COLD-IN-PLACE RECYCLING (CIR)



ASTEC™


ASTEC
RM17
DANGER

A COST EFFECTIVE AND VIABLE SOLUTION FOR RECONSTRUCTING DAMAGED ROAD SURFACES

Cold-In-Place Recycling: Cost-Effective and Environment-Friendly

Astec Cold-In-Place Recycling (CIR) equipment makes it possible to repair damage to a roadway in one single pass, while reusing up to 100% of the existing material. The savings potential is tremendous, not only through re-use of material, but reducing equipment requirements. CIR technology allows the operators to make mix directly at the job site. No haul trucks are traveling back and forth to the asphalt plant; very little virgin material, if any, is used and you can open the road to traffic very quickly.



CIR is the Future of Road Rehabilitation

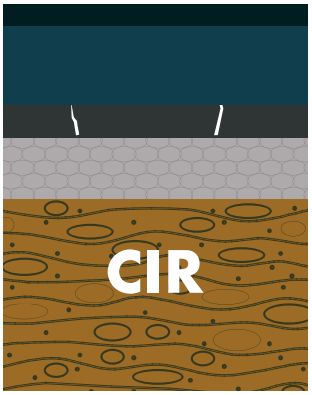
Astec has been developing and refining this technology for many years and offers a number of equipment configurations to help you meet your goals. The basic concept of CIR is to remove damaged layers, process the removed material and then place it and compact it to make the new structure. A new surface course can then be applied.

The Most Effective Crack Barrier

Temporary road repair methods, such as applying a new overlay or milling the road, improve ruts and cracks, but may not eliminate the problem. CIR is a more effective and long-term solution. Since CIR has relatively high air void content, it acts as a barrier, preventing cracks from transfering through.





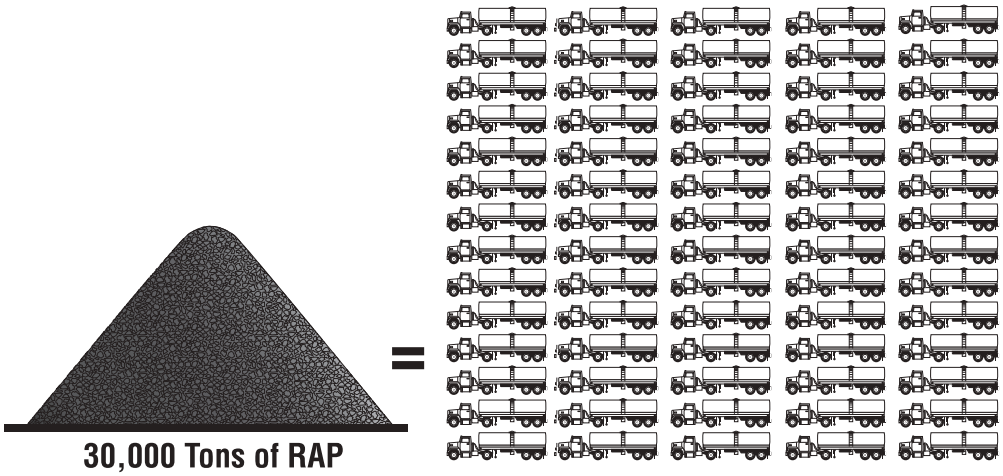




RECYCLED ASPHALT PAVEMENT SAVES TIME AND RESOURCES

COST FACTORS

- Time
- Hauling
- Materials
- Labor
- Fuel
- Energy



ADDRESS ALL TYPES OF PAVEMENT DAMAGE ECONOMICALLY

Fix Quickly and Efficiently

CIR can repair all kinds of cracking including fatigue cracking, block cracking, joint reflective cracking, longitudinal cracking, slippage cracking and transverse (thermal) cracking. It also repairs bleeding of excess liquid asphalt, corrugation and shoving, patching, polished aggregate, potholes, raveling, rutting and stripping. The root cause of the pavement failure should always be investigated to rule out base failure. Other determining factors include traffic volume and the loads the roadway should support. CIR has been used successfully on high-volume roads, but may require a thicker overlay.

Effective Treatment

If a road has good structural strength, CIR can be an effective treatment for all types of cracking, ruts and holes in the asphalt layer without removing all of the existing asphalt. Usually, the treatment is applied to a depth of 2 to 4" (5 to10 cm). Only a thin overlay or chip seal is required as a wearing course for most projects.

When is CIR Best?

CIR can be utilized if there is no damage to the base. Many types of surface cracking and distress can be fixed. The grade and slope of the pavement can be improved if the depth of treatment is sufficient, helping to improve ride quality. CIR is much more economical than mill-and-fill. Generally, CIR costs 50% less and provides up to 80% of the strength of the same thickness as hot mix asphalt.



