

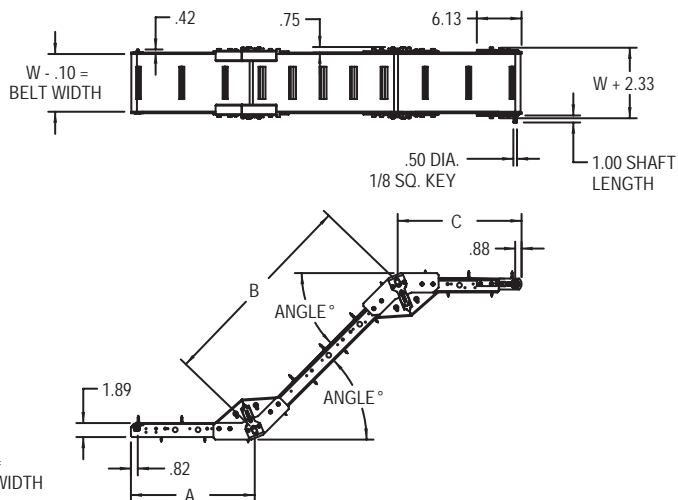
Specifications



- Width 8" to 24"
  - Length 54" to 240"
  - Profile 1.89" high
  - Drive Pulley 1.31" Diameter
  - Load Carrying Capacity to 125 lbs.\*
  - Speed Range up to 225 fpm
  - Multiple cleat heights available
- \*See Technical Data on page 79



Overview Dimensions

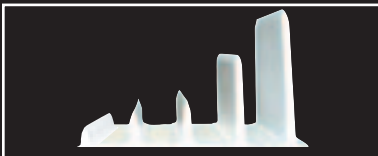


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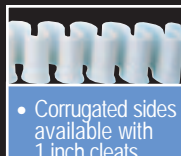
## Features & Benefits

### Conveyor

- **Low profile design** provides tight product transfers and the ability to fit into space-constrained areas
- Single piece 10-gauge steel framework is laser cut and formed to create a **single-body frame construction**, ensuring frame integrity
- **Tight tolerance belting** and our unique snap-out sealed tail assembly provide for a **quick belt change** (less than 5 minutes) that is normally achieved without having to remove the drive packages or side rails
- **Fixed angles ranging from 30° to 90°** minimize the number of required components, reducing costs as well as **providing an industry best load carrying capacity**
- **High tensile strength cleated belts** offer superior strength-to-weight ratio and are available in various styles and heights. Cleats are always **high frequency welded** to customer desired spacing and never glued to the top surface of the belt
- All components in our conveyors are produced on **state-of-the-art manufacturing equipment**



- Multiple cleat sizes and styles available  
See page 81 Step 5 for options



- Corrugated sides available with 1 inch cleats

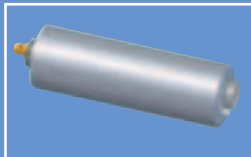
### Z Track

- **Patent-pending Z Track™** is a unique design of the angle idler assembly that offers users a way to **gain control over belt tracking at the angles of incline or decline**
- **Z Track™ adjusts rapidly for belt installation and tracking adjustments** at the angles of incline or decline and **locks in the tracking setting** to ensure long-term performance
- **Z Track™ components are precision manufactured and produced as a pressed, sealed-for-life assembly** that is **well-guarded to avoid dangerous pinch points** at the angles of incline or decline



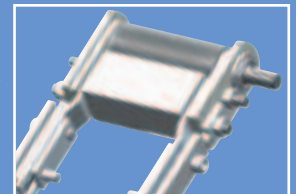
### Tail Assembly

- **Single point belt tension** is achieved through a **snap-in eccentric tail assembly** designed to pull through the natural elongation characteristics of the belt and provide quick and easy belt change capacity
- **Crowned sealed tail assembly** is designed to promote excellent belt tracking and is equipped with superior **needle bearings with seals** that are filled with high performance grease
- **Thrust washers** designed into the tail assembly provide axial float, which allows the assembly to move with the natural camber of the belt and **protect bearings against off-center load conditions**
- Grease fitting design in the tail assembly allows for lubrication of bearings while the conveyor is running, resulting in **zero down time during lubrication**
- **Precision bearing alignment** is guaranteed within the pressed tail assembly, providing optimal conditions to **move the heaviest loads** in low profile conveyors
- Eccentric tracking bushing allows for **single point tracking control** at the idler end of the conveyor

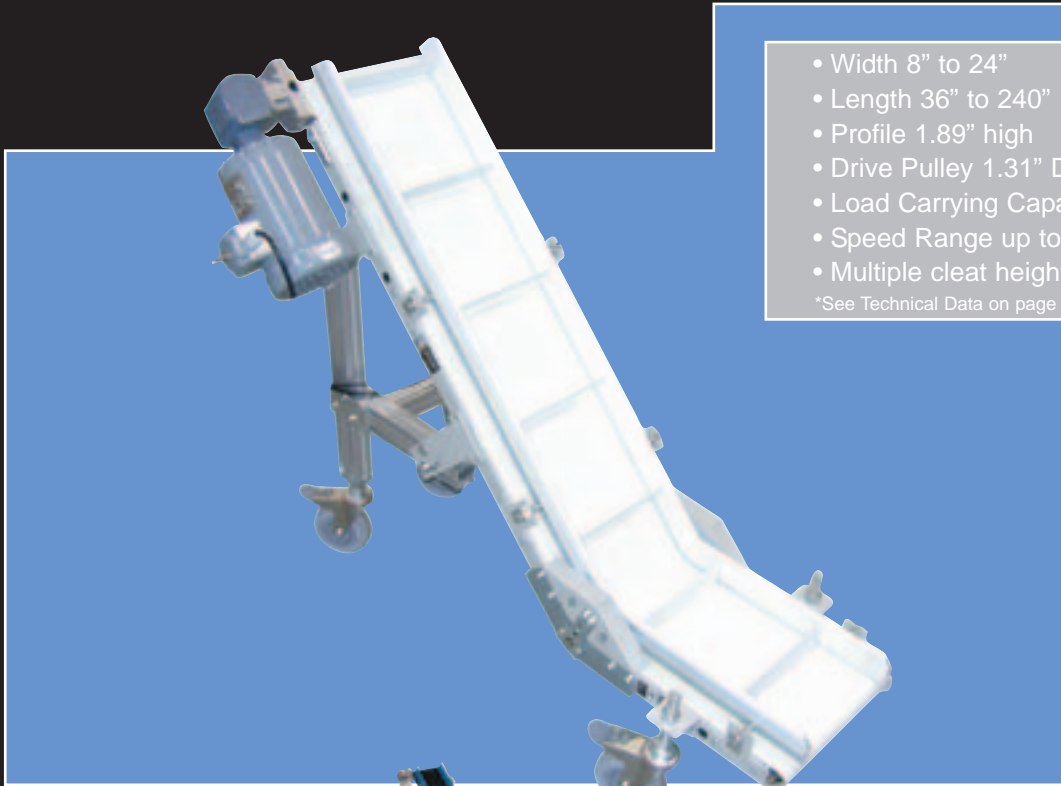


### Drive Assembly

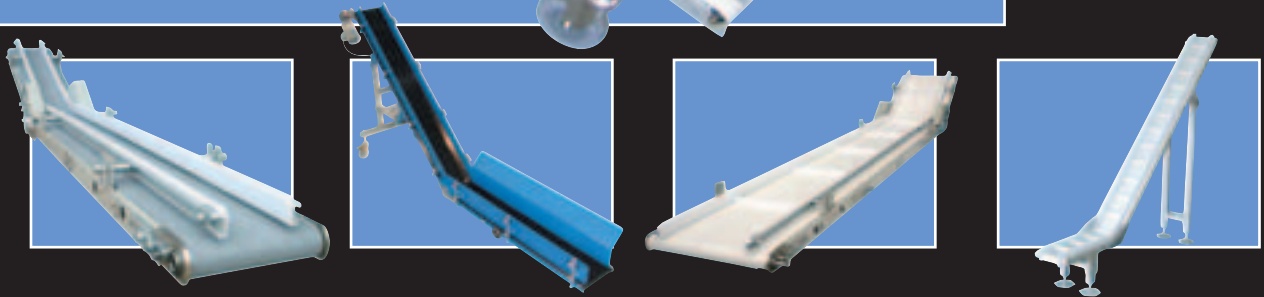
- **Straight knurl design used to prevent premature wear** on the carcass of the belt and still provide superior grip to overcome start-up inertia
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- Drive pulley is available in **solid output design** and **dual output design**



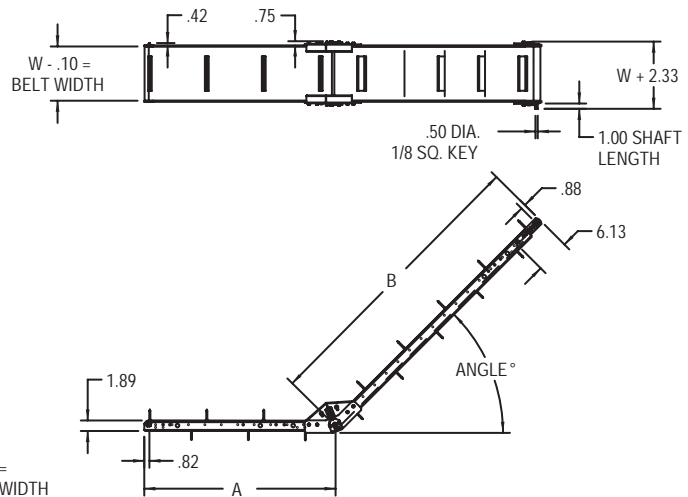
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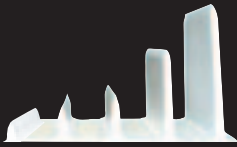


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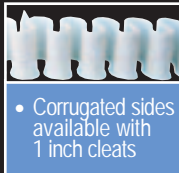
## Features & Benefits

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- Multiple cleat sizes and styles available  
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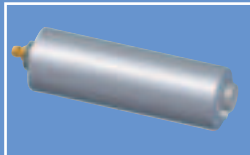
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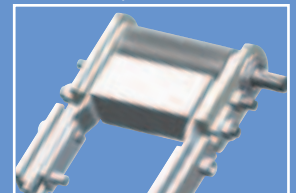
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### Drive Assembly

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- Drive pulley is available in **solid output design** and **dual output design**

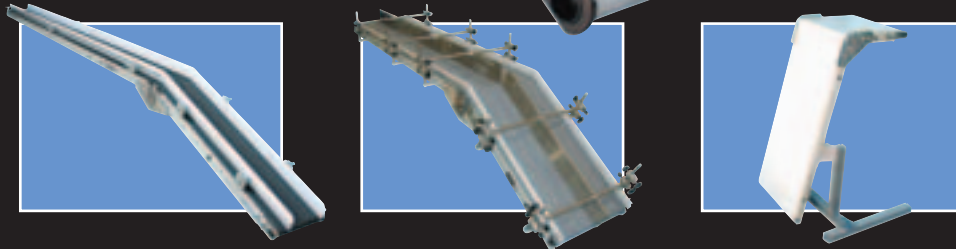


Specifications

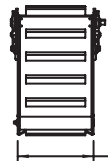
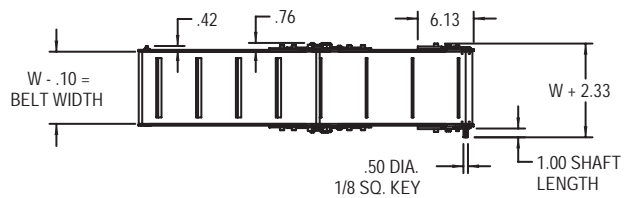


