

ElJay Rollercone® Classic





Often Imitated, Never Equaled...

The Cedarapids/EIJay Rollercone® Classic is the high performance crusher. As with most leaders, it's often imitated but never equaled. "New" innovations from competitors have usually been proven for years in the Rollercone.

Rollercones produce more sized product on the first pass than any competitive cone. Roller bearing tolerances are ten times less than on bronze-bushing shaft cones. The roller bearings ensure a true setting.

Eighty percent of the force through the wedge plate is directed to crushing because roller bearings run more efficiently. With its all-roller-bearing construction, horsepower

is applied to crushing, not overcoming friction as in shaft-type bronze-bushing cones.

Proof is that Rollercones require less oil than competitive cones — up to 77% less — because forces are spread over a wider area, not concentrated on one point of the bushing. Thus friction is greatly reduced.

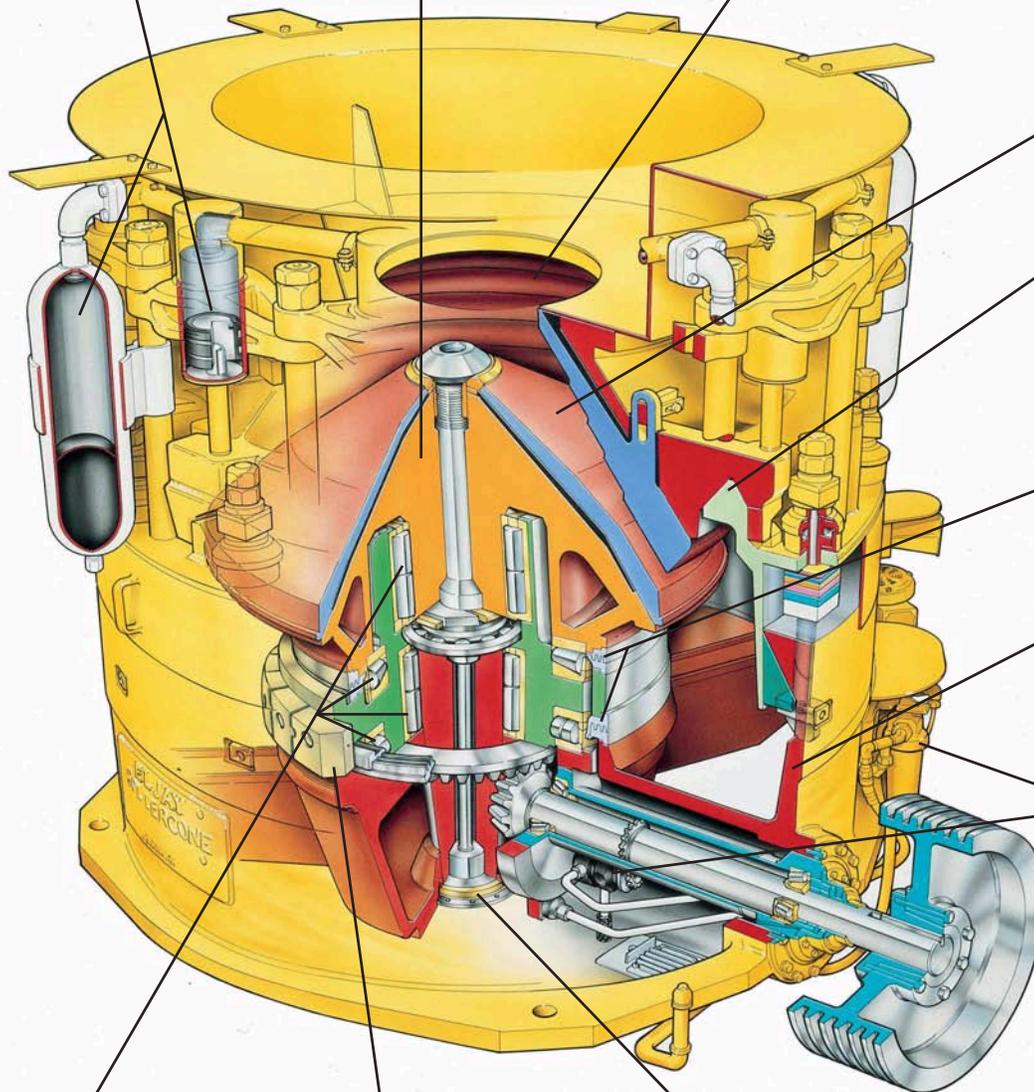
The Rollercone hydropneumatic tramp iron relief system passes tramp iron efficiently and quickly. Originally invented by EIJay, the superior Rollercone design has never been equaled by competitive cone manufacturers.

