# PRODUCT INFORMATION PACKET

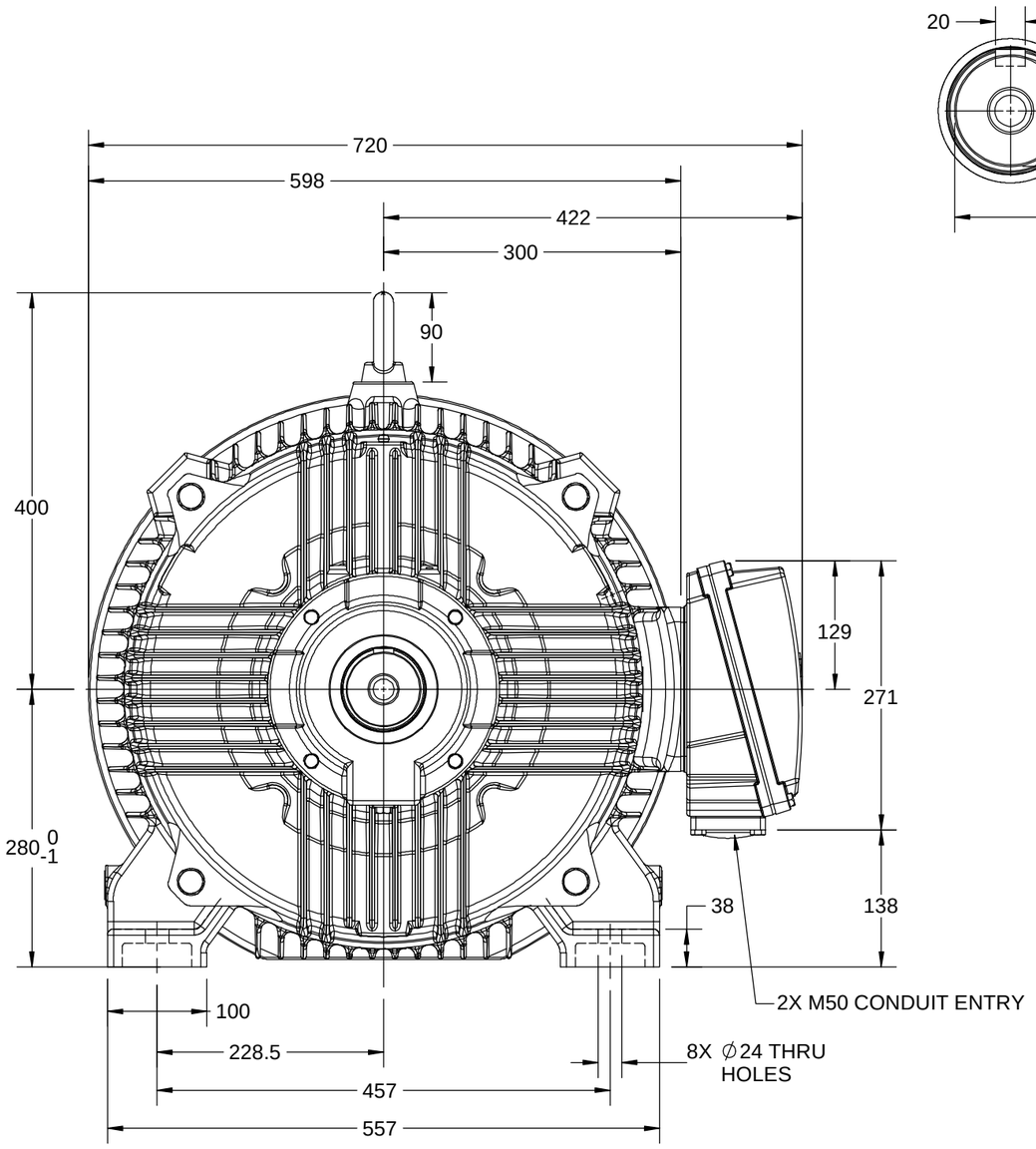
Model No: QCA0453A1113GAA001
Catalog No: QCA0453A1113GAA001
TerraMAX® Cast Iron Motor, 60 HP, 3 Ph, 50 Hz, 400 V, 1000 RPM, 280S Frame, TEFC