- Width 8" to 24"
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- Load Carrying Capacity to 125 lbs.\*
- Speed Range up to 225 fpm
- Multiple Cleat Heights Available

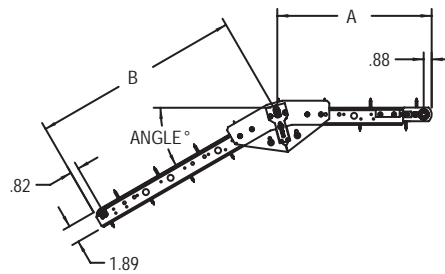
\*See Technical Data on page 79



Overview Dimensions



W + .31 =  
FRAME WIDTH

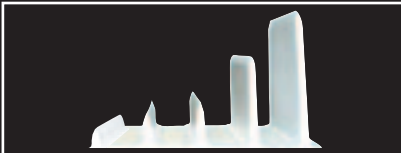


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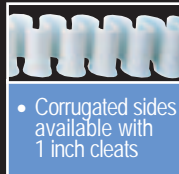
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- Multiple cleat sizes and styles available  
See page 81 Step 5 for options



- Corrugated sides available with 1 inch cleats

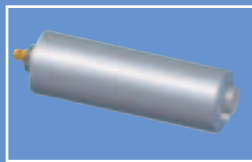
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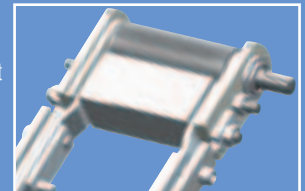
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### Drive Assembly

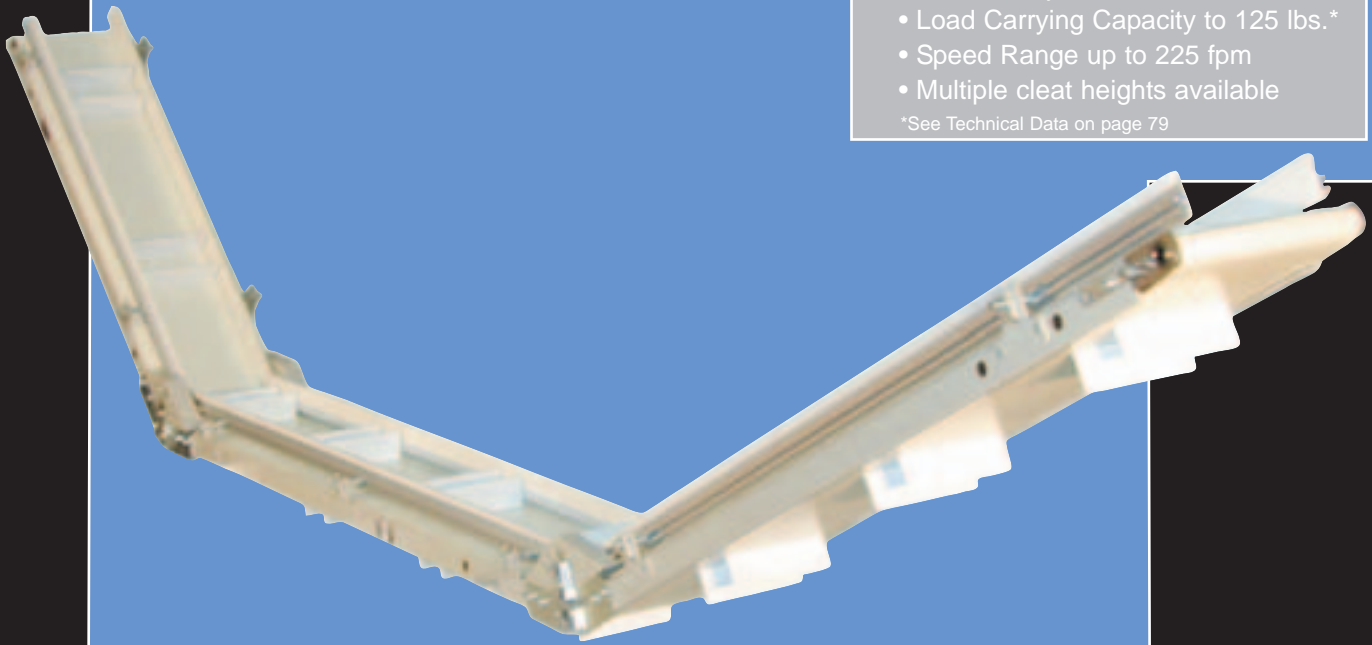
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- Drive pulley is available in **solid output design** and **dual output design**



Specifications

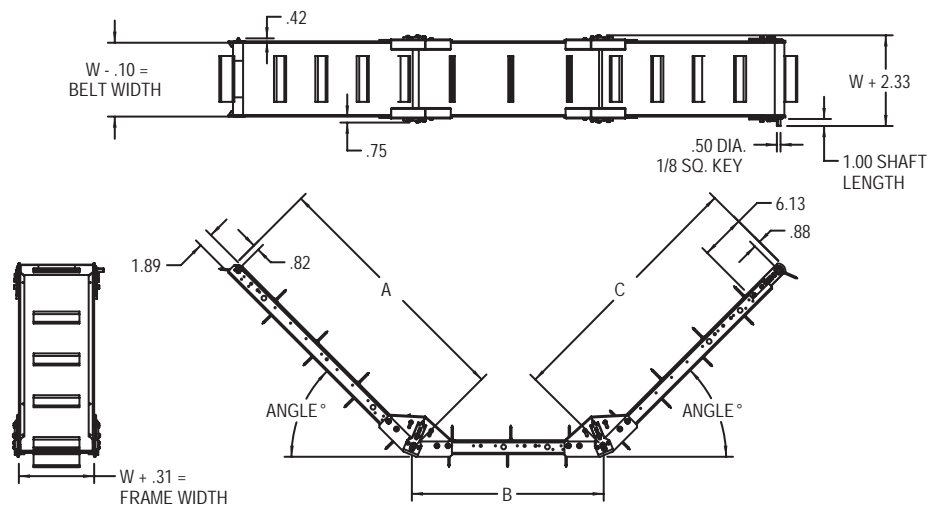
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\*See Technical Data on page 79



Overview Dimensions

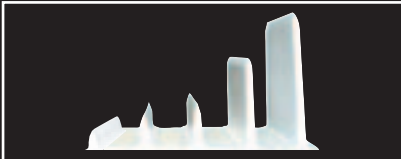
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## Features & Benefits

### Conveyor

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- Multiple cleat sizes and styles available  
See page 81 Step 5 for options



- Corrugated sides available with 1 inch cleats

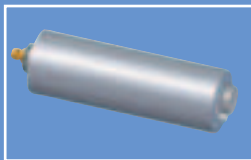
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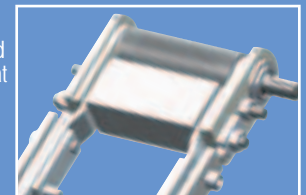
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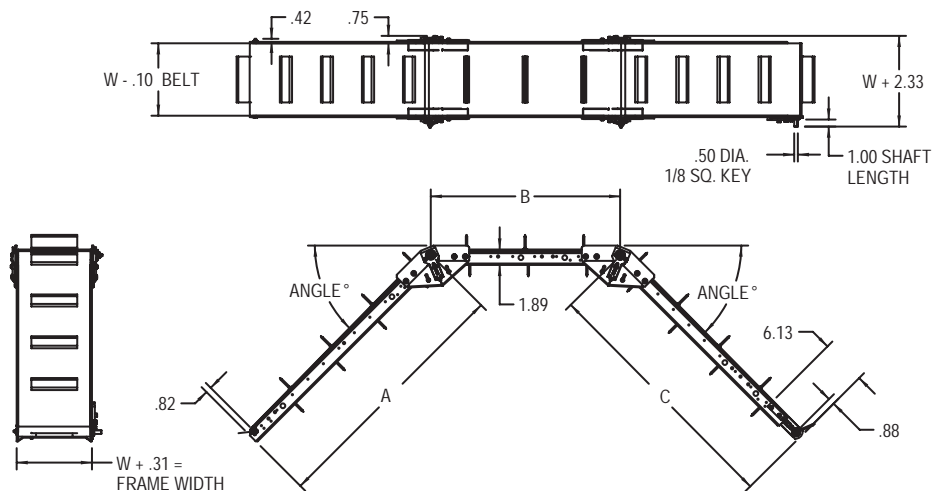
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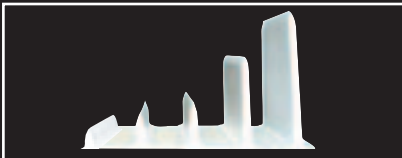


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## Features & Benefits

### Conveyor

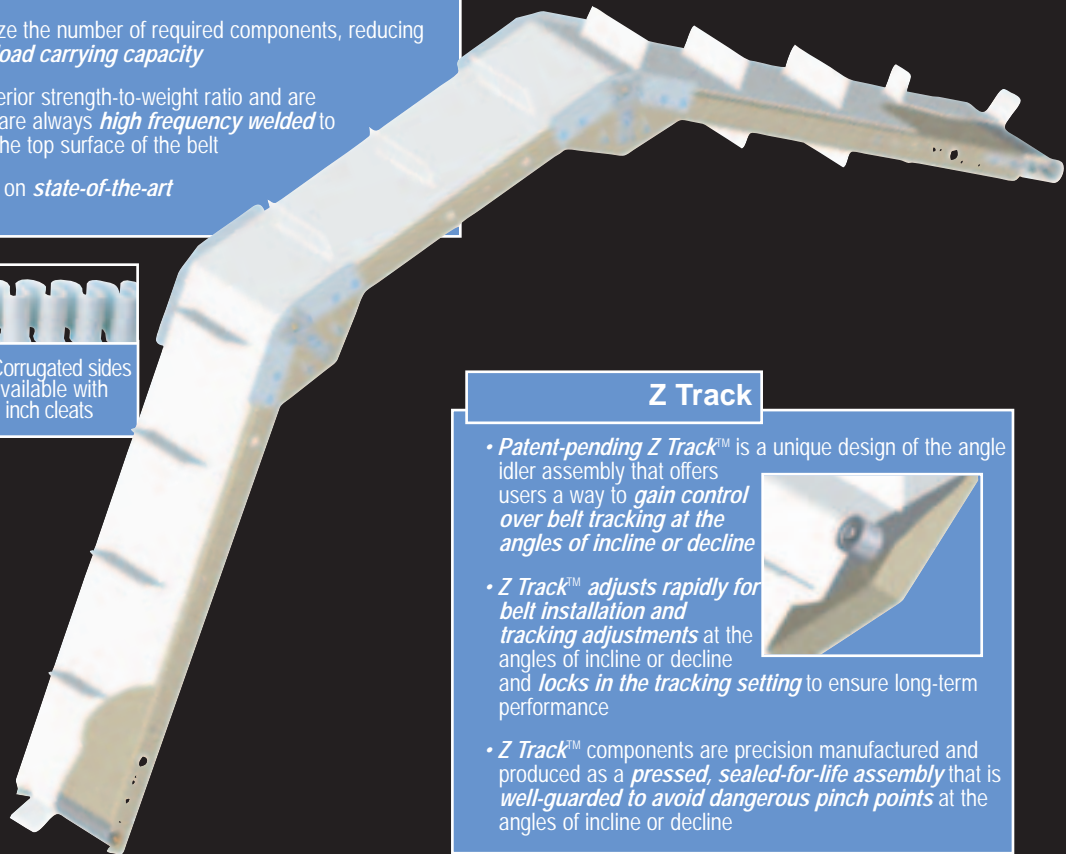
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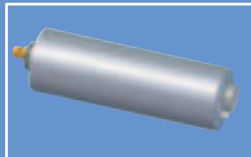
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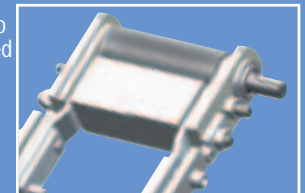
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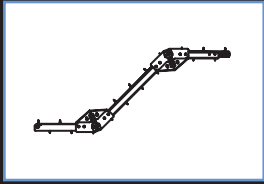
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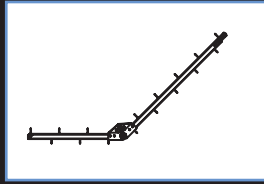
## Selecting the Frame Arrangement

