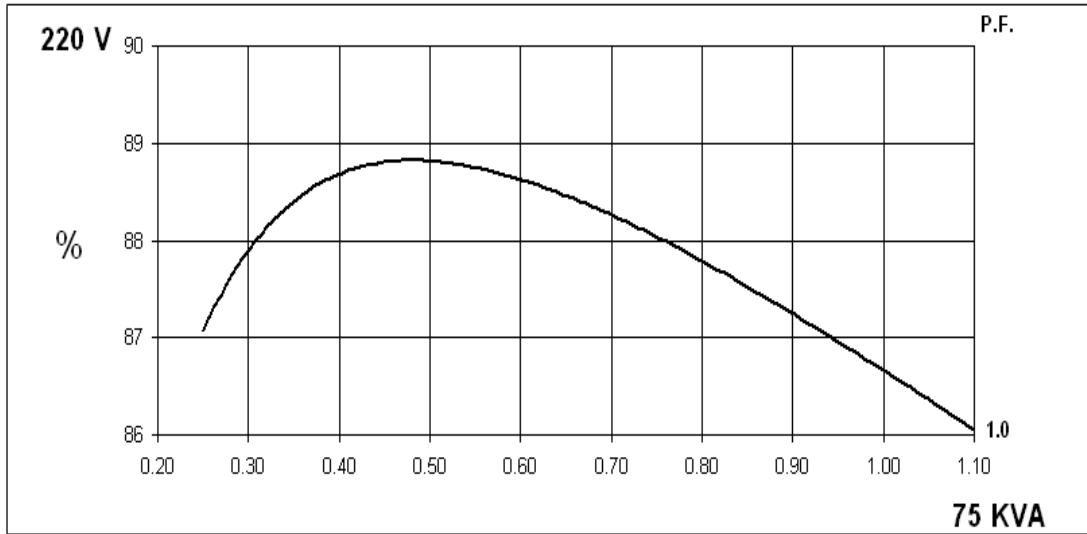
SINGLE PHASE EFFICIENCY CURVES



UCI224G
Winding 06 / 1.0pf

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SINGLE PHASE EFFICIENCY CURVES

