

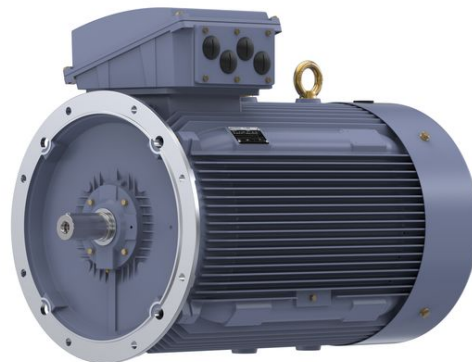
# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA3151A3121GACD01

Catalog No: TCA3151A3121GACD01

315.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 3000 RPM, 415 V, 355L Frame, TEFC  
Cast Iron IE3 Efficiency Motors



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**REGAL**

### Nameplate Specifications

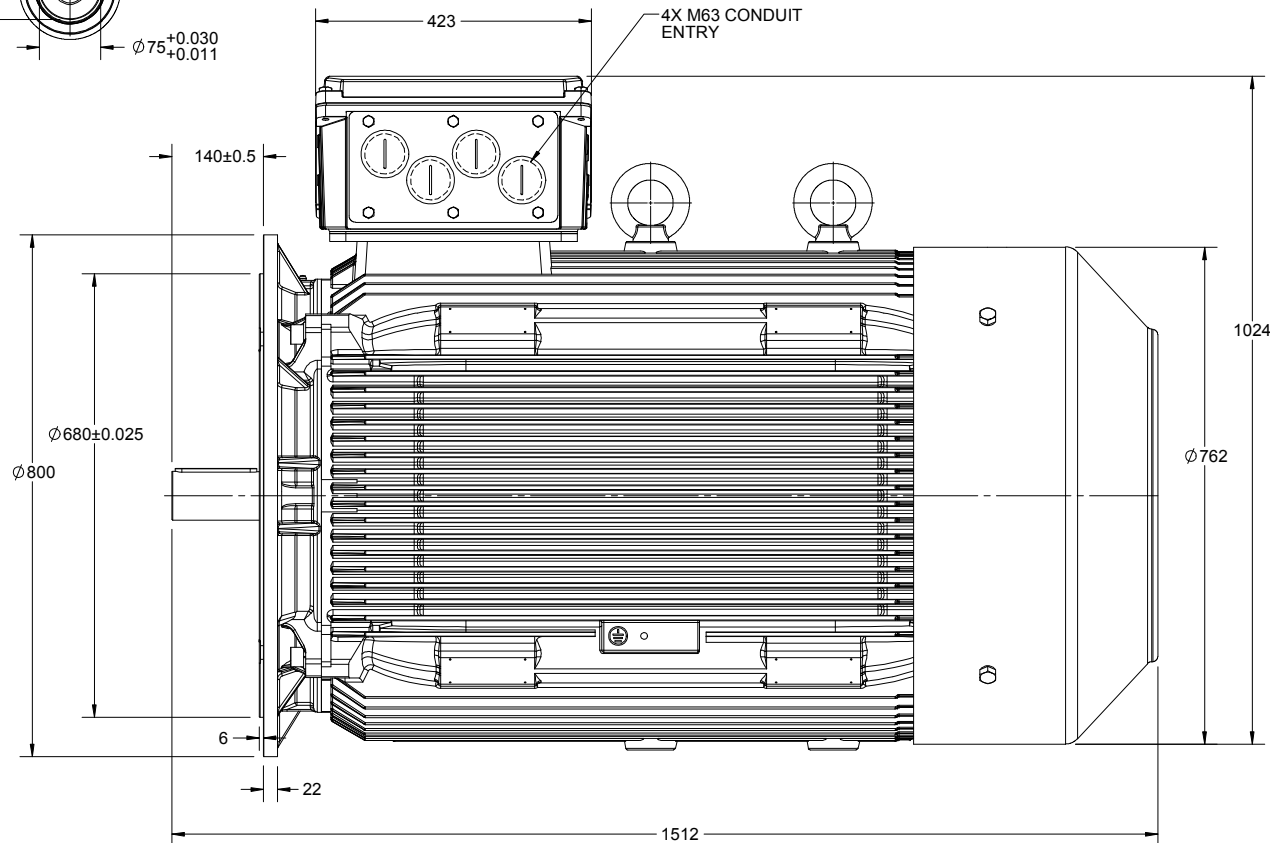
|                            |         |                        |                             |
|----------------------------|---------|------------------------|-----------------------------|
| Output HP                  | 425 Hp  | Output KW              | 315.0 kW                    |
| Frequency                  | 50 Hz   | Voltage                | 415 V                       |
| Current                    | 514.0 A | Speed                  | 2985 rpm                    |
| Service Factor             | 1       | Phase                  | 3                           |
| Efficiency                 | 95.8 %  | Power Factor           | 0.89                        |
| Duty                       | S1      | Insulation Class       | F                           |
| Frame                      | 355L    | Enclosure              | Totally Enclosed Fan Cooled |
| Ambient Temperature        | 50 °C   | Drive End Bearing Size | 6317                        |
| Opp Drive End Bearing Size | 6317    | 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              | B5            | Motor Orientation     | Horizontal     |
| Drive End Bearing     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 1512 mm       | Frame Length          | 1010 mm        |
| Shaft Diameter        | 75 mm         | Shaft Extension       | 140 mm         |
| Assembly/Box Mounting | Top           |                       |                |
| Outline Drawing       | 0235501826    | Connection Drawing    | 8442000085     |

