

# PRODUCT INFORMATION PACKET

**marathon®**  
Motors

Model No: QCA0153AF121GAA001

Catalog No: QCA0153AF121GAA001

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



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**RegalRexnord**

### Nameplate Specifications

Output HP	20 Hp	Output KW	15.0 kW
Frequency	50 Hz	Voltage	380 V
Current	32.5 A	Speed	987 rpm
Service Factor	1	Phase	3
Efficiency	92.9 %	Power Factor	0.76
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	IE4

### 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	775 mm	Frame Length	366 mm
Shaft Diameter	48 mm	Shaft Extension	110 mm
Assembly/Box Mounting	Top		
Connection Drawing	8442000085	Outline Drawing	0218000515

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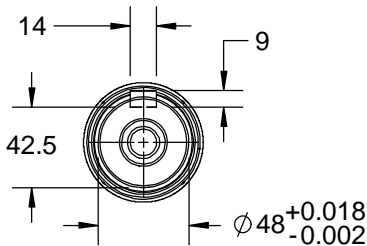
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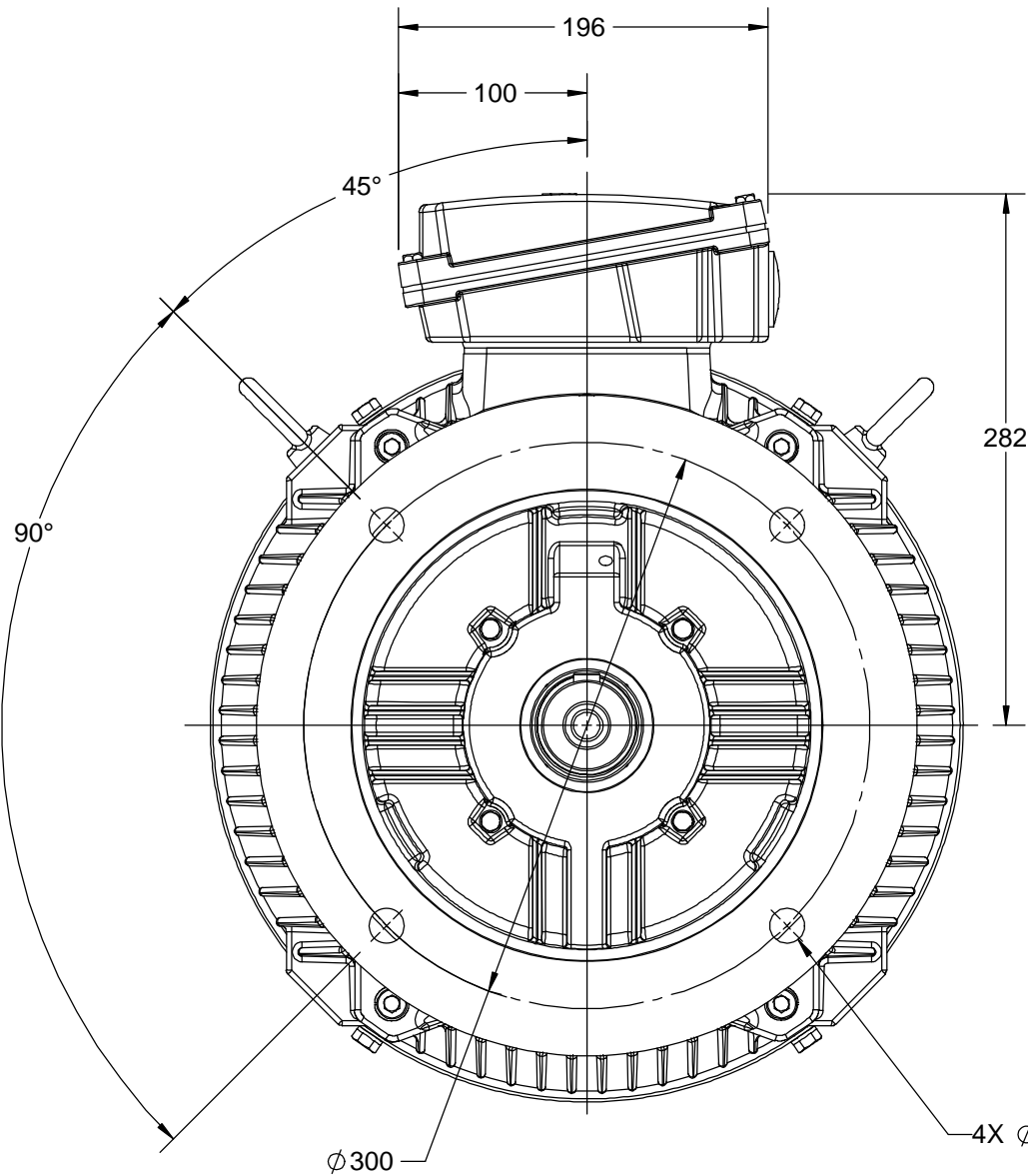
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OUTLINE

