

Moose River, LLC

Cold Water Pressure Washer System Features

Wash System Process

- The circulatory process of the wash system begins with a 550 gallon capacity holding tank.
- Water gravity flows from the tank into an industrial high pressure, high volume pump with a maximum flow of 1000 psi at 18 gallons per minute.
- The pump pushes the water out to a manifold system which directs flow to the hand-held wands and underbody wash.
- Operators use two high pressure wands with turbo nozzles to wash the entire vehicle, concentrating on the sides, wheels, and wheel wells.
- A high pressure, high volume nozzle system washes the vehicles underbody.
- An industrial rubber mat with foam filled barriers on all sides confines the wash water.
- The used wash water is pumped from the mat to two 175 gallon settling tanks.
- Large particulate matter sinks to the bottom of the tanks.
- The effluent from the settling tanks is pumped through two filters.
- The filters have felt bags that can remove particulate as small as 3 microns.
- After the water has passed through the filters, it continues its flow back into the holding tank.
- The washer does not use hot water nor does it use any soaps, chemicals, or detergents.
- The components are mounted on a twin axle, 8' X 18' trailer that can be towed by a 3/4 ton pickup truck (when the water tanks are empty).
- The pumps, generator, tanks, and filter housings are mounted on the trailer as well as the mat, hoses, and miscellaneous equipment.

Wands and Underbody Washers

- The wash system uses two hand wands and one underbody washer.
- The two hand wands operate at a pressure of 1000 pounds per square inch.
- Each wand sprays about 4 gallons of water per minute.
- The wand has a rotating, turbo nozzle that outperforms standard fan nozzles.
- The underbody washer is one of the few components of the wash system that is not commercially available.
- Six high pressure fan nozzles are attached to each underbody washer to provide complete coverage under the vehicle.
- The six nozzles operate at about 800 pounds per square inch of pressure and use a total of 18 gallons of water per minute.
- During a typical washing operation, a vehicle drives slowly onto the mat and over the underbody washer.
- Once the vehicle has been driven completely over the underbody washer, operators close a valve on the wash systems manifold, stopping the flow of water to the underbody washer.
- Operators wash the vehicle with the two high pressure wands, removing all mud and dirt on the sides, top, wheels, wheel wells, and bumpers.

Containment Mat

- The containment mat is of industrial grade. Even though the mat is very durable, users should ensure that sharp debris is not underneath it.
- The standard size of the rubber mat is 19' X 33'. However, custom sizes are available.
- Cylindrical pieces of foam are inserted into sleeves along the sides of the mat, forming raised sides that contain the wash water.
- Rubber tired vehicles will not puncture or rip the mat unless the mat is placed over an extremely sharp object.
- A felt liner the same size as the mat helps protect the mat from cuts or punctures.
- A reel has been fabricated in-house and mounted to the deck on the back of the trailer to make the felt pad and mat easier to set up and store.
- Tracked vehicles, such as bulldozers or small excavators, require special attention. Place industrial strength belting under their tracks to prevent them from damaging the mat.
- Long vehicles, such as school buses, also require special handling. Typically, half of the vehicle is driven on the mat and washed, then the vehicle is moved to wash the other half.
- Although rare, there is a possibility that the mat can be damaged with punctures or holes. A kit is supplied that can successfully make the necessary repairs or mends.

Holding Tank and High Pressure Pump

- Water is stored in a 550 gallon tank mounted on the deck of the trailer.
- A high pressure, high volume industrial pump supplies water to the underbody washer and wands at a pressure of 1000 pounds per square inch and a flow of 18 gallons per minute.
- The pump is powered by a 24 horsepower, Honda® engine.
- A 40 micron strainer between the tank and the pump prevents particulate from damaging the pump.
- An overflow bypass valve protects the pump.
- Between washes, when no water is needed, the bypass valve routes unused water back to the holding tank to prevent damage to the pump.
- The industrial pump can be easily serviced.

Sump Pumps and Settling Tanks

- An electrically powered sump pump moves wash water collected on the mat into two 175 gallon, cone bottom settling tanks.
- The water flow enters the settling tank through large PVC pipes near the bottom of the tanks.
- The water flow enters near the bottom to minimize flow velocities and turbulence, increasing the likelihood that particulate will settle in the tanks.
- A 2 inch connector near the top of each tank allows overflow water from the first settling tank to flow into the next settling tank.

- Water enters the second settling tank near the bottom of the tank through PVC pipe attached to the overflow connector between the two tanks.
- The overflow from the second settling tank flows into a smaller open barrel tank.
- A large mesh strainer is attached to the overflow pipe, trapping debris such as needles or leaves and most large seeds.
- Another sump pump in this open tank moves the water through two filters and back to the main 550 gallon holding tank.

Filter Housings and Filters

- The wash water is pumped through two filter housings and back to the main holding tank.
- Each filter housing uses felt filter bags rated at sizes ranging from 800 microns down to 3 microns to remove particulate matter or seeds larger than the bags rating.
- Any combination of bags can be used, depending on the size of seeds or spores that are targeted.
- A 100 micron filter bag should catch all seeds, while bags with smaller mesh sizes could be used to trap spores.
- Each housing is equipped with pressure gauges to determine when the filters are clogging.
- A pressure of 15 to 20 pounds per square inch indicates that the filters are nearly full.
- The filters can be stored for analysis or backwashed to remove all the debris and reused.

Electrical Power

- A 5,500 watt gasoline generator provides electrical power to operate the two sump pumps.
- The generator can also be used to power lights and any other electrical accessories.

Mat Reel

- A manually operated reel has been fabricated to help set up, transport, and store the mat.
- A 12 volt electrical reel is available upon request.
- The reel is designed so that the mat and felt pad can be unrolled easily when the washing station is being set up.
- An operator holds one end of the mat down, releases the reels locking mechanism, and pulls the trailer forward over the mats felt underlayment.
- Once the mat is in place, it can be unfolded for use.
- Before storage, the mat should be thoroughly washed to remove any rocks and debris, dried as thoroughly as possible, and folded to a width of 66".
- The front end of the mat can be lifted, locked into the reel, and reeled in.
- A locking mechanism prevents the reel from unwinding.
- Tie downs and straps hold the mat in place.