



Winter Maintenance Equipments

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ABOUT US

As human needs are rising by learning and adapting the rapid developments in technology, the expectation from the machines increases as well.

Local authorities' duties are getting hard to meet the expectations those has been undertaking the responsibility for serving a better environment to citizens.

Our greatest passion as Witerna is to produce highly efficient Machinery with the maximum benefit level. We desire human life to be more liveable and have higher living standards with our machines.

We spend our full energy to produce the more usefull, more efficient machines with higher quality. Our extensive experience in the sector has been taking root with each produced machine by Witerna Brand for almost 10 years.

Our brand journey, started as TDI Engineering is surviving as Witerna in Vehicle Mounted Machinery Sector with thousands of machines on roads of both local and global markets. Witerna is the new name of a brand that is;

- followed with its added value to the sector
- trusted with its quality production philosophy
- innovative with using advanced technology
- problem solver with alternative perspective
- young, dynamic and outstanding sense of management

Witerna is the nova of the Turkish Machinery Sector with 100 % national capital, with a years of experience having a partnership structure all consisting from engineers.

Witerna, as an experienced manufacturer of Vehicle Mounted Machinery, has always been searching and investing in the advanced technology to produce its machines in World class. Witerna is paying attention to its customers and generating new ideas by blending them with its experience.

Witerna has a solution oriented production policy rather than focusing into the problems along with its founding partners who have been actively spending hours in every stage of production with a creative and outstanding perspective.

Witerna has been manufacturing Winter Maintenance Equipments. Along with the production of Salt Spreaders and Snow Plows, Witerna has also been sharing its experience and know-how with esteemed partners in many different engineering needed projects.

Our brand journey, started as TDI Engineering is surviving as Witerna in Vehicle Mounted Machinery Sector with thousands of machines on roads of both local and global markets.





WINTER MAINTENANCE

Snowing and icing causes loss of life and property in terms of traffic navigation and safety on highways in Winter time. These kind of problems occurred because the precautions were not taken are untenable for the modern age people.

Public bodies and local administrations have been performing 7/24 Winter programme operations for their citizens to have safe and comfortable travel in winter times.

Winter Maintenance is to prevent the snow on the road, to remove the snow from the road, de-icing and anti-skidding activities. Winter Maintenance Operations is to be planned professionally with expert business partners considering the speed and quality of the expected service and high costs.

Our priority is to provide the benefit and efficiency of our Winter Maintenance Equipments to reach to maximum levels. Our production process is based on this mentality from the Project stage to delivery. We care about the safety and the comfort of people such as an employee on the way of his work, an ambulance driver struggling to reach to patient on time and many others on the roads in winter time. We work hard to produce heavy duty machines working under hard conditions for years and to use our national sources efficiently. That is because we have been searching, developing solutions and producing the higher quality, more efficient and long lasting machines with our challenging spirit.

Witerna Winter Maintenance Equipments are divided into 2 groups as Salt Spreaders and Snow Plows. And there are several and variable models in different capacities changing due to vehicle and road conditions.

WITERNA SALT SPREADERS AND SNOW PLOWS

Your partner for hard conditions

Salt Spreaders and Snow Plows are used to de-icing and snow removal on the roads in winter. Salt spreaders are being used to spread salt, aggregate and liquid de-icing material on the roads. It is a must to spread the de-icing materials effectively and properly to the unit area for salt spreaders to work more efficient. When the de-icing material is being mixed, the physical structure of the roads, temperature and the width of spreading area should be considered intently. The other important factor affecting the efficiency besides mixture is the quality of the salt spreader and its components which has to be durable enough to work long time under hard winter conditions.

Witerna Salt Spreaders and Snow Plows are being designed and tested at every stage under hardest conditions with an advanced engineering. All machines are being programmed for an ease of use for the operator to provide maximum efficiency by using minimum spreading material and cause minimum fault without decreasing the efficiency.

Because the working environment has hard conditions, it is important to use high quality hydraulic components and high strength mechanical components to reduce the failure possibilities and provide long-term usage.

