

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA0754A3133GACD01

Catalog No: TCA0754A3133GACD01

75.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 750 RPM, 415 V, 315M Frame, TEFC  
Cast Iron IE3 Efficiency Motors



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**REGAL**

### Nameplate Specifications

|                            |         |                        |                             |
|----------------------------|---------|------------------------|-----------------------------|
| Output HP                  | 100 Hp  | Output KW              | 75.0 kW                     |
| Frequency                  | 50 Hz   | Voltage                | 415 V                       |
| Current                    | 155.7 A | Speed                  | 743 rpm                     |
| Service Factor             | 1       | Phase                  | 3                           |
| Efficiency                 | 93.1 %  | Power Factor           | 0.72                        |
| Duty                       | S1      | Insulation Class       | F                           |
| Frame                      | 315M    | Enclosure              | Totally Enclosed Fan Cooled |
| Ambient Temperature        | 50 °C   | Drive End Bearing Size | 6319                        |
| Opp Drive End Bearing Size | 6319    | UL                     | No                          |
| CSA                        | No      | CE                     | Yes                         |
| IP Code                    | 55      |                        |                             |

### Technical Specifications

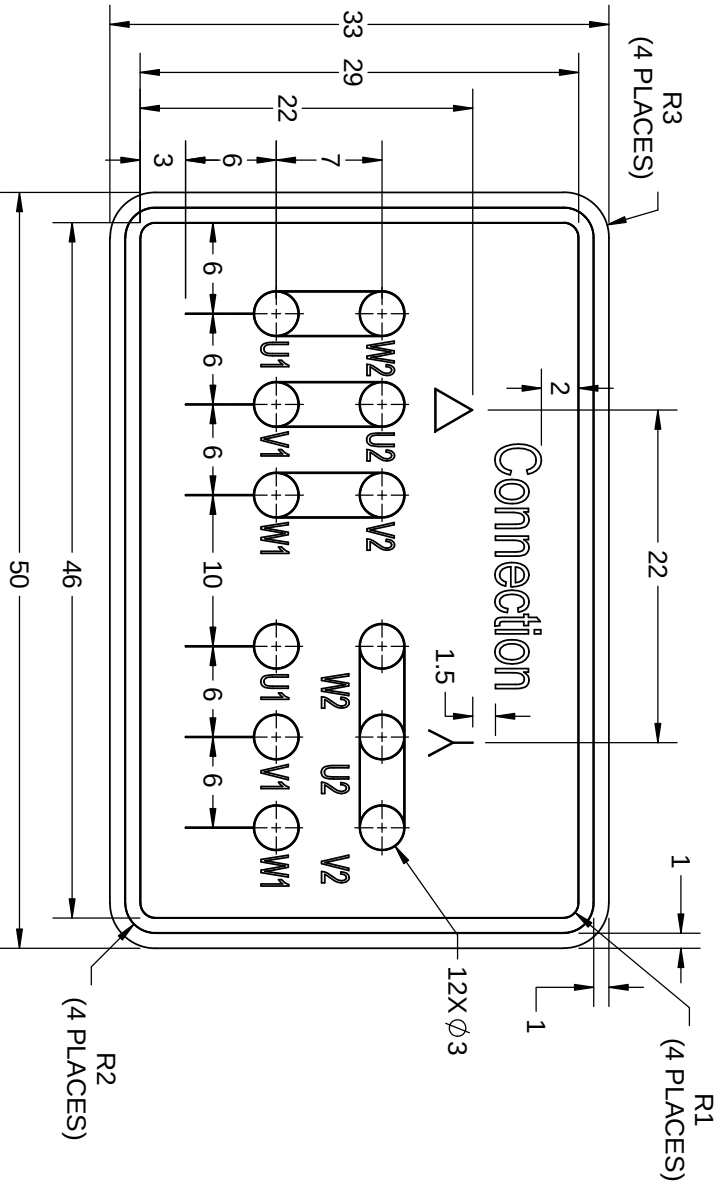
|                       |               |                       |                |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line |
| Poles                 | 8             | Rotation              | Bi-Directional |
| Mounting              | B35           | Motor Orientation     | Horizontal     |
| Drive End Bearing     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 1206 mm       | Frame Length          | 729 mm         |
| Shaft Diameter        | 80 mm         | Shaft Extension       | 170 mm         |
| Assembly/Box Mounting | R Side        |                       |                |
| Outline Drawing       | 0231501398    | Connection Drawing    | 8442000085     |

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

**Model No.** TCA0754A3133GACD01

| 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        | 75        | 100       | 155.7    | 743        | 959.57    | IE3         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 4.9                                    | 1.9                                    | 2.1                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |                                        |                                        |                                        |

|                                  |                                   |                                           |                                             |
|----------------------------------|-----------------------------------|-------------------------------------------|---------------------------------------------|
| Motor type                       | TCA                               | Degree of protection                      | IP 55                                       |
| Enclosure                        | TEFC                              | Mounting type                             | IM B35                                      |
| Frame Material                   | Cast Iron                         | Cooling method                            | IC 411                                      |
| Frame size                       | 315M                              | Motor weight - approx.                    | 922 kg                                      |
| Duty                             | S1                                | Gross weight - approx.                    | 967 kg                                      |
| Voltage variation *              | ± 10%                             | Motor inertia                             | 4.8296 kgm <sup>2</sup>                     |
| Frequency variation *            | ± 5%                              | Load inertia                              | Customer to Provide                         |
| Combined variation *             | 10%                               | Vibration level                           | 2.8 mm/s                                    |
| Design                           | N                                 | Noise level ( 1meter distance from motor) | 64 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                 | 6319 C3 / 6319 C3                 | Terminal box position                     | RHS                                         |
| Lubrication method               | Regreasable                       | Maximum cable size/conduit size           | 1R x 3C x 240mm <sup>2</sup> /2 x M63 x 1.5 |
| Type of grease                   | Shell Gadus S5 V100 or Equivalent | Auxiliary terminal box                    | NA                                          |

