



# MUNICIPAL MACHINES CATALOGUE

KEY FEATURES AND TECHNICAL DATA

**machines  
for summer  
road and green  
areas maintenance**



**road tech  
machinery**



**winter road  
maintenance  
machinery**







## PRONAR

Pronar is among the fastest-growing Polish companies. Its machines support the day-to-day work of farmers, municipal service providers, and the waste management industry in more than 90 countries worldwide. Built over more than 38 years and still based entirely on Polish capital, the brand has also become synonymous with quality and reliability among component suppliers. Pronar's sidewall profiles, pneumatic and hydraulic components, axles and running gear systems, as well as disc wheels, are installed in machines manufactured by the world's largest corporations. In the production of rims for low-speed machinery, reaching one million units annually, the company is currently the European leader and the world's second-largest manufacturer.

As the largest domestic manufacturer of agricultural, municipal, and recycling machinery, Pronar employs more than 2,500 people, and at its current pace of growth, the company will soon require several hundred more. Machines and components are manufactured in nine factories located in six towns across the Podlaskie Voivodeship: Narew, Narewka, Hajnówka, Strabla, and Siemiatycze. Together, all of them process approximately 10,000 tonnes of steel per month.

The last decade of the company's operations has brought international success to its youngest, yet by far the most technologically advanced and innovative product family – recycling machinery. Mobile screening plants, shredders, crushers, belt conveyors, compost turners, and a channel baling press are solutions that have not only won numerous awards, but above all are highly sought after by waste management companies from the USA, through Europe, to the Far East and Australia. The company is also investing in the intensive development of stationary, comprehensive waste sorting lines, which are being designed by a dedicated unit – the engineering office in Wągrowiec.

# machines for summer road and green areas maintenance



## TABLE OF CONTENTS

SWEEPERS <b>ZM-1250   ZM-1400   ZM-1600   ZM-2000   ZM-2000M</b> .....	4
SWEEPER <b>ZM-2300M</b> .....	6
SWEEPERS <b>ZM-1500 Plus   ZM-1800 Plus   ZM-2300 Plus</b> .....	8
BUCKET SWEEPER <b>ZM-H22</b> .....	10
SWEEPER <b>ZM-28H</b> .....	12
TRUCK SWEEPER <b>ZM-S25</b> .....	14
SWEEPER <b>ZM-P16</b> .....	16
TRAILED SWEEPER <b>ZMC2.0</b> .....	18
TRAILED SWEEPER <b>ZMC3.1</b> .....	20
REAR FLAIL MOWERS <b>BKL120M   BKL140M</b> .....	22
REAR-SIDE FLAIL MOWERS <b>BK110M   BK140M   BK160M   BK180M   BK200M   BK250M</b> .....	24
CROSS TRAVERSE FLAIL MOWERS <b>BKD160P   BKD180P   BKD200P   BKD202P</b> .....	26
REAR-SIDE FLAIL MOWERS <b>BBK120M   BBK140M   BBK160M   BBK180M   BBK200M   BBK202M</b> .....	28
FLAIL MOWER WITH HOOPER <b>BKR120H   BKR160H</b> .....	30
FLAIL MOWERS <b>FLAIL KNIVES AND HAMMERS</b> .....	32
WORKING HEADS COMPATIBILITY .....	34
MOWING HEADS <b>GK80L   GK100L   GK120L   GK140L   GK142L   GK110   GK140</b> .....	36
SPECIALIZED HEADS <b>GT150   GN200   GP200   GF100S</b> .....	38
SPECIALIZED HEAD <b>GM500</b> .....	40
SPECIALIZED HEADS <b>GF040K   GC060V   GC090V</b> .....	42
MULTIFUNCTIONAL ARM DURING WORK .....	44
MULTIFUNCTION FRONT ARMS <b>WWP500   WWP600</b> .....	46
REAR MULTIFUNCTION ARMS <b>WWT420 (424C)   WWT480 (484C)</b> .....	48
REAR MULTIFUNCTION ARMS <b>WWT604K   WWT608K</b> .....	49
REAR MULTIFUNCTION ARMS <b>WWT600   WWT620D   WWT600P   WWT700T   WWT800T</b> .....	50
MULTIFUNCTION FRONT ARMS <b>WWP500U   WWP500UH</b> .....	52
HAND-FED WOODCHIPPER <b>MR-15</b> .....	54
HAND-FED WOODCHIPPER <b>MR-20</b> .....	56
SLURRY TANKS <b>T314   T315   T316</b> .....	58



## sweepers

# ZM-1250 | ZM-1400 | ZM-1600 | ZM-2000 ZM-2000M

Sweepers are designed for cleaning hard-paved surfaces. They enable removal and collection of dirt or (without waste collection tank and with angled brush) only sweeping to the right or left side.

The sweepers can be optionally equipped with sprinkler system (reduced emission of powder and dust) and with a side disk brush (for sweeping along kerbs). They are used by road maintenance services for cleaning of the roadbed prior to application of asphalt layer on renovated road sections. They can be also used by municipal services, as well as in agriculture, forestry and water management establishments for cleaning roads and other paved surfaces. In winter, the sweeper can be used for snow clearing. Thanks to an adjustable drawbar the sweeper is designed for hitching to the tractor's category II or III front or rear three-point hitch. The machine consists of a frame to which a hydraulically driven roller brush is attached and a waste collection tank that is suspended on the frame by means of extension arms. The waste tank is emptied by tipping it over by means of a hydraulic cylinder.

## OPTIONAL EQUIPMENT

- | sprinkler system with 200 l water tank
- | side brush
- | front supporting wheel (to be installed on the front of the carrying vehicle)
- | lighting
- | slow-moving vehicle triangle bracket
- | forklift, backhoe loader mountings (according to customer's demand)
- | reinforced support wheel



TECHNICAL DATA	ZM-1250	ZM-1400	ZM-1600	ZM-2000	ZM-2000M	
Efficiency	7500	8300	9500	11875	11875	[m <sup>2</sup> /h]
Weight	195	245	249	320	405	[kg]
Waste tank capacity	155	175	200	250	250	[dm <sup>3</sup> ]
Working width	1250/1820*	1400/1950*	1600/2000*	2000/2400*	2000/2400*	[mm]
Working speed	6	6	6	6	6	[km/h]
Recommended brush speed	100	100	100	100	100 - 200	[rpm]
Maximum brush speed	130	130	130	130	370	[rpm]
Length (rear-hitched version)	1750	1750	1750	1750	1716	[mm]
Length (front-hitched version)	1700	1700	1700	1820	2263	[mm]
Width	1710	1710	1910	2330	2244	[mm]
Height	820	820	820	820	1079	[mm]
Mounting method on tractor	3pt hitch cat. I or II narrow	3pt hitch cat. I or II narrow	3pt hitch cat. I or II narrow	3pt hitch cat. II or III	3pt hitch cat. I or II	[-]
Power supply	12	12	12	12	12	[V]
Hydraulic supply	16-20 13-25	16-20 13-25	16-20 13-25	16-20 13-25	16-20* 13-25*	[MPa] [l/min]
Drive	hydraulic	hydraulic	hydraulic	hydraulic	PTO	[-]

\*working with side brush

## ZM-1250 SWEEPER



## ZM-2000 SWEEPER



## ZM-1400 SWEEPER



## ZM-2000M SWEEPER





## sweeper ZM-2300M

Pronar ZM-2300M sweeper is designed to clean city streets. Tilttable bottom of the waste tank allows a smooth passage over bumps and speed humps. The jack-screw stepless height adjustment mechanism allows for regulation of the sweeping roller which maximizes the lifespan of the bristles and maximizes the effects. Additional side disc brushes (left & right) allows sweeping curbs in any direction. The brush speed may be adjusted independently depending on the working conditions.



**TECHNICAL DATA****ZM-2300M**

Efficiency	19020	[m <sup>2</sup> /h]
Weight (without side brush, with waste tank)	735	[kg]
Waste tank capacity	470	[dm <sup>3</sup> ]
Working width	2300	[mm]
Working speed	6	[km/h]
Recommended brush speed	150	[rpm]
Maximum brush speed	195	[rpm]
Length	2260	[mm]
Width	2525	[mm]
Height	1060	[mm]
Mounting method on tractor	3pt. hitch cat. II	[-]
Power supply	12	[V]
Hydraulic supply	16	[MPa]

**ZM-2300M**

Suspended on a floating arm side disc brushes (600 mm diameter each) increase the working width of the machine and remove debris from hard to reach places

Turning actuator allows sweeping to the left or right (work with raised or without tank)

Sprinkler system reduces dust emission





sweepers

## ZM-1500 Plus | ZM-1800 Plus | ZM-2300 Plus

Designed for cleaning roads, pavements and squares; for technological cleaning of the ground prior to laying asphalt paving; sweeping of dirt or a fresh, thin layer of snow to the right or left side without collecting it (with a raised hopper).

The working element is a roller brush with a horizontal axis of rotation, driven by a counter-rotating hydraulic motor; the working brush is lowered manually in steps using two lateral crank-and-pinion mechanisms; the waste is dumped into a hopper with a sealing lip to the ground, dragged in front of the brush and hydraulically emptied; the machine is suspended in front of or behind the carrier on torsionally rigid or swing (wishbone) suspension systems; two or three articulated running wheels; sweeping without waste collection is possible after the hopper has been lifted.

### ADDITIONAL EQUIPMENT

- | hydraulics for high flow rates up to 150 l/min
- | outline lighting
- | front support wheel
- | suspension system according to individual orders
- | version adapted for left-hand traffic



TECHNICAL DATA	ZM-1500 Plus	ZM-1800 Plus	ZM-2300 Plus	
Efficiency	9000	10800	13800	[m <sup>2</sup> /h]
Weight (without side brush, with tank)	422/ 357/ 482	445/380/505	480/405/540	[kg]
Standard suspension system	Swing-arm without fixing elements	Swing-arm without fixing elements	Swing-arm without fixing elements	[-]
Electrical power supply	12 or 24	12 or 24	12 or 24	[V]
Hydraulic power supply	16 – 20	16 – 20	16 – 20	[MPa]
Working speed	6	6	6	[km/h]
Waste tank capacity	170	200	250	[dm <sup>3</sup> ]
Roller brush speed	180	180	180	[rpm]
Side brush speed	180	180	180	[rpm]
Overall widths without brush / with brush / with working brush	1910 / 1970/ 2150	2210 / 2270/ 2450	2710 / 2770/ 2950	[mm]
Length (version: installation on the back of the carrier)	1895	1895	1895	[mm]
Length (version: front mounting)	2100 / 2200*	2100 / 2200*	2100 / 2200*	[mm]
Height with rigid three-point hitch (with sprinklers)	950 / 1440	950 / 1440	950 / 1440	[mm]

\*-with side brush

## ZM-1800 PLUS



Outline lighting



Side brush – right or left side brush



Additional water tank





## bucket sweeper ZM-H22

The ZM-H22 bucket sweeper from Pronar Municipal Machinery is a simple and efficient solution for dirt, sand, debris and snow sweeping of areas like: harbours, sawmills, asphalt construction sites or all kinds of industrial sites. The operator is able to sweep while driving forward as well as driving backwards. The sweeper features: brush speed regulation, a metal dirt container equipped with a replaceable wear-resistant steel blade, as well as a floating adaptor placed at the rear of the dirt bucket. The bucket itself works like a shovel and can be easily hydraulically emptied.

### ADDITIONAL EQUIPMENT

- | water sprinkler system including tank
- | 12 V / 24 V power supply
- | clearance lights (12 V / 24 V)
- | support wheels or support rollers



## ZM-H22



### TECHNICAL DATA

### ZM-22H

Weight of the standard version	910	[kg]
Geometric container capacity	1300	[l]
Attachment to the carrier	Euro front attachment with floating position	[-]
Hydraulic oil demand	50/70	[l/min]
Hydraulic oil pressure	160/210	[bar]
Recommended operating speed	Up to 6	[km/h]
Maximum transport speed	25	[km/h]
Sweeping width	2200	[mm]
Width	2545	[mm]
Length	2090	[mm]
Height	1220	[mm]
Sweeping roller diameter	900	[mm]
Minimum lifting capacity (of the carrier vehicle)	2500	[kg]
Weight (of carrier vehicle)	8-12	[t]

Wide opening angle performed by two hydraulic cylinders



Durable support rollers



EURO suspension system





## sweeper ZM-28H

The ZM-28H sweeper is designed for cooperation with slow-moving vehicles in sweeping away pollution, leaves and snow. It can be attached to carriers with various suspension systems and various hydraulic systems with an oil flow rate of 60 to 140 l/min.



**TECHNICAL DATA**

**ZM-28H**

Working width: - straight - max turning angle	2800 2600	[mm]
Max turning angle	±25	[°]
Brush diameter	650	[mm]
Max brush speed	200	[rpm]
Working pressure	21	[MPa]

**ZM-28H**



8 types of roller brush available (4 hardness levels of bristles of the brush and 2 types of rings: flat or "honeycomb")



The work position indicator helps to set the optimum height of the carrier suspension



Self-adjusting wheels with infinitely variable height adjustment



Hydraulic angle adjustment of the sweeper ±25°





## truck sweeper ZM-S25

Thanks to its large working width, the PRONAR ZM-S25 sweeper significantly increases the functionality of a truck, particularly in the case of vehicles involved in road construction.

