




# SRM 10X120

## ASPHALT RECYCLER



 **STEPP MFG**  
ASPHALT MAINTENANCE EQUIPMENT  
651-674-4491 / [STEPPMFG.COM](http://STEPPMFG.COM)



# *Industry Leading Asphalt Recycling Equipment*





# Solving Problems, Addressing Needs

## Solving Problems, Addressing Needs

*At Stepp Manufacturing, our engineers produce equipment that is known in the industry for its durability, reliability, and functionality. Since our beginning in 1942, our family owned operation has always produced equipment specific to your needs. We use high quality material, innovative engineering, and quality personnel to match your needs as they grow.*

### Recycle

***“To make something new from something that has been used before.”***

*Webster's definition is exactly what we do: We recycle asphalt. We transform old, broken chunks and millings into a like new or better state. How do we do this? With the Stepp SRM asphalt recycler. Asphalt is one of the few 100% recyclable products on the earth. When recycled properly, you can make a material that will perform like new, or sometimes even better than new. With a reusable resource, we not only reduce the waste of old asphalt, but we do it at a fraction of the cost to produce new asphalt, and we also become better stewards of the environment.*

### Produce Hot Mix 24-7-365 for Under \$20.00 per Ton!

*Stepp's SRM10x120 is fully mobile, and needs no extra equipment on the job. The SRM will produce 1/2 ton batches of high quality "Hot Mix Asphalt" from millings or virgin materials any time of the year, at any outside temperature. With the indirect heating system and on-board liquid asphalt tank, the SRM can recycle or produce virgin, custom, or spec mix designs. Make cold patch a thing of the past with permanent hot mix repairs!*

*This asphalt recycler is ideal for pothole patching, repairing utility trenches, water main breaks, and all other types of asphalt repairs.*





# ***Environmentally Responsible Practices***

**•Do you have access to asphalt millings?**

**•Would you like to perform permanent road repairs in the off season when the hot mix asphalt plants are closed?**

**•Would you benefit from being able to perform permanent pothole repairs using 350°F hot mix when the outside temperature is below freezing?**

**•Would the ability to create fresh, 350°F hot mix anytime of the year, at any temperature, be beneficial to your road maintenance program?**

**•Would you be interested in a machine that can recycle asphalt millings into 350°F hot mix at a rate of up to 3 tons per hour?**

**•Does the ability to create custom hot mix blends sound intriguing?**

**If you answered yes to any of these questions, the SRM10x120 Asphalt Recycler/Mixer from Stepp Manufacturing may be what you need!**

**In our daily contact with road maintenance departments like yours, we heard a common concern...**

***"When we use the expensive cold mix for pothole repairs, it seems to last only a few days, a week at best, then we're out there doing the same repair over and over again. There has to be a better way."***

***"How can we make permanent, cost effective road repairs after the hot mix plant closes?"***

**We listened to your concerns and questions, and then our engineers took the challenge to design a portable, easy to use, and affordable machine that can recycle asphalt millings or create hot mix from raw materials at a rate fast enough to keep up with your busy road repair schedule.**

**The result is the Stepp SRM10x120 Asphalt Recycler/Mixer.**





## ***Solution Based Features***



- ① Produce 1/2 Ton, 1000#, 10 cu.ft. Batches in 8-15 Minutes**
- ② Recycle Millings or Chunk Asphalt**
- ③ Create Spec Mix or Custom Mix from Virgin Aggregate**
- ④ Pugmil Mixer Produces Uniform, Non-segregated Material**
- ⑤ 120 Gallon Liquid Asphalt Additive Kettle with Spray Wand**
- ⑥ Easy to use PLC Controller Controls Hydraulics, Burners, Pump, and Conveyor**
- ⑦ Diesel Burners with Automatic Temperature Controls**
- ⑧ Kubota Diesel Engine**
- ⑨ Force America Load Sensing Hydraulic System**
- ⑩ Indirect Heat System with Endura Liner**



# Knowledge-Technology-Innovation-Safety Driven Designs

## “Unimaginable Capabilities”

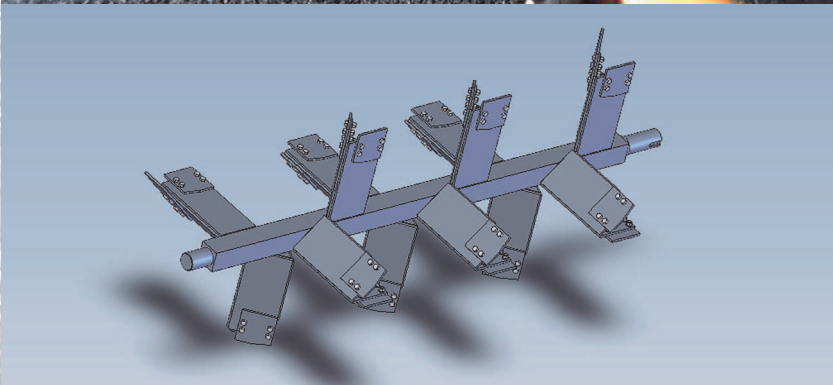
### Asphalt Recycling

The Stepp SRM10x120 will recycle asphalt millings into new 350°F hot mix at a rate of up to 3 tons per hour. This rate can be achieved even at an outside temperature of 20°F, giving you usable production rates year round. This indirect heating method allows approximately 90% of the oils to be retained while heating, thus only about 1½ to 1¾ gallons of oil need to be added for each yard of recycled millings.



