

# PRODUCT INFORMATION PACKET

Model No: QCA0451AF121GAA001

Catalog No: QCA0451AF121GAA001

TerraMAX® Cast Iron Motor, 60 HP, 3 Ph, 50 Hz, 380 V, 3000 RPM, 225M Frame, TEFC



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### Nameplate Specifications

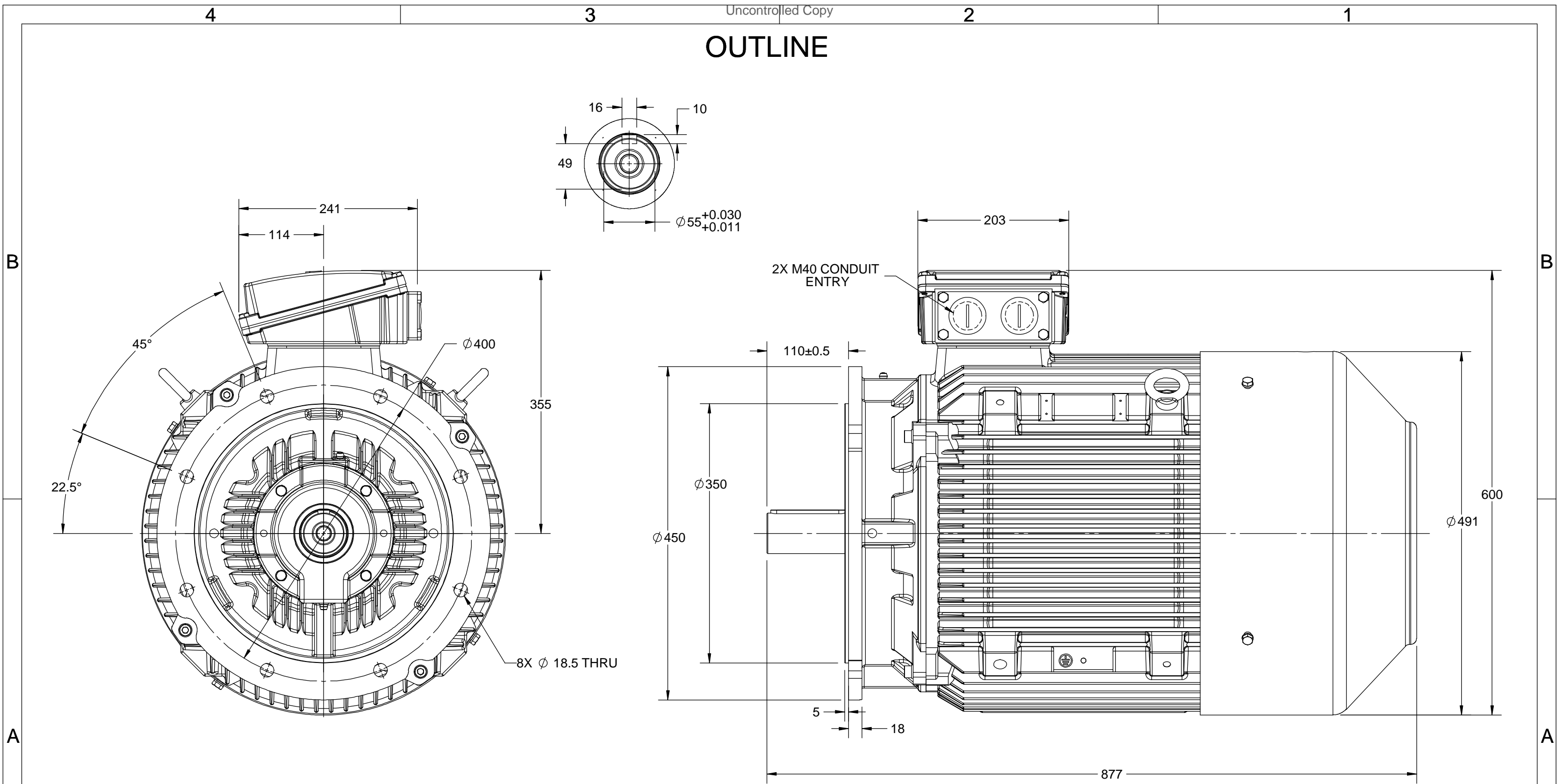
Output HP	<b>60 Hp</b>	Output KW	<b>45.0 kW</b>
Frequency	<b>50 Hz</b>	Voltage	<b>380 V</b>
Current	<b>85.2 A</b>	Speed	<b>2981 rpm</b>
Service Factor	<b>1</b>	Phase	<b>3</b>
Efficiency	<b>95 %</b>	Power Factor	<b>0.85</b>
Duty	<b>S1</b>	Insulation Class	<b>F</b>
Frame	<b>225M</b>	Enclosure	<b>Totally Enclosed Fan Cooled</b>
Thermal Protection	<b>No Protection</b>	Ambient Temperature	<b>40 °C</b>
Drive End Bearing Size	<b>6313</b>	Opp Drive End Bearing Size	<b>6213</b>
UL	<b>No</b>	CSA	<b>No</b>
CE	<b>YES</b>	IP Code	<b>55</b>
Number of Speeds	<b>1</b>	Efficiency Class	<b>IE4</b>

