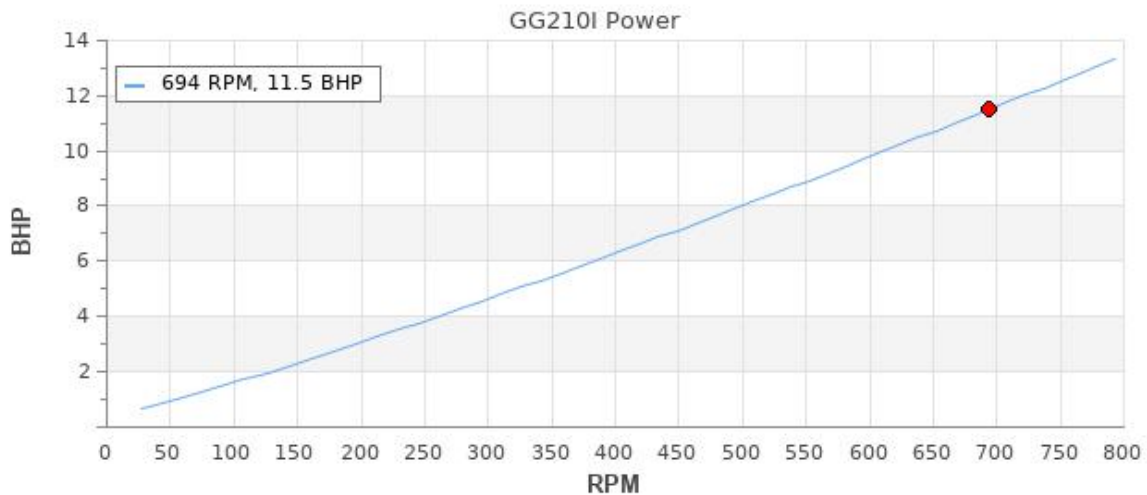
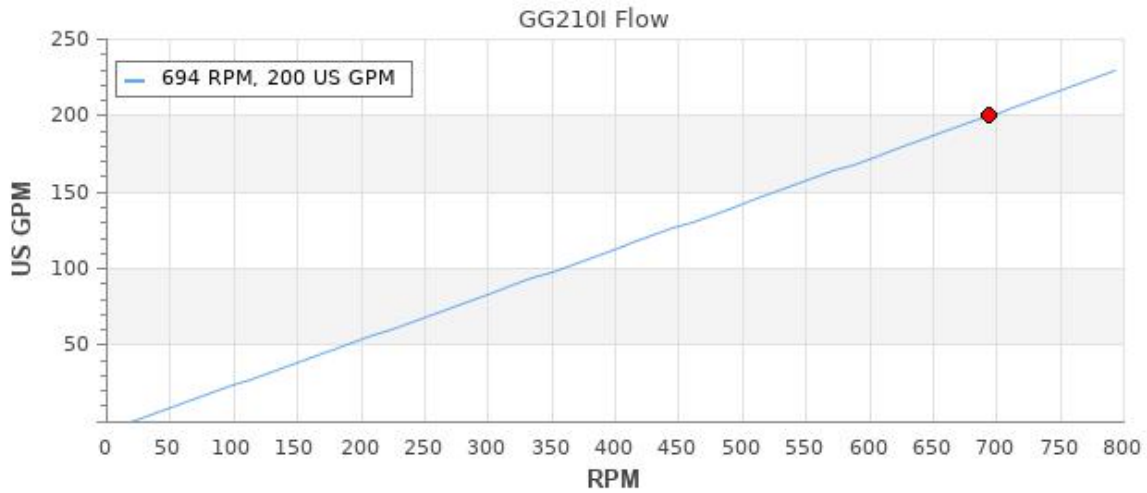




New Project Performance Curve for Item/Tag#:



Performance Curve Based on the Conditions of

Model: GG210I

RPM: 694

Power Requirement: 11.50 BHP

Capacity: 200.00 US gpm

Suction Pressure: 0.00 PSIG

Discharge Pressure: 75.00 PSIG

Differential Pressure: 75.00 PSI

Mechanical Efficiency: 76.08 %

Fluid Name: Feedstick

Viscosity: 20.00 cST

Specific Gravity: 0.90

Temperature: 180.00 °F

NPSHr: 4.55 PSIA

Abrasive: non

Volumetric Efficiency: 97.19 %

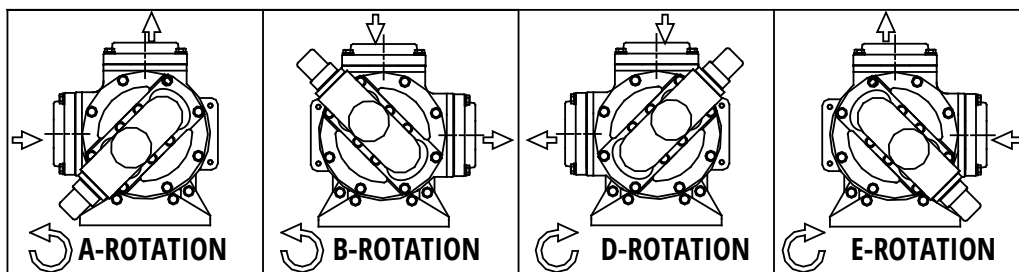
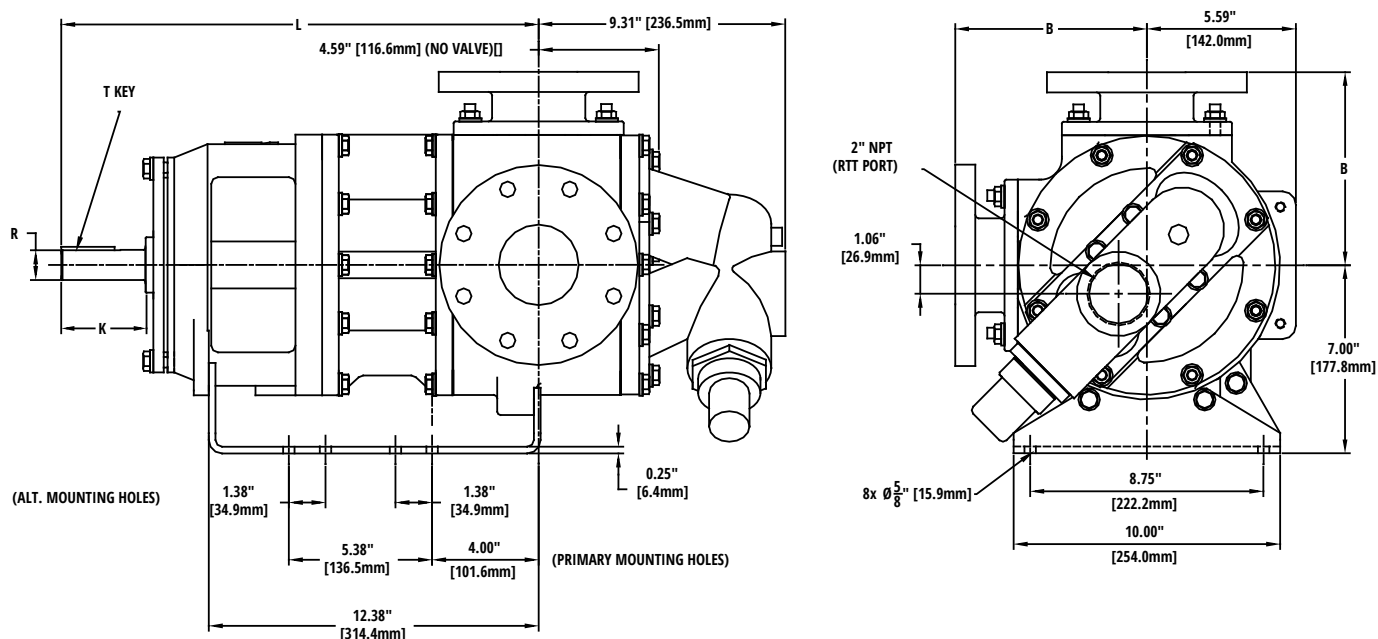


