



More than products. A partnership.

# SOLID

Spreader for all working conditions

Spreaders for dry, wet and liquid spreading with dry agent tank capacities of 0.6 to 12 m<sup>3</sup>, and liquid agent tank capacities of 1000 to 9840 L are the perfect choice if the same vehicle is used for road maintenance in different weather conditions.

The choice of one of the five offered transport systems, robust design and advanced control systems guarantee maximum efficiency of your investment.





# Ready for spreading in all winter conditions

Regardless of whether you are working in conditions of strong snow blizzards or mild winters, if you are clearing wide highways or narrow pedestrian crossings, using wet sand or fine salt as a spreading agent, and mounting the spreader on a truck or a small multifunctional vehicle: the SOLID family of spreaders is our answer to all your requirements with regard to a professional spreader. Strong and durable spreaders that have proven their reliability in the harshest winter conditions around the world will readily face any challenge of your winter service.

The SOLID family of spreaders is intended for spreading using dry, wet and liquid agents. The five available types of conveyor systems guarantee optimal spreading results regardless of the type and quality of spreading agents. Beside solid spreading agents, a pre-wetting system can also be installed on SOLID spreaders, which gives them the option to mix the dry agent and the chloride solution. Also, the spreader has the option of liquid spreading using the spinner or specially designed ramp with nozzles. Wet spreading enables faster defrosting of traffic areas and reduces the consumption of dry spreading material. A reduced consumption of salt further reduces the overall winter service operational costs, and has a positive effect on the environment. Dosage of the spreading agent and all other functions and work parameters of the spreader are controlled electronically from the vehicle cabin by simple and intuitive control units.

The spreader can be mounted on any vehicle intended for winter maintenance, from multifunctional and light commercial vehicles to tractors and trucks. The mounting and de-mounting from a vehicle is very simple due to a wide selection of mounting mechanisms adapted to any vehicle. The spreader can be powered via the hydraulic system installed on the vehicle, a diesel-hydraulic power unit or the fifth wheel.

SOLID spreaders are designed as machines with low maintenance requirements. A simple procedure of preventive maintenance recommended prior to the beginning of the winter season enables the spreader to work continuously for months without the need for any service interventions. Key components of the spreader which have the most contact with salt, such as the spreader's bottom, chute exit and distribution spinner, are created from stainless steel, which in combination with quality anti-abrasion and anti-corrosion surface protection guarantees a long lifespan of the device even in extreme working conditions.

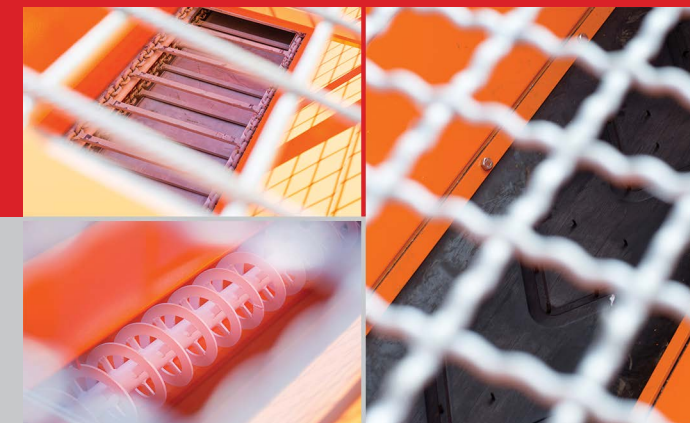
The possibilities of the SOLID spreader do not end here. Upon request, SOLID can be equipped with a liquid spreading system for two different types of liquid agents, automatic lifting of the exit chute, tanks that increase the available quantity of liquid agent instead of a dry agent, two spinners for spreading two different materials or with a *slurry* system for spreading a mixture of coarse salt and water. The SOLID spreader family offers solutions for any challenge of winter road maintenance



✓ Ready for any requirement of the winter service

The SOLID family of spreaders is the perfect choice for winter maintenance regardless of road type, weather conditions and type of spreading material.

