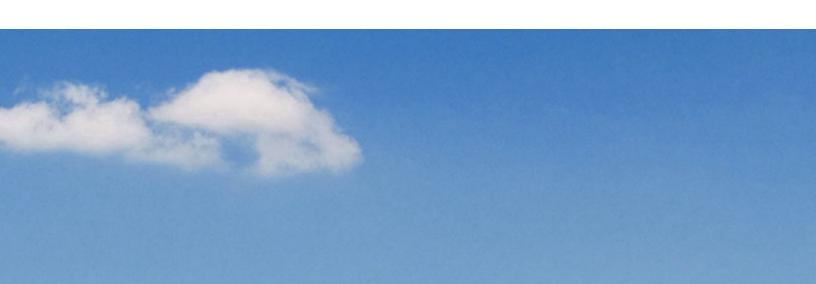
	موتور ديزل	
Manufacturer	Deutz	تولید کننده
Type	BF6M1015C-G3	تيپ
Number of cylinders	4	تعداد سیلندر ها
Cylinder arrangement	Vertical in-line	آرایش سیلندر ها
Cycle	4 stroke	چرغه
Aspiration	Turbo charged	سیستم تنفس
Bore × Stroke, mm	105X120	قطر سیلندر × کورس پیستون
Displacement , Liters	4	ما به ما <u>یی</u>
Speed Governor	Mechanical/Electronic	سرعت گاورنر
Cooling System	water-cooled	سیستم فنک کننده
Frequency	50Hz	فر <i>کانس</i>
Starter Motor	24V	استارتر موتور



	<u>ל</u> ינודפנ	
Manufacturer	Stamford	تولید کننده
Type	HCI444E	تيپ
Exciter type	Brushless	نوع کانتر
Power factor	0.8	ضریب قدرت
Voltage	400-230	ولتاز
Frequency	50 Hz	فر <i>کانس</i>
Speed, Rpm	1500	سرعت
Insulation class	Н	کلاس عایق
Protection class	IP23	کلاس مفاظتی
Excitation	Brushless	سیستم تمریک

DEUTZ Diesel Engine Technical Data

Engine Model	BF6M1015C-G3
Number of Cylinders	4
Cylinder arrangement	Vertical in-line
Cycle	Four stroke
Aspiration	Turbocharged
Bore×Stroke (mm×mm)	105x 120
Displacement (Liter)	4
Compression Ratio	17:1
Prime Power/Speed (kW/rpm)	60/1500
Standby Power/Speed (kW/rpm)	66/1500
Speed Governor	Mechanical
Cooling System	water-cooled
Fuel Consumption at 100% Load (g/kWh)	288 (at 1500RPM)
Starter Motor	24V
Alternator	24V

Alternator Specification

Stamford Alternator (Standard)

	HCI 544C(Stamford)						
Alternator Model	EN544C(ENEC)						
	Please Refer To The" Genset Main Technical Data"						
Phase/Connect	3-phase 4-wire ,Y type connection						
Excition Model	Self-excite,automatic voltage regulation,In						
Excition Woder	sulation:H,Bruhless,Enclosure:IP21—IP23						
Power Factor	0.8						
The regulating rate of instantaneous voltage:	-15%~ +20%						
The time of steady voltage:	≤1.5sec						
The waving rate of voltage:	≤1.0%						
The regulating rate of steady frequency:	≤5%						
regulating rate of instantaneous frequency:	≤±10%						
The time of steady frequency:	3sec						
The waving rate of frequency:	≤1%						

ENEA Alternator (Option) Technical Data

Reliable Performance

Voltage regulation

Voltage regulation maintained within $\pm 0.5\%$ as follow:

- Power factor Between 0.8~1.0 lag
- From no load to full load, any steady load
- Speed droop variation under 4.5%

Frequency/Speed undulation

- Change load from 0-100%, Frequency/Speed Droop Ratio within 5% .
- Load from 25-100%, any steady load Frequency/Speed undulation within 0.25%

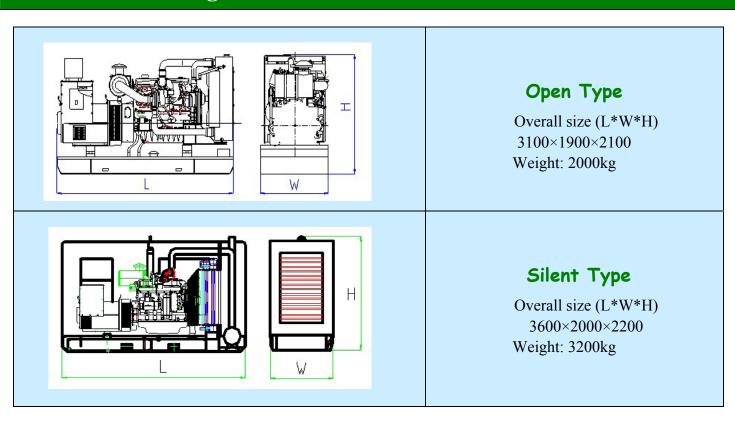
Effect factor of telecom

- TIF(MA MG1-22) better than 50
- THF(BS EN60034) better than 2%

Criterion

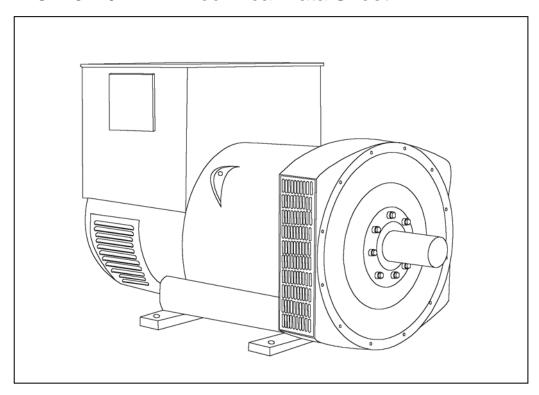
- ISO8528, GB/T2820
- EN12601:2001, EN60034-22:1997, EN60204-1:2006
- ISO9001:2000 Quality Control System

Dimension and Weight



STAMFORD

HCI 434E/444E - Technical Data Sheet



STAMFORD

HCI434E/444E

SPECIFICATIONS & OPTIONS

STANDARDS

Newage 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

AS440 AVR - STANDARD

With this self-excited system the main stator provides power via the Automatic Voltage Regulator (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.