Thanks to the implementation of a polypropylene or polypropylene and steel wire roller brush, the machine is perfectly suited for cleaning sand, snow, soil, or remnants after road milling from pavements. It is driven by hydraulic motors, and a hydraulic cylinder has been implemented for raising and lowering, which ensures failure-free machine operation. Working angle adjustment also improves the sweeper's functionality, and in the standard version, adjustment takes place mechanically by means of a locking mechanism that makes it possible to set the machine at the following angles: 0°, 15° and 30°. Optionally, the working angle can be set within the range from 0° to 30° using a hydraulic cylinder, which improves the comfort and precision of work. The brush is guided over the surface by support wheels, improving brush life. Thanks to mounting on a type A or type B DIN 76060 mounting plate, the machine is compatible with most trucks.



## TECHNICAL DATA

## ZM-S25

Working width (straight setting)	2500	[mm]
Working width (30° angle)	2155	[mm]
Height max.	1240	[mm]
Brush diameter	650	[mm]
Weight	420	[kg]
Supply	hydraulic	[-]
Required oil pressure	16	[MPa]
Required oil flow	40	[l/min]
Controls	control panel (24 V or 12 V)	[-]
Adjustment of turning angle	manual or hydraulic	[-]

## ZM-S25



Hydraulic brush angle adjustment  $\pm 30^\circ$

Outline lighting

Support wheels





## sweeper ZM-P16

ZM-P sweeper represents an innovative solution developed by Pronar. The standard sweeper may be fitted with one of the available drive options - PTO or hydraulic.

ZM-P sweeper is intended for attachment to the tractor's rear three-point hitch, and optionally, the hydraulic version can be mounted on the front of a tractor. The ZM-P16 model may be equipped with a sand spreader and a special "comb" brush. This combination is perfectly suited for minimising the effects of winter in cities – snow is removed from the pavement, and the sand spreader minimises the risk of pedestrians slipping on the cleaned surface.

### EQUIPMENT FOR ZM-P SERIES SWEEPERS

- | hydraulic drive
- | mechanical drive from PTO
- | mechanical drive and sprinkler system
- | hydraulic drive of sweeper and spreader



**TECHNICAL DATA****ZM-P16**

Working width (straight setting)	1600	[mm]
Working width (30° angle)	1440	[mm]
PTO speed	540	[rpm]
Mounting	3pt hitch cat. I or II	[-]
Brush drive	mechanical by PTO or hydraulic	[-]
Brush speed	150 - 350	[rpm]
Working speed	<40	[km/h]

**ZM-P16**

PTO drive



Special brush for sweeping-out snow





## trailed sweeper **ZMC2.0**

Pronar ZMC 2.0 trailed vacuum sweeper is adapted for work with tractors with at least 60 HP. It has been designed to perfectly clean roads, large warehouse surfaces, and areas paved with asphalt, concrete or cobblestones.

The sweeping unit consists of 2 hydraulic rotary disc brushes that sweep the debris into the machine's interior, where a vacuum suction system moves it to a 2.1 m<sup>3</sup> container at the rear of the sweeper. The sprinkler system, consisting of a pump, water tank, and spraying nozzles, effectively prevents formation of dust during operation. Machine control is fully automated. An electrical control panel can be used to adjust all sweeper functions, including unloading of the machine. A hydraulically articulated drawbar enables precise following of the curb contour.

### **ADDITIONAL EQUIPMENT**

- | side attachment for collecting leaves
- | additional water tank (200 l)
- | chute
- | pneumatic single-conduit brake system
- | hydraulic brake system



## TECHNICAL DATA

## ZMC2.0

Efficiency	13800	[m <sup>2</sup> /h]
Weight	2300	[kg]
PTO Power demand	61 (45)	[HP (kW)]
PTO Recommended speed	1000	[rpm]
Waste tank capacity	2,1	[m <sup>3</sup> ]
Working width regulation	2000 - 2300	[mm]
Working speed	6	[km/h]
Supplying of hydraulics, sprinkler and fan	mechanical from PTO	[-]
Water tank capacity	240 + 200*	[dm <sup>3</sup> ]
Hydraulic feed for drawbar turning	16	[MPa]
Dumping height	1660	[mm]
Width/length/height	2175/3510/2230	[mm]
Height with a raised tank	3770	[mm]
Permissible load on coupling (not less than)	650	[kg]
Transport speed max.	25	[km/h]

\*additional water tank

## ZMC2.0



Hydraulic hopper dumping system



Side attachment for collecting leaves



Adjustable side brush



Additional water tank (200 l)





## trailed sweeper ZMC3.1

Two rotary disc brushes clean the surface, a roller brush sweeps the debris onto a scraper conveyor belt, which conveys it to the waste container. The sweeper is great at cleaning roads, city streets, large squares, warehouse facilities, as well as car parks and pedestrian areas. It performs ideally in road cleaning after the winter. The operator can hydraulically dump the load without any need to leave the tractor cabin by using the steering panel with a sprinkler system and a water tank that can hold up to 1120 litres of water.

### OPTIONAL EQUIPMENT

- | upper drawbar – replaces the lower drawbar
- | vibrator – for easy emptying of the waste tank
- | working lights – work zones for disc brushes
- | left side brush hydraulic adjustment – tilt control from the cab
- | additional warning lamps – mounted on the top cover
- | wheel chocks – 2 wheel chocks with brackets
- | PTO shaft
- | right side brush
- | increasing sweeping width, range 700 mm beyond the machine outline
- | chute extensions – reduces the height of unloading by 100 mm
- | pressure washer – water pressure up to 150 bar
- | sprinkler pressure adjustment – sprinkler pressure setting from the operator's panel
- | galvanized frame – in standard version painted
- | different colours – available on request



## TECHNICAL DATA

## ZMC3.1

Efficiency	54000		[m <sup>3</sup> /h]
Weight	3300	without water in the sprinkler system	[kg]
PTO Power demand	50 / 35	power on carrier PTO	[HP (kW)]
PTO shaft type	PTO shaft type 1 WG ISO500; n=540 rpm	Ø35 6 splines clockwise rotation looking at the front of the PTO shaft	[-]
Mounting	lower transportation hitch	-	[-]
Working width	2400-2700, max. 3100	300mm - adjustment range, without/with side brush	[mm]
Electric power supply	12	from carrier battery	[V]
Electric supply of lighting	12	from 7-pole socket	[V]
Working speed	1-20	depends on the amount of pollution	[km/h]
Waste tank capacity	3	-	[m <sup>3</sup> ]
Water tank capacity	1120	-	[dm <sup>3</sup> ]
Width	2100	without the bristles of disc brushes	[mm]
Length	5140/4980-5100	lower drawbar/upper drawbar depending on drawbar position	[mm]
Height / Height with a raised tank	2320/4420	without warning lights (beacon)	[mm]
Roller brush	D=Ø750; L=1100	assembled from disc segments, material: wire, PPM, mix of wire segments and PPM	[mm]
Disc brush	d=Ø760; D=Ø1100; H=260	material: wire, PPM, mix of wire segments and PPM	[mm]

## ZMC3.1



Control panel – all sweeper functions are controlled using a panel located in the tractor cab



Side brush – right or left side brush – increasing sweeping width, range 700 mm beyond the machine outline



Easy access to interior





rear flail mowers

**BKL120M | BKL140M**

BKL series flail mowers are designed for the maintenance of green areas, urban landscaping, football pitches, and orchards. When fitted with appropriate blades, the mowers can also be used for aeration work combined with mowing.

The main components of the mower include: the frame, three-point hitch system, flail rotor with interchangeable knives, rear roller (copy roller), and the power transmission system with an angular gearbox.

Two shafts are installed in the frame: a cutting rotor (for mowing) and a rear roller that controls the cutting height. The mower is equipped with either a fixed or laterally adjustable linkage system (for side shift functionality).



TECHNICAL DATA	BKL120M fixed linkage	BKL120M side-shift linkage	BKL140M fixed linkage	BKL140M side-shift linkage	
Horizontal shift of the mower (parameter A)*	-	350	-	350	[mm]
Cutting width	1200		1400		[mm]
Weight	200	235	215	250	[kg]
Minimal power demand	30 (22)	30 (22)	30 (22)	30 (22)	[HP (kW)]
PTO speed (std/optional)	1000/540	1000/540	1000/540	1000/540	[rpm]
Mounting on front 3pt hitch	cat. I	cat. I	cat. I	cat. I	[-]
Mounting on rear hitch	cat. I	cat. I	cat. I	cat. I	[-]
Flail shaft diameter	ø 102	ø 102	ø 102	ø 102	[mm]
Tracing shaft diameter	ø 102	ø 102	ø 102	ø 102	[mm]
Flail shaft rotation speed	3000	3000	3000	3000	[rpm]
Number of flail blades	24	24	24	24	[pcs]

## BKL 120M

## BKL 140M



Cutting shaft with replaceable knives



Hydraulic side-shift mounting system (350 mm travel)





rear-side flail mowers

**BK110M | BK140M | BK160M | BK180M | BK200M  
BK250M**

Pronar BK-series mulchers (rear-front flail mowers) fit perfectly with green areas, orchards and agriculture area maintenance tasks.

High quality and great durability of these machines are ensured by use of wear-resistant materials in the production process.

## THE FEATURES OF MODERNISED FLAIL MOWERS BK M - SERIES

- | can be mounted on both the front and rear of the tractor on both the front and rear of the tractor, enabling the user to create efficient mowing combinations (together e.g. with hydraulic arms of WWT-series)
- | a big range of mowing widths
- | reinforced flail shaft for heavy duty tasks
- | solid mounting of belt pulleys - for long and trouble free operations
- | wide range of flail knives and hammers



TECHNICAL DATA	BK110M	BK140M	BK160M	BK180M	BK200M	BK250M	
Length in transport position	1140	1140	1420	1420	1420	1420	[mm]
Width in transport position	1370	1590	1810	2070	2280	2720	[mm]
Height in transport position	920	920	1020	1020	1020	1020	[mm]
Cutting width	1100	1400	1600	1800	2000	2500	[mm]
Horizontal shift of the mower (parameter A)*	440	440	785	785	785	785	[mm]
Weight	350	390	525	560	600	660	[kg]
Minimal power demand	25 (18)	30 (22)	40 (29)	50 (37)	70 (51)	90 (66)	[HP (kW)]
PTO speed (std/optional)	1000/540	1000/540	1000/540	1000	1000	1000	[rpm]
Mounting on front 3pt hitch	cat. I	cat. I	cat. II	cat. II	cat. II	cat. II	[-]
Mounting on rear hitch	cat. I and II	cat. I and II	cat. I and II	cat. I and II	cat. I and II	cat. I and II	[-]
Flail shaft diameter	ø 133	ø133	ø152	ø152	ø160	ø160	[mm]
Tracing shaft diameter	ø133	ø133	ø152	ø152	ø160	ø160	[mm]
Flail shaft rotation speed	2550	2550	2450	2450	2450	2450	[rpm]
Number of flail blades	10	12	14	16	18	22	[pcs]



\* - Regulation of mower position (parameter A - see table)

## BK160M



Flail shaft with flail hammers



Intersecting gear and belt drive - overload protection of the mower





cross traverse flail mowers

**BKD160P | BKD180P | BKD200P | BKD202P**

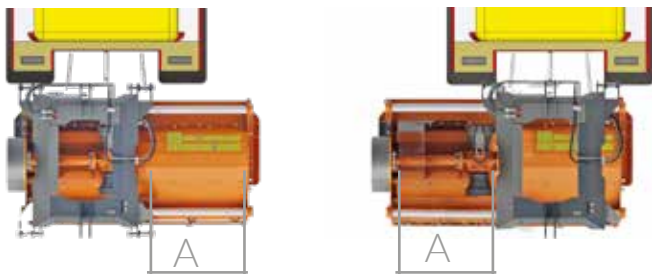
BKD-series cross traverse flail mowers allow cutting on both sides of tractor. Two-sided frame and transmission makes it possible to mount both on front and rear tractor 3pt. hitch without mower disassembly. Cross movement is provided by the tractor's hydraulics.

## BKD MOWERS FEATURES

- | mounting on front or rear of tractor
- | reinforced flail shaft
- | intersecting angle gear with directional clutch
- | solid mounting of belt pulleys - for long and trouble-free operations



TECHNICAL DATA	BKD160P	BKD180P	BKD200P	BKD202P	
Length in transport position	1140	1140	1140	1140	[mm]
Width in transport position	1870	2090	2310	2310	[mm]
Height in transport position	1025	1025	1025	1025	[mm]
Cutting width	1600	1800	2000	2000	[mm]
Horizontal shift of the mower (parameter A)*	440	440	440	440	[mm]
Position of the mower relative to the carrier	right	right	right	left	[-]
Weight	635	690	730	730	[kg]
Minimal power demand	40 (29)	50 (37)	70 (51)	70 (51)	[HP (kW)]
PTO speed std/optional	1000	1000	1000	1000	[rpm]
Mounting on front 3pt hitch	cat. I and II	cat. I and II	cat. I and II	cat. I and II	[-]
Flail shaft diameter	159	159	159	159	[mm]
Tracing shaft diameter	159	159	159	159	[mm]
Flail shaft rotation speed	2450	2450	2450	2450	[rpm]
Number of flail blades	14	16	18	18	[pcs]



\* - Regulation of mower position (parameter A - see table)

## BKD200P



Hydraulic shift



Double-sided 3-point hitch



Adjustable height of skids





rear-side flail mowers

**BBK120M | BBK140M | BBK160M | BBK180M**

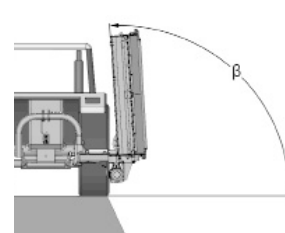
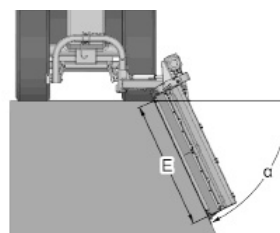
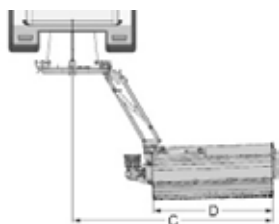
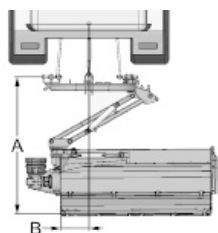
**BBK200M | BBK202M**

Similarly to rear-front flail-mowers (BK series), the BBK series rear-side flail-mowers, are designed for maintaining urban greenery infrastructure, in orchards as well as on forested grounds.

