

HCI634K 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

MX321 AVR - STANDARD

This sophisticated Automatic Voltage Regulator (AVR) is incorporated into the Stamford Permanent Magnet Generator (PMG) system and is fitted as standard to generators of this type.

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 wavebridge, 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.

Over voltage protection is built-in and short circuit current level adjustments is 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

Standard generators feature a main stator with 6 ends brought out to the terminals, which are mounted on the frame 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 6 are subject to the following reductions

5% when air inlet filters are fitted.

10% when IP44 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.

HCI634K



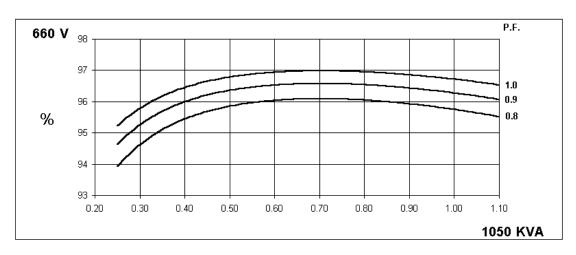
WINDING 26

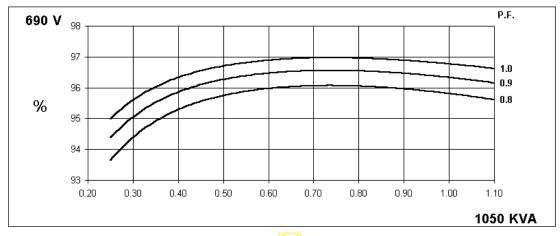
CONTROL SYSTEM	SEDADATE		G				
	SEPARATELY EXCITED BY P.M.G.						
A.V.R.	MX321						
VOLTAGE REGULATION	± 0.5 % With 4% ENGINE GOVERNING						
SUSTAINED SHORT CIRCUIT	REFER TO SHORT CIRCUIT DECREMENT CURVES (page 5)						
INSULATION SYSTEM	CLASS H						
PROTECTION	IP23						
RATED POWER FACTOR	0.8						
STATOR WINDING	DOUBLE LAYER LAP						
WINDING PITCH			TWO TH	HRDS			
WINDING LEADS	6						
STATOR WDG. RESISTANCE		0.0045 Ohms F	PER PHASE AT 22°	C SERIES STAR CONNECTED			
ROTOR WDG. RESISTANCE			2.36 Ohms	at 22°C			
EXCITER STATOR RESISTANCE	17 Ohms at 22°C						
EXCITER ROTOR RESISTANCE		0.079 Ohms PER PHASE AT 22°C					
R.F.I. SUPPRESSION	BS E	N 61000-6-2 & BSE	N 61000-6-4,VDE 08	875G, VDE 0875N. refer to factory for others			
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)						
		1 BEARING		2 BEARING			
WEIGHT COMP. GENERATOR		2541 kg		2581 kg			
WEIGHT WOUND STATOR		1294 kg		1294 kg			
WEIGHT WOUND ROTOR		1093 kg		1048 kg			
WR ² INERTIA		25.9823 kgm ²					
SHIPPING WEIGHTS in a crate		2622 kg					
PACKING CRATE SIZE		194 x 92 x 147(cm)					
TELEPHONE INTERFERENCE	THF<2%) TIF<50						
COOLING AIR	1.614 m³/sec 3420 cfm						
VOLTAGE STAR	660			690			
VOLTAGE DELTA		380		400			
kVA BASE RATING FOR REACTANCE	1050			1050			
Xd DIR. AXIS SYNCHRONOUS	2.30			2.10			
X'd DIR. AXIS TRANSIENT	0.12			0.11			
X"d DIR. AXIS SUBTRANSIENT		0.09		0.09			
Xq QUAD. AXIS REACTANCE		1.48		1.35			
X"q QUAD. AXIS SUBTRANSIENT		0.20		0.18			
X∟LEAKAGE REACTANCE	0.04			0.04			
X2 NEGATIVE SEQUENCE		0.15		0.14			
XoZERO SEQUENCE	0.02 0.02						
REACTANCES ARE SATURAT	IRATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED						
T'd TRANSIENT TIME CONST.			0.11	S			
T"d SUB-TRANSTIME CONST.	0.012 s						
T'do O.C. FIELD TIME CONST.			3.6				
Ta ARMATURE TIME CONST.	0.03 s						
SHORT CIRCUIT RATIO	1/Xd						