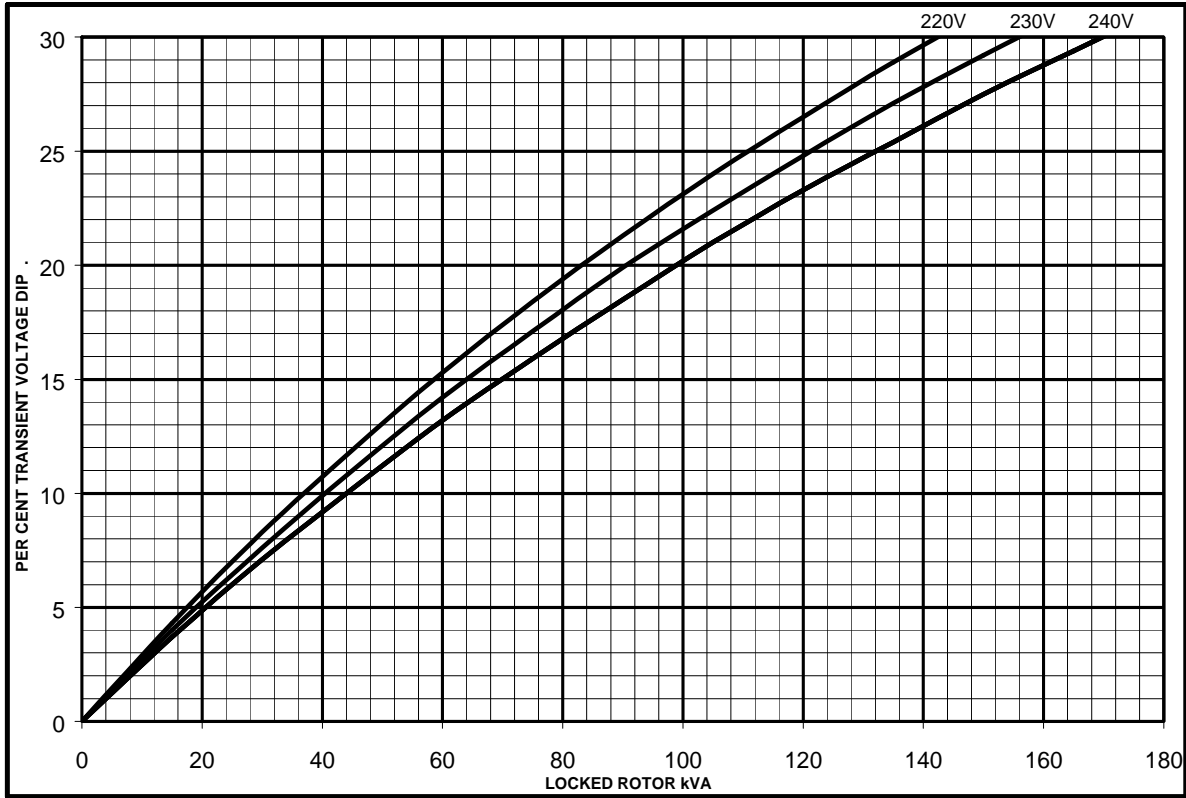


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Winding 06

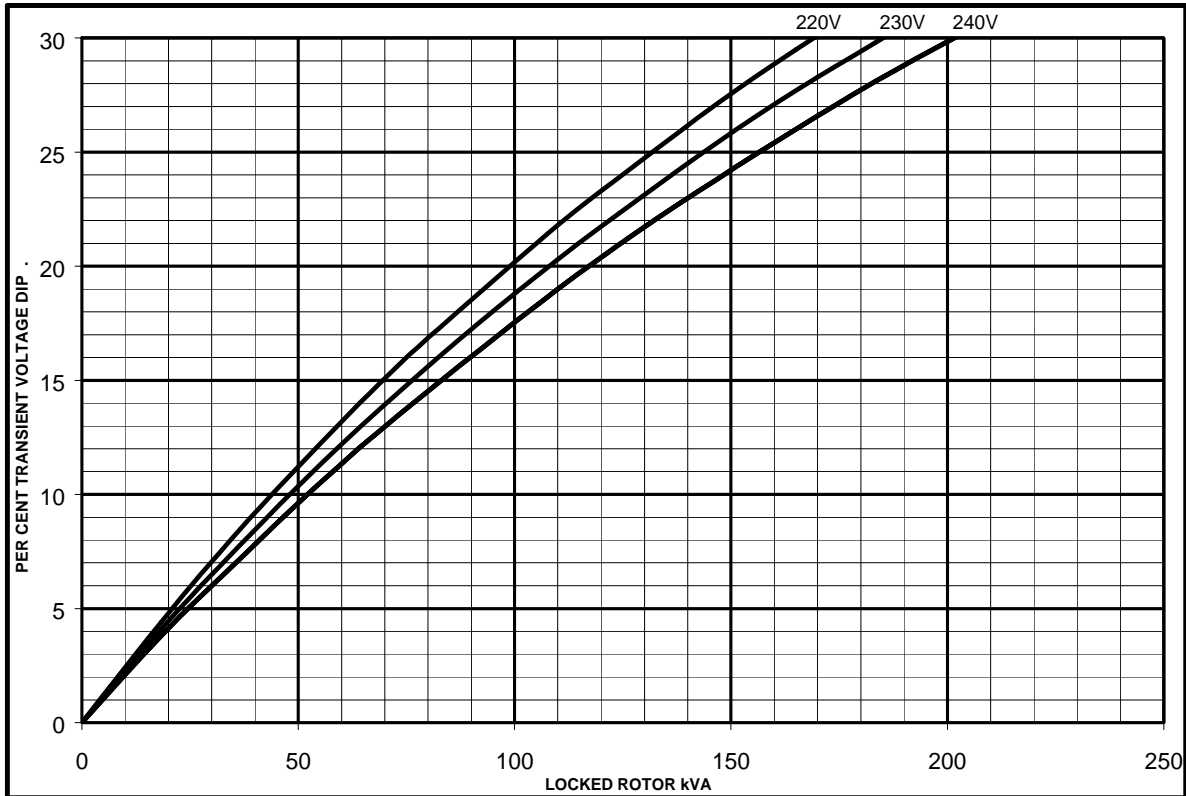
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SX

