



MUVO

Enjoy working.





Introducing MUVO

Multifunctional vehicles in service of urban area maintenance

Municipalities, cities and utility companies around the world face the same challenge - keeping the streets and sidewalks clean during the winter as well as summer, the lawns neatly mowed and the flower beds watered. Different tools and vehicles needed for the multitude of different maintenance tasks can result in a large fleet that is expensive to operate and maintain.

RASCO's solution to this problem is the MUVO, a small multifunctional vehicle capable of performing different tasks using specialized attachments. Some of the applications MUVO can be used for are snow plowing and salt spreading, sidewalks sweeping and washing, grass mowing, watering plants and collecting municipal waste.

The attachments that enable MUVO to be used in such a wide range of applications are easy to operate, maintain and can be attached or detached from the vehicle in a matter of minutes.

Multifunctional by design, small in dimensions, equipped with a strong engine, hydrostatic drive and a uniquely designed chassis, the MUVO offers a small turning radius, a large useful payload and built-in technical solutions that make MUVO a great alternative to the numerous specialized vehicles.

Multifunctionality as an idea

One vehicle that can do everything

The original idea behind the MUVO, to build a small vehicle able of tackling different tasks, was a guiding thought from the first conceptual drawings and draft specifications to the final product. One vehicle that is suitable for different tasks and can be used all year round has to be more than a city sweeper or a winter maintenance vehicle.

The engine, the heart of any vehicle, must be strong enough to provide the needed power for a variety of attachments. The hydraulic system must be sized to transfer that power to the attachments without overheating, even in the hot summer months.

The cabin heating and cooling system must keep the operator comfortable year-round, and the attachment interfaces must enable fast changeovers within minutes. There's a lot to consider when multifunctionality is the goal. MUVO has it all.

Unparalleled comfort during the hot summer months does not decrease MUVO's performance in cold and harsh winter conditions. The high gross vehicle weight does not affect its agility, speed and maneuverability. The compact dimensions do not get in the way of quick and simple maintenance routines.



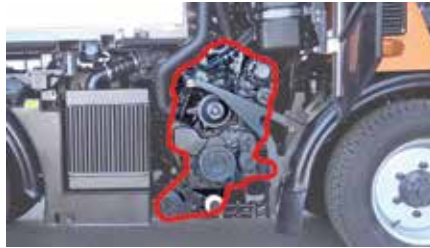
What makes MUVO different

Smart technical solutions that make the difference



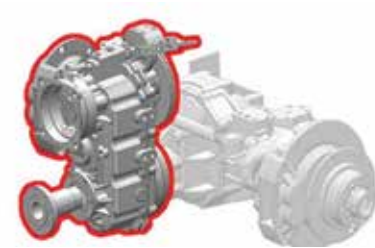
Low fuel consumption

The engine rpms are adjusted to provide optimal power for hydraulic system of the sweeper while working at the most efficient point of the engine. At maximum suction power of the SX2 sweeper attachment, the MUVO is using less than 5 liters of fuel per hour.



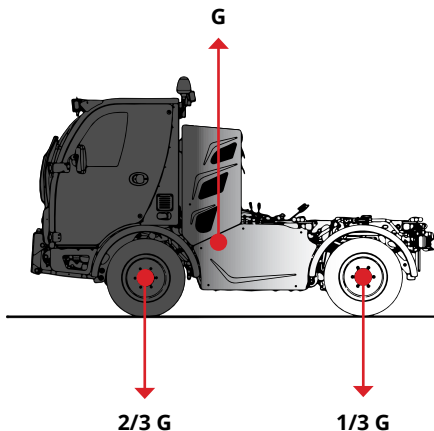
Easy to maintain

The MUVO's engine is placed vertically to the chassis. This position makes engine maintenance much easier compared to similar small multifunctional vehicles and compact sweepers.



When hydrostatic drive is not enough

Primarily a hydrostatic vehicle, the MUVO also implements a two-speed mechanical gearbox. The gearbox enables the MUVO to drive in extremely slow speeds and to easily start under full load, both on wet terrain and uphill.



