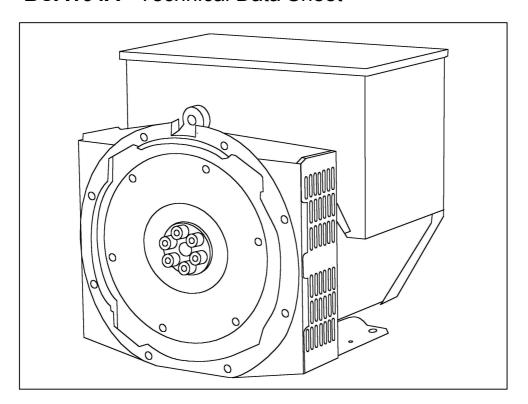


# **BCA164A** - Technical Data Sheet



#### **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**

#### **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.

#### SA465 AVR

The SA465 shares all the features of the SX460, but additionally will support a range of electronic accessories, such as a 'droop' Current Transformer (CT) to permit parallel operation with other ac generators.

Voltage regulation is improved by use of this AVR.

### **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.

#### 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.



# **WINDING 311**

CONTROL SYSTEM	SELF EXCITED									
A.V.R.	STANDARD SX460	OPTIONAL SA465								
VOLTAGE REGULATION	± 1.5 %	± 1.0 %								
SUSTAINED SHORT CIRCUIT	SELF EXCITED MACHINES DO NOT SUSTAIN A SHORT CIRCUIT CURRENT									

