

PRODUCT INFORMATION PACKET

marathon®
Motors

Model No: TCM1P13AZ121GAC011

Catalog No: TCM1P13AZ121GAC011

TerraMAX® IE3, Mining Duty Motors, 1.1 kW, 3Ph, 6 Pole, 230/400V, B5, 50Hz, 90L Frame, TEFC



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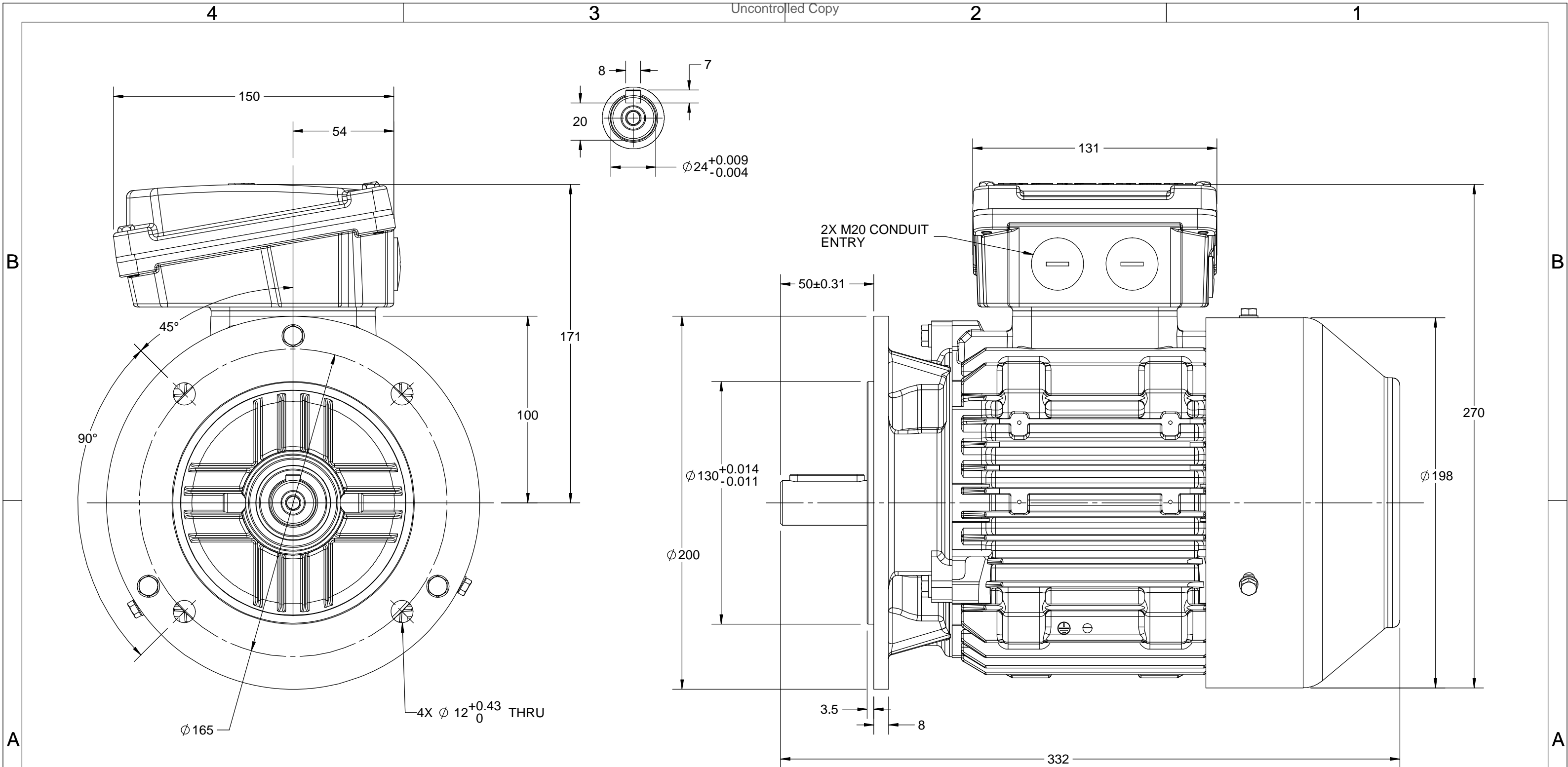
Nameplate Specifications

| | | | |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP | 1.50 Hp | Output KW | 1.1 kW |
| Frequency | 50 Hz | Voltage | 230/400 V |
| Current | 3.0 A | Speed | 941 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 81 % | Power Factor | 0.66 |
| Duty | S1 | Insulation Class | H |
| Frame | 90L | 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 | 66 |
| Number of Speeds | 1 | Efficiency Class | IE3 |

