



MENART's product sheet

MENART SP series "Tractor-driven windrow turners"



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SP series introduction

The windrow turners SP series was developed by MENART in 1995 and continuously improved. They are known for their ability to work with all types of materials. The yields achieved are the highest in this category of machines. This is due in particular to the larger rotor dimensions and the unique hydraulic advancement technology.

The standard range consists of 5 models: SP-30, SP-40, SP-45, SP-50 and SP-60.

The SP-60, the largest in the world, is equipped with a different technology. As such, it will not be detailed in this document but in a separate document.

Unique technology / hydraulic propulsion

The main feature of the SP series is its hydraulic propulsion system. Indeed, the SPs are equipped with a hydraulic unit (independent oil tank; pump; motors) which is activated by the tractor's power take-off. Each working wheel (left and right) is driven, and pushes the machine and tractor. The tractor is in neutral gear..

The advantages of this technology are many:

- no need to have a creeper gear on the tractor;
- tractor-machine tensions are cancelled, which eliminates mechanical breakage;
- the tractor engine is used less, which greatly reduces diesel consumption;
- working speeds can reach 1,000 m/h, which give huge productivity.

Unique technology / Transport device

The other technological advance was to provide SPs with transport arms equipped with wheels. The machine can then be transported horizontally, not vertically. The benefits are clear :

- the rotor-drums can be longer and heavier. In fact, MENART rotors are super powerful, and can work with all types of materials;
- the transport stability is excellent. No risk of falling.
- SP series are transportable anywhere on any grounds (roads, passways, in fields...)

Note: MENART turners may vary somewhat depending on the model chosen. We invite you to consult the technical data sheet of the SP series for more details on the specificities of each model.

MENART SP overall presentation



SP model in working mode.



SP model in transport mode.

Machine's controls

From the tractor's cab, the operator controls the machine with the intuitive MENART's touch-screen.



Features :

- Independent advancement left and right,
- Raising and lowering of the chassis and rotor,
- Opening and closing the rear deflector,
- Enable some options if they are provided (tarpaulin rewiner, sprayers, etc.),
- Changing from transport to working modes.

Tunnel



It is trapezoidal in shape with large free spaces also in its upper part which allows a higher circulation and oxygenation compared to a triangular tunnel, and to make rounded windrows more voluminous and thus to put more volume per square meter.

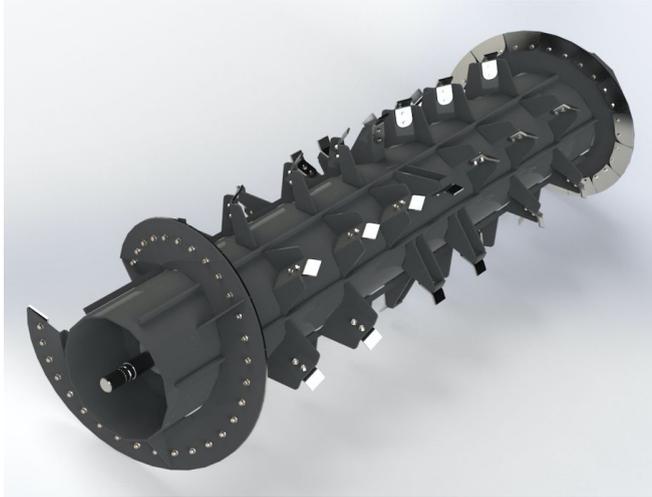
In addition, MENART turners can be raised in their entirety up to 50 cm. This feature allows you to:

- on the one hand, to work windrows higher than the height of the tunnel,
- on the other hand, to release the rotor upwards in case of difficulty (too heavy material, too sticky material, presence of a stone that has stopped the rotor, etc.)

Rotor-drum

The rotor tube has a large diameter and is made of high quality thick steel. It is equipped with:

- whorls at the ends to refocus the base of the windrow in the tunnel. As an option, these whorls can be protected by wearing parts/blades;
- cross bars to protect the tube against abrasion;
- welded, aerodynamically shaped pallet supports to prevent premature wear and to facilitate material flow. These supports give the orientation of the pallets that create the left-right cross flow for an optimal mixing of the material;
- high-hardness steel pallets (Hardox type) bolted to the supports. They pick up the material at ground level and throw it into the back of the tunnel. Optional pallets with tungsten carbide sprayed for greater durability are available.