### Virgin and Custom Mixes

Custom mixes from raw materials can also be created with the SRM10x120. Different sized aggregate, chips, or even sand, can be used to make the perfect mix for your special needs. With the onboard, 120 gallon additive kettle you can properly add the precise amounts of Asphalt Cement to make spec mixes on the go.



### Pugmil Mixer

The pugmil mixer is the work horse part of the machine. The pugmil mixes the material against the heated Endura liner to get things heating. It does this by a direct hydraulic drive, planetary gear box. The pugmil also has opposing, angled paddles to act like an auger when the pugmil is put into reverse. It also sports a 2 speed hydraulic motor to get the material really flowing when you need it on a big patch.



### Self-loading Conveyor

The SRM10x120 comes standard with a loading conveyor. This eliminates the need for additional equipment on the road to load the machine. The only thing that the SRM requires is a dump truck, millings, and a grain chute in your tailgate. Dump directly into our chute on the front of the conveyor, and load the preheat bin. Our conveyor system comes with the chevron paddles to help eliminate spilling and puts the material where it needs to be.

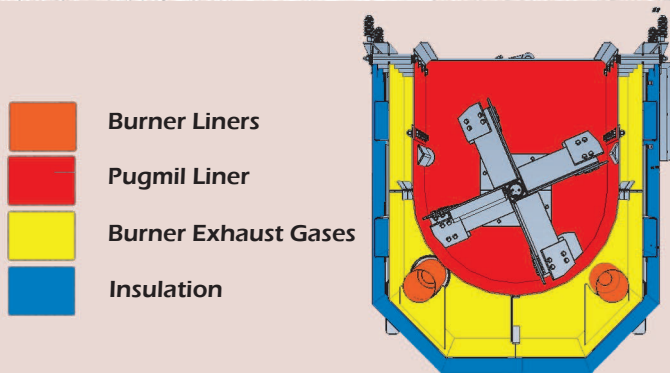


# Engineered Excellence

***“Industry Leaders with Industry Leading Technologies”***

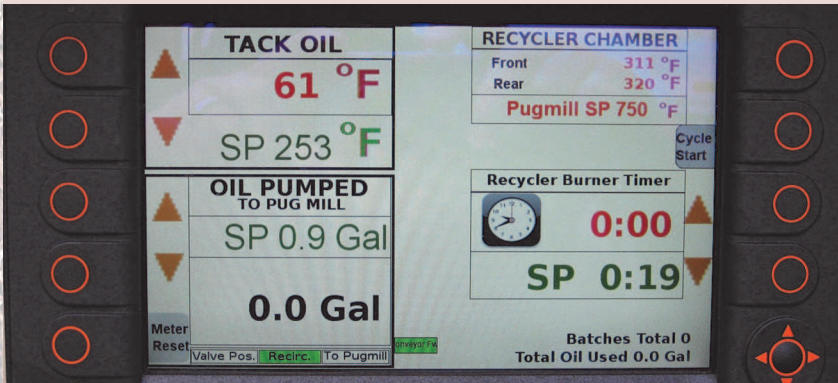
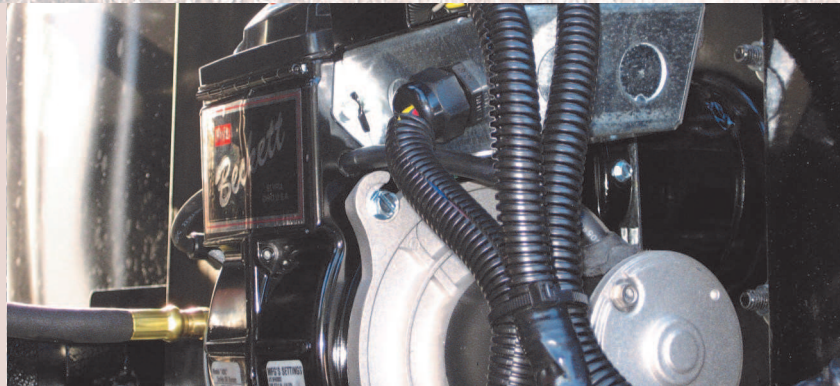
## Indirect Heating

The SRM pugmil mixer is the only indirect heated asphalt recycler in the world. By heating the Endura liner instead of the material directly, we cook less of the light AC oils out of the millings, thus eliminating the need to replace them. We also produce less visible smoke and emissions because we just aren't burning them out. We also redirect the burners exhaust back into the hopper to aid in the overall heat up. Our top preheat bin also gets the advantage of the free heat from the exhaust.



## Diesel Heating

The SRM10x120 is fired with three Beckett forced air, diesel fuel burners. The main pugmil mixer houses two of the burners with a combined output of 700,000 BTU's. The third burner fires into the 120 gallon liquid asphalt additive kettle, and has an output of 105,000 BTU's.