If three-phase sensing is required with the PMG system the MX321 AVR must be used.

We recommend three-phase sensing for applications with greatly unbalanced or highly non-linear loads.

MX321 AVR

The most sophisticated of all our AVRs combines all the features of the MX341 with, additionally, three-phase rms sensing, for improved regulation and performance. 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 are 3-phase reconnectable with 12 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%.

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.



HCI434E/444E

WINDING 311

A.V.R. MX321 MX341 **20	CONTROL SYSTEM SEPARATELY EXCITED BY P.M.G.												
VOLTAGE REGULATION ± 0.5 % ± 1.0 % With 4% ENGINE GOVERNING			T		·•								
SUSTAINED SHORT CIRCUIT CONTROL SYSTEM AV.R. AS440 VOLTAGE REQUIATION \$1.0 % With 4% ENGINE GOVERNING SUSTAINED SHORT CIRCUIT WILL NOT SUSTAIN A SHORT CIRCUIT USUATATION SYSTEM PROTECTION RATED POWER FACTOR 3.8 STATOR WINDING WINDING PITCH WINDING PI				M": 40/ F	IONE OO	/ERNING							
SELF EXCITED													
A.V.R. AS440 ±1.0% With 4% ENGINE GOVERNING ±1.0% With 4% ENGINE GOVERNING	SUSTAINED SHORT CIRCUIT REFER TO SHORT CIRCUIT DECREMENT CURVES (page 7)												
VOLTAGE REGULATION ± 1.0 % With 4% ENGINE GOVERNING	CONTROL SYSTEM	SELF EXC	ITED										
SUSTAINED SHORT CIRCUIT WILL NOT SUSTAIN A SHORT CIRCUIT	A.V.R.	AS440	AS440										
NSULATION SYSTEM RATED POWER FACTOR STATOR WINDING WINDING PITCH WINDING PITCH TWO THIRDS STATOR WID, RESISTANCE ROTOR WDG, RESISTANCE EXCITER STATOR RESISTANCE EXCITER ROTOR DISTORM NO. LOAD < 1.5% NON-DISTORTING BALLANCED LINEAR LOAD < 5.0% MAXIMUM OVERSPEED BEARING DRIVE END BEARING NON-DRIVE BOOK NON-DRIVE BOO	VOLTAGE REGULATION	± 1.0 % With 4% ENGINE GOVERNING											
RATED POWER FACTOR RATED POWER FACTOR STATOR WINDING DOUBLE LAYER LAP TWO THIRDS WINDING PITCH TWO THIRDS WINDING LEADS TWO THIRDS WINDING LEADS TRYOR WIG, RESISTANCE ROTOR WID, RESISTANCE EXCITER STATOR RESISTANCE EXCITER ROTOR RESISTANCE EXCITER ROTOR RESISTANCE EXCITER ROTOR RESISTANCE BS EN 61000-62 & BS EN 61000-6-4, VIDE 0875G, VDE 0875N. refer to factory for others WAVEFORM DISTORTION MAXIMUM OVERSPEED BEARING DRIVE END BEARING NON-DRIVE END BEARING STATOR WEIGHT WOUND STATOR WEIGHT WOUND ROTOR WRY INERTIA 4.6331 kgm² 1.10 kg PACKING GRATE SIZE 155 x 87 x 107(cm) 105 kg 110 kg PACKING GRATE SIZE 156 x 87 x 107(cm) 155 x 87 x 107(cm) 156 x 87 x 107(cm) 157 x 10 x 1	SUSTAINED SHORT CIRCUIT	WILL NOT SUSTAIN A SHORT CIRCUIT											
RATED POWER FACTOR 10.8 1.19 Ohms 1.2	INSULATION SYSTEM CLASS H												
RATED POWER FACTOR DOUBLE LAYER LAP	PROTECTION												
STATOR WINDING TWO THIRDS THIRDS TWO THIRDS T													
WINDING PITCH													
### VINDING LEADS STATOR WDG, RESISTANCE ### O.009 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED ### STATOR WDG, RESISTANCE ### STATOR WDG, RESISTANCE ### STATOR WDG, RESISTANCE ### STATOR RESISTANCE													
STATOR WBG. RESISTANCE ROTOR WBG. RESISTANCE ROTOR WBG. RESISTANCE EXCITER STATOR RESISTANCE EXCITER ROTOR RESISTANCE BS EN 61000-6-2 & BS EN 61000-6-4 (ND 60876), VBC 60876N, refer to factory for others WAVEFORM DISTORTION NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0% MAXIMUM OVERSPEED EARING DRIVE END BEARING NON-DRIVE END BEARING NON-DRIVE END 1 BEARING WEIGHT COMP. GENERATOR WEIGHT WOUND STATOR WEIGHT WOUND STATOR WR 470 kg WRICHT WOUND ROTOR 470 kg WR 377 kg WR WR 1030 kg WR 1030													
ROTOR WDG. RESISTANCE 1.19 Ohms at 22°C			0.000.01	DED 011	-		0745 001	NEOTED					
EXCITER STATOR RESISTANCE EXCITER ROTOR RESISTANCE EXCITER ROTOR RESISTANCE BS EN 61000-6-2 & BS EN 61000-6-4, VPE 0875G, VPE 0875N. refer to factory for others WAVEFORM DISTORTION NO LOAD < 1.5% NON-DISTORTIND BALANCED LINEAR LOAD < 5.0% WAVEFORM DISTORTION NO LOAD < 1.5% NON-DISTORTIND BALANCED LINEAR LOAD < 5.0% BEARING DRIVE END BEALI. 6317 (ISO) BEARING DRIVE END BEALI. 6317 (ISO) BEARING NON-DRIVE END BEALI. 6314 (ISO) BEARING NON-DRIVE END BEALI. 6314 (ISO) BEARING NON-DRIVE END BEALI. 6315 (ISO) BEARING NON-DRIVE END BEARING STATOR #WEIGHT WOUND STATOR #WEIGHT WOUND ROTOR #WEIGHT WOU			0.009 On	IMS PER PH			STAR CON	NECTED					
EXCITER ROTOR RESISTANCE 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 BALANCED LINEAR LOAD < 5.0% WAXIMUM OVERSPEED BEARING DRIVE END BEARING NON-DRIVE END BEARING NON-DRIVE END BEARING NON-DRIVE END BEARING SERIES STAR WEIGHT WOUND STATOR WEIGHT WOUND ROTOR ### 1095 kg ### 1100 kg PACKING CRATE SIZE ### 1097 kg ### 1000 kg ### 1100 kg ### 110													
