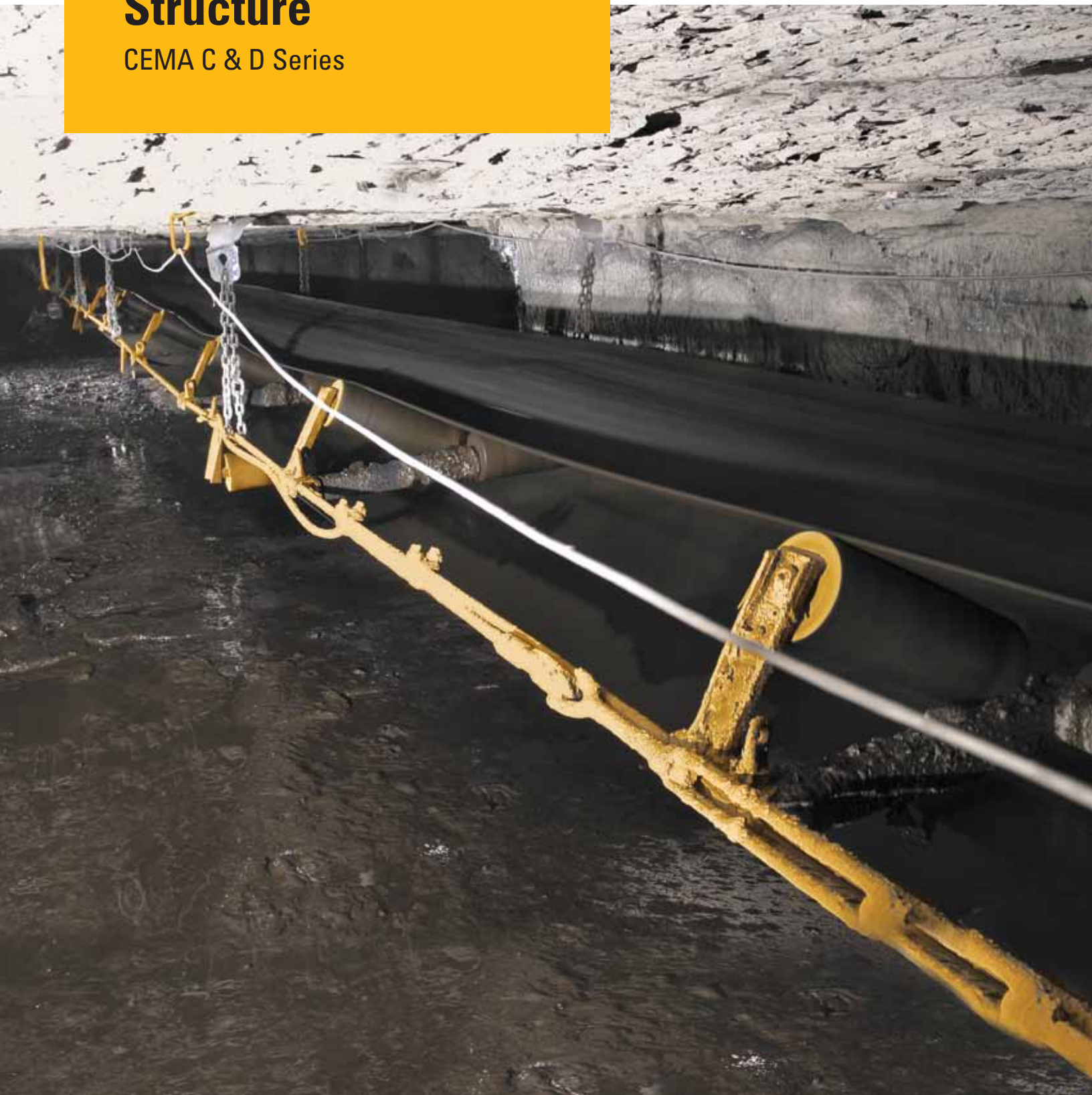


# Underground Belt Structure

CEMA C & D Series





## Custom-Designed

Caterpillar has a full range of rugged and reliable belt systems and belt products unsurpassed in performance and service life – custom-designed solutions to handle the most demanding bulk-material handling applications, both on the surface and underground.

