

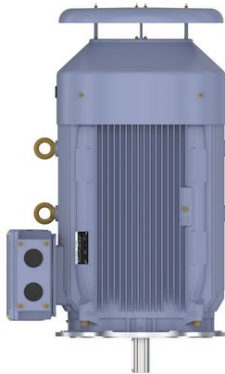
# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA1101A3141GACD01

Catalog No: TCA1101A3141GACD01

110.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 3000 RPM, 415 V, 315S Frame, TEFC  
Cast Iron IE3 Efficiency Motors



Regal and Marathon are trademarks of Regal Beloit Corporation or one of its affiliated companies.  
©2020 Regal Beloit Corporation, All Rights Reserved. MC017097E

**REGAL**

### Nameplate Specifications

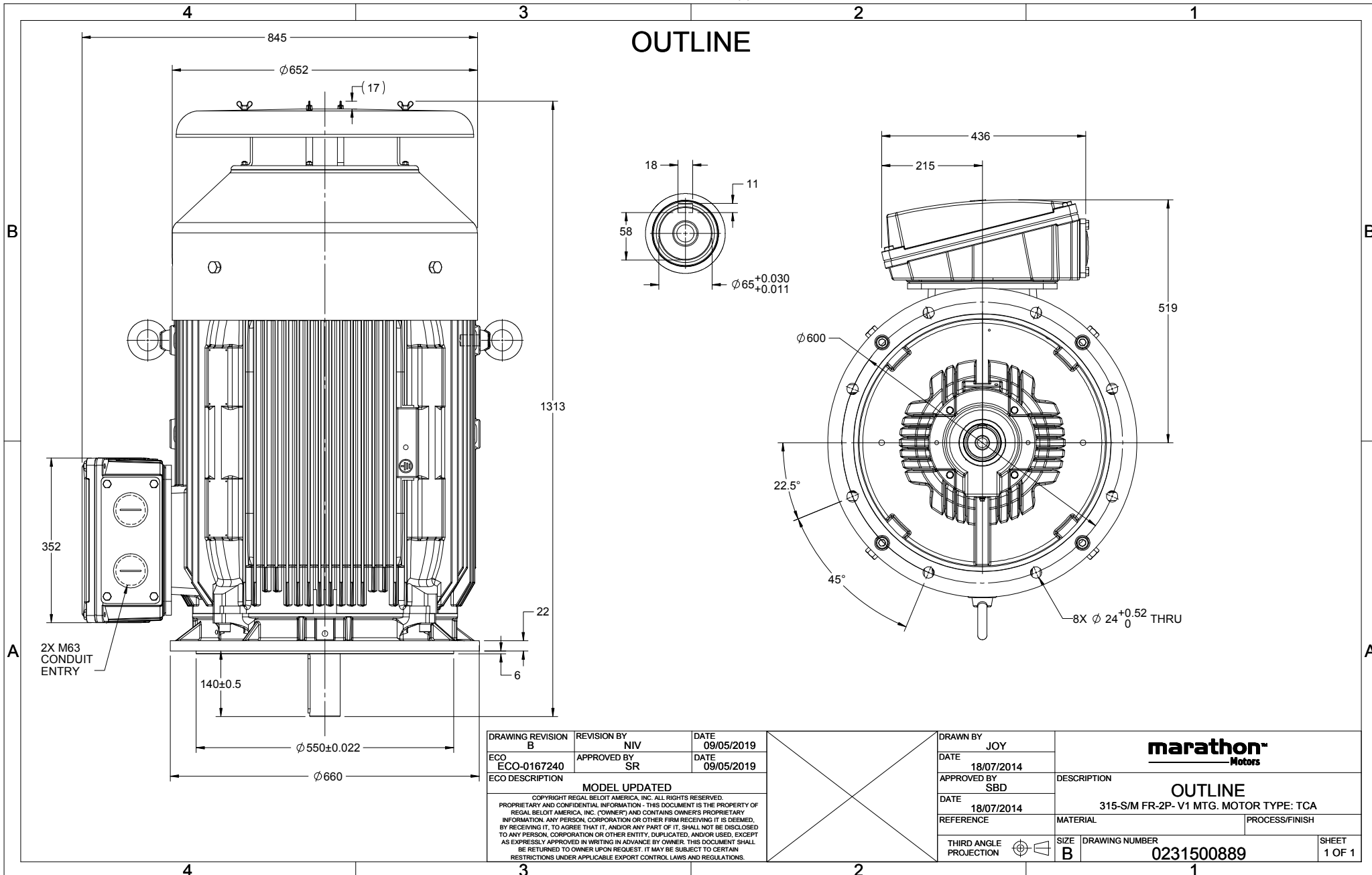
|                            |         |                        |                             |
|----------------------------|---------|------------------------|-----------------------------|
| Output HP                  | 150 Hp  | Output KW              | 110.0 kW                    |
| Frequency                  | 50 Hz   | Voltage                | 415 V                       |
| Current                    | 180.6 A | Speed                  | 2984 rpm                    |
| Service Factor             | 1       | Phase                  | 3                           |
| Efficiency                 | 95.2 %  | Power Factor           | 0.89                        |
| Duty                       | S1      | Insulation Class       | F                           |
| Frame                      | 315S    | Enclosure              | Totally Enclosed Fan Cooled |
| Ambient Temperature        | 50 °C   | Drive End Bearing Size | 6316                        |
| Opp Drive End Bearing Size | 6316    | 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              | V1            | Motor Orientation     | Shaftdown      |
| Drive End Bearing     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 1311 mm       | Frame Length          | 729 mm         |
| Shaft Diameter        | 65 mm         | Shaft Extension       | 140 mm         |
| Assembly/Box Mounting | Top           |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0231500889     |

