

**THOMAS CONVEYOR**

and Equipment Company, Inc.

Toll Free (844) 220-0086



# **Gripper Elevator/Lowerator Specifications**

**Complete Conveyor Systems and Equipment**

# Conveyor Specifications

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Frame	Material Thickness	Material	Finish	
	12 GA	Mild steel	“Stardust Silver” powder coat painted	
	12 GA	Stainless Steel	#4 polish finish	
Standard Modules	Parts			
	<ul style="list-style-type: none"><li>• 30" radius turns</li><li>• Intermediate sections:<ul style="list-style-type: none"><li>▶ 6", 12', 18", 24", 48", 72"</li></ul></li></ul>			
Wearstrips	Carryway			
	<ul style="list-style-type: none"><li>• 1.5" thick Duavar guide track &lt; 200 FPM</li><li>• 1.5" thick Nylatron guide track &gt; 200 FPM</li></ul>			
Motor/ Reducer	Brand	Speed		
	Nord	<ul style="list-style-type: none"><li>• 1 HP &lt; 140 FPM</li><li>• 2 HP &gt;140 FPM</li></ul>		
	Nord 63 case SMI	N/A		
Conveyor Speeds	Standard Nominal (FPM)	Minimum	Maximum	
	<ul style="list-style-type: none"><li>• 35</li><li>• 50</li><li>• 80</li><li>• 105</li><li>• 140</li><li>• 200</li></ul>	7 FPM*  *Speed obtained using a VFD	250 FPM*  *Speed obtained using a VFD	
Supports	Style			
	<ul style="list-style-type: none"><li>• "G" style 5"x5" channel</li><li>• Heavy-duty</li></ul>			
Elevation Range	Lower	Upper	Minimum Offset	Intermediate (additional offset)
	18"-60", in 6" increments	84"-264", in 6" increments	66"	0"-138" in 6" increments
Chain & Sprockets	Configuration	Attachments		
	1873 Tab G	"D" or "J" style gripper		
Lexan Guarding	Specifications	Options		
	Conveyor return path guard included	External guard		
Opening	Specifications			
	<ul style="list-style-type: none"><li>• Adjustment range 0"-11.5"</li><li>• 1" threaded rod used to position conveyor</li><li>• Powered by hand wheel through chain &amp; sprocket assembly</li></ul>			

Bearings	Construction	Finish	
	<ul style="list-style-type: none"><li>• 2-Hole</li><li>• Steel insert with set-screw</li></ul>	<ul style="list-style-type: none"><li>• Painted</li><li>• Sealed for life</li><li>• General purpose lube</li></ul>	
Shafts	Diameter		
	<ul style="list-style-type: none"><li>• Idle = 1.0"</li><li>• Drive = 1.25"</li></ul>		
Product Range	Width	Height	Length
	1.0"-11.0"	1.0"-12.0"	1.0"-15.0"

## Maintenance Information

### 1. Pre-Start Checklist

- Fasteners - Some may have loosened during shipment. Re-tighten as required
- Inspect all splice points for proper wearstrip alignment
- Hand run a 48" long chain section through conveyor, both carryway and return paths, to check for binding
- Verify motor rotation
- Verify chain direction is correct (Figure 1)
- Check for proper product clearance between guide rails prior to operation

### 2. Start-up/Break-in

- During first 250 hours of operation - Monitor the following
  - ▶ Initial chain stretch - Evaluate chain length and remove excess links
  - ▶ Chain dusting - Normal occurring issue that subsides after the first 250 hours of run time. Clean as required

### 3. Proper Width Adjustment

- Minimum pressure should be used to elevate and control product
- Excessive pressure may result in product damage, motor overload and rapid wearstrip, chain and bulb wear

### 4. Control Basics

- Start downstream conveyors 1-5 seconds prior to gripper activation
- Variable Frequency Drive (VFD) required for a "soft" start
- Gripper speed should be 10-20% faster than infed conveyor to prevent product damage through turns
- Empty/purge gripper before stopping to minimize risk of product slippage during restart

### 5. Maintenance

- **Catenary length** - (See Figure 2)
  - ▶ Chain length - Replace when 80 links > 123" or 40 links > 61.5"
    - Be sure to release chain tension in take-ups when removing links (Figure 2). Chain must be disconnected at either a drive or idle sprocket area. Special chain break tool may be required to disconnect roller chain (Figure 3)
    - White top plate present to designate where connecting (master) link is used to base roller chain
  - ▶ Sprocket wear - Look for excessive wear or hooked teeth
  - ▶ Reducer - Look for leaking seals
  - ▶ Bearings - Look for leaking seals
- **Wearstrip wear**
  - ▶ Examine for disproportionate wear
- **Chain Surging (Slip - Stick)**
  - ▶ Hard to predict natural phenomenon that depends on speed, load, construction and lubrication
  - ▶ Poses no operational concerns unless it causes product tipping
    - Look for chain binding at turns and copes in both carryway (product path) and the return path
- **Motor Hop & Wobble**
  - ▶ Natural phenomenon that is desirable
  - ▶ Poses no operational concerns with life expectancy of conveyor or reducer
  - ▶ Wobble releases stress build-up due to normal machining tolerances in rotating shaft
  - ▶ Increases equipment longevity compared to rigidly mounted reducers where misalignments are trapped

