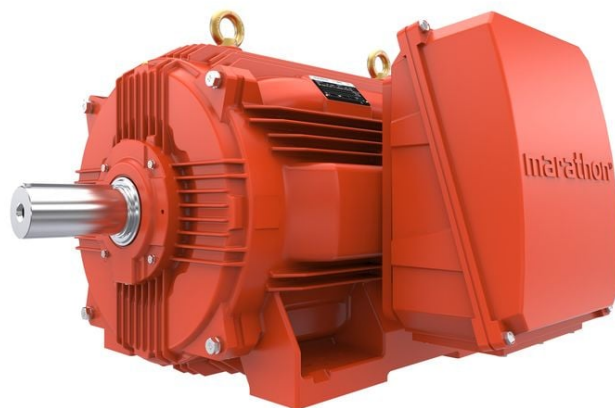


# PRODUCT INFORMATION PACKET

Model No: TCM1601A2113GAC011

Catalog No: TCM1601A2113GAC011

TerraMAX® IE3, Mining Duty Motors, 160 kW, 3Ph, 2 Pole, 400/690V, B3, 50Hz, 315L Frame, TEFC



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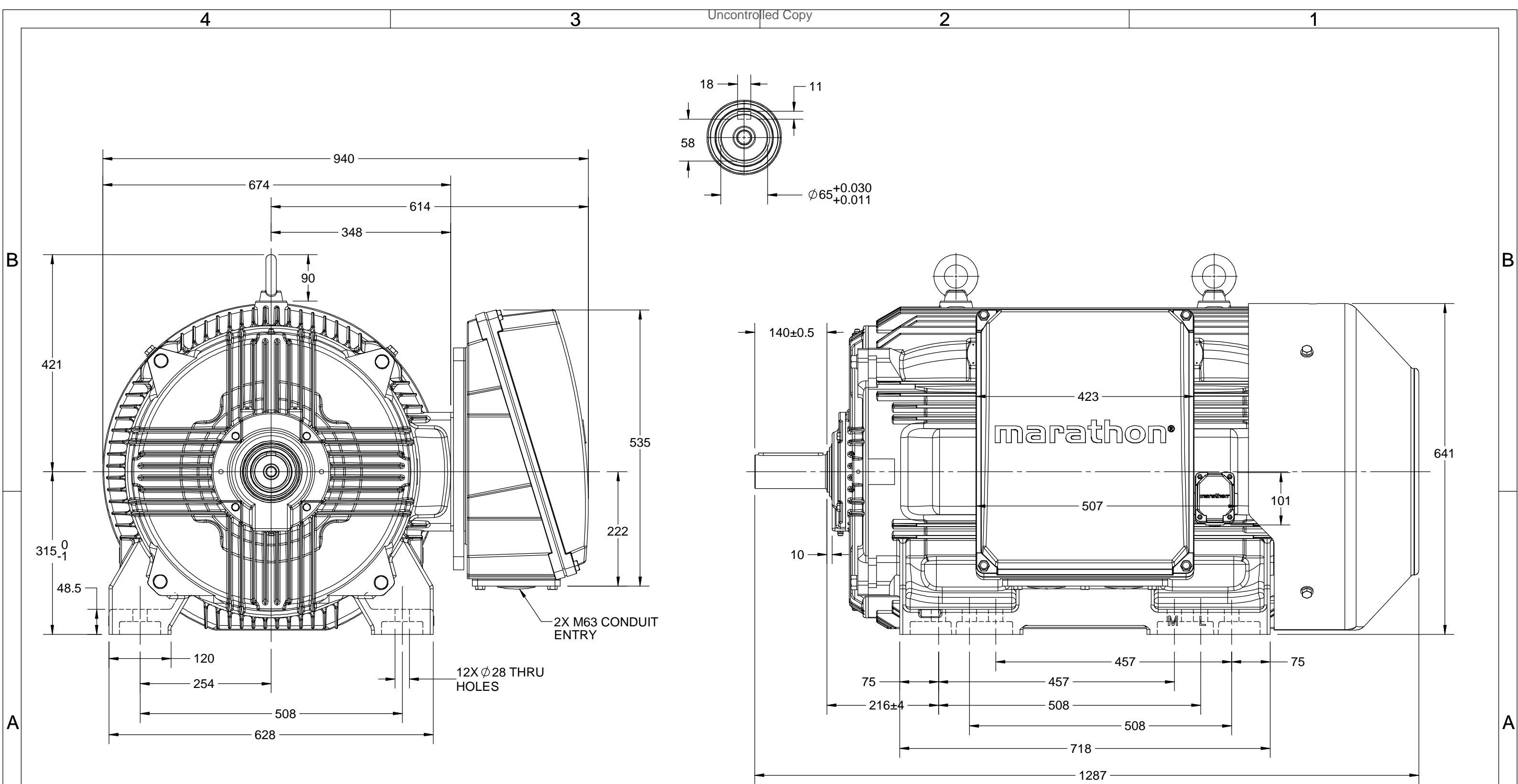
### Nameplate Specifications