Technical Specifications

| | | | |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type | Squirrel Cage | Starting Method | Direct On Line |
| Poles | 6 | Rotation | Bi-Directional |
| Mounting | B5 | Motor Orientation | Horizontal |
| Drive End Bearing | 2z-C3 | Opp Drive End Bearing | 2z-C3 |
| Frame Material | Cast Iron | Shaft Type | Keyed |
| Overall Length | 332 mm | Frame Length | 153 mm |
| Shaft Diameter | 24 mm | Shaft Extension | 50 mm |
| Assembly/Box Mounting | TOP | | |
| Connection Drawing | 8442000085 | Outline Drawing | 0209000822 |

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| | | |
|---|--------------------|--------------------|
| DRAWING REVISION A | REVISION BY LK | DATE 31/07/2018 |
| ECO ECO-0149382 | APPROVED BY SBD | DATE 31/07/2018 |
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| | | |
|------------------------|---|------------------------------|
| DRAWN BY LK | marathon™ Motors | |
| DATE 31/07/2018 | | |
| APPROVED BY SBD | DESCRIPTION OUTLINE 90L FR- B5 MTG. MOTOR TYPE:TCM | |
| DATE 31/07/2018 | MATERIAL | PROCESS/FINISH |
| REFERENCE | SIZE B | DRAWING NUMBER 0209000822 |
| THIRD ANGLE PROJECTION | SHEET 1 OF 1 | |

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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 | DATE 16/12/2016 | |  Regal Beloit America, Inc. | |
| | 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. TCM1P13AZ121GAC011

| U (V) | Δ / Y Conn | f [Hz] | P | | 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] |
|----------|---------------|-----------|------|------|----------|------------|-----------|-------------|------------------|----|-------|-------|---------------|-------|-------|--|--|--|
| | | | [kW] | [hp] | | | | | 5/4FL | FL | 3/4FL | 1/2FL | FL | 3/4FL | 1/2FL | | | |
| 400 | Y | 50 | 1.1 | 1.5 | 3.0 | 941 | 11.35 | IE3 | - | 81 | 81 | 74.8 | 0.66 | 0.55 | 0.39 | 4.8 | 3.0 | 3 |
| | | | | | | | | | | | | | | | | | | |

| | | | |
|----------------------------------|--------------------|---|--|
| Motor type | TCM | Degree of protection | IP 66 |
| Enclosure | TEFC | Mounting type | IM B5 |
| Frame Material | Cast Iron | Cooling method | IC 411 |
| Frame size | 90L | Motor weight - approx. | 28 kg |
| Duty | S1 | Gross weight - approx. | 29 kg |
| Voltage variation * | ± 10% | Motor inertia | 0.0046 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) | 51 dB(A) |
| Service factor | 1.15 | No. of starts hot/cold/Equally spread | 2/3/4 |
| Insulation class | H | 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) | 22/45 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 2008 |
| 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 combined variation are as per IEC60034-1

Technical data are subject to change. There may be slight variations between calculated values in this datasheet and the motor nameplate figures.

| Efficiency Standards | Europe IEC:60034-30-1 | China - | India - | Aus/Nz AS/NZ 1359:5:2004 | Brazil - | Global IEC IEC:60034-30-1 |
|----------------------|--------------------------|------------|------------|-----------------------------|-------------|------------------------------|
| | | | | | | |

