

# PRODUCT INFORMATION PACKET

Model No: LM21205

Catalog No: LM21205

Speed Ratio Motors, TEFC, 20 HP, 3 Ph, 60 Hz, 230/460 V, 1765 RPM, 256T Frame



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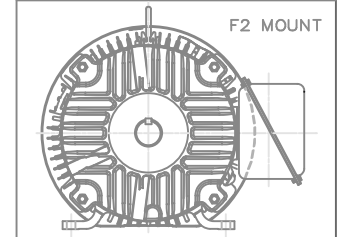
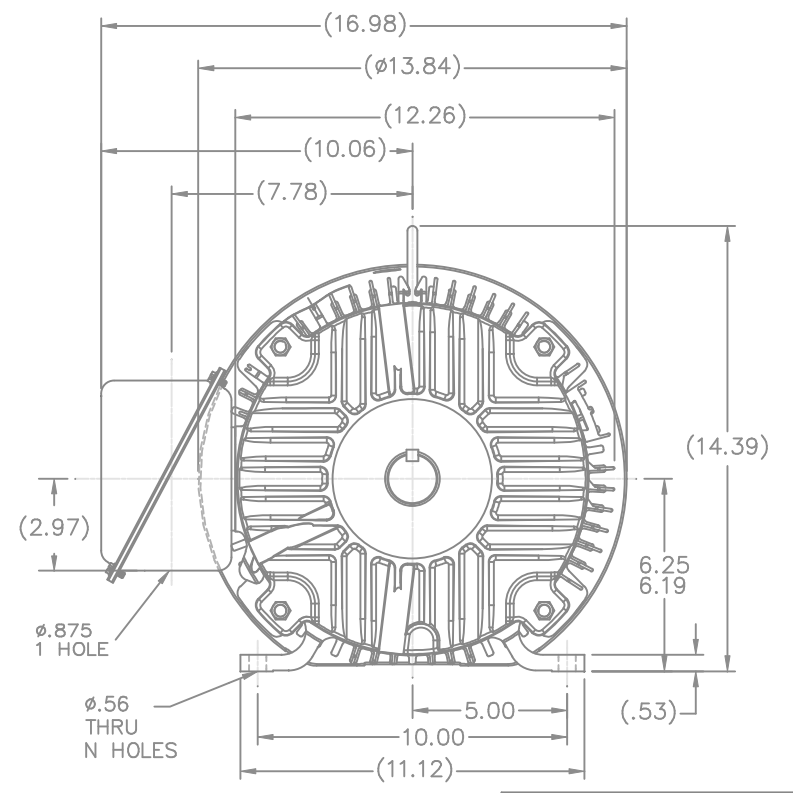
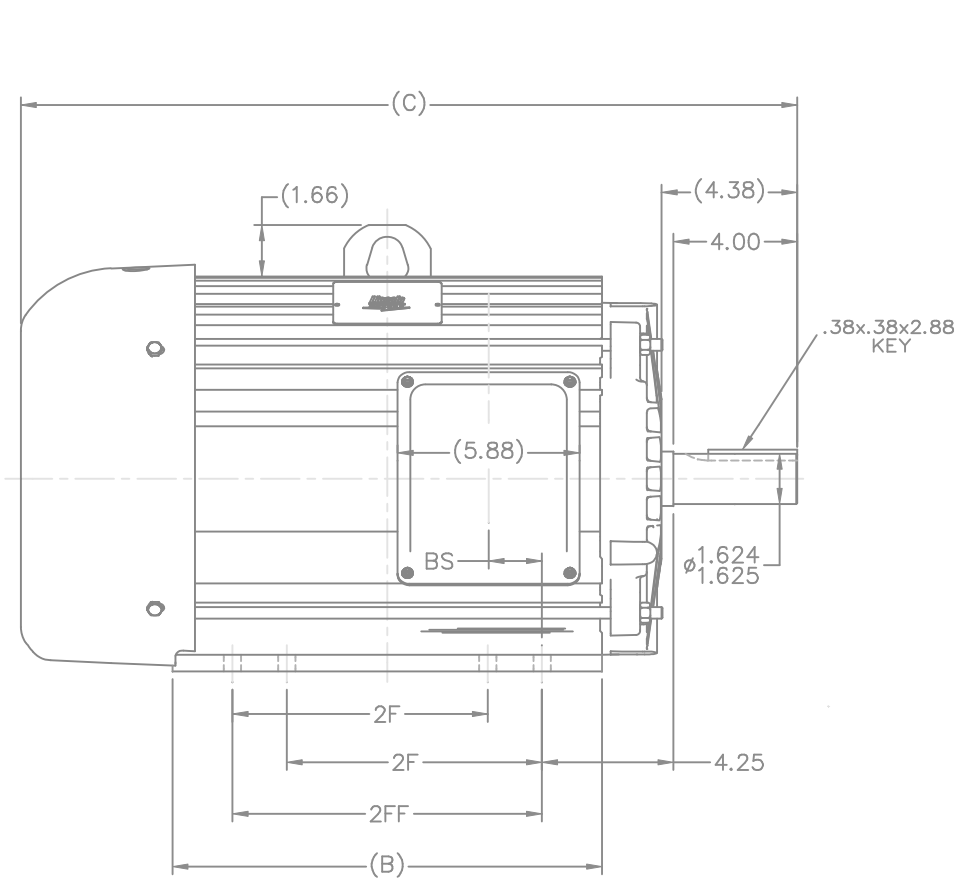
### **Nameplate Specifications**