They are suspended on a pantograph, which enables effective mowing of roadside ditches and use on uneven terrain. A large horizontal hydraulic traverse enables mowing with the entire working width of the mower beyond the tractor's outline. A replaceable jacket inside the mower, made of abrasion-resistant steel, protects the machine's housing against damage.



TECHNICAL DATA	BBK120M	BBK140M	BBK160M	BBK180M	BBK200M	BBK202M	
Length in transport position	1900	1900	1900	1900	1900	1900	[mm]
Width in transport position	1770	1770	1660	1660	1660	1660	[mm]
Height in transport position	1750	1950	2160	2380	2600	2600	[mm]
Position of the mower relative to the carrier	right	right	right	right	right	left	[-]
Cutting width	1200	1400	1600	1800	2000	2000	[mm]
Horizontal shift of the mower (hydraulic shift)	1820	1820	1820	1820	1820	1820	[mm]
Weight	750	770	740	795	840	870	[kg]
Minimum power demand	30 (22)	30 (22)	50 (37)	60 (44)	70 (51)	70 (51)	[HP (kW)]
Max. PTO speed	540	540	540	540	540	540	[rpm]
Mounting on tractor	3pt hitch cat. II and III	3pt hitch cat. II and III	3pt hitch cat. II and III	3pt hitch cat. II and III	3pt hitch cat. II and III	3pt hitch cat. II and III	[-]
Flail shaft diameter	ø133	ø133	ø160	ø160	ø160	ø160	[mm]
Tracing shaft diameter	ø133	ø133	ø160	ø160	ø160	ø160	[mm]
Flail shaft rotation speed	2500	2500	2450	2450	2450	2450	[rpm]
Number of flail blades	10	12	14	16	18	18	[pcs]
Mower working range							
A	1890	1890	1890	1890	1890	1890	[mm]
B	390	390	390	390	390	390	[mm]
C	2620	2830	3040	3260	3480	3480	[mm]
D	1210	1410	1620	1840	2060	2060	[mm]
E	1200	1400	1610	1830	2050	2050	[mm]
Working angle - downwards $\alpha$	65	65	65	65	65	65	[°]
Working angle - upwards $\beta$	94	94	94	94	94	94	[°]
Setting cutting height	20, 40, 60	20, 40, 60	20, 40, 60	20, 40, 60	20, 40, 60	20, 40, 60	[mm]



Vertical rest position



Hydraulic adjustment of the working angle



Working position



Terrain copying accuracy





## flail mower with hopper **BKR120H | BKR160H**

Flail mowers BKR120H / BKR160H are designed for works connected with municipal maintenance, cities green areas, football fields and orchards. By changing the cutting knives, the mowers could be adjusted to aerating works while simultaneous mowing.

The basic mower assemblies are: a frame with a mounting system, a grass tank, a cutting unit consisting of a flail shaft with replaceable knives, a copying shaft, a drive system and covers. Two shafts are mounted in the frame: cutting (for cutting) and copying shafts with the task of setting the cutting height. The articulated frame is fitted with a hydraulically operated lifting grass hopper. The grass container is tilted hydraulically by means of two actuators.



TECHNICAL DATA	BKR120H	BKR160H	
Weight	400	530	[kg]
Length		1545	[mm]
Width	1440	1840	[mm]
Height		1375	[mm]
Cut width	1200	1600	[mm]
Grass hopper capacity	0,75	1	[m³]
Emptying height		2000	[mm]
Central gear	Angular with directional clutch		[-]
V-belt	Welded 3/Xpa1320	Welded 3/XPA1320	[-]
Working shaft diameter		108	[mm]
Tracing shaft diameter		108	[mm]
Working shaft speed		3000	[rpm]
Number and type of cutting knives	40	50	[pcs]
Hopper height adjustment	25-100 (Stepless, via adjustment of tracing shaft and support wheels)		[mm]
Work pressure		160	[MPa]
Carrier requirements			
Min. Power requirement	25/19	30/22	[HP (kW)]
Suspension system	cat. I/II according to ISO 730-1		[-]
PTO shaft	540 type 1 (1 3/8" - 6 lugs)		[-]
Hydraulic driven	Double-acting, two-section hydraulic control		[-]
Socket size		1/2"	WG ISO 7241-1

## BKR160H



High unloading



Low unloading



Cutting unit - cutting shaft with replaceable knives





flail mowers

## FLAIL KNIVES AND HAMMERS

Pronar offers a wide variety of flail knives and hammers for all models of mulchers and mowing heads. This makes it possible to choose a knife type adapted to the needs and may increase work effectiveness and efficiency.

Type	Model	Approx. weight	Name	Max. diameter of cut material (mm)	Application	Fits
A		0,4	Flail hammer (light)	40	grass, stalks, stems, thin bushes, thin branches, stubble, crop residues	GK100L, 120L, 140L
B		0,7	Flail hammer	60	grass, stalks, stems, thin bushes, thin branches, stubble, crop residues	GK110, 140, BK, BKD and BBK series
C		1,5	Flail hammer (heavy)	100	grass, stalks, stems, thin bushes, thin branches, stubble, crop residues	GK110, 140, BK, BKD and BBK series
D		0,2	Y knife (light)	30	grass, stalks, stems, thin shrubs	GK80L
E		0,4	Y knife	30	grass, stalks, stems, thin shrubs	GK100L, 120L, 140L
F		1	Y-knife (heavy)	60	grass, stalks, stems, bushes, branches	GK110, 140, BK, BKD and BBK series
G		0,4	YI knife (light)	30	grass, stalks, stems, thin shrubs	GK80L
H		0,5	YI knife	40	grass, stalks, stems, thin shrubs, branches	GK100L, 120L, 140L
I		1,4	YI knife (heavy)	60	grass, stalks, stems, thin shrubs, branches	GK110, 140, BK, BKD and BBK series
J		1,6	YY knife (heavy)	60	grass, stalks, stems, thin bushes, thin branches, stubble, crop residues	GK110, 140, BK, BKD and BBK series
K		1,2	TI knife	60	grass, stalks, stems, thin bushes, thin branches, stubble, crop residues	GK110, 140, BK, BKD and BBK series
L		1,5	M knife	60	grass, stalks, stems, thin bushes, thin branches, stubble, crop residues	GK110, 140, BK, BKD and BBK series
M		0,1	Mallet	20	grass, stalks, stems, bushes, branches	GK80L, 100L, 120L, 140L
N		0,1	Twist knife	20	grass, stalks, stems, thin shrubs	GK80L, 100L, 120L, 140L
O		0,2	Curved mallet	20	grass, stalks, stems, thin shrubs	GK100L, 120L, 140L



# working heads COMPATIBILITY

Pronar offers rear- and front- mounted hydraulic multifunctional arms for different vehicles. These heads expand the functionality of the carriers by enabling the use of different working heads for different applications.

## CONNECTORS DIAGRAM

MODEL	GK80L	GK100L	GK120L	GK140L	GK110	GK140	GP200	GT150	GN200	GF100S	GO800	GM500	GF040K	GC060K GC090K
WWT420	S	S	S	S	X	X	O	S	X	O	O	O <sup>1)</sup>	S	O <sup>1)</sup>
WWT480	S	S	S	S	X	X	O	S	X	O	O	O <sup>1)</sup>	S	O <sup>1)</sup>
WWT600	O	O	O	O	S	S	S	S	S	S	S	S <sup>1)</sup>	S	S <sup>1)</sup>
WWT600P	O	O	O	O	S	X	S	S	S	S	S	S <sup>1)</sup>	S	S <sup>1)</sup>
WWT700T	O	O	O	O	S	X	S	S	S	S	S	S <sup>1)</sup>	S	S <sup>1)</sup>
WWT800T	O	O	O	O	S	S	S	S	S	S	S	S <sup>1)</sup>	S	X
WWP500	X	X	O	O	S	S	S	O	O	O	S	S	S	S
WWP500U	X	X	O	O	S	S	S	O	O	O	S	S	S	S
WWP500UH	X	X	O	O	S	S	S	O	O	O	S	S	S	S
WWP600	X	X	O	O	S	S	S	O	O	O	S	S	S	S
WWT600K	O	O	O	O	S	S	S	S	S	S	S	S	S	S

S - standard; X - not available; O - optional (available after changing connector type)

1) - obstructed view of the head from the driver's position

WWT480 + GK80L



WWT600 + GK110



WWP600 + GO800





WWP500 + GK110

WWT700T + GK110

WWT700T + GP200





## mowing heads

# GK80L | GK100L | GK120L | GK140L | GK142L | GK110 GK140

Cutting heads for WWP500, WWP500UH, WWP600 multifunction arms are used for mowing grass, cutting bushes and shredding of cut tree branches. The design of the multifunction arm enables operation in hard-to-reach areas such as roadside ditches behind protective barriers, slopes, drainage ditches, roadsides. The cutting head leaves the cutting area with evenly ground material, which also forms a fertilising layer.



TECHNICAL DATA	GK80L	GK100L	GK120L	GK140L	GK142L	GK110	GK140	
Working width	800	1000	1200	1400	1400	1100	1400	[mm]
Working shaft diameter	76	76	89	89	89	133	133	[mm]
Copying shaft diameter	89	89	101,6	101,6	89	133	133	[mm]
Hydraulic engine power	38 (28)	38 (28)	38 (28)	38 (28)	38 (28)	48 (35)	48 (35)	[HP (kW)]
Connector size	60x60	60x60	60x60	60x60	60x60	80x80	80x80	[mm]
Weight	115	155	185	205	205	294	318	[kg]
Drive	direct hydraulic	direct hydraulic	direct hydraulic	direct hydraulic	direct hydraulic	direct hydraulic	direct hydraulic	[-]
Number of knives	44	48	52	60	60	10	12	[pcs]
Oil flow	80	80	80	80	80	90	90	[l/min]
Oil pressure	21	21	21	21	21	25	25	[MPa]

## LIGHT HEAD GK100L | HEAVY HEAD GK110





## specialized heads

# GT150 | GN200 | GP200 | GF100S

The Pronar range of trimming heads has been designed to meet the tasks of green-area and orchard maintenance. Three tool types are available, allowing the user to select the right head for the task. We recommend using these heads with multifunctional arms mounted on tractors equipped with creeper gears.



### GT150

Light and precise head designed for trimming of thin branches during hedge maintenance. Light weight allows for work with small tractors. Maximum branch cutting diameter: 2 cm.



TECHNICAL DATA	GT150	
Working width	1500	[mm]
No. of cutting knives	19	[pcs]
Max. cutting diameter	20	[mm]
Min oil working pressure	12	[MPa]
Min. oil flow	60	[l/min]
Weight	85	[kg]
Connector	140x140 plate	[mm]

### GN200

The scissor head perfectly copes with thick bushes and is intended for pruning of roadside trees and other forestry areas. Maximum branch cutting diameter: up to 10 cm.



TECHNICAL DATA	GN200	
Working width	2000	[mm]
No. of cutting knives	14	[pcs]
Max. cutting diameter	100	[mm]
Min oil working pressure	12	[MPa]
Min. oil flow	80	[l/min]
Weight	250	[kg]
Connector	140x140 plate	[mm]



## GF100S

Milling head for road maintenance works and leveling of road verges.



TECHNICAL DATA	GF100S	
Milling shaft diameter	435	[mm]
Max. milling depth	65	[mm]
No. of milling knives	22	[pcs]
No. of coils	5,5	[pcs]
Nominal oil pressure	21	[MPa]
Nominal oil flow	80	[l/min]
Weight	235	[kg]

## GP200

The GP200 is perfect for cutting branches of road-side trees, trimming hedges and vineyard rows. The mechanism does not require gear lubrication, which allows it to operate in harsh conditions.



TECHNICAL DATA	GP200	
Working width	2000	[mm]
Number of cutting discs	4	[pcs]
Disc diameter	600	[mm]
Min. oil working pressure	22	[MPa]
Min. oil flow	60	[l/min]
Weight	232	[kg]
Connector	80x80 beam	[mm]



## specialized head GM500

The GM500 sign washer is designed for cleaning road signs, delineator posts and protective barriers. Together with the PRONAR R1000 tank, it forms an efficient sign-cleaning set.