### Technical Specifications

Electrical Type	<b>Squirrel Cage</b>	Starting Method	<b>Direct On Line</b>
Poles	<b>2</b>	Rotation	<b>Bi-Directional</b>
Mounting	<b>B5</b>	Motor Orientation	<b>Horizontal</b>
Drive End Bearing	<b>C3</b>	Opp Drive End Bearing	<b>C3</b>
Frame Material	<b>Cast Iron</b>	Shaft Type	<b>Keyed</b>
Overall Length	<b>877 mm</b>	Frame Length	<b>425 mm</b>
Shaft Diameter	<b>55 mm</b>	Shaft Extension	<b>110 mm</b>
Assembly/Box Mounting	<b>Top</b>		
Outline Drawing	<b>0222500476</b>	Connection Drawing	<b>8442000085</b>

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# OUTLINE



DRAWING REVISION A	REVISION BY UDAY	DATE 12/06/2017
ECO ECO-0128043	APPROVED BY SBD	DATE 12/06/2017
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DRAWN BY MR
DATE 06/11/2014
APPROVED BY JOY
DATE 06/11/2014
REFERENCE
THIRD ANGLE PROJECTION

<b>marathon™ Motors</b>	
<b>OUTLINE</b>	
225FR-2P-B5-H/O MTG. MOTOR TYPE: TCA	
MATERIAL	PROCESS/FINISH
SIZE <b>B</b>	DRAWING NUMBER <b>0222500476</b>
SHEET 1 OF 1	

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

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 <b>SN</b>	DATE <b>16/12/2016</b>		 <b>Regal Beloit America, Inc.</b>
	APPROVED BY <b>SBD</b>		
	DATE <b>16/12/2016</b>		DESCRIPTION <b>CONN DIAGRAM-NAMEPLATE</b>
	REFERENCE	MATERIAL	PROCESS/FINISH
	THIRD ANGLE PROJECTION 	SIZE <b>A</b>	DRAWING NUMBER <b>8442000085</b>

Model No. QCA0451AF121GAA001

U (V)	$\Delta$ / 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			
380	$\Delta$	50	45	60	84.7	2981	143.35	IE4	-	95	95	93.2	0.85	0.79	0.68	8.7	2.6	4.4

Motor type	QCA	Degree of protection	IP 55
Enclosure	TEFC	Mounting type	IM B5
Frame Material	Cast Iron	Cooling method	IC 411
Frame size	225M	Motor weight - approx.	453 kg
Duty	S1	Gross weight - approx.	483 kg
Voltage variation *	$\pm 10\%$	Motor inertia	0.4855 kgm <sup>2</sup>
Frequency variation *	$\pm 5\%$	Load inertia	Customer to Provide
Combined variation *	10%	Vibration level	2.2 mm/s
Design	N	Noise level ( 1meter distance from motor)	75 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	6313 C3 / 6213 C3	Terminal box position	TOP
Lubrication method	Regreasable	Maximum cable size/conduit size	1R x 3C x 50mm <sup>2</sup> /2 x M40 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 Standards	Europe	China	India	Aus/Nz	Brazil	Global IEC
	-	GB 18613-2012 Grade 2	-	-	-	IEC: 60034-30