|                        |                      |                            |                                    |
|------------------------|----------------------|----------------------------|------------------------------------|
| Output HP              | <b>20 Hp</b>         | Output KW                  | <b>14.9 kW</b>                     |
| Frequency              | <b>60 Hz</b>         | Voltage                    | <b>230/460 V</b>                   |
| Current                | <b>50.0/25.0 A</b>   | Speed                      | <b>1765 rpm</b>                    |
| Service Factor         | <b>1</b>             | Phase                      | <b>3</b>                           |
| Efficiency             | <b>91 %</b>          | Power Factor               | <b>82</b>                          |
| Duty                   | <b>Continuous</b>    | Insulation Class           | <b>F</b>                           |
| Design Code            | <b>INV</b>           | KVA Code                   | <b>F</b>                           |
| Frame                  | <b>256T</b>          | Enclosure                  | <b>Totally Enclosed Fan Cooled</b> |
| Thermal Protection     | <b>No Protection</b> | Ambient Temperature        | <b>40 °C</b>                       |
| Drive End Bearing Size | <b>309</b>           | Opp Drive End Bearing Size | <b>208</b>                         |
| UL                     | <b>Recognized</b>    | CSA                        | <b>Y</b>                           |
| CE                     | <b>Y</b>             | IP Code                    | <b>43</b>                          |
| Number of Speeds       | <b>1</b>             |                            |                                    |

### **Technical Specifications**


|                       |                                    |                       |                          |
|-----------------------|------------------------------------|-----------------------|--------------------------|
| Electrical Type       | <b>Squirrel Cage Inverter Duty</b> | Starting Method       | <b>Inverter Only</b>     |
| Poles                 | <b>4</b>                           | Rotation              | <b>Reversible</b>        |
| Resistance Main       | <b>.468 Ohms</b>                   | Mounting              | <b>Rigid Base</b>        |
| Motor Orientation     | <b>Horizontal</b>                  | Drive End Bearing     | <b>Ball</b>              |
| Opp Drive End Bearing | <b>Ball</b>                        | Frame Material        | <b>Aluminum</b>          |
| Shaft Type            | <b>T</b>                           | Overall Length        | <b>25.15 in</b>          |
| Frame Length          | <b>13.75 in</b>                    | Shaft Diameter        | <b>1.625 in</b>          |
| Shaft Extension       | <b>4 in</b>                        | Assembly/Box Mounting | <b>F1/F2 CAPABLE</b>     |
| Inverter Load         | <b>CONSTANT 4:1</b>                |                       |                          |
| Connection Drawing    | <b>A-EE7308T-LN</b>                | Outline Drawing       | <b>B-SS321100LN-1375</b> |



