

PRODUCT INFORMATION PACKET

Model No: TCA0153AF121GAC010

Catalog No: TCA0153AF121GAC010

TerraMAX® Cast Iron Motor, 20 HP, 3 Ph, 50 Hz, 380 V, 1000 RPM, 180L Frame, TEFC





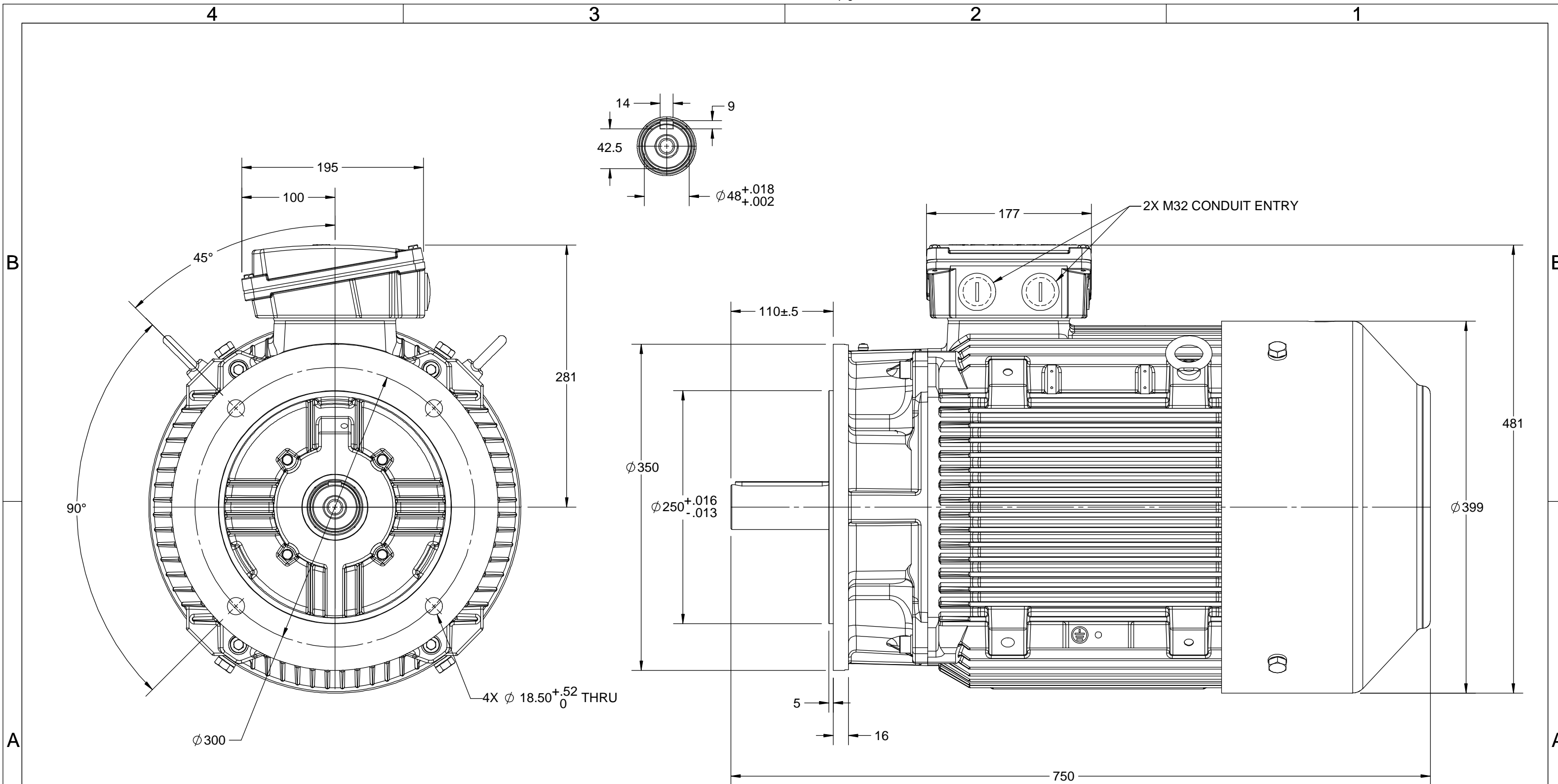
Nameplate Specifications

| | | | |
|------------------------|----------------------|----------------------------|------------------------------------|
| Output HP | 20 Hp | Output KW | 15.0 kW |
| Frequency | 50 Hz | Voltage | 380 V |
| Current | 32.0 A | Speed | 982 rpm |
| Service Factor | 1 | Phase | 3 |
| Efficiency | 91.2 % | Power Factor | 0.78 |
| Duty | S1 | Insulation Class | F |
| Frame | 180L | Enclosure | Totally Enclosed Fan Cooled |
| Thermal Protection | No Protection | Ambient Temperature | 40 °C |
| Drive End Bearing Size | 6311 | Opp Drive End Bearing Size | 6211 |
| 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 | 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 | 750 mm | Frame Length | 366 mm |
| Shaft Diameter | 48 mm | Shaft Extension | 110 mm |
| Assembly/Box Mounting | Top | | |
| Outline Drawing | 0218000504 | Connection Drawing | 8442000085 |

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| | | |
|---|------------------------|-------------------|
| DRAWING REVISION C | REVISION BY S.MUDDA | DATE 26/8/2020 |
| ECO ECO-0190270 | APPROVED BY JAY | DATE 26/8/2020 |
| ECO DESCRIPTION CONFIGURATIONS ADDED TO THE 3D MODEL | | |
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| DRAWN BY SDV |
| DATE 7-05-2014 |
| APPROVED BY SBD |
| DATE 7-05-2014 |
| REFERENCE |

| | |
|---|-------------------------------------|