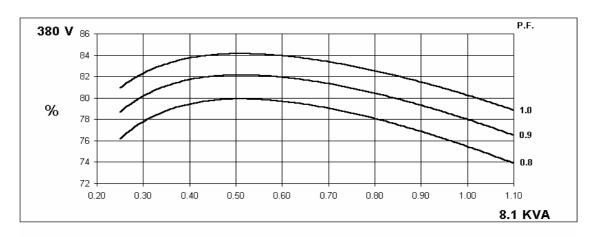
RATED POWER FACTOR 0.8  RATED POWER FACTOR 0.8  STATOR WINDING  DOUBLE LAYER CONCENTRIC  TWO THIRDS  WINDING LEADS  12  STATOR WDG, RESISTANCE  1.62 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED  ROTOR WDG, RESISTANCE  EXCITER STATOR RESISTANCE  EXCITER ROTOR RESISTANCE  EXCITER ROTOR RESISTANCE  BS EN 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 NON-DRIVE END  BEARING STATOR  WEIGHT WOUND ROTOR  22.5 64 kg  WIR' INERTIA  0.0623 kgm²  SHIPPING WEIGHTS in a crate  101 kg  PACKING CRATE SIZE  64 x 54 x 72 cm)  50 Hz  TELEPHONE INTERFERENCE  THF<2%  TIF-50  COOLING AIR  0.071 m/*sec 150 cfm  0.08 10023 ld 400231 ld 15/240 ld 440/254 ld 16/240 ld 440/254 ld 60/24 ld 40/254 ld 16/240 ld 16	SUSTAINED SHORT CIRCUIT	SELF EXCITED MACHINES DO NOT SUSTAIN A SHORT CIRCUIT CURRENT												
RATED POWER FACTOR  STATOR WINDING  DOUBLE LAYER CONCENTRIC  TWO THIRDS  THO THIRDS  STATOR WINDING PITCH  TWO THIRDS  12  STATOR WDG, RESISTANCE  1.62 Ohms PER PHASE AT 22°C SERIES STAR CONNECTED  ROTOR WDG, RESISTANCE  ROTOR WDG, RESISTANCE  EXCITER STATOR RESISTANCE  EXCITER STATOR RESISTANCE  SEXITER ROTOR RESISTANCE  19 Ohms at 22°C  EXCITER STATOR RESISTANCE  EXCITER ROTOR RESISTANCE  19 Ohms at 22°C  EXCITER ROTOR RESISTANCE  RF.I. SUPPRESSION  BS EN 61000-6-2 & BS EN 61000-6-4,VDE 0875G, VDE 0875G, NE 697 to factory for others  WAVEFORM DISTORTION  NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%  MAXIMUM OVERSPEED  2259 Re-Willin  BEARING NON-DRIVE END  BEARING NON-DRIVE END  BEALL 630G - 2RS. (ISO)  WEIGHT WOUND STATOR  22.5 kg  WEIGHT WOUND ROTOR  25.64 kg  WEIGHT WOUND ROTOR  25.64 kg  WEIGHT WOUND ROTOR  26.64 x 54 x 72 (cm)  THF-50  COOLING AIR  0.071 m³/ssc 150 cfm  0.09 m³/ssc 191 cfm  VOLTAGE SERIES STAR  380/220 400/231 415/240 440/254 416/240 440/254 460/266 480/277  VOLTAGE SERIES STAR  380/220 400/231 415/240 440/254 220/127 220/127 230/133 240/138  VOLTAGE SERIES DELTA  220/110 230/115 240/120 254/127 240/120 254/127 266/133 277/138  WAS DASK RANIS SYNCHRONOUS  8.1 8.1 8.1 8.2 8.9 9.6 10.2 10.2 10.2  VALUES  VALUES ANS SUBTRANSIENT  0.024 0.184 0.171 0.199 0.242 0.230 0.210 0.192  VALUES ANS SUBTRANSIENT  0.027 0.067 0.078 0.095 0.099 0.083  Var QUAD AXIS SUBTRANSIENT  0.029 0.083 0.076 0.072 0.084 0.103 0.098 0.099 0.082  VALUES ANS SUBTRANSIENT  0.020 S  VALUES ANS SUBTRANSIENT  0.020 S  VALUES ANS SUBTRANSIENT  0.020 S  VALUES ANS DISTRANSIENT  0.012 s  VALUES AND THIRDS  VALUES ARE PER UNITA ATTRAING AND VOLTAGE INDICATED  VALUES ARE PER U	INSULATION SYSTEM	CLASS H												
### STATOR WINDING ### STATOR WINDING ### STATOR WINDING PITCH ### STATOR WINDING PITCH ### STATOR WINDING LEADS ### STATOR WINDING LEADS ### STATOR WINDING RESISTANCE ### STATOR WINDING RESISTANCE ### STATOR ### STATOR RESISTANCE ### STATOR	PROTECTION	IP23												
WINDING PITCH	RATED POWER FACTOR	0.8												
VINIDING LEADS   12	STATOR WINDING		* *											
STATOR WDG. RESISTANCE	WINDING PITCH	TWO THIRDS												
ROTOR WDG, RESISTANCE  EXCITER STATOR RESISTANCE  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%  MAXIMUM OVERSPEED  EXEMPRESSION  BALL. 6306 - 2RS. (ISO)  WEIGHT COMP. GENERATOR  BBALL. 6306 - 2RS. (ISO)  WEIGHT WOUND STATOR  EXCITED STATOR  FOR HEAD STATOR  EXCITED STATOR  FOR HEAD STATOR  EXCITED	WINDING LEADS		12											
EXCITER STATOR RESISTANCE  EXCITER ROTOR RESISTANCE  EXCITER ROTOR RESISTANCE  BS EN 61000-6-2 & BS EN 61000-6-4 (Norms PER PHASE AT 22°C)  BS EN 61000-6-2 & BS EN 61000-6-4 (Norms PER PHASE AT 22°C)  BS EN 61000-6-2 & BS EN 61000-6-4 (Norms PER PHASE AT 22°C)  BS EN 61000-6-2 & BS EN 61000-6-4 (Norms PER PHASE AT 22°C)  BS EN 61000-6-2 & BS EN 61000-6-4 (Norms PER PHASE AT 22°C)  BS EN 61000-6-2 & BS EN 61000-6-4 (Norms PER PHASE AT 22°C)  WAVEFORM DISTORTION  NO LOAD < 1.5% NON-DISTORTING BALANCED LINEAR LOAD < 5.0%  MAXIMUM OVERSPEED  BEARING NON-DRIVE END  BBALL. 