

JOSKIN

EN TANKERS AND SPREADING TOOLS



www.joskin.com

**A CONCENTRATE OF TECHNIQUE,
WHICH IS THE RESULT OF OUR LONG EXPERIENCE**

Capacities from 2,500 to 28,000 l

THE JOSKIN QUALITY: 6 Keys to Success



Production site (Belgium)

Strength of EXPERIENCE

FOUNDED IN 1968, the JOSKIN family business became A LEADER in the design and manufacture of agricultural machines. SPREAD OVER BELGIUM, POLAND AND FRANCE on a total surface area of almost 150,000 m², the JOSKIN production sites are EXPORTING TO MORE THAN 60 COUNTRIES.



TECHNICAL SKILLS within

VERY MODERN AND HIGHLY PRECISE TECHNIQUES are used: dynamic 3D simulation, automated lasers, folding presses, high tensile steel, hot-dip galvanization, automated continuous weldings.



Buy with CONFIDENCE



See conditions on www.joskin.com





Technical Centre (Poland)



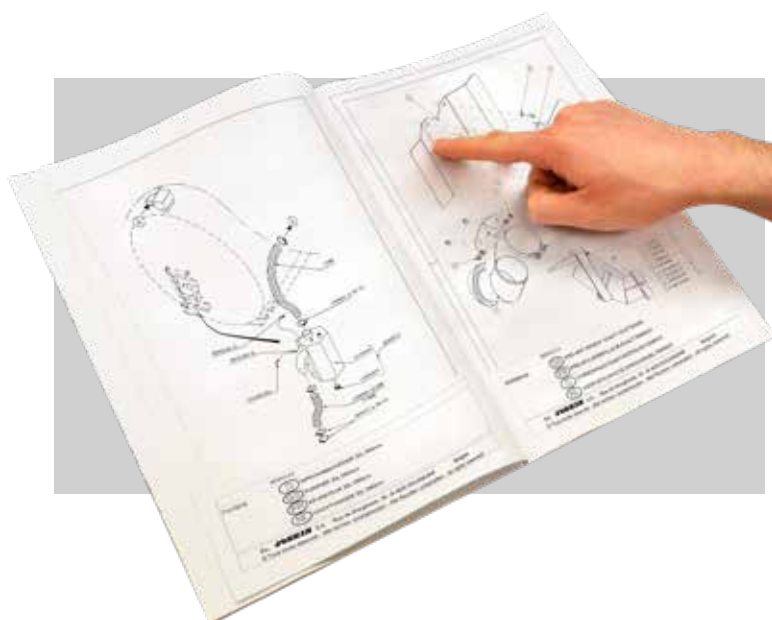
RESEARCH and DEVELOPMENT

JOSKIN has its own industrial design offices and 3D static and dynamic engineering software. The production is standardized as much as possible in order to ensure a precise manufacturing and a deadline compliance, while proposing hundreds of options! Our technicians and dealers are constantly trained in our technical centres.



At the SERVICE of our customers

Our great strength: the **AVAILABILITY OF SPARE PARTS** at any time and anywhere. Thanks to our permanent stocks, we send your parts as quickly as possible. The JOSKIN dealers undertake to have a stock of the most important spare parts of the machines.



Individualized PARTS book

The **PARTS BOOK** and the **USER'S MANUAL** are provided in your language when purchasing a machine. The parts book includes drawings and references of the components mounted on your machine. Even years later, spare parts can be ordered efficiently!

JOSKIN

WIN PACK

"Win Pack" Advantages

To combine quality manufacturing and shortened delivery time, JOSKIN proposes WIN PACK machines. They are:

- reliable and of high quality thanks to the standardized manufacturing process;
- adapted to your farm and affordable;
- in stock or rapidly available;
- fitted with pieces of equipment that were tested in real working conditions;
- modular given the many options.

TECHNICAL CENTRE

The JOSKIN programme of slurry spreaders includes 13 ranges with no less than 75 models in total. More than 1,200 options are available to elaborate your slurry tanker!

JOSKIN can in this way fit your machine as you wish. It is however not a prototype but an assembly of standardized components, that is to say components that are produced in series, mounted several times on vehicles and practically tested. From JOSKIN's long experience results a technically intelligent vehicle meeting your needs. This standardization guarantees irreproachable services and spare parts supply.

Our colleagues and our international sales network are at your disposal to help you with your choice.

Don't hesitate to come and visit our TECHNICAL CENTRES:

- BELGIUM (4,000 m²)
Rue de Wergifosse, 39 - 4630 Soumagne - BELGIUM
- POLAND (2,400 m²)
ul. Gorzowska 62 - 64980 Trzcianka - POLAND



ADVANCED TECHNIQUE

The steel processing knowledge and the material choice are essential. Special steel types with high tensile limit allow to reduce – or even remove – the crosspieces and side reinforcements. Vehicles are in this way lighter, stronger and benefit from clear and elegant lines. The steel sheets are processed by modern tools like a 8 m laser cutting table, a 8.2 m folding press with digital control and automatic folding angle correction device (making sure the steel plate is evenly folded on the whole length), 8 m welding robots, etc.



Lathe with digital control



Welding robot



Laser cutting table



Folding machine with digital control



TANK MANUFACTURING

At JOSKIN, there is not one winning solution, but well one solution to any request. That is why each tanker is manufactured independently on the basis of standardized components.

Thanks to the multiple solutions of this catalogue, you will be able to make the choice that will meet your expectations. According to your preferences, your tank is configured on the computer before being carefully manufactured in different stages. Since more than 34,000 tankers were manufactured in our workshops, you benefit from the strongest experience and from a unique and recognized know-how.



Bending the steel sheet (bending machine with digital control)



Assembling the tank sections, front and rear walls



Manual welding of the accessories

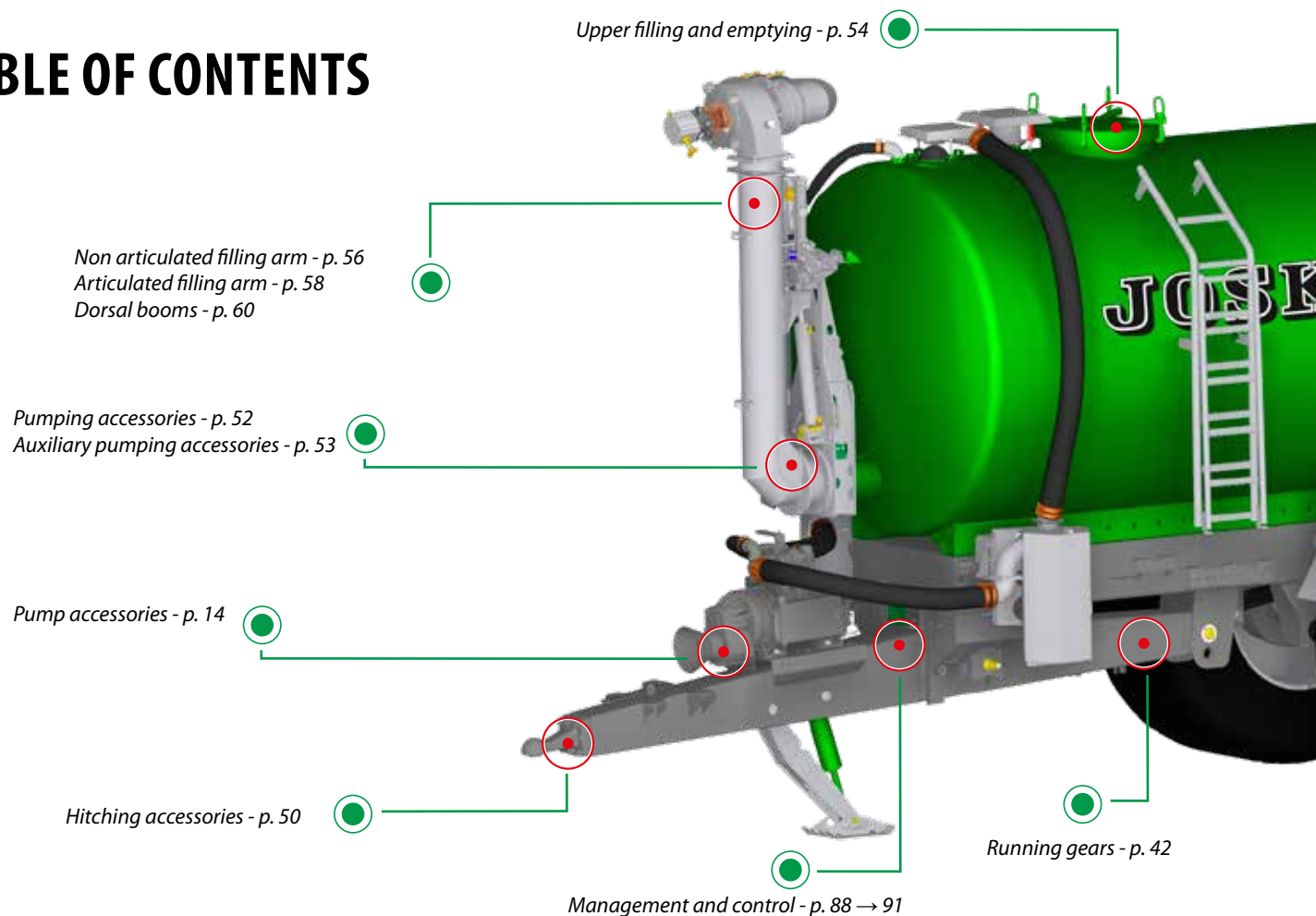


Hot galvanizing bath (inside and outside)

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- **SPREADING TOOLS** - pages from 68 to 87
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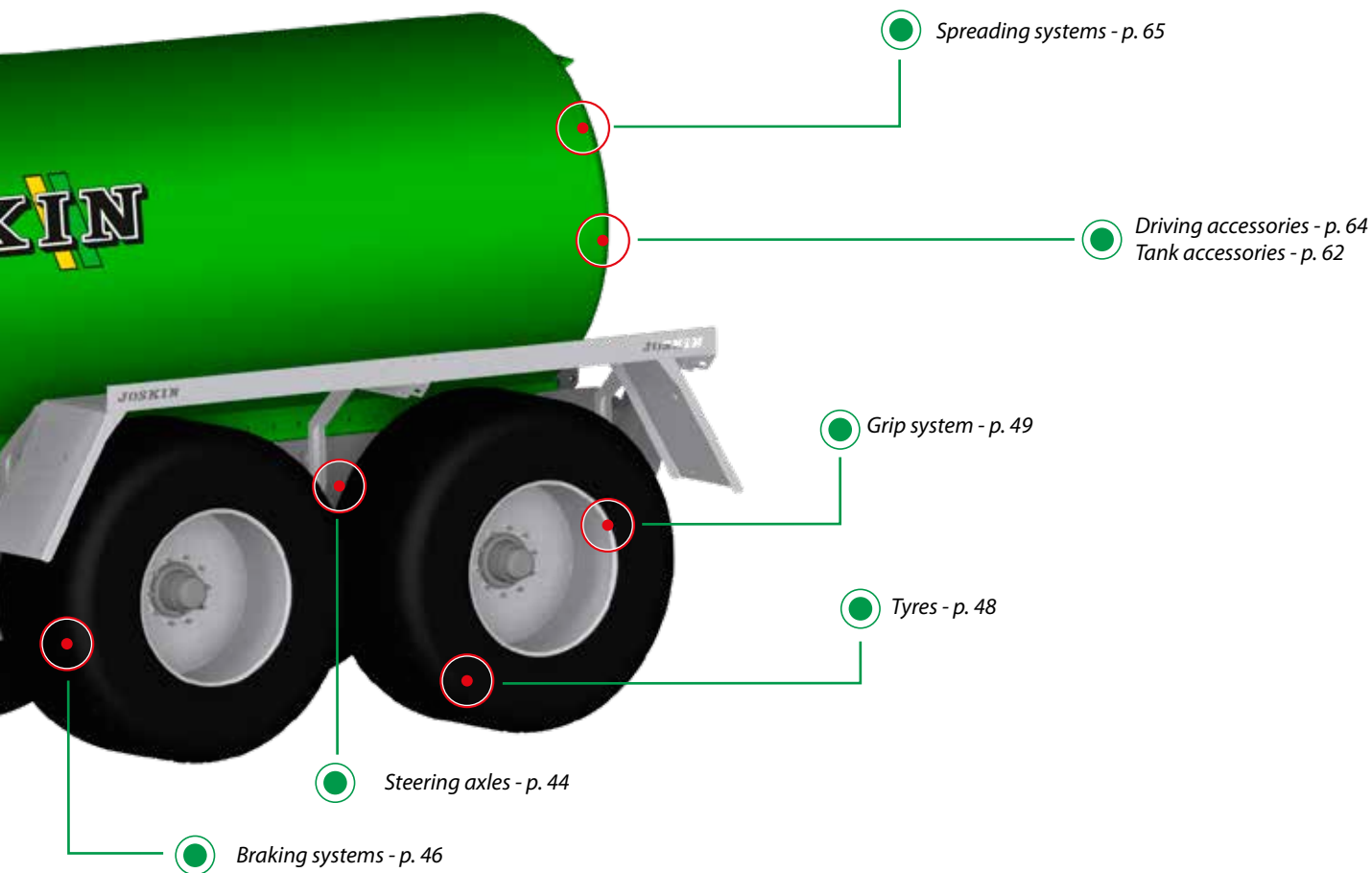
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VACU-CARGOLIFT



CARGO SYSTEM

AN APPROPRIATE STRUCTURE BASED ON THE EXPERIENCE



2 STRUCTURES - 13 MODELS OF JOSKIN TANKERS

1. SELF-SUPPORTING VEHICLES

These models have a monocoque supporting structure, which means that the tank is welded to a so-called "integral" cradle on its whole length and width.

It is the case for the ALPINA2, MODULO2, DELTA2, TETRAX2, VOL-UMETRA and TETRALINER.

While keeping an integrated linkage, the integrated self-supporting tubular structure is designed to reduce the total weight as much as possible. It is furthermore suited to all spreading techniques. Finally, self-supporting vehicles can be fitted with the option "tank buttresses" that reinforces it over its whole height in such a way that the rear implement weight strains are transferred on the whole vehicle.

Spreading booms up to 18 m can be hitched to them, just like the Multi-ACTION injectors, the SOLODISC injectors up to 6 m wide and the arable injectors with up to 13 tines.



Self-supporting tanker



2. TANKS ON UNIVERSAL CHASSIS

KOMFORT2, COBRA, QUADRA, X-TREM, EUROLINER and VACU-CARGO tankers are mounted on a universal chassis that is independent from the tank, which has many advantages:

- total transfer of the strains on the chassis;
- tank completely protected from the strains of the rear implement;
- possibility to hitch a rear implement with or without linkage;
- movement of the running gear in order to distribute the load according to the weight of the rear implement;
- standardization (because all chassis are designed on the same basis);
- compatibility with all JOSKIN spreading systems (as well as other systems, provided some adaptations are made). All linkages can be mounted since they were designed according to the existing chassis widths.



Independent chassis



CHOOSE THE RIGHT TANKER

THE GOOD QUESTIONS TO ASK:

- ▶ WHICH TYPE OF PUMP?
- ▶ WHICH PUMP CAPACITY?
- ▶ HOW MANY AXLES?
- ▶ USE OF A SPREADING IMPLEMENT?

