

PRODUCT INFORMATION PACKET

marathon®
Motors

Model No: TCA1P51AF111GAC010

Catalog No: TCA1P51AF111GAC010

TerraMAX® Cast Iron Motor, 2 HP, 3 Ph, 50 Hz, 380 V, 3000 RPM, 90S Frame, TEFC



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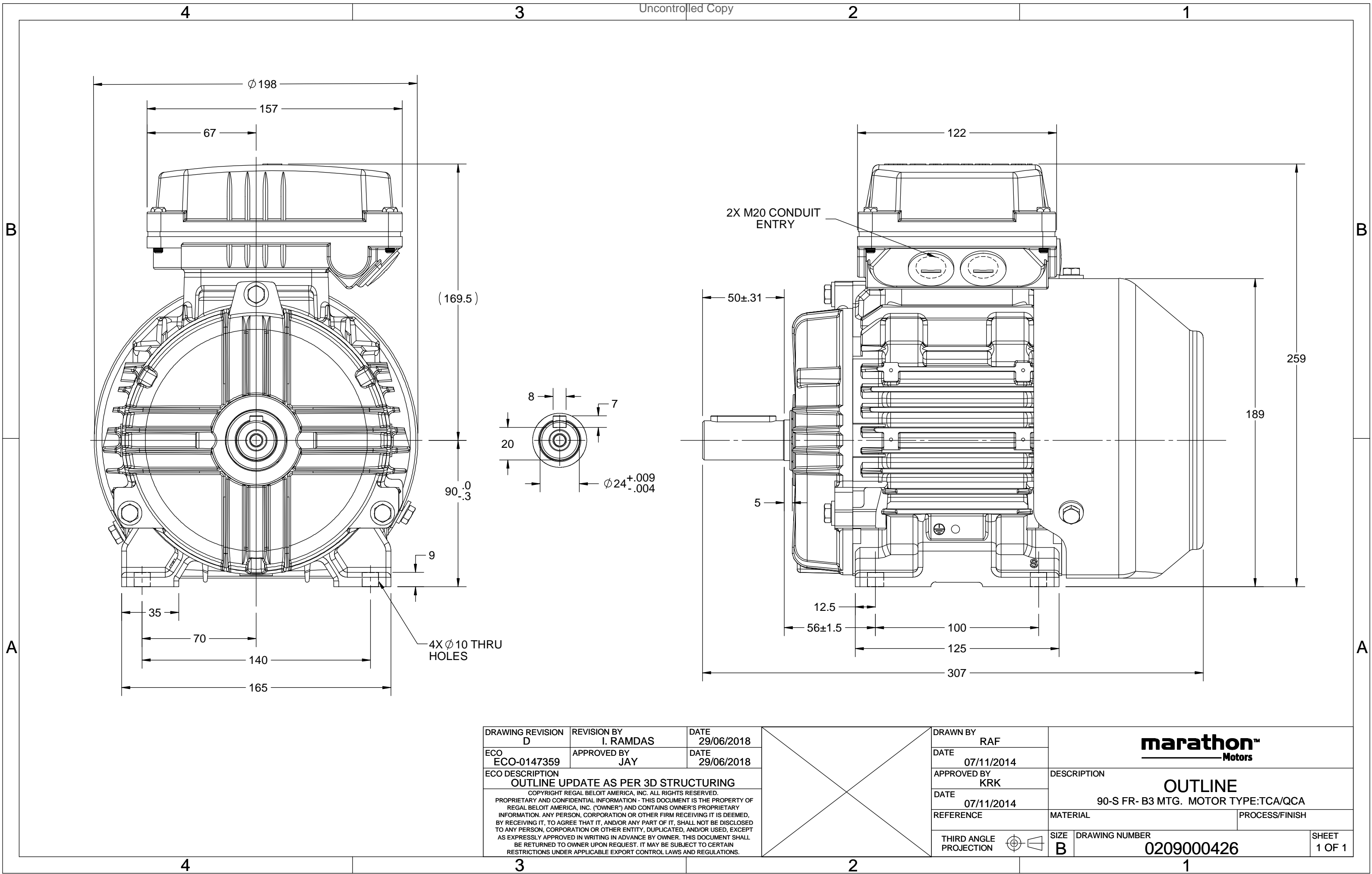
Nameplate Specifications

| | | | |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP | 2 Hp | Output KW | 1.5 kW |
| Frequency | 50 Hz | Voltage | 380 V |
| Current | 3.2 A | Speed | 2888 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 84.2 % | Power Factor | 0.85 |
| Duty | S1 | Insulation Class | F |
| Frame | 90S | Enclosure | Totally Enclosed Fan Cooled |
| Thermal Protection | No Protection | Ambient Temperature | 40 °C |
| Drive End Bearing Size | 6205 | Opp Drive End Bearing Size | 6205 |
| UL | No | CSA | No |
| CE | Yes | IP Code | 55 |
| Number of Speeds | 1 | Efficiency Class | IE3 |

