

## **Specifications for Dultmeier Sales Liquid De-icing/Anti-icing Systems**

**Dultmeier Sales** manufactures a wide variety of liquid de-icing/anti-icing systems and components. Specifications for some of our systems are provided below. Government agencies and other authorized purchasers may copy these specifications for their own use in writing bid proposals. The Specifications below are for our most common liquid de-icing/anti-icing systems; we also have Specifications for other systems not shown here should you need them. If you have questions about these specifications or variations to them, please contact our engineering department at 800-228-9666, ext. 5536.

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**Specifications for Complete De-icing/Anti-icing Liquid Storage & Transfer System including Storage Tank, Pump Unit & Plumbing System:**

**A. Storage Tank:** Tank shall be constructed of high density polyethylene resin with ultra violet light protection meeting all applicable ASTM specifications for polyethylene storage tanks. Tank shall be a natural translucent color so that the product level can be seen inside the tank. Tank shall be rated to hold 14 lb. per gallon liquids (or select 16 lb. per gallon) and be fully compatible with de-icing liquids. Tank shall carry a 3 year warranty. Tank shall be 5,150 gallons in size (or select 3,000; 4,000; 4,200; 6,250; 7000; or 10,500 gallons; other sizes also available). Tank shall include a 22" diameter top lid (vented), molded in deep tie-downs and molded in gallonage indicators. Tank shall include two 2" (or select 3") "double thread" bulkhead fittings constructed of stainless steel (or select polypropylene) with EPDM or Buna-N gasket (one to include suction tube).

**B. Pump Unit:** Shall consist of 2" x 2" (or select 3" x 3") self-priming pump unit and shall be fully compatible with de-icing liquids. Pump volute, impeller and feet shall be constructed of 30% glass-filled polyester. Pump elastomers shall be EPDM. All metal wetted parts in the pump shall be 316 stainless steel. Pump shaft shall be 316 stainless steel (solid). Pump shall include a mechanical-type seal consisting of carbon and ceramic faces with EPDM elastomer and 316 stainless steel metal parts. Pump bearing pedestal (non-wetted component) shall be cast iron with enamel paint. Pump shall be long-coupled to a 5 HP (or select 7.5 HP for 3" x 3" pump), 1 Phase (or select 3 Phase if you have 3 Phase power), Totally Enclosed Fan Cooled (TEFC) motor. Coupling between pump and motor shall consist of two Lovejoy jaw couplings and hytrel spider with steel coupling guard (powder coat paint). Pump and motor shall be securely bolted to a heavy-duty 7 gauge steel base plate (powder coat paint) and shall be properly shimmed and aligned. **Note: You may also simply specify DU PR5010 pump unit (5 HP, 1 Phase), DU PR5030 pump unit (5 HP, 3 Phase), DU PR7510 pump unit (7.5 HP, 1 Phase), or DU PR7530 pump unit (7.5 HP, 3 Phase).**

**C. Plumbing System:** The plumbing system shall provide for filling the tank with either the system's pump unit or the transport's pump, for re-circulation/agitation of liquids in the tank, and for load-out to spray systems. The plumbing system shall include all necessary valves, pipe fittings and nipples, hose barbs, hose, clamps, strainer, tank mixing eductor and pipe compound which are fully compatible with de-icing liquids including the following: two 2" 316 cast stainless steel ball valves and 2-2" 316 stainless steel nipples for the tank ports, five 2" full port glass-reinforced polypropylene ball valves, Sch. 80 glass-reinforced polypropylene pipe fittings, 40' of 2" reinforced hose with EPDM cover and tube and wire helix reinforcement, high torque stainless steel clamps in sufficient quantity to double clamp all hose ends. 2" polypropylene Y-style strainer with 20 mesh stainless steel screen shall also be included near the pump discharge. 1 1/2" polyethylene tank mixing eductor shall also be included for insertion inside the tank's re-circulation/agitation port. A 2" polypropylene male adaptor camlock style coupling with dust cap will be provided for transport truck hose hook-up. A 2" polypropylene female coupler will also be provided for hooking the 2" discharge hose up to sprayers. A Plumbing Diagram drawn on Autocad will also be provided. **Note: Simply specify DU 1A056 with associated Plumbing Diagram. Note: Similar plumbing system can also be provided with polypropylene "flanged" fittings in lieu of threaded fittings.**