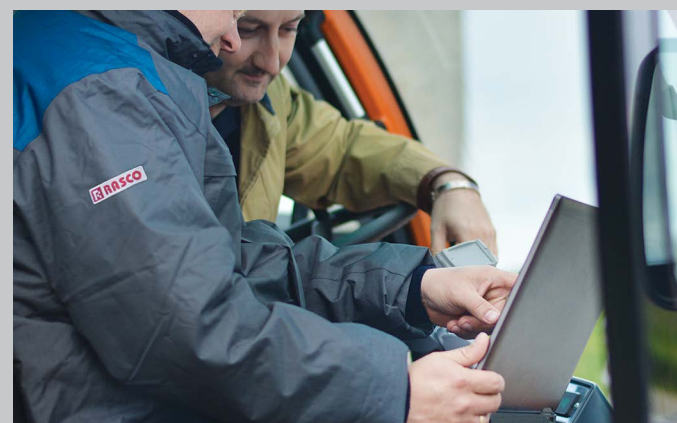
The spreader is configured depending on vehicle size and type of drive, in accordance with the characteristics of the spreading material used.



✓ Wide choice of conveyor systems

SOLID spreaders are available with conveyor system for dry agents in the form of a steel chain, steel chain with closed bottom, auger conveyor, double auger conveyor, or belt conveyor.

They can also be equipped with a pre-wetting system, which enables faster defrosting of traffic areas and reduces consumption of dry spreading material.



✓ Lowest total cost of ownership

The unique surface protection system, ease of use and maintenance, robust design, high-quality materials, and hydraulic components produced by renowned manufacturers guarantee safe investment in the SOLID spreaders.

Proven durability, safety, efficiency, simplicity, and availability of service parts and post-sales support guarantee the lowest total cost of ownership of a spreader currently available on the market.



✓ Proven quality and reliability

Experience from over 40 markets and five continents where RASCO operates is built in every spreader.

The quality, robustness and reliability of RASCO spreaders has been proven on virtually all European roads, from the Arctic Circle over sunny Spain to the hardest winter conditions in Scandinavian countries and Germany.



## 1 | Transport system

Constructed in the form of an auger, double auger, chain, or chain with a lowered bottom, allowing use of any available materials for dry spreading. Membrane pumps with a total capacity of 100 to 600 litres per minute are used for liquid spreading.

## 2 | Distribution system

More designs are available depending on the technology of spreading. Chute exit and spinner are used for dry and wet spreading. For liquid spreading, a ramp with nozzles is used. Both systems enable uniform application of material over the entire spreading width. The SOLID spreader allows the selection of the liquid content in the spreading material from 0% up to 100%.

## 3 | Monitoring use of the spreader

As a part of the integrated monitoring system of the spreader's operation and vehicle movement, it enables simple and efficient control of the winter service fleet vehicles. It optimizes the quantity of used spreading material and reduces fuel consumption.

