

PRODUCT INFORMATION PACKET

Model No: TCA0454A3121GACD01

Catalog No: TCA0454A3121GACD01

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



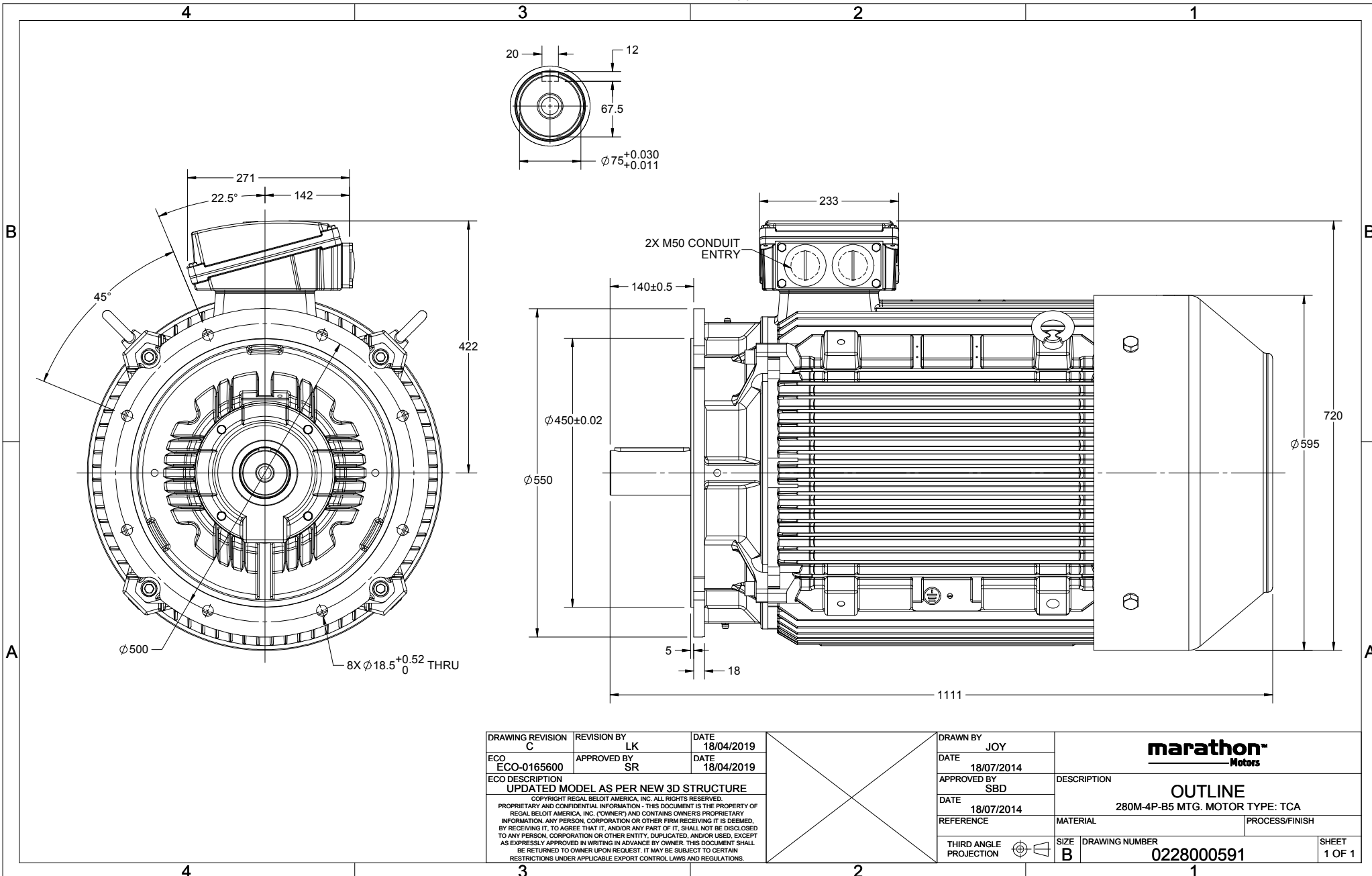
Nameplate Specifications

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

Technical Specifications

Electrical Type	Squirrel Cage	Starting Method	Direct On Line
Poles	8	Rotation	Bi-Directional
Mounting	B5	Motor Orientation	Horizontal
Drive End Bearing	C3	Opp Drive End Bearing	C3
Frame Material	Cast Iron	Shaft Type	Keyed
Overall Length	1111 mm	Frame Length	600 mm
Shaft Diameter	75 mm	Shaft Extension	140 mm
Assembly/Box Mounting	Top		
Outline Drawing	0228000591	Connection Drawing	8442000085

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DRAWING REVISION C	REVISION BY LK	DATE 18/04/2019
ECO-0165600	APPROVED BY SR	DATE 18/04/2019
ECO DESCRIPTION UPDATED MODEL AS PER NEW 3D STRUCTURE		
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DRAWN BY JOY		
DATE 18/07/2014		
APPROVED BY SBD	DESCRIPTION OUTLINE 280M-4P-B5 MTG. MOTOR TYPE: TCA	
DATE 18/07/2014		
REFERENCE	MATERIAL	PROCESS/FINISH
THIRD ANGLE PROJECTION	SIZE B	DRAWING NUMBER 0228000591
		SHEET 1 OF 1

DRAWING REVISION		REVISION BY	DATE
A		SN	13/01/2017
ECO	ECO-0116390	APPROVED BY	DATE
		SBD	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.