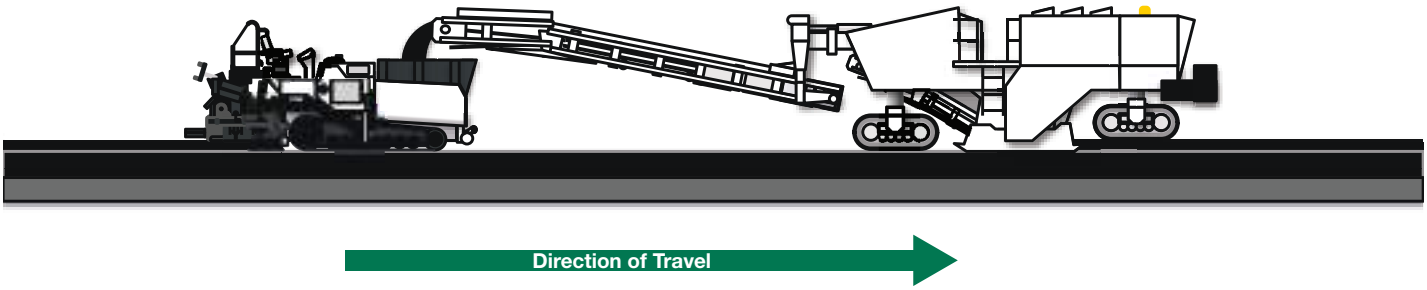
THE RX-900 CIR IS HEAVY DUTY AND USER FRIENDLY

The RX-900 CIR unit is used at depths of up to 14″ (356mm) and widths between 7′ 2″ (2.2m) and 12′ 6″ (3.8m). The CIR unit is a modified asphalt milling machine equipped for bidirectional operation with an additive system mounted to the rear of the machine. The RX-900 can also be used for traditional milling at depths of up to 14″ (356 mm). Like all Astec milling machines, this model features a 120-degree front load out conveyor swing. For the CIR application, the RX-900 is used in reverse, and the conveyor transfers the recycled asphalt mix directly to a paver. The recycled material can also be left in a windrow behind the machine. A push bar assembly is mounted to the unit in order to pull an emulsion or liquid asphalt tanker while in operation.



SPECIAL APPLICATIONS AND OPTIONS FOR HANDLING MATERIAL

The CIR package includes the asphalt pump, blending computer, cutter housing spray bar and towing/pushing hardware installed at the rear of the machine.



Bidirectional Operation

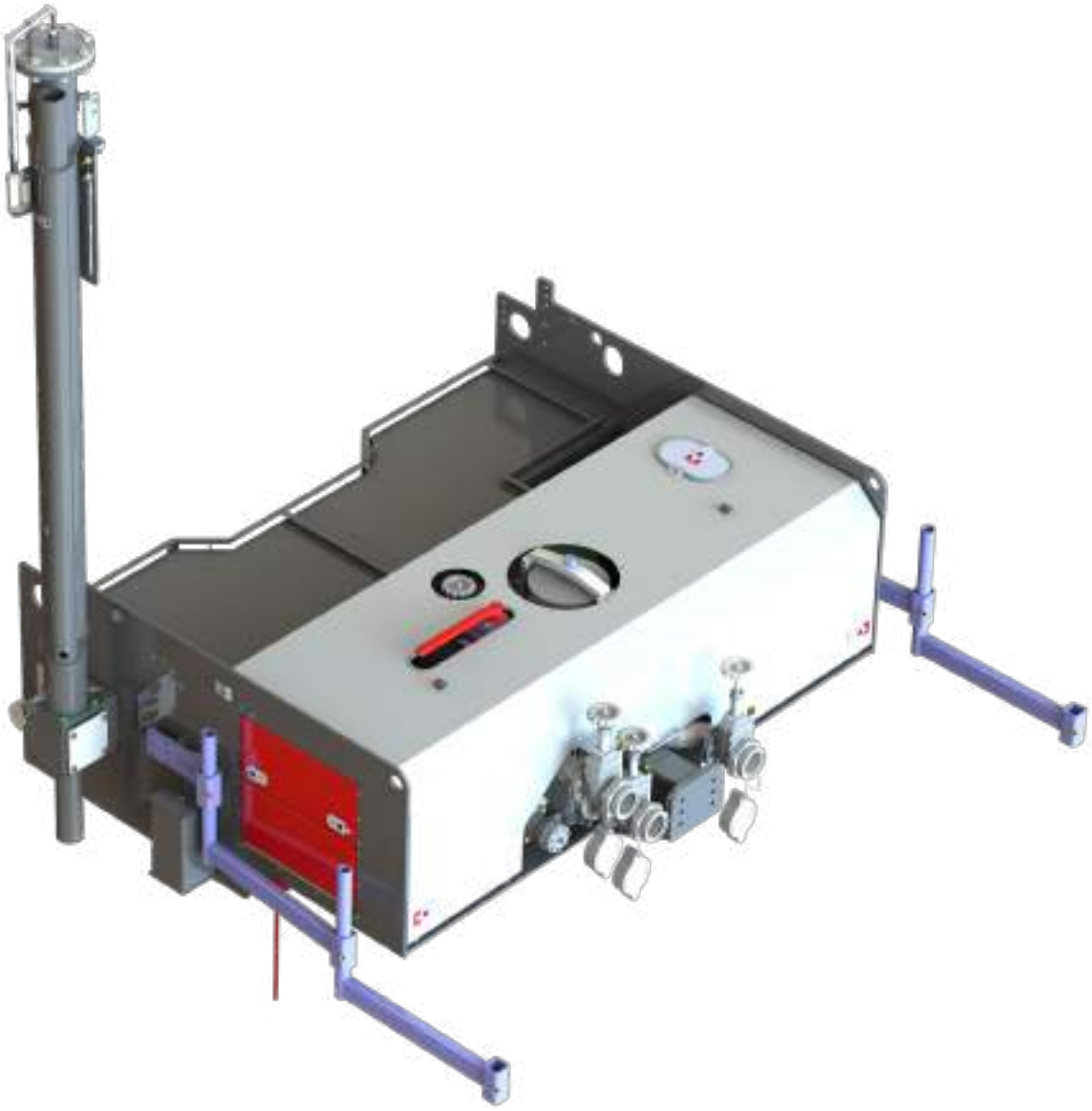
The RX-900 CIR can be operated in either traditional forward direction or in reverse. While operating in reverse, the cutter drum is down cutting, which provides better sizing of the aggregate before blending with the selected additive.

