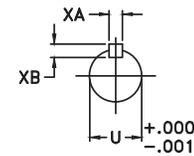
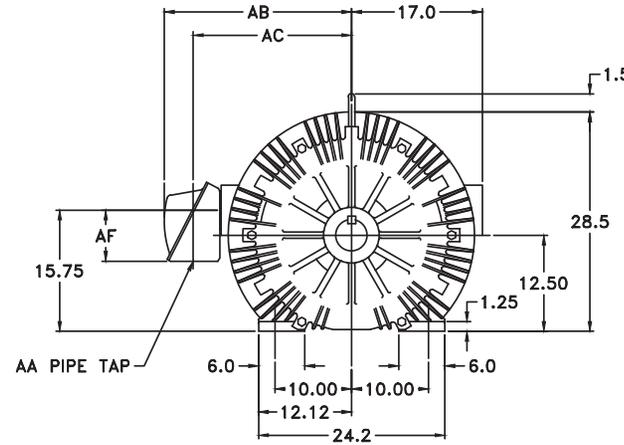
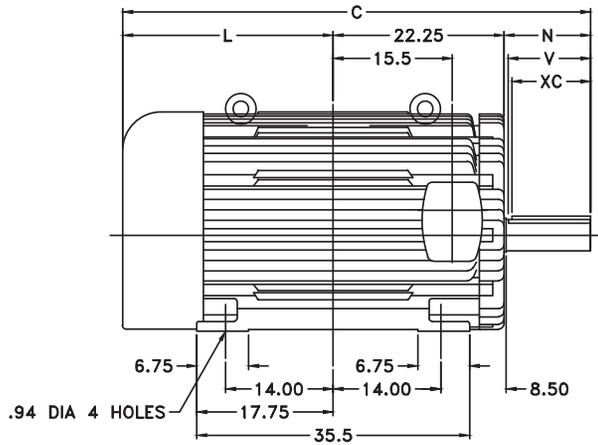


TYPE HS SQUIRREL CAGE INDUCTION MOTOR  
ENCLOSURE - TOTALLY ENCLOSED FAN COOLED  
AND EXPLOSION PROOF  
BEARING - ANTI-FRICTION

NOTES

- A- THIS DRAWING IS NOT TO BE REGARDED AS INDICATING EXACT DETAILS OF CONSTRUCTION. IT IS PROPERLY DIMENSIONED FOR ERECTION PURPOSES ONLY.
- B- MOUNTING BOLTS, DOWELS AND COUPLING NOT SUPPLIED BY TOSHIBA UNLESS SPECIFICALLY ORDERED.
- C- WHEN MOUNTING MOTOR, SHIM COMPLETE FOOT PAD AREA.
- D- ANTI-FRICTION BEARINGS MUST BE REGREASED WHILE MOTOR IS RUNNING.
- E- FOR MOUNTING OF MOTOR USE .875-9 THD/INCH HOLD DOWN BOLTS.
- F- NON DRIVE END BEARING INSULATED.

DEVICES

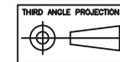


END VIEW OF SHAFT

FRAME SIZE	REAR SHAFT EXTENSION						RECOMMENDED COUPLING BORE		APPROX WEIGHT		
	U	KEY SIZE			N	V	C	L		MIN.	MAX.
D509US	2.375	.625	.625	3.00	4.69	4.25	54.31	27.38	2.3730	2.3740	4000
D509E	2.875	.625	.625	3.75	5.12	4.62	54.75	27.38	2.8730	2.8740	4000
D509G	4.125	.875	.875	10.25	11.25	10.75	60.88	27.38	.....	.....	4000
D509H	5.000	1.250	1.250	11.00	13.25	12.75	62.88	27.38	.....	.....	4000
H509US	2.375	.625	.625	3.00	4.69	4.25	59.81	32.88	2.3730	2.3740	5000
H509E	2.875	.625	.625	3.75	5.12	4.62	60.25	32.88	2.8730	2.8740	5000
H509G	4.125	.875	.875	10.25	11.25	10.75	66.38	32.88	.....	.....	5000
H509H	5.000	1.250	1.250	11.00	13.25	12.75	68.38	32.88	.....	.....	5000