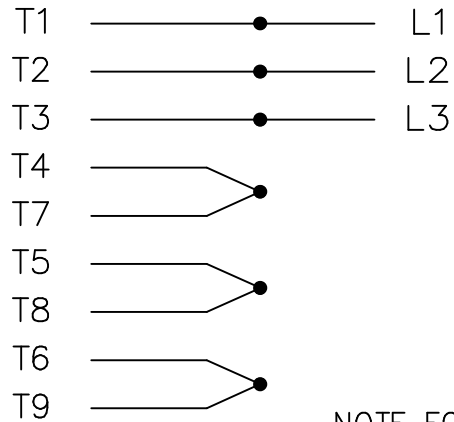


NOTES:  
 1. CONDUIT BOX CAN BE ROTATED IN 90° STEPS.  
 2. NAMEPLATES TO BE READ FROM CONDUIT BOX SIDE OF MOTOR.

| DASH | FR.    | C     | B     | BS   | 2F   | 2FF   | N |
|------|--------|-------|-------|------|------|-------|---|
| 1200 | 254T   | 23.40 | 12.13 | 1.73 | 8.25 |       | 4 |
| 1375 | 254/6T | 25.15 | 13.88 | 1.73 | 8.25 | 10.00 | 8 |

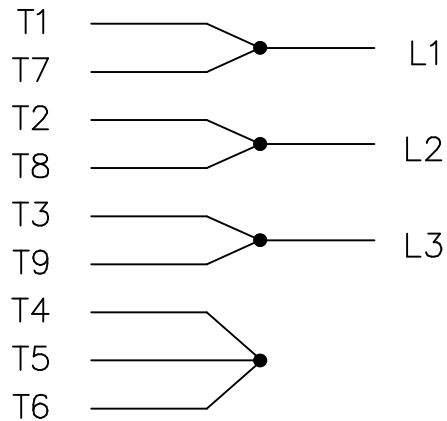
|  |  |                |  |                                |     |   |  |                      |                          |
|--|--|----------------|--|--------------------------------|-----|---|--|----------------------|--------------------------|
|  |  |                |  | TOLERANCES<br>UNLESS SPECIFIED |     |  |  | DRAWN MJK 03-29-2004 |                          |
|  |  |                |  | DEC. INCHES                    |     |   |  | CHK ML 03-29-2004    |                          |
| 3  | B DIM 12.13 WAS 12.00, AND 13.88 WAS 13.75<br>CN 29200-3584  | MJK 05/18/2004 |  | .X ±.1                         |     |   |  | APPD JPL 03-29-2004  |                          |
| 2  | 25.15 WAS 25.65, 23.40 WAS 23.90 CN 32681                    | MJK 05/04/2004 |  | .XX ±.03                       |     | TITLE OUTLINE<br>250T FR — ALUM. FR. — TEFC   |  | SCALE 1=4            |                          |
| 1  | (4.38) WAS (4.37), Ø1.624/1.625 WAS Ø1.624/1.624<br>CN 32681 | MJK 04/29/2004 |  | .XXX ±.005                     |     |   |  | REF                  |                          |
|  |  |                |  | .XXXX ±.0005                   |     | MAT'L   |  | RFM                  |                          |
| NO.  | REVISION   | BY & DATE      |  | CHK                            | ANG | FINISH  |  | PREV                 |                          |
| THIS DRAWING IN DESIGN AND DETAIL IS OUR PROPERTY AND MUST NOT BE USED EXCEPT IN CONNECTION WITH OUR WORK ALL RIGHTS OF DESIGN AND INVENTION ARE RESERVED THIS IS AN ELECTRONICALLY GENERATED DOCUMENT — DO NOT SCALE THIS PRINT |  |                |  | RFP                            |     | CAD FILE ss321100ln   |  | SIZE                 | DRAWING NO. PAGE OF REV. |
|  |  |                |  | DIST                           | LB  |   |  | B                    | SS321100LN 3             |

# HIGH VOLTAGE



NOTE FOR FACTORY USE ONLY:  
TO SURGE TEST FOR COMMON CONNECT:  
HIGH VOLT: CONNECT P1 TO T1  
THEN P2 TO L1  
LOW VOLT: CONNECT P1 TO T1 & T7,  
THEN P2 TO L1

