SPECIFICATIONS FOR AN INTERNAL COMBUSTION CYLINDRICAL SCRUB PATH RIDER SCRUBBER

INTENT:

The intent of these specifications are to describe a single machine capable of scrubbing surfaces such as but not limited to concrete, asphalt, tile, marble, or terrazzo flooring.

In order to maximize productivity and subsequently reduce labor costs, the capacities of this machine are critical.

As such, all exceptions to the specifications must be clearly identified and submitted, in writing, on a separate sheet of paper marked "Exceptions". Bidders who fail to submit their exceptions will not be considered.

OPERATOR'S COMPARTMENT AND CONTROLS:

Safety: For safety and productivity purposes, compartment shall provide an unobstructed view to the floor to the immediate left and right of the steering wheel. An operator should not have to place their head outside of the footprint of the machine in order to view the cleaning path.

Controls: Controls shall be ergonomic, clear, intuitive and language free. Single touch operation via a touch pad with tactile feedback is required. Controls include keyed ignition, horn, headlights, vacuum on/off, fuel level (low indicator for LP), solution flow rate, three position scrub deck raise/lower, onboard chemical dispensing, and side broom(s)/brush (if equipped). A foot operated horn shall be available to facilities that require frequent and sudden audible signals.

Propulsion: Shall use single pedal for forward/reverse and for variable speed control.
Transport speed shall be variable from 0-8 mph (12.9 km/hr); reverse speeds must be limited to 0–3 mph (4.8 km/hr) for safety.

Seat: Shall have deluxe seat with armrests, slide for adjustable positioning. An optional Grammar suspension seat shall be available. Seatbelt option must be available.

Steering: Machine shall be a front steer machine controlled by hydraulic rack and pinion power steering. Steering wheel shall tilt to accommodate comfort and multiple operator sizes.

POWER SOURCES:

Machine shall be equipped with one of the following power plants:
55 hp Kubota 1.6 L LP engine
37.5 hp Kubota 1.5 L turbocharged diesel engine

Engine specifications are as follows:

55 hp Kubota LP engines:

- Shall have a remote oil drain located at the rear of the machine accessible without the use of tools.
- Shall have a remote oil filter
- Meets EPA Tier II and CARB Tier III emission standards

37.5 hp Kubota diesel engine:

- Shall have a remote oil drain located at the rear of the machine accessible without the use of tools.
- Meets EPA emission standards per 40 CFR 1039.625

Engine shall be accessible on all side for service/maintenance except the bottom where it is mounted. Power plant shall be equipped with a tip out oil cooler without the use of tools to facilitate radiator/oil cooler cleaning. Access to engine shall be possible without the use of tools.

There shall be gages that indicate engine oil pressure, engine temperature, engine voltage, and fuel level (low fuel level for LP).

Cooling system shall be sufficient to provide continuous use with fully loaded system conditions at an ambient temperature up to 105º F. To protect the engine, the machine shall automatically shut down if it reaches a high temperature condition.

To protect the engine, the machine shall automatically shut down if there is a loss in oil pressure.

Shall have a three stage Donaldson cyclonic air filter with primary and secondary replaceable filters, both of which shall be replaceable without the use of tools. There shall be a visual indicator that instructs an operator when the intake filter(s) require replacement.

FUEL SYSTEM:

Each engine will have the following fuel system:

55 hp Kubota LP engine

- Shall use a 33 lb propane bottle. Includes low fuel level indicator on the operator control panel. Propane bottle shall be exchangeable without the use of tools. An operator shall be able to access and grip the top and bottom of the bottle simultaneously to allow safe and ergonomic exchange.

37.5 hp Kubota diesel engine

- 12.7 gallon fuel tank with fuel level indicator on the operator control panel
- Fuel tank shall be leak tested up to 5 psi to assure the longevity of the component
- Shall have a primary in-line (not in tank) fuel filter accessible without the use of tools as well as a secondary in line fuel filter.

