

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA0033A3121GACD01

Catalog No: TCA0033A3121GACD01

3.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 1000 RPM, 415 V, 132S Frame, TEFC  
Cast Iron IE3 Efficiency Motors



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**REGAL**

### Nameplate Specifications

|                            |        |                        |                             |
|----------------------------|--------|------------------------|-----------------------------|
| Output HP                  | 4 Hp   | Output KW              | 3.0 kW                      |
| Frequency                  | 50 Hz  | Voltage                | 415 V                       |
| Current                    | 6.8 A  | Speed                  | 973 rpm                     |
| Service Factor             | 1      | Phase                  | 3                           |
| Efficiency                 | 85.6 % | Power Factor           | 0.72                        |
| Duty                       | S1     | Insulation Class       | F                           |
| Frame                      | 132S   | Enclosure              | Totally Enclosed Fan Cooled |
| Ambient Temperature        | 50 °C  | Drive End Bearing Size | 6308                        |
| Opp Drive End Bearing Size | 6208   | UL                     | No                          |
| CSA                        | No     | CE                     | Yes                         |
| IP Code                    | 55     |                        |                             |

### Technical Specifications

|                       |               |                       |                |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line |
| Poles                 | 6             | Rotation              | Bi-Directional |
| Mounting              | B5            | Motor Orientation     | Horizontal     |
| Drive End Bearing     | 2z-C3         | Opp Drive End Bearing | 2z-C3          |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 465 mm        | Frame Length          | 202 mm         |
| Shaft Diameter        | 38 mm         | Shaft Extension       | 80 mm          |
| Assembly/Box Mounting | Top           |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0213200675     |