Output HP	<b>215 Hp</b>	Output KW	<b>160.0 kW</b>
Frequency	<b>50 Hz</b>	Voltage	<b>400/690 V</b>
Current	<b>271.0 A</b>	Speed	<b>2983 rpm</b>
Service Factor	<b>1</b>	Phase	<b>3</b>
Efficiency	<b>95.6 %</b>	Power Factor	<b>0.89</b>
Duty	<b>S1</b>	Insulation Class	<b>H</b>
Frame	<b>315L</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>6316</b>	Opp Drive End Bearing Size	<b>6316</b>
UL	<b>NO</b>	CSA	<b>NO</b>
CE	<b>YES</b>	IP Code	<b>66</b>
Number of Speeds	<b>1</b>	Efficiency Class	<b>IE3</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>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>1287 mm</b>	Frame Length	<b>729 mm</b>
Shaft Diameter	<b>65 mm</b>	Shaft Extension	<b>140 mm</b>
Assembly/Box Mounting	<b>RHS</b>		
Connection Drawing	<b>8442180001</b>	Outline Drawing	<b>0231501420</b>

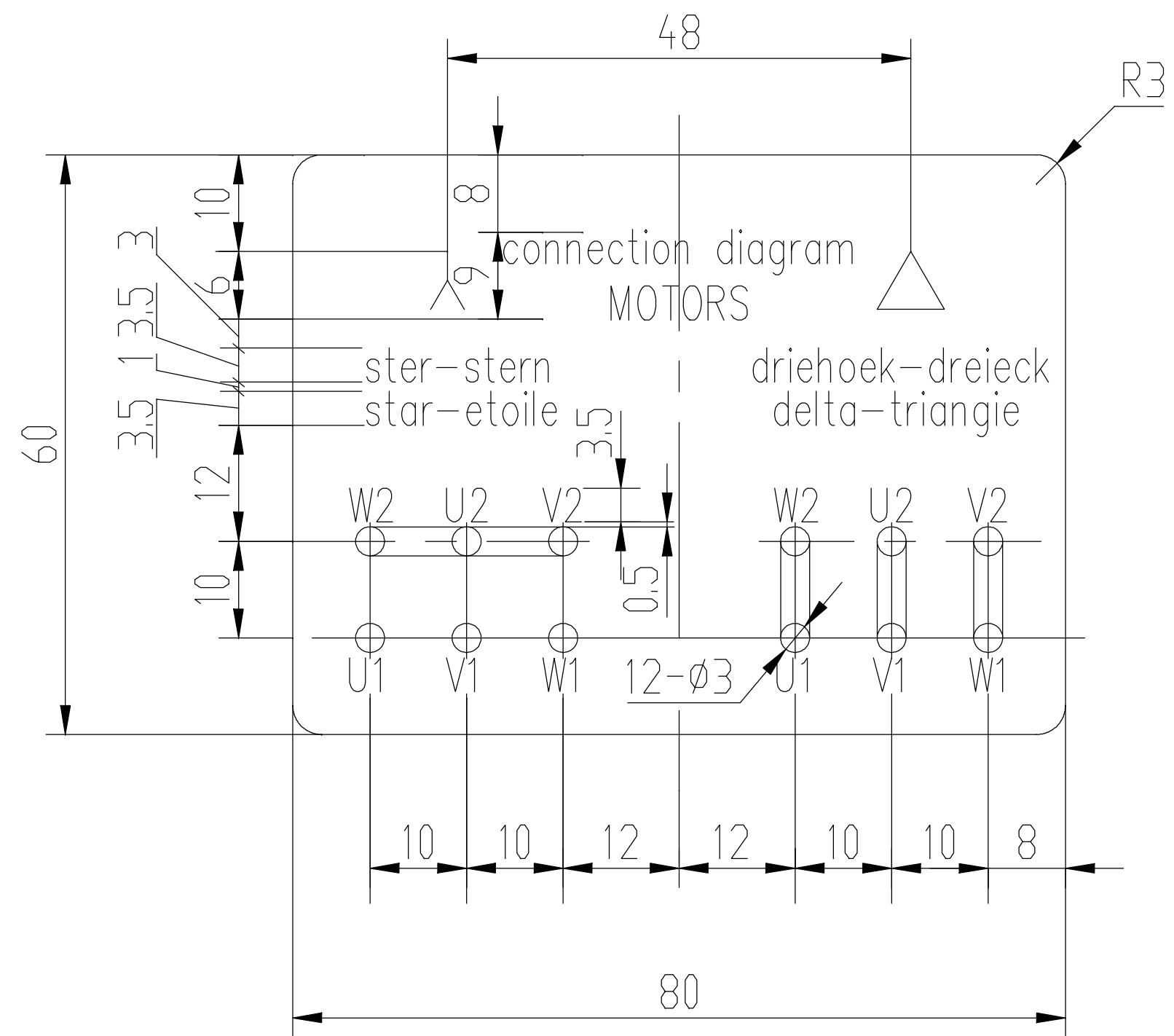
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DRAWING REVISION B	REVISION BY LK	DATE 03/08/2018
ECO ECO-0158551	APPROVED BY SBD	DATE 03/08/2018
ECO DESCRIPTION MODEL UPDATED WITH NEW STRUCTURE		
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DRAWN BY LK		
DATE 22/01/2018		
APPROVED BY SBD	DESCRIPTION OUTLINE	
DATE 22/01/2018	FR-315L-B3 MTG. 2P MOTOR TYPE: TCM	
REFERENCE	MATERIAL	PROCESS/FINISH
THIRD ANGLE PROJECTION	SIZE B	DRAWING NUMBER 0231501420
		SHEET 1 OF 1

