



# APPLICATION MATRIX

APPLICATION	AC		DC		Linear Actuators		Specials	
Medical	Part #	Page#	Part #	Page#	Part #	Page#	Part #	Page#
Hospital Beds	U576AC - Gear Motor VW76AC Gear Motor	10 10	VW76DC - Gear Motor	31	U576AC VW76AC U576DC VW76DC	46 42 44 44		
Home Healthcare Beds	U576AC - Gear Motor VW76AC - Gear Motor	10 10	VW76DC - Gear Motor	31	U576AC VW76AC U576DC	42 44 44		
Nursing Beds	U576AC - Gear Motor VW76AC - Gear Motor	10 10	U576DC - Gear Motor VW76DC - Gear Motor	31 31	VW76DC U576DC VW02AC VW76AC U576AC	44 44 48 42 46		
Birthing Beds	U576AC - Gear Motor VW76AC - Gear Motor	10 10	VW76DC - Gear Motor	3	U576AC VW76AC VW02AC U576DC VW76DC	46 42 48 44 44		
Examination Tables					VW02AC	48		
Dental Chairs			U576DC - Gear Motor VW76DC - Gear Motor	31 31	U576AC VW76AC VW02AC U576DC VW76DC	46 42 48 44 44		
Medical Equipment	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW100AC VW110AC VW400AC	4 4 5 5 2 2 3 3 3 14 14 15	D1H/L D1P D3P/L D3H D10P/L D10H D10PA D10HA U576DC - Gear Motor VW130DC VW375DC VW400DC	24 24 25 25 22 22 23 23 31 34 36 36	VW02AC	48		
Peristaltic Pumps	D1H/L D1P/L D3PL D3H D10P/L D10H D10PA D10HA VW11AC VW14AC VW80AC	4 ?? 5 5 2 2 3 3 8 8 9	D1H/L D1P/L D3P/L D3H D10P/L D10H D10PA D10HA U576DC - Gear Motor VW70DC VW83D	24 24 25 25 22 22 23 23 31 29 28				
Medical Instrumentation	D9 D14 VW25AC	6 6 20	D9 D25 D100 VW06DC VW26DC	28 27 28 38 38				
X-Ray Development	D1H/L D1P D3PL D3H D10 VW53AC	4 4 5 5 ?? 11	D1H/L D1P D3PL D3H D10 VW53DC VW80DC	24 24 25 25 ?? 32 30				
Handicap Vehicles			VW62DC	37			Transaxles	51
Lift-Out Chairs					U576AC VW76AC U576DC VW76DC Rack & Pinion	46 42 44 44 48		



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Food Service	Part #	Page#	Part #	Page#	Part #	Page#	Part #	Page#
Icemakers	VW11AC VW14AC VW34AC VW53AC VW58AC VW62AC VW80AC VW84AC VW100AC VW110AC VW400AC	8 8 19 11 18 18 9 16 14 14 15	VW53DC VW70DC US76DC - Gear Motor VW130DC VW400DC VW62DC	32 29 31 34 36 37				
Commercial Dishwashers	VW100AC VW110AC VW400AC	14 14 15	VW130DC VW400DC	34 36				
Food Service Equipment	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW33AC VW62AC VW84AC	4 4 5 5 2 2 3 3 19 18 16	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW62DC VW185DC VW375DC	24 24 25 25 22 22 23 23 37 39 36				
Restaurant Equipment	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW08AC VW31AC VW51AC VW62AC VW84AC	4 4 5 5 2 2 3 3 12 11 13 18 16	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW62DC VW185DC VW375DC	24 24 25 25 22 22 23 23 37 39 36				
Milk Stirring							VW44AC	50
Vending Machines	W1 D1HL D1P	7 4 4						
Popcorn Poppers	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW08AC	4 4 5 5 2 2 3 3 12	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA	24 24 25 25 22 22 23 23				
Rotisseries	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW08AC VW62AC VW84AC	4 4 5 5 2 2 3 3 12 18 12	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA	24 24 25 25 22 22 23 23				
Poultry Equipment	VW20AC VW40AC VW47AC	17 17 16						
<b>Office Equipment</b>								
Automated File Systems			VW62DC VW84DC	37 35				
Conference Room Equipment	VW100AC VW110AC VW400AC	14 14 15	US76DC - Gear Motor VW130DC VW130DC	31 34				