## 4 | Safety fences

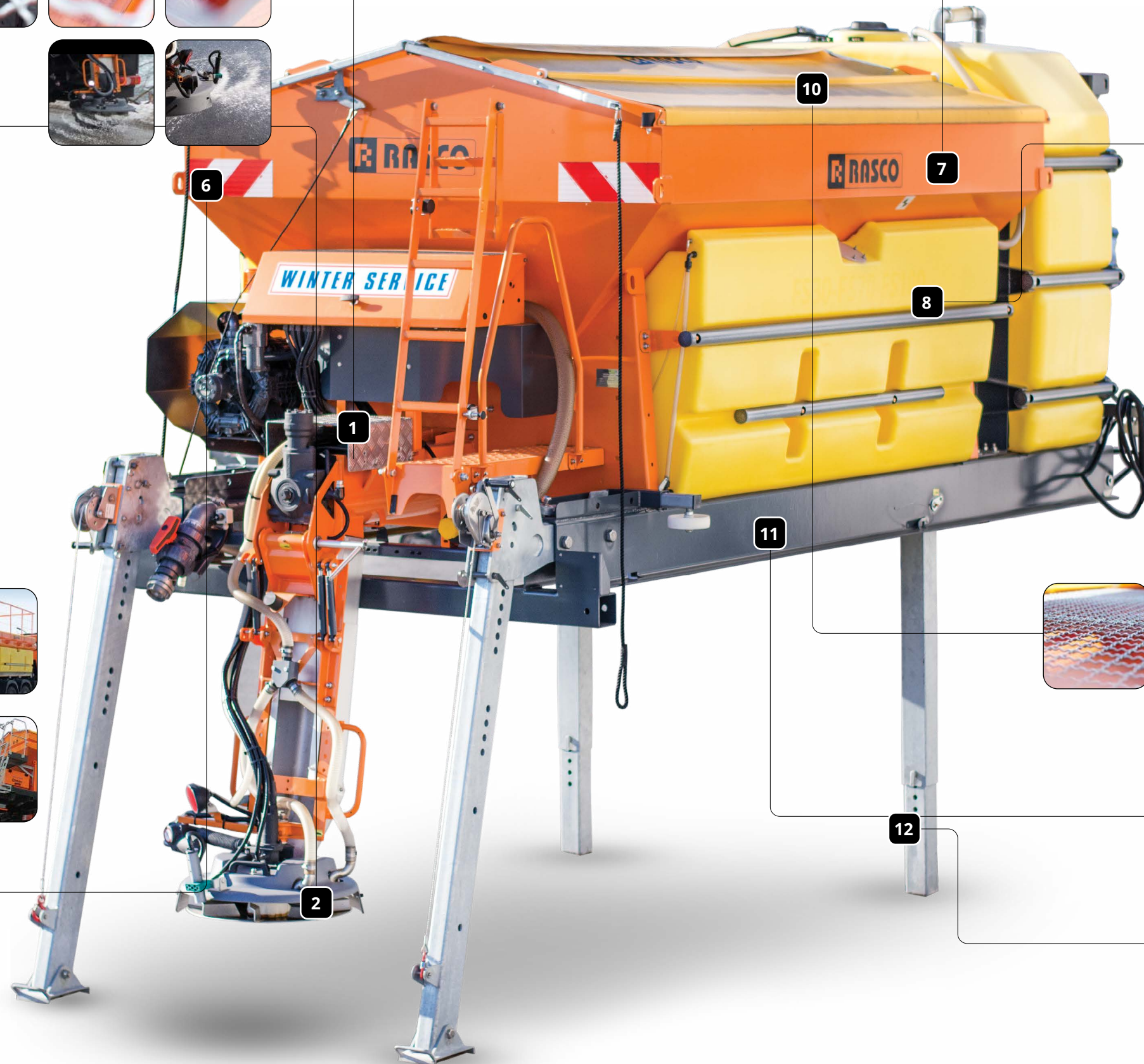
Provide safety for the operator when moving on the spreader top.

## 5 | Rear and front platforms

Designed for easier access to the rear or front side of the spreader, recommended in case of fixed mounting of the spreader.

## 6 | Traffic signalisation

Installed according to legal regulations in force in the country of use. Reflective labels, rotating lights and illuminated signs ensure good visibility of the spreader and vehicle in all weather conditions.



## 7 | Dry agent tank

Constructed and manufactured in a way that prevents the adherence of spreading material to the spreader's walls, eliminates the tunnel effect and ensures a continuous flow of material toward the distribution system.

## 8 | Liquid agent tanks

Mounted on the side and/or front. Filled with a previously prepared solution of chloride (NaCl, MgCl<sub>2</sub>), urea or eco-friendly agents for liquid spreading, which are mixed with a dry agent in the case of wet spreading, or sprayed directly onto the surface in case of liquid spreading. Liquid agent tanks with a selection of volumes ranging from 300 to 3680 L can be installed on the sides of SOLID spreader on request.

## 9 | Control units

Ergonomically shaped and simple to use, EPOS control units enable the control of spreading parameters from the vehicle cabin without the need to look away from the road or distracting the driver while driving.

## 10 | Spreader's safety grid and cover

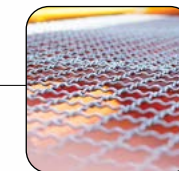
The safety grid protects the spreader from damage when the spreading material is being added, while the cover prevents the material in the dry agent hopper from becoming wet.

