

# PRODUCT INFORMATION PACKET

Model No: TCA0454A3111GACD01

Catalog No: TCA0454A3111GACD01

45.0 kW General Purpose Low Voltage IEC Motor, 3 phase, 750 RPM, 415 V, 280M Frame, TEFC  
Cast Iron IE3 Efficiency Motors





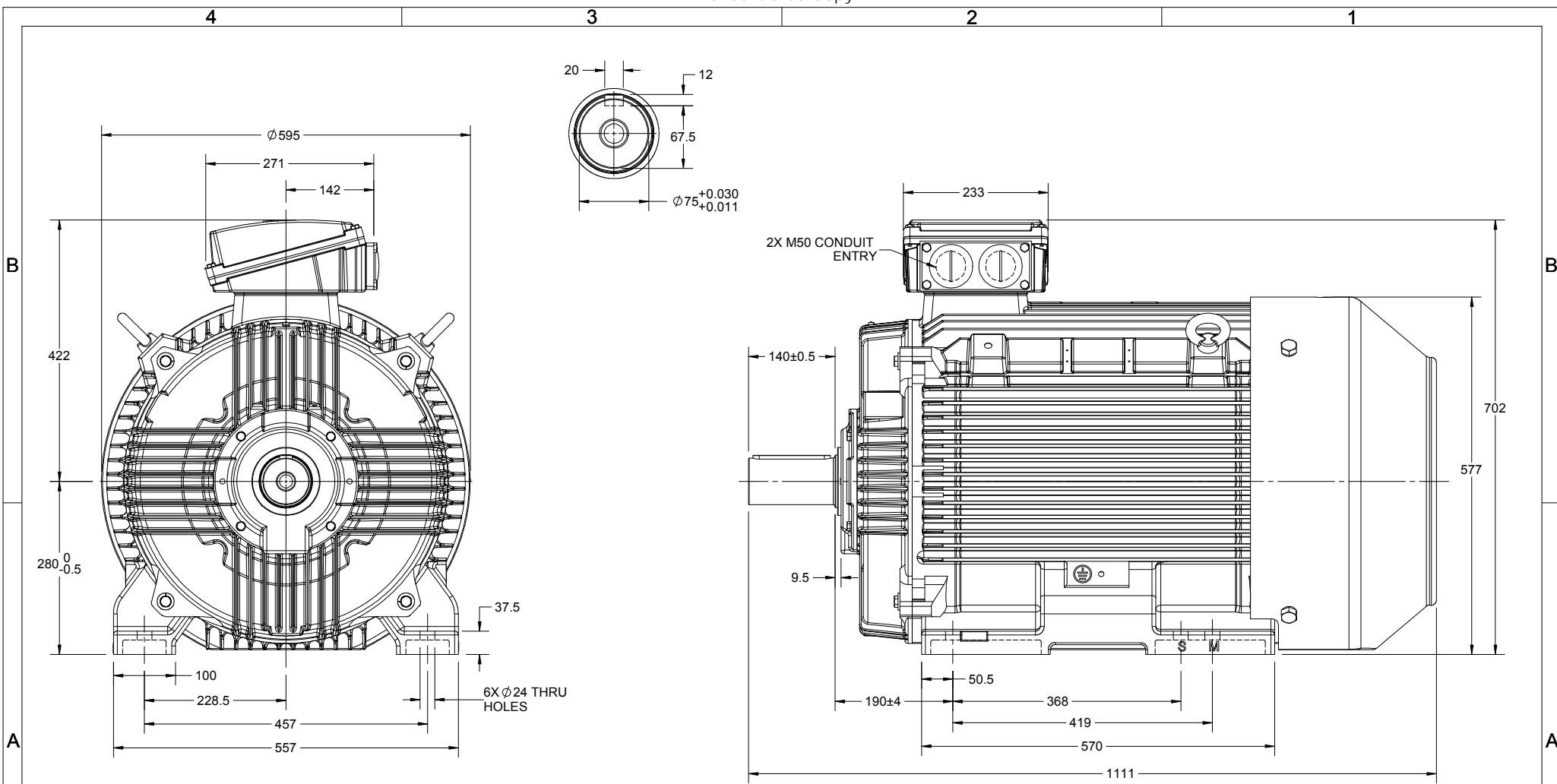
### Nameplate Specifications

Output HP	<b>60 Hp</b>	Output KW	<b>45.0 kW</b>
Frequency	<b>50 Hz</b>	Voltage	<b>415 V</b>
Current	<b>87.1 A</b>	Speed	<b>742 rpm</b>
Service Factor	<b>1</b>	Phase	<b>3</b>
Efficiency	<b>92.2 %</b>	Power Factor	<b>0.78</b>
Duty	<b>S1</b>	Insulation Class	<b>F</b>
Frame	<b>280M</b>	Enclosure	<b>Totally Enclosed Fan Cooled</b>
Ambient Temperature	<b>50 °C</b>	Drive End Bearing Size	<b>6317</b>