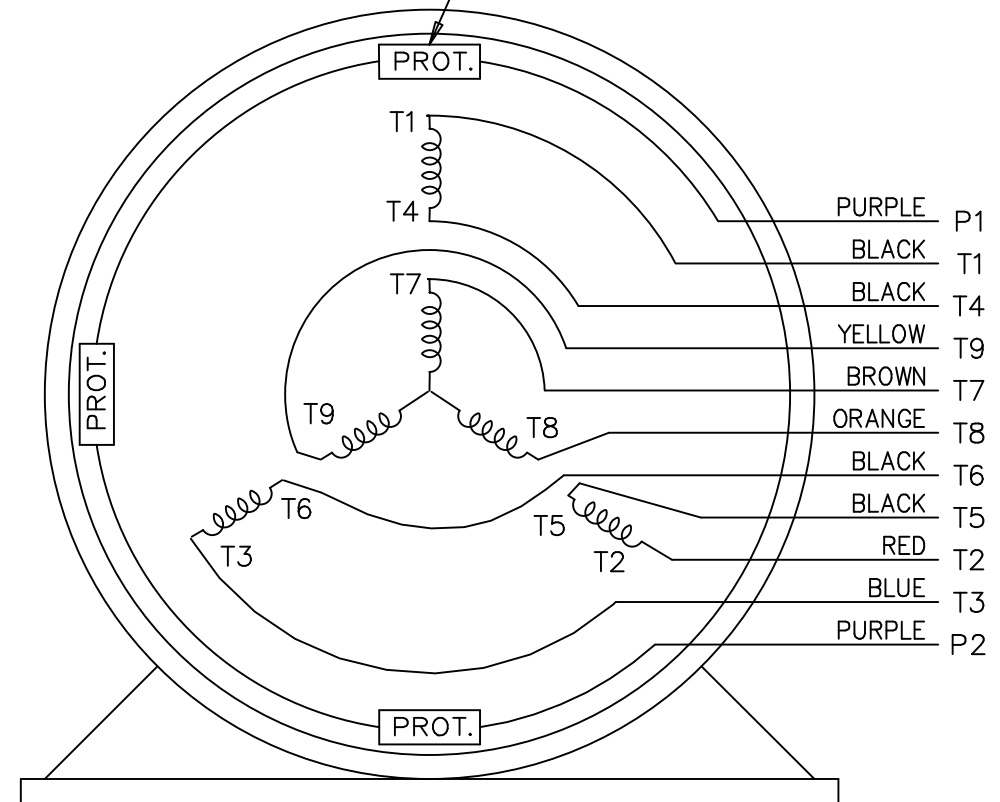
# LOW VOLTAGE




# THREE PHASE DUAL VOLTAGE MOTOR

EE7308T-LN

THREMO-PROTECTORS  
CONNECTED IN SERIES.



VIEW OF TERMINAL END

|  |                               |          |                |                                |        |   |  |     |            |             |      |    |      |
|--|-------------------------------|----------|----------------|--------------------------------|--------|---|--|-----|------------|-------------|------|----|------|
|  |                               |          |                | TOLERANCES<br>UNLESS SPECIFIED |        |  | DRAWN BJK 07-16-2002                                     |     |            |             |      |    |      |
|  |                               |          |                | DEC.                           | INCHES |   | CHK  | DRS | 07-18-2002 |             |      |    |      |
|  |                               |          |                | .X                             | ±.1    |   | APPD   | GK  | 07-18-2002 |             |      |    |      |
|  |                               |          |                | .XX                            | ±.02   |   | SCALE 1=1  |     |            |             |      |    |      |
| 2  | ADDED COLORS TO "T & P" LEADS | CN 40494 | MSG 08-08-2006 | ML                             | .XXX   | ±.005   | TITLE CONNECTION DIAGRAM<br>3 PHASE – DUAL VOLTAGE MOTOR |     |            |             | REF  |    |      |
| 1  | NEW DRAWING                   |          | BJK 07-18-2002 | DRS                            | .XXXX  | ±.0005  | MAT'L.   |     |            |             | FMF  |    |      |
| NO.  | REVISION                      |          | BY & DATE      | CHK                            | ANG    | ±7'30"  | FINISH   |     |            |             | PREV |    |      |
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|  |                               |          |                | DIST LB                        |        |   |  |     | A          | EE7308T-LN  |      |    | 2    |