## 11 | Vehicle mounting system

Depending on the vehicle onto which the spreader is mounted. Enables quick mounting and de-mounting from the vehicle.

## 12 | Storage outside the season

Storage of spreaders outside the season is made easier with the use of storage legs for storing an empty or a full spreader.





# Equip the SOLID spreader with transport system that suits you best

The SOLID spreader can be equipped with one of the five transport systems for materials for dry spreading. The choice of a transport system depends on the material used for dry spreading and your preferences.

## Chain transport system

SOLID L is especially designed for work with the most demanding materials for dry spreading, such as wet and adhesive sand with a high percentage of clay, coarse sea salt or a mixture of different materials.

High reliability and efficiency of the spreader is guaranteed by a strong chain transport system which prevents the formation of a tunnel effect, regardless of the quality of spreading agents.



## Chain with lowered bottom

SOLID LLB is a patented chain transport system and represents a unique solution which combines the best characteristics of every known transport system.

The main advantage of this system is the prevention of falling out of the spreading material into the box or on the vehicle chassis, providing simultaneous robustness and reliability of the steel chain transport system.

This transport system ensures uniform emptying of the spreader and continuous fragmentation of the material for dry spreading before it is delivered to the distribution system.



## Auger transport system

SOLID X is the best choice for spreading with materials such as fine salt with a low moisture content or stone granules. Precision and efficiency of work with SOLID X is enabled by an auger transport system. The system has a built-in fragmentation mechanism which prevents the passage of larger lumps of material for dry spreading onto the spinner.



## Belt transport system

The SOLID T spreader is intended for spreading with dry materials with low or moderate humidity. Reliability of spreading with more demanding materials using the SOLID T spreader is guaranteed by a rubber belt transport system used for supplying the material. The shape of the belt prevents adhesion of the material, and a part of the system is also equipped with a fragmentation system for the spreading material.



## Double auger transport system

SOLID XX is the best choice for spreading with materials such as fine salt with low moisture content and stone granules. It uses two auger conveyors as a transport system, which minimize the possibility of a tunnel effect.



## MATERIALS FOR DRY AND WET SPREADING

### From wet sand to fine salt: SOLID can work with anything

The choice of material for dry spreading depends on weather conditions, user preferences and legal regulations for road maintenance. The most commonly used materials for dry spreading are salt of different grain size and moisture content, rock salt, sand and stone granulate or a mixture of these materials. Although salt is the most commonly used material for dry spreading, at low temperatures when spreading salt no longer gives the desired results, the final resort are sand and stone granulate. Sand is often wet, sometimes with a high percentage of clay. Ensuring efficient spreading using such materials and respecting the required parameters can be a challenge for any spreader.

When salt is used as the spreading material, wet spreading achieved by mixing salt and a water solution of salt enhances and accelerates de-icing of roads. Wet salt adheres to road surface more easily, and its action is accelerated and prolonged.