Opp Drive End Bearing Size	<b>6317</b>	UL	<b>No</b>
CSA	<b>No</b>	CE	<b>Yes</b>
IP Code	<b>55</b>		

### Technical Specifications

Electrical Type	<b>Squirrel Cage</b>	Starting Method	<b>Direct On Line</b>
Poles	<b>8</b>	Rotation	<b>Bi-Directional</b>
Mounting	<b>B3</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>1111 mm</b>	Frame Length	<b>600 mm</b>
Shaft Diameter	<b>75 mm</b>	Shaft Extension	<b>140 mm</b>
Assembly/Box Mounting	<b>Top</b>		
Outline Drawing	<b>0228000589</b>	Connection Drawing	<b>8442000085</b>

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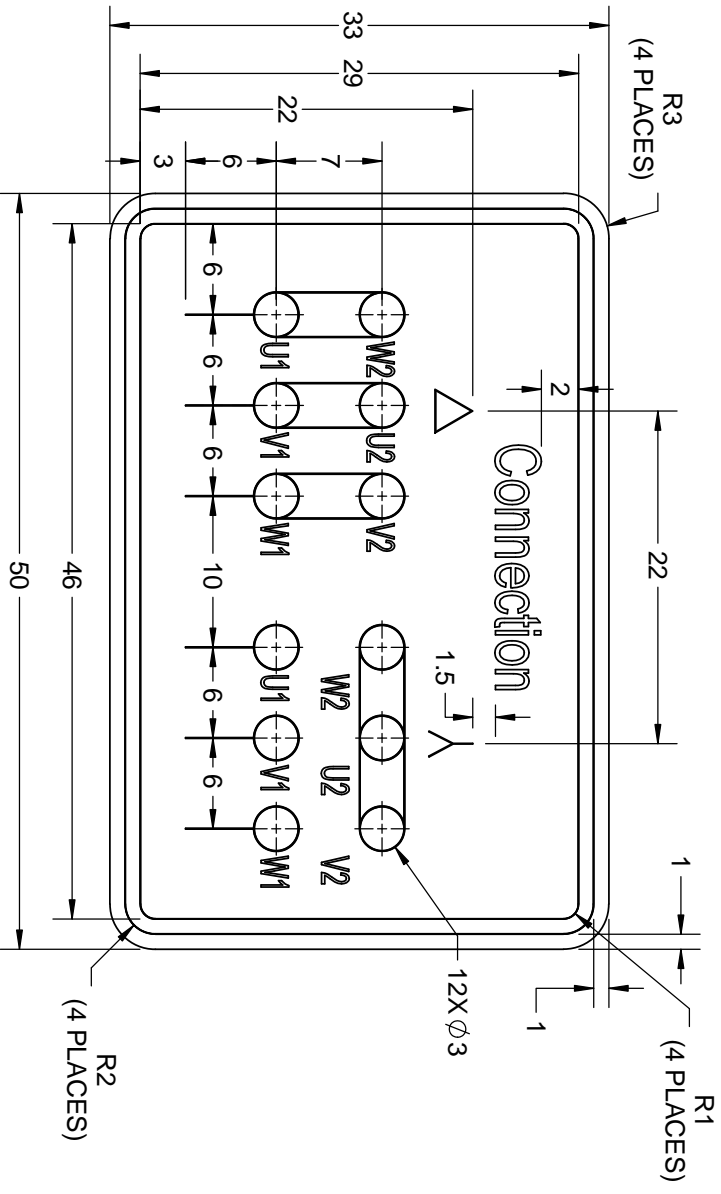