# CERTIFICATION DATA SHEET

2100 WASHINGTON ST.  
GRAFTON, WI  
PH. 262-277-8810

CONN. DIAGRAM: A-EE7308T-LN

CATALOG #: LM21205

OUTLINE: B-SS321100LN-1375

WINDING #: K2564181 R20 6

MOUNTING: F1/F2 CAPABLE

## TYPICAL MOTOR PERFORMANCE DATA

| HP | kW   | SYNC. RPM | F.L. RPM | FRAME | ENCLOSURE | KVA CODE | DESIGN |
|----|------|-----------|----------|-------|-----------|----------|--------|
| 20 | 14.9 | 1800      | 1765     | 256T  | TEFC      | F        | INV    |

| PH | Hz | VOLTS   | AMPS  | START TYPE    | DUTY       | INSL | S.F. | AMB°C |
|----|----|---------|-------|---------------|------------|------|------|-------|
| 3  | 60 | 230/460 | 50/25 | INVERTER ONLY | CONTINUOUS | F3   | 1.0  | 40    |

|                |    |               |      |               |      |          |                  |
|----------------|----|---------------|------|---------------|------|----------|------------------|
| FULL LOAD EFF: | 91 | 3/4 LOAD EFF: | 91   | 1/2 LOAD EFF: | 90.2 | GTD. EFF | ELEC. TYPE       |
| FULL LOAD PF:  | 82 | 3/4 LOAD PF:  | 79.5 | 1/2 LOAD PF:  | 70   | 89.5     | SQ CAGE INV DUTY |

| F.L. TORQUE | LOCKED ROTOR AMPS | L.R. TORQUE     | B.D. TORQUE     | F.L. RISE°C |
|-------------|-------------------|-----------------|-----------------|-------------|
| 59.5 LB-FT  | 280 / 140         | 108 LB-FT 182 % | 145 LB-FT 244 % | 60          |

| SOUND PRESSURE @ 3 FT. | SOUND POWER | ROTOR WK^2  | MAX. WK^2 | SAFE STALL TIME | STARTS / HOUR | APPROX. MOTOR WGT |
|------------------------|-------------|-------------|-----------|-----------------|---------------|-------------------|
| 68 dBA                 | 78 dBA      | 2.7 LB-FT^2 | - LB-FT^2 | - SEC.          | -             | 400 LBS.          |

## \*\*\* SUPPLEMENTAL INFORMATION \*\*\*

| DE BRACKET TYPE | ODE BRACKET TYPE | MOUNT TYPE | ORIENTATION | SEVERE DUTY | HAZARDOUS LOCATION | DRIP COVER | SCREENS | PAINT         |
|-----------------|------------------|------------|-------------|-------------|--------------------|------------|---------|---------------|
| STANDARD        | STANDARD         | RIGID      | HORIZONTAL  | FALSE       | NONE               | FALSE      | NONE    | GRAY (ENAMEL) |

| BEARINGS |      | GREASE     | SHAFT TYPE | SPECIAL DE | SPECIAL ODE | SHAFT MATERIAL          | FRAME MATERIAL |
|----------|------|------------|------------|------------|-------------|-------------------------|----------------|
| DE       | ODE  |            |            |            |             |                         |                |
| BALL     | BALL | POLYREX EM | T          | NONE       | NONE        | 1045 HOT ROLLED (C-204) | ALUMINUM       |
| 309      | 208  |            |            |            |             |                         |                |

| THERMO-PROTECTORS |            |          |          | THERMISTORS | CONTROL | SPACE HEATERS |
|-------------------|------------|----------|----------|-------------|---------|---------------|
| THERMOSTATS       | PROTECTORS | WDG RTDs | BRG RTDs |             |         |               |
| TSTATS (N/C)      | NOT        | NONE     | NONE     | NONE        | FALSE   | NONE VOLTS    |

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|---|
| INVERTER TORQUE: CONSTANT 4:1<br>INV. HP SPEED RANGE: NONE                  |
| ENCODER: NONE<br>NONE NONE<br>NONE NONE PPR                                 |
| BRAKE: NONE NONE<br>NONE P/N NONE<br>NONE NONE<br>NONE FT-LB NONE V NONE Hz |