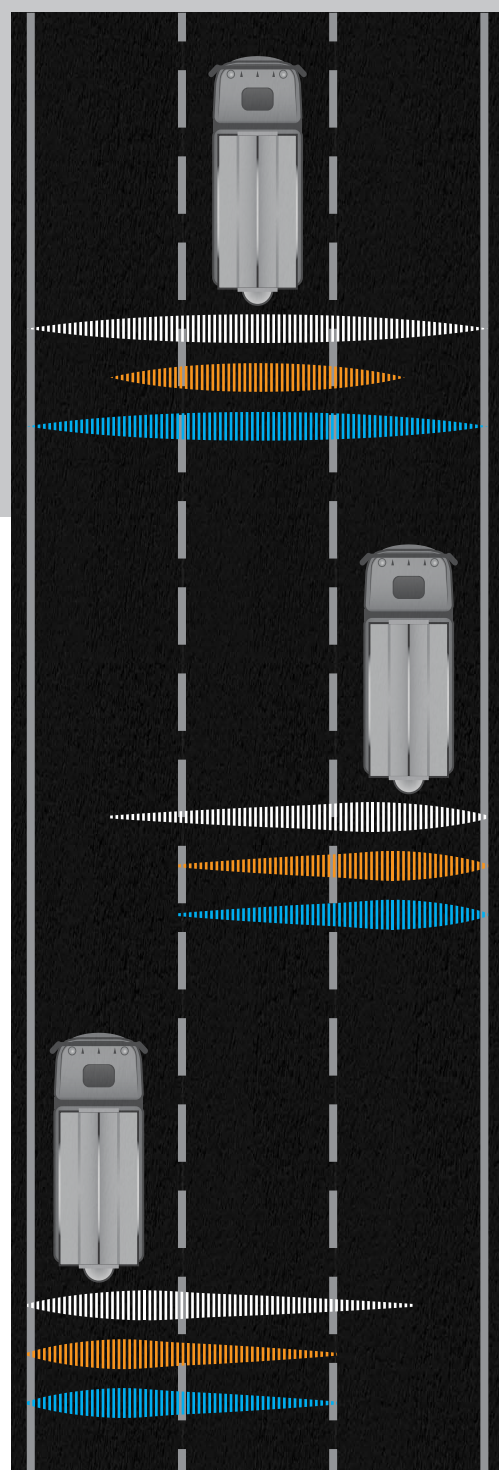
SOLID spreaders have been developed by taking into consideration the properties of all materials for dry and wet spreading. The five available transport systems for SOLID spreaders guarantee that a properly configured spreader will work in accordance with the expectations and preferences characteristic of a certain market.





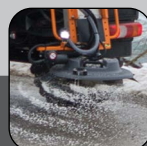
# Two systems for efficient distribution of spreading material

Every SOLID C spreader is equipped with a spinner for dry and wet spreading. Liquid spreading is possible by spraying liquid using the spinner or using a specially designed ramp with nozzles. Every parameter of spreading is controlled via the intuitive EPOS control unit located in the vehicle cabin.



USING THE SPINNER

### Dry and wet spreading



The spinner offers the possibility of spreading dry or wet agents in ranges of 2–9 or 3–12 meters. The spinner can be ordered in the standard or reinforced version which is recommended for use with abrasive materials such as sand or stone granulate.

A version of the spreader with two spinners, front and rear, is also available, where the front one is located between the axles on the vehicle chassis and is used for spreading directly under the wheels of the vehicle in difficult weather conditions, when the vehicle is going uphill/downhill or through bends.



### Liquid spreading using the spinner

A special version of the SOLID spreader offers the option of equipping the spinner for dry and wet spreading with additional nozzles which enable liquid spreading with a maximum width of 8 meters. For users who do not require liquid spreading of three traffic lanes in a single go, it represents a very efficient solution for liquid spreading.



USING THE RAMP WITH NOZZLES

### Liquid spreading using the ramp with nozzles

When liquid spreading with a width of up to 12 meters is required, the SOLID spreader can be equipped with an additional ramp with nozzles. Using this solution, it is possible to cover three traffic lanes in a single go.

The nozzles can be turned off individually, which expands or narrows the spreading width at intervals of 1 meter, or in groups, with one group covering the width of a single traffic lane.

# Solution for vehicles with and without builtin hydraulic system



### Vehicles with built-in hydraulic system

SOLID spreaders can be powered using a built-in hydraulic system of the vehicle if it is designed according to the EN ISO 15431 standard.

If the hydraulic system of the vehicle is equipped with Load Sensing, the spreader must be equipped with a compatible hydraulic installation that is available as an option.



### Vehicles without built-in hydraulic system

If the vehicle is not equipped with a hydraulic system, the SOLID C spreader can be powered using the highly reliable diesel-hydraulic power unit which is available as an option with the spreader. With this solution, the spreader becomes independent of the vehicle and can be easily and quickly moved to any carrier vehicle of sufficient capacity. In a particular edition, the dieselhydraulic power unit mounted on the spreader can be used to power the front or side plough.



### Fifth wheel drive

A solution intended for vehicles without a built-in hydraulic system. The system consists of a wheel installed directly on the spreader and a hydraulic pump.