## Cat® Steel Rolls

The Cat® roll design is the result of over two years of design and engineering effort and represents new technology in idler designs.

A new shaft end configuration allows us to retrofit Cat rolls into virtually any competitor's frame with a unique retrofit adaptor. Our end cap (bearing housing) has been redesigned for increased strength and a close fit to the deflector cap.

Our automated assembly process includes three separate, metered grease inputs to ensure every roll has plenty of grease for a lifetime of trouble-free operation.

The Idler PAL™ bearing cavity design allows for extra lubricant capacity, which is unmatched in the industry and assures that the grease stays where you need it: in the bearing.



### Idler PAL™ (Positive Automatic Lubrication)

- Grease moves due to taper of rolling elements in the bearing
- Grease expands due to increased bearing temperatures in operation
- The compensator disc moves outward, compressing the wave spring
- When rotation stops and grease contracts, the wave spring exerts slight pressure on the compensator disc, ensuring no voids in the grease



*Greased for Life: the Idler PAL™ self-lubricating system*



## Electronic Quality Tracking: An Industry First

Each shaft end is coded at time of assembly with:

- Day of the year
- Production year
- Individual serial number
- Automatic data recording of rotational torque, TIR (Total Indicated Runout) and bearing play of each individual roll is tied to the serial number.

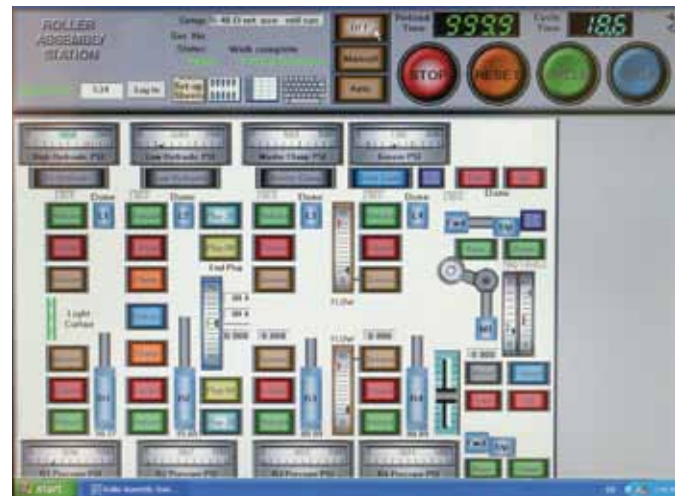
Caterpillar is the first idler manufacturer to offer individual serialized rolls as a standard. Now you can tell when the roll was manufactured, allowing accurate monitoring of roll life. No other idler manufacturer checks each roll for rotational torque, TIR and bearing play. Plus, each roll is “test run”, ensuring complete grease distribution throughout bearings and seals.



*Cat® steel rolls going through an automated five-stage assembly and testing process.*



*For example, this roll was assembled on the 85th day of 2005 and it was the 35th roll assembled that day.*

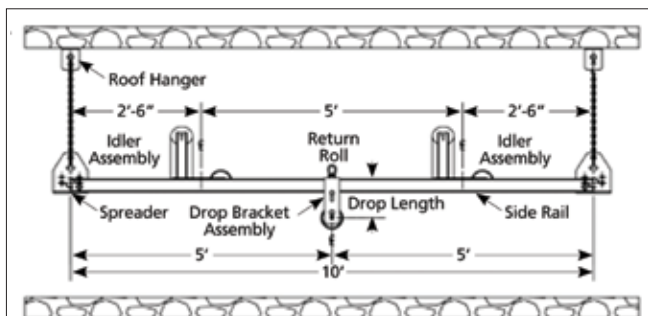


*The computer panel of the roll assembly machine graphically monitors and controls the five stages of the assembly process.*

