

# PRODUCT INFORMATION PACKET



Model No: 170000.60

Catalog No: 170000.60

WATTSaver® General Purpose Motor, 20 & 15 HP, 3 Ph, 60 & 50 Hz, 208-230/460 & 190/380 V,  
1200 & 1000 RPM, 286T Frame, DP



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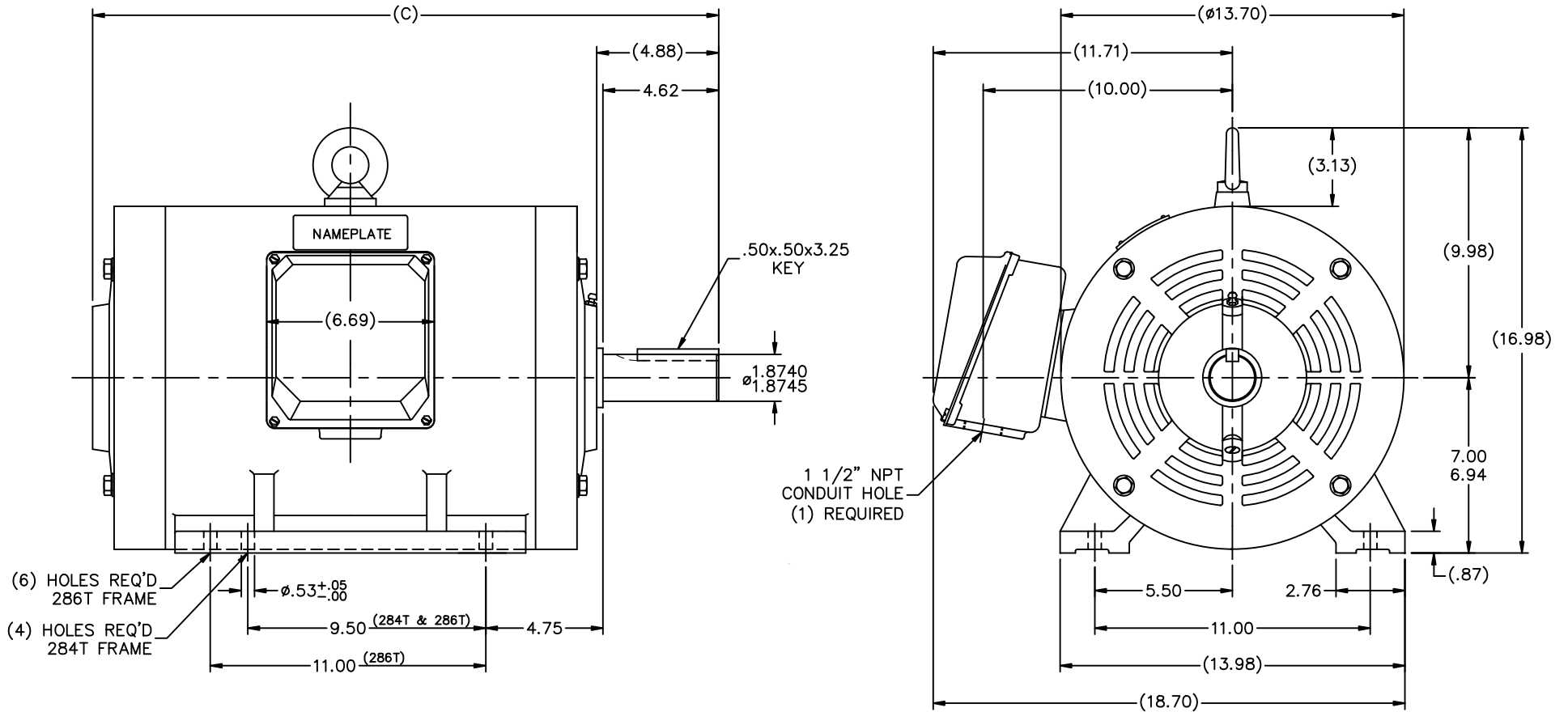


