

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: 405THFS19101

Catalog No: W590

XRI®-841 Severe Duty Motor, 60 HP, 3 Ph, 60 Hz, 460 V, 900 RPM, 405T Frame, TEFC



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**RegalRexnord**

### Nameplate Specifications

|                        |               |                            |                             |
|------------------------|---------------|----------------------------|-----------------------------|
| Phase                  | 3             | Output HP                  | 60 Hp                       |
| Output KW              | 45.0 kW       | Voltage                    | 460 V                       |
| Speed                  | 890 rpm       | Service Factor             | 1.15                        |
| Frame                  | 405T          | Enclosure                  | Totally Enclosed Fan Cooled |
| Thermal Protection     | No Protection | Efficiency                 | 93 %                        |
| Ambient Temperature    | 40 °C         | Frequency                  | 60 Hz                       |
| Current                | 82.0 A        | Power Factor               | 74                          |
| Duty                   | Continuous    | Insulation Class           | F                           |
| Design Code            | B             | KVA Code                   | G                           |
| Drive End Bearing Size | 6316          | Opp Drive End Bearing Size | 6313                        |
| UL                     | Recognized    | CSA                        | Y                           |
| CE                     | Y             | IP Code                    | 56                          |
| Number of Speeds       | 1             | Hazardous Location         | DIVISION 2 T2B              |

### Technical Specifications

|                       |                              |                       |                  |
|-----------------------|------------------------------|-----------------------|------------------|
| Electrical Type       | Squirrel Cage Inverter Rated | Starting Method       | Line Or Inverter |
| Poles                 | 8                            | Rotation              | Reversible       |
| Resistance Main       | .113 Ohms                    | Mounting              | Rigid Base       |
| Motor Orientation     | Horizontal                   | Drive End Bearing     | Ball             |
| Opp Drive End Bearing | Ball                         | Frame Material        | Cast Iron        |
| Shaft Type            | T                            | Overall Length        | 37.14 in         |
| Frame Length          | 16.75 in                     | Shaft Diameter        | 2.875 in         |
| Shaft Extension       | 7.25 in                      | Assembly/Box Mounting | F1/F2 CAPABLE    |
| Inverter Load         | CONSTANT 20:1                |                       |                  |
| Outline Drawing       | B-SS508591-1675              | Connection Drawing    | A-EE7300         |



| DASH | FRAME    | B                 | C                 | 2F                | 2FF               | BS               |
|------|----------|-------------------|-------------------|-------------------|-------------------|------------------|
| 1525 | 404T     | 14.75<br>[374.65] | 35.63<br>[905.00] | 12.25<br>[311.15] | - - -             | 6.12<br>[155.45] |
| 1675 | 404/405T | 16.25<br>[412.75] | 37.13<br>[943.10] | 12.25<br>[311.15] | 13.75<br>[349.25] | 6.88<br>[174.75] |

**TOLERANCES UNLESS OTHERWISE SPECIFIED:**


| <u>DEC.</u> | <u>INCH</u> | <u>mm</u> | <u>ANGLE</u> |
|-------------|-------------|-----------|--------------|
| .X          | ±0.1        | [±2.5]    | ±7° 30'      |
| .XX         | ±0.03       | [±0.76]   |              |
| .XXX        | ±0.005      | [±0.127]  |              |
| .XXXX       | ±0.0005     | [±0.0127] |              |


