CRAFCO INC
AN ERGON COMPANY

420 N. Roosevelt Ave. • Chandler AZ 85226
1-800-528-8242 • (602) 276-0406 • FAX (480) 961-0513
www.crafco.com

SPECIFICATIONS FOR PATCHER II (2 ton) DIESEL FUELED

JULY 2011

GENERAL

The purpose of these specifications is to describe a double-boiler type mixer that is specifically designed for and shall be capable of heating and melting Crafco TechCrete and PolyPatch products. This unit shall be the manufacturer's current production model manufactured in the United States of America. All qualified bidders must have and maintain a complete inventory of repair parts and have factory-trained service personnel for this equipment. A comprehensive safety manual and an operational/maintenance manual will be supplied with each unit. A factory-trained person shall be made available for initial start-up and training in the operation of the mixer. The material should be heated in a mixer constructed as a double boiler, with space between the inner and outer shells filled with oil or other heat-transfer medium. Thermostatic control for the heat - transfer medium shall be provided and shall have sufficient sensitivity to maintain product temperature within the manufacturer's specified application temperature range. Temperature indicating devices shall have intervals no greater than 5°F (2.8°C) and shall be calibrated as required to assure accuracy. The mixer shall have a continuous material mixing system to provide uniform viscosity and temperature of material being applied.

REQUIRED SAFETY FEATURES

The unit shall have a safety shut-off on the lid that automatically stops the agitator when the lids are opened.

The heat transfer oil shall adequately and efficiently bring the material to application temperature without the use of a heat transfer oil circulation pump. This eliminates the potential exposure of personnel to pressurized hot transfer oil.

TOWING FRAME AND JACK

This unit shall be trailer mounted. The longitudinal side frames and tongue members of the trailer shall be on one continuous piece construction composed of hot rolled steel channel having the minimum dimensions of 5 inches (12.70 cm) web, 3/16 inch (.48 cm) thickness with 1.75 inch (4.5 cm) flanges. The configuration of the channels shall be cold formed with the flanges on the outside resulting in a one-piece frame member with no cross welding of or on the flanges to avoid any possibility of flange stress cracking. The tongue shall be equipped with an appropriate heavy pintle hitch, the center of which shall be a minimum of 25 inches (63.5 cm) from the nearest obstruction on the tongue and shall be adjustable in height above ground level from a minimum of 14 inches (35.6 cm), to a maximum of 32 inches (81.3cm), permitting practically level towing with a wide range of towing vehicles. The towing hitch shall be bolted to the hitch plate for easy height adjustment and/or conversion to other type hitches. A screw-post tongue jack shall be a heavy duty type with a load capacity of 7,000 pounds (3,175 kg) and it shall be side mounted and swing away for positive road clearance while under tow.

RUNNING GEAR

The unit shall be equipped with a dual independent rubber torsional suspension having a safe load capacity of 9,900 pounds (4,491 kg), electric brakes, modular disc wheels and ST225 R75 - 15 tubeless tires (Load Range D). This suspension eliminates springs and shackles that rust and reduce ground clearance. The trailer shall have dual taillights, stop lights and turn signals. Lights shall be ICC approved. A license plate holder shall be attached to the rear of trailer as well. The unit shall also be equipped with two safety chains not less than 48 inches (121.9cm) of .38 inch. (.97 cm) coil proof chain, attached to the tongue with a drilled type clevis pin on the end attached to the frame and screw type clevis pin on the opposite end. Total shipping weight is approximately 4,700 pounds (2132 kg).

HEATING TANK

The material heating tank shall be a U- shaped vessel with 17 inch (86 cm) radius by 48 inches (122 cm) long having a capacity of 200 gallons (757 L) at ambient temperature. The tank will have a rear discharge. A double boiler type jacket shall create a reservoir that shall hold a minimum of 24 gallons (91 L) of heat transfer oil at 70°F (21.1°C). (Note: at 500°F (260°C) the heating oil will expand approximately 18%) The jacket shall wrap around 100% of the lower outside area of the circular material tank and bottom and allow for complete circulation of the heated transfer oil. The tank and jacket shall be made of not less than 0.1875 inch (0.476 cm) hot roll steel. There shall be one plug to allow the entire heat transfer oil system to be drained. The heat transfer oil shall be ISO grade 68. The heating tank shall be insulated with a minimum of 1.5 inch (3.81 cm) thick high temperature ceramic insulation and covered by a 12 gauge (0.27 cm) steel outer wrapper. Fiberglass or rock wool insulation is unacceptable due to their moisture retention properties resulting in a significant loss of their insulating value over an eighteen-month period. Tank shall have two (2) 1500 watt-110 volt electric overnight heaters.

