

# Surface Conveyor Structure

CEMA C, D and E Series



CAT®

# Solutions Designed for Your Bulk Handling Applications

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Designed for your bulk material handling applications, Caterpillar has a range of rugged and reliable Conveyor Systems unsurpassed in performance and service life. Transport your materials reliably and efficiently with our Conveyor Systems solutions both on the surface and underground.



# CEMA Standards

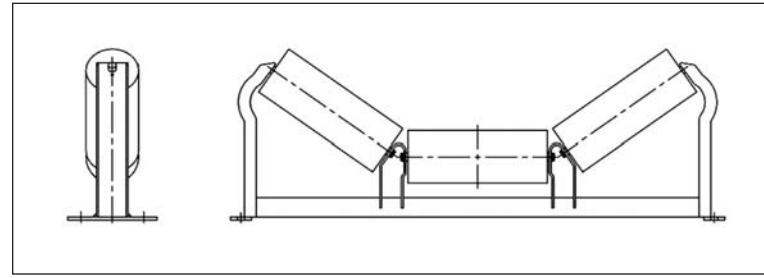
Transport your materials reliably and efficiently



All Cat® surface belt structure conforms to CEMA (Conveyor Equipment Manufacturers Association) guidelines. The intelligent design and manufacturing technology provide long life, high reliability and superior performance.

# Carrying Assemblies

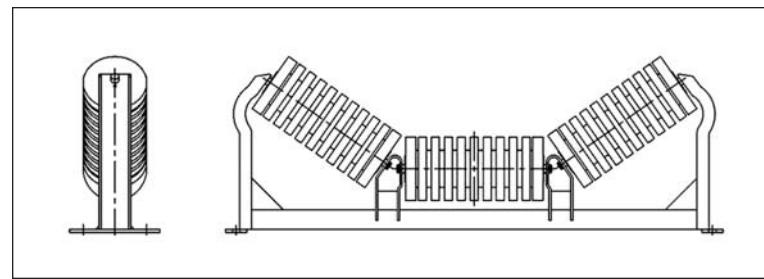
## Multiple options for maximum flexibility



Carrying Idlers

### Carrying Idlers

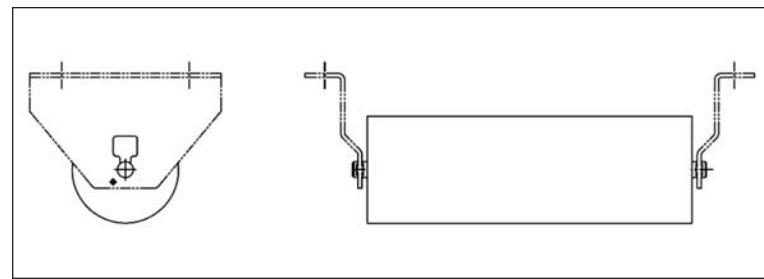
Cat in-line carrying idlers are designed for the rugged and sometimes adverse conditions that exist in all material handling industries. Configurations include, but are not limited to, various trough angles, picking idlers, low-profile, offset, wide base, and many handling and attachment options to provide maximum flexibility for all conveyors.



Impact Idlers

### Impact Idlers

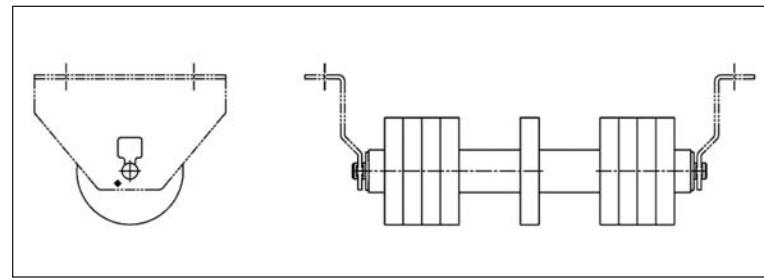
Cat in-line impact idlers are ideal for loading and high-impact belt conveyor applications and conditions. Roll technology utilizing two-piece tapered roller bearings and a reliable sealing system provide excellent performance in all conditions.