# Underground Belt Structure Configurations

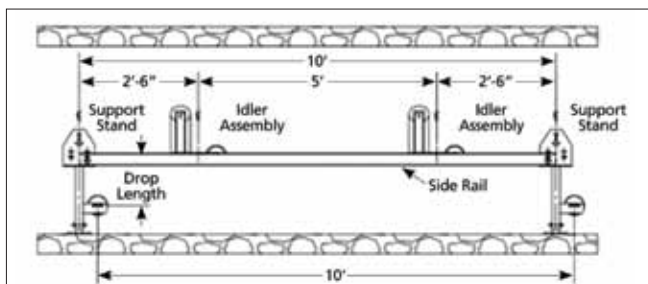
## Roof-hung Structure

This typical 10-foot section of roof-hung structure features the Cat patented EZEE-LOC™ rail connections for quick installation. No special tools are required to set up.



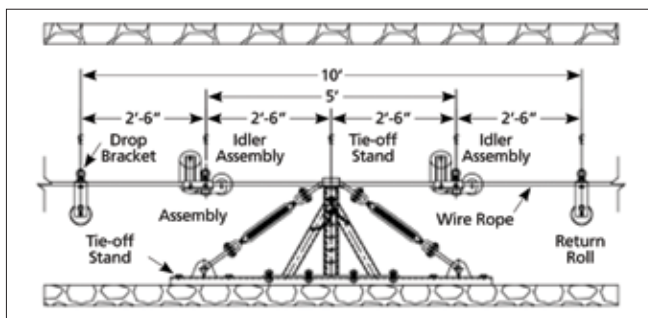
## Floor-mounted Structure

The example of floor-mounted EZEE-LOC™ structure shows the return rolls mounted in floor stands. Return rolls can also be furnished mounted in drop brackets attached to channel rails.



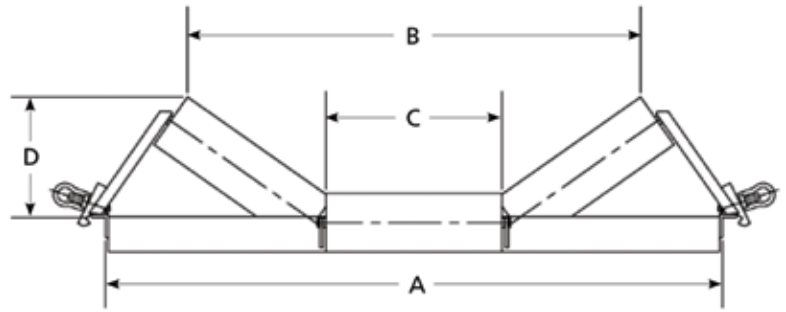
## Wire-rope Structure

The Cat wire-rope structure features carrying idlers with mounting feet that cradle the wire rope until securely fastened with the supplied hardware. The tie-off stands can be floor-mounted or roof-hung.



## Cat Carrying Assemblies

Cat carrying idlers have a single mechanical tube cross member, sized to handle full capacity loading through 60 in (1 500 mm) belt widths. Box frame carrying idlers are also available.



### Carrying Idler Assemblies for Channel Mount

#### 4 inø - 35° - 7Ga. - CEMA C or D Carrying Assembly\*

| Belt Width | Part No. |        | A     | B            | C            | D             |
|------------|----------|--------|-------|--------------|--------------|---------------|
|            | CEMA C   | CEMA D |       |              |              |               |
| 36         | 343371   | —      | 47 in | 34 in        | 13 ft 1/4 in | 8 ft 3/4 in   |
| 42         | 343343   | —      | 53 in | 39 ft 5/8 in | 15 ft 1/4 in | 9 ft 7/8 in   |
| 48         | 343389   | —      | 59 in | 44 ft 7/8 in | 17 ft 1/4 in | 11 ft 1/16 in |