## ARC Advanced Recycler Controls

Stepp is the first manufacturer to integrate PLC CAN bus controls into our units. The rugged, mobile PLC is the command center for the SRM. It controls all of the hydraulic functions on the unit, operates the burner and timers, displays the gallons of product added to the mixer, and operates the hose controls. It also has a built in safety feature to prevent overheating, and displays troubleshooting help. We have truly built intelligence into these controls to help make recycling easy.

## Operator Attention Light

The ARC controller also includes an attention light. When this is blinking, it is telling the operator that it needs some attention. The ARC display will tell you exactly what it needs. Whether the batch time is done, you forgot to put the additive valve back in recirculate, or it has a troubleshooting problem, we provide an easy way for you to get back up and running quickly and efficiently.



# Engineered Excellence

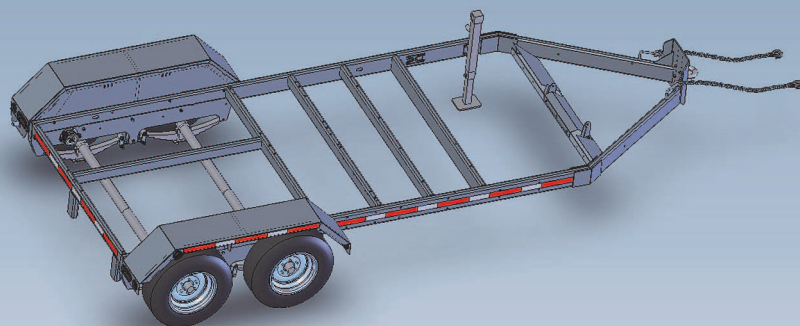
## “Industry Leading Technologies”

### 120 Gallon Heated Additive Tank

Our 120 gallon asphalt additive tank is one of the foundations to recycling, and producing a high quality mix. When recycling, one of the most important things to do is replace the Asphalt Cement that has been lost or oxidized. With the additive tank you are able to put a metered amount of oil back into your millings to make a like-new material. Without this critical step you will have dry material that just won't stick or perform. Not much is usually needed, only 1-2% most of the time will give you a material that looks and performs just as if it were brand new.

### Spray Tack System

The 120 gallon kettle not only feeds the hopper, but it is also equipped with a spray wand to tack the hole before you patch it. It comes standard with a 12'x1/2" yellow ortec hose with an overhead boom to give you a 21'+ work area. There is also a recommended option of a heated Teflon hose with the boom, which includes individual, internal heating elements for high temp materials. The temperature is controlled on the PLC controller on the heated hose system.



### Shoveling Platform

The SRM comes with a wide shoveling platform that has a fold-up feature for when you need to dispense material directly to the road surface for large repairs.

### MTF Frame System Shackle Simplicity

The Modular Tubular Frame (MTF) System is truly the foundation of our units. Our MTF frame offers flexibility, maintainability, and extreme reliability. Our bolt-on module system allows for components and options to be bolted on, allowing flexibility in your configuration. The MTF frame also allows us to use our one-piece, bolt-on shackle system, “Shackle Simplicity”. This true tracking shackle system is 250% more heavy duty than anything else on the market. Our MTF frame with “Shackle Simplicity” is just another example of our industry leading technologies and designs.

Courtesy of Machine.Market



# Standards that Set the Bar

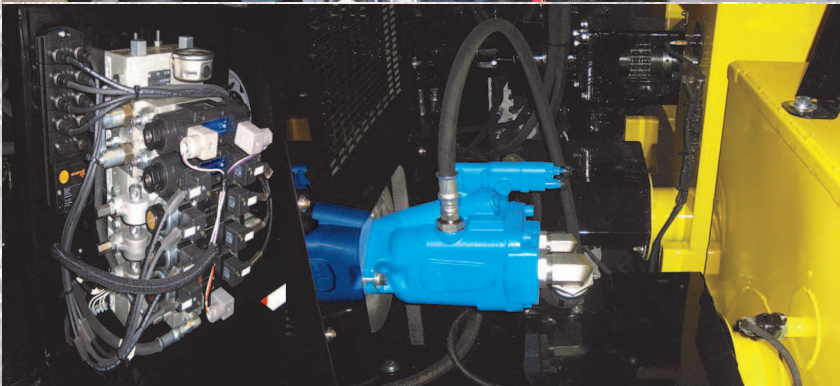
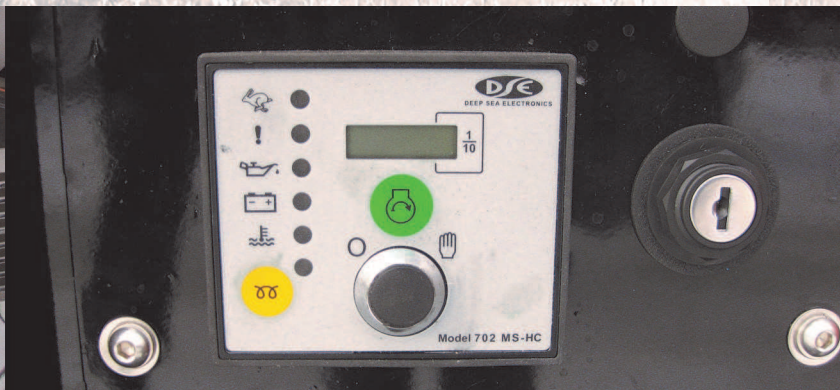
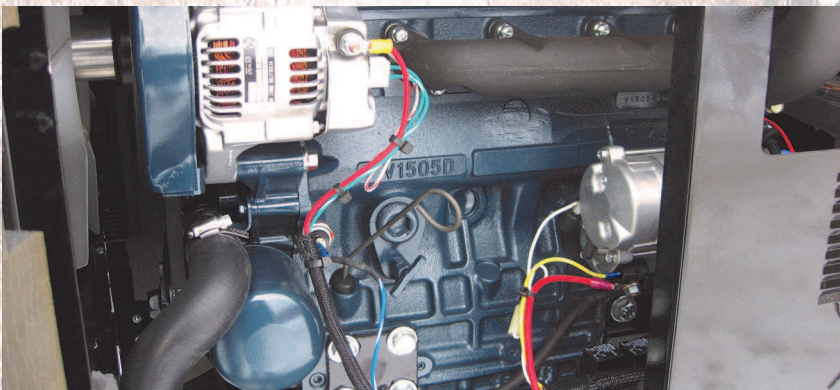
## *“Premium Components that Drive Reliability and Longevity”*