**TECHNICAL DATA****GM500**

Brush diameter	400	[mm]
Brush length	500	[mm]
Nom. oil working pressure	10	[MPa]
Min. oil flow	80	[l/min]
Water pump efficiency	80	[l/min]

Easy disassembly of protective frame for the purpose of washing road signs

**GM500**

Suitable for operation in narrow streets



Requires a water tank mounted on the carrier





specialized heads

**GF040K | GC060V | GC090V | G0800**



### GF040K

The GF040K stump grinding head, available as optional equipment for a multifunctional arm, is designed for milling cut tree stumps.



#### TECHNICAL DATA

#### GF040K

Length/Width/Height	740 / 520 / 560	[mm]
Cutting disc diameter (including knives)	400/480*	[mm]
Working disc speed	2400	[rpm]
Nominal oil pressure	210	[bar]
Nominal oil flow	80	[l/min]
Mounting plate	140x140	[mm]
Number of cutting knives	16	[pcs]
Weight	145	[kg]

### G0800

The G0800 ditch cleaning head is designed to clear drainage ditches by removing accumulated debris, silt and mud, as well as uprooting clumps of overgrowth.



#### TECHNICAL DATA

#### G0800

Working disc diameter	800	[mm]
Min. oil working pressure	22	[MPa]
Nominal oil flow	90	[l/min]
Hydraulic motor power	48 (35)	[KM (kW)]
Weight	220	[kg]
Adjustable discharge direction	Yes	



## GC060V | GC090V

The GC060V and GC090V weed brush heads are designed for road shoulder sweeping and weed removal. The use of different brush types allows the head to be adapted to current working conditions. The frame is fitted with a guard that reduces material scattering and a spray nozzle that limits dust formation.



TECHNICAL DATA	GC060V	*GC090V	
Length/Width/Height	950/ 670/ 730	1000/ 950/ 730	[mm]
Brush tilt range	0 - 25	0 - 25	[°]
Brush speed control	stepless		[-]
Connector	Type 80		[-]
Nominal oil pressure	210	210	[bar]
Nominal oil flow	40	40	[l/min]
Maximum oil flow	90	90	[l/min]
Weight	120	135	[kg]



## multifunctional arm **DURING WORK**

Multifunctional arms due to the possibility of using several types of working heads are universal tool carriers in plants and companies dealing with municipal services and road and roadside maintenance. The arm design and long reach allow work in hard-to-reach areas in hard to reach places such as roadside ditches behind guard rails, slopes, drainage ditches.

**MULTIFUNCTION ARM WWP500**  
**MOWING HEAD GK 140**

**MULTIFUNCTION ARM WWP500U**  
**MOWING HEAD GK 110**

**MULTIFUNCTION ARM WWT480**  
**BRANCH TRIMMER GT 150**





MULTIFUNCTION ARM WWT420  
MOWING HEAD GK80L

MULTIFUNCTION ARM WWT700T  
SCISSOR HEAD GN200

MULTIFUNCTION ARM WWT600  
MOWING HEAD GK140





## multifunction front arms WWP500 | WWP600

PRONAR WWP500 / WWP600 universal multifunction arms are designed for operation with tractors equipped with a front PTO and front 3pt hitch.

Thanks to the possibility of installing several types of working heads, they are universal tool carriers at municipal companies, enterprises providing public services and maintaining roads and roadside areas. The arm design and its outreach range of 6 m or 7 m allow operation in hard-to-reach areas such as roadside ditches behind protective barriers, slopes, drainage ditches, etc. The multifunction arm is controlled from the cab using a joystick. They can operate both on the right side and after the manual rearrangement on the left side of the tractor. The boom can be moved hydraulically along the rail to the left or right. Self-aligning heads mounted on a floating arm enable perfect ground surface tracking.

### STANDARD EQUIPMENT

- | drive from front tractor PTO
- | joystick control
- | hydraulic horizontal movement
- | parking rack
- | mounting plate installed in the place of the arms of the front 3-point hitch appropriately to the tractor model and front 3-point hitch size

### OPTIONAL EQUIPMENT

- | rear ballast
- | axle lock (appropriately to the given tractor model)



TECHNICAL DATA	WWP500	WWP600	
Working range of multi-functional arm with GK110	5,55	6,25	[m]
Mounting on tractor	by replacing the front three point hitch arms	by replacing the front three point hitch arms	[-]
Working head supply	hydraulic	hydraulic	[-]
Connector size	80x80	80x80	[mm]
Hydraulic pump power	51 (37,5)	53 (39)	[HP (kW)]
Nominal oil flow rate (pump delivery)	90	90	[l/min]
Nominal oil pressure	24	24	[MPa]
Oil tank capacity	75	75	[l]
Controls	electric	electric	[-]
Set weight (with cutting head)	890	980	[kg]
Transport width	2400	2720	[mm]
Min. tractor weight	4000	4500	[kg]
Min. tractor power	75 (55)	80 (59)	[HP (kW)]
PTO speed	1000	1000	[rpm]

## WWP500 | WWP600



Hydraulic fuse



Hydraulic boom travel along the guide rail for selecting the appropriate working position



Hydraulic front axle lock





## rear multifunction arms WWT420 (424C) | WWT480 (484C)

Pronar WWT420/480 rear universal multifunction arm are an alternative to the front-mounted WWP series. They are designed for operation with tractors equipped with rear PTO and 3 point hitch.

Thanks to compatibility with several types of working heads, they are universal tool carriers. The reach of the arm enables access to difficult areas, e.g. behind barriers. In combination with the BK series mower the operator gets an excellent unit for mowing grasslands along roads. The multifunction arm is controlled from the operator's cabin using pull rods. The working arm can operate on the right side of the tractor.

TECHNICAL DATA	WWT420 (424C*)	WWT480 (484C*)	
Position of the multifunction arm relative to the carrier	right	right	[-]
Horizontal range (measured to centre of connection)	3,2	3,8	[m]
Horizontal range (measured with GK100L head)	4,2	4,8	[m]
Working head supply	hydraulic - own	hydraulic - own	[-]
Connector size	60x60	60x60	[mm]
Nominal oil pressure	21,5	21,5	[MPa]
Max. power of hydraulic system	44 (32)	44 (32)	[HP (kW)]
Oil tank capacity	130	130	[l]
Head rotation angle	205	205	[°]
Transport length	0,8	0,8	[m]
Transport width	1,46	1,65	[m]
Transport height	1,73	1,96	[m]
Steering type	Mechanical - pulling rods (Electric on-off control)*	Mechanical - pulling rods (Electric on-off control)*	[-]
Arm protection	mechanical protector	mechanical protector	[-]
Weight	620	645	[kg]
Lighting bar	optional	optional	[-]
Oil radiator	optional	optional	[-]
Mounting on rear 3pt hitch	cat. I or II	cat. I or II	[-]
Rear PTO	540	540	[rpm]
Min. tractor weight	2000	2100	[kg]

### MULTIFUNCTION ARM WWT480 WITH GK80L HEAD





## rear multifunction arms WWT604K | WWT608K

They are perfect for mowing or clearing roadside ditches and pruning branches anywhere where access to other equipment is difficult due to protective barriers or difficult terrain.

The control is electric on-off or proportional electric. In this model, the articulated arm allows to position the working head between the axes of the carrier during operation. This setting allows the operator to control the device without having to turn his head back.

TECHNICAL DATA	WWT604K/608K*	
Arm position relative to the carrier	right	[-]
Working range (with flail mower GK110 attached)	6	[m]
Transport position	Mounting on rear 3 point hitch	[-]
Rear PTO	540	[rpm]
Hydraulic head drive circuit	90 250	[l/min] [bar]
Hydraulic circuit of the arm drive	20 180	[l/min] [bar]
Oil tank capacity	180	[l]
Horizontal range (measured to centre of connection)	1,7	[m]
Main arm rotation angle	90	[°]
Steering type	Electric on-off control (Proportional electric control)*	[-]
Lighting beam	standard	[-]
Oil cooler	standard	[-]
Floating position of the head	standard	[-]
Arm shock absorption	standard	[-]
Rear 3 point hitch suspension lock	standard	[-]

### MULTIFUNCTION ARM

#### WWT608K WITH FLAIL MOWER GK140 ATTACHED





## rear multifunction arms

**WWT600 | WWT620D | WWT600P | WWT700T | WWT800T**

WWT600 and WWT700 complement Pronar's offer for long reach multifunctional arms mounted on rear 3 point hitch. Thanks to a wide variety of working heads they are perfect for roadside and slope maintenance.

### FEATURES

- | long arm reach allows work in hard to reach areas
- | mounting on rear 3pt hitch is gentle for tractor axis
- | a wide variety of working heads increases the tractor's range of applications
- | hydraulic accumulators protection system
- | standard oil cooler prevents oil overheating and provides uninterrupted work
- | wear-resistant steel used in production process for high durability



TECHNICAL DATA	WWT600 (WWT604D*)	WWT620D (WWT624D*)	WWT600P (WWT604P*)	WWT700T (WWT704T*)	WWT800T (WWT804T*)	
Connector size	80x80	80x80	80x80	80x80	80x80	[mm]
Horizontal range (measured to centre of connection)	5,17	5,17	5,25	6,27	7,42	[m]
Horizontal range (measured with GK110 head)	6,12	6,12	6,13	7,16	7,42	[m]
Working head supply	Own hydraulic system	Own hydraulic system	Own hydraulic system	Own hydraulic system	Own hydraulic system	[-]
Nominal oil pressure	21,5	21,5	21,5	21,5	21,5	[MPa]
Max. power of hydraulic system	54(39,5)	54/(39,5)	54(39,5)	54(39,5)	54(39,5)	[HP (kW)]
Nominal oil flow	80	80	80	80	80	[l/min]
Oil tank capacity	180	180	180	180	240	[l]
Head rotation angle	205	205	205	205	215	[°]
Transport length	1,35	1,35	2,54	1,35	2,24	[m]
Transport width	1,63	1,63	1,63	1,63	1,38	[m]
Transport height	3,56	3,56	3,46	3,58	3,65	[m]
Position of the multifunction arm relative to the carrier	right	left	right	right	right	[-]
Steering type	Mechanical - pulling rods (Electric on-off control)*	Mechanical - pulling rods (Electric on-off control)*	Mechanical - pulling rods (Electric on-off control)*	Mechanical - pulling rods (Electric on-off control)*	Mechanical - pulling rods (Electric on-off control)*	[-]
Arm protection	Hydraulic fuse	Hydraulic fuse	Hydraulic fuse	Hydraulic fuse	Hydraulic fuse	[-]
Weight	970	970	1100	1120	1500	[kg]
Lighting bar	Standard	Standard	Standard	Standard	Standard	[-]
Oil radiator	Standard	Standard	Standard	Standard	Standard	[-]
Mounting on rear 3pt hitch	cat. II	cat. II	cat. II	cat. II	cat. II or III	[-]
Rear PTO	540	540	540	540	540	[rpm]
Min. tractor weight	4500	4500	5000	5500	6000	[kg]

## MULTIFUNCTION ARM WWT600 WITH GK 140

WWT600 – arms for working with heavy heads for most difficult conditions



## MULTIFUNCTION ARM WWT600 WITH GN200

WWT600P – parallel system that keeps the head angle constant when the arm is adjusted.





## multifunction front arms WWP500U | WWT500UH

The PRONAR WWP500U and WWP500UH multifunction arms are designed for operation with MB Unimog carrying vehicles or other similar vehicles with comparable specifications. The power arm is mounted on a mounting plate compliant with the DIN standard at the front of the vehicle.

Arms are controlled from the operator's cabin by joystick and can be used with a wide range of heads manufactured by Pronar. The multifunction arm can be operated on the right side or, after the manual reconfiguration, on the left side of the carrying vehicle. Working head and the multifunctional arm can be supplied from arm's own hydraulics driven by PTO (UH version) or directly from carrier hydraulics (U version).

### STANDARD EQUIPMENT

- | hydraulic drive (from carrier) or PTO 1000 rpm
- | joystick control
- | horizontal hydraulic traverse
- | mounting on type A or B DIN 76060 mounting plate
- | parking rack

### OPTIONAL EQUIPMENT

- | axle lock (appropriately to the given Unimog model)
- | rear ballast
- | type A or B mounting plate (faceplate) installed on the front of the vehicle



TECHNICAL DATA	WWP500U	WWP500UH	
Transport width	2400	2400	[mm]
Transport height	2020	2020	[mm]
Connection size	80x80	80x80	[mm]
Horizontal range (measured to centre of connection)	4750	4750	[mm]
Horizontal range (measured with GK110 head)	5500	5500	[mm]
Vertical range	5250	5250	[mm]
Vertical range (measured with GK110 head)	6100	6100	[mm]
Turning angle (may be used on left or right side)	180	180	[°]
Angle range	0 – 180	0 – 180	[°]
Weight	760	1080	[kg]
Control own – Joystick mounted in the tractor's cab	electric, 12 or 24	24	[V]

CARRIER REQUIREMENTS WITH USE OF	WWP500U	
<b>ARM MOVEMENT HANDLING</b> One circuit of single- or double- action hydraulics with work position lock		
Min. oil flow	20	[l/min]
Min. pressure	20	[MPa]
No. of connectors	2 (supply, return)	[-]
<b>TOOL DRIVE</b> Power hydraulics with continuous operation		
Min. oil flow	90	[l/min]
Nominal pressure	25	[MPa]
No. of connectors	3 (supply, return, leakage drain)	[-]

CARRIER REQUIREMENTS WITH USE OF	WWP500UH	
Direction of shaft rotation (when looking at the front of the shaft)	left	[-]
PTO speed	1000	[rpm]
Nominal oil flow	90	[l/min]
Nominal pressure	21,5	[MPa]

Mowing of a hard-to-reach roadside using a WWP500U multifunction arm and GK 110 head



Mowing of a hard-to-reach roadside using a WWP500UH multifunction arm and GK 110 head





## hand-fed woodchipper MR-15

The MR-15 is a lightweight yet powerful woodchipper (750 kg), but also a powerful one. The machine is intended for tree and shrub residues that have undergone maintenance treatments, including in the field of roads or orchards.