MENART rotors, by their superior characteristics, allow to work all types of materials, in the most extreme conditions, while guaranteeing high productivity and a high quality of oxygenation.

Traction

The left traction is independent of the right traction (2 closed hydraulic circuits). The forward speed is infinitely adjustable by the rotary knob on the touch-screen. This allows for smooth acceleration and driving flexibility.

Rear deflector & Front curtain

The rear deflector is a metal deflector that folds the material to form a homogeneous windrow. It is hydraulically articulated so that it can remain closed on the tunnel at the beginning of the windrow. This position ensures that the material is not ejected too far to keep the windrow in the same place on the platform. But it can open after a few meters in the windrow to take advantage of the full power of the machine.

The rear deflector is also a protection against rearward projectiles, as is the bib (rubber curtain at the front of the tunnel) which protects the tractor from projections towards the front of the machine.



Bibs (black rubber curtain)

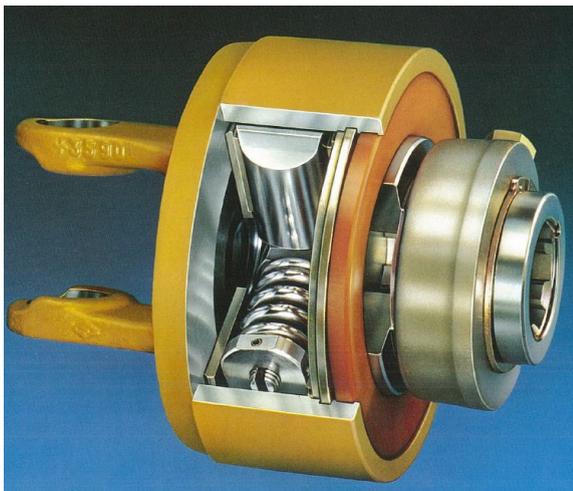
Note: these 2 elements are optional on the SP-30 model.

Transmission securities

SP machines are equipped with a radial torque limiter on the primary driveshaft. This security clutch re-engages automatically after a disconnection due to a mechanical shock.

On the secondary driveshaft, a freewheel protect the transmission from the rotor-drum inertia when the machine is switched off.

Those securities efficiently protect the tractor and the machine from breakdowns.



Example of radial clutch.

Accessories and options

Windrows watering / watering nozzle and pipe

MENART turners can be equipped with optional accessory for windrow irrigation: a flared nozzle is attached to the front of the tunnel, to the ceiling. The liquid jet flows out over the entire width of the tunnel, from front to back. As it falls, it encounters the flow of solid matter, which also goes backwards but upwards. The liquid/solid mixture is optimal.

Spraying accessory at the REAR

This accessory is composed of:

- A tank for liquid products (water, microbial solution, etc.)
- An electric pump
- A hose and spray nozzles fixed over the width of the tunnel, at the rear, on the deflector.

Spraying accessory at the FRONT

Same as above, but the spray nozzles are fixed over the width of the tunnel, at the front of the tunnel.



Photo showing the spray nozzles, and the watering pipe (see option below)

Tarp rollers

Included: 1 reel at the top of the machine driven by a hydraulic motor, and controlled from the touch screen.



Note: tarpaulins are available on request.

Single camera + screen

Included: A camera placed above the right track clearer + an additional screen in the cabin that transmits the camera image.

This is an appreciated safety feature when the machine works in confined buildings with the risk of hitting poles.



Monitoring software

Software provided with the touch-screen control.

Features: working hours counter, odometer, production datas (windrow numbers, duration time per windrow, etc).

Rotor / Standard paddles



High-strength steel (400 or 500 HB depending on machine model)

Rotor / Pallets with tungsten carbide coating



Standard pallets reinforced with a tungsten carbide laser projection (2 to 3 mm).
Advantages compared to the standard pallet: 3 to 4 times longer service life.