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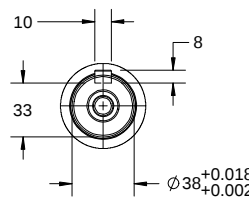
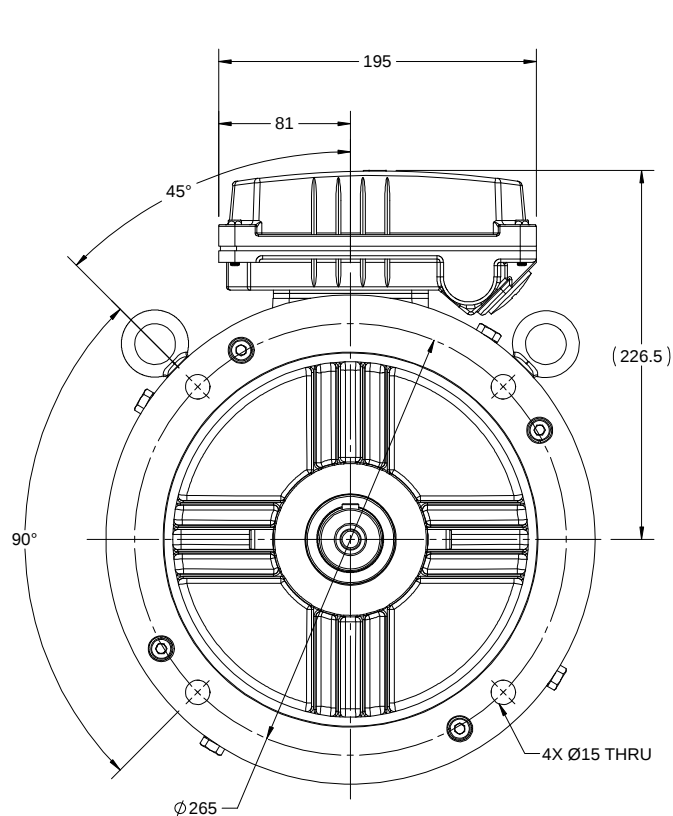
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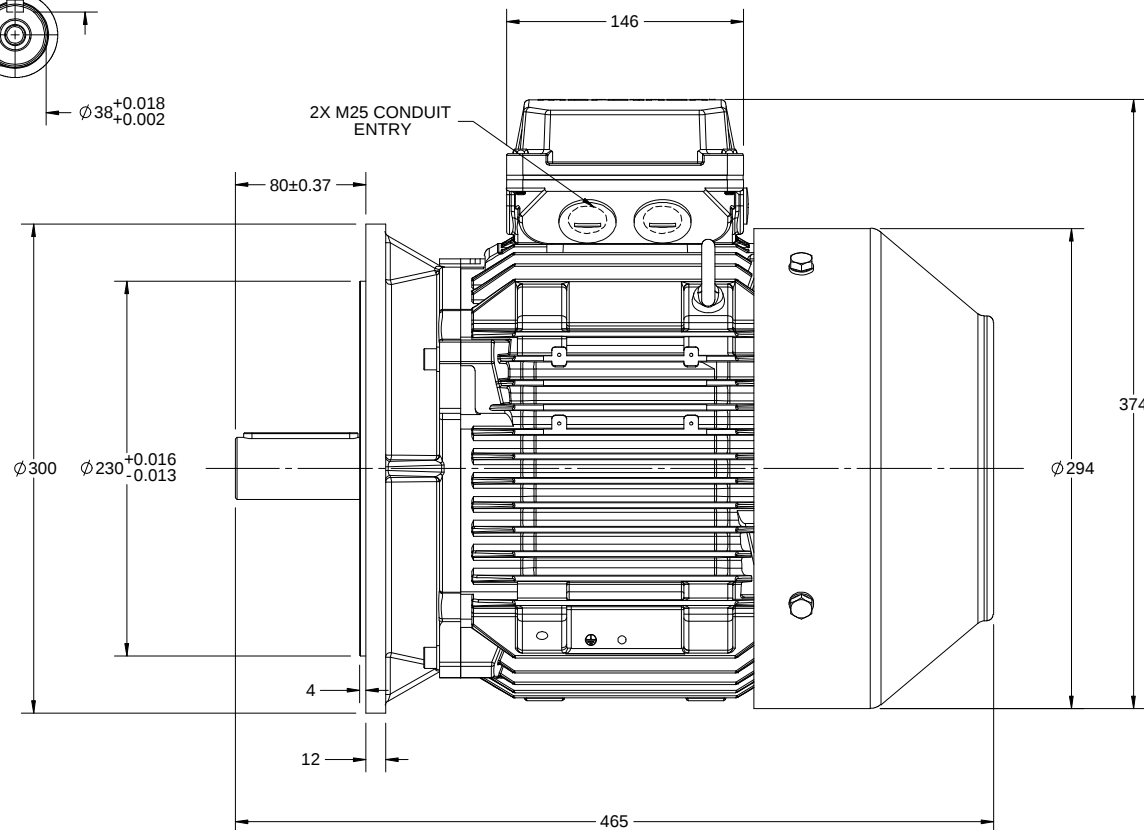
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B

B



2X M25 CONDUIT ENTRY



A

A

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------|
| DRAWING REVISION<br>B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | REVISION BY<br>A. KEETHA | DATE<br>12/07/2018 |
| ECO<br>ECO-0147359                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | APPROVED BY<br>JAY       | DATE<br>12/07/2018 |
| ECO DESCRIPTION<br>OUTLINE UPDATED AS PER NEW 3D STRUCTURING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                          |                    |
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|                    |
|--------------------|
| DRAWN BY<br>MR     |
| DATE<br>17/04/2015 |
| APPROVED BY<br>SBD |
| DATE<br>17/04/2015 |
| REFERENCE          |