Witerna has a wide range of Salt Spreaders and Snow Plows to be mounted to variable carrying vehicles, able to work at any kind of environment and climate conditions.

Witerna, with its continuous studies and engineering experience, has been offering tailor-made solutions for different specific projects, besides its standardized models of production.



EFFICIENCY

More And More...Witerna

Witerna products always assures more efficiency beyond expectations, against its competitors. Advanced engineering know-how and long term experience brings Witerna products into an irreplaceable fellow friend to the winter operators who has been fighting with snow. Because every single product is put on the table even before designing to achieve the best possible quality and efficient product by Witerna Engineers.

Witerna Salt Spreaders are designed to increase the efficiency of the product with a spreading unit providing homogen de-icing material spreading; THERMOWit system providing an instant spreading adjustment by measuring the changing weather conditions and temperature continuously; durable hydraulic and mechanical components; control panel designed for ease of use. "Modular Hopper" designed by Witerna engineers enables to increase or decrease the hopper capacity in case of a change of carrying vehicle. As it enables to add mid-size hoppers, the vehicle's carrying capacity is used more efficiently.



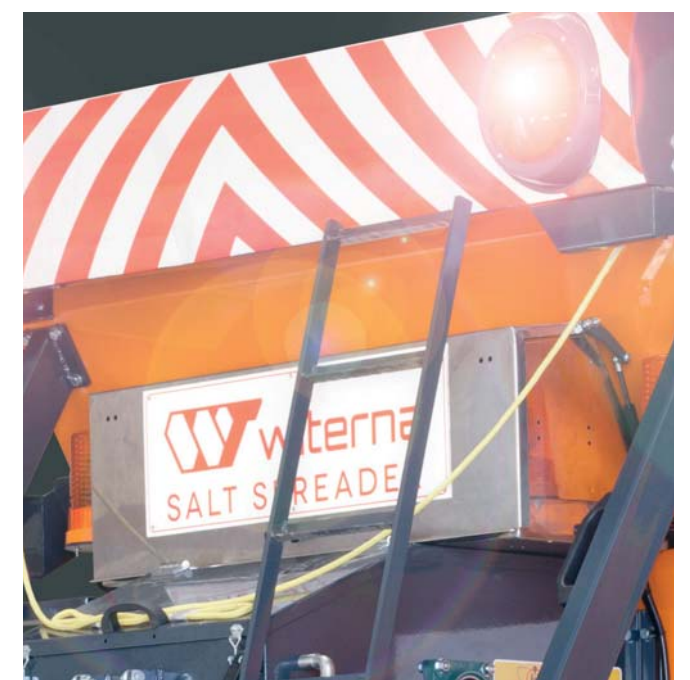
SAFETY

Safer, Trusted...Witerna

Winter Maintenance Equipments carries safety hazard because of the climate and operating environment conditions. These machines are pioneering to brunt the danger and troubles for the other vehicles on a closed road because of snow. Vehicle and road safety is the top issue Witerna engineers put excessive emphasis on. The life and property safety of the moving vehicle's drivers is provided by practising world class safety standards at every stage of Witerna production.

The possible risks in and during operation of the vehicle are minimized in order to provide the safety of the operators. The physical conditions where the vehicles are going to be operated and the equipments to be mounted on the vehicles are evaluated through many different disciplines of engineering science and are subjected to sensitive measurements. The needed revisions are applied to the machines if safety risks are noticed.

All signalisation and warning labels provides the vehicle to be easily seen during operation under any weather conditions are installed on the vehicle due to World standards and the possible road safety risks are removed.



LONG-LASTING USE

Durable...Witerna

Quality is a must of production mentality of Witerna. Witerna has a quality based management policy from administration to production.

Witerna uses banner class hydraulic, electrical and mechanical components and does not prefer to use ready shape profiles which shortens the life and decreases the quality of the machines. Witerna objects to see its machines to be operated for long years on roads without any problems. Painting quality is one of the top important issues for these kind of machines those have been exposed to heavy weather conditions. Witerna, increases the machines durability against corrosion by painting its machines body with double acrylic coated over primer epoxy.