**REMOVE BURRS & BREAK SHARP EDGES: .003/.015 [0.076/.381]**

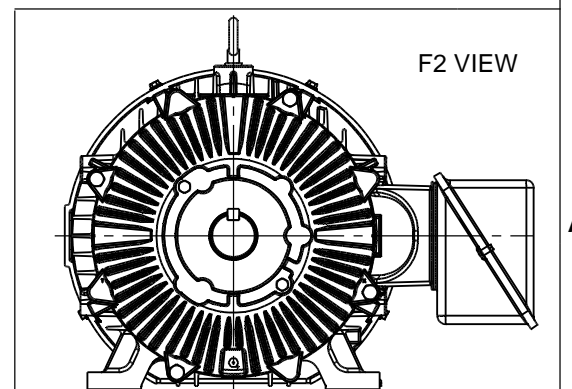
**CORNER FILLETS: .02 [51]**

**MACHINED SURFACES: 200/ 5.1**  
INCH √ mm √

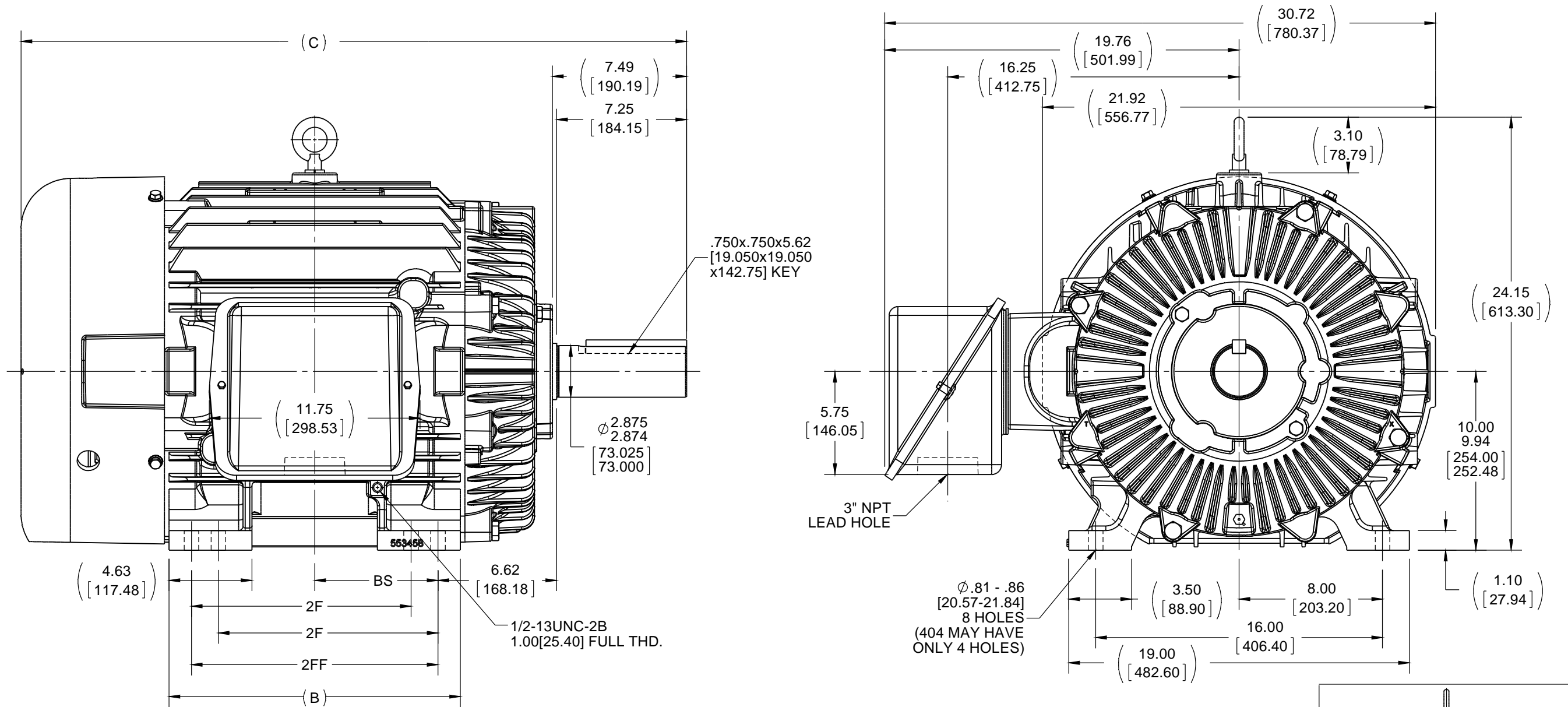
**mm SHOWN IN [BRACKETS]**

|                           |   |
|---------------------------|---|
| DRAWN BY                  | TLB   |
| DATE                      | 05-23-1988  |
| APPROVED BY               | GK  |
| DATE                      | 05-23-1988  |
| REFERENCE                 |   |
| THIRD ANGLE<br>PROJECTION |  |

|   |  |                               |
|---|--|-------------------------------|
|  <b>Regal Beloit America, Inc.</b> |  |                               |
| <b>DESCRIPTION</b><br><div style="text-align: center;"> <h1>OUTLINE</h1> <h2>400T FR.-TEFC-TAPPED LEAD HOLE</h2> </div> |  |                               |
| <b>MATERIAL</b>   |  | <b>PROCESS/FINISH</b>         |
| <b>SIZE</b><br><b>B</b>   | <b>DRAWING NUMBER</b><br><b>SS508591</b> | <b>SHEET</b><br><b>1 OF 1</b> |