**Specifications for Complete 1,800 Gal. Anti-ice/De-ice Spraying System with Raven DCS400 Control System for 3-Lane Spraying (Fits Standard 10 Ton Dump Trucks)-DU 1A045:**

**A. Tank System:**

1. Tank system shall consist of twin (two) 925 Gal. tanks, each tank having its own sump. The tanks shall fit together with a "tongue & groove" interface on the skid frame (The individual twin tanks provide a baffle effect).
2. Each tank shall be a natural translucent color so that the liquid level can be seen inside the tank. Each tank shall be cylindrical-shaped with integral legs; tank dimensions shall be approx. 62" dia. x 76" long each.
3. Each tank shall be molded of high density polyethylene resin with UV protection and shall carry a 3-year warranty.
4. Each tank shall have a 16" dia. top manway opening with screw type vented lid.
5. Each tank shall have molded-in gallonage markers.
6. Tanks shall be securely mounted to the skid frame with four 1 1/2" dia. steel hoops and two 1 1/2" wide lateral steel straps. J-bolts with "Ny-lock" nuts shall secure the bottom of the steel hoops to the skid frame.

**B. Self-Loading Skid Frame System:**

1. System shall be "self-loading" style with rotating steel front legs, steel wheels at front of frame, individual "telescoping" steel rear legs, and steel "frame guides".
2. Frame shall be constructed of 6 x 8.2 lb. steel side channels running full-length on each side with similar cross members running under each tank leg across the frame. Proper tank "stops" shall also be included.
3. Front legs shall rotate on 1 1/4" dia. high strength bolts and shall be constructed of 3" sq. steel tube with 6" x 4 1/2" x 1/4" thick steel base plates at bottom of each front leg. Base plates cut with one tapered side to avoid interference with skid frame when rotating up.
4. Rear legs shall telescope up individually (to allow one person to easily lift up each rear leg without binding). Upper rear legs shall be constructed of 4" x 1/4" sq. steel tube and lower rear legs of 3 1/2" x 3/16" sq. steel tube. 6" x 6" x 1/4" thick steel base plates at bottom of each rear leg shall be included.
5. Front end of frame shall include two 4" steel caster wheels with grease fittings.
6. Four steel frame "guides" shall be included to guide unit into dump body when backing up. Two tailgate latch pins shall also be included.
7. Entire frame system shall be painted with two coats; prime coat followed by enamel top coat (black).

### **C. Automatic Programmable Control System:**

1. System will include an Automatic Programmable Control System which is ground-speed orientated to provide automatic rate control of the spraying system at any speed. This control system will also include the following additional features:
2. Controller (Raven DCS400) can be pre-programmed for up to 6 different application rates (flowrates input in gallons per lane-mile) and will keep the spray system on the pre-set target rate regardless of speed changes. Rate adjustment dial allows for "on the fly" changes between pre-programmed rates.
3. Controller will also keep system on target rate (gallons per lane-mile) regardless of the number of lanes being sprayed (1, 2 or 3 lanes at once) and will allow for "on the fly" changes to the number of lanes being sprayed.
4. Manual override button allows operator to increase or decrease the pre-programmed rates at any time. Controller also includes programmable "blast" feature to momentarily increase flowrate for bridge decks, etc. Boom control switch allows for instantaneous switching between 1, 2 or 3 lane spraying.
5. Rate (gallons per lane-mile) is displayed in left display screen at all times. Right display screen can display: total area, total volume, day area, day volume, distance, speed, volume per minute (GPM), area per hour, volume remaining in tank and time.
6. Control system also includes 2" flowmeter (Raven RFM-100), and automatic adjusting hydraulic control valve, speedometer speed sensor, and all necessary control and console cables with weatherpack connectors.
7. System shall be capable of spraying up to 3 lanes at 50 Gals Per Lane-Mile (on each lane) at up to 60 MPH.