R.F.I. SUPPRESSION BS EN 61000-6-2 & BS EN 61000-6-2 N/DE 0875G, VDE 0875N. refer to factory for others WAVEFORM DISTORTION NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0% MAXIMUM OVERSPEED 22550 Rev/Min BEARING DRIVE END BALL. 6317 (ISO) BEARING DRIVE END BALL. 6317 (ISO) BEARING NON-DRIVE END BALL. 6314 (ISO) BEARING NON-DRIVE END 1024 kg 1030 kg WEIGHT COMP, GENERATOR 1024 kg 1030 kg WEIGHT WOUND STATOR 470 kg 470 kg 377 kg WEIGHT WOUND ROTOR 400 kg 377 kg WEIGHT WOUND ROTOR 1095 kg 1100 kg PACKING CRATE SIZE 1055 x 87 x 107(cm) 155 x 87 x 107(cm) TELEPHONE INTERFERENCE 155 x 87 x 107(cm) 155 x 87 x 107(cm) TELEPHONE INTERFERENCE 150 N N N N Sec 1700 cm 1155 x 87 x 107(cm) VOLTAGE SERIES STAR 380/220 400/231 415/240 440/254 416/240 440/254 460/266 80/277 VOLTAGE SERIES DELTA 220110 230/115 240/120 220/127 208/120 220/127 230/133 240/138 KVA BASE RATING FOR REACTANCE VALUES 350 350 350 350 400 420 440 440 440 AVE DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 0.15 0.21 0.20 0.19 0.17 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 0.15 0.21 0.20 0.19 0.17 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 0.16 0.16 0.20 0.20 0.19 0.17 Xd DIR. AXIS SUBTRANSIENT 0.36 0.32 0.30 0.27 0.41 0.38 0.37 0.34 XL LEAKAGE REACTANCE 0.07 0.06 0.06 0.05 0.08 0.08 0.07 0.07 XA NEGATIVE SEQUENCE 0.04 0.09 0.08 0.07 0.01 0.09 0.09 0.09 0.09 REACTANCES ARE SATURATED VALUES ARE PER UNITA TRATING AND VOLTAGE INDICATED TIT TRANSIENT TIME CONST. 1.75 Ta ARMATURE TIME CONST. 1.75	EXCITER STATOR RESISTANCE				18 Ohms	at 22°C							
WAVEFORM DISTORTION NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%	EXCITER ROTOR RESISTANCE			0.068	Ohms PER	PHASE AT	22°C						
MAXIMUM OVERSPEED SALL. 6317 (ISO) SALL. 6317 (ISO) SEARING NON-DRIVE END SALL. 6317 (ISO) SEARING NON-DRIVE END SALL. 6314 (ISO) SEARING SALL. 6314 (ISO) SEARING	R.F.I. SUPPRESSION	BS EN 6	1000-6-2 & 1	BS EN 6100	0-6-4,VDE (875G, VDE	0875N. refe	er to factory	for others				
BEARING DRIVE END BEARING NON-DRIVE END BEARING BEARING BEARING BEARING BEALL 6314 (ISO) BEARING WEIGHT COMP. GENERATOR ##FIRE STATE ##FIRE STAR ##F	WAVEFORM DISTORTION	NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%											
BEARING NON-DRIVE END 1 BEARING 2 BEARING 1030 kg	MAXIMUM OVERSPEED				2250 F	Rev/Min							
The bank of the	BEARING DRIVE END				BALL. 63	317 (ISO)							
WEIGHT COMP. GENERATOR	BEARING NON-DRIVE END				BALL. 63	314 (ISO)							
WEIGHT WOUND STATOR			1 BEA	ARING			2 BEA	RING					
WEIGHT WOUND ROTOR 400 kg 377 kg WR² INERTIA 4.6331 kgm² 4.4343 kgm² SHIPPING WEIGHTS in a crate 1095 kg 1100 kg PACKING CRATE SIZE 155 x 87 x 107(cm) 155 x 87 x 107(cm) TELEPHONE INTERFERENCE THF<2%	WEIGHT COMP. GENERATOR		102	4 kg		<u> </u>							
WR² INERTIA 4.6331 kgm² 4.4343 kgm² SHIPPING WEIGHTS in a crate 1095 kg 1100 kg PACKING CRATE SIZE 155 x 87 x 107(cm) 155 x 87 x 107(cm) TELEPHONE INTERFERENCE THF<2% CODLING AIR VOLTAGE SERIES STAR 380/220 400/231 416/240 440/254 440/254 460/266 480/277 VOLTAGE PARALLEL STAR 190/110 200/115 208/120 220/127 208/20 220/127 230/133 240/138 VOLTAGE SERIES DELTA 220/110 230/115 240/120 254/127 240/120 254/127 266/133 277/138 VOLTAGE SERIES DELTA 220/110 230/115 240/120 254/127 240/120 254/127 266/133 277/138 VOLTAGE SERIES DELTA 220/110 230/115 240/120 254/127 240/120 254/127 266/133 277/138 VAJ DIA AKIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 <	WEIGHT WOUND STATOR												
SHIPPING WEIGHTS in a crate 1095 kg 1100 kg PACKING CRATE SIZE 155 x 87 x 107(cm) 60 Hz TIH < 2% TIH < 50 115 < 50 Hz COOLING AIR 0.08 m/sec 1700 mm 0.99 m/sec 2100 cfm COOLING AIR 0.09 m/sec 2100 cfm COOLING AIR 460/0231 415/240 440/254 440/250 2090 mm/sec 2100 cfm VOLTAGE SERIES STAR 1800/133 200133 240/133 201/132 220/117 208/120 220/127 208/120 220/127 230/133 240/138 VOLTAGE SERIES DELTA 220/110 230/115 240/120 2541/127 240/120 2541/127 240/120 2541/127 266/133 277/138 VALUE AIR													
PACKING CRATE SIZE 155 x 87 x 107(cm) 50 Hz 60 Hz TELEPHONE INTERFERENCE COOLING AIR 0.8 m³/sec 1700 cfm VOLTAGE SERIES STAR 380/220 400/231 415/240 440/254 416/240 440/254 460/266 480/277 VOLTAGE PARALLEL STAR 190/110 200/115 208/120 220/127 208/120 220/127 230/133 240/138 VOLTAGE SERIES DELTA 220/110 230/115 240/120 254/127 240/120 254/127 266/133 277/138 KVA BASE RATING FOR REACTANCE VALUES 350 350 350 350 400 420 440 440 KVA DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 X'd DIR. AXIS SUBTRANSIENT 0.20 0.18 0.17 0.15 0.21 0.20 0.19 0.17 X'd DIR. AXIS SUBTRANSIENT 0.14 0.13 0.12 0.11 0.15 0.14 0.13 0.12 Xq QUAD. AXIS REACTANCE 2.58 2.33 2.16 1.92 2.92 2.74 2.63 2.41 X'q QUAD. AXIS SUBTRANSIENT 0.36 0.32 0.30 0.27 0.41 0.38 0.37 0.34 XL LEAKAGE REACTANCE 0.07 0.06 0.06 0.05 0.08 0.08 0.07 0.07 X2 NEGATIVE SEQUENCE 0.10 0.09 0.08 0.07 0.10 0.09 0.08 REACTANCE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED Tid TRANSIENT TIME CONST. 1.75 Ta ARMATURE TIME CONST.													