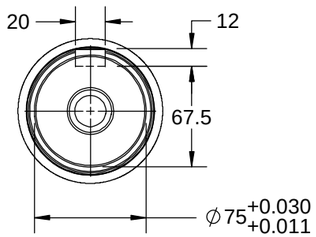
## Nameplate Specifications

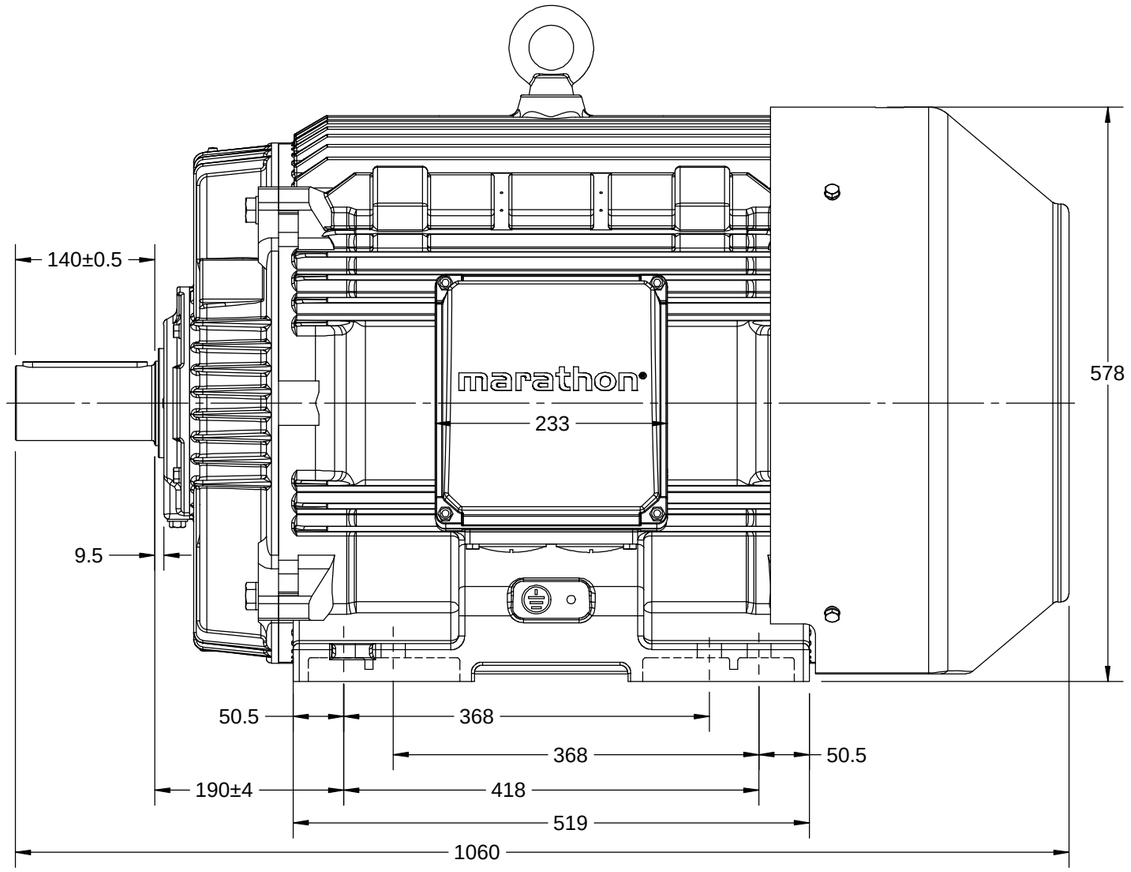
| | | | |
|---|---|---|---|
| Output HP | 60 Hp | Output KW | 45.0 kW |
| Frequency | 50 Hz | Voltage | 400 V |
| Current | 84.5 A | Speed | 991 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 94.8 % | Power Factor | 0.82 |
| Duty | S1 | Insulation Class | F |
| Frame | 280S | Enclosure | Totally 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 | 6 | 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 | 1060 mm | Frame Length | 549 mm |
| Shaft Diameter | 75 mm | Shaft Extension | 140 mm |
| Assembly/Box Mounting | R Side | | |
| Outline Drawing | 0228001135 | Connection Drawing | 8442000085 |



