

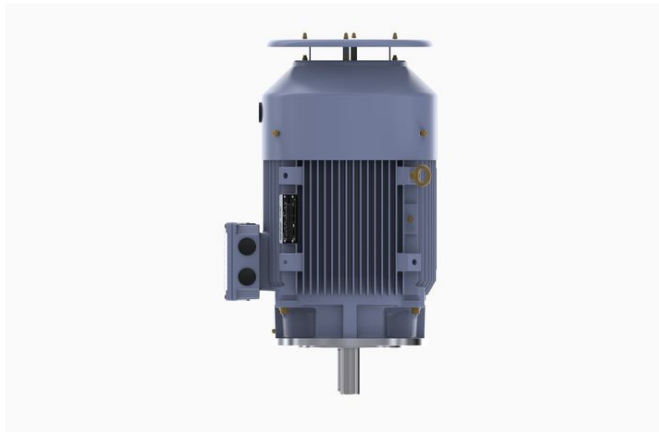
# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA0222A3141GACD01

Catalog No: TCA0222A3141GACD01

22.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 1500 RPM, 415 V, 180L Frame, TEFC  
Cast Iron IE3 Efficiency Motors



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**REGAL**

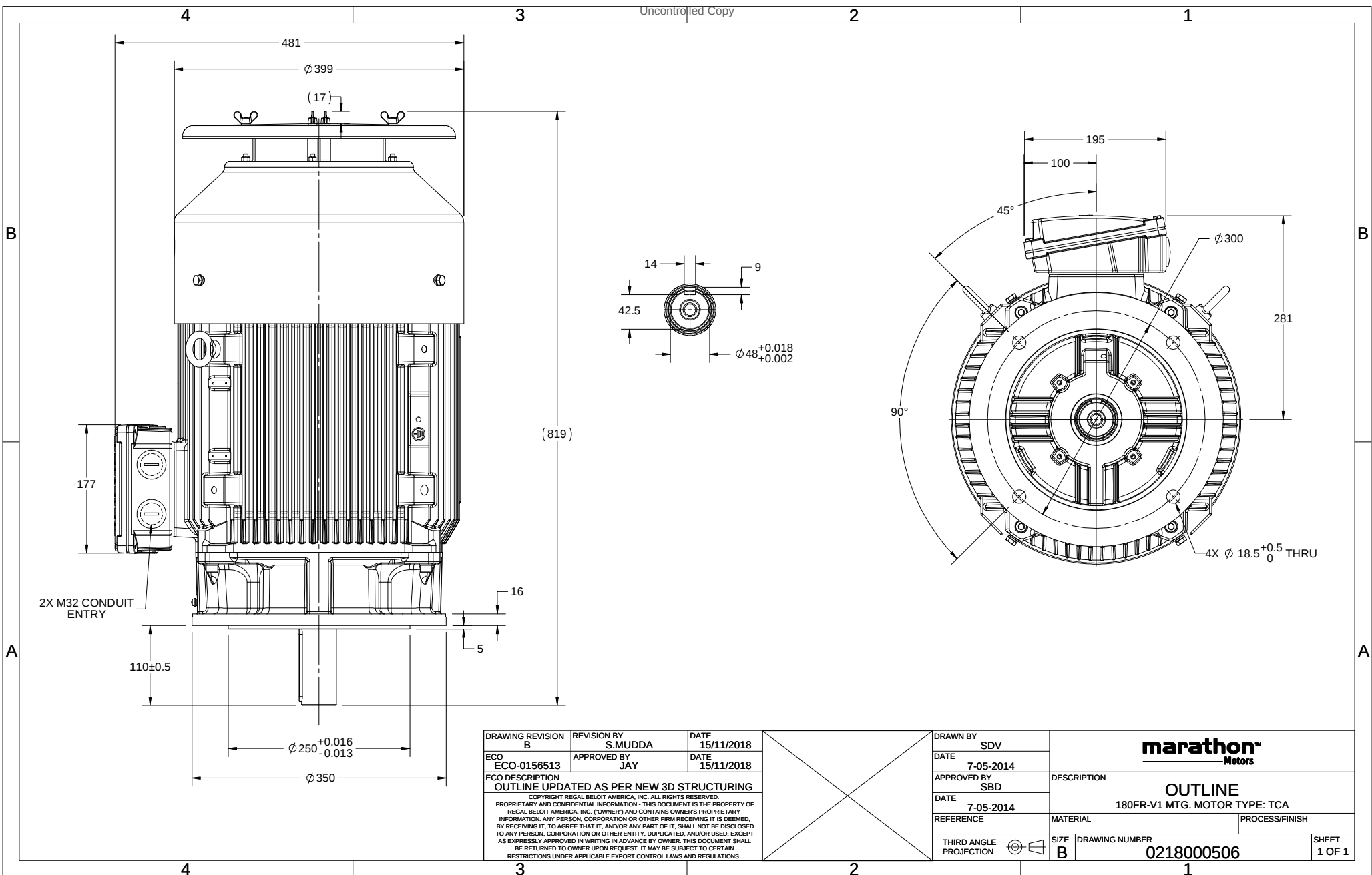
### Nameplate Specifications

|                            |        |                        |                             |
|----------------------------|--------|------------------------|-----------------------------|
| Output HP                  | 30 Hp  | Output KW              | 22.0 kW                     |
| Frequency                  | 50 Hz  | Voltage                | 415 V                       |
| Current                    | 38.7 A | Speed                  | 1478 rpm                    |
| Service Factor             | 1      | Phase                  | 3                           |
| Efficiency                 | 93 %   | Power Factor           | 0.85                        |
| Duty                       | S1     | Insulation Class       | F                           |
| Frame                      | 180L   | Enclosure              | Totally Enclosed Fan Cooled |
| Ambient Temperature        | 50 °C  | Drive End Bearing Size | 6311                        |
| Opp Drive End Bearing Size | 6211   | UL                     | No                          |
| CSA                        | No     | CE                     | Yes                         |
| IP Code                    | 55     |                        |                             |

### Technical Specifications

|                       |               |                       |                |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line |
| Poles                 | 4             | Rotation              | Bi-Directional |
| Mounting              | V1            | Motor Orientation     | Shaftdown      |
| Drive End Bearing     | 2z-C3         | Opp Drive End Bearing | 2z-C3          |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 819 mm        | Frame Length          | 366 mm         |
| Shaft Diameter        | 48 mm         | Shaft Extension       | 110 mm         |
| Assembly/Box Mounting | Top           |                       |                |
| Outline Drawing       | 0218000506    | 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.** TCA0222A3141GACD01

