

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA0301A3113GACD01

Catalog No: TCA0301A3113GACD01

30.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 3000 RPM, 415 V, 200L Frame, TEFC  
Cast Iron IE3 Efficiency Motors



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**REGAL**

### Nameplate Specifications

|                            |        |                        |                             |
|----------------------------|--------|------------------------|-----------------------------|
| Output HP                  | 40 Hp  | Output KW              | 30.0 kW                     |
| Frequency                  | 50 Hz  | Voltage                | 415 V                       |
| Current                    | 50.8 A | Speed                  | 2971 rpm                    |
| Service Factor             | 1      | Phase                  | 3                           |
| Efficiency                 | 93.3 % | Power Factor           | 0.88                        |
| Duty                       | S1     | Insulation Class       | F                           |
| Frame                      | 200L   | Enclosure              | Totally Enclosed Fan Cooled |
| Ambient Temperature        | 50 °C  | Drive End Bearing Size | 6312                        |
| Opp Drive End Bearing Size | 6212   | UL                     | No                          |
| CSA                        | No     | CE                     | Yes                         |
| IP Code                    | 55     |                        |                             |

### Technical Specifications

|                       |               |                       |                |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line |
| Poles                 | 2             | Rotation              | Bi-Directional |
| Mounting              | B3            | Motor Orientation     | Horizontal     |
| Drive End Bearing     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 769 mm        | Frame Length          | 370 mm         |
| Shaft Diameter        | 55 mm         | Shaft Extension       | 110 mm         |
| Assembly/Box Mounting | R Side        |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0220000522     |

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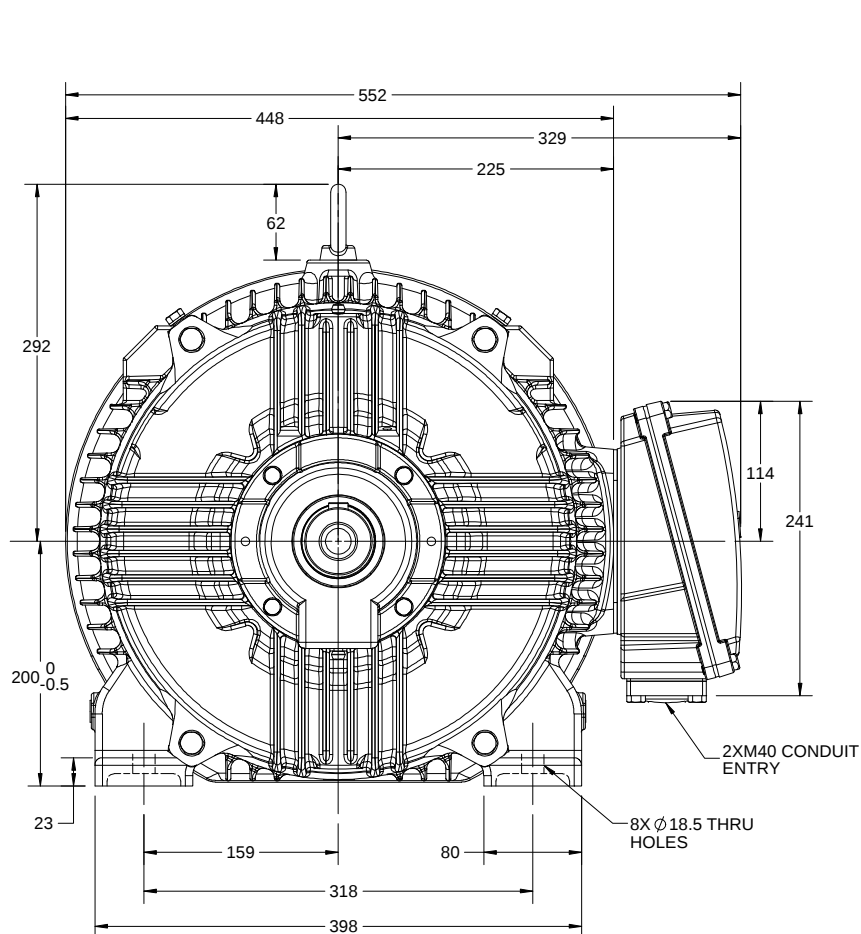
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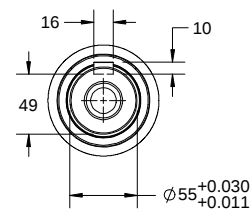
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## OUTLINE