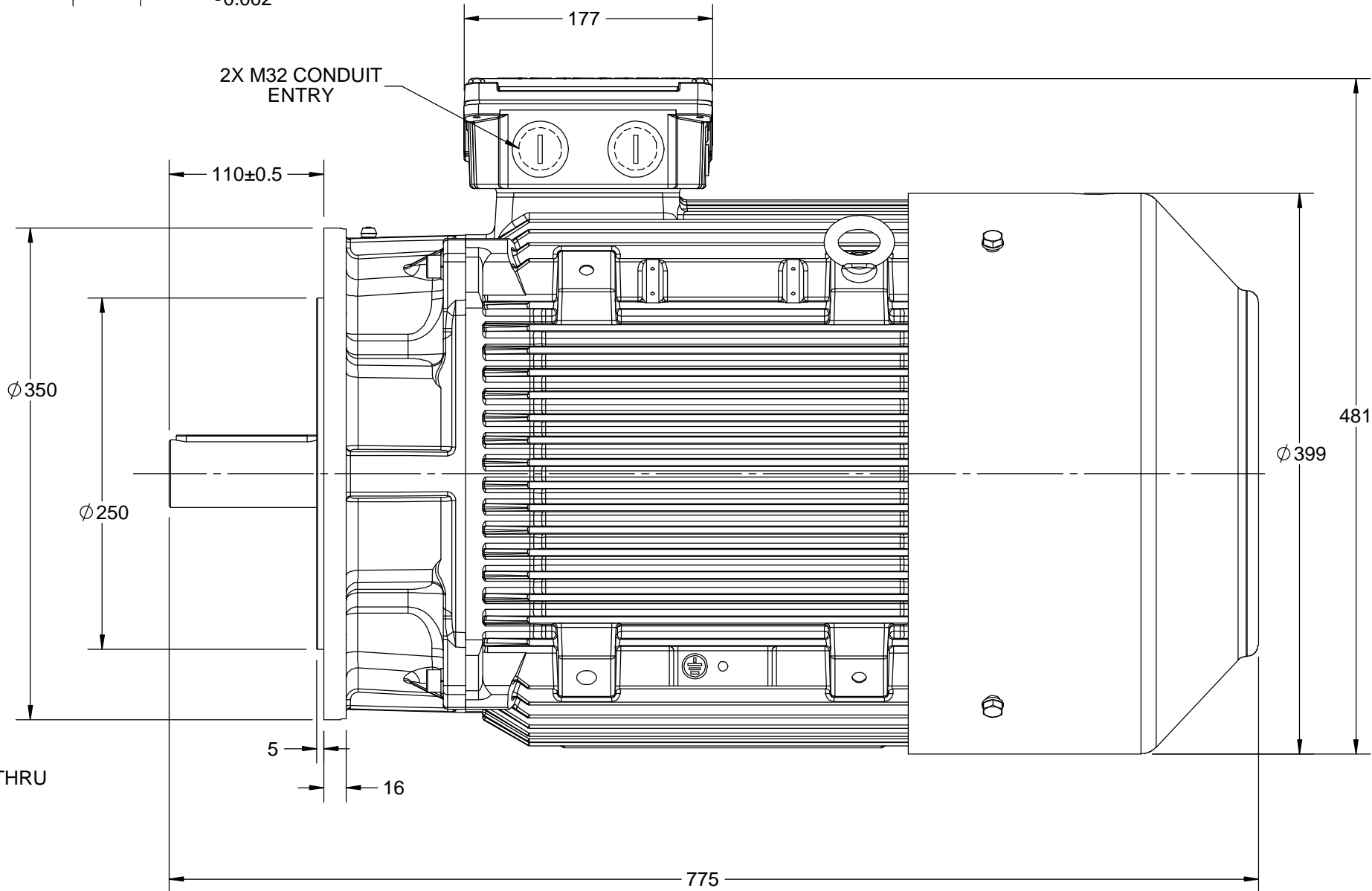


B



A

2X M32 CONDUIT ENTRY



B

A

DRAWING REVISION A	REVISION BY UDAY	DATE 21/06/2017		DRAWN BY MR				
ECO ECO-0128043	APPROVED BY SBD	DATE 21/06/2017		DATE 06/11/2014	DESCRIPTION  OUTLINE 180FR-B5-H/O MTG. MOTOR TYPE: TCA			
ECO DESCRIPTION NEW DRAWING RELEASE				APPROVED BY JOY				
				DATE 06/11/2014				
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				THIRD ANGLE PROJECTION		SIZE B	DRAWING NUMBER 0218000515	

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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>		

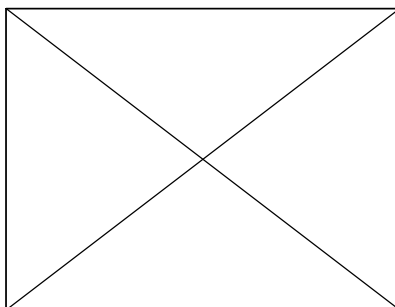
GEOMETRIC TOLERANCE		
LINEAR DIM	>0~6	±0.1
	>6~30	±0.2
	>30~120	±0.3





**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>	 <b>Regal Beloit America, Inc.</b>		
	DESCRIPTION <b>CONN DIAGRAM-NAMEPLATE</b>		
DATE <b>16/12/2016</b>			
APPROVED BY <b>SBD</b>			
DATE <b>16/12/2016</b>			
REFERENCE	MATERIAL		PROCESS/FINISH