Cedarapids

Hydraulic tramp iron relief passes large uncrushable objects that could jam and stall competitive cones.

Massive shaftless cone head rides on close-tolerance roller bearings which maintain accurate setting and product gradation.

Large unobstructed feed opening allows rocks with at least one dimension equal to the nominal feed opening to be caught and crushed where they might block another crusher.



Cone manganese can be changed with cone head in place so critical downtime is reduced.

V-seat is not part of the base frame. If damaged, it can be replaced quickly and does not require the extensive downtime associated with machines which have the V-seat as part of the base frame.

Close-running deep-tapered non-contact labyrinth seals prevent entrance of dust and water.

Massive base frame directs the compression forces to the product, greatly reducing energy losses due to structural deflection common in competitive shaft-type cones.

Two oil systems assure adequate lubrication, an external bearing pre-lube pump for start-up and internal pinion-shaft driven pump for operation. Oil reservoir is completely self-contained.

Roller bearings have superior load capacity—more than to be expected during crushing—and therefore provide a very long service life.

Counterweights balance the cone and protect the seal area by clearing away any built-up material. High hydropneumatic hold-down pressure permits closer setting without bowl float.

Anti-spin mechanism prevents cone head from turning when running empty. Wear from scuffing is greatly reduced when rock is fed into the cavity.

More Crushing Power

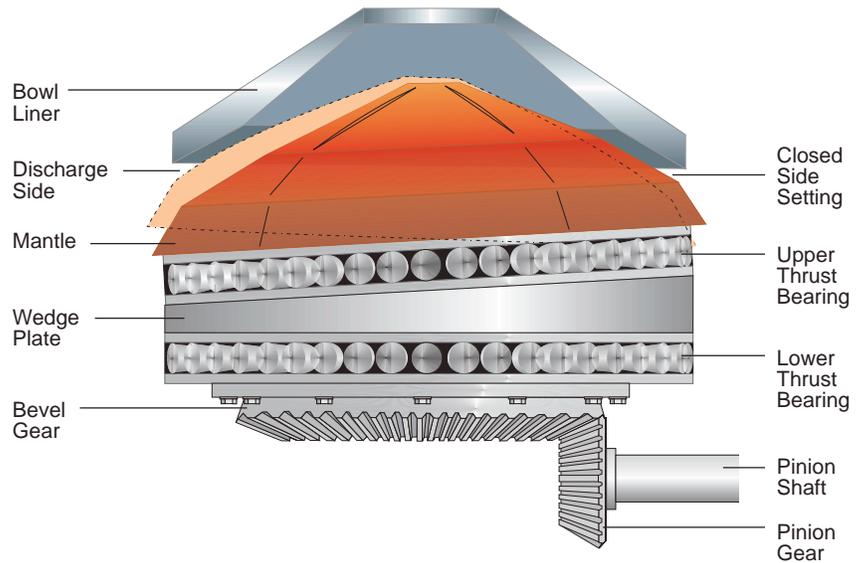
The unique Cedarapids/EIJay rotating wedge plate transmits 80% of the force through it to direct compression crushing.

In fact, a Rollercone Classic produces more to-size product *on the first pass than any competitive cone*.