### Nameplate Specifications

|                        |                                   |                            |                                    |
|------------------------|-----------------------------------|----------------------------|------------------------------------|
| Phase                  | <b>3</b>                          | Output HP                  | <b>20 &amp; 15 Hp</b>              |
| Output KW              | <b>14.9 &amp; 11.2 kW</b>         | Voltage                    | <b>208-230/460 &amp; 190/380 V</b> |
| Speed                  | <b>1185 &amp; 985 rpm</b>         | Service Factor             | <b>1.15 &amp; 1.15</b>             |
| Frame                  | <b>286T</b>                       | Enclosure                  | <b>Drip Proof</b>                  |
| Thermal Protection     | <b>No Protection</b>              | Efficiency                 | <b>92.4 &amp; 91.7 %</b>           |
| Ambient Temperature    | <b>40 °C</b>                      | Frequency                  | <b>60 &amp; 50 Hz</b>              |
| Current                | <b>58-55/27.5 &amp; 51/25.5 A</b> | Power Factor               | <b>74.5</b>                        |
| Duty                   | <b>Continuous</b>                 | Insulation Class           | <b>F</b>                           |
| Design Code            | <b>B</b>                          | KVA Code                   | <b>G</b>                           |
| Drive End Bearing Size | <b>6312</b>                       | Opp Drive End Bearing Size | <b>6211</b>                        |
| UL                     | <b>Recognized</b>                 | CSA                        | <b>Y</b>                           |
| CE                     | <b>Y</b>                          | IP Code                    | <b>12</b>                          |
| Number of Speeds       | <b>1</b>                          |                            |                                    |

### Technical Specifications

|                       |                                     |                   |                         |
|-----------------------|-------------------------------------|-------------------|-------------------------|
| Electrical Type       | <b>Squirrel Cage Inverter Rated</b> | Starting Method   | <b>Line Or Inverter</b> |
| Poles                 | <b>6</b>                            | Rotation          | <b>Reversible</b>       |
| Resistance Main       | <b>.3142 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>Cast Iron</b>        |
| Shaft Type            | <b>T</b>                            | Overall Length    | <b>25.00 in</b>         |
| Shaft Diameter        | <b>1.875 in</b>                     | Shaft Extension   | <b>4.62 in</b>          |
| Assembly/Box Mounting | <b>F1/F2 CAPABLE</b>                |                   |                         |
| Connection Drawing    | <b>004172.01</b>                    | Outline Drawing   | <b>169552_60LE</b>      |



(6) HOLES REQ'D  
286T FRAME

(4) HOLES REQ'D  
284T FRAME

(DRAWING MAY NOT BE TO SCALE)

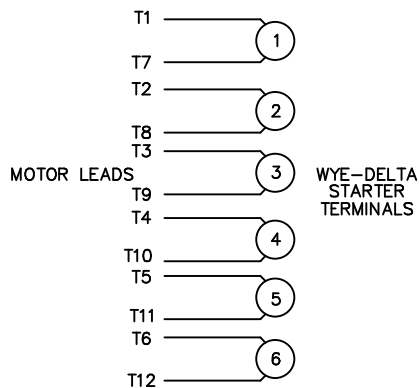
|              |       |
|--------------|-------|
| 284T         | 23.54 |
| 286T         | 25.00 |
| FRAME DESIGN | "C"   |

|                                                                                                                                                                                                                                  |          | TOLERANCES UNLESS SPECIFIED |        | <b>LEESON</b> ELECTRIC MOTORS GEARMOTORS AND DRIVES | DRAWN MSG 12-06-2005 |                      |      |             |      |    |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------|--------|-----------------------------------------------------|----------------------|----------------------|------|-------------|------|----|------|
|                                                                                                                                                                                                                                  |          | DEC.                        | INCHES |                                                     | CHK                  | ML 12-08-2005        |      |             |      |    |      |
|                                                                                                                                                                                                                                  |          | .X                          | ±0     |                                                     | APPD                 | GK 12-08-2005        |      |             |      |    |      |
|                                                                                                                                                                                                                                  |          | .XX                         | ±0     | TITLE                                               | SCALE                | 1=4                  |      |             |      |    |      |
|                                                                                                                                                                                                                                  |          | .XXX                        | ±0     | 280T FR. - DRIP PROOF - RIGID                       | REF                  | 169552-60            |      |             |      |    |      |
|                                                                                                                                                                                                                                  |          | .XXXX                       | ±0     | MAT'L                                               | FMF                  |                      |      |             |      |    |      |
| NO.                                                                                                                                                                                                                              | REVISION | BY & DATE                   | CHK    | ANG                                                 | ±0                   | 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                                                 | 12-09-2005           | CAD FILE 169552_60le | SIZE | DRAWING NO. | PAGE | OF | REV. |
|                                                                                                                                                                                                                                  |          |                             |        |                                                     |                      |                      | B    | 169552-60LE |      |    |      |

WYE - DELTA STARTING USEABLE ON 2,4 AND 6 POLE MOTORS.