Technical Specifications

| | | | |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type | Squirrel Cage | Starting Method | Direct On Line |
| Poles | 2 | Rotation | Bi-Directional |
| Mounting | B3 | Motor Orientation | Horizontal |
| Drive End Bearing | 2Z-C3 | Opp Drive End Bearing | 2Z-C3 |
| Frame Material | Cast Iron | Shaft Type | Keyed |
| Overall Length | 307 mm | Frame Length | 128 mm |
| Shaft Diameter | 24 mm | Shaft Extension | 50 mm |
| Assembly/Box Mounting | Top | | |
| Outline Drawing | 0209000426 | Connection Drawing | 8442000085 |

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

8WD.442.2017

| | | | | | |
|--|---------------------------|--|--|-------------------------------------|------------------------|
| | DRAWN BY SN | | Regal Beloit America, Inc. | | |
| | DATE 16/12/2016 | | | | |
| | APPROVED BY SBD | | DESCRIPTION CONN DIAGRAM-NAMEPLATE | | |
| | DATE 16/12/2016 | | | | |
| | REFERENCE | | MATERIAL | | PROCESS/FINISH |
| | THIRD ANGLE PROJECTION | | SIZE A | DRAWING NUMBER 8442000085 | SHEET 1 OF 1 |

Model No. TCA1P51AF111GAC010

| U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [RPM] | T [Nm] | IE Class | % EFF at __ load | | | | PF at __ load | | | I_A/I_N [pu] | T_A/T_N [pu] | T_K/T_N [pu] |
|----------|----------------------|-----------|-----------|-----------|----------|------------|-----------|-------------|------------------|------|-------|-------|---------------|-------|-------|-------------------|-------------------|-------------------|
| | | | | | | | | | 5/4FL | FL | 3/4FL | 1/2FL | FL | 3/4FL | 1/2FL | | | |
| 380 | Y | 50 | 1.5 | 2 | 3.18 | 2888 | 4.94 | IE3 | - | 84.2 | 84.2 | 81.8 | 0.85 | 0.78 | 0.65 | 7.5 | 3.5 | 3.5 |
| | | | | | | | | | | | | | | | | | | |

| | | | |
|----------------------------------|--------------------|---|--|
| Motor type | TCA | Degree of protection | IP 55 |
| Enclosure | TEFC | Mounting type | IM B3 |
| Frame Material | Cast Iron | Cooling method | IC 411 |
| Frame size | 90S | Motor weight - approx. | 25 kg |
| Duty | S1 | Gross weight - approx. | 26 kg |
| Voltage variation * | ± 10% | Motor inertia | 0.0021 kgm ² |
| Frequency variation * | ± 5% | Load inertia | Customer to Provide |
| Combined variation * | 10% | Vibration level | 1.6 mm/s |
| Design | N | Noise level (1meter distance from motor) | 63 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 +40 °C | Type of coupling | Direct |
| Temperature rise (by resistance) | 80 [Class B] K | LR withstand time (hot/cold) | 7/15 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 | PTC 150°C |
| Rotor type | Aluminum Die cast | Accessory - 2 | - |
| Bearing type | Anti-friction ball | Accessory - 3 | - |
| DE / NDE bearing | 6205-2Z / 6205-2Z | Terminal box position | TOP |
| Lubrication method | Greased for life | Maximum cable size/conduit size | 1R x 3C x 10mm ² /2 x M20 x 1.5 |
| Type of grease | NA | Auxiliary terminal box | NA |

 I_A/I_N - Locked Rotor Current / Rated Current

 T_K/T_N - Breakdown Torque / Rated Torque

 T_A/T_N - 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.