| 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        | 22        | 30        | 38.7     | 1478       | 144.67    | IE3         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 7.3                                    | 2.5                                    | 3.3                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |                                        |                                        |                                        |

|                                  |                            |                                           |                                            |
|----------------------------------|----------------------------|-------------------------------------------|--------------------------------------------|
| Motor type                       | TCA                        | Degree of protection                      | IP 55                                      |
| Enclosure                        | TEFC                       | Mounting type                             | IM V1                                      |
| Frame Material                   | Cast Iron                  | Cooling method                            | IC 411                                     |
| Frame size                       | 180L                       | Motor weight - approx.                    | 260 kg                                     |
| Duty                             | S1                         | Gross weight - approx.                    | 280 kg                                     |
| Voltage variation *              | ± 10%                      | Motor inertia                             | 0.2616 kgm <sup>2</sup>                    |
| Frequency variation *            | ± 5%                       | Load inertia                              | Customer to Provide                        |
| Combined variation *             | 10%                        | Vibration level                           | 2.2 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)              | 12/25 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                 | 6311-22 / 6211-22          | Terminal box position                     | TOP                                        |
| Lubrication method               | Greased for life           | Maximum cable size/conduit size           | 1R x 3C x 35mm <sup>2</sup> /2 X M32 x 1.5 |
| Type of grease                   | NA                         | 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 | -      | -      | -          |

