

PRODUCT INFORMATION PACKET

marathon®
Motors

Model No: TCN5P54A1121GAC010

Catalog No: TCN5P54A1121GAC010

TerraMAX® Cast Iron Motor, 7.50 HP, 3 Ph, 50 Hz, 400 V, 750 RPM, 160M Frame, TEFC



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RegalRexnord

Nameplate Specifications

| | | | |
|------------------------|---------------|----------------------------|-----------------------------|
| Output HP | 7.50 Hp | Output KW | 5.5 kW |
| Frequency | 50 Hz | Voltage | 400 V |
| Current | 12.8 A | Speed | 729 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 86.2 % | Power Factor | 0.72 |
| Duty | S1 | Insulation Class | F |
| 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 | 55 |
| Number of Speeds | 1 | Efficiency Class | IE3 |

Technical Specifications

| | | | |
|-----------------------|---------------|-----------------------|----------------|
| Electrical Type | Squirrel Cage | Starting Method | Direct On Line |
| Poles | 8 | 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 | 622 mm | Frame Length | 254 mm |
| Shaft Diameter | 42 mm | Shaft Extension | 110 mm |
| Assembly/Box Mounting | Top | | |
| Outline Drawing | 0216000524 | Connection Drawing | 8442000085 |

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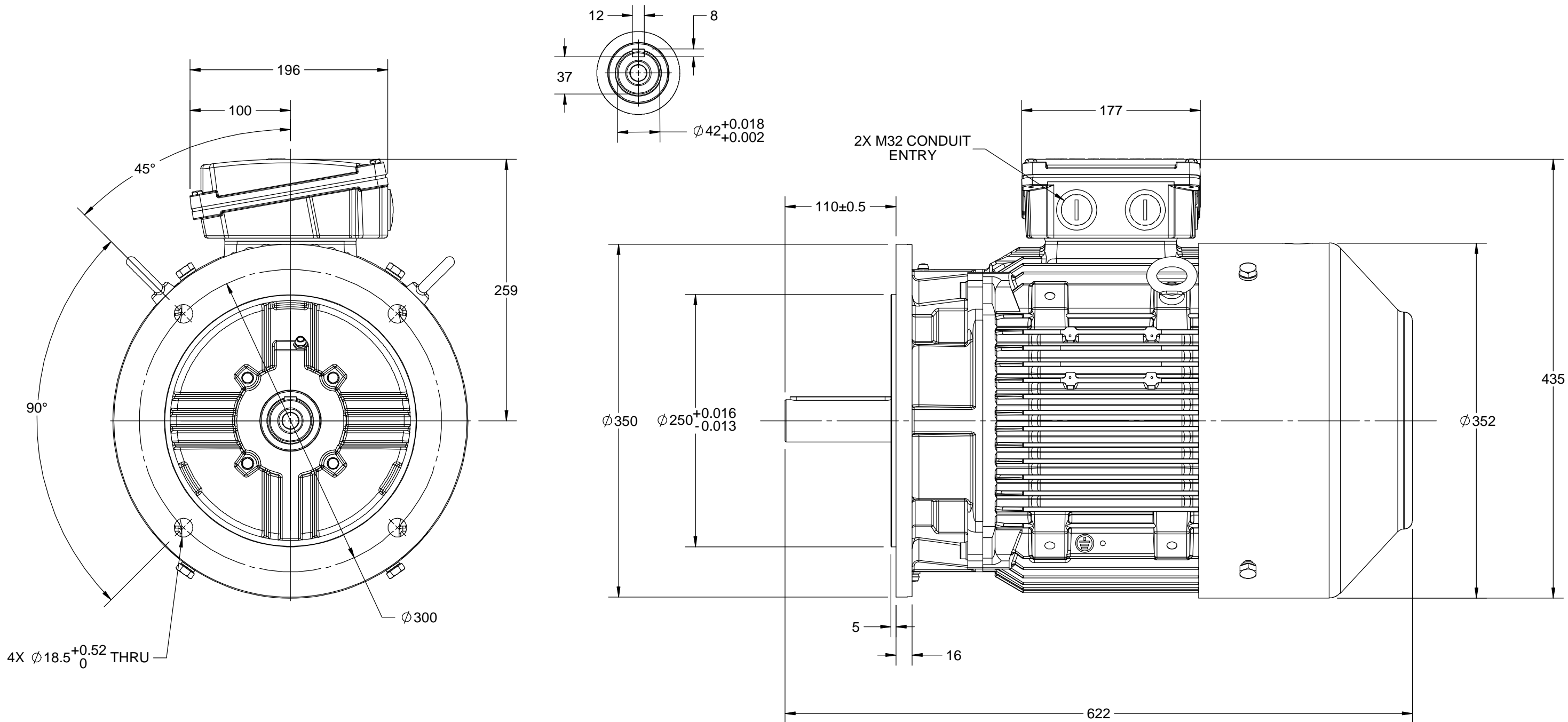
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| | | | | | | | | | | | | | | | |
|--|--|------------------------|--|------------------|--|--|---------------------------|--|--|--|----------------|------------------------------|--|--|-----------------|
| DRAWING REVISION C | | REVISION BY S.MUDDA | | DATE 3/9/2020 | | | DRAWN BY KCS | | Regal Beloit America, Inc. | | | | | | |
| ECO ECO-0190270 | | APPROVED BY JAY | | DATE 3/9/2020 | | | DATE 19/03/2015 | | | | | | | | |
| ECO DESCRIPTION CONFIGURATIONS ADDED IN THE 3D MODEL | | | | | | | APPROVED BY SBD | | DESCRIPTION OUTLINE 160M-2~8P-B5 | | | | | | |
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| | | | | | | | REFERENCE | | MATERIAL | | PROCESS/FINISH | | | | |
| | | | | | | | THIRD ANGLE PROJECTION | | | | SIZE B | DRAWING NUMBER 0216000524 | | | 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. TCN5P54A1121GAC010