Pages 78 through 81 should be used to size, select, and compile a part number. Please use the steps below to begin the process



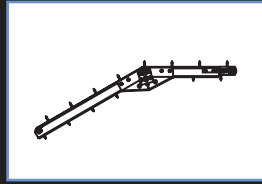
**Z**

See steps below



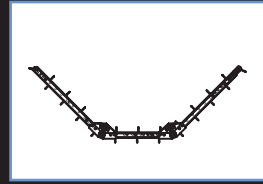
**L**

See steps below



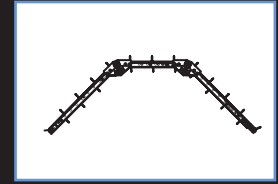
**R**

See steps below



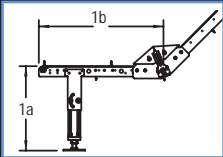
**U**

Consult Factory



**N**

Consult Factory



Choose an infeed height

Choose an infeed length (if Z or L) in 6" increments

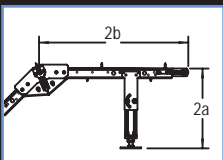
1a \_\_\_\_\_

1b \_\_\_\_\_

**Example**

1a 12"

1b 24"



Choose a discharge height

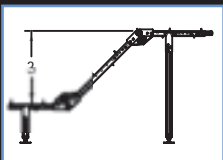
Choose a discharge length (if Z or R) in 6" increments

2a \_\_\_\_\_

2b \_\_\_\_\_

2a 48"

2b 18"

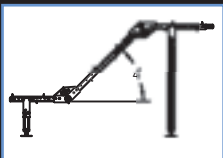


Determine rise (the difference between the discharge and infeed heights) in inches

2a - 1a

3 \_\_\_\_\_

$\frac{48'' - 12''}{36''}$  3 36"



Select the angle and enter the constant from the table below

Angle	30°	45°	60°	75°	90°
Constant (K)	.5	.7	.87	.97	1

4 \_\_\_\_\_

45° 4 .7



Determine the last frame section length

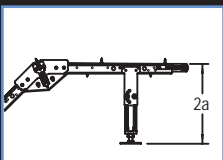
(Rise/K) + 2

Choose a frame length in 6" increments

5 \_\_\_\_\_

$(36 / .7) + 2 = 53.4$   
(Round up to a 6" increment)

5 54"



Recalculate discharge height

$((\text{Step } 5 - 2) * K) + 1a$

If new height is not acceptable, choose a different length (in 6" increments) for the center frame section and recalculate. If the center frame section is changed, please check the discharge length in step 2b for proper distance.

2a \_\_\_\_\_  
(Revised)

$((54 - 2) * .7) + 12 = 48.4$

2a 48.4"

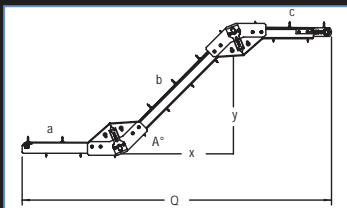
Use the values from 1b, 2b, and 5 in the length section of the conveyor part number. See page 80.

### To Determine the Conveyor Floor Length Run\*

\*This section is provided to allow the user to determine the overall floor space. It is not necessary information for placing an order.

**Key**

- a = a frame length
- b = b frame length
- c = c frame length
- y = rise
- x = run
- A° = angle
- Q = overall length



1) Solve for X  $X = \sqrt{b^2 - y^2}$

2) Solve for Q

For a Z:  $Q = (A + X + C) - 6$

For an L:  $Q = (A + X) - 4$

For an R:  $Q = (B + X) - 4$

**Example for Z**

1)  $\sqrt{54^2 - 36^2} = 40.25$

2)  $\frac{24 + 40.25 + 18 - 6}{1} = 76.25$

## Technical Data

All applications require certain performance characteristics from the conveyor. QC Industries has developed a sizing system that condenses these parameters into a common factor called **Equivalent Load**. For instance, a conveyor application that is carrying a 5 lb. load up an incline is required to move a load equivalent to more than merely the 5 lbs. of product placed upon the belt.

**Please follow the 3 steps below to determine the Equivalent Load for your application.** These results will then be used to properly size the torque requirement for the gearmotor arrangement. (pages 86-89).

### 1. Nominal Load 1. \_\_\_\_\_

**Enter the load (in pounds) that the conveyor must carry on Line 1.**

Use Figure 79-A to cross-reference the load calculation with the conveyor's load carrying capacity; drive pulling or drive pushing.

Example: Product is a box weighing 2 lbs. There will be 25 boxes on the conveyor at any one time. 2 lb x 25 = 50 lb. load. Conveyor width is 12 inches, which is capable of carrying 125 lbs. pulling. (Ref. Figure 79-A)

### 2. Incline/Decline [Factor] x [Load] = 2. \_\_\_\_\_

These applications utilize an incline or decline. **Choose a factor from Figure 79-B** based upon the angle of incline/decline, then multiply that factor by the total nominal load from Line 1 above. **Enter the result on Line 2.**

Example: 50 lb. (nominal load) x 2.3 (45° factor) = 115 lb. load equivalent

### 3. Frictional Load 3. \_\_\_\_\_

All conveyors have a certain amount of friction that must be factored into the load. To determine how much additional load must be factored in, either add 4 to the conveyor's width, then multiply by 6, or simply **choose the value from Figure 79-C**. **Enter the result on Line 3.**

Example: 4 + 12 (Conv Width) x 6 = 96 lb. load equivalent (Ref. Fig. 79-C)

### Equivalent Load SUM (1 thru 3) \_\_\_\_\_ lbs.

Write down the equivalent load on the application data sheet (found in the back of the catalog). The equivalent load is needed to properly size a gearmotor for the conveyor. (Ref. Gearmotors pages 86-89)

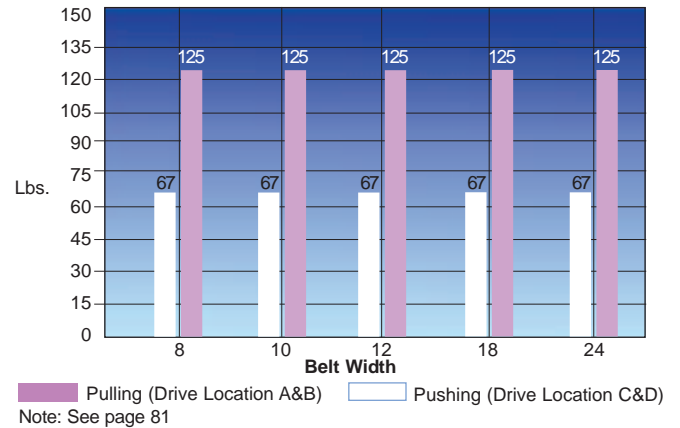
Example:

50 lbs. (Step 1)  
+115 lbs (Step 2)  
+ 96 lbs (Step 3)

261 lbs Equivalent Load

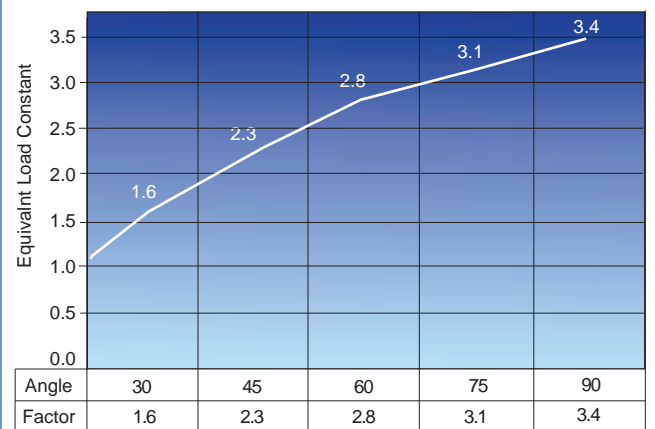
Next, proceed to the next page to construct the belt part number.

### Load Carrying Capacity - Figure 79-A

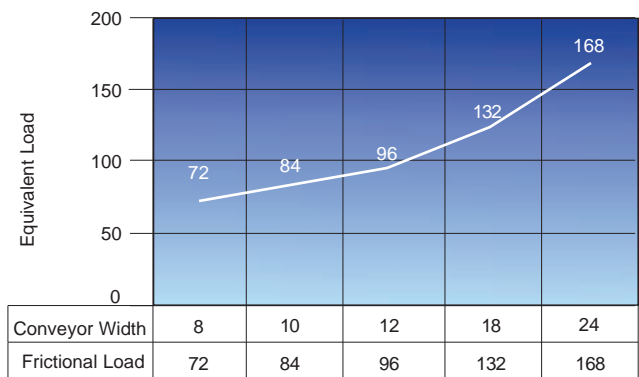


Above load carrying capacities are for both drive pushing and pulling applications. Note: for drive pushing applications, decrease load capacity of conveyor by 1/2.

