



Westinghouse Electric Corporation
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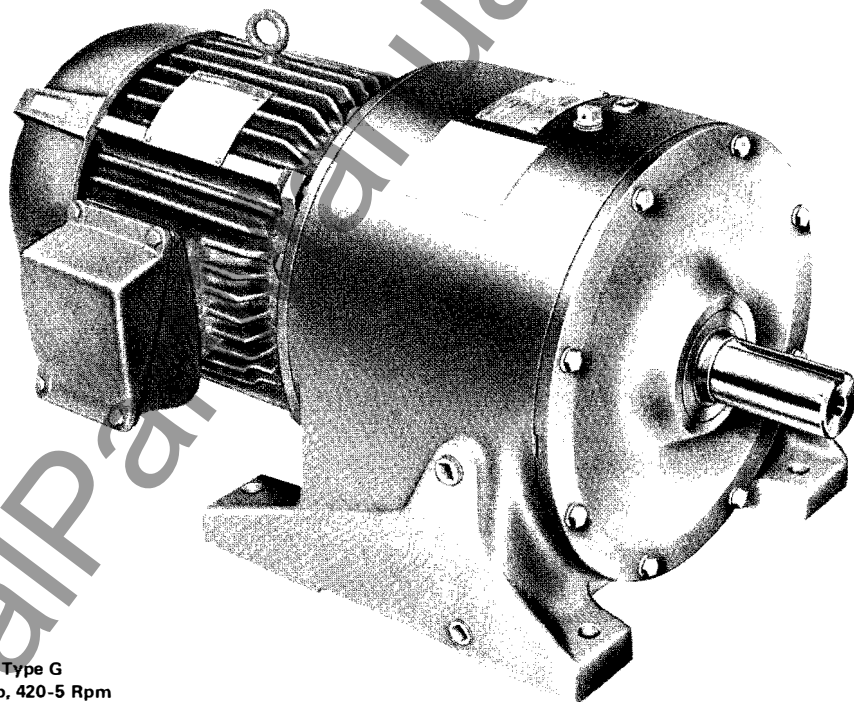
2971-2 A WE A
Application Data

Page 1

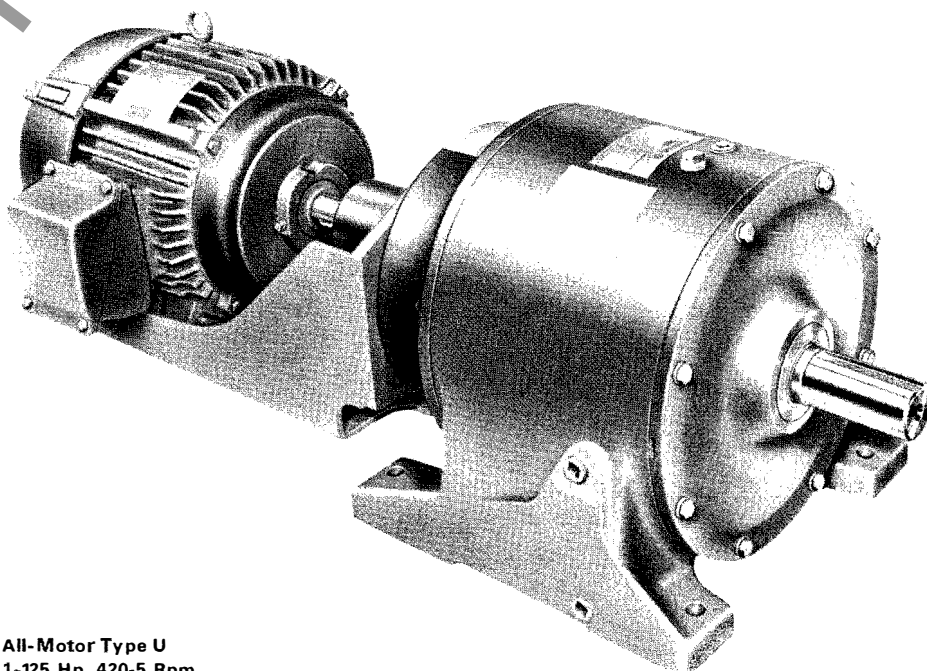
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Supersedes 2971-2 A WE A
Application Data
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Integral and All-Motor Types
Horizontal, AGMA Class I, II and III

Moduline®
Gearmotors

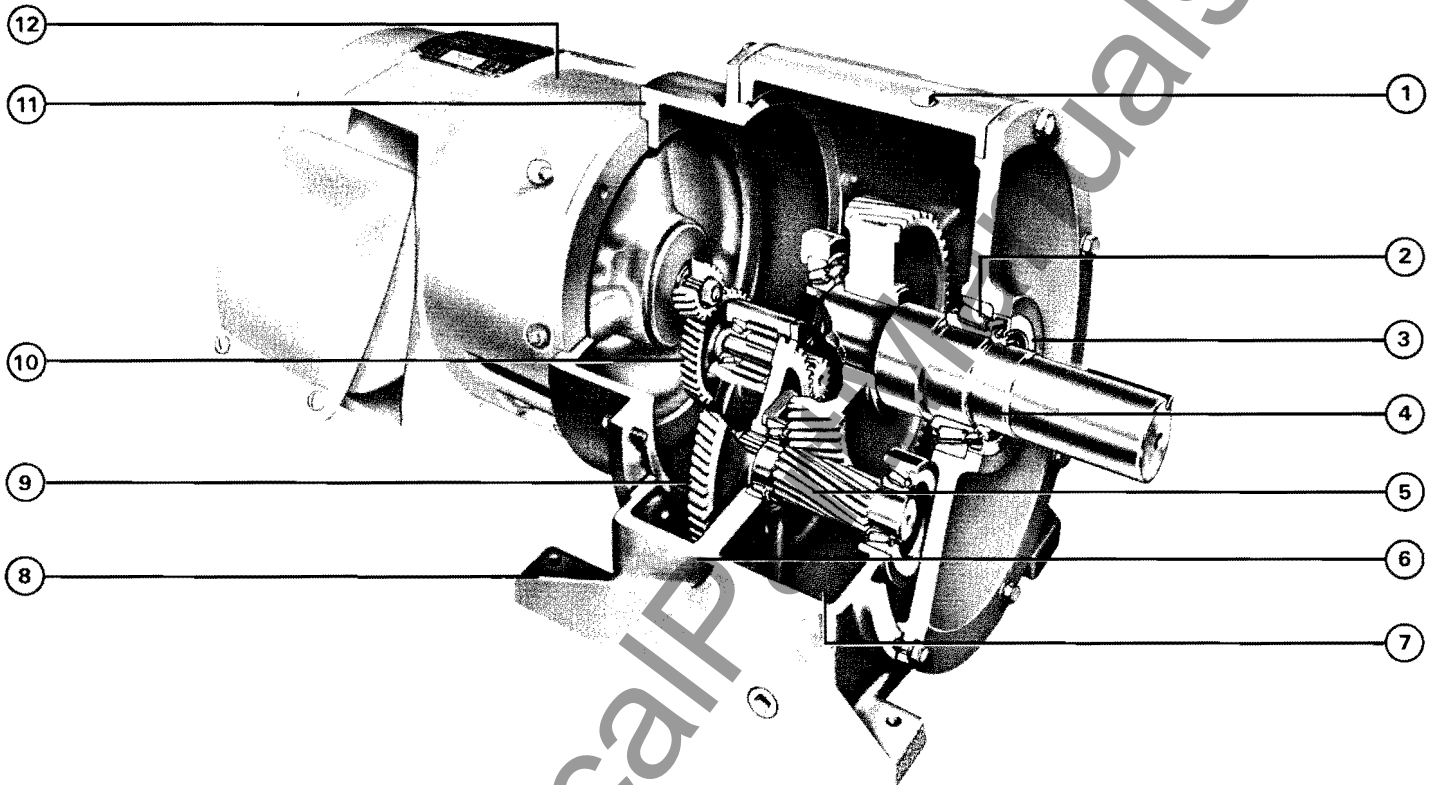


Integral Type G
1-125 Hp, 420-5 Rpm



All-Motor Type U
1-125 Hp, 420-5 Rpm

Construction



① A combination breather – filler plug keeps overall height at a minimum.

② Single row tapered roller bearings are used on all gear unit shafts. These bearings are conservatively selected in accordance with bearing manufacturers' recommendations to provide maximum load carrying capacity and reliability.

③ Dual lip seals are used exclusively by Westinghouse to retain oil effectively and to protect against entry of contaminants. This assures long, trouble-free life.

④ Output shaft of chrome-moly steel supported on a wide bearing span provides generous overhung load capacity.

⑤ Helical gears, pioneered by Westinghouse, permit more than one gear tooth face to carry the load, and allow gradual progressive transmission of the load from tooth to tooth.

⑥ A sturdy one-piece cast iron housing with integrally cast and precision machined bearing supports provides proper internal alignment of components. The inherent corrosion resistance of cast iron allows placement of the unit in many severe atmospheres without special finishes.

⑦ Large oil reservoir and splash system provide positive lubrication of all gears and bearings.

⑧ Rugged feet are integrally cast to provide maximum strength. Foot pads are accurately milled to assure ease of alignment.

⑨ All gears and pinions are made of high quality chrome-moly steel generated on Pfauter hobbers, and then heat treated by a special Westinghouse process. This assures gears of consistent accuracy, resulting in long trouble free life and quiet operation.

⑩ The high speed pinion and gear are mounted on splined shafts. The splines are cold rolled and the major diameter ground to close tolerances to assure concentricity of the gear and pinion with the shaft. This design permits easy change in the high speed gear set.

⑪ Standard Westinghouse motor designs are used. Westinghouse motor and gearing products are designed and manufactured in one facility, thus assuring a single source of responsibility and readily available stock.

⑫ A standardized motor flange and rabbet fit provide accurate, built in alignment of motor and gear, assuring longer gear life and minimum maintenance.



Selection and Pricing

1. Establish the following information for the application:

Horsepower
Output Rpm
Motor Characteristics
Enclosure – Phase, Hertz, Voltage
AGMA Load Classification (refer to page 4)
Gearmotor Type (G or U)

2. Turn to pages 4, 5, and 6 for gear selection. Locate the appropriate horsepower and type, selecting the desired output rpm in the first column. Read across to the column for the AGMA class required and obtain the gear frame size. Record the AGMA class and gear frame size for later use in writing the order.

3. References:

Price for Gear End: Refer to Price List 2971 -3 P WE A
Price for Motor End: Refer to Price List 2920 P WE A for Standard Line, Price List 2925 P WE A for Mill and Chemical, and Price List 2940 P WE A for Specific Purpose
Discounts and Multipliers:
Selling Policy 2900 S WE A
Stock and Shipment Bulletin 2917:
Gearmotor – 2917G; Motor – 2917M
Dimension Sheet 2971-4 F WE A

Selection and Pricing Examples

The following examples are provided as a guide to correct selection and pricing:

Example I – Type G (Integral): A class 2 customer requires an integral gearmotor for a uniformly loaded belt conveyor running at 37 rpm, 24 hours a day with steady torque requirements. The motor is to be 10 hp, ac, 3 phase, 60 hertz, 230/460 volts NEMA design B with drip-proof enclosure. The gearmotor will be horizontal, floor mounted, and direct coupled to the conveyor.

Solution I:

1. All information required to use the selection and pricing tables is known except for the AGMA load classification. Turn to page 4. Find conveyors, belt, uniform load, 24 hour per day service, and note that class II gearing is required.
2. Turn to page 5 and locate the 10 hp table. In the first column find 37 rpm. Read across the class II columns and select gear frame size 54T.
3. No modifications are involved.
4. A coupling is not required.
5. Mounting is standard. Overhung and thrust loads are not involved since direct connection is used.
6. For pricing information:
Gear end – Price List 2971-3 P WE A, \$3151[Ⓢ], discount symbol GM-1
Motor end – Price List 2920 P WE A, \$310 discount symbol W3T
7. For ordering information:
This page, column three.

[Ⓢ] Changed or added since previous issue.

Example II – Type G (Integral): Repeat example I, except the conveyor is not uniformly fed but has 20 load peaks per hour with a 5-second duration on each peak and a peak load 200% of full load. The conveyor operates 8 hours per day.

Solution II:

1. The AGMA load classification table on page 4 carries an introductory statement that the table does not cover duty cycle applications and to refer to page 6. On page 6 allowable peak load curves are provided to permit selection of the proper AGMA load class.
2. 20 peaks per hour at 200% of full load at 5 seconds each exceeds the AGMA class I table. From the AGMA class II table, 20 peaks per hour at 200% of full load is permissible with a 10-second duration on the peak load. Since the application involves only 5-second duration, class II gearing is adequate and the gearmotor previously selected is also correct for this situation.
3. Note that increasing the peak load to 250% of full load would necessitate use of class III gearing.

Example III – Type U (All-Motor): A class 2 customer requires three 15 hp AGMA class II all-motor gearmotors, 56 rpm, 3/60/230/460, TEFC, vertical flange mounted shaft down, shaft to be 5 inches longer than standard, unit to be boxed for export.

Solution III

1. Turn to page 5 and in the class II table read down to 56 rpm output gear speed and across to 15 hp. Select gear frame size 54T.
2. For pricing information:
Gear end – Price List 2971 -3 P WE A, \$2924[Ⓢ], discount symbol GM-1
Modifications – vertical flange down, \$448[Ⓢ]
Special shaft 5" longer than standard, \$192[Ⓢ] (basic adder plus)
Export boxed – \$145[Ⓢ]
Total Gear End – \$3709[Ⓢ] GM-1
Motor End from Price List 2920 P WE A – \$500 W3T
3. For ordering information:
This page, column three

Example IV – Type U: Repeat example III except the customer now desires to include a 45 pound foot motor mounted brake, standard enclosure, and a TS Thermoguard thermal protector on the motor.

Solution IV:

1. Since there has been no changes made in the gear end, we can use that portion of the solution discussed previously under example III.
2. Since we no longer have a Standard-Line motor, we must choose our motor price from Price List 2940 P WE A. Starting on page 5 of Price List 2940 P WE A, under basic motors, we choose a 15 Hp, TEFC, NEMA B motor, 1800 rpm frame 254T at \$666 list with a J modification symbol. Now turning to page 3 of the modification section, Price List 2990 P WE A, we choose a 50 pound foot brake at \$722 list.
Next, on page 8 we find the price of a TS Thermoguard to be \$20 list. Adding these modifications to our basic motor price, we arrive at a total motor list price of \$1408, W2T.

Ordering Information

Designation System: A simple designation system provides the basic identification of the gearmotor used in order writing.

For example: 184A21T

184 – motor frame.

A – AGMA load classification:

A – class I, B – class II, C – class III.

21T – gear frame size and reduction:

There are ten gear frame sizes – 10, 21, 32, 43, 54, 64, 76, 88 and 92. D – double reduction, T – triple reduction.

Ordering: The following information must be provided for each order to permit manufacture and assembly of the correct gearmotor.

1. Quantity
2. Motor characteristics:
Horsepower
Type
Enclosure
Phase
Hertz
Voltage
Modifications (describe in detail)
3. Gearmotor characteristics:
Type (integral type G or all-motor type U)
Output rpm
AGMA class (I, II or III)
Designation (e.g. 184A21T)
Mounting position
Modifications (describe in detail)
4. Pricing:
Gearmotor list price
Motor list price
Discounts
Net price
5. Shipment required.

Note: List prices in examples are subject to change without notice.