The combination of the balanced wedge plate with bolt-on counterweights, and large roller thrust and radial bearings produces an action that is smooth, efficient and nearly vibration free.

The cone head rides the wedge plate with a slight eccentric motion, squeezing rock between the mantle and stationary bowl liner.

Rock is crushed as the thick part of the wedge closes the mantle on the liner, creating the closed-side setting. Crushed material discharges simultaneously as the thicker portion of the wedge moves away, creating the open-side setting.



More Sized Product

Roller bearings have a greater load carrying capacity, can withstand greater forces, minimize friction and generate considerably less heat, thus doing more work than bronze bushings in shaft-type cones.

The wedge plate, which extends into the cone head, rides on the lower thrust bearings in the base and rotates around the massive central spindle on the lower radial bearings. The upper thrust and radial bearings allow the wedge plate to rotate inside the cone head.

Due to the roller bearing's tighter tolerances — 1/10 those of a bronze-bushing cone — a true setting is maintained. The tighter tolerances reduce oversize to about 25% instead of the 50% in shaft-type cones when making a 1/2" (12.7 mm) minus product. This allows more feed material in the circuit with less recirculation *and that means more production*.



Self-Contained Oil Lubrication System

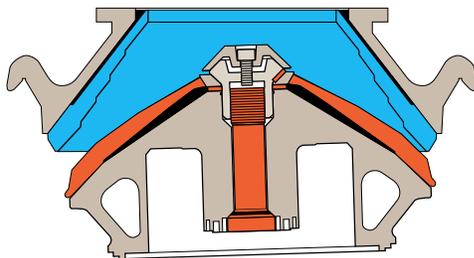
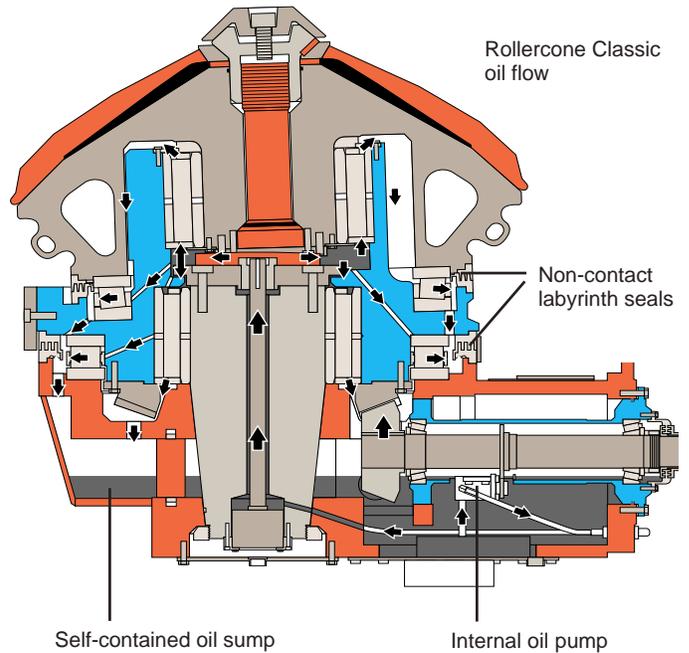
Rollercone Classics run cooler than competitive cones because there is less internal friction. The weight and crushing stresses are spread over two radial and two thrust bearings so the pressure in any one area is reduced.

The bronze bushings in a shaft-type cone must withstand all the forces, often concentrated in one spot. This can lead to breakdown of the oil film, heat-producing metal-to-metal contact and increased tolerances.

All the oil is self-contained in the crusher base. No external cooling tanks are necessary. The tightly sealed system reduces the chance of contamination by water and grit.