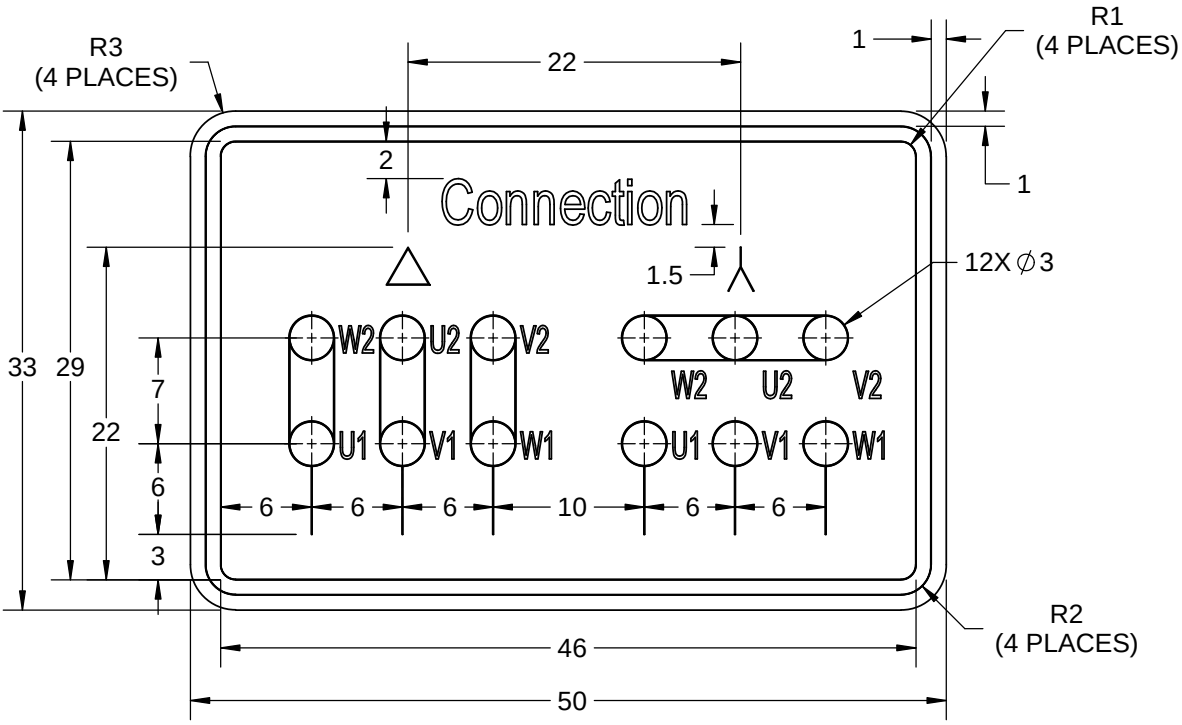




| | | | | |
|---|---|---|---|---|
| DRAWING REVISION C | REVISION BY LK | DATE 04/08/2020 | DRAWN BY GSR | marathon™ Motors |
| ECO ECO-0189872 | APPROVED BY JAY | DATE 04/08/2020 | DATE 09/01/2018 | |
| ECO DESCRIPTION MODEL UPDATED | | | APPROVED BY JAY | DESCRIPTION OUTLINE TCA-280S-4~8P-B3-RHS TB |
| | | | DATE 09/01/2018 | |
| | | | REFERENCE | MATERIAL / PROCESS/FINISH |
| | | | THIRD ANGLE PROJECTION | SIZE B / DRAWING NUMBER 0228001135 / SHEET 1 OF 1 |