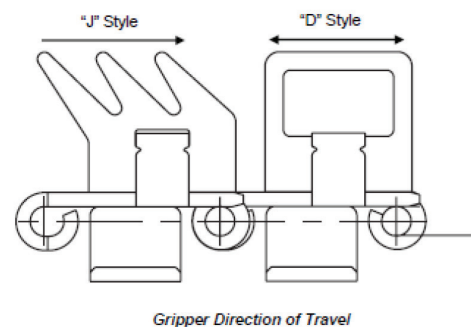


Figure 1

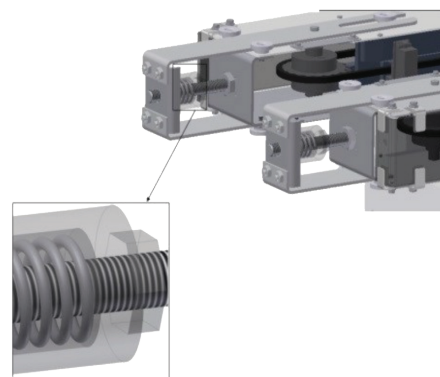


Figure 2



Figure 3

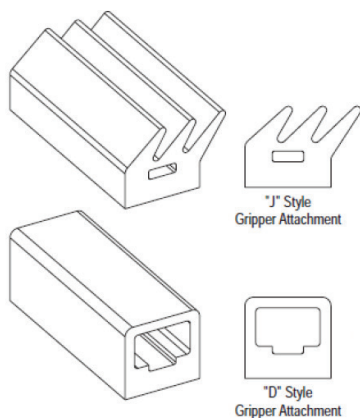
## S Type

### Elevation Range

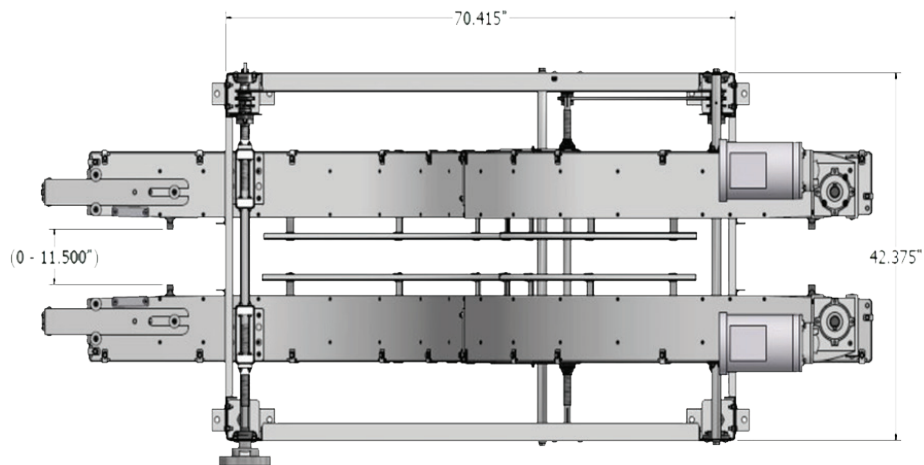
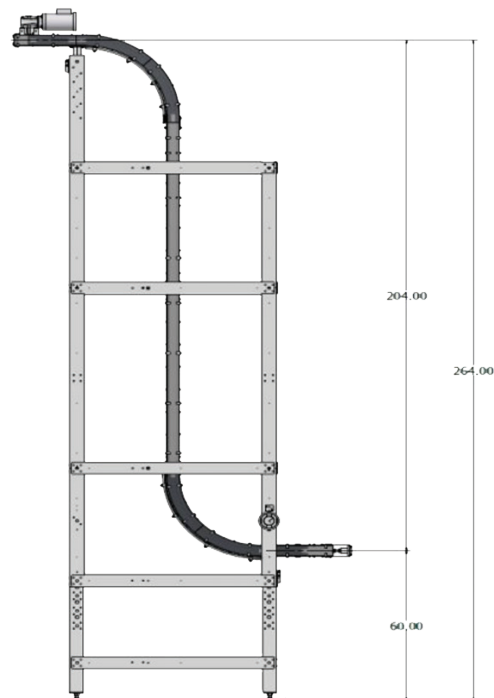
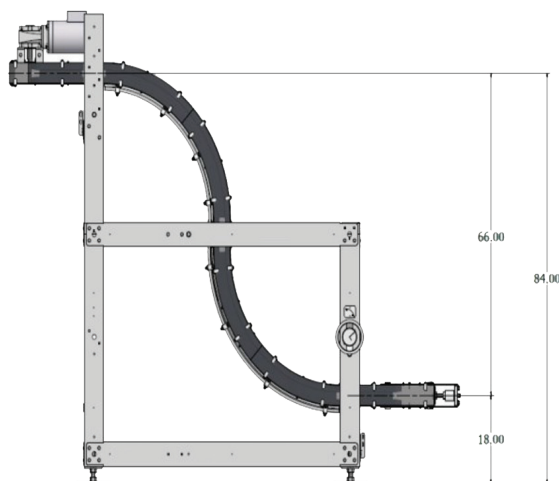
- 18" - 60", in 6" increments (lower)
- 84" - 264", in 6" increments (upper)