When driving, the fifth wheel drives the hydraulics that enable the spreader to operate.



### OrbiDrive

It enables the operation of the spreader through a mechanism that is installed on the rear wheel of the vehicle and drives the hydraulic pump, if the vehicle does not have the necessary hydraulics.



# Two systems for efficient distribution of spreading material

Every SOLID C spreader is equipped with a spinner for dry and wet spreading. Liquid spreading is possible by spraying liquid using the spinner or using a specially designed ramp with nozzles. Every parameter of spreading is controlled via the intuitive EPOS control unit located in the vehicle cabin.



Mounting on tipper box



Mounting directly on vehicle chassis



Mounting on tipper box balls



Mounting on trailers



Mounting on the saddle of the vehicle



Mounting on skip loader vehicles



Mounting on vehicles equipped with a hooklift system

### RASCAL spreader safety

Mounting the spreader on vehicles is performed according to strict safety standards and recommendations of the vehicle manufacturer.

The spreaders can be quickly and easily mounted or de-mounted from vehicles.

Multiple safety elements protect the user during spreader operation and maintenance.

Spreaders are marked with light and reflective markings that ensure visibility of the winter service vehicle regardless of weather conditions.



# Intuitive and advanced control units for maximum efficiency

The work of all RASCAL spreaders is controlled by EPOS control units. Their dedicated development by RASCAL experts in cooperation with the users makes EPOS control units a leading solution for spreading control and monitoring. The EPOS family of control units is the result of the knowledge and experience gathered in over 40 markets where RASCAL operates. The result is intuitive control units, easy to use, designed for controlling the spreader without taking your eyes off the road.

SOLID spreaders can be controlled with EPOS 5, 10 and EPOS 30 control units. EPOS 10 enables control of all spreader functions, and EPOS 30 adds the option of wireless connectivity, GPS automatic spreading, navigation, and front and side snow plough control.

High reliability of compliance with the set spreading parameters is achieved by using a feedback system from the actuators of the spreader. The system of simple and fast calibration of the spreader ensures the precision of spreading by using different spreading materials.



### Geolocation and navigation in the service of winter road maintenance

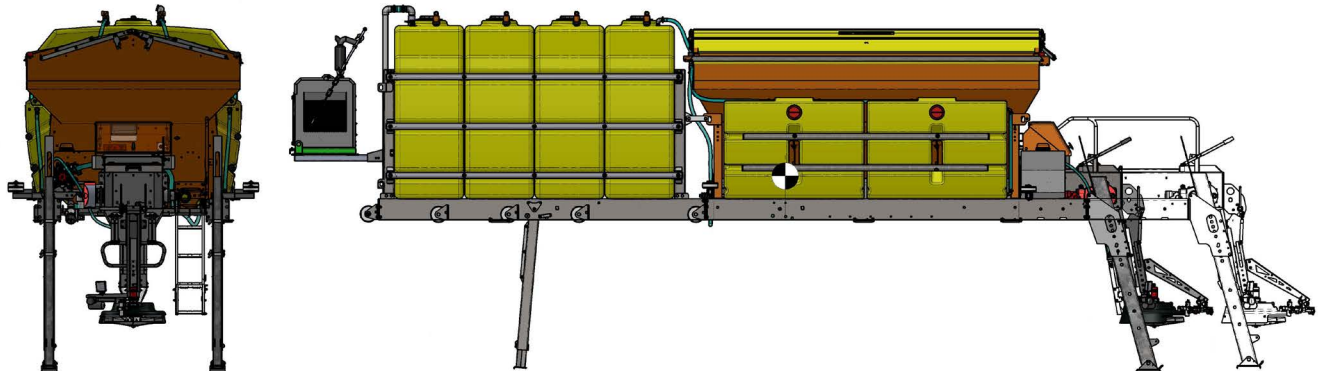


Geolocation of vehicles and navigation are standard functionalities that are used primarily for easier and faster navigation on the roads.