WIDE RANGE OF PRODUCTS

For Endless Solutions...Witerna

Witerna has blended its advanced engineering know-how and long-term experience to serve a wide product range to its customers. It has a wide and variable combination of products with the solutions achieved for various kind of vehicles and climate conditions. From 0,2 m³ to 11 m³, 250 L to 6.500 L standardized Salt spreaders and from 1,6m to 4 m Snow Plows, it is offering various capacities and dimensions.

Witerna has been offering innovative solutions for different needs rather than its standard product range with the synthesis of its experience and know how as well.



EASE OF USE

User Friendly...Witerna

Witerna products has coherent, user friendly and simple design. It is designed in order to save time and labour considering the hard operating conditions to the operators. Witerna products offers solutions from design to delivery to ease the usage and increase the efficiency.

The control panels are designed to be easily used by any operator having any technical level. It is planned to be operated by any operator trained or not in case of an emergency. Control panels have a usage advantage with various language options.

Because of its ergonomic structure it is very easy to mount or demount the Salt Spreaders to the carrying vehicle.

With its universal chasis design, it has the advantage to be mounted to any kind of tippers. The easiness of mounting and demounting is also because of the bolt connection at the movable parts.

Witerna Winter Maintenance Equipments is constructed on a minimal design mentality. Easy and efficiently used equipments saves from time, labour and various costs.



AFTER SALES SERVICES

Always by Your Side...Witerna

Witerna is a level raised brand due to its After Sales Services quality policy. Its solution partnership starts with the sales, survives during the years of equipments usage. Both the customer claims and satisfactions are regularly recorded, reviewed in order to improve the processes and followed until providing %100 satisfaction.

All vehicle operators are being trained before delivery in order to increase the usage efficiency by its expert engineers. Witerna branded products are supported by a big corporate power throughout their life. Our service friendly after- sales team has been running all around country for the best Maintenance and repair service experience. Witerna has a fast and quality after sales service and spare parts supply.





PRODUCTS
SPREADERS
SNOW PLOWS



HOPPER

The modular designed hopper enables to increase or decrease the capacity of the hopper in case of the carrying vehicle and its tonnage changes. The hopper shall be produced from stainless steel or carbon steel optionally.

The durability of the hopper is increased against corrosion by painting with double acrylic coated over primer epoxy.



CONVEYOR

Helix carrying system is used in the machines with the capacity of 0,5m³ to 2 m³ and chain palette system is used for the capacities bigger than 2m³.

The salt amount to be spreaded to the unit sqm of the road at automatic spreading is independently controlled from the vehicle's speed by in-cab control panel.



SPREADING UNIT

Salt- Aggregate Spinner: Spinner (Spreading Table) shall be produced from stainless steel or polyurethane optionally. A homogen spreading to right, left or center between 1-12m is provided by the in-cab control panel.

Spray Bar (Liquid De-icing Spraying Nozzles): The nozzle spraying system is located at the rear of the machine. Homogen liquid amount at any width is sprayed to right, left or the center of the road, independently from the vehicle's speed by the in-cab control panel.



THERMOWit- INFRARED SYSTEM (Ground Temperature Dependent Spreading)

ThermoWit – Infrared System is automatically adjusting the mixture amount to be spreaded due to previously created data base and instant temperature measurements by measuring the ground temperature of the road periodically. It provides the advantages of efficient de-icing material usage, cost effectiveness and the standard road safety due to instant temperature changes on the roads.



TRAFFIC SIGNALISATION & LIGHTING

Salt spreader is standardly donated with all needed signalisation system in order to provide the safety and general traffic flow while it is operated. First quality signals and stickers are used in order to make the vehicle to be clearly seen and lighten its environment.