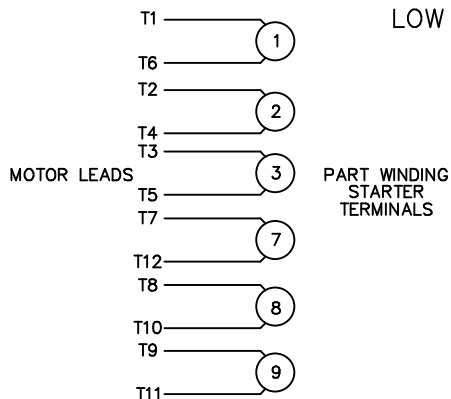
LOW VOLTAGE CONNECTION

HIGH VOLTAGE CONNECTION



REFER TO THE WYE-DELTA STARTER CONNECTION INSTRUCTIONS FOR PROPER CONNECTION OF POWER LINES TO STARTER.

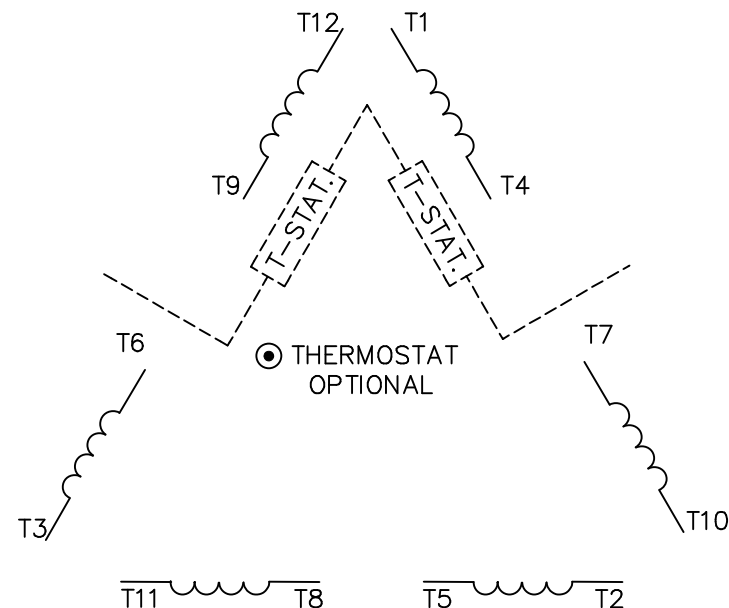
PART WINDING START USABLE ON 4 & 6 POLE MOTORS  
LOW VOLTAGE CONNECTION ONLY



REFER TO THE PART WINDING STARTER INSTRUCTIONS FOR PROPER CONNECTION OF POWER LINES TO STARTER.

REFER TO THE CUTLER - HAMMER OR EQUIV. FOR PROPER SELECTION OF OVERLOAD HEATER COILS.

LINE LEADS



ROTATION CAN BE REVERSED BY INTERCHANGING ANY TWO LINE LEADS  
● RED LEADS OR P1, P2, FOR N/C THERMOSTAT

ACROSS THE LINE START & RUN

|           | LINE 1            | LINE 2            | LINE 3            | JOIN & INSULATE SEPARATELY |
|-----------|-------------------|-------------------|-------------------|----------------------------|
| HIGH VOLT | T1, T12           | T2, T10           | T3, T11           | (T4, T7) (T5, T8) (T6, T9) |
| LOW VOLT  | T1, T6<br>T7, T12 | T2, T4<br>T8, T10 | T3, T5<br>T9, T11 |                            |

TOLERANCES UNLESS SPECIFIED  
DEC. INCHES



ELECTRIC MOTORS  
GEARMOTORS  
AND DRIVES

DRAWN WLW 09/08/77  
CHK RPB 09/12/77  
APPD JCW 09/12/77

| NO. | REVISION                                | BY & DATE    | CHK   | ANG    | ±1/2' |
|-----|-----------------------------------------|--------------|-------|--------|-------|
| 03  | REV'D LOW VOLTAGE CONN. LEADS PER ELEC. | BJB 06/07/00 | .XX   | ±.01   |       |
| 02  | ADDED T-STAT. NOTES PER ELECTRICAL      | KMM 06/02/98 | .XXX  | ±.005  |       |
| 01  | REDRAWN TO CAD                          | DBT 06/02/97 | .XXXX | ±.0005 |       |

|        |                                |
|--------|--------------------------------|
| TITLE  | DELTA - WYE CONNECTION DIAGRAM |
| MAT'L. |                                |
| FINISH |                                |

|       |     |
|-------|-----|
| SCALE | 1=1 |
| REF   |     |
| FMF   |     |
| PREV  |     |

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|      |          |          |      |             |      |
|------|----------|----------|------|-------------|------|
| RFP  | CAD FILE | 00417201 | SIZE | DRAWING NO. | REV. |
| DIST |          |          | A    | 004172-01   | 03   |