6306 - 2RS. (ISO)  WEIGHT COMP. GENERATOR  88 kg  WEIGHT WOUND ROTOR  22.5 kg  WEIGHT WOUND ROTOR  25.64 kg  WEIGHT WOUND ROTOR  25.64 kg  WEIGHT WOUND ROTOR  26.64 x 54 x 72 (cm)  FIF-50  COOLING AIR  0.0923 kgm²  SHIPPING WEIGHTS in a crate  FIF-50  COOLING AIR  0.091 m³/9sc 191 cfm  VOLTAGE SERIES STAR  380/220  400/231  415/240  440/254  416/240  440/254  416/240  440/254  460/266  480/277  VOLTAGE PARALLEL STAR  190/110  200/115  200/120  220/127  208/120  220/127  208/120  220/127  208/120  220/127  208/130  247/138  KVA BASE RATING FOR REACTANCE  8.1  8.1  8.1  8.1  6.2  9.6  10.2  10.2  10.2  10.2  VALUES  XI DIR. AXIS SYNCHRONOUS  1.994  1.800  1.672  1.940  2.367  2.248  2.057  1.889  XOLD RAXIS SYNCHRONOUS  1.994  1.800  1.672  1.940  2.2367  2.248  2.057  1.889  XOLD RAXIS SYNCHRONOUS  1.994  1.800  1.672  1.940  1.957  1.1177  1.117  1.117  1.022  0.939  X'Q DUAD. AXIS SYNCHRONOUS  1.994  1.800  1.672  1.990  1.991  1.177  1.117  1.117  1.022  0.939  X'Q DUAD. AXIS SYNCHRONOUS  1.994  1.800  1.692  1.096  1.097  1.1177  1.117  1.117  1.022  0.939  X'Q DUAD. AXIS SYNCHRONOUS  1.994  1.019  1.029  1.020  1.020  1.021  1.020  1.021  1.020  1.020  1.021  1.020  1.021  1.020  1.020  1.021  1.020  1.020  1.021  1.020  1.020  1.020  1.021  1.020  1.020  1.020  1.021  1.020  1.020  1.020  1.020  1.021  1.020  1.020  1.020  1.020  1.021  1.020  1.020  1.020  1.020  1.020  1.020  1.020  1.020  1.020  1.020  1.020  1.020  1.020  1.020  1.020  1.0	STATOR WDG. RESISTANCE													
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%  MAXIMUM OVERSPEED  2250 Rev/Min  BEARING NON-DRIVE END  BEALI. 6306 - 2RS. (ISO)  WEIGHT COMP. GENERATOR  WEIGHT WOUND STATOR  22.5 kg  WEIGHT WOUND ROTOR  25.64 kg  WRY INERTIA  0.0923 kgm²  SHIPPING WEIGHTS in a crate  101 kg  PACKING CRATE SIZE  64 x 54 x 72 (cm)  50 Hz  TELEPHONE INTERFERENCE  THF-2%  COOLING AIR  0.071 m*/sec 150 cfm  VOLTAGE SERIES STAR  380/220 400/231 415/240 440/254 416/240 440/254 460/266 480/277  VOLTAGE PARALLEL STAR  190/110 200/115 208/120 220/127 208/120 220/127 200/133 240/138  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  VALUE	ROTOR WDG. RESISTANCE				0.44 Ohm	s 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 BALANCED LINEAR LOAD < 5.0%  MAXIMUM OVERSPEED  BEARING NON-DRIVE END  BEARING NON-DRIVE END  BEARING NON-DRIVE END  BEALL. 6306 - 2RS. (ISO)  WEIGHT WOUND STATOR  WEIGHT WOUND STATOR  WEIGHT WOUND ROTOR  22.5 kg  WEIGHT WOUND ROTOR  25.64 kg  WR² INERTIA  0.0923 kgm²  SHIPPING WEIGHTS in a crate  101 kg  PACKING CRATE SIZE  64 x 54 x 72 (cm)  TIF<50  COOLING AIR  0.071 m³/sec 150 cfm  0.09 m³/sec 191 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  VAL	EXCITER STATOR RESISTANCE				19 Ohms	at 22°C								
WAVEFORM DISTORTION	EXCITER ROTOR RESISTANCE			0.134	1 Ohms PER	PHASE AT	22°C							
## AXIMUM OVERSPEED ## BALL. 6306 - 2RS. (ISO)  ## BEARING NON-DRIVE END ## BALL. 6306 - 2RS. (ISO)  ## WEIGHT COMP. GENERATOR ## 88 kg  ## WEIGHT WOUND STATOR ## 22.5 kg  ## WEIGHT WOUND STATOR ## 25.64 kg  ## WEIGHT WOUND ROTOR ## 25.64 kg  ## WEIGHT WOUND #	R.F.I. SUPPRESSION	BS EN												
BEARING NON-DRIVE END  WEIGHT COMP. GENERATOR  WEIGHT WOUND STATOR  WEIGHT WOUND ROTOR  FOR HE WEIGHT WITH WITH WEIGHT WITH WEIGHT WITH WEIGHT WITH WEIGHT WITH WEIGHT WITH WITH WITH WEIGHT WITH WITH WEIGHT WITH WEIGHT WITH WEIGHT WITH WITH WITH WITH WITH WITH WEIGHT WITH WITH WITH WITH WITH WITH WITH WI	WAVEFORM DISTORTION													
WEIGHT COMP. GENERATOR  WEIGHT WOUND STATOR  WEIGHT WOUND ROTOR  25.64 kg  WEIGHT WOUND ROTOR  25.64 kg  WEIGHT WOUND ROTOR  WR² INERTIA  0.0923 kgm²  SHIPPING WEIGHTS in a crate  101 kg  PACKING CRATE SIZE  64 x 54 x 72 (cm)  50 Hz  TIF-50  COOLING AIR  0.071 m²/sec 150 cfm  0.09 m²/sec 191 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 8.1 8.1 8.1 6.2 9.6 10.2 10.2 10.2  VALUES  VAI DIR. AXIS SYNCHRONOUS  1.994 1.800 1.672 1.940 2.367 2.248 2.057 1.889  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.204 0.895 0.895 0.831 0.967 1.177 1.117 1.022 0.939  X'Q QUAD. AXIS SUBTRANSIENT  0.229 0.207 0.192 0.223 0.272 0.258 0.236 0.217  X, LEAKAGE REACTANCE 0.080 0.072 0.067 0.078 0.095 0.090 0.083 0.076  X NEGATIVE SEQUENCE 0.191 0.172 0.160 0.186 0.226 0.215 0.197 0.181  X0 ZERO SEQUENCE 0.086 0.078 0.072 0.084 0.103 0.098 0.089 0.082  REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED  T'd SUB-TRANSTIME CONST. 0.003 s  T'd GUD. C.FIELD TIME CONST. 0.003 s  Tod O.C. FIELD TIME CONST. 0.004 s	MAXIMUM OVERSPEED													
WEIGHT WOUND STATOR  WEIGHT WOUND ROTOR  22.5 kg  WEIGHT WOUND ROTOR  25.64 kg  WR2 INERTIA  0.0923 kgm²  SHIPPING WEIGHTS in a crate  101 kg  PACKING CRATE SIZE  64 x 54 x 72 (cm)  50 Hz  60 Hz  TIF-50  COOLING AIR  0.071 m³/sec 150 cfm  0.09 m³/sec 191 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 8.1 8.1 8.1 6.2 9.6 10.2 10.2 10.2  VALUES  VALUES  VALUES  VA DIR. AXIS SYNCHRONOUS  1.994 1.800 1.672 1.940 2.367 2.248 2.057 1.889  X'd DIR. AXIS SYNCHRONOUS  1.994 1.800 1.672 1.940 2.367 2.248 2.057 1.889  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.192 0.242 0.250 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.204 0.895 0.831 0.967 1.177 1.117 1.022 0.939  X'q QUAD. AXIS REACTANCE  0.992 0.895 0.831 0.967 1.177 1.117 1.022 0.939  X'q QUAD. AXIS SUBTRANSIENT  0.229 0.207 0.192 0.223 0.272 0.258 0.236 0.217  X.L LEAKAGE REACTANCE  0.090 0.072 0.067 0.078 0.095 0.090 0.083 0.076  X NEGATIVE SEQUENCE  0.191 0.172 0.160 0.186 0.226 0.215 0.197 0.181  X0 ZERO SEQUENCE  0.086 0.078 0.072 0.084 0.103 0.098 0.089 0.082  REACTANCES ARE SATURATED  VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED  T'd SUB-TRANSTIME CONST.  0.002 s  T'd SUB-TRANSTIME CONST.  0.003 s  T'd O.C. FIELD TIME CONST.  0.003 s	BEARING NON-DRIVE END													
