

KM 1000 SXPX HOTBOX

ORIGINAL INSTRUCTIONS

PROPANE BURNER HEATING SYSTEM



THE CHOICE OF ASPHALT PROFESSIONALS WORLDWIDE

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INTRODUCTION

The **KM International Team** would like to take this opportunity to **THANK YOU** for your purchase of the **KM 1000SXPX**. We at KM International are confident that our Asphalt Hotbox/Reclaimer will offer years of safe, reliable and cost effective “**ASPHALT HEATING and RECLAMATION.**”

The KM 4000 Asphalt Hotbox/Reclaimers are designed to maintain Hot Mix Asphalt (HMA) at working temperature for up to three days. Our Hotbox/Reclaimers are specially designed and manufactured at our North Branch Michigan facility to recycle cold-chunked HMA. Solid welded construction stands up to a lifetime of commercial use.

The simple, straight forward design has little to go wrong and makes maintenance easy and cost effective. Safety is a main concern when working with any fuel combustion system and the KM 4000SXPX's system should be no exception.

KM International, Inc. has acquired and developed a number of strengths that has fostered KMI's worldwide reputation in the “**ASPHALT REPAIR**” industry as the “Gold” and “Green” standards. We are the preeminent authority on the “infrared process” of in-place “surface heating” and “recycle and repair.” We have fostered an ongoing industry standard of quality and excellence that continually exceeds our customers' expectations in all of our other product offerings including our “Hot Box/Reclaimer” line of equipment.


Our commitment to the design and manufacture of the highest quality surface maintenance and repair equipment in the market is not just a “quote on the wall” but rather the driving force for the entire KMI team. Our 28 years in the “Asphalt Maintenance” industry has provided **KM INTERNATIONAL** the necessary experience to provide our customers the “peace of mind” that only knowledge through experience can accomplish; know how that our customers have come to rely on. The Management Team at **KM INTERNATIONAL** is confident that YOUR purchase of the **KM 1000SXPX** will be the basis for a long standing and profitable relationship.


The Goal at **KM INTERNATIONAL** has, and will always be, the manufacture of Hotbox/Reclaimers that provide our customers cost savings, purchase justification and profitability.





SAFETY AND WARNING INFORMATION



 **NOTICE:** This unit is not ATEX Certified. Do Not use in any explosive environment.


 **NOTICE:** *READ and UNDERSTAND* all instructions carefully before starting the **KM 1000SXPX**. **FAILURE TO FOLLOW** these instructions may result in a possible **fire hazard** and will void the warranty.



 **WARNING:** Any safety screen or guard removed for servicing must be replaced before operating the **KM 1000SXPX**. **DO NOT USE** the **Hotbox** if any part has been damaged or placed under water. Immediately **CALL** a qualified service technician to inspect the hotbox and replace any damaged parts of the control system.

 **NOTICE:** Maintenance or repair should be performed by a qualified service person. The **KM 1000SXPX** system should be **INSPECTED** before initial use and at least annually by a professional **KMI** service person. It is **IMPERATIVE** that the unit's control compartment, burners, and circulating air passageways **ARE KEPT CLEAN** to provide for adequate combustion and ventilation air. Always keep the **KM 1000SXPX** clear and free from combustible materials, gasoline, and other flammable vapors and liquids. The Combustion chamber should be inspected annually or when evidence of excessive heat exists. This can be evidenced by paint discoloration near or burner combustion chamber area.

 **NEVER OBSTRUCT** the flow of combustion and ventilation air. Keep the front of the **KM 1000SXPX CLEAR** of all obstacles and materials for servicing and proper operation.

  **NOTICE:** Children and adults should be alerted to the hazards of high surface temperature and should **STAY AWAY** to avoid burns or clothing ignition.

 **WARNING:** Always wear protective clothing, including eye and ear protection, leather protective gloves, long sleeved protective shirt, long pants, and leather protective boots when operating this or any other equipment.


  **NOTICE:** The **KM 1000SXPX** is designed to heat asphalt to a working temperature that should not exceed 350 *F (176 *C). The heated asphalt and the unit will become **DANGEROUSLY** hot quickly; care and caution must be observed at all times. Be aware of your surroundings. Use caution around buildings, utility wires, combustibles, landscaping, etc. to prevent damage.