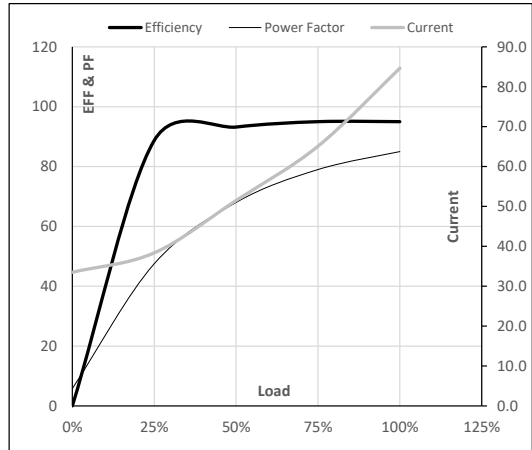
Model No. QCA0451AF121GAA001

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 <sup>2</sup> ]	Weight [kg]
TEFC	380	Δ	50	45	60	84.7	2981	14.62	143.35	IE4	40	S1	1000	0.4855	453

**Motor Load Data**

Load Point		NL	1/4FL	1/2FL	3/4FL	FL	5/4FL
Current	A	33.5	38.4	51.5	65.1	84.7	
Torque	Nm	0.0	35.7	71.4	107.3	143.4	
Speed	r/min	3000	2995	2990	2986	2981	
Efficiency	%	0.0	88.7	93.2	95.0	95.0	
Power Factor	%	5.8	47.5	68.0	79.0	85.0	

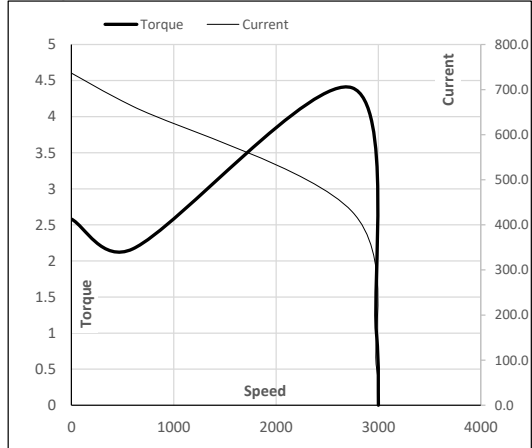
**Performance vs Load Chart**



**Motor Speed Torque Data**

Load Point		LR	P-Up	BD	Rated	NL
Speed	r/min	0	600	2743	2981	3000
Current	A	736.6	663.0	429.6	84.7	33.5
Torque	pu	2.6	2.2	4.4	1	0

**Starting Characteristics Chart**



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

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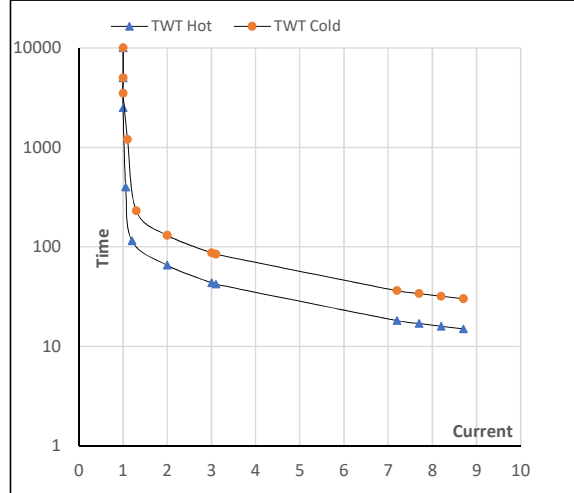
**Model No.** QCA0451AF121GAA001

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 <sup>2</sup> ]	Weight [kg]
TEFC	380	Δ	50	45	60	84.7	2981	14.62	143.35	IE4	40	S1	1000	0.4855	453

**Motor Speed Torque Data**

Load	FL	I <sub>1</sub>	I <sub>2</sub>	I <sub>3</sub>	I <sub>4</sub>	I <sub>5</sub>	LR	
TWT Hot	s 10000	65	44	30	25	20	15	
TWT Cold	s 10000	131	87	65	50	45	30	
Current	pu	1	2	3	4	5	5.5	8.7

**Thermal Characteristics Chart**



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

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