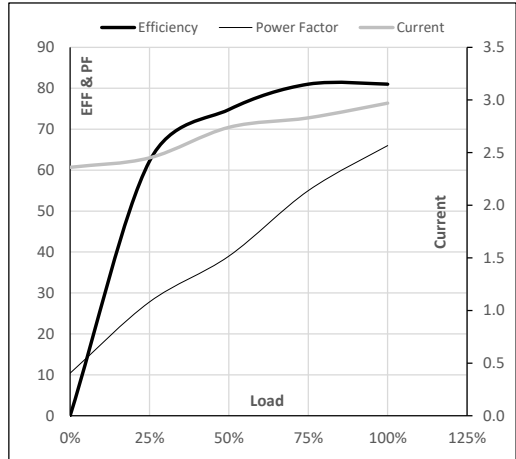
Model No. TCM1P13AZ121GAC011

| 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 | 400 | Y | 50 | 1.1 | 1 | 3.0 | 941 | 1.16 | 11.35 | IE3 | 40 | S1 | 1000 | 0.0046 | 28 |

Motor Load Data

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|--------------|-------|------|-------|-------|-------|------|-------|
| Current | A | 2.4 | 2.5 | 2.7 | 2.8 | 3.0 | |
| Torque | Nm | 0.0 | 2.7 | 5.5 | 8.4 | 11.4 | |
| Speed | r/min | 1000 | 986 | 972 | 958 | 941 | |
| Efficiency | % | 0.0 | 62.2 | 74.8 | 81.0 | 81.0 | |
| Power Factor | % | 10.4 | 27.8 | 39.0 | 55.0 | 66.0 | |

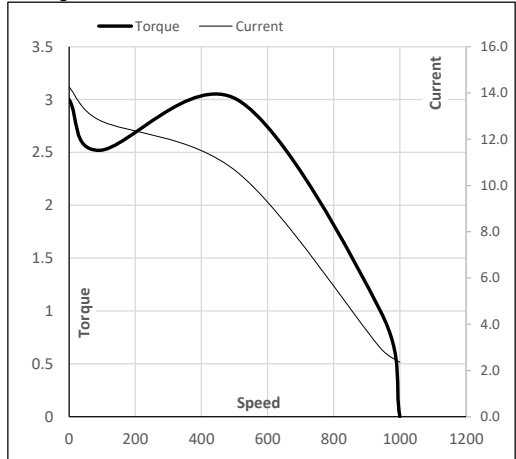
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | | LR | P-Up | BD | Rated | NL |
|------------|-------|------|------|------|-------|------|
| Speed | r/min | 0 | 91 | 508 | 941 | 1000 |
| Current | A | 14.3 | 12.8 | 10.6 | 3.0 | 2.4 |
| Torque | pu | 3.0 | 2.5 | 3.0 | 1 | 0 |

Starting Characteristics Chart



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

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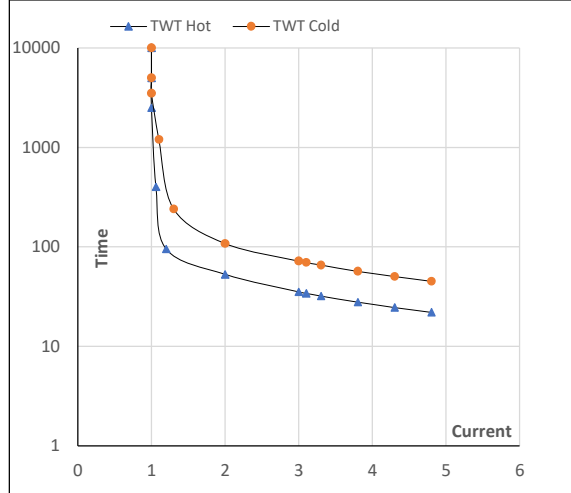
Model No. TCM1P13AZ121GAC011

| | | | | | | | | | | | | | | | |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| 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 | 400 | Y | 50 | 1.1 | 1.5 | 3.0 | 941 | 1.16 | 11.35 | IE3 | 40 | S1 | 1000 | 0.0046 | 28 |

Motor Speed Torque Data

| Load | FL | I ₁ | I ₂ | I ₃ | I ₄ | I ₅ | LR | |
|----------|---------|----------------|----------------|----------------|----------------|----------------|-----|-----|
| TWT Hot | s 10000 | 53 | 35 | 30 | 25 | 23 | 22 | |
| TWT Cold | s 10000 | 108 | 72 | 60 | 53 | 47 | 45 | |
| Current | pu | 1 | 2 | 3 | 3.5 | 4 | 4.5 | 4.8 |

Thermal Characteristics Chart



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

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