 **IT IS HIGHLY RECOMMENDED THAT YOU HAVE A FIRE EXTINGUISHER ON YOUR JOB SITE AT ALL TIMES.**




KM ASPHALT HOTBOX RECLAIMER

The KM 1000 Asphalt Hotbox/Reclaimer is designed to maintain hot mix asphalt at working temperature for up to three days as well as reclaim, or recycle, cold-chunked hot mix asphalt. The KM 1000 will safely maintain hot mix asphalt at workable temperatures during all seasons. The solid welded construction and straight forward design is simple to use and requires little maintenance.

 **NOTICE:** Safety is always a concern when working with any fuel combustion system and the KM 1000SXPX LPG fuel burner system is no exception.

 **WARNING: PROPANE FUEL LEAKS PRESENT A DANGER** and must be corrected prior to operating the burner.

 The burner is designed to burn **LPG (PROPANE) ONLY. NEVER USE ANOTHER COMBUSTIBLE FUEL.**

HOW THE HOT BOX RECLAIMER HEATS

The KM 1000SXPX uses a 60,000 BTU, vapor withdraw propane burner controlled with a 750 mV powered combination gas control valve to produce heat inside of the combustion chamber. The heat energy circulates throughout the combustion chamber area heating the asphalt storage bin. Energy is then transferred by conduction through the storage bin walls into the asphalt.

The burner is thermostatically controlled and will automatically cycle on and off to maintain the selected temperature. Two full 30 lb LP fuel cylinders should provide 48+ hours of continuous burner operation. Actual operating time between refueling could be longer depending on ambient temperature, thermometer setting and volume of asphalt in the storage bin.

Heat energy circulation and transfer is key to maintaining proper asphalt temperature. Air flow intake and exhaust should never be obstructed. The interior of the asphalt hopper should be kept clean daily to allow optimal conduction from the interior combustion chamber into the asphalt load.

 **WARNING:** Never clean the asphalt chamber with a combustible solvent. Doing so will result in fire or explosion.

Daily cleaning with a shovel or flat spade is the best maintenance for the interior of the KM Asphalt Hotbox.



SET UP - SECURING THE HOTBOX TO YOUR VEHICLE



Length: 57 1/2" (146 cm) Box: 54" (127 cm)
Width: 32 1/2" (82.5 cm) Box: 48" (66 cm)
Height: 31 1/2" (80 cm)
Weight Empty: 375 lbs. (170 kg)
Weight Full: 1,375 lbs (624 kg)

⚠ WARNING: The KM 1000SXPX must be safely secured to the vehicle before transport. All securing hardware and all additional tools should be inspected and properly stowed daily.



⚠ WARNING: Do not mount directly onto a combustible surface.

The underside of the KM 4000 is hot during operation. It may be necessary to mount the KM 1000 onto a heat resistant (metal) surface.



Weight Empty: 375 lbs. (170 kg)
Weight Full: 1,375 lbs (624 kg)

The KM 1000 can be mounted by bolting the unit down at the bottom four corners. Use suitable hardware and mounting structure on the vehicle.



Additional securing locations are found at the four outside corners of the KM 1000SXPX. Suitable tie down chains or other hardware can be used.

⚠ NOTICE: It is necessary to bolt the unit down at the four bottom corners. The outside secure points are additional support only.

⚠ WARNING: It is necessary to safely secure the KM 1000SXPX to your vehicle. Failure to do so can result in serious injury should the unit come loose from the vehicle.



SET UP - SECURING ACCESSORY ITEMS



The KM 1000 is equipped with four accessory tie down brackets that can be used to secure tools, extra propane cylinders or other.

⚠ NOTICE: Always properly and safely secure propane cylinders.

⚠ WARNING: Fire or explosion hazard can cause property damage, severe injury, or death. Consult state and local codes for the lawful storage and transport of propane cylinders.



The KM 1000 is fitted with a shovel tray that bolts directly to the shovel door tracks. Use 3/8" locking nuts to fasten the shovel tray.



The KM 1000 is supplied standard with one 30 lb. LP fuel cylinders. A flexible high pressure propane hose is supplied for connecting the fuel cylinder.

