

PRODUCT INFORMATION PACKET

Model No: TCM0044A2113GAC011

Catalog No: TCM0044A2113GAC011

TerraMAX® IE3, Mining Duty Motors, 4 kW, 3Ph, 8 Pole, 230/400V, B3, 50Hz, 160M Frame, TEFC



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Nameplate Specifications

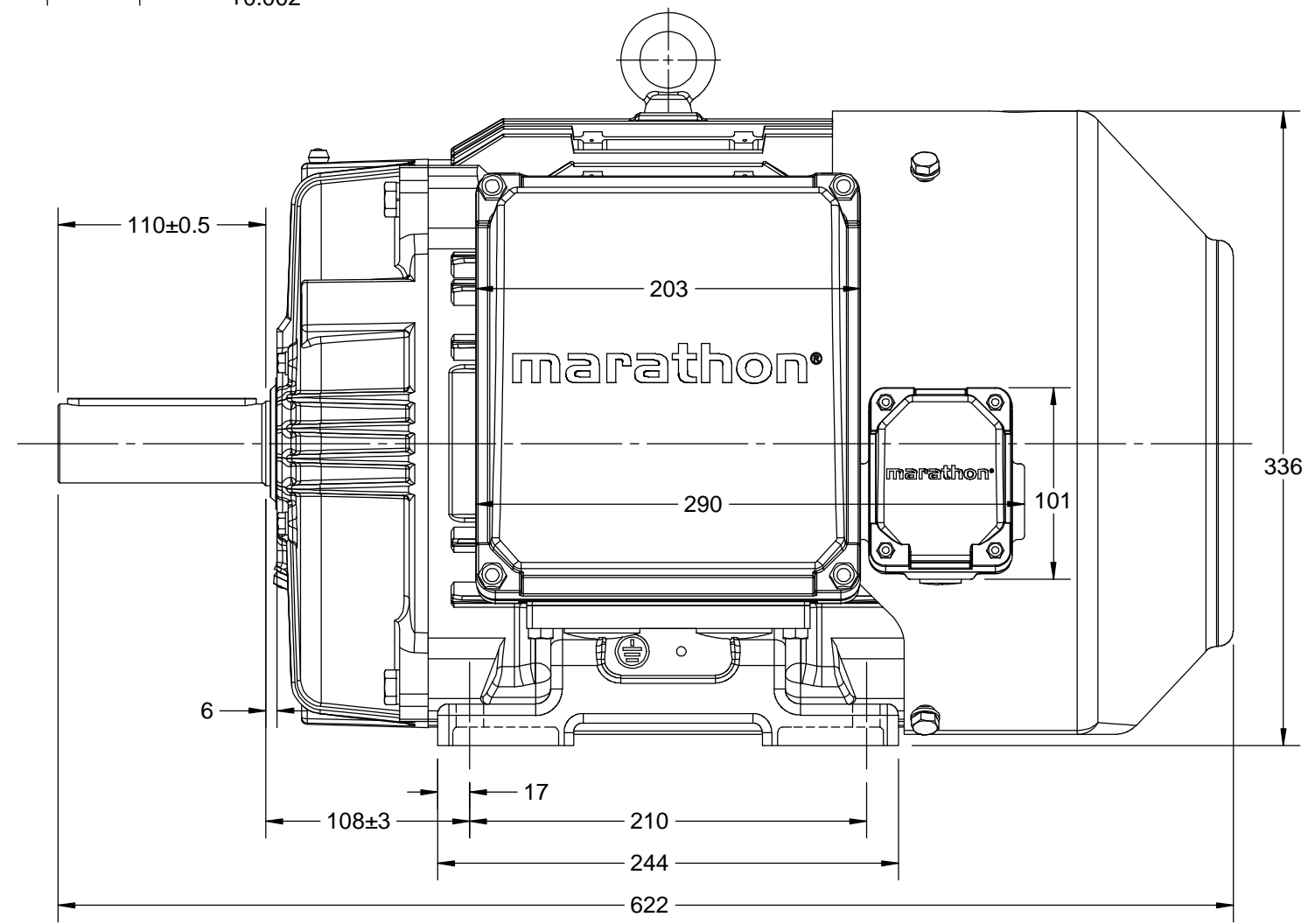
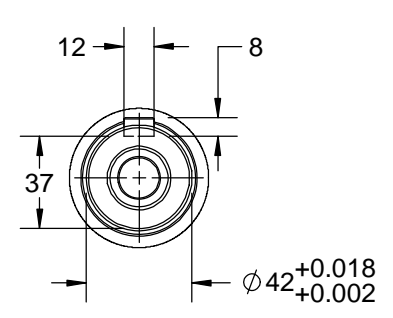
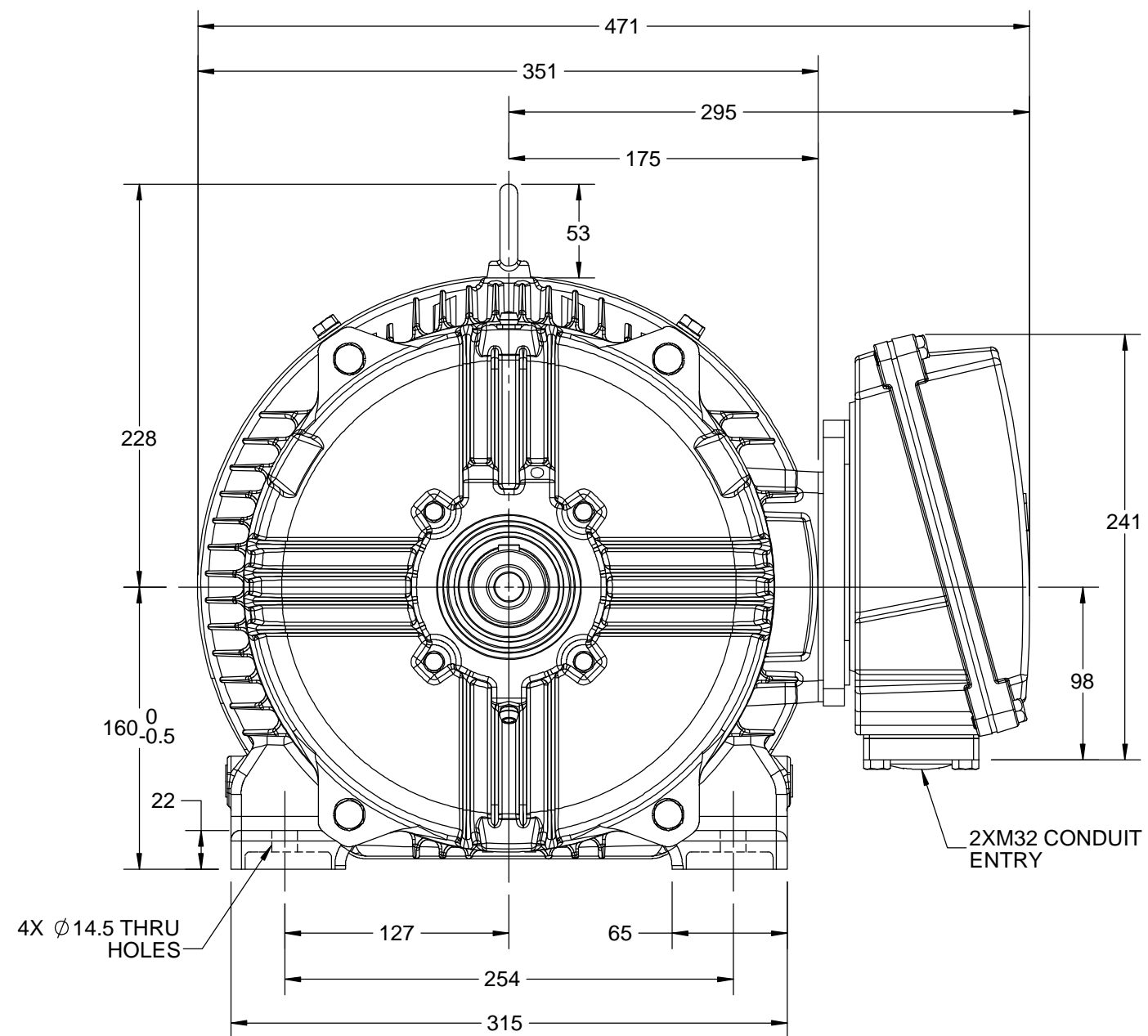
| | | | |
|------------------------|----------------------|----------------------------|------------------------------------|
| Output HP | 5.50 Hp | Output KW | 4.0 kW |
| Frequency | 50 Hz | Voltage | 230/400 V |
| Current | 9.9 A | Speed | 730 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 84.8 % | Power Factor | 0.69 |
| Duty | S1 | Insulation Class | H |
| Frame | 160M | Enclosure | Totally Enclosed Fan Cooled |
| Thermal Protection | No Protection | Ambient Temperature | 40 °C |
| Drive End Bearing Size | 6309 | Opp Drive End Bearing Size | 6209 |
| 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 | 8 | 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 | 622 mm | Frame Length | 254 mm |
| Shaft Diameter | 42 mm | Shaft Extension | 110 mm |
| Assembly/Box Mounting | RHS | | |
| Connection Drawing | 8442000085 | Outline Drawing | 0216000921 |