| 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 | | | |
| 400 | Δ | 50 | 5.5 | 7.5 | 12.8 | 729 | 73.42 | IE3 | - | 86.2 | 86.2 | 87 | 0.72 | 0.64 | 0.51 | 5.3 | 1.7 | 2.3 |
| | | | | | | | | | | | | | | | | | | |

| | | | |
|----------------------------------|--------------------|---|--|
| Motor type | TCN | Degree of protection | IP 55 |
| Enclosure | TEFC | Mounting type | IM B5 |
| Frame Material | Cast Iron | Cooling method | IC 411 |
| Frame size | 160M | Motor weight - approx. | 155 kg |
| Duty | S1 | Gross weight - approx. | 175 kg |
| Voltage variation * | ± 10% | Motor inertia | 0.1674 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 | 1.0 | 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 | Ex nA | Standard rotation | Clockwise form DE |
| Zone classification | Zone 2 | Paint shade | RAL 5014 |
| Gas group | IIC | Accessories | |
| Temperature class | T3 | Accessory - 1 | PTC 150°C |
| Rotor type | Aluminum die cast | Accessory - 2 | - |
| Bearing type | Anti-friction ball | Accessory - 3 | - |
| DE / NDE bearing | 6309-2Z / 6209-2Z | Terminal box position | TOP |
| 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 | 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

ATEX/IEC Ex certified as per IEC/EN 60079-0; IEC/EN 60079-15

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 GEMS 2019 | Brazil - | Global IEC IEC:60034-30-1 |
|----------------------|--------------------------|------------|------------|---------------------|-------------|------------------------------|
|----------------------|--------------------------|------------|------------|---------------------|-------------|------------------------------|