WEIGHT WOUND ROTOR  25.64 kg  WR² INERTIA  0.0923 kgm²  SHIPPING WEIGHTS in a crate  101 kg  PACKING CRATE SIZE  66 4 x 54 x 72 (cm)  50 Hz  THF<2%  TIF<50  COOLING AIR  0.071 m³/sec 150 cfm  0.09 m³/sec 191 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  8.1 8.1 8.1 6.2 9.6 10.2 10.2 10.2  VALUES  X'd DIR. AXIS SYNCHRONOUS  1.994 1.800 1.672 1.940 2.367 2.248 2.057 1.889  X'd DIR. AXIS TRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.127 0.115 0.107 0.124 0.152 0.144 0.132 0.121  XQ QUAD. AXIS REACTANCE  0.992 0.895 0.831 0.967 1.177 1.117 1.022 0.939  X'q QUAD. AXIS SUBTRANSIENT  0.229 0.207 0.192 0.223 0.272 0.258 0.236 0.217  XL LEAKAGE REACTANCE  0.080 0.072 0.067 0.078 0.095 0.090 0.083 0.076  X2 NEGATIVE SEQUENCE  0.086 0.078 0.072 0.084 0.103 0.098 0.089 0.082  REACTANCES ARE SATURATED  VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED  Tid TRANSIENT IME CONST.  0.003 s  Tid O.C. FIELD TIME CONST.  0.003 s	WEIGHT COMP. GENERATOR													
WR3 INERTIA  SHIPPING WEIGHTS IN a crate  101 kg  PACKING CRATE SIZE  50 Hz  64 x 54 x 72 (cm)   50 Hz  66 Hz  TIF<50  COOLING AIR  0.071 m³/sec 150 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 2771/138  KVA BASE RATING FOR REACTANCE 8.1 8.1 8.1 6.2 9.6 10.2 10.2 10.2  VALUES  X'd DIR. AXIS SYNCHRONOUS  1.994 1.800 1.672 1.940 2.367 2.248 2.057 1.889  X'd DIR. AXIS STRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd QUAD. AXIS SUBTRANSIENT  0.205 0.895 0.831 0.967 1.177 1.117 1.022 0.939  X'q QUAD. AXIS SUBTRANSIENT  0.299 0.895 0.831 0.967 1.177 1.117 1.022 0.939  X'q QUAD. AXIS SUBTRANSIENT  0.299 0.207 0.192 0.223 0.272 0.258 0.236 0.217  X. LEAKAGE REACTANCE  0.080 0.072 0.067 0.078 0.095 0.090 0.083 0.076  X2 NEGATIVE SEQUENCE  0.080 0.072 0.067 0.078 0.095 0.090 0.083 0.076  X2 NEGATIVE SEQUENCE  0.086 0.078 0.072 0.084 0.103 0.098 0.099 0.082  REACTANCES ARE SATURATED  VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED  T'd TRANSIENT TIME CONST.  0.003 s  T'd O.C. FIELD TIME CONST.  7 a ARMATURE TIME CONST.  0.003 s	WEIGHT WOUND STATOR	<u> </u>												
SHIPPING WEIGHTS in a crate  PACKING CRATE SIZE  50 Hz  50 Hz  TIF<50  COOLING AIR  VOLTAGE SERIES STAR  380/220  400/231  415/240  440/254  416/240  440/254  416/240  440/254  400/266  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  240/120  254/127  266/133  277/138  KVA BASE RATING FOR REACTANCE VALUES  8.1  8.1  8.1  8.1  6.2  9.6  10.2  10.2  10.2  10.2  10.2  Xd DIR. AXIS SYNCHRONOUS  1.994  1.800  1.672  1.940  2.367  2.248  2.057  1.889  X'd DIR. AXIS SUBTRANSIENT  0.204  0.184  0.171  0.199  0.242  0.230  0.210  0.193  X'q QUAD. AXIS REACTANCE  0.992  0.895  0.831  0.967  1.177  1.117  1.102  0.939  X'q QUAD. AXIS SUBTRANSIENT  0.229  0.207  0.192  0.223  0.272  0.258  0.236  0.217  XL LEAKAGE REACTANCE  0.080  0.072  0.067  0.078  0.095  0.090  0.083  0.076  X2 NEGATIVE SEQUENCE  0.191  0.172  0.160  0.186  0.226  0.215  0.197  0.181  XoZERO SEQUENCE  0.191  0.172  0.160  0.184  0.103  0.003 s  T'd SUB-TRANSTIME CONST.  0.003 s  T'd SUB-TRANSTIME CONST.  10.004 s	WEIGHT WOUND ROTOR													
PACKING CRATE SIZE  50 Hz  50 Hz  60 Hz  THF<2%  TIF<50  COOLING AIR  0.071 m³/sec 150 cfm  0.09 m³/sec 191 cfm  VOLTAGE SERIES STAR  380/220 400/231 415/240 440/254 416/240 440/254 460/266 480/277  VOLTAGE PARALLEL STAR  190/110 200/115 208/120 220/127 208/120 220/127 208/133 240/138  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  XI 8.1 8.1 6.2 9.6 10.2 10.2 10.2  XI DIR. AXIS SYNCHRONOUS  1.994 1.800 1.672 1.940 2.367 2.248 2.057 1.889  X'd DIR. AXIS STANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd QUAD. AXIS REACTANCE  0.992 0.895 0.831 0.967 1.177 1.117 1.022 0.939  X'q QUAD. AXIS SUBTRANSIENT  0.229 0.207 0.192 0.223 0.272 0.258 0.236 0.217  XLEAKAGE REACTANCE  0.080 0.072 0.067 0.078 0.095 0.090 0.083 0.076  X2 NEGATIVE SEQUENCE  0.191 0.172 0.160 0.186 0.226 0.215 0.197 0.181  X0 ZERO SEQUENCE  0.080 0.072 0.067 0.078 0.095 0.090 0.083 0.076  X2 NEGATIVE SEQUENCE  0.191 0.172 0.160 0.186 0.226 0.215 0.197 0.181  X0 ZERO SEQUENCE  0.080 0.072 0.067 0.078 0.095 0.090 0.083  0.076  X2 NEGATIVE SEQUENCE  0.191 0.172 0.160 0.186 0.226 0.215 0.197 0.181  X0 ZERO SEQUENCE  0.098 0.078 0.072 0.084 0.103 0.098 0.089 0.082  REACTANCES ARE SATURATED  VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED  T'd TRANSIENT TIME CONST.  0.003 s  T'd SUB-TRANSTIME CONST.  0.003 s  T'd SUB-TRANSTIME CONST.  0.003 s	WR² INERTIA	0.0923 kgm <sup>2</sup>												