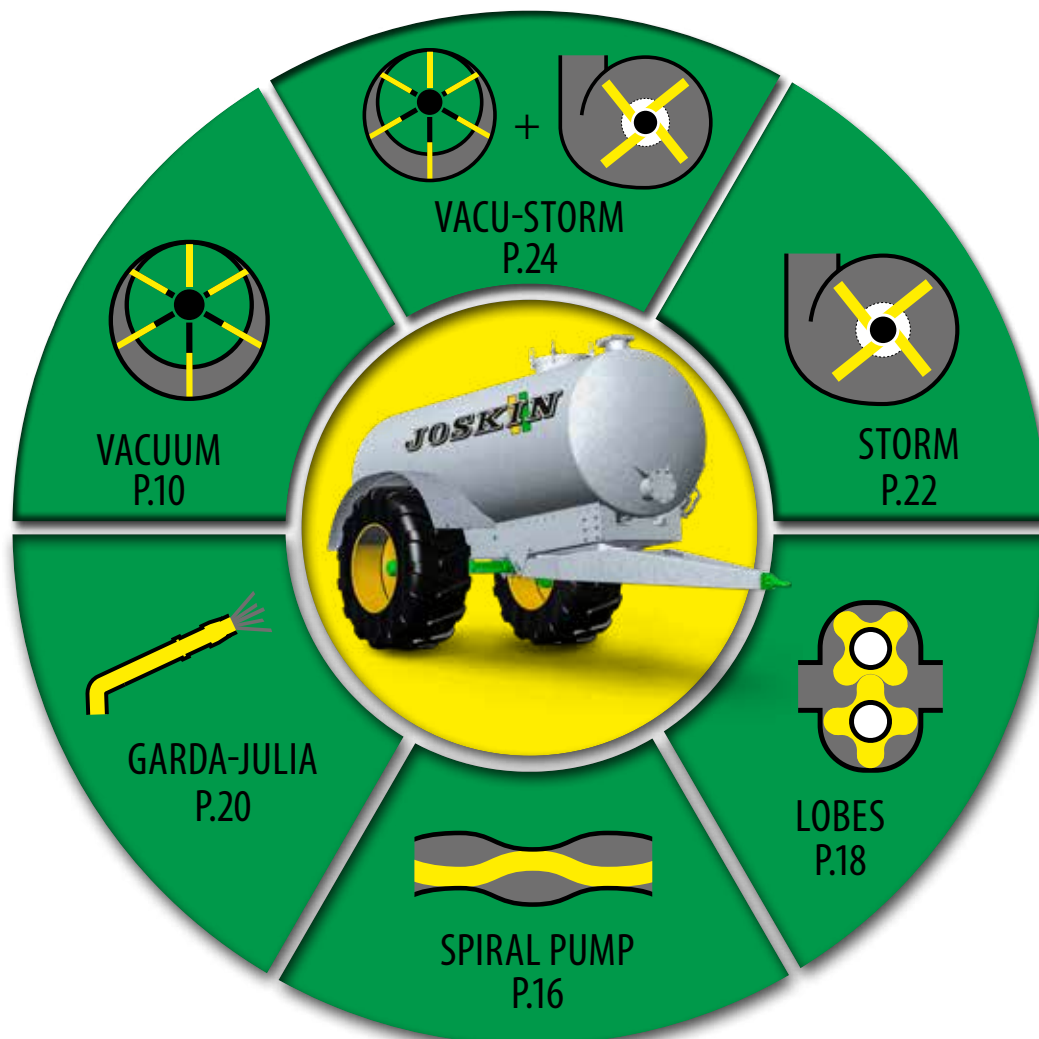
You will find all the information about the scatterers on page 65 as well as about the injectors and booms on page 68.

Our pumps and combinations, THE solution for you!

Choosing the pump type is the first and probably most important step to configure a slurry tanker. JOSKIN proposes several pump categories, which are designed for different uses and conditions. The following pages will guide you in your choice. Once the pump is chosen, the capacity, the number of axles and possibly the choice of spreading implement are essential criteria.

The wide JOSKIN range is designed to meet any farmer's needs: from the small farm to the farming business of biogas installations.

Consult our range tables from page 13 to 25



VACUUM PUMP



ADVANTAGES

- Price/efficiency ratio
- Limited wear (no slurry in the pump)
- Low maintenance costs
- User-friendly system

DISADVANTAGES

- Limited pressure (max. 1 bar)
- Pumping depth limited to +/- 3.5 m (pit depth) - see section: Auxiliary pumping accessories

PRINCIPLE

VACUUM PUMPING SYSTEM

The vacuum system creates an atmospheric pressure difference in order to fill or empty the tanker. By creating a vacuum (depression) in the tank, slurry can be sucked. When spreading, the principle is reverse: the tank is pressurized by the pump, which allows to expel the slurry.

WHICH PUMP CAPACITY?

An appropriate capacity is used to create the vacuum before starting to fill the tank or to pressurize it during the spreading phase. The pump then "merely" has to keep this vacuum or pressure.

Choosing a too big pump means wasting the tractor traction power, with a risk of premature wear. The effective vacuum rate is always the same, whatever the chosen type of pump may be.

Once the capacity of the pump is selected, it is possible to choose a given type of greasing and cooling system.

DIRECT CONNECTION OR SPEED-INCREASING GEARBOX?

The 1,000 rpm version is also more interesting because, in combination with the tractor P.T.O. rpm selector, it allows to adjust the pump capacity to the required spreading flow. Furthermore, the pump that is driven at a lower rpm will spare the engine, which is therefore beneficial to the traction capacity of the whole carriage.



Direct connection



Speed-increasing gearbox

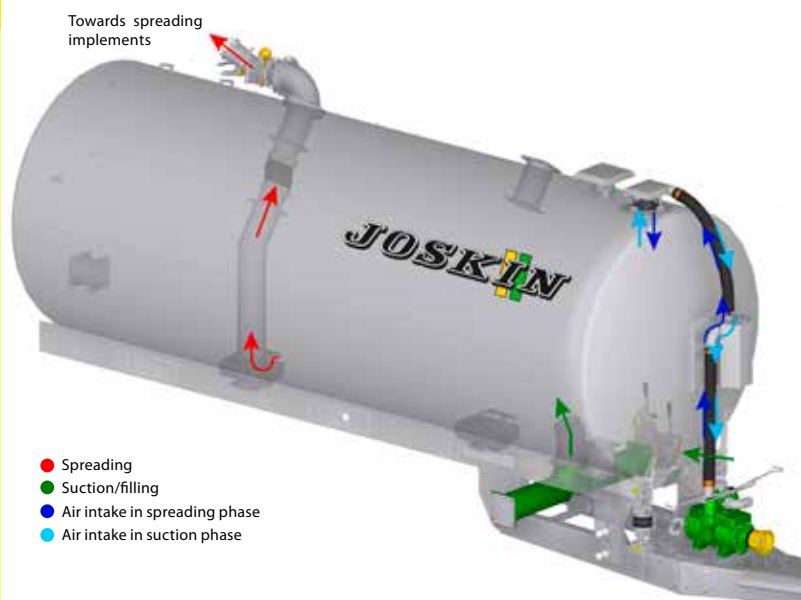


COOLING

Next to the air flow through the pump, most vacuum pumps are also fitted with vanes acting as a conduction cooling system. However, for a more efficient cooling, it is possible to choose the "Ballast Port" system, which is a low-cost solution.

BALLAST PORT SYSTEM

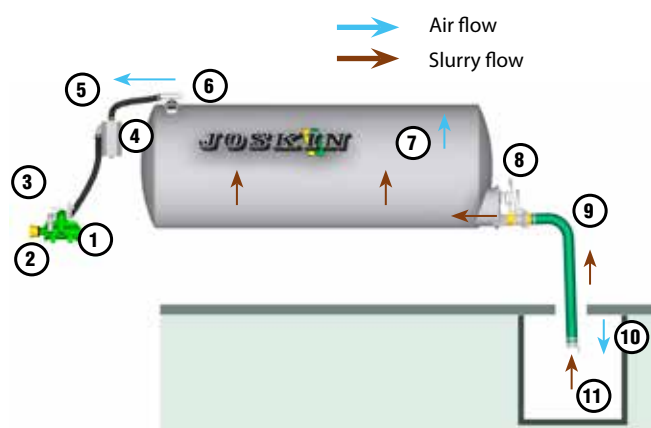
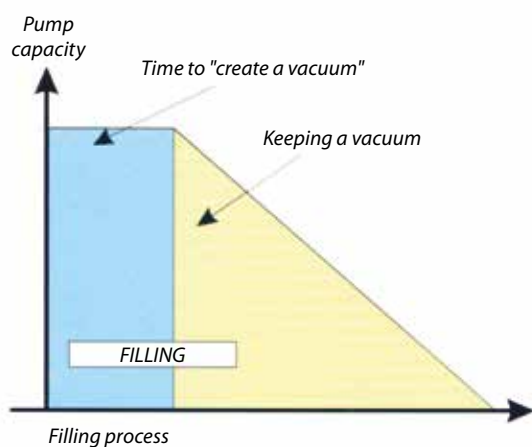
This system is used to cool the pump by injecting fresh air in its housing and to constantly work at 60% vacuum. It is mounted on the PNR 155.



- Spreading
- Suction/filling
- Air intake in spreading phase
- Air intake in suction phase

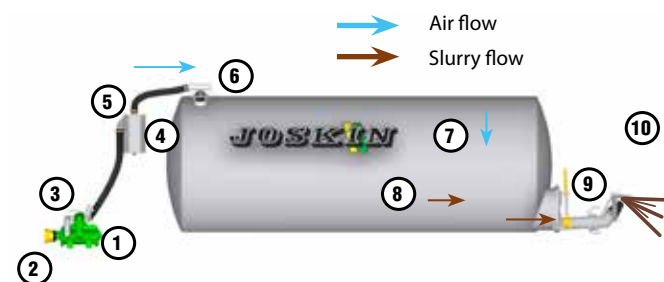
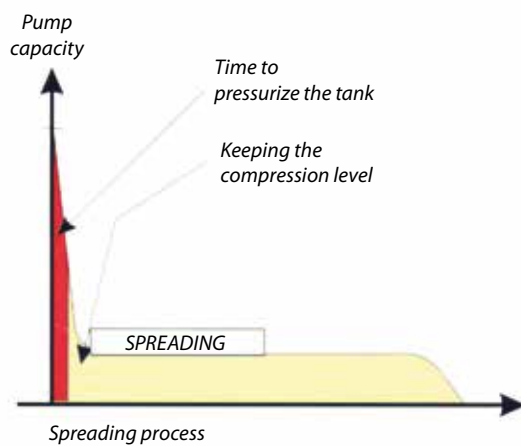


PRINCIPLE WHEN FILLING



- | | |
|--|--|
| 1. Vacuum pump | 7. Air depression |
| 2. Pump exhaust | 8. Suction valve |
| 3. Pressure relief valve | 9. Filling pipe |
| 4. Purger - syphon | 10. Air pressure |
| 5. Pressure gauge (checking underpressure) | 11. Slurry under air pressure in the pit |
| 6. Tank valve (anti-spill) | |

PRINCIPLE WHEN SPREADING



- | | |
|---|----------------------------|
| 1. Vacuum pump | 6. Tank valve (anti-spill) |
| 2. Pump inlet | 7. Compressed air |
| 3. Pressure relief valve | 8. Slurry under pressure |
| 4. Purger - syphon | 9. Scatterer |
| 5. Pressure gauge (checking overpressure) | 10. Spreading layer |

VACUUM PUMP WITH LUBRICATION

VANE PUMP

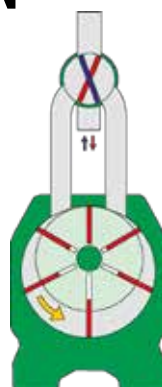
- Pump system with vanes
- Driven by eccentric rotor
- Deflecting valve to direct the air flow in order to fill the tank or spread.
- Necessary and forced lubrication (drop by drop) on every pump delivered by JOSKIN

JOSKIN mainly installs pumps with mobile vanes driven by an eccentric rotor that always turns in the same direction: the air flow is directed by a deflecting valve in order to spread or suck slurry.

All normal vacuum pumps create the same "vacuum"; only the air flow capacity of the pump matters.

The range of vacuum pumps with vanes proposed by JOSKIN goes from 4,000 to 15,500 l/min. The main models are BATTIONI & PAGANI MEC and JUROP PN and PNR.

All vane pumps delivered by JOSKIN are at least fitted with a forced lubrication system (drop by drop), which greases the pump both during the suction and spreading phase.



The JOSKIN Vacuumoil was especially developed to lubricate the pump vanes. A can is provided with each delivered vehicle.



VACUUM PUMP WITHOUT LUBRICATION

LOBE ROTORS

- Vacuum model with high capacity
- Two volumetric rotors with lobes instead of vanes
- Depression in the tank through the rotation of the lobes
- No lubrication since there is no contact between the mobile parts
- No wear nor pollutant emissions

The JUROP DL pumps are vacuum models with high capacity (from 14,750 to 20,850 l air/min) that are especially used in the industrial sector, and particularly on hydrocleaners.

They work with two "volumetric" lobe rotors instead of vanes. The rotation of the lobes then creates a depression inside the tank, which allows to suck slurry.

As there is no contact between the moving parts, the pump can work without being lubricated. It is cooled by air injection.

The advantage of this type of pump is the high capacity and the limited dimensions. Moreover, the JUROP DL is not subject to wear or pollutant emissions.

It is standard fitted with silencers on the filling and exhaust pipe.

Three models are available: JUROP DL 180 (17,600 l air/min), JUROP DL 220 (21,600 l air/min) and JUROP DL 250 (25,000 l air/min).

JOSKIN fits its DL pumps with a temperature alarm and filters, whose advantage is to suck so much purified air as possible in order to avoid foreign bodies.





Models	Volume	Injector	2.500	3.250	4.000	5.000	6.000	7.000	7.100	8.000	8.400	9.000	10.000	10.500	10.700	11.000	12.000	12.500	13.000	14.000	14.500	15.000	16.000	16.500	18.000	20.000	21.000	22.500	23.000	23.500	24.000	24.500	25.500	26.000	28.000	Page			
ALPINA2	-					•	•	•	•																												27		
MODULO2	V	•	•	•	•	•	•			•	•	•	•		•	•			•	•		•	•		•												28		
VOLUMETRA	V												•	•										•	•	•	•	•						•	•			29	
TETRAX2	V													•					•	•					•	•		•	•									30	
COBRA	V											•				•																						31	
QUADRA	V																						•	•	•	•												32	
X-TREM	V																•	•	•			•			•	•												33	
EUROLINER	V																	•	•					•	•	•	•							•	•	•		34	
TETRALINER	-																								•	•	•	•							•	•	•		35
VACU-CARGO	V																						•	•	•	•	•	•	•				•	•	•			36	
																							•	•	•	•	•	•	•									38	
																							•	•	•	•	•	•	•									41	

• Single axle •• Double axle ••• Triple axle

	PUMPS WITH LUBRICATION										PUMPS WITHOUT LUBRICATION		
	MEC 4000	MEC 5000	MEC 6500	MEC 8000	PN 106	PN 155	PN 130	PN 155	PNR 155		DL 180	DL 220	DL 250
Rpm	540 M / 1,000 D	540 M / 1,000 D	540 M / 1,000 D	540 M / 1,000 D	540 M / 1,000 M	1,000 D	540 M / 1,000 D 1,000 M	1,000 M	1,000 M		1,000 M	1,000 M	1,000 M
Flow at atmospheric pressure (l/min)	4,350	6,150	7,000	8,100	11,000	15,200	13,000	15,500	15,500		17,600	21,600	25,000
Air flow at 60% vacuum (l/min)	4,000	5,000	6,500	8,000	10,000	13,217	11,400	13,850	13,850		10,900	10,550	16,383
Automatic lubrication	/	/	option	option	std	std	std	std	std		non relevant		
JOSKIN Ø 150 mm pressure relief valve	option	option	option	option	option	std	std	std	std		std	std	std
Syphon (l)	30	30	30	30	30	60	60	60	60		60	60	60
Ø hoses (mm)	60	60	80	80	80	100	100	100	100		100	100	100
Cooling	Traditional	Traditional	Traditional	Traditional	Traditional	Traditional	Traditional	Traditional	Air injection		Air injection	Air injection	Air injection

M = speed-increasing gearbox D = Direct connection

VACUUM PUMP ACCESSORIES



A WELL PROTECTED PUMP

The pump is protected against the well-known "slurry-hammer" (slurry flowing into the pump) thanks to an anti-spill valve combined to a self-cleaning syphon. The compression circuit also includes two safety valves: one on the pump, one on the tank. Since the pump is the heart of your spreader, it is worth this attention.

TANK PRESSURE RELIEF VALVE

All JOSKIN tankers with a vacuum pump are fitted with a tank overpressure security.



BALL SECURITY (ANTI-SPILL VALVE)

Based on a float system, the ball security prevents slurry from flowing in the same pipe as the air. Once the tank is full, the ball blocks the tube.



SELF-CLEANING SYPHON

The syphon (of 30 or 60 l according to the pump capacity) is an extra safety between the tank and the pump. The inner pipe is designed in such a way that the syphon empties automatically when the air is expelled.



ECOPUMP

This ecological and economical system allows to collect used oils coming out of the pump, to highly reduce the noise level of the pump and to suck at the top of the tank, in order to avoid dust in the slurry and to increase the lifespan of the pump.



ECO-PURIFIER

Available with a capacity of 30 or 60 l, the Eco-Purifier is a combination of an Ecopump and a syphon but it keeps both their properties and advantages. It ensures a significant space-saving.



Ø 150 MM PRESSURE RELIEF VALVE

The high-capacity pressure relief valve (Ø 150 mm) allows to quickly evacuate the air and prevent the pump from prematurely overheating. Thanks to this option, it is also possible to adjust the spreading flow by acting on the pressure in the tank.





