



TRIVERUS

CLEANING & ENVIRONMENTAL SOLUTIONS

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AIRSTRIIP MAINTENANCE VEHICLE

AMV



ENVIRONMENTALLY RELEVANT

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The Triverus Airfield Maintenance Vehicle (AMV) combines high efficiency cleaning with a suite of airport specific capabilities that have no equal.

The single power plant Mack chassis has a short wheel base to maintain maneuverability and relevance with applications across the airfield environment.

**The AMV is capable of
Runway Rubber Removal,
Paint Stripe Removal,
Stormwater Pollution Prevention,
FOD removal,
and Pre-Paint Preparation.**

AIR STRIP MAINTENANCE VEHICLE

Triverus AMV Preliminary Specification Sheet

Chassis: Mack MRU-612
Wheelbase: 169"
Overall Height: 128.5"
Overall Width: 95.4" (not including mirrors)
Overall Length: 32' (including cleaning deck)
Engine: Mack MP7-325M (325 HP)
Transmission: Allison 3000RDS
Front Axle: 20,000 lb GAWR
Rear Axle: 30,000 lb GAWR
Tag Axle: 13,500 lb GAWR (Optional)
Empty Weight: < 28,000 lbs

Key Features

Single engine system with integrated hydrostatic creep drive: This system allows hydrostatic control for low speed operation but still allows the vehicle to maintain full highway capabilities (65+ MPH)
Hydraulic driven HP water system: Allows pump flexibility and integrated safeties to prevent surface damage from high dwell times common with inexperienced operators.
High flow vacuum system: Provides excellent recovery of water and debris even on grooved surfaces.
Integrated HMI/Control System: Provides visual feedback of system operating parameters and also functions as the monitor for both cleaning deck and backup cameras.
Solids separation system: Separate solids collection area with automated pump down system ensures solids are free from excess water and ready to be removed whenever needed.
Single progressive density bag filter system: Provides excellent pump protection and allows for quick and easy filter change out when required.

HP Water System

Pump: Jetstream 4220 (#9 Plungers)
Rated Flow: 18.1 GPM
Rated Pressure: 20,000 PSI
Cleaning Path (Rubber): 6' (Up to 16.8 GPM @ 15,000 PSI)
Cleaning Path (Paint): 12-20" (Up to 12 GPM @ 20,000 PSI)
Filtration: 1 Micron Retention > 99.9% (progressive density bag)
Clean Water Tank: 2000 Gallons

Recovery System

Vacuum: 2000 CFM
Water Recovery Tank: 2000 Gallons
Solids Collection: 2000 lb Dewatering bulk bag or optional dump tank

AMV Architecture

The AMV is the result of a mission based design process. Proportional computer controlled power architecture allows smooth and job-specific configurations that ease operator workload. Things like a well implemented creep drive function, integrated safety controls that prevent surface damage, integrated controls that protect critical systems and smooth power variability all allow the operator to focus on the workpiece, not just managing the equipment.

Mission Sizing instead of building a system with the largest available specifications. The AMV was designed around the user and their work/mission envelope. Things like conservative water pressure to enhance runway longevity, water tank and waste containment sized for a 5-6 hr workday operating duration. The waste system is intended to dewater solids and allow removal in-field. This permits the machine to stay in the field producing instead of having to traverse the airfield for an inefficient waste handling operation.

Environmental

The AMV uses high efficiency cleaning technology that is a proven maintenance solution for environmentally driven cleaning goals. Using the AMV as a restorative or maintenance BMP can remove stormwater contributing pollution at a much higher efficiency than conventional sweeping practices. Non porous surfaces can be a collection point and a conduit for stormwater pollution. Cleaning these surfaces with high efficiency techniques can affect benchmark results at the outfall. This is possible because very fine (and potentially stormwater pollution contributing) solids can be cleaned and recovered from the surface.

Pervious Surfaces

Pervious (Asphalt, Concrete and Pavers) surfaces are technology intended to sequester pollution and keep it out of the storm water system. As a side effect, this technology also collects and sequesters solids which in turn can clog the pervious functionality to a point where it will not percolate water. Solids removal inside these pores and crevices are notoriously difficult to clean. The maintenance or restorative cleaning capability will prevent clogging and restore percolation functionality. Site maintenance can keep Pervious/Porous surfaces in top condition as a function of on going site BMP. The AMV uses cleaning technology that is proven in the municipal and institutional market place where pervious surface performance is maintained.

Runway Rubber Removal

The AMV employs several unique attributes in Runway Rubber Removal. Lower-Impact Cleaning Parameters. High pressure water can erode and damage runway surfaces. The AMV uses 8,000-15,000 PSI for maintenance friendly rubber removal. This allows for more frequent or ongoing removal operations where larger restorations are not necessary. The lower pressure cleaning parameters are intended to preserve runway integrity. As a result of the ability to clean rubber at-will, maintenance of runway CDF can produce consistent CDF over time rather than allowing it to degrade towards a large and potentially disruptive runway cleaning event. Instead of an "event", rubber removal can be routine and lower impact on runway surfaces and their operations. AMV technology incorporates several safeties that modulate and control power delivery based on forward travel speed. This technology is intended to prevent runway damage in the event of potential operator oversight. Full Width Rubber Removal and Recovery: The AMV already has a wide cleaning path. In the case of Rubber Removal, the entire 6-ft cleaning path is used. This allows for excellent productivity. Further, the process uses a very effective recovery system. This allows for single pass performance in most cases. Single pass performance in the rubber application is key to fitting in Runway Rubber maintenance within small runway availabilities. Paint Removal and Maintenance: AMV versatility ranges all the way to higher pressures suitable for airfield paint removal. Paint Removal jobs can be done with a 5-minute cleaning deck re-configuration. This means that airfield maintenance activities can vary during the day to respond to needs as they arise. Paint Removal width (12-20") can be adjusted to focus removal power specifically on the desired width. Many times paint removal activities are a function of loss-of-acuity instead of loss of paint integrity. In these cases, modular power-application can let the user "clean" paint lines to restore acuity. With a versatile tool to remove paint on demand, repainting practices can be adjusted to include paint removal or cleaning instead of building up lines to an operationally unsustainable thickness.

General Surface Cleaning

Traditionally, Rubber/Paint removal machines are large and limited to narrower cleaning path and high pressure applications. The AMV adds a high efficiency cleaning capability using patented cleaning and recovery technology. High Efficiency Cleaning. A new category of general surface cleaning is introduced. The "High Efficiency" is in reference to the particle size capability of this technology. Very small particles are now recoverable at high productivity rates. This means even sub-micron solids are now recoverable. These smaller particles are largely left behind when using conventional sweeping technology. This is important because:

- Stormwater Pollution SWP is comprised of small solids that are easily dissolved into stormwater or carried into EPA regulated stormwater outfalls. Removal of these constituents can have an effect on stormwater metrics such as TS, TSS, Oils, and even dissolved metal content such as Zinc or Copper. BMPs that include periodic high efficiency surface cleaning has been shown to reduce material that enters stormwater systems.
- Pre-Paint Cleaning. The same functionality that makes H-E cleaning environmentally relevant also can remove bond-interfering small solids from surfaces as a pre-paint activity.
- Crack and Crevice Cleaning Before Reseal. AMV recovery technology is designed not only to recover material from surfaces but from below the prevailing surface. Cracks and crevices can be thoroughly cleaned in preparation for crack seal application or seal coat application. Application can be done quickly due to the surface being dry from the recovery process.