TELEPHONE INTERFERENCE  THF<2%  TIF<50  COOLING AIR  0.071 m³/sec 150 cfm  0.09 m³/sec 191 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  8.1 8.1 8.1 6.2 9.6 10.2 10.2 10.2  VALUES  VALUES SYNCHRONOUS  1.994 1.800 1.672 1.940 2.367 2.248 2.057 1.889  X'd DIR. AXIS SYNCHRONOUS  1.994 1.800 1.672 1.940 2.367 2.248 2.057 1.889  X'd DIR. AXIS SUBTRANSIENT  0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT  0.127 0.115 0.107 0.124 0.152 0.144 0.132 0.121  XQ QUAD. AXIS REACTANCE  0.992 0.895 0.831 0.967 1.177 1.117 1.022 0.939  X'q QUAD. AXIS SUBTRANSIENT  0.229 0.207 0.192 0.223 0.272 0.258 0.236 0.217  XL LEAKAGE REACTANCE  0.080 0.072 0.067 0.078 0.095 0.090 0.083 0.076  X2 NEGATIVE SEQUENCE  0.191 0.172 0.160 0.186 0.226 0.215 0.197 0.181  XOZERO SEQUENCE  0.086 0.078 0.072 0.084 0.103 0.098 0.089 0.082  REACTANCES ARE SATURATED  VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED  T'd TRANSIENT TIME CONST.  0.012 s  T'd SUB-TRANSTIME CONST.  T'd SUB-TRANSTIME CONST.  0.003 s  T'd O.C. FIELD TIME CONST.  T'd SUB-TRANSTIME CONST.  0.004 s	SHIPPING WEIGHTS in a crate	<u> </u>												
TELEPHONE INTERFERENCE  THF<2%  TIF<50  COOLING AIR  0.071 m³/sec 150 cfm  0.09 m³/sec 191 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 8.1 8.1 8.1 6.2 9.6 10.2 10.2 10.2  Xd DIR. AXIS SYNCHRONOUS 1.994 1.800 1.672 1.940 2.367 2.248 2.057 1.889  X'd DIR. AXIS SYNCHRONOUS 1.994 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X'd DIR. AXIS SUBTRANSIENT 0.127 0.115 0.107 0.124 0.152 0.144 0.132 0.121  Xq QUAD. AXIS REACTANCE 0.992 0.895 0.831 0.967 1.177 1.117 1.022 0.939  X'q QUAD. AXIS SUBTRANSIENT 0.229 0.207 0.192 0.223 0.272 0.258 0.236 0.217  XL LEAKAGE REACTANCE 0.080 0.072 0.067 0.078 0.095 0.090 0.083 0.076  X2 NEGATIVE SEQUENCE 0.191 0.172 0.160 0.186 0.226 0.215 0.197 0.181  X0 ZERO SEQUENCE 0.086 0.078 0.072 0.084 0.103 0.098 0.089 0.082  REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED  T'd TRANSIENT TIME CONST. 0.003 s  T'd SUB-TRANSTIME CONST. 0.004 s	PACKING CRATE SIZE	64 x 54 x 72 (cm)												
COOLING AIR         0.071 m³/sec         150 cfm         0.09 m³/sec         191 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         8.1         8.1         8.1         8.1         6.2         9.6         10.2         10.2         10.2           X'd DIR. AXIS SYNCHRONOUS         1.994         1.800         1.672         1.940         2.367         2.248         2.057         1.889           X'd DIR. AXIS SYNCHRONOUS         1.994         1.800         1.672         1.940         2.367         2.248         2.057         1.889           X'd DIR. AXIS SYNCHRONOUS         1.994         1.800         1.672         1.940         2.367         2.248         2.057         1.889           X'd DIR. AXIS SUBTRANSIENT         0.127         0.115         0.		50 Hz 60 Hz												
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 8.1 8.1 8.1 6.2 9.6 10.2 10.2 10.2  VALUES  X'd DIR. AXIS SYNCHRONOUS  1.994 1.800 1.672 1.940 2.367 2.248 2.057 1.889  X'd DIR. AXIS TRANSIENT 0.204 0.184 0.171 0.199 0.242 0.230 0.210 0.193  X''d DIR. AXIS SUBTRANSIENT 0.127 0.115 0.107 0.124 0.152 0.144 0.132 0.121  XQ QUAD. AXIS REACTANCE 0.992 0.895 0.831 0.967 1.177 1.117 1.022 0.939  X''Q QUAD. AXIS SUBTRANSIENT 0.229 0.207 0.192 0.223 0.272 0.258 0.236 0.217  XL LEAKAGE REACTANCE 0.080 0.072 0.067 0.078 0.095 0.090 0.083 0.076  X2 NEGATIVE SEQUENCE 0.191 0.172 0.160 0.186 0.226 0.215 0.197 0.181  X0 ZERO SEQUENCE 0.086 0.078 0.072 0.084 0.103 0.098 0.089 0.082  REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED  T'd TRANSIENT TIME CONST. 0.003 s  T'do O.C. FIELD TIME CONST. 0.209 s	TELEPHONE INTERFERENCE	THF<2% TIF<50												