⚠ NOTICE: Consult local codes for proper securing of fuel cylinders for travel.

⚠ WARNING: It is necessary to safely secure the KM 1000SXPX and all other optional equipment to your vehicle. Failure to do so can result in serious injury should the unit come loose from the vehicle.



FILLING THE KM 1000SPX

WARNING: Always wear protective clothing, including eye and ear protection, leather protective gloves, long sleeved protective shirt, long pants, and leather protective boots when operating this or any other equipment. Be aware of local safety notices including hard hat and eye protection zones.

WARNING: Hot mix asphalt temperatures exceed 300° Fahrenheit (148 Celsius).



The KM 1000 will need to be loaded by hand because of the size and capacity of the unit.

NOTICE: It is unsafe to attempt to fill the hotbox at a typical asphalt plant.



Stockpiling virgin hotmix asphalt is a recommended method enabling users to fill, and then reclaim, for use.

See RECYCLING & STORAGE of HOTMIX ASPHALT for temperature and time recommendations.

Note: Asphalt mix design varies per producer.









Fill the KM 1000 with the amount of asphalt that is anticipated will complete the job. Small amounts of asphalt can sometimes be reclaimed in as little as four hours.

Note: Asphalt weight to volume ratios, as well as required heating time and temperature, are dependent on hot mix asphalt specification per location.

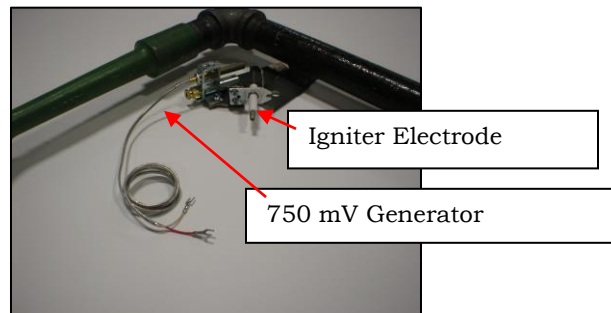
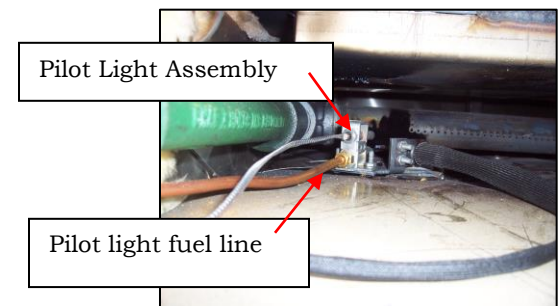
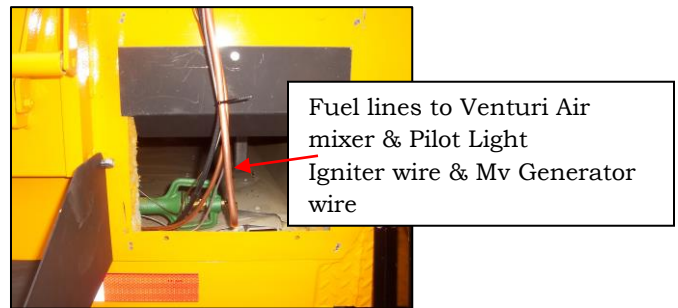
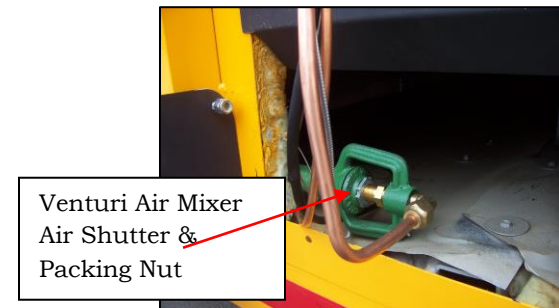
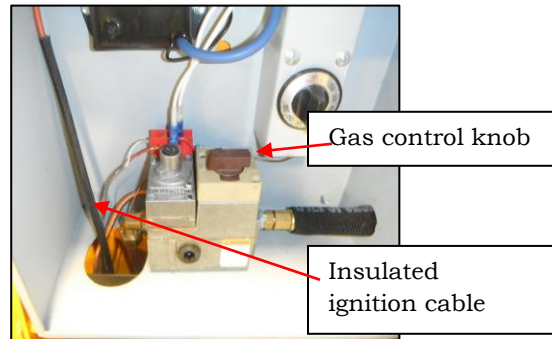
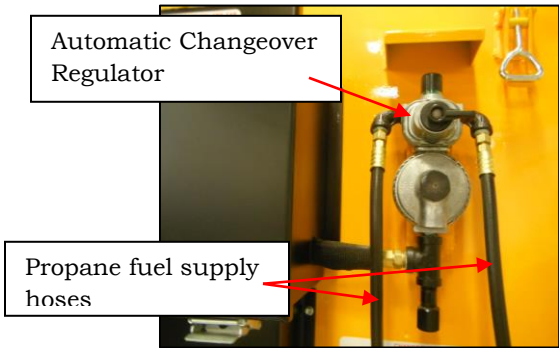
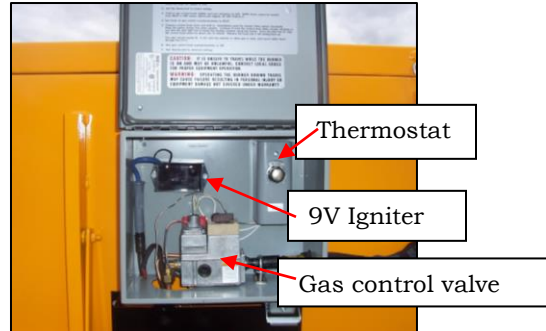
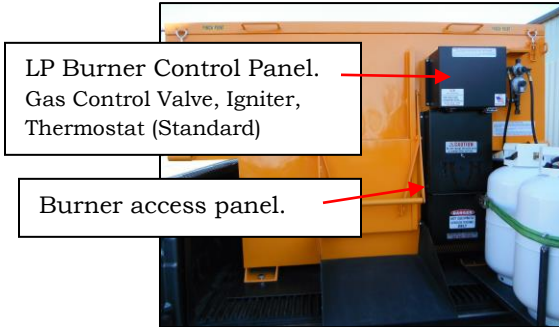