TELEPHONE INTERFERENCE THF<2% TIF<50 COOLING AIR 0.8 m³/sec 1700 cfm VOLTAGE SERIES STAR 380/220 400/231 415/240 440/254 416/240 440/254 460/266 480/277 VOLTAGE PARALLEL STAR 190/110 200/115 208/120 220/127 208/120 220/127 230/133 240/138 VOLTAGE SERIES DELTA 220/110 230/115 240/120 254/127 240/120 254/127 266/133 277/138 KVA BASE RATING FOR REACTANCE VALUES 350 350 350 350 400 420 440 440 KVA DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 X'd DIR. AXIS SUBTRANSIENT 0.20 0.18 0.17 0.15 0.21 0.20 0.19 0.17 X''d DIR. AXIS SUBTRANSIENT 0.14 0.13 0.12 0.11 0.15 0.14 0.13 0.12 Xq QUAD. AXIS REACTANCE 2.58 2.33 2.16 1.92 2.92 2.74 2.63 2.41 X''q QUAD. AXIS SUBTRANSIENT 0.36 0.32 0.30 0.27 0.41 0.38 0.37 0.34 XL LEAKAGE REACTANCE 0.07 0.06 0.06 0.05 0.08 0.08 0.07 0.07 X2 NEGATIVE SEQUENCE 0.10 0.09 0.08 0.07 0.10 0.09 0.08 REACTANCE SATURATED VALUES ARE PER UNITA TRATING AND VOLTAGE INDICATED T'd TANNSIENT TIME CONST. T'd SUB-TRANSTIME CONST. T'd SUB-TRANSTIME CONST. T'd ARMATURE TIME CONST. T'A ARMATURE TIME CONST. T'A ARMATURE TIME CONST.													
TELEPHONE INTERFERENCE	PACKING CRATE SIZE			, ,									
COOLING AIR 0.8 m³/sec 1700 cfm 0.99 m³/sec 2100 cfm VOLTAGE SERIES STAR 380/220 400/231 415/240 440/254 440/254 460/266 480/277 VOLTAGE PARALLEL STAR 190/110 200/115 208/120 220/127 208/120 220/127 230/133 240/138 VOLTAGE SERIES DELTA 220/110 230/115 240/120 254/127 240/120 254/127 266/133 277/138 kVA BASE RATING FOR REACTANCE VALUES 350 350 350 400 420 440 440 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 X'd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 X'd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 X'd DIR. AXIS SUBTRANSIENT 0.20 0.18 0.17 0.15 0.21 0.20 0.19	TELEPHONE INTERFERENCE												
VOLTAGE PARALLEL STAR 190/110 200/115 208/120 220/127 208/120 220/127 230/133 240/138 VOLTAGE SERIES DELTA 220/110 230/115 240/120 254/127 240/120 254/127 266/133 277/138 KVA BASE RATING FOR REACTANCE VALUES 350 350 350 400 420 440 440 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 X'd DIR. AXIS TRANSIENT 0.20 0.18 0.17 0.15 0.21 0.20 0.19 0.17 X'd DIR. AXIS SUBTRANSIENT 0.14 0.13 0.12 0.11 0.15 0.14 0.13 0.12 X'q QUAD. AXIS REACTANCE 2.58 2.33 2.16 1.92 2.92 2.74 2.63 2.41 X''q QUAD. AXIS SUBTRANSIENT 0.36 0.32 0.30 0.27 0.41 0.38 0.37 0.34 XL LEAKAGE REACTANCE 0.07 0.06 0.06			0.8 m³/sec	: 1700 cfm		0.99 m³/sec 2100 cfm							
VOLTAGE SERIES DELTA 220/110 230/115 240/120 254/127 240/120 254/127 266/133 277/138 kVA BASE RATING FOR REACTANCE VALUES 350 350 350 350 400 420 440 440 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 X'd DIR. AXIS TRANSIENT 0.20 0.18 0.17 0.15 0.21 0.20 0.19 0.17 X'd DIR. AXIS SUBTRANSIENT 0.14 0.13 0.12 0.11 0.15 0.14 0.13 0.12 X'q QUAD. AXIS REACTANCE 2.58 2.33 2.16 1.92 2.92 2.74 2.63 2.41 X"q QUAD. AXIS SUBTRANSIENT 0.36 0.32 0.30 0.27 0.41 0.38 0.37 0.34 XL LEAKAGE REACTANCE 0.07 0.06 0.06 0.05 0.08 0.08 0.07 0.07 Xo ZERO SEQUENCE 0.10 0.09 0.08 0.0	VOLTAGE SERIES STAR	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277				
kVA BASE RATING FOR REACTANCE VALUES 350 350 350 350 400 420 440 440 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 X'd DIR. AXIS TRANSIENT 0.20 0.18 0.17 0.15 0.21 0.20 0.19 0.17 X"d DIR. AXIS SUBTRANSIENT 0.14 0.13 0.12 0.11 0.15 0.14 0.13 0.12 Xq QUAD. AXIS REACTANCE 2.58 2.33 2.16 1.92 2.92 2.74 2.63 2.41 X"q QUAD. AXIS SUBTRANSIENT 0.36 0.32 0.30 0.27 0.41 0.38 0.37 0.34 XL LEAKAGE REACTANCE 0.07 0.06 0.06 0.05 0.08 0.08 0.07 0.07 X2 NEGATIVE SEQUENCE 0.24 0.22 0.20 0.18 0.28 0.26 0.25 0.23 X0 ZERO SEQUENCE 0.10 0.09 0.08 0.07 0.10 0.09 0.09 0.08 T'd TARANSIENT TIME CONST. <td< td=""><td>VOLTAGE PARALLEL STAR</td><td>190/110</td><td>200/115</td><td>208/120</td><td>220/127</td><td>208/120</td><td>220/127</td><td>230/133</td><td>240/138</td></td<>	VOLTAGE PARALLEL STAR	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138				