- NOTES:
1. BOX CAN BE ROTATED IN 90° STEPS.
  2. BOX CAN BE MOUNTED ON OPPOSITE SIDE BY REMOVING BRACKETS AND TURNING FRAME 180°.
  3. NAMEPLATES TO BE READ FROM CONDUIT BOX SIDE OF MOTOR.



THREE PHASE - SINGLE VOLTAGE  
MOTOR - CONDUIT BOX @ 'A'

TO REVERSE ROTATION:  
INTERCHANGE ANY TWO LINE  
LEAD CONNECTIONS

TERMINAL BLOCK WHEN SPECIFIED

IF MOTOR HAS 9 LEADS

T1(U1) T1(U1) T1(U1) → L1

T2(V1) T2(V1) T2(V1) → L2

T3(W1) T3(W1) T3(W1) → L3

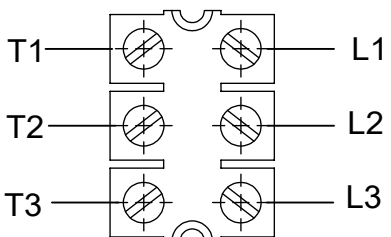
IF MOTOR HAS 6 LEADS

T1(U1) T1(U1) → L1

T2(V1) T2(V1) → L2

T3(W1) T3(W1) → L3

A-9806 DECAL




VIEW OF TERMINAL END

| OPTIONAL CORD CONNECTION |       |
|--------------------------|-------|
| L1                       | WHITE |
| L2                       | RED   |
| L3                       | BLACK |

|  |                   |                               |
|--|-------------------|-------------------------------|
| DRAWING REVISION<br>AC   | REVISION BY<br>BS | REV DATE/© DATE<br>26/07/2022 |
| REQUEST NUMBER<br>CR-0010402   | APPROVED BY<br>SN | DATE<br>26/07/2022            |
| REQUEST NUMBER DESCRIPTION<br>DRAWING UPDATED  |                   |                               |
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PRIMARY DIMENSIONS ARE INCH  
mm DIMENSIONS IN [BRACKETS]  
ARE FOR REFERENCE ONLY

|                        |
|------------------------|
| DRAWN BY<br>DA         |
| DATE<br>03-26-1993     |
| APPROVED BY<br>TB      |
| DATE<br>03-26-1993     |
| REFERENCE              |
| THIRD ANGLE PROJECTION |

|  |                          |
|--|--------------------------|
|  Regal Beloit America, Inc. |                          |
| DESCRIPTION<br>CONNECTION DIAGRAM<br>EXTERNAL - SINGLE VOLTAGE - 3Ø MOTOR  |                          |
| MATERIAL   | PROCESS/FINISH           |
| SIZE<br>A  | DRAWING NUMBER<br>EE7300 |
| SHEET<br>1 OF 1  |                          |

## CERTIFICATION DATA SHEET

Model#: 405THFS19101 AN  
 CONN. DIAGRAM: A-EE7300  
 OUTLINE: B-SS508591-1675

WINDING#: T405819 R2 3  
 ASSEMBLY: F1/F2 CAPABLE

## TYPICAL MOTOR PERFORMANCE DATA

| HP | KW | SYNC. RPM | F.L. RPM | FRAME | ENCLOSURE | KVA CODE | DESIGN |
|----|----|-----------|----------|-------|-----------|----------|--------|
| 60 | 45 | 900       | 890      | 405T  | TEFC      | G        | B      |

| PH | Hz | VOLTS | FL AMPS | START TYPE          | DUTY       | INSL | S.F  | AMB°C | ELEVATION |
|----|----|-------|---------|---------------------|------------|------|------|-------|-----------|
| 3  | 60 | 460   | 82      | LINE OR<br>INVERTER | CONTINUOUS | F1   | 1.15 | 40    | 3300      |