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	Part #	Page#	Part #	Page#	Part #	Page#	Part #	Page#
Business Machines	D9 D14 VW11AC VW14AC VW26AC VW33AC VW80AC	6 6 8 8 20 11 8	D9 D25 VW06DC VW15DC VW16DC VW26DC VW53DC VW70DC VW80DC VW83DC VW185DC VW375DC	28 27 38 26 27 38 32 29 30 28 39 36				
Postal Machines	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA	4 4 5 5 2 2 3 3	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW83DC	24 24 25 25 22 22 23 23 28				
Laminating Machines	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW11AC VW14AC VW80AC	4 4 5 5 2 2 3 3 8 8 9	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW70DC VW80D VW83DC	24 24 25 25 22 22 23 23 29 30 28				
Computer Periferels	D9 D14	6 6	D9 VW06DC	28 38				
Fax Machine			VW06DC	38				
Copy Machine	D9 D14	6 6	D9 VW06DC	28 38				
Paper Shredders	VW34AC	19	U576DC - Gear Motor	31				
Ribbon Drives	D9 D14	6 6	D9 VW06DC	28 38				
Floor Sweepers			U576DC - Gear Motor VW83DC VW88DC	31 28 33	U576DC	44		
Automated Displays	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW11AC VW14AC VW62AC VW80AC VW88AC	4 4 5 5 2 2 3 3 8 8 18 9 12	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW15DC VW16DC VW63DC VW70DC	24 24 25 25 22 22 23 23 26 27 26 29				
<b>Recreational Equipment</b>								
Exercise Equipment	VW03AC/DC VW33AC VW80AC	41 20 9	VW03AC/DC VW15DC VW16DC VW70DC VW80DC	41 26 27 29 30				
Tread Mills	VW33AC VW88AC	20 12			U576AC VW76AC VW02AC VW87AC U576DC VW76DC Rack & Pinion	46 42 48 42 44 44 48		



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APPLICATION	AC		DC		Linear Actuators		Specials	
	Part #	Page#	Part #	Page#	Part #	Page#	Part #	Page#
Recreational Equipment	US76AC - Gear Motor VW76AC - Gear Motor	16 10	VW07DC VW23DC VW31DC VW33DC VW76DC - Gear Motor	39 40 32 40 31				
Gaming	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA	4 4 5 5 2 2 3 3	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA D9	24 24 25 25 22 22 23 23 28				
<b>Financial Equipment</b>								
Security Cameras			VW06DC	38				
Banking Equipment	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW89AC	4 4 5 5 2 2 3 3 13	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW06DC	24 24 25 25 22 22 23 23 38				
Banking Machines	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA	4 4 5 5 2 2 3 3	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA	24 24 25 25 22 22 23 23				
<b>Industrial Equipment</b>								
Switch Gear	VW58AC VW77AC VW84AC	18 21 16	VW07DC	39				
Storage Retrieval Equipment	VW77AC	21						
Robotics	VW26AC VW51AC	20 13	D25 VW26DC VW51DC VW375DC	27 38 34 36				
Conveyers	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW03AC/DC VW08AC VW34AC VW47AC VW51AC VW53AC VW58AC VW62AC US76AC - Gear Motor VW76AC - Gear Motor VW80AC VW84AC VW88AC VW89AC VW100AC VW110AC VW400AC	4 4 5 5 2 2 3 3 41 12 19 16 13 11 18 18 10 10 9 16 12 13 14 14 15	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW03AC/DC VW31DC VW51DC VW53DC VW700C VW76DC - Gear Motor VW88DC VW89DC VW130DC VW185DC VW400DC	24 24 25 25 22 22 23 23 41 32 34 32 29 31 33 33 34 39 36				



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APPLICATION	AC		DC		Linear Actuators		Specials	
	Part #	Page#	Part #	Page#	Part #	Page#	Part #	Page#
Machine Tools	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA	4 4 5 5 2 2 3 3	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW07DC VW23DC VW33DC VW88DC VW89DC	24 24 25 25 22 22 23 23 39 40 40 33 33				
Woodworking Equipment	VW58AC	18	VW84DC VW88DC VW89DC	35 33 33				
Pump Drive Lubricator	VW53AC	11	VW53DC	32				
Valve Actuators	D1H/L D1P D3PL D3H D9 D10P/L D10H D10PA D10HA D14	4 4 5 5 6 2 2 3 3 6	D1H/L D1P D3PL D3H D9 D10P/L D10H D10PA D10HA D100 VW53DC VW16DC VW63DC U576DC - Gear Motor VW63DC	24 24 25 25 28 22 22 23 23 28 32 27 26 31 28				
Welding Equipment	U576AC - Gear Motor VW76AC - Gear Motor	10 10	VW07DC VW15DC VW16DC VW23DC VW31DC VW33DC VW76DC - Gear Motor VW80DC VW88DC VW89DC VW185DC	39 26 27 40 32 40 31 30 33 33 39			Transaxles	51
Packaging Equipment	VW51AC VW53AC	13 11	VW51DC VW53DC	34 32				
Chemical Equipment	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA U576AC - Gear Motor VW76AC - Gear Motor	4 4 5 5 2 2 3 3 10 10	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW31DC VW76DC - Gear Motor	24 24 25 25 22 22 23 23 32 31				
Compactors	VW20AC VW40AC	17 17						
Can Crushers	VW20AC VW40AC	17 17						
Laboratory Mixers/Grinders	VW53AC	11	VW53DC	32				
Firefighting Equipment	VW47DC	16						
Pellet Stove	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW11AC VW14AC	4 4 5 5 2 2 3 3 8 8	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW70DC VW76DC - Gear Motor	24 24 25 25 22 22 23 23 29 31				