### Chain Types

- 1873 Tab G (standard)
- "D" and "J" style gripper attachments



### Chain Types



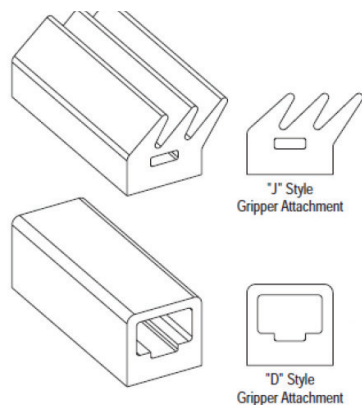
## C Type

### Elevation Range

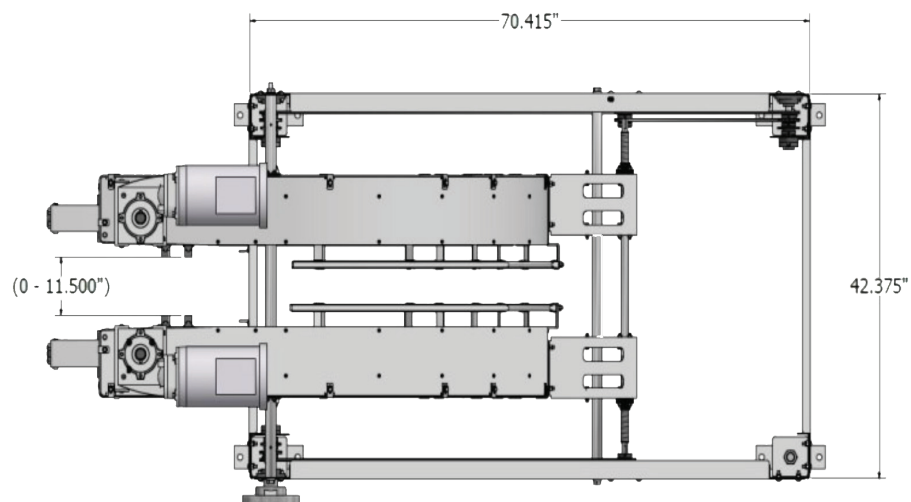
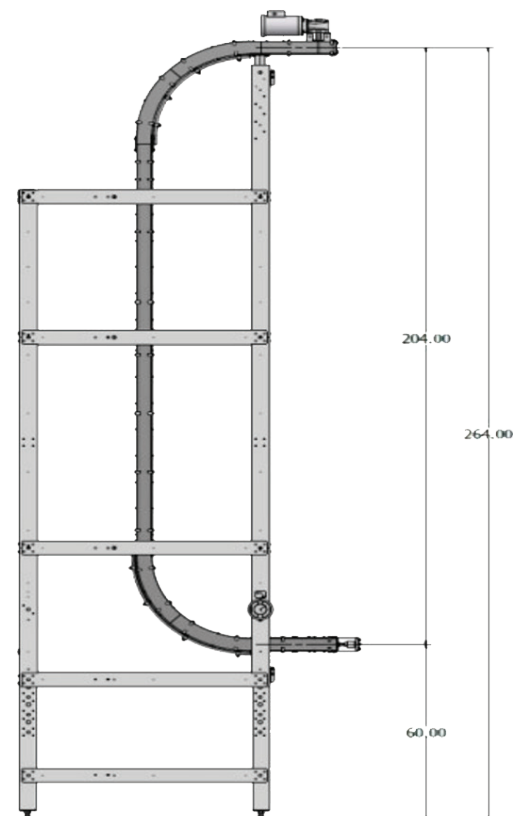
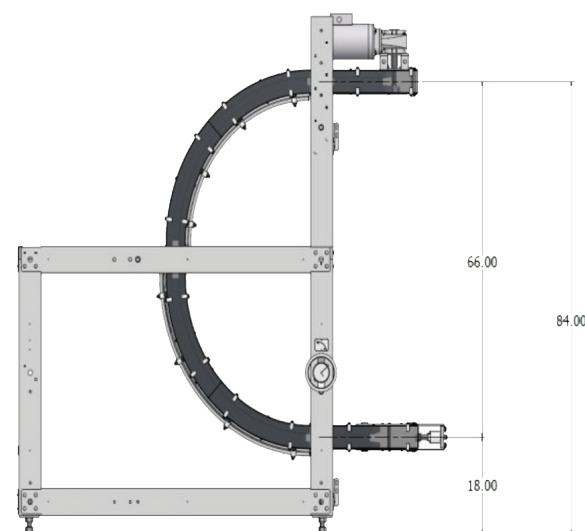
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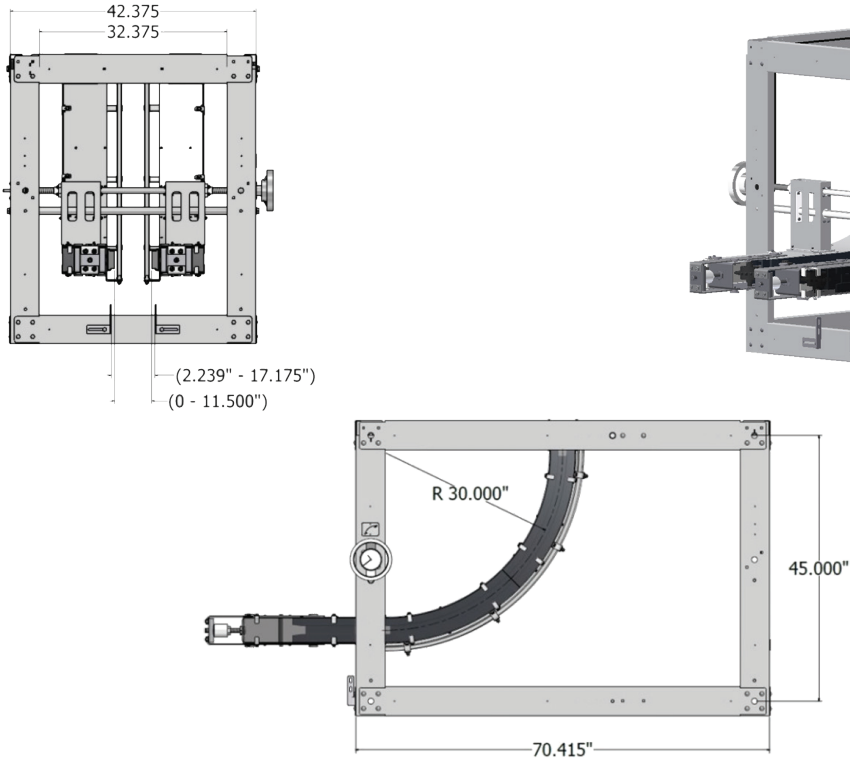
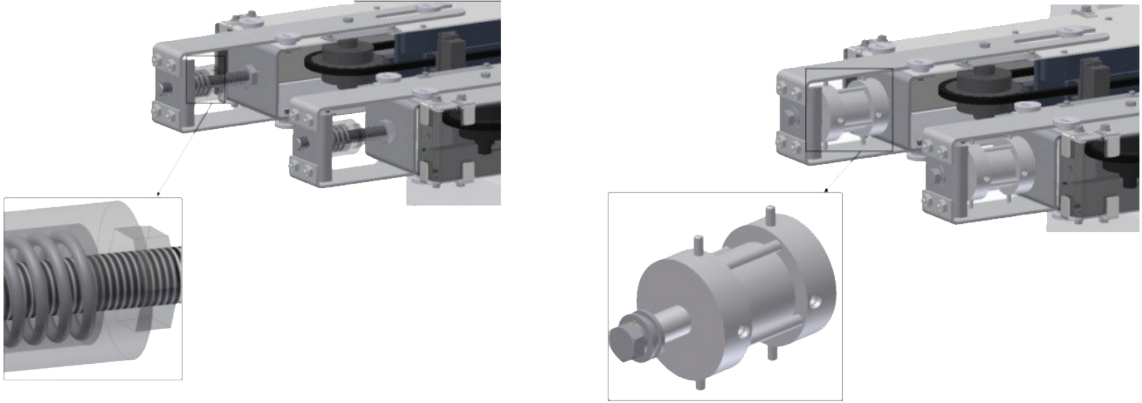
### Chain Types