Return Idlers

### Return Idlers

Cat return idlers are designed to support empty belt back to the tail. Multiple configurations and roll material options provide maximum flexibility for all conveyors.



Rubber Disc Return Idlers

### Rubber Disc Return Idlers

Rubber disc return idlers are ideal for critical return belt conditions in conveyor applications.

The utilization of rubber discs provides additional wear capacity to the idler and also protects the conveyor belting in any condition.

# Steel Rolls

Multiple configurations provide the right fit



## Steel Rolls – Above Ground Applications

### CEMA

	C	D	E
<b>Diameters</b>	101.6 mm, 127.0 mm and 152.4 mm (4 in, 5 in, and 6 in)	127.0 mm and 152.4 mm (5 in and 6 in)	152.4 mm and 177.8 mm (6 in and 7 in)
<b>Load Rating</b>	Up to 409 kg (900 lb)	Up to 545 kg (1,200 lb)	Up to 818 kg (1,800 lb)
<b>L10 Life Expectancy</b>	30,000 hrs	60,000 hrs	60,000 hrs
<b>Belt Widths</b>	457.2-1524 mm (18-60 in)	609.6-1828.8 mm (24-72 in)	914.4-2438.4 mm (36-96 in)

### Shell Thickness

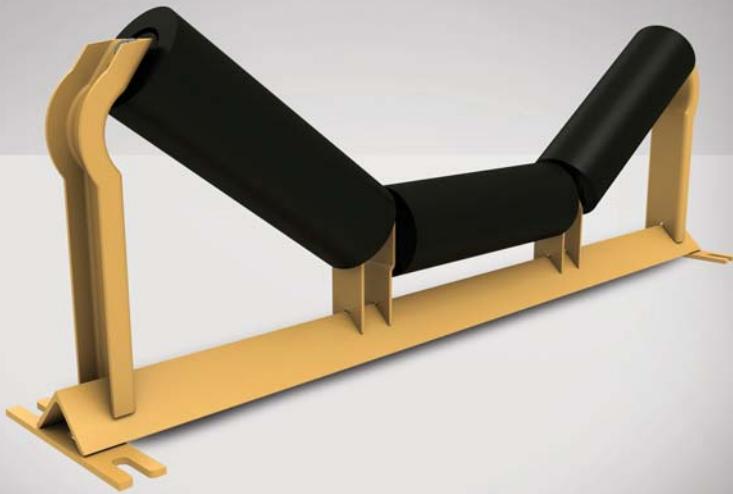
- 4.55 mm (0.1793 in)
- 6.35 mm (0.25 in)

### Carrying Assembly Idler Styles

- In-line
- Single tube cross member

# **EXALON® Rolls**

Improve roll wear life



## **A Perfect Choice for Your Highly Corrosive and Abrasive Operations**

In addition to its 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.

# EXALON® Rolls

Extend belt life and reduce downtime



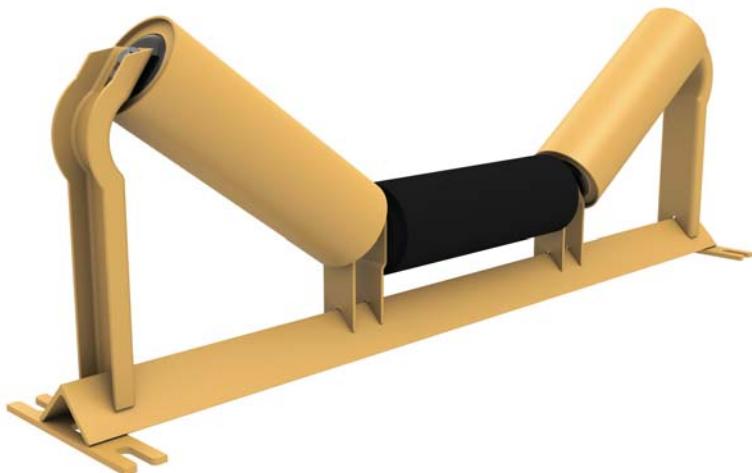
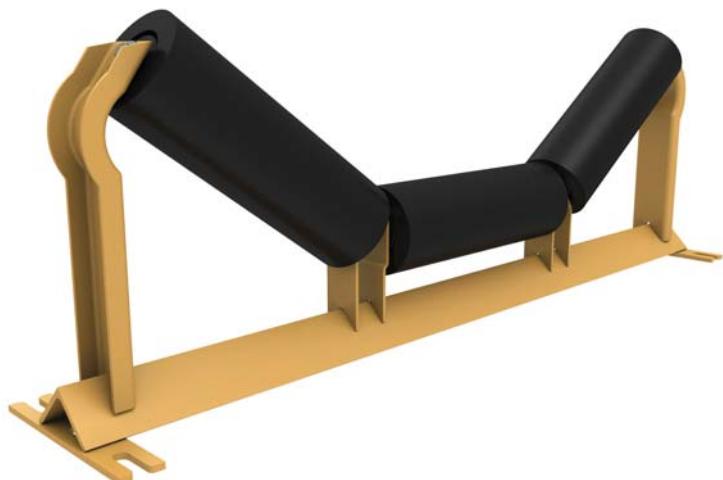
By extending belt life and reducing downtime, EXALON rolls deliver significant savings to mine operators.