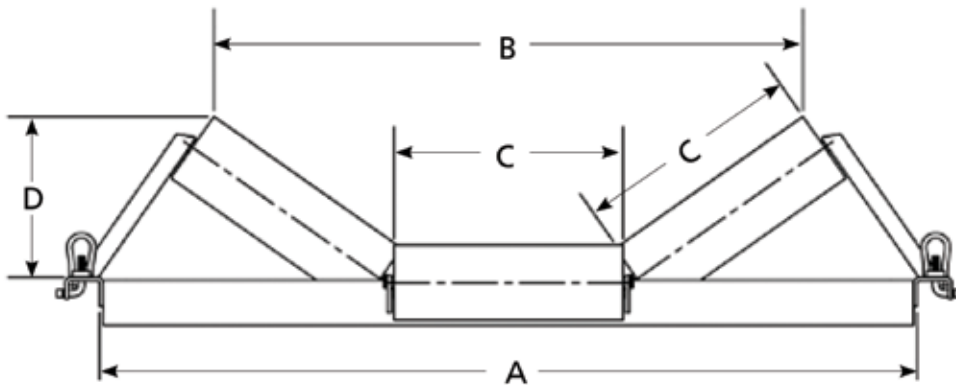
#### 5 inø - 35° - 7Ga. - CEMA C or D Carrying Assembly\*

| Belt Width | Part No. |        | A     | B              | C            | D              |
|------------|----------|--------|-------|----------------|--------------|----------------|
|            | CEMA C   | CEMA D |       |                |              |                |
| 36         | 343386   | —      | 47 in | 34 in          | 13 ft 1/4 in | 9 ft 3/16 in   |
| 42         | 342621   | 375912 | 53 in | 38 ft 15/16 in | 15 ft 1/8 in | 10 ft 1/4 in   |
| 48         | 343390   | 366593 | 59 in | 45 ft 1/8 in   | 17 ft 1/4 in | 11 ft 13/16 in |
| 54         | 343305   | 375915 | 65 in | 50 ft 7/16 in  | 19 ft 1/4 in | 13 ft          |

#### 6 inø - 35° - 7Ga. - CEMA C or D Carrying Assembly\*

| Belt Width | Part No. |        | A     | B              | C            | D             |
|------------|----------|--------|-------|----------------|--------------|---------------|
|            | CEMA C   | CEMA D |       |                |              |               |
| 36         | 375613   | —      | 47 in | 34 ft 1/4 in   | 13 ft 1/4 in | 9 ft 15/16 in |
| 42         | 375624   | 375914 | 53 in | 39 ft 1/2 in   | 15 ft 1/4 in | 11 ft 1/16 in |
| 48         | 375631   | 357916 | 59 in | 44 ft 13/16 in | 17 ft 1/4 in | 12 ft 3/16 in |
| 54         | 375756   | 326985 | 65 in | 50 ft 1/16 in  | 19 ft 1/4 in | 13 ft 3/8 in  |
| 60         | 375917   | 375918 | 71 in | 55 ft 5/16 in  | 21 ft 1/4 in | 14 ft 1/2 in  |

\*Available with 1/4 in wall rolls upon request.



### Carrying Idler Assemblies for Channel Mount

#### 4 inø - 35° - 7Ga. - CEMA C or D Carrying Assembly\*

| Belt Width | Part No. |        | A     | B             | C            | D            |
|------------|----------|--------|-------|---------------|--------------|--------------|
|            | CEMA C   | CEMA D |       |               |              |              |
| 36         | 329226   | —      | 48 in | 34 ft 1/8 in  | 13 ft 1/4 in | 10 ft 1/4 in |
| 42         | 329253   | —      | 54 in | 38 ft 7/16 in | 15 ft 1/4 in | 10 ft 3/8 in |
| 48         | 329264   | —      | 60 in | 45 ft 1/8 in  | 17 ft 1/4 in | 12 in        |