PUMP CHANGE-OVER

Tankers with a vacuum pump are fitted with a mechanical pump change-over. A hydraulic control is available depending on the models. It is an essential option to use a filling device like an arm, a dorsal boom, etc. The change of pump can be done without leaving the tractor in order to anticipate the filling or spreading phase.

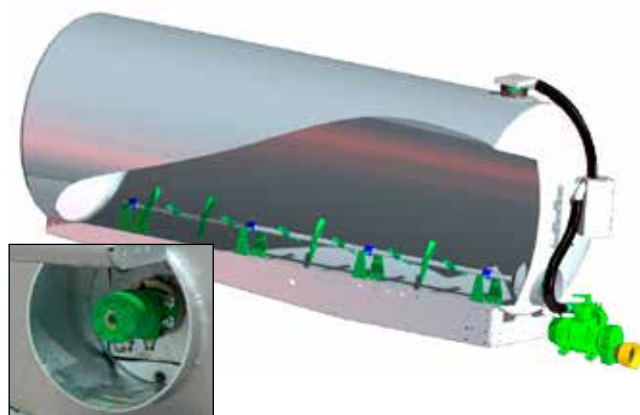


Hydraulic pump change-over

MIXING SLURRY IN THE TANK

HYDRAULIC MIXER

This device is a true mixer. It can be used both during transport and spreading. The built-in hydraulic motor drives vanes of 60 mm for a working diameter of 480 mm on an axis that rests on its whole length on an ertalon bearing.



PNEUMATIC COUNTER

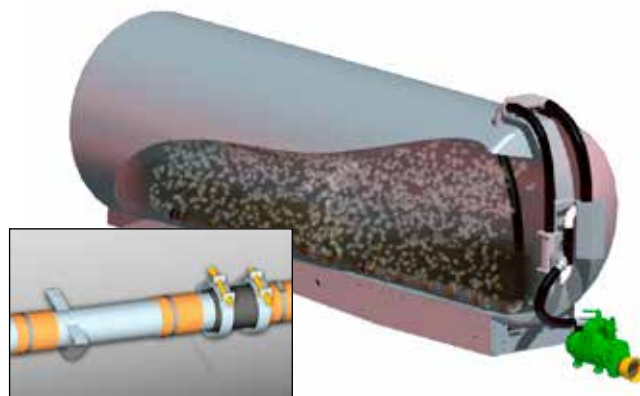
Mounted on the syphon, the pneumatic counter counts the number of tankers that were spread by means of a membrane that adds every depression in the tank.



Pneumatic counter

AIR MIXER

This device, which can only be used when spreading, injects air at the bottom of the tank through a pipe with holes over its whole length. Each of them is protected by a rubber piece in order to prevent slurry to flow into them.



VOLUMETRIC SPIRAL PUMP



ADVANTAGES

- Higher speed when filling/emptying (according to pump flow)
- Possibility to suck thicker slurry than with VACUUM pumps
- Compatibility with very long pipes (filling or spreading implement)
- Possibility to pump up to 3.5 m deep
- Standard equipment for mixing and transfer from pit to pit
- Pressure at the exit above 1 bar for a good distribution on high working width

GENERAL POINTS

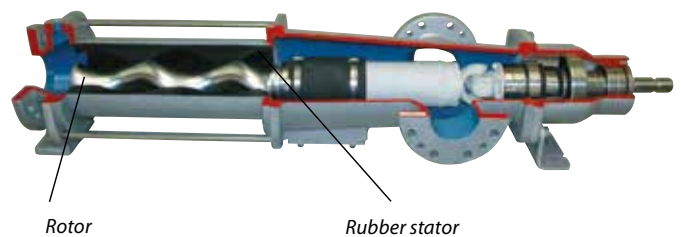
The spiral pump system makes use of a **rotor with screw** to suck and spread slurry. The rotation of the screw inside the stator then creates a series of hermetic chambers that move along the suction/discharge axis, resulting into suction and discharge.

The advantage of the spiral pumps is that they only suck until the liquid reaches them (and not like vacuum models until it reaches the upper part of the tank). They then send it to the tank or spreading implement. Sucking and discharging thick slurry through long suction pipes becomes then possible. Storage lagoons of more than 3.50 m deep can be emptied within a reasonable time.

All spiral pumps on JOSKIN vehicles are mounted in an ergonomic and compact way, at the lowest point of the machine, in order to make maintenance and access to it easy. They are always lying in the liquid to be transferred; the risk of cavitation is thus significantly reduced.

PUMP TYPES

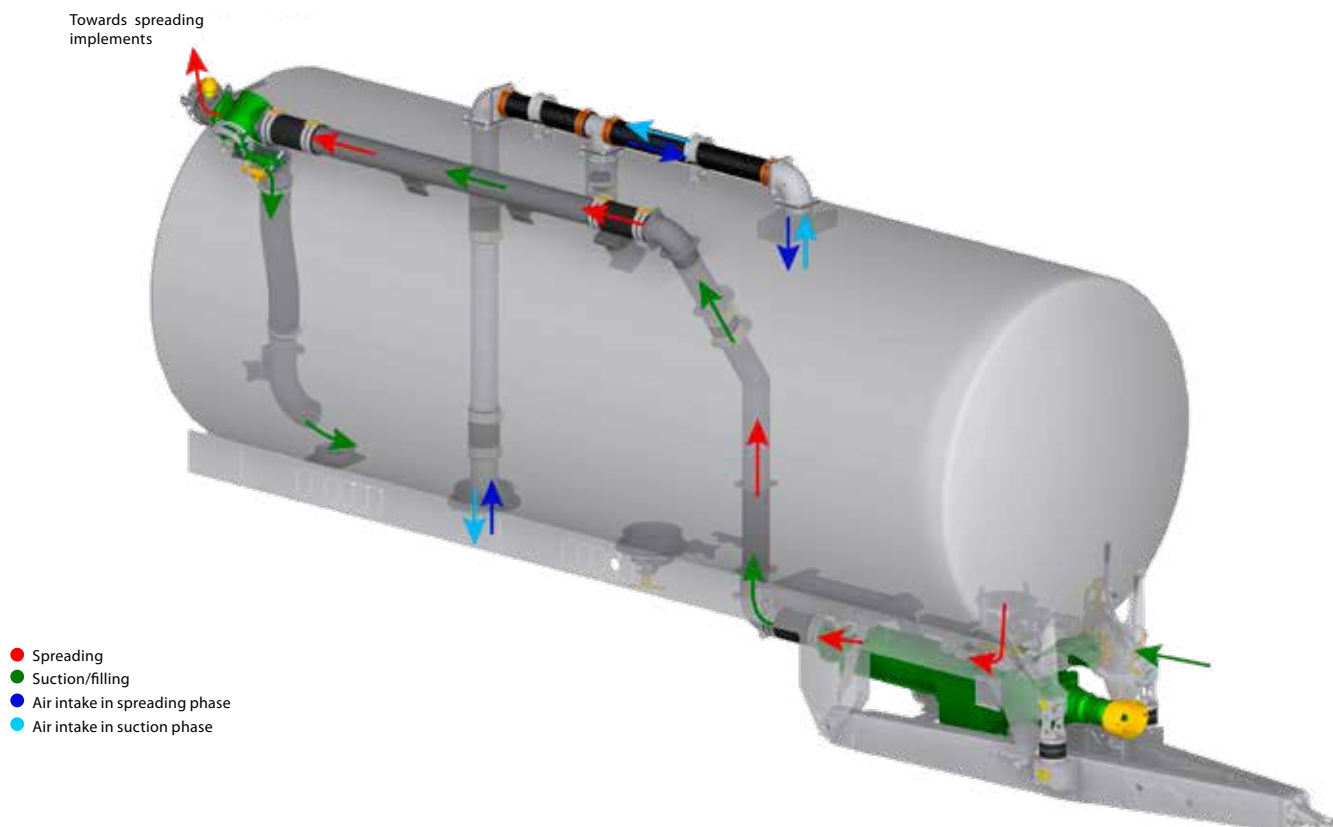
WANGEN	W110	W120	W130	W140
Pump rpm	600 rpm	600 rpm	600 rpm	600 rpm
P.T.O. rpm	540 rpm	540 rpm	540 rpm	540 rpm
	1,000 rpm as an option			
Suction flow	3,000 l/min	4,000 l/min	5,000 l/min	6,700 l/min
Ø suction pipes	150 mm	150 mm	150 mm	200 mm



3-WAY VALVE

A 3-way valve makes it possible to apply, besides the filling and emptying functions, the mixing in closed circuit and the transfer from one pit to another one.





AN APPROPRIATE POSITION OF THE PUMP

MODULO2 (up to 18,000 l)

- Front box acting both as a stone trap and a fixing point for the JUMBO left/right (fitted with 8" flanges for couple 8" or 6" valves).
- Available filling implement: JUMBO left/right



Complete box

VOLUMETRA

VOLUMETRA vehicles were specially designed for spiral pumps.



- Pump mounted underneath the tank
- Standard mounted stone trap (type DELTA2)
- Stone trap of 200 l available as an option
- Simple-Cut chopper available as an option
- Available filling implements: side JUMBO, JUMBO left/right, articulated arm

Volume	Injector	2.500	3.250	4.000	5.000	6.000	7.100	8.000	8.400	9.000	10.000	10.500	10.700	11.000	12.000	12.500	13.000	14.000	14.500	15.000	16.000	16.500	18.000	20.000	21.000	22.500	23.000	23.500	24.000	24.500	25.500	26.000	28.000	Page
Models																																		
MODULO2	V				•	•		•	•	•			•	•			•			•	•		•											28
VOLUMETRA	V										•				•			•			•		•	•	•		•							29
TETRA2	V															•	•			•														30
COBRA	V												•	•																				31
																																		32
																																		33

• Single axle •• Double axle ••• Triple axle

VOLUMETRIC LOBE PUMP



ADVANTAGES

- Higher speed when filling/emptying (according to pump flow)
- Possibility to suck thicker slurry than with VACUUM pumps
- Compatibility with very long pipes (filling or spreading implement)
- Possibility to pump up to 3.5 m deep
- Standard equipment for mixing
- Perfectly linear flow
- Pressure at the exit above 1 bar for a good distribution on high working width

GENERAL POINTS

This system makes use of **two rotors with lobes**. As they turn, they create a vacuum on the suction side, which is determined by the rotation direction, which allows to attract the slurry into the pump housing. Then, the slurry is driven by the lobes, goes along the rotor wall and is spread.

These pumps do not take much place although they have a relatively high capacity. Their sucking principle ensures them a maximum stability and eliminates almost all vibrations. Furthermore, they are all standard fitted with an automatic stop system and wear rings.

STRENGTHS

All VOGELSANG lobe pumps proposed by JOSKIN are also fitted with HiFlo® lobes ensuring a perfectly linear flow. In this way, they do not undergo vibrations and increase the lifespan of the drives and couplings. This unique geometry limits cavitation and allows higher rotation speeds, and therefore higher flows for the same pump size. Turbulences at the inlet are significantly reduced, just like wear to the lobes.

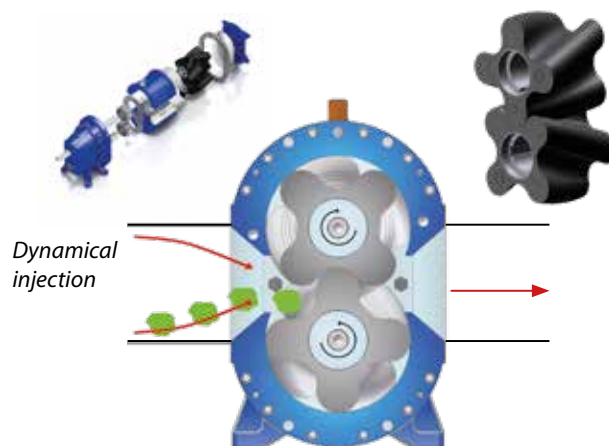
ROTARY LOBES

VOGELSANG	VX186-260	VX186-368QD
Pump rpm	600 rpm	600 rpm
P.T.O.-shaft rpm	1,000 rpm	1,000 rpm
Suction flow	6,036 l	8,544 l
BÖRGER	FL1036	EL1550
Pump rpm	600 rpm	600 rpm
P.T.O.-shaft rpm	1,000 rpm	1,000 rpm
Suction flow	6,000 l	9,000 l



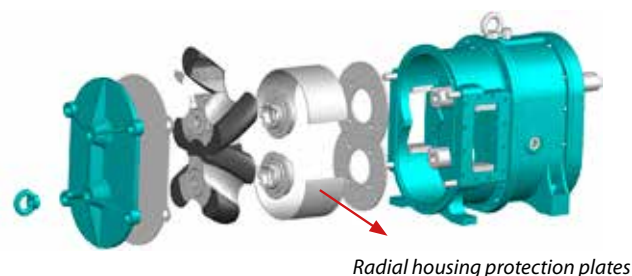
VOGELSANG'S PARTICULARITY

VOGELSANG pumps are fitted with a very efficient and dynamic injection system allowing to directly inject the foreign bodies into the pump housing, in order to avoid repeated shocks with the most sensitive parts of the lobes. The watertightness of the pump is in this way further improved.



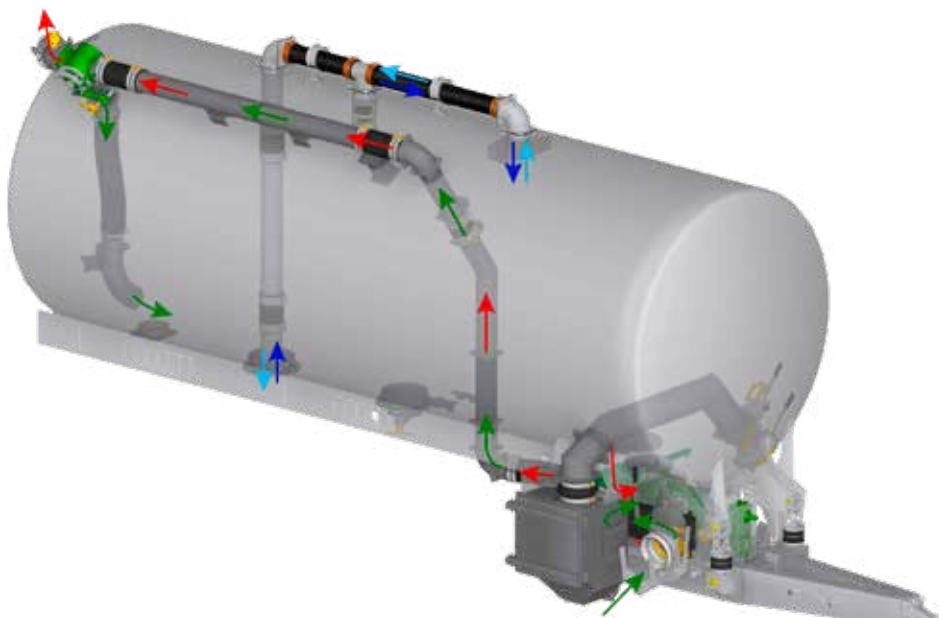
BORGER'S PARTICULARITY

All BÖRGER pumps proposed by JOSKIN are fitted with the MIP technology (Maintenance in Place), which allows to immediately maintain and replace any parts in direct contact with the liquid. These operations can be carried out thanks to the pump wall with quick closing system providing an access to the inner side of the pump without having to demount the pipes and the driving system. Maintenance becomes then very easy and comfortable. Furthermore, JOSKIN standard adds radial housing protections to these pumps, as advised by the manufacturer BÖRGER.



Towards spreading
implements

- Spreading
- Suction/filling
- Air intake in spreading phase
- Air intake in suction phase



AN APPROPRIATE POSITION OF THE PUMP

CENTRAL LOCATION OF THE PUMP (VOLUMETRA)

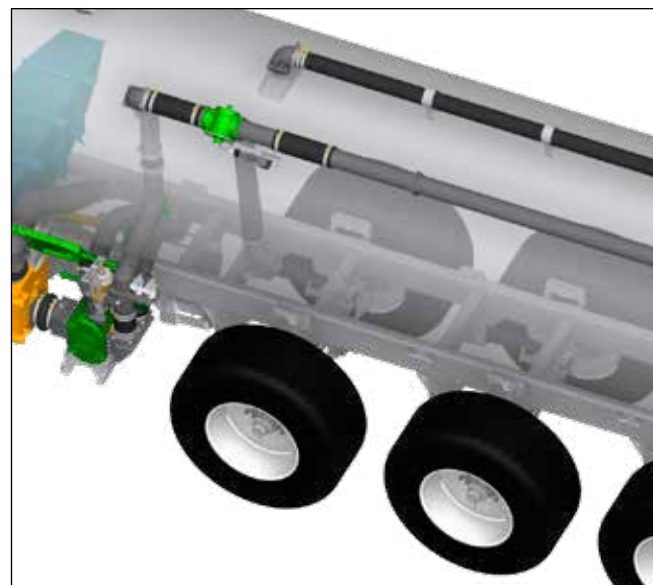
On the VOLUMETRA model, the lobe pump is located inside the drawbar. It will still be possible to reach it at the back of the drawbar for an easy maintenance.