The construction of the MR-15 chipper is based on a single-axle vehicle with a maximum weight not exceeding 750 kg. This allows for registration and road approval on the basis of approval in the O1 trailer category (with a maximum laden mass not exceeding 750 kg).

Thanks to the ball hitch lock installed in the machine, the MR-15 can be towed e.g. by a passenger car (this enables transport at a maximum speed of 100 km/h).



**TECHNICAL DATA****MR-15**

Total weight	750	[kg]
Dimensions (length, width, height) unfolded ramp	3760/1290/2350 (*1680 without chute)	[mm]
Dimensions (length, width, height) folded ramp	3350/1290/2350 (*1680 without chute)	[mm]
Suspension system	Sprung axle 750 kg, an overrun brake + hand brake	[-]
Engine	B&S Vanguard EFI 37 HP 993cc V - Twin petrol	[-]
Fuel tank capacity	35	[l]
Oil tank capacity	18	[l]
Flywheel	Ø580x25	[mm]
Sided cutting knives	2x 213 mm (two-sided)	[-]
Material feeding system	2 rollers Ø125 mm (hydraulic drive)	[-]
Material feeding system control	Water and shockproof mechanical buttons	[-]
Inlet opening (hopper)	150x191 ~6x8	[mm] [in]
Ball hitch	Ø50	[mm]

**MR-15**

Loading ramp and safety bar



Main beam headlights - provide good visibility to other road users





## hand-fed woodchipper MR-20

The Pronar MR-20 hand-fed chipper is a light (1250 kg), but also a powerful shredder of all remnants of trees and shrubs that have undergone maintenance treatments, incl. in the area of road lanes or orchards. The design of the Pronar MR-20 chipper is based on a single-axle vehicle with a maximum weight not exceeding 1250 kg. This allows for registration on the basis of approval in the O1 trailer category (with a maximum total mass not exceeding 1250 kg). Thanks to the ball hitch installed in the machine, the Pronar MR-20 can be towed e.g. by a passenger car (this enables transport at a maximum speed of 100 km/h).



**TECHNICAL DATA****MR-20**

Total weight	1260	[kg]
Dimensions (length, width, height) Ramp extended	4180/1466/2470 (*1810 with folded chute)	[mm]
Dimensions (length, width, height) folded ramp	3685/1466/2470 (*1810 with folded chute)	[mm]
Suspension system	Sprung axle 1500 kg, an overrun brake + hand brake	
Engine	Kubota WG1605-G-E3, 57 HP, Gasoline	
Fuel tank capacity	35	[l]
Oil tank capacity	25	[l]
Flywheel	Ø730x30	[mm]
Sided cutting knives	2x268 mm (two-sided)	
Material feeding system	2 rollers Ø170 mm (hydraulic drive)	
Material feeding system control	Water and shock-resistant mechanical buttons	
Inlet opening (hopper)	200x255 ~8x10	[mm] [in]
Coupling Ball	Ø50	[mm]

**MR-20**

Easily towable by a passenger car, thanks to 50 mm ball hitch



The risk of damaging the display box is reduced near to 0% thanks to polycarbonate protection shield





## slurry tanks T314 | T315 | T316

Slurry tanks PRONAR T314/T315/T316 are an exceptionally durable constructions, high resistance to corrosion and multifunctionality are just some of the advantages of our slurry trucks. Customers can choose between three available tank capacity 4000 l, 5000 l, 6000 l made of steel with improved strength properties. The construction of the lower frame ensures that the container does not transfer load as is the case with cars self-supporting.

The 6000 ltr. container has an inner partition 'breakwater', the aim of which is to prevent a substance from waving. Vehicles have a double protection system which secures the pump from flooding. A special overpressure valve helps to avoid too high pressure.

### STANDARD

- | wagon construction is a single - axle frame with attached tank
- | the tank is made of high - durability steel and has special welded - in ring frames to stiffen the construction
- | braking system - single or double wire pneumatic installation
- | the machine is equipped with 6 meters long suction hose (4", diameter 110 mm) with suction basket attached on the back
- | parking brake - manual crank brake
- | type of drawbar support - simple telescopic
- | lighting system 12V - spiral connecting cable of lighting system



TECHNICAL DATA	T314	T315	T316	
Allowable total weight	5800	7200	8650	[kg]
Load capacity	4400	5500	6600	[kg]
Empty weight	1400	1700	2050	[kg]
Tank capacity	4000	5000	6000	[l]
Tank length	2840	3460	4120	[mm]
Tank diameter	1400	1400	1400	[mm]
Tank wall thickness	5	5	5	[mm]
Dimensions (length, width, height)	5350/2050/2380	5965/2300/2430	6708/2400/2610	[mm]
Tank mounting	on the suspension frame	on the suspension frame	on the suspension frame	[-]
Filling system/discharge system	Pneumatic: underpressure/ overpressure	Pneumatic: underpressure/ overpressure	Pneumatic: underpressure/ overpressure	[-]
Wheel track	1650	1770	1860	[mm]
Suspension	one axle, rigid	one axle, rigid	one axle, rigid	[-]
Hitch-ring load	1000	1300	1400	[kg]
Tyres	400/60 R15,5	500/50 R17	500/60 R22,5	[-]
Maximum speed	40	40	40	[km/h]
Minimum tractor power requirement	45/33	54/40	65/48	[HP/kW]
PTO range	540	540	540	[rpm]
Maximum compressor efficiency	4350	6150	6150	[l/min]
Maximum filling time	4	4	5	[-]

## T315



Drain connection at the lowest point of the tank



Spouting spoon



Rotary vane vacuum pump



# road tech machinery





## TABLE OF CONTENTS

ROAD GRADER <b>RD-Z24</b> .....	62
ROAD GRADER <b>RD-C25</b> .....	64
SOIL STABILIZER <b>SGD-25Z</b> .....	66
SOIL STABILIZER <b>SGD-21</b> .....	68



## road grader RD-Z24

The road grader is a machine for grading and repairing gravel roads as well as for other preparatory work in the vicinity of traffic routes and public areas.

The materials used in the manufacturing process guarantee high strength and durability. Thanks to 5 hydraulic cylinders, the machine can be optimally adapted to different tasks — mouldboard can be adjusted in 3 planes. It can be used to repair gravel and forest roads, to create land for construction of new traffic routes, and to prepare grounds for investment. Thanks to the implementation of a system of hydraulic cylinders, it is ideally suited for grading soil.

### OPTIONAL EQUIPMENT

- | rippers
- | hydraulic control of support wheels



## TECHNICAL DATA

## RD-Z24

Working width - straight - at max. turn angle	2400 2078	[mm]
Max. frame turn angle	30	[±°]
Vertical blade rotation angle	30	[±°]
Horizontal blade turning angle	45	[±°]
Weight	930	[kg]
Mounting on tractor	3pt hitch cat. II	[-]
Power demand	100-180 (74-132)	[HP (kW)]
Working speed max.	10	[km/h]

## RD-Z24



The mouldboard is equipped with a steel blade made of wear-resistant steel



Support wheels mounted at the rear of the machine



Paluchy spulchniające





## road grader RD-C25

The RD-C25 front-mounted grader is used for efficient levelling of sub-base surfaces for car parks, squares, roads and many others. The precision of the work performed, even on complex spatial terrain, is ensured by the use of the Leica Geosystem levelling system for the grader, which has the option to use a 3D cad file uploaded by an architect. Depending on the level of complexity of construction work, the levelling system can be purchased in various configurations.

The levelling can be controlled by manual control via joystick (standard equipment) or either automatic 2D laser control via leveller in two planes (optional equipment) as well as automatic 3D laser control via GPS & total station in three planes (optional equipment).

The automatic laser systems from Leica Geosystems, simplify and precise the work considerably, by eliminating the need for constant control, readjustment and surface measurement. The operator's work with the Leica Geosystems automatic levelling system switched on, makes work easier and up to three times faster, eliminating the need for constant control of surveying measurements.

The RD-C25 grader is front-mounted with an adapted bolt-on suspension system for wheeled or tracked loaders.

## OPTIONAL EQUIPMENT

- | hydraulic blade angle control (with 45° angle adjustment)
- | manually or hydraulically controlled side wings (with stepless angle adjustment 0°- 45°- 90°)
- | hydraulically controlled side wings (with stepless 0°-90° angle adjustment)
- | front lights (position, dipped, main beam)
- | leica geosystem levelling system (automatic 2d or 3d control)
- | 24v version of grader hydraulics and lighting
- | bolt-on suspension system adapted to the carrier
- | hydraulic quick couplings adapted to the carrier



## RD-C25



### TECHNICAL DATA

### RD-C25

Drive	Hydraulic	[-]
Weight	1114	[kg]
Maximum width with unfolded side wings	3010	[mm]
Minimum width with maximum tilted dozer blade	2050	[mm]
Length without suspension	2440	[mm]
Working height (dozer blade + scraper bar)	500	[mm]
Height	1390	[mm]
Hydraulic side shift	+/- 450	[mm]
Hydraulic height adjustment	260	[mm]
Hydraulic side angle adjustment	+/- 35	[°]
Hydraulic tilt	+/- 35	[°]
Manual scraper angle adjustment *(in 9° steps)	45	[°]
Minimum weight (of carrier vehicle)	3.2 - 5	[t]
Minimum lifting capacity (of carrier vehicle)	1300	[kg]
Required hydraulic sections	1	[pcs]
Hydraulic oil flow	40(min.) - 100(max.)	[l/min]
Minimum hydraulic oil pressure	160	[bar]
Supply voltage	12 / 24	[V]



## soil stabilizer SGD-25Z

The SGD-25Z soil stabilizer is a high-performance machine powered by the tractor's PTO and mounted on its rear three-point hitch. Power is transmitted from the tractor through a telescopic universal shaft to the central gearbox, which then drives the working shaft via belt and cylindrical gears. The reinforced drive system ensures optimal performance in tough working conditions.

The working shaft is equipped with holders for mounting replaceable round milling cutters with carbide tips, ensuring high efficiency in soil processing. The machine comes standard with hydraulically adjustable side covers and a rear flap, as well as hydraulic control of the working shaft height. The variable mixing chamber allows for precise adaptation of the stabilization process to field conditions.

All functions are controlled using a joystick installed in the operator's cabin. Additionally, the machine can be equipped with various types of rear flap scrapers, an anti-blade plate, and rear road lighting.

## APPLICATION

The SGD-25Z stabilizer is designed for soil preparation before compaction by mixing pre-spread stabilizing components, which improve the bearing capacity and cohesion of the substrate.



# NEW

## SGD-25Z



### TECHNICAL DATA

### SGD-25Z

Weight (with leveling plate)	5 200	[kg]
Recommended engine power	280	[kW]
Mounting method to carrier	3-point linkage, Cat. 3 according to ISO 730	[-]
Power take-off shaft	1 $\frac{3}{4}$ " z=20; compliant with Type 3 according to ISO 500; n=1000 rpm	[-]
Working speed	0.1 – 2 (depending on working conditions)	[km/h]
Max transport speed	25	[km/h]
Working width	2 500	[mm]
Width	2 930	[mm]
Length	2 520	[mm]
Height	1 906	[mm]
Transport height	1 520	[mm]
Working shaft diameter	1200	[mm]
Max working depth	600	[mm]

Working shaft with visible milling cutters and deflector plates.



Shaft lifting mechanism enabling variable mixing chamber volume.





## soil stabilizer SGD-21

The PRONAR SGD-21 is a PTO-driven tiller and soil stabilizer which prepares soil structures for road and areal constructions. In addition, it serves for the recultivation of agricultural and green areas. This professional rear attachment device can be equipped with limiting skids up to a depth of 150 mm. The maximum working depth to be reached is around 400 mm.



