Heavy-Duty Conveyor Pulleys

Whether you’re moving light or extreme bulk materials, Martin has a vast inventory of reliable Conveyor Pulleys to fit your application needs. Martin Heavy-Duty Conveyor Pulleys are manufactured to deliver optimum performance and longevity in the harshest of environments.

- Extensive Inventories Stocked Nationwide
- Made-to-Order Pulleys in Days, Not Weeks
- Drum Pulleys, Wing Pulleys, Clean Flight® Wing Pulleys & Engineered Class Pulleys
- Shafting, Take-Up Frames, Bushings, Lagging & Complete Assemblies Available
- Exceptional Delivery Times to Maximize Your Uptime

**Drum Pulleys**

Drum pulleys are manufactured from thick wall pipe or tubing, with a crowned face or flat face. Martin has standard duty, quarry duty, mine duty and machined Drum Pulleys.

### Types:
- Machined
- Standard Duty
- Mine Duty
- Quarry Duty

### Additional Options:
- Lagging
- Shafting
- Bearing Assemblies
- Take-Up Systems

**Machined Drum Pulley**

- 4’ to 10.75’ Diameter
- .875” Minimum End-Disc
- Manufactured from heavy wall pipe or tubing
- Machined OD for better belt tracking and less vibration
- Several Hub/Bushing System Options
- Crowned Face, Flat Face Available Upon Request

**Wing Pulleys**

Martin Wing Pulleys are constructed from extremely heavy materials and are recognized in the industry as the most aggressive CEMA grade stock pulley on the shelf.

### Types:
- Standard Duty
- Mine Duty
- Quarry Duty
- Quarry Duty AR

### Additional Options:
- Wing Lagging
- Shafting
- Bearing Assemblies
- Take-Up Systems

**Standard Duty Wing Pulley**

- Available in 6” thru 60” Diameter
- Minimum .375” x 1.25” Contact Bars
- Minimum .25” Thick Wings
- Minimum 10 GA Gussets
- Unique End Pipe Design, Better Protection Against Wing Folding and Hub-Weld Fatigue
- Several Hub/Bushing System Options
- Crowned Face, Flat Face Available Upon Request
**Standard Duty Drum Pulley**
- 12" to 60" Diameter
- .375" Minimum End-Disc
- 25" Minimum Center Plates
- Rolled Rim, trimmed and hydraulically seated around end-discs
- Submerged Arc Weldment
- Several Hub/Bushing System Options
- Crowned Face, Flat Face Available Upon Request

**Mine Duty Drum Pulley**
- 10" to 60" Diameter
- .375" Minimum Rim Thickness
- 1", 1.25", and Heavier End-Discs
- .375" Center Plates
- Rolled Rim, trimmed and hydraulically seated around end-discs
- Several Hub/Bushing System Options
- Crowned Face, Flat Face Available Upon Request

**Quarry Duty Drum Pulley**
- 12" to 60" Diameter
- .5" Minimum Rim Thickness
- 1.25" and Heavier End Discs
- .5" Center Plates
- Full Depth Keyed Bushings
- Rolled Rim, trimmed and hydraulically seated around end-discs
- Several Hub/Bushing System Options
- Crowned Face, Flat Face Available Upon Request

**Mine Duty Wing Pulley**
- Available in 8" thru 60" Diameter
- Minimum .625" x 1.5" Contact Bars
- Minimum .375" Thick Wings
- Minimum .25" Gussets
- Unique End Pipe Design, Better Protection Against Wing Folding and Hub-Weld Fatigue
- Several Hub/Bushing System Options
- Crowned Face, Flat Face Available Upon Request

**Quarry Duty Wing Pulley**
- Available in 10" thru 60" Diameter
- Minimum .75" x 2" Contact Bars
- Minimum .375" Thick Wings
- Minimum .25" Gussets
- Full Depth Keyed Bushings for Higher Clamping to Shaft
- Unique End Pipe Design, Better Protection Against Wing Folding and Hub-Weld Fatigue
- Several Hub/Bushing System Options
- Crowned Face, Flat Face Available Upon Request

**Quarry Duty AR Wing Pulley**
- Available in 10" thru 60" Diameter
- Minimum .75" x 2" Contact Bars of "AR400" Abrasive Resistant Steel
- Minimum .5" Thick Wings
- Minimum .25" Gussets
- Full Depth Keyed Bushings for Higher Clamping to Shaft
- Unique End Pipe Design, Better Protection Against Wing Folding and Hub-Weld Fatigue
- Several Hub/Bushing System Options
- Crowned Face, Flat Face Available Upon Request
**Special Construction Pulleys (MTO)**

**Martin** provides pulleys for a wide variety of applications. Some special pulleys include dead shaft pulleys, roller bearing insert pulleys, elevator pulleys, and stainless steel pulleys.