### **D. Plumbing & Boom Systems:**

1. All plumbing components used shall consist of corrosion-resistant materials including reinforced polypropylene and stainless steel. Hoses shall be EPDM suction/discharge hose with thermal plastic helix and internal braiding and 100% EPDM tube.
2. Maximum use of polypropylene "flanged" fittings shall be utilized to allow for quick and easy maintenance of the plumbing system.
3. Pump shall be a 2" x 1 1/2" cast iron centrifugal pump with integral hydraulic-drive motor. Pump shall provide a maximum flowrate of 200 GPM or more and will also provide 175 GPM at 40 PSI (at 10 GPM hydraulic oil flowrate at 1,800 PSI). (Hypro 9304 Series with nylon impeller and severe-duty mechanical seal with silicon-carbide faces or Ace FMC-200-HYD-304). A 2" Drain-Fill valve shall be located at the rear of the unit and shall include a 2" male adaptor and cap for quick hose hook-up.
4. 12 Volt Valve Assembly shall of the "stackable" style and include 1" Full Port Valves constructed of polypropylene with stainless balls, stems & hardware. Valve Assembly inlet shall be 1 1/2" minimum. Each valve shall include a high torque motor with auto reset circuit breaker and DPDT relay inside a waterproof polypropylene NEMA 4X or 6P rated housing with valve position indicator. Valve assembly shall be rated to 150 PSI working pressure. Valve Assembly mounting bracket shall be provided.

5. Boom system shall include 1 1/4" stainless steel boom securely mounted to the rear of the spray system with two stainless steel "cusha" clamps. Boom shall be adjustable from 1'2" to 2'6" above the pavement. The center-lane section of the boom shall include a 3-way manual valve to allow the operator to direct liquid flow to either two stainless steel flooding nozzles (Spraying Systems SS QCKSS150) for anti-icing, or to 15 stainless steel solid stream nozzles for de-icing. Left and right lane nozzles shall include two stainless "offset" nozzles (SS OCSS300) with brass bodies and caps for effective coverage of the entire left and right lanes (two nozzles each end of the boom). All nozzles will be "balanced" to ensure the anti-icing/de-icing liquid is distributed equally to all lanes being sprayed.

**Note: Raven DCS410 Controller can also be provided in lieu of DCS400.**

**Specifications for Complete 1,065 Gal. Anti-ice/De-ice Spraying System with Raven DCS400 Control System for 3-Lane Spraying (Fits Standard 5 Ton Dump Trucks)-DU 1A054:**

**A. Tank System:**

1. Tank system shall consist of one 1,065 Gal. "leg" style tank, with molded-in sump.
2. The tank shall be a natural translucent color so that the liquid level can be seen inside the tank. Each tank shall be cylindrical-shaped with integral legs; tank dimensions shall be approx. 58" x 106".
3. The tank shall be molded of high density polyethylene resin with UV protection and shall carry a 3-year warranty.
4. The tank shall have a 16" dia. top manway opening with screw type vented lid.
5. The tank shall have molded-in gallonage markers.
6. The tank shall be securely mounted to the skid frame with three 1 1/2" dia. steel hoops and two 1 1/2" wide lateral steel straps. J-bolts with "Ny-lock" nuts shall secure the bottom of the steel hoops to the skid frame.

**B. Self-Loading Skid Frame System:**

1. System shall be "self-loading" style with rotating steel front legs, steel wheels at front of frame, individual "telescoping" steel rear legs, and steel "frame guides".
2. Frame shall be constructed of 6 x 8.2 lb. steel side channels running full-length on each side with similar cross members running under each tank leg across the frame. Proper tank "stops" shall also be included.
3. Front legs shall rotate on 1 1/4" dia. high strength bolts and shall be constructed of 3" sq. steel tube with 6" x 4 1/2" x 1/4" thick steel base plates at bottom of each front leg. Base plates cut with one tapered side to avoid interference with skid frame when rotating up.

4. Rear legs shall telescope up individually (to allow one person to easily lift up each rear leg without binding). Upper rear legs shall be constructed of 4" x 1/4" sq. steel tube and lower rear legs of 3 1/2" x 3/16" sq. steel tube. 6" x 6" x 1/4" thick steel base plates at bottom of each rear leg shall be included.
5. Front end of frame shall include two 4" steel caster wheels with grease fittings.
6. Four steel frame guides shall be included to guide unit into dump body when backing up. Two tailgate latch pins shall also be included.
7. Entire frame system shall be painted with two coats; prime coat followed by enamel top coat (black).

