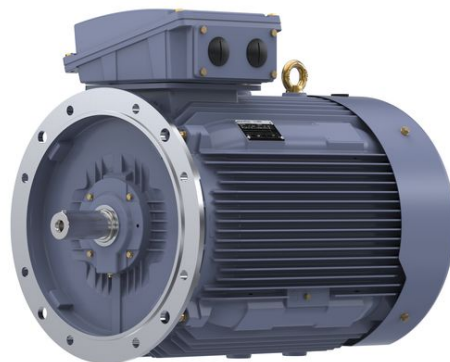


# PRODUCT INFORMATION PACKET

Model No: TCA1103A3121GACD01

Catalog No: TCA1103A3121GACD01

110.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 1000 RPM, 415 V, 315L Frame, TEFC  
Cast Iron IE3 Efficiency Motors





### Nameplate Specifications

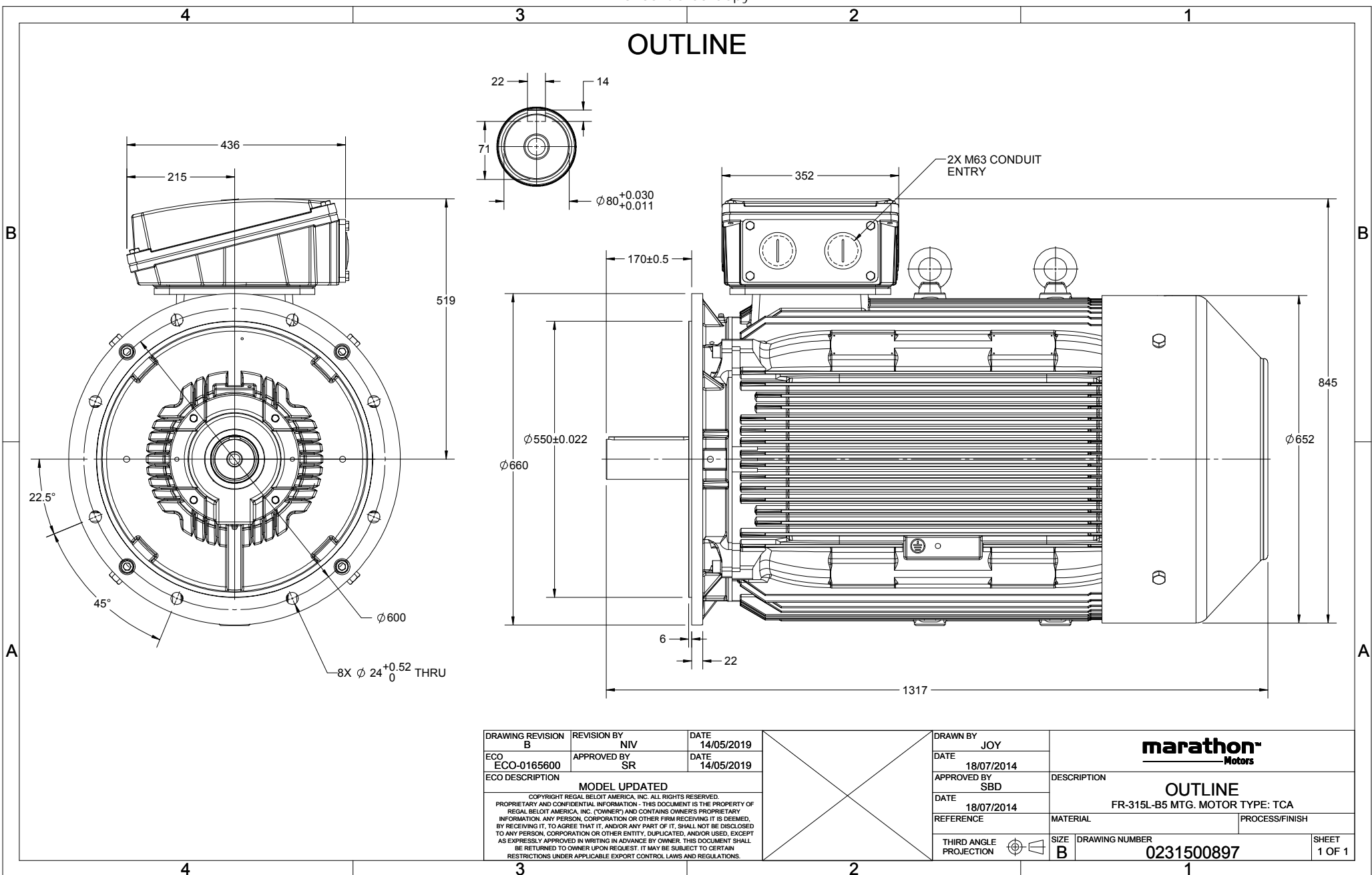
|                            |         |                        |                             |
|----------------------------|---------|------------------------|-----------------------------|
| Output HP                  | 150 Hp  | Output KW              | 110.0 kW                    |
| Frequency                  | 50 Hz   | Voltage                | 415 V                       |
| Current                    | 198.7 A | Speed                  | 991 rpm                     |
| Service Factor             | 1       | Phase                  | 3                           |
| Efficiency                 | 95.1 %  | Power Factor           | 0.81                        |
| Duty                       | S1      | Insulation Class       | F                           |
| Frame                      | 315L    | 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              | B5            | Motor Orientation     | Horizontal     |
| Drive End Bearing     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 1317 mm       | Frame Length          | 840 mm         |
| Shaft Diameter        | 80 mm         | Shaft Extension       | 170 mm         |
| Assembly/Box Mounting | Top           |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0231500897     |