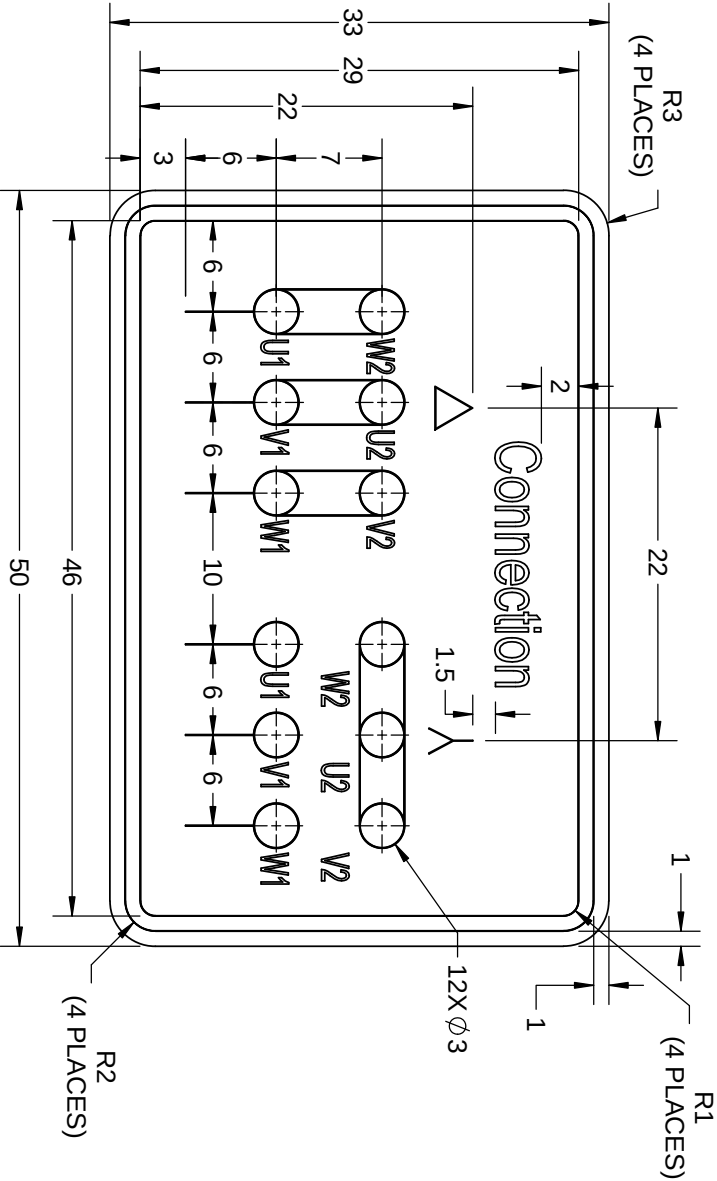
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| DRAWING REVISION                       | REVISION BY        | DATE               |
|----------------------------------------|--------------------|--------------------|
| A                                      | SN                 | 13/01/2017   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

8WD.442.2017

|                        |  |                |                        |  |            |
|------------------------|--|----------------|------------------------|--|------------|
| <div></div>            |  |                | DRAWN BY               |  | SN         |
|                        |  |                | DATE                   |  | 16/12/2016 |
|                        |  |                | APPROVED BY            |  | SBD        |
|                        |  |                | DATE                   |  | 16/12/2016 |
|                        |  |                | REFERENCE              |  |            |
| <div></div>            |  |                | DESCRIPTION            |  |            |
|                        |  |                | CONN DIAGRAM-NAMEPLATE |  |            |
| MATERIAL               |  | PROCESS/FINISH |                        |  |            |
| THIRD ANGLE PROJECTION |  | SIZE           | DRAWING NUMBER         |  | SHEET      |
|                        |  | A              | 8442000085             |  | 1 OF 1     |

**Model No.** TCA3151A3121GACD01

| 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        | 315       | 425       | 514.0    | 2985       | 1013.95   | IE3         | -                | 95.8 | 95.8 | 94.7 | 0.89          | 0.86 | 0.78 | 7.5                                    | 2.3                                    | 3.6                                    |
|          |               |           |           |           |          |            |           |             |                  |      |      |      |               |      |      |                                        |                                        |                                        |

|                                  |                                   |                                           |                                             |
|----------------------------------|-----------------------------------|-------------------------------------------|---------------------------------------------|
| Motor type                       | TCA                               | Degree of protection                      | IP 55                                       |
| Enclosure                        | TEFC                              | Mounting type                             | IM B5                                       |
| Frame Material                   | Cast Iron                         | Cooling method                            | IC 411                                      |
| Frame size                       | 355L                              | Motor weight - approx.                    | 1853 kg                                     |
| Duty                             | S1                                | Gross weight - approx.                    | 1898 kg                                     |
| Voltage variation *              | ± 10%                             | Motor inertia                             | 4.7428 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) | 90 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                 | 6317 C3 / 6317 C3                 | Terminal box position                     | TOP                                         |
| Lubrication method               | Regreasable                       | Maximum cable size/conduit size           | 1R x 3C x 300mm <sup>2</sup> /4 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 | -      | -      | -          |

