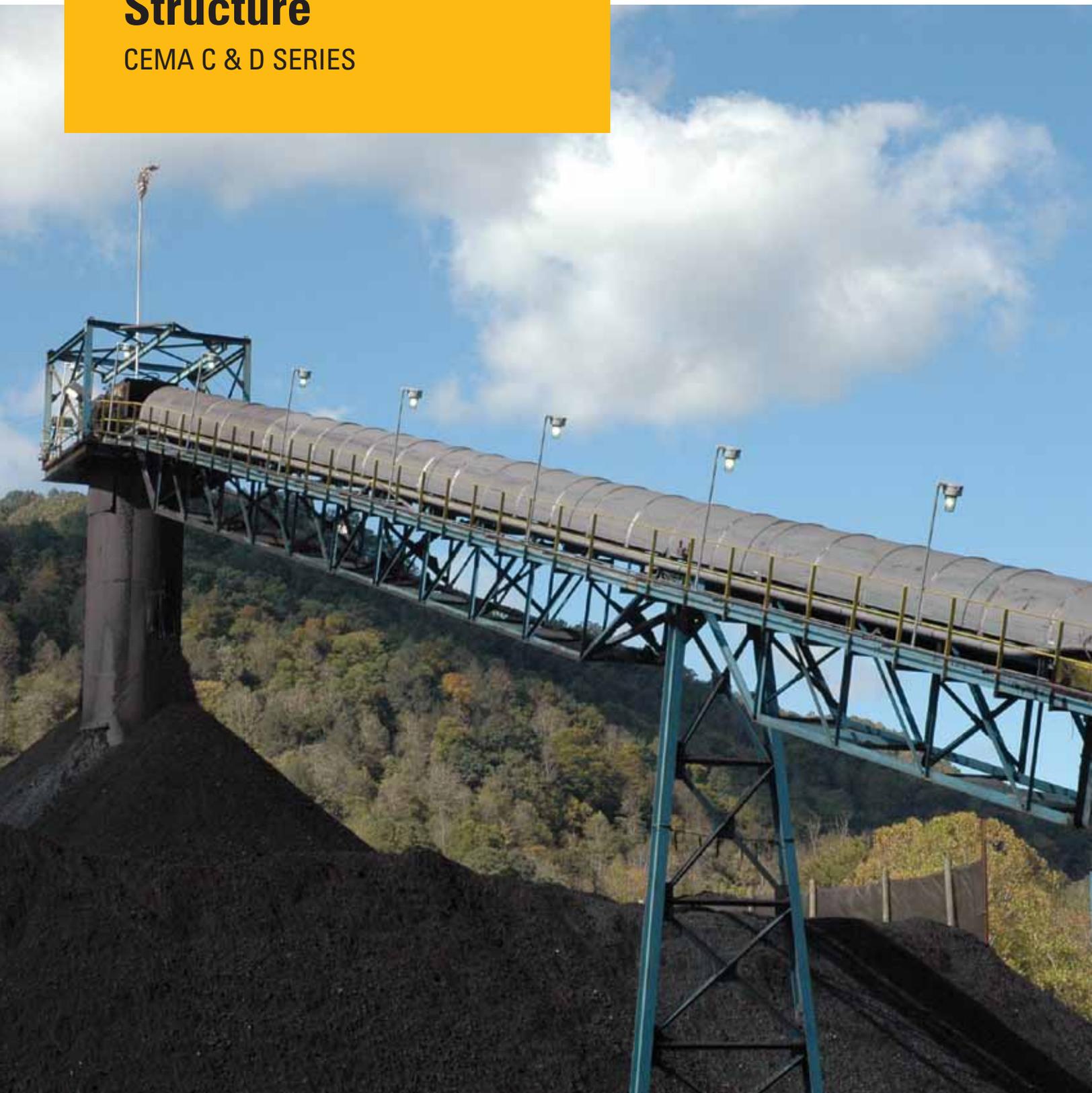


Surface Belt Structure

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.