DRAWING REVISION E	REVISION BY LK	DATE 17/04/2019	X	DRAWN BY JOY	<b>marathon</b> Motors
ECO ECO-0165600	APPROVED BY SR	DATE 17/04/2019		DATE 18/07/2014	
ECO DESCRIPTION UPDATED MODEL AS PER NEW 3D STRUCTURE <small>COPYRIGHT REGAL BELOIT AMERICA, INC. ALL RIGHTS RESERVED. PROPRIETARY AND CONFIDENTIAL INFORMATION - THIS DOCUMENT IS THE PROPERTY OF REGAL BELOIT AMERICA, INC. (OWNER) AND CONTAINS OWNER'S PROPRIETARY INFORMATION. ANY PERSON, CORPORATION OR OTHER FIRM RECEIVING IT IS DEEMED, BY RECEIVING IT, TO AGREE THAT IT, AND/OR ANY PART OF IT, SHALL NOT BE DISCLOSED TO ANY PERSON, CORPORATION OR OTHER ENTITY, DUPLICATED, AND/OR USED, EXCEPT AS EXPRESSLY APPROVED IN WRITING IN ADVANCE BY OWNER. THIS DOCUMENT SHALL BE RETURNED TO OWNER UPON REQUEST. IT MAY BE SUBJECT TO CERTAIN RESTRICTIONS UNDER APPLICABLE EXPORT CONTROL LAWS AND REGULATIONS.</small>				APPROVED BY SBD	DESCRIPTION <b>OUTLINE</b> 280M-4P-B3 MTG. MOTOR TYPE: TCA/QCA
			DATE 18/07/2014	MATERIAL	PROCESS/FINISH
			REFERENCE	THIRD ANGLE PROJECTION	SIZE B
					DRAWING NUMBER <b>0228000589</b>
					SHEET 1 OF 1

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DRAWING REVISION	REVISION BY	DATE
A	SN	13/01/2017
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		MATERIAL	
REFERENCE		PROCESS/FINISH	
THIRD ANGLE PROJECTION	SIZE A	DRAWING NUMBER 8442000085	SHEET 1 OF 1

Model No. TCA0454A3111GACD01

U (V)	Δ / Y Conn	f (Hz)	P		I		n [RPM]	T [Nm]	IE Class	% EFF at __ load				PF at __ load			I <sub>L</sub> /I <sub>N</sub> [pu]	T <sub>M</sub> /T <sub>N</sub> [pu]	T <sub>L</sub> /T <sub>N</sub> [pu]
			[kW]	[hp]	[A]	[A]				5/4FL	FL	3/4FL	1/2FL	FL	3/4FL	1/2FL			
415	Δ	50	45	60	87.1	742	576.25		IE3	-	92.2	92.2	92.7	0.78	0.73	0.61	5.8	2.1	2.4

Motor type	TCA	Degree of protection	IP 55
Enclosure	TEFC	Mounting type	IM B3
Frame Material	Cast Iron	Cooling method	IC 411
Frame size	280M	Motor weight - approx.	771 kg
Duty	S1	Gross weight - approx.	806 kg
Voltage variation *	± 10%	Motor inertia	3.5326 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)	64 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 +50 °C	Type of coupling	Direct
Temperature rise (by resistance)	70 [ 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	-
Rotor type	Aluminum die cast	Accessory - 2	-
Bearing type	Anti-friction ball bearing	Accessory - 3	-
DE / NDE bearing	6317 C3 / 6317 C3	Terminal box position	TOP
Lubrication method	Regreasable	Maximum cable size/conduit size	1R x 3C x 95mm <sup>2</sup> /2 x M50 x 1.5
Type of grease	Shell Gadus S5 V100 or Equivalent	Auxiliary terminal box	NA

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

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

T<sub>L</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 Standards	Europe	China	India	Aus/Nz	Brazil	Global IEC
	-	-	IS 12615 : 2018	-	-	-