8442180001



技术要求

- 1、字母小号3.5，大号5，字母应整齐清晰，Δ、Y下面的字母分别关于Δ、Y对称；
- 2、底为黄色，文字线条为黑色；
- 3、压敏胶纸反面涂不干胶。

修改  
校对  
审核  
工艺  
标准

修改  
校对  
审核  
工艺  
标准

修改  
校对  
审核  
工艺  
标准

设计  
校对  
审核  
批准  
工艺

						8442180001			
						压敏胶纸			
标记	处数	分区	更改文件号	签名	年月日	阶段标记	重量	比例	接线指示 DM1-180
设计			标准化					1:1	
校对			审定						无锡华达电机有限公司
审核						共 页	第 页		
批准			批准						
工艺									

**Model No.** TCM1601A2113GAC011

U (V)	Δ / Y Conn	f [Hz]	P		I [A]	n [RPM]	T [Nm]	IE Class	% EFF at __ load				PF at __ load			I <sub>A</sub> /I <sub>N</sub> [pu]	T <sub>A</sub> /T <sub>N</sub> [pu]	T <sub>K</sub> /T <sub>N</sub> [pu]
			[kW]	[hp]					5/4FL	FL	3/4FL	1/2FL	FL	3/4FL	1/2FL			
400	Δ	50	160	215	271.4	2983	513.16	IE3	-	95.6	95.6	94	0.89	0.87	0.79	7.3	2.2	3.6

Motor type	TCM	Degree of protection	IP 66
Enclosure	TEFC	Mounting type	IM B3
Frame Material	Cast Iron	Cooling method	IC 411
Frame size	315L	Motor weight - approx.	1164 kg
Duty	S1	Gross weight - approx.	1209 kg
Voltage variation *	± 10%	Motor inertia	2.7640 kgm <sup>2</sup>
Frequency variation *	± 5%	Load inertia	Customer to Provide
Combined variation *	10%	Vibration level	2.8 mm/s
Design	N	Noise level ( 1meter distance from motor)	83 dB(A)
Service factor	1.15	No. of starts hot/cold/Equally spread	2/3/4
Insulation class	H	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)	25/50 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 2008
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	6316-C3 / 6316-C3	Terminal box position	RHS
Lubrication method	Regreasable	Maximum cable size/conduit size	1R x 3C x 300mm <sup>2</sup> /2 x M63 x 1.5
Type of grease	CHEVRON SRI-2 or Equivalent	Auxiliary terminal box	YES

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 slight variations between calculated values in this datasheet and the motor nameplate figures.

