

PRODUCT INFORMATION PACKET

marathon®
Motors

Model No: QCA0902AF111GAA001

Catalog No: QCA0902AF111GAA001

TerraMAX® Cast Iron Motor, 120 HP, 3 Ph, 50 Hz, 380 V, 1500 RPM, 280M Frame, TEFC



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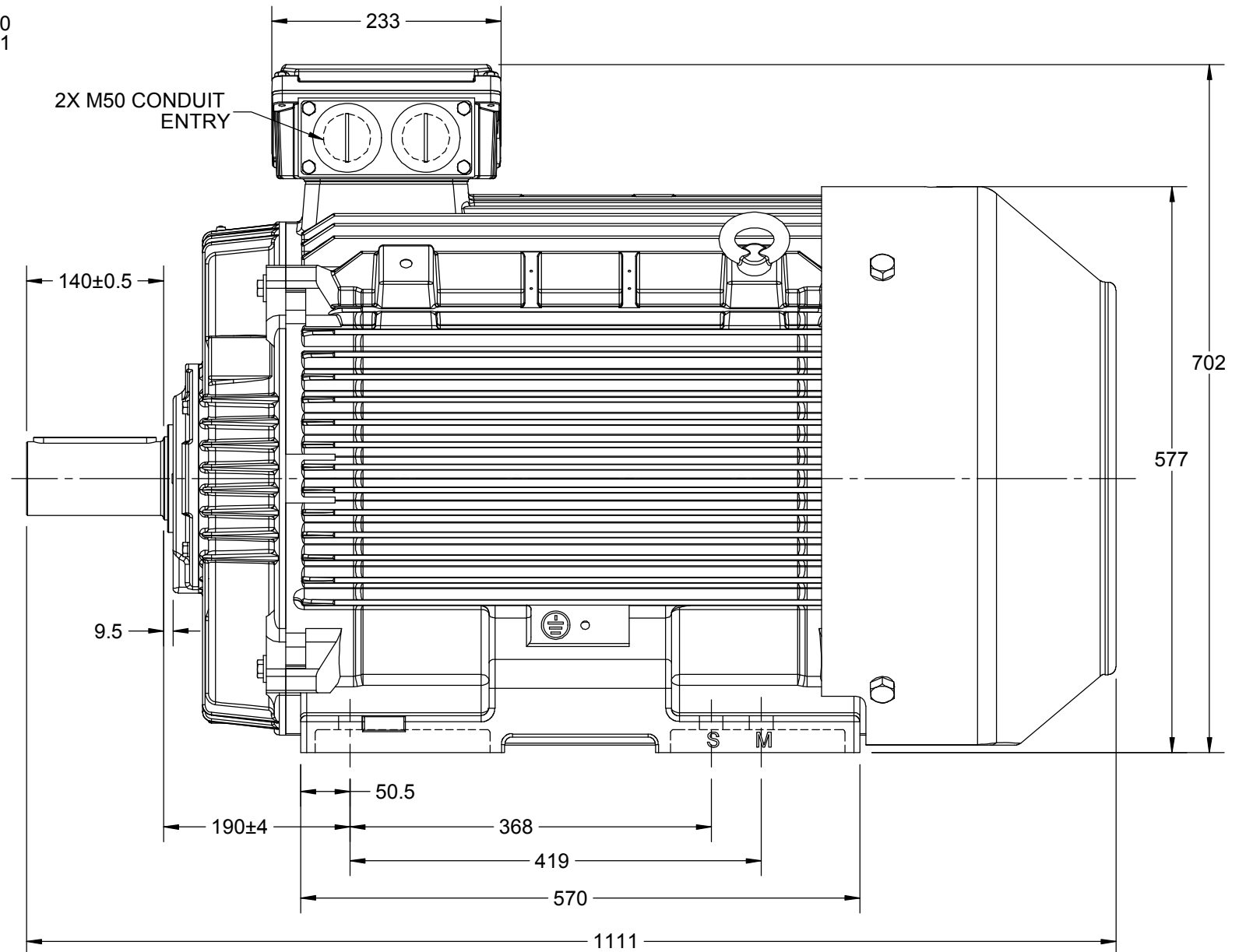
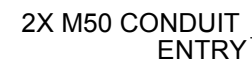
Nameplate Specifications

