

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: TCA18P4A3141GACD01

Catalog No: TCA18P4A3141GACD01

18.5 kW General Purpose Low Voltage IEC Motor, 3 phase, 750 RPM, 415 V, 225S Frame, TEFC  
Cast Iron IE3 Efficiency Motors



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**REGAL**

### Nameplate Specifications

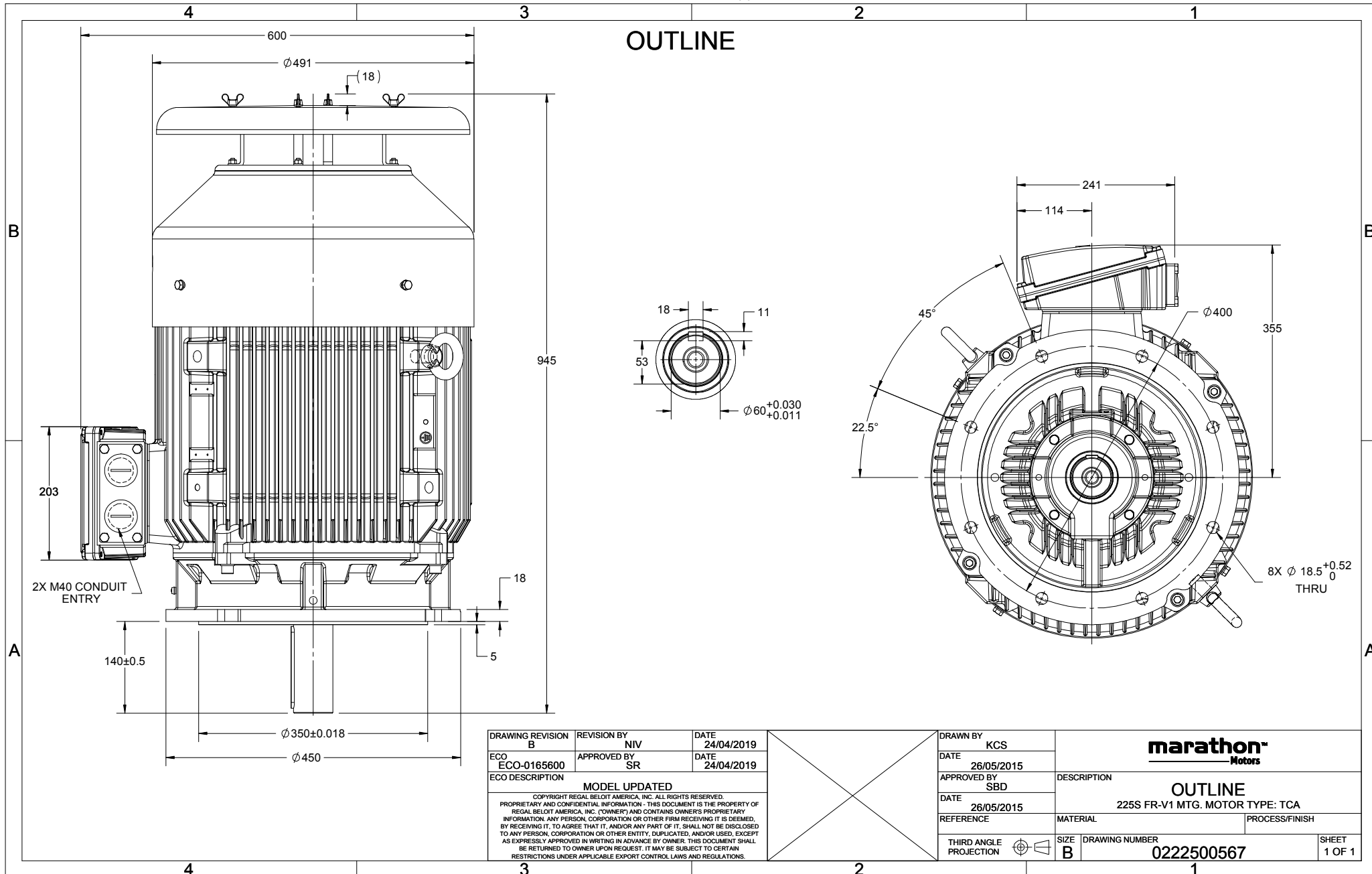
|                            |        |                        |                             |
|----------------------------|--------|------------------------|-----------------------------|
| Output HP                  | 25 Hp  | Output KW              | 18.5 kW                     |
| Frequency                  | 50 Hz  | Voltage                | 415 V                       |
| Current                    | 37.6 A | Speed                  | 739 rpm                     |
| Service Factor             | 1      | Phase                  | 3                           |
| Efficiency                 | 90.1 % | Power Factor           | 0.76                        |
| Duty                       | S1     | Insulation Class       | F                           |
| Frame                      | 225S   | Enclosure              | Totally Enclosed Fan Cooled |
| Ambient Temperature        | 50 °C  | Drive End Bearing Size | 6313                        |
| Opp Drive End Bearing Size | 6213   | UL                     | No                          |
| CSA                        | No     | CE                     | Yes                         |
| IP Code                    | 55     |                        |                             |