THIRD ANGLE  
PROJECTION
**marathon**  
Motors

 DESCRIPTION  
**OUTLINE**  
 132-S FR.- B5 MTG. MOTOR TYPE: TCA

MATERIAL

PROCESS/FINISH

 SIZE  
**B**

 DRAWING NUMBER  
**0213200675**

 SHEET  
 1 OF 1

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3

2

1

|                       |                    |                    |
|-----------------------|--------------------|--------------------|
| DRAWING REVISION<br>A | REVISION BY<br>SN  | DATE<br>13/01/2017 |
| ECO<br>ECO-0116390    | APPROVED BY<br>SBD | DATE<br>13/01/2017 |
| ECO DESCRIPTION       |                    |                    |
| NEW DRAWING RELEASE   |                    |                    |

| 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.
2. AT THE END OF YELLOW, WORDS, SYMBOLS, LETTERS ARE BLACK, BORDER IS BLACK.
3. THE TOLERANCE OF THE LINEAR SIZE OF THE TOLERANCE WITHOUT THE TOLERANCE BY THE TABLE.

|                           |  |                                                                                                           |                              |
|---------------------------|--|-----------------------------------------------------------------------------------------------------------|------------------------------|
| DRAWN BY<br>SN            |  | <br>Regal Beloit America, Inc.                                                                            |                              |
|                           |  | DESCRIPTION<br><b>CONN DIAGRAM-NAMEPLATE</b>                                                              |                              |
|                           |  | DATE<br>16/12/2016<br>APPROVED BY<br>SBD<br>DATE<br>16/12/2016<br>REFERENCE<br>MATERIAL<br>PROCESS/FINISH |                              |
|                           |  |                                                                                                           |                              |
| THIRD ANGLE<br>PROJECTION |  | SIZE<br>A                                                                                                 | DRAWING NUMBER<br>8442000085 |
|                           |  |                                                                                                           | SHEET<br>1 OF 1              |

8WD.442.2017

**Model No.** TCA0033A3121GACD01

| 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      | Y             | 50        | 3         | 4.0       | 6.8      | 973        | 29.35     | IE3         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 5.4                                    | 2.0                                    | 2.5                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |                                        |                                        |                                        |

|                                  |                            |                                           |                                            |
|----------------------------------|----------------------------|-------------------------------------------|--------------------------------------------|
| Motor type                       | TCA                        | Degree of protection                      | IP 55                                      |
| Enclosure                        | TEFC                       | Mounting type                             | IM B5                                      |
| Frame Material                   | Cast Iron                  | Cooling method                            | IC 411                                     |
| Frame size                       | 132S                       | Motor weight - approx.                    | 69 kg                                      |
| Duty                             | S1                         | Gross weight - approx.                    | 72 kg                                      |
| Voltage variation *              | ± 10%                      | Motor inertia                             | 0.0390 kgm <sup>2</sup>                    |
| Frequency variation *            | ± 5%                       | Load inertia                              | Customer to Provide                        |
| Combined variation *             | 10%                        | Vibration level                           | 1.6 mm/s                                   |
| Design                           | N                          | Noise level ( 1meter distance from motor) | 59 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                 | 6308-2Z / 6208-2Z          | Terminal box position                     | TOP                                        |
| Lubrication method               | Greased for life           | Maximum cable size/conduit size           | 1R x 3C x 16mm <sup>2</sup> /2 x M25 x 1.5 |
| Type of grease                   | NA                         | 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 | -      | -      | -          |



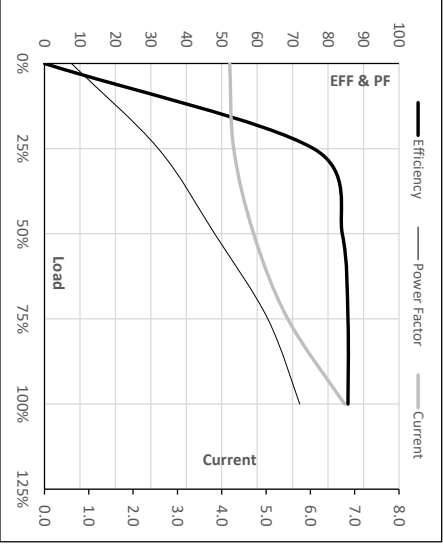
Model No. TCA0033A3121GACD01

| Enclosure | U   | $\Delta$ / 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]       | [kg·m <sup>2</sup> ] | [kg]   |
| TFC       | 415 | Y            | 50   | 3    | 4.0  | 6.8 | 973   | 2.99  | 29.35 | IE3   | 50   | S1   | 1000      | 0.039                | 69     |