BURNER OPERATING INSTRUCTIONS (LP)

LIGHTING INSTRUCTIONS

	<p>1. Slowly open the propane cylinder. Be sure not to activate the safety excess flow valves in the bottle fittings.</p> <p>Note: Opening a cylinder too quickly will activate a safety excess flow valve caused by a surge in fuel flow. This will limit the amount of fuel allowed to leave the hose fitting.</p>
	<p>2. Set the thermostat to lowest setting.</p> <p>3. Push in the gas control knob slightly and turn clockwise to "OFF." Note: Knob cannot be turned from "PILOT" to "OFF" unless knob is pushed in slightly. DO NOT FORCE.</p> <p>4. Turn the knob on gas control counterclockwise to PILOT.</p>
	<p>5. Push the control knob all the way in and hold. Immediately push the electric igniter button. Continue to hold the control knob while visually checking to see that the pilot light has lit inside the heating chamber along the burner.</p> <p>Once the pilot has lit, hold the control knob in for one (1) minute. Release the knob and it will pop back up. The pilot should remain lit. If it goes out, wait two minutes to allow gas to clear, repeat steps three through five (3-5).</p>
	<p>6. Turn the gas control knob counterclockwise to "ON."</p> <p>7. Set the thermostat to desired temperature setting.</p> <p> WARNING: Operating the burner during travel may cause failure resulting in personal injury or equipment damage not covered under warranty.</p>
	<p>Shown is a view of the burner during operation.</p> <p>Notice clean blue flames (3/4" - 1" tall) from end to end on the burner.</p> <p>The pilot flame will be yellow and aim toward the burner and straight up, heating the 750 mV generator.</p>

BURNER OPERATING CONTROLS (LP)



**KM 4000SXPX shown in pictures.*



RECYCLING & STORAGE of HOTMIX ASPHALT

Reclaiming “cold chunked” asphalt and storing hot mix asphalt in your KM Hotbox can be done efficiently and effectively by following some guidelines and suggestions. Some of the factors that should be considered when reclaiming or storing in the KM hotbox are quantity of asphalt, quality of asphalt and surrounding (outside) temperature. Remember that these are suggested averages. As a user of the equipment it will be best to develop your own knowledge of reclaiming and storing asphalt by frequency of usage and the “trial and error” method.

