

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA0753A3133GACD01

Catalog No: TCA0753A3133GACD01

75.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 1000 RPM, 415 V, 315S 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                    | 137.9 A | Speed                  | 990 rpm                     |
| Service Factor             | 1       | Phase                  | 3                           |
| Efficiency                 | 94.6 %  | Power Factor           | 0.8                         |
| Duty                       | S1      | Insulation Class       | F                           |
| Frame                      | 315S    | 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

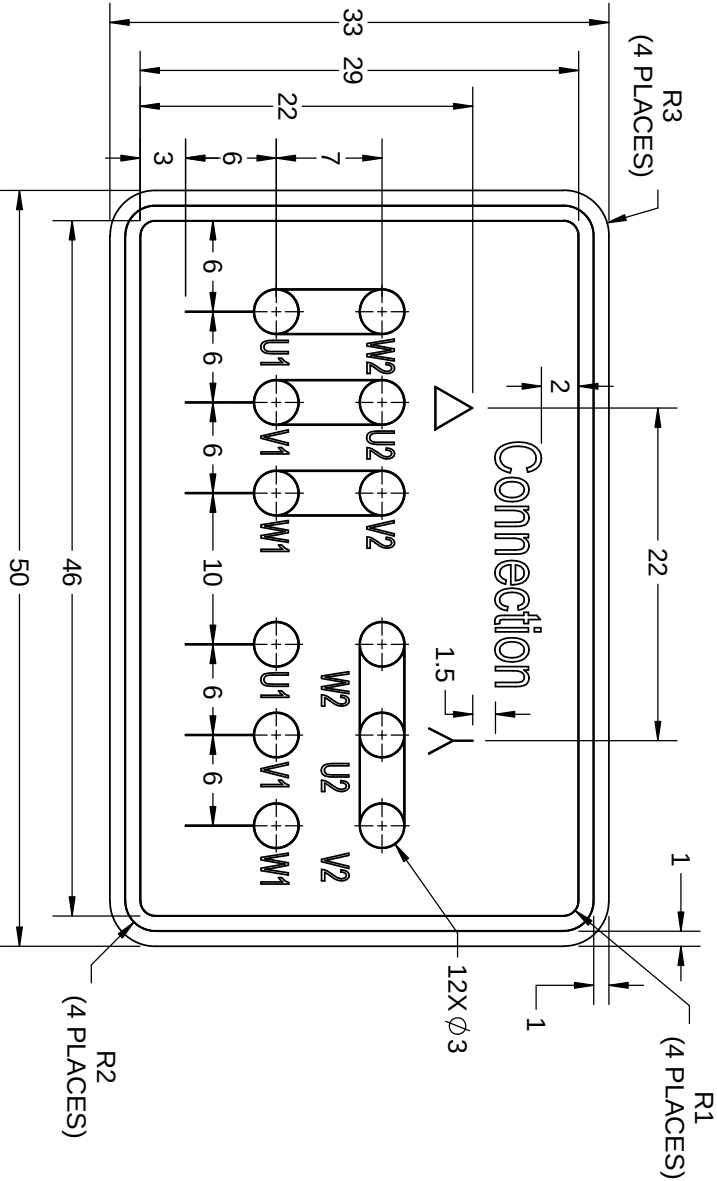
|                       |               |                       |                |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line |
| Poles                 | 6             | Rotation              | 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        |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0231501398     |

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

**Model No.** TCA0753A3133GACD01

| 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       | 137.9    | 990        | 719.72    | IE3         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 5.2                                    | 1.7                                    | 2.2                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |                                        |                                        |                                        |

|                                  |                                   |                                           |                                             |
|----------------------------------|-----------------------------------|-------------------------------------------|---------------------------------------------|
| Motor type                       | TCA                               | Degree of protection                      | IP 55                                       |
| Enclosure                        | TEFC                              | Mounting type                             | IM B35                                      |
| Frame Material                   | Cast Iron                         | Cooling method                            | IC 411                                      |
| Frame size                       | 315S                              | Motor weight - approx.                    | 847 kg                                      |
| Duty                             | S1                                | Gross weight - approx.                    | 892 kg                                      |
| Voltage variation *              | ± 10%                             | Motor inertia                             | 3.3734 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) | 66 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<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 | -      | -      | -          |