Handling Material Options

Whether you're adding emulsion, foamed asphalt or simply pulverizing, material that is ready to be spread should be in the cut before compacting the new surface. Astec cold planers can:

- Feed the material into a paver via the secondary conveyor
- Temporarily remove the secondary conveyor and allow the primary conveyor to deposit the material into a windrow
- Turn both conveyors off and adjust the height of the rear moldboard, letting material exit out the back of the cutter housing - a chute can be installed at the rear moldboard to form the windrow





CIR SKID MOUNTED ADDITIVE PACKAGE ALLOWS FOR ACCURATE INJECTION, MIXING AND BLENDING OF BINDERS

CIR Additive System

The CIR additive system is used to transfer, measure and inject either emulsion or foamed asphalt bitumen into the cutter housing of the milling machine. The additive is then thoroughly blended with the milled material and transferred for paving. The system flow capacity is 130 gpm (492 lpm). The package includes an automated flush system, electric spray valve system and a temperature compensated gear meter for increased accuracy of additive injection.

Additive Spray Bar

The additive spray bar is equipped with electronic spray valves, with switches to verify each valve is open. This configuration is more efficient when to troubleshooting the spray circuit.



Additive Control Computer

The computer and controls on the CIR package are located in one easy-to-operate panel. Operators can control and meter up to three additives, which could include asphalt (either in emulsion or foam), water and a slurry. There are also controls for the automated flush system to flush the entire additive system with a release agent to ensure proper daily operation. The operator must input values for width, depth and unit weight of the material in place. The computer measures the speed of the machine and adjusts the additive flowrates as necessary.

Solvent/Release Agent Tank

An onboard release agent tank and drain allow for easy flushing of the additive system at the end of a shift, so all transfer lines and spray nozzles are conditioned for a new work day. The solvent tank is in place to circulate fluid through the system and remove residue created by the CIR process.

Optional Foam System

The foam system includes an asphalt pump, diesel burner, hot oil heat system, auto flush system, blending computer, asphalt meter, water meter, piping, heated foam spray bar and tow hitch. With proper cleaning, it can be also used to inject emulsion.

A LARGE PLATFORM WITH INTUITIVE CONTROLS ENABLES EASY OPERATION

Safe and Functional Platform

The operator platform is conveniently accessed from the right or the left side. Two control stations allow machine operation from either side.

Simple Controls

Simplified controls allow for easy operation of the machine from either side of the platform. Multifunction joysticks and accessible controls are designed to be operated with one hand to allow for truck signaling.









Bidirectional Controls

A removable and repositionable control box, mounted on the back of the operator's platform, provides the ability to easily operate the machine in reverse.

Operator Seats and Canopy

Operator seats and a hydraulically-folding canopy are optional items for the RX-900. Foldable seats placed at each side of the operator platform add increased comfort while maintaining a spacious work area.

Enhanced Features

- Mass flow meter allows for increased precision of additive(s)
- High flow compaction water spray-bars: includes two water pumps that reach a combined 100 gpm (379 lpm) - Foam system only
- Engine heats asphalt pump and screens at morning startup - Emulsion system only
- Five truck totalizing system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ASTEC
RX-900e

SPECIFICATIONS

CIR ADDITIVE SYSTEM

- 130 gpm (492 lpm) product flow
- Electric spray valve system
- Integrated pump/meter package
- Automated flush system
- Asphalt density measurement (optional)
- Electric/hot-oil heat system on the foamed asphalt system
- Guardian® telematics system compatible
- Foam water injection system monitors water flow at each nozzle
- Removable for conventional milling
- Tanker-to-tanker transfer system capable of totalizing

OPTIONS

- Hot oil heated supply hose
- Remote second display, mounted on magnetic pedestal at operator station
- High flow dual water filters
- Steel chute on end of secondary conveyor
- Hydraulic lifting push bar
- Extended operator station platform
- Reversible operator control stations (Easily move controls to face either the front or the rear of the machine)



Extended operator station platform





Reversible operator control stations

NOTES



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All specifications subject to change without notice. Products shown are representative, details may vary. Equipment show with options available at additional cost.

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