**Types:**
- CFW - Clean Flight® Wing Pulleys
- Spiral Pulleys
- Dead Shaft Pulleys (DSP)
- Gudgeon Rollers
- Cage Rollers
- V-Guide Drums
- Wide Drag and Drum Sprockets

**CFW Clean Flight® Wing**

- Innovative patented construction incorporates the material rejection technology of a screw conveyor
- Aggressive Construction
  - Offered in:
    - Standard Duty
    - Mine Duty
    - Quarry Duty
    - Engineered Class
- Also Available
  - Assembled Unit with Shaft and Bearings
  - Dead Shaft Design

**Engineered Class Pulleys**

The **Martin** Engineered Class Pulley (ECP) line can be used effectively in every industry to ensure optimum performance and pulley longevity.

**Available as:**
- EMD - Engineered Mine Duty
- TD - Turbo Disc Pulley
- TB - T-Bottom Pulley
- DSP - Dead Shaft Engineered Class Pulley

**All ECP are:**
- Statically Balanced
- Machined Face is Available
- Two Year Warranty

**EMD Engineered Mine Duty**

- Solid Plate End-Discs with backing rings to support reaction forces of keyless locking elements
- Full Penetration Weld between end-disc and rim
- Full Penetration Longitudinal Weld in rim
- End-Discs are Welded Internally and Externally to the rim
- Single Engagement Keyless Locking Device

**Spiral Drum & Wing Pulleys**

- Reverse Helices wrapped around outer diameter
- Pulley Flat Bar is under the Spiral Wrap for added protection
- Larger welds provide a better bond between the wrap and pulley
- Designed to remove material from belt
- Available in Wing or Drum Style:
  - Standard Duty
  - Mine Duty
  - Quarry Duty
  - Quarry Duty AR

**TD Turbo Disc Pulleys**

- One Piece Machined and Profiled End-Disc with a custom engineered radius at the transition between the locking element and the rim
- Full Penetration Weld between end-disc and rim
- Full Penetration Longitudinal Weld in rim
- End-Discs are Welded Internally and Externally to the rim
- Single Engagement Keyless Locking Device
**Dead Shaft Pulleys (DSP)**

- Aggressive Construction
- Piloted flange cartridge - easily interchangeable with other brands
- Standard “off-the-shelf” Integral Bearing
- 3/4” Thick Fabricated Steel Mounting Pedestals
- Increased Diameter Shafting Behind Bearings to reduce deflection
- Available in Standard Duty, Mine Duty, Quarry Duty and Quarry Duty AR
- Wing or Drum Style

**Cage Rollers**

- Cage rollers are effective in allowing material to fall through the Pulley
- Cage Rollers for belt conveyors are available in almost any custom size

**Gudgeon Rollers**

- Thick wall pipe or tube fabrication
- Special design & assembly eliminates shaft and end-disc weld fatigue
- Designed to convey bulk product without a conveyor belt
- Perfect for logging, lumber mills, steel mills and palletized product applications

**T-Bottom Pulleys (TB)**

- Integral Rim and Double Profiled End-Disc with submerged arc weldment fusing T-Bottom end-discs with rim
- Full Penetration Weld between end-disc and rim
- Full Penetration Longitudinal Weld in rim
- End-Discs are Welded Internally and Externally to the rim
- Double Engagement Keyless Locking Device

**Problem Solving Design** for heavy contamination, space restrictions, reduced moment arm at bearings
- Double Lip Seal Spherical Roller Bearings
- Lubrication Through Shaft, sealed for life designs are available
- Inner Grease Tube in place of backside bearing seals
- Support Pedestals are sized to replace standard or existing pillow blocks with the same bolt pattern and shaft height. The shaft is held in pedestals with a keyless locking device.
- Drum Pulley Available
Lagging

Martin's lagging is designed to meet the demands of your application. We offer Ceramic Lagging custom fit to your application, Vulcanized Rubber, Cold Bond Lagging and Strip Lagging.