## SGD-21



### TECHNICAL DATA

### SGD-21

Number of working tools	66 teeth (on the working shaft)	[-]
Weight with dozer blade	4410	[kg]
Weight with leveling roller	5010	[kg]
Power requirement (of towing vehicle)	184	[hp]
Working speed	0.1-2	[km/h]
Maximum transport speed	25	[km/h]
Working width	2100	[mm]
Width	2430	[mm]
Length with dozer blade	2244	[mm]
Length with conditioning roller	2655	[mm]
Height	1520	[mm]
Working shaft diameter	870	[mm]
Standard equipment	Dozer blade	[-]
Additional equipment	Leveling roller	[-]

Soil loosening teeth



Levelling roller



Changeable coulter

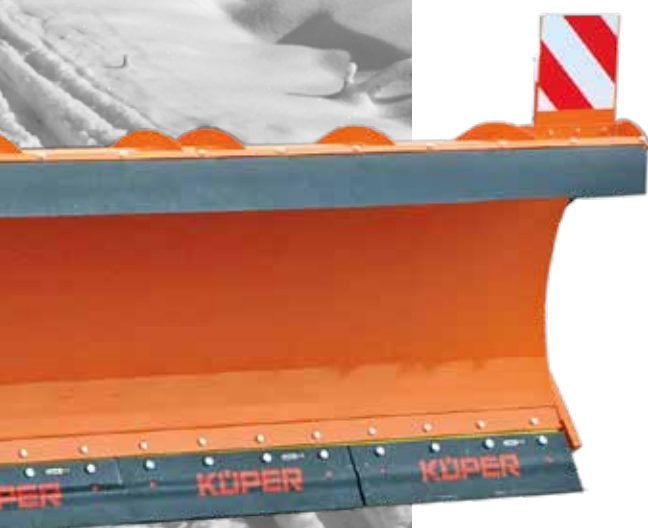


# winter road maintenance machinery



## TABLE OF CONTENTS

SNOW PLOUGH <b>PU-1400</b> .....	72
SNOW PLOUGH <b>PU-2200E</b> .....	73
SNOW PLOUGHS <b>PU-2600   PU-3300</b> .....	74
SNOW PLOUGHS <b>KACPER PU-1700   PU-2100</b> .....	76
SNOW PLOUGHS <b>PUV-1400   PUV-1600</b> .....	78
SNOW PLOUGHS <b>PUV-2600   PUV-2800   PUV-3000   PUV-3300</b> .....	80
SNOW PLOUGHS <b>PUV-1350M   PUV-1500M   PUV-1800M   PUV-2000M</b> .....	82
SNOW PLOUGHS <b>PUV-2600M   PUV-2800M   PUV-3000M   PUV-3300M</b> .....	84
SNOW PLOUGHS <b>PUV-3600HD   PUV-4000HD</b> .....	86
UNIVERSAL SCRAPER BLADE <b>PU-T20</b> .....	88
SCRAPER <b>PUU-3700</b> .....	90
SAND SPREADERS <b>PS-250   PS-250M</b> .....	92
SAND SPREADER <b>PW-120</b> .....	94
SELF-LOADING SPREADER <b>HZW150   HZW200</b> .....	96
SELF-LOADING SPREADER <b>HZS10</b> .....	98
TRAILED SAND SPREADER <b>KCT07</b> .....	100
TRAILED SAND SPREADERS <b>T130   T131   T132</b> .....	102
SNOW BLOWERS <b>OW1.5   OW1.5 2.1M(H)   OW1.5 2.4M(H)</b> .....	104
SNOW BLOWERS <b>OW2.4L</b> .....	106
SNOW BLOWER <b>OFW2.6</b> .....	108
TRUCK SNOW PLOUGHS <b>PU-S25H   PU-32H   PU-35H</b> .....	110
SNOW PLOUGH <b>PUD-S43</b> .....	112
TRUCK SNOW PLOUGHS <b>PU-S25HL   PU-S27HL   PU-S30HL   PU-S34HL</b> .....	114
TRUCK SNOW PLOUGH <b>PUT-S58</b> .....	116
SEGMENTED SNOW PLOUGHS <b>PUS-S27   PUS-S32   PUS-S34   PUS-S36   PUS-S40</b> .....	118
TILTABLE SNOW PLOUGH <b>PUL-S45</b> .....	120
SIDE TRUCK SNOW PLOUGH <b>PUB-S33</b> .....	121
TRUCK SAND SPREADER <b>PT70 SERIES</b> .....	122
TRUCK SAND SPREADER <b>PT40 SERIES</b> .....	124
TRUCK SAND SPREADER <b>HPT25</b> .....	126
TRUCK SAND SPREADERS <b>EPT15   EPT21</b> .....	128
PRONAR <b>EXPORT SALES SPECIALIST</b> .....	130





# snow plough PU-1400

## FEATURES AND STANDARD EQUIPMENT

- | two extreme working positions
- | rubber blade
- | clearance lights

## ADDITIONAL OPTIONS

- | skids
- | metal blade
- | can be mounted on various types of carrying vehicles such as: loaders, front loaders, carrying vehicles equipped with an A-frame, agricultural tractors

### TECHNICAL DATA

### PU-1400

Working width - straight - at max. turn angle	1400 1260	[mm]
Max. frame turn angle	25	[±°]
Working height	600	[mm]
Weight	175	[kg]
Power demand	up to 22 (30)	[kW/HP]
Working speed max.	10	[km/h]

## PU-1400





# snow plough PU-2200E

## FEATURES AND STANDARD EQUIPMENT

- | two extreme working positions
- | rubber blade
- | clearance lights
- | mechanical turning
- | without linkage system

## ADDITIONAL OPTIONS

- | skids
- | can be mounted on various types of carrying vehicles without the need to use a front 3 - point hitch
- | hydraulic steering system
- | support wheels
- | lifting actuator

### TECHNICAL DATA

### PU-2200E

Working width - straight - at max. turn angle	2190 1930	[mm]
Max. frame turn angle	30	[±°]
Working height	835	[mm]
Weight	360	[kg]
Power demand	up to 44 (60)	[kW/HP]
Working speed max.	10	[km/h]

## PU-2200E





# snow ploughs PU-2600 | PU-3300

## FEATURES AND STANDARD EQUIPMENT

- | rubber or metal blade
- | transverse ground tracking linkage
- | slides made of wear-resistant steel
- | anti-collision protection: mouldboard deflection to the front (independently left/right) if an obstacle is run into

## ADDITIONAL OPTIONS

- | adjustable support wheels
- | fenders protecting against curbs
- | flanges increasing working width (standard in PU-3300)
- | tarpaulin anti-dust screen
- | overload protection
- | can be mounted on various types of carrying vehicles such as: trucks and multi-functional vehicles, backhoe loaders, loaders, front loaders
- | long screens



**TECHNICAL DATA**

	PU-2600	PU-3300	
Working width - straight - at max. turn angle	2900 2500	3300 2900	[mm]
Max. frame turn angle	30	30	[±°]
Working height	1040	1040	[mm]
Weight	660	680	[kg]
Power demand	59-110 (80-150)	59-110 (80-150)	[kW/HP]
Working speed max.	10	10	[km/h]

## PU-3300



Segmented mouldboard with spring safeguard



Skids made of abrasion-resistant steel



Rubber blade





## snow ploughs KACPER PU-1700 | PU-2100

### FEATURES AND STANDARD EQUIPMENT

- | four extreme working positions
- | rubber or metal blade
- | tiltable cutting edge
- | clearance lights

### ADDITIONAL OPTIONS

- | skids
- | adjustable support wheels
- | hydraulic shock absorption
- | ground tracking linkage system
- | can be mounted on various types of carrying vehicles such as: trucks and multi-functional vehicles, backhoe loaders, loaders, front loaders



TECHNICAL DATA	PU-1700	PU-2100	
Working width - straight - at max. turn angle	1930 1680	2210 1920	[mm]
Max. frame turn angle	30	30	[±°]
Working height	900	900	[mm]
Weight	280	300	[kg]
Power demand	25-55 (15-40)	25-55 (15-40)	[kW/HP]
Working speed max.	10	10	[km/h]

## KACPER PU-1700



Rubber blades with shock absorption



Metal blades with shock absorption



Metal skids





# snow ploughs PUV-1400 | PUV-1600

## FEATURES AND STANDARD EQUIPMENT

- | four extreme working positions
- | rubber blade
- | tiltable cutting edge
- | clearance lights

## ADDITIONAL OPTIONS

- | skids
- | adjustable support wheels
- | hydraulic shock absorption
- | ground tracking linkage
- | metal blade
- | can be mounted on various types of carrying vehicles such as: loaders, front loaders, carrying vehicles equipped with an A-frame, agricultural tractors



TECHNICAL DATA	PUV-1400	PUV-1600	
Working width - straight - at max. turn angle	1320 1280	1415 1390	[mm]
Max. frame turn angle	30	30	[±°]
Working height	860	675	[mm]
Weight	200	155	[kg]
Power demand	up to 22 (30)	up to 22 (30)	[kW/HP]
Working speed max.	10	10	[km/h]

## PUV-1400



Working at an angle of 30°



Electrohydraulic adjustment of the working angle



Clearance lights





snow ploughs

**PUV-2600 | PUV-2800 | PUV-3000 | PUV-3300**

## FEATURES AND STANDARD EQUIPMENT

- | 4 extreme working positions
- | cutting edge with shock absorption
- | HARDOX metal blade
- | ground tracking linkage system
- | skids made of abrasion-resistant steel
- | clearance lights

## ADDITIONAL OPTIONS

- | support wheels with stepless adjustment
- | hydraulic shock absorption
- | rubber blades
- | mounting on any carrying vehicle, according to the customer's order



TECHNICAL DATA	PUV-2600	PUV-2800	PUV-3000	PUV-3300	
Working width - straight - at max. turn angle	2360 2320	2550 2490	2710 2660	2970 2930	[mm]
Max. frame turn angle	27	27	27	27	[±°]
Working height	835	835	935	935	[mm]
Weight	600	650	800	850	[kg]
Power demand	80-150 (59-110)	80-150 (59-110)	100-200 (74-147)	100-200 (74-147)	[HP (kW)]
Working speed max.	10	10	10	10	[km/h]

## PUV-3300



Spring shock absorption of the blade



Hydraulic shock absorption



Rubber blade





snow ploughs

**PUV-1350M | PUV-1500M | PUV-1800M  
PUV-2000M**

## FEATURES AND STANDARD EQUIPMENT

- | 4 extreme working positions
- | cutting edge with shock absorption
- | HARDOX metal blade
- | ground tracking linkage system
- | skids made of abrasion-resistant steel
- | clearance lights

## ADDITIONAL OPTIONS

- | support wheels with stepless adjustment
- | hydraulic shock absorption
- | rubber blades
- | mounting on any carrying vehicle, according to the customer's order



TECHNICAL DATA	PUV-1350M	PUV-1500M	PUV-1800M	PUV-2000M	
Working width - straight - at max. turn angle	1210 1170	1345 1305	1600 1560	1775 1730	[mm]
Max. frame turn angle	30	30	30	30	[±°]
Working height	625	635	660	670	[mm]
Weight	145	154	185	200	[kg]
Power demand	30 (22)	30 (22)	50 (37)	50 (37)	[HP (kW)]
Working speed max.	10	10	10	10	[km/h]

## PUV-2000M



The possibility of designing the suspension on any carrier



Split working blades



Hydraulic shock absorption





snow ploughs

**PUV-2600M | PUV-2800M | PUV-3000M  
PUV-3300M**

## FEATURES AND STANDARD EQUIPMENT

- | 4 extreme working positions
- | cutting edge with shock absorption
- | HARDOX metal blade
- | ground tracking linkage system
- | skids made of abrasion-resistant steel
- | clearance lights

## ADDITIONAL OPTIONS

- | support wheels with stepless adjustment
- | hydraulic shock absorption
- | rubber blades straight
- | mounting on any carrying vehicle, according to the customer's order
- | HARDOX or perfored blades, straight or 30°



TECHNICAL DATA	PUV-2600M	PUV-2800M	PUV-3000M	PUV-3300M	
Working width - straight - at max. turn angle	2335 2075	2500 2240	2655 2395	2845 2570	[mm]
Max. frame turn angle	33	33	33	35	[°]
Working height	855	865	880	1015	[mm]
Weight	680	700	730	860	[kg]
Power demand	80-150 (59-110)	80-150 (59-110)	80-150 (59-110)	100-200 (74-147)	[HP (kW)]
Working speed max.	10	10	10	10	[km/h]

## PUV-2800M



Clearance lights



Spring shock absorption of the blade



Support wheel





# snow ploughs PUV-3600HD | PUV-4000HD

## FEATURES AND STANDARD EQUIPMENT

- | 4 extreme working positions
- | cutting edge with shock absorption
- | HARDOX metal blade
- | ground tracking linkage system
- | skids made of abrasion-resistant steel
- | clearance lights

## ADDITIONAL OPTIONS

- | support wheels with stepless adjustment
- | hydraulic shock absorption
- | rubber blades straight
- | mounting on any carrying vehicle, according to the customer's order
- | HARDOX or perfored blades, straight or 30°



**TECHNICAL DATA**

	<b>PUV-3600HD</b>	<b>PUV-4000HD</b>	
Working width - straight - at max. turn angle	3115 2955	3420 3140	[mm]
Max. frame turn angle	35	35	[±°]
Working height	1164	1206	[mm]
Weight	1025	1270	[kg]
Power demand	110-220 (81-162)	120-250 (88-183)	[HP(kW)]
Working speed max.	10	10	[km/h]

## PUV-4000HD



Blades with 30 degrees (perpendicular available)



Rubber supporting wheels



Blade spring protection





## universal scraper blade PU-T20

### FEATURES AND STANDARD EQUIPMENT

- | 2 extreme working positions
- | rubber or metal blade
- | capability of grading unpaved roads
- | capability of operating on front or rear three-point hitch of tractor



**TECHNICAL DATA****PU-T20**

Working width - straight - at max. turn angle	2000 1530	[mm]
Max. frame turn angle	40	[±°]
Working blade height	654	[mm]
Weight	400	[kg]
Power demand	max. 150 (110)	[HP (kW)]
Working speed max.	10	[km/h]

**PU-T20**

Possibility of aggregation at the back of the carrier



Possibility of aggregation at the front of the carrier



Hydraulic turning





# scraper PUU-3700

## FEATURES AND STANDARD EQUIPMENT

- | adjustment of working width by setting angle of two side mouldboards and the central mouldboard
- | rubber blades
- | electro-hydraulic control