#### 5 inø - 35° - 7Ga. - CEMA C or D Carrying Assembly\*

| Belt Width | Part No. |        | A     | B             | C            | D             |
|------------|----------|--------|-------|---------------|--------------|---------------|
|            | CEMA C   | CEMA D |       |               |              |               |
| 36         | 340206   | —      | 48 in | 33 ft 9/16 in | 13 ft 1/4 in | 10 ft 5/8 in  |
| 42         | 327175   | 375964 | 54 in | 37 ft 7/8 in  | 15 ft 1/4 in | 10 ft 3/4 in  |
| 48         | 299987   | 328811 | 60 in | 44 ft 9/16 in | 17 ft 1/4 in | 12 ft 3/8 in  |
| 54         | 375932   | 376000 | 66 in | 50 ft 5/8 in  | 19 ft 1/4 in | 13 ft 5/16 in |

#### 6 inø - 35° - 7Ga. - CEMA C or D Carrying Assembly\*

| Belt Width | Part No. |        | A     | B              | C            | D              |
|------------|----------|--------|-------|----------------|--------------|----------------|
|            | CEMA C   | CEMA D |       |                |              |                |
| 36         | 355926   | —      | 48 in | 32 ft 7/8 in   | 13 ft 1/4 in | 11 ft 1/16 in  |
| 42         | 375923   | 375995 | 54 in | 37 ft 5/16 in  | 15 ft 1/4 in | 11 ft 3/8 in   |
| 48         | 375929   | 375998 | 60 in | 43 ft 15/16 in | 17 ft 1/4 in | 12 ft 13/16 in |
| 54         | 375933   | 376001 | 66 in | 50 ft 1/16 in  | 19 ft 1/4 in | 13 ft 3/4 in   |
| 60         | 375935   | 376003 | 72 in | 55 ft 5/16 in  | 21 ft 1/4 in | 14 ft 7/8 in   |

\*Available with 1/4 in wall rolls upon request.





*Cat EXALON® rolls are ideal for use in highly corrosive and abrasive underground environments.*

## Cat EXALON® Rolls

### Another Perfect Choice for Underground Mining Operations

In addition to its world-class steel rolls, Caterpillar also offers a highly successful range of CEMA C-, D- and E- class rolls made of a proprietary high molecular weight polyethylene (HMWPE) called EXALON®.

While steel rolls are effective in most bulk-material handling applications, some applications benefit from the use of the EXALON® roll product. Applications with environments that are highly corrosive, abrasive, wet or have a tendency for material buildup on the roller are ideal for the EXALON® roll and its additional features and benefits.

### Smooth Operators

Tube-based, with higher concentricity further enhanced by final machining (poly-body) for reduced belt wear, the EXALON® roll offers balanced, vibration-free running. These fully conductive rolls are MSHA-certified as safe for underground use. They have two certifications: IC-56/1 – flame-resistant and IC-56/2 – flame-resistant and static-dissipating.



*EXALON® light-weight polyethylene rolls.*



*EXALON® box frame idler*



*EXALON® offset idler*



*EXALON® is a high molecular weight polyethylene conveyor roll constructed of a proprietary formulation, which is fully conductive and MSHA approved.*

### **Versatile, Low-Maintenance**

EXALON® rolls can be retrofitted to any frame – even those of competitors. Custom sizes can be ordered for special applications. EXALON® heads are installed using a unique “spin-welding” method, creating a single-piece roll construction. Cat Idler PAL™ ensures life-long grease management, making them virtually maintenance-free.

### **Tested for Quality**

All Cat EXALON® and steel rolls are processed through an automated assembly system, which tests and records rotational torque, total indicator run-out and axial end play. Upon acceptance, each idler roll is then permanently marked with a serial number and date of manufacture.

*By extending belt life and reducing downtime, EXALON® rolls deliver significant savings to mine operators.*

## **EXALON® Benefits at a Glance**

### **MSHA certified**

Certified for underground use:  
IC-56/1 – flame resistant and  
IC-56/2 – flame resistant and static dissipating.

### **Longer shell life**

EXALON® rolls last two to three times longer than steel rolls in highly corrosive and/or highly abrasive environments.

### **Low maintenance**

Cat Idler PAL™ ensures life-long grease management.

### **Reduced belt damage**

The smooth PE surface minimizes belt friction and wear and acts as a slider bar in the event of a bearing seizure. The all-PE body means there are no sharp ‘pizza cutter’ edges.