Available Lagging Options:
- AR
- SOF
- Ceramic (Hot Vulcanized)
- MSHA
- Molded Urethane
- Cold Bond
- Weld-On Strip

Cost Saving Tips
Save up to 50 - 60% on Pulley replacement costs for Conveyor Pulleys with lagging.

Scan for more information

AR Abrasive Resistant Lagging
- Popular for rugged applications or conveying abrasive materials
- This lagging mimics the tires of giant "quarry loaders" that withstand the harshest environments

SOF Static Conductive/Oil Resistant/Flame Resistant
- SOF lagging reduces the risk of explosion, and fire or oil related lagging failures
- The self-extinguishing characteristics of SOF make it ideal for use in grain and fertilizer applications.

Cold Bond
- We stock full rolls of pre-cured rubber suitable for installation directly to the face of the Pulley. Can be applied when Pulleys are relagged while in operation to reduce downtime
- Available in plain or diamond groove pattern
- Available in a "Cold Bond Kit"

Weld-On Strip
- Weld-On Strip Lagging is available from stock and is easily installed on Drum Pulleys either in our facilities or in the field
- Stocked in 72” strips with retainers in diameters from 10” to 48”
- Available in 60 durometer SBR, 40 durometer rubber, EPDM & SOF

MSHA Mine and Safety Hazard Approved Lagging
- Should be used in all underground coal mining applications and any application where fire safety is imperative
- Can be shipped as plain, herringbone or diamond groove patterns

Molded Urethane
- Molded Urethane is poured on a Pulley a liquid state, cured, hardened and then machined
- Urethane lagging can be altered to a herringbone or diamond groove pattern

Ceramic Hot Vulcanized
- Vulcanized Ceramic Lagging by has proven to be the best in the industry
- Available in smooth, herringbone or diamond groove patterns
**Martin** Idlers are manufactured to meet or exceed CEMA standards. **Martin** uses sealed-for-life ball bearings that allows for trouble-free life even in the harshest applications.

Conveyors are a proven way to move bulk materials in practically every industry. Conveyors routinely operate at 90% capacity and can be operated 24/7, 365 days per year. Conveyors have a lower operating cost and can provide a higher return on investment than competitive methods. Maintenance is minimized and less labor is required. Material conveyed can range from very fine to large lumps of iron ore, stone, coal and wood products. The size of material is limited by the belt width used.

**Martin** Triple Labyrinth Seal design offers the following exclusive bearing protection:
- **External shield** deters impurities from entering the bearing housing
- **Flinger design** removes contaminants away from the bearing housing by centrifugal force
- **Martin Triple Labyrinth Seal** is grease filled and offers an additional level of protection from contaminants impacting the bearing
- **The contact lip seal** adds additional level of protection
- **CEMA C, D & E Idlers** have sealed for life ball bearings

**Martin** Seal Cover

- **Wide range of belt size available product:**
  - CEMA C: 18" to 60"
  - CEMA D: 24" to 72"
  - CEMA E: 36" to 94"
- **Rapid response for Made-to-Orders**
- **Extremely low rolling resistance** that allows for lower operating cost
- **Roll gap meets CEMA standards**
- **Patent pending Idler end welding** allows for protection against belt wear
- **Solid steel shaft** the entire length of the roll
- **Exceptional low TIR runout**
- **9 & 7 Standard Steel Tubing, 1/4" wall steel tubing is available upon request**
Specifications & Features

- Idlers are maintenance-free. Martin Idlers use sealed-for-life ball bearings that allow for trouble-free life in the harshest applications.
- Low rolling resistance that allows for the lowest total operating cost.
- Manufactured for low roll runout (TIR), rotational torque and axial bearing TIR.
- Offered in a wide range of belt widths from 18" to 96".
- 9 gauge tubing for CEMA C & D.
- 7 gauge tubing for CEMA E.
- Other steel gauges available.