Typical Gearmotor Applications – AGMA Standard Practices

AGMA standard practice recognizes three classes of integral and all-motor gearmotors based on load conditions and service required. The table illustrates the difference between these classes. For load conditions not in-

cluded in the table, refer to Westinghouse. For peak loading applications, refer to page 6.

Class I: For steady loads not exceeding normal rating of motor and 8 hours a day service. Moderate shock loads where service is intermittent.

Class II: For steady loads not exceeding normal rating of motor and 24 hours a day. Moderate shock loads for 8 hours a day.

Class III: Moderate shock loads for 24 hours a day. Heavy shock loads for 8 hours a day.

Table 1: Typical Applications

Application	Hrs Service per Day		Application	Hrs Service per Day		Application	Hrs Service per Day	
	8-10	24		8-10	24		8-10	24
AGMA Classes			AGMA Classes			AGMA Classes		
Agitators			Dredges – Cont'd			Lumber – Cont'd		
Pure liquids..... I	II		Cutter head drives..... III	III		Slab conveyor..... III	III	
Liquids and solids..... II	II		Jig drives..... III	III		Small waste conveyor-Belt..... I	II	
Liquids, variable density..... II	II		Maneuvering winches..... II	..		Small waste conveyor-Chain..... II	III	
Semi-liquids..... II	II		Pumps..... II	..		Sorting table..... II	III	
Blowers			Screen drive..... III	III		Tipple hoist conveyor..... II	III	
Centrifugal..... I	II		Stackers..... II	II		Tipple hoist drive..... II	III	
Lobe..... II	II		Utility winches..... II	..		Transfer conveyor..... III	III	
Vane..... I	II		Elevators			Transfer rolls..... III	III	
Brewing and Distilling			Bucket, uniform load..... I	II		Tray drive..... II	III	
Bottling machinery..... I	II		Bucket, heavy load..... II	II		Trimmer feed..... II	III	
Brew kettles, cont. duty..... II	II		Bucket, continuous..... I	II		Waste conveyor..... II	II	
Cookers, continuous duty..... II	II		Centrifugal discharge..... I	II		Machine Tools		
Mash tube, cont. duty..... II	II		Escalators..... I	II		Bending roll..... II	II	
Scale hopper, frequent starts..... II	II		Freight..... II	II		Notching press, belt driven..... ②	②	
Car Dumpers III	II		Gravity discharge..... I	II		Plate planer..... III	III	
Can Filling Machines I	II		Man lifts..... ②	②		Punch press, gear driven..... III	III	
Cane Knives II	II		Passenger..... ②	②		Tapping machines..... III	III	
Car Pullers			Service, hand lift..... III	..		Other machine tools		
Intermittent duty..... I	..		Fans			Main drives..... II	II	
Classifiers II	II		Centrifugal..... II	II		Auxiliary drives..... I	II	
Classifiers II	II		Cooling towers			Metal Mills		
Clay Working Machinery			Induced draft..... II	II		Draw bench, carriage..... III	III	
Brick press..... III	III		Forced draft..... ②	②		Draw bench, main drive..... III	III	
Briquette machine..... III	III		Induced draft..... II	II		Forming machines..... III	III	
Clay working machinery..... II	II		Large (mine, etc)..... ①	①	II ①	Pinch dryer and scrubber		
Pug mill..... II	II		Large industrial..... ①	①	II ①	rolls, reversing..... ②	②	
Compressors			Light (small diameter)..... I	II	II ①	Slitters..... II ①	II ①	
Centrifugal..... I	II		Feeders			Table conveyors		
Lobe..... II	II		Apron..... II	II		Non-reversing..... II	II	
Reciprocating..... ①	II		Belt..... II	II		Reversing..... ②	②	
Multi-cylinder..... II	II		Disk..... II	II		Wire drawing and flattening		
Single Cylinder..... III	III		Reciprocating..... III	III		machine..... II	II	
Conveyors, Uniformly Loaded or Fed			Screw..... II	II		Wire winding machine..... II	II	
Apron..... I	II		Food Industry			Mills, Rotary Type		
Assembly..... I	II		Beet slicer..... II	II		Ball..... III	III	
Belt..... I	II		Cereal cooker..... I	II		Cement kilns..... ②	②	
Bucket..... II	II		Dough mixer..... II	II		Dryers and coolers..... II	II	
Chain..... II	II		Meat grinders..... II	II		Kilns..... II	II	
Flight..... II	II		Generators (not Welding) I	II		Pebble..... III	III	
Oven..... II	II		Hammer Mills III	III		Rod..... III	III	
Screw..... II	II		Laundry Tumblers II	II		Tumbling barrels..... III	III	
Conveyors, Heavy Duty – Not Uniformly Fed			Laundry Washers			Mixers		
Apron..... II	II		Reversing..... II	II		Concrete mixers, continuous..... II	II	
Assembly..... II	II		Line Shafts			Concrete mixers, intermittent..... I	..	
Belt..... II	II		Heavy shock load..... III	III		Constant density..... I	II	
Bucket..... II	II		Moderate shock load..... II	II		Variable density..... II	II	
Chain..... II	II		Uniform shock load..... I	II		Oil Industry		
Flight..... II	II		Lumber			Chillers..... II	II	
Live roll (package)..... I	II		Barkers-hydraulic-mech'l..... III	III		Oil well pumping..... ②	②	
Oven..... II	II		Burner conveyor..... II	II		Paraffin filter press..... II	II	
Reciprocating..... III	III		Chain saw and drag saw..... III	III		Rotary kilns..... II	II	
Screw..... II	II		Chain transfer..... III	III		Paper Mills		
Shaker..... III	III		Craneway transfer..... III	III		Agitators (mixers)..... II	II	
Cranes and Hoists			De-barking drum..... III	III		Barker auxiliaries, hydraulic..... III	III	
Main hoists			Edger feed..... III	III		Barker, mechanical..... III	III	
Heavy duty..... III	III		Gang feed..... III	III		Barking drum..... III	III	
Medium duty..... II	II		Green chain..... III	III		Beater and pulper..... II ①	II ①	
Reversing..... II	II		Live rolls..... III	III		Bleacher..... II	II	
Skip hoists..... II	II		Log deck..... III	III		Calenders..... II ①	II ①	
Trolley drive..... II ①	II ①		Log haul – incline..... III	III		Calenders, super..... III	III	
Bridge drive..... II ①	II ①		Log haul – well type..... III	III		Converting machines, except cutters, platens..... II	II	
Crushers			Log turning device..... III	III		Conveyors..... II	II	
Ore..... III	III		Main log conveyor..... III	III		Couch..... II ①	II ①	
Stone..... III	III		Off bearing rolls..... III	III		Cutters, platens..... II	II	
Dredges			Planer feed chains..... II	II		Cylinders..... II	II	
Cable reels..... II	..		Planer floor chains..... II	II		Dryers..... II ①	II ①	
Conveyors..... II	..		Planer tilting hoist..... II	II		Felt stretcher..... II	II	
			Re-saw merry-go-round			Felt whipper..... III	III	
			Conveyor..... III	III		Jordans..... III	III	
			Roll cases..... III	III				

① Classes listed are minimum, and normal conditions are assumed. In view of varying load conditions, it is suggested that these applications be carefully reviewed before final selection is made.

② Check safety codes and refer to Westinghouse.



Integral Type G Moduline Gearmotors

Output Rpm	Horsepower																
	1	1.5	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125
	Frame																
	143T	145T	145T	182T	184T	213T	215T	254T	256T	284T	286T	324T	326TS	364TS	365TS	404TS	405TS
	②	②	②													③	④
Class I – Unit Size																	
420	10D	10D	10D	10D	10D	21D	21D	32D	32D	32D	43D	54D	54D	76D	76D	88D	88D
350	10D	10D	10D	10D	10D	21D	21D	32D	32D	32D	43D	54D	54D	76D	76D	88D	88D
280	10D	10D	10D	10D	10D	21D	21D	32D	32D	32D	43D	54D	54D	64D	76D	76D	88D
230	10D	10D	10D	10D	10D	21D	21D	32D	32D	32D	43D	54D	54D	64D	76D	76D	88D
190	10D	10D	10D	10D	10D	21D	21D	32D	32D	32D	43D	54D	54D	64D	76D	76D	88D
155	10D	10D	10D	10D	10D	21D	21D	32D	32D	43D	43D	54D	54D	64D	76D	76D	88D
125	10D	10D	10D	10D	10D	21D	21D	32D	43D	43D	54D	54D	64D	64D	76D	76D	88D
100	10D	10D	10D	10D	10D	21D	21D	32D	43D	43D	54D	54D	64D	64D	76D	76D	88D
84	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	54D	64D	64D	76D	76D	88D	92D
68	10D	10D	10D	21D	21D	32D	32D	43D	54D	54D	64D	64D	76D	76D	88D	88D	92D
56	10D	10D	10D	21D	32D	43D	54D	54T	54T	64T	64T	76T	88D	88D	92D	92D	...
45	21D	21D	21D	32D	32D	43D	54D	54T	64T	64T	76T	76T	88D	88D	92D	...	...
37	21T	21T	21T	21T	32T	43T	54T	54T	64T	64T	76T	76T	88T	88T	92T	...	...
30	21T	21T	21T	21T	43T	43T	54T	64T	76T	76T	88T	88T	92T	...	...	...	...
25	21T	21T	21T	32T	43T	54T	54T	64T	76T	88T	88T	92T	92T	...	...	...	...
20	21T	21T	21T	32T	43T	54T	64T	76T	88T	88T	88T	92T	...	...	...	...	...
16.5	21T	21T	32T	43T	54T	64T	64T	76T	88T	88T	92T	...	...	...	...	...	...
13.5	21T	21T	32T	43T	54T	64T	76T	88T	88T	92T	92T	...	...	...	...	...	...
11	32T	43T	43T	54T	54T	64T	76T	88T	92T	92T	...	...	...	...	...	...	...
9	32T	43T	43T	54T⑤	76T⑤	88T	88T	92T	92T	...	...	...	...	...	...	...	...
7.5	54T	54T	54T	64T⑤	76T⑤	92T	92T	...	...	...	...	...	...	...	...	...	...
6⑤	43T	54T	54T	88T	88T	92T	92T	...	...	...	...	...	...	...	...	...	...
5⑤	54T	54T	88T	92T	92T	...	...	...	...	...	...	...	...	...	...	...	...
Class II – Unit Size																	
420	10D	10D	10D	10D	10D	21D	21D	32D	32D	32D	54D	54D	54D	76D	76D	88D	88D
350	10D	10D	10D	10D	10D	21D	21D	32D	32D	32D	54D	54D	54D	76D	76D	88D	88D
280	10D	10D	10D	10D	10D	21D	21D	32D	32D	32D	54D	54D	54D	64D	76D	76D	88D
230	10D	10D	10D	10D	10D	21D	21D	32D	32D	43D	54D	54D	54D	64D	76D	76D	88D
190	10D	10D	10D	10D	10D	21D	21D	32D	43D	54D	54D	54D	54D	64D	76D	76D	88D
155	10D	10D	10D	10D	10D	21D	21D	32D	43D	54D	54D	54D	64D	64D	76D	76D	88D
125	10D	10D	10D	10D	21D	21D	32D	43D	54D	54D	54D	64D	76D	76D	88D	88D	92D
100	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	64D	76D	76D	76D	88D	92D	92D
84	10D	10D	10D	21D	21D	32D	43D	54D	54D	64D	64D	76D	88D	88D	88D	92D	...
68	10D	10D	21D	21D	32D	43D	43D	54D	64D	64D	76D	88D	88D	88D	92D	...	...
56	10D	10D	21D	32D	43D	54D	54D	54T	64T	76T	76T	88D	88D	92D	92D	...	...
45	21D	21D	21D	32D	43D	54D	54T	64T	76T	76T	88T	88D	92D	92D	...	...	...
37	21T	21T	21T	32T	43T	54T	54T	64T	76T	88T	88T	92T	92T	...	...	...	...
30	21T	21T	21T	32T	43T	54T	64T	76T	76T	88T	88T	92T	92T	...	...	...	...
25	21T	21T	32T	43T	54T	54T	64T	76T	88T	88T	92T	...	...	...	...	...	...
20	21T	21T	32T	43T	54T	64T	76T	88T	88T	92T	92T	...	...	...	...	...	...
16.5	21T	32T	32T	43T	54T	64T	76T	88T	92T	92T	...	...	...	...	...	...	...
13.5	21T	32T	43T	54T	64T	76T	76T	92T	92T	...	...	...	...	...	...	...	...
11	43T	43T	43T	54T	64T	76T	88T	92T	...	...	...	...	...	...	...	...	...
9	43T	54T	54T	64T⑤	76T⑤	88T	88T	...	...	...	...	...	...	...	...	...	...
7.5	54T	54T	54T⑤	76T⑤	76T⑤	92T	92T	...	...	...	...	...	...	...	...	...	...
6⑤	54T	54T	88T	88T	88T	92T	...	...	...	...	...	...	...	...	...	...	...
5⑤	54T	88T	88T	92T	92T	...	...	...	...	...	...	...	...	...	...	...	...
Class III – Unit Size																	
420	10D	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	54D	76D	76D	76D	88D	88D
350	10D	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	54D	64D	76D	76D	88D	88D
280	10D	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	54D	64D	64D	76D	76D	88D
230	10D	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	64D	64D	76D	76D	88D	88D
190	10D	10D	10D	10D	10D	21D	32D	43D	43D	54D	54D	64D	76D	76D	76D	88D	88D
155	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	64D	64D	76D	76D	88D	88D	92D
125	10D	10D	10D	10D	21D	32D	43D	54D	54D	64D	64D	76D	76D	88D	88D	92D	...
100	10D	10D	10D	21D	32D	43D	43D	54D	64D	64D	76D	76D	88D	88D	92D	...	...
84	10D	10D	10D	21D	32D	43D	54D	54D	64D	76D	76D	88D	88D	92D	92D	...	...
68	10D	21D	21D	32D	43D	54D	54D	64D	76D	76D	88D	88D	92D	92D	...	...	...
56	10D	21D	32D	32D	54D	54D	54T	64T	76T	88D	88D	92D	92D	...	...	...	...
45	21D	21D	32D	43D	54D	54T	64T	76T	76T	88D	88D	92D	...	...	...	...	...
37	21T	21T	21T	43T	54T	54T	64T	76T	88T	88T	92T	92T	...	...	...	...	...
30	21T	21T	32T	43T	54T	64T	76T	88T	88T	92T	92T	...	...	...	...	...	...
25	21T	32T	43T	43T	54T	64T	76T	88T	92T	92T	...	...	...	...	...	...	...
20	21T	32T	43T	54T	64T	76T	88T	88T	92T	...	...	...	...	...	...	...	...
16.5	32T	43T	43T	54T	64T	76T	88T	92T	...	...	...	...	...	...	...	...	...
13.5	32T	43T	54T	54T	76T	88T	88T	92T	...	...	...	...	...	...	...	...	...
11	43T	54T	54T	64T	76T	88T	92T	...	...	...	...	...	...	...	...	...	...
9	54T	54T	54T⑤	76T⑤	88T	92T	92T	...	...	...	...	...	...	...	...	...	...
7.5	54T	54T	64T⑤	76T⑤	88T	92T	...	...	...	...	...	...	...	...	...	...	...
6⑤	54T	88T	88T	88T	92T	...	...	...	...	...	...	...	...	...	...	...	...
5⑤	88T	88T	88T	92T	92T	...	...	...	...	...	...	...	...	...	...	...	...

② Open drip-proof motors are frame 182T.

③ TEFC motor Frame 405TS.

④ TEFC motor Frame 444TS.