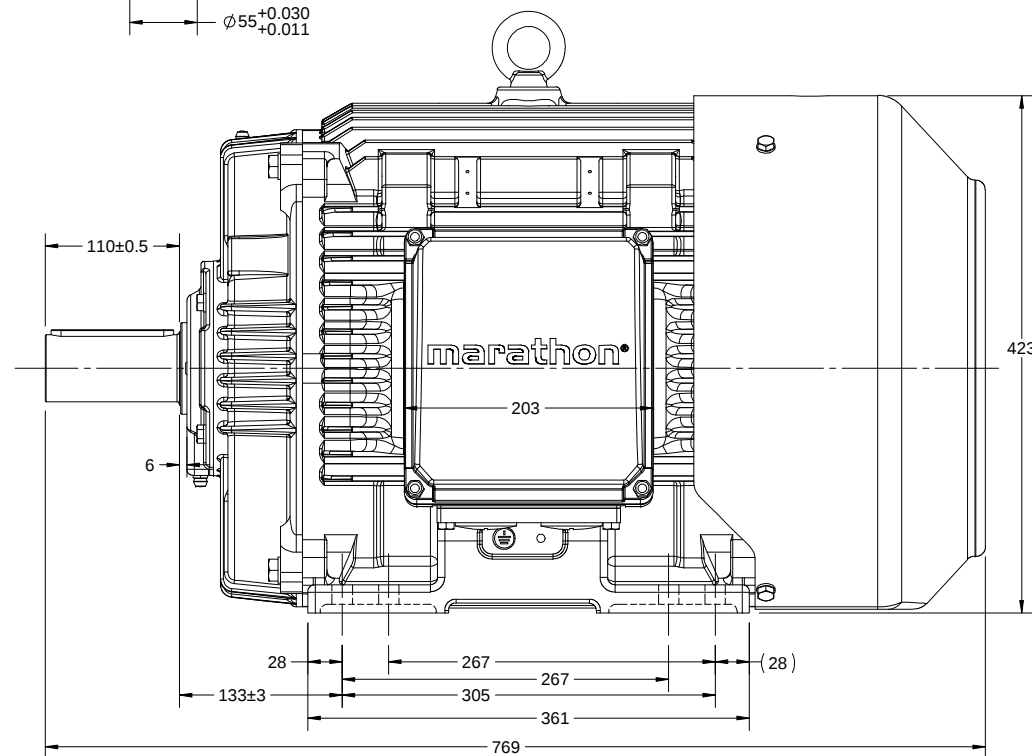
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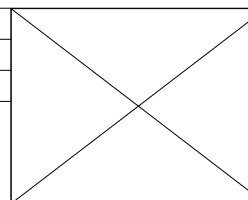


B



A

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                      |                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------|
| DRAWING REVISION<br>C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | REVISION BY<br>BISWA | DATE<br>1/08/2018 |
| ECO<br>ECO-0148344                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | APPROVED BY<br>SBD   | DATE<br>1/08/2018 |
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|                           |
|---------------------------|
| DRAWN BY<br>UDAY          |
| DATE<br>16/08/2016        |
| APPROVED BY<br>SBD        |
| DATE<br>16/08/2016        |
| REFERENCE                 |
| THIRD ANGLE<br>PROJECTION |

**marathon**  
Motors

|                                                                      |                              |
|----------------------------------------------------------------------|------------------------------|
| DESCRIPTION<br><b>OUTLINE</b><br>200LFR-B3 MTG. TYPE: TCA/QCA-RHS TB |                              |
| MATERIAL                                                             | PROCESS/FINISH               |
| SIZE<br>B                                                            | DRAWING NUMBER<br>0220000522 |
| SHEET<br>1 OF 1                                                      |                              |