Impact Idlers

- Rubber discs absorb impact to dissipate shock loads to bearings, idler frame, and conveyor structure.
- Martin’s resilient, 60 durometer rubbers discs are pressed onto a steel tube.
- Each Roll is designed to absorb the impact and protect the belt from sharp edged material.
- Impact Idler Frames are reinforced to increase strength.
- Idler assemblies are spaced as close together as possible to enable the load to be absorbed by a greater number of Idler Rolls.
- Impact Rollers are locked in tightly to avoid Roller shafts bouncing and wearing of the middle bracket.
- Made-to-Order removable End-Plates are offered for easy roller change.

Unequal Troughing Idlers

Unequal Troughing Idlers (Picking) are used due to their lower profile design. Typically consist of one long roll in the center and two short inclined wing rollers. This design lays out the material and allows for easy sorting and separation. Unequal Troughing Idlers (Picking) are available with steel or impact rollers.
• Troughing Idlers typically contain 3 Rolls with wing Roll inclinations of 20, 35 or 45 degrees

• Support the conveyor belt and provide a trough to contain the material conveyed

• The trough configuration prevents spillage and increases the carrying capacity of the conveyor belt

• Standard Troughing Idler spacing is 3.5 to 4 feet apart

• Troughing Idlers meet or exceed the load carrying limits created by CEMA (Conveyor Equipment Manufacturer's Association)

• 20 degree are transitioned closest to head & tail where belt transitions to or from flat

• Training Idlers assist in training the belt and protect belt edges from damage caused by misalignment

• Transient conditions occur that may cause belts to become misaligned (e.g., improper loading of material onto the belt, wind conditions, etc.), such as build up on Return Rollers, poor Idler alignment, crooked structure

• On long conveyors, they are typically spaced 150 feet apart, but should not be spaced within 50 feet of the head or tail pulleys.

• The Idler frame is designed to allow the Idler to swivel on the cross-member when the belt touches either guide Roll

• Center Roll slightly higher to assist in pivoting assembly

• Return idlers support and carry the empty belt on the return side

• Return Idlers are typically spaced every 8 to 10 feet

• Steel Rolls are used in clean belt environments or can be urethane-coated to protect the Roll in abrasive/corrosive environments

• Rubber tread Rolls are used when wet or sticky materials cling to the belt and where corrosive or abrasive material will degrade the Steel Roll

• Spaced Rubber Disc Rollers use massed rubber on both ends to support edges of belt. You need enough flat surface in case belt mistracks and drops into spacer and cannot track back

• 1½" and 4½" Drop Brackets standard

• Belt-Saver Brackets are also available

Channel Inset Troughing Idlers

Channel Inset Troughing Idlers mount down inside a channel frame or vertical mounting surface and bolt horizontally. The low profile design is often used on portable equipment where reducing height is critical. Channel Inset Troughing Idlers are available in steel and impact designs.

Flat Carrier Idlers

Flat Carrier Idlers are used with flat belts where a trough is not required to contain material. They are used for picking, sorting, feeding or plowing material from the belt.

Live Shaft Idlers

Live Shaft Idlers are provided with pillow block bearings. They are typically used in feeder applications or applications with higher belt tensions not suitable for conventional flat rollers with internal bearings. Live Shaft Idlers are available in impact, spaced rubber disc and steel configurations.
## Stock Heavy-Duty Conveyor Pulleys

<table>
<thead>
<tr>
<th>Face</th>
<th>C</th>
<th>S</th>
<th>D</th>
<th>120</th>
<th>26</th>
<th>X25</th>
<th>L</th>
<th>3</th>
<th>H</th>
</tr>
</thead>
</table>

### Pulley Type
- **C**: Crown
- **S**: Standard Duty
- **D**: Mine Duty
- **Q**: Quarry Duty
- **GAR**: Quarry Duty AR

### Pulley Style
- **D**: Drum
- **W**: Wing

### Diameter
- 120: 120"

### Face Width
- 26: 26"

## Engineered Mine Duty

<table>
<thead>
<tr>
<th>Face</th>
<th>F</th>
<th>EM</th>
<th>18</th>
<th>051</th>
<th>6</th>
<th>407</th>
<th>06</th>
</tr>
</thead>
</table>

### Pulley Type
- **EM**: Engineered Mine Duty

### Diameter
- 18: 18"

### Face Width
- 051: 5 7/16"

## T-Bottom

<table>
<thead>
<tr>
<th>Face</th>
<th>F</th>
<th>TB</th>
<th>30</th>
<th>076</th>
<th>2</th>
<th>220</th>
<th>16</th>
</tr>
</thead>
</table>