HYDRAULIC DRIVE

The needed Hydraulic Drive for the Salt Spreader is supplied in 3 different ways:

- Auxiliary Engine
- Engine Driven PTO
- Truck Hydraulics



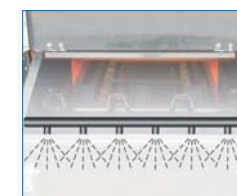
PARKING LEGS

All the spreaders have carrying legs providing safe loading, unloading and parking. It also saves from time during mounting and de-mounting.



PRE-WETTING SYSTEM

There are special changable and variable capacity polyethylene tanks besides Salt Spreaders. They are filled with liquid de-icing material which enables the dry salt to be sticked to the ground especially under windy weather conditions and it increases the efficiency of the de-icing operation.

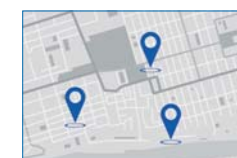


CONTROL PANEL

The control panel located inside the driver's cab, provides an uninterrupted and rapid communication with the spreader. It is easily understandable and usable by the operators with its user-friendly designed menu. Spreading material is controlled vehicle speed independently from the driver's cab.

GPS / GPRS SYSTEM

Trackable operation System provides the advantages of the instant follow-up of the vehicle, controlling the current location and sharing the reaching time info with the operation center to the operation area.





Salt Terna Spreader prevents the icing on the roads by spreading the salt, aggregate and liquid de-icing material inside its hopper and liquid tanks to the roads in winter.

The top important issue for de-icing is to spread the mixture to the unit sqm of the roads at preferred density, amount and width in order to succeed at Winter Maintenance operations due to changing road and weather conditions.

Salt Terna Spreaders have a hydraulic circuit composed of high quality hydraulic components, an electronic control panel controlling this circuit and a heavy strength mechanical structure that enables the machine to work properly under hard road and climate conditions.

Salt Terna Spreaders Hoppers are produced from Stainless Steel or Carbon Steel, optionally.

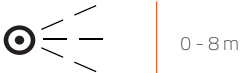
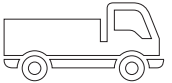
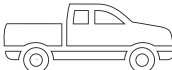
Salt Terna Spreaders are standardly mounted to any kind of tipper with its "Modular Hopper " which enables to increase or decrease the hopper capacity in case of a change of carrying vehicle. As it enables to add mid-size hoppers, the vehicle's carrying capacity is used more efficiently.

SALT-TERNA						
		X SMALL	SMALL	MEDIUM	LARGE	X LARGE
Hopper Capacity		0,2 - 0,5 m³	0,5 - 2 m³	3 - 6 m³	7 - 8 m³	8 - 11 m³
Liquid Tank Capacity		500 L	500-1000L	1500 L+2000 L	2500 L+2000 L	2500 L+2000 L
Spreading Width		0-8 m		0-12 m		
Dosage	Salt	5-40 gr/m²				
	Salt & Aggregate Mixture	30-240 gr/m²				
Carrying Vehicle		Light Truck	Light Truck	Light Truck	Truck	Truck
		Pick-Up	Tractor	Truck		
		Tractor		Tractor		
Gross Vehicle Weight (GVW)			5-7 ton	18 ton	25 ton >	25 ton >

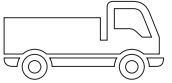


MODELS I

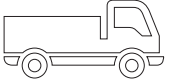
SALT-TERNA XS



SALT-TERNA S



SALT-TERNA M



SALT-TERNA L



SALT-TERNA XL





Mix Terna Combination Sprayer & Spreader prevents the icing on the roads by spraying the liquid de-icing material in its water proof Polyethylene tanks through its nozzles located at the rear side of the vehicle and spreading the dry de-icing material inside its hopper through its spinner in winter time.

Mix Terna enables any de-icing material to be sprayed or spreaded to the road homogeneously depending on traffic, weather, environment or road conditions in order to provide the optimum Winter Maintenance. As per changing conditions, the operator shall either spray the liquid de-icing material through spraying nozzles or spread the dry or pre-wet salt through spinner.