| | | | |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP | 120 Hp | Output KW | 90.0 kW |
| Frequency | 50 Hz | Voltage | 380 V |
| Current | 164.8 A | Speed | 1490 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 96.1 % | Power Factor | 0.87 |
| Duty | S1 | Insulation Class | F |
| Frame | 280M | Enclosure | Totally Enclosed Fan Cooled |
| Thermal Protection | No Protection | Ambient Temperature | 40 °C |
| Drive End Bearing Size | 6317 | Opp Drive End Bearing Size | 6317 |
| UL | No | CSA | No |
| CE | YES | IP Code | 55 |
| Number of Speeds | 1 | Efficiency Class | IE4 |

Technical Specifications

| | | | |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type | Squirrel Cage | Starting Method | Direct On Line |
| Poles | 4 | Rotation | Bi-Directional |
| Mounting | B3 | Motor Orientation | Horizontal |
| Drive End Bearing | C3 | Opp Drive End Bearing | C3 |
| Frame Material | Cast Iron | Shaft Type | Keyed |
| Overall Length | 1111 mm | Frame Length | 600 mm |
| Shaft Diameter | 75 mm | Shaft Extension | 140 mm |
| Assembly/Box Mounting | Top | | |
| Outline Drawing | 0228000589 | Connection Drawing | 8442000085 |

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| | | | | | | | |
|--|-------------------|--------------------|------------------------------|-------------------------------------|-----------------|--|----------------|
| DRAWING REVISION E | REVISION BY LK | DATE 17/04/2019 | | DRAWN BY JOY | | | |
| ECO ECO-0165600 | APPROVED BY SR | DATE 17/04/2019 | | DATE 18/07/2014 | | | |
| ECO DESCRIPTION UPDATED MODEL AS PER NEW 3D STRUCTURE | | | | APPROVED BY SBD | DESCRIPTION | | |
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| | | | | 280M-4P-B3 MTG. MOTOR TYPE: TCA/QCA | | | |
| | | | | REFERENCE | MATERIAL | | PROCESS/FINISH |
| THIRD ANGLE PROJECTION | | SIZE B | DRAWING NUMBER 0228000589 | | 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 | | 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. QCA0902AF111GAA001

| 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 | Δ | 50 | 90 | 120 | 163.6 | 1490 | 573.48 | IE4 | - | 96.1 | 96.1 | 95.1 | 0.87 | 0.84 | 0.75 | 6.6 | 2.5 | 2.8 |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

| | | | |
|----------------------------------|-----------------------------|---|--|
| Motor type | QCA | Degree of protection | IP 55 |
| Enclosure | TEFC | Mounting type | IM B3 |
| Frame Material | Cast Iron | Cooling method | IC 411 |
| Frame size | 280M | Motor weight - approx. | 837 kg |
| Duty | S1 | Gross weight - approx. | 872 kg |
| Voltage variation * | ± 10% | Motor inertia | 2.8284 kgm ² |
| 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) | 68 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) | 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 | PTC 150°C |
| Rotor type | Aluminum Die cast | Accessory - 2 | - |
| Bearing type | Anti-friction ball | Accessory - 3 | - |
| DE / NDE bearing | 6317 C3 / 6317 C3 | Terminal box position | TOP |
| Lubrication method | Regreasable | Maximum cable size/conduit size | 1R x 3C x 95mm ² /2 x M50 x 1.5 |
| Type of grease | CHEVRON SRI-2 or Equivalent | 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.

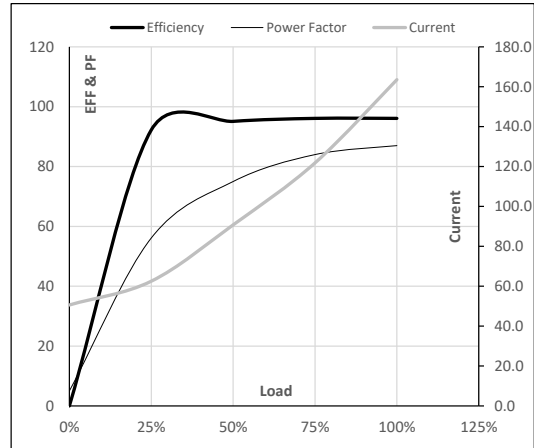
| Efficiency | Europe | China | India | Aus/Nz | Brazil | Global IEC |
|------------|--------|-----------------------|-------|--------|--------|---------------|
| Standards | - | GB 18613-2012 Grade 2 | - | - | - | IEC: 60034-30 |