Aristide PL 2 200gpm Feed

Item/Tag#:

Pump Features	
Option	Name
Model/Part#	GG210IAVC01CKIA000
Port Position	90 Degree Orientation, A Rotation
Relief Valve	Internal Relief Valve
Seal Method	Cartridge Seal
Seal Type	No Gland or Packing
Seal Flush	Vent to Suction
Port Style	ANSI 125 lb. flanged (Iron Flanges only)
Port Size	3"
Shaft Dimensions	Standard
Bushings And Idler Pin	Bronze Bushings, Steel Pin
Tutriding	None
Jacketing	None
Clearances	No additional clearances (-100 to 200 degrees F)
Subtotal:	

GG200 - GG210 with Angle Ports Mounting Dimensions



Shaft Dimensions

Shaft Design	K	R	T	L
Inch (")	3.04	1.125	1/4 x 1/4 x 2	17.85

Port Dimensions

Port Type	B
2" FNPT (200 Size only)	6.56" [167mm]
ANSI flanged	7.19" [183mm]

Back Pull-Out Dimensions

Size	Min Spacer
GG200	4.01" [102mm]
GG210	4.61" [117mm]

Face Type

	Size-Rating
Raised Face	4" - ANSI 125# / (150# 210 only)
	3" - ANSI 250# - 210 Size Only
	4" - ANSI 250# - 210 Size Only
Flat Face	2.5" - ANSI 125# - 200 Size Only
	3" - ANSI 125# thru #250



Selection Data

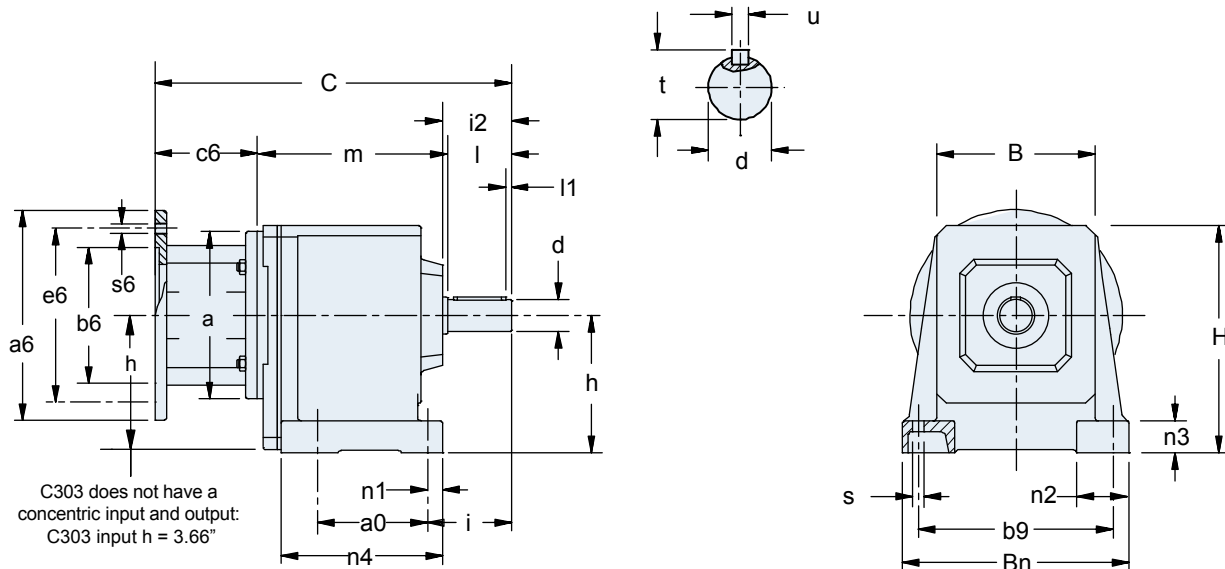
1750 RPM Input		Nominal Ratio	Overhung Load Output Shaft ¹⁾ (lbs.)	Part Number Codes (in blue)			
Input HP	Output Torque (in. lbs.)			Base Module	Motor Adapter/ NEMA Motor	Compatible NEMA C-Frame ²⁾ with Designated Motor Adapter	Optional Input Shaft ³⁾
705 RPM Output (Continued)							
22.41*	1,920	2.450	752	C502_0025	MR200/180	182/184TC	AW200/014
26.44*	2,271	2.456	663	C402_0025	MR250/180	182/184TC	AW250/102
					MR250/210	213/215TC	
39.32*	3,368	2.450	752	C502_0025	MR250/180	182/184TC	AW250/102
					MR250/210	213/215TC	
41.05*	3,516	2.450	752	C502_0025	MR300/180	182/184TC	AW300/110
					MR300/210	213/215TC	
					MR300/250	254/256TC	
					MR300/280	284/286TC	
680 RPM Output (Approximate)							
7.03*	635	2.582	236	C102_0026	MR160/050	56C	AW160/012
					MR160/140	143/145TC	
					MR200/180	182/184TC	AW200/014
650 RPM Output (Approximate)							
8.73*	821	2.690	296	C202_0027	MR160/050	56C	AW160/012
					MR160/140	143/145TC	
9.22	872	2.705	399	C302_0027	MR160/050	56C	AW160/012
					MR160/140	143/145TC	
10.45*	983	2.690	296	C202_0027	MR200/180	182/184TC	AW200/014
17.04*	1,612	2.705	399	C302_0027	MR200/180	182/184TC	AW200/014
					MR250/180	182/184TC	AW250/102
					MR250/210	213/215TC	
630 RPM Output (Approximate)							
2.61	252	2.769	135	C002_0028	MR140/050	56C	AW140/010
3.36*	325	2.769	135	C002_0028	MR160/050	56C	AW160/012
					MR160/140	143/145TC	
19.60*	1,898	2.771	691	C402_0028	MR200/180	182/184TC	AW200/014
22.41*	2,184	2.787	785	C502_0028	MR200/180	182/184TC	AW200/014
24.40*	2,364	2.771	691	C402_0028	MR250/180	182/184TC	AW250/102
					MR250/210	213/215TC	
37.67*	3,671	2.787	785	C502_0028	MR250/180	182/184TC	AW250/102
					MR250/210	213/215TC	
					MR300/180	182/184TC	AW300/110
					MR300/210	213/215TC	
					MR300/250	254/256TC	
					MR300/280	284/286TC	