#### **C. Automatic Programmable Control System:**

1. System will include an Automatic Programmable Control System which is ground-speed orientated to provide automatic rate control of spraying system at any speed. This control system will also include the following additional features:
2. Controller (Raven DCS400) can be pre-programmed for up to 6 different application rates (flowrates input in gallons per lane-mile) and will keep the spray system on the pre-set target rate regardless of speed changes. Rate adjustment dial allows for "on the fly" changes between pre-programmed rates.
3. Controller will also keep system on target rate (gallons per lane-mile) regardless of the number of lanes being sprayed (1, 2 or 3 lanes at once) and will allow for "on the fly" changes to the number of lanes being sprayed.
4. Manual override button allows operator to increase or decrease the pre-programmed rates at any time. Controller also includes programmable "blast" feature to momentarily increase flowrate for bridge decks, etc. Boom control switch allows for instantaneous switching between 1, 2 or 3 lane spraying.
5. Rate (gallons per lane-mile) is displayed in left display screen at all times. Right display screen can display: total area, total volume, day area, day volume, distance, speed, volume per minute (GPM), area per hour, volume remaining in tank and time.
6. Control system also includes 2" flowmeter (Raven RFM-100), and automatic adjusting hydraulic control valve, speedometer speed sensor, and all necessary control and console cables with weatherpack connectors.
7. System shall be capable of spraying up to 3 lanes at 50 Gals Per Lane-Mile (on each lane) at up to 60 MPH.

#### **D. Plumbing & Boom Systems:**

1. All plumbing components used shall consist of corrosion-resistant materials including reinforced polypropylene and stainless steel. Hoses shall be EPDM suction/discharge hose with thermal plastic helix and internal braiding and 100% EPDM tube.
2. Maximum use of polypropylene "flanged" fittings shall be utilized to allow for quick and easy maintenance of the plumbing system.

3. A 2" Drain-Fill valve shall be located at the rear of the unit and shall include a 2" male adaptor and cap for quick hose hook-up.
4. Pump shall be a 2" x 1 1/2" cast iron centrifugal pump with integral hydraulic-drive motor. Pump shall provide a maximum flowrate of 200 GPM or more and will also provide 175 GPM at 40 PSI (at 10 GPM hydraulic oil flowrate at 1,800 PSI). (Hypro 9304 Series with nylon impeller and severe-duty mechanical seal with silicon-carbide faces or Ace FMC-200-HYD-304).
5. 12 Volt Valve Assembly shall of the "stackable" style and include 1" Full Port Valves constructed of polypropylene with stainless balls, stems & hardware. Valve Assembly inlet shall be 1 1/2" minimum. Each valve shall include a high torque motor with auto reset circuit breaker and DPDT relay inside a waterproof polypropylene NEMA 4X or 6P rated housing with valve position indicator. Valve assembly shall be rated to 150 PSI working pressure. Valve Assembly mounting bracket shall be provided.
6. Boom system shall include 1 1/4" stainless steel boom securely mounted to the rear of the spray system with two stainless steel "cusha" clamps. Boom shall be adjustable from 1'2" to 2'6" above the pavement. The center-lane section of the boom shall include a 3-way manual valve to allow the operator to direct liquid flow to either two stainless steel flooding nozzles (Spraying Systems SS QCKSS150) for anti-icing, or to 15 stainless steel solid stream nozzles for de-icing. Left and right lane nozzles shall include two stainless "offset" nozzles (SS OCSS300) with brass bodies and caps for effective coverage of the entire left and right lanes (two nozzles each end of the boom). All nozzles will be "balanced" to ensure the anti-icing/de-icing liquid is distributed equally to all lanes being sprayed.

**Note: Raven DCS410 Controller can also be provided in lieu of DCS400.**

**Specifications for Complete 200 Gal. Anti-ice/De-ice Pick-up Sprayer with Raven DCS400 Control System (For Single-Lane Spraying)-DU 1A203:**

**A. Automatic Programmable Rate Control System:** Automatic programmable rate control system provides for ground-speed oriented rate control (system automatically maintains the pre-programmed application rate in Gals Per Lane-Mile regardless of speed changes). Includes Raven DCS400 control system which can be pre-programmed for up to 6 different application rates. Controller rate dial allows for quick changes between pre-programmed rates while driving. Manual override button allows operator to increase or decrease the pre-programmed rates at any time. Also includes programmable "blast" feature to momentarily increase flowrate for pre-set amount of time. Includes control and console cables, speedometer speed sensor, 1 1/2" flowmeter (Raven RFM 60P), 1 1/2"- 12V control valve (Raven 063-0171-894) and 1"-12V boom on-off valve (full port valve with waterproof motor housing and fused auto reset). System will spray up to 30 Gals Per Lane Mile at 60 MPH, or higher rates at proportionally less speed (single lane spraying).