Model No. QCA0902AF111GAA001

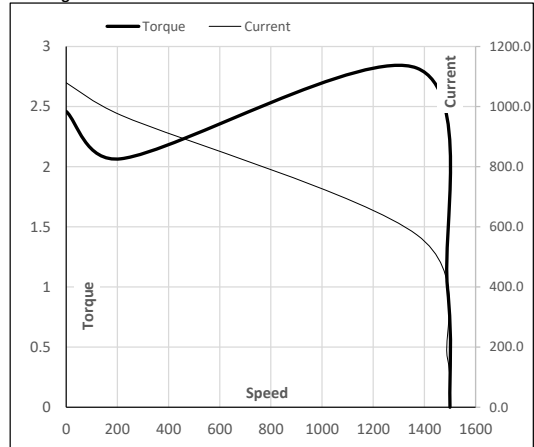
| Enclosure | U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [RPM] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m ²] | Weight [kg] |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC | 380 | Δ | 50 | 90 | 120 | 163.6 | 1490 | 58.48 | 573.48 | IE4 | 40 | S1 | 1000 | 2.8284 | 837 |

Motor Load Data

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|--------------|-------|------|-------|-------|-------|-------|-------|
| Current | A | 50.6 | 62.5 | 90.8 | 121.8 | 163.6 | |
| Torque | Nm | 0.0 | 142.7 | 285.8 | 429.4 | 573.5 | |
| Speed | r/min | 1500 | 1498 | 1495 | 1493 | 1490 | |
| Efficiency | % | 0.0 | 92.2 | 95.1 | 96.1 | 96.1 | |
| Power Factor | % | 5.0 | 56.1 | 75.0 | 84.0 | 87.0 | |

Performance vs Load Chart

Motor Speed Torque Data

| Load Point | | LR | P-Up | BD | Rated | NL |
|------------|-------|--------|-------|-------|-------|------|
| Speed | r/min | 0 | 214 | 1371 | 1490 | 1500 |
| Current | A | 1079.4 | 971.5 | 573.3 | 163.6 | 50.6 |
| Torque | pu | 2.5 | 2.1 | 2.8 | 1 | 0 |

Starting Characteristics Chart

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

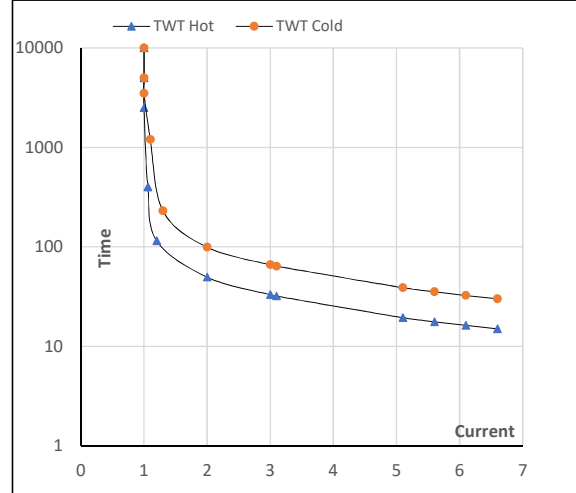
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| Enclosure | U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [rpm] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m ²] | Weight [kg] |
|-----------|----------|----------------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| TEFC | 380 | Δ | 50 | 90 | 120 | 163.6 | 1490 | 58.48 | 573.48 | IE4 | 40 | S1 | 1000 | 2.8284 | 837 |

Motor Speed Torque Data

| Load | | FL | I ₁ | I ₂ | I ₃ | I ₄ | I ₅ | LR |
|----------|----|-------|----------------|----------------|----------------|----------------|----------------|-----|
| TWT Hot | s | 10000 | 50 | 33 | 25 | 20 | 18 | 15 |
| TWT Cold | s | 10000 | 99 | 66 | 60 | 40 | 36 | 30 |
| Current | pu | 1 | 2 | 3 | 4 | 5 | 5.5 | 6.6 |
| | | | | | | | | |

Thermal Characteristics Chart

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

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