THIRD ANGLE PROJECTION 	SIZE <b>A</b>	DRAWING NUMBER <b>8442000085</b>	SHEET <b>1 OF 1</b>

**Model No.** QCA0153AF121GAA001

U	Δ / Y	f	P	P	I	n	T	IE	% EFF at __ load				PF at __ load			I <sub>A</sub> /I <sub>N</sub>	T <sub>A</sub> /T <sub>N</sub>	T <sub>K</sub> /T <sub>N</sub>
(V)	Conn	[Hz]	[kW]	[hp]	[A]	[RPM]	[Nm]	Class	5/4FL	FL	3/4FL	1/2FL	FL	3/4FL	1/2FL	[pu]	[pu]	[pu]
380	Δ	50	15	20	32.3	987	144.41	IE4	-	92.9	92.9	90.6	0.76	0.68	0.54	7.8	2.9	3.5

Motor type	QCA	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.	278 kg
Duty	S1	Gross weight - approx.	298 kg
Voltage variation *	± 10%	Motor inertia	0.4279 kgm <sup>2</sup>
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 <sup>2</sup> /2 X M32 x 1.5
Type of grease	NA	Auxiliary terminal box	NA

I<sub>A</sub>/I<sub>N</sub> - Locked Rotor Current / Rated Current

T<sub>K</sub>/T<sub>N</sub> - Breakdown Torque / Rated Torque

T<sub>A</sub>/T<sub>N</sub> - 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.