They can be used in the winter road maintenance service for faster, easier and more reliable maintenance of smooth traffic flow. Record the routes used by winter road maintenance vehicles once. Add spreading parameters to segments of recorded routes. After that, the winter road maintenance drivers must only follow the instructions of the navigation system, and adjusting of the spreading parameters is fully left to the EPOS 30 control unit according to the pre-set parameters.

|   | EPOS | 5 | 10 | 30 |
|---|------|---|----|----|
| Control of spreading quantity and width                                       | •    | • | •  | •  |
| Dry spreading   | •    | • | •  | •  |
| Wet spreading   | •    | • | •  | •  |
| Liquid spreading  | •    | • | •  | •  |
| Travel-dependant spreading  | •    | • | •  | •  |
| Adjustment of the spreading pattern asymmetry                                 |      |   | •  | •  |
| Spreading control using feedback connections                                  | •    | • | •  | •  |
| Thermal camera  |      |   | •  | •  |
| Automatic spreading using GPS location and predefined routes                  |      |   |    | •  |
| Online & offline maps   |      |   |    | •  |
| Connectivity via Bluetooth and Wi-Fi  |      |   |    | •  |
| Compatibility with additional control units (e.g. for front/side snow plough) |      |   |    | •  |

## TECHNICAL CHARACTERISTICS



| Model                            | Dry agent hopper | Liquid agent tanks capacity | Conveyor system   |
|----------------------------------|------------------|-----------------------------|---|
|                                  | m <sup>3</sup>   | L                           |   |
| <b>For small vehicles</b>        |                  |                             |   |
| SOLID XG 1200                    | 0,6 - 0,8        | 300                         | Auger   |
| SOLID XG 1600                    | 0,8 - 1,2        | 400                         |   |
| SOLID XG 2000                    | 1,0 - 1,5        | 500                         |   |
| SOLID TG 0.85                    | 0,85             | 480                         | Belt  |
| SOLID TG 1.0                     | 1,0              |                             |   |
| SOLID TG 1.2                     | 1,2              |                             |   |
| SOLID TG 1.5                     | 1,5              |                             |   |
| <b>For medium-sized vehicles</b> |                  |                             |   |
| SOLID X 1.7                      | 1,7              | 840                         | Auger   |
| SOLID X 2.0                      | 2,0              | 800                         |   |
| SOLID X 2.5                      | 2,5              | 1000                        |   |
| SOLID X 3.0                      | 3,0              | 1200                        |   |
| SOLID T / L 3.0                  | 3,0              | 1240                        | Belt / Chain  |
| <b>For Unimog</b>                |                  |                             |   |
| SOLID XF / XDF 1.8               | 1,8              | 1120                        | Double auger  |
| SOLID XF / XDF 2.2               | 2,2              |                             |   |
| SOLID XF / XDF 2.5               | 2,5              |                             |   |
| SOLID XF / XDF 2.8               | 2,8              |                             |   |
| <b>For large vehicles</b>        |                  |                             |   |
| SOLID 2800                       | 3,0 - 4,0        | 1500                        | Auger<br>Double auger (single or dual-chamber spreader)<br>Belt<br>Chain<br>Chain with lowered bottom (LLB) |
| SOLID 3500                       | 4,0 - 7,0        | 1840                        |   |
| SOLID 4000                       | 5,0 - 7,0        | 2400                        |   |
| SOLID 4500                       | 6,0 - 9,0        | 2700                        |   |
| SOLID 5000                       | 6,0 - 9,0        | 3000                        |   |
| SOLID 5800                       | 8,0 - 12,0       | 3680                        |   |

## CHOICE OF SPREADER EQUIPMENT

- Cover grids and tarpaulins
- Edge protection from filling up
- Safety fences
- Access platforms
- Spinner up to 6, 9 or 12 m
- Variety of mounting options
- Storage legs
- Control units, sensors, cameras and motors for automation of the spreader
- ARMS system
- Multiple spreader power system options
- Work lights and rotating lights
- Graphic markings
- Colour by customer's choice



**RASCO d.o.o.**  
Kolodvorska 120b  
HR - 48361 Kalinovac  
CROATIA



+385 48 883 112



rasco@rasco.hr



RascoCompany



Rasco\_company



RascoTV



RASCO d.o.o.