⑤ These units require 1200 Rpm motors. Refer to Price

List 2920 or 2940 for frame size.

All-Motor Type U Moduline Gearmotors

Output Rpm	Horsepower																	
	1	1.5	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125	150
	Frame																	
	143T	145T	145T	182T	184T	213T	215T	254T	256T	284T	286T	324T	326TS	364TS	365TS	404TS	405TS	444TS
																③	④	⑤

Class I – Unit Size

420	10D	10D	10D	10D	10D	10D	10D	32D	32D	32D	43D	54D	54D	76D	76D	88D	88D	...
350	10D	10D	10D	10D	10D	10D	10D	32D	32D	32D	43D	54D	54D	64D	76D	88D	88D	...
280	10D	10D	10D	10D	10D	10D	10D	32D	32D	32D	43D	54D	54D	64D	76D	76D	88D	92D
230	10D	10D	10D	10D	10D	10D	10D	32D	32D	32D	43D	54D	54D	64D	76D	76D	88D	92D
190	10D	10D	10D	10D	10D	10D	10D	32D	32D	32D	43D	54D	54D	64D	76D	76D	88D	92D
155	10D	10D	10D	10D	10D	10D	21D	32D	32D	43D	43D	54D	54D	64D	76D	76D	88D	92D
125	10D	10D	10D	10D	10D	21D	21D	43D	43D	43D	54D	54D	64D	64D	76D	76D	88D	92D
100	10D	10D	10D	10D	10D	21D	32D	43D	43D	54D	54D	64D	64D	76D	76D	88D	88D	92D
84	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	54D	64D	76D	76D	88D	88D	92D	92D
68	10D	10D	10D	21D	21D	32D	43D	43D	54D	54D	64D	76D	76D	88D	88D	92D	92D	...
56	10D	10D	10D	21D	32D	43D	54D	54D	64T	64T	64T	76T	88D	88D	92D	92D	...	...
45	21D	21D	21D	21D	32D	43D	54D	54T	64T	64T	76T	76T	88D	88D	92D	...	...	...
37	21T	21T	21T	21T	32T	43T	54T	54T	64T	76T	76T	88T	88T	92T	92T	...	...	...
30	21T	21T	21T	21T	43T	54T	54T	64T	76T	76T	88T	88T	92T	92T	...	...	...	...
25	21T	21T	21T	32T	43T	54T	54T	64T	76T	88T	88T	92T	92T	...	...	...	...	...
20	21T	21T	21T	32T	43T	54T	64T	76T	76T	88T	88T	92T	92T	...	...	...	...	...
16.5	21T	21T	32T	43T	54T	64T	64T	76T	88T	88T	92T	92T	...	...	...	...	...	...
13.5	21T	21T	32T	43T	54T	64T	76T	88T	88T	92T	92T	...	...	...	...	...	...	...
11	32T	32T	43T	54T	54T	76T	76T	88T	92T	92T	...	...	...	...	...	...	...	...
9	32T	43T	43T	54T	76T ^⑥	76T ^⑥	88T	92T	92T	...	...	...	...	...	...	...	...	...
7.5	54T	54T	54T	64T ^⑥	76T ^⑥	76T ^⑥	88T	92T	...	...	...	...	...	...	...	...	...	...
6 ^⑥	43T	54T	54T	88T	88T	88T	92T	...	...	...	...	...	...	...	...	...	...	...
5 ^⑥	54T	54T	88T	88T	88T	88T	92T	...	...	...	...	...	...	...	...	...	...	...

Class II – Unit Size

420	10D	10D	10D	10D	10D	10D	21D	32D	32D	32D	54D	54D	54D	76D	76D	88D	88D	...
350	10D	10D	10D	10D	10D	10D	21D	32D	32D	32D	54D	54D	54D	64D	76D	88D	88D	...
280	10D	10D	10D	10D	10D	21D	21D	32D	32D	32D	54D	54D	54D	64D	76D	76D	88D	92D
230	10D	10D	10D	10D	10D	21D	21D	32D	32D	43D	54D	54D	54D	64D	76D	76D	88D	92D
190	10D	10D	10D	10D	10D	21D	21D	32D	43D	43D	54D	54D	64D	64D	76D	76D	88D	92D
155	10D	10D	10D	10D	10D	21D	21D	32D	43D	54D	54D	64D	64D	76D	76D	88D	88D	92D
125	10D	10D	10D	10D	21D	21D	32D	43D	43D	54D	54D	64D	76D	76D	88D	88D	92D	92D
100	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	64D	64D	76D	76D	88D	88D	92D	92D
84	10D	10D	10D	10D	21D	32D	43D	54D	54D	64D	64D	76D	88D	88D	88D	92D	92D	...
68	10D	10D	21D	21D	32D	43D	43D	54D	64D	64D	76D	88D	88D	88D	92D	...	...	...
56	10D	10D	21D	32D	43D	54D	54D	54T	64T	64T	76T	88D	88D	92D	92D	...	...	...
45	21D	21D	21D	32D	43D	54D	64T	64T	76T	76T	88D	88D	92D	92D	...	...	...	...
37	21T	21T	21T	32T	43T	54T	64T	64T	76T	88T	88T	92T	92T	...	...	...	...	...
30	21T	21T	21T	32T	43T	54T	64T	64T	76T	88T	88T	92T	92T	...	...	...	...	...
25	21T	21T	32T	43T	54T	54T	64T	76T	88T	88T	92T	...	...	...	...	...	...	...
20	21T	21T	32T	43T	54T	64T	76T	88T	88T	92T	92T	...	...	...	...	...	...	...
16.5	21T	32T	32T	54T	54T	64T	76T	88T	92T	92T	...	...	...	...	...	...	...	...
13.5	21T	32T	43T	54T	64T	76T	76T	92T	92T	...	...	...	...	...	...	...	...	...
11	32T	43T	43T	54T	64T	76T	88T	92T	...	...	...	...	...	...	...	...	...	...
9	43T	54T	54T	64T ^⑥	76T ^⑥	88T	88T	...	...	...	...	...	...	...	...	...	...	...
7.5	54T	54T	54T ^⑥	76T ^⑥	76T ^⑥	88T	92T	...	...	...	...	...	...	...	...	...	...	...
6 ^⑥	54T	54T	88T	88T	88T	88T	92T	...	...	...	...	...	...	...	...	...	...	...
5 ^⑥	54T	88T	88T	88T	88T	...	...	...	...	...	...	...	...	...	...	...	...	...

Class III – Unit Size

420	10D	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	54D	76D	76D	76D	88D	88D	...
350	10D	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	54D	64D	64D	76D	88D	88D	...
280	10D	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	54D	64D	64D	76D	88D	88D	92D
230	10D	10D	10D	10D	10D	21D	32D	32D	43D	54D	54D	54D	64D	64D	76D	88D	88D	92D
190	10D	10D	10D	10D	10D	32D	43D	43D	43D	54D	54D	64D	76D	76D	88D	88D	88D	92D
155	10D	10D	10D	10D	21D	32D	43D	43D	54D	54D	64D	64D	76D	76D	88D	88D	92D	...
125	10D	10D	10D	10D	21D	32D	43D	54D	54D	64D	64D	76D	76D	88D	88D	92D	...	...
100	10D	10D	21D	21D	32D	43D	43D	54D	64D	64D	76D	76D	88D	88D	92D	...	...	...
84	10D	10D	21D	21D	32D	43D	54D	54D	64D	76D	76D	88D	88D	92D	92D	...	...	...
68	10D	21D	21D	32D	43D	54D	54D	64D	76D	76D	88D	88D	92D	92D	...	...	...	...
56	10D	21D	32D	32D	54D	54D	54T	64T	76T	88D	88D	92D	92D	...	...	...	...	...
45	21D	21D	32D	43D	54D	54T	64T	76T	76T	88D	88D	92D	92D	...	...	...	...	...
37	21T	21T	32T	43T	54T	54T	64T	76T	88T	88T	92T	...	...	...	...	...	...	...
30	21T	21T	32T	43T	54T	64T	76T	88T	88T	92T	92T	...	...	...	...	...	...	...
25	21T	32T	43T	43T	54T	64T	76T	88T	92T	92T	...	...	...	...	...	...	...	...
20	21T	32T	43T	54T	64T	76T	88T	88T	92T	...	...	...	...	...	...	...	...	...
16.5	32T	43T	43T	54T	64T	76T	88T	92T	...	...	...	...	...	...	...	...	...	...
13.5	32T	43T	54T	54T	76T	88T	88T	92T	...	...	...	...	...	...	...	...	...	...
11	43T	54T	54T	64T	76T	88T	92T	...	...	...	...	...	...	...	...	...	...	...
9	54T	54T	54T ^⑥	76T ^⑥	88T	92T	92T	...	...	...	...	...	...	...	...	...	...	...
7.5	54T	64T ^⑥	64T ^⑥	76T ^⑥	88T	92T	...	...	...	...	...	...	...	...	...	...	...	...
6 ^⑥	54T	88T	88T	88T	92T	...	...	...	...	...	...	...	...	...	...	...	...	...
5 ^⑥	88T	88T	88T	88T	92T	...	...	...	...	...	...	...	...	...	...	...	...	...

① TEFC motor Frame 405TS.

② TEFC motor Frame 444TS.

③ TEFC motor Frame 445TS.

④ These units require 1200 Rpm motors. Refer to Price List 2920 or 2940 for frame size.



Overhung Load Capacities

For pulley, sprocket or pinion mounted on integral or all-motor gearmotor output shafts, the overhung load capacity of the gearmotor selected must be checked. Use the following overhung load formula:

Overhung Load Formula

$$\text{OHL (lbs.)} = \frac{\text{motor hp} \times 126,000 \times L_c}{\text{output rpm} \times \text{pitch diameter (inches)} \times L_f}$$

Load Connection Factor, L_c

Type of Load Connection	Factor, L_c
Sprocket	1.00
Pinion	1.25
V-Belt	1.50
Flat Belt	2.50

Load Location Factor, L_f : Overhung load capacities in the table are calculated for a sprocket, pinion or pulley mounted with the centerline of its face at the midpoint of the output shaft of the integral or all-motor gearmotor. For other locations use factor L_f found in the following table in the overhung load formula.

Point of Load	Distance	L_f
L	$L \times 1$	1.00
A	$L \times .75$	1.10
B	$L \times 1.25$	0.90
C	$L \times 1.5$	0.80
D	$L \times 1.75$	0.75
N	$L \times 2$	0.70

The overhung load calculated must be less than or equal to the value obtained from the table below for the corresponding gear size and speed.

Note: The values in table are for class I service only.

For class II service capacity divide class I capacity by 1.122.

For class III service capacity divide class I capacity by 1.260.

Gear Size	Length L (Inches)
10	1.3
21	1.7
32	1.9
43	2.2
54	2.6
64	3.1
76	3.6
88	4.5
92	4.5

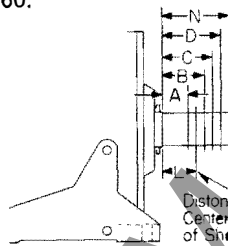


Diagram shows proportionate overhung load capacities of low speed shaft for various load points.

Allowable Thrust Loads

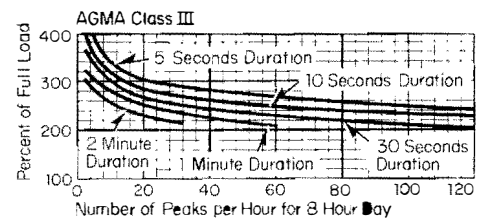
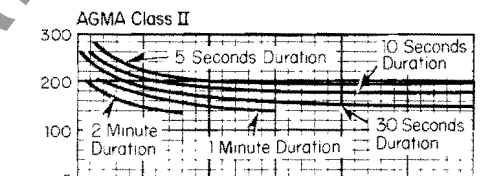
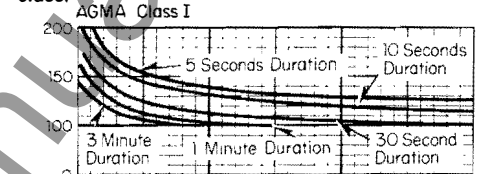
The thrust capacities published below are for units with pure thrust loads. Refer to Westinghouse when there are combined radial and thrust loads or when loads exceed capacities listed. Indicate direction of rotation of shaft and location and direction of applied load.

For class II ratings divide class I figures by 1.122.

For class III ratings divide class I figures by 1.260.

Allowable Peak Loadings

For duty cycle applications, consult the following curves to determine the correct AGMA class.



Overhung Load and Thrust Capacities

Gear Size	Pounds	Output Rpm												
		420	350	280	230	190	155	125	100	84	68	56	45	37 and Below
10	Overhung Load	1000	1100	1160	1240	1320	1400	1500	1600	1700	1700	1700	1700	.....
	Thrust (Down or Out)	860	920	1000	1050	1130	1210	1300	1400	1500	1600	1720	1850	.....
	Thrust (Up or In)	700	760	820	880	930	1000	1070	1150	1230	1320	1400	1500	.....
21	Overhung Load	1260	1330	1420	1500	1600	1700	1800	1930	2020	2150	2300	2300	2300
	Thrust (Down or Out)	1220	1300	1400	1500	1600	1720	1850	2000	2110	2260	2420	2600	2600
	Thrust (Up or In)	1000	1060	1150	1230	1300	1400	1500	1620	1720	1850	1970	2120	2200
32	Overhung Load	1600	1690	1800	1920	2020	2150	2300	2450	2580	2750	2900	3000	3000
	Thrust (Down or Out)	1640	1750	1880	2000	2150	2300	2470	2660	2820	3020	3250	3500	3500
	Thrust (Up or In)	1430	1520	1640	1750	1870	2000	2150	2320	2450	2630	2810	3000	3000
43	Overhung Load	1950	2050	2200	2340	2480	2620	2800	3000	3150	3370	3570	3800	4000
	Thrust (Down or Out)	2270	2420	2600	2800	2950	3200	3400	3700	3900	4200	4500	4800	5000
	Thrust (Up or In)	2000	2150	2320	2470	2640	2800	3050	3270	3460	3710	3950	4300	4500
54	Overhung Load	3450	3680	3920	4180	4400	4700	5000	5000	5000	5000	5000	5000	5000
	Thrust (Down or Out)	3600	3850	4150	4400	4700	5000	5400	5800	6150	6600	7000	7400	7400
	Thrust (Up or In)	2850	3000	3260	3500	3740	4000	4300	4650	4950	5300	5650	6100	6200
64	Overhung Load	.....	4400	4700	5000	5300	5600	6000	6400	6750	7200	7600	8000	8000
	Thrust (Down or Out)	.....	4600	5000	5300	5700	6000	6500	7000	7400	7900	8500	9000	9000
	Thrust (Up or In)	.....	3600	3900	4200	4500	4800	5200	5600	5900	6400	6800	7300	7500
76	Overhung Load	5200	5450	5850	6200	6600	7000	7450	8000	8400	8950	9500	10000	10000
	Thrust (Down or Out)	5050	5350	5750	6150	6550	7000	7500	8100	8550	9150	9800	10500	11000
	Thrust (Up or In)	4100	4350	4700	5000	5350	5750	6200	6650	7100	7600	8100	8700	9000
88	Overhung Load	10000	10500	11250	12000	13000	14500	15250	16500	17 50	19250	20000	20000	20000
	Thrust (Down or Out)	9500	10000	10750	11500	12500	13500	14750	16250	17500	20000	20000	20000	20000
	Thrust (Up or In)	9500	10000	10750	11500	12500	13500	14750	16250	17500	20000	20000	20000	20000
92	Overhung Load	.....	.....	12000	12800	13800	14800	16000	17400	18500	20000	21500	22500	22500
	Thrust (Down or Out)	.....	.....	14000	15000	15800	16900	18000	19500	20500	22000	23400	25000	25000
	Thrust (Up or In)	.....	.....	12750	13600	14500	15500	16500	18000	19000	20500	21500	23000	23000

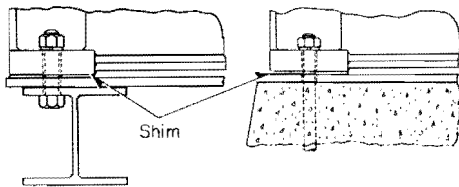
Installation

The continuous efficient operation of a gear unit depends chiefly on four factors:

1. The proper type of foundation and the correct method of mounting the unit
2. Proper alignment of the unit with the driven equipment
3. Correct lubrication
4. Consideration of preventive and operating maintenance

Foundation

A foundation or mounting which provides rigidity and prevents "weaving" or "flexing", with resultant misalignment of the shafts, is essential to the successful operation of a gear drive.