PUMP MOUNTED ON THE SIDE (TETRAX2, QUADRA, X-TREM, EUROLINER)

- Pre-tank
- Pump and chopper on the left-hand side
- JUMBO left/right and articulated arm on the right-hand side

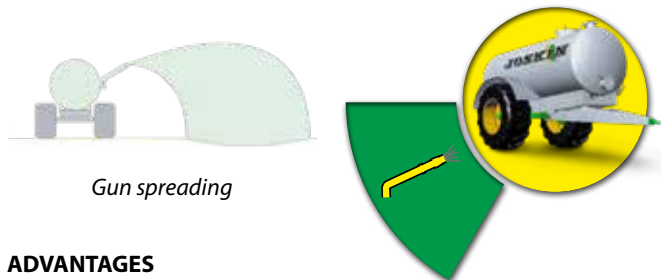
In this case, the pump is easier to maintain since it is located on the side and can be directly reached.



Volume Models	Injector	2.500	3.250	4.000	5.000	6.000	7.000	7.100	8.000	8.400	9.000	10.000	10.500	10.700	11.000	12.000	12.500	13.000	14.000	14.500	15.000	16.000	16.500	18.000	20.000	21.000	22.500	23.000	23.500	24.000	24.500	25.500	26.000	28.000	Page
VOLUMETRA	V											••				••			••			••	••	••	••	••			••			••		30 31	
TETRAX2	V												•				•	•			•													32	
QUADRA	V																	••			••	••	••	••										34	
X-TREM	V															••	••			••			••	••										35	
EUROLINER	V																						•••	•••	•••	•••			•••			•••	•••	36	
TETRALINER	-																						•••		•••		•••				•••	•••	38		

• Single axle •• Double axle ••• Triple axle

GARDA/JULIA SYSTEM



Gun spreading

ADVANTAGES

- Emptying through spreading gun to spread on very uneven grounds while the tanker remains on a flat area.
- Irrigation works possible

The GARDA/JULIA system with 100% mechanical drive combines a Garda or Julia centrifugal pump with a vacuum pump (respectively Battioni & Pagani or Jurop). A pump change-over allows to choose the desired pump type. Standard delivered with a high-flow spreading gun, it is however still possible to feed a rear spreading implement or an umbilical system.



GARDA assembly

GENERAL POINTS

GARDA/JULIA pumps can be used in steep regions and areas that are difficult to reach.

GARDA PARTICULARITY

The **GARDA assembly** is the combination of two pumps:

- a MEC vacuum pump to fill the tank and spread traditionally;
- a GARDA centrifugal pump to make the slurry flow towards the spreading gun with a pressure that can almost reach 6 bar.

It is also used a lot for irrigation works.

JULIA PARTICULARITY

The **JULIA assembly** is a combination of two pumps:

- a PN(R) or DL VACUUM pump;
- a JULIA centrifugal pump of 5,000, 7,000 or 8,000 l/min.



JULIA assembly



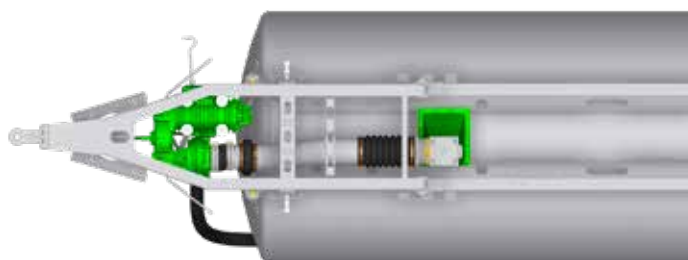
Vertical adjustment of spreading gun by hydraulic cylinder (in option)

MIXING IN CLOSED CIRCUIT

As an option on all GARDA assemblies, it is possible to mix slurry in closed circuit, which turns out to be very useful in case of quite thick slurry: this process takes place by setting slurry in motion.

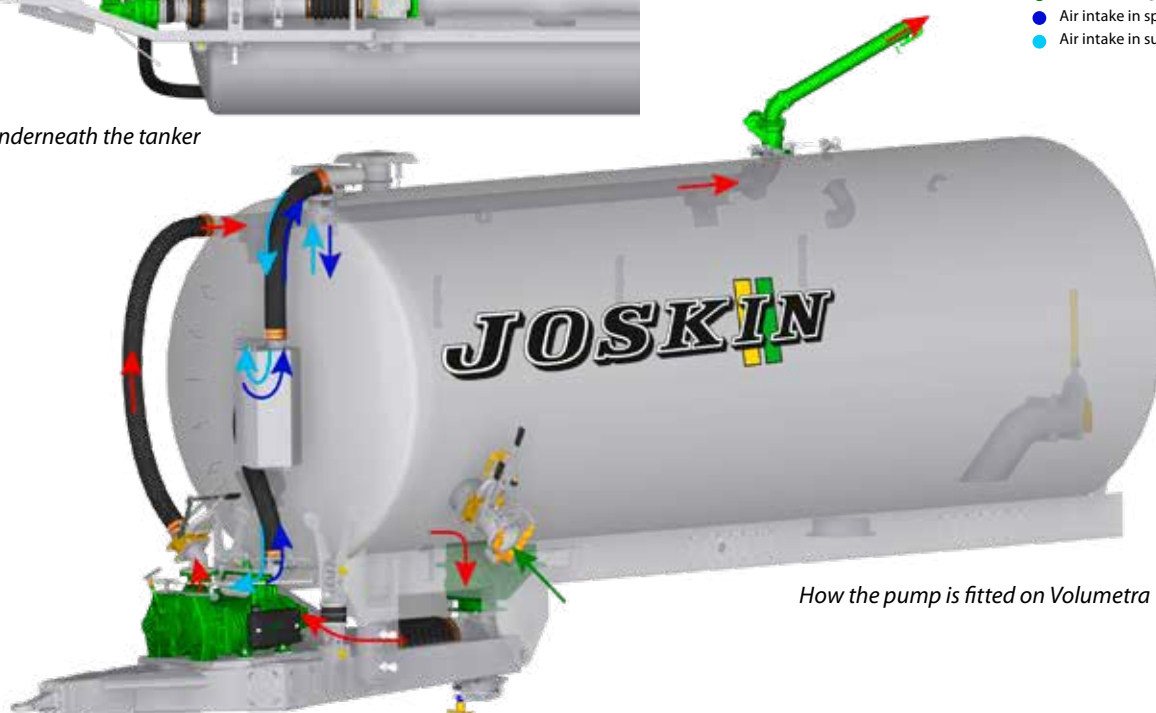


Volumetric mixing through return to tank by hydraulic 3-way valve



Underneath the tanker

- Spreading
- Suction/filling
- Air intake in spreading phase
- Air intake in suction phase



How the pump is fitted on Volumetra

Volume	Injector	2.500	3.250	4.000	5.000	6.000	7.000	7.100	8.000	8.400	9.000	10.000	10.500	10.700	11.000	12.000	12.500	13.000	14.000	14.500	15.000	16.000	16.500	18.000	20.000	21.000	22.500	23.000	23.500	24.000	24.500	25.500	26.000	28.000	Page	
Models																																				
ALPINA2	-				•	•	•	•																											27	
MODULO2	V	•	•	•	•	•	•		•	•	•			•	•			•			•	•	•												28	
									•	•	•																									29
VOLUMETRA	V											•				•						•	•	•	•	•			•			•			30	
													•									•	•	•	•	•	•									31
QUADRA	V																	•				•	•	•											34	
EUROLINER	V																						•	•	•	•			•				•	•	36	

● Single axle ●● Double axle ●●● Triple axle

CENTRIFUGAL PUMP - STORM



ADVANTAGES

- Very high and linear slurry flow
- Limited wear and low maintenance costs
- Possibility to spread thick slurry
- Pressure at the exit above 1 bar for a good distribution on high working width



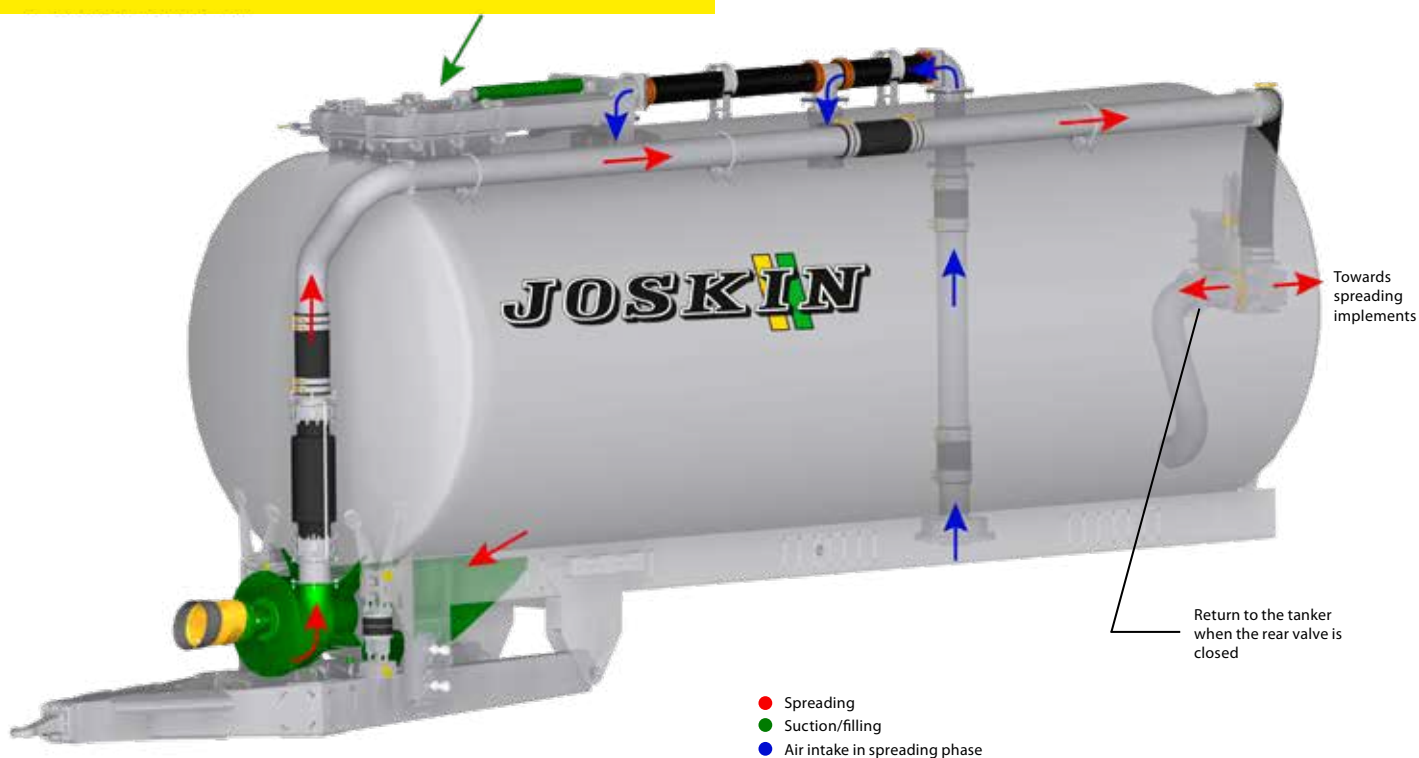
STORM EMPTYING CENTRIFUGAL PUMP

The STORM system sends the slurry out of the pump thanks to the centrifugal power created by the rotation of a screw around an eccentric pump housing. The centrifugal pumping system certainly reaches the highest flows (up to 10,000 l/min).

STORM pumps only work when emptying. The tank is therefore filled by the gravitational force through an upper hydraulic access.

At 750 rpm, a drive flow of 6,000 l is reached. It is the case on MODULO2 tankers. While at 1,000 rpm, the flow reaches 11,000 l, which is recommended on VOLUMETRA, QUADRA and EUROLINER.

The pump is mechanically driven, with direct connection to the tractor, and is standard fitted with a stone trap. As an option, it is possible to mount a 3-way valve at the front of the tank to mix the contents in closed circuit.





DUAL-STORM centrifugal pump

"DUAL-STORM" CENTRIFUGAL PUMPS

The DUAL STORM concept is based on the combination of two centrifugal pumps: one mounted at the drawbar end to fill the tank and the other at the front of the tank to spread. It essentially distinguishes itself by its high flow, around 9,000 or 10,000 l/min, according to the kind of slurry. Its three-blade propeller requires very little maintenance in comparison with the other high-flow volumetric pumps (with lobes or spiral), as it is less sensitive to the passage of foreign bodies. Like all volumetric systems, the centrifugal pump allows a better filling of the tank while avoiding foaming (the foam being rejected into the pit by the overflow pipe). The DUAL-STORM system can be fitted with a mechanical or hydraulic (Power-Pack) drive with flow meter. The POWER-PACK ensures a high ease of use and a power suiting the desired flow. This device is not self-priming; that is why it is necessary to use a small vacuum pump to create a vacuum in the dorsal boom.

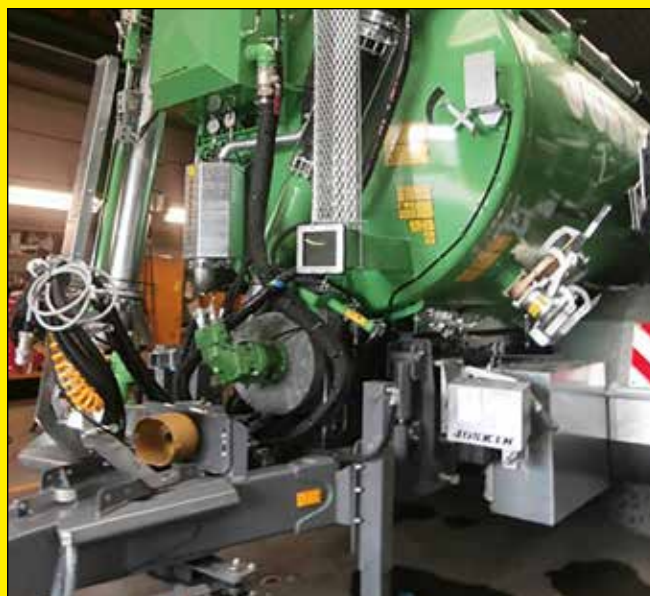


Dual-Storm with hydraulic drive of the spreading pump

POWER PACK STORM : HYDRAULIC DRIVE

Both pumps are hydraulically driven by "Power-Pack", a hydraulic installation (160L/min at 280 bar) to feed the two hydraulic motors.

A RAMUS valve isolates the tank and the case of the centrifugal pump. En standard, le DPA prend en charge la gestion de la vitesse de rotation de la pompe STORM.



STORM with Power-Pack hydraulic drive

Volume	Injector	2.500	3.250	4.000	5.000	6.000	7.000	7.100	8.000	8.400	9.000	10.000	10.500	10.700	11.000	12.000	12.500	13.000	14.000	14.500	15.000	16.000	16.500	18.000	20.000	21.000	22.500	23.000	23.500	24.000	24.500	25.500	26.000	28.000	Page	
Models																																				
MODULO2	V								•	•	•			•	•			•			•		•	•											28	
									•		•				•																				29	
VOLUMETRA	V											•	•			•			•			•	•	•	•	•	•	•	•		•				30	
																																				31
QUADRA	V																	•			•		•	•											34	
EUROLINER	V																																			
																																				36

• Single axle •• Double axle ••• Triple axle

VACU-STORM SYSTEM



ADVANTAGES

- Flexible : adapted to all pumping situations (even with long hoses)
- Performant : possibility to spread on large widths
- Simple mounting and perfectly integrated on the machine
- Efficient feeding of the centrifugal pump
- High and constant slurry flow
- Easy maintenance



VACU-STORM WITH MECHANICAL BOX DRIVE

The VACU-STORM pumping system includes the advantages of the VACUUM system in filling phase and the centrifugal one during the emptying phase. An optimal solution for the users looking for an absolute flexibility.

The **VACUUM** pump (Jurop PN 130), integrated to the drawbar, is used for suction. A PN 155 (ref 5352) and a PNR 155 (ref 2289) can be taken as options.

The VACUUM system has the advantage to be suitable to the filling situation (pit, tower, funnel,...).