EXPANSION TANK

A sealed expansion tank for heat transfer oil shall be provided to minimize oil oxidation and prevent moisture condensation into the heat transfer oil.

HYDRAULIC SYSTEM

The hydraulic system shall incorporate a hydraulic pump to power the mixer. Mixer valve shall be solenoid operated by toggle switch located on the burner control box. The control will allow for bi-directional operation of the mixer. A flow control valve will be mounted by the burner control box to allow the operator to adjust the mixer operating speed. The minimum 15 gallon (57 L) hydraulic tank will be equipped with an internal 10-micron full flow filter. The filter shall be equipped with a restriction indicator to indicate the need for service.

INSULATION

The heating tank shall be insulated with a minimum of 1-½ inch (3.81 cm) thick high temperature ceramic insulation and covered by a 12 gauge (.27 cm) steel outer wrapper. Fiberglass or rock wool insulation is unacceptable due to their moisture retention properties resulting in a significant loss of their insulating value over an eighteen-month period.

LOADING HATCH

Two low profile openings for loading shall be required. The loading height shall not exceed 60 inches (152 cm). Each opening shall have a minimum area of 255 square inches (1644 square cm) in each opening. One opening shall be equipped with a grated internal cover plate. Each lid shall have a latching system to prevent accidental opening.

HEATING SYSTEM

The heat transfer oil is heated by a 245,000 BTU diesel burner directly at the bottom of the heat transfer oil tank. The total area exposed to the burner shall be a minimum of 3,737 square inches (24,109 square cm). The material tank shall have a minimum of 3,348 square inches (21,599 square cm) of contact with the heat transfer oil. No other mechanical circulation of the heat transfer oil by pump shall be accepted.

IGNITION OF BURNER

The burner shall be lit by a constant duty high voltage transformer powering an electric spark igniter. This igniter shall work in conjunction with a sensor that detects a lack of burn or ignition and shuts down the fuel supply. The thermostat control is located on the curbside of the machine for operator safety.

TEMPERATURE CONTROL

The mixer shall have a thermostatic control device that will automatically regulate hot oil and material temperature. The control shall have a digital readout for temperatures of hot oil and material. The thermostat shall control burner ignition for a material temperature range from a low of 200°F (93.3°C) up to a high of 425°F (218.3°C). The hot oil temperature range shall be from a low of 200°F (93.3°C) up to a high of 550°F (287.7°C). The controls shall be activated by a single power switch. All temperature controls shall be contained in a single weatherproof control box.

DRIVE AND DRIVE CONTROLS

The motive force to the mixer shall be a hydraulic motor driven by a single hydraulic pump. The drive control governing the rotational direction of the mixer shall be controlled by a solenoid operated hydraulic control valve. The valve is electrically actuated by a toggle switch on the burner control panel and can be reversed as required. A flow control valve can be used to adjust mixer rotational speed. The hydraulic tank will be equipped with an internal 10-micron full flow filter that includes and indicator to indicate the need for service. A sight level indicator equipped with a thermometer to measure oil temperature will be mounted on the tank and located where it is easily viewed.

AGITATION

The material shall be mixed by a hydraulically driven, full sweep horizontal mixer shaft with four opposing V- shaped paddles. This feature ensures that material remains in complete suspension. The mixer shaft shall be coupled from a gear reducer to the hydraulic motor. The mixer rotates in both directions. For additional safety the mixer will shut off automatically when the loading hatch or grate is opened.

ENGINE

The unit shall be equipped with a diesel engine complying with the following specifications:
Electric Start
Three cylinder 20 hp (14.9 kw) @ 3600 RPM- Diesel fueled
Full Flow Oil Filter
Water cooled
The melter shall have a 26 gallon (98.4 L) diesel fuel tank for operation of the entire unit.