# APPLICATION MATRIX

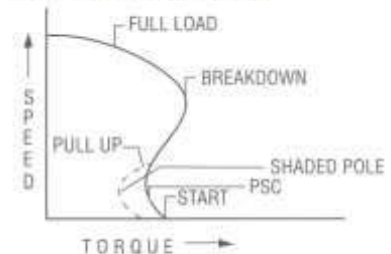
APPLICATION	AC		DC		Linear Actuators		Specials	
	Part #	Page#	Part #	Page#	Part #	Page#	Part #	Page#
Pellet Stove (con't)	VW31AC U576AC - Gear Motor VW76AC - Gear Motor VW80AC	11 10 10 9						
Mechanical Pool Covers	VW20AC	17						
Gate Openers	VW53AC	11	VW53DC	32	U576DC - SATELLITE VW76DC - SATELLITE	45 45		
Binding Equipment	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA	4 4 5 5 2 2 3 3	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW83DC	24 24 25 25 22 22 23 23 28				
Printing Equipment			VW86DC VW63DC	38 26				
<b>Agricultural Equipment</b>								
Agricultural Equipment			VW23DC VW33DC VW62DC VW84DC VW375DC	40 40 37 35 36				
Agricultural Ventilation	VW47AC	16	VW80DC U576AC U576DC VW76AC VW76DC	30 46 44 42 44	U576DC - SATELLITE VW76DC - SATELLITE VW76AC VW76DC U576AC U576DC	45 45 42 44 46 44		
Wire Feeds	VW51AC	13	VW51DC	34				
<b>Electronic Equipment</b>								
Ticket Dispensers	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW11AC VW14AC VW80AC	4 4 5 5 2 2 3 3 8 8 9	D1H/L D1P D3PL D3H D10P/L D10H D10PA D10HA VW83DC VW70DC VW83DC	24 24 25 25 22 22 23 23 26 29 28				
Positioning Devices	VW26AC	20	D25 VW26DC	27 38				
Satellite Dish Positioning			VW23DC VW33DC VW47DC	40 40 35	U576DC - SATELLITE VW76DC - SATELLITE	45 45		
Solar Panels					U576DC - SATELLITE	45		
Signal Flashers					VW76DC - SATELLITE	45	VW96DC	50
Louver Control	VW100AC VW110AC VW400AC	14 14 14	VW130DC VW400DC	34 36	U576DC - SATELLITE VW76DC - SATELLITE	45 45		
Ribbon Drives	D9 D14	6 6	D9 VW06DC	28 38				

### Motor Wiring and Performance

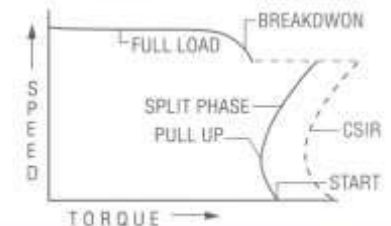
(see following page for wiring diagrams)

- Geartrains simply take input speed and torque and multiply or divide them depending on ratio. Some torque is lost due to friction, but the basic output performance mimics the input performance, just scaled up or down for ratio. Therefore, the motor performance characteristics you see on this page will be the same characteristics that you would see from a gearmotor.
- Shaded pole motors run on AC voltage and only rotate in one direction. Standard models have only two lead wires and can be turned on and off by putting voltage across the two wires. Performance characteristics are similar to PSC. Wiring (1). Performance (1).
- PSC (permanent split capacitor motors) run on AC voltage and are reversible. The capacitor must be in the circuit at all times for the unit to run properly. Standard models have three or five lead wires and should be hooked up as shown in Wiring (2a) or (2b) Performance (1).
- Split phase motors run on AC voltage and are reversible. Split phase motors have one winding that is always on line and one that is only used for starting. A centrifugal switch releases when the motor comes up to speed, or a relay releases when the motor's inrush current subsides and removes the start winding from the circuit. If the start winding remains on line for an extended period, the motor will overheat. Wiring (3a) and (3b). Performance (2).
- CSIR (capacitor start-induction run) motors run on AC voltage and are reversible. They are constructed like split phase motors, but they have a capacitor connected between the run winding and the start winding for additional starting and pull-up torque. Wiring (4). Performance (2).
- Series wound motors run on either AC or DC voltage and are reversible. They are brush commutated and have fairly short brush life (less than 500 hours in some cases). Standard models have four wires lead and are wired as shown in Wiring (5). Performance (3).
- PMDC (permanent magnet DC) motors run on DC or rectified AC voltage and are reversible. The more closely the input voltage resembles pure DC, the more efficiently the motor runs (less heat rise, longer brush life). These motors have two lead wires and the direction of rotation is determined by the polarity of the input voltage. Wiring (6). Performance (4).