### Incline/Decline Load Factors - Figure 79-B



### Conveyor Friction - Figure 79-C



## How to Order

Step 1		Step 2		Step 3						Step 4			Step 5			Step 6			
Series	Drive Type	Construction	Frame	Frame Style	A Section		B Section		C Section		Drive Location	Drive Pulley	Tail Pulley	Belt	Belt	Belt	# of Cleats	# of Cleats	# of Cleats
					Length	Length	Length	Angle	Length	Length									
1	E	S																	

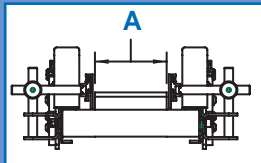
### Step 1

Series	Drive Type	Construction	Frame	Frame Style
1 = 125	E = End Drive	S = Standard	B = 1.81" Powder Coat (Beige) E = 1.81" Stainless Steel Custom colors available - contact factory	Z = Z Frames R = R Frames L = L Frames

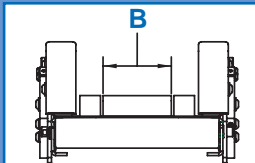
For U & N frame styles, contact factory

### Step 2

#### Widths



Cleat width when using side rails



Cleat width when using corrugated sidewall

Width	Order Code	A - Maximum Part Width	B - Maximum Part Width
8"	08	4.20"	3.56"
10"	10	6.20"	5.56"
12"	12	8.20"	7.56"
18"	18	12.92"	12.24"
24"	24	18.92"	18.24"

Note: The nominal width of the conveyor is not usable belt space. Please refer to the drawings and table to determine a width for your application. Option A shows a cleated belt with adjustable guide rails (see page 82) while option B shows a cleated belt with corrugated sidewall (see page 81)

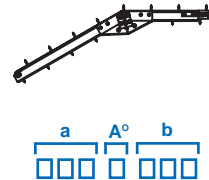
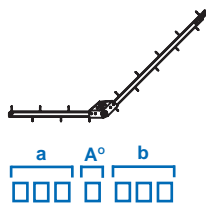
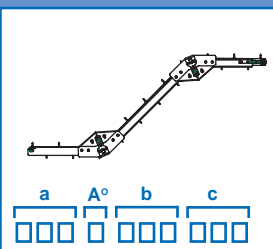
### Step 3

#### Lengths

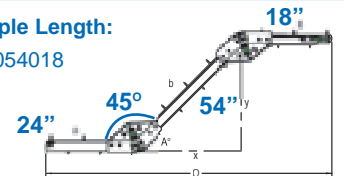
Frame Lengths for a, b, and c	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	102"	108"	114"	120"	126"	132"
Order Code	018	024	030	036	042	048	054	060	066	072	078	084	090	096	102	108	114	120	126	132

#### Angle

Angle for A°	30°	45°	60°	75°	90°
Order Code	B	C	D	E	F



Example Length:  
024C054018

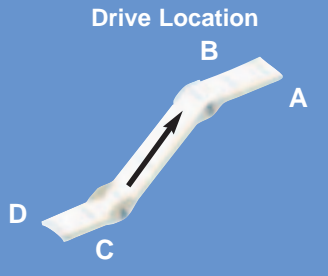






Note: Use the values determined on page 78.

Note: Total frame sections should not exceed 20'.  
 $a + b + c \leq 20'$

## How to Order (continued)

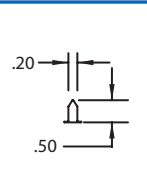
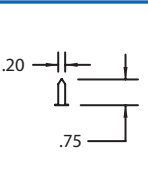
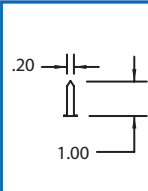
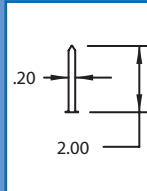
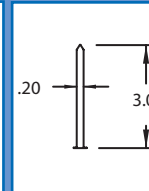
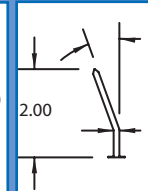
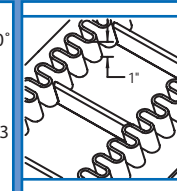
### Step 4

Drive Location 	Drive Pulley Type		Tail Pulley Type	
	Standard	Cap  1/2" Dia* Solid Output Shaft	S	Standard 
	1/2" Dia*  1/2" Dia* Dual Output	D	Option  Detectable see pg. 42	D

\* 1/8" sq. key included

### Step 5

#### Choose three digit belt ordering code

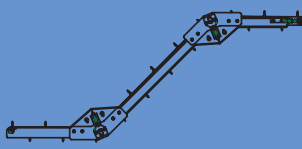
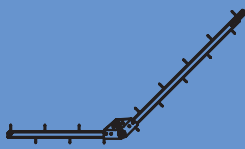

1/2" High Cleat	3/4" High Cleat	1" High Cleat	2" High Cleat	3" High Cleat	2" High Angled Cleat	1" High Corrugated Sidewall with 1" High Cleat
						
ZAE	ZAF	ZAG	ZAI	ZAK	ZAJ	ZAH*

Example: ZAG = 1" Cleat Height

\*Max. incline/decline angle for corrugated sidewall 60°

### Step 6

#### Determine the Number of Cleats

Z 	<ol style="list-style-type: none"> <li>1) Determine endless belt length (Solve for N) <math>((a + b + c) \times 2) - 8 = N</math></li> <li>2) Determine number of cleats <math>N / \text{Desired spacing}</math></li> </ol> <p>Example: <math>160 / 6 = 27</math></p>
L 	<ol style="list-style-type: none"> <li>1) Determine endless belt length (Solve for N) <math>((a + b) \times 2) - 4 = N</math></li> <li>2) Determine number of cleats <math>N / \text{Desired spacing}</math></li> </ol>
R 	<ol style="list-style-type: none"> <li>1) Determine endless belt length (Solve for N) <math>((a + b) \times 2) - 4 = N</math></li> <li>2) Determine number of cleats <math>N / \text{Desired spacing}</math></li> </ol>

#### Example:

$a = 24"$ ,  $b = 36"$ ,  $c = 24"$  Cleat spacing desired = 6"  
Overall belt length =  $(24 + 36 + 24) \times 2 = 168 - 8 = 160$   
Total # of cleats is  $160 / 6 = 27$  (rounded to nearest odd number)

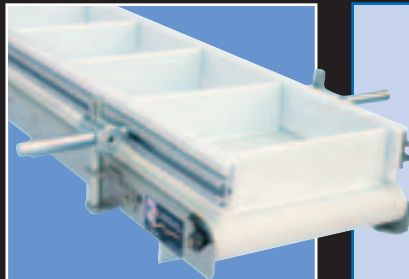
Order Code Example: ZAG027

#### Example: 1ESBZ12-024C054018-BSQ-ZAG031

125 Z Series conveyor with powder coated frame, "Z" style, 12" wide with 24" horizontal section inclining at 45° for 54", changing to a horizontal section for 18". Drive is located in position "B" using a standard drive pulley and standard tail pulley. Belt is a standard urethane belt with (31) 1" high cleats on approximately 6" cleat-to-cleat centers.

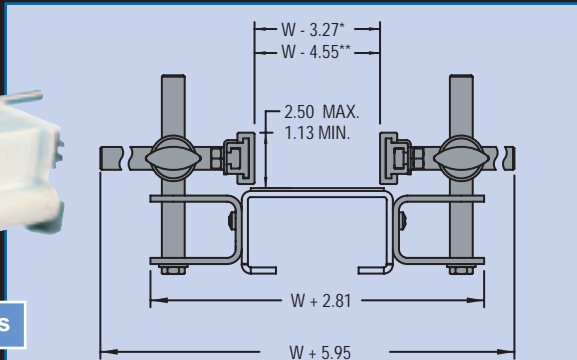
As standard, we assemble the conveyor, track the pre-tensioned belt and quality check every conveyor before we ship to the customer. Certain conveyor lengths and configurations will ship unassembled. Accessories such as Drives, Stands, Mounts, and Guides are packaged separately and are shipped unassembled with the conveyor to prevent damage during shipment. Complete assembly can be provided upon request; please contact our factory for details.

**Adjustable Guide Rails**

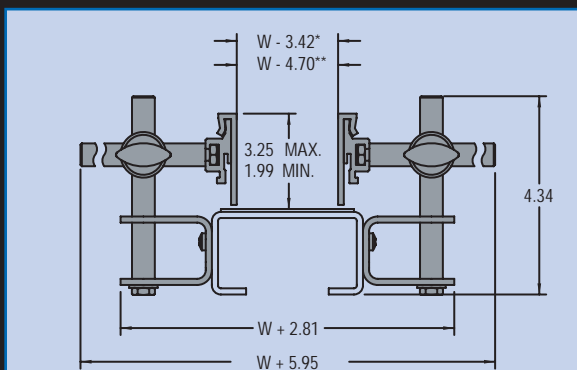


**2-Axis Adjustable Guides**

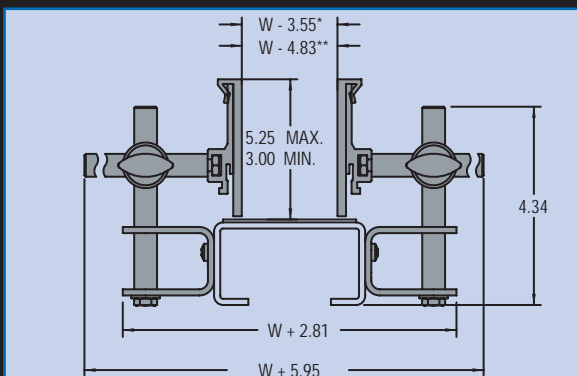
For use with cleated belting without corrugated sidewall



1" H Guide Assembly  
Part# Z-0281- (see table at right) \* For 8" - 12" conveyors  
\*\* For 18" - 24" conveyors



2" H Guide Assembly  
Part# Z-0282- (see table at right) \* For 8" - 12" conveyors  
\*\* For 18" - 24" conveyors

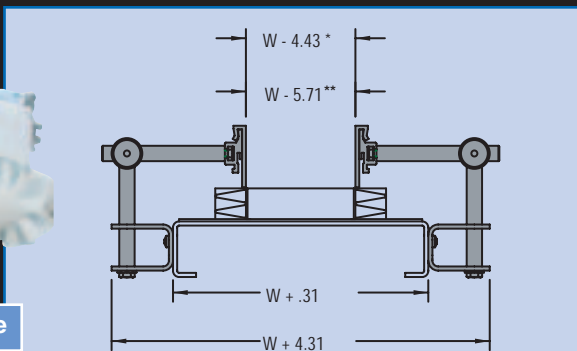


3" H Guide Assembly  
Part# Z-0283- (see table at right) \* For 8" - 12" conveyors  
\*\* For 18" - 24" conveyors



**Infeed Guide**

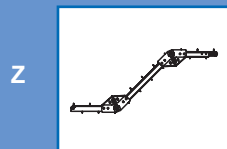
For use with corrugated sidewall belting



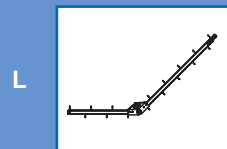
\* For 8" - 12" conveyors  
\*\* For 18" - 24" conveyors

The Adjustable Side Rails are used when a guide is required to run the length of the conveyor. Adjustable guide rails are available in 1", 2", and 3" heights. The 2" and 3" guide may be used in conjunction with the Flared Sides, End Stop and Hopper (sold separately - reference page 83).

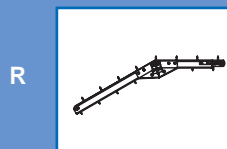
**To Order:**



- 1" Z-0281-ZA aaa bbb ccc
- 2" Z-0282-ZA aaa bbb ccc
- 3" Z-0283-ZA aaa bbb ccc



- 1" Z-0281-LA aaa bbb
- 2" Z-0282-LA aaa bbb
- 3" Z-0283-LA aaa bbb



- 1" Z-0281-RA aaa bbb
- 2" Z-0282-RA aaa bbb
- 3" Z-0283-RA aaa bbb

Example: Z-0281-ZB0360720018

1" high guide assembly for a 30° Z style conveyor that has a 36" infeed, 72" rise, and 18" discharge

**Part Number Key**

**A = Angle**

- B = 30°
- C = 45°
- D = 60°
- E = 75°
- F = 90°

**a,b,c = Frame Sections**

- aaa = a Section Length
- bbb = b Section Length
- ccc = c Section Length\*

\*Not necessary for R or L conveyors

When the end user requires a conveyor with corrugated sidewall belting and a flared side, end chute or hopper, this guide rail is needed. It provides a 2" high side rail and the necessary mounting to support the flared sides, end chutes and hopper (sold separately - reference page 83). The guiderail incorporates a 2-axis adjustment that allows raising the side rail above the corrugated sidewall, providing a precise "drop zone" into the cleat pocket.