|                   |                    |                    |          |                   |              |
|-------------------|--------------------|--------------------|----------|-------------------|--------------|
| FULL LOAD EFF: 93 | 3/4 LOAD EFF: 93.6 | 1/2 LOAD EFF: 92.4 | GTD. EFF | ELEC. TYPE        | NO LOAD AMPS |
| FULL LOAD PF: 74  | 3/4 LOAD PF: 69    | 1/2 LOAD PF: 58    | 92.4     | SQ CAGE INV RATED | 36           |

| F.L. TORQUE | LOCKED ROTOR AMPS | L.R. TORQUE   | B.D. TORQUE   | F.L. RISE°C |
|-------------|-------------------|---------------|---------------|-------------|
| 355 LB-FT   | 435               | 625 LB-FT 176 | 825 LB-FT 230 | 60          |

| SOUND PRESSURE<br>@ 3 FT. | SOUND POWER | ROTOR WK^2   | MAX. WK^2 | SAFE STALL TIME | STARTS<br>/HOUR | APPROX. MOTOR<br>WGT |
|---------------------------|-------------|--------------|-----------|-----------------|-----------------|----------------------|
| 72 dBA                    | 82 dBA      | 40.8 LB-FT^2 | - LB-FT^2 | 20 SEC.         | -               | 1400 LBS.            |

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

| DE BRACKET<br>TYPE | ODE BRACKET<br>TYPE | MOUNT<br>TYPE | ORIENTATION | SEVERE<br>DUTY         | HAZARDOUS<br>LOCATION | DRIP<br>COVER | SCREENS | PAINT        |
|--------------------|---------------------|---------------|-------------|------------------------|-----------------------|---------------|---------|--------------|
| STANDARD           | STANDARD            | RIGID         | HORIZONTAL  | PREMIUM<br>SEVERE DUTY | DIVISION 2 T2B        | FALSE         | NONE    | BLUE (EPOXY) |

| BEARINGS |      | GREASE     | SHAFT TYPE | SPECIAL DE | SPECIAL ODE | SHAFT<br>MATERIAL          | FRAME<br>MATERIAL |
|----------|------|------------|------------|------------|-------------|----------------------------|-------------------|
| DE       | OPE  |            |            |            |             |                            |                   |
| BALL     | BALL |            |            |            |             |                            |                   |
| 6316     | 6313 | POLYREX EM | T          | NONE       | NONE        | 1045 HOT<br>ROLLED (C-204) | CAST IRON         |

| THERMO-PROTECTORS |            |          |          | THERMISTORS | CONTROL | SPACE /n HEATERS |
|-------------------|------------|----------|----------|-------------|---------|------------------|
| THERMOSTATS       | PROTECTORS | WDG RTDs | BRG RTDs |             |         |                  |
| NONE              | NOT        | NONE     | NONE     | NONE        | FALSE   | NONE VOLTS       |

If Inverter equals NONE, contact factory for further information

INVERTER TORQUE: CONSTANT 20:1  
 INV. HP SPEED RANGE: NONE

ENCODER: NONE  
 NONE NONE  
 NONE NONE PPR

BRAKE: NONE NONE  
 NONE P/N NONE  
 NONE NONE  
 NONE FT-LB NONE V NONE Hz

\*  
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\*

DATE: 06/21/2017 08:10:34 AM  
 FORM 3531 REV.3 02/07/99  
 \*\* Subject to change without notice.

## Data Sheet

Date: 15-06-2017

Customer:

Attention:

Submitted by: FAREEDA DUDEKULA



405THFS19101

Submittal

Data @ 460 V

## Motor Load Data

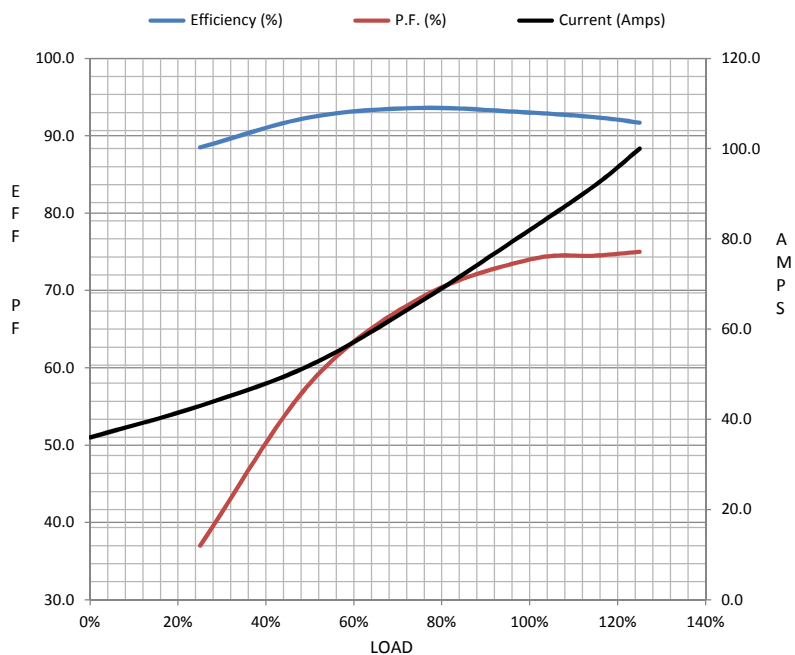
| Load           | 0%   | 25%  | 50%  | 75%  | 100% | 115% | 125% | LR   |  |
|----------------|------|------|------|------|------|------|------|------|--|
| Current (Amps) | 36.0 | 43.0 | 52.0 | 66.0 | 82.0 | 92.0 | 100  | 435  |  |
| Torque (ft-lb) | 0.00 | 88.0 | 176  | 265  | 355  | 409  | 445  | 625  |  |
| RPM            | 900  | 896  | 894  | 892  | 890  | 886  | 884  | 0    |  |
| Efficiency (%) |      | 88.5 | 92.4 | 93.6 | 93.0 | 92.4 | 91.7 |      |  |
| P.F. (%)       | 5.0  | 37.0 | 58.0 | 69.0 | 74.0 | 74.5 | 75.0 | 36.0 |  |

## Motor Speed Data

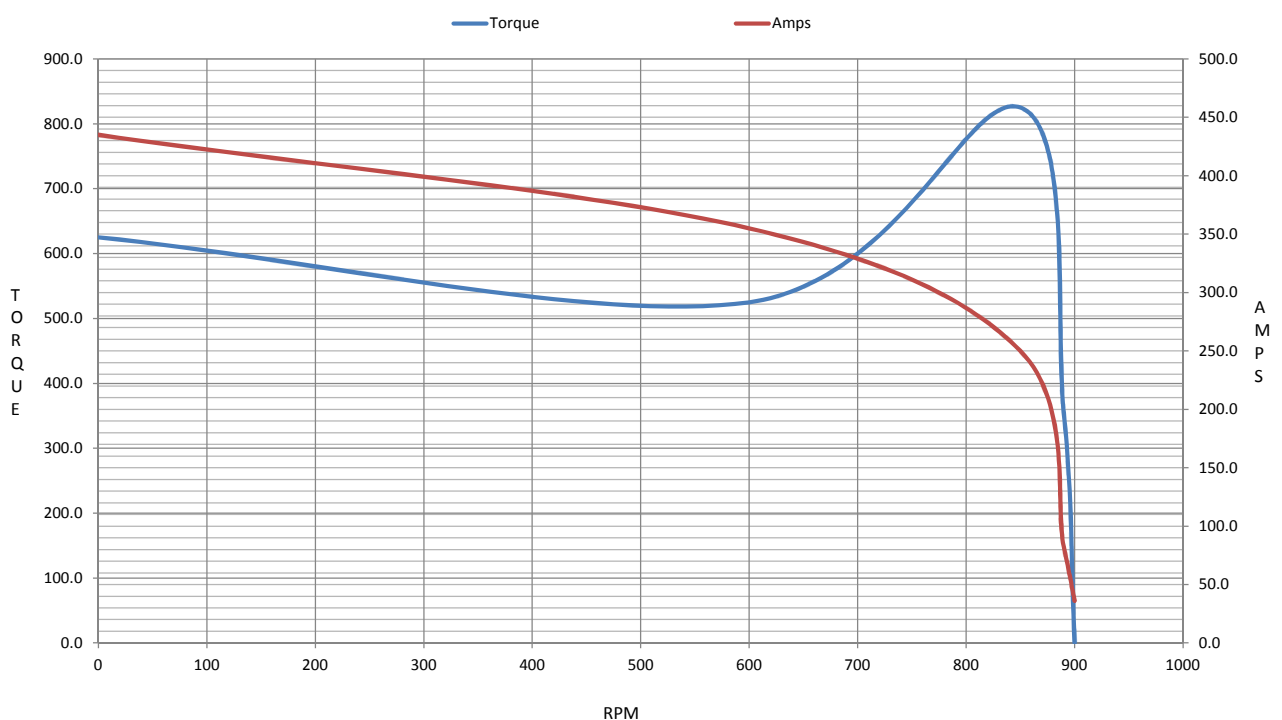
|                | LR  | Pull-Up | BD  | Rated | Idle |
|----------------|-----|---------|-----|-------|------|
| Speed (RPM)    | 0   | 600     | 850 | 890   | 900  |
| Current (Amps) | 435 | 355     | 250 | 82.0  | 36.0 |
| Torque (ft-lb) | 625 | 525     | 825 | 355   | 0.00 |