REACTANCE VALUES 350 350 350 350 400 420 440 440 Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 X'd DIR. AXIS TRANSIENT 0.20 0.18 0.17 0.15 0.21 0.20 0.19 0.17 X"d DIR. AXIS SUBTRANSIENT 0.14 0.13 0.12 0.11 0.15 0.14 0.13 0.12 Xq QUAD. AXIS REACTANCE 2.58 2.33 2.16 1.92 2.92 2.74 2.63 2.41 X"q QUAD. AXIS SUBTRANSIENT 0.36 0.32 0.30 0.27 0.41 0.38 0.37 0.34 XL LEAKAGE REACTANCE 0.07 0.06 0.06 0.05 0.08 0.08 0.07 0.07 X2 NEGATIVE SEQUENCE 0.24 0.22 0.20 0.18 0.28 0.26 0.25 0.23 X0ZERO SEQUENCE 0.10 0.09 0.08 0.07 0.10 0.09<		220/110	230/115	240/120	254/127	240/120	254/127	266/133	277/138				
Xd DIR. AXIS SYNCHRONOUS 3.01 2.71 2.52 2.24 3.47 3.26 3.12 2.87 X'd DIR. AXIS TRANSIENT 0.20 0.18 0.17 0.15 0.21 0.20 0.19 0.17 X"d DIR. AXIS SUBTRANSIENT 0.14 0.13 0.12 0.11 0.15 0.14 0.13 0.12 Xq QUAD. AXIS REACTANCE 2.58 2.33 2.16 1.92 2.92 2.74 2.63 2.41 X"q QUAD. AXIS SUBTRANSIENT 0.36 0.32 0.30 0.27 0.41 0.38 0.37 0.34 XL LEAKAGE REACTANCE 0.07 0.06 0.06 0.05 0.08 0.08 0.07 0.07 X2 NEGATIVE SEQUENCE 0.24 0.22 0.20 0.18 0.28 0.26 0.25 0.23 X0 ZERO SEQUENCE 0.10 0.09 0.08 0.07 0.10 0.09 0.08 T'd TRANSIENT TIME CONST. 0.08s T'd SUB-TRANSTIME CONST. 0.019s T'do O.C. FIELD TIME CONST. 1.7s		350	350	350	350	400	420	440	440				
X"d DIR. AXIS SUBTRANSIENT 0.14 0.13 0.12 0.11 0.15 0.14 0.13 0.12 Xq QUAD. AXIS REACTANCE 2.58 2.33 2.16 1.92 2.92 2.74 2.63 2.41 X"q QUAD. AXIS SUBTRANSIENT 0.36 0.32 0.30 0.27 0.41 0.38 0.37 0.34 XL LEAKAGE REACTANCE 0.07 0.06 0.06 0.05 0.08 0.08 0.07 0.07 X2 NEGATIVE SEQUENCE 0.24 0.22 0.20 0.18 0.28 0.26 0.25 0.23 X0ZERO SEQUENCE 0.10 0.09 0.08 0.07 0.10 0.09 0.09 0.08 REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED T'd TRANSIENT TIME CONST. 0.08s T'd SUB-TRANSTIME CONST. 0.019s T'do O.C. FIELD TIME CONST. 1.7s Talanta ARMATURE TIME CONST. 0.018s		3.01	2.71	2.52	2.24	3.47	3.26	3.12	2.87				
X"d DIR. AXIS SUBTRANSIENT 0.14 0.13 0.12 0.11 0.15 0.14 0.13 0.12 Xq QUAD. AXIS REACTANCE 2.58 2.33 2.16 1.92 2.92 2.74 2.63 2.41 X"q QUAD. AXIS SUBTRANSIENT 0.36 0.32 0.30 0.27 0.41 0.38 0.37 0.34 XL LEAKAGE REACTANCE 0.07 0.06 0.06 0.05 0.08 0.08 0.07 0.07 X2 NEGATIVE SEQUENCE 0.24 0.22 0.20 0.18 0.28 0.26 0.25 0.23 X0ZERO SEQUENCE 0.10 0.09 0.08 0.07 0.10 0.09 0.09 0.08 REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED T'd TRANSIENT TIME CONST. 0.08s T'd SUB-TRANSTIME CONST. 0.019s T'do O.C. FIELD TIME CONST. 1.7s Talanta ARMATURE TIME CONST. 0.018s	X'd DIR. AXIS TRANSIENT												
Xq QUAD. AXIS REACTANCE 2.58 2.33 2.16 1.92 2.92 2.74 2.63 2.41 X"q QUAD. AXIS SUBTRANSIENT 0.36 0.32 0.30 0.27 0.41 0.38 0.37 0.34 XL LEAKAGE REACTANCE 0.07 0.06 0.06 0.05 0.08 0.08 0.07 0.07 X2 NEGATIVE SEQUENCE 0.24 0.22 0.20 0.18 0.28 0.26 0.25 0.23 X0 ZERO SEQUENCE 0.10 0.09 0.08 0.07 0.10 0.09 0.08 REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED T'd TRANSIENT TIME CONST. 0.08s T'd SUB-TRANSTIME CONST. 0.019s T'do O.C. FIELD TIME CONST. 1.7s Ta ARMATURE TIME CONST. 0.018s	X"d DIR. AXIS SUBTRANSIENT		0.13		0.11		0.14		0.12				
XL LEAKAGE REACTANCE 0.07 0.06 0.06 0.05 0.08 0.08 0.07 0.07 X2 NEGATIVE SEQUENCE 0.24 0.22 0.20 0.18 0.28 0.26 0.25 0.23 X0 ZERO SEQUENCE 0.10 0.09 0.08 0.07 0.10 0.09 0.09 0.08 REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED T'd TRANSIENT TIME CONST. 0.08s T'd SUB-TRANSTIME CONST. 0.019s T'do O.C. FIELD TIME CONST. 1.7s Ta ARMATURE TIME CONST. 0.018s	Xq QUAD. AXIS REACTANCE	2.58	2.33	2.16	1.92	2.92	2.74	2.63	2.41				
X2 NEGATIVE SEQUENCE 0.24 0.22 0.20 0.18 0.28 0.26 0.25 0.23 X0 ZERO SEQUENCE 0.10 0.09 0.08 0.07 0.10 0.09 0.09 0.08 REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED T'd TRANSIENT TIME CONST. 0.08s T'd SUB-TRANSTIME CONST. 0.019s T'do O.C. FIELD TIME CONST. 1.7s Ta ARMATURE TIME CONST. 0.018s	X"q QUAD. AXIS SUBTRANSIENT	0.36	0.32	0.30	0.27	0.41	0.38	0.37	0.34				
X0 ZERO SEQUENCE 0.10 0.09 0.08 0.07 0.10 0.09 0.09 0.08 REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED T'd TRANSIENT TIME CONST. 0.08s T'd SUB-TRANSTIME CONST. 0.019s T'do O.C. FIELD TIME CONST. 1.7s Ta ARMATURE TIME CONST. 0.018s	XL LEAKAGE REACTANCE	0.07	0.06	0.06	0.05	0.08	0.08	0.07	0.07				
REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED T'd TRANSIENT TIME CONST. 0.08s T"d SUB-TRANSTIME CONST. 0.019s T'do O.C. FIELD TIME CONST. 1.7s Ta ARMATURE TIME CONST. 0.018s	X2 NEGATIVE SEQUENCE	0.24	0.22	0.20	0.18	0.28	0.26	0.25	0.23				
T'd TRANSIENT TIME CONST. 0.08s T"d SUB-TRANSTIME CONST. 0.019s T'do O.C. FIELD TIME CONST. 1.7s Ta ARMATURE TIME CONST. 0.018s	X ₀ ZERO SEQUENCE	0.10											
T"d SUB-TRANSTIME CONST. 0.019s T'do O.C. FIELD TIME CONST. 1.7s Ta ARMATURE TIME CONST. 0.018s		ΓED	VAL	UES ARE F			ND VOLTA	GE INDICA	ΓED				
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Ta ARMATURE TIME CONST. 0.018s													
SHORT CIRCUIT RATIO 1/Xd													
	SHORT CIRCUIT RATIO												