Suggested temperatures (°F) for storage of hotmix asphalt

2+ Ton	300° F
1 ½ Ton	275° F
1 Ton	275° F
½ Ton	275° F

NOTE: Depending on the quality of asphalt, storage of hot mix can last up to three days (72 hours). (It is strongly recommended to keep hot mix no more than 48 hours.) Before working with stored hot mix the KM Hotbox thermostat should be turned to 325°F at least one hour prior to work.



Reclaiming “cold chunked” asphalt takes approximately 8-12 hours depending on quantity. It is recommended that the KM hotbox thermostat be turned to 325°F at least one hour prior to work.

Remember that when recycling properly stored “chunked” asphalt, “what you put in, you will get out”. Dirt and debris should be removed from the old asphalt prior to putting it into the KM hotbox.

Older, lighter colored asphalt has oxidized and lost quality by depletion of some of the light oils called maltenes. A maltenes rejuvenator is recommended and should be applied as evenly as possible throughout the load at a rate of .10 gallons per square yard of material. If you are unable to find rejuvenator locally, sprayers and rejuvenator (CRF) are available from KM International.

Suggested temperature for reclaiming “cold chunked” asphalt: 300°F.



TROUBLESHOOTING (KM Propane Burner Hotbox)

PROBLEM	INSPECT FOR SOLUTION
(B) Pilot goes out when gas control knob is released. NOTICE: Maintenance or repair should be performed by a qualified service person.	Ensure gas control knob is held at least one minute to allow the generator time to heat.
	Inspect the 750 Millivolt Generator. A consistent flame must surround the generator cartridge. If it seems abnormally small then the pilot orifice needs cleaning. See above.
	Inspect Millivolt Generator output. The most effective test of the pilot generator requires a Multi-meter with 0-1000 Millivolt (mV) scale. Connect the meter leads to the valve of relay terminals to which the pilot generator wires are attached while maintaining the pilot flame by continually depressing the gas control knob. If the meter needle moves to the left of zero or no reading is indicated, reverse meter probes. The meter must read 400 mV or more to effectively operate the gas control valve. If the reading is low replace mV generator cartridge.
(C) Burner will not ignite when signaled by thermostat. NOTICE: Maintenance or repair should be performed by a qualified service person.	Ensure the gas control knob is turned to the ON position.
	Inspect thermostat. Remove thermostat cover to access the wire connections. Use a multi-meter to check for continuity across the wire terminals when the thermostat signals on. Voltage input and output can also be checked.
	If a multi-meter is unavailable, a short jumper wire can be used to make contact across the thermostat terminals. If the burner immediately operates, then replace the thermostat.
	Inspect the Millivolt Generator output. Potential across the valve with the pilot light on should be 400 mV or more. If it is, yet valve does not open, replace valve. If the potential is less than the minimum, check thermostat wire connections. Replace thermostat if necessary.
	Inspect Venturi Air Mixer - Ensure the Venturi air shutter is open and adjusted for proper flame size. If the packing nut has come loose and the air shutter has closed not allowing air to enter the Venturi, the burner may not have enough pressure to ignite along the burner. Adjust the air shutter and re-set the packing nut. Replace burner access safety panel after servicing.
Inspect the Burner Orifice. NOTICE: Close gas cylinder and turn gas valve to off position. Locate the burner orifice in the Venturi Air Mixer. Remove the spud and orifice. Inspect, clean of debris and re-install. It may be necessary to inspect, clean and replace the 3/8" burner fuel line. WARNING: PROPANE FUEL LEAKS PRESENT A DANGER and must be corrected prior to operating the burner. Replace burner access safety panel after servicing.	
(D) Burner ignites but flame is lazy, incomplete, or erratic across the burner tube.	Inspect Venturi Air Mixer - Ensure the Venturi air shutter is open and adjusted for proper flame size. If the packing nut has come loose and the air shutter has closed not allowing air to enter the Venturi, the burner may not have enough pressure to ignite along the burner. Adjust the air shutter and re-set the packing nut. Replace burner access safety panel after servicing.