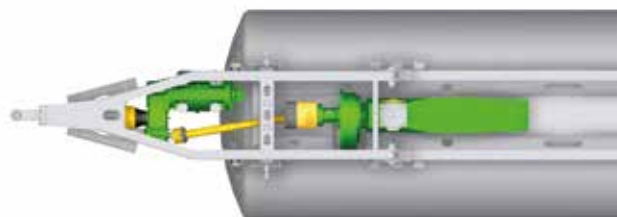
This pump is mechanically PTO driven through a reinforced gearbox. The turbo filler option can be taken to optimize the filling phase.



VACUUM pump + STORM



Mechanical drive of the 2 pumps through transmission box

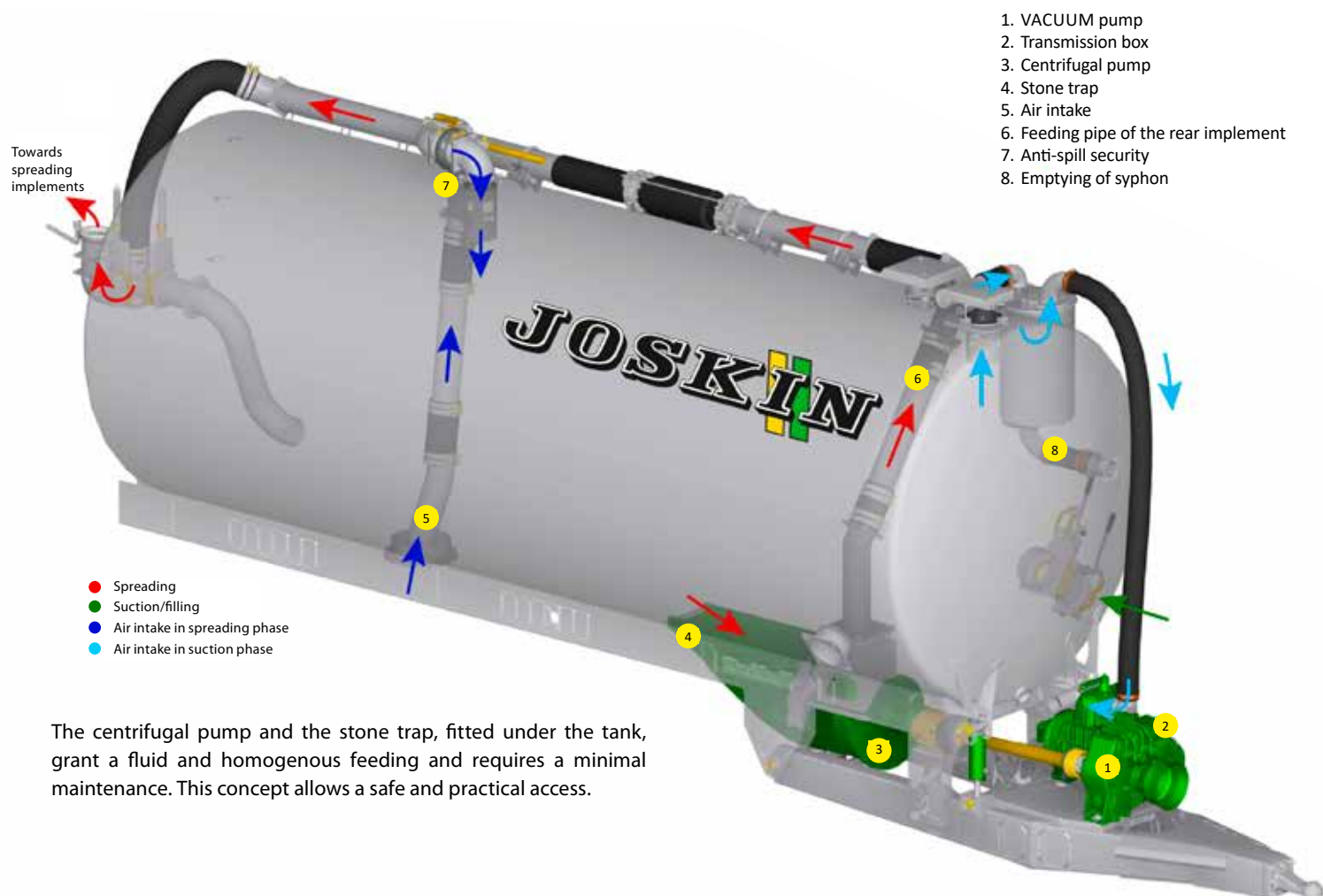


View of the centrifugal pump and its feeding box



VACU-STORM

The **STORM** pump (10.000 l/min) is used to feed a rear implement. It allows to spread on wide width, with a high and constant flow. It ensures an efficient spreading allowing to feed wide rear implements .



1. VACUUM pump
2. Transmission box
3. Centrifugal pump
4. Stone trap
5. Air intake
6. Feeding pipe of the rear implement
7. Anti-spill security
8. Emptying of syphon

- Spreading
- Suction/filling
- Air intake in spreading phase
- Air intake in suction phase

The centrifugal pump and the stone trap, fitted under the tank, grant a fluid and homogenous feeding and requires a minimal maintenance. This concept allows a safe and practical access.

Volume	Injector	2.500	3.250	4.000	5.000	6.000	7.100	8.000	8.400	9.000	10.000	10.500	10.700	11.000	12.000	12.500	13.000	14.000	14.500	15.000	16.000	16.500	18.000	20.000	21.000	22.500	23.000	23.500	24.000	24.500	25.500	26.000	28.000	Page
Models																																		
VOLUMETRA	V										••				••			••			••	•••	••		••			•••			••		30	
																						••	••										31	
QUADRA	V																••			••		••	••										34	
EUROLINER	V																						••	••		••		•••				••	••	36

● Single axle •• Double axle ••• Triple axle

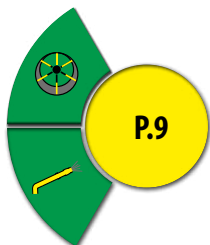


JOSKIN

7000 ME

JOSKIN

7000 ME



ALPINA2

Monocoque Construction for Maximum Lightness



GENERAL POINTS

As its name says, it is in the mountains that these vehicles feel at home. The ALPINA2 can be fitted with the special mountain emptying system (or have the pre-equipment for an assembly afterwards), which makes it a multi-functional vehicle, whatever the direction of the slope. It can also be equipped with the GARDA spreading system.



ALPINA2 with GARDA system

SPECIFICATIONS

Structure width at the running gear	850 mm
Max. wheel dimensions	Ø 1,500 mm / width 800 mm ⁽¹⁾
Running gear	Single axle
Hitching suspension	Rigid
Pumping systems	Vacuum / Garda
Filling tools	Side valve
Rear implements	/

(1) With recessing if necessary

LOW CENTRE OF GRAVITY

The low center of gravity and the lightness of the tanker allow traction ease as well as a high stability of the machine, which is ideal for very mountainous areas.



The models 7000 S and 8000 S are standard fitted with recessed wheels. It is therefore possible to mount tyres that are 800 mm wide and have a diameter of 1,500 mm without a total width exceeding 2.55 m. The recessing is longer than the wheel so that the axle can be moved and the load can be distributed ideally.



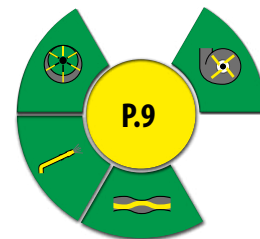
ALPINA2 MODELS

Models	Wheel recessing	Theoretical capacity (l)	Standard pump	Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)	Stand	Tank Ø (mm)
6000 S	/	6,031	MEC 5000/M	ADR 90x1950-8S	350 x 90	manual	1,400
7000 S	YES	7,096	MEC 5000/M	ADR 90x1950-8S	350 x 90	manual	1,500
7100 S	/	7,119	MEC 5000/M	ADR 130x1750-10S	406 x 120	manual	1,500
8000 S	YES	8,043	MEC 6500/M	ADR 130x1750-10S	406 x 120	manual	1,500

NB: the capacity can vary according to the optional equipment (recessing in case of large or big wheels, filling arm, etc.).

MODULO2

Efficiency of an Integrated Structure



ME SERIES

DESIGN

The MODULO2 has a sturdy construction allowing to keep a low center of gravity and offering an excellent quality/weight ratio.

As an option, buttresses allow to hitch a rear implement.



GENERAL POINTS

The MODULO2 is available as single axle with a capacity from 2,500 to 11,000 l and as double-axle from 8,400 to 18,000 l.

The tank is laid down on and welded on an integral cradle (on its width and length) on which the traction strains are focused.

SPECIFICATIONS - SINGLE AXLE

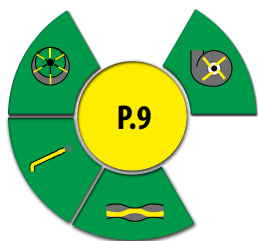
Structure width at the running gear	1,000 mm
Max. wheel dimensions	Ø 1,900 mm / width 900 mm (fixed axle) ⁽¹⁾
Running gear	Single axle
Drawbar	Rigid / cross-springs / silent-blocks / hydro-pneumatic ⁽²⁾
Pumping systems	Vacuum, Garda, Storm, spiral pump
Filling tools	All types
Rear implements	All types ⁽³⁾ : - arable injector (≤ 13 times) - SOLODISC (≤ 5.16 m)

(1) With recessing if required - (2) Depending on the models - (3) Suited to the dimensions of the vehicle

SINGLE-AXLE MODULO2 MODELS

Models	Theoretical capacity (l)		Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)	Stand	Tank Ø (mm)
	Standard	With the "recessing" option				
SINGLE AXLE						
2500 ME	2,529	/	ADR 60x1500-6S	250 x 60	manual	1,135
3250 ME	3,278	/	ADR 60x1500-6S	250 x 60	manual	1,135
4000 ME	4,262	/	ADR 70x1500-6S	300 x 60	manual	1,300
5000 ME	5,101	/	ADR 90x1900-8S	350 x 60	manual	1,300
6000 ME	6,031	5,823	ADR 90x1900-8S	350 x 60	manual	1,400
7000 ME	7,096	6,854	ADR 90x1900-8S	350 x 90	manual	1,500
8400 ME	8,507	8,103	ADR 100x2000-10S	400 x 80	manual	1,600
9000 ME	/	8,952	ADR 130x2000-10S	406 x 120	hydr.	1,800
10000 ME	10,054	9,554	ADR 130x2000-10S	406 x 120	hydr.	1,700
11000 ME	11,290	10,738	ADR 150x2000-10S	420 x 180	hydr.	1,800

NB: the capacity can vary according to the optional equipment (recessing in case of large or big wheels, filling arm, etc.).



MODULO2

Versatility in a double-axle vehicle

MEB SERIES



GENERAL POINTS

The double-axle MODULO2 is fitted with a bogie running gear.



SPECIFICATIONS - DOUBLE-AXLE

Structure width at the running gear	1,000 mm
Max. wheel dimensions	Ø 1,700 mm / width 900 mm (fixed axle) and 750 mm (steering axle) ⁽¹⁾
Running gear	Bogie
Drawbar	Rigid / cross-springs / silent-blocks / hydropneumatic ⁽²⁾
Pumping systems	Vacuum, Garda, Storm, spiral pump
Filling tools	All types
Rear implements	All types ⁽³⁾ : - arable injector (≤ 13 tines) - SOLODISC (≤ 6,20 m)

(1) With recessing if required - (2) Depending on the models - (3) Suited to the dimensions of the vehicle

MODULAR

- Reversible V-shaped drawbar for high or low hitching
- Specific drawbar depending on the pump type (e.g. vacuum, spiral, etc.) designed to be fitted with different suspension devices (cross-spring, hydropneumatic, etc.)
- Multi-position running gear for an optimal weight distribution
- Recessing for wheels with a large diameter (option)
- Possibility to add as an option a large number of spreading implements given the presence of buttresses



DOUBLE-AXLE MODULO2 MODELS

Models	Theoretical capacity (l)		Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)	Stand	Tank Ø (mm)
	Standard	With the "recessing" option				
DOUBLE AXLE						
8400 MEB	8,507	/	ADR 2x90x1900-8S	350 x 60	manual	1,600
10000 MEB	10,054	/	ADR 2x90x1900-8S	350 x 60	hydr.	1,700
12000 MEB	12,119	11,713	ADR 2x100x2000-8S	350 x 60	hydr.	1,800
14000 MEB	14,499	14,011	ADR 2x100x2000-10S	400 x 80	hydr.	1,900
16000 MEB	16,283	15,721	ADR 2x130x2000-10S	406 x 120	hydr.	1,900
18000 MEB	18,200	17,134	ADR 2x150x2000-10S	420 x 180	hydr.	2,000

NB: the capacity can vary according to the optional equipment (recessing in case of large or big wheels, filling arm, etc.).

VOLUMETRA

Compact tanker with large volume



**MACHINE
OF THE YEAR 2017**



STURDY LINKAGE

A sturdy integrated linkage, designed to hitch all spreading and injection implements, even the widest ones. The integration of the linkage on the tank makes the VOLUMETRA compact and allows to keep an ideal weight on the eyelet, even with a very wide spreading boom.

Specific recesses were also designed to mount large tyres, even on a steering axle, while limiting the reduction of the tank volume.

This new design also allows to reduce the tank height without having to make it longer. This JOSKIN tanker remains therefore faithful to the brand as regards manoeuvrability, comfort and safety.



Without linkage



Fitted with an integrated linkage

GENERAL POINTS

The VOLUMETRA regroups on a same machine many new possibilities in order to make it a unique vehicle, which can adapt in the best possible way to the requirements of modern agriculture.

The international professional press recognized the merits of this tanker by awarding it the title of machine of the year 2017 at the SIMA (Paris).

INTEGRATED TUBULAR SELF-SUPPORTING STRUCTURE FOR A COMPACT CONSTRUCTION

JOSKIN tankers with volumetric pump are compact, ingenious and easy to handle thanks to their low center of gravity.

The VOLUMETRA is a vehicle with self-supporting structure in high tensile steel with high, designed to reduce its total weight to a minimum and to adapt to all JOSKIN spreading techniques. The pumping technology is integrated into the drawbar so as to have minimum overall dimensions and to keep a direct access to the pump.



DOUBLE-AXLE VOLUMETRA MODELS

Models	Theoretical capacity (l)		Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)	Parking Stand	Tank Ø (mm)
	Standard	with the "recessing" option				
10500 D	10,640	/	ADR 2x130x2100-10S	406 x 120	hydr.	1,700
12500 D	12,700	/	ADR 2x130x2100-10S	406 x 120	hydr.	1,700
14500 D	14,814	13,943	ADR 2x130x2100-10S	406 x 120	hydr.	1,800
16500 D	16,632	15,697	ADR 2x130x2100-10S	406 x 120	hydr.	1,900
18000 D	18,390	17,393	ADR 2x150x2100-10S	420 x 180	hydr.	2,000
20000 D	20,297	19,244	ADR 2x150x2100-10S	420 x 180	hydr.	2,100

NB: the capacity can vary according to the optional equipment (recessing in case of large or big wheels, filling arm, etc.).

VOLUMETRA

Multi-Functionality, Safety and Driving Comfort



ALL TYPES OF PUMPS

The VOLUMETRA was originally designed for volumetric pumps, like spiral and lobe pumps, while limiting the overall dimensions. To meet the demand, it is also possible to install a VACUUM, Storm or VACU-STORM pump. It is in this way a fully multi-functional machine.



SPECIFICATIONS OF DOUBLE AND TRIPLE-AXLE MODELS

Structure width at the running gear	900 mm
Max. wheel dimensions	Ø 1,670 mm / width 850 mm (fixed axle) and 750 mm (steering axle) ⁽¹⁾
Running gear	Hydro-Tandem/Hydro-Tridem
Drawbar	With silent-blocks / hydropneumatic
Pumping systems	All types
Pumping Accessories	All types
Rear implements	All types ⁽²⁾

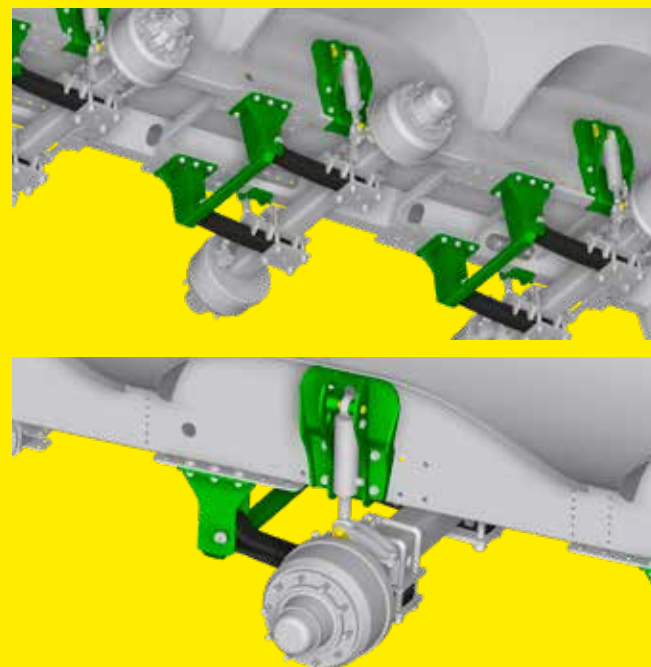
(1) With recessing if required - (2) Suited to the dimensions and capacity of the vehicle

BOLTED HYDRAULIC RUNNING GEAR

The VOLUMETRA is standard fitted with a movable bolted hydraulic running gear (Hydro-Tandem/Hydro-Tridem - see page 43), which ensures optimal safety and road holding conditions thanks to an efficient hydraulic compensation.