| Regal Beloit America, Inc. | |
| DESCRIPTION OUTLINE 180L-2-8P-B5 | |
| MATERIAL | PROCESS/FINISH |
| SIZE B | DRAWING NUMBER 0218000504 |
| 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 |
| THIRD ANGLE PROJECTION  | SIZE A | DRAWING NUMBER 8442000085 | SHEET 1 OF 1 |



Model No. TCA0153AF121GAC010

| 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 _L /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 | 15 | 20 | 32.04 | 982 | 145.17 | IE3 | - | 91.2 | 91.2 | 90.7 | 0.78 | 0.72 | 0.58 | 6.1 | 2.1 | 2.7 |
| | | | | | | | | | | | | | | | | | | |

| | | | |
|----------------------------------|--------------------|---|--|
| Motor type | TCA | Degree of protection | IP 55 |
| Enclosure | TEFC | Mounting type | IM B5 |
| Frame Material | Cast Iron | Cooling method | IC 411 |
| Frame size | 180L | Motor weight - approx. | 231 kg |
| Duty | S1 | Gross weight - approx. | 251 kg |
| Voltage variation * | ± 10% | Motor inertia | 0.3035 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) | 62 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 | 6311-2Z / 6211-2Z | 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_L/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 combine variation are as per IEC60034-1

Technical data are subject to change. There may be discrepancies between calculated and name plate values.

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





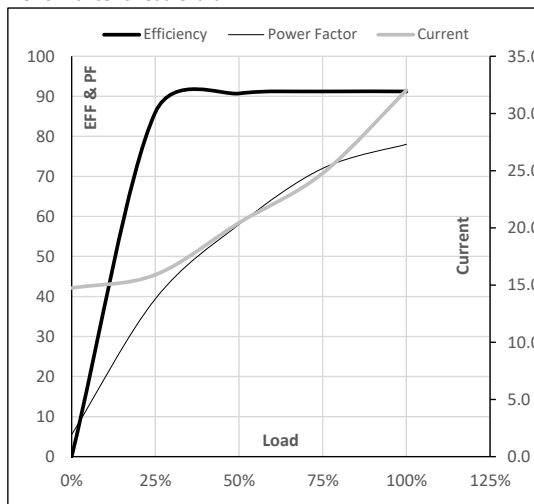
Model No. TCA0153AF121GAC010

| 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 | 15 | 20.0 | 32.0 | 982 | 14.80 | 145.17 | IE3 | 40 | S1 | 1000 | 0.3035 | 231 |