### Kubota® Powered

*Having a quality machine means having quality components, and our engine is no exception. The liquid cooled, three cylinder, 35HP, Kubota D1505 is what powers our workhorse. It uses a direct coupled, load sensing hydraulic pump, and a direct mounted 24 volt alternator to power our heated overhead boom and hydraulic components.*

### Deep Sea Digital Engine Management System

*The Deep Sea digital engine management system incorporates the hour meter, volt meter, low oil shutdown, overheat shutdown, and cold weather glow plug operation into one easy-to-operate controller.*



### Load Sensing Hydraulic System

*The SRM10x120 asphalt recycler is equipped with a load sensing hydraulic system from Force America. The hydraulic system consists of a variable displacement, piston pump. All of the hydraulic functions are controlled by the Force America add-a-fold valve. The load sensing hydraulic system gives you tremendous flexibility in your hydraulically controlled functions on the unit.*

### Preheat Hopper

*The top preheat hopper acts as a giant measuring cup for your batch. Having consistent batch sizes every time will help fine-tune your recipe for the amount of additive to add per amount of millings. Our preheat hopper also allows us to have a batch on deck while we are mixing one in the mixer. With the burner exhaust coming up underneath the hopper, we are also pre-heating the material and starting to dry out some of the moisture in the material to speed up the next batch.*



# Options that Bring Value, Productivity, and Safety

## *Optional Equipment Available on the Stepp SRM10x120 Asphalt Recycler*

### Front Step with Railing

*The front step with railing is one of the most common options. This gives you a tread plate nonslip step to aid in getting material into the conveyor. The railing is provided for the operator's safety.*

### Washdown System

*The washdown system includes a 5 gallon solvent tank, electric pump, 20' of hose and a spray wand. The washdown system is used to spray the shovel pan and tools with a release agent to prevent the asphalt from sticking and building up, and help make clean up a breeze. Don't forget to add the optional hose reel!!*



### Shovel Cleaning Compartment

*This is a must have option. The shovel cleaning compartment consists of a 12 gauge metal tank with splash guard, drain plug, and top cover. The top cover has slots to allow your shovel handles come through them. Will hold up to four shovels.*

### Arrowboard

*The LED arrow strip directs traffic in the direction you want. This is a highly recommended option for operator safety and visibility.*



# Options That Bring Value, Productivity and Safety

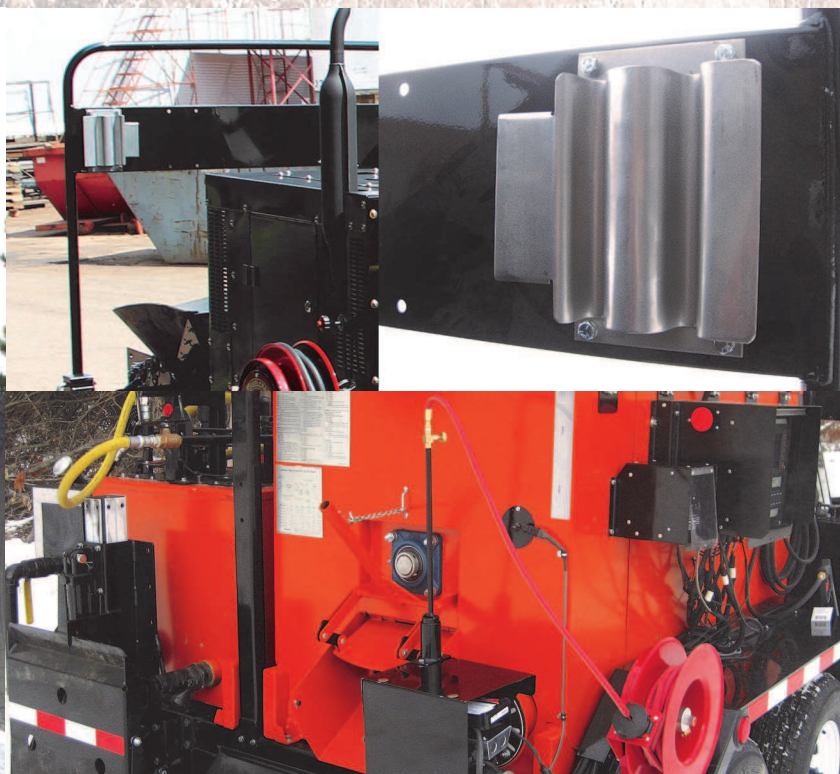
## *Optional Equipment Available on the Stepp SRM10x120 Asphalt Recycler*