- 1873 Tab G (standard)
- "D" and "J" style gripper attachments



### Chain Types



Base Module	Standard Configurations		Distance Between Gripper Bulbs	Distance Between Mounting Brackets
	<ul style="list-style-type: none"> <li>Chain and sprocket assembly</li> <li>Yoke</li> <li>Position shaft</li> <li>Support shaft</li> <li>Hand wheel with tachometer</li> <li>Direction plate</li> </ul>		<ul style="list-style-type: none"> <li>Minimum: 0"</li> <li>Maximum: 11.5"</li> </ul>	<ul style="list-style-type: none"> <li>Minimum: 2.239"</li> <li>Maximum: 17.175"</li> </ul>
				
Turns		Hand Wheel Position	Spring Take-Up (standard)	Pneumatic Take-Up (standard)
<ul style="list-style-type: none"> <li>30" radius (standard)</li> <li>Reduces gripper wear</li> </ul>		<ul style="list-style-type: none"> <li>Can be located on right or left side</li> <li>Direction plate indicating the direction of hand wheel is provided above the hand wheel for guidance</li> </ul>	<ul style="list-style-type: none"> <li>Chain tension is maintained by a coil spring</li> <li>Bottom location provides easy monitoring</li> <li>Take-up consists of a spring, cylindrical housing and stud</li> </ul>	<ul style="list-style-type: none"> <li>Chain tension is maintained by a pneumatic cylinder and other pneumatic accessories</li> <li>Requires pressure sensor and hall cylinder sensors</li> </ul>
				