## Information Block

|                            |                 |        |        |        |
|----------------------------|-----------------|--------|--------|--------|
| HP                         | 60.0            |        |        |        |
| Sync. RPM                  | 900             |        |        |        |
| Frame                      | 405             |        |        |        |
| Enclosure                  | TEFC            |        |        |        |
| Construction               | TFS             |        |        |        |
| Voltage                    | 460 V           |        |        |        |
| Frequency                  | 60 Hz           |        |        |        |
| Design                     | B               |        |        |        |
| LR Code letter             | G               |        |        |        |
| Service Factor             | 1.15            |        |        |        |
| Temp Rise @ FL             | 60 ° C          |        |        |        |
| Duty                       | CONT            |        |        |        |
| Ambient                    | 40 ° C          |        |        |        |
| Elevation                  | 1,000 feet      |        |        |        |
| Rotor/Shaft wk²            | 40.8 Lb-Ft²     |        |        |        |
| Ref Wdg                    | T405819 R2      |        |        |        |
| Sound Pressure @ 1M        | 72 dBA          |        |        |        |
| VFD Rating                 | CONSTANT 20:1   |        |        |        |
| Outline Dwg                | B-SS508591-1675 |        |        |        |
| Conn. Diag                 | A-EE7300        |        |        |        |
| Additional Specifications: |                 |        |        |        |
| 0                          |                 |        |        |        |
| 365THFS8036                |                 |        |        |        |
| EQUIV CKT (OHMS / PHASE)   |                 |        |        |        |
| R1                         | R2              | X1     | X2     | Xm     |
| 0.0680                     | 0.0410          | 0.3980 | 0.7280 | 5.9080 |



## Speed -Torque Curve



## EC Declaration of Conformity

The undersigned representing  
the manufacturer:

Regal Beloit America  
100 East Randolph St.  
Wausau, WI 54401

and the authorized representative  
established within the Community:

Marathon Electric UK  
6F Thistleton Road Ind. Estate  
Market Overton  
Oakham, Rutland LE15 7PP UK

are committed to providing customers with products that comply with applicable regulations and international protocols to which they are subject, including the requirements of the European Parliament Directive on the Harmonization of the laws relating to electrical equipment designed for use within certain voltage limits (2014/35/EU).

Regal Beloit America declares that the following product(s), to which this declaration relates, are in conformity with the relevant sections of the EC standards listed below.

This statement supersedes any statements previously issued pertaining to the product(s) listed below and is subject to change without notice.

Model No : 405THFS19101

(Model No. may contain prefix and/or suffix characters)

Catalog No : W590

Rework No : N/A

Directives :

Low Voltage Directive 2014/35/EU

Harmonized Standards Used :

EN 60034-1: 2010 (IEC 60034-1: 2010)

EN 60034-5: 2001/A1:2007 (IEC 60034-5: 2000/A1:2006)

Authorized Representative:



Michael A. Logsdon  
Vice President, Technology

Authorized Representative in the Community:



Julian Clark  
Marketing Engineer

Created on 09/01/2022

**CE 22**