VOLTAGE PARALLEL STAR  190/110  200/115  208/120  220/127  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  8.1  8.1  8.1  8.1  8.1  6.2  9.6  10.2  10	COOLING AIR								191 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         8.1         8.1         8.1         6.2         9.6         10.2         10.2         10.2           X'd DIR. AXIS SYNCHRONOUS         1.994         1.800         1.672         1.940         2.367         2.248         2.057         1.889           X'd DIR. AXIS SYNCHRONOUS         1.994         1.800         1.672         1.940         2.367         2.248         2.057         1.889           X'd DIR. AXIS TRANSIENT         0.204         0.184         0.171         0.199         0.242         0.230         0.210         0.193           X'd DIR. AXIS SUBTRANSIENT         0.127         0.115         0.107         0.124         0.152         0.144         0.132         0.121           Xq QUAD. AXIS REACTANCE         0.992         0.895         0.831         0.967         1.177         1.117         1.022         0.939           X''q QUAD. AXIS SUBTRANSIENT         0.229         0.207         0.192         0.223         0.272         0.258         0.236         0.217           X'L LEAKAGE REACTANCE         0.080 </td <td>VOLTAGE SERIES STAR</td> <td>380/220</td> <td>400/231</td> <td>415/240</td> <td>440/254</td> <td>416/240</td> <td>440/254</td> <td>460/266</td> <td>480/277</td>	VOLTAGE SERIES STAR	380/220	400/231	415/240	440/254	416/240	440/254	460/266	480/277					
REACTANCE   R.1   R.1   R.1   R.1   R.1   R.2	VOLTAGE PARALLEL STAR	190/110	200/115	208/120	220/127	208/120	220/127	230/133	240/138					
VALUES         8.1         8.1         8.1         6.2         9.6         10.2         10.2         10.2           Xd DIR. AXIS SYNCHRONOUS         1.994         1.800         1.672         1.940         2.367         2.248         2.057         1.889           X'd DIR. AXIS TRANSIENT         0.204         0.184         0.171         0.199         0.242         0.230         0.210         0.193           X"d DIR. AXIS SUBTRANSIENT         0.127         0.115         0.107         0.124         0.152         0.144         0.132         0.121           Xq QUAD. AXIS REACTANCE         0.992         0.895         0.831         0.967         1.177         1.117         1.022         0.939           X"q QUAD. AXIS SUBTRANSIENT         0.229         0.207         0.192         0.223         0.272         0.258         0.236         0.217           XL LEAKAGE REACTANCE         0.080         0.072         0.067         0.078         0.095         0.090         0.083         0.076           X2 NEGATIVE SEQUENCE         0.191         0.172         0.160         0.186         0.226         0.215         0.197         0.181           X0 ZERO SEQUENCE         0.086         0.078         0.072	VOLTAGE SERIES DELTA	220/110	230/115	240/120	254/127	240/120	254/127	266/133	277/138					
X'd DIR. AXIS TRANSIENT       0.204       0.184       0.171       0.199       0.242       0.230       0.210       0.193         X"d DIR. AXIS SUBTRANSIENT       0.127       0.115       0.107       0.124       0.152       0.144       0.132       0.121         Xq QUAD. AXIS REACTANCE       0.992       0.895       0.831       0.967       1.177       1.117       1.022       0.939         X"q QUAD. AXIS SUBTRANSIENT       0.229       0.207       0.192       0.223       0.272       0.258       0.236       0.217         XL LEAKAGE REACTANCE       0.080       0.072       0.067       0.078       0.095       0.090       0.083       0.076         X2 NEGATIVE SEQUENCE       0.191       0.172       0.160       0.186       0.226       0.215       0.197       0.181         X0 ZERO SEQUENCE       0.086       0.078       0.072       0.084       0.103       0.098       0.089       0.082         REACTANCES ARE SATURATED       VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED         T'd T'd SUB-TRANSTIME CONST.       0.002 s       0.003 s       0.002 s       0.003 s       0.004 s       0.004 s	kVA BASE RATING FOR REACTANCE VALUES	8.1	8.1	8.1	6.2	9.6	10.2	10.2	10.2					
X"d DIR. AXIS SUBTRANSIENT       0.127       0.115       0.107       0.124       0.152       0.144       0.132       0.121         Xq QUAD. AXIS REACTANCE       0.992       0.895       0.831       0.967       1.177       1.117       1.022       0.939         X"q QUAD. AXIS SUBTRANSIENT       0.229       0.207       0.192       0.223       0.272       0.258       0.236       0.217         XL LEAKAGE REACTANCE       0.080       0.072       0.067       0.078       0.095       0.090       0.083       0.076         X2 NEGATIVE SEQUENCE       0.191       0.172       0.160       0.186       0.226       0.215       0.197       0.181         X0 ZERO SEQUENCE       0.086       0.078       0.072       0.084       0.103       0.098       0.089       0.082         REACTANCES ARE SATURATED         VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED         T'd TRANSIENT TIME CONST.       0.012 s         T'd SUB-TRANSTIME CONST.         0.003 s         T'd ARMATURE TIME CONST.	Xd DIR. AXIS SYNCHRONOUS	1.994	1.800	1.672	1.940	2.367	2.248	2.057	1.889					