**To Order:**

Part Number:  
125-0282-LLL-S\* 2" high 2-Axis Adjustable Guide Rail

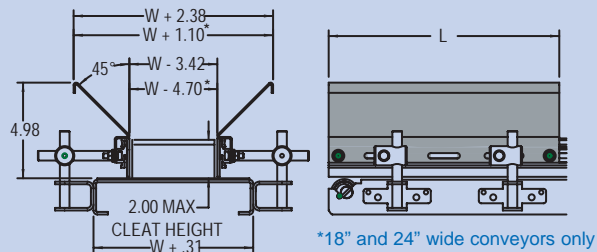
\*The guide rail length should equal the length of the flared side rail, which is ordered separately (reference page 83). The guide rail is only required on the infeed frame a-section (reference conveyor ordering - page 80).

# Flared Side Rails & Hoppers

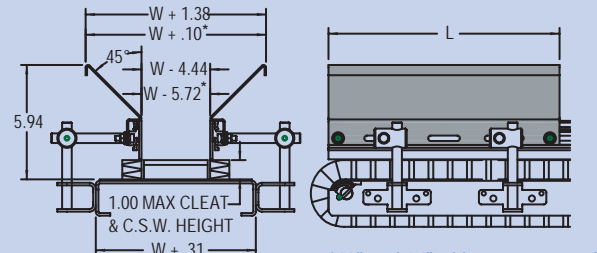


**Flared Side Rails\***

\*Flared Sides must be mounted to the 2-Axis Adjustable Guides sold separately on pg. 82.



\*18" and 24" wide conveyors only



\*18" and 24" wide conveyors only

Flared Side Rails are ideal for applications that require a "drop zone" wider than the width of the conveyor. The flared side rails attach to the 2-Axis Adjustable Guides or the Infeed Guide rails, sold separately and shown on page 82.

**To Order:**

Z-1004-012	12" length
Z-1004-018	18" length
Z-1004-024	24" length
Z-1004-030	30" length
Z-1004-036	36" length
Z-1004-042	42" length
Z-1004-048	48" length

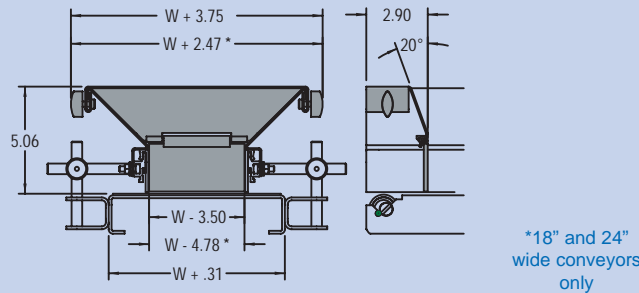
Example:  
(1) Z-1004-024  
A set of 24" long flared side rails

Note: Flared sides must be at least 6" shorter than the frame section length

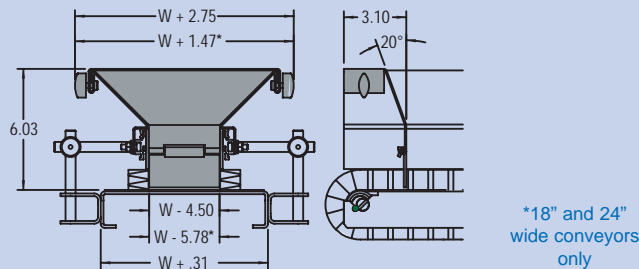


**End Stops\***

\* End Stops must be mounted to flared sides as shown above. Flared sides sold separately.



\*18" and 24" wide conveyors only



\*18" and 24" wide conveyors only

End Stops are used in conjunction with the Flared Side Rails. Stops are adjustable down the length of the Flared Rail and include a UHMW flap to help prevent parts from dropping off the end of the conveyor.

**To Order:**

Width	Part No.	Part No.*
8"	Z-0234-08	Z-0234-CSW-08
10"	Z-0234-10	Z-0234-CSW-10
12"	Z-0234-12	Z-0234-CSW-12
18"	Z-0234-18	Z-0234-CSW-18
24"	Z-0234-24	Z-0234-CSW-24

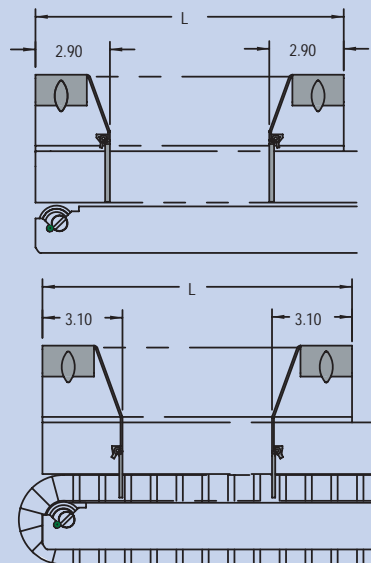
\*Note: Use the part number that contains "CSW" when your conveyor utilizes a Corrugated Sidewall belt material. (Belt ordering code: ZAH)

Example:  
Z-0234-12  
One end stop for a conveyor without a corrugated sidewall belt



**Adjustable Hopper\***

\* Hopper must be mounted to flared sides as shown above. Flared sides sold separately.



Hopper assemblies are created by ordering (2) End Stops. The stops can be easily placed anywhere along the length of the flared rails to create a hopper of varying size.

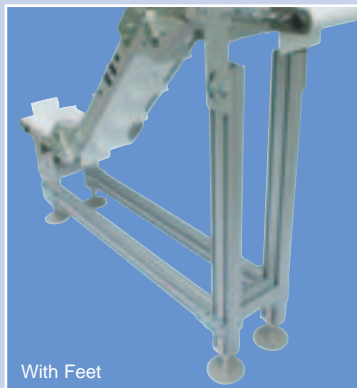
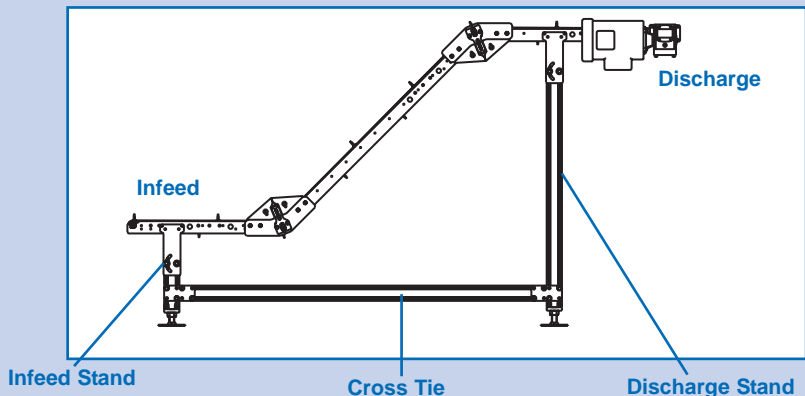
**To Order:**  
Order a quantity of (2) to make a hopper

Width	Part No.	Part No.*
8"	Z-0234-08	Z-0234-CSW-08
10"	Z-0234-10	Z-0234-CSW-10
12"	Z-0234-12	Z-0234-CSW-12
18"	Z-0234-18	Z-0234-CSW-18
24"	Z-0234-24	Z-0234-CSW-24

\*Note: Use the part number that contains "CSW" when your conveyor utilizes a Corrugated Sidewall belt material.

Example:  
Z-0234-12 (Quantity: 2)  
Two end stops, which create a hopper for a conveyor without a corrugated sidewall belt

**Aluminum Stand** (for infeed heights greater than 9")



**To Order:**

Based upon the calculations performed on page 78, choose your infeed and discharge stands using the tables below:

**Infeed Stand Legend**

Prefix	Type*	Low TOB**	High TOB**	Width***
2234	F or C-	9-	12-	WW
2234	F or C-	12-	15-	WW
2233	F or C-	15-	18-	WW
2233	F or C-	18-	21-	WW
2233	F or C-	21-	24-	WW
2233	F or C-	24-	27-	WW
2233	F or C-	27-	30-	WW
2233	F or C-	30-	33-	WW
2233	F or C-	33-	36-	WW
2233	F or C-	36-	39-	WW

\*Feet or Caster      \*\*TOB = Top of Belt      \*\*\*Nominal Conveyor Width

**Example: 2234F-12-15-10**  
Aluminum stand with feet for 10" wide conveyor with infeed of 12" to 15"

**Note:**  
Infeed stand legs with prefix 2234 extend beyond the conveyor framework

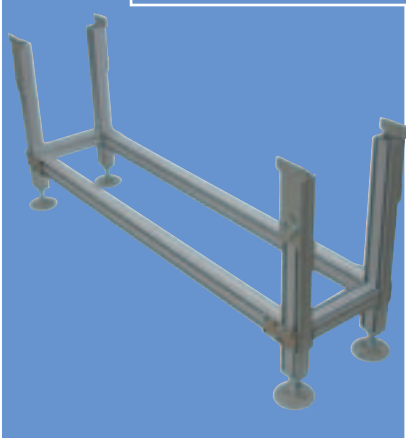
**Discharge Stand Legend**

Prefix	Type*	Low TOB**	High TOB**	Width***
2233	F or C-	24-	27-	WW
2233	F or C-	27-	30-	WW
2233	F or C-	30-	33-	WW
2233	F or C-	33-	36-	WW
2233	F or C-	36-	39-	WW
2233	F or C-	39-	42-	WW
2233	F or C-	42-	45-	WW
2233	F or C-	45-	48-	WW
2233	F or C-	48-	51-	WW
2233	F or C-	51-	54-	WW
2233	F or C-	54-	57-	WW

\*Feet or Caster      \*\*TOB = Top of Belt      \*\*\*Nominal Conveyor Width

**Example: 2233C-30-33-12**  
Aluminum stand with caster for 12" wide conveyor with discharge of 30" to 33"

**Aluminum Cross Ties**



**To order:**

Cross Ties - Available Lengths

Inches	LLL
24"	024
36"	036
48"	048
60"	060
72"	072
96"	096
120"	120
144"	144

Aluminum cross ties are used when infeed height is above 18". For heights below 18", use the Z cross brace (see page 85).