Efficiency Standards	Europe IEC:60034-30-1	China -	India -	Aus/Nz AS/NZ 1359:5:2004	Brazil -	Global IEC IEC:60034-30-1

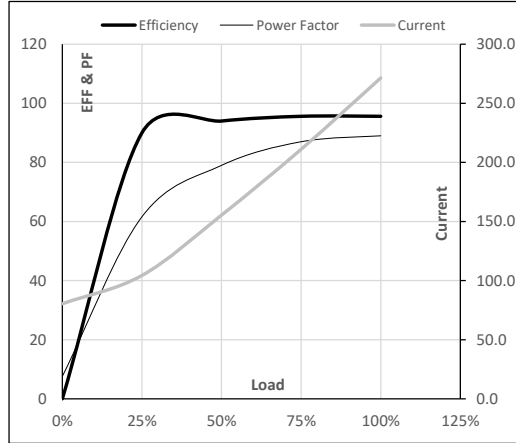
Model No. TCM1601A2113GAC011

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	400	Δ	50	160	215.0	271.4	2983	52.33	513.16	IE3	40	S1	1000	2.764	1164

**Motor Load Data**

Load Point		NL	1/4FL	1/2FL	3/4FL	FL	5/4FL
Current	A	80.4	104.4	155.4	211.1	271.4	
Torque	Nm	0.0	127.8	255.9	384.3	513.2	
Speed	r/min	3000	2996	2992	2988	2983	
Efficiency	%	0.0	90.0	94.0	95.6	95.6	
Power Factor	%	7.6	61.6	79.0	87.0	89.0	

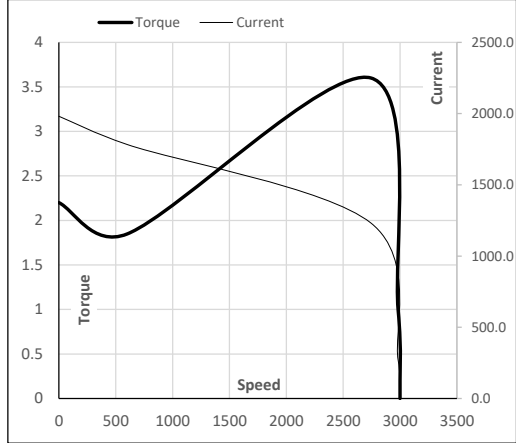
**Performance vs Load Chart**



**Motor Speed Torque Data**

Load Point		LR	P-Up	BD	Rated	NL
Speed	r/min	0	600	2744	2983	3000
Current	A	1981.4	1783.3	1231.6	271.4	80.4
Torque	pu	2.2	1.8	3.6	1	0

**Starting Characteristics Chart**



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

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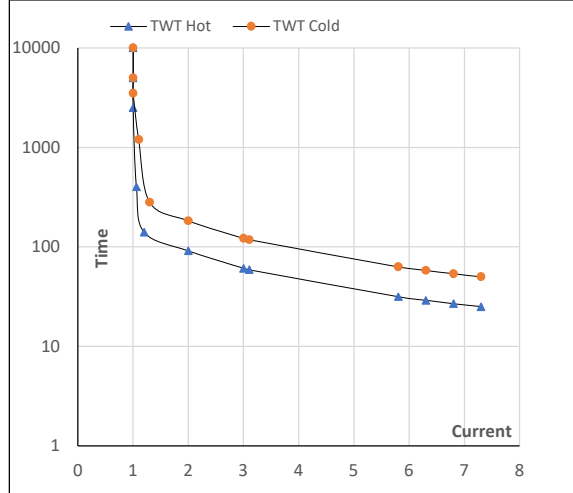
**Model No.** TCM1601A2113GAC011

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	400	Δ	50	160	215	271.4	2983	52.33	513.16	IE3	40	S1	1000	2.7640	1164

**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	91	61	55	43	30	25	
TWT Cold	s 10000	183	122	102	74	62	50	
Current	pu	1	2	3	4	5	6	7.3

**Thermal Characteristics Chart**



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

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