### **Lighter weight**

EXALON® rolls are 20-30% lighter than equivalent steel rolls.

### **Corrosion-proof**

Being made of HMWPE, the EXALON® roll is not subject to corrosion.

### **Sound dampening**

Reduce noise by up to 20%, particularly in underground applications.

### **Resistance to material buildup**

The smooth, non-adhesive HMWPE surface resists material buildup.

### **Cost-efficient**

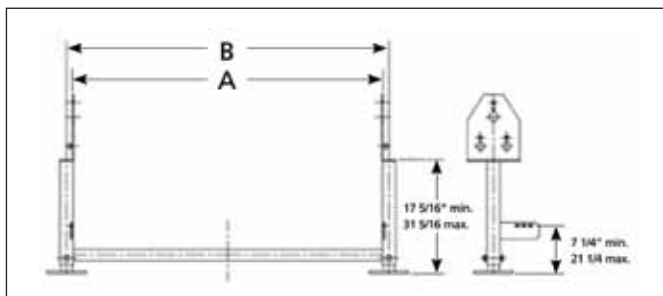
EXALON® offers cost savings through extended life, reduced downtime, longer replacement intervals and reduced belt damage.

### **Versatile**

The entire EXALON® product line can be produced to fit any existing manufacturer’s top-side and return frame assemblies.



## EZEE-LOC™ Adjustable Floor Stand Assemblies



**3 in Channel Floor Stand**

| Belt Width | Part No. | A            | B     |
|------------|----------|--------------|-------|
| 36         | 337433   | 47 ft 1/4 in | 49 in |
| 42         | 337435   | 53 ft 1/4 in | 55 in |
| 48         | 337437   | 59 ft 1/4 in | 61 in |

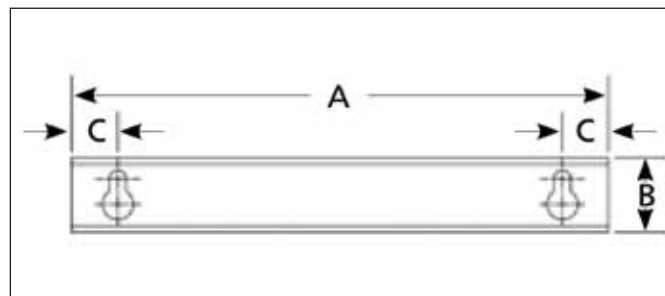
**4 in Channel Floor Stand**

| Belt Width | Part No. | A            | B     |
|------------|----------|--------------|-------|
| 36         | 336873   | 47 ft 1/4 in | 49 in |
| 42         | 336874   | 53 ft 1/4 in | 55 in |
| 48         | 336875   | 59 ft 1/4 in | 61 in |
| 54         | 336876   | 65 ft 1/4 in | 67 in |

**5 in Channel Floor Stand**

| Belt Width | Part No. | A            | B     |
|------------|----------|--------------|-------|
| 48         | 347495   | 59 ft 1/4 in | 61 in |
| 54         | 347496   | 65 ft 1/4 in | 67 in |
| 60         | 347497   | 71 ft 1/4 in | 73 in |

## EZEE-LOC™ Side Channel Rails



**3 in Channel Floor Rail**

| Part No. | A                  | B    | C           |
|----------|--------------------|------|-------------|
| 300808   | 7 ft-11 ft 3/4 in  | 3 in | 1 ft 7/8 in |
| 302123   | 9 ft-11 ft 3/4 in  | 3 in | 1 ft 7/8 in |
| 302121   | 11 ft-11 ft 3/4 in | 3 in | 1 ft 7/8 in |