HYDRAULIC SYSTEM:

Shall be designed with four independent and balanced circuits that cover the following:

1. Scrub deck, side broom(s), side brush
2. Propulsion (hydrostatic drive)
3. Power steering, deck actuator
4. Dust control impeller

System shall utilize standard 10W30 motor oil (rather than less available and more expensive hydraulic fluid). System cooling shall be provided by a cooler with tip out capabilities to facilitate easy cleaning. Brush and fan motors must be case drained to prolong the life of the seals.

Hydraulic oil filter shall be mounted vertically and with appropriate clearance to allow exchange without spilling. Filter shall be accessible without the use of tools.

Hydraulic reservoir shall have a sight gage to aid in checking the oil level. The filter for the hydraulic system shall be mounted so that it can be accessed without the use of tools.

A hydraulic oil high temperature indicator shall be present at the operator control panel.

Hydraulic system shall have a tow valve that allows a user to open the hydraulic reliefs in the event the machine must be moved without the use of its own power. This tow valve shall be accessible without the use of tools.

CLEANING SYSTEM:

General:

There are four cleaning systems available. The cleaning systems are hydraulically driven on a dedicated hydraulic system. Each cleaning system shall be activated by a single button intuitively colored green for simple training. Similarly a red button shall be present to deactivate the cleaning system.

Components activated by the single button shall include the scrub deck, side broom(s), side scrub brush, vacuum, solution, and onboard chemical system (if equipped). When components are activated, the machine shall not start any of these components until the transport pedal is in a non-neutral state, in order to prevent damage to the floor, conserve fuel and prevent unnecessary brush wear.

See "Integrated Solution/Brush Pressure" for more specifics.

SC8000 48 -

Shall have a 48 in (122 cm) dual (2) counter-rotating cylindrical style scrub deck with 48 in (122 cm) x 11.00 in (28 cm) brushes. A variety of brushes shall be available to meet various cleaning needs. Brushes shall be removable without the use of tools to facilitate cleaning, rotation, and replacement.

Brush speed: Operate at 470 rpm
Brush pressure: Variable up to 400 lb (181 kg)
Ground clearance: Deck shall have at least 3 in (8 cm) of clearance when in the transport position

The scrub deck shall have a 1.5 ft^3 (42 L) debris hopper made of rotationally molded polyethylene to prevent it from rusting, denting, and peeling. The hopper shall be removable without the use of tools to facilitate clean-out. Hopper shall be vacuumized to prevent the buildup of residual solution that may collect and spill outside of the machine's path when making a turn.

Side skirts shall be raised and lowered with the deck and provide sufficient pressure to the floor to wipe solution effectively, in order to channel it to the squeegee while turning. Side skirts shall also be capable of being locked in the up position without the use of tools to facilitate "double scrubbing" and/or to prevent unnecessary wear to the skirting if the machine is used to scrub very rough and porous surfaces. Side skirts blades shall be made of linatex rubber (polyurethane also available). They shall be rotatable and reversible to offer 4 distinct wiping edges. Side skirts shall be rotatable and reversible without the use of tools.

SC8000 60 –
Shall have the same scrub system as the SC8000 48.

In addition, this machine shall have a hydraulically driven 16 in (41 cm) disc right side scrub brush. Shall have a total cleaning path of 60 in (152 cm). Right scrub brush shall be offset on the right side of the machine to allow an operator to clean closer to and/or underneath overhanging objects. A variety of right side disc scrub brushes shall be available to meet various cleaning needs. Brushes shall be removable without the use of tools to facilitate cleaning and replacement.

The solution flow rate and scrubbing down pressure of the side scrub brush shall increase and decrease in association with the settings for the scrub deck. A control shall be available to allow the operator to shut off the side scrub brush.

SC8000 62 –
Shall have the same scrub system as the SC8000 48.

In addition, this machine shall have two hydraulically driven 20 in (51 cm) side brooms. Shall have a total cleaning path of 62 in (157 cm). Brooms shall be offset to allow an operator to clean closer to and/or underneath overhanging objects and to assure the squeegee path on both sides is swept free of debris to assure it does not become fouled. Brooms shall be removable without the use of tools to facilitate cleaning and replacement.

Side broom adjustments for wear shall be possible from the operator's seat at the control panel.