 $I_a/I_N$  - Locked Rotor Current / Rated Current

 $T_b/T_N$  - Breakdown Torque / Rated Torque

 $T_a/T_N$  - 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 | -      | -      | -          |



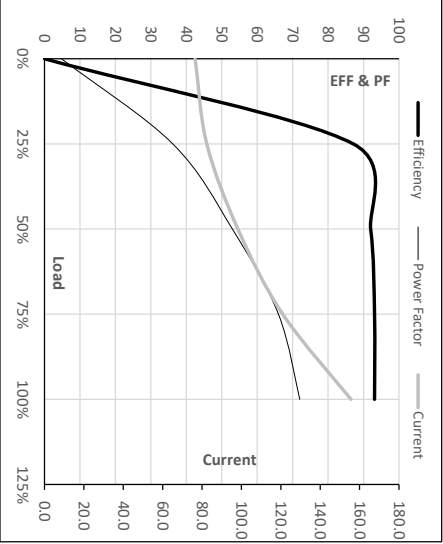
Model No. TCA0754A3133GACD01

| Enclosure | U<br>[V] | $\Delta$ / Y<br>Com | 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      | $\Delta$            | 50        | 75        | 100       | 155.7    | 743        | 97.85      | 959.57    | IE3         | 50          | S1   | 1000             | 4.8296                          | 922            |

Motor Load Data

| Load Point   | NL    | 1/4FL | 1/2FL | 3/4FL | FL    | 5/4FL |
|--------------|-------|-------|-------|-------|-------|-------|
| Current      | A     | 76.5  | 82.4  | 98.2  | 121.0 | 155.7 |
| Torque       | Nm    | 0.0   | 236.2 | 477.4 | 717.8 | 959.6 |
| Speed        | r/min | 750   | 748   | 747   | 745   | 743   |
| Efficiency   | %     | 0.0   | 87.1  | 92.0  | 93.1  | 93.1  |
| Power Factor | %     | 4.8   | 36.2  | 53.0  | 66.0  | 72.0  |

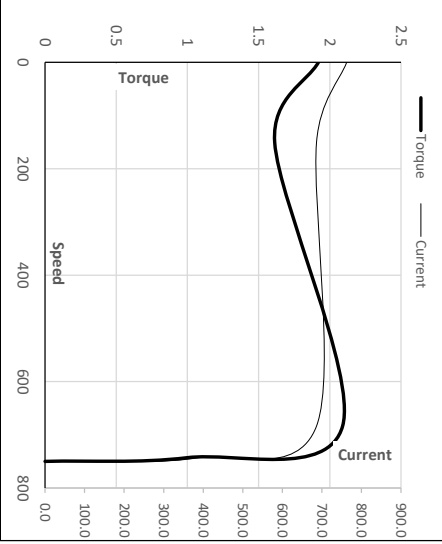
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | LR    | P-Up  | BD    | Rated | NL    |      |
|------------|-------|-------|-------|-------|-------|------|
| Speed      | r/min | 0     | 150   | 684   | 743   | 750  |
| Current    | A     | 762.7 | 686.5 | 387.1 | 155.7 | 76.5 |
| Torque     | pu    | 1.9   | 1.6   | 2.1   | 1     | 0    |

Starting Characteristics Chart



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

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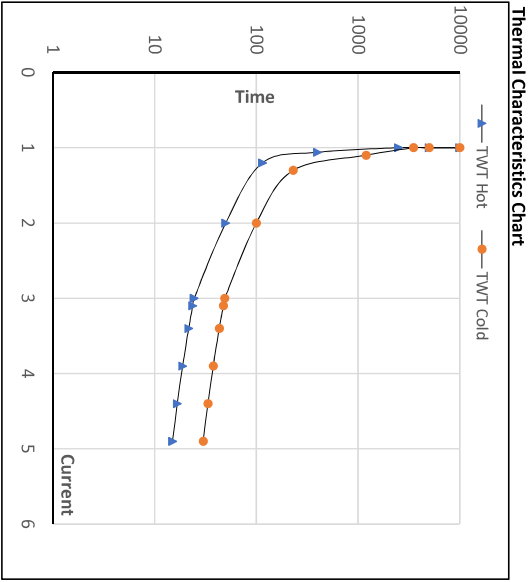


**Model No.** TCA075AA3133GACD01

| 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        | 75        | 100       | 155.7    | 743        | 97.78      | 959.57    | IE3         | 50          | S1   | 1000             | 4.8296                          | 922            |

**Motor Speed Torque Data**

| Load     | FL | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR  |     |
|----------|----|-------|-------|-------|-------|-------|-----|-----|
| TWT Hot  | s  | 10000 | 50    | 25    | 21    | 18    | 16  | 15  |
| TWT Cold | s  | 10000 | 100   | 49    | 42    | 37    | 31  | 30  |
| Current  | pu | 1     | 2     | 3     | 3.5   | 4     | 4.5 | 4.9 |



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

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