### **Strobe Light Systems**

*We offer two different strobe light systems. Flush mounted LED strobes are located above the rear taillights and shall be grommet style. The beacon style is mounted on the 3-light bar T-post in the center of the unit on the rear.*

### **Stainless Steel Tool Holders**

*The all stainless steel spring clamps will hold anything with a handle. Mounted on the back of the front step and railing for convenient access. This is a must have option to carry lutes, brooms, shovels, and tampers.*



### **Tool Box**

*The lockable, steel tool box is located on the front of the unit to conveniently keep your tools and accessories handy.*

### **LP Hand Torch**

*The LP hand torch includes a 20# LP bottle, bottle rack with strap, pressure regulator, and hand torch. The LP torch helps heat up tools and dry out wet potholes. An optional hose reel is also available.*



# Options that Bring Value, Productivity, and Safety

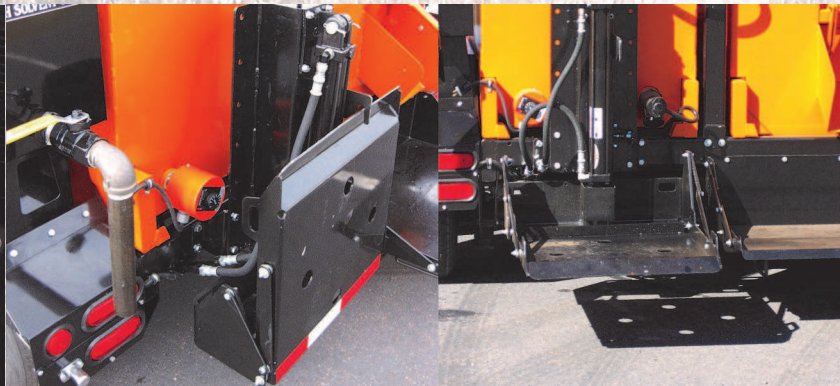
## *Optional Equipment Available on the Stepp SRM10x120 Asphalt Recycler*

### **Spare Tire with Holder**

*The optional spare tire with holder is conveniently mounted on the frame.*

### **Compactor Plate Carrier**

*The most important thing in making a patch last is compaction. We have made it easy to use the compactor plate with the compactor plate carrier. The carrier not only carries the plate, but also has a hydraulic lift to lift it off of the ground. It also folds up and out of the way when you're not using it.*



### **Trailer Light Options**

*The standard trailer lights include grommet style, incandescent lights. Optional LED and 4 light systems are available.*

### **Hydraulic Brakes**

*The hydraulic brake option replaces the electric brakes with an adjustable surge actuator hitch and hydraulic brake axle.*



# Options that Bring Value, Productivity, and Safety

## Optional Equipment Available on the Stepp SRM10x120 Asphalt Recycler

### Electric Overnight Heat for Additive Tank

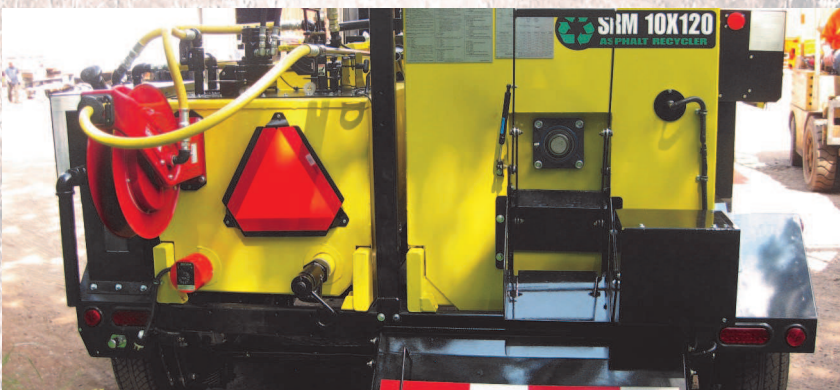
*Electric overnight heater submerged in the additive tank reduces startup time and gets the crew going quicker. 110V 1500W with thermostat.*