**B. 200 Gal. Tank & Steel Skid Frame:** Includes 200 Gal. Raven polyethylene tank with top 10" threaded fillwell with lid (vented) and gallonage markers. Tank is mounted to heavy-duty welded steel skid frame (10 Ga. Hot-Rolled Steel; 72" x 34" x 50" high; powder-coat enamel paint finish) with two nylon ratchet straps. Also includes heavy-duty 7 gauge steel base plate for mounting valves and pump unit (powder coat enamel paint finish).

**C. System Plumbing:** All plumbing components are salt & chemical-resistant (polypropylene pipe fittings, valves & strainer); 1 1/2" EPDM Reinforced Suction Hose to pump. 2" Polypropylene strainer with 20 mesh stainless steel screen. Pump unit is HY 1537 including Hypro 9203C centrifugal pump (1 1/2" x 1 1/4") close-coupled to Honda 5.5 HP engine (GX 160K1TX). This pump unit is rated to deliver 88 GPM at 40 PSI and 30 GPM at 70 PSI). 2" Drain/Fill Valve with 2" Male Adaptor & Cap mounted at rear of unit for quick and easy bottom filling and draining. 3/4" by-pass system including 3/4" adjustable throttling valve. 1/2" jet agitation system including jet agitator in tank (Hypro 3371-19).

**D. Hose Reel System:** System includes Hannay #1526-17-18 hand-crank hose reel (rated to 3,000 PSI; enamel paint finish; spool turns on self-aligning bearings; frame, drum and fasteners fabricated with heavy gauge steel). Includes 300' of 1/2" hose rated at 600 PSI and 17" adjustable pattern spray gun (Hypro 3381-10).

**E. 80" Steel Boom System:** Includes 80" long steel boom (primed & painted) with 1" square tube boom & 2" square tube attachment to fit into standard 2" receiver hitch. Includes 5/8" stainless tap bolt and 5/8" stainless nut inside 2" square tube to hold boom securely in place inside receiver hitch. 3/4" hose feeds 12 brass solid stream nozzles (TP 0040) spaced at 8-9" centers. Outside two nozzles each side are mounted in brass double swivels to allow for independent angular adjustment and effective lane coverage. All nozzles mounted with 1" square boom clamps. Includes 1" feed hose with 1" female coupler for attachment to skid-mount spray system's discharge plumbing.

**Note: Can also be provided with Spraying Systems 844E-RA Control System with Radar Speed Sensing (ground-speed oriented also) or a Pressure-based Control System (not ground-speed oriented; Model DU 1A202) in lieu of Raven DCS400.**

Note: Other options included 12V electric hose reel, electric start engine, stainless steel boom system, 3-lane stainless boom system and others; please inquire.



**Specifications for Complete 300 Gal. Anti-ice/De-ice Pick-up Sprayer with Raven DCS400 Control System (For Single-Lane Spraying)-DU 1A203A:**

**A. Automatic Programmable Rate Control System:** Automatic programmable rate control system provides for ground-speed oriented rate control (system automatically maintains the pre-programmed application rate in Gals Per Lane-Mile regardless of speed changes). Includes Raven DCS400 control system which can be pre-programmed for up to 6 different application rates. Controller rate dial allows for quick changes between pre-programmed rates while driving. Manual override button allows operator to increase or decrease the pre-programmed rates at any time. Also includes programmable "blast" feature to momentarily increase flowrate for pre-set amount of time. Includes control and console cables, speedometer speed sensor, 1 1/2" flowmeter (Raven RFM 60P), 1 1/2"- 12V control valve (Raven 063-0171-894) and 1"-12V boom on-off valve (full port valve with waterproof motor housing and fused auto reset). System will spray up to 30 Gals Per Lane Mile at 60 MPH, or higher rates at proportionally less speed (single lane spraying).

**B. 300 Gal. Tank & Steel Skid Frame:** Includes 300 Gal. Raven polyethylene tank with top 10" threaded fillwell with lid (vented) and gallonage markers. Tank includes stainless steel baffle. Tank is mounted to heavy-duty welded steel skid frame (10 Ga. Hot-Rolled Steel; 93" x 34" x 50" high; powder-coat enamel paint finish) with three nylon ratchet straps. Also includes heavy-duty 7 gauge steel base plate for mounting valves and pump unit (powder-coat paint finish).