Xq QUAD. AXIS REACTANCE       0.992       0.895       0.831       0.967       1.177       1.117       1.022       0.939         X"q QUAD. AXIS SUBTRANSIENT       0.229       0.207       0.192       0.223       0.272       0.258       0.236       0.217         XL LEAKAGE REACTANCE       0.080       0.072       0.067       0.078       0.095       0.090       0.083       0.076         X2 NEGATIVE SEQUENCE       0.191       0.172       0.160       0.186       0.226       0.215       0.197       0.181         X0 ZERO SEQUENCE       0.086       0.078       0.072       0.084       0.103       0.098       0.089       0.082         REACTANCES ARE SATURATED         VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED         T'd TRANSIENT TIME CONST.       0.012 s         T'ds UB-TRANSTIME CONST.       0.003 s         T'do O.C. FIELD TIME CONST.       0.2 s         Ta ARMATURE TIME CONST.       0.004 s	X'd DIR. AXIS TRANSIENT	0.204	0.184	0.171	0.199	0.242	0.230	0.210	0.193					
X"q QUAD. AXIS SUBTRANSIENT       0.229       0.207       0.192       0.223       0.272       0.258       0.236       0.217         XL LEAKAGE REACTANCE       0.080       0.072       0.067       0.078       0.095       0.090       0.083       0.076         X2 NEGATIVE SEQUENCE       0.191       0.172       0.160       0.186       0.226       0.215       0.197       0.181         X0 ZERO SEQUENCE       0.086       0.078       0.072       0.084       0.103       0.098       0.089       0.082         REACTANCES ARE SATURATED         VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED         T'd TRANSIENT TIME CONST.       0.012 s         T'ds SUB-TRANSTIME CONST.       0.003 s         T'do O.C. FIELD TIME CONST.       0.2 s         Ta ARMATURE TIME CONST.       0.004 s		0.127	0.115	0.107	0.124	0.152	0.144	0.132	0.121					
XL LEAKAGE REACTANCE         0.080         0.072         0.067         0.078         0.095         0.090         0.083         0.076           X2 NEGATIVE SEQUENCE         0.191         0.172         0.160         0.186         0.226         0.215         0.197         0.181           X0 ZERO SEQUENCE         0.086         0.078         0.072         0.084         0.103         0.098         0.089         0.082           REACTANCES ARE SATURATED         VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED           T'd TRANSIENT TIME CONST.         0.012 s           T''d SUB-TRANSTIME CONST.         0.003 s           T''do O.C. FIELD TIME CONST.         0.2 s           Ta ARMATURE TIME CONST.         0.004 s			0.895	0.831			1.117							
X2 NEGATIVE SEQUENCE         0.191         0.172         0.160         0.186         0.226         0.215         0.197         0.181           X0 ZERO SEQUENCE         0.086         0.078         0.072         0.084         0.103         0.098         0.089         0.082           REACTANCES ARE SATURATED         VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED           T'd TRANSIENT TIME CONST.         0.012 s           T''d SUB-TRANSTIME CONST.         0.003 s           T''do O.C. FIELD TIME CONST.         0.2 s           Ta ARMATURE TIME CONST.         0.004 s	X"q QUAD. AXIS SUBTRANSIENT								<b>+</b>					
XoZERO SEQUENCE         0.086         0.078         0.072         0.084         0.103         0.098         0.089         0.082           REACTANCES ARE SATURATED         VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED           T'd TRANSIENT TIME CONST.         0.012 s           T'do O.C. FIELD TIME CONST.         0.2 s           Ta ARMATURE TIME CONST.         0.004 s	XL LEAKAGE REACTANCE													
REACTANCES ARE SATURATED VALUES ARE PER UNIT AT RATING AND VOLTAGE INDICATED T'd TRANSIENT TIME CONST. 0.012 s T'd SUB-TRANSTIME CONST. 0.003 s T'do O.C. FIELD TIME CONST. 0.2 s Ta ARMATURE TIME CONST. 0.004 s	X2 NEGATIVE SEQUENCE													
T'd TRANSIENT TIME CONST.       0.012 s         T''d SUB-TRANSTIME CONST.       0.003 s         T'do O.C. FIELD TIME CONST.       0.2 s         Ta ARMATURE TIME CONST.       0.004 s														
T"d SUB-TRANSTIME CONST.       0.003 s         T'do O.C. FIELD TIME CONST.       0.2 s         Ta ARMATURE TIME CONST.       0.004 s														
T'do O.C. FIELD TIME CONST.  0.2 s  Ta ARMATURE TIME CONST.  0.004 s			1 1 1											
Ta ARMATURE TIME CONST. 0.004 s														
	T'do O.C. FIELD TIME CONST.													
SHORT CIRCUIT RATIO 1/Xd	Ta ARMATURE TIME CONST.	0.004 s												
	SHORT CIRCUIT RATIO				1/.	Xd								