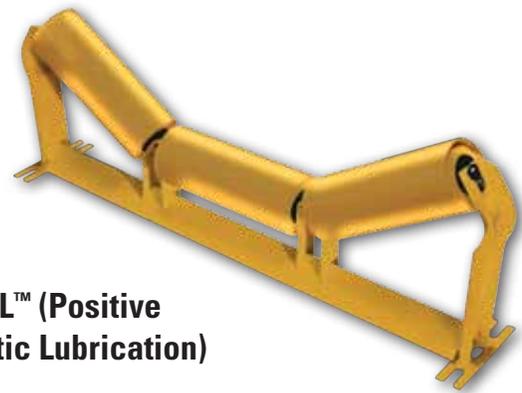
Cat® Steel Rolls

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.

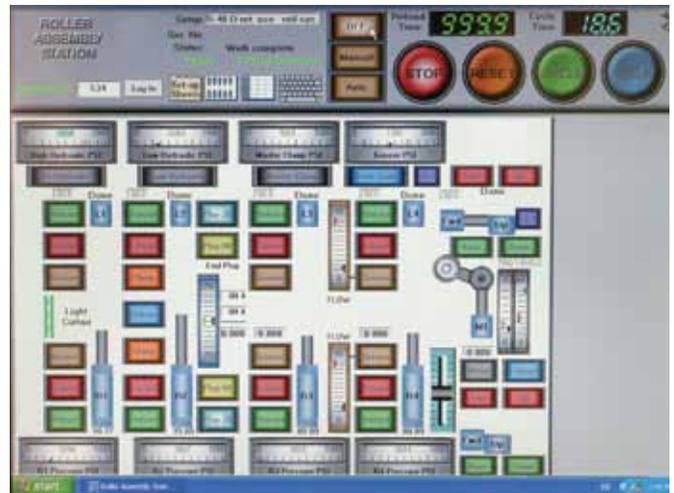
Caterpillar is the first idler manufacturer to offer individual serialized rolls as a standard. Now you can tell when the roll was manufactured, allowing accurate monitoring of roll life. No other idler manufacturer checks each roll for rotational torque, TIR and bearing play. Plus, each roll is “test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

Surface Belt Structure

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

Carrying Idlers

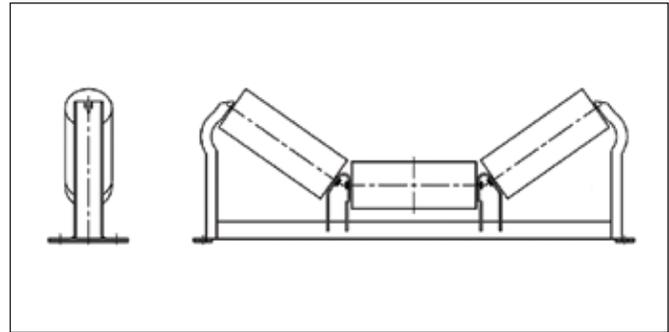
Cat in-line carrying idlers are designed for the rugged and sometimes adverse conditions that exist in all surface mining industries. Multiple configurations and roll material options provide maximum flexibility for all surface mining belt conveyors.

Impact Idlers

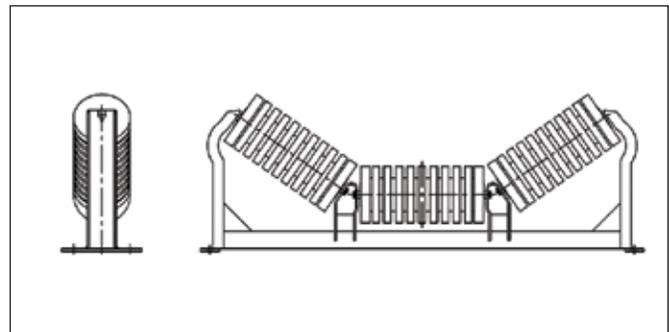
Cat in-line impact idlers are ideal for loading and high-impact belt conveyor applications and conditions. Roll technology utilizing two-piece tapered roller bearings and a reliable sealing system provide excellent performance in dirty and adverse mining conditions.