## Data Sheet

Date: 1/29/2018

LM21205



Data @ 460 V

## Motor Load Data

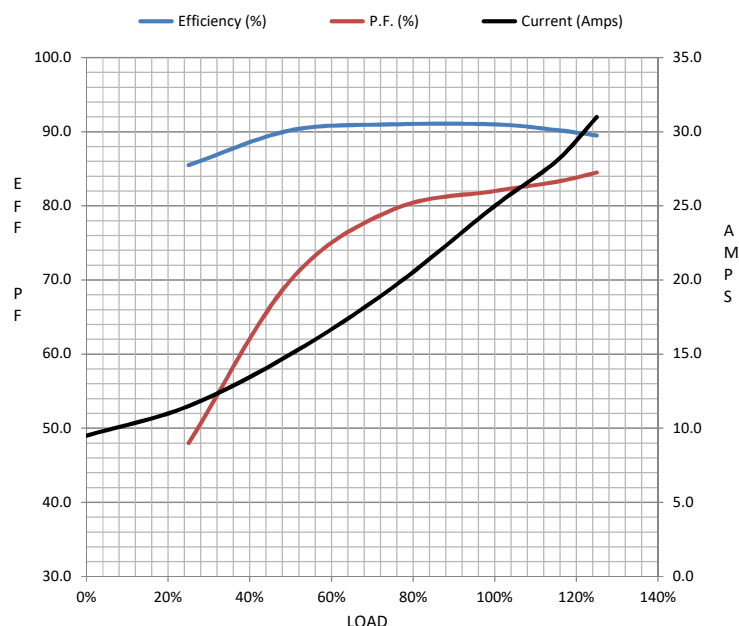
| Load           | 0%   | 25%  | 50%  | 75%  | 100% | 115%  | 125% | LR   |  |
|----------------|------|------|------|------|------|-------|------|------|--|
| Current (Amps) | 9.5  | 11.5 | 15.0 | 19.5 | 25.0 | 28.0  | 31.0 | 140  |  |
| Torque (ft-lb) | 0.00 | 14.5 | 29.5 | 44.5 | 59.5 | 67.3  | 75.0 | 108  |  |
| RPM            | 1800 | 1790 | 1785 | 1775 | 1765 | 1,761 | 1755 | 0    |  |
| Efficiency (%) |      | 85.5 | 90.2 | 91.0 | 91.0 | 90.3  | 89.5 |      |  |
| P.F. (%)       | 7.0  | 48.0 | 70.0 | 79.5 | 82.0 | 83.3  | 84.5 | 41.5 |  |

## Motor Speed Data

|                | LR  | Pull-Up | BD   | Rated | Idle |
|----------------|-----|---------|------|-------|------|
| Speed (RPM)    | 0   | 900     | 1625 | 1765  | 1800 |
| Current (Amps) | 140 | 125     | 86.0 | 25.0  | 9.5  |
| Torque (ft-lb) | 108 | 94.0    | 145  | 59.5  | 0.00 |

## Information Block

|                            |                   |        |        |         |
|----------------------------|-------------------|--------|--------|---------|
| HP                         | 20.0              |        |        |         |
| Sync. RPM                  | 1800              |        |        |         |
| Frame                      | 256               |        |        |         |
| Enclosure                  | TEFC              |        |        |         |
| Construction               | TFY               |        |        |         |
| Voltage                    | 230/460 V         |        |        |         |
| Frequency                  | 60 Hz             |        |        |         |
| Design                     | B                 |        |        |         |
| LR Code letter             | F                 |        |        |         |
| Service Factor             | 1.0               |        |        |         |
| Temp Rise @ FL             | 60 °C             |        |        |         |
| Duty                       | CONT              |        |        |         |
| Ambient                    | 40 °C             |        |        |         |
| Elevation                  | 1,000 feet        |        |        |         |
| Rotor/Shaft wk²            | 2.70 Lb-Ft²       |        |        |         |
| Ref Wdg                    | K2564181 R20      |        |        |         |
| Sound Pressure @ 1M        | 68 dBA            |        |        |         |
| VFD Rating                 | CONSTANT 4:1      |        |        |         |
| Outline Dwg                | B-SS321100LN-1375 |        |        |         |
| Conn. Diag                 | A-EE7308T-LN      |        |        |         |
| Additional Specifications: |                   |        |        |         |
| 0                          |                   |        |        |         |
| 0                          |                   |        |        |         |
| EQUIV CKT (OHMS / PHASE)   |                   |        |        |         |
| R1                         | R2                | X1     | X2     | Xm      |
| 0.3010                     | 0.2230            | 1.0170 | 1.4160 | 26.1280 |



## Speed - Torque Curve