Furthermore, it also allows a perfect adaptation to the relief (e.g. on uneven ground). These qualities are further reinforced by its low center of gravity and its outstanding load distribution.

In short: it is a real pleasure to drive in all circumstances!



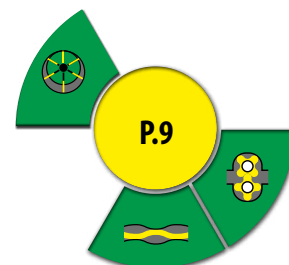
TRIPLE-AXLE VOLUMETRA MODELS

Models	Theoretical capacity (l)		Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)	Parking Stand	Tank Ø (mm)
	Standard	with the "recessing" option				
18000 T	18,500	17,300	ADR 3x130x2100-10S	406 x 120	hydr.	1,800
20000 T	20,700	19,400	ADR 3x130x2100-10S	406 x 120	hydr.	1,900
22500 T	22,900	21,760	ADR 3x150x2100-10S	420 x 180	hydr.	2,000
24000 T	24,380	23,260	ADR 3x150x2100-10S	420 x 180	hydr.	2,000
26000 T	26,825	25,705	ADR 3x150x2100-10S	420 x 180	hydr.	2,100

NB: the capacity can vary according to the optional equipment (recessing in case of large or big wheels, filling arm, etc.).

TETRAX2

4 Wheels in a Row



SLURRY TANKER IDEAL FOR MEADOWS

Very compact vehicle with 4 parallel wheels (e.g. 650/65R42) for an optimized load distribution in order to reduce ground compaction.

EASY CONSTRUCTION AND MAINTENANCE

The success of this concept lies in:

- the 4 wheels in a row (contact surface with the ground: 2.60 m), which allows to reduce the ground pressure to a minimum and thus to respect the ground structure;
- the possibility to use used tractor wheels (low cost), which won't let any tracks on your meadows (low profile);
- the two pairs of wheels fitted with a horizontal swinging movement ensuring security and stability in the bends;
- the integrated linkage.

In order to make the maintenance of the vehicle easier:

- The axles are fastened by means of four bolts, which allow to easily remove and change the wheels.
- All grease points are centralized on each side of the machine.

GENERAL POINTS

Ideal for humid grounds, the TETRAX2 is welded on its whole length to a self-supporting structure, which allows to have a tanker with traction ease focusing the strains on the integrated chassis.



Centralized lubrication

SPECIFICATIONS

Structure width at the running gear	/
Max. wheel dimensions	Ø 1,915 mm / width 642 mm
Running gear	Two axles with short track (790 mm)
Drawbar	Standard with cross-springs / hydropneumatic
Pumping systems	Spiral, lobe, vacuum pump
Filling tools	All types ⁽¹⁾ except dorsal boom
Rear implements	Injectors of all types ⁽¹⁾ TERRADISC only on 16,000 l Booms ≤ 12 m

⁽¹⁾ Suited to the dimensions of the vehicle



Integrated linkage

TETRAX2 MODELS

Models	Theoretical capacity (l)	Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)	Stand	Tank Ø (mm)
10700 S	10,755	ADR 2x130x790-10S	406 x 120	hydr.	2,000
13000 S	12,900	ADR 2x130x790-10S	406 x 120	hydr.	2,100
14000 S	14,036	ADR 2x130x790-10S	406 x 120	hydr.	2,100
16000 S	16,000	ADR 2x130x790-10S	406 x 120	hydr.	2,100

NB: the capacity can vary according to the optional equipment (recessing in case of large or big wheels, filling arm, etc.).



COBRA

Narrow Chassis Designed for Huge Low-Pressure Tyres

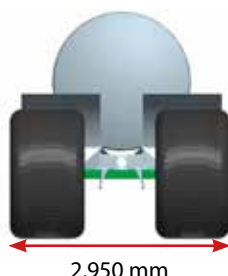


GENERAL POINTS

The COBRA spreader is a compact high-capacity single-axle tanker specially designed to work in the fields. Suited to be mounted with low-pressure tyres (up to Ø 1.86 m and 1.05 m wide) and wheel recessing in order not to exceed 3 m, the COBRA can be fitted with a very compact linkage that perfectly takes up the form of the chassis and reduces in this way the overhang. It is fastened to the chassis by conical axes ensuring an optimal support.



COBRA linkage



2.950 mm

SPECIFICATIONS

Structure width at the running gear	600 mm
Max. wheel dimensions	Ø 1,860 mm / width 1,050 mm
Running gear	Single axle
Hitching suspension	Standard with lengthwise spring leaves / hydropneumatic
Pumping systems	Vacuum, spiral pump
Filling tools	All types ⁽¹⁾
Rear implements	All types ⁽¹⁾

(1) Suited to the dimensions of the vehicle

NARROW INDEPENDENT CHASSIS

The independent supporting structure is made of a narrow universal chassis "leaning" on the tank, which gets steadier as we move away from the resting points (axle and eyelet). The tank, which is reinforced on the whole length by welded brackets, is laid down on the chassis: it is therefore subjected to less strains.



HIGH MANOEUVRABILITY

This vehicle is very manoeuvrable thanks to the short tank with a large diameter.



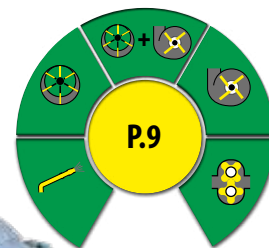
COBRA MODELS

Models	Theoretical capacity (l)	Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)	Stand	Tank Ø (mm)
10000 ES	10,001	ADR 130x2000-10S	406 x 120	hydr.	1,800
11000 ES	11,140	ADR 150x2000-10S	420 x 180	hydr.	1,900
12500 ES	12,267	ADR 150x2000-10S	420 x 180	hydr.	2,000

NB: the capacity can vary according to the optional equipment (recessing in case of large or big wheels, filling arm, etc.).

QUADRA

Double-Axle
Vehicles with High
Volumes for your
Intensive Works



MANOEUVRABILITY

Even if the capacity of the QUADRA tanks is high, this type of vehicle keeps a reasonable total length. Even fitted with a rear implement, your tanker will remain very easy to handle.



CHASSIS

The driving comfort is ensured by an overdimensioned chassis (300 x 100 x 10 mm) and a cross-spring hitching suspension (standard). The universal chassis is pre-equipped to be fitted with an integrated 4-point linkage to which any type of spreading implement can be hitched.

GENERAL POINTS

The QUADRA is a double-axle vehicle that is perfectly suited for intensive slurry spreading and transport works. The chassis is standard fitted with integrated anchoring points, in order to easily mount a possible linkage.

The QUADRA is also standard fitted with a Hydro-Tandem running gear ensuring an optimal driving stability as well as an unmatched driving comfort.



SPECIFICATIONS

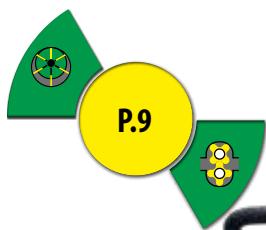
Structure width at the running gear	900 mm
Max. wheel dimensions	Ø 1,820 mm / width 800 mm (steering axle) and 850 mm (fixed axle) ⁽¹⁾
Running gear	Hydro-Tandem
Drawbar	Standard with cross-springs / Hydropneumatic ⁽²⁾
Pumping systems	All types (except spiral pump)
Filling tools	All types
Rear implements	All types ⁽³⁾

(1) With recessing if required - (2) Depending on the models - (3) Suited to the dimensions of the vehicle

QUADRA MODELS

Models	Theoretical capacity (l)		Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)	Stand	Tank Ø (mm)
	Standard	With the "recessing" option				
14000 TS	14,499	14,011	ADR 2x130x2100-10S	406 x 120	Hydr. skid with direct connection to the tractor (1 DA)	1,900
16000 TS	16,283	15,721	ADR 2x130x2100-10S	406 x 120	Hydr. skid with direct connection to the tractor (1 DA)	1,900
18000 TS	18,200	17,290	ADR 2x150x2100-10S	420 x 180	Hydr. skid with direct connection to the tractor (1 DA)	2,000
20000 TS	20,200	19,095	ADR 2x150x2100-10S	420 x 180	Hydr. skid with direct connection to the tractor (1 DA)	2,100

NB: the capacity can vary according to the optional equipment (recessing in case of large or big wheels, filling arm, etc.).



X-TREM Without Compromise



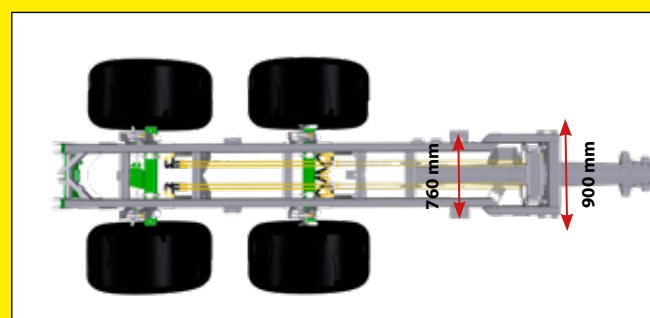
GENERAL POINTS

The X-TREM slurry spreader is the ideal vehicle for contractors who wish a machine with a small length, a large tank diameter and tyres up to Ø 1.82 m (e.g. 800/65R32). The chassis, which is 760 mm wide at the level of the running gear, allows to fit wide wheels (≤ 850 mm), without reducing the large steering angle of the rear axle.

Hydropneumatic drawbar, self steering system, Hydro-Tandem and pre-equipment for wide boom are only a part of the equipment that makes of this tanker the ideal tool for the most arduous works.

NARROW CHASSIS

The design of the narrow chassis (760 mm) allows to combine a smaller total width and a max. steering angle.



SPECIFICATIONS

Structure width at the running gear	760 mm
Max. wheel dimensions	Ø 1,820 mm / width 850 mm ⁽¹⁾
Running gear	Hydro-Tandem
Drawbar	Hydropneumatic ⁽²⁾
Pumping systems	Vacuum, lobe pumps
Filling tools	All types
Rear implements	All types ⁽³⁾

(1) With recessing if required - (2) Depending on the models - (3) Suited to the dimensions of the vehicle

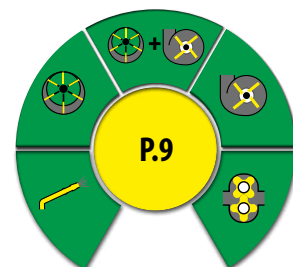
X-TREM MODELS

Models	Wheel recessing	Theoretical capacity (l)	Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)	Stand	Tank Ø (mm)
12000 TS	/	12,085	ADR 2x130x2100-10S	406 x 120	Hydr. skid with direct connection to the tractor (1 DA)	1,800
13000 TS	YES	13,452	ADR 2x130x2100-10S	406 x 120	Hydr. skid with direct connection to the tractor (1 DA)	1,900
14000 TS	/	14,217	ADR 2x130x2100-10S	406 x 120	Hydr. skid with direct connection to the tractor (1 DA)	1,900
15000 TS	YES	15,375	ADR 2x150x2100-10S	420 x 180	Hydr. skid with direct connection to the tractor (1 DA)	1,900
18000 TS	YES	18,633	ADR 2x150x2100-10S	420 x 180	Hydr. skid with direct connection to the tractor (1 DA)	2,100
20000 TS	YES	20,432	ADR 2x150x2100-10S	420 x 180	Hydr. skid with direct connection to the tractor (1 DA)	2,100

NB: the capacity can vary according to the optional equipment (recessing in case of large or big wheels, filling arm, etc.).

EUROLINER

The Best Road/Field Compromise



SURPRISING AGILITY

HYDRO-TRIDEM

The "Hydro-Tridem" triple-axle concept combines the advantages of the triple axle suspension with leaves (axles that can easily be pulled over obstacles) and the hydraulic suspension (high sensitivity and great 250 mm clearance).

HITCHING SUSPENSION

The standard hydropneumatic drawbar, together with the Hydro-Tridem concept, ensures an outstanding driving comfort.

FRONT LIFTING AXLE

The EUROLINER are standard fitted with a front lifting axle allowing:

- in the fields, to transfer weight in order to have some more on the eyelet and therefore a better grip of the tractor;
- on the roads and only when unloaded, to reduce the wear to tyres.



GENERAL POINTS

The independent supporting structure is made up of a narrow universal chassis "leaning" on the tank.

The EUROLINER is designed to be practical both on roads and in the fields. In this respect, this vehicle has an extensive standard equipment aiming at a high safety and driving comfort level, like a double forced steering axle that provides an outstanding driveability and a surprising agility in the field.



SPECIFICATIONS

Structure width at the running gear	900 mm
Max. wheel dimensions	Ø 1,820 mm / width 800 mm ⁽¹⁾
Running gear	Hydro-Tridem
Drawbar	Hydropneumatic
Pumping systems	All types (except spiral pump)
Filling tools	All types
Rear implements	All types ⁽²⁾

(1) With recessing if required - (2) Suited to the dimensions of the vehicle

EUROLINER MODELS

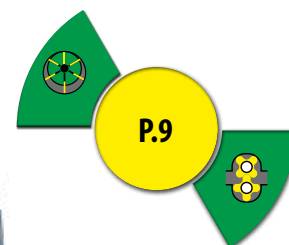
Models	Theoretical capacity (l)	Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)	Stand	Tank Ø (mm)
18000 TRS	18,331	ADR 3x130x2100-10S	406 x 120	Hydr. skid (DA) with direct connection to the tractor	2,000
20000 TRS	20,428	ADR 3x130x2100-10S	406 x 120	Hydr. skid (DA) with direct connection to the tractor	2,100
22500 TRS	22,587	ADR 3x150x2100-10S	420 x 180	Hydr. skid (DA) with direct connection to the tractor	2,100
24000 TRS	24,470	ADR 3x150x2100-10S	420 x 180	Hydr. skid (DA) with direct connection to the tractor	2,100
26000 TRS	26,200	ADR 3x150x2100-10S	420 x 180	Hydr. skid (DA) with direct connection to the tractor	2,100
28000 TRS	28,331	ADR 3x150x2100-10S	420 x 180	Hydr. skid (DA) with direct connection to the tractor	2,100

NB: the capacity can vary according to the optional equipment (recessing in case of large or big wheels, filling arm, etc.).



TETRALINER

Competitive Supplying



DEVELOPED FOR TRANSPORT

The TETRALINER allows to transport high volumes from the farm to the field in order to supply your spreading tankers.

WHEELS

Mounting agricultural wheels allows to reach the fields to be spread via paths that cannot be accessed by trucks.

PUMPING

It is possible to pump on the left and right-hand side since the turbo-filler is located under the tank (option).

The TETRALINER can be fitted with a vacuum of lobe pumps and can be completed with transfer techniques, like a Ø 8" unloading arm.



"DOLLY" SYSTEM

The TETRALINER 21000, 23500, 26000 and 28000 can be equipped with a DOLLY consisted of an axle on a revolving plate (Ø 974mm) directly integrated to the tanker.

This assembly provides a weight transfer to the hitching point. As a result, a higher maximum weight is allowed in comparison to the standard model, and this in several countries (Germany, Belgium, etc.).