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

| GEOMENTRIC 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™ 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 |

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**Model No.** QCA0453A1113GAA001

| U | Δ / Y | f | P | P | I | n | T | IE | % EFF at __ load | | | | PF at __ load | | | $I_A/I_N$ | $T_A/T_N$ | $T_K/T_N$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (V) | Conn | [Hz] | [kW] | [hp] | [A] | [RPM] | [Nm] | Class | 5/4FL | FL | 3/4FL | 1/2FL | FL | 3/4FL | 1/2FL | [pu] | [pu] | [pu] |
| 400 | Δ | 50 | 45 | 60 | 83.6 | 991 | 431.31 | IE4 | - | 94.8 | 94.8 | 93.3 | 0.82 | 0.76 | 0.64 | 7.1 | 2.3 | 3.0 |

| | | |
|---|---|---|
| Motor type | QCA | |
| Enclosure | TEFC | |
| Frame Material | Cast Iron | |
| Frame size | 280S | |
| Duty | S1 | |
| Voltage variation * | ± 10% | |
| Frequency variation * | ± 5% | |
| Combined variation * | 10% | |
| Design | N | |
| Service factor | 1.0 | |
| Insulation class | F | |
| Ambient temperature | -20 to +40 | °C |
| Temperature rise (by resistance) | 80 [ Class B ] | K |
| Altitude above sea level | 1000 | meter |
| Hazardous area classification | NA | |
| Zone classification | NA | |
| Gas group | NA | |
| Temperature class | NA | |
| Rotor type | Aluminum Die cast | |
| Bearing type | Anti-friction ball | |
| DE / NDE bearing | 6317 C3 / 6317 C3 | |
| Lubrication method | Regreasable | |
| Type of grease | CHEVRON SRI-2 or Equivalent | |

| | | |
|---|---|---|
| Degree of protection | IP 55 | |
| Mounting type | IM B3 | |
| Cooling method | IC 411 | |
| Motor weight - approx. | 671 | kg |
| Gross weight - approx. | 706 | kg |
| Motor inertia | 2.7750 | $kgm^2$ |
| Load inertia | Customer to Provide | |
| Vibration level | 2.2 | mm/s |
| Noise level ( 1meter distance from motor) | 66 | dB(A) |
| No. of starts hot/cold/Equally spread | 2/3/4 | |
| Starting method | DOL | |
| Type of coupling | Direct | |
| LR withstand time (hot/cold) | 15/30 | s |
| Direction of rotation | Bi-directional | |
| Standard rotation | Clockwise form DE | |
| Paint shade | RAL 5014 | |
| Accessories | | |
| Accessory - 1 | PTC 150°C | |
| Accessory - 2 | - | |
| Accessory - 3 | - | |
| Terminal box position | RHS | |
| Maximum cable size/conduit size | 1R x 3C x 95mm²/2 x M50 x 1.5 | |
| Auxiliary terminal box | NA | |

$I_A/I_N$ - Locked Rotor Current / Rated Current

$T_A/T_N$ - Locked Rotor Torque / Rated Torque

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

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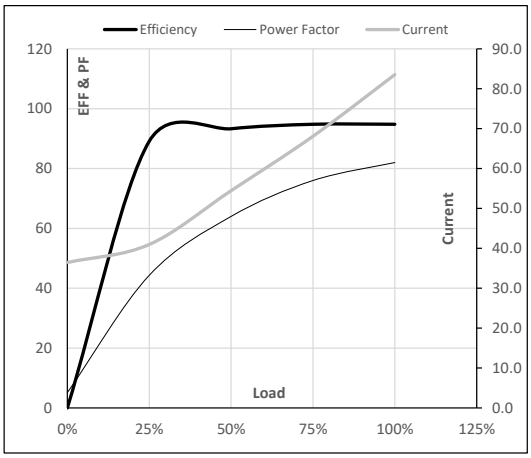
| Enclosure | U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [RPM] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m$^2$] | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEFC | 400 | Δ | 50 | 45 | 60 | 83.6 | 991 | 43.98 | 431.31 | IE4 | 40 | S1 | 1000 | 2.7750 | 671 |