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| GEOMETRIC TOLERANCE |         |      |
|---------------------|---------|------|
| LINEAR DIM          | >0-6    | ±0.1 |
|                     | >6-30   | ±0.2 |
|                     | >30-120 | ±0.3 |



- NOTES:
1. PRESSURE-SENSITIVE ADHESIVE COATED PAPER ON THE BACK OF SELF-ADHESIVE. AT THE END OF YELLOW, WORDS, SYMBOLS, LETTERS ARE BLACK, BORDER IS BLACK.
  2. THE TOLERANCE OF THE LINEAR SIZE OF THE TOLERANCE WITHOUT THE TOLERANCE BY THE TABLE.
  - 3.

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Regal Beloit America, Inc.

|                        |  |                                                                                   |  |                        |  |                |  |       |  |
|------------------------|--|-----------------------------------------------------------------------------------|--|------------------------|--|----------------|--|-------|--|
| <div></div>            |  |                                                                                   |  | DRAWN BY               |  | SN             |  |       |  |
|                        |  |                                                                                   |  | DATE                   |  | 16/12/2016     |  |       |  |
|                        |  |                                                                                   |  | APPROVED BY            |  | SBD            |  |       |  |
|                        |  |                                                                                   |  | DATE                   |  | 16/12/2016     |  |       |  |
|                        |  |                                                                                   |  | REFERENCE              |  |                |  |       |  |
| THIRD ANGLE PROJECTION |  |  |  | SIZE                   |  | DRAWING NUMBER |  | SHEET |  |
| A                      |  |                                                                                   |  | 84420000085            |  | 1 OF 1         |  |       |  |
| MATERIAL               |  | PROCESS/FINISH                                                                    |  | DESCRIPTION            |  |                |  |       |  |
|                        |  |                                                                                   |  | CONN DIAGRAM-NAMEPLATE |  |                |  |       |  |

**Model No.** TCA0301A3113GACD01

| U<br>(V) | Δ / Y<br>Conn | f<br>(Hz) | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[RPM] | T<br>[Nm] | IE<br>Class | % EFF at __ load |    |       |       | PF at __ load |       |       | I <sub>a</sub> /I <sub>N</sub><br>[pu] | T <sub>a</sub> /T <sub>N</sub><br>[pu] | T <sub>b</sub> /T <sub>N</sub><br>[pu] |
|----------|---------------|-----------|-----------|-----------|----------|------------|-----------|-------------|------------------|----|-------|-------|---------------|-------|-------|----------------------------------------|----------------------------------------|----------------------------------------|
| 415      | Δ             | 50        | 30        | 40        | 50.8     | 2971       | 95.88     | IE3         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 7                                      | 2.0                                    | 3.3                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |                                        |                                        |                                        |