Optimal load distribution

Without attachments MUVO has near-perfect weight distribution, with most weight on the front axle. When vehicle is loaded to capacity, the rear axle takes almost entire load, making load distribution almost equal on both axles, ensuring maximum stability and traction. Hence, MUVO has all the prerequisites to mount a large number of different attachments.



Winter maintenance vehicle that can also be a sweeper

Although multifunctional by design, the MUVO has a centrally placed suction hose for the sweeping attachment, implementing the same design common to the compact sweepers. Thanks to this feature the MUVO handles sweeping as well as snow clearing, deicing roads and mowing grass.



From the coldest winters to the hottest summers

The MUVO's cooling system for the engine and hydraulics prevents the vehicle from overheating, making it suitable for use in even the warmest climates. Additionally, automated reverse rotation of the fans allows the cooling system self-cleaning and helps prevent clogging.

The power of MUVO

Small but powerful

Small vehicle for large loads

With a gross vehicle weight of 5.5 t and an available useful load of over 2.8 t, the MUVO is made to carry large loads with ease. The optimal load distribution by design makes vehicle easy to steer and manoeuvre. The front and rear axles can each carry up to 2.8 t and are suspended using leaf springs. The rear differential lock and optional hydraulic stiffening of the front axle make the MUVO suitable for any application on any terrain configuration.





Engine and powertrain

The 80 kW (109 hp) EURO VI diesel engine provides all the power needed in both working and transport mode. In transport mode, the hydrostatic drive can effortlessly take MUVO to 60 km/h. In working mode, in combination with the mechanical two-step gear box, MUVO can move extremely slow if the specific application requires. The electronic speed control system ensures that the vehicle is precisely driven, reducing both the noise level and fuel consumption.

Hydraulic system to drive any attachment

MUVO's hydraulics system consists of two independent hydraulic circuits that can drive up to 3 attachments simultaneously. The first circuit provides up to 15 l/min at 180 bars and is suitable to control front attachments like snow ploughs. The second circuit provides up to 115 l/min at 280 bars that can be split to the front and rear of the vehicle or summed to power the most demanding attachments like snow blowers. All hydraulic operations are controlled using the joystick and potentiometer directly from the cabin.



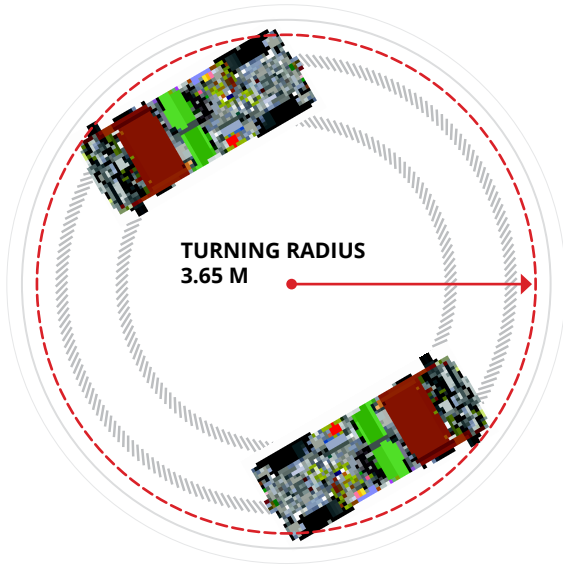
Agility in a compact package

Easy to control even when fully loaded

Steering modes

The MUVO is controlled by power steering with cylinders on both axles. This allows front-wheel steering only (in transport mode), steering with all four wheels (4WS) and diagonal steering for easier access to corners (in work mode only). The safety system implemented in the vehicle's central computer disables the use of steering modes that could make the vehicle unstable at higher speeds.





Turning radius

Easy to maneuver thanks to 4-wheel steering and crab steering for maximum agility and with a wall-to-wall turning radius of 3.65 meters.