A concrete foundation should be used whenever possible and should be carefully prepared to conform with data regarding bolt spacing and physical measurements contained in the identified dimension leaflet.

Gear units are designed with a tolerance of $+0$ and $-\frac{1}{2}$ in. between the shaft center and the base. Therefore, shimming may be required. Shims of various thicknesses, slotted to slide around the foundation bolts, should be used. After alignment has been secured through shimming, the gearmotor should be bolted down and grouted in. When the unit must be installed on structural foundations, a supporting base plate of steel should be provided to obtain proper rigidity. This plate should be of a thickness not less than the diameter of the holding-down bolts.

Lubricants

Lubricating oils for use with gear units must be high grade straight mineral oils. They must not be corrosive and should be neutral in reaction. Additives such as anti-oxidants, anti-foaming agents and rust inhibitors are also desirable. For abnormal operating conditions refer to Westinghouse. Lubricants with the viscosities shown in the table below are necessary. A list of approved oils identified by the manufacturers' name will be furnished on request.

Ambient Temperature, Degrees F

0°F to 40°F	41°F to 100°F	101°F to 150°F
AGMA # 3 490-700 suv at 100°F	AGMA # 4 700-1000 suv at 100°F	AGMA # 5 1200-1500 suv at 100°F

Maintenance

The care of gear units is an important operational function, which should be given every reasonable attention to assure long and efficient service life of the unit. A definite inspection and maintenance program is recommended.

Gear Unit: A schedule, based on the check chart given below, should be regularly followed. Intervals between inspections should be determined by the existing atmospheric and operating conditions.

Motor: Satisfactory operation and length of service of the electric motor used with the gearmotor depends largely on two general rules for inspection and maintenance:

1. When the gearmotor is installed, make certain that the motor rotor turns freely, particularly if the unit is not installed until some months after being received.

2. Never open the bearing housing under conditions which will permit entrance of dirt.

Oil Capacity Table — Approximate U. S. Gallons

Horizontal Floor Mounting

Gear Frame Size	Double Reduction Gearbox		Triple Reduction Gearbox	
	Integral	All-Motor	Integral	All-Motor
10	0.7	0.75	...	...
21	1.4	1.5	1.5	1.6
32	2.2	2.5	2.5	2.7
43	3.5	3.7	3.8	3.9
54	6.0	6.4	6.5	6.7
64	6.0	6.4	6.5	6.7
76	10.0	10.7	11.0	11.5
88	13.5	14.1	14.2	14.4
92	18.5	19.3	19.4	19.6

Note: All Westinghouse gearmotors are shipped without oil.

Further Information

Discounts and Multipliers: Selling Policy 2900
Price List 2971-3 P WE A, Pages 1-4
Dimension Sheets 2971-4 F WE A

Operating Maintenance Check Chart: Geared Drive

Trouble	Probable Cause	Correction
Noisy Operation of the Unit	1. Misalignment	1. Check alignment of unit with driven member. Check condition of couplings, if used.
	2. Faulty lubrication	2. Check oil level. Determine if lubricant is of grade recommended.
	3. Excessive tension, if power take off is by belt or chain drive	3. Check tension and alignment of drive auxiliaries; relieve if necessary. (See that driving pulley or sprocket is mounted as close to the unit as possible.)
	4. Worn parts caused by normal length of service, or possibly a result of (1), (2) or (3) above	4. Adjust or replace worn parts.
	5. Overloading	5. Reduce load.
Excessive Operating Temperature	1. Incorrect lubricant	1. Check oil against specification instructions.
	2. Incorrect amount of lubricant	2. If check shows low oil level, fill to level indicated by nameplate. Drain a portion if level is too high. See that breather is clean and functioning correctly.
	3. Overloading	3. Check air supply for proper fan circulation. Avoid high surrounding ambient temperatures.
	4. Obstructed air flow	
Oil Leakage	1. Too much oil in unit	1. Recheck oil level with unit shut down.
	2. Clogged breather	2. Remove and clean breather.
	3. Loose bolts or nuts	3. Tighten all joint and end cap bolts.
Loosened Mounting Bolts	1. Usually vibration from fluctuating loads or misalignment	1. Check and realign system. Tighten all bolts.



May 12, 1975
Supersedes 2971-3 P WE A
Price List
pages 1-4 dated December 3, 1974.
Prices effective May 12, 1975 and
subject to change without notice.
(Refer to Selling Policy 2900 S WE A)
Mailed to: E, D, C/1778/PL

Integral and All-Motor Types
Horizontal, AGMA Class I, II and III

Moduline® Gearmotors

Pricing Instructions

For Integral and All-Motor Gearmotors

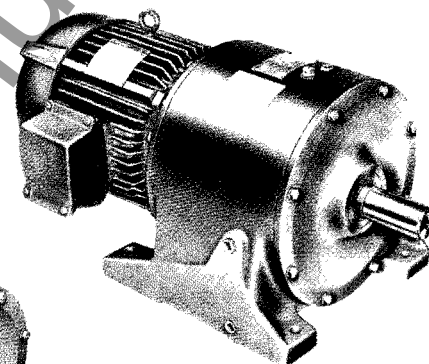
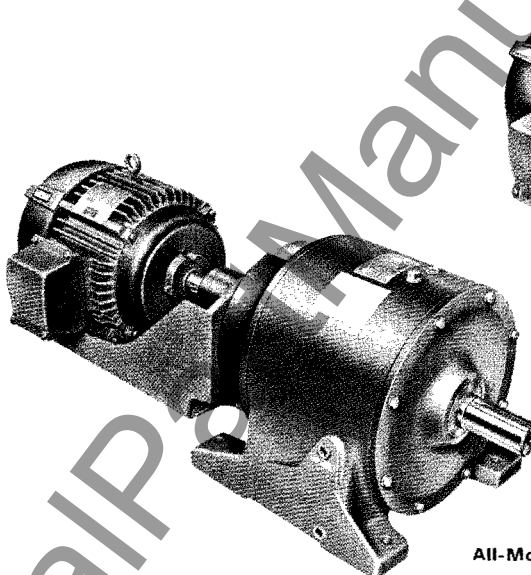
1. Price apparent gear per AGMA Class for required horsepower and output rpm. For selection of gear size refer to Application Data 2971-2 A WE A.
2. Use appropriate multiplier to obtain gear end net price. Refer to Selling Policy 2900 S WE A.
3. Price 1800 rpm Standard-Line ac motor from Price List 2920 P WE A. Use appropriate motor multiplier from Selling Policy 2900 S WE A to obtain motor net price.
4. If a Specific Purpose Ac motor is required, list price is obtained from Price List 2940 P WE A. Modifications are found in Price List 2990 P WE A. Refer to Selling Policy 2900 S WE A for modified motor multiplier.
5. To price any other type motor, refer to appropriate price list and discount schedule. For example: Wound Rotor motor (PL 2960 P WE A, SP 2900 S WE A); Dc motor (Refer to Westinghouse), etc.
6. Add Gear and Motor Net Prices to obtain gearmotor net price.

Note: Listed apparent gear end prices are for Type G Integral and Type U All-Motor con-

figurations. Price includes coupling and motor support for the Type U All-Motor gearmotor.

In all cases, the price of a Type G and that of a Type U gearmotor of the same rating are identical.

Integral Type G



All-Motor Type U

Output Rpm	Apparent Gear End List Price [Ⓢ] , Discount Symbol GM-1																
	Horsepower																
	1	1.5	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125
AGMA Class I																	
780 [Ⓢ]	\$ 494	\$ 511	\$ 528	\$ 586	\$ 718	\$ 833	\$ 938	\$1051	\$1212	\$1391	\$1520	\$ 1788	\$2005	\$2331	\$ 2627	....	....
640 [Ⓢ]	500	524	548	605	746	860	961	1079	1243	1427	1570	1834	2068	2393	2704	....	....
520 [Ⓢ]	503	542	576	636	773	889	983	1107	1280	1467	1616	1881	2130	2455	....	....	....
420	508	558	605	665	810	922	1023	1138	1317	1517	1695	1958	2254	2549	2953	\$3189	\$ 3636
350	518	576	630	694	835	950	1072	1241	1429	1650	1864	2145	2441	2821	3233	3679	4289
280	521	596	660	746	875	987	1153	1305	1526	1740	1974	2260	2557	2953	3415	4058	4734
230	528	613	688	796	937	1045	1227	1402	1632	1881	2130	2425	2755	3184	3728	4421	5163
190	531	630	718	844	995	1107	1308	1498	1757	2005	2285	2623	2986	3481	4025	4800	5658
155	537	647	749	903	1063	1185	1410	1616	1896	2161	2486	2821	3250	3761	4388	5279	6219
125	579	694	807	966	1141	1308	1541	1757	2051	2362	2704	3085	3547	4124	4850	5823	7126
100	623	749	869	1039	1225	1452	1642	1912	2238	2565	3058	3404	3877	4570	5345	6698	8338
84	657	790	919	1097	1283	1518	1798	2029	2393	2804	3217	3761	4355	5114	5972	7558	9252
68	704	854	984	1148	1422	1683	2006	2260	2623	3167	3646	4273	4949	5807	6896	8729	10684
56	749	903	1042	1221	1557	1848	2215	2540	2953	3530	4124	4784	5592	6566	7918	9903	....
45	798	957	1118	1346	1732	2062	2474	2903	3398	4025	4685	5444	6434	7522	9121	....	....
37	868	1036	1221	1478	1914	2277	2738	3299	3877	4537	5279	6186	7258	8601	10555	....	....
30	947	1135	1330	1633	2095	2534	3068	3745	4405	5114	5955	6994	8209	9903	....	....	....
25	1019	1231	1445	1782	2293	2771	3365	4207	4932	5724	6632	7818	9121	....	....	....	....
20	1125	1349	1597	1980	2540	3101	3794	4850	5691	6549	7558	10011	....	....	....	....	....
16.5	1224	1465	1765	2161	2821	3497	4289	5460	6434	7426	8547	....	....	....	....	....	....
13.5	1333	1617	1914	2392	3151	3959	4850	6186	7244	8338	9903	....	....	....	....	....	....
11.0	1452	1782	2128	2639	3497	4520	5510	7011	8287	9772	....	....	....	....	....	....	....
9.0	1623	1980	2359	2903	4042	5212	6383	8078	9512	....	....	....	....	....	....	....	....
7.5	1782	2194	2606	3250	4619	5995	7298	9252	....	....	....	....	....	....	....	....	....
6.0	2013	2474	2920	3695	5411	7035	8547	....	....	....	....	....	....	....	....	....	....
5.0	2227	2738	3200	4091	6170	8027	9772	....	....	....	....	....	....	....	....	....	....

[Ⓢ] Not available as Type U. Refer to Application Data 2973-2 for coupled units.

[Ⓢ] Changed or added since previous issue.

Output Apparent Gear End List Price[Ⓢ], Discount Symbol GM-1

Output Rpm	Horsepower																
	1	1.5	2	3	5	7.5	10	15	20	25	30	40	50	60	75	100	125
AGMA Class II																	
780 ^②	\$ 567	\$ 588	\$ 605	\$ 672	\$ 826	\$ 959	\$1077	\$1209	\$1394	\$1601	\$1757	\$2051	\$2300	\$2577	....	....	....
640 ^②	576	602	630	696	858	989	1106	1240	1430	1647	1803	2113	2350	....	....	....	....
520 ^②	579	622	662	733	888	1023	1132	1273	1473	1695	1865	2161	....	....	....	....	....
420	582	642	696	762	931	1060	1175	1308	1516	1740	1943	2254	2611	2938	\$3218	\$3664	\$4182
350	593	662	724	798	958	1094	1233	1427	1643	1897	2144	2468	2808	3246	3718	4231	4936
280	599	684	759	858	1006	1135	1325	1501	1757	2005	2269	2599	2941	3398	3927	4667	5449
230	605	704	790	916	1077	1202	1412	1616	1881	2161	2455	2789	3168	3664	4287	5084	5942
190	611	724	826	971	1144	1273	1507	1726	2020	2300	2627	3016	3434	4006	4629	5521	6512
155	617	744	861	1036	1222	1363	1622	1865	2176	2486	2859	3244	3737	4329	5046	6071	7149
125	666	798	928	1111	1255	1507	1695	2020	2362	2720	3108	3548	4079	4746	5577	6694	8195
100	716	861	998	1194	1355	1618	1888	2207	2580	2953	3419	3916	4458	5259	6147	7703	9590
84	756	909	1057	1223	1476	1745	2068	2333	2751	3225	3699	4325	5008	5885	6867	8690	....
68	810	983	1083	1321	1628	1935	2307	2599	3016	3642	4193	4913	5691	6683	7929	....	....
56	861	1036	1162	1405	1791	2125	2547	2924	3398	4063	4743	5502	6431	7549	9104	....	....
45	907	1101	1287	1549	1992	2371	2848	3341	3911	4632	5388	6260	7398	8646	....	....	....
37	999	1192	1405	1701	2202	2618	3151	3797	4461	5221	6071	7113	8346	....	....	....	....
30	1090	1306	1530	1880	2411	2914	3531	4310	5069	5885	6847	8044	....	....	....	....	....
25	1173	1416	1663	2050	2639	3187	3873	4841	5676	6585	7627	....	....	....	....	....	....
20	1295	1553	1838	2278	2924	3569	4367	5582	6545	7530	8690	....	....	....	....	....	....
16.5	1409	1686	2031	2487	3246	4025	4936	6284	7398	8542	....	....	....	....	....	....	....
13.5	1534	1861	2202	2753	3626	4556	5582	7113	8332	....	....	....	....	....	....	....	....
11.0	1671	2050	2449	3038	4025	5202	6341	8064	....	....	....	....	....	....	....	....	....
9.0	1868	2278	2715	3341	4651	5995	7342	....	....	....	....	....	....	....	....	....	....
7.5	2050	2525	3000	3740	5316	6892	8391	....	....	....	....	....	....	....	....	....	....
6.0	2316	2848	3360	4253	6227	....	....	....	....	....	....	....	....	....	....	....	....
5.0	2563	3151	3683	4708	7100	....	....	....	....	....	....	....	....	....	....	....	....
AGMA Class III																	
780 ^②	\$ 651	\$ 676	\$ 699	\$ 774	\$ 950	\$1103	\$1184	\$1390	\$1601	\$1834	\$2005	....	....	....	....	....	....
640 ^②	662	693	725	802	986	1137	1214	1427	1647	1896	2082	....	....	....	....	....	....
520 ^②	666	715	761	842	1023	1175	1242	1464	1695	1943	2145	\$2486	....	....	....	....	....
420	670	739	802	878	1073	1220	1292	1505	1740	2005	2238	2596	\$2811	\$3161	\$3706	\$4224	\$4811
350	684	761	832	919	1103	1258	1401	1641	1890	2182	2466	2839	3230	3734	4278	4867	5678
280	690	787	873	986	1157	1305	1471	1726	2020	2300	2611	2990	3383	3909	4518	5369	6267
230	699	810	909	1054	1239	1382	1558	1850	2161	2486	2794	3208	3645	4215	4932	5849	6835
190	703	832	950	1116	1316	1465	1667	1989	2331	2658	3031	3470	3950	4608	5325	6351	7490
155	712	855	990	1193	1357	1550	1788	2145	2517	2859	3294	3732	4299	4979	5805	6979	8223
125	767	919	1067	1279	1449	1654	1943	2331	2720	3124	3574	4081	4692	5459	6414	7697	....
100	824	990	1148	1373	1558	1861	2171	2534	2969	3388	3932	4507	5129	6051	7074	....	....
84	869	1045	1215	1406	1698	2008	2378	2684	3170	3710	4256	4976	5768	6772	7896	....	....
68	932	1080	1262	1520	1873	2226	2654	2990	3470	4190	4823	5653	6545	7683	....	....	....
56	990	1157	1336	1616	2060	2444	2929	3363	3909	4673	5456	6336	7398	....	....	....	....
45	1057	1267	1481	1782	2292	2728	3276	3843	4498	5328	6198	7208	....	....	....	....	....
37	1149	1371	1616	1957	2533	3012	3625	4367	5132	6005	6979	....	....	....	....	....	....
30	1253	1502	1760	2162	2773	3352	4062	4957	5830	6772	7874	....	....	....	....	....	....
25	1350	1629	1913	2358	3035	3667	4455	5568	6529	7572	....	....	....	....	....	....	....
20	1489	1786	2114	2620	3363	4105	5022	6414	7530	....	....	....	....	....	....	....	....
16.5	1620	1939	2337	2861	3734	4629	5678	7228	....	....	....	....	....	....	....	....	....
13.5	1764	2140	2533	3166	4171	5241	6414	8181	....	....	....	....	....	....	....	....	....
11.0	1922	2358	2817	3494	4629	5983	7286	....	....	....	....	....	....	....	....	....	....
9.0	2149	2620	3123	3843	5350	6892	8447	....	....	....	....	....	....	....	....	....	....
7.5	2358	2904	3450	4302	6114	7927	....	....	....	....	....	....	....	....	....	....	....
6.0	2664	3276	3865	4891	7149	....	....	....	....	....	....	....	....	....	....	....	....
5.0	2948	3625	4236	5416	8156	....	....	....	....	....	....	....	....	....	....	....	....