|                                  |                                   |                                           |                                            |
|----------------------------------|-----------------------------------|-------------------------------------------|--------------------------------------------|
| Motor type                       | TCA                               | Degree of protection                      | IP 55                                      |
| Enclosure                        | TEFC                              | Mounting type                             | IM B3                                      |
| Frame Material                   | Cast Iron                         | Cooling method                            | IC 411                                     |
| Frame size                       | 200L                              | Motor weight - approx.                    | 279 kg                                     |
| Duty                             | S1                                | Gross weight - approx.                    | 309 kg                                     |
| Voltage variation *              | ± 10%                             | Motor inertia                             | 0.2682 kgm <sup>2</sup>                    |
| Frequency variation *            | ± 5%                              | Load inertia                              | Customer to Provide                        |
| Combined variation *             | 10%                               | Vibration level                           | 2.2 mm/s                                   |
| Design                           | N                                 | Noise level ( 1meter distance from motor) | 73 dB(A)                                   |
| Service factor                   | 1.0                               | No. of starts hot/cold/Equally spread     | 2/3/4                                      |
| Insulation class                 | F                                 | Starting method                           | DOL                                        |
| Ambient temperature              | -20 to +50 °C                     | Type of coupling                          | Direct                                     |
| Temperature rise (by resistance) | 70 [ Class B ] K                  | LR withstand time (hot/cold)              | 15/30 s                                    |
| Altitude above sea level         | 1000 meter                        | Direction of rotation                     | Bi-directional                             |
| Hazardous area classification    | NA                                | Standard rotation                         | Clockwise form DE                          |
| Zone classification              | NA                                | Paint shade                               | RAL 5014                                   |
| Gas group                        | NA                                | Accessories                               |                                            |
| Temperature class                | NA                                | Accessory - 1                             | -                                          |
| Rotor type                       | Aluminum Die cast                 | Accessory - 2                             | -                                          |
| Bearing type                     | Anti-friction ball bearing        | Accessory - 3                             | -                                          |
| DE / NDE bearing                 | 6312 C3 / 6212 C3                 | Terminal box position                     | RHS                                        |
| Lubrication method               | Regreasable                       | Maximum cable size/conduit size           | 1R x 3C x 50mm <sup>2</sup> /2 x M40 x 1.5 |
| Type of grease                   | Shell Gadus S5 V100 or Equivalent | Auxiliary terminal box                    | NA                                         |

I<sub>a</sub>/I<sub>N</sub> - Locked Rotor Current / Rated CurrentT<sub>b</sub>/T<sub>N</sub> - Breakdown Torque / Rated TorqueT<sub>a</sub>/T<sub>N</sub> - Locked Rotor Torque / Rated Torque
**NOTE**

All performance values at rated voltage and frequency.

All performance parameters are subjected to standard tolerance as per IEC 60034-1

\* Voltage, Frequency and combine variation are as per IEC60034-1

Technical data are subject to change. There may be discrepancies between calculated and name plate values.

| Efficiency Standards | Europe | China | India           | Aus/Nz | Brazil | Global IEC |
|----------------------|--------|-------|-----------------|--------|--------|------------|
|                      | -      | -     | IS 12615 : 2018 | -      | -      | -          |

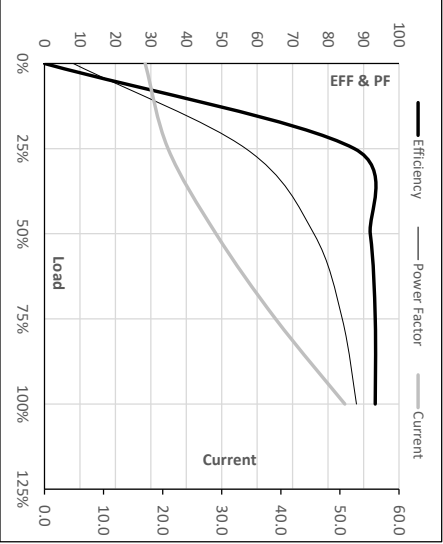
Model No. TCA0301A3113GACD01

| Enclosure | U   | Δ / Y | f    | P    | P   | I     | n     | T    | T     | IE   | Amb | Duty | Elevation | Inertia              | Weight |
|-----------|-----|-------|------|------|-----|-------|-------|------|-------|------|-----|------|-----------|----------------------|--------|
| (V)       | Com | [Hz]  | [kW] | [hp] | [A] | [RPM] | [kgm] | [Nm] | Class | [°C] | [m] |      | [m]       | [kg·m <sup>2</sup> ] | [kg]   |
| TEFC      | 415 | Δ     | 50   | 30   | 40  | 50.8  | 2971  | 9.78 | 95.88 | IE3  | 50  | S1   | 1000      | 0.2682               | 279    |