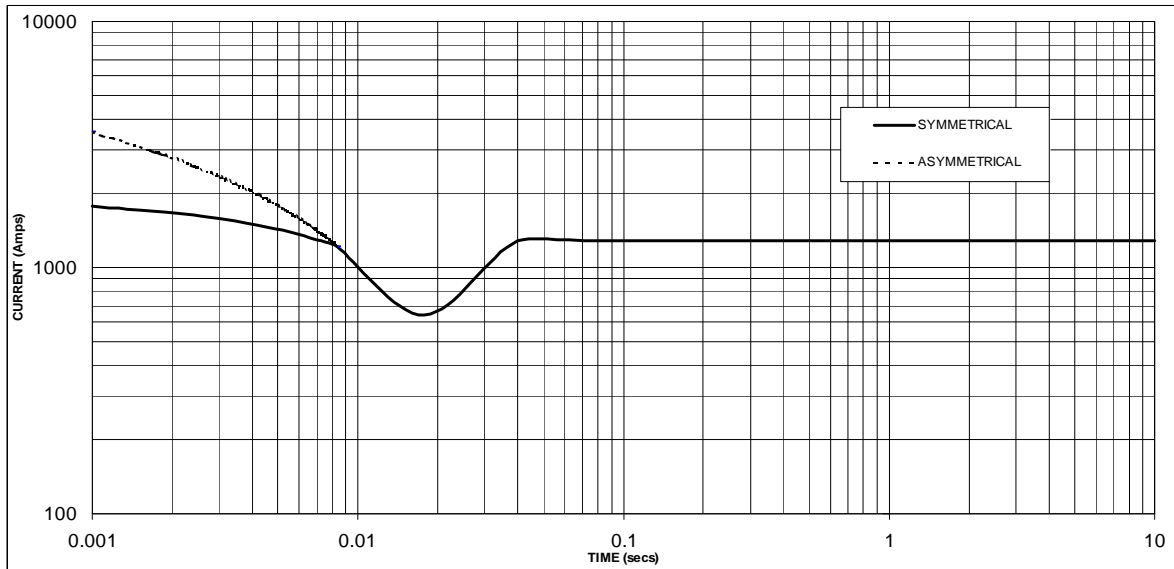
Locked Rotor Motor Starting Curves



MX



**Short Circuit Decrement Curve. No-load Excitation at Rated Speed
Based on series connection.**



Sustained Short Circuit = 1280 Amps

Note

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
220V	X 1.00
230V	X 1.05
240V	X 1.09

The sustained current value is constant irrespective of voltage level

UCI224G
Winding 06

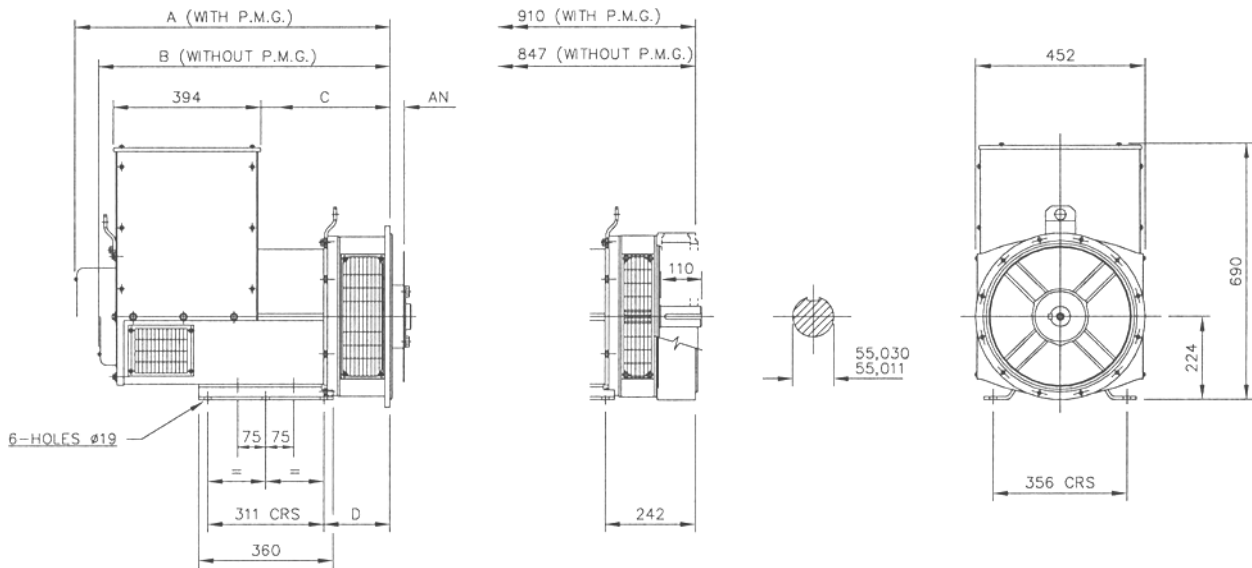
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60Hz

RATINGS

Class - Temp Rise	Cont. F - 105/40°C 0.8pf			Cont. H - 125/40°C 0.8pf			Cont. F - 105/40°C 1.0pf			Cont. H - 125/40°C 1.0pf		
	Series (V)	220	230	240	220	230	240	220	230	240	220	230
Parallel (V)	110	115	120	110	115	120	110	115	120	110	115	120
kVA	65.6	65.6	65.6	70.0	70.0	70.0	65.6	65.6	65.6	75.0	75.0	75.0
kW	52.5	52.5	52.5	56.0	56.0	56.0	65.6	65.6	65.6	75.0	75.0	75.0
Efficiency (%)	84.1	84.6	84.9	83.7	84.2	84.7	87.4	87.8	88.2	86.7	87.2	87.6
kW Input	62.4	62.1	61.8	66.9	66.5	66.1	75.1	74.7	74.4	86.5	86.0	85.6

DIMENSIONS



SINGLE BEARING ADAPTORS				
ADAPTOR	A	B	C	D
SAE 1	859,3	796,3	359,3	191,3
SAE 2	845	782	345	177
SAE 3	845	782	345	177
SAE 4	845	782	345	177

COUPLING DISCS	
DISC	AN
SAE 8	61,90
SAE 10	53,98
SAE 11,5	39,68
SAE 14	25,40

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