### Pulley Type
- **TB**: T-Bottom

### Diameter
- 30: 30"

### Face Width
- 076: 78"

## Turbo Disc

<table>
<thead>
<tr>
<th>Face</th>
<th>C</th>
<th>TD</th>
<th>24</th>
<th>100</th>
<th>5</th>
<th>504</th>
<th>08</th>
</tr>
</thead>
</table>

### Pulley Type
- **TD**: Turbo Disc

### Diameter
- 24: 24"

### Face Width
- 100: 100"

## Dead Shaft Pulleys

<table>
<thead>
<tr>
<th>Face</th>
<th>C</th>
<th>DS</th>
<th>D</th>
<th>20</th>
<th>042</th>
<th>B</th>
<th>515</th>
</tr>
</thead>
</table>

### Pulley Type
- **DS**: Dead Shaft

### Diameter
- 20: 20"

## CFW — Clean Flight® Wing

<table>
<thead>
<tr>
<th>Face</th>
<th>C</th>
<th>S</th>
<th>CF</th>
<th>160</th>
<th>32</th>
<th>X30</th>
</tr>
</thead>
</table>

### Pulley Style
- **CF**: Clean Flight® Wing

### Diameter
- 160: 160"

### Face Width
- 32: 32"

## Conveyor Pulleys and Idler Nomenclature

**Engineered Class Pulleys**

**EMD — Engineered Mine Duty**

<table>
<thead>
<tr>
<th>Face</th>
<th>F</th>
<th>EM</th>
<th>18</th>
<th>051</th>
<th>6</th>
<th>407</th>
<th>06</th>
</tr>
</thead>
</table>

### Roll Diameter
- 16: 16" (16/16)

### Bore (Metric or Standard)
- 220: 220 mm
- 407: 4 7/16"

### Last Digit of Keyless Locker
- 06: 6

### Wall Thickness Gauge
- 06: 3/8" (06/16)

### Wall Thickness Gauge
- 04: 1/4" (04/16)

### Bushing Part Number
- XT MXT-6GT (Steel)
- X MXT (Cast)
- SF, E... OD Bushing
- K TB Bushing
- M M-HE

## CEMA C, D, E Idlers

**CEMA Class**

<table>
<thead>
<tr>
<th>C</th>
<th>5 - 35 TSA - 18 - 09</th>
</tr>
</thead>
</table>

### Roll Diameter
- 5, 6, 7

### Angle
- 20°, 25°, 35°, 45°

### Idler Type
- **T**: Trougher Equal
- **TSA**: Trougher Equal Self-Aligner
- **U**: Trougher Unequal
- **UI**: Trougher Unequal Impact
- **CT**: Channel Inset Trougher
- **CTI**: Channel Inset Trougher Impact
- **F**: Flat Carrier
- **FRD**: Flat Rubber Disc Carrier
- **FG**: Flat Roll Trougher
- **CF**: Channel Inset Flat Carrier
- **CFRD**: Channel Inset Flat Carrier Rubber Disc
- **CR**: Channel Inset Return
- **CRD**: Channel Inset Return Rubber Disc
- **VR**: V-Return
- **VRD**: V-Return Rubber Disc
- **IV**: Inverted V-Return
- **IVRD**: Inverted V-Return Rubber Disc
- **LI**: Live Shaft Impact
- **LRRD**: Live Shaft Rubber Disc Return
- **LR**: Live Shaft Return (Steel)
- **TG**: Trougher Equal Transition
- **FG**: Flat Roll Trougher
- **FG**: Flat Roll Trougher
- **FRD**: Flat Carrier Rubber Disc Roll Self-Aligner
- **TD**: Offset Troughing

### Belt Width
- **C**: 18” to 60”
- **D**: 24” to 72”
- **E**: 36” to 96”

### Wall Thickness Gauge
- **09, 67, 64**
Shafting

Martin has the inventory and machining capabilities for quick turnarounds on Heavy-Duty Conveyor Pulley Shafts and custom Shaft detailing for a wide variety of applications. Stock Shafting is available for most applications on-the-shelf and ready to ship. For custom detailing, Martin offers on-site machining for customization, turn downs, customized keyways and more.