CONDUIT BOX							
FAN COOLED - STANDARD				EXPLOSION PROOF			
AA	AB	AC	AF	AA	AB	AC	AF
3.00	24.38	20.62	6.63	3.00	25.06	20.44	7.00
FAN COOLED - ALTERNATE							
3.50	28.38	22.50	9.38				

THIS DRAWING WAS PREPARED IN ACCORDANCE WITH THE NORMAL AND ACCEPTED STANDARDS WITHIN THE ELECTRICAL INDUSTRY FOR THE PURPOSE OF OBTAINING CUSTOMER APPROVAL. AS PART OF THE MANUFACTURING OR PRODUCTION PROCESS, ANY USE OR COMPARISON OF THIS DRAWING BY THE CUSTOMER CONCERNING THE DRAWING SHALL BE THE SOLE RESPONSIBILITY OF THE CUSTOMER.



THESE DIMENSIONS REFER TO THE POSITION OF THE CENTER OF GRAVITY OF THE MOTOR. THE MOTOR SHALL BE MOUNTED ON ISOLATORS, AND NO PORTION OF THE MOTOR SHALL BE SUPPORTED OR USED WITHOUT THE EXPRESS PERMISSION OF THE COMPANY.

TOSHIBA INDUSTRIAL PRODUCTS CANADA

**TOSHIBA**

TITLE TYPE HS MOTOR FRAME D509/H509  
OUTLINE - TEFC/TEXP ENCLOSURE

DESIGNED BY: N.WEST  
CHECKED BY: APFAF  
SCALE: N.T.S.  
SHEET: 1 OF 1

E10D118

STANDARD  
REVISIONS  
ISSUE 1



Issued Date

Transmit #

Issued By

Issued Rev

## TYPICAL MOTOR PERFORMANCE DATA

Model: 4004XPAL11E-C

HP	kW	Pole	FL RPM	Frame	Voltage	Hz	Phase	FL Amps
400 hp	298 kW	4	1786 rpm	D509E	4000 V	60	3	50.4 A
Enclosure	IP	Ins. Class	S.F.	Duty	NEMA Nom. Eff.	NEMA Design	kVA Code	Ambient (°C)
TEXP	55	F	1.15	Cont.	94	B	F	40

Load	HP	kW	Amperes	Efficiency (%)	Power Factor (%)
Full Load	400	298	50.4	94	91.3
¾ Load	300	224	38.1	93.6	90.6
½ Load	200	149	26.9	92.4	87.0
¼ Load	100	75			
No Load			11.4		9.9
Locked Rotor			327.2		22.4

Torque				Rotor wk <sup>2</sup> Inertia (lb-ft <sup>2</sup> )
Full Load (lb-ft)	Locked Rotor (% FLT)	Pull Up (% FLT)	Break Down (% FLT)	
1180	103	103	237	205

Safe Stall Time(s)		Sound Pressure dB(A) @ 1M	Bearings*		Approx. Motor Weight (lbs)
Cold	Hot		DE	NDE	
46	30	-	6216-C3	6313Z-C3	5000

\*Bearings are the only recommended spare part(s).

## Motor Options:

Customer	
Customer PO	
Sales Order	
Project #	

Tag:

All characteristics are average expected values.

TOSHIBA INTERNATIONAL CORPORATION · HOUSTON, TEXAS U.S.A.