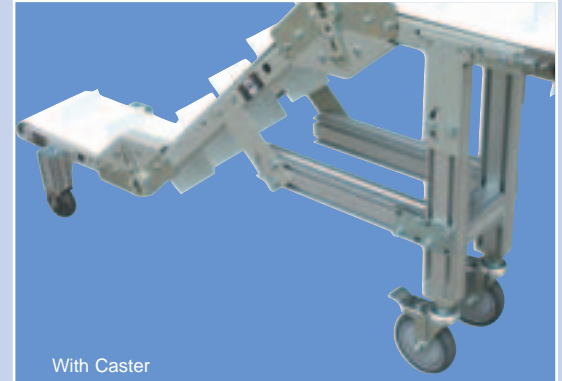
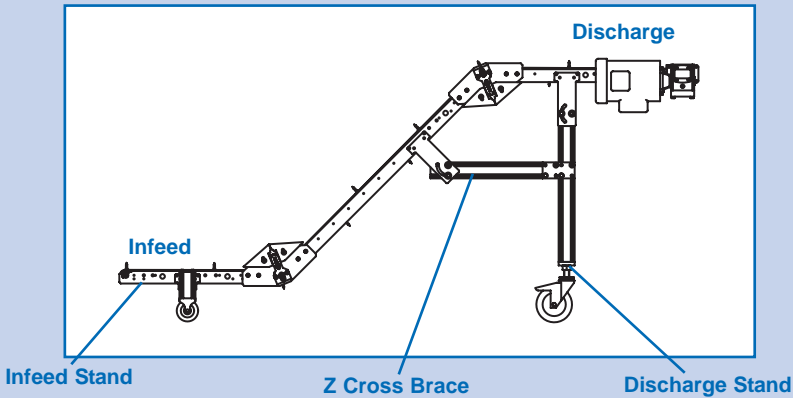
Part No.      LLL  
125 - 0235 -

Enter length of cross ties needed into the "LLL" section above. A quantity of one includes (2) cross ties.

Note: Cross ties require customer to cut to length because of stand placement variations.

Example: 125-0235-024

**Aluminum Stand** (for infeed heights 9" or less)



**To Order:**

Based upon the calculations performed on page 78, choose your infeed and discharge stands using the tables below:

**Infeed Stand Legend**

Prefix	Type*	Low TOB**	High TOB**
2235	F or C-	3-	6
2235	F or C-	6-	9

\*Feet or Caster

\*\*TOB = Top of Belt

**Example: 2235F-3-6**

Aluminum stand with feet for any conveyor with infeed of 3" to 6"

**Note:**

Infeed stand legs extend beyond the conveyor framework

**Discharge Stand Legend**

Prefix	Type*	Low TOB**	High TOB**	Width***
2233	F or C-	15-	18-	WW
2233	F or C-	18-	21-	WW
2233	F or C-	21-	24-	WW
2233	F or C-	24-	27-	WW
2233	F or C-	27-	30-	WW
2233	F or C-	30-	33-	WW
2233	F or C-	33-	36-	WW
2233	F or C-	36-	39-	WW

\*Feet or Caster

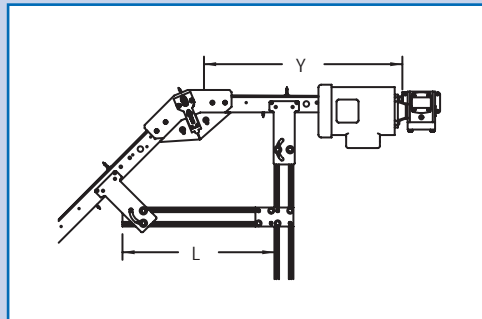
\*\*TOB = Top of Belt

\*\*\*Nominal Conveyor Width

**Example: 2233C-36-39-12**

Aluminum stand with caster for 12" wide conveyor with discharge of 36" to 39"

**Z Cross Brace**



Z Cross Braces are used when the conveyor's infeed height is below 18". When it is above 18", use Aluminum Cross Tie (see page 84).

**Specifications:**

1) Z and R style conveyors:

$Y \leq 36"$  (ref. drawing)  
Use the 18" Z Cross Brace  
 $Y > 36$  and  $\leq 54"$  (ref. drawing)  
Use the 36" Z Cross Brace

2) L style conveyors (all):

Use the 18" Z Cross Brace

**To Order:**

Part Number:

Z-0235-018

Z-0235-035

18" Z Cross Brace

36" Z Cross Brace

Drive Sizing Technical Data

The equivalent load was determined in the conveyor technical data page (page 79). To choose a gear motor combination that works best for the application, the next step is to convert that equivalent load into the torque required and size a drive based upon its use. The user must know the belt speed (in feet per minute), service factor (determined below), and the duty cycle of the application. The steps below guide the user through this process. These steps will ultimately compare the torque required to move the load on the conveyor (Required Conveyor Drive Torque) and the torque the drive train is capable of producing (Supplied Drive Train Torque).

**1. Calculate Required Conveyor Drive Torque (RCDT) 1. \_\_\_\_\_**

Enter the equivalent load the drive must handle (from page 79).  Divide this number by 6. The result equals the torque required for the application, or the required conveyor drive torque (RCDT). Enter RCDT on Line One.

**2. Select Belt Speed & Enter Drive Train Torque (DTT) 2. \_\_\_\_\_**

Choose the belt speed from page 89, and write down the drive train torque (DTT) for the selected speed. Please note that if you are choosing a top or bottom drive, you may use either a timing belt or a chain. The drive train torque is lower if using a timing belt. Enter the drive train torque on Line Two.

**3. Select Service Class and Enter Service Factor (SF) Service Class (I or II) \_\_\_\_\_ 3. \_\_\_\_\_**

Select a service class: Class I - Moderate loads with chain and sprocket or direct drive  
Class II - Moderate loads with belt and pulley

Now select the service factor (SF) from Chart 86-A below based upon hours of operation per day and number of starts and stops per hour. Enter the result on Line Three.

**4. Calculate Supplied Drive Train Torque (SDTT) 4. \_\_\_\_\_**

Divide the drive train torque (DTT) from #2 by the service factor (SF) from #3. This result equals the supplied drive train torque (SDTT). Enter the result on Line Four.

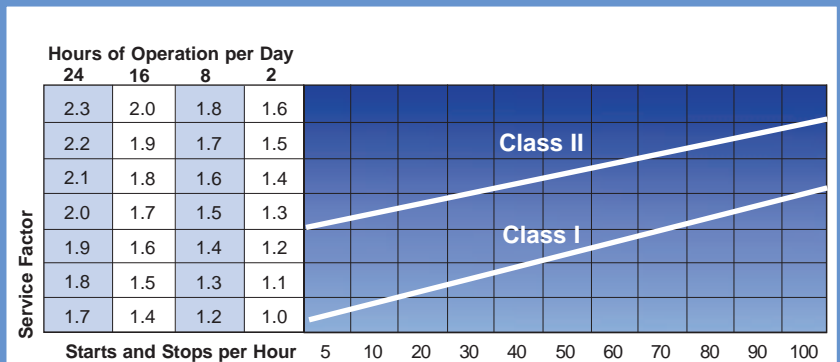
**5. Determine Functionality**

Compare Line 4 (the supplied drive train torque [SDTT]) to Line 1 (the required conveyor drive torque [RCDT]). If the SDTT is equal to or greater than RCDT, then you have selected the proper drive.  $SDTT \geq RCDT$ . If not, then:

- A) Slow down the belt speed
- B) Choose a wider conveyor
- C) Consult factory

Proceed to the next page for instructions on how to use the remaining drive pages.

**Service Factor - Chart 86-A**



**Example:**

Equivalent load = 300 (per conveyor technical data page)  
 $300 / 6 = 50.0$  (RCDT)  
 50 FPM (From page 89 - heavy duty bottom drive - fixed speed)  
 87 inch lbs. of torque (DTT)  
 Class II (using timing belt on a bottom drive)  
 16 hours per day with (10) starts and stops (Service Factor is 1.7)  
 $87 / 1.7 = 51.1$  inch lbs. (SDTT)

RCDT = 50.8  
 SDTT = 51.1

$51.1 \geq 50.0$  (Gearmotor assembly will provide adequate torque)

# How to Use the Following Pages

The following pages contain information on types and locations of available QC drives, presented in a clear, concise manner. Simply follow the two-page spread from left to right, and note the steps listed here.

## Mounting Arrangement

## Drawings

## Drive locations

## Sizing information

## Voltage

**Step 1**

125 Z Series Heavy Duty Drives

Side Drive

Remote Drive

Top Drive

Bottom Drive

Motor Dimension Chart

**Step 3**

Fixed or Variable Speed

Side Drive

Remote Drive

Top or Bottom Drive

Sizing Information

Mounting Part Number

Motor Part No.

Motor Information

**Step 5**

Heavy Duty

Motor Information

Voltage

**Step 1:** Choose mounting arrangement & location

**Step 2:** If top or bottom drive mounting arrangement, choose timing belt or chain drive

Note: Each speed has two rows. The top row is timing belt driven, and the bottom row is chain driven

**Step 3:** Choose speed

**Step 4:** Run drive sizing calculations listed on Page 86

**Speed**

Top or Bottom Drive

Sizing Information

FPM\*

Torque (DTI) Inch Lbs.

**Step 6**

Mounting Part Number

Example: M1-B3J0-CH1410

Motor Part No.

Example: 503-05J

Motor Information

Voltage

HP

115/230 Amp

230/460 Amp

DC Amp

Face

**Step 4**

(p. 86)

Voltage

FPM*	Torque (DTI) Inch Lbs.	Prefix	Mounting	Position*	Suffix	Belt/Chain	G.Mtr.	Sprkt	Conv	Sprkt	Prefix	Voltage	Ratio	Gearbox Hand	HP	115/230 Amp	230/460 Amp	DC Amp	Face
12	95 (belt) 120 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	25 10	25 10			16	1.3V/D-	50	G or J	1/6	3.6/1.9	1.3/6	1.7	42C
15	95 (belt) 128 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	25 10	25 10			16	1.3V/D-	40	G or J	1/6	3.6/1.9	1.3/6	1.7	42C
20	98 (belt) 132 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	25 10	25 10			16	1.3V/D-	30	G or J	1/6	3.6/1.9	1.3/6	1.7	42C
30	93 (belt) 130 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	25 10	25 10			25	1.3V/D-	20	G or J	1/4	4.6/2.6	1.3/6	2.5	42C
40	89 (belt) 128 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	25 10	25 10			25	1.3V/D-	15	G or J	1/4	4.6/2.6	1.3/6	2.5	42C
50	87 (belt) 107 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	30 12	25 10			25	1.3V/D-	15	G or J	1/4	4.6/2.6	1.3/6	2.5	42C
60	84 (belt) 107 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	25 10	25 10			33	1.3V/D-	10	G or J	1/3	7.2/3.6	1.6/8	3.5	42C
75	89 (belt) 100 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	30 12	25 10			33	1.3V/D-	10	G or J	1/3	7.2/3.6	1.6/8	3.5	42C
100	67 (belt) 67 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	40 16	25 10			33	1.3V/D-	10	G or J	1/3	7.2/3.6	1.6/8	3.5	42C
120	82 (belt) 82 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	25 10	25 10			50	1.3V/D-	05	G or J	1/2	8.8/4.4	2.0/1.0	5	56C
150	68 (belt) 68 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	30 12	25 10			50	1.3V/D-	05	G or J	1/2	8.8/4.4	2.0/1.0	5	56C
175	59 (belt) 59 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	34 14	25 10			50	1.3V/D-	05	G or J	1/2	8.8/4.4	2.0/1.0	5	56C
200	51 (belt) 51 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	40 16	25 10			50	1.3V/D-	05	G or J	1/2	8.8/4.4	2.0/1.0	5	56C
225	46 (belt) 46 (chain)	M1-	T or B	1J, 1G, 3J or 3G	0-	5M CH	44 18	25 10			50	1.3V/D-	05	G or J	1/2	8.8/4.4	2.0/1.0	5	56C

\*Speeds Vary up to +/- 4 FPM

\*See Drive Location

Mounting Part Number Example: M1-T1J0-5M4025 (Top Drive Mounting)