## ADDITIONAL OPTIONS

- | support wheels
- | perforated mouldboard extensions for silage
- | top extensions for snow
- | clearance lights
- | adjustment of transverse plough position by means of hydraulic cylinders within the range of  $\pm 12^\circ$
- | anti-dust screen for snow
- | metal blades



**TECHNICAL DATA****PUU-3700**

Working width - straight - at max. turn angle	3690 2140	[mm]
Max. frame turn angle	30	[±°]
Turning angle of side wing to the front/back	+90°/-60°	[±°]
Working blade height	975	[mm]
Weight	1275	[kg]
Power demand	up to 300 (221)	[HP (kW)]
Working speed max.	20	[km/h]
Requirements concerning carrying vehicle hydraulics	2	[pcs]

**PUU-3700**

Hydraulic adjustment of the wing position in the range of -60° to +90°



Support wheels





# sand spreaders PS-250 | PS-250M

## FEATURES AND STANDARD EQUIPMENT

- | container cover
- | hydraulic drive
- | mixer
- | dose adjusted manually
- | stainless steel spreading disk

## ADDITIONAL OPTIONS

- | PTO drive
- | dose adjusted manually with a hydraulically closed shute
- | PTO shaft
- | dose adjusted hydraulically



TECHNICAL DATA	PS-250	PS-250M	
Load capacity	300	600	[kg]
Tank capacity	250	500	[l]
Power demand	15 (11)	15 (11)	[HP (kW)]
Spreading width	adjustable 1 - 6	adjustable 1 - 6	[m]
Mounting on tractor	3pt hitch cat. I or II narrow	3pt hitch cat. I or II narrow	[-]

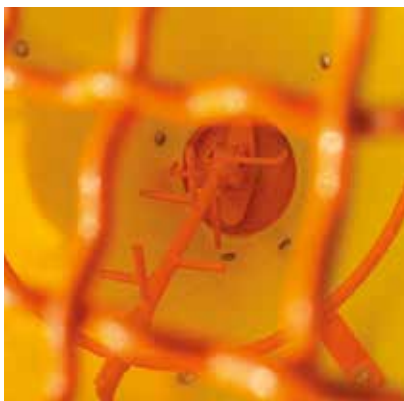
## PS-250M



Adjustment of spreading width



Sieve and mixer in funnel



Stainless steel spreading disc





## sand spreader PW-120

The PW120 spreader has the option of aggregation on the rear or front of the carrier. It fits to small tractors, loaders, front loaders etc. and it is used to spreading flat surfaces with sand, salt or mixture thereof.

### FEATURES AND STANDARD EQUIPMENT

- | PTO 540 rpm
- | electric with steering panel
- | hydraulic with manual flow regulator (20-70 l/min, 17,5 Mpa)

### ADDITIONAL OPTIONS

- | suspension on the front or rear of the carrier using a bolted suspension system (possibility of designing suspension to any carrier)
- | scraper (50x5, 50x3, 25x3) bolted
- | rear lighting



**TECHNICAL DATA****PW120**

Weight	170	[kg]
Tank capacity	385	[l]
Load capacity	580	[kg]
Spreading width	1,2	[m]
Mounting on tractor	3pt. hitch cat I or II narrow	[-]

**PW-120**

Manually - folding tarpaulin with position lock secures material against atmospheric agents

A safety grille protects the spreading system against stone damage and lumpy material and prevents injury to the operator

Manual regulation of spreading density by roller shutter pressure





## self-loading spreader HZW150 | HZW200

Pronar HZW self-loading spreaders are equipped with roller dispensing system with a constant spreading width. They are suitable for spreading aggregate on sidewalks and parking lots, because they are safe to use and do not shoot stones. The suspension allows the machines to be mounted on Euro frames (frontloaders), and after the use of an adapter - on tractor 3pt hitch.



TECHNICAL DATA	HZW150	HZW200	
Carrying capacity	1300	1600	[kg]
Tank capacity	0,8	1	[m³]
Spreading width	1,5	2	[m]
Power supply	PTO or hydraulic	PTO or hydraulic	[-]
Nom. tractor hydraulic output	30	30	[l/min]
PTO nom. Speed	540	540	[rpm]
Spreading speed	5 - 40	5 - 40	[km/h]
Mounting (optional)	Euro (3 pt. hitch)	Euro (3 pt. hitch)	[-]
Required 3pt capacity	2000	3000	[kg]
Weight	360	500	[kg]

## HZW200



Canvas cover with frame protects the material from snow and rain



Safety grill for homogeneous spreading material



Working roller with slats dispense the material on the road





# self-loading spreader HZS10

## FEATURES AND STANDARD EQUIPMENT

- | canvas cover
- | control panel for setting spreading parameters as a standard equipment of sand spreader
- | stainless steel spreading system

## ADDITIONAL OPTIONS

- | mixer
- | vibrator



**TECHNICAL DATA****HZS10**

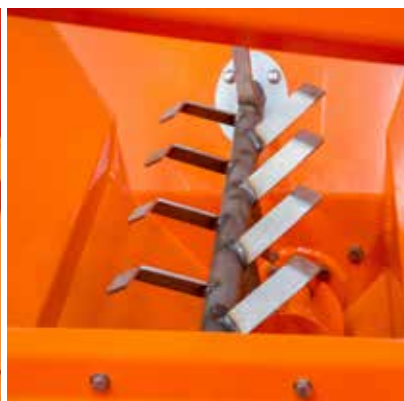
Carrying capacity	1700	[kg]
Tank capacity	1	[m <sup>3</sup> ]
Spreading width	adjustable 2 - 6	[m]
Power supply	Hydraulic	[-]
Nom. tractor hydraulic output	40	[l/min]
Spreading speed	5 - 40	[km/h]
Mounting (optional)	3pt hitch cat. II	[-]
Demanded 3pt hitch capacity	2500	[kg]
Weight	555	[kg]

**HZS10**

Control panel



Additional mixer facilitates aggregate breaking



Stainless steel spreading disc





## trailed sand spreader KCT07

Pronar KCT07 spreader is a solution for low-power tractors. It allows work with the simplest tractors without hydraulic system. The spreader is towable, so that it does not overload the compact carriers. Its size allows you to work on the sidewalks.



**TECHNICAL DATA****KCT07**

Load capacity	1120	[kg]
Tank capacity	0,7	[m <sup>3</sup> ]
Spreading width	1,5 - 4	[m]
Min. power requirement	20 (14,7)	[HP (kW)]
Max. working speed	15	[km/h]
Recommended PTO speed (mechanical version)	300	[rpm]
Max. hydraulic pressure (hydraulic version)	20	[MPa]
Nominal oil flow (hydraulic version)	16-50	[l/min]
Weight	345	[kg]

\*with flow rate of 16 l/min, the spreading width is max. 3 m

## | KCT07



Covers for setting spreading width and limit scattering



PTO drive for tractors without hydraulic system



Sieve for better material comminutement





## trailed sand spreaders T130 | T131 | T132

### FEATURES AND STANDARD EQUIPMENT

- | canvas cover protecting cargo
- | two stainless steel spreading units
- | conveyor belt
- | hydraulic drive
- | charging sieve as a standard equipment

### FEATURES AND OPTIONAL EQUIPMENT

- | spare wheel
- | side service platform (in T131 and T132 sand spreaders)



TECHNICAL DATA	T130	T131	T132	
Carrying capacity	2520	3800	5500	[kg]
Loadbox capacity	2	3	4	[m <sup>3</sup> ]
Spreading width	1800 – 2800	1800 – 2800	1800 – 2800	[mm]
Minimum tractor power demand	48 (35)	60 (44)	70 (51)	[HP (kW)]
Minimum hydraulic system output	32	32	32	[l/min]

## T130 | T131 | T132



Adjustable spreading width



2 stainless steel spreading discs



Side service platform (T131 & T132)





**snow blowers**

**OW1.5 | OW2.1M(H) | OW2.4M(H)**

## FEATURES AND STANDARD EQUIPMENT

- | blade and slides made of „Hardox” abrasion-resistant steel
- | hydraulically rotated discharge chute
- | mechanical drive powered by front PTO
- | mounted on 3pt hitch

## FEATURES AND OPTIONAL EQUIPMENT

- | mounting system on rear 3pt hitch and on construction machinery
- | hydraulic drive for OW2.1 and OW2.4
- | high-discharge chute



TECHNICAL DATA	OW 1.5	OW 2.1M(H)	OW 2.4M(H)	
Weight	320	650 (737)	740 (830)	[kg]
Working width	1500	2100	2330	[mm]
Working height	580	780	780	[mm]
Number of augers	1	1	2	[-]
Required tractor PTO speed (left or right)	540 or 1000	540 or 1000	540 or 1000	[rpm]
Discharge distance	5 - 20	5 - 30	5 - 30	[m]
PTO power demand	25-60 (18-44)	50-95 (37-70)	70-150 (51-110)	[HP (kW)]
Working pressure*	-	25	25	[MPa]
Demanded oil output*	-	100 - 140	135 - 195	[l/min]

for blower with hydraulic supply\*

## OW2.4H



High-discharge chute



Transmission with two PTO outputs (rear-540 / front-1000 rpm)



Hydraulic discharge chute rotation and adjustment of throwing distance





## snow blowers OW2.4L

### FEATURES AND STANDARD EQUIPMENT

- | blade and skids are made of „Hardox” wear-resistant steel
- | chute hydraulically adjusted
- | front and rear PTO mechanical drive
- | front and rear 3pt hitch suspension

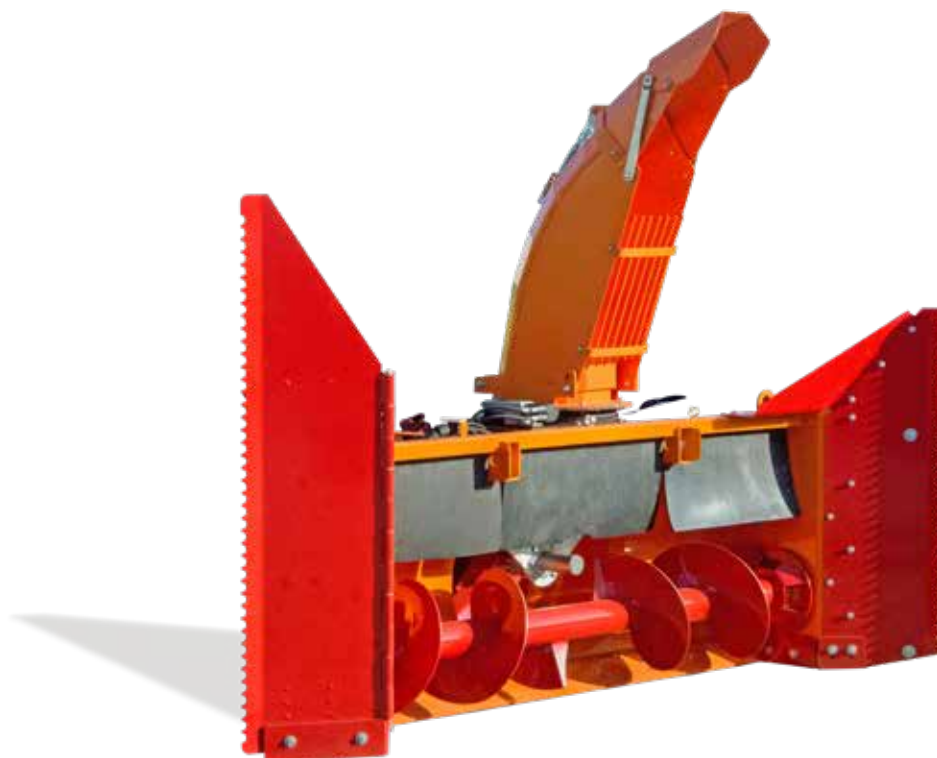
### FEATURES AND OPTIONAL EQUIPMENT

- | suspension system designed to work with construction machinery and rear 3pt hitch
- | hydraulic drive
- | rigid side extensions left and right
- | clearance lights



**TECHNICAL DATA****OW2.4L**

Weight	850	[kg]
Working width (without extensions)	2400	[mm]
Gullet width	2200	[mm]
Working height	920	[mm]
Blowing distance	5 – 30	[m]
Number of augers	1	[-]
Required PTO speed (direction: clockwise)	540	[rpm]
Mounting on	Category II and III 3 pt hitch	[-]
PTO power demand	60-150 / (45-110)	[HP (kW)]
Working speed	2	[km/h]

**OW2.4L****Hydraulic control of the widening**

Slides and support wheels to maintain the distance between the surface and the blades (to limit the thickness of the swept layer)





## snow blower OFW2.6

OFW2.6 is designed for the toughest winter jobs. The heavy duty construction allows for crushing snow and ice and throwing the material away from the de-snowed paths and roads. Aggregation for carriers with a communal plate DIN or tractor three-point hitch gives wide possibilities of application, not only in municipal companies. Use of high quality materials ensures long-term operations.