② Not available as Type U. Refer to Application Data 2973-2 for coupled units.

Ⓢ Changed or added since previous issue.



Gear End Modifications, Type G Integral and Type U All-Motor Gearmotors

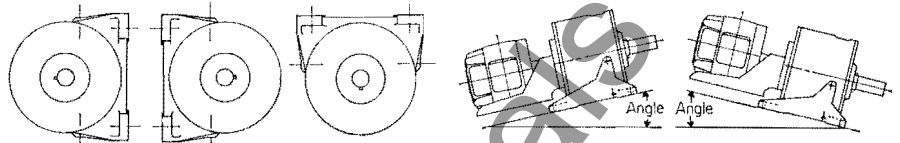
All prices shown are List Prices, Discount Symbol GM-1

1. Mounting Positions

There is no additional charge for mounting positions as shown at right. Indicate on order which position is to be used.

For positions other than those shown above, make the following list price additions.

Note: For applications involving shaft inclined up at greater than 10 degrees, refer to Westinghouse.



Right hand wall mounting	Left hand ② wall mounting	Ceiling mounting	Output shaft up maximum 10 degrees			Output shaft down maximum 15 degrees			
Mounting Position	Gear Size and List Price Addition ③								
	10	21	32	43	54	64	76	88	92
Vertical, shaft down (foot mounted) ③	\$ 73	\$ 87	\$110	\$139	\$181	\$222	\$ 263	....	....
Vertical, shaft down (flange mounted) ③	176	218	263	348	448	552	657	....	....
Vertical, shaft down (dry well)	....	....	....	556	718	....	1051	....	....

② Not available on sizes 76, 88, and 92.

③ Moduline units running at 155 rpm or greater may run too hot with low speed shaft down, therefore the thermal hp capacity should be reduced by approximately 30 percent.

2. Special Shafts

Output shafts – gear end

The following prices must be **added** to the **basic addition** obtained above, regardless of quantity.

Note: For special diameters larger than standard refer to Westinghouse.

	Gear Size									
	10	21	32	43	54	64	76	88	92	
List Price Addition per Unit③										
Basic addition										
Standard Length — Qty. 1-5	\$98	\$102	\$117	\$121	\$142	\$152	\$172	\$241	\$281	
6-25	58	61	65	73	84	92	102	144	170	
26 or more	38	41	43	47	56	64	70	96	112	
Longer than standard (for each additional 5 inches)	27	36	37	41	50	61	74	98	130	
Taper with thread	47	52	56	61	73	78	87	120	139	
Drilling and tapping	19	22	24	27	28	31	36	47	56	
Special keyway	19	22	24	27	28	31	36	47	56	
Spline	59	61	65	73	84	92	102	144	170	
Threaded shaft	19	22	24	27	28	31	36	47	56	
Steps (Each)	19	22	24	27	28	31	36	47	56	

3. Mounting Customer's Equipment

- a. Pressing customer's material on output shaft (couplings, sprockets, pinions).
- b. Pressing customer's coupling on high speed shaft of all-motor type U: No charge.

	Gear Size								
	10	21	32	43	54	64	76	88	92
List Price Addition③	\$38	\$43	\$47	\$55	\$58	\$70	\$100	\$135	\$150

Note: Customer's material must be delivered to Westinghouse, transportation prepaid and ready for mounting. Shipment must be marked for application to specific general order and item number. Any machining of cus-

tomers material must be negotiated with Westinghouse in advance of mounting. Westinghouse is not responsible for loss or damage to customer's material.

4. Backstops, Type U Only

For backstops on Type G, refer to Westinghouse.

	Gear Size								
	10	21	32	43	54	64	76	88	92
List Price Addition③	\$213	\$241	\$274	\$283	\$308	\$376	\$472	\$598	\$676

5. Couplings

- a. Omission of coupling from input shaft of All-Motor Type U:
- b. Substitute couplings for All-Motor Type U: The standard Westinghouse coupling is used in the all-motor gearmotor. If a substitution is desired, refer to Westinghouse.
- c. Coupling guards, All-Motor Type U:

	Gear Size								
	10	21	32	43	54	64	76	88	92
List Price Deduction③	\$18	\$22	\$27	\$33	\$38	\$43	\$74	\$100	\$146

	Gear Size								
	10	21	32	43	54	64	76	88	92
List Price Addition③	\$68	\$75	\$93	\$101	\$115	\$115	\$127	\$144	\$144

Note: Coupling guards priced from this table meet OSHA standards, as designed for Westinghouse reducers and couplings.

③ Changed or added since previous issue.

Gear End Modifications, Type G Integral and Type U All-Motor Gearmotors, Continued
All prices shown are List Prices, Discount Symbol GM-1

6. Mill and Chemical Features[Ⓔ]

	Gear Size								
	10	21	32	43	54	64	76	88	92
List Price Addition	\$22	\$27	\$33	\$41	\$56	\$73	\$87	\$120	\$142

Note: Mill and Chemical features include wet end seals and green epoxy paint to match the Mill and Chemical motor.

7. Special Paint^④

	Gear Size								
	10	21	32	43	54	64	76	88	92
List Price Addition [Ⓔ]	\$58	\$64	\$75	\$89	\$100	\$104	\$112	\$127	\$136

^④ Price applies to standard commercial paints available in one gallon cans.

8. Special Seals

	List Price Addition [Ⓔ]								
	Gear Size								
	10	21	32	43	54	64	76	88	92
Wet end ^⑤	\$22	\$ 27	\$ 33	\$ 41	\$ 56	\$ 73	\$ 87	\$120	\$142
Taconite ^⑥	98	124	161	197	262	326	394	663	844

^⑤ For moisture laden atmospheres (e.g., - wet end paper mill drives).

^⑥ For Taconite dust, cement dust or other abrasive atmospheres. If atmosphere contains non-abrasive dust, no modification is necessary.

9. Slide Rails (pair)

	Gear Size								
	10	21	32	43	54	64	76	88	92
List Price Addition [Ⓔ]	\$90	\$98	\$112	\$144	\$185	\$213	\$234	\$311	\$337

10. Export Boxing

	Gear Size								
	10	21	32	43	54	64	76	88	92
List Price Addition [Ⓔ]	\$68	\$77	\$102	\$105	\$145	\$148	\$241	\$308	\$688

11. Oil Sight Gauge: Add \$22 list.[Ⓔ]

12. Reversing Duty: Refer to Westinghouse.

13. Special Output Speeds

The following gear ratios and output speeds are standard.

Double Reduction Gears ^⑦ Gear Ratios (Nominal) ^⑧	AGMA Full Load Output Speeds ^⑦	Triple Reduction Gears ^⑦ Gear Ratios Nominal ^⑧	AGMA Full Load Output Speed ^⑦
1750 Rpm Motors			
4.170	420	47.08	37
5.062	350	57.66	30
6.200	280	70.62	25
7.594	230	86.50	20
9.300	190	105.9	16.5
11.39	155	129.7	13.5
13.95	125	158.9	11.0
17.09	100	194.6	9.0
20.93	84	238.4	7.5
25.63	68		
31.39	56	1150 Rpm Motors	
38.44	45	194.6	6.0
		238.4	5.0

^⑦ For single reduction units, refer to Westinghouse.

^⑧ Actual ratios may vary $\pm 4\%$.

[Ⓔ] Changed or added since previous issue.

For ratios other than those listed at left, refer to the following table and make addition to the lower speed rating.

Quantity	List Price addition per unit
1-2	\$407 [Ⓔ]
3-24	215 [Ⓔ]
25 or more	No Charge



Westinghouse Electric Corporation
Medium Motor and Gearing Division
Buffalo, New York, U.S.A. 14240

2971-4 F WEA
Dimension Sheet

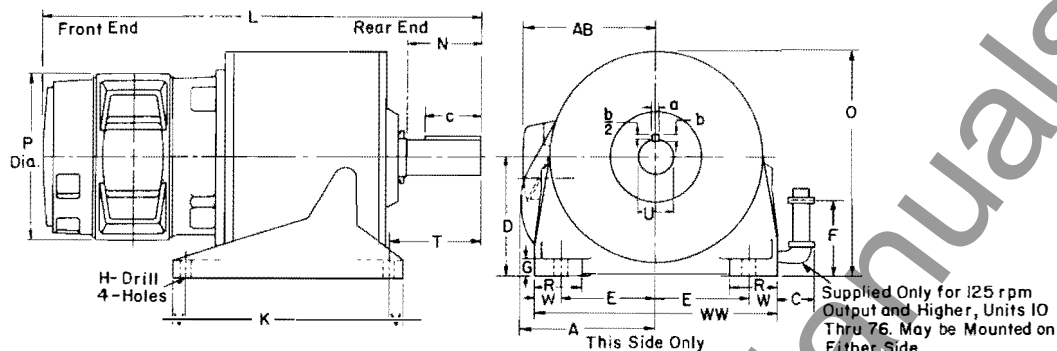
Page 1

December, 1975
Supersedes 2971-4
Dimension Sheet
pages 1-2 dated December, 1972
Mailed to: E, D, C/1778/DS

Double Reduction, Type G
Life-Line T Motors
Drip-Proof, TEFC, Explosion Proof

Moduline® Ac Integral Gearmotors

Double Reduction, Type G, Gear Sizes 10D-76D



Dimensions, Inches Not to be used for construction purposes unless dimensions are approved.

Gear Case Dimensions

Gear Size	U①	Key a	b	c	A	C	D②	E	F	G	H	K	N	O	R	T	V	W	WW	Approx. Wt. Lbs. ③
10D	1.375	.31	.31	2.0	5.2	1.7	5.69	4.12	3.4	.8	.4	9.00	2.6	10.1	1.6	3.4	.8	1.0	10.3	53
21D	1.625	.38	.38	2.5	....	1.7	6.25	4.50	4.0	1.0	.6	9.75	3.4	11.7	2.3	4.3	.7	1.5	12.0	88
32D	1.875	.50	.50	3.0	....	1.7	7.25	5.50	4.6	1.1	.7	13.50	3.8	13.9	2.8	4.8	.8	1.8	14.5	135
43D	2.125	.50	.50	3.5	....	1.7	9.25	7.00	5.7	1.2	.8	15.00	4.4	16.6	3.3	5.3	1.0	2.0	18.0	211
54D	2.625	.62	.62	4.0	....	1.7	10.75	8.00	6.7	1.2	.9	17.25	5.3	20.0	4.0	6.5	1.0	2.4	20.8	382
64D	3.125	.75	.75	5.0	12.3	1.7	10.75	8.00	6.7	1.2	.9	17.25	6.2	20.0	4.0	7.7	1.0	2.4	20.8	550
76D	3.625	.88	.88	6.0	13.4	2.2	12.00	9.25	7.8	1.8	1.1	20.00	7.3	22.8	4.8	8.9	1.4	2.8	24.0	582

AC Motor Dimensions, Life-Line T

Motor Frame	Drip-proof, TEFC & Explosion Proof						L Dimension – Drip-proof Motor								L Dimension – TEFC & Expl. Proof Motor							
	AB④		P Dia.		Motor Wt. Lbs.		Gear Size								Gear Size							
	DP	TEFC	DP	TEFC	DP	TEFC	10	21	32	43	54	64	76	10	21	32	43	54	64	76		
143T	....	6.4	....	7.8	....	70	....	....	....	....	....	....	....	22.9	24.6	26.0	....	....	....	....		
145T	....	6.4	....	7.8	....	70	....	....	....	....	....	....	....	22.9	24.6	26.0	....	....	....	....		
182T	6.4	7.3	8.4	9.6	60	115	23.6	25.3	26.7	27.5	30.3	....	....	24.6	26.3	27.7	28.5	31.3	....	....		
184T	6.4	7.3	8.4	9.6	70	115	23.6	25.3	26.7	27.5	30.3	....	....	24.6	26.3	27.7	28.5	31.3	....	....		
213T	8.4	8.7	11.0	11.2	120	190	....	27.0	27.2	28.1	30.8	....	....	....	28.7	30.4	31.2	34.0	....	....		
215T	8.4	8.7	11.0	11.2	150	190	....	28.5	28.7	29.6	32.3	....	....	....	28.7	30.4	31.2	34.0	....	....		
254T	10.3	11.0	13.1	13.3	210	290				31.8	32.6	35.3	37.8	40.3			35.7	36.5	39.3	41.7	44.2	
256T	10.3	11.0	13.1	13.3	250	290				33.5	34.3	37.1	39.5	42.0			35.7	36.5	39.3	41.7	44.2	
284T	11.2	11.9	14.7	14.7	320	370	....	....	....	....	37.1	39.5	42.0	....	....	....	....	39.5	41.9	44.4		
286T	11.2	11.9	14.7	14.7	390	460	....	....	....	....	38.6	41.0	43.5	....	....	....	....	41.0	43.4	45.0		
324T	14.3	12.9	16.8	17.0	500	565	....	....	....	....	39.8	42.2	44.7	....	....	....	....	42.5	44.9	47.4		
326T	14.3	12.9	16.8	17.0	550	625	....	....	....	....	41.3	43.7	46.2	....	....	....	....	44.0	46.4	48.9		
364T	15.6	16.1	18.6	19.1	650	855	....	....	....	....	42.1	44.5	47.0	....	....	....	....	45.8	48.2	50.7		
365T	15.6	16.1	18.6	19.1	700	940	....	....	....	....	43.1	45.5	48.0	....	....	....	....	46.8	49.2	51.7		
404T	16.8	17.2	21.1	21.5	830	1155	....	....	....	....	....	....	49.7	....	....	....	....	....	....	53.7		
405T	16.8	17.2	21.1	21.5	920	1270	....	....	....	....	....	....	51.2	....	....	....	....	....	....	55.2		

① Tolerance = +.000 to -.001.