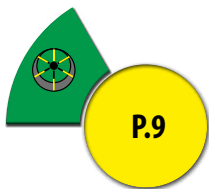
SPECIFICATIONS

Structure width at the running gear	1,100 mm
Max. wheel dimensions	Ø 1,250 mm / width 600 mm
Running gear	Turntable + tandem
Hitching suspension	/
Pumping system	Vacuum, lobe pumps
Filling tool	JUMBO
Rear implement	/

TETRALINER MODELS

Models	Theoretical capacity (l)	Standard pump	Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)	Tank Ø (mm)
18000 T	18.000	MEC 8000/D	ADR 3x130x1950-10S	406 x 120	1.900
21000 T ⁽¹⁾	21.000	MEC 8000/D	ADR 3x150x1950-10S	420 x 180	1.900
23500 T ⁽¹⁾	23.500	MEC 8000/D	ADR 3x150x1950-10S	420 x 180	2.000
26000 T ⁽¹⁾	26.000	MEC 8000/D	ADR 3x150x2100-10S	420 x 180	2.100
28000 T ⁽¹⁾	28.000	MEC 8000/D	ADR 3x150x2100-10S	420 x 180	2.200

NB: the capacity can vary according to the optional equipment (recessing in case of large or big wheels, filling arm, etc.). (1) Pay attention to the maximum weight allowed to a loaded vehicle according to the legislation of the country.



GENERAL POINTS

The VACU-CARGO-LIFT is a tank that can be mounted on the CAR-GO-LIFT hook lift trailer, providing in this way another alternative to modularity. With this type of vehicle, the transported implement can indeed be rapidly changed.



QUICK CHANGE

VACU-CARGO-LIFT are designed to quickly and easily load/unload implements. The different hydraulic and electrical accessories are in fact all standard fitted with quick couplings, in order to avoid any time losses when changing implements.

RIGID STRUCTURE

The sub-frame of the VACU-CARGO-LIFT tanks is made of QST 690 HLE steel. The two steel wheels with a diameter of 200 mm at the back (standard) allow to load/unload it smoothly and easily, even when it is fully loaded. The structure of the sub-frame is adapted to hooks from 1.43 m to 1.57 m high (standard: 1.45 m).



VACU-CARGO LIFT MODELS

Possibilities according to chassis	5.5 m	5.9 m	6.4 m	6.6 m	6.8 m
Slurry tank	/	/	Vacu 16,000, 18,000, 20,000, 22,500 or 24,000 *		

* Sub-frame length: 6.8 m for 16,000 l and 18,000 l, 7 m from 20,000 l to 24,000 l
Smaller tanks are available on request



More info about the Vacu-CARGO LIFT in our Heavy-Duty catalogue

VARIABILITY OF EQUIPMENT

A VACU-CARGO-LIFT system is almost as multi-functional as the specific tanks of the type "slurry/water tanker". It can indeed have no filling pump nor transferring tool to be used for the transport of high volumes of liquid, or can have a spreading tank, e.g. combined with a line spreading boom.



CARGO CHASSIS

Multi-Purpose Chassis

TRM SERIES



TSM SERIES



RUNNING GEAR

The CARGO chassis are standard fitted with the Hydro-Tandem (CARGO TSM) or Hydro-Tridem (CARGO TRM) hydraulic axle suspension.

This type of running gear combines the advantages of the axles that can easily be pulled over obstacles and of the semi-independent axles offering a large clearance. This suspension works in closed circuit according to the communicating vessels principle. Large section pipes are used to improve the reactivity of the hydraulic rams, which is extremely useful in case of significant ground unevenness.

Finally, their 250 mm clearance ensures a perfect distribution of the loads in all circumstances.



*Hydropneumatic suspension
Mounted on a hydraulic ram with two nitrogen accumulators, it offers a high flexibility.*

MANAGEMENT AND CONTROL

Machines fitted with electrovalves gathered on a monoblock basis are protected by a galvanized box. This hydraulic distribution installation includes an entry block (capacity: 60 l/min or 120 l/min).

A high number of hydraulic functions of the vehicles requires a low flow, but it is important to know which ones require a high flow, like the hydraulic motors of the turbo-filler, macerator(s), etc.



Quick couplings



Hydraulic box

MODULAR CONCEPT

The CARGO concept allows to maximize the use of your agricultural implements thanks to a single basic chassis for 5 types of implements! It is a flexible and economical solution.

Next to a slurry tanker, with or without spreading tool, the chassis can be fitted with other implements, like a muck spreading body, a silage body, a DRAKKAR body or a monocoque agricultural tipping body.

PLACING/REMOVING BASIC IMPLEMENTS

For a modular concept to be the most practical, it is essential that the basic implements can be placed/removed with few means and very quickly. Guides, which are also acting as a protection of the hydraulic rams of the hydraulic suspension, allow to place the implement on the chassis more easily. Implements are fixed on the chassis by means of 2 x 3 "Twist Locks" placed all along the chassis.

The CARGO is fitted with rear hooks supporting the strains brought by the implement. The combination of these ingenious systems ensures a high comfort use and profitability.



Twist-Lock



Guides

MODELS

	Chassis length (m)	Stand	Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)
CARGO TSM (6.6)	6.60	Hydraulic skid direct conn. to tractor (DA)	ADR 2x150x2000-10G	420 x 180
CARGO TRM (6.6)	6.60	Hydraulic skid direct conn. to tractor (DA)	ADR 3x150x2000-10G	420 x 180
CARGO TRM (7.5)	7.55	Hydraulic skid direct conn. to tractor (DA)	ADR 3x150x2000-10G	420 x 180

CARGO SYSTEM Implements



GENERAL POINTS

The VACU-CARGO was created in such a way as to improve the modularity. It is a removable slurry tank to be placed on a CARGO chassis. It is compatible with the whole range of rear spreading implements (booms and injectors).



SPECIFICATIONS

Pumping system	Vacuum
Filling tools	All types
Rear implements	All types ⁽¹⁾

(1) Suited to the dimensions of the vehicle

VACU-CARGO MODELS

Models	Theoretical capacity (l)	Standard pump	Tank Ø (mm)
VACU 16.000	16.450	PN130/D JUROP	1,800
VACU 18.000	18.615	PN130/D JUROP	1,900
VACU 20.000	20.465	PN130/D JUROP	2,000
VACU 21.000	21.274	PN130/D JUROP	1,900
VACU 22.500	22.587	PN130/D JUROP	2,100
VACU 23.000	23.414	PN130/D JUROP	2,000
VACU 24.500	24.800	PN130/D JUROP	2,200
VACU 25.500	25.840	PN130/D JUROP	2,100

VACU-CARGO



PUMP COMBINED WITH THE TANK

The pump, which can be mechanically or hydraulically driven, is fastened to a side support base welded to the tank. All specific implements of the tank will thus remain linked to it.



REAR BUTTRESSES

The rear linkage is bolted to the two buttresses that are welded at the back of the tank. They have a resting point on the chassis through the support hooks. Consequently, the load strains from the rear implement are evenly transferred to the whole vehicle. In this way, the rear implement remains fastened to the tank.



TWIST LOCK

The "Twist Lock" couplings allow to lock the implement on the chassis.



EQUIPMENT RUNNING GEAR

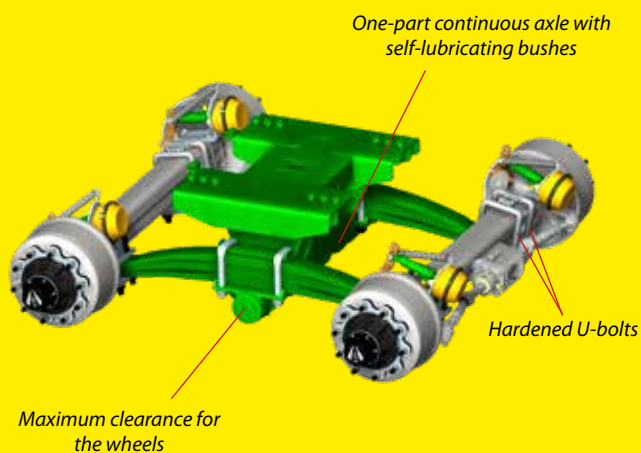


RUNNING GEAR

The JOSKIN running gears are designed to meet, in every situation and whatever the vehicle, the criteria of reliability, stability, comfort and safety both on roads and in the fields.

There are several types:

- the traditional tandem with rods (standard on TETRALINER);
- the Roll-Over Bogie (standard on MODULO2);
- the Hydro-Tandem (standard on VOLUMETRA, QUADRA and X-TREM);
- the Hydro-Tridem (standard on VOLUMETRA and EUROLINER).



JOSKIN ROLL-OVER BOGIE

JOSKIN DESIGN

JOSKIN assembles its own bogies, thereby offering personally adapted ones to suit to your vehicle. The distance between the leaves and the axle square are elements that can be adapted to each machine.

BOLTED AND MOVABLE

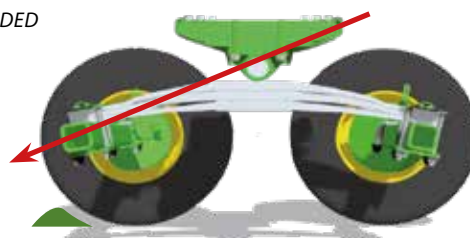
All JOSKIN bogies are bolted and can be moved for a good weight distribution according to the rear implement and possible future pieces of equipment.

ROLL-OVER

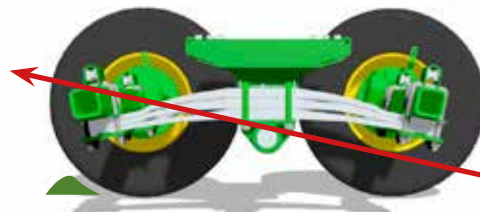
The bogie is made up of 2 axles linked by parabolic leaves and fixed to the chassis by means of a central point. This concept makes it possible to counterbalance the ground unevenness (up to +/- 240 mm).

Thanks to the position of the cross-axis (under the leaves) and the upper position of the axles at the ends of the leaves, the drawline pushes the front axle over the obstacle. The traction power needed is therefore reduced. That is why this system is necessary in case of intensive use on uneven ground.

TO BE AVOIDED



ITS SECRET





TRADITIONAL TANDEM WITH RODS

The traditional tandem with rods is an easy and efficient system for transportation mounted on the TETRALINER and DELTA2. Its advantages are its low cost and its low center of gravity. However, its obstacle clearance potential is low, given its modest clearance (+/- 80 mm). The traction will be higher and will require more power, which will increase the fuel consumption. In order to lessen the impact of these elements, JOSKIN has developed its own hydraulic running gears: Hydro-Tandem and Hydro-Tridem.

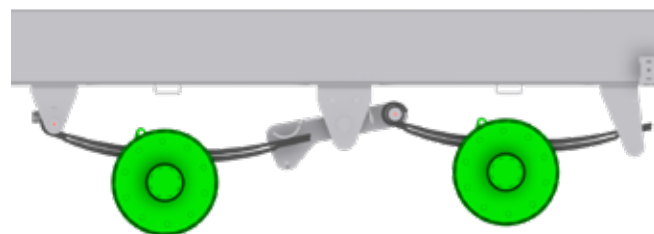
JOSKIN HYDRAULIC RUNNING GEARS: HYDRO-TANDEM / HYDRO-TRIDEM

Simplicity, clearance and stability: these are the three key specifications of the Hydro-Tandem/Tridem running gear. It combines the following advantages: the axles can easily be pulled over obstacles and they are semi-independent. That is why they allow a significant clearance (up to +/- 250 mm).

Given the design of the JOSKIN Hydro-Tandem/Hydro-Tridem, the ground pressure is perfectly distributed over the wheels. The ground is therefore less compressed, which allows to spare its structure. The stability of the vehicle will therefore also be significantly improved. Each axle is pulled by leaves attached to a fixing element that is located ahead of the assembly.

Four or six hydraulic rams are placed two by two or three by three on both sides of the chassis. Those of a same side are linked to each other in closed circuit and the oil flow takes place according to the communicating vessels principle. The independence of the circuits on each side of the vehicle, combined with the incompressible properties of oil, ensures a perfect side stability and prevents swaying. This explains why the vehicle is less likely to tilt when driving in bends and on hills.

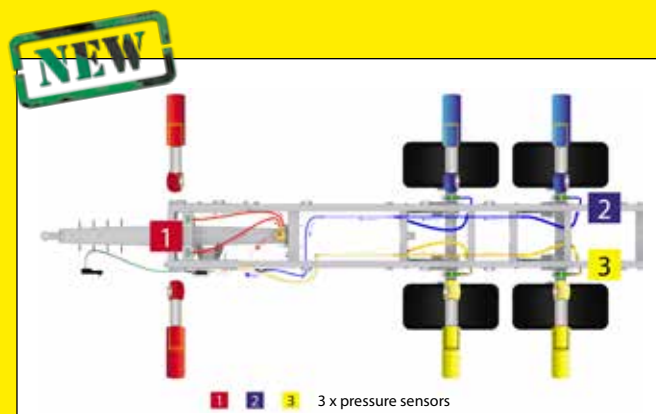
The first lifting axle is standard mounted on all Hydro-Tridem vehicles.



DYNAMIC WEIGHING SYSTEM ON HYDRAULIC SUSPENSION

Vehicles fitted with a hydraulic hitching suspension and a hydraulic running gear can be fitted with this device.

Two pressure sensors located on the hydraulic circuit of the running gear, as well as one on the hitching suspension, are connected to a computer on the running gear. These sensors send cable signals so that the weight can be displayed on a screen in the tractor cabin. Another screen can be installed on a loader or on the vehicle in order to see the load weight at any time. This system is also compatible with Isobus and can be controlled through the Isobus terminal that replaces in this case the separate screen. It is available on tipping trailers, muck and slurry spreaders, multi-purpose and silage trailers.



RUNNING GEARS

Steering Axles

To improve the comfort and security, it is possible to choose between a free or self steering axle system.

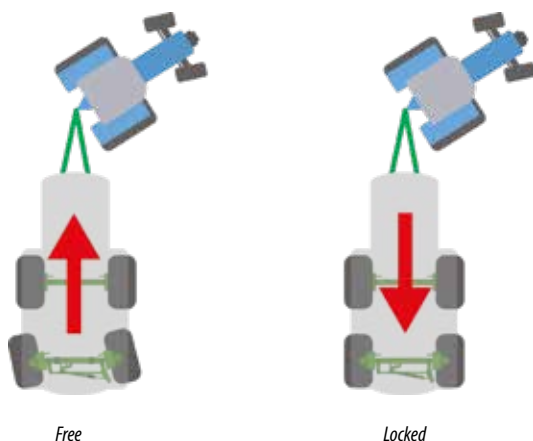
FREE STEERING AXLE (STEERING WHEN DRIVING FORWARD)

The free steering axle follows the direction determined by the tractor. The oscillation range is $\pm 15^\circ$ depending on the tyre size.

To drive on the road ($> 15 \text{ km/h}$) or reverse, an hydraulic device ensures a powerful locking and a perfect alignment of the rear axle with the front axle, which thereby ensures the safety of the carriage. A shock-absorber stands for the stability of the free steering axle by preventing too significant vibrations.



Free steering axle (50% steering)



Free

Locked



DOUBLE FREE STEERING AXLE (STEERING WHEN REVERSING AND DRIVING FORWARD)

The self-tracking free steering axle proposed by JOSKIN offers the possibility to keep the advantages of the classical free steering axle, both when driving forward and reversing!

The automatic self-tracking axle is fitted with two electronically controlled hydraulic rams for its locking and alignment.



Double free steering axle

A sensor on the axle detects the driving direction of the vehicle and allows the system to automatically lock one of the two hydraulic rams to make sure the axle works properly. With this configuration, the user does not have to intervene; the automatic free steering axle works autonomously, both when driving forward and reversing.

HITCHINGS



MODULO2 (standard)



MODULO2 (option)



*QUADRA, X-TREM,
CARGO, EUROLINER
and VOLUMETRA*



SELF STEERING AXLE(S) (STEERING WHEN DRIVING FORWARD AND REVERSING)

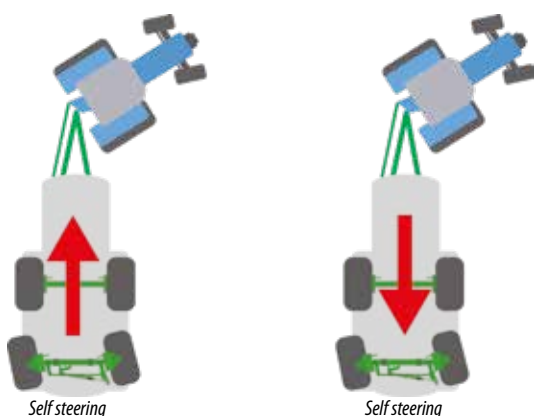
The self steering axle is an important safety component as it keeps your vehicle in the tractor driving line. JOSKIN triple-axle vehicles are standard fitted with a double self steering system (first and last axles) operating in both directions (forward and reverse).

The hydraulic axle ram is operated by a sensor cylinder linked to the tractor by a hitching rod with quick coupling. This one is anchored to the drawbar by means of a knee-joint and controls the hydraulic circuit operating the steering cylinder. The system is balanced by the compensated hydraulic rams that apply the same force in both directions. The circuit is fitted with a one-piece set-up unit including a pressure gauge, two nitrogen accumulators, an aligning valve and a calibrating circuit.