* Thermal HP Limit

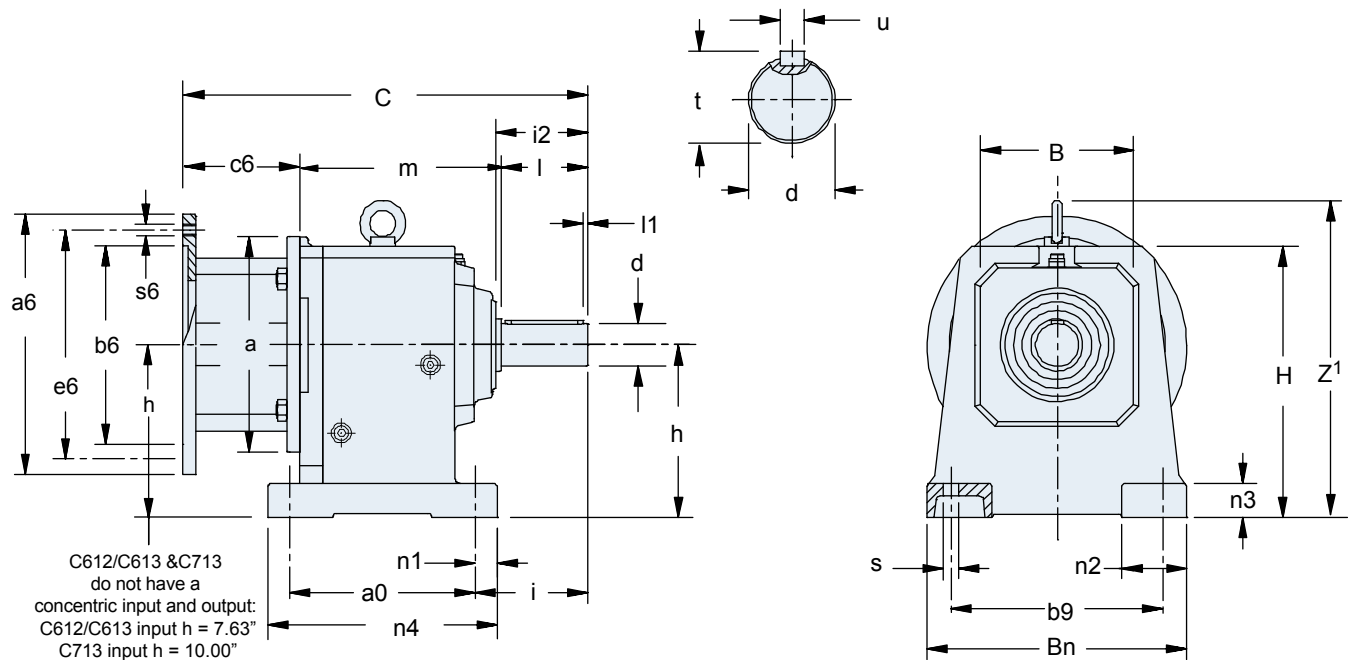
Base Module Size	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9
HP Limit	2.95	5.36	7.38	12.34	14.75	20.12	29.50	40.23	53.63	67.05

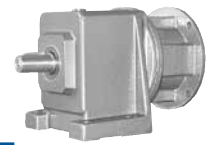
“N” Foot Mount —

C002N thru C503N



C612N thru C913N





Dimensional Data

Table 1 C Series Unit Dimensions (Inches) – “N” Foot Mount Housing

Base Module	a0	B	Bn	b9	H	h	i	i2	l	l1	n1	n2	n3	n4	s	Z1
C0	2.44	3.62	5.20	4.33	5.67	3.23	2.17	1.73	1.57	0.16	0.43	1.38	0.79	3.74	0.28	—
C1	2.76	4.88	6.93	5.91	6.97	4.02	2.64	2.13	1.97	0.16	0.51	1.65	0.98	4.65	0.35	—
C2	3.35	5.43	7.87	6.69	7.68	4.53	3.11	2.56	2.36	0.16	0.55	1.97	1.18	5.31	0.43	—
C3	4.13	5.91	8.46	7.28	8.46	5.12 ¹⁾	3.11	2.56	2.36	0.16	0.55	1.97	1.18	6.06	0.43	—
C4	4.33	6.89	10.04	8.66	9.65	5.71	4.13	3.39	3.15	0.16	0.75	2.36	1.38	7.09	0.55	—
C5	5.12	7.56	11.42	9.65	11.42	6.69	4.25	3.39	3.15	0.16	0.87	2.76	1.57	7.76	0.71	—
C6	8.46	6.97	11.81	9.65	12.40	7.87 ¹⁾	5.12	4.17	3.94	0.20	0.98	2.95	1.57	10.43	0.71	14.44
C7	9.25	7.56	14.37	11.81	14.76	9.25 ¹⁾	6.42	5.00	4.72	0.20	0.98	3.54	1.97	11.22	0.71	17.16
C8	11.81	8.78	17.13	13.39	17.72	11.42	7.48	5.83	5.51	0.39	1.14	3.74	2.17	14.17	0.87	20.12
C9	13.39	10.91	20.08	15.75	20.87	13.39	8.74	7.01	6.69	0.39	1.34	4.33	2.36	16.14	1.02	23.63

1) C303, C612/C613 and C713 do not have a concentric input and output. Refer to the h input height dimension on the drawing for these units.