**C. System Plumbing:** All plumbing components are salt & chemical-resistant (polypropylene pipe fittings, valves & strainer); 1 1/2" EPDM Reinforced Suction Hose to pump. 2" Polypropylene strainer with 20 mesh stainless steel screen. Pump unit is HY 1537 including Hypro 9203C centrifugal pump (1 1/2" x 1 1/4") close-coupled to Honda 5.5 HP engine (GX 160K1TX). This pump unit is rated to deliver 88 GPM at 40 PSI and 30 GPM at 70 PSI). 2" Drain/Fill Valve with 2" Male Adaptor & Cap mounted at rear of unit for quick and easy bottom filling and draining. 3/4" by-pass system including 3/4" adjustable throttling valve. 1/2" jet agitation system including jet agitator in tank (Hypro 3371-19).

**D. Hose Reel System:** System includes Hannay #1526-17-18 hand-crank hose reel (rated to 3,000 PSI; enamel paint finish; spool turns on self-aligning bearings; frame, drum and fasteners fabricated with heavy gauge steel). Includes 300' of 1/2" hose rated at 600 PSI and 17" adjustable pattern spray gun (Hypro 3381-10).

**E. 80" Steel Boom System:** Includes 80" long steel boom (primed & painted) with 1" square tube boom & 2" square tube attachment to fit into standard 2" receiver hitch. Includes 5/8" stainless tap bolt and 5/8" stainless nut inside 2" square tube to hold boom securely in place inside receiver hitch. 3/4" hose feeds 12 brass solid stream nozzles (TP 0040) spaced at 8-9" centers. Outside two nozzles each side are mounted in brass double swivels to allow for independent angular adjustment and effective lane coverage. All nozzles mounted with 1" square boom clamps. Includes 1" feed hose with 1" female coupler for attachment to skid-mount spray system's discharge plumbing.

**Note: Can also be provided with Spraying Systems 844E-RA Control System with Radar Speed Sensing (ground-speed oriented also) or a Pressure-based Control System (not ground-speed oriented; Model DU 1A202A) in lieu of Raven DCS400.**

Note: Other options included 12V electric hose reel, electric start engine, stainless steel boom system, 3-lane stainless boom system and others; please inquire.

**Specifications for Complete 500 Gal. Anti-ice/De-ice Pick-up Sprayer with Raven DCS400 Control System (For Single-Lane Spraying)-DU 1A203B:**

**A. Automatic Programmable Rate Control System:** Automatic programmable rate control system provides for ground-speed oriented rate control (system automatically maintains the pre-programmed application rate in Gals Per Lane-Mile regardless of speed changes). Includes Raven DCS400 control system which can be pre-programmed for up to 6 different application rates. Controller rate dial allows for quick changes between pre-programmed rates while driving. Manual override button allows operator to increase or decrease the pre-programmed rates at any time. Also includes programmable "blast" feature to momentarily increase flowrate for pre-set amount of time. Includes control and console cables, speedometer speed sensor, 1 1/2" flowmeter (Raven RFM 60P), 1 1/2"- 12V control valve (Raven 063-0171-894) and 1"-12V boom on-off valve (full port valve with waterproof motor housing and fused auto reset). System will spray up to 30 Gals Per Lane Mile at 60 MPH, or higher rates at proportionally less speed (single lane spraying).

**B. 500 Gal. Tank & Steel Skid Frame:** Includes 500 Gal. Raven polyethylene tank with top 10" threaded fillwell with lid (vented), gallonage markers and 6.5" x 12" bottom center sump. Tank is mounted to heavy-duty welded steel skid frame (10 Ga. Hot-Rolled Steel; 96" x 40" x 57"; prime coat with acrylic enamel top coat) with two nylon ratchet straps. Also includes heavy-duty steel base plate for mounting valves and pump unit (powder-coat enamel paint finish).

**C. System Plumbing:** All plumbing components are salt & chemical-resistant (polypropylene pipe fittings, valves & strainer); 1 1/2" EPDM Reinforced Suction Hose to pump. 2" Polypropylene strainer with 20 mesh stainless steel screen. Pump unit is HY 1537 including Hypro 9203C centrifugal pump (1 1/2" x 1 1/4") close-coupled to Honda 5.5 HP engine (GX 160K1TX). This pump unit is rated to deliver 88 GPM at 40 PSI and 30 GPM at 70 PSI). 2" Drain/Fill Valve with 2" Male Adaptor & Cap mounted at rear of unit for quick and easy bottom filling and draining. 3/4" by-pass system including 3/4" adjustable throttling valve. 1/2" jet agitation system including jet agitator in tank (Hypro 3371-19).