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

Model No. TCA0454A3121GACD01

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 _b /T _N [pu]
415	Δ	50	45	60	87.1	742	576.25	IE3	5/4FL	FL	3/4FL	1/2FL	FL	3/4FL	1/2FL	5.8	2.1	2.4

Motor type	TCA	Degree of protection	IP 55
Enclosure	TEFC	Mounting type	IM B5
Frame Material	Cast Iron	Cooling method	IC 411
Frame size	280M	Motor weight - approx.	791 kg
Duty	S1	Gross weight - approx.	826 kg
Voltage variation *	± 10%	Motor inertia	3.5326 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)	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 ² /2 x M50 x 1.5
Type of grease	Shell Gadus S5 V100 or Equivalent	Auxiliary terminal box	NA

I_a/I_N - Locked Rotor Current / Rated CurrentT_b/T_N - Breakdown Torque / Rated TorqueT_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
	-	-	IS 12615 : 2018	-	-	-

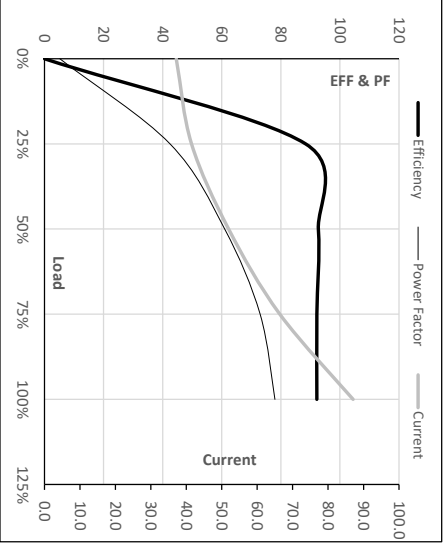
Model No. TCA0454A3121GACD01

Enclosure	U [V]	Δ / Y Com	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	415	Δ	50	45	60	87.1	742	58.76	576.25	IE3	50	S1	1000	3.5326	791

Motor Speed 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	

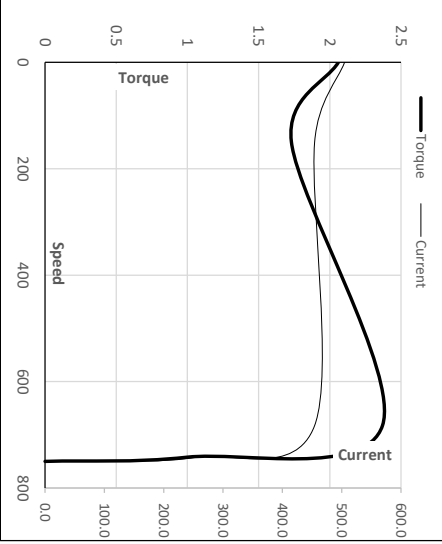
Performance vs Load Chart



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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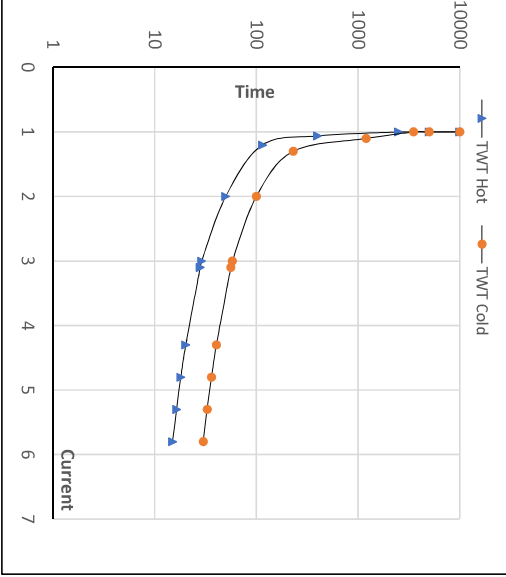
Model No. TCA045A43121GACD01

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	415	Δ	50	45	60	87.1	742	58.72	576.25	IE3	50	S1	1000	3.5326	791

Motor Speed Torque Data

Load	FL	I ₁	I ₂	I ₃	I ₄	I ₅	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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