Table 2 C Series — Shaft Output (Carbon Steel)

(see page 104 for standard SS, and other optional outputs)

Base Module	Standard Shaft - inches			Optional Shaft - mm		
	d	t	u	d	t	u
C0	3/4	0.83	3/16x3/16x1-7/32	20k6	22.5	A6x6x32
C1	1	1.11	1/4x1/4x1-9/16	25k6	28	A8x7x40
C2	1-1/4	1.36	1/4x1/4x1-15/16	30k6	33	A8x7x50
C3	1-1/4	1.36	1/4x1/4x1-15/16	30k6	33	A8x7x50
C4	1-5/8	1.79	3/8x3/8x2-7/8	40k6	43	A12x8x70
C5	1-5/8	1.79	3/8x3/8x2-7/8	40k6	43	A12x8x70
C6	2-1/8	2.35	1/2x1/2x3-5/32	50k6	53.5	A14x9x90
C7	2-3/8	2.65	5/8x5/8x3-15/16	60m6	64	A18x11x100
C8	2-7/8	3.21	3/4x3/4x4-5/16	70m6	74.5	A20x12x125
C9	3-5/8	4.01	7/8x7/8x5-1/2	90m6	95	A25x14x140

Table 3 Motor Adapter Dimensions (Inches)

Motor Adapter	NEMA C-Flange	a	a6	b6	c6	e6	s6	Wt. lbs.
MR140/050	56C	5.51	6.50	4.500	3.31	5.87	0.41	9
MR160/050	56C	6.30	6.50	4.500	3.86	5.87	0.41	16
MR160/140	143/145TC	7.87	9.00	8.500	4.80	7.25	0.55	23
MR200/180	182/184TC	9.84	9.00	8.500	5.31	7.25	0.55	36
MR250/180	213/215TC		9.00	8.500		7.25		
MR300/180	182/184TC		9.00	8.500		7.25		
MR300/210	213/215TC		9.00	8.500		7.25		
MR300/250	254/256TC	11.81	9.00	8.500	6.50	7.25	0.57	75
MR300/280	284/286TC		11.13	10.500		9.00		
MR350/320	324/326TC	13.78	13.37	12.500	7.09	11.00	0.70	133
MR350/360	364/365TC							

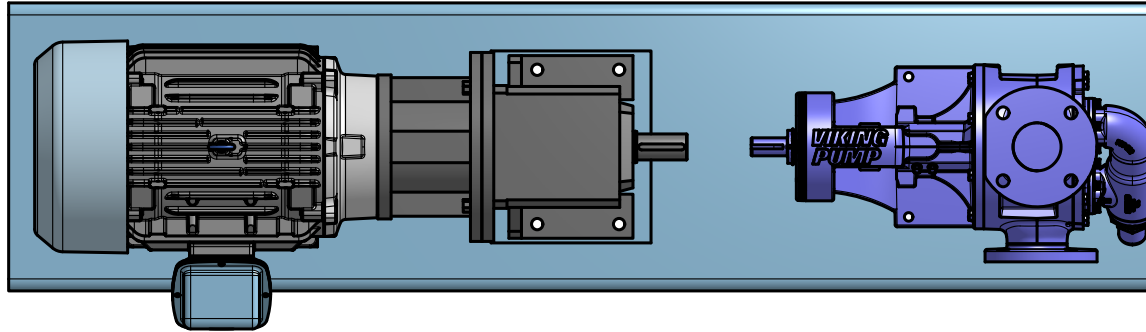
Table 4 C Series Unit Dimensions (Inches) – “MR” Motor Adapter

Base Module	MR140/050			MR160/050 MR160/140			MR200/180			MR250/180 MR250/210			MR300/180 MR300/210 MR300/250 MR300/280			MR350/320 MR350/360			Approx. Wt. lbs.
	C	I	m	C	I	m	C	I	m	C	I	m	C	I	m	C	I	m	
C002	9.37	1.57	4.49	10.08	1.57	4.65	—	—	—	—	—	—	—	—	—	—	—	—	18
C102	10.67	1.97	5.39	11.38	1.97	5.55	12.40	1.97	5.63	—	—	—	—	—	—	—	—	—	29
C103	12.13	1.97	6.85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	34
C202	11.77	2.36	6.10	12.48	2.36	6.26	13.50	2.36	6.34	—	—	—	—	—	—	—	—	—	38
C203	13.23	2.36	7.56	14.17	2.36	7.95	—	—	—	—	—	—	—	—	—	—	—	—	45
C302	—	—	—	13.23	2.36	7.01	14.25	2.36	7.09	14.88	2.36	7.21	—	—	—	—	—	—	49
C303	13.98	2.36	8.31	14.92	2.36	8.70	—	—	—	—	—	—	—	—	—	—	—	—	56
C402	—	—	—	15.12	3.15	8.11	16.14	3.15	8.19	16.77	3.15	8.31	—	—	—	—	—	—	71
C403	—	—	—	16.81	3.15	9.80	—	—	—	—	—	—	—	—	—	—	—	—	78
C502	—	—	—	15.95	3.15	8.94	16.97	3.15	9.02	17.59	3.15	9.13	19.33	3.15	9.68	—	—	—	95
C503	—	—	—	17.64	3.15	10.63	—	—	—	—	—	—	—	—	—	—	—	—	111
C612	—	—	—	—	—	—	17.91	3.94	9.17	18.54	3.94	9.29	20.24	3.94	9.80	—	—	—	115
C613	—	—	—	18.62	3.94	10.82	20.35	3.94	11.61	—	—	—	—	—	—	—	—	—	159
C712	—	—	—	—	—	—	20.00	4.72	10.48	20.59	4.72	10.56	22.29	4.72	11.07	—	—	—	199
C713	—	—	—	—	—	—	22.40	4.72	12.88	23.38	4.72	13.35	—	—	—	—	—	—	221
C812	—	—	—	—	—	—	—	—	—	23.22	5.51	12.40	24.53	5.51	12.52	26.42	5.51	13.82	322
C813	—	—	—	—	—	—	25.04	5.51	14.73	26.02	5.51	15.20	—	—	—	—	—	—	342
C912	—	—	—	—	—	—	—	—	—	—	—	—	27.56	6.69	14.37	29.06	6.69	15.28	596
C913	—	—	—	—	—	—	—	—	—	27.87	6.69	15.87	—	—	—	—	—	—	678