② This dimension will never be exceeded. When exact dimension is required, shims up to 1/2 inch may be necessary.

③ Weight without motor. To obtain total weight add motor weight.

④ For explosion proof motor AB dimensions, refer to Westinghouse.

Note: For Moduline slide bases, see page 2.

Reproduced from Drawing 2731-D-02, sub 7.

Taconite Seal

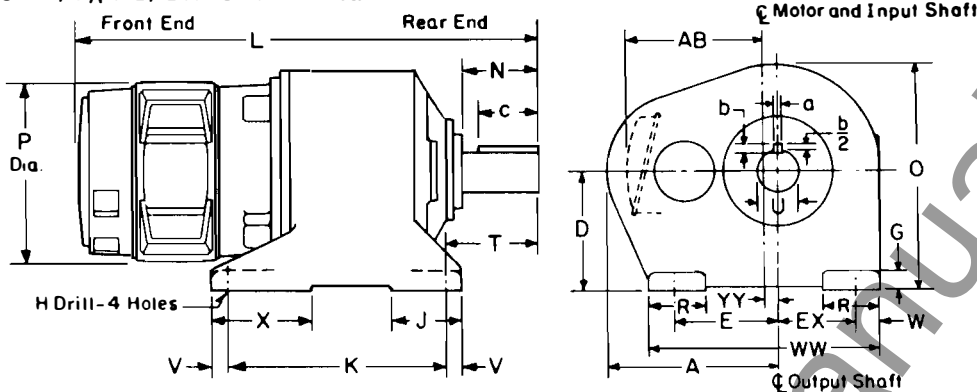
Add 1/2 inch to "L" and "T" dimensions for all units except size 64, when Taconite seal is required.

PRELIMINARY ☐ CERTIFIED ☐ PRINT FOR:

Customer				Customer Order			
G.O.				Item No.			
Motor Rpm	Output Rpm	AGMA Class	Hp.	Phase	Hz.	Volts	
Application		Signed				Date	



Double Reduction, Type G, Gear Sizes 88D-92D



Dimensions, Inches Not to be used for construction purposes unless dimensions are approved.

Gear Case Dimensions

Gear Size	U ^①	Key a	b	c	A	D ^②	E	EX	G	H	J	K	N	O	R	T	V	W	WW	X	YY	Approx. Wt. Lbs. ^③
88D	4.50	1.00	1.00	7.5	19.0	13.0	11.50	8.75	2.0	1.63	8.5	25.5	90	23.9	6.0	11.4	1.8	3.0	26.3	11.5	1.63	1042
92D	5.00	1.25	.88	7.5	20.6	14.5	12.63	9.38	2.3	1.88	9.0	28.0	90	27.5	7.0	11.4	1.8	3.0	28.0	12.5	1.63	1052

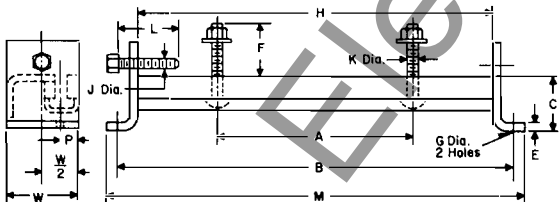
AC Motor Dimensions, Life-Line T

Motor Frame	Drip-proof, TEFC & Explosion Proof		P Dia.		Motor Wt. Lbs.		L Dimension Drip-proof Motor		L Dimension: TEFC & Expl. Proof Motor	
	AB ^⑤		DP	TEFC	DP	TEFC	88	92	88	92
254T	10.3	11.0	13.1	13.3	210	290	...	...	...	...
256T	10.3	11.0	13.1	13.3	250	290	...	...	...	...
284T	11.2	11.9	14.7	14.7	320	370	48.0	...	50.4	...
286T	11.2	11.9	14.7	14.7	390	460	49.5	...	50.9	...
324T	14.3	12.9	16.8	17.0	500	565	50.7	50.9	53.4	53.6
326T	14.3	12.9	16.8	17.0	550	625	52.2	52.4	54.9	55.1
364T	15.6	16.1	18.6	19.1	650	855	53.0	53.2	56.7	56.9
365T	15.6	16.1	18.6	19.1	700	940	54.0	54.2	57.7	57.9
404T	16.8	17.2	21.1	21.5	830	1155	55.7	55.9	59.7	59.9
405T	16.8	17.2	21.1	21.5	920	1270	57.2	57.4	61.2	61.4

- ① Tolerance = +.000 to -.001.
- ② This dimension will never be exceeded. When exact dimensions is required, shims up to 1/2 inch may be necessary.
- ③ Weight without motor. To obtain total weight add motor weight.
- ④ Tolerance = +.000 to -.125.
- ⑤ For explosion proof motor AB dimensions refer to Westinghouse.

Gearmotors:
Reproduced from Drawings 2731-D-04, sub 6.
Slide Rails:
Reproduced from Drawing 628-B-660, sub 6.

Moduline Slide Rails



Gear Size	A	B	C ^④	E	F	G	H	J	K	L	M	P	W	Total Adj.
10	8.25	15.25	2.00	.25	1.25	.50	13.25	.38	.38	4.00	16.25	.56	2.25	3.00
21	9.00	18.25	2.00	.38	1.75	.62	15.50	.50	.50	5.00	19.50	.62	2.62	3.50
32	11.00	22.00	2.50	.50	2.00	.75	18.50	.50	.62	5.00	23.50	.69	3.00	4.00
43	14.00	26.75	3.00	.50	2.00	.88	23.00	.75	.75	6.00	28.50	.88	3.25	5.00
54-64	16.00	30.75	4.00	.50	1.75	1.00	26.75	.75	.88	7.00	32.75	.94	4.38	6.00
76	18.50	37.50	4.00	.75	2.75	1.25	32.00	.88	1.00	9.50	40.00	1.25	4.75	8.00
88	20.25	45.25	4.50	.75	3.75	1.62	39.00	.88	1.50	10.50	48.50	1.50	5.25	9.00
92	22.00	45.25	4.50	.75	3.75	1.62	39.00	.88	1.50	10.50	48.50	1.50	5.25	9.00

PRELIMINARY ☐ CERTIFIED ☐ PRINT FOR:

Customer				Customer Order			
G.O.				Cat. No.			
Motor Rpm		Output Rpm		AGMA Class		Hp.	
Application		Signed		Phase		Hz.	
				Volts		Date	

Westinghouse Electric Corporation
Medium Motor and Gearing Division
Buffalo, New York, U.S.A 14240



Westinghouse Electric Corporation
Medium Motor and Gearing Division
Buffalo, New York, U.S.A. 14240

2971-4 FWEA
Dimension Sheet

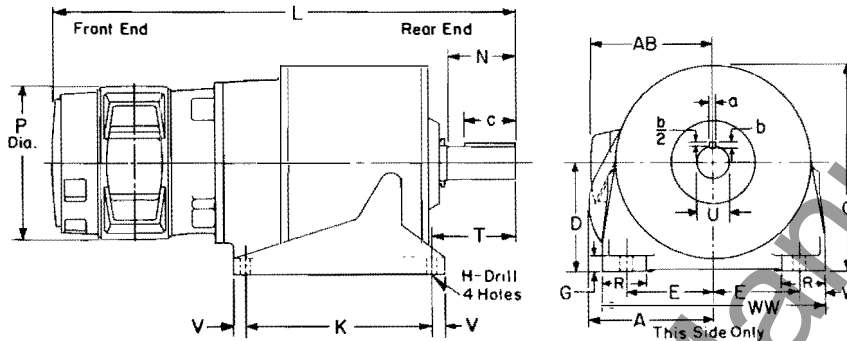
Page 3

December, 1975
Supersedes 2971-4
Dimension Sheet
pages 3-4 dated December, 1972
Mailed to: E,D,C/1778/DS

Triple Reduction, Type G
Life-Line T Motors
Drip-proof, TEFC, Explosion Proof

Moduline® Ac Integral Gearmotors

Triple Reduction, Type G, Gear Sizes 10T-76T



Dimensions, Inches Not to be used for construction purposes unless dimensions are approved.

Gear Case Dimensions

Gear Size	U①	Key a	b	c	A	D②	E	G	H	K	N	O	R	T	V	W	WW	Approx. Wt. Lbs. ③
10T	1.375	.31	.31	2.0	5.2	5.69	4.12	.8	.4	9.00	2.6	10.1	1.6	3.4	.8	1.0	10.3	63
21T	1.625	.38	.38	2.5	....	6.25	4.50	1.0	.6	9.75	3.4	11.7	2.3	4.3	.7	1.5	12.0	106
32T	1.875	.50	.50	3.0	....	7.25	5.50	1.1	.7	13.50	3.8	13.9	2.8	4.8	.8	1.8	14.5	167
43T	2.125	.50	.50	3.5	....	9.25	7.00	1.2	.8	15.00	4.4	16.6	3.3	5.3	1.0	2.0	18.0	243
54T	2.625	.62	.62	4.0	....	10.75	8.00	1.2	.9	17.25	5.3	20.0	4.0	6.5	1.0	2.4	20.8	441
64T	3.125	.75	.75	5.0	12.3	10.75	8.00	1.2	.9	17.25	6.2	20.0	4.0	7.7	1.0	2.4	20.8	570
76T	3.625	.88	.88	6.0	13.4	12.00	9.25	1.8	1.1	20.00	7.3	22.8	4.8	8.9	1.4	2.8	24.0	715

AC Motor Dimensions, Life-Line T

Motor Frame	Drip-proof, TEFC & Explosion Proof						L Dimension - Drip-proof Motor										L Dimension - TEFC & Expl. Proof Motor					
	AB④		P Dia.		Motor Wt. Lbs.		Gear Size										Gear Size					
	DP	TEFC	DP	TEFC	DP	TEFC	10	21	32	43	54	64	76	10	21	32	43	54	64	76		
143T	....	6.4	....	7.8	....	70	....	....	....	....	....	....	....	....	27.7	29.9	30.9	35.0	37.5	41.1		
145T	....	6.4	....	7.8	....	70	....	....	....	....	....	....	....	....	27.7	29.9	30.9	35.0	37.5	41.1		
182T	6.4	7.3	8.4	9.6	60	115	....	26.9	29.1	30.2	34.3	36.8	40.4	....	29.4	31.6	32.6	36.7	39.2	42.8		
184T	6.4	7.3	8.4	9.6	70	115	....	27.9	30.1	31.2	35.2	37.8	41.4	....	29.4	31.6	32.6	36.7	39.2	42.8		
213T	8.4	8.7	11.0	11.2	120	190	....	....	....	32.1	36.2	38.7	42.3	....	....	....	35.3	39.4	41.8	45.5		
215T	8.4	8.7	11.0	11.2	150	190	....	....	....	33.6	37.7	40.2	43.8	....	....	....	35.3	39.4	41.8	45.5		
254T	10.3	11.0	13.1	13.3	210	290	....	....	....	....	....	43.2	46.8	....	....	....	....	....	47.1	60.8		
256T	10.3	11.0	13.1	13.3	250	290	....	....	....	....	....	44.9	48.6	....	....	....	....	....	47.1	60.8		
284T	11.2	11.9	14.7	14.7	320	370	....	....	....	....	....	45.0	48.6	....	....	....	....	....	47.4	51.0		
286T	11.2	11.9	14.7	14.7	390	460	....	....	....	....	....	46.5	50.1	....	....	....	....	....	48.9	52.5		

① Tolerance = +.000 to -.001.

② This demision will never be exceeded When exact dimension is required, shims, up to 1/32 inch may be necessary.

③ Weight without motor. To obtain total weight add motor weight.

④ For Explosion proof motor AB dimensions, refer to Westinghouse.

Note: For Moduline slide bases, see page 4.

Reproduced from Drawing 2731-D-03, sub 5.

Taconite Seal

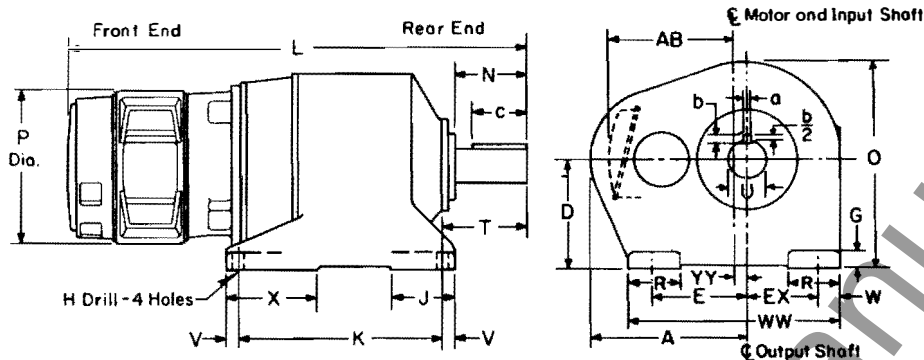
Add 1/2 to "L" and "T" dimensions for all units except size 64, when Taconite seal is required.

PRELIMINARY ☐ CERTIFIED ☐ PRINT FOR:

Customer				Customer Order			
G.O.				Item No.			
Motor Rpm		Output Rpm		AGMA Class		Hp.	
Application		Signed		Phase		Hz.	
				Volts		Date	



Triple Reduction, Type G, Gear Sizes 88T-92T



Dimensions, Inches Not to be used for construction purposes unless dimensions are approved.