This is an uncontrolled document once printed or downloaded and is subject to change without notice. Date Created:06/01/2020

## OUTLINE





**Model No.** TCA1101A3141GACD01

| 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        | 110       | 150       | 180.6    | 2984       | 358.02    | IE3         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 7.3                                    | 2.1                                    | 3.7                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |                                        |                                        |                                        |

|                                  |                                   |                                           |                                             |
|----------------------------------|-----------------------------------|-------------------------------------------|---------------------------------------------|
| Motor type                       | TCA                               | Degree of protection                      | IP 55                                       |
| Enclosure                        | TEFC                              | Mounting type                             | IM V1                                       |
| Frame Material                   | Cast Iron                         | Cooling method                            | IC 411                                      |
| Frame size                       | 315S                              | Motor weight - approx.                    | 1038 kg                                     |
| Duty                             | S1                                | Gross weight - approx.                    | 1083 kg                                     |
| Voltage variation *              | ± 10%                             | Motor inertia                             | 2.4236 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) | 83 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                 | 6316 C3 / 6316 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>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 | -      | -      | -          |



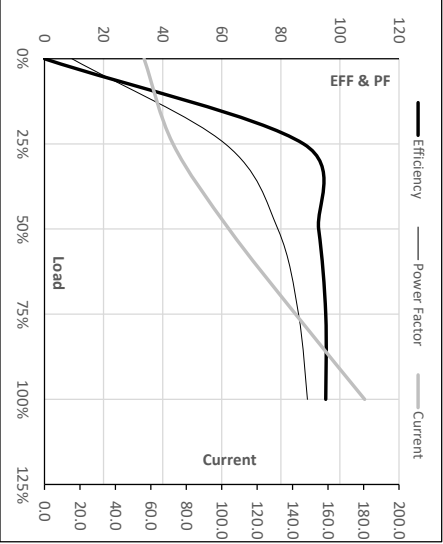
Model No. TCA1101A3141GACD01

| 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        | 110       | 150       | 180.6    | 2984       | 36.51      | 358.02    | IE3         | 50          | S1   | 1000             | 2.4236                          | 1038           |