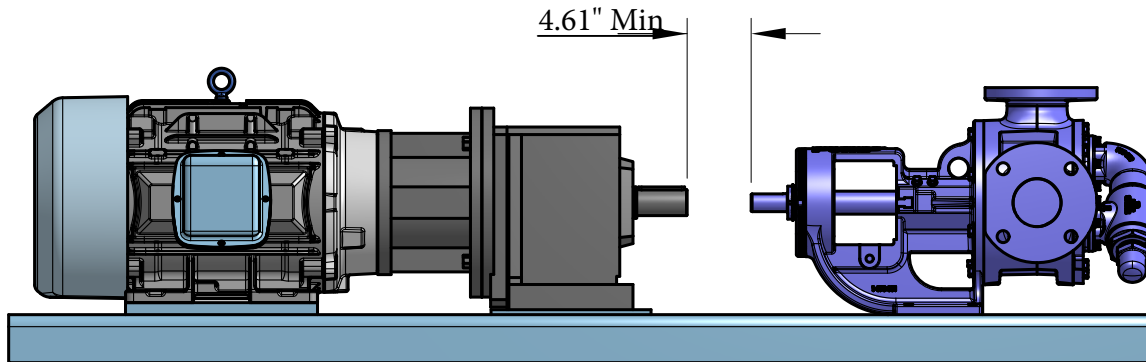
C
INLINE – Solid Shaft Output

2

1



For Concept / Reference Only



UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES ANGULAR = ± ° SURFACE FINISH  DO NOT SCALE DRAWING BREAK ALL SHARP EDGES AND REMOVE BURRS THIRD ANGLE PROJECTION 	NAME		DATE	TITLE Tuthill GG210, Stober C502, Teco 15hp/1800rpm/254TC XP Motor		
	DRAWN	MH	04/13/2020			
	CHECKED					
	APPROVED					
	MATERIAL		FINISH	SIZE A	DWG NO.	REV.
				SCALE 1:32	WEIGHT	SHEET 1 of 1

2

1

Pole	HP	KW	Hz	VOLT	Syn. Speed RPM
4	15	11.2	60	230/460	1800
Ins	Rating	Dimension in	Approx Weight	Bearings	
F	CONT.	inches	335 lbs.	DE: 6309ZZ	NDE: 6307ZZ

1. EXPLOSION PROOF:
CLASS I GROUP C, D AND
CLASS II GROUP E, F, G.

DWN.	J. H. LIANG	12-04-98		DWG NO.
CHKD.	C. S. LO	12-10-98		31049M625252-1
APPD.	Y. B. HUANG	12-10-98		

TECO Westinghouse

ISSUED April 11, 2011	PERFORMANCE DATA 3-PHASE INDUCTION MOTOR	ENCLOSURE EXPLOSION PROOF
TYPE AEHHXF		CATALOG# XP0154C

NAMEPLATE INFORMATION

OUTPUT		POLE	FRAME SIZE	VOLTAGE	HZ	RATED AMBIENT	INS. CLASS	NEMA DESIGN	TIME RATING	SERVICE FACTOR
HP	KW									
15	11.2	4	254TC	230/460	60	40°C	F	B	CONT.	1.15

TYPICAL PERFORMANCE

FULL LOAD RPM	EFFICIENCY				POWER FACTOR			MAXIMUM POWER FACTOR CORRECTION
	FULL LOAD		3/4 LOAD	1/2 LOAD	F. L.	3/4 LOAD	1/2 LOAD	
	MIN. %	NOM. %	%	%	%	%	%	
1765	91	92.4	92.5	92	85	82	73	5.0 KVAR

CURRENTS

NO LOAD			FULL LOAD			LOCKED ROTOR			NEMA KVA CODE LETTER
AT	AT	AT	AT	AT	AT	AT	AT	AT	
208 VOLT	230 VOLT	460 VOLT	208 VOLT	230 VOLT	460 VOLT	208 VOLT	230 VOLT	460 VOLT	
13.82	12.50	6.25	39.59	35.80	17.90	256.54	232.00	116.00	G

TORQUE

INERTIA

ACCEL TIME

FULL LOAD lb-ft	LOCKED ROTOR %FLT	PULL UP %FLT	BREAK DOWN %FLT	ROTOR WR ² lb-ft ²	NEMA LOAD WK ² lb-ft ²	MAX ALLOWABLE WK ² lb-ft ²	NEMA LOAD WK ² Sec	MAX ALLOWABLE WK ² Sec
44.62	200	145	275	2.179	75	145.00	4.49	8.56

SAFE STALL TIME IN SECONDS

ALLOWABLE STARTS PER HOUR

SOUND PRESSURE LEVEL @ 3 FT dB(A)

COLD	HOT	COLD	HOT	64
17	12	2	1	

APPROVED:

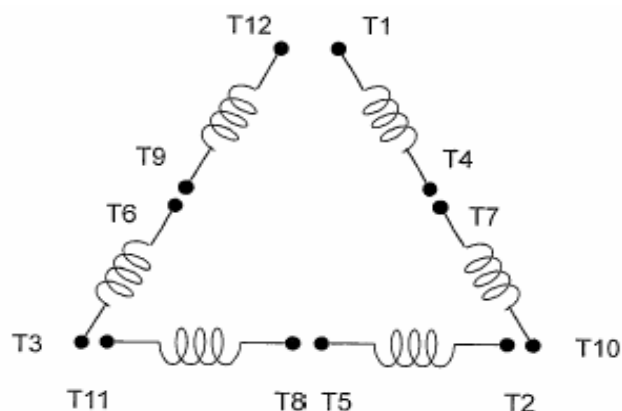
M. PRATER

DRAWING NO.

31057XP0154C

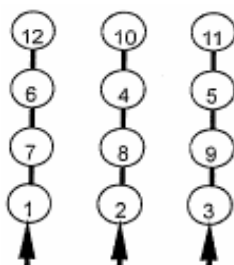
REVISION **0**

DATE: May 14, 2011	CONNECTION DIAGRAM	CATALOG NO.: XP0154C
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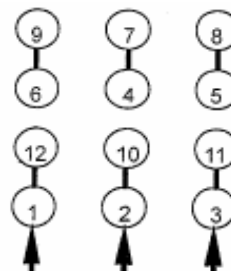


SCHEMATIC - Δ / Y CONNECTION

ACROSS THE LINE CONNECTION



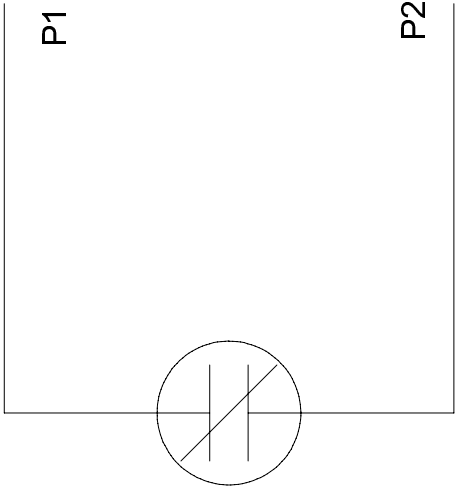
**LINE
230 VOLT CONNECTION**



**LINE
460 VOLT CONNECTION**

***CONTACT TWMC IF YOU HAVE ANY QUESTIONS
REGARDING THE MOTOR CONNECTION.
PH: 1-800-873-8326**

NORMALLY CLOSED
OPENS ON RISING TEMP



STATOR WINDING THERMOSTATS SCHEMATIC DIAGRAM

REV DATA			DFTM D. BRYAN	061581	S. O. 1625AA	REV
			APPD G. GODWIN	070881	D SPEC 110A75	02
			APPD CULBERTSON	070881	DIMENSIONS IN INCHES - NTS	
			APPD D.F. KOSAR	071381	8629A28	