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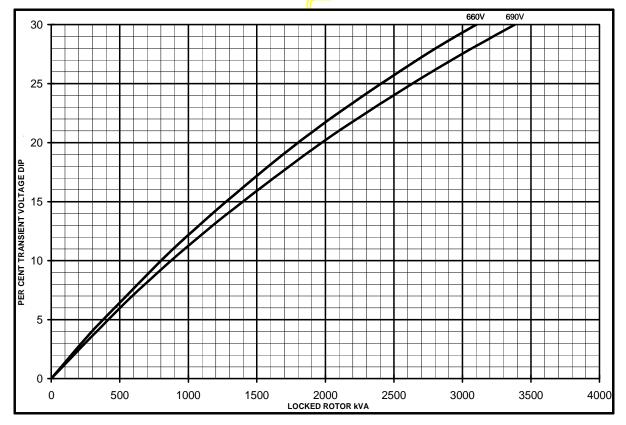
Winding 26

THREE PHASE EFFICIENCY CURVES





Locked Rotor Motor Starting Curve

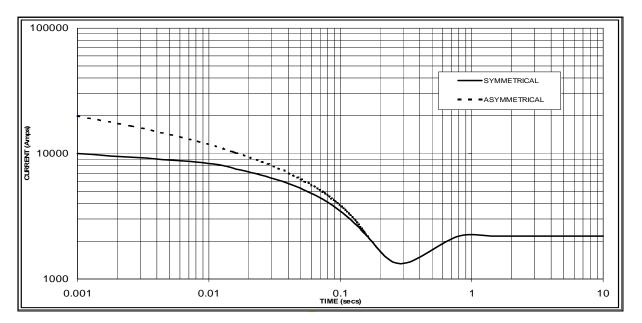


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Winding 26

Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed Based on star (wye) connection.



Note 2

Sustained Short Circuit = 2200 Amps

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		
660V	X 1.00		
690V	X 1.05		

The sustained current value is constant irrespective of voltage level

The following multiplication factor 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

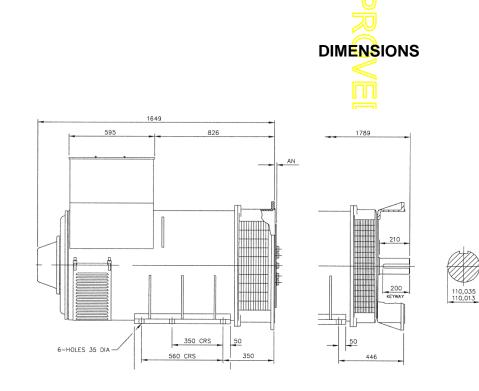
STAMFORD

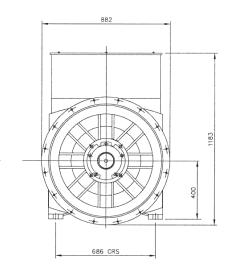
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Winding 26 / 0.8 Power Factor

RATINGS

Class - Temp Rise	Cont. F -	105/40°C	Cont. H -	125/40°C	Standby -	150/40°C	Standby -	163/27°C
Star (V)	660	690	660	690	660	690	660	690
50Hz Delta (V)	380	400	380	400	380	400	380	400
kVA	945	945	1050	1050	1115	1115	1150	1150
kW	756	756	840	840	892	892	920	920
Efficiency (%)	95.9	96.0	95.8	95.8	95.6	95.7	95.5	95.6
kW Input	788	788	877	877	933	932	963	962





SAE	14	18	21	24
AN	25.4	15.87	0	0

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