**D. Hose Reel System:** System includes Hannay #1526-17-18 hand-crank hose reel (rated to 3,000 PSI; enamel paint finish; spool turns on self-aligning bearings; frame, drum and fasteners fabricated with heavy gauge steel). Includes 300' of 1/2" hose rated at 600 PSI and 17" adjustable pattern spray gun (Hypro 3381-10).

**E. 80" Steel Boom System:** Includes 80" long steel boom (primed & painted) with 1" square tube boom & 2" square tube attachment to fit into standard 2" receiver hitch. Includes 5/8" stainless tap bolt and 5/8" stainless nut inside 2" square tube to hold boom securely in place inside receiver hitch. 3/4" hose feeds 12 brass solid stream nozzles (TP 0040) spaced at 8-9" centers. Outside two nozzles each side are mounted in brass double swivels to allow for independent angular adjustment and effective lane coverage. All nozzles mounted with 1" square boom clamps. Includes 1" feed hose with 1" female coupler for attachment to skid-mount spray system's discharge plumbing.

**Note: Can also be provided with Spraying Systems 844E-RA Control System with Radar Speed Sensing (ground-speed oriented also) or a Pressure-based Control System (not ground-speed oriented; Model DU 1A202B) in lieu of Raven DCS400.**

Note: Other options included 12V electric hose reel, electric start engine, stainless steel boom system, 3-lane stainless boom system and others; please inquire.

**Specifications for V-Box Mount Pre-wet Systems: 1-90, 2-90, 1-135 & 2-135 Gal. Models:**

**A. Tank(s) & Mounting Hardware:** Includes 90, 2-90, 135, 2-135 (select one) Gal. polyethylene tank(s) with two 5" top threaded fillwells with screw-down lids (vented). Clear translucent color. Rated for 16 Lbs/Gal. Liquid. Tanks include deep baffles-drawings available. Mounting hardware includes all necessary steel channels, tank pans, tank stops (all powder-coated paint finish); all bolts & fasteners; strap rods; rub pad; and nylon tie-down straps. Note: Stainless mounting hardware also available.

**B. Pump, Control System & Plumbing (Select one below):**

**1. Hydraulic-Drive Pump, Control System & Plumbing:** Includes Cast Bronze Rotary Gear Pump (Oberdorfer 3000 BR or equal; Rated to 7 GPM) with Buna Lip Seal and Internal Pressure Relief. Pump is coupled to an Eaton H Series Hydraulic Motor (2.2 Cubic Inch Displacement or equal) with a Lovejoy Coupling System. Control System also includes a 12V Adjustable Hydraulic Control Valve (Pressure-Compensated; 0-30 GPM) which regulates the oil flowrate to the pump and thus the liquid pre-wetting flowrate. An Electric Pressure Switch is also included to indicate a "Tank Empty" (Low Pressure) Condition. The Adjustable Hydraulic Control Valve is controlled by an In-Cab Control Console. In-Cab Console includes On/Off Switch, Power-On Indicator Light, Tank-Empty Light & Variable Pump Flow Control Dial (with Backlight). 12V power lead wiring and wire harness with "Weatherpack" Connectors also included. System is fully plumbed and wired inside a Stainless Steel Enclosure with gasket and latch. All plumbing components are rated to 150 PSI working pressure. Liquid hose barb fittings and hydraulic fittings are also pre-plumbed on the outside ends of the stainless enclosure to accomodate quick and easy liquid and hydraulic line connections. Stainless steel mounting bracket is also included. Four brass nozzles with mounting hardware, 1/2" discharge hose & strainer, and 1/2" ball check valve are also included. All Suction Plumbing is also included including polypropylene valves, pipe fittings & EPDM hose.