Motor Speed Data

| Load Point   |       | NL   | 1/4FL | 1/2FL | 3/4FL | FL    | 5/4FL |
|--------------|-------|------|-------|-------|-------|-------|-------|
| Current      | A     | 56.2 | 72.5  | 104.1 | 141.7 | 180.6 |       |
| Torque       | Nm    | 0.0  | 89.1  | 178.5 | 268.1 | 358.0 |       |
| Speed        | r/min | 3000 | 2996  | 2992  | 2988  | 2984  |       |
| Efficiency   | %     | 0.0  | 87.7  | 92.8  | 95.2  | 95.2  |       |
| Power Factor | %     | 9.3  | 61.2  | 79.0  | 86.0  | 89.0  |       |

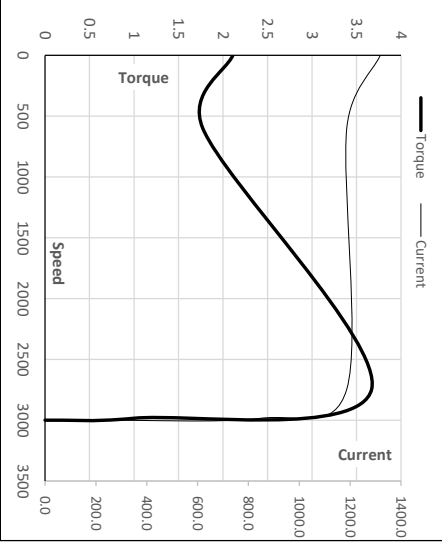
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | LR    | P-Up   | BD     | Rated | NL    |      |
|------------|-------|--------|--------|-------|-------|------|
| Speed      | r/min | 0      | 600    | 2745  | 2984  | 3000 |
| Current    | A     | 1318.5 | 1186.7 | 848.6 | 180.6 | 56.2 |
| Torque     | pu    | 2.1    | 1.8    | 3.7   | 1     | 0    |

Starting Characteristics Chart



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

Issued By  
Issued Date

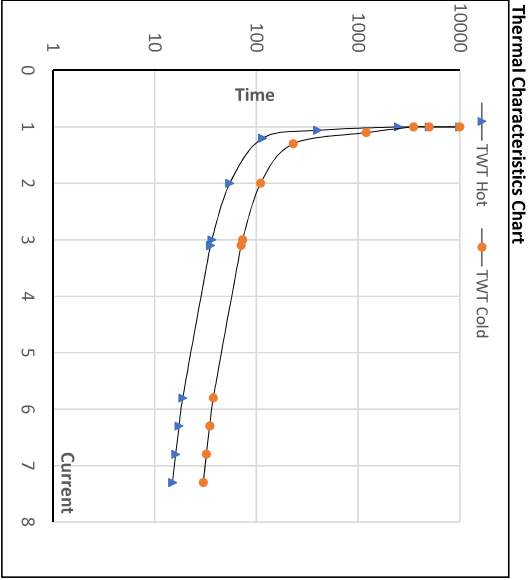


Model No. TCA1101A3141GACD01

| 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        | 110       | 150       | 180.6    | 2984       | 36.48      | 358.02    | IE3         | 50          | S1   | 1000             | 2.4236                          | 1038           |

Motor Speed Torque Data

| Load     | FL | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR  |     |
|----------|----|-------|-------|-------|-------|-------|-----|-----|
| TWT Hot  | s  | 10000 | 55    | 37    | 30    | 25    | 20  | 15  |
| TWT Cold | s  | 10000 | 110   | 73    | 60    | 45    | 40  | 30  |
| Current  | pu | 1     | 2     | 3     | 4     | 5     | 5.5 | 7.3 |



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

Issued By  
Issued Date