Motor Part No. Example: 331-10J (115V 1PH Gearmotor @ 100 FPM)

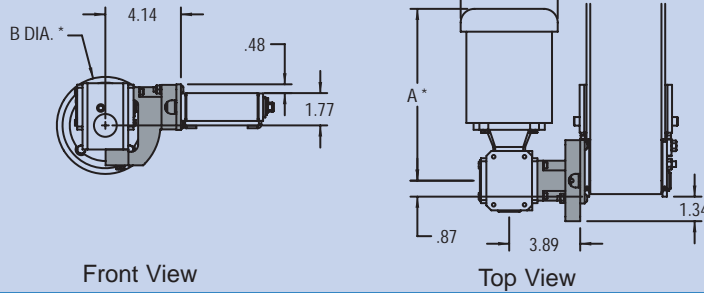
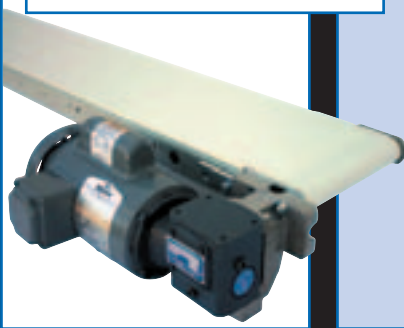
**Step 5:** Choose voltage requirements

**Step 6:** Put together two part numbers, drive mounting package and gearmotor, by following from left to right

**Voltage Key**

1	115VAC 1 PH
3	230/460 VAC 3 PH
V	90 VDC w/controller
D	90 VDC w/o controller

## Side Drive

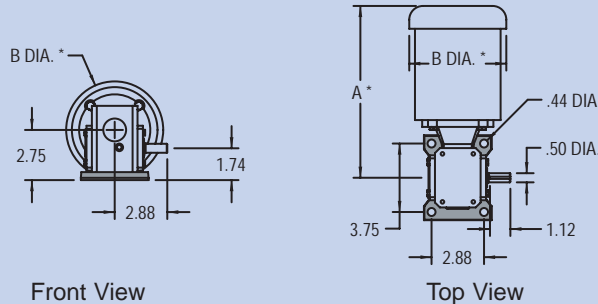
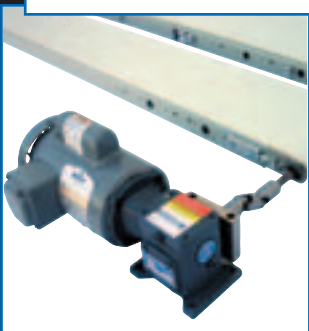


\*For "A" and "B" dimensions, see table at bottom of page

**Note:**  
This arrangement allows for the drive to be mounted on either side of the conveyor with the motor perpendicular to the drive pulley. Reference the drawings to the left for dimensional information. Reference the tables to the right for mounting package and gearmotor ordering information. The box immediately left shows the possible drive positions.

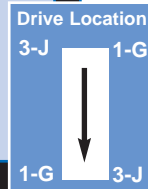


## Remote Drive



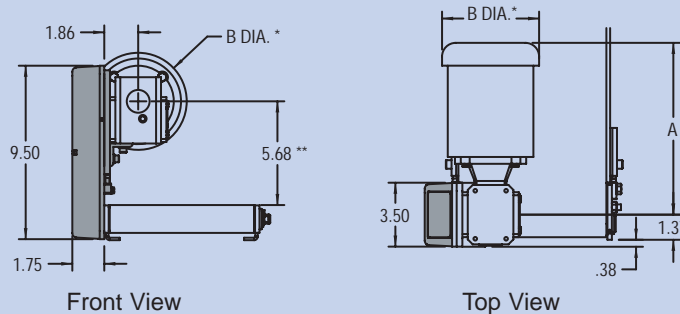
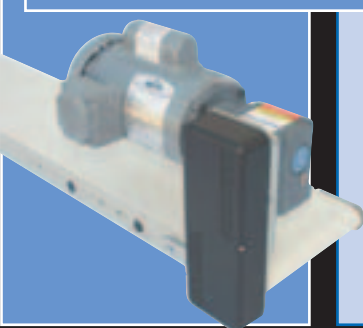
\*For "A" and "B" dimensions, see table at bottom of page

**Note:**  
This arrangement allows for the drive to be mounted away from the conveyor and on either side of the conveyor, with the motor perpendicular to the drive pulley. Reference the drawings to the left for dimensional information. Reference the tables to the right for mounting package and gearmotor ordering information. The box immediately left shows the possible drive positions.



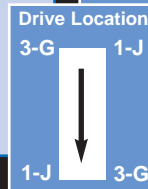
Note: 56 frame gear motors extend below gear box mounting plate and may require

## Top Drive

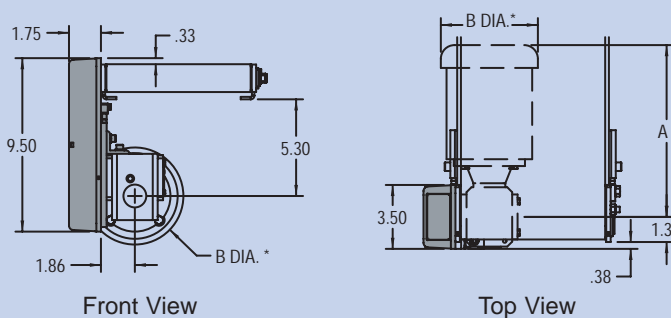


\*For "A" and "B" dimensions, see table at bottom of page  
\*\*Dimension reflects top of belt

**Note:**  
This arrangement allows for the drive to be mounted above the conveyor belt, on either side of the conveyor, and with the motor perpendicular to the drive pulley. Reference the drawings to the left for dimensional information. Reference the tables to the right for mounting package and gearmotor ordering information. The box immediately left shows the possible drive positions.

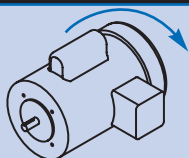
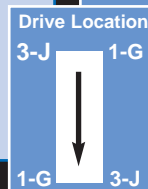


## Bottom Drive



\*For "A" and "B" dimensions, see table at bottom of page

**Note:**  
This arrangement allows for the drive to be mounted below the conveyor belt, on either side of the conveyor, and with the motor perpendicular to the drive pulley. Reference the drawings to the left for dimensional information. Reference the tables to the right for mounting package and gearmotor ordering information. The box immediately left shows the possible drive positions.



The motor can be rotated in 90° increments when attaching it to the gearbox. This allows the user flexibility when deciding where the motor capacitor and work box will be located.

### Motor Dimension Chart

	161	163	16V	251	253	25V	331	333	33V	501	503	50V	503 (ID)
<b>A</b>	11.39	11.26	8.22	9.22	9.25	9.15	9.01	9.24	10.11	13.85	13.22	15.84	14.08
<b>B</b>	5.20	4.69	4.98	5.19	5.20	4.99	6.20	5.20	5.01	6.15	6.19	4.98	7.23



## Fixed or Variable Speed

## Heavy Duty Electric

### Side Drive

#### Sizing Information

FPM*	Torque (DTT) Inch Lbs.
12	120
15	128
20	132
30	130
40	128
60	107
120	82

\*Speeds vary up to +/- 4FPM

#### Mounting Part Number

Example: M1-S1J0

Prefix	Mounting	Position*	Suffix
M1-	S	1J or 3G	0
M1-	S	1J or 3G	0
M1-	S	1J or 3G	0
M1-	S	1J or 3G	0
M1-	S	1J or 3G	0
M1-	S	1J or 3G	0
M1-	S	1J or 3G	0

\*See Drive Location Chart

#### Motor Part Number

Example: 161 - 50J

Prefix	Voltage	Ratio	Gearbox Hand
16	1,3,V,D-	50	G or J
16	1,3,V,D-	40	G or J
16	1,3,V,D-	30	G or J
25	1,3,V,D-	20	G or J
25	1,3,V,D-	15	G or J
33	1,3,V,D-	10	G or J
50	1,3,V,D-	05	G or J

#### Motor Information

Voltage

HP	115/230 Amp	230/460 Amp	DC Amp	Face
1/6	3.6/1.9	1.3/0.6	1.7	42C
1/6	3.6/1.9	1.3/0.6	1.7	42C
1/6	3.6/1.9	1.3/0.6	1.7	42C
1/4	4.6/2.6	1.3/0.6	2.5	42C
1/4	4.6/2.6	1.3/0.6	2.5	42C
1/3	5.2/2.8	1.5/0.7	3.2	42C
1/2	7.4/3.7	2.1/2.0	4.8	56C

### Remote Drive

#### Sizing Information

FPM*	Torque (DTT) Inch Lbs.
12	120
15	128
20	132
30	130
40	128
60	107
120	82

\*Speeds vary up to +/- 4FPM

#### Mounting Part Number

Example: M1-R1G0

Prefix	Mounting	Position*	Suffix
M1-	R	1G or 3J	0
M1-	R	1G or 3J	0
M1-	R	1G or 3J	0
M1-	R	1G or 3J	0
M1-	R	1G or 3J	0
M1-	R	1G or 3J	0
M1-	R	1G or 3J	0

\*See Drive Location Chart

#### Motor Part Number

Example: 251-20G

Prefix	Voltage	Ratio	Gearbox Hand
16	1,3,V,D-	50	G or J
16	1,3,V,D-	40	G or J
16	1,3,V,D-	30	G or J
25	1,3,V,D-	20	G or J
25	1,3,V,D-	15	G or J
33	1,3,V,D-	10	G or J
50	1,3,V,D-	05	G or J

#### Motor Information

Voltage

HP	115/230 Amp	230/460 Amp	DC Amp	Face
1/6	3.6/1.9	1.3/0.6	1.7	42C
1/6	3.6/1.9	1.3/0.6	1.7	42C
1/6	3.6/1.9	1.3/0.6	1.7	42C
1/4	4.6/2.6	1.3/0.6	2.5	42C
1/4	4.6/2.6	1.3/0.6	2.5	42C
1/3	5.2/2.8	1.5/0.7	3.2	42C
1/2	7.4/3.7	2.1/2.0	4.8	56C

**Mounting Part Number Example:**  
M1-S3J0 (Side Drive Mounting)

**Motor Part No. Example:**  
253-15J (230/460v 3PH Gearmotor@40 FPM)

#### Voltage Key

1	115 VAC 1 PH	For optional AC controls, see p. 90
3	230/460 VAC 3 PH	For optional AC controls, see p. 90
V	90 VDC w/controller	See controller on p. 90
D	90 VDC w/o controller	Customer to supply controller

### Top or Bottom Drive

## Fixed or Variable Speed

#### Sizing Information

FPM*	Torque (DTT) Inch Lbs.
12	95 (belt) 120 (chain)
15	95 (belt) 128 (chain)
20	98 (belt) 132 (chain)
30	93 (belt) 130 (chain)
40	89 (belt) 128 (chain)
50	87 (belt) 107 (chain)
60	84 (belt) 107 (chain)
75	89 (belt) 100 (chain)
100	67 (belt) 67 (chain)
120	82 (belt) 82 (chain)
150	68 (belt) 68 (chain)
175	59 (belt) 59 (chain)
200	51 (belt) 51 (chain)
225	46 (belt) 46 (chain)