Rotor / wearing parts on whorls

High-strength steel (400 or 500 HB depending on machine model)

Transport tyres

- Standard tyres have road profile.
example: Alliance 385/65R22.5



- Option : MENART can provide off-road tyres.
example: Alliance RC 500/60 R 22.5





Lubrication / Centralized lubrication

Grouping of lubrication points into a single point. Simplified manual lubrication. Saving time.

Lubrication / Automated lubrication

Same as the previous option with the addition of lubrication by an automated pump. No human intervention is required except to recharge the grease reservoir.

Start-up and scheduled maintenance kit

MENART offers ready-to-use kits for machine maintenance up to 1000 working hours, as well as a start-up kit.

Safety kit

MENART offers ready-to-use kits to replace critical parts in the event of failure, breakage or normal wear and tear.



Spec sheet

	unit	SP-30	SP-40	SP-45	SP-50	SP-60
General datas						
Width from the center of the tractor	m	5	6,1	6,6	7	8,7
Height in composting mode : on ground / lifted	m	2,75 / 3,25	3,06 / 3,66	3,23 / 3,86	3,30 / 3,91	3,40 / 3,97
Net weight	kg	4160	4370	5600	6400	8900
Lifting counterweight		No need				

Windrow size						
Width in between front deflector tips	m	3,4	4,4	4,9	5,4	6,4
Tunnel height – machine on the ground	m	1,7	1,8	1,9	2	2,2
Tunnel height – machine lifted	m	2,2	2,35	2,45	2,55	2,75
Lift height. (drum and machine)	cm	50	55	55	55	55 height displayed
Tunnel cross section	m ²	4,85	6,95	8,19	9,51	12,48

Rotor drum						
Length	m	3	4	4,5	5	6
Tube diameter	mm	610	610	610	610	610
Diameter with paddles	m	1,01	1,1	1,1	1,1	1,1
Tube thickness	mm	8	10	10	10	10
High resistance painting		optional	optional	optional	optional	optional
Number of paddles		28	40	44	52	64
Paddle thickness	mm	10	10	10	10	10
Hardox paddles		included	included	included	included	included
Carbide coated paddles		optional	optional	optional	optional	optional
Wear parts on drum screw		optional	optional	optional	optional	optional
Drum transmission		Mechanical	Mechanical	Mechanical	Mechanical	Mechanical
Rotation speed	rpm	Up to 223	Up to 223	Up to 245	Up to 245	Up to 245
Rotation in both direction		N/A	N/A	N/A	N/A	N/A
Transmission protections		torque limiter + freewheel				

Tractor spec.						
Indicative tractor power	hp	90	110	150	180	250
PTO speed	rpm	540	540	1000	1000	1000
MENART standard drive-shaft		1"3/8 X 6 splines	1"3/8 X 6 splines			
MENART optional drive-shaft		1"3/8 X 21 splines	-			



Tractor gear while turning		Neutral position	Neutral position	Neutral position	Neutral position	Continuous Variable Transmission
Creep gear		No need	No need	No need	No need	
Hitch		above PTO shaft ; need a "ladder hitch" adaptor ; 90cm above ground level (universal drawbar on request)				K80 ball hitch above or underneath PTO
Hydraulic connections		2 couplers either 1/2" ISO 7241: single-acting version and open return line ; or double-acting version.				same + 1 Load Sensing plug. 3/8 " ISO 7241.
Hydraulic flow		occasional 30 L/min (cylinders)				permanent 30 L/min (power wheel)
Electric plugs		Plug with 3 prongs 12V DIN9680				
Pneumatic brake connections		1 coupler 1/2" ISO 5676				
Hydraulic brake connections		2 coupler ISO 1728 (1red + 1 yellow)				

Propulsion features						
MENART hydraulic driving wheels		2	2	2	2	1 (external)
Independent traction – left / right		included	included	included	included	N/A
Right tyre		340/85 R24	440/65 R24	540/65 R30	540/65 R30	540/65 R30
Left tyre		340/85 R24	440/65 R24	440/65 R24	440/65 R24	440/65 R24
Independent hydraulic drive circuit (tank, pump...)		optional	included	included	included	N/A
Continuous adjustable speed		included	included	included	included	included