AMT; DEM; 04/30/99

TECO-WESTINGHOUSE MOTOR COMPANY

ROUND ROCK, TX USA



INSTALLATION AND MAINTENANCE INSTRUCTIONS FOR THREE PHASE INDUCTION MOTORS

Frames 143T - 449TZ



5100 North IH 35 Round Rock, Texas 78681

RECEIVING

1. Check nameplate data.
2. Check whether any damage has occurred during transportation.
3. After removal of shaft clamp, turn shaft by hand to check that it turns freely.
4. If motor is to be reshipped (alone or installed to another piece of equipment) the shaft must again be clamped to prevent axial movement.

Note: Remove the bearing clamp before turning the shaft on 284T-449TZ frame motors.

WARNING

THE FOLLOWING SAFETY PRECAUTIONS MUST BE OBSERVED:

1. Electric rotating machinery and high voltage can cause serious or fatal injury if improperly installed, operated or maintained. Responsible personnel should be familiarized with NEMA MG-1; Safety Standards for Construction and Guide Selection. Installation and Use of Electric Motors and Generators; National Electric Code and all local safety requirements.
2. When servicing, all power sources to the motor and to the accessory devices should be de-energized and disconnected and all rotating parts should be at standstill.
3. Lifting means, when supplied, are intended for lifting the motor only. When two lifting devices are supplied with the motor a dual chain must be used.
4. Suitable protection must be used when working near machinery with high noise levels.
5. Safeguard or protective devices must not be by-passed or rendered inoperative.
6. The frame of this machine must be grounded in accordance with the National Electric Code and applicable local codes.
7. A suitable enclosure should be provided to prevent access to the motor by other than authorized personnel. Extra caution should be observed around motors that are automatically or have automatic re-setting relays as they may restart unexpectedly.
8. Shaft key must be fully captive or removed before motor is started.
9. Provide proper safeguards for personnel against possible failure of motor-mounted brake, particularly on applications involving overhauling loads.
10. Explosion proof motors are constructed to comply with the label service procedure manual, repair of these motors must be made by TECO-Westinghouse Motor Company or U/L listed service center in order to maintain U/L listing.

LOCATION

1. Drip-proof motors are intended for use where atmosphere is relatively clean, dry, well ventilated and non-corrosive.
2. Totally enclosed motors may be installed where dirt, moisture, or dust are present and in outdoor locations.
3. Explosion-proof motors are built for use in hazardous locations as indicated by Underwriters' label on the motor.
4. Chemical duty enclosed motors are designed for installation in high corrosion or excessive moisture locations.

Note: in all cases, no surrounding structure should obstruct normal flow or ventilating air through or over the motor.

MOUNTING

1. Mount motor securely on a firm, flat base. All ball bearing normal thrust motors up to and including 256T frame size may be side-wall or ceiling mounted; all others check nearest TECO-Westinghouse office for mounting recommendations.
2. Align motor accurately, using a flexible coupling if possible. For drive recommendations, consult with drive or equipment manufacturer, or TECO-Westinghouse.
3. Mounting bolts must be carefully tightened to prevent changes in alignment and possible damage to the equipment. The recommended tightening torque's for medium carbon steel bolts, identified by three radial lines at 120 degrees on the head, are:

Bolt Size	Recommended Torque (Ft-lb.)	
	Minimum	Maximum
2/8	25	37
1/2	60	90
5/8	120	180
3/4	210	320

4. V-belts Sheave Pitch Diameters should not be less than those shown in Table 1 (NEMA recommended values)
5. Tighten belts only enough to prevent slippage. Belt speed should not exceed 5000 ft. per min.

TABLE 1. V-Belt Sheave Pitch Diameters (MG1-14.42)

Frame Number					V-Belt Sheave			
					Conventional A, B, C, D AND E		Narrow 3V, 5V, AND 8V	
					Minimum Pitch Diameter Inches	*Maximum Width Inches	Minimum Outside Diameter Inches	**Maximum Width Inches
	Horsepower at							
	Synchronous Speed, RPM							
3600	1800	1200	900					
143T	1.5	1	.75	.5	2.2	4.25	2.2	2.25
145T	2-3	1.5-2	1	.75	2.4	4.25	2.4	2.25
182T	3	3	1.5	1	2.4	5.25	2.4	2.75
182T	5	...	...	...	2.6	5.25	2.4	2.75
184T	...	...	2	1.5	2.4	5.25	2.4	2.75
184T	5	...	...	...	2.6	5.25	2.4	2.75
184T	7.5	5	...	...	3.0	5.25	3.0	2.75
213T	7.5-10	7.5	3	2	3.0	6.5	3.0	3.375
215T	10	...	5	3	3.0	6.5	3.0	3.375
215T	15	10	...	...	3.8	6.5	3.8	3.375
254T	15	...	7.5	5	3.8	7.75	3.8	4
254T	20	15	...	...	4.4	7.75	4.4	4
256T	20-25	...	10	7.5	4.4	7.75	4.4	4
256T	...	20	...	...	4.6	7.75	4.4	4
284T	...	...	15	10	4.6	9	4.4	4.625
284T	...	25	...	...	5.0	9	4.4	4.625
286T	...	30	20	15	5.4	9	5.2	4.625

TABLE 1. V-Belt Sheave Pitch Diameters (MG1-14.42)