### Hose Reel for Spay Tack Hose

*This option is in lieu of the standard over head boom.*

### Water Tank

*15 gallon poly water tank with hose and valve to aid in the filling of plate compactor or small rollers. Conveniently located for easy filling and includes a large fill cap.*



### Heated Overhead Boom

*The heated overhead boom is a must have option if you are using high temp asphalts in your additive kettle. This option includes individual, internal heating elements in the boom, hose, and wand. The unique design sends heated product through the boom to the attached hose. With the standard 12' hose attached to the 6' overhead boom, the operator will get over 21' of work area. The boom also puts the operator in a better position for increased visibility.*

### Hydraulic Power Beyond, Hydraulic Jackhammer, and Dual Hose Reel

*The Power Beyond powers any type of hydraulic tool such as jackhammers, tampers, or most any of the Stanley family of hydraulic tools. The popular jackhammer option comes in 35#-90# classes, with the most popular being the 70# BR67. Many different types of points and cutters are available. Don't forget the dual hydraulic hose reel to compliment the hydraulic tools.*



# Specifications

<b>Hopper Capacity</b>	10 cu.ft. (Approx. 1000# batches), and 120 Gallon Liquid Additive Asphalt Kettle
<b>Hopper Weight (approx.)</b>	7200 lbs.
<b>Overall Dimensions</b>	234"L x 99"W x 116"H
<b>Fuel Tank Capacity</b>	60 Gallons
<b>Preheat Hopper</b>	
Capacity	10 cu.ft. (Approx. 1000# batches)
Opening Dimensions	23"x38"
<b>Loading Conveyor</b>	
Belt	16" Wide Cleated Chevron
Hydraulic Motor	4.0 cu.in. Hydraulic Motor w/ Forward-Reverse
<b>Mixing Chamber</b>	
Chamber Type	Continuous Batch Mixing
Mixing Style	Rotating Pugmil
Liner Type	U-shaped, Replaceable .156" Endura Wear Resistant Steel
Combustion Chamber Liner Material	316L Stainless steel
Insulation Type and Thickness	2" Fiberglass & 2" Cerwool
Pugmill Drive, Hyd Motor	5.75:1 Gear Reduction Driven by 18/9 ci 2 speed
<b>Mixing Chamber Heating System</b>	
Burner Type	Indirect Diesel, Forced Air
Number of Burners	Two (2)
Fuel Type	Diesel
Manufacturer	Beckett®
BTU Output	Up to 350,000 BTU each - 700,000 BTU Total -Kettle Burner up to 110,000 BTU
<b>Kettle Pumping System</b>	
Pump Model	Viking HL32®
Relief Valve	WPC Valve
GPM Output Rating	20 GPM
Pump Mounting	Submerged
Pump Drive	Hydraulic, Reversible, Variable Speed with PLC Display



# Specifications

<b>Pugmil Controls</b>	Stepp ARC Advanced Recycling Controls. PLC CAN bus Control System
<b>Pugmil Control Operations</b>	7" Color Display Attention Light Heads up Display- Shows operator what needs attention or trouble shoot problem Thermostat control for Additive Kettle and Optional Heated Hose System Pugmil Burner Hi/Low Fire, and Burner Ramping Feature to Prevent Overheat Batch Timer with Set Points (shuts burners off) and Actual Batch Time Pugmil Mix/Discharge and High/Low Additive Pump Forward/Reverse Additive Rate and Control (only pumps what the set rate is, then stops the pump) Conveyor Forward/ Reverse Top Doors Open/Close Batch Counter Optional Compactor Plate Carrier Up/Down Optional Hydraulic Jack Hammer Optional Washdown System Optional Strobe Light
<b>Pugmil Control Manufacturer</b>	IFM®
<b>Engine Controls</b>	Deep Sea Digital Engine Management. Includes Hour Meter
<b>Engine</b>	
Manufacture	Kubota®
Model	V1505EB
Displacement	81 cu.in.
Number of Cylinders	(4)
Horse Power	35.1 HP
Fuel Type	Diesel
Cooling	Liquid
<b>Hydraulic System</b>	
System Type	Eaton 7000 Series Load Sensing
Pump Displacement	Variable 0 to 1.9 cu.in.
Control type	Forward/Reverse Flow Control, Electric over Manual Operated, Expandable Manifold Cartridge Valve, Hydraulically Powered Hopper Agitator, Hopper Loading Doors, Submerged Pumping System, and Loading Conveyor
Reservoir Capacity	30 Gallons
Filtration	10 Microns
<b>Chassis</b>	
Number of Axle	Two (2)
Axle Capacity	6000 lbs. each
Tire Size	225/75R15
Brake Type	Standard- Electric, Options-- Hydraulic
Landing Gear Static Capacity	8,000 lbs. each
Hitch Type	3" Pintle Ring or 2-5/16" Ball Type. Adjustable from 24" to 31" from the ground
Frame Material	2"x 6"x 3/16" Rectangular Tubing



# Asphalt Rejuvenator Product

## “The Key to Recycling is in the Additive”

The key to recycling is in the additive. Without adding new oil into the product the quality of the material and the longevity are just not there. Stepp offers a prepackaged solution to use with our recycling equipment: ARP.