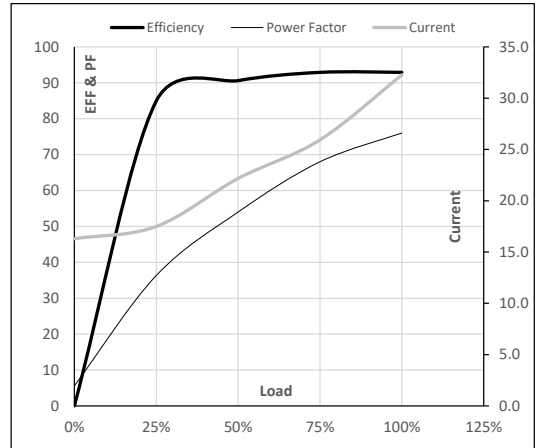
Efficiency	Europe	China	India	Aus/Nz	Brazil	Global IEC
Standards	-	GB 18613-2012 Grade 2	-	-	-	IEC: 60034-30

**Model No.** QCA0153AF121GAA001

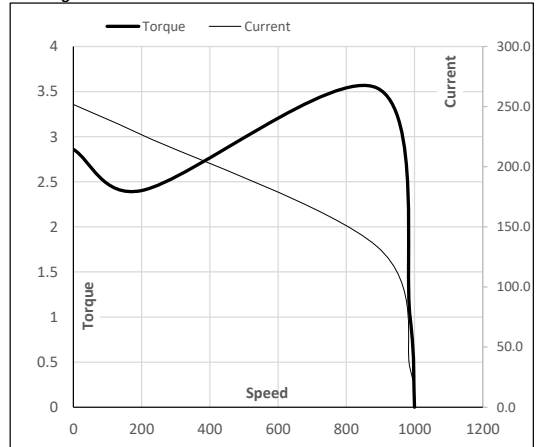
Enclosure	U (V)	Δ / Y Conn	f [Hz]	P [kW]	P [hp]	I [A]	n [RPM]	T [kgm]	T [Nm]	IE Class	Amb [°C]	Duty	Elevation [m]	Inertia [kg-m <sup>2</sup> ]	Weight [kg]
TEFC	380	Δ	50	15	20	32.3	987	14.73	144.41	IE4	40	S1	1000	0.4279	278

**Motor Load Data**

Load Point		NL	1/4FL	1/2FL	3/4FL	FL	5/4FL
Current	A	16.3	17.5	22.2	25.9	32.3	
Torque	Nm	0.0	35.7	71.7	107.9	144.4	
Speed	r/min	1000	997	993	990	987	
Efficiency	%	0.0	84.9	90.6	92.9	92.9	
Power Factor	%	5.6	36.3	54.0	68.0	76.0	

**Performance vs Load Chart**

**Motor Speed Torque Data**

Load Point		LR	P-Up	BD	Rated	NL
Speed	r/min	0	200	890	987	1000
Current	A	251.8	226.6	133.7	32.3	16.3
Torque	pu	2.9	2.4	3.5	1	0

**Starting Characteristics Chart**

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

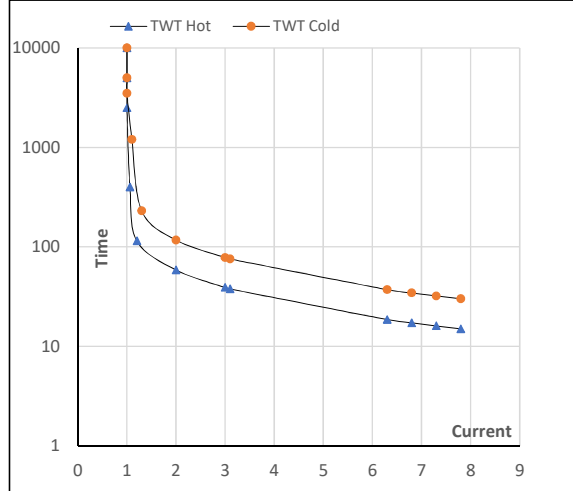
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**Model No.** QCA0153AF121GAA001

Enclosure	U (V)	$\Delta$ / 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	$\Delta$	50	15	20	32.3	987	14.73	144.41	IE4	40	S1	1000	0.4279	278

**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	59	39	30	25	20	15
TWT Cold	s 10000	117	78	60	45	40	30
Current	pu	1	2	4	5	5.5	7.8

**Thermal Characteristics Chart**

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

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