Thanks to its device that automatically corrects the position of the vehicle to take it out of ruts, the self steering system turns out to be the safest and easiest solution. An electric realignment is also available as an option.



Self steering axle (100% steering)

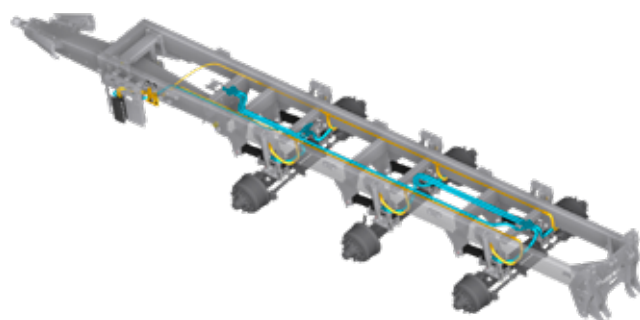


ELECTRONIC SELF STEERING SYSTEMS (STEERING WHEN REVERSING AND DRIVING FORWARD)

The electronic steering systems also use hydraulic rams on the axles and keep the same hitching point to the tractor as the traditional system, but they are controlled by a microcomputer, via an angular sensor on the drawbar. Unlike other ones, electronic steering systems adapt the angle of lock of the steering in proportion to the speed. The vehicle is therefore stable during road transportation and remains particularly easy to handle during manoeuvres.

The advantages of the compact electronic system are:

- manoeuvrability and stability (in case of speed increase, lowering of the degree of the steering angle and locking at 50 km/h);
- no mechanical connection between the tractor and the steering axles, which reduces the efforts on the steering system in extreme conditions;
- possibility to manoeuvre the vehicle independently from the tractor so as to get out of a complicated situation thanks to a control box in the cabin (option).



EQUIPMENT

BRAKING SYSTEMS

The type of brake system that will be mounted on your spreader will obviously depend on the equipment of your tractor. JOSKIN can equip its slurry tankers with the following systems:



MECHANICAL BRAKES

The mechanical brakes refer to the manual system. It is a parking brake, which means that the vehicle can only be stopped by the tractor. This is the reason why this braking system is only available on spreaders of maximum 4,000 l.



AUTOMATIC REVERSE INERTIA BRAKES

The automatic reverse inertia brake is mainly mounted in Germany on vehicles up to 7,000 l. The principle of this system is similar to the one used on small road trailers: when the trailer "catches up with" the tractor, the system engages the brakes. This device is at the same time safe and comfortable. The axle is of the "automatic reverse" type, which means that the brakes should not to be locked when reversing.



HYDRAULIC BRAKES

The hydraulic braking remains the most common system. It is part of the standard equipment on the MODULO2, KOMFORT2, DELTA2 and COBRA tankers.





AIR BRAKES

Since the transported loads keep increasing, it is absolutely necessary to have the most efficient braking system. The air device remains, for the moment, the one giving the greatest flexibility and power. The QUADRA, X-TREM, VOLUMETRA, EUROLINER, TETRALINER and Vacu-CARGO spreaders are standard fitted with it.



BRAKING REGULATION

The spreaders fitted with air brakes are standard fitted with a 3-position manual braking regulator (fully loaded, half-loaded, unloaded). As an option, it can be replaced by a device that regulates the braking power in proportion to the load, which is measured by a level float gauge. When your spreader is fitted with a hydraulic suspension, the braking system in proportion to the load may be operated by a proportional regulator connected to the hydraulic circuit of this axle suspension. The pressure in the hydraulic circuit will allow to adjust the air pressure in the air braking system.



DUAL BRAKES

For machines that can be hitched to several tractors, the dual braking system (made up of hydraulic and air brakes) is proposed as an option on the whole range of slurry tankers.



EQUIPMENT TYRES

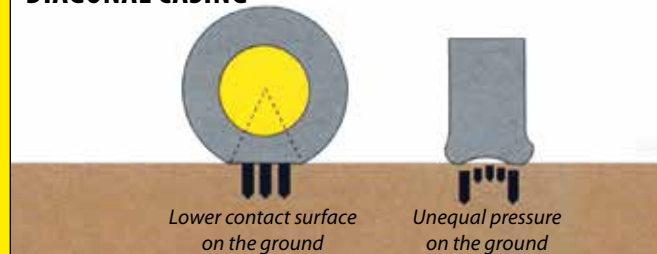


CHOOSING THE TYRE

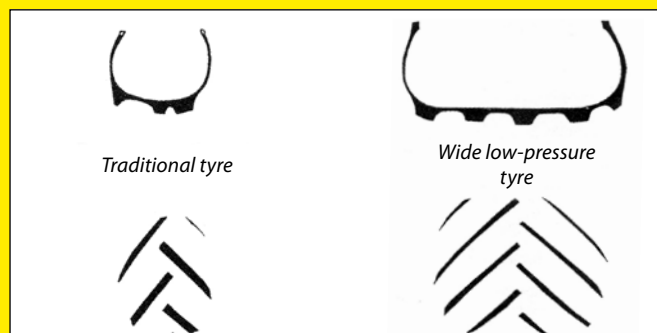
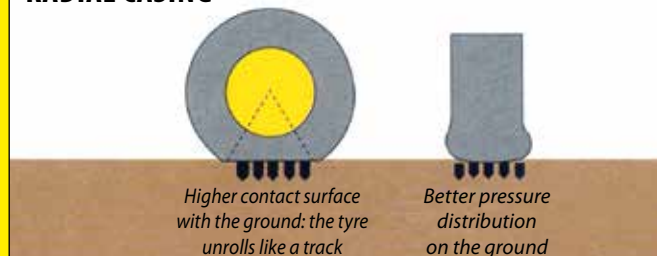
JOSKIN offers a wide choice of tyres, both regarding dimensions and profiles. They come from the biggest brands, which deliver their know-how at competitive prices.

When choosing the tyres, a compromise has to be reached between compaction, safety and traction ease. Generally, the low-pressure models with radial casing offer a better protection of the soil structure thanks to a larger contact surface with the ground: as a result, the pressure is better distributed and the ruts are less deep.

DIAGONAL CASING



RADIAL CASING



TYRES REMOTE INFLATING CONTROL

4 bar on the road and up to 1 bar on the field, this is possible with the tyres remote inflating control and it only has advantages.

On the road, a well inflated tyres ensures:

- a reduction of the rolling resistance;
- a longer **lifetime for the tyres**;
- a diminution of the fuel consumption;
- a reduction of the required traction power;
- a higher safety;
- an automatic correction of any pressure difference between the wheels.

In the field, a deflated tyre **prevents ground compaction** while increasing the contact surface in order to protect the arable grounds and the field.



EQUIPMENT GRIP AND DRIVE SYSTEMS



Support that distributes the strains on a large part of the drawbar

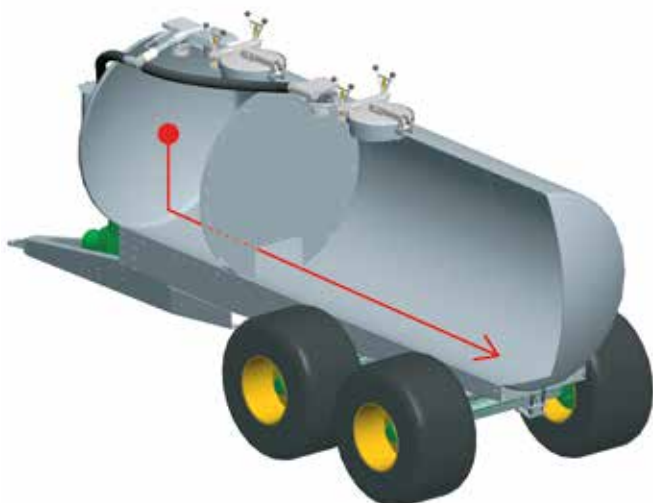
FRONT LIFTING AXLE

Triple-axle vehicles are fitted with the front lifting axle, which provides the necessary traction on the field and ensures a reduction of the tyres wear with an empty vehicle on the road.



WEIGHT TRANSFER PARTITION

An inner partition is bolted at the front of the tank (1/3) and allows to keep as much weight as possible on the eyelet when spreading, thereby improving grip and drive.



FILLING PHASE

The volumes before and behind the partition are simultaneously set under depression in order to fill the tank completely.

EMPTYING PHASE

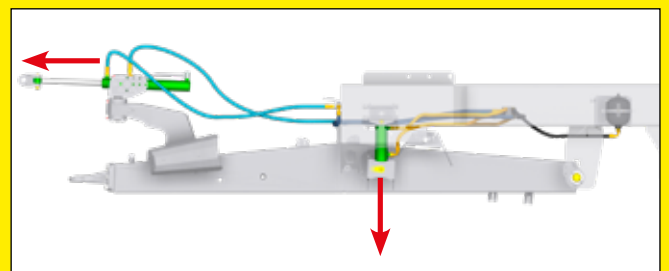
The volume behind the partition is pressurized (rear volume) in order to keep the front part filled.

When the slurry level reaches the lower edge of the partition, an air in-draft is created towards the front part in order to empty it.

This weight transfer system is particularly suitable to tankers fitted with a rear spreading implement.

LOAD TRANSFER

The system that transfers load by means of a hydraulic ram is available as an option. It works in combination with an electrically controlled hydraulic ram connected to the top link of the tractor. When the ram is extended, it is going to pull the front of the tractor towards the ground, increase the traction on the front wheels and therefore ensure an ideal propulsion when working in the field. On the road, the pressure in the ram is on the contrary in "floating position" so as not to further ballast the tractor axle.



EQUIPMENT

HITCHING ACCESSORIES



HITCHING SUSPENSIONS

To ensure an optimal driving comfort, JOSKIN proposes 4 types of hitching suspension for the drawbars of slurry tankers.

CROSS-SUSPENSION

This suspension, made up of a leaf bundle, provides the machine with a good clearance at the eyelet without distorting the draw-line of the vehicle.

SILENT-BLOCKS

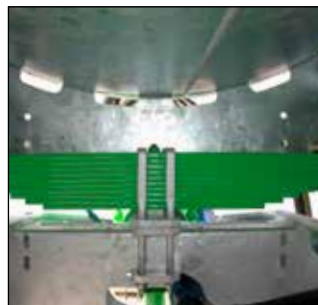
These rubber blocks provide the machine with a good clearance without distorting the drawline of the vehicle. They are usually used on tankers that are fitted with a Garda system or a spiral pump.

HYDROPNEUMATIC SUSPENSION

Mounted on a hydraulic ram with one or two nitrogen accumulators, it offers an outstanding flexibility. Furthermore, it also allows to actively influence the sloping angle of the machine.

LENGTHWISE SUSPENSION

The lengthwise spring leaves at the back of the drawbar ensure a streamlined assembly. Only the COBRA is fitted with them.



Cross-suspension



Silent-blocks



Hydropneumatic suspension



Lengthwise suspension

SUSPENSION MODELS FOR EACH MACHINE

	ALPINA2	VOLUMETRA	COBRA	TETRA2	MODULO2	QUADRA	X-TREM	EUROLINER	TETRALINER	CARGO
Rigid	S								S	
Lengthwise spring leaves			S							
Cross-suspension				S	S/•	S				
Silent-blocks		S	•		S/•					
Hydropneumatic		•	•	•	•	•	S	S		S

S Standard (included in the standard equipment)

• Option (available but not included in the basic equipment)



BOLTED HITCHING EYELETS

JOSKIN proposes 3 types of hitching eyelets: fixed, swivelling or with knee-joint supporting from 2 to 4 t at 40km/h according to models.



*JOSKIN fixed
Ø 50 mm*



*JOSKIN swivel
Ø 50 mm*



*Rockinger fixed
Ø 40 mm*



*JOSKIN knee-joint
K 80*



*Scharmüller knee-joint
K 80*

PARKING STANDS

The parking stand supports the vehicle when it is not hitched but it must be retracted when driving, so that the machine can move freely. Here are the different stands for the JOSKIN "slurry tankers":

MANUAL STAND

This system is mounted on vehicles with small and medium capacity (from 2,490 l to 8,590 l).

SKID FOR "HITCH"-COUPLING

This device is designed for tractors fitted with the "Hitch" lifting hook (available as an option).

RETRACTABLE HYDRAULIC STAND (single acting)

This system is standard mounted on tankers from 9,000 l on the MODULO2, TETRAX2 and COBRA ranges. The hand pump is optional.

HYDRAULIC SKID

The hydraulic skid with direct connection to the tractor is designed to get a great compromise between parking stability and driving clearance.

It is standard mounted on QUADRA, X-TREM, Vacu-CARGO, EURO-LINER and VOLUMETRA.

HYDRAULIC STANDS

The two hydraulic stands are mounted on the tankers fitted with a V1000 drawbar (option).



Manual stand



*Skid for "Hitch"-
coupling*



*Retractable hydraulic
stand*



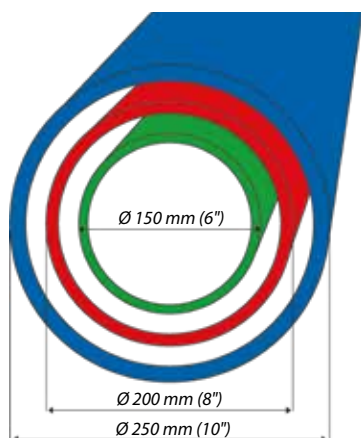
*Hydraulic
skid*



*Hydraulic
stands*

EQUIPMENT

PUMPING ACCESSORIES



SUCTION PIPES

JOSKIN proposes a wide range of flexible pipes and galvanized rigid tubes (straight or cranked) connecting your tanker to your slurry pit.

Various models of galvanized and rigid 90° elbows can also be used in order to make the pit easier to reach. We merely recommend you to keep the shortest distance possible between the tank and the pit: the standard 4 m flexible pipe offers a good distance/weight/load loss compromise.

6", 8" OR 10"? BET ON FLUIDITY!

The pumping ease and speed is influenced by the diameter of the pipes, openings and valves. If, for instance, we consider a load loss of 15 mm (matter "stopped" along the pipe walls), the useful way-out of the Ø 8" pipe is twice larger than that of the Ø 6" one; the useful way-out of a Ø 10" pipe is 1.6 times larger than for a Ø 8" one.

Sucking "thicker" types of slurry will be much easier with pipes with large diameter.

The Ø 6" opening diameter is the most common type, the most easy to handle and the most economical.

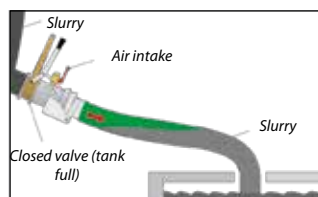
As for the Ø 8", it makes it possible to increase the flow, even with a lower depression rate.

On the other hand, the Ø 10" allows much higher flow rates. It is only available for high-capacity tankers that are fitted with powerful pumps. It is important to note that the only way to work with this diameter is to take the option Ø 250 mm filling arm.

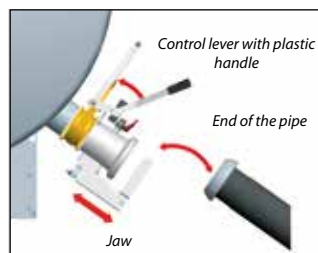


MANUAL SUCTION VALVES

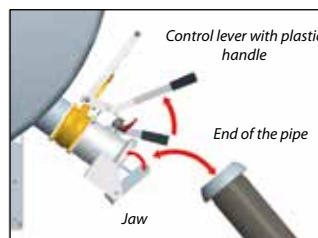
JOSKIN uses four types of manual valve with different diameters (6" or 8"), jaws ("Perrot" or "Italy") and coupling systems ("rocking" or "sliding") for the filling pipe.



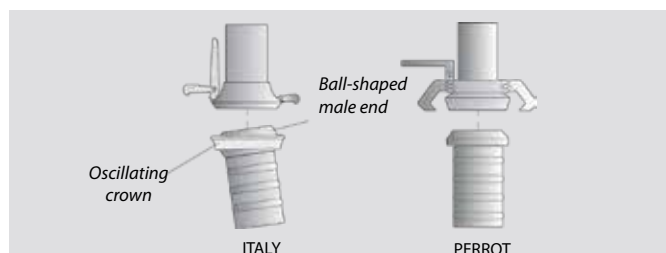
All our manual valves are fitted with an air intake point, which prevents any slurry spattering risk.



The sliding jaw is mechanically more resistant and pushes the pipe flat on the neck, which stands for a better alignment of the coupling (only 6" Perrot and 8" Italy).