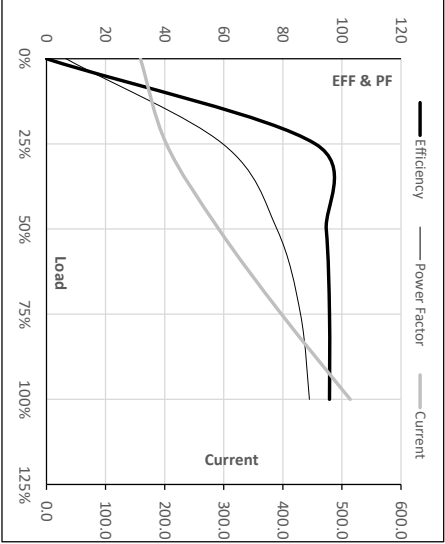
Model No. TCA3151A3121GACD01

| 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        | 315       | 425       | 514.0    | 2985       | 103.39     | 1013.95   | IE3         | 50          | S1   | 1000             | 4.7428                          | 1853           |

Motor Speed Data

| Load Point   | NL    | 1/4FL | 1/2FL | 3/4FL | FL    | 5/4FL  |
|--------------|-------|-------|-------|-------|-------|--------|
| Current      | A     | 159.0 | 202.9 | 291.6 | 397.7 | 514.0  |
| Torque       | Nm    | 0.0   | 252.5 | 505.7 | 759.5 | 1013.9 |
| Speed        | r/min | 3000  | 2996  | 2993  | 2989  | 2985   |
| Efficiency   | %     | 0.0   | 91.0  | 94.7  | 95.8  | 95.8   |
| Power Factor | %     | 6.6   | 59.7  | 78.0  | 86.0  | 89.0   |

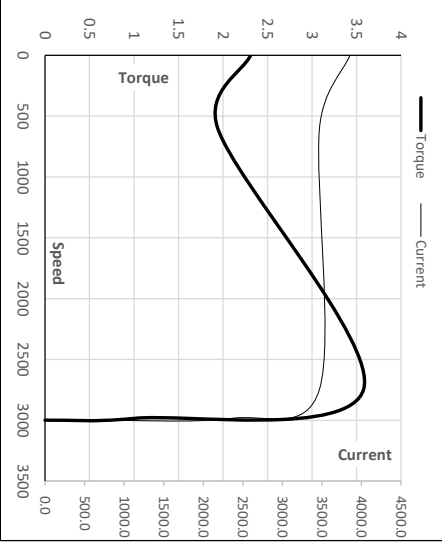
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | LR    | P-Up   | BD     | Rated  | NL    |       |
|------------|-------|--------|--------|--------|-------|-------|
| Speed      | r/min | 0      | 600    | 2746   | 2985  | 3000  |
| Current    | A     | 3855.0 | 3469.5 | 2353.1 | 514.0 | 159.0 |
| Torque     | pu    | 2.3    | 1.9    | 3.6    | 1     | 0     |

Starting Characteristics Chart



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

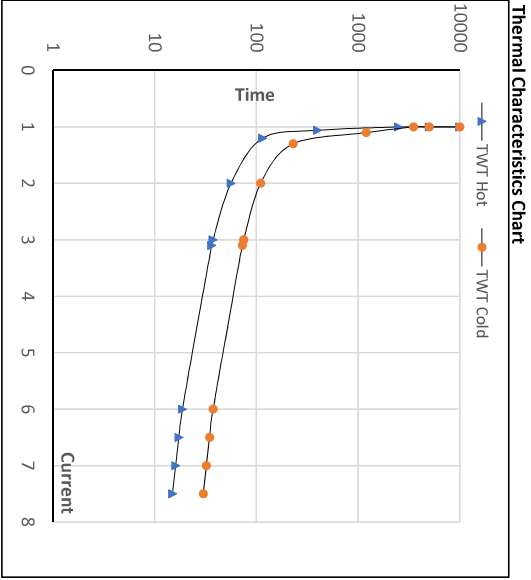
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**Model No.** TCA3151A3121GACD01

| 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        | 315       | 425       | 514.0    | 2985       | 103.32     | 1013.95   | IE3         | 50          | S1   | 1000             | 4.7428                          | 1853           |

**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          | 56             | 38             | 30             | 25             | 20  | 15  |
| TWT Cold | s  | 10000          | 110            | 75             | 60             | 45             | 40  | 30  |
| Current  | pu | 1              | 2              | 3              | 4              | 5              | 5.5 | 7.5 |



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

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