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OUTLINE



| | | |
|---|----------------------|--------------------|
| DRAWING REVISION B | REVISION BY BISWA | DATE 23/08/2018 |
| ECO ECO-0150058 | APPROVED BY SBD | DATE 23/08/2018 |
| ECO DESCRIPTION MODEL UPDATED WITH NEW STRUCTURE | | |
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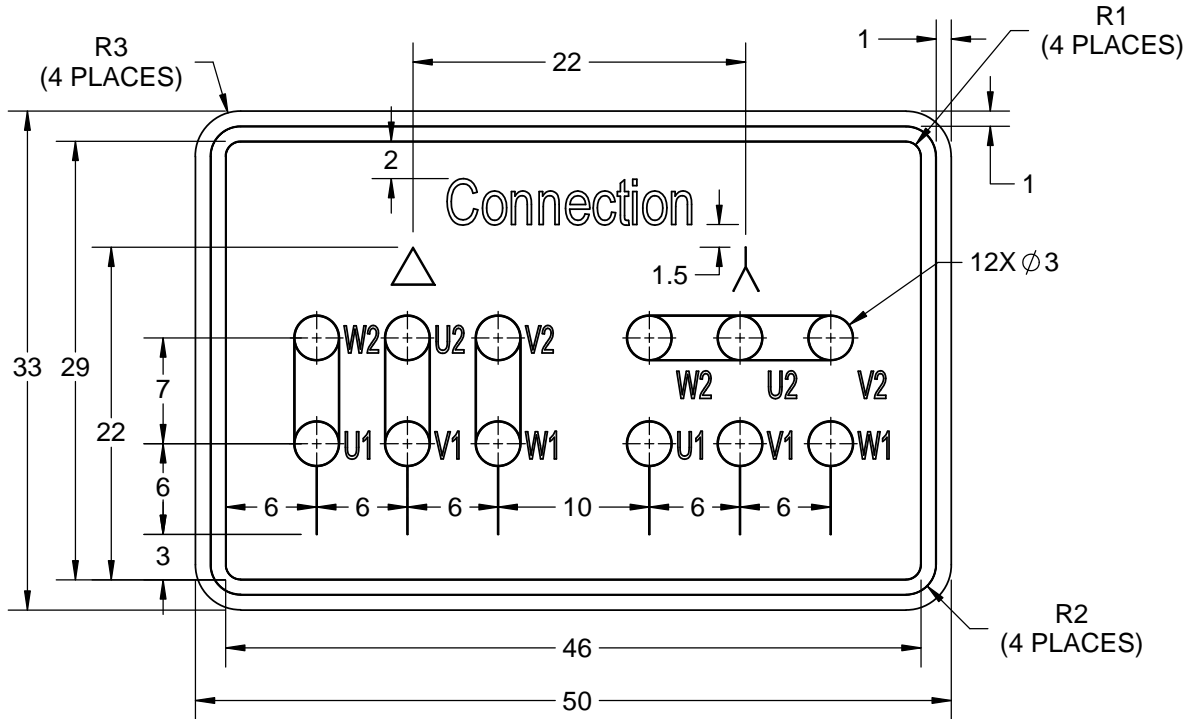
| |
|---------------------------|
| DRAWN BY LK |
| DATE 15/12/2017 |
| APPROVED BY SBD |
| DATE 15/12/2017 |
| REFERENCE |
| THIRD ANGLE PROJECTION |