ARP is a blend of virgin AC, warm mix additive, and a small amount of recycled rubber. w



The product consists of 95% AC or PG graded asphalt cement. This is the ultimate key to recycling success. It is the same oil as what was put into the hot mix at the hot mix plant when it was new. It usually only takes 1-2% new oil to make the mix look and PERFORM like it is new mix. The warm mix additive aids in the workability of the material. Recycled millings that don't have the warm mix additive are stiff and hard to rack and shovel. The rubber that is added into the ARP aids in the material's ability to melt at lower temps, and helps the flexibility of the end product.

Because ARP is 95% AC, it also works excellent as a tack oil. This makes the need for two different products a thing of the past.

The ARP comes in two convenient sizes. 1# pound pucks to add right to the conveyor, and 25# pound blocks to melt into the SRM's additive tank.



# Recycling vs Reclaiming

## Asphalt Recycling vs Reclaiming (Recyclers vs Hot Boxes)

### What is the difference between recycling and reclaiming?

Asphalt recycling and reclaiming are two very different processes. Asphalt recycling is taking broken chunks or asphalt millings from an older road surface, and reheating and mixing the material to a hot, usable state. With recycling, you must add a small amount (usually 1-2%) of new binder (asphalt) to make the material workable and to replace oils that have dissipated or oxidized from the original material. Without this key ingredient you will end up with a dry patch material that just won't bond. The reason that the pavement needs to be replaced in the first place is because it has oxidized and become brittle, which then cracks and forms potholes. Using this pavement for recycling is a great option because most of the binder (about 5-7%) is still in the materials.

Reclaiming is a much different processes that can be a very good solution if done properly. Reclaiming is reheating materials in a hot box. With the equipment that is used for reclaiming, there is no mixing or adding a binder (asphalt). When reclaiming, you must be very careful on the material selection that you wish to use. If you start with bad material you will end up with bad material. One of the best ways to reclaim asphalt is to start with high quality mix. One solution to quality mix is to purchase hot mix from your local hot mix plant and lay out brick or cubes. When the product has cooled you can stack and store them for long periods of time and use them as your patching demands it. This gives you a high quality of mix with the ability of patching potholes when your hot mix plants are closed in the winter.

**Asphalt Recycler**



### What is the difference in equipment?

Recycling equipment has much different requirements than a reclaimer. Recyclers must have the ability to heat and mix with a drum or a pugmil (arms that mix like a mortar mixer). This gives you the ability to make mix in very short time frame. Depending on the size of batch being mixed, you can produce recycled materials from as quickly as 8 mins on a ½ ton batch to 30 mins on a 4 ton batch. The other very necessary key is the ability to add new binder (asphalt) to the machine. Without the ability to add new oil to the patch material you will not produce a quality mix. You can add new binder to the material by introducing liquid asphalt or palletized asphalt to the material when it is mixing and heating.

Reclaiming is accomplished with nothing more than a heated box (hot box). There are many different types and styles of hot boxes: Trailer mounted, hook truck and chassis mounted, slip-in style, and skid mounted hot boxes. To reclaim you must have a long period of time for the material to accept the heat. Unlike the recyclers that have a mixer, the hot box must transmit the heat through the material. Aggregates do not transfer heat well, so we must have longer periods of heating to migrate the heat to the center of the unit. This usually requires 3-8 hours depending on the size of the load and the quality of material. Most reclaimers are equipped with an overnight electric heater or an overnight timer to run the burner system and accomplish the long, slow, even heating cycles. Many manufacturers have designed additional heating surfaces in the unit to heat the center, as well as the bottom and sides of the unit. Units requiring additional burners are not the answer due to the fact that you just need time, and the burner that is in the hot box is down fired for more consistent heat. Adding the additional burner is an additional maintenance and cost, a well designed hot box has heated surfaces in the center of the unit.

The biggest difference in Recyclers and Hot Boxes is the price. Recycling equipment is a more expensive machine due to the mixing and oil additive equipment. Hot boxes range in size and configurations and tend to be a more affordable option up front.

**Asphalt Hot Box**





# Recycling vs Reclaiming

## What is better? Recycling or Reclaiming?

Both have their pros and cons.

### Recycler Pros

- Can produce quality mix with just about any material.
- Can produce mix in a very short time frame.
- Most recyclers can produce custom mixes from virgin aggregate.
- Can produce quality hot material at any time of year and with any material.
- Requires little planning and preparing: Load the truck and start the unit.
- Can produce high quality material for under \$20.00 per ton.

### Recycler Cons

- Price. Recycling equipment is a large investment and you have to justify the equipment cost with the savings on material.
- Requires a dump truck or other equipment to load the machine.

### Reclaimer Pros

- Affordable units that can be used for other patching material when they are available (hot mix and cold patch).
- Can reclaim materials any time of the year.
- Simple to operate.