Dimensions

The small dimensions of only 1.310 mm in width and 2.060 mm in height allow the MUVO to be used in small and tight spaces. This compact package, combined with an advanced control system and minimum turning radius, results in overall excellent maneuverability.

Inside MUVO

Designed with the user in mind

Comfort

Designed for 24/7 use, 365 days a year, the MUVO is a comfortable mobile workplace that provides the operator with convenient and easy control over the vehicle and attachments. Seating position, large glass surfaces, air conditioning, front windshield heating and sophisticated but easy to use technical solutions with a centrally located control panel allow the MUVO to be used safely and comfortably for multiple hours, even in the toughest working conditions.

Visibility

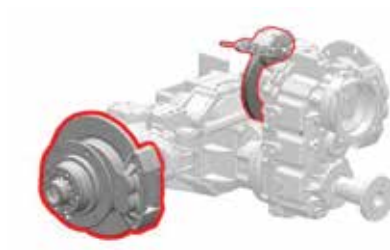
The easy access to the cabin, the large heated panoramic windshield, the all-glass door and the heated rear-view mirrors provide a good overview and a safe control of the work of the attachments in front of, above and below the cabin.

Safe to use



Safety in focus

The MUVO was specifically designed with the safety of the operator inside the vehicle in mind. The cabine itself is designed to create a protective zone around the driver, keeping him safe from injury in the event of a rollover type of accident.



Brakes

The braking system with four-wheel disks and a two-stage brake booster efficiently stops the MUVO. Braking is also assisted by the vehicle's hydrostatic drive, and the mechanical or electro-hydraulic parking brake can hold the MUVO in position even when fully loaded.



Managing speed

With a top speed of 60 km/h in transport mode, getting from one place to another is a breeze. However, with the 2-speed hydrostatic transmission, operator can switch between working (0-20 km/h) and transport (0-60 km/h) speeds under load without stopping, as well as reverse (0-20 km/h).

Attachments, key to MUVO's success

Vehicle is not complete without attachments

Attachments points

The MUVO is equipped with three attachment points for maximum multifunctionality (front lift, rear lift and attachment frame). Combined with two independent hydraulic circuits and control from the cabin the MUVO can drive up to three attachments simultaneously. It has a lifting capacity of up to 1500 kg, features a hydraulic three-way tipper and a centrally positioned extraction for a combination of sweeping and mowing suction.

Interchangeability

The fast and flexible interchangeability of attachments makes it easy to adapt to customers' preferences. Changing attachments takes only a few minutes and requires minimal effort.

Attachment types

The combination of a snow plough or snow brush with a spreader turns the MUVO into the vehicle for **winter service**. By adding a sweeper, a high-pressure washer, or a waste management attachments MUVO becomes a vehicle for **city cleaning**. For side roads or park **vegetation maintenance**, the MUVO can be equipped with a mulcher, a crane mower or a watering set. The MUVO can also perform other cleaning tasks, such as **high pressure washing**, where the compact dimensions of the vehicle are a must to reach even the narrowest streets or twisted corners of the city.





Vacuum sweeper

EUnited PM 2.5 four stars awarded SX2 vacuum sweeper attachment for MUVO turns it to the fully fledged compact vacuum sweeper that can be equipped with 2 or 3 front brushes.



Salt spreaders and brine sprayers

Solid broadcast spreaders, Liquid brine sprayer or MRP tailgate spreader are the ideal choice for de-icing and preventive spreading of urban areas, squares, sidewalks, bike paths, parking lots and other places that cannot be reached by larger winter maintenance vehicles.



Snow ploughs

Bilo single segment and Vertus G variable ploughs complement perfectly to the MUVO salt spreaders and brine sprayers and together turn the MUVO into the perfect urban winter maintenance vehicle. Bilo's easy maneuvering in tight and narrow spaces and Vertus' variable wing geometry give the MUVO snow clearing capabilities found in large winter maintenance vehicles.