Mix Terna is able to spray 3 positional spraying both to the right, left and center between 3.5 to 10.5 meters.

Spraying through the spraying nozzles, located at the rear of the vehicle also helps to reduce the fogging on the road.

Mix Terna aims to protect the environment by reducing the salt amount used during Winter Maintenance besides reducing the salt costs.

Mix Terna's spraying dosage reaches to 70 gr/m² at 60 km/h and 40 gr/m² at 80km/h.

Mix Terna's liquid de-icing materials tanks are produced from high-strenght polyethylene materials and the hopper is produced from Stainless Steel or Carbon Steel optionally.

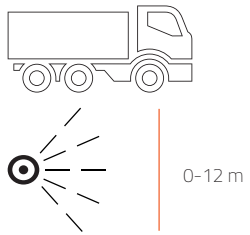
Because Mix Terna's standard and independent polyethylene tanks and Hopper are modularly designed, they are standardly mounted to any kind of tipper. It enables to increase or decrease the tanks and hopper capacity in case of a change of carrying vehicle and constructing mid-size capacity tanks and hoppers provides more efficient usage of the carrying vehicle capacity.

MIX-TERNA			
		MEDIUM	LARGE
Hopper Capacity		4 - 6 m³	6 - 11 m³
Liquid Tank Capacity		1500 - 5500 L	2500- 6500 L
Spreading Width	Salt	0 - 12 m	
	Liquid	3,5 - 10,5 m	
Dosage	Salt	5-40 gr/m²	
	Salt & Aggregate Mixture	30-240 gr/m²	
	Liquid	70 gr/m² (60 km/h) - 40 gr/m² (80 km/h)	
Carrying Vehicle		Truck	Truck
Gross Vehicle Weight (GVW)		18 - 25 ton	25 ton >

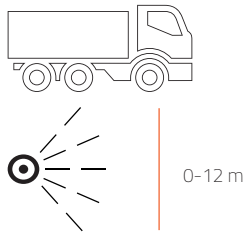


MODELS I

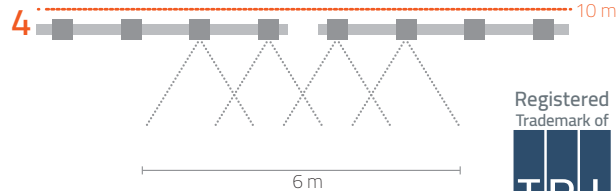
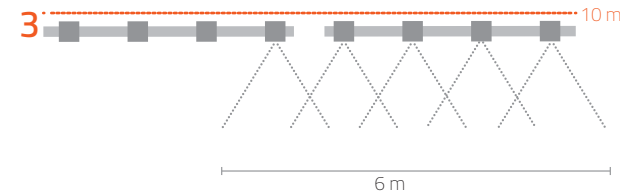
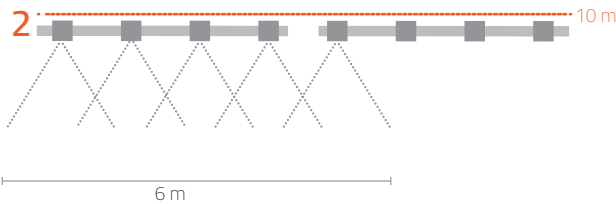
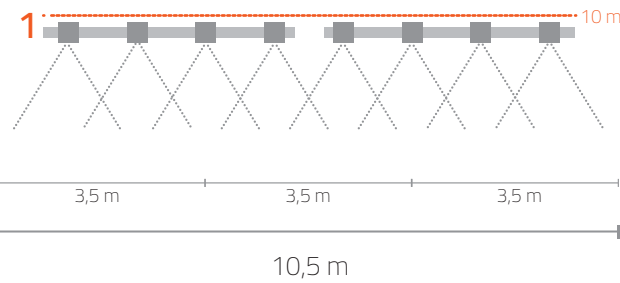
MIX-TERNA M



MIX-TERNA L



SPRAY BAR (Liquid De-Icing Spraying Nozzles)





SPRAYTERNA M / L / XL

Multi-purpose liquid sprayer for commercial trucks

SPRAYTERNA multi-purpose liquid sprayer is mainly used for spraying chloride solutions for de-icing and anti-icing purposes directly on to the road surface with a controlled dosage for winter road maintenance jobs.