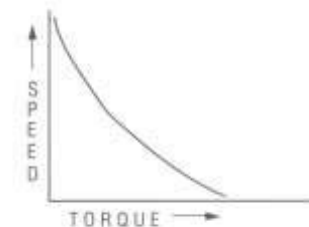
Shaded Pole & PSC Performance 1



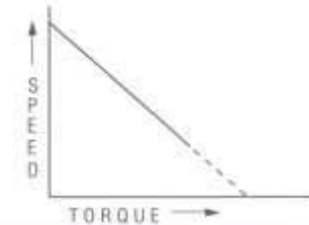
Split Phase & CSIR Performance 2



Series Performance 3

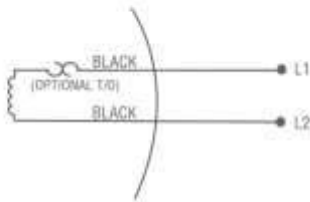


PMDC Performance 4

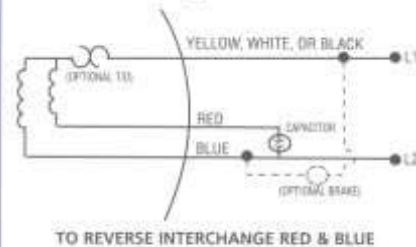


### Motor Wiring and Performance (cont.)

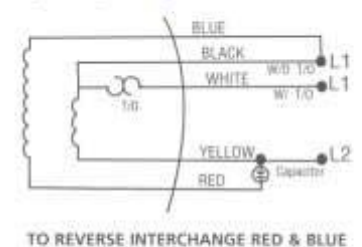
**Shaded Pole Wiring 1**



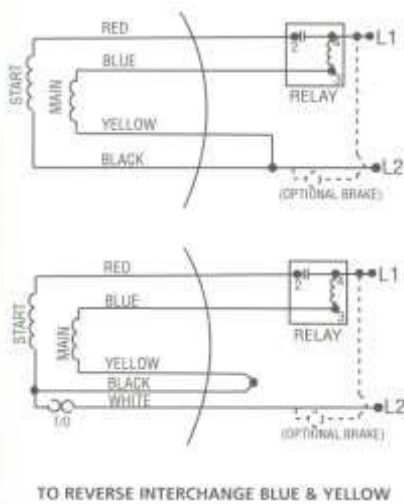
**PSC (3 wire) Wiring 2a**



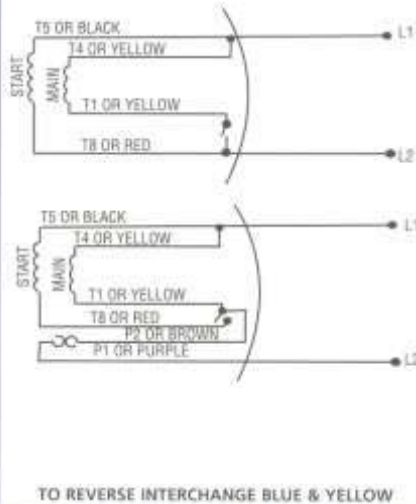
**PSC (5 wire) Wiring 2b**



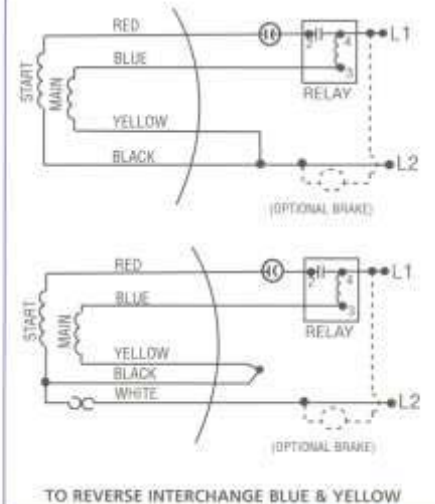
**Split Phase (relay) Wiring 3a**



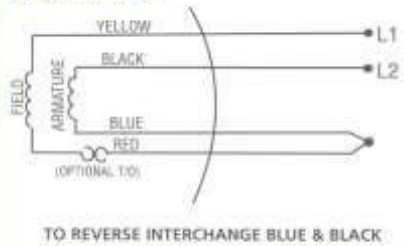
**Split Phase (centrifugal switch) Wiring 3b**



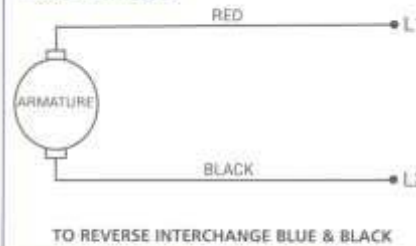
**CSIR Wiring 4**



**Series Wiring 5**



**PMDC Wiring 6**





### Torque Ratings vs. Duty Cycle

All gearmotors have duty cycle specified on individual pages. For those that are rated continuous, the motor, bearings, gears and shafts are designed to run continuously at the listed torque value without overheating. Lower torque amounts can extend life or specifying a particular life can help you. Torque levels higher than specified are sometimes possible on an intermittent basis, at times up to 1.5 times rated load. If, however, these loads will be frequent, premature failure may occur. Again, VonWeise Gearmotors can help you specify your needs.

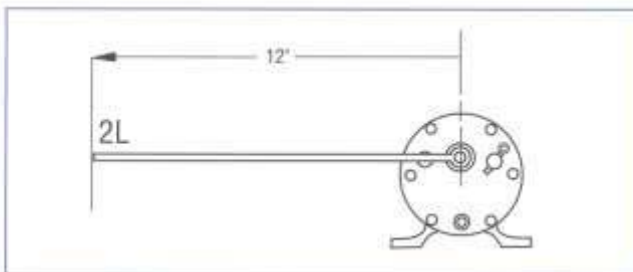
For the right angle models rated as intermittent, the motor and power train can operate for sustained periods (up to several hours) at rated torque values, but when run continuously the motor can deteriorate rapidly. Used typically in cycling operations, where the duty cycle precludes mechanical overheating, these units can provide many years of reliable service.