Motor Load Data

| Load Point   | NL    | 1/4FL | 1/2FL | 3/4FL | FL   | 5/4FL |
|--------------|-------|-------|-------|-------|------|-------|
| Current      | A     | 4.2   | 4.3   | 4.7   | 5.5  | 6.8   |
| Torque       | Nm    | 0.0   | 7.2   | 14.5  | 21.8 | 29.4  |
| Speed        | r/min | 1000  | 993   | 987   | 980  | 973   |
| Efficiency   | %     | 0.0   | 75.9  | 84.0  | 85.6 | 85.6  |
| Power Factor | %     | 7.6   | 32.1  | 48.0  | 63.0 | 72.0  |

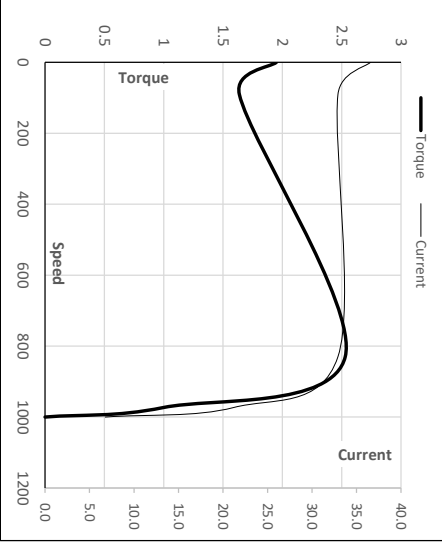
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | LR    | P-Up | BD   | Rated | NL  |      |
|------------|-------|------|------|-------|-----|------|
| Speed      | r/min | 0    | 91   | 830   | 973 | 1000 |
| Current    | A     | 36.6 | 32.9 | 21.2  | 6.8 | 4.2  |
| Torque     | pu    | 2.0  | 1.6  | 2.5   | 1   | 0    |

Starting Characteristics Chart



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

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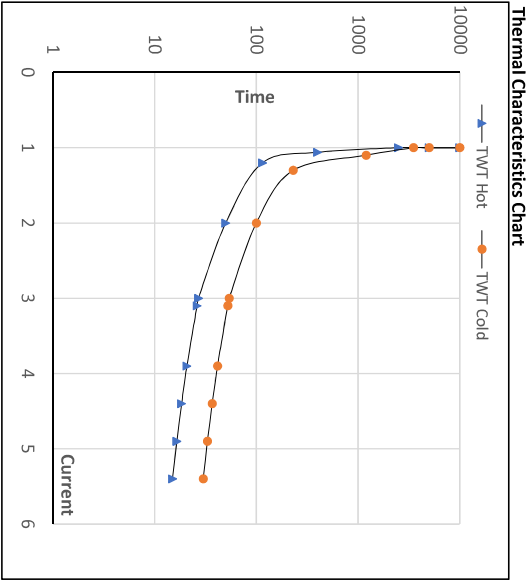


**Model No.** TCA0033A3121GACD01

| 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      | Y             | 50        | 3         | 4.0       | 6.8      | 973        | 2.99       | 29.35     | IE3         | 50          | S1   | 1000             | 0.0390                          | 69             |

**Motor Speed Torque Data**

| Load     | FL | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR |     |
|----------|----|-------|-------|-------|-------|-------|----|-----|
| TWT Hot  | s  | 10000 | 50    | 27    | 20    | 18    | 16 | 15  |
| TWT Cold | s  | 10000 | 100   | 54    | 41    | 36    | 33 | 30  |
| Current  | pu | 1     | 2     | 3     | 4     | 4.5   | 5  | 5.4 |



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

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