Gear Case Dimensions

Gear Size	U①	Key a	b	c	A	D②	E	EX	G	H	J	K	N	O	R	T	V	W	WW	X	YY	Approx. Wt. Lbs. ③
88T	4.50	1.00	1.00	7.5	19.0	13.0	11.50	8.75	2.0	1.63	8.5	25.5	9.0	23.9	6.0	11.4	1.8	3.0	26.3	11.5	...	1178
92T	5.00	1.25	.88	7.5	20.6	14.5	12.63	9.38	2.3	1.88	9.0	28.0	9.0	27.5	7.0	11.4	1.8	3.0	28.0	12.5	1.63	1349

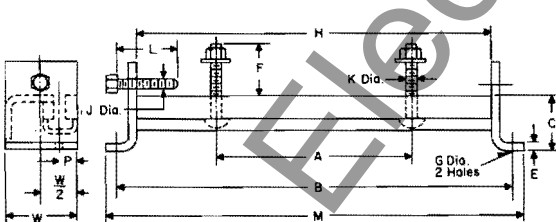
Ac Motor Dimensions, Life-Line T

Motor Frame	Drip-proof, TEFC & Explosion Proof						L Dimension Drip-proof Motor		L Dimension: TEFC & Expl. Proof Motor	
	AB⑤		P Dia.		Motor Wt. Lbs.					
	DP	TEFC	DP	TEFC	DP	TEFC	Gear Size		Gear Size	
143T	....	6.4	....	7.8	...	70	....	....	47.1	....
145T	....	6.4	....	7.8	...	70	....	....	47.1	....
182T	6.4	7.3	8.4	9.6	60	115	46.4	....	48.8	....
184T	6.4	7.3	8.4	9.6	70	115	47.4	....	48.8	....
213T	8.4	8.7	11.0	11.2	120	190	48.3	49.4	51.5	52.5
215T	8.4	8.7	11.0	11.2	150	190	49.8	50.9	51.5	52.5
254T	10.3	11.0	13.1	13.3	210	290	52.8	53.9	56.8	57.8
256T	10.3	11.0	13.1	13.3	250	290	54.6	55.6	56.8	57.8
284T	11.2	11.9	14.7	14.7	320	370	54.5	55.7	57.0	58.1
286T	11.2	11.9	14.7	14.7	390	460	56.1	57.2	58.5	59.6
324T	14.3	12.9	16.8	17.0	500	565	56.8	58.4	59.5	61.1
326T	14.3	12.9	16.8	17.0	550	625	58.3	59.9	61.0	62.6

- ① Tolerance = +.000 to -.001.
② This dimension will never be exceeded. When exact dimension is required, shims up to 1/32 inch may be necessary.
③ Weight without motor. To obtain total weight add motor weight.
④ Tolerance = +.000 to -.125
⑤ For explosion proof motor AB dimensions, refer to Westinghouse.

Gearmotors:
Reproduced from Drawing 2731-D04, sub 6.
Slide Rails:
Reproduced from Drawing 628-B-660, sub 3.

Moduline Slide Rails



Gear Size	A	B	C④	E	F	G	H	J	K	L	M	P	W	Total Adj.
10	8.25	15.25	2.00	.25	1.25	.50	13.25	.38	.38	4.00	16.25	.56	2.25	3.00
21	9.00	18.25	2.00	.38	1.75	.62	15.50	.50	.50	5.00	19.50	.62	2.62	3.50
32	11.00	22.00	2.50	.50	2.00	.75	18.50	.50	.62	5.00	23.50	.69	3.00	4.00
43	14.00	26.75	3.00	.50	2.00	.88	23.00	.75	.75	6.00	28.50	.88	3.25	5.00
54-64	16.00	30.75	4.00	.50	1.75	1.00	26.75	.75	.88	7.00	32.75	.94	4.38	6.00
76	18.50	37.50	4.00	.75	2.75	1.25	32.00	.88	1.00	9.50	40.00	1.25	4.75	8.00
88	20.25	45.25	4.50	.75	3.75	1.62	39.00	.88	1.50	10.50	48.50	1.50	5.25	9.00
92	22.00	45.25	4.50	.75	3.75	1.62	39.00	.88	1.50	10.50	48.50	1.50	5.25	9.00

PRELIMINARY ☐ CERTIFIED ☐ PRINT FOR:

Customer				Customer Order			
G.O.				Item No.			
Motor Rpm		Output Rpm		AGMA Class		Hp.	
Application		Signed		Phase		Hz.	
				Volts		Date	



Westinghouse Electric Corporation
Medium Motor and Gearing Division
Buffalo, New York, U.S.A. 14240

2971-4 F WE A
Dimension Sheet

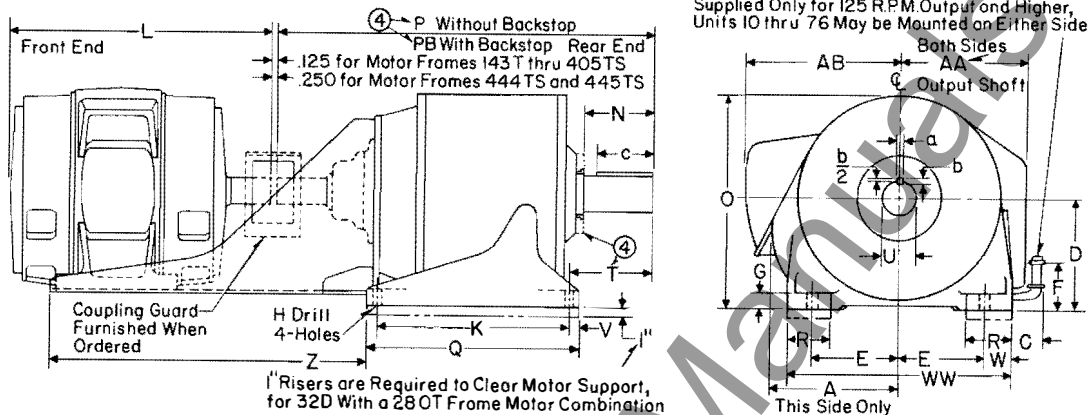
Page 5

December, 1975
Supersedes 2971-4
Dimension Sheet
pages 5-6 dated December, 1972
Mailed to: E,D,C/1778/DS

Double Reduction, Type U
Life-Line T Motors
Drip-proof, TEFC, Explosion Proof

Moduline® Ac All-Motor Gearmotors

Double Reduction, Type U, Gear Sizes 10D-76D



Dimensions, Inches Not to be used for construction purposes unless dimensions are approved.

Gear Case Dimensions

Gear Size	U①	Key a	b	c	A	C	D②	E	F	G	H	K	N	O	P	PB	Q	R	T	V	W	WW	Approx. Wt. Lbs. ③
10D	1.375	.31	.31	2.0	5.2	1.7	5.68	4.12	3.4	.8	.44	9.00	2.6	10.1	18.1	19.1	10.5	1.6	3.4	.8	1.0	10.2	77
21D	1.625	.38	.38	2.5	...	1.7	6.25	4.50	4.0	1.0	.56	9.75	3.4	11.7	20.5	21.6	11.1	2.2	4.2	.7	1.5	12.0	132
32D	1.875	.50	.50	3.0	...	1.7	7.25	5.50	4.6	1.1	.68	13.50	3.8	13.9	23.2	24.7	15.0	2.8	4.8	.8	1.8	14.5	194
43D	2.125	.50	.50	3.5	...	1.7	9.25	7.00	5.7	1.2	.81	15.00	4.4	16.6	24.3	25.8	17.0	3.2	5.3	1.0	2.0	18.0	270
54D	2.625	.62	.62	4.0	...	1.7	10.75	8.00	6.7	1.2	.94	17.25	5.2	20.0	27.6	29.0	19.2	4.0	6.5	1.0	2.4	20.8	484
64D	3.125	.75	.75	5.0	12.3	1.7	10.75	8.00	6.7	1.2	.94	17.25	6.2	20.0	29.4	31.4	19.2	4.0	7.7	1.0	2.4	20.8	550
76D	3.625	.88	.88	6.0	13.4	2.2	12.00	9.25	7.8	1.8	1.06	20.00	7.2	22.8	34.2	35.9	22.7	4.8	8.9	1.4	2.8	24.0	767

AC Motor Dimensions, Life-Line T

Motor Frame	Drip-proof, TEFC & Explosion Proof							Z Dimensions						
	AA		AB		L Dim.		Motor Wt. Lbs.	Gear Size						
	DP & TEFC	DP	TEFC	DP	TEFC	DP		TEFC	10D	21D	32D	43D	54D	64D	76D
143T	4.1	5.6	6.4	12.6	14.2	40	43	16.1	19.1	17.2	.....	.....	.....	.....
145T	4.1	5.6	6.4	12.6	14.2	45	48	16.1	19.1	17.2	.....	.....	.....	.....
182T	5.4	6.4	7.3	14.1	15.8	55	72	16.4	19.4	17.6	16.1	15.6	.....	.....
184T	5.4	6.4	7.3	14.1	15.8	65	82	16.4	19.4	17.6	16.1	15.6	.....	.....
213T	6.0	8.4	8.7	15.8	17.7	85	140	19.4	22.4	20.6	19.1	18.6	.....	.....
215T	6.0	8.4	8.7	17.3	19.2	110	175	19.4	22.4	20.6	19.1	18.6	.....	.....
254T	7.3	10.3	11.0	20.5	23.0	200	260	.....	.....	23.6	22.1	24.4	25.6	24.9
256T	7.3	10.3	11.0	22.3	24.8	240	320	.....	.....	23.6	22.1	24.4	25.6	24.9
284T	8.1	11.2	11.9	23.3	25.8	300	360	.....	.....	25.6	24.1	26.4	27.6	26.9
286T	8.1	11.2	11.9	24.8	27.3	370	450	.....	.....	25.6	24.1	26.4	27.6	26.9
324T	9.3	14.3	12.9	26.1	28.8	475	550	.....	.....	.....	26.3	28.6	29.8	29.1
326TS	9.3	14.3	12.9	26.1	28.8	525	610	.....	.....	.....	26.3	28.6	29.8	29.1
364TS	10.4	15.6	16.1	26.6	30.5	630	835	.....	.....	.....	.....	25.6	26.8	28.4
365TS	10.4	15.6	16.1	27.6	31.5	695	920	.....	.....	.....	.....	25.6	26.8	28.4
404TS	11.9	16.8	17.2	29.6	33.6	830	1145	.....	.....	.....	.....	.....	.....	29.6
405TS	11.9	16.8	17.2	31.1	35.1	915	1260	.....	.....	.....	.....	.....	.....	29.6
444TS	12.9	19.3	18.8	34.1	38.4	1050	1650	.....	.....	.....	.....	.....	.....	33.9
445TS	12.9	19.3	18.8	36.1	40.4	1250	1950	.....	.....	.....	.....	.....	.....	33.9

① Tolerance = +.000 to -.001.

② This dimension will never be exceeded. When exact

dimension is required, shims up to .03 may be necessary

③ Approximate weight without motor.

④ When special seal for hazardous dust conditions is used, add .50 inch to T, P, and PB dimensions.

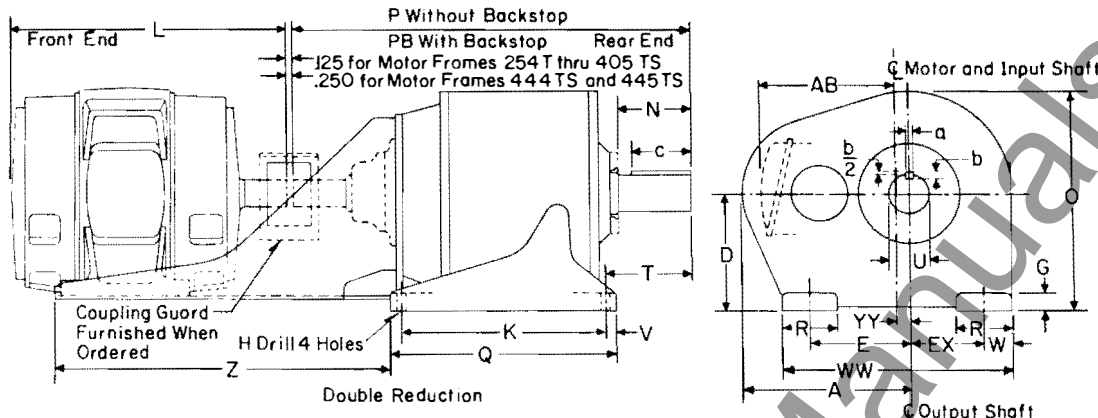
Reproduced from Drawing 2731-D-01, sub 5.

PRELIMINARY ☐ CERTIFIED ☐ PRINT FOR:

Customer				Customer Order			
G.O.				Item No.			
Motor Rpm	Output Rpm	AGMA Class	Hp.	Phase	Hz.	Volts	
Application		Signed				Date	



Double Reduction, Type U, Gear Sizes 88D-92D



Dimensions, Inches Not to be used for construction purposes unless dimensions are approved.

Gear Case Dimensions

Gear Size	U ^①	Key a	b	c	A	D ^②	E	EX	G	H	K	N	O	P	Q	R	PB	T	V	W	WW	YY	Approx. Wt. Lbs. ^③
88D	4.500	1.00	1.00	.75	19.0	13.00	11.50	8.75	2.0	1.62	25.50	9.0	23.9	40.1	29.0	6.0	41.9	11.4	1.8	3.0	26.2	...	1227
92D	5.000	1.25	.88	.75	20.6	14.50	12.62	9.38	2.2	1.88	28.00	9.0	27.5	43.5	31.5	7.0	46.7	11.4	1.8	3.0	28.0	1.6	1300

AC Motor Dimensions, Life-Line T

Motor Frame	Drip-proof, TEFC & Explosion Proof				Z Dimensions		Gear Size	
	AB	L Dim.			Motor Wt. Lbs.			
	DP	TEFC	DP	TEFC	DP	TEFC	88D	92D
254T	10.3	11.0	20.5	23.0	200	260	...	...
256T	10.3	11.0	22.3	24.8	240	320	...	...
284T	11.2	11.9	23.3	25.8	300	360	24.5	...
286T	11.2	11.9	24.8	27.3	370	450	24.5	...
324T	14.3	12.9	26.1	28.8	475	550	26.7	27.5
326TS	14.3	12.9	26.1	28.8	525	610	26.7	27.5
364TS	15.6	16.1	26.6	30.5	630	835	26.0	27.0
365TS	15.6	16.1	27.6	31.5	695	920	26.0	27.0
404TS	16.8	17.2	29.6	33.6	830	1145	27.2	31.0
405TS	16.8	17.2	31.1	35.1	915	1260	27.2	31.0
444TS	19.3	18.8	34.1	38.4	1050	1650	31.5	35.2
445TS	19.3	18.8	36.1	40.4	1250	1950	31.5	35.2

- ① Tolerance = +.000 to -.001.
 ② This dimension will never be exceeded. When exact dimension is required, shims up to .03 may be necessary.
 ③ Approximate weight without motor.

Reproduced from Drawing 2731-D-01, sub 5.

Moduline Slide Rails

Gear Size	A	B	C ^④	E	F	G	H	J	K	L	M	P	W	Total Adj.
10	8.25	15.25	2.00	.25	1.25	.50	13.25	.38	.38	4.00	16.25	.56	2.25	3.00
21	9.00	18.25	2.00	.38	1.75	.62	15.50	.50	.50	5.00	19.50	.62	2.62	3.50
32	11.00	22.00	2.50	.50	2.00	.75	18.50	.50	.62	5.00	23.50	.69	3.00	4.00
43	14.00	26.75	3.00	.50	2.00	.88	23.00	.75	.75	6.00	28.50	.88	3.25	5.00
54-64	16.00	30.75	4.00	.50	1.75	1.00	26.75	.75	.88	7.00	32.75	.94	4.38	6.00
76	18.50	37.50	4.00	.75	2.75	1.25	32.00	.88	1.00	9.50	40.00	1.25	4.75	8.00
88	20.25	45.25	4.50	.75	3.75	1.62	39.00	.88	1.50	10.50	48.50	1.50	5.25	9.00
92	22.00	45.25	4.50	.75	3.75	1.62	39.00	.88	1.50	10.50	48.50	1.50	5.25	9.00

④ Tolerance = +.000 to -.125.