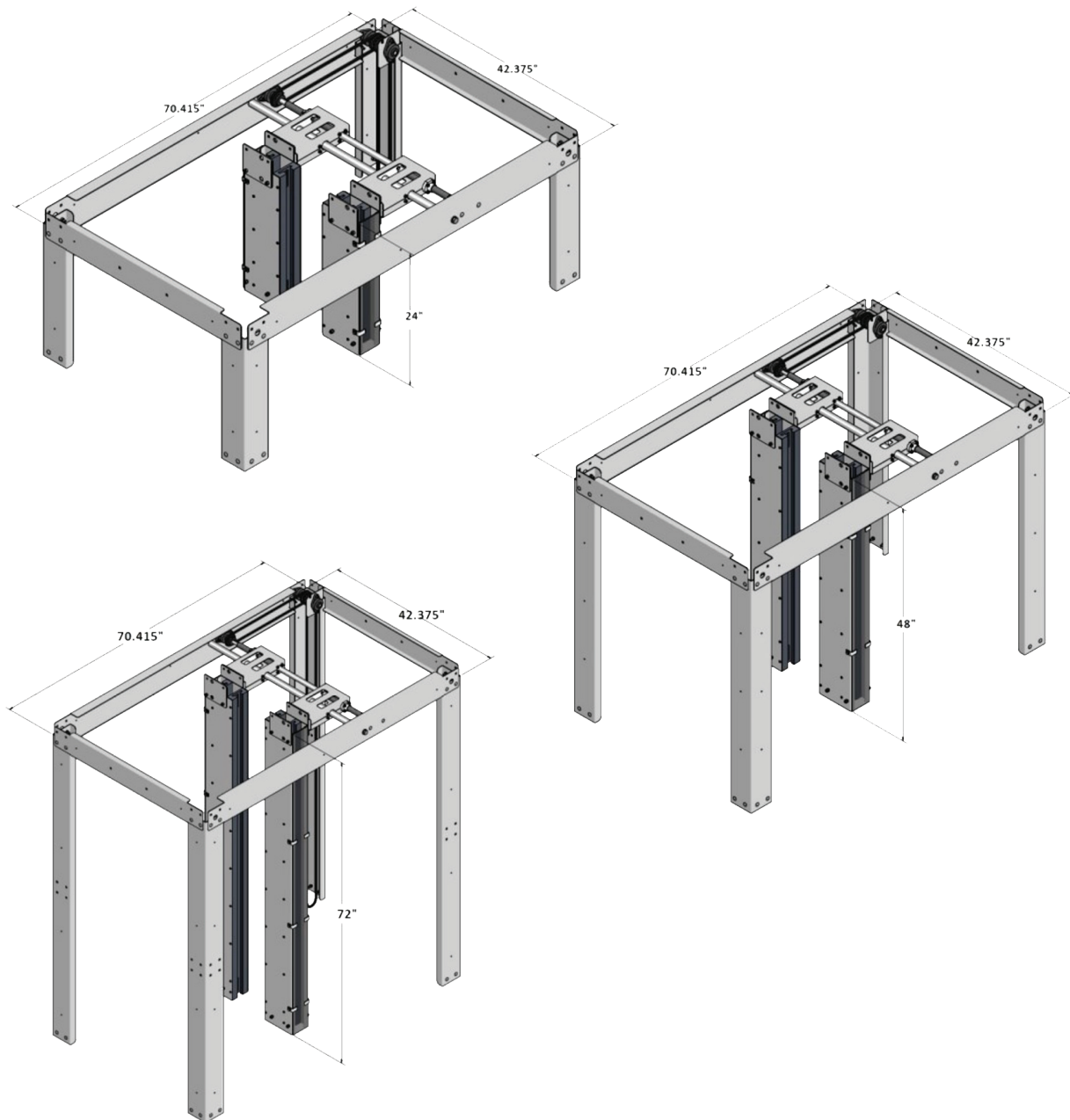
## Intermediate

### Standard Configurations

- Yoke
- Yoke position rod
- Support rod
- Support frame
- Chain & sprocket assembly included

### Design

- Symmetric



Combination Table

	24" = 24	48" = 48	72" = 72	96" = 48 + 48	120" = 72 + 48
6" = 6	30" = 24 + 6	54" = 48 + 6	78" = 72 + 6	102" = 48 + 48 + 6	126" = 72 + 48 + 12
12" = 12	36" = 24 + 12	60" = 48 + 12	84" = 72 + 12	108" = 48 + 48 + 12	132" = 72 + 48 + 12
18" = 18	42" = 24 + 18	66" = 48 + 18	90" = 72 + 18	114" = 48 + 48 + 18	138" = 72 + 48 + 18

Total Length Desired = Combination of Sections Used



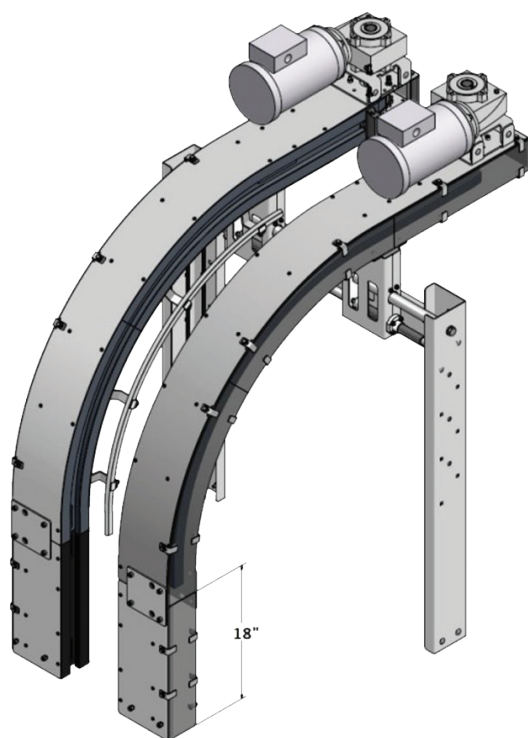
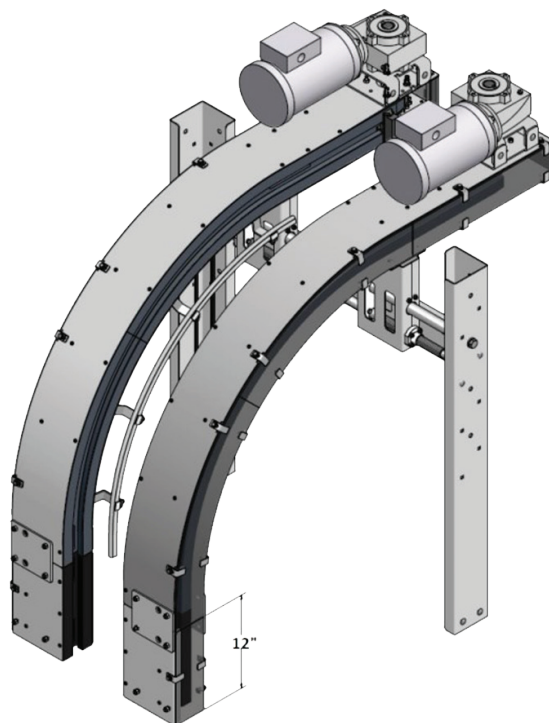
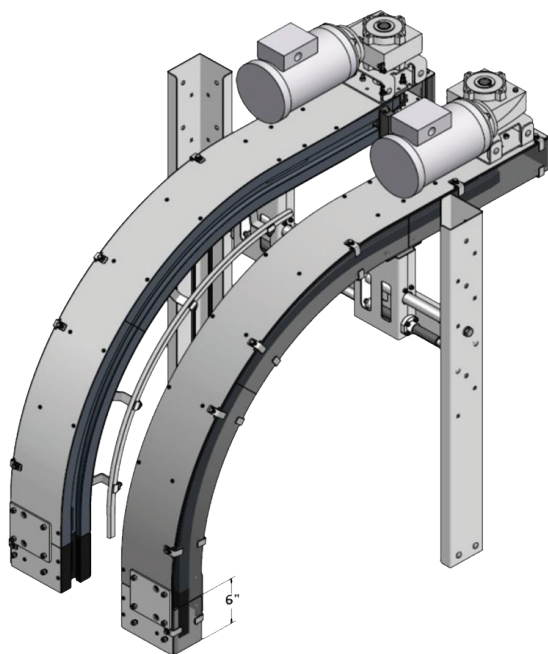
## Intermediate (Top Module)