| | |
|---|-------------------------------------|
| marathon™ Motors | |
| DESCRIPTION OUTLINE 160M FR B3-MTG.TYPE: TCM | |
| MATERIAL | PROCESS/FINISH |
| SIZE B | DRAWING NUMBER 0216000921 |
| 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 | | |

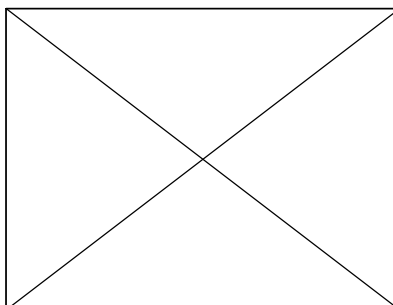
| GEOMETRIC TOLERANCE | | |
|---------------------|---------|------|
| LINEAR DIM | >0~6 | ±0.1 |
| | >6~30 | ±0.2 |
| | >30~120 | ±0.3 |





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



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

Model No. TCM0044A2113GAC011

| 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 | Δ | 50 | 4 | 5.5 | 9.9 | 730 | 53.77 | IE3 | - | 84.8 | 84.8 | 85.5 | 0.69 | 0.61 | 0.47 | 5.3 | 1.8 | 2.4 |
| | | | | | | | | | | | | | | | | | | |

| | | | |
|----------------------------------|--------------------|---|--|
| Motor type | TCM | Degree of protection | IP 66 |
| Enclosure | TEFC | Mounting type | IM B3 |
| Frame Material | Cast Iron | Cooling method | IC 411 |
| Frame size | 160M | Motor weight - approx. | 135 kg |
| Duty | S1 | Gross weight - approx. | 155 kg |
| Voltage variation * | ± 10% | Motor inertia | 0.1312 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) | 59 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) | 25/50 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 | 6309-C3 / 6209-C3 | Terminal box position | RHS |
| Lubrication method | Greased for life | Maximum cable size/conduit size | 1R x 3C x 35mm ² /2 X M32 x 1.5 |
| Type of grease | NA | Auxiliary terminal box | YES |

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 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 |
|----------------------|--------------------------|------------|------------|-----------------------------|-------------|------------------------------|
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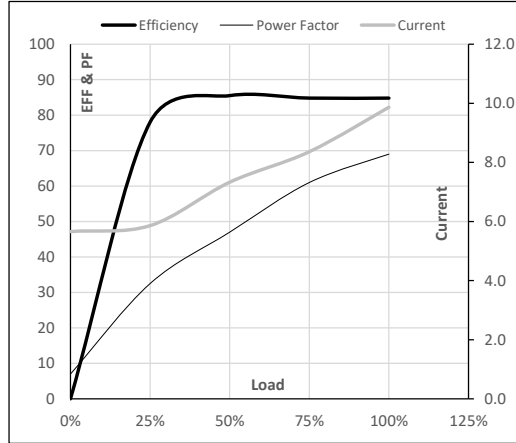
Model No. TCM0044A2113GAC011