TOOL HEATING BOX AND TOOLS

The tool heating box shall be 26 inches (66 cm) in height, 14 inches (35.5 cm) in width, and 18 inches (46.4 cm) long. The tool heating box shall be constructed of not less than 0.105 (0.267 cm) HRS outer skin, be insulated with a minimum of 1 inch (2.5 cm) thick high temperature ceramic insulation and have 0.06 (.15 cm) stainless steel inner liner. Fiberglass or rock wool insulation is unacceptable due to their moisture retention properties resulting in a significant loss of their insulating value over an eighteen-month period. The diesel burner shall be bolted to the side of a combustion chamber and the tool heating box is welded to the top of this chamber. The burner shall have a minimum of 82,000 BTU supplied by a 12Vdc burner. The burner shall be controlled by an “On” – “Off” switch located at the rear of the machine.
Tools included shall be: Two (2) each ironing wands, One (1) each chute scraper, One (1) each tank scraper, Two (2) each metal coal buckets.

PAINT

All painted surfaces shall be coated with two-part epoxy primer and two-part urethane paint applied by trained painters.

MISCELLANEOUS

There shall be a gate valve at the rear of the machine.

OPTIONS (X if to be included:)

_____Removable Material Chute

The material chute shall be minimum 37 inches (93.98 cm) in length by 8 inches (20.3 cm) in width by 4 inches (10.2) in depth with a steel thickness of 0.1345 inches (0.34 cm). To aid in placement of material from machine directly into repair area.

_____Propane Torch and Bottle

30 lb. bottle with regulator, 500,000 BTU propane hand torch with 20 foot (6.1 meter) hose.

_____Heated (heat transfer oil) Removable Material Chute

The heat transfer oil heated material chute shall be minimum 37 inches (93.98 cm) in length by 8 inches (20.3 cm) in width by 4 inches (10.2) in depth with a steel thickness of 0.1345 inches (0.34 cm). A hydraulic driven 1.5 GPM heat transfer oil pump will circulate the oil from the heat transfer oil tank into the heated chute and back into the heat transfer oil tank. The heated chute shall pivot under the material drain and be easily removable. The heat transfer oil lines going to the chute shall have swivels and be insulated to protect the machine operators from burns. There shall be shut off valves on the heat transfer oil lines between the chute and the tank.

_____Material Handler

For handling and distributing of Polypatch material from the Patcher to the repair area. Propane heated with material side discharge gate.

_____Shoe boxes (various sizes):

_____ Small 8 X 8 X 6
_____ Medium 8 X 10 X 6
_____ Large 8 X 12 X 6
_____ X Large 8 X 14 X 6

_____2 1/2 inch Pintle Hitch

_____3 inch Pintle Hitch

_____Hot Air Lance

_____Extra Hydraulic Filter

_____Fire Extinguisher mounted on the Trailer Frame

_____Tool Box

_____Custom Paint

_____ Engine Cover

_____ Surge Brakes

TRAINING

An authorized, factory-trained representative will be made available for a full day of training at a facility designated by the bidding agency. At this training session a complete operational, mechanical and safety overview will occur. Both safety and operational manuals will be viewed and discussed with all concerned personnel. Additionally, the representative will be available at that time for "on the job" safety and field training.

SAFETY AND TRAINING MANUALS

A written Safety Manual will be provided to the bidding agency.

PARTS

Bidders must show proof that a large stock of parts for the model of equipment upon which he is bidding is maintained at his facility.

AWARD

Equipment is for use by the Highway Department and must meet the requirements of that agency as interpreted by the Highway Commissioner. Prior to award the Purchasing Agency may require a visit to the supplier's facility to assure supplier has plant capacity to manufacturer and deliver equipment on time as required. If it is determined that the supplier cannot supply as requested, this is just cause for cancellation.

WARRANTY

The manufacturer shall warranty the equipment for one year or as otherwise noted in the manufacturer's standard warranty policy.

QUALIFICATIONS OF BIDDERS

No bid will be considered unless the bidder can meet the following conditions:

1. That it has in operation a parts/service location and keeps a sufficient stock of parts on hand at all times.
2. That it is bidding upon the stock model chassis that meets the requirements of the specifications without material changes or modifications. The model is regularly advertised and sold as having a capacity of not less than called for herein. The bidder has been engaged in the manufacture of equipment of the type bid upon for at least twenty-four months.

APPROVED EQUAL

The approved make and model for this specification is a Crafco Patcher II. Bidders offering to supply other than the approved make and model must supply a detailed description of the equipment being offered. For purposes of comparison a separate list of all deviations to this specification must be attached to your bid document.

Prior to bid award an on-site demonstration of the equipment offered may be requested. All bidders offering other than the approved model listed will be required to provide an on-site demonstration to verify that their unit complies with all specification requirements before their bid will be considered.

Failure to carry out the provisions noted herein is deemed sufficient reason to reject the bidder's proposal.