Hot water high pressure washer

The MUVO with hot water high pressure washer is perfect for deep cleaning of various surfaces, such as courtyards, sidewalks, pedestrian areas and squares. The large water capacity and high water flow rate provide wide operating range and guarantee perfect results even in the case of heavy soiling.



Brushes

MKM and MKH front sweeping brushes are suitable for year-round maintenance of roads, paths, parking lots and other asphalt and concrete surfaces. Quick and easy snow removal in winter or efficient removal of soil, leaves and debris during the rest of the year.



Washers and water tanks

WBT and WBH high pressure washers are designed for thorough and quick cleaning of urban areas. As a source of water, the washer can use the container unit of the sweeper or the water tank.



Waste management

The skip loader and trash container attachment turn the MUVO into a waste management vehicle. The lifting and transporting of waste containers and the hydraulically operated emptying of trash bins make the MUVO the perfect choice for marinas, hotel complexes, campgrounds, markets and parks.



Other applications

Examples of other MUVO applications include the attachment of the KKM front boom mower with a reach of up to 4 meters for maintaining vegetation along roads as well as for hard-to-reach areas outside cities. Or the combination of water tank and front arms with irrigation head and the MUVO becomes a practical choice for watering hedges or flower beds.

ENGINE

Model	VM R754 Euro6 C turbodiesel engine with common rail direct injection and intercooler
Displacement	2970 cm ³
Power	80 kW (109 HP)
Torque	420 Nm
Fuel tank capacity	65 l

DRIVE

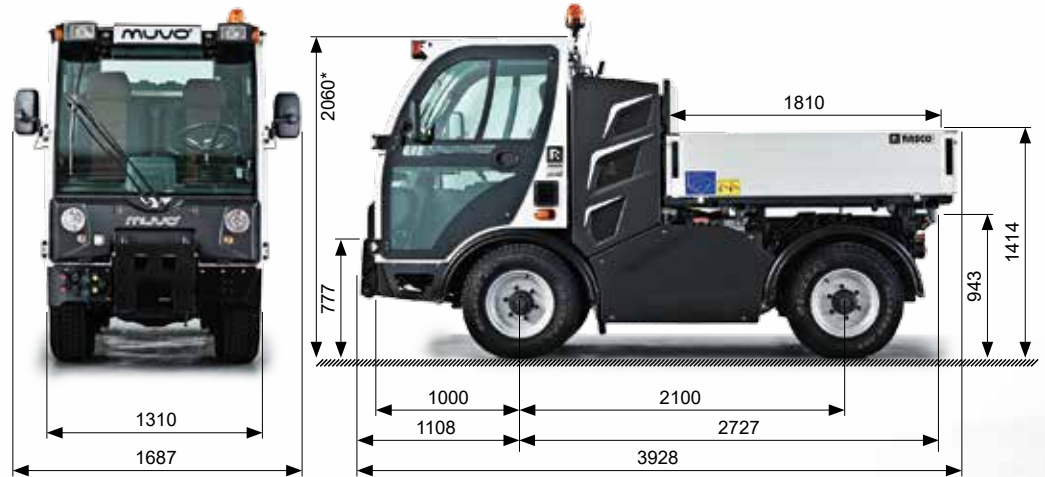
All-wheel drive	Switchable all-wheel drive Permanent all-wheel drive
Maximum speed	60 km/h (4WD)
Differential lock	Can be applied to rear axle
Brakes	Two-circuit brake system with disc brakes on all four wheels
Climbing capacity	Up to 40%

HYDRAULICS

Hydraulic pump	up to 115 l/min
Front attachment plate	1500 kg lifting force
Auxiliary control valves	3 x double-acting front 2 x double-acting rear 1 x single-acting rear

WEIGHTS

Empty weight	2790 kg (depending on equipment)
Permissible total weight	5500 kg
Permissible axle load	2800 kg
Tow bar load on the trailer coupling	150 kg
Towing capacity	overrun braked 3500 kg
Maximum payload	2810 kg (depending on equipment)




Dimensions are shown in mm.
*Depends on mounted attachment/s.







**More than products.
A partnership.**


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