For intermittent applications, many times a smaller, more cost effective motor or gearbox can be used. Be sure to specify duty cycle completely on application data sheets so that the optimum gearmotor can be selected.

### Torque Overhung Load

All gearmotors have torque and overhung load specified on individual pages.

Torque is the tendency of your load to twist the output shaft of a gearmotor. Torque is measured as a force x a distance. For example, a (2) lbs. weight supported (12) inches away from the centerline of the output shaft of a gearmotor would require 2 lbs. X 12 in = 24 lb-ins of torque to move.



Knowing your exact torque requirements helps you optimize your gearmotor selection. You can get just the gearmotor you need, or if you want some safety margin, you'll know how much safety margin you've got. Torque can be measured using a torque wrench or using a wheel of a known diameter and force scale (similar to a postage or fish scale). Torque can also be calculated based on load and its vectoral distance from the gearmotor output shaft.

Your torque load is made up of a force at a distance and that force constitutes an overhung load. If the gearmotor/shaft couples to a shaft that is supported at each end, then you have isolated the overhung load from the gearmotor. In this case, be sure that the coupling arrangement allows for proper alignment between the gearmotor shaft and the supported shaft. If it doesn't, it can preload the bearings in the gearmotor and cause poor performance and premature failure.

If the gearmotor output shaft transmits its torque through a chain, pulley, gear train or rack and pinion, these devices will create an overhung load on the shaft. This load can be figured by the equation below:

$$\text{Overhung Load} = \frac{\text{Torque} \times K}{\text{Radius (of pulley, sprocket or pinion)}}$$

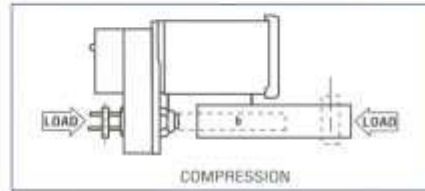
Or

$$\text{Overhung Load} = \frac{\text{Torque} \times 2 \times K}{\text{Diameter (of pulley, sprocket or pinion)}}$$

K is a load factor for the type of transmission you use. For chain and sprocket, K = 1.0; for gear and pinion or rack and pinion, K = 1.25; for belt and pulley, K = 1.5. Be sure that your pulley, sprocket or pinion diameter is large enough to stay within the published overhung load capacities.

### Thrust Rating vs. Duty Cycle

All linear actuators in catalog are intermittent duty rated. The thrust ratings shown in the catalog are set up around 25% on-time per minute of operation. For infrequent bursts of power, most units can handle up to 1.5 times rated load. Consistent heavy cycling of loads in excess of the rating may cause units to fail. When in the design stage, keep in mind that although our Gearmotors linear actuators are designed to provide equal thrust in both directions, the load bearing capacity is higher in compression than in tension.



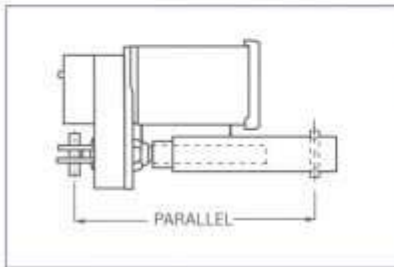
As with the gearmotors before, the performance of the

linear actuators mimic the performance of the motors that drive them. The only difference is that rotary speed and torque are replaced by linear speed and thrust. However, start thrust, breakdown thrust and pull-up thrust all exist just as would be expected.

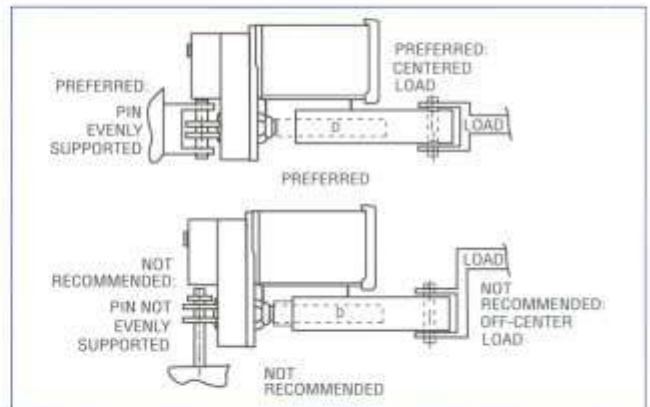
### Mounting and Alignment

In order to get proper performance and maximum life, linear actuators should be mounted to be free of side loads. The best way to ensure this is to use clevis mounting at each end and to ensure that the clevis mounting pins remain parallel at all times.

Also, be sure that the pins are evenly supported on each side and the load is centered about the actuator.