Mobility on road towed by tractor						
Speed – depending road quality	km/h	Up to 30				
Road kit (lights + rotating beacon + brakes, etc.)		optional	optional	optional	optional	optional
Length in transport mode (light bar included)	m	7,9	9,05	9,6	10,4	11,2
Height in transport mode	m	2,6	3,4	3,6	3,7	3,6
Horizontal alignment adjustment (hydraulic device)		N/A	N/A	N/A	N/A	included
Transport wheels		2	2	2	2	2
Transport tyres / road type		included	included	included	included	included
Transport tyres / Off-road type (wide tyre, deep grooves, adjusted rim)		optional	optional	optional	optional	optional

Accessories						
Watering nozzle and pipe ø 75mm		optional	optional	optional	optional	optional
Spraying device (rear or front)		optional	optional	optional	optional	optional
Fleece roller (requires one more hydraulic connection)		N/A	optional	optional	optional	optional
Tank trailer accessories: hitch for a 4 wheels tank trailer (8 metric Tones max) + variable pump (600 L/min max)		N/A	N/A	N/A	N/A	optional
Camera focused on the right driving wheel + display		optional	optional	optional	optional	optional
Metal storage box - 500x800x500 mm		included	included	included	included	included
Ladder hitch adaptor		optional	optional	optional	optional	optional



Centralized lubrication		optional	optional	optional	optional	optional
Automated lubrication		optional	optional	optional	optional	optional

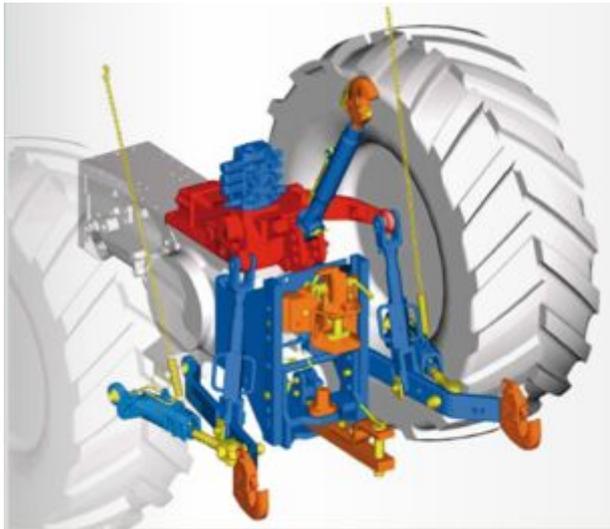
Machine touch-screen control						
Touchscreen size		N/A	4,3"	4,3"	4,3"	7"
Monitoring software : working hours counter, odometer, data extraction...		optional	optional	optional	optional	optional
Rotor drum hourmeter		included	included	included	included	included

Safety and comfort						
Projectiles protection: rear metallic deflector		N/A	included	included	included	included
Projectiles protection: front rubber curtain		N/A	included	included	included	included
Oil level indicator - Porthole on tank		optional	included	included	included	no tank
Standard painting		RAL 1028 / 7011 2 coats of 2-component acrylic polyurethane anti-rust primer + 2 top coats of 2-component polyurethane paint. 160 µm thickness.				

Tractor hitches and considerations

Here we present some additional details about the existing possibilities for attaching a SP machine to a tractor.

Ideally, the tractor should be equipped with a “ladder hitch” to attach the drawbar 90 cm above the ground, above the power take-off. In this way, the SP will have maximum grip on the ground and will push the tractor with maximum efficiency.



On this drawing, the “ladder hitch” is the big blue square in the middle of the tractor’s rear.

If no “ladder hitch” is available, MENART can in some cases provide it. If not, MENART can equip its machine with a "universal" drawbar that attaches to the tractor's tow-bar.



Standard MENART’s drawbar, attached to the tractor’s “ladder hitch”



Optional “Universal” drawbar (alternative to attach the machine to the tractor’s tow-bar)