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PRINT FOR:

Customer		Customer Order	
G.O.		Item No.	
Motor Rpm	Output Rpm	AGMA Class	Hp.
Application		Signed	Date



Westinghouse Electric Corporation
Medium Motor and Gearing Division
Buffalo, New York, U.S.A. 14240

2971-4 FWEA
Dimension Sheet

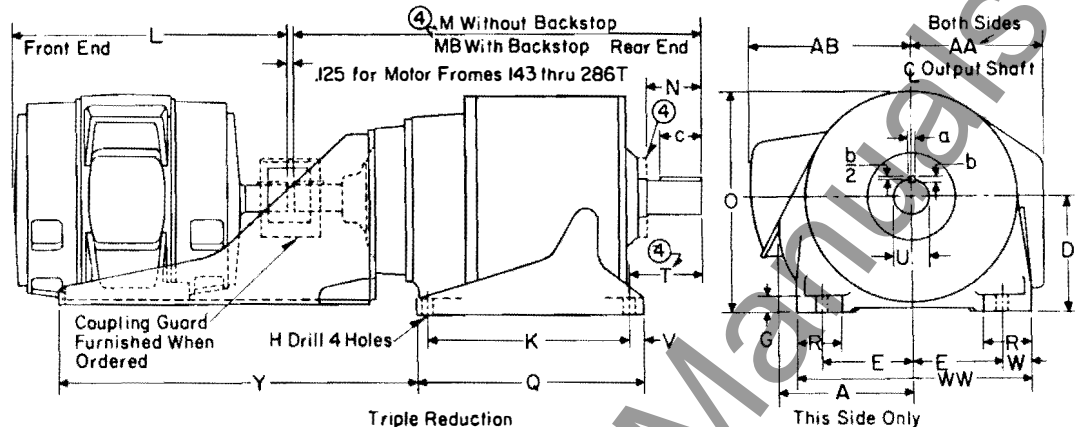
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December, 1975
Supersedes 2971-4
Dimension Sheet
pages 7-8 dated December, 1972
Mailed to: E, D, C/1778/DS

Triple Reduction, Type U
Life-Line T Motors
Drip-proof, TEFC, Explosion Proof

Moduline® Ac All-Motor Gearmotors

Triple Reduction, Type U, Gear Sizes 21T-76T



Dimensions, Inches Not to be used for construction purposes unless dimensions are approved.

Gear Case Dimensions

Gear Size	U ^①	Key a	b	c	A	D ^②	E	G	H	K	MB	M	N	O	Q	R	T	V	W	WW	Approx. Wt. Lbs. ^③
21T	1.625	.38	.38	2.5	...	6.25	4.50	1.0	.56	9.75	23.8	22.8	3.4	11.7	11.1	2.2	4.2	.7	1.5	12.0	130
32T	1.875	.50	.50	3.0	...	7.25	5.50	1.1	.68	13.50	25.9	24.9	3.8	13.9	15.0	2.8	4.8	.8	1.8	14.5	191
43T	2.125	.50	.50	3.5	...	9.25	7.00	1.2	.81	15.00	27.9	26.8	4.4	16.6	17.0	3.2	5.3	1.0	2.0	18.0	287
54T	2.625	.62	.62	4.0	...	10.75	8.00	1.2	.94	17.25	33.7	32.2	5.2	20.0	19.2	4.0	6.5	1.0	2.4	20.8	499
64T	3.125	.75	.75	5.0	12.3	10.75	8.00	1.2	.94	17.25	36.1	34.6	6.2	20.0	19.2	4.0	7.7	1.0	2.4	20.8	570
76T	3.625	.88	.88	6.0	13.4	12.00	9.25	1.8	1.06	20.00	40.0	38.5	7.2	22.8	22.7	4.8	8.9	1.4	2.8	24.0	773

Ac Motor Dimensions, Life-Line T

Motor Frame	Drip-proof, TEFC & Explosion Proof						Y Dimensions							
	AA		AB		L Dim.		Motor Wt. Lbs.		Gear Size					
	DP & TEFC	DP	TEFC	DP	TEFC	DP	TEFC	DP	21T	32T	43T	54T	64T	76T
143T	4.1	5.6	6.6	12.6	14.2	40	43	19.3	17.1	18.8	20.4	...	...	21.0
145T	4.1	5.6	6.6	12.6	14.2	45	48	19.3	17.1	18.8	20.4	...	...	21.0
182T	5.4	6.4	7.3	14.1	15.8	55	72	...	17.5	19.1	20.8	22.0	...	21.3
184T	5.4	6.4	7.3	14.1	15.8	65	82	...	17.5	19.1	20.8	22.0	...	21.3
213T	6.0	8.4	8.7	15.8	17.7	85	140	...	...	...	23.8	25.0	...	24.3
215T	6.0	8.4	8.7	17.3	19.2	110	175	...	...	...	23.8	25.0	...	24.3
254T	7.3	10.3	11.0	20.5	23.0	200	260	...	...	...	...	28.0	...	27.3
256T	7.3	10.3	11.0	22.3	24.8	240	320	...	...	...	...	28.0	...	27.3
284T	8.1	11.2	11.9	23.3	25.8	300	360	...	...	...	...	30.0	...	29.3
286T	8.1	11.2	11.9	24.8	27.3	370	450	...	...	...	...	30.0	...	29.3

① Tolerance = +.000 to -.001.

② This dimension will never be exceeded. When exact dimension is required, shims up to .03 may be necessary.

● Approximate weight without motor.

④ When special seal for hazardous dust conditions is used, add .50 inch to T, M, and MB Dimensions.

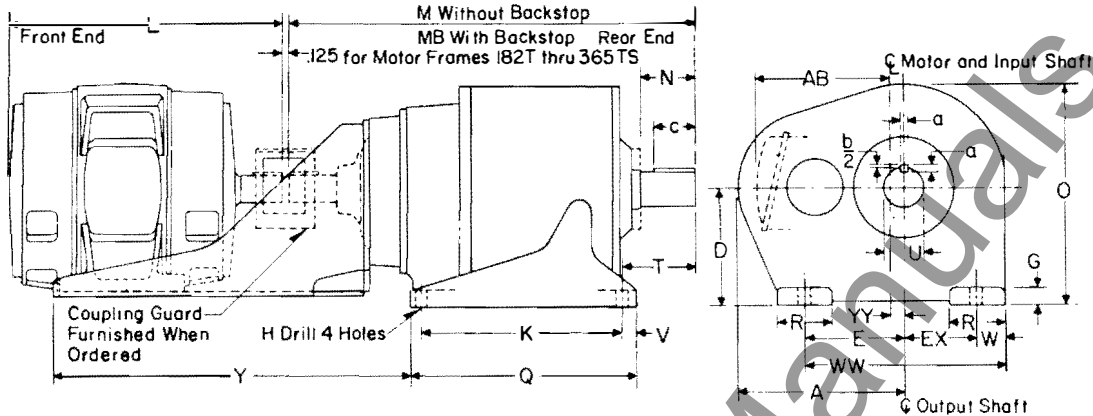
Reproduced from Drawing 2731-D-01, sub 5.

PRELIMINARY ☐ CERTIFIED ☐ PRINT FOR:

Customer				Customer Order			
G.O.				Item No.			
Motor Rpm	Output Rpm	AGMA Class	Hp.	Phase	Hz.	Volts	
Application		Signed				Date	



Triple Reduction, Type U, Gear Sizes 88T-92T



Dimensions, Inches Not to be used for construction purposes unless dimensions are approved.

Gear Case Dimensions

Gear Size	U①	Key a	b	c	A	D②	E	EX	G	H	K	MB	M	N	O	Q	R	T	V	W	WW	YY	Approx. Wt. Lbs. ③
88T	4.500	1.00	1.00	7.5	19.0	13.00	11.50	8.75	2.0	1.62	2550	46.0	44.5	9.0	23.9	29.0	6.0	11.4	1.8	3.0	26.2	...	1236
92T	5.000	1.25	.88	7.5	20.6	14.50	12.62	9.38	2.2	1.88	2800	47.6	46.2	9.0	27.5	31.5	7.0	11.4	1.8	3.0	28.0	1.6	1450

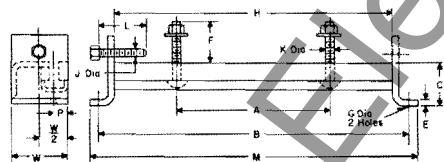
Ac Motor Dimensions, Life-Line T

Motor Frame	Drip-proof, TEFC & Explosion Proof				Motor Wt. Lbs.		Y Dimensions	
	AB	L Dim.					Gear Size	
	DP	TEFC	DP	TEFC	DP	TEFC	88T	92T
182T	6.4	7.3	14.1	15.8	55	72	19.0	...
184T	6.4	7.3	14.1	15.8	65	82	19.0	...
213T	8.4	8.7	15.8	17.7	85	140	22.0	20.8
215T	8.4	8.7	17.3	19.2	110	175	22.0	20.8
254T	10.3	11.0	20.5	23.0	200	260	25.0	26.6
256T	10.3	11.0	22.3	24.8	240	320	25.0	26.6
284T	11.2	11.9	23.3	25.8	300	360	27.0	28.6
286T	11.2	11.9	24.8	27.3	370	450	27.0	28.6
324T	14.3	12.9	26.1	28.8	475	550	29.3	30.8
326TS	14.3	12.9	26.1	28.8	525	610	29.3	30.8
364TS	15.6	16.1	26.6	30.5	630	835	...	27.8
365TS	15.6	16.1	27.6	31.5	695	920	...	27.8

- ① Tolerance = +.000 to -.001.
② This dimension will never be exceeded. When exact dimension is required, shims up to .03 may be necessary.
③ Approximate weight without motor.

Reproduced from Drawing 2731-D-01, sub 5.

Moduline Slide Rails



Gear Size	A	B	C④	E	F	G	H	J	K	L	M	P	W	Total Adj.
10	8.25	15.25	2.00	.25	1.25	.50	13.25	.38	.38	4.00	16.25	.56	2.25	3.00
21	9.00	18.25	2.00	.38	1.75	.62	15.50	.50	.50	5.00	19.50	.62	2.62	3.50
32	11.00	22.00	2.50	.50	2.00	.74	18.50	.50	.62	5.00	23.50	.69	3.00	4.00
43	14.00	26.75	3.00	.50	2.00	.88	23.00	.75	.75	6.00	28.50	.88	3.25	5.00
54-64	16.00	30.75	4.00	.50	1.75	1.00	26.75	.75	.88	7.00	32.75	.94	4.38	6.00
76	18.50	37.50	4.00	.75	2.75	1.25	32.00	.88	1.00	9.50	40.00	1.25	4.75	8.00
88	20.25	45.25	4.50	.75	3.75	1.62	39.00	.88	1.50	10.50	48.50	1.50	5.25	9.00
92	22.00	45.25	4.50	.75	3.75	1.62	39.00	.88	1.50	10.50	48.50	1.50	5.25	9.00

④ Tolerance = +.000 to -.125.

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PRINT FOR:

Customer				Customer Order			
G.O.				Item No.			
Motor Rpm		Output Rpm		AGMA Class		Hp.	
Application		Signed		Phase		Hz.	
				Volts		Date	



Westinghouse Electric Corporation
Medium Motor and Gearing Division
Buffalo, New York, U.S.A. 14240

2971-4 F WE A
Dimension Sheet

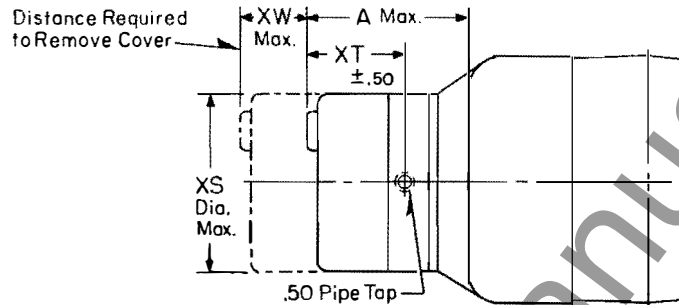
Page 9

December, 1975
Supersedes 2971-4
Dimension Sheet
page 9 dated December, 1972
Mailed to: E, D, C/1778/DS

Life-Line T Motors
Drip-proof, TEFC, Explosion Proof

Moduline® Gearmotors Brakes

Disc Brakes Standard, Dust Tight/Water Tight, Explosion Proof



Dimensions, Inches Not to be used for construction purposes unless dimensions are approved.

Standard Enclosure For use with Drip-proof and Fan Cooled Motors

Max. Brake Torque Lb. Feet	Wt., Lbs.	XS	XT	XW	A Dim. – Drip-proof Motor				A Dim. – Fan Cooled Motor				
					182-4	213-5	254-6	284-6	143-5	182-4	213-5	254-6	284-6
3	12	6.90	3.90	3.50	5.4	...	...	...	5.9	5.4	...	...	...
6	13	6.90	3.90	3.50	5.4	...	...	...	5.9	5.4	...	...	...
10	14	6.90	4.20	3.50	5.8	...	...	...	6.3	5.9	...	...	...
15	15	6.90	4.50	3.50	6.1	...	...	...	6.6	5.9	...	...	...
15	35	9.00	4.50	4.62	...	6.8	...	...	...	...	7.3	...	...
25	40	9.38	5.50	4.68	7.2	8.4	8.4	...	...	8.2	8.9	9.4	...
35	40	9.38	5.50	4.68	7.2	8.4	8.4	7.7	...	8.2	8.9	9.4	10.3
50	45	9.38	5.50	4.68	...	9.0	8.9	8.2	...	...	9.4	9.9	10.8
75	50	9.38	5.50	4.68	...	9.0	8.9	8.2	...	...	9.4	9.9	10.8
105	68	11.00	5.50	4.68	...	...	9.4	8.7	...	...	...	10.4	11.3

Dust Tight/Water Tight Enclosure For use with Fan Cooled Motors

Max. Brake Torque Lb. Feet	Wt., Lbs.	XS	XT	XW	A Dim. - Fan Cooled Motor				
					143-5	182-4	213-5	254-6	284-6
3	14	6.90	3.80	3.50	6.1	6.1	...	...	...
6	15	6.90	3.80	3.50	6.1	6.1	...	...	...
10	16	6.90	4.10	3.50	6.3	6.5	...	...	...
15	17	6.90	4.40	3.50	6.6	6.5	9.3	...	...
25	47	9.38	5.75	4.68	...	8.5	9.3	9.8	...
35	48	9.38	5.75	4.68	...	8.5	9.3	9.8	...
50	53	9.38	5.75	4.68	...	...	9.8	10.3	10.6
75	55	9.38	5.75	4.68	...	...	9.8	10.3	10.6
105	75	11.00	5.75	4.68	...	...	...	10.8	11.1

Explosion Proof Enclosure For use with Explosion Proof Motors

Max. Brake Torque Lb. Feet	Wt., Lbs.	XS	XT	XW	A Dim. - Expl. Proof Motors				
					143-5	182-4	213-5	254-6	284-6
3	38	7.88	4.80	3.62	8.1	7.5	...	...	...
6	40	7.88	4.80	3.62	8.4	7.9	...	...	...
10	42	7.88	4.80	3.62	8.7	8.2	...	...	...
15	71	9.25	5.44	4.50	...	11.0	10.5	...	...
25	73	9.25	5.44	4.50	...	11.0	10.5	11.1	...
35	75	9.25	5.44	4.50	...	11.0	11.0	11.6	13.3
50	75.5	9.25	5.44	4.50	...	...	11.0	11.6	13.3
75	78	9.25	5.44	4.50	...	...	11.5	12.1	13.8
105	83	9.25	6.19	5.50	...	...	...	12.8	14.6

Note: Use Dimension Sheet 2971-4, pages 1 through 8 for basic gearmotor dimensions.

PRELIMINARY ☐ CERTIFIED ☐ PRINT FOR:

Customer				Customer Order			
G.O.				Item No.			
Motor Rpm	Output Rpm	AGMA Class	Hp.	Phase	Hz.	Volts	
Application	Signed			Date			

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