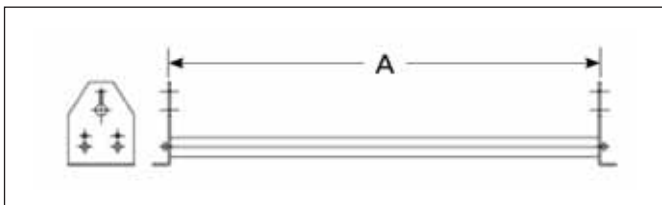
**4 in Channel Floor Rail**

| Part No. | A                  | B    | C           |
|----------|--------------------|------|-------------|
| 334711   | 7 ft-11 ft 3/4 in  | 4 in | 1 ft 7/8 in |
| 260050   | 9 ft-11 ft 3/4 in  | 4 in | 1 ft 7/8 in |
| 272337   | 11 ft-11 ft 3/4 in | 4 in | 1 ft 7/8 in |

**5 in Channel Floor Rail**

| Part No. | A                  | B    | C           |
|----------|--------------------|------|-------------|
| 334811   | 7 ft-11 ft 3/4 in  | 5 in | 1 ft 7/8 in |
| 310943   | 9 ft-11 ft 3/4 in  | 5 in | 1 ft 7/8 in |
| 334812   | 11 ft-11 ft 3/4 in | 5 in | 1 ft 7/8 in |

## EZEE-LOC™ Roof-hung Spreader Assemblies



**3 in Channel Spreader**

| Belt Width | Part No. | A            |
|------------|----------|--------------|
| 36         | 327372   | 47 ft 1/4 in |
| 42         | 327373   | 53 ft 1/4 in |
| 48         | 310971   | 59 ft 1/4 in |

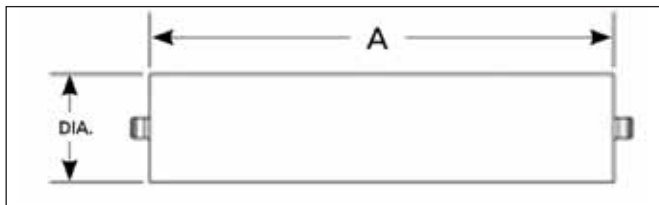
**4 in Channel Spreader**

| Belt Width | Part No. | A            |
|------------|----------|--------------|
| 36         | 327378   | 47 ft 1/4 in |
| 42         | 327379   | 53 ft 1/4 in |
| 48         | 327380   | 59 ft 1/4 in |
| 54         | 327381   | 65 ft 1/4 in |

**5 in Channel Spreader**

| Belt Width | Part No. | A            |
|------------|----------|--------------|
| 48         | 327388   | 59 ft 1/4 in |
| 54         | 327389   | 65 ft 1/4 in |
| 60         | 310945   | 71 ft 1/4 in |

## Return Roll Assemblies



**4 inø - 7Ga. Return Roll\***

| Belt Width | Part No. |        | A     |
|------------|----------|--------|-------|
|            | CEMA C   | CEMA D |       |
| 36         | 324721   | —      | 47 in |
| 42         | 324727   | —      | 53 in |
| 48         | 324730   | —      | 59 in |

**5 inø - 7Ga. Return Roll\***

| Belt Width | Part No. |        | A     |
|------------|----------|--------|-------|
|            | CEMA C   | CEMA D |       |
| 36         | 325356   | —      | 47 in |
| 42         | 325357   | 325786 | 53 in |
| 48         | 325358   | 325787 | 59 in |
| 54         | 325359   | 325788 | 65 in |

**6 inø - 7Ga. Return Roll\***

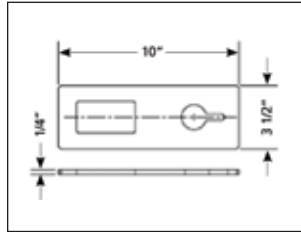
| Belt Width | Part No. |        | A     |
|------------|----------|--------|-------|
|            | CEMA C   | CEMA D |       |
| 36         | 325485   | —      | 47 in |
| 42         | 325488   | 325818 | 53 in |
| 48         | 325493   | 325819 | 59 in |
| 54         | 325498   | 325820 | 65 in |
| 60         | 325501   | 325822 | 71 in |

\*Available with 1/4 in wall rolls upon request.