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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 | 4 | 5.5 | 9.9 | 730 | 5.48 | 53.77 | IE3 | 40 | S1 | 1000 | 0.1312 | 135 |

Motor Load Data

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|--------------|-------|-----|-------|-------|-------|------|-------|
| Current | A | 5.7 | 5.9 | 7.3 | 8.4 | 9.9 | |
| Torque | Nm | 0.0 | 13.2 | 26.5 | 40.0 | 53.8 | |
| Speed | r/min | 750 | 745 | 741 | 735 | 730 | |
| Efficiency | % | 0.0 | 78.0 | 85.5 | 84.8 | 84.8 | |
| Power Factor | % | 7.0 | 32.5 | 47.0 | 61.0 | 69.0 | |

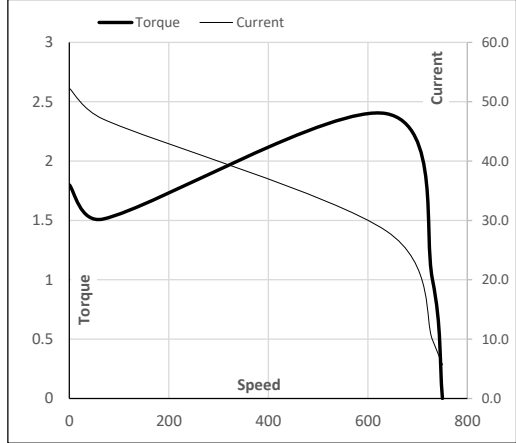
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | | LR | P-Up | BD | Rated | NL |
|------------|-------|------|------|------|-------|-----|
| Speed | r/min | 0 | 68 | 637 | 730 | 750 |
| Current | A | 52.3 | 47.1 | 28.2 | 9.9 | 5.7 |
| Torque | pu | 1.8 | 1.5 | 2.4 | 1 | 0 |

Starting Characteristics Chart



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

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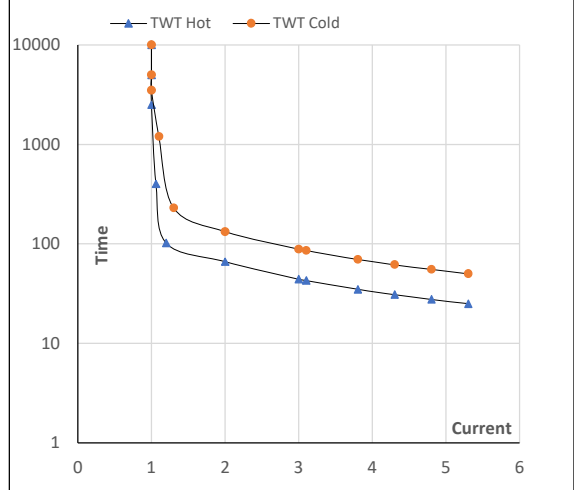
Model No. TCM0044A2113GAC011

| | | | | | | | | | | | | | | | |
|-----------|----------|---------------|-----------|-----------|-----------|----------|------------|------------|-----------|-------------|-------------|------|------------------|---------------------------------|----------------|
| 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 | 4 | 5.5 | 9.9 | 730 | 5.48 | 53.77 | IE3 | 40 | S1 | 1000 | 0.1312 | 135 |

Motor Speed Torque Data

| Load | FL | I ₁ | I ₂ | I ₃ | I ₄ | I ₅ | LR |
|----------|---------|----------------|----------------|----------------|----------------|----------------|----|
| TWT Hot | s 10000 | 66 | 44 | 33 | 29 | 26 | 25 |
| TWT Cold | s 10000 | 133 | 88 | 67 | 58 | 53 | 50 |
| Current | pu | 1 | 2 | 3 | 4 | 4.5 | 5 |

Thermal Characteristics Chart



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

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