### Standard Configurations: 6", 12" & 18"

- Mounted at base of top module
- Combined with 24", 48" and 72" intermediates
- Lexan guard for conveyor return path included

### Design

- Symmetric





## Top Module

### Standard Motor/Reducer Packages

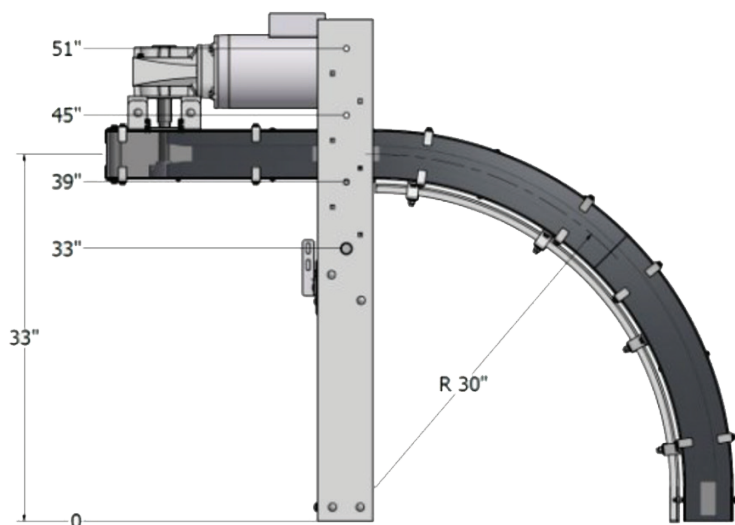
- 1 HP motor speeds < 140 FPM
- 2 HP motor speeds > 140 FPM
- Nord 63 case SMI reducers
- Individual drive for each conveyor
- Product weight <= 10 lbs./ft.