Engineering		Doc. Written By		Doc.# / Rev	
Engr. Date		Doc. Approved By		Doc. Issued	



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NAMEPLATE DATA

Model: 4004XPAL11E-C

HP	kW	Pole	FL RPM	Frame	Voltage	Hz	Phase	FL Amps
400	298.276	4	1786	D509E	4000	60	3	50.35
Enclosure	IP	Ins. Class	S.F.	Duty	NEMA Nom. Eff.	NEMA Design	kVA Code	Ambient (°C)
TEXP	55	F	1.15	Cont.	94	B	F	40

Type: HSB

Form:

Drive End Bearing: 6216-C3

Non-Drive End Bearing: 6313Z-C3

Power Factor: 91.3

Max Safe RPM:

Comments 1:

Comments 2:

Comments 3:

Comments 4:

Customer

Customer PO

Sales Order

Project #

Tag:

All characteristics are average expected values.

TOSHIBA INTERNATIONAL CORPORATION · HOUSTON, TEXAS U.S.A.

Engineering	Doc. Written By	D. Suarez	Doc.# / Rev	MPCF-1120 / 0
Engr. Date	Doc. Approved By	M. Campbell	Doc. Issued	6/8/2011



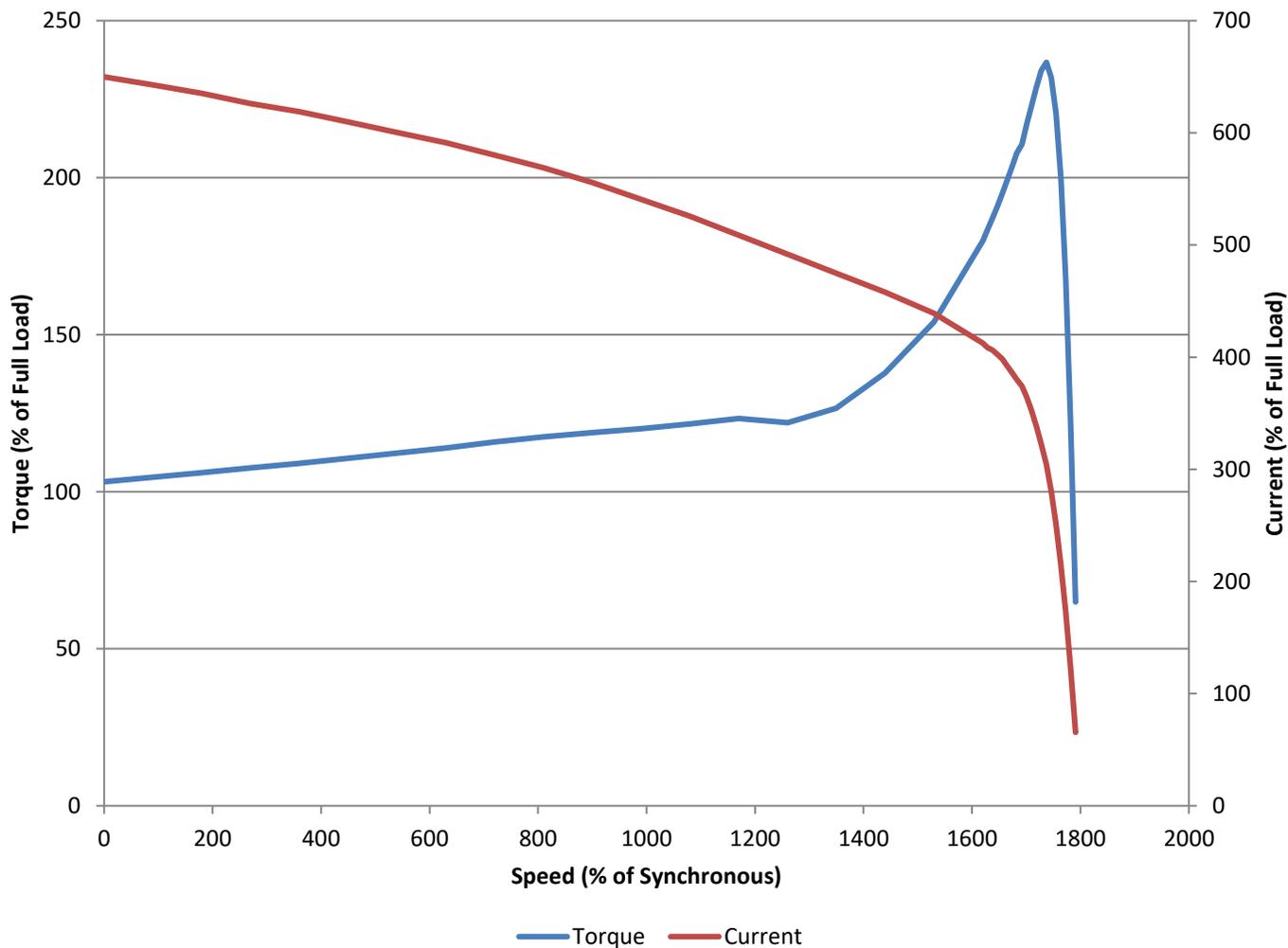
Issued Date		Transmit #	
Issued By		Issued Rev	