Frame Number					V-Belt Sheave			
					Conventional A, B, C, D AND E		Narrow 3V, 5V, AND 8V	
					Minimum Pitch Diameter Inches	*Maximum Width Inches	Minimum Outside Diameter Inches	**Maximum Width Inches
	Horsepower at							
	Synchronous Speed, RPM							
3600	1800	1200	900					
324T	...	40	25	20	6.0	10.25	6.0	5.25
326T	...	50	30	25	6.8	10.25	6.8	5.25
364T	...	...	40	30	6.8	11.5	6.8	5
364T	...	60	...	...	7.4	11.5	7.4	5.785
365T	...	...	50	40	8.2	11.5	8.2	5.785
365T	...	75	...	...	9.0	11.5	8.6	5.785
404T	...	...	60	...	9.0	14.25	8.0	7.25
404T	...	...	...	50	9.0	14.25	8.4	7.25
404T	...	100	...	...	10.0	14.25	8.6	7.25
405T	...	...	75	60	10.0	14.25	10.0	7.25
405T	...	100	...	...	10.0	14.25	8.6	7.25
405T	...	125	...	...	11.5	14.25	10.5	7.25
444T	...	...	100	...	11.0	16.75	10.0	8.5
444T	...	...	...	75	10.5	16.75	9.5	8.5
444T	...	125	...	...	11.0	16.75	9.5	8.5
444T	...	150	...	...	...	16.75	10.5	8.5
445T	...	...	125	...	12.5	16.75	12.0	8.5
445T	...	...	...	100	12.5	16.75	12.0	8.5
445T	...	150	...	...	...	16.75	10.5	8.5

*Max. Sheave width = $2(N-W) - .25$

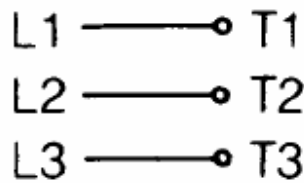
**Max Sheave width = $N-W$

***Sheave ratios greater than 5:1 and center-to-center distance less than the diameter of the large sheave should be referred to TECO-Westinghouse.

POWER SUPPLY & CONNECTIONS

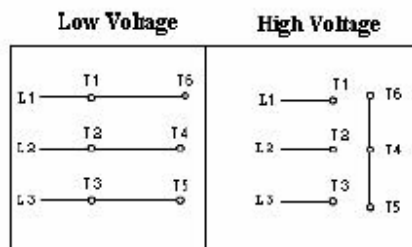
1. Wiring of motor and control, overload protection and grounding should be in accordance with National Electrical Code and all local safety requirements.
2. Nameplate voltage and frequency should agree with power supply. Motor will operate satisfactorily on line voltage within $\pm 10\%$ of nameplate voltage; or frequency with $\pm 5\%$ and with a combined variation not to exceed $\pm 10\%$. 230-volt motors can be used on 208-volt network systems, but with slightly modified performance characteristics as shown on the nameplate.
3. Dual voltage and single voltage motors can be connected for the desired voltage by following connection diagram shown on the nameplate or inside of the conduit box.
4. All Explosion Proof motors have Temperature Limiting Devices in the motor enclosure to prevent excessive external surface temperature of the motor in accordance with U/L standards. Terminals of thermal protectors (P1 & P2) should be connected to the motor control equipment, according to the connection diagram inside of the conduit box.
5. Standard connection diagram for three phase, not thermally protected, dual rotation motors are shown in diagrams A through E. **(Note: To change rotation, Interchange any two line leads)**

A. 3 Lead, Single Voltage

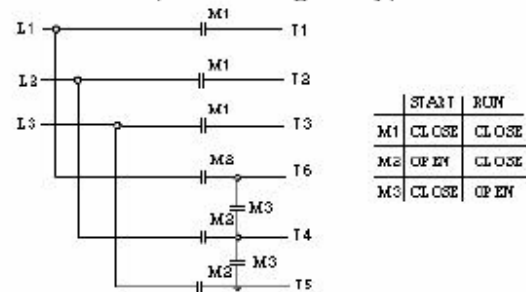


B. 6 Lead, Dual Voltage & Voltage Ratio 1 to 3

B-1 Across the Line Start & Run

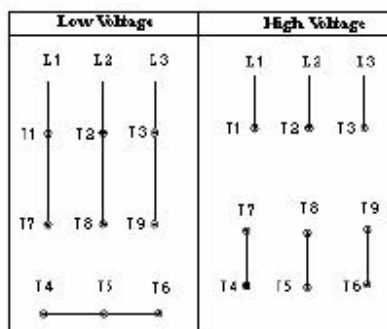


B-2 Wye Start & Delta Run (Low Voltage only)

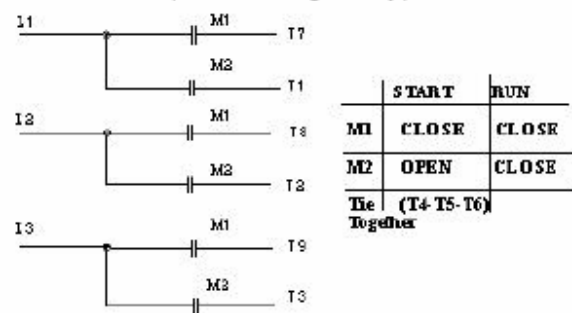


C. 9 Leads; Dual Voltage & Voltage Ratio 1 to 2, Wye Connected

C-1 Across the Line Start & Run

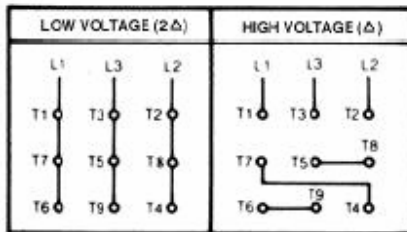


C-2 Part Winding Start (Low Voltage only)

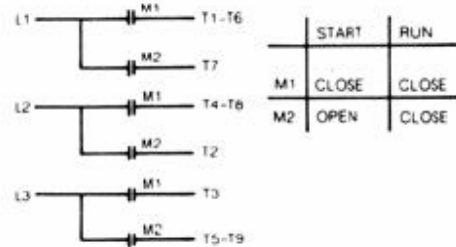


D. 9 Leads; Dual Voltage & Voltage Ratio 1 to 2, Delta Connected

D-1 Across the Line Start & Run

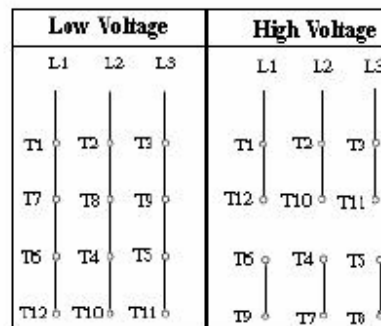


D-2 Part Winding Start
(Low Voltage only)