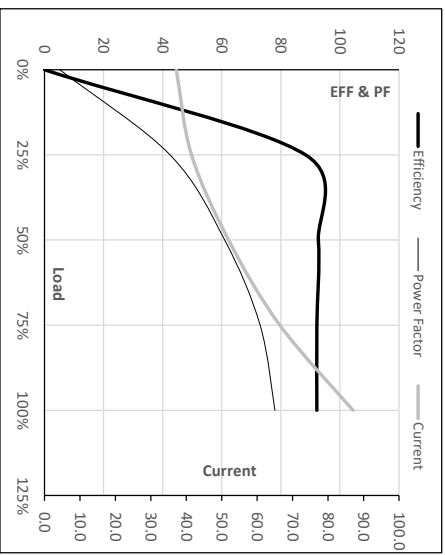
Model No. TCA0454A3111GACD01

Enclosure	U [V]	$\Delta$ /Y Conn	f [Hz]	P [kW]	P [hp]	I [A]	n [RPM]	T [kgm]	T [Nm]	IE Class	Amb Temp [°C]	Duty	Elevation [m]	Inertia [kg·m <sup>2</sup> ]	Weight [kg]
TFC	415	$\Delta$	50	45	60	87.1	742	58.76	576.25	IE3	50	S1	1000	3.5326	771

**Motor Load Data**

Load Point	NL	1/4FL	1/2FL	3/4FL	FL	5/4FL
Current	A	37.2	41.5	51.9	66.4	87.1
Torque	Nm	0.0	142.9	286.5	430.9	576.3
Speed	r/min	750	748	746	744	742
Efficiency	%	0.0	88.4	92.7	92.2	92.2
Power Factor	%	5.2	42.5	61.0	73.0	78.0

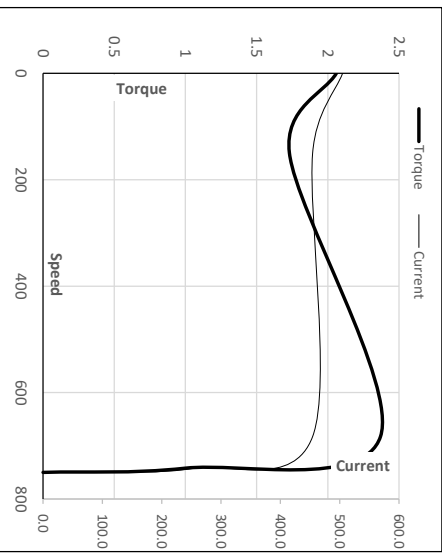
**Performance vs Load Chart**



**Motor Speed Torque Data**

Load Point	LR	P-Up	BD	Rated	NL	
Speed	r/min	0	150	683	742	750
Current	A	504.9	454.4	256.1	87.1	37.2
Torque	pu	2.1	1.7	2.4	1	0

**Starting Characteristics Chart**



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

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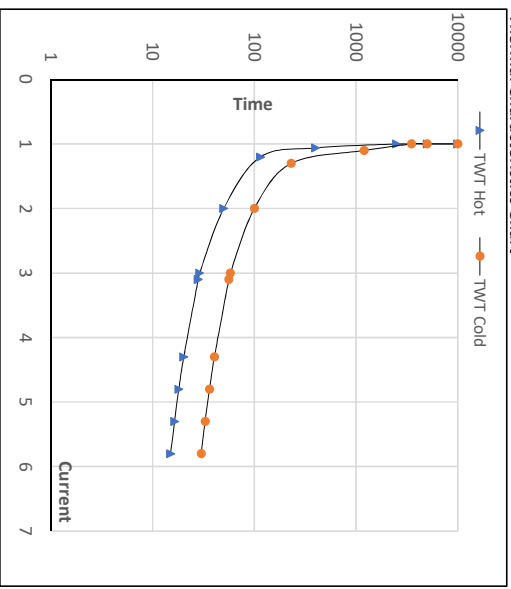
Model No. TCA045A4A3111GACD01

Enclosure	U	Δ / Y	f	P	P	I	n	T	T	IE	Amb	Duty	Elevation	Inertia	Weight
(V)	415	Δ	50	[kW]	[hp]	[A]	[rpm]	[kgm]	[Nm]	Class	[°C]	S1	[m]	[kg·m <sup>2</sup> ]	[kg]
TEFC				45	60	87.1	742	58.72	576.25	IE3	50	S1	1000	3.5326	771

**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	50	29	25	17	16	15
TWT Cold	s	10000	100	58	50	34	31	30
Current	pu	1	2	3	4	5	5.5	5.8

**Thermal Characteristics Chart**



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

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