### Technical Specifications

|                       |               |                       |                |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type       | Squirrel Cage | Starting Method       | Direct On Line |
| Poles                 | 8             | Rotation              | Bi-Directional |
| Mounting              | V1            | Motor Orientation     | Horizontal     |
| Drive End Bearing     | C3            | Opp Drive End Bearing | C3             |
| Frame Material        | Cast Iron     | Shaft Type            | Keyed          |
| Overall Length        | 943 mm        | Frame Length          | 400 mm         |
| Shaft Diameter        | 60 mm         | Shaft Extension       | 140 mm         |
| Assembly/Box Mounting | Top           |                       |                |
| Connection Drawing    | 8442000085    | Outline Drawing       | 0222500567     |

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## OUTLINE





**Model No.** TCA18P4A3141GACD01

| 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        | 18.5      | 25        | 37.6     | 739        | 241.05    | IE3         | 5/4FL            | FL | 3/4FL | 1/2FL | FL            | 3/4FL | 1/2FL | 5.4                                    | 1.9                                    | 2.5                                    |
|          |               |           |           |           |          |            |           |             |                  |    |       |       |               |       |       |                                        |                                        |                                        |

|                                  |                                   |                                           |                                            |
|----------------------------------|-----------------------------------|-------------------------------------------|--------------------------------------------|
| Motor type                       | TCA                               | Degree of protection                      | IP 55                                      |
| Enclosure                        | TEFC                              | Mounting type                             | IM V1                                      |
| Frame Material                   | Cast Iron                         | Cooling method                            | IC 411                                     |
| Frame size                       | 225S                              | Motor weight - approx.                    | 363 kg                                     |
| Duty                             | S1                                | Gross weight - approx.                    | 393 kg                                     |
| Voltage variation *              | ± 10%                             | Motor inertia                             | 0.8781 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) | 61 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                 | 6313 C3 / 6213 C3                 | Terminal box position                     | TOP                                        |
| Lubrication method               | Regreasable                       | Maximum cable size/conduit size           | 1R x 3C x 50mm <sup>2</sup> /2 x M40 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 | -      | -      | -          |

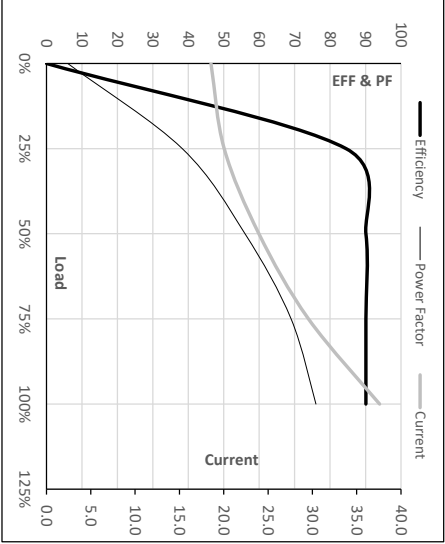
Model No. TCA18P4A3141GACD01

| 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        | 18.5      | 25        | 37.6     | 739        | 24.58      | 241.05    | IE3         | 50          | S1   | 1000             | 0.8781                          | 363            |