### Reclaimer Cons

- Requires quality mix to produce quality mix.
- Slow. Usually takes 3-8 hours for initial startup.
- Unit is usually fired unattended.
- Planning. You must plan ahead to make sure that you have enough time to reheat the material.
- Material costs. Most people buy new hot mix from the plant and lay it out to get hard and use it when they need it. \$50.00-\$80.00 per ton, plus the cost of trucking the material to your location, and the labor to lay it out, and then come back and pick it up and store it. Don't forget about the fuel cost to reheat also.
- Limited to one load per day. Because of the time it takes to reclaim the material, you can usually only get one load per day.
- Reclaimers cannot mix or add additive (asphalt) to the material.

**Make sure to weigh all of your options when deciding on the machine that works for your patching needs.**

**At Stepp, we have many products that can fit your patching needs for recycling or reclaiming. Please feel free to contact us to find the right fit for you.**

### Stepp Mfg. Co., Inc. Patching Units that Recycle

- SMM Stepp Master Mix- Tailgate mounted mixer that heats a 250 lb. batch in 5-7 minutes.
- SMMT Stepp Trailer Master Mix- Midsized trailer mixer that heats a 500 lb. batch in 5-10 minutes.
- SRM10x120 Stepp Recycler Mixer- Trailer mounted unit that mixes, heats, adds additive, and sprays tack. Can produce a 1,000 lb. batch in 7-15 minutes. Unit is self-contained with a load conveyor, mixer, and 120 gallon asphalt tank with sprayer.

### Stepp Mfg. Co., Inc. Patching Units that Reclaim

- SPH Stepp Premix Heater- 2, 3, and 4 ton trailer mounted hoppers with LP or Diesel burners.
- SPHD Stepp Dump Style Premix Heater- 3 and 4 ton hoppers with diesel burner and oil jacketed heating system. Unit includes a truck hoist to dump material.
- SPHOJ Stepp Oil Jacketed Premix Heater- 3 and 4 ton hoppers with oil jacketed heat and auger discharge.
- SSPH Stepp Slip-in Style Premix Heater- 5.4, or 6.75 tons, LP or diesel heated hopper that slides into a dump truck.
- SSPH-Hot Pack Stepp Slip-in Style Premix Heater- 2, 3, and 4 ton hoppers, diesel fired oil jacketed hopper that is designed to slide into a small dump truck (15-26,000 GVWR)
- STPH Stepp Truck Mounted Premix Heater- 5.4, 6.75, 8.1 and 9.45 ton chassis or hook truck mounted hopper. Diesel fired, oil jacketed, auger delivery.



# Recycling Tips

1. **Have your millings tested for asphalt content.** This will help you decide how much additive you need. The average ton of asphalt top mix has 5-7% oil by weight. This translates into 100-125 pounds of asphalt added to virgin aggregate to make top mix. PG grade asphalts are approximately 7.5 pounds per gallon. So, if you convert that to gallons, there is approximately 13.3 gallons of asphalt in 100 pounds to make 1 ton of mix.  $100/7.5=13.3333$ . Most millings need 1-2% of new oil to give you a quality patch material. The SRM makes an approximate 1,000 pound batch, so on average you need to add 1/2 gallon to 1-1/2 gallons, or 3.75 pounds to 11.25 pounds, of asphalt additive to make a quality mix.
2. **Recycled materials have huge variables.** Different asphalt contents, different moisture contents, different aggregates, base material containments, and different size aggregates will all vary the batch times and material quality. Making your first batches in your SRM will take some experimenting. You will need to find the right recipe. Start with shorter batch times and check your material often on the first batch or two. Start with a little oil and add more as you need it. Once you come up with your recipe for the materials that you are using you should see consistent results. The next batches will be very similar and you should only have to make minor adjustments.
3. **Keep materials dry.** Moisture content is the number one cause for slow batch times. If you can, keep your millings inside or covered. It takes more BTUs to dissipate a gallon of water than it does to melt a gallon of asphalt. Moisture acts as a refractory in the material, and cannot be dispersed until turned to a gas (steam). High moisture content can double or triple batch times, so having dry millings is key to higher production.
4. **Quality of materials.** Using quality materials also aids in faster batch times. Materials with large aggregates take longer to drive the heat into the stone. Contaminated materials with base also take longer to heat because of the lack of oil in the materials. Materials with higher asphalt contents also heat up faster. The SRM does not care, it just may affect the heat up times.
5. **The SRM is capable of making materials from virgin aggregates.** You can make virgin materials with the SRM, you just need more oil. Using the reference above in #1, you can make your own custom mixes. Sand mixes, fine mixes, and mixes from virgin materials. Again, you will need to do some experimenting to get the right mix design. If making virgin mix, use the 5-7% to get you started (5-7 gallons). Always start with a smaller amount of oil; you can always add more oil, but you can't take it away. Different oils will also give you different results in materials.
6. **Pre-made cold mix materials.** You can use your SRM to warm your cold mix materials. Use extreme caution when doing so. Most cold patch materials have a high content of cutter (solvent) in the oil. This makes the material soft and pliable, but also makes them very easy to catch on fire. If you are using the SRM to heat cold patch material, only fire the burner in 1-2 minute cycles and check the temperature often to prevent the material from flashing.





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