LIMITED WARRANTY

KM INTERNATIONAL, INC. (hereinafter called KMI) warrants all equipment manufactured by KMI to be free from defects in material and workmanship on the date of sale to the original end user. With the exception of any special, extended, or limited warranty published by KMI, KMI will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by KMI to be defective. This warranty applies only when the equipment is used for its intended purpose and properly maintained.

This warranty does not cover and KMI will not be liable for general wear and tear, or any malfunction, damage or wear caused by misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-KMI component parts.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized KMI distributor or the factory direct, for verification of the claimed defect. If the claimed defect is verified, KMI will repair or replace free of charge any defective parts. Electrical components shall be returned in total. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation. THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. KMI's sole obligation and buyer's sole remedy for any breach of warranty shall be set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential lost) shall be available. Any action for breach of warranty must be brought within one (1) Year of date of sale. Items sold, but not manufactured by KMI (such as electric motors, electric switch boards, switches, hose, etc) are subject to the warranty, if any, of their manufacturer. KMI will provide purchaser with reasonable assistance in making any claim for breach of these warranties or at KMI's sole discretion shall accept the return in conjunction with and/or despite the original manufacturers' warranty.

In no event will KMI be liable for indirect, incidental, special or consequential damages resulting from KMI supplying equipment hereunder, or the furnishing performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of KMI or otherwise.



TRAINING POLICY

The optimal and efficient operation of your KM Asphalt Hotbox Reclaimer requires instruction on the operation and maintenance of the equipment. We at KMI are very much aware that time is a precious commodity and will take all the steps necessary to ensure that equipment training is done in a professional and expedient manner. We are in the process of developing a library of instructional videos that will be available shortly. We encourage our customers to take advantage of our extremely knowledgeable staff as needed for trouble shooting or to answer equipment operation questions. We are available during business hours, 8:30 a.m. to 4:30 p.m. EST, Monday through Friday by phone – (810) 688-1234 or by e-mail at kmi@kminternational.com. We encourage you to contact our sales staff to schedule a convenient training session for your staff prior to operation.

If you are using the KMI infrared equipment for applying thermo-plastic, similar product or any use other than asphalt reheating and repairing, our technicians are unable to answer specific questions on those application processes. We would encourage the user to contact the applications manufacturer.

Additionally, we encourage our customers to take advantage of our hands on training classes made available to all purchasers and their staff as requested and/or necessary. We have incorporated a small fee associated with on sight training in an effort to encourage education without making the process cost prohibitive or too time consuming for our staff. This small charge will help to keep KMI equipment price competitive and user friendly. KM International will train FREE OF CHARGE any customer or customer employees that travel to the KMI manufacturing facility within the first 90 days of purchase. We would be happy to schedule an appointment for a free ½ day of training on every aspect of equipment maintenance and operation. The customer would be responsible for travel and expenses to the KMI location. Our technical staff is available to schedule an instructional full day of training at the customers site if that is preferred but would require the following:

1. All travel and expense to and from the customer requested location as required, including Hotel and Airfare as necessary. KMI reserves the sole right to determine appropriate and reasonable accommodations and travel.
2. A per-diem food allowance of Fifty U.S. Dollars (\$51.00) per technician, or as agreed.
3. A Five Hundred U.S. Dollar (\$550.00) per diem off-site man charge per technician, or as agreed, to be paid in advance.



EQUIPMENT INFORMATION NOTES

MODEL	
SERIAL NUMBER	
PURCHASER	
DATE OF PURCHASE	
NOTES:	

Thank you again for your purchase of the KM 4000SXPX Asphalt Hotbox Recycler. We are happy to have you as a customer and are confident that you will have years of efficient operation by following the above parameters and guidelines. We encourage an open dialogue with our customers and prize any feedback. Our commitment to our customers is second to none and our desire to improve our equipment is an integral part of our ongoing growth strategy.

Sincerely,
The KM International Management Team.

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Please call the Team at KM International anytime for questions, comments or to just talk "Infrared."



THE "INFRARED PROCESS" WORLDWIDE EXPERTS

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