Motor Speed Data

| Load Point   | NL    | 1/4FL | 1/2FL | 3/4FL | FL    | 5/4FL |
|--------------|-------|-------|-------|-------|-------|-------|
| Current      | A     | 18.6  | 20.1  | 24.0  | 29.6  | 37.6  |
| Torque       | Nm    | 0.0   | 59.6  | 119.6 | 180.1 | 241.1 |
| Speed        | r/min | 750   | 747   | 745   | 742   | 739   |
| Efficiency   | %     | 0.0   | 84.5  | 90.1  | 90.1  | 90.1  |
| Power Factor | %     | 6.0   | 38.3  | 56.0  | 69.0  | 76.0  |

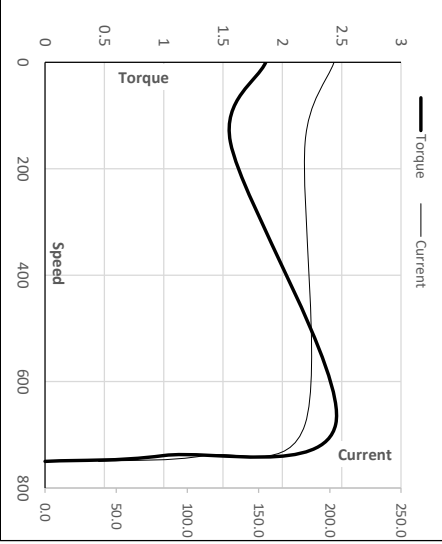
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | LR    | P-Up  | BD    | Rated | NL   |      |
|------------|-------|-------|-------|-------|------|------|
| Speed      | r/min | 0     | 150   | 680   | 739  | 750  |
| Current    | A     | 203.0 | 182.7 | 112.0 | 37.6 | 18.6 |
| Torque     | pu    | 1.9   | 1.6   | 2.5   | 1    | 0    |

Starting Characteristics Chart



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

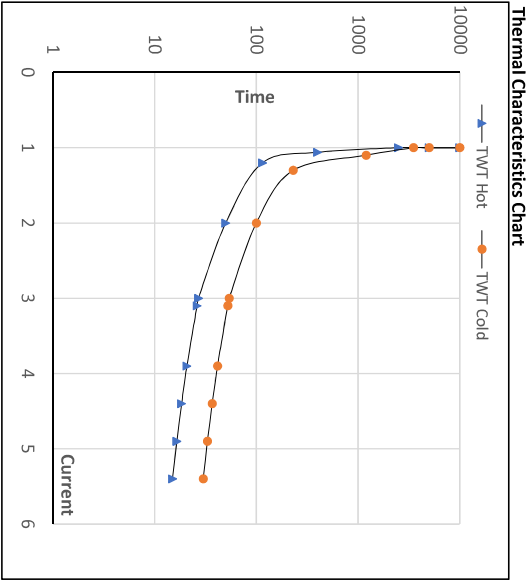
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**Model No.** TCA18PA4314IGACD01

| 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        | 18.5      | 25        | 37.6     | 739        | 24.56      | 241.05    | IE3         | 50          | S1   | 1000             | 0.8781                          | 363            |

**Motor Speed Torque Data**

| Load     | FL | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR |     |
|----------|----|-------|-------|-------|-------|-------|----|-----|
| TWT Hot  | s  | 10000 | 50    | 27    | 20    | 18    | 16 | 15  |
| TWT Cold | s  | 10000 | 100   | 54    | 40    | 36    | 31 | 30  |
| Current  | pu | 1     | 2     | 3     | 4     | 4.5   | 5  | 5.4 |



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

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