Data Sheet

Date: 1/31/2018

170000.60



Data @ 460 V

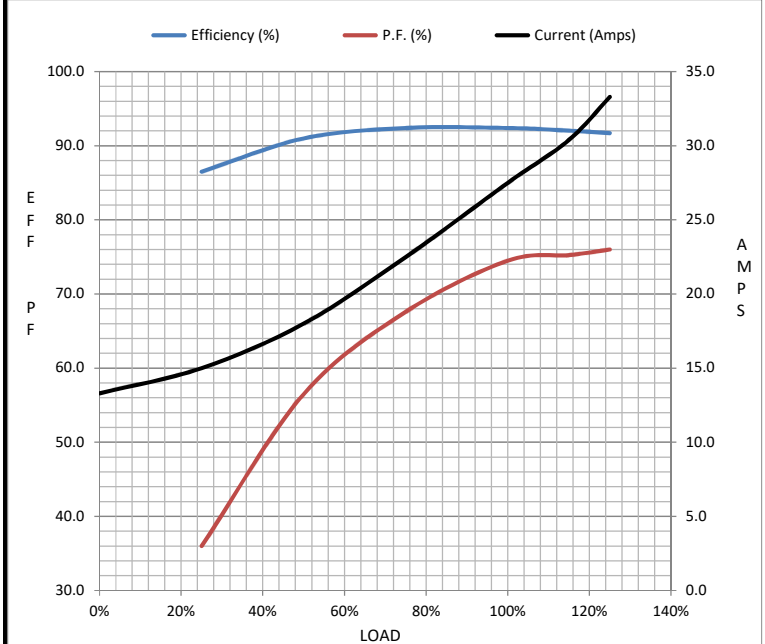
Motor Load Data

| Load           | 0%   | 25%  | 50%  | 75%  | 100% | 115%  | 125% | LR  |
|----------------|------|------|------|------|------|-------|------|-----|
| Current (Amps) | 13.3 | 15.0 | 18.0 | 22.5 | 27.5 | 30.4  | 33.3 | 146 |
| Torque (ft-lb) | 0.00 | 22.0 | 44.0 | 66.2 | 88.6 | 99.8  | 111  | 146 |
| RPM            | 1200 | 1197 | 1193 | 1190 | 1185 | 1,184 | 1182 | 0   |
| Efficiency (%) |      | 86.5 | 91.0 | 92.4 | 92.4 | 92.1  | 91.7 |     |
| P.F. (%)       | 5.0  | 36.0 | 56.5 | 67.6 | 74.5 | 75.3  | 76.0 | 0.0 |

Motor Speed Data

|                | LR  | Pull-Up | BD   | Rated | Idle |
|----------------|-----|---------|------|-------|------|
| Speed (RPM)    | 0   | 800     | 1120 | 1185  | 1200 |
| Current (Amps) | 146 | 138     | 98.5 | 27.5  | 13.3 |
| Torque (ft-lb) | 146 | 124     | 262  | 88.6  | 0.00 |

| Information Block           |                         |        |        |        |
|-----------------------------|-------------------------|--------|--------|--------|
| HP                          | 20.0                    |        |        |        |
| Sync. RPM                   | 1200                    |        |        |        |
| Frame                       | 286                     |        |        |        |
| Enclosure                   | DP                      |        |        |        |
| Construction                | TDC                     |        |        |        |
| Voltage                     | 208-230/460#190/380 V   |        |        |        |
| Frequency                   | 60 Hz                   |        |        |        |
| Design                      | B                       |        |        |        |
| LR Code letter              | G                       |        |        |        |
| Service Factor              | 1.15                    |        |        |        |
| Temp Rise @ FL              | 52 °C                   |        |        |        |
| Duty                        | CONT                    |        |        |        |
| Ambient                     | 40 °C                   |        |        |        |
| Elevation                   | 1,000 feet              |        |        |        |
| Rotor/Shaft wk <sup>2</sup> | 0.00 Lb-Ft <sup>2</sup> |        |        |        |
| Ref Wdg                     | T14506014 DR            |        |        |        |
| Sound Pressure @ 1M         | 51 dBA                  |        |        |        |
| VFD Rating                  | VARIABLE 10:1           |        |        |        |
| Outline Dwg                 | 169552_60LE             |        |        |        |
| Conn. Diag                  | 4172.01                 |        |        |        |
| Additional Specifications:  |                         |        |        |        |
| 0                           |                         |        |        |        |
| 0                           |                         |        |        |        |
| EQUIV CKT (OHMS / PHASE)    |                         |        |        |        |
| R1                          | R2                      | X1     | X2     | Xm     |
| 0.0000                      | 0.0000                  | 0.0000 | 0.0000 | 0.0000 |



Speed - Torque Curve