## Channel Slider/Hanger Brackets

### Slider/Hanger Brackets

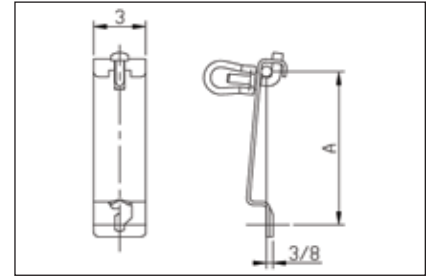
| Part No. | Channel Size |
|----------|--------------|
| 347481   | 3 in @ 3.5#  |
| 347482   | 4 in @ 5.4#  |
| 347483   | 5 in @ 6.7#  |



## Wire-rope Drop Brackets

### Drop Brackets

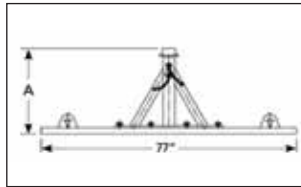
| Part No. | A            |
|----------|--------------|
| 391355   | 5 ft 3/4 in  |
| 391356   | 7 ft 1/4 in  |
| 391357   | 9 ft         |
| 391358   | 11 ft 3/4 in |



## Wire-rope Adjustable Tie-off Assemblies

### Tie-Off Stands

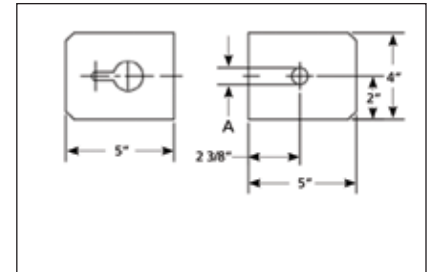
| Part No. | A Min. | A Max. |
|----------|--------|--------|
| 276956   | 24 in  | 36 in  |
| 271136   | 32 in  | 48 in  |



## Roof Mounting Plates for Chain Hung Structure

### Roof Plates

| Part No. | A           |
|----------|-------------|
| 223140   | 3/4 in      |
| 246787   | 1 in        |
| 213551   | 1 ft 1/4 in |
| 242648   | 1 ft 1/2 in |



## Channel-mounted Drop Brackets

### 3 in Brackets

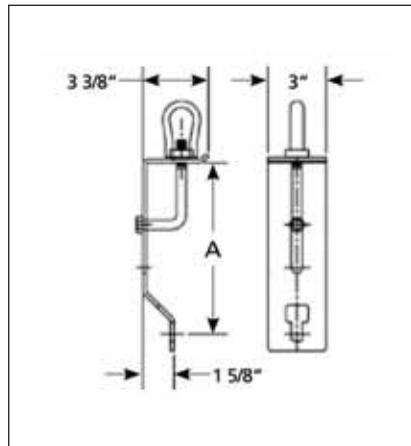
| Part No. | A     |
|----------|-------|
| 338431   | 9 in  |
| 338433   | 12 in |
| 338435   | 15 in |

### 4 in Brackets

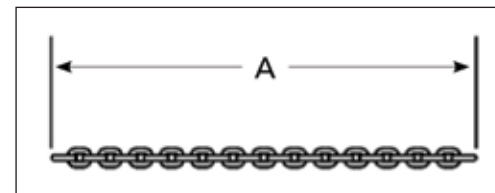
| Part No. | A     |
|----------|-------|
| 338426   | 9 in  |
| 338428   | 12 in |
| 338430   | 15 in |

### 5 in Brackets

| Part No. | A     |
|----------|-------|
| 338437   | 9 in  |
| 338439   | 12 in |
| 288558   | 15 in |



## Cat Standard Chain



### 1/4 Proof Coil Chain with Hook

| Part No. | A    |
|----------|------|
| 208650   | 4 ft |
| 244458   | 5 ft |
| 231598   | 6 ft |

### 5/16 Proof Coil Chain without Hook

| Part No. | A    |
|----------|------|
| 222516   | 5 ft |
| 216997   | 6 ft |



# Underground Belt Structure – CEMA C & D Series

For more complete information on Cat products, dealer services, and industry solutions, visit us on the web at [mining.cat.com](http://mining.cat.com) and [www.cat.com](http://www.cat.com)

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