**Motor Load Data**

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|---|---|---|---|---|---|---|---|
| Current | A | 36.5 | 41.0 | 54.5 | 68.1 | 83.6 | |
| Torque | Nm | 0.0 | 107.1 | 214.6 | 322.7 | 431.3 | |
| Speed | r/min | 1000 | 998 | 996 | 993 | 991 | |
| Efficiency | % | 0.0 | 89.1 | 93.3 | 94.8 | 94.8 | |
| Power Factor | % | 5.1 | 44.3 | 64.0 | 76.0 | 82.0 | |

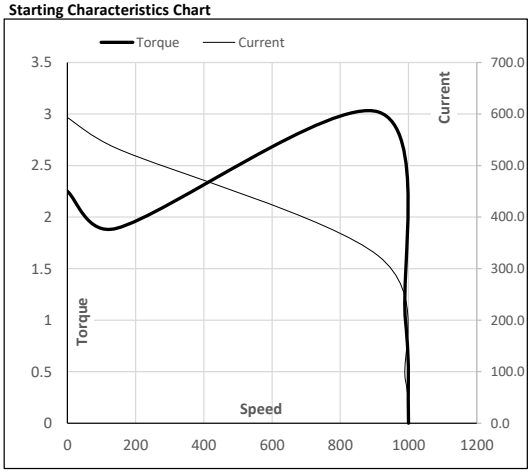
**Performance vs Load Chart**




**Motor Speed Torque Data**

| Load Point | | LR | P-Up | BD | Rated | NL |
|---|---|---|---|---|---|---|
| Speed | r/min | 0 | 143 | 912 | 991 | 1000 |
| Current | A | 593.2 | 533.9 | 324.7 | 83.6 | 36.5 |
| Torque | pu | 2.3 | 1.9 | 3.0 | 1 | 0 |

**Starting Characteristics Chart**




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

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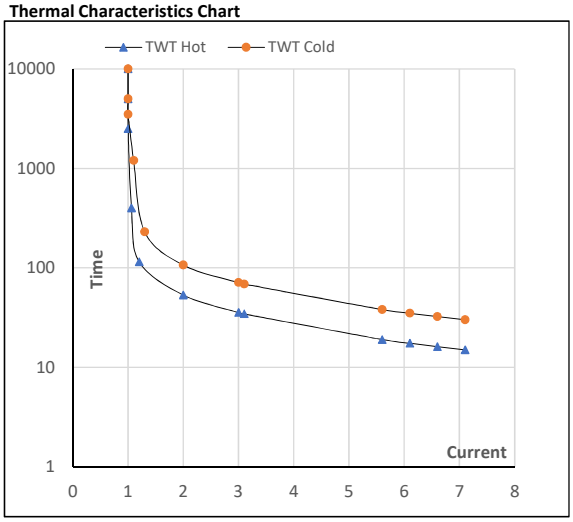
| Enclosure | U (V) | Δ / Y Conn | f [Hz] | P [kW] | P [hp] | I [A] | n [rpm] | T [kgm] | T [Nm] | IE Class | Amb [°C] | Duty | Elevation [m] | Inertia [kg-m$^2$] | Weight [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TEFC | 400 | Δ | 50 | 45 | 60 | 83.6 | 991 | 43.98 | 431.31 | IE4 | 40 | S1 | 1000 | 2.7750 | 671 |

**Motor Speed Torque Data**

| Load | | FL | $I_1$ | $I_2$ | $I_3$ | $I_4$ | $I_5$ | LR |
|---|---|---|---|---|---|---|---|---|
| TWT Hot | s | 10000 | 53 | 36 | 30 | 25 | 20 | 15 |
| TWT Cold | s | 10000 | 107 | 71 | 60 | 45 | 40 | 30 |
| Current | pu | 1 | 2 | 3 | 4 | 5 | 5.5 | 7.1 |

**Thermal Characteristics Chart**

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