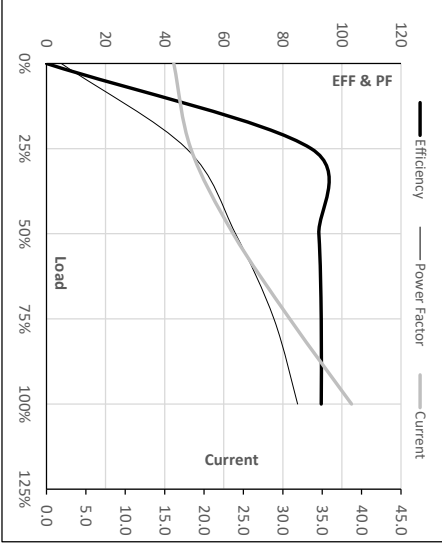
Model No. TCA0222A3141GACD01

| 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        | 22        | 30        | 38.7     | 1478       | 14.75      | 144.67    | IE3         | 50          | S1   | 1000             | 0.2616                          | 260            |

Motor Load Data

| Load Point   | NL    | 1/4FL | 1/2FL | 3/4FL | FL    | 5/4FL |
|--------------|-------|-------|-------|-------|-------|-------|
| Current      | A     | 16.2  | 18.3  | 23.7  | 30.9  | 38.7  |
| Torque       | Nm    | 0.0   | 35.7  | 71.7  | 108.0 | 144.7 |
| Speed        | r/min | 1500  | 1494  | 1489  | 1483  | 1478  |
| Efficiency   | %     | 0.0   | 89.6  | 92.2  | 93.0  | 93.0  |
| Power Factor | %     | 5.0   | 47.4  | 64.0  | 77.0  | 85.0  |

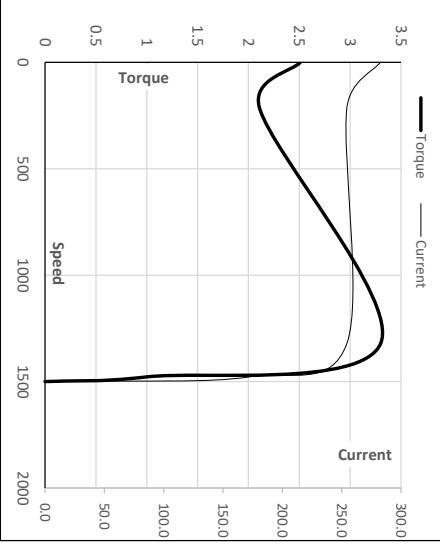
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | LR    | P-Up  | BD    | Rated | NL   |      |
|------------|-------|-------|-------|-------|------|------|
| Speed      | r/min | 0     | 214   | 1321  | 1478 | 1500 |
| Current    | A     | 282.6 | 254.4 | 172.4 | 38.7 | 16.2 |
| Torque     | pu    | 2.5   | 2.1   | 3.3   | 1    | 0    |

Starting Characteristics Chart



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

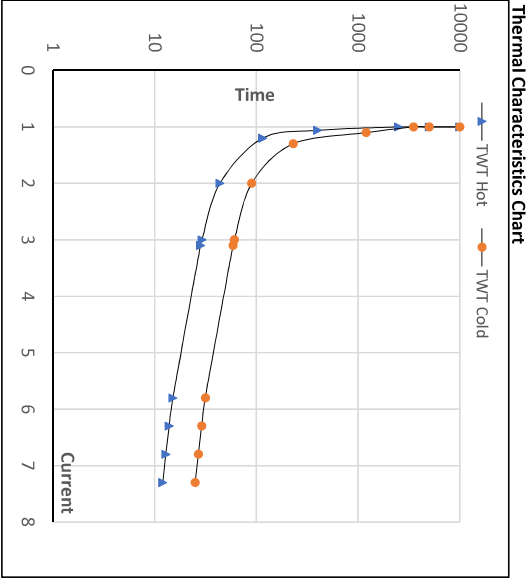
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Issued Date

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| 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        | 22        | 30        | 38.7     | 1478       | 14.74      | 144.67    | IE3         | 50          | S1   | 1000             | 0.2616                          | 260            |

**Motor Speed Torque Data**

| Load     | FL | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR  |     |
|----------|----|-------|-------|-------|-------|-------|-----|-----|
| TWT Hot  | s  | 10000 | 44    | 29    | 25    | 20    | 16  | 12  |
| TWT Cold | s  | 10000 | 90    | 61    | 50    | 40    | 33  | 25  |
| Current  | pu | 1     | 2     | 3     | 4     | 5     | 5.5 | 7.3 |



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

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