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# OUTLINE



|   |                    |                    |                    |                    |   |
|---|--------------------|--------------------|--------------------|--------------------|---|
| DRAWING REVISION<br>B   | REVISION BY<br>NIV | DATE<br>14/05/2019 | X                  | DRAWN BY<br>JOY    | <b>marathon</b><br>Motors                                 |
| ECO<br>ECO-0165600  | APPROVED BY<br>SR  | DATE<br>14/05/2019 |                    | DATE<br>18/07/2014 |   |
| ECO DESCRIPTION<br>MODEL UPDATED  |                    |                    |                    | APPROVED BY<br>SBD | DESCRIPTION<br>OUTLINE<br>FR-315L-B5 MTG. MOTOR TYPE: TCA |
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|   |                    |                    | REFERENCE          | SIZE<br>B          | DRAWING NUMBER<br>0231500897                              |



Model No. TCA1103A3121GACD01

| U<br>(V) | Δ / Y<br>Conn | f<br>(Hz) | P    |      | I     |       |         | T<br>(Nm) | IE<br>Class | % EFF at __ load |       |       |      | PF at __ load |       |      | I <sub>L</sub> /I <sub>N</sub><br>[pu] | T <sub>M</sub> /T <sub>N</sub><br>[pu] | T <sub>L</sub> /T <sub>N</sub><br>[pu] |
|----------|---------------|-----------|------|------|-------|-------|---------|-----------|-------------|------------------|-------|-------|------|---------------|-------|------|--|--|--|
|          |               |           | [kW] | [hp] | [A]   | [RPM] | 5/4FL   |           |             | FL               | 3/4FL | 1/2FL | FL   | 3/4FL         | 1/2FL |      |  |  |  |
| 415      | Δ             | 50        | 110  | 150  | 198.7 | 991   | 1078.55 |           | IE3         | -                | 95.1  | 95.1  | 94.9 | 0.81          | 0.77  | 0.66 | 5.6                                    | 1.9                                    | 2.3                                    |

|                                  |                                   |   |   |
|----------------------------------|-----------------------------------|---|---|
| Motor type                       | TCA                               | Degree of protection                      | IP 55                                       |
| Enclosure                        | TEFC                              | Mounting type                             | IM B5                                       |
| Frame Material                   | Cast Iron                         | Cooling method                            | IC 411                                      |
| Frame size                       | 315L                              | Motor weight - approx.                    | 1003 kg                                     |
| Duty                             | S1                                | Gross weight - approx.                    | 1048 kg                                     |
| Voltage variation *              | ± 10%                             | Motor inertia                             | 4.7728 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                     | TOP   |
| 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>L</sub>/I<sub>N</sub> - Locked Rotor Current / Rated Current

T<sub>M</sub>/T<sub>N</sub> - Breakdown Torque / Rated Torque

T<sub>L</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 | -      | -      | -          |

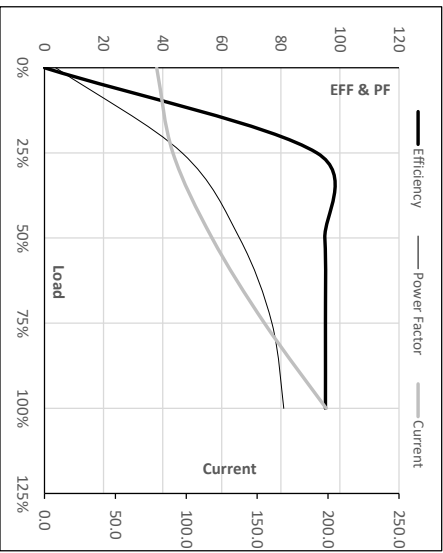
Model No. TCA1103A3121GACD01

| Enclosure | U (V) | Δ/Y Conn | f (Hz) | P (kW) | P (hp) | I (A) | n (RPM) | T (kgm) | T (Nm)  | IE Class | Amb Temp (°C) | Duty | Elevation (m) | Inertia (kg·m <sup>2</sup> ) | Weight (kg) |
|-----------|-------|----------|--------|--------|--------|-------|---------|---------|---------|----------|---------------|------|---------------|------------------------------|-------------|
| TFC       | 415   | Δ        | 50     | 110    | 150    | 198.7 | 991     | 109.98  | 1078.55 | IE3      | 50            | S1   | 1000          | 4.7728                       | 1003        |