## Versatile, Low-Maintenance

EXALON rolls can be retrofitted to virtually any frame. Custom sizes can be ordered for special applications. EXALON heads are installed using a unique “spin-welding” method, creating a single-piece roll construction.

## 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.





## EXALON Rolls

Minimize belt friction and wear

### **EXALON Benefits**

#### **Longer Shell Life**

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

#### **Low Maintenance**

Rolls are greased for life.

#### **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.

#### **Corrosion-proof**

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

#### **Sound Dampening**

Reduce noise by up to 20%.

#### **Resistance to Material Buildup**

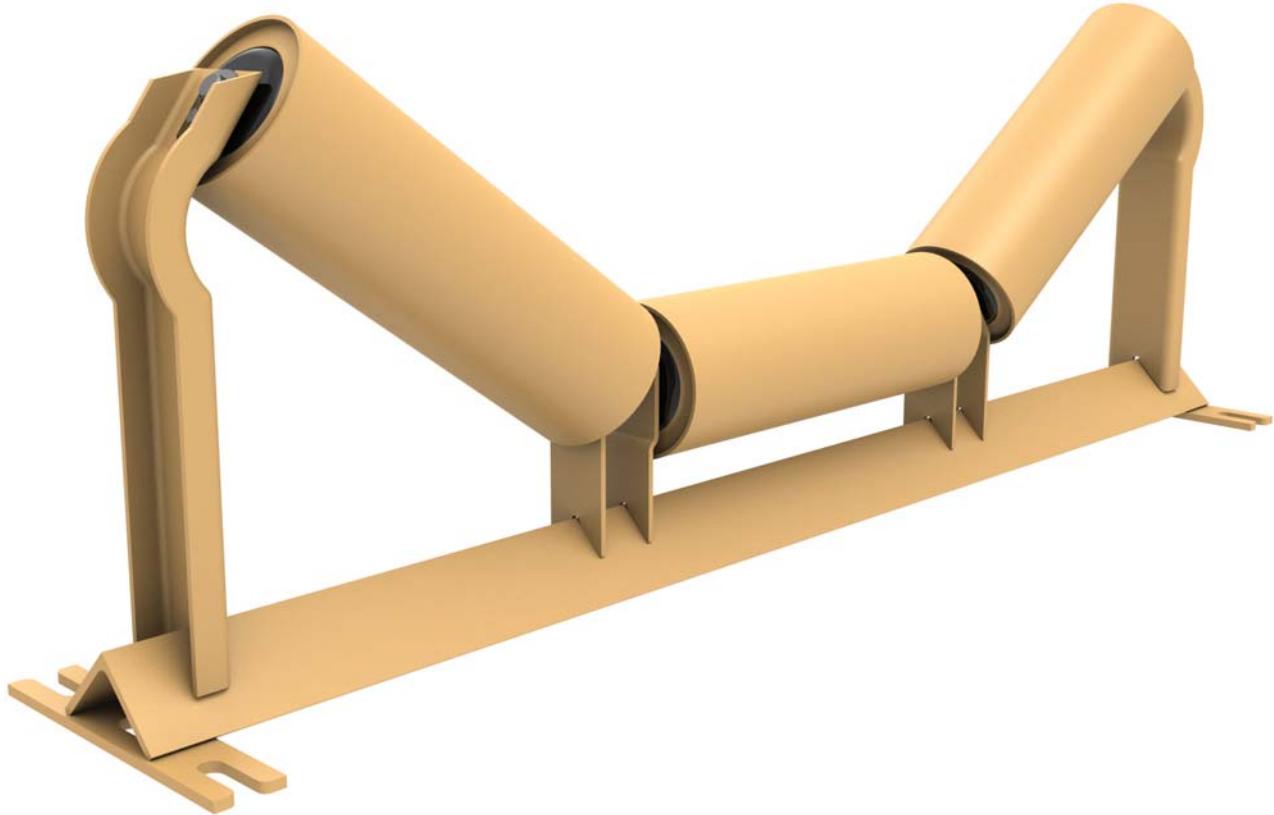
The smooth, non-adhesive HMWPE surface resists material buildup.