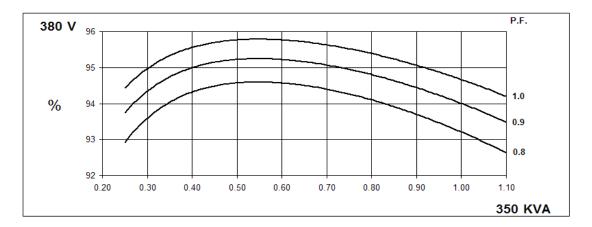
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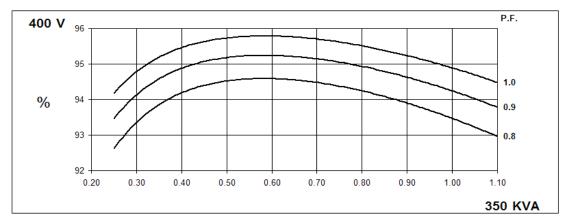
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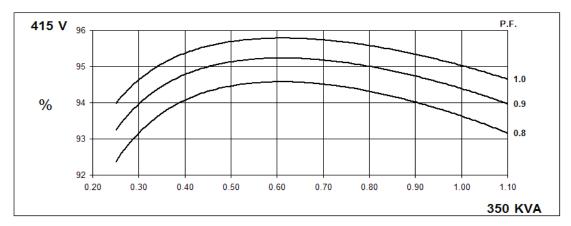
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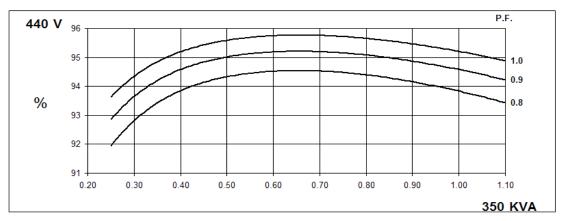
Winding 311