\*Speeds vary up to +/- 4FPM

#### Mounting Part Number

Example: M1-B3J0-CH1410

Prefix	Mounting	Position*	Suffix	Belt/Chain	GMtr. Sprkt	Conv Sprkt
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	25	25
				CH	10	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	25	25
				CH	10	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	25	25
				CH	10	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	25	25
				CH	10	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	30	25
				CH	12	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	25	25
				CH	10	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	30	25
				CH	12	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	40	25
				CH	16	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	25	25
				CH	10	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	30	25
				CH	12	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	34	25
				CH	14	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	40	25
				CH	16	10
M1-	T or B	1J, 1G, 3J or 3G	0-	5M	44	25
				CH	18	10

\*See Drive Location chart

#### Motor Part No.

Example: 503-05J

Prefix	Voltage	Ratio	Gearbox Hand
16	1,3,V,D-	50	G or J
16	1,3,V,D-	40	G or J
16	1,3,V,D-	30	G or J
25	1,3,V,D-	20	G or J
25	1,3,V,D-	15	G or J
25	1,3,V,D-	15	G or J
33	1,3,V,D-	10	G or J
33	1,3,V,D-	10	G or J
33	1,3,V,D-	10	G or J
50	1,3,V,D-	05	G or J
50	1,3,V,D-	05	G or J
50	1,3,V,D-	05	G or J
50	1,3,V,D-	05	G or J

#### Motor Information

Voltage

HP	115/230 Amp	230/460 Amp	DC Amp	Face
1/6	3.6/1.9	1.3/0.6	1.7	42C
1/6	3.6/1.9	1.3/0.6	1.7	42C
1/6	3.6/1.9	1.3/0.6	1.7	42C
1/4	4.6/2.6	1.3/0.6	2.5	42C
1/4	4.6/2.6	1.3/0.6	2.5	42C
1/4	4.6/2.6	1.3/0.6	2.5	42C
1/3	5.2/2.8	1.5/0.7	3.2	42C
1/3	5.2/2.8	1.5/0.7	3.2	42C
1/3	5.2/2.8	1.5/0.7	3.2	42C
1/2	7.4/3.7	2.1/1.0	4.8	56C
1/2	7.4/3.7	2.1/1.0	4.8	56C
1/2	7.4/3.7	2.1/1.0	4.8	56C
1/2	7.4/3.7	2.1/1.0	4.8	56C

**Mounting Part Number Example:**  
M1-T1J0-5M4025 (Top Drive Mounting Pkg w/Timing Belt)

**Motor Part No. Example:**  
331-10J (115v 1PH Gearmotor@100 FPM)

#### Notes:

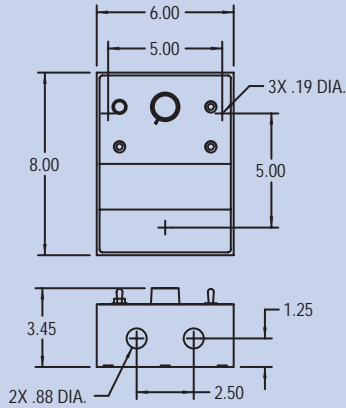
1. ALL above gearmotors are UL and CSA approved
2. Torque values are based upon running torque
3. Inverter duty variable frequency rated motors are available in 1/2 HP. Add an ID to the end of the motor part number for the 230/460VAC 3ph motors only.
4. Please note that all inverter duty motors have a non-removable foot mount on them

See Drive Accessories pages (p. 90 & 91) for optional controllers, motor starters, e-stops, cords, switches, and plugs

Motor Controls



Standard DC Control



Note: It is the responsibility of the end user to properly wire this controller to the gearmotor

Specifications/Features:

115 V AC, 1 phase input, 90 V DC, 1/2 hp max output  
 230 V AC, 1 phase input, 180 V DC, 1 hp max output  
 30:1 speed range  
 UL/ULc/CE  
 NEMA 1 Enclosure  
 Forward/Reverse switch, Run/Brake switch  
 Min/Max & Accel/Decel settings

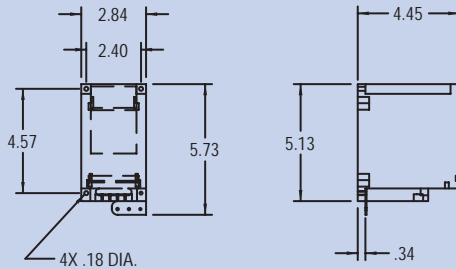
To Order:

Part Number:  
 125-0054-01 Standard NEMA 1DC Control  
 125-0149-09\* Wiring: cords & plugs

\*Includes 8' cord from control to AC plug and 8' cord from control to motor with male/female disconnects (wired).



Standard AC Control



Note: It is the responsibility of the end user to properly wire this controller to the gearmotor

Specifications/Features:

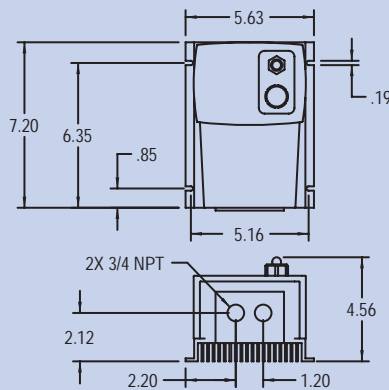
115/230 V AC, 1/3 phase, 50/60 hz input, 1 hp max output  
 10:1 speed range (when used with ID motor)  
 UL/ULc/CE  
 IP 20 Enclosure  
 3-digit LED display  
 Forward/Reverse switch  
 Run/Stop button, Accel/Decel buttons  
 Carrier frequency selectable for quiet operation

To Order:

Part Number:\*  
 125-0054-5C-11-05 115V AC, 1 phase input, IP20  
 125-0054-5C-21-05 230V AC, 1 phase input, IP20  
 125-0054-5C-23-20 230 V AC, 3 phase input, IP20  
 125-0054-5C-43-10 460 V AC, 3 phase input, IP20



Washdown DC Control



Note: It is the responsibility of the end user to properly wire this controller to the gearmotor

Specifications/Features:

115 V AC, 1 phase input, 90 V DC, 1 hp max output  
 230 V AC, 1 phase input, 180 V DC, 2 hp max output  
 30:1 speed range  
 UL/ULc/CE  
 NEMA 4X Enclosure  
 Speed adjustment potentiometer  
 Forward/Off/Reverse switch  
 Min/Max & Accel/Decel settings

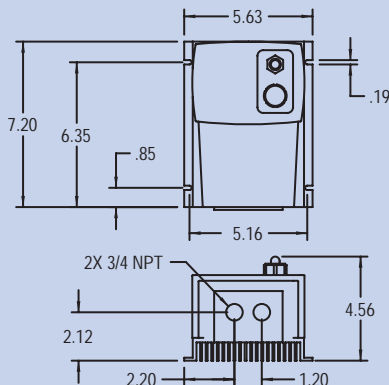
To Order:

Part Number:  
 125-0054-38 NEMA 4X DC Control

This 4X washdown controller can be used in a wet or dusty environment.



Washdown AC Control



Note: It is the responsibility of the end user to properly wire this controller to the gearmotor

Specifications/Features:

115/230 V AC, 1 phase, 50/60 hz input, 3 phase out, 1 hp max output  
 10:1 speed range (when used with ID motor)  
 UL/ULc  
 NEMA 4X Enclosure  
 Speed adjustment potentiometer  
 Run/Stop switch  
 Carrier frequency selectable for quiet operation

To Order:

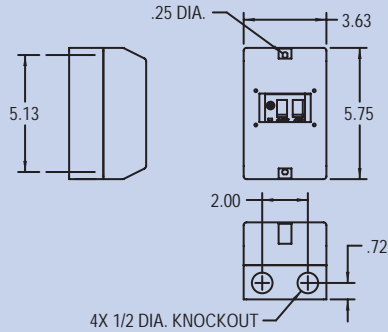
Part Number:  
 125-0054-37 NEMA 4X AC Control

This 4X washdown controller can be used in a wet or dusty environment.

## Motion Controls



**Motor Starter**



Note: It is the responsibility of the end user to properly wire motor starter and e-stops

The Motor Starter is an overload protection that also provides a means of using a Remote E-Stop for safety. The starter is equipped with an undervoltage trip to protect against autostarting after the overload condition has been corrected. Also includes short circuit protection.

**Specifications/Features:**

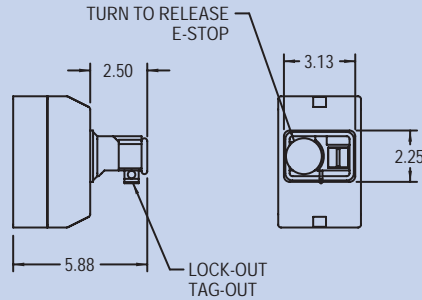
115 V AC, 1 phase, 60 hz input, 1/2 hp max  
 230 V AC, 3 phase input, 1 1/2 hp max  
 460 V AC, 3 phase input, 1 1/2 hp max  
 UL/CSA/CE  
 Start/Stop buttons  
 IP55 Enclosure

**To Order:**

Part Number: 125-0054-38-115 115 V AC, 1ph w/enclosure  
 125-0054-38-230 230 V AC, 3 ph w/enclosure  
 125-0054-38-460 460 V AC, 3 ph w/enclosure



**E-Stop Accessory**



Note: It is the responsibility of the end user to properly wire motor starter and e-stops

The E-Stop accessory is mounted directly to the Motor Starter enclosure, providing a means of stopping the motor for safety. It can be padlocked for servicing, and contains a start button for restarting the motor after the pushbutton has been released.

**Specifications/Features:**

Turn to release  
 UL/CSA/CE  
 E-Stop can be locked out/includes start button  
 IP55 Rated

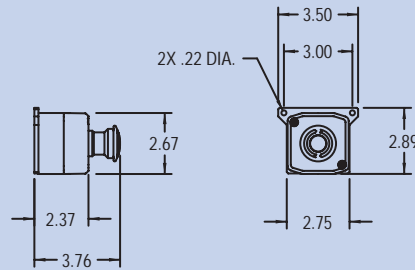
Note: Mounts directly to motor starter enclosure

**To Order:**

Part Number: ELECT-061 E-Stop Accessory for Motor Starter



**Remote E-Stop**



Note: It is the responsibility of the end user to properly wire motor starter and e-stops

The Remote E-Stop provides a means for locking out power to the motor for safety. It includes an IP65 enclosure and mounting bracket to allow the E-Stop to be mounted directly to the side of the conveyor frame.

**Specifications/Features:**

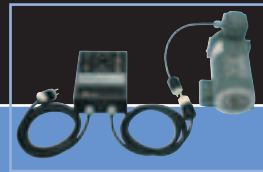
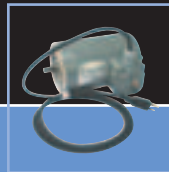
Turn to release  
 UL/CSA/CE  
 IP65 Enclosure

**To Order:**

Part Number: ELECT-063-WBRKT E-Stop with enclosure

Note: Includes mounting bracket to mount to conveyor frame

## Optional Cords, Plugs, & Switches



### Heavy Duty Motor Options

Part Number	Description
125-0149-05	ON/OFF switch for 1 PH heavy duty motor
125-0149-06	FORWARD/REVERSE switch for 1 PH heavy duty motor
125-0149-07	8' cord and plug for 1 PH heavy duty motor
125-0149-09	8' cord and plug for 90VDC motor - see controller for details