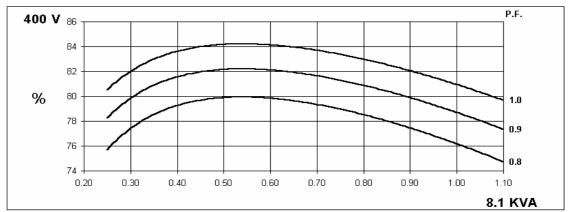
50 Hz

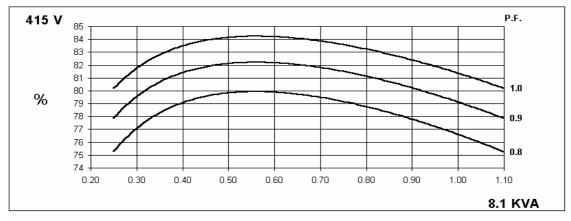
# BCA164A Winding 311

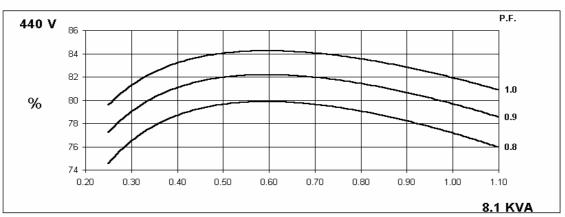


### THREE PHASE EFFICIENCY CURVES







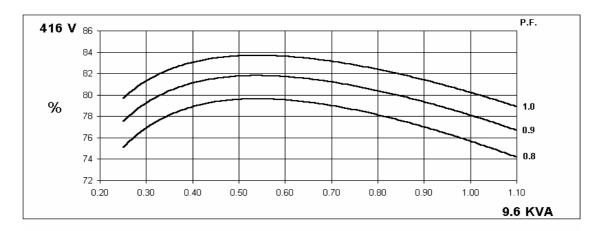


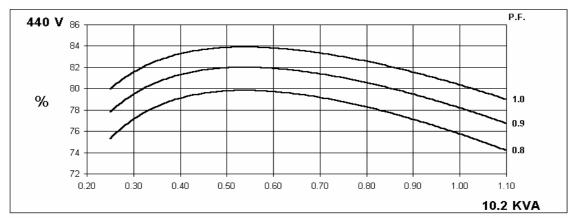


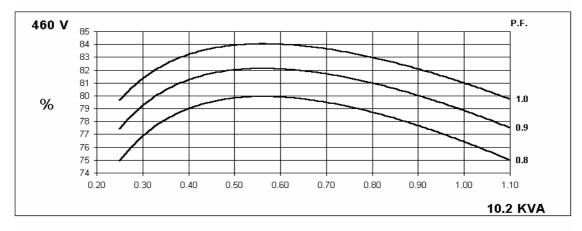
## Winding 311

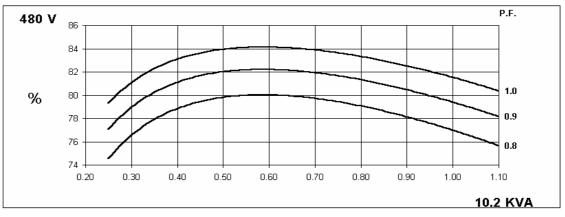
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### THREE PHASE EFFICIENCY CURVES





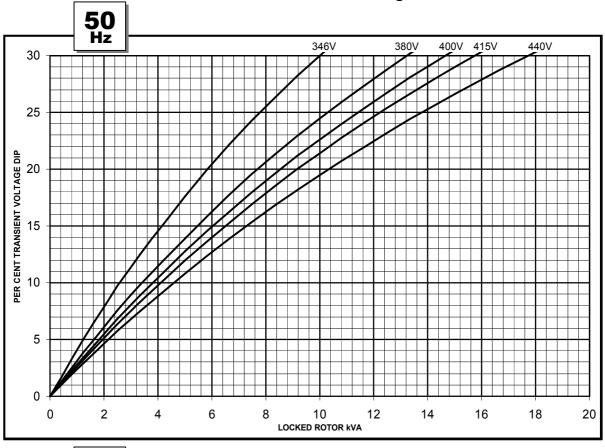


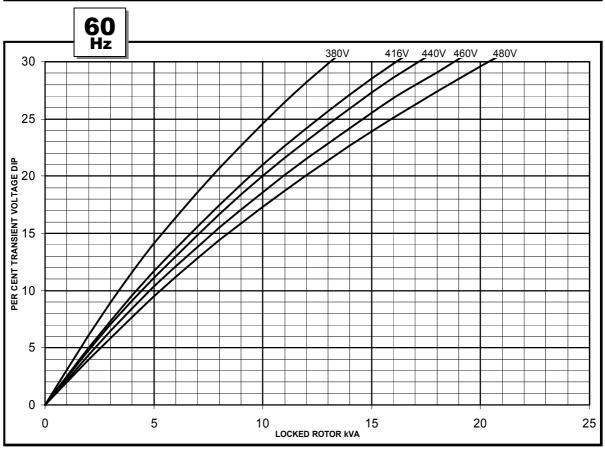


# BCA164A Winding 311



## **Locked Rotor Motor Starting Curve**







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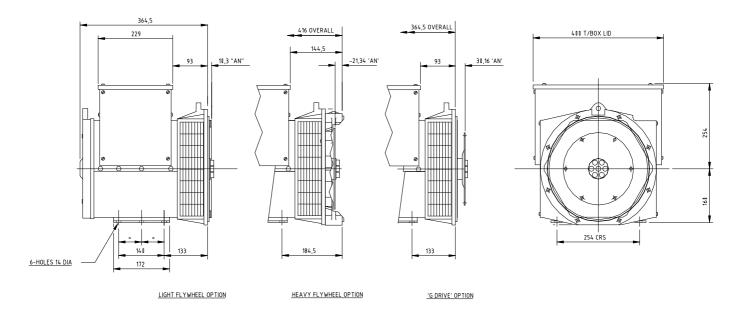


## Winding 311 / 0.8 Power Factor

### **RATINGS**

	Class - Temp Rise	Cont. F - 105/40°C			Cont. H - 125/40°C			Standby - 150/40°C				Standby - 163/27°C					
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	7.5	7.5	7.5	7.5	8.1	8.1	8.1	6.2		N/A						
	kW	6.0	6.0	6.0	6.0	6.5	6.5	6.5	5.0					N/A			
	Efficiency (%)	76.5	77.2	77.5	78.0	76.5	77.2	77.5	78.0								
	kW Input	7.8	7.8	7.7	7.7	7.8	7.8	7.7	7.7								
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
1 12	Series Delta (V)	240	254	266	277	240	254	266	277	240	254	266	277	240	254	266	277
	kVA	8.9	9.4	9.4	9.4	9.6	10.2	10.2	10.2								
	kW	7.1	7.5	7.5	7.5	13.0	13.8	13.8	13.8	N/A			N/A				
	Efficiency (%)	76.7	76.9	77.4	77.9	76.7	76.9	77.4	77.9								
	kW Input	9.3	9.8	9.7	9.7	9.3	9.8	9.7	9.7								

### **DIMENSIONS**





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