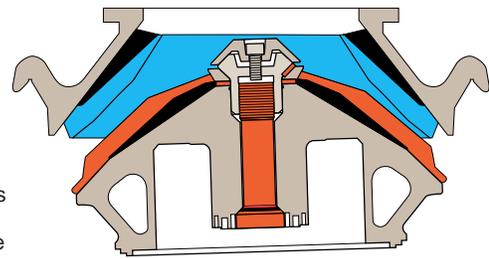
Low friction generates less heat and less oil is needed. The 54" (1372 mm) Rollercone requires only a 27-gallon (102 liter) reservoir. A comparable shaft-type cone requires up to 200 gallons (757 liters) plus needs an extra cooler to dissipate heat.

A separate external pre-lubrication pump assures an adequate oil supply to the bearings prior to start-up. After the pinion shaft is turning, an internal pump, driven through a hardened gear, provides running lubrication. An alarm horn alerts the operator if oil flow drops below the required level.



Standard chamber

Changing crushing chambers only requires installing manganese bowl and mantle on the RC45 and RC54.



Fine chamber

One Crusher For All Applications

The RC45, RC54 and RC60 feature easy-to-change crushing chambers. Switching from a standard to a fine crushing chamber is all that's required to change to a new application.

With several liner configurations for the fine and standard crushing chambers, the Rollercone is truly a highly versatile cone crusher. Rollercone crushing chambers incorporate the

same advanced engineering technology as found in all Cedarapids/EIJay products.

Chamber liners are designed for maximum wear life with a minimum loss of feed opening during normal lifetime operation. Liners are easily changed without dismantling the upper section or removing the cone head.

Best Crusher Protection

The hydropneumatic tramp iron relief system provides unequalled protection against damage and allows much higher crushing forces.

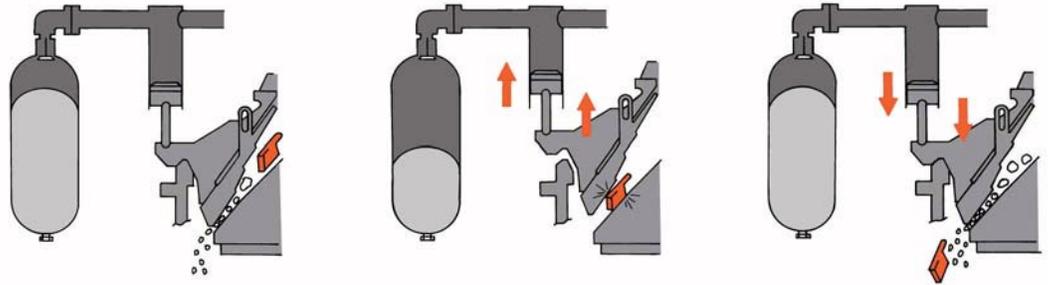
The lift of a 54" (1371 mm) Rollercone Classic enables it to pass a 5 1/2" (139 mm) object while a spring system on a comparable cone would bottom out at less than one-half this size.

Hydraulic cylinders and gas-filled accumulators replace the old spring system. Just one cylinder has a hold-down pressure equal to six to ten springs.

The hold-down pressure—700,000 pounds (317,520 kg) on a 66" (1676 mm) Rollercone - is 1 1/2 times that used on most competitive cones. That means the Rollercone can be set closer without bowl float.

As diagrammed, the bonnet is forced upward against the system's oil pressure in the relief cylinders. The oil pressure in turn compresses a nitrogen gas bladder in the accumulator.

Once the crushing cavity is cleared, the gas forces the oil back into the relief cylinder and the bonnet lowers to its original position.



This relief system also speeds clearing the cone should it ever become blocked due to power failure or other difficulty. The bonnet is raised by relieving oil pressure without loss of gas pressure.

The cavity can be cleared quickly and easily without damage to the crusher or danger to employees. Pressure is quickly restored by an electrically-driven pump.