THREE PHASE EFFICIENCY CURVES









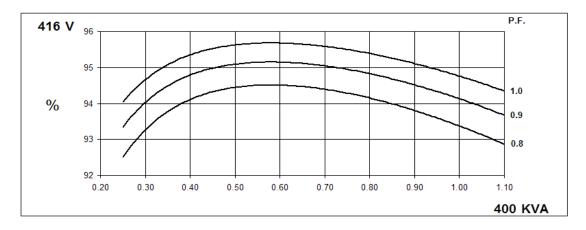
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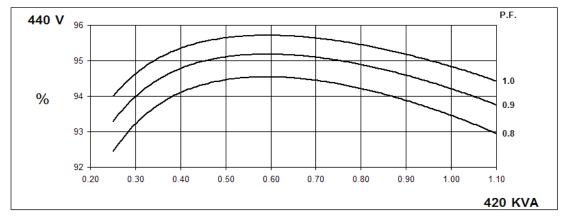
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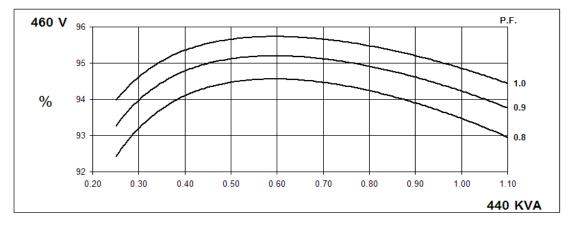
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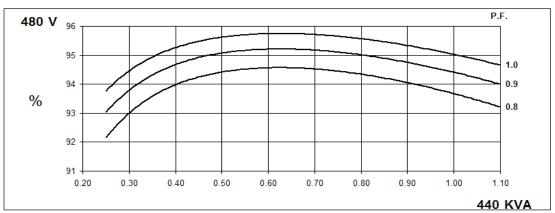
Winding 311