Motor Load Data

| Load Point | | NL | 1/4FL | 1/2FL | 3/4FL | FL | 5/4FL |
|--------------|-------|------|-------|-------|-------|-------|-------|
| Current | A | 14.7 | 15.9 | 20.4 | 24.8 | 32.0 | |
| Torque | Nm | 0.0 | 35.8 | 71.9 | 108.3 | 145.2 | |
| Speed | r/min | 1000 | 996 | 991 | 987 | 982 | |
| Efficiency | % | 0.0 | 86.0 | 90.7 | 91.2 | 91.2 | |
| Power Factor | % | 5.5 | 39.4 | 58.0 | 72.0 | 78.0 | |

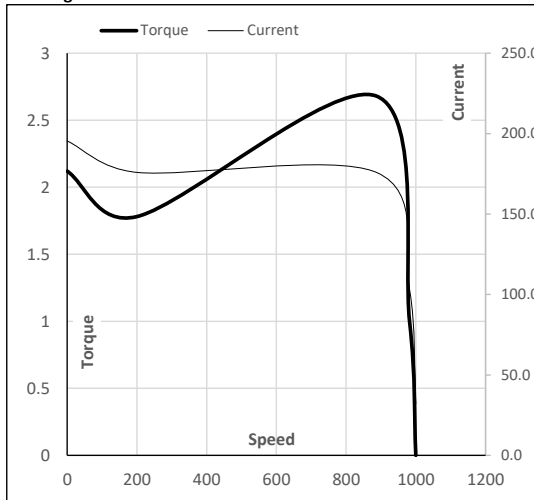
Performance vs Load Chart



Motor Speed Torque Data

| Load Point | | LR | P-Up | BD | Rated | NL |
|------------|-------|-------|-------|-------|-------|------|
| Speed | r/min | 0 | 200 | 887 | 982 | 1000 |
| Current | A | 195.4 | 175.9 | 103.1 | 32.0 | 14.7 |
| Torque | pu | 2.1 | 1.8 | 2.7 | 1 | 0 |

Starting Characteristics Chart



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

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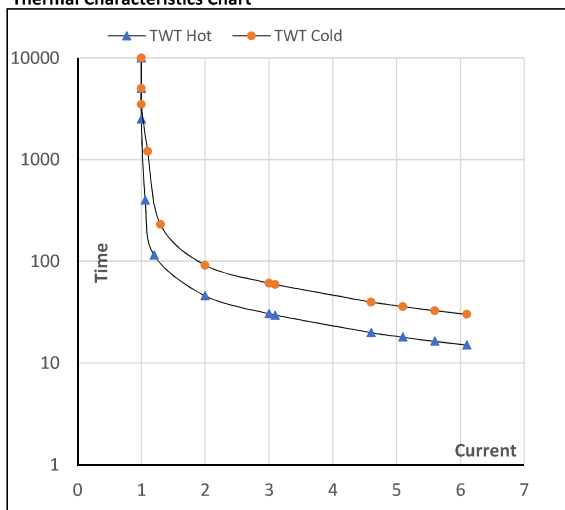
Model No. TCA0153AF121GAC010

| 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 | 15 | 20.0 | 32.0 | 982 | 14.80 | 145.17 | IE3 | 40 | S1 | 1000 | 0.3035 | 231 |

Motor Speed Torque Data

| Load | FL | I_1 | I_2 | I_3 | I_4 | I_5 | LR | |
|----------|---------|-------|-------|-------|-------|-------|-----|-----|
| TWT Hot | s 10000 | 46 | 31 | 22 | 18 | 17 | 15 | |
| TWT Cold | s 10000 | 92 | 61 | 43 | 38 | 34 | 30 | |
| Current | pu | 1 | 2 | 3 | 4 | 5 | 5.5 | 6.1 |

Thermal Characteristics Chart



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

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