#### **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 virtually any existing manufacturer's top-side and return frame assemblies.



## Steel Rolls

Retrofit our rolls into virtually any frame

### Cat® Steel Rolls

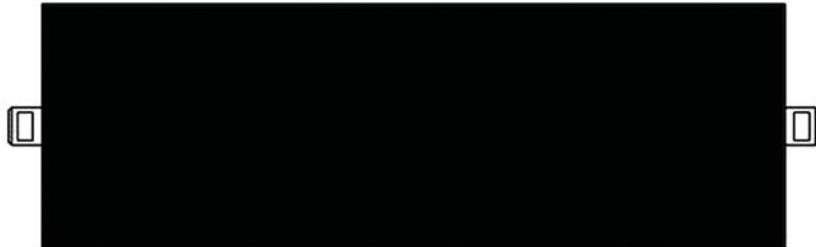
Easily replace rolls at your operation with our retrofittable steel rolls. The Cat roll design is the result of over two years of design and engineering effort and represents new technology in idler designs. Our shaft end configuration allows you to retrofit Cat rolls into virtually any competitor's frame with a retrofit adapter. Our end cap (bearing housing) has been redesigned for increased strength and a close fit to the deflector cap.

# Rubber Disc Return Idlers and Replacement Rolls

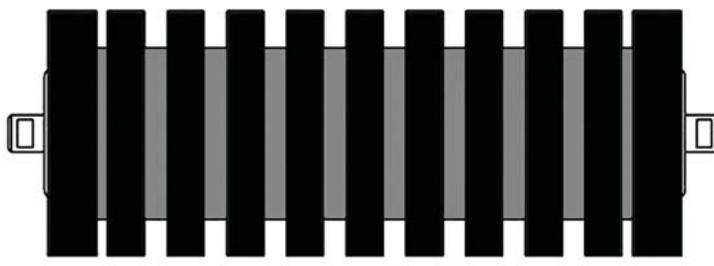
Reliable performance in any condition



*Steel Rolls*



*EXALON® Rolls*



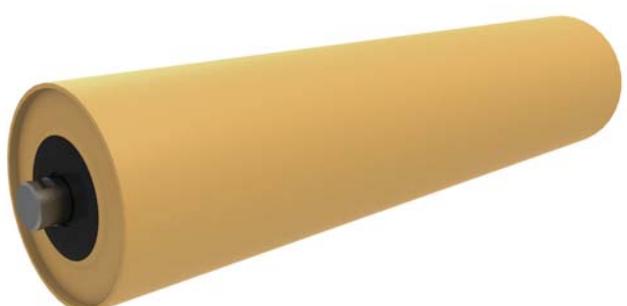