Side brooms shall have a dust control feature (DustGuard or equivalent) standard that uses liquid from the solution tank to create a light fog over the brooms to optimize indoor air quality. It shall be possible to turn this feature on/off at the operator control panel. This feature shall be automatically activated with the scrub system, and like the scrub system shall not operate unless the drive pedal is out of neutral. There shall be two nozzle sizes available for the dust control system. The standard nozzle 0.033 gpm (0.125 LPM) for moderate dust applications and a 0.1 gpm (0.379 LPM) for high dust applications. The nozzles shall be replaceable without the use of tools.

SOLUTION SYSTEM:

Shall be a minimum of 100 gallons (379 L) constructed of non-corrosive, rotationally molded polyethylene. Shall be capable of handling solution up to 150° Fahrenheit (66 Celsius). See "Integrated Solution/Brush Pressure" specifics for control of solution flow.

Shall have a solution level low indicator at the control panel.

Shall have an inline filter which is easily accessible without the use of tools.

Solution system shall have a solenoid to the deck (and side brush if equipped) which close when the drive pedal is in neutral to prevent floor flooding.

Shall have a solution tank drain accessible without the use of tools.

Onboard Chemical Dispensing System

Shall have an onboard chemical dispensing system (EcoFlex or equivalent if equipped). Machine shall be capable of dispensing detergent into the clean water solution flow using any manufacturers' detergent recommended for a scrubber. There shall be room to carry 2 bottles onboard the machine, and each bottle shall be able to contain at least 2.5 gallons (9.5 L) of detergent, allowing the user to carry up to 5 gallons of (19 L) of one type of chemical or 2.5 gallons (9.5 L) of two different chemicals. Bottles shall be simple to change and not require tools, allowing a user to maintain clean water in the solution tank while using the flexibility of the onboard system to change chemicals. The dispensing system shall be capable of adjusting dilution rates from 26:1 to 300:1 at the operator control panel in order to accommodate a wide range of chemicals. The system must be capable of purging all detergent from the detergent line. Quick interchange of multiple detergent cartridges for varied cleaning applications.

Chemical dispensing system shall offer operators the following modes of operation through the use of one touch button control:

- Low concentration detergent dispensing – (user pre-programmed ratio)
- Full concentration detergent dispensing – (user pre-programmed ratio)
- Burst of Power (momentary increase in brush pressure, solution flow rate, and detergent concentration to full for 60 seconds) to provide more aggressive cleaning without causing unnecessary brush wear, water, or detergent usage during normal scrubbing
- Water only scrubbing

INTEGRATED SOLUTION/BRUSH PRESSURE:

As stated previously, machine shall have a single button that activates the cleaning system. Each time the system is started the machine shall start the operator at the lowest solution and brush pressure setting to provide the most economical operation with respect to water/chemical savings, fuel savings, and brush replacement.

The brush pressure and solution flow rate shall be integrated to increase and decrease together by pressing just one button as tests indicate the requirement to increase cleaning power is best accomplished with increases in solution and pressure. The feature shall also simplify training/operation of the machine. Solution and brush pressure shall also be capable of independent controls if desired.

The solution flow rate shall be variable up to 3.5 gallons per minute (13.2 LPM). At the lowest solution flow rate with a full 100 gallon (379 L) solution tank the machine shall be capable of scrubbing for at least one hour.

At the lowest flow rate the equivalent square footage calculations are as follows:

SC8000 48: 21,120 ft^2/hr X average speed in mph
SC8000 60: 26,400 ft^2/hr X average speed in mph
SC8000 62: 27,280 ft^2/hr X average speed in mph

Example: "At 3.5 miles per hour, the SC8000 62 shall be capable of scrubbing 95,480 ft^2 (27,280 x 3.5) on a single tank of solution."

RECOVERY SYSTEM:

Vacuum: Shall have hydraulically driven, 10 in (25 cm) fan that creates water-lift for solution pick up. A 3 in (8 cm) hose shall extract solution from the squeegee and debris tray to the recovery tank.