- Shafts up to 24" diameter
- Shafts up to 22' long
- Raw bar weights up to 22,000 lbs.
- Stock shafting material available in several grades 1144 — 1045 — 4140 and Stainless Steel

Take-Up Frames

Martin’s Take-Up frames are fabricated from steel, offering superior strength and durability in the most rugged conditions.

- Available in these styles:
  - Light Duty
  - Top Angle
  - Heavy Duty
  - Center Pull
  - Wide Slot
  - Tube Take-Up
- Accommodate bearing shafts sizes from 1" to 5.9375"
- Available in standard travel lengths from 9" to 60"
- Stainless Steel, ACME thread & MTO lengths available
- Suitable for most manufacturers’ housing styles including center pull wide slot, pillow block and top angle protected screw

Bearings

Martin offers a full line of roller bearings and stocks most common sizes. We can supply SAF, Type E, and Ball Bearing units in Pillow Block, Flange Block & Take-Up Housing styles.

- Type E Pillow Block Bearings
  - Bore Range from 1-7/16" to 4-15/16" Diameter
- Split Housed Spherical Pillow Block Bearings
  - Stocked from 1-7/16" to 8" Diameter

Bushings & Weld-On Hubs

Martin’s MXT® & MXT-STL® bushings are available from stock to fit all popular pulley sizes. Both styles are also available as Weld-On Hubs.

Both MXT® & MXT-STL® Bushings offer a 2° per foot taper, which reduces end disc pre-stressing, as well as increasing clamping force.

<table>
<thead>
<tr>
<th>Bushing Style</th>
<th>MXT H - STL 45*</th>
<th>Bore Max Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MXT HE</td>
<td>45° 4.5&quot;</td>
</tr>
</tbody>
</table>

Weld-On Hub
Add H if it’s a Weld-On Hub

MXT® Steel Option
Add -STL for Steel option, only for MXT (not for hub)

NOTE: This part number does NOT reflect an actual part number, it includes all bushing/hub options only for instructional purpose.
Typical Belt Conveyor

Tail Pulley
A Pulley at the tail of the belt conveyor opposite the normal discharge end; may be Drive Pulley or an Idler Pulley.

20° Transition Idler
Transition Idlers are found at either end of the conveyor, adjacent to the head and tail Pulleys. These Idlers have a smaller troughing angle to that of the rest of the Troughing Idlers on the conveyor.

35° Troughing Impact Idlers
Wherever material is loaded onto a conveyor belt, Impact Idlers are installed beneath the troughed belt over the full loading length. These are usually spaced at smaller intervals to provide a support base for the belt. They have rubber discs pressed onto a steel tube to absorb impact efficiently.

35° Troughing Carrier Idlers
Troughing Idlers are found on the carrying-side, along the length of the conveyor. On any particular conveyor these Idlers are identical, as are the bases.

35° Self-Alining Carrier Idlers
It is common that even with correct conveyor alignment, there can be some belt misalignment. A solution to correct or prevent this is to install Self-Aligning Idlers which are able to detect belt misalignment and automatically re-align the belt.

Head Pulley
The Pulley at the discharge end of a conveyor belt; may be either an Idler or a Drive Pulley. Usually it has a larger diameter than other Pulleys in the System and is often lagged to increase traction and Pulley life.

Snub Pulley
Mounted close to the Drive Pulley on the return side of the belt, the Snub Pulley’s primary job is to increase the angle of wrap around the Drive Pulley, thereby increasing traction. Its secondary purpose is reducing belt tension, which is important in maximizing conveyor component life. The Snub Pulley may be lagged for longer wear life.

Bend Pulley
The Bend Pulley is used for changing the direction of the belt running to the gravity take-up. It may be lagged for longer wear life.

Take-Up Pulley
An adjustable Idler Pulley made to accommodate changes in the length of a conveyor belt to maintain proper tension.

Return Idlers
The Idlers on which the conveyor belt rides after the load it was carrying has been dumped. The mass of the return belt is the only load that Return Idlers are required to support.

Return Self-Aligner Idler
As with the Troughing Self-Aligners we see in the carrying-side, the Return Self-Aligner helps align the common misalignment that occurs. Self-Aligners detect the misalignment and automatically re-align the belt.

Call Martin, we will be happy to assist you!