Motor Load Data

| Load Point   | NL    | 1/4FL | 1/2FL | 3/4FL | FL   | 5/4FL |
|--------------|-------|-------|-------|-------|------|-------|
| Current      | A     | 17.0  | 20.9  | 29.0  | 39.1 | 50.8  |
| Torque       | Nm    | 0.0   | 23.8  | 47.7  | 71.7 | 95.9  |
| Speed        | r/min | 3000  | 2993  | 2986  | 2978 | 2971  |
| Efficiency   | %     | 0.0   | 87.4  | 91.9  | 93.3 | 93.3  |
| Power Factor | %     | 8.1   | 56.8  | 76.0  | 84.0 | 88.0  |

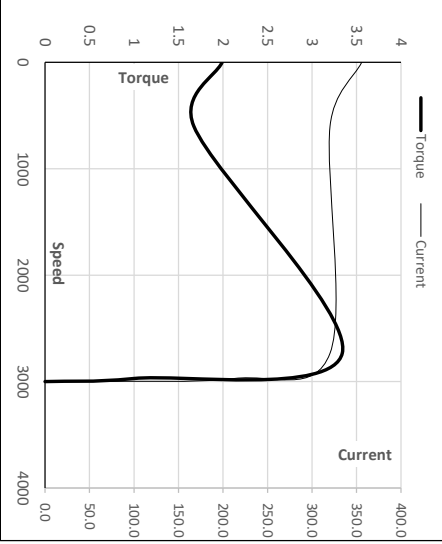
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | LR    | P-Up  | BD    | Rated | NL   |
|------------|-------|-------|-------|-------|------|
| Speed      | r/min | 0     | 600   | 2971  | 3000 |
| Current    | A     | 355.8 | 320.3 | 212.7 | 50.8 |
| Torque     | pu    | 2.0   | 1.7   | 3.3   | 1    |
|            |       |       |       |       | 0    |

Starting Characteristics Chart



NOTE Refer data sheet for applicable standard and tolerances on performance parameters

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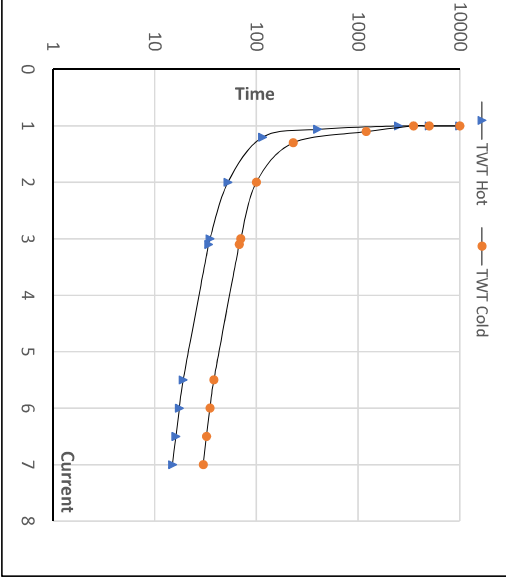
**Model No.** TCA0301A3113GACD01

| Enclosure | U<br>(V) | Δ / Y<br>Conn | f<br>[Hz] | P<br>[kW] | P<br>[hp] | I<br>[A] | n<br>[rpm] | T<br>[kgm] | T<br>[Nm] | IE<br>Class | Amb<br>[°C] | Duty | Elevation<br>[m] | Inertia<br>[kg·m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC      | 415      | Δ             | 50        | 30        | 40        | 50.8     | 2971       | 9.77       | 95.88     | IE3         | 50          | S1   | 1000             | 0.2682                          | 279            |

**Motor Speed Torque Data**

| Load     | FL | I <sub>1</sub> | I <sub>2</sub> | I <sub>3</sub> | I <sub>4</sub> | I <sub>5</sub> | LR  |    |
|----------|----|----------------|----------------|----------------|----------------|----------------|-----|----|
| TWT Hot  | s  | 10000          | 53             | 35             | 30             | 25             | 19  | 15 |
| TWT Cold | s  | 10000          | 100            | 70             | 60             | 45             | 38  | 30 |
| Current  | pu | 1              | 2              | 3              | 4              | 5              | 5.5 | 7  |

**Thermal Characteristics Chart**



**NOTE** Refer data sheet for applicable standard and tolerances on performance parameters

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