**2. Electric-Drive Pump, Control System & Plumbing:** Includes 12V Diaphragm Pump with internal circuit breaker and viton/santoprene seal (rated to 3 GPM). An Electric Pressure Switch is also included to indicate "Tank Empty" (Low Pressure) Condition. The Diaphragm Pump is controlled by an In-Cab Control Console to regulate the liquid pre-wetting rate. In-Cab Console includes On/Off Switch, Power-On Indicator Light, Tank-Empty Light & Variable Pump Flow Control Dial (with Backlight). 12V power lead wiring and wire harness with "Weatherpack" Connectors also included. System is fully plumbed and wired inside a Polyethylene Enclosure with gasket and stainless hinge & latch. All plumbing components are rated to 150 PSI working pressure. Liquid hose barb fittings are also pre-plumbed (inside enclosure) to accomodate quick and easy liquid line connections. Stainless steel mounting bracket is also included. Two variable orifice nozzles with mounting hardware, 1/2" discharge hose & strainer, and 1/2" ball check valve are also included. All Suction Plumbing is also included including polypropylene valves, pipe fittings & EPDM hose.

**C.** A complete Spray Systems Installation & Operation Manual is also included which includes detailed components and parts listings, CAD engineering drawings, detailed plumbing & wiring diagrams and set-up & operating instructions.

**D.** "Quick Fill Kits" for all Pre-wet System Models are available.

## **Specifications for Tailgate Mount Pre-wet Systems: 90 & 135 Gal. Models:**

**A. Tank(s) & Mounting Hardware:** Includes 90 or 135 (select one) Gal. polyethylene tank with two 5" top threaded fillwells with screw-down lids (vented). Clear translucent color. Rated for 16 Lbs/Gal. Liquid. Tanks include deep baffles-drawings available. Mounting hardware includes all necessary steel brackets with tank pan and tailgate "hooks" (all powder-coated paint finish), and nylon tie-down straps.

### **B. Pump, Control System & Plumbing (Select one below):**

**1. Hydraulic-Drive Pump, Control System & Plumbing:** Includes Cast Bronze Rotary Gear Pump (Oberdorfer 3000 BR or equal; Rated to 7 GPM) with Buna Lip Seal and Internal Pressure Relief. Pump is coupled to an Eaton H Series Hydraulic Motor (2.2 Cubic Inch Displacement or equal) with a Lovejoy Coupling System. Control System also includes a 12V Adjustable Hydraulic Control Valve (Pressure-Compensated; 0-30 GPM) which regulates the oil flowrate to the pump and thus the liquid pre-wetting flowrate. An Electric Pressure Switch is also included to indicate "Tank Empty" (Low Pressure) Condition. The Adjustable Hydraulic Control Valve is controlled by an In-Cab Control Console. In-Cab Console includes On/Off Switch, Power-On Indicator Light, Tank-Empty Light & Variable Pump Flow Control Dial (with Backlight). 12V power lead wiring and wire harness with "Weatherpack" Connectors also included. System is fully plumbed and wired inside a Stainless Steel Enclosure with gasket and latch. All plumbing components are rated to 150 PSI working pressure. Liquid hose barb fittings and hydraulic fittings are also pre-plumbed on the outside ends of the stainless enclosure to accomodate quick and easy liquid and hydraulic line connections. Stainless steel mounting bracket is also included. Four brass nozzles with mounting hardware, 1/2" discharge hose & strainer, and 1/2" ball check valve are also included. All Suction Plumbing is also included including polypropylene valves, pipe fittings & hose.

**2. Electric-Drive Pump, Control System & Plumbing:** Includes 12V Diaphragm Pump with internal circuit breaker and viton/santoprene seal (rated to 3 GPM). An Electric Pressure Switch is also included to indicate "Tank Empty" (Low Pressure) Condition. The Diaphragm Pump is controlled by an In-Cab Control Console to regulate the liquid pre-wetting rate. In-Cab Console includes On/Off Switch, Power-On Indicator Light, Tank-Empty Light & Variable Pump Flow Control Dial (with Backlight). 12V power lead wiring and wire harness with "Weatherpack" Connectors also included. System is fully plumbed and wired inside a Polyethylene Enclosure with gasket and stainless hinge & latch. All plumbing components are rated to 150 PSI working pressure. Liquid hose barb fittings are also pre-plumbed to accomodate quick and easy liquid line connections. Stainless steel mounting bracket is also included. Two variable orifice nozzles with mounting hardware, 1/2" discharge hose & strainer, and 1/2" ball check valve are also included. All Suction Plumbing is also included including polypropylene valves, pipe fittings & hose.

**C.** A complete Spray Systems Installation & Operation Manual is also included which includes detailed components and parts listings, CAD engineering drawings, detailed plumbing & wiring diagrams and set-up & operating instructions.

**D.** "Quick Fill Kits" for all Pre-wet System Models are available.