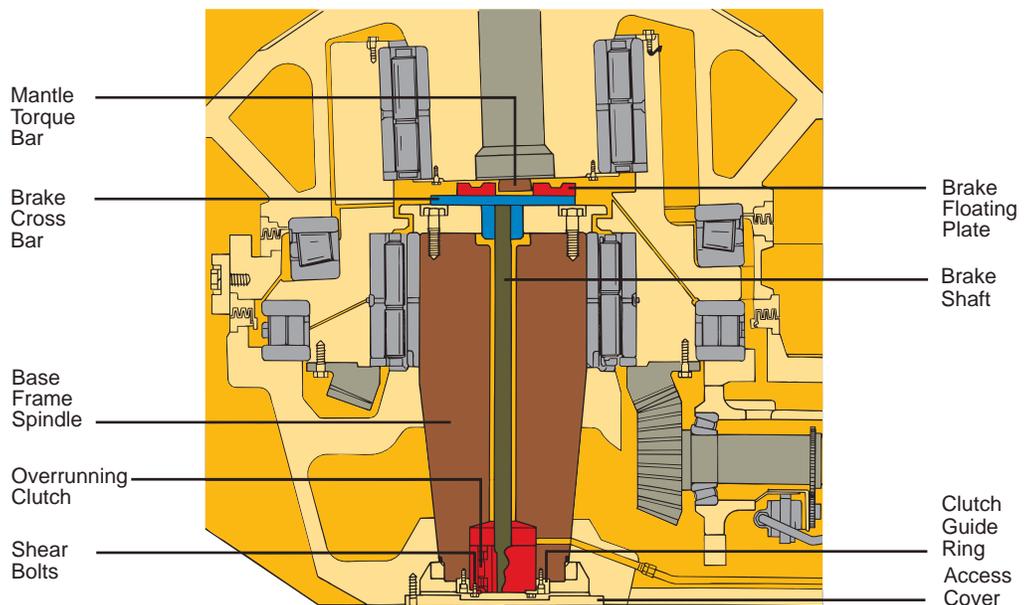
Shock loads to the relief system are minimized through the use of large-diameter tubing, a minimum of bends in the piping and oversize accumulators.

No Head Spin at Start-up

The anti-spin brake device prevents the cone head from spinning when the crusher is running empty.

During crushing the brake allows the cone head to rotate slowly to the right (clockwise) but not in the opposite direction. This provides smoother operation and eliminates unnecessary scuffing wear on the manganese at start-up.

The brake is attached to an overrunning clutch at the base of the spindle. A guide ring in the mechanism has shear bolts which will break before there is any damage to the shaft or clutch.



Solid Construction

The base frame consists of a massive stationary central hub and three or more extremely strong beams joining it to the perimeter wall.

The even distribution of forces on the Rollercone bearings is a big factor in the extremely long life of the bearings.

The roller bearing design minimizes frame deflection so all crushing energy is directed to the product.

Concentrated bending stresses that occur in shaft type cone crushers are evenly distributed in the Rollercone.

Relative placement of the bearings directs crushing forces through the bearing envelope. This eliminates all edge loading of the bearings and tipping of the cone.



Quick Adjustment System

Hydraulic/shim adjustment makes changing the discharge opening fast and easy. Adjustment is vertical using hydraulic rams, therefore bowl rotation is not necessary.

This design requires less headroom, less weight and eliminates the problem of threads jamming with rock dust.

Exact setting is maintained by shim stacks of equal height. Shims vary in thickness and are color-coded and numbered for quick recognition. The shims have offset slots for easy installation and are interlocking.

To tighten the settings, release the clamp ring and raise the bonnet. Remove shims from the lower stack to establish the new setting. Removed shims are stored in the upper stack.

The bonnet is then lowered and the clamp ring tightened hydraulically. Tensioning of clamp bolts is also done hydraulically.



Auto Adjust

The ElJay "Auto Adjust" system allows setting adjustment under load. Shim stacks are replaced by hydraulic cylinders.

The system can be computer-controlled or operator-controlled from a remote console. Unlocking, setting change and locking are all done automatically, within seconds.

No special mechanical components are needed. All are off-the-shelf heavy-duty items providing long service life and dependable operation.



Send us your crushing challenge.

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Sold and serviced by:

Bulletin EJRC-5 (3/02)
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