Using SPRAYTERNA for winter road maintenance jobs decreases operational costs, reduces harm to the environment and lifespan of traffic infrastructure increases.

Along with winter maintenance operations, SPRAYTERNA can also be used for various summer time jobs when the truck is equipped with required optional features.



Modular HDPE liquid tank construction



Easy to reach and service friendly pump station



Stainless steel foldable spray bar, 12 liquid spraying nozzles for multi-lane and high speed spraying



Optional Washterna unit for summer time functions



User friendly control panel

Key Features

- Various capacities available between 4000 L to 18000 L
- Modular design with each tank capacity equals to 2000 L.
- User friendly electronic control panel located inside the driver cab
- Width of spraying and dosage can be adjusted
- Spraying width is adjustable from 2.500 mm to 12.000 mm.
- Dosage is adjustable from 10 ml/m² to 200 ml/m²
- Spraying pattern adjustment from the control panel, left/right/center and all-together spraying patterns.



SPRAYTERNA XS

De-mountable multi-purpose liquid sprayer for agricultural tractors

SPRAYTERNA multi-purpose liquid sprayer is mainly used for spraying chloride solutions for de-icing and anti-icing purposes directly on to the road surface with a controlled dosage for winter road maintenance jobs.

Using SPRAYTERNA for winter road maintenance jobs decreases operational costs, reduces harm to the environment and lifespan of traffic infrastructure increases.

Along with winter maintenance operations, SPRAYTERNA can also be used for various summer time jobs like watering green areas, surface cleaning or supplying water for different purposes.



Liquid control valves and installation



Easy to reach, operator friendly control panel



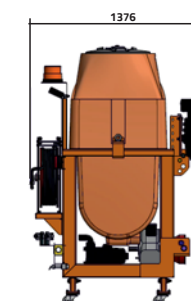
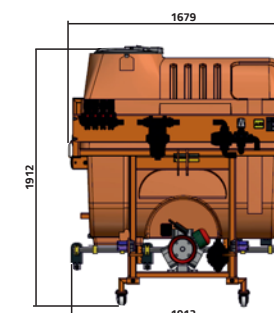
Stainless steel spray bar, equipped with 8 liquid spraying nozzles



Manual hose reel



Compact design provides high maneuverability and low center of gravity

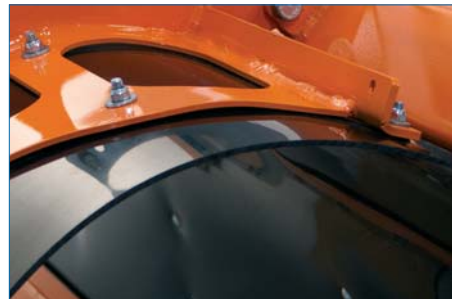


Key Features

- Tank volume 1000 L.
- Up to 6 m. spraying width
- Asymmetrical spraying function
- GPS speed adjusted flow control
- Hose reel for hard to reach areas
- Easy handling by wheel supported legs

BODY

Snow Plow Main Body is produced from high strength Carbon steel and is coated by polyethylene material.



HARDOX / POLYURETHANE CUTTING EDGES

The cutting edges of the Snow Plow is produced from Hardox or Polyurethane material against friction and impacts. Mounting and de-mounting is very easy with bolts.



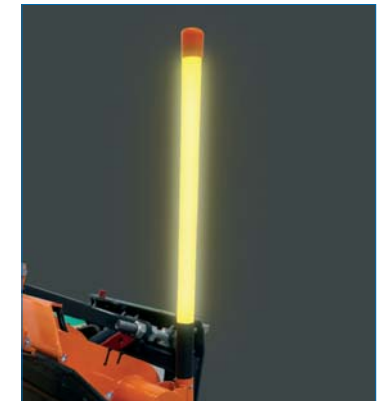
FRONT PLATE

The front plate produced due to DIN 76060 Standards, provides the snow plow to be mounted in front of several vehicles.