Return Idlers

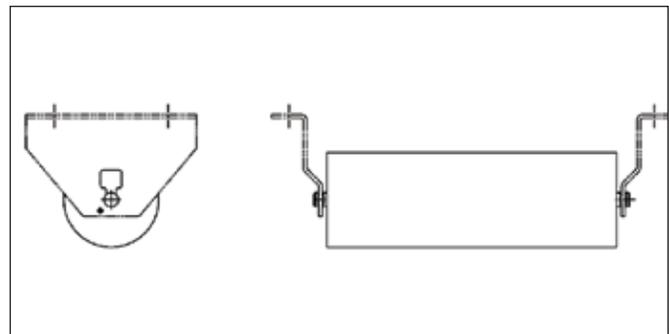
Cat return idlers are designed for the rugged and sometimes adverse conditions that exist in all surface mining industries. Multiple configurations and roll material options provide maximum flexibility for all surface mining belt conveyors.



Carrying idlers



Impact idlers



Return idlers

Steel Rolls – above ground applications

Diameters:

- 4", 5" and 6" CEMA C or D (load capacity, 30,000 – 60,000 hrs.)
- 6" and 7" CEMA E (load capacity, 60,000 hrs.)

Shell Thickness:

- 0.1793"
- 0.25"

Carrying Assembly Idler Styles

- In-line
- Single tube cross member

Belt Width

- 24", 30", 36", 42", 48", 54", 60", 72"



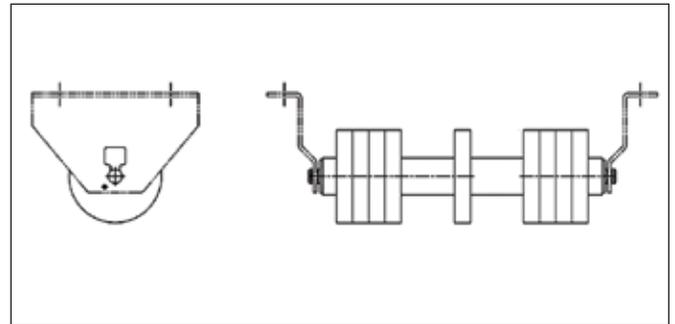
Rubber Disc Return Idlers

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 mining conditions.

Replacement Steel, EXALON®, and Rubber Disc Rolls

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



Rubber disc return idlers



Steel rolls



EXALON® rolls



Rubber disc rolls





Cat EXALON® rolls are ideal for use in highly corrosive and abrasive above ground 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®.

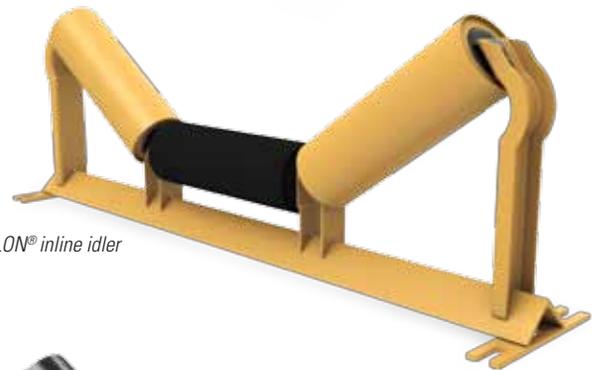
While steel rolls are effective in most bulk-material handling applications, some applications benefit from the use of the EXALON® roll product. Applications with environments that are highly corrosive, abrasive, wet or have a tendency for material buildup on the roller are ideal for the EXALON® roll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



EXALON® inline 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.

Surface 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 and www.cat.com

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Materials and specifications are subject to change without notice. Featured machines in photos may include additional equipment. See your Cat dealer for available options.

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