Squeegee: Shall have 55 in (140 cm) wide parabolic squeegee that raises and lowers hydraulically and lifts automatically in reverse. Linatex rubber wiping blades (polyurethane optional) with 4 usable edges rotatable and replaceable without the use of tools. Shall be removable as well as height and pitch adjustable without the use of tools.

Recovery Tank: Shall be at least 100 gallon (379 L) minimum capacity, and constructed of corrosion proof, paint free, rotationally molded polyethylene. Shall be capable of handling solution up to 150° Fahrenheit (66º Celsius). Shall be capable of tilting for ease of clean out, and removable without the use of tools for easy access to other machine systems. Shall be sloped appropriately to allow complete draining. Shall have a recovery dump hose with a flexible end to allow an operator to control the flow rate of the recovery water. An extension for the recovery dump hose shall be available for dump locations where the machine cannot access, due to its size.

GENERAL/OTHER:

Tires: Shall be solid non-marking style tires required to protect scrubbing surface. Minimum 18 in (45 cm) front, 16.25 in (35 cm) rear diameter for negotiating unimproved surfaces.

Frame: Shall be 8 gauge formed steel and 2x4 in (5x10 cm) box sections electrically welded and reinforced at all stress points. Integral wraparound bumper formed from 8 gauge steel.

Transport Speeds: 8 mph (12.9 km/hr) forward / 3 mph (4.8 km/hr) reverse

Gradeability:
Cleaning: 7° / 12%
Transport: 9° / 16%

Braking:
Dynamic brake that must stop unit within its own length for safety of operator, pedestrians and facility. Parking brake shall be standard and shall be capable of holding the braking position without the attention of operator on an 11° incline/decline.

Dimensions (not to exceed):
Length: 100 in (254 cm)
Width: 57 in (145 cm)
Minimum aisle turn width 119 in (302 cm)

Weight:
Dry: 3,100 lb (1,406 kg)
Gross Vehicle Weight: 4,135 lb (1,875 kg)

Coverage:
To calculate cleaning coverage per hour the same factors as used to calculate maximum coverage per tankful can be used (since a single tank of solution lasts 1 hour).

SC8000 48: 21,120 ft^2/hr X average speed in mph
SC8000 60: 26,400 ft^2/hr X average speed in mph
SC8000 62: 27,280 ft^2/hr X average speed in mph

Example: "At 3.5 miles per hour, the SC8000 62 shall be capable of scrubbing 95,480 ft^2 (27,280 x 3.5) in 1 hour."

Sound Level: During operation shall be no more than 86 dB A at the operator's ear.

Approvals: Shall have certification from ETL to UL Standard 583 and CE and clearly displayed labels showing as such.

Manuals: A full operator manual and detailed parts list must accompany the machine.

Service/Parts: Service must be available locally through certified equipment maintenance dealers and spare parts must be readily available.

Transporting: There shall be at least 4 tie down locations built into the frame.

Warranty: 3 years/2,000 hours parts, 6 months labor, 6 months travel, 8 years rotational molded parts.

Standard – All Models:
One-touch functionality
Variety of brush types for every application
Clear-View line of sight from operator's compartment
Service - MaxAccess to engine and hydraulics
Tip-Out/Lift-Off recovery tank
Ergonomic cockpit and controls
UltraFlow squeegee
Tilt steering
Tools-free squeegee removal/adjustment and blade replacement
Tools-free side skirt removal and blade replacement
Tools-free brush/broom replacement
Tools-free LP bottle replacement
Tools-free access to: air filters, oil filter, hydraulic oil filter, tow valve, engine, radiator, oil cooler, fuel fill, fuel filter(s), solution filter, squeegee adjustment, and hydraulic reservoir/fill.

Available options:
Wash hose*
Underhood light
Seat belt
Fire extinguisher
Warning beacon
Vac wand
Back-up alarm
Rear bumper
Overhead guard
Dual armrest
Brake/signal kit
Corner rollers
Extended scrub* - capable (on average) of up to 3 hours of operation between solution refills.
Onboard chemical dispensing (EcoFlex)*
Recovery debris tray*
Auto solution fill shut-off*

*Recognized as high productivity/high value features by today's customers

THE MACHINE SHALL BE AN ADVANCE SC8000™