### FEATURES AND STANDARD EQUIPMENT

- | possibility of adjusting working degree
- | skids, plowshares, auger and dispensing chute made of Hardox
- | working height of 1,2 m
- | discharge distance up to 30 m
- | PTO drive (1000rpm) left or right
- | 3-pt hitch cat. II or III (tractor) or DIN type A (truck) mountings available
- | auger and rotor overload protection



**TECHNICAL DATA****OFW2.6**

Weight	1700	[kg]
Clearing width	2640	[mm]
Working height	1245	[mm]
Required tractor PTO speed: 3pt hitch - left or right DIN plate std 76060 - left only	1000	[rpm]
PTO power demand	140 (103)	[HP (kW)]
Discharge distance	5 - 30	[m]
Auger diameter	950	[mm]
Rotor diameter	880	[mm]

**OFW2.6**

Rubber covers protect against dusting



Snail-cutter for cutting frozen snow and ice. Working height of 1.245m



Skids or supporting wheels





# truck snow ploughs PU-S25H | PU-S32H | PU-S35H

## FEATURES AND STANDARD EQUIPMENT

- | plastic mouldboard
- | electro-hydraulic control with “floating” position,
- | available power supply 12V and 24V
- | fenders protecting against curbs included
- | road lighting and clearance lighting as a standard equipment
- | own hydraulic system
- | press-down function

## ADDITIONAL OPTIONS

- | mounting on carrying vehicles other than trucks
- | blades shock absorption
- | steel blades
- | support wheels
- | flags
- | two actuators



TECHNICAL DATA	PU-S25H	PU-S32H	PU-S35H	
Working width with bumper - straight - at max. turn angle	2690 2550	3370 3175	3634 3415	[mm]
Max. frame turn angle	30	30	30	[±°]
Working height	930	1070	1070	[mm]
Electric supply	12 or 24	12 or 24	12 or 24	[V]
Carrier payload (vehicle truck)	6	8	8	[t]
Weight	430	635	670	[kg]
Mounting on DIN plate std 76060	type B	type A	type A	[-]

## PU-S32H



Control panel



Powerpack and own driving lights



Clearance lights





## snow plough PUD-S43

Diagonal snow plough equipped with mouldboard capable of turning 46 degrees towards carrier. Automatic blade adjustment to road inclination (terrain copying) within  $\pm 6.4^\circ$ . The plough is available in different versions: on the tractor - the plow suspension is rigidly attached to the subframe without a lift cylinder; for a truck - the suspension system is based on a „Finnish” plate mounted on four pendulums to the carrying frame, which is regulated by an actuator with a mouldboard floating function in the height range 0-400 mm (possibility of locking the float for plough aggregation).



**TECHNICAL DATA****PUD-S43**

Working width (46° - 0°)	2940-4270	[mm]
Max. frame turn angle	0 - 46°	[°]
Tracing terein angle	±6,4	[°]
Terein tracing height	400	[mm]
Power supply	12 lub 24	[V]
Weight	1400	[kg]
Working speed	maks. 70	[km/h]
Dimensions (width/length/height)	5130/2545/1930	[mm]
Mounting on the carrier	Mounting system according to „Finnish” standard	[-]

**PUD-S43**

Support wheel



Hydraulic system



Skids





**truck snow ploughs**

**PU-S25HL | PU-S27HL | PU-S30HL | PU-S34HL**

## FEATURES AND STANDARD EQUIPMENT

- | electrohydraulic control with “floating” position
- | available power supply: 12V and 24V
- | road lights and clearance lights
- | fenders protecting against curbs
- | own hydraulic system
- | press-down function
- | easy mouldboard change

## ADDITIONAL OPTIONS

- | mounting on carrying vehicles other than trucks
- | blades shock absorption
- | steel blades
- | support wheels
- | flags
- | two actuators



TECHNICAL DATA	PU-S25HL	PU-S27HL	PU-S30HL	PU-S34HL	
Working width at max. turn angle	2155	2380	2630	2970	[mm]
Max. frame turn angle	30	30	30	30	[±°]
Working height	930	1060	1060	1060	[mm]
Electric supply	12 or 24	12 or 24	12 or 24	12 or 24	[V]
Carrier payload (vehicle truck)	6	8	8	8	[t]
Weight	450	530	550	590	[kg]
Mounting on DIN plate std 76060	type A or B	type A or B	type A or B	type A or B	[-]

## PU-S34HL



Clearance lights



Support wheel





# truck snow plough PUT-S58

## FEATURES AND STANDARD EQUIPMENT

- | working width adjustment
- | KÜPER metal-ceramic-rubber cutting edge
- | clearance lights
- | power supply from three or four pairs of quick couplers

## ADDITIONAL OPTIONS

- | KÜPER skids
- | adjustable support wheels
- | own hydraulic system



**TECHNICAL DATA****PUT-S58**

Working width - straight - at max. turn angle	(folded/unfolded) 3900 / 5855 3455 / 5150	[mm]
Max. mouldboard turn angle	30	[±°]
Working height	1090	[mm]
Electric supply	24	[V]
Carrier payload (vehicle truck)	8	[t]
Weight	1760	[kg]
Mounting on DIN plate std 76060	type A	[-]

**PUT-S58**

Optional regulated support wheel



Position marking lights



Mounting – DIN type A municipal plate





## segmented snow ploughs

**PUS-S27 | PUS-S32 | PUS-S34 | PUS-S36 | PUS-S40**

### FEATURES AND STANDARD EQUIPMENT

- | rubber blades (rigid suspension)
- | wheels
- | parking supports (on four castor wheels)
- | power supply from 2 pairs of quick coupler on the carrying vehicle (1 pair on carrying vehicle with floating position)
- | In-cabin control panel
- | electrical power supply from battery
- | linkage: DIN A; DIN B, SETRA
- | clearance lights
- | side fenders
- | 2 mouldboard turning actuators
- | 1 mouldboard raising actuator
- | 1 pressing spring per segment

### ADDITIONAL OPTIONS

- | hydraulic power supply - power-pack with floating and pressing functions; control panel in cabin
- | 24 V electrical power supply from battery
- | power supply from 1 pair of quick couplers on carrying
- | electrical power supply from battery
- | dust screen
- | perforated steel blades (rigid)
- | KÜPER blades (mounting with shock absorption)
- | KÜPER skids
- | road lights
- | warning signs + flags
- | 2 pressing springs per segment



TECHNICAL DATA	PUS-S27	PUS-S32	PUS-S34	PUS-S36	PUS-S40	
Working width - straight - at max. turn angle	3200 2350	3700 2790	3900 2960	4100 3135	4500 3490	[mm]
Max. mouldboard turn angle	30	30	30	30	30	[±°]
Working height	1040	1040	1040	1040	1040	[mm]
Electric supply	24	24	24	24	24	[V]
Weight	930	1030	1050	1100	1200	[kg]
Working speed max.	60	60	60	60	60	[km/h]
Linkage	type A, type B Setra	type A, type B, Setra	type A, type B, Setra	type A, type B, Setra	type A, type B, Setra	[-]

## PUS-S34



Optional adjustable support wheel



Low beam headlights



Mounting – DIN type A municipal plate





# tiltable snow plough PUL-S45

Special truck-mounted plough with a side wing. The 0.75 m wide wing may be hidden in the outline of the plough reducing its width and facilitating passage. Complementary with PUB-S33 plough.

TECHNICAL DATA	PUL-S45	
Working width with max. turn	3930	[mm]
Max. turning angle	30	[°]
Max. working speed	60	[km/h]
Max. working height	1090	[mm]
Weight	1280	[kg]
Mounting on municipal plate	DIN A, B, Setra	[-]

## PUL-S45





## side truck snow plough PUB-S33

Special plough mounted on a plate connection between the axles of the vehicle. Increases the width of the vehicle by about 2,3 m. It may be complied by PUL-S45 snow plough. Suspension allows terrain - copying by +/- 5 °

### FEATURES

- | rubber or KÜPER blades
- | own hydraulics or from a carrier
- | ± 5° terrain adjustment
- | clearance lights
- | parking trolley

#### TECHNICAL DATA

	PUB-S33	
Working width	2340	[mm]
Max. blade turn angle	0 - 45	[°]
Working speed max.	60	[km/h]
Working height	1400	[mm]
Weight	850	[kg]
Mounting on dedicated linkage		[-]

### PUB-S33





# truck sand spreader PT70 SERIES

## FEATURES AND STANDARD EQUIPMENT

- | spreader driven by:
  - independent combustion engine SPT70
  - truck hydraulics HPT70
- | three capacities of loadbox: 7, 8 or 9m<sup>3</sup>
- | control of spreading parameters by Bosch Rexroth electro-hydraulic package
- | spreading intensity independent of speed
- | canvas cover protecting cargo
- | spreading sensor optical or touch
- | brine system
- | RORO loading system

## ADDITIONAL OPTIONS

- | automatic regulation of parameters depending on weather
- | stainless or galvanized frame and/or loadbox
- | data kit for downloading distance, time and spreading/brining parameters; software, wiring and CAN-USB module



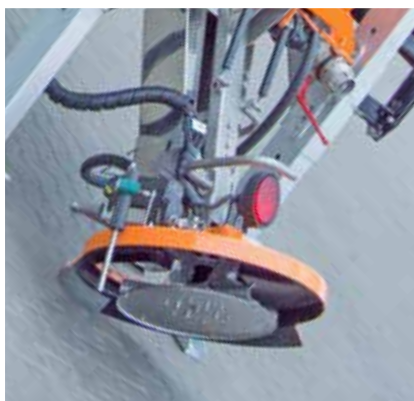
**TECHNICAL DATA****HPT70 / SPT70**

Brine tank capacity	2700	[l]
Spreader capacity	7, 8 or 9	[m <sup>3</sup> ]
Salt spreading intensity	adjustable 5 - 40	[g/m <sup>2</sup> ]
Aggregate spreading intensity	adjustable 50 - 200	[g/m <sup>2</sup> ]
Working speed	10 - 70	[km/h]

## PT70 SERIES



Hooper system with spreading disc



The material is transported by a belt conveyor to the charging system



RORO (Roll-on / Roll-off) system for easier loading of PT70 spreader on the carrier platform





# truck sand spreader PT40 SERIES

## FEATURES AND STANDARD EQUIPMENT

- | spreader driven by:
  - independent combustion engine SPT40
  - truck hydraulics HPT40,
- | adjustable capacity of de-icing material tank within the range of 4.5–6 m<sup>3</sup>
- | control of spreading parameters by Bosch Rexroth
- | electro-hydraulic package
- | canvas cover protecting cargo
- | spreading sensor optical or touch
- | brine system

## ADDITIONAL OPTIONS

- | adjustable supports for loading and unloading of the machine from the vehicle
- | automatic regulation of parameters depending on weather
- | data kit for downloading distance, time and spreading/brining parameters; software, wiring and CAN-USB module



**TECHNICAL DATA****HPT40 / SPT40**

Brine tank capacity	1800	[l]
Spreader capacity	adjustable from 4,5 to 6	[m <sup>3</sup> ]
Salt spreading intensity	adjustable 5 - 40	[g/m <sup>2</sup> ]
Aggregate spreading intensity	adjustable 50 - 200	[g/m <sup>2</sup> ]
Working speed	10 - 70	[km/h]

**PT40 SERIES**

Brine tank



Bosch-Rexroth control panel



Hydraulic supply couplers HPT40





# truck sand spreader HPT25

## FEATURES AND STANDARD EQUIPMENT

- | spreader's drive powered by truck's hydraulics
- | control of spreading parameters by Bosch Rexroth electro-hydraulic package
- | spreading intensity independent of speed
- | tarpaulin cover protecting cargo
- | spreading sensor
- | brine system

## ADDITIONAL OPTIONS

- | adjustable supports for loading and unloading of the machine from the vehicle
- | automatic regulation of parameters depending on weather
- | data kit for downloading distance, time and spreading/brining parameters; software, wiring and CAN-USB module



**TECHNICAL DATA****HPT25**

Brine tank capacity	900	[l]
Spreader capacity	2,5	[m <sup>3</sup> ]
Salt spreading intensity	adjustable 5 - 40	[g/m <sup>2</sup> ]
Aggregate spreading intensity	adjustable 50 - 200	[g/m <sup>2</sup> ]
Working speed	10 - 70	[km/h]

**HPT25**

Adjustable spreader unit height



Easy-to-use control panel



HPT25 sand spreader





## truck sand spreaders EPT15 | EPT21

### FEATURES AND STANDARD EQUIPMENT

- | conveyor belt and spreading disk powered by electric motors
- | canvas cover
- | the spreader's standard equipment consists of control panel for setting parameters
- | stainless steel spreading disk
- | beacon light
- | load box sieve
- | parking supports

### ADDITIONAL OPTIONS

- | cargo supports
- | power supply 24V
- | semi-frame for hook loader (special order)

This machine is designed for cooperation with shipping vehicles and trucks with a carrying capacity of at least 2.8 tons.



**TECHNICAL DATA**

	<b>EPT15</b>	<b>EPT21</b>	
Weight	340	385	[kg]
Spreader capacity	1,5	2,1	[m <sup>3</sup> ]
Electric supplying	12 or 24	24	[V]
Spreading width	adjustable 2 – 4	adjustable 2 – 4	[m]
Aggregate spreading intensity	adjustable 50 – 150	adjustable 50 – 150	[g/m <sup>2</sup> ]
Working speed max.	40	40	[km/h]

**EPT15**

Stainless steel spreading disk



Tiltable spreader unit



Capability of aggregation with a hook loader





**Pronar**  
**EXPORT SALES SPECIALIST**

municipal.export@pronar.pl  
+48 682 76 51





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**Pronar Sp. z o.o.**

 **ul. Mickiewicza 101A | 17-210 Narew | Poland**

 **+48 85 682 76 22**

 **municipal.export@pronar.pl**

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