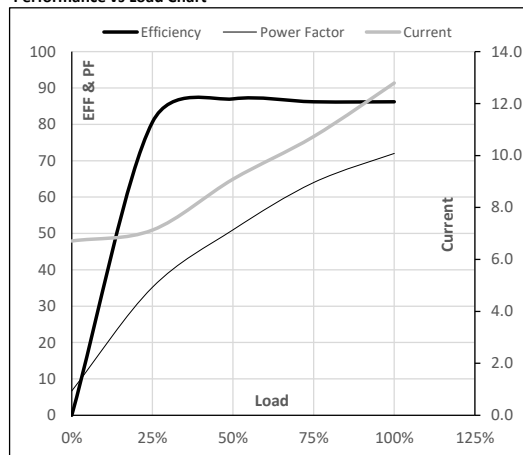
Model No. TCN5P54A1121GAC010

| 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 | 5.5 | 7.5 | 12.8 | 729 | 7.49 | 73.42 | IE3 | 40 | S1 | 1000 | 0.1674 | 155 |

Motor Load Data

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|--------------|-------|-----|-------|-------|-------|------|-------|
| Current | A | 6.7 | 7.1 | 9.1 | 10.7 | 12.8 | |
| Torque | Nm | 0.0 | 18.0 | 36.1 | 54.6 | 73.4 | |
| Speed | r/min | 750 | 745 | 740 | 735 | 729 | |
| Efficiency | % | 0.0 | 80.6 | 87.0 | 86.2 | 86.2 | |
| Power Factor | % | 6.7 | 35.2 | 51.0 | 64.0 | 72.0 | |

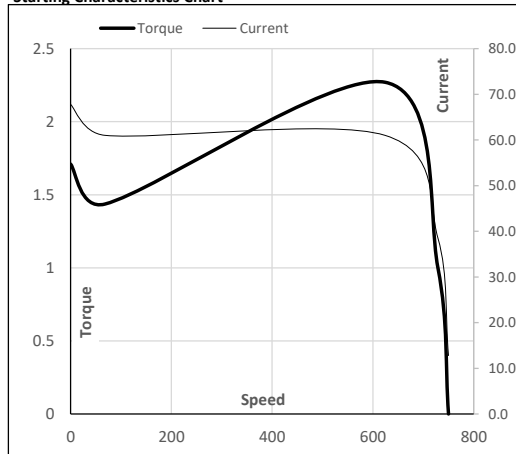
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | | LR | P-Up | BD | Rated | NL |
|------------|-------|------|------|------|-------|-----|
| Speed | r/min | 0 | 68 | 624 | 729 | 750 |
| Current | A | 67.8 | 61.0 | 38.5 | 12.8 | 6.7 |
| Torque | pu | 1.7 | 1.4 | 2.3 | 1 | 0 |

Starting Characteristics Chart



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

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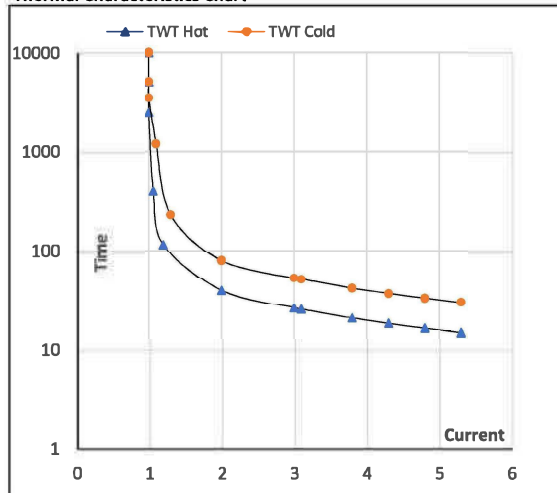
Model No. TCN5P54A1121GAC010

| 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 | 5.5 | 7.5 | 12.8 | 729 | 7.49 | 73.42 | IE3 | 40 | S1 | 1000 | 0.1674 | 149 |

Motor Speed Torque Data

| Load | FL | I ₁ | I ₂ | I ₃ | I ₄ | I ₅ | LR | |
|----------|---------|----------------|----------------|----------------|----------------|----------------|----|-----|
| TWT Hot | s 10000 | 40 | 27 | 19 | 17 | 16 | 15 | |
| TWT Cold | s 10000 | 80 | 53 | 39 | 35 | 32 | 30 | |
| Current | pu | 1 | 2 | 3 | 4 | 4.5 | 5 | 5.3 |

Thermal Characteristics Chart



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

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