THREE PHASE EFFICIENCY CURVES







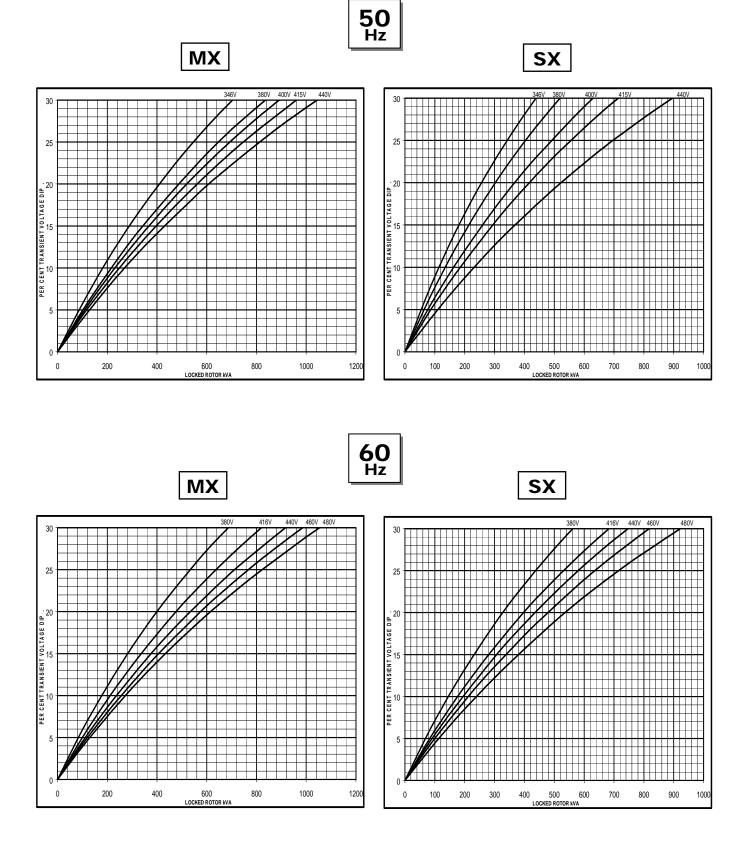




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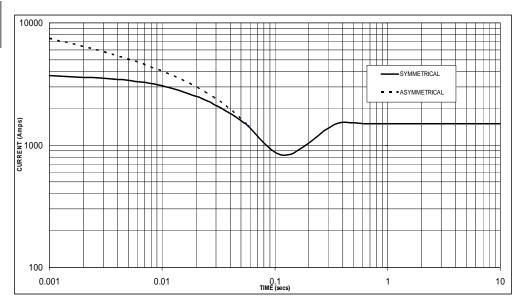
Winding 311

Locked Rotor Motor Starting Curve



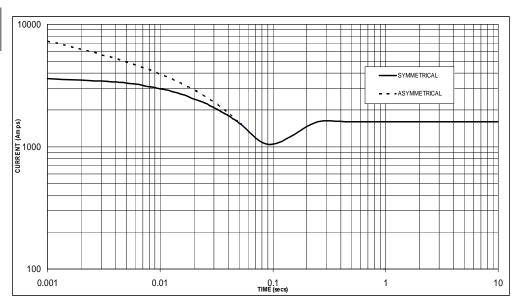
Three-phase Short Circuit Decrement Curve. No-load Excitation at Rated Speed Based on star (wye) connection.





Sustained Short Circuit = 1,500 Amps





Sustained Short Circuit = 1,600 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:

50	Hz	60Hz					
Voltage	Factor	Voltage	Factor				
380v	X 1.00	416v	X 1.00				
400v	X 1.05	440v	X 1.06				
415v	X 1.10	460v	X 1.10				
440v	X 1.16	480v	X 1.15				

The sustained current value is constant irrespective of voltage level

Note 2

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

Note 3

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

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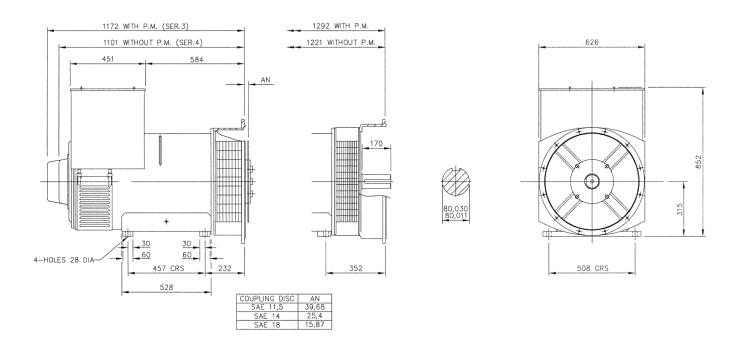
HCI434E/444E

Winding 311 / 0.8 Power Factor

RATINGS

	Class - Temp Rise	C	ont. F -	105/40	°C	Co	ont. H -	125/40	°C	St	andby -	150/40	°C	Sta	andby -	163/27	″°C
50	Series Star (V)	380	400	415	440	380	400	415	440	380	400	415	440	380	400	415	440
	Parallel Star (V)	190	200	208	220	190	200	208	220	190	200	208	220	190	200	208	220
Hz	Series Delta (V)	220	230	240	254	220	230	240	254	220	230	240	254	220	230	240	254
	kVA	320	320	320	320	350	350	350	350	370	370	370	370	380	400	380	380
	kW	256	256	256	256	280	280	280	280	296	296	296	296	304	320	304	304
	Efficiency (%)	93.6	93.8	94.0	94.1	93.2	93.5	93.6	93.8	92.9	93.2	93.4	93.6	92.7	92.7	93.2	93.5
	kW Input	274	273	272	272	300	299	299	299	319	318	317	316	328	345	326	325
						-				-				-			
60	Series Star (V)	416	440	460	480	416	440	460	480	416	440	460	480	416	440	460	480
Hz	Parallel Star (V)	208	220	230	240	208	220	230	240	208	220	230	240	208	220	230	240
	Series Delta (V)	240	254	266	277	240	254	266	277	240	254	266	277	240	254	266	277
	kVA	365	385	400	400	400	420	440	440	420	445	460	460	435	455	475	475
	kW	292	308	320	320	320	336	352	352	336	356	368	368	348	364	380	380
	Efficiency (%)	93.8	93.8	93.9	94.0	93.4	93.5	93.5	93.7	93.1	93.2	93.2	93.5	92.9	93.0	93.1	93.3
	kW Input	311	328	341	340	343	359	376	376	361	382	395	394	375	391	408	407

DIMENSIONS



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