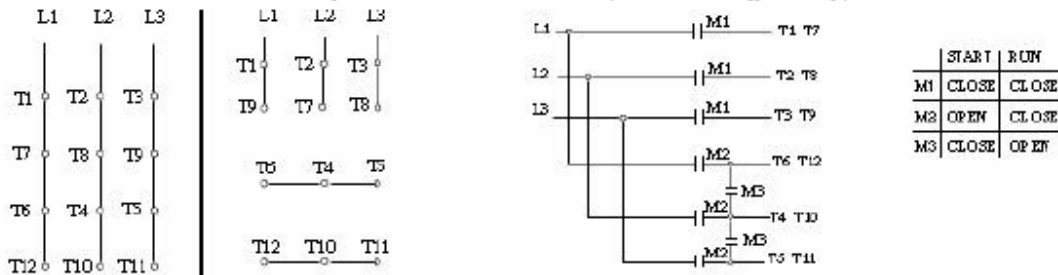


E. 12 Leads, Dual Voltage

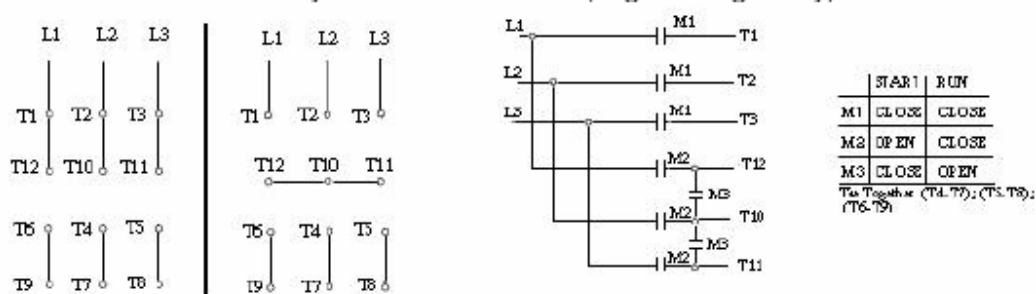
E-1 Across the Line Start & Run



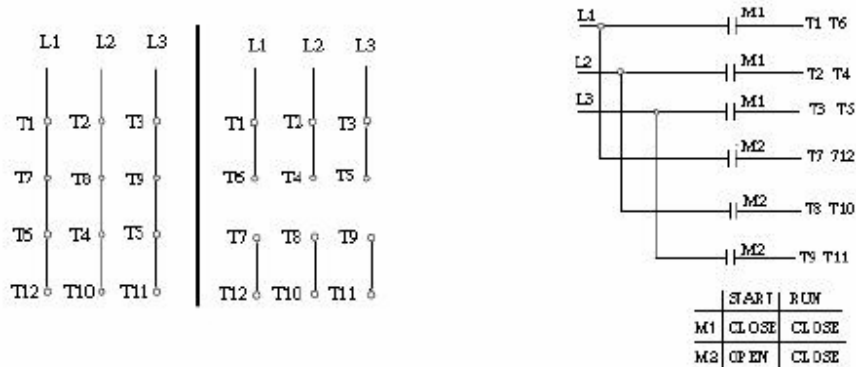
E-2-1 Wye Start & Delta Run (Low Voltage only)



E-2-2 Wye Start & Delta Run (High Voltage only)



E-3 Part Winding Start (Low Voltage only)



***Important:** For Part Winding Start, M2 contactor should be closed within two (2) seconds after M1 contactor is closed.
Only 4 pole and above (e.g., 6P, 8P...) motors are satisfactory for Part Winding Start at low voltage.

START UP

1. Disconnect load and start motor. Check direction of rotation. If rotation must be changed, ALLOW THE MOTOR TO STOP COMPLETELY. Interchange any two leads of a three-phase motor.
2. Connect load. The motor should start quickly and run smoothly. If no, shut power off at once. Recheck the assembly including all connections before restarting.
3. If excessive vibration is noted, check for loose mounting bolts too flexible motor support structure or transmitted vibration from adjacent machinery. Periodic vibration checks should be made; foundations often settle.
4. Operate under load for short period of time and check operating current against nameplate.

TESTING

If the motor has been in storage for an extensive period or has been subjected to adverse moisture conditions, it is best to check the insulation resistance of the stator winding with a megometer. Depending on the length and conditions of storage it may be necessary to regrease or change rusted bearings.

If the resistance is lower than one megohm the windings should be dried in one of the following two ways:

1. Bake in oven at temperatures not exceeding 194°F until insulation resistance becomes constant.
2. With rotor locked, apply low voltage and gradually increase the current through windings until temperature measured with a thermometer reaches 194°F. Do not exceed this temperature.

MAINTENANCE

INSPECTION

Inspect motor at regular intervals. Keep motor clean and ventilation openings clear.

LUBRICATION

1. Frame 143T-256T: Double shielded and pre-lubricated ball-bearing motors without grease fittings and don't need re-lubrication, except on MAX-E1[®] and MAX-E2[®] products which have re-greasable features.
2. Frames 280TS, 320-449TZ(TS): Motors having grease fittings and grease discharge devices at brackets. Motors are shipped with grease for initial running. It is necessary to re-lubricate anti-friction bearing motors periodically, depending on size and type of service. See Table 2 to provide maximum bearing life. Excessive or too frequent lubrication may damage the motor.

TABLE 2

Horsepower	Standard Conditions	Severe Conditions	Extreme Conditions
1 Thru 30 Hp, 1800 rpm and below	7 years	3 years	180 days
40 Thru 75 Hp, 1800 rpm and below	210 days	70 days	30 days
100 Thru 150 Hp, 1800 rpm and below	90 days	30 days	15 days
1 Thru 20 Hp, 3600 rpm	5 years	2 years	90 days
25 Thru 75 Hp, 3600 rpm	180 days	60 days	30 days
100 Thru 150 Hp, 3600 rpm	90 days	30 days	15 days

Note:

- A. Standard conditions: 8 hours operation per day, normal or light loading, clear and 40°C ambient conditions.
 - B. Severe conditions: 24-hour operation per day or light shock loading, vibration or in dirty or dusty conditions.
 - C. Extreme conditions: With heavy shock loading or vibration or dusty conditions.
 - D. For double shielded bearings, above data (lubrication frequency) means that the bearing must be replaced.
3. Be sure fittings are clean and free from dirt. Using a low-pressure grease gun, pump in the recommended grease until new grease appears at grease discharge hole.
 4. Use the POLYUREA grease unless special grease is specified on the nameplate.
 5. If re-lubrication is to be performed with the motor running, stay clear of rotating parts. After re-greasing, allow the motor to run for ten to thirty minutes.

RENEWAL PARTS

1. Use only genuine TECO-Westinghouse renewal parts or as recommended by TECO-Westinghouse Motor Company.
2. When you order renewal parts please specify complete information to TECO-Westinghouse office/agent such as type, frame no., poles, horsepower, voltage, series no., quantity, etc.

**FOR FURTHER INFORMATION PLEASE CONTACT
TECO-WESTINGHOUSE MOTOR COMPANY**

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