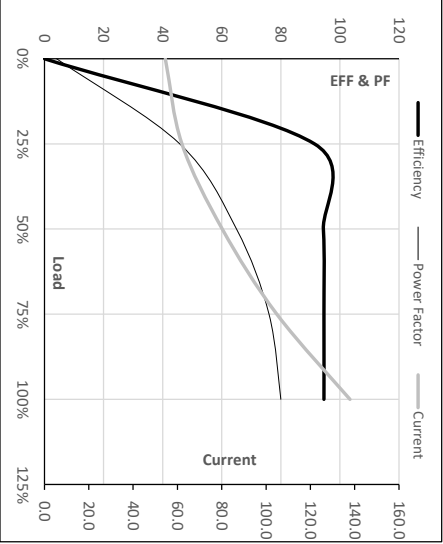
Model No. TCA0753A3133GACD01

| 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>Temp<br>[°C] | Duty<br>S1 | Elevation<br>[m] | Inertia<br>[kg·m <sup>2</sup> ] | Weight<br>[kg] |
|-----------|----------|---------------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|---------------------|------------|------------------|---------------------------------|----------------|
| TFC       | 415      | $\Delta$            | 50        | 75        | 100       | 137.9    | 990        | 73.39      | 719.72    | IE3         | 50                  | S1         | 1000             | 3.3734                          | 847            |

Motor Speed Data

| Load Point   | NL    | 1/4FL | 1/2FL | 3/4FL | FL    | 5/4FL |
|--------------|-------|-------|-------|-------|-------|-------|
| Current      | A     | 54.5  | 62.0  | 80.2  | 104.9 | 137.9 |
| Torque       | Nm    | 0.0   | 178.5 | 357.9 | 538.3 | 719.7 |
| Speed        | r/min | 1000  | 998   | 995   | 993   | 990   |
| Efficiency   | %     | 0.0   | 91.4  | 94.4  | 94.6  | 94.6  |
| Power Factor | %     | 4.1   | 45.8  | 65.0  | 76.0  | 80.0  |

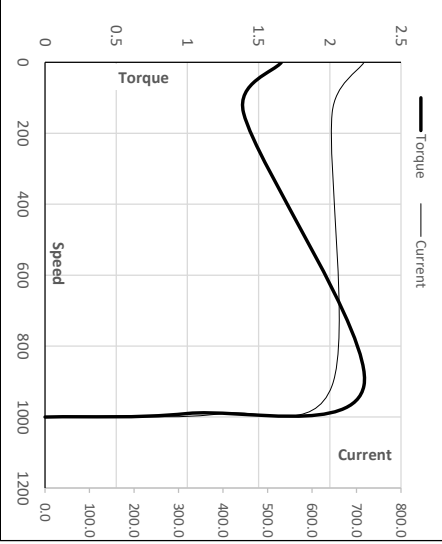
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | LR    | P-Up  | BD    | Rated | NL    |      |
|------------|-------|-------|-------|-------|-------|------|
| Speed      | r/min | 0     | 143   | 911   | 990   | 1000 |
| Current    | A     | 716.9 | 645.3 | 397.0 | 137.9 | 54.5 |
| Torque     | pu    | 1.7   | 1.4   | 2.2   | 1     | 0    |

Starting Characteristics Chart



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

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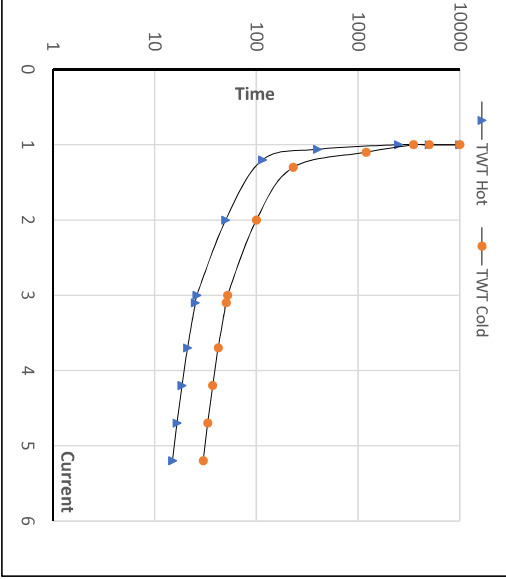
**Model No.** TCA0753A3133GACD01

| Enclosure | U<br>(V) | $\Delta$ / 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      | $\Delta$             | 50        | 75        | 100       | 137.9    | 990        | 73.34      | 719.72    | IE3         | 50          | S1   | 1000             | 3.3734                          | 847            |

**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          | 50             | 26             | 20             | 18             | 16 | 15  |
| TWT Cold | s  | 10000          | 100            | 52             | 41             | 36             | 32 | 30  |
| Current  | pu | 1              | 2              | 3              | 4              | 4.5            | 5  | 5.2 |

**Thermal Characteristics Chart**



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

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