The last consideration in mounting is restraining torque. All linear actuators have rotating output shafts and the travel tube or



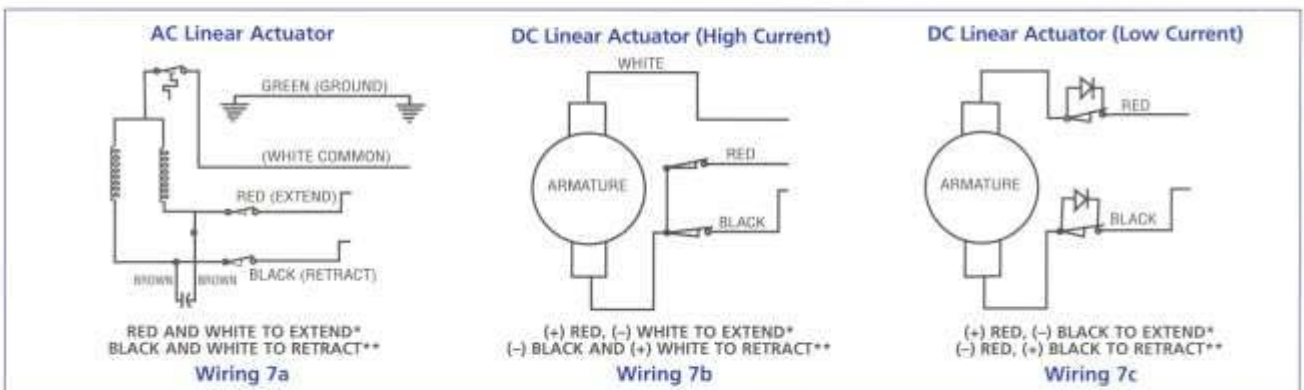
acme nut will simply rotate as well unless it is kept from rotating. The restraining torque requirement can be calculated as:

$$\text{Restraining Torque (lb-inches)} = .2 \times \text{Axial Load (lbs.)}$$

### Wiring

AC linear actuators come standard with PSC motors that have capacitors already mounted and wired in. DC linear actuators have two wiring diagrams depending on the

amp draw of the motor. All units are prewired through limit switches that shut the actuator off at either end of travel. (Wiring 7a, 7b, 7c)





### How to use the Selection Guide of Stocked Gearmotors

Two key requirements in selecting a gearmotor are Speed (RPM) and Torque (in.lb.). These two specifications quickly determine the available models to consider. From this group, the best choice can be made by reviewing mounting configurations, shaft dimensions, voltage, etc.

**Example:**

A gearmotor is required to rotate a large display case at 6 RPM. The amount of torque needed – measured by a torque wrench – is 200 in.lb.

**Step 1:** Go to the AC section of the Selection Guide, since adjustable speed is not needed.

**Step 2:** Read down the RPM column to the grouping of 6 RPM models.

**Step 3:** In the adjacent Torque column find all the 6 RPM models with at least 200 in.lb. torque.

**Step 4:** With this group of gearmotors, review their voltage, mounting configuration, shaft characteristics, etc. for the gearmotor that best suits the application.

### AC Gearmotors

(continued)

F/L RPM	F/L Torque in. Lbs.	Input HP	Volts		Motor Type	Grainger SKU	Gearbox Reference and Page
			60Hz	50HZ			
1	50	1/400	115		Shaded Pole	22804	VW11 Pg. 8
1	100	1/100	115	115	Shaded Pole	4LL05	VW11 Pg. 8
1	100	1/100	115		Shaded Pole	21001	VW707*
1	3000	1/15	115/230	115/230	P.S.C.	1L570	VW47 Pg. 16
1.3	250	1/50	115/230	115/230	P.S.C.	1L554	VW33 Pg. 20
2	25	1/400	115		Shaded Pole	22805	VW11 Pg. 8
2	113	1/10	115		Shaded Pole	1L490*	VW08 Pg. 12
2	113	1/20	115		Shaded Pole	3M125	VW08 Pg. 12
2	1900	1/12	115/230	115/230	P.S.C.	1L571	VW47 Pg. 16
3	200	1/20	115/230	115/230	P.S.C.	1L555	VW33 Pg. 20
3.5	50	1/250	115/230	115/230	P.S.C.	1L548	VW14 Pg. 8
4	130	1/90	115		Shaded Pole	62906	VW707*
5.6	200	1/14	115/230	115/230	P.S.C.	1L556	VW33 Pg. 20
6	22.5	1/330	115		Shaded Pole	22806	VW11 Pg. 8
6	40	1/100	115	115	Shaded Pole	4LL06	VW11 Pg. 8
6	113	1/10	115		Shaded Pole	1L489*	VW08 Pg. 12
6	113	1/20	115		Shaded Pole	3M126	VW08 Pg. 12
6	113	1/10	115		Shaded Pole	3M135	VW08 Pg. 12
6	250	2/85	115		Shaded Pole	62907	VW707*
6	500	1/15	115/230	115/230	P.S.C.	2H417	VW102 Pg. 14
6	500	1/15	115/230	115/230	P.S.C.	2H431	VW104 Pg. 14
6	600	1/12	115/230	115/230	P.S.C.	1L572	VW84 Pg. 16
6	600	1/4	115		Split Phase	5K933	VW20 Pg. 17
7	50	1/125	115/230	115/230	P.S.C.	1L549	VW14 Pg. 8
8	500	1/12	115/230	115/230	P.S.C.	2H433	VW104 Pg. 14
9	200	1/16	115/230	115/230	P.S.C.	1L557	VW33 Pg. 20
10	500	1/10	115/230	115/230	P.S.C.	2H419	VW102 Pg. 14
10	500	1/10	115/230	115/230	P.S.C.	2H435	VW104 Pg. 14
12	25.7	1/135	115		Shaded Pole	22807	VW11 Pg. 8
12	40	1/85	115	115	Shaded Pole	4LL07	VW11 Pg. 8
12	113	1/10	115		Shaded Pole	1L488*	VW08 Pg. 12
12	113	1/20	115		Shaded Pole	3M127	VW08 Pg. 12
12	113	1/10	115		Shaded Pole	3M136	VW08 Pg. 12
12	400	1/14	115/230	115/230	P.S.C.	1L573	VW84 Pg. 16
12	500	1/9	115/230	115/230	P.S.C.	2H437	VW104 Pg. 14
12	600	1/4	115		Split Phase	5K934	VW20 Pg. 17
15	340	1/10	115/230	115/230	P.S.C.	2H421	VW102 Pg. 14
15	500	1/8	115/230	115/230	P.S.C.	2H439	VW114 Pg. 14
18	550	1/4	115		Split Phase	5K935	VW20 Pg. 17
19	250	1/12	115/230	115/230	P.S.C.	1L574	VW84 Pg. 16
20	15.2	1/120	115		Shaded Pole	22808	VW11 Pg. 8
20	500	1/6	115/230	115/230	P.S.C.	2H441	VW114 Pg. 14