### SPEED TORQUE/CURRENT CURVE

Model: 4004XPAL11E-C

HP	kW	Pole	FL RPM	Frame	Voltage	Hz	Phase	FL Amps
400	298.276	4	1786	D509E	4000	60	3	50.35
Enclosure	IP	Ins. Class	S.F.	Duty	NEMA Nom. Eff.	NEMA Design	kVA Code	Ambient (°C)
TEXP	55	F	1.15	Cont.	94	B	F	40
Locked Rotor Amps	Rotor wk <sup>2</sup> Inertia (lb-ft <sup>2</sup> )	Torque						Break Down (%)
		Full Load (lb-ft)	Locked Rotor (%)	Pull Up (%)				
317.7	205	1179.87	103.1876393		103.1876393		236.7318433	

### Design Values



Customer		wk <sup>2</sup> Load Inertia (lb-ft <sup>2</sup> )		
Customer PO			Load Type	
Sales Order			Voltage (%)	100
Project #			Accel. Time	

Tag:

All characteristics are average expected values.

TOSHIBA INTERNATIONAL CORPORATION · HOUSTON, TEXAS U.S.A.

Engineering		Doc. Written By	D. Suarez	Doc.# / Rev	MPCF-1121/0
Engr. Date		Doc. Approved By	M. Campbell	Doc. Issued	6/8/2011



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Issued By

Issued Rev

## SPARE PARTS LIST\*

Model: 4004XPAL11E-C

HP	kW	Pole	FL RPM	Frame	Voltage	Hz	Phase	FL Amps
400	298.276	4	1786	D509E	4000	60	3	50.35
Enclosure	IP	Ins. Class	S.F.	Duty	NEMA Nom. Eff.	NEMA Design	kVA Code	Ambient (°C)
TEXP	55	F	1.15	Cont.	94	B	F	40

Bearings DE 6216-C3

Bearings NDE 6313Z-C3

\*Bearings are the only recommended spare part(s).

Other than the grease used for regreasable bearings and the oil used for oil-lubricated bearings, Toshiba advises that there are no "use" parts. The only insurance spares that Toshiba suggests for these squirrel-cage induction motors are industry-standard and commercially available off-the-shelf bearings as noted above.

Motor components such as terminal boxes, fan covers and other machined parts are available on special request. In these cases, please advise our order entry department of the model and serial numbers found on the motor nameplate and a description of the needed components. With this information they will be able to furnish the current part number, price and availability.

Note: Our internal part numbers are subject to change without notice and are not published.

Customer	
Customer PO	
Sales Order	
Project #	

Tag:

All characteristics are average expected values.

TOSHIBA INTERNATIONAL CORPORATION · HOUSTON, TEXAS U.S.A.

Engineering		Doc. Written By	D. Suarez	Doc.# / Rev	MPCF-1125 / 0
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