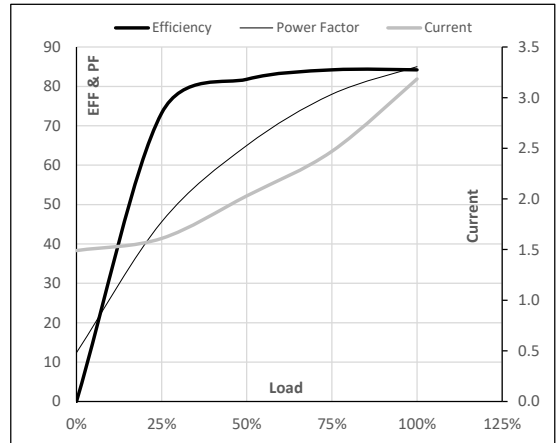
| Efficiency | Europe | China | India | Aus/Nz | Brazil | Global IEC |
|------------|--------|-----------------------|-------|--------|--------|---------------|
| Standards | - | GB 18613-2012 Grade 2 | - | - | - | IEC: 60034-30 |


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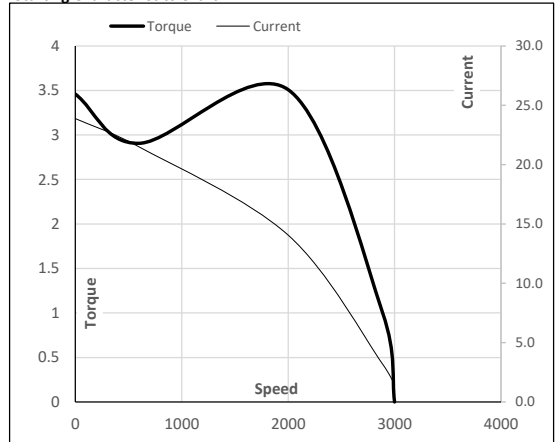
| Enclosure | U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [RPM] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m ²] | Weight [kg] |
|-----------|----------|----------------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC | 380 | Y | 50 | 1.5 | 2.0 | 3.2 | 2888 | 0.50 | 4.94 | IE3 | 40 | S1 | 1000 | 0.0021 | 24 |

Motor Load Data

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|--------------|-------|------|-------|-------|-------|------|-------|
| Current | A | 1.5 | 1.6 | 2.0 | 2.5 | 3.2 | |
| Torque | Nm | 0.0 | 1.2 | 2.4 | 3.7 | 4.9 | |
| Speed | r/min | 3000 | 2972 | 2947 | 2919 | 2888 | |
| Efficiency | % | 0.0 | 73.2 | 81.8 | 84.2 | 84.2 | |
| Power Factor | % | 12.4 | 45.6 | 65.0 | 78.0 | 85.0 | |

Performance vs Load Chart

Motor Speed Torque Data

| Load Point | | LR | P-Up | BD | Rated | NL |
|------------|-------|------|------|------|-------|------|
| Speed | r/min | 0 | 600 | 1999 | 2888 | 3000 |
| Current | A | 23.9 | 21.5 | 14.1 | 3.2 | 1.5 |
| Torque | pu | 3.5 | 2.9 | 3.5 | 1 | 0 |

Starting Characteristics Chart

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

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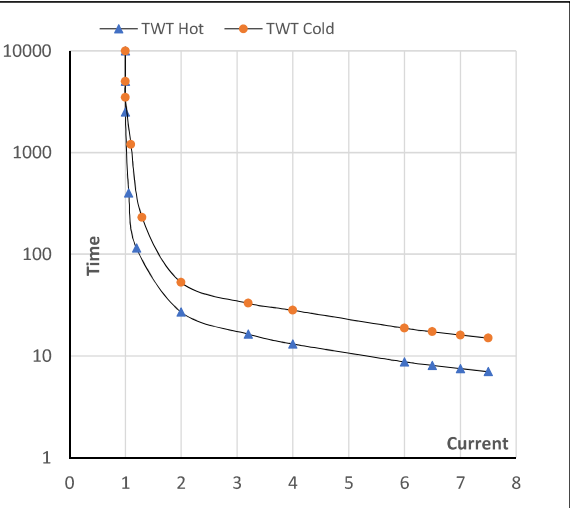
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| Enclosure | U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [rpm] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg·m²] | Weight [kg] |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|--------------------|----------------|
| TEFC | 380 | Y | 50 | 1.5 | 2.0 | 3.2 | 2888 | 0.50 | 4.94 | IE3 | 40 | S1 | 1000 | 0.0021 | 24 |

Motor Speed Torque Data

| Load | FL | I ₁ | I ₂ | I ₃ | I ₄ | I ₅ | LR |
|----------|---------|----------------|----------------|----------------|----------------|----------------|-----|
| TWT Hot | s 10000 | 27 | 23 | 13 | 12 | 11 | 7 |
| TWT Cold | s 10000 | 53 | 40 | 28 | 23 | 20 | 15 |
| Current | pu 1 | 2 | 3 | 4 | 5 | 5.5 | 7.5 |

Thermal Characteristics Chart



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

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