\* Not in catalog

F/L RPM	F/L Torque in. Lbs.	Input HP	Volts		Motor Type	Grainger SKU	Gearbox Reference and Page
			60Hz	50HZ			
21	170	1/12	115/230	115/230	P.S.C.	1L558	VW33 Pg. 20
25	45	1/85	115		Shaded Pole	62908	VW707*
28	175	1/13	115/230	115/230	P.S.C.	1L575	VW84 Pg. 16
29	150	1/13	115/230	115/230	P.S.C.	1L586	VW89 Pg. 13
29	185	1/10	115/230	115/230	P.S.C.	2H423	VW102 Pg. 14
30	11.6	1/120	115		Shaded Pole	22809	VW11 Pg. 8
30	42	1/20	115		Shaded Pole	3M128	VW08 Pg. 12
30	113	1/10	115		Shaded Pole	3M137	VW08 Pg. 12
30	113	1/10	115		Shaded Pole	3M158*	VW08 Pg. 12
30	400	1/4	115		Split Phase	5K939	VW20 Pg. 17
30	800	1/2	115		Split Phase	22794	VW40 Pg. 17
31	360	1/5	115/230	110/220	P.S.C.	2H444	VW114 Pg. 14
35	50	1/25	115/230	115/230	P.S.C.	1L550	VW14 Pg. 8
39	89	1/12	115/230	115/230	P.S.C.	1L559	VW33 Pg. 20
40	330	1/4	115		Split Phase	5K941	VW20 Pg. 17
42	125	1/10	115/230	115/230	P.S.C.	2H425	VW102 Pg. 14
43	265	1/5	115/230	110/220	P.S.C.	2H446	VW114 Pg. 14
48	100	1/12	115/230	115/230	P.S.C.	1L576	VW84 Pg. 16
50	25	1/45	115		Shaded Pole	62909	VW707*
57	85	1/13	115/230	115/230	P.S.C.	1L587	VW89 Pg. 13
60	4.7	1/120	115		Shaded Pole	22810	VW11 Pg. 8
60	59	1/10	115		Shaded Pole	1L487*	VW08 Pg. 12
60	59	1/10	115		Shaded Pole	3M138	VW08 Pg. 12
60	93	1/10	115/230	115/230	P.S.C.	2H427	VW102 Pg. 14
60	200	1/4	115		Split Phase	5K940	VW20 Pg. 17
60	400	1/2	115		Split Phase	22795	VW40 Pg. 17
63	180	1/5	115/230	110/220	P.S.C.	2H449	VW114 Pg. 14
67	30	1/25	115/230	115/230	P.S.C.	1L551	VW14 Pg. 8
86	55	1/12	115/230	115/230	P.S.C.	1L588	VW89 Pg. 13
90	150	1/4	115		Split Phase	6K993	VW20 Pg. 17
90	287	1/2	115		Split Phase	22796	VW40 Pg. 17
91	130	1/5	115/230	110/220	P.S.C.	2H451	VW114 Pg. 14
107	20	1/20	115/230	110/220	P.S.C.	1L552	VW14 Pg. 8
120	2.7	1/120	115		Shaded Pole	22811	VW11 Pg. 8
120	100	1/4	115		Split Phase	5K942	VW20 Pg. 17
155	30	1/12	115/230	115/230	P.S.C.	1L589	VW89 Pg. 13
155	36	1/10	115/230	115/230	P.S.C.	2H429	VW102 Pg. 14
156	77	1/5	115/230	110/220	P.S.C.	2H453	VW114 Pg. 14
185	12	1/20	115/230	115/230	P.S.C.	1L553	VW14 Pg. 8
200	1.18	1/120	115		Shaded Pole	22812	VW11 Pg. 8
200	4	1/45	115	115	Shaded Pole	4LL08	VW11 Pg. 8
360	3	1/45	115	115	Shaded Pole	4LL09	VW11 Pg. 8