**Motor Load Data**

| Load Point   | NL         | 1/4FL | 1/2FL | 3/4FL | FL     | 5/4FL |
|--------------|------------|-------|-------|-------|--------|-------|
| Current      | A 79.1     | 90.6  | 118.2 | 155.1 | 198.7  |       |
| Torque       | Nm 0.0     | 267.7 | 536.6 | 806.8 | 1078.6 |       |
| Speed        | r/min 1000 | 998   | 996   | 993   | 991    |       |
| Efficiency   | % 0.0      | 92.2  | 94.9  | 95.1  | 95.1   |       |
| Power Factor | % 3.8      | 46.6  | 66.0  | 77.0  | 81.0   |       |

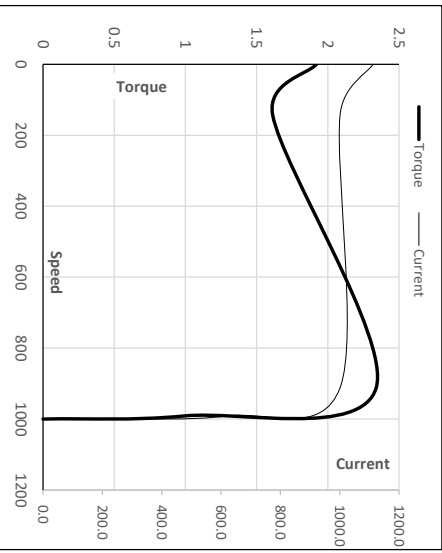
**Performance vs Load Chart**



**Motor Speed Torque Data**

| Load Point | LR       | P-Up   | BD    | Rated | NL   |
|------------|----------|--------|-------|-------|------|
| Speed      | r/min 0  | 143    | 912   | 991   | 1000 |
| Current    | A 1112.5 | 1001.3 | 621.8 | 198.7 | 79.1 |
| Torque     | pu 1.9   | 1.6    | 2.3   | 1     | 0    |

**Starting Characteristics Chart**



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

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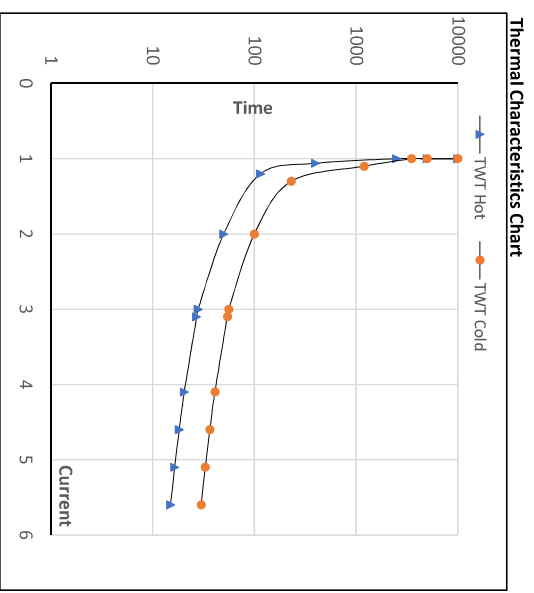


Model No. TCA1103A3121GACD01

| Enclosure | U (V) | $\Delta$ /Y Conn | $\Delta$ | f [Hz] | P [kW] | P [hp] | I [A] | n [rpm] | T [kgm] | T [Nm]  | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg·m <sup>2</sup> ] | Weight [kg] |
|-----------|-------|------------------|----------|--------|--------|--------|-------|---------|---------|---------|----------|----------|------|---------------|------------------------------|-------------|
| TEFC      | 415   | $\Delta$         |          | 50     | 110    | 150    | 198.7 | 991     | 109.90  | 1078.55 | IE3      | 50       | S1   | 1000          | 4.7728                       | 1003        |

**Motor Speed Torque Data**

| Load     | FL | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR  |     |
|----------|----|-------|-------|-------|-------|-------|-----|-----|
| TWT Hot  | s  | 10000 | 50    | 28    | 21    | 17    | 16  | 15  |
| TWT Cold | s  | 10000 | 100   | 56    | 42    | 34    | 31  | 30  |
| Current  | pu | 1     | 2     | 3     | 4     | 5     | 5.5 | 5.6 |



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

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