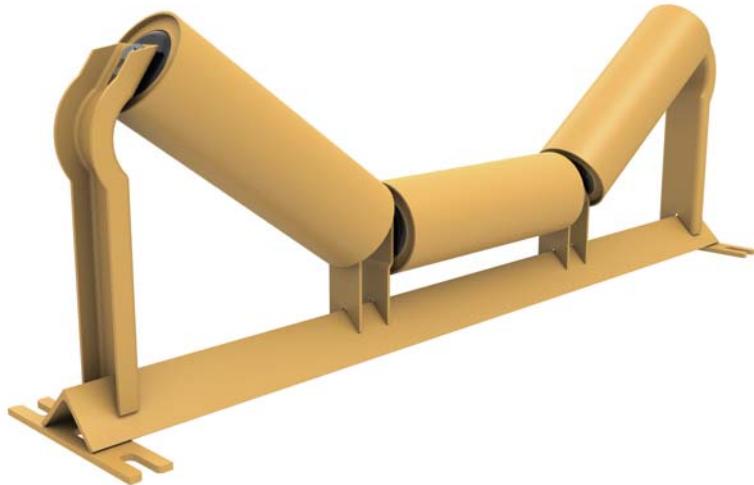
*Rubber Disc Rolls*

## Replacement Steel, EXALON, and Rubber Disc Rolls

Roll material options provide reliable performance in any conditions – wet, dry, clean, dirty, abrasive and corrosive environments.

# Idler PAL

Grease stays where you need it



## Greased for Life

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

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.

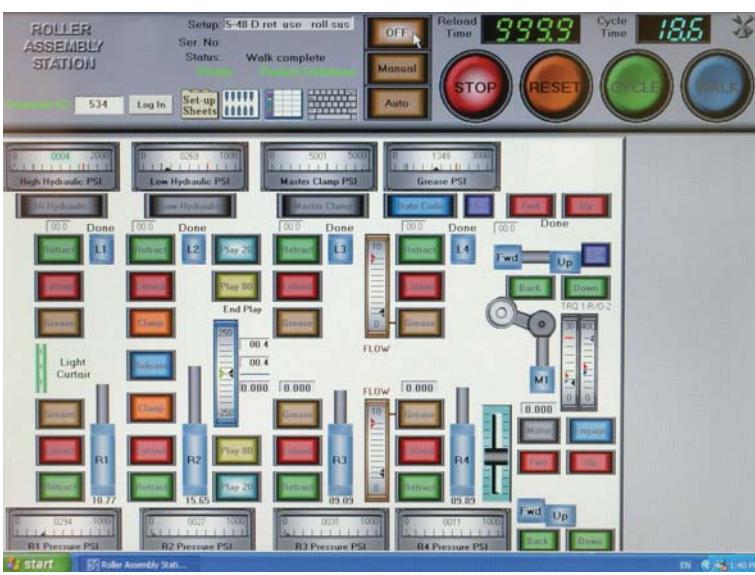
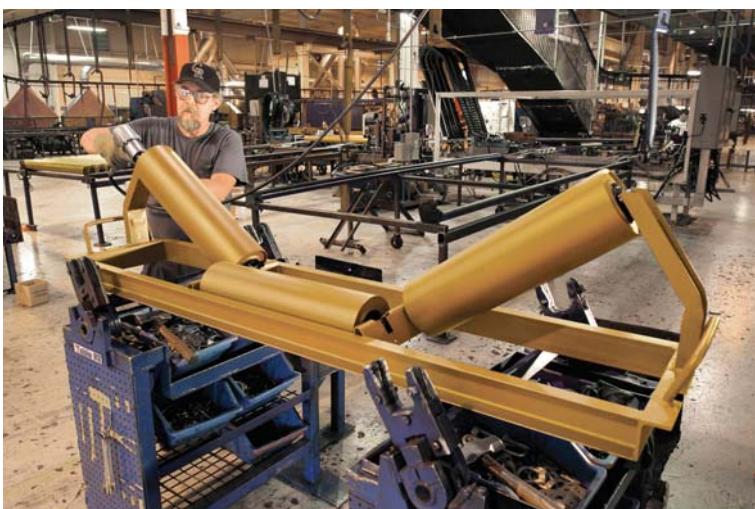


# Electronic Quality Tracking

## Accurately monitor roll life



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



### 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



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

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.

## Notes



For more complete information on Cat products, dealer services,  
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