### Elevation Range

- 33" - 51", in 6" increments

### Turns

- Gripper turn with 30" radius

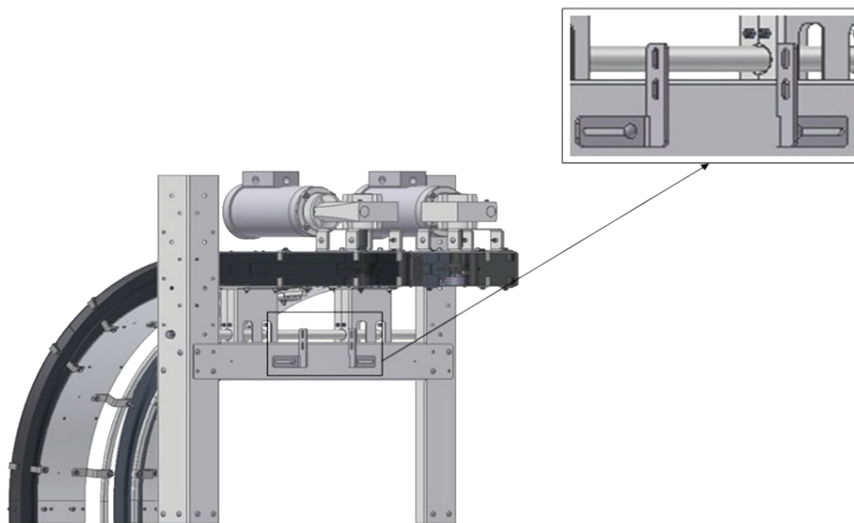


### Distance Between Mounting Brackets

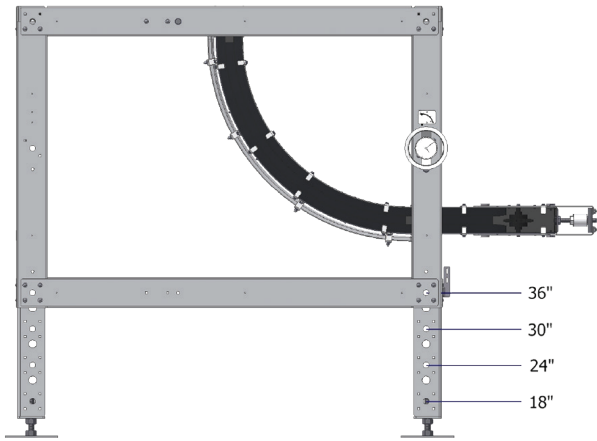
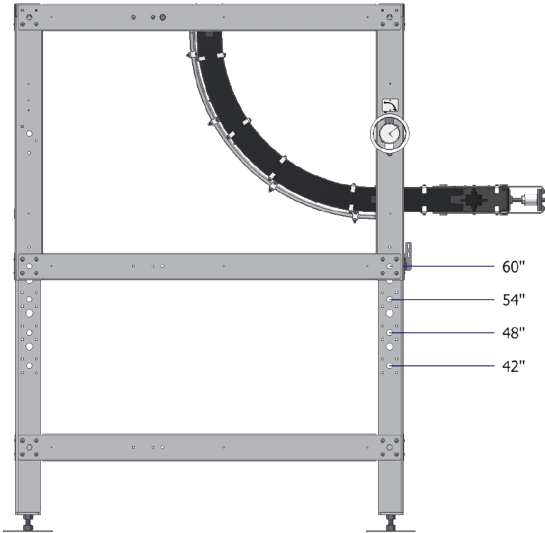
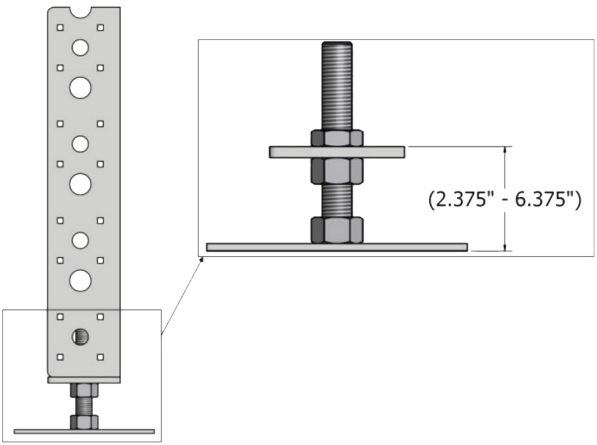
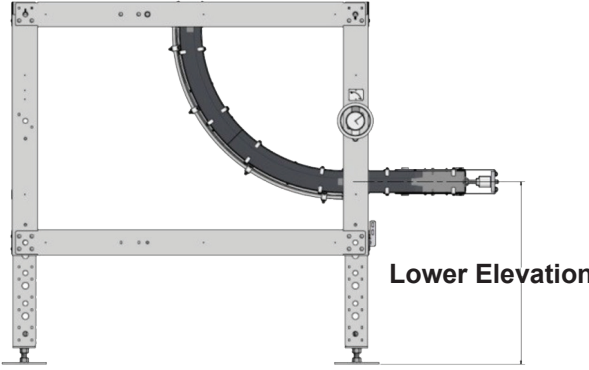
- Minimum: 2.239"
- Maximum: 17.175"

### Motor Mount Channel

- Mild steel, 7GA
- Stainless Steel, 7GA, #4 polish
- Symmetric design



Act Speed at 60 Hz	Speed Range 30 Hz to 70 Hz	Height of Unit	Ratio	Case	HP
86	43 to 100	66 to 204	25.1	63	1
107	54 to 125	66 to 204	20.1	63	1
143	72 to 167	66 to 204	15.1	63	2
215	107 to 250	66 to 204	10.1	63	2

Leg Module	Short	Tall
	<ul style="list-style-type: none"> <li>Elevation range 18", 24", 30" and 36"</li> <li>Formed 7 GA, "L" angle</li> <li>Both mild steel &amp; Stainless Steel available</li> </ul> 	<ul style="list-style-type: none"> <li>Elevation of 42", 48", 54" and 60"</li> <li>Formed 7 GA, "L" angle</li> <li>Both mild steel &amp; Stainless Steel available</li> <li>Additional horizontal support frame included</li> </ul> 
	<p><b>Foot Assembly</b></p> <ul style="list-style-type: none"> <li>Foot assembly base plate and end cap available in both mild steel and Stainless Steel version</li> <li>Fine adjustment <math>\pm 2"</math></li> <li>Adjustment range 2.375" to 6.375"</li> </ul> 	<p><b>Module Stack</b></p> <ul style="list-style-type: none"> <li>Lower position determined by food, leg and center distance of the conveyor</li> </ul> 