### DC Gearmotors

F/L RPM	F/L Torque in Lbs.	Input HP	Volts DC	Grainger SKU	Gearbox Reference and Page
0.45	50	1/1200	12	4Z832	D10HA Pg. 23
1.5	25	1/1000	12	4Z833	D10HA Pg. 23
3.4	30	1/400	12	4Z834	D10HA Pg. 23
4.5	38	1/200	12	4Z835	D10HA Pg. 23
6	50	1/30	12	1L480	VW83 Pg. 29
6	500	1/15	12	1L474	VW84 Pg. 35
9	35	1/120	12	4Z836	D10HA Pg. 23
9	50	1/30	12	1L479	VW83 Pg. 29
12	40	1/90	12	4Z837	D10H Pg. 23
12	250	1/15	12	1L473	VW84 Pg. 35
17	16	1/160	12	4Z838	D10H Pg. 22
20	150	1/15	12	1L472	VW84 Pg. 35
21	50	1/30	12	1L478	VW83 Pg. 29
25	15	1/160	12	4Z839	D10H Pg. 22
32	40	1/30	12	1L477	VW83 Pg. 29
40	75	1/8	12	1L471	VW84 Pg. 35
50	10	1/90	12	4Z840	D10H Pg. 22
50	26	1/30	12	1L476	VW83 Pg. 29
60	75	1/8	12	1L470	VW84 Pg. 35
90	50	1/8	12	1L469	VW84 Pg. 35
102	13	1/30	12	1L475	VW83 Pg. 29
3.2	250	1/15	90	4Z723	VW33 Pg. 40
6	177	1/12	90	4Z724	VW33 Pg. 40
6	500	1/15	90	2H455	VW132 Pg. 34
6	500	1/15	90	2H467	VW134 Pg. 34
6.5	500	1/15	90	4Z530	VW84 Pg. 35
7	50	1/100	90	4Z534	VW83 Pg. 29
10	228	1/12	90	4Z725	VW33 Pg. 40
11	50	1/75	90	4Z535	VW83 Pg. 29
12	350	1/12	90	2H457	VW132 Pg. 34
12	350	1/12	90	2H469	VW134 Pg. 34
13	250	1/15	90	4Z531	VW84 Pg. 35
21	50	1/30	90	4Z536	VW83 Pg. 29
21	150	1/15	90	4Z532	VW84 Pg. 35
23.5	102	1/12	90	4Z726	VW33 Pg. 40
29	156	1/12	90	2H459	VW132 Pg. 34
29	156	1/12	90	2H471	VW134 Pg. 34
32	43	1/30	90	4Z537	VW83 Pg. 29
42	75	1/15	90	4Z533	VW84 Pg. 35
43	105	1/12	90	2H461	VW132 Pg. 34
43	105	1/12	90	2H473	VW134 Pg. 34
45	56	1/12	90	4Z727	VW33 Pg. 40
50	26	1/30	90	4Z538	VW83 Pg. 29
61	78	1/12	90	2H463	VW132 Pg. 34
61	78	1/12	90	2H475	VW134 Pg. 34
89	34	1/15	90	4Z728	VW33 Pg. 40
102	13	1/30	90	4Z539	VW83 Pg. 29
157	30	1/12	90	2H465	VW132 Pg. 34
157	30	1/12	90	2H477	VW134 Pg. 34

\* Not in catalog

### Universal AC/DC Series

F/L RPM	F/L Torque in Lbs.	Input HP	Volts			Motor Type	Grainger SKU	Gearbox Reference and Page
			60Hz	50HZ	50HZ			
2.8	250	1/15	115	115	115	Left Hand	2Z797	VW03 Pg. 41
4.0	250	1/15	115	115	115	Right Hand	1L486	VW03 Pg. 41
6.7	162	1/15	115	115	115	Left Hand	2Z798	VW03 Pg. 41
6.7	162	1/15	115	115	115	Right Hand	1L485	VW03 Pg. 41
12.8	110	1/15	115	115	115	Left Hand	2Z799	VW03 Pg. 41
12.8	110	1/15	115	115	115	Right Hand	1L484	VW03 Pg. 41
21	100	1/15	115	115	115	Left Hand	2Z800	VW03 Pg. 41
21	100	1/15	115	115	115	Double	2Z801	VW03 Pg. 41
21	100	1/15	115	115	115	Right Hand	1L483	VW03 Pg. 41
50	45	1/15	115	115	115	Left Hand	2Z802	VW03 Pg. 41
50	45	1/15	115	115	115	Right Hand	1L482	VW03 Pg. 41
100	27	1/15	115	115	115	Left Hand	2Z803	VW03 Pg. 41
100	27	1/15	115	115	115	Right Hand	1L481	VW03 Pg. 41

**NOTE:** DC and AC/DC Gearmotors are listed with F/L RPM at maximum voltage shown. They are typically operated with a speed control allowing speed adjustment from 0 to the F/L RPM listed. Please refer to the index for motor controls. For Linear Actuators, see page 42.