TRAFFIC SIGNALISATION & LIGHTING

It enables the vehicle to be clearly seen and lighten its environment.



ADJUSTABLE SNOW PROTECTOR

The adjustable Snow Protector, protects the windshield of the vehicle from the removed snow even at maximum driving speed.



OBSTACLE JUMPING SPRING MECHANISM

In case of hitting an obstacle during the snow removal, the spring mechanism enables the snow plow to jump the obstacles in both forward or backward and reaches back to its working position.





Snow Plow is used to remove the fresh or compacted snow with maximum thickness of 500mm when fighting with snow and icing under heavy winter conditions on the state or provincial roads, by mounting it on several vehicles.

Plow-Terna is produced at enough strength to fulfill the impact load because of heavy working conditions. The body is designed and supported against tilting.

Plow-Terna has the obstacle jumping system which enables the snow plow to jump the impacted obstacle and reaches back to its working position.

The front plate of the snow plow is produced due to DIN 76060 International Standards.

The below functions are controlled from the control panel of the snow plow :

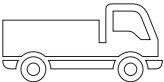
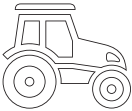
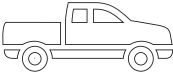
- Lifting Up
- Lowering Down & Ice Breaking
- Left/ Right Rotation
- Floating

To reduce/balance the pressure of the snow plow on the ground, when the floating position is on; automatic load cycling is put in process via control panel and the system relieves the overload of the snow plow on itself.

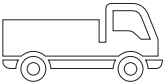
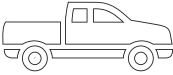
	PLOW-TERNA			
	SMALL	MEDIUM	LARGE	V TYPE
Snow Plow Length	1,6 - 1,8 - 2 - 2,2 m	2 - 2,2 ve 2,4 m	2,7 - 3 - 3,2 - 3,3 - 3,6 m	
Carrying Vehicle	Light Truck	Light Truck	Light Truck	Truck
	Pick-Up	Pick-Up	Truck	Tractor
	Tractor	Tractor	Tractor	Construction Machine
			Construction Machine	
Gross Vehicle Weight (GVW)	max.10 ton	max.18 ton	18 ton >	



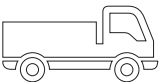
PLOW-TERNA S



PLOW-TERNA M



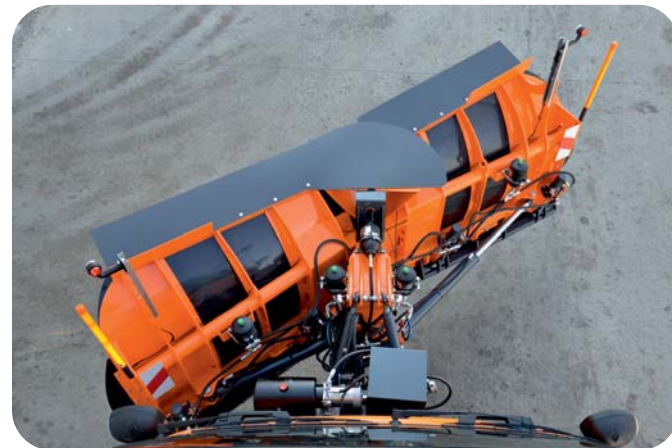
PLOW-TERNA L



PLOW-TERNA VT









WSDM-102
Auxiliary Engine Driven Salt Terna Digital Control Panel



WP – 100
Plow Terna Analog Control Panel Designed for any driven system



WS-100
Salt Terna Digital Control Panel



WS-101
Mix Terna Digital Control Panel



WSB-100
Salt Terna Analog Control Panel



WSPB-100
Salt Terna & Plow Terna Analog Control Panel