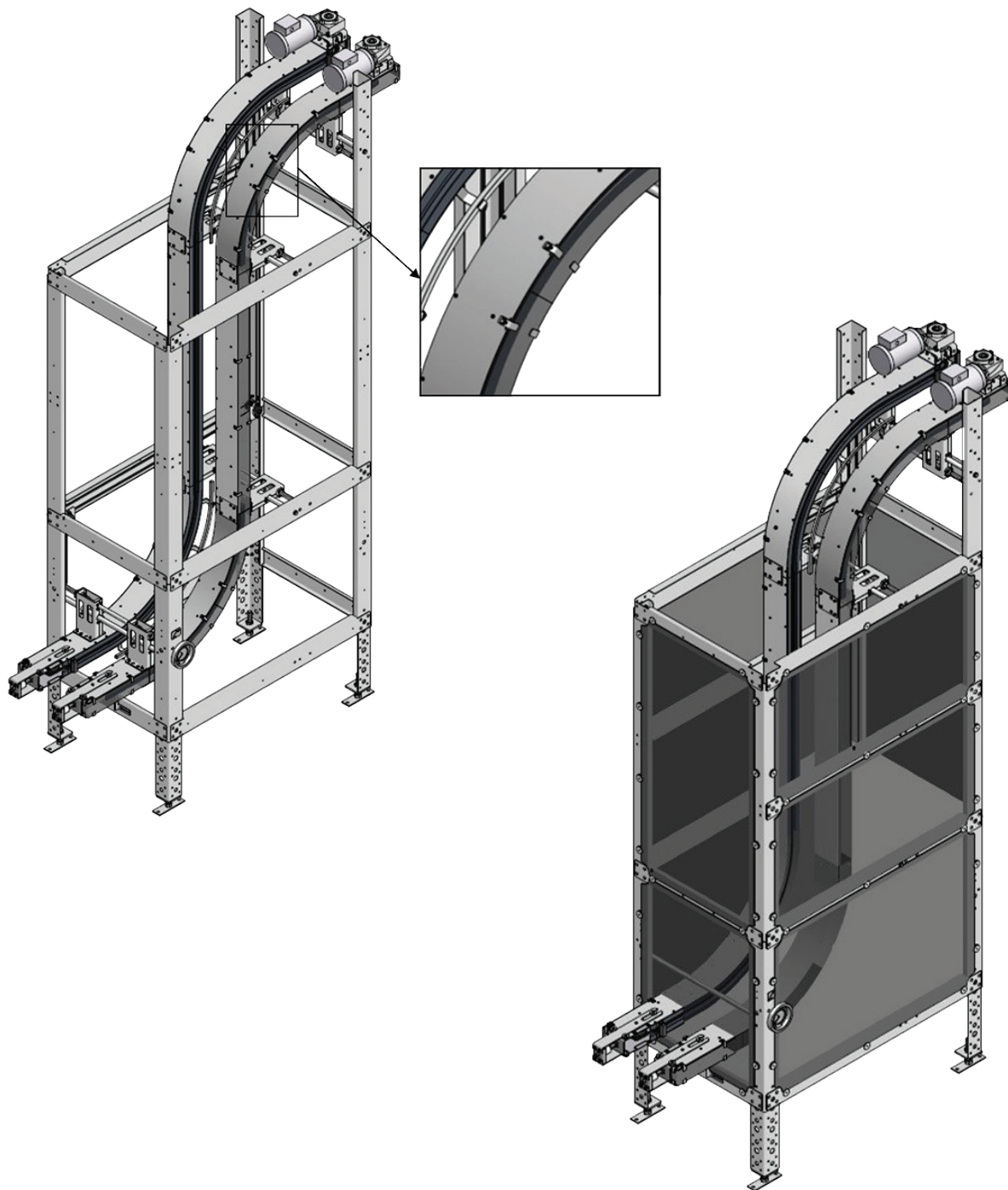
## Lexan Guarding

### Standard Configurations

- Lexan guard for return path included
- Provides required operator safety

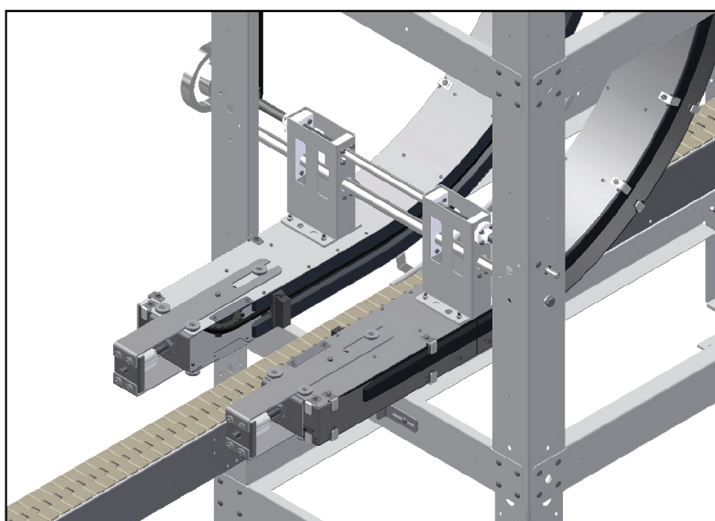
### Optional

- Lexan guard for convey return path included
- Clear Lexan sheet  $\frac{3}{16}$ " thick
- Lexan guard spacer
- Mounting button
- Sheet included for frame structure
- 24" intermediate
- 48" intermediate
- 72" intermediate
- Guarding available for top module if required (not shown)



**Pass-Through****Specifications**

- Available for applications where product does not always need to be elevated
- Commonly used to redirect products to multiple destinations
- Design possible without modification to gripper assembly
- Modular design allows horizontal support members to be relocated for taller conveyors
- Over head width adjustment system allows for lower elevation conveyor to "pass-through" the gripper
- Guide rails on pass-through must be set low as to not interfere with gripper
- Gripper opening should be set wider than pass-through conveyor guide rails



## Warranty



### MODULAR CONVEYOR EXPRESS WARRANTY

MODULAR CONVEYOR EXPRESS will repair or replace any products that have failed under normal use due to faulty material or defective workmanship for 1 year. Motors and chain carry the manufacturer's warranty. No other warranty is expressed or implied unless otherwise set forth in writing and approved by representative duly authorized to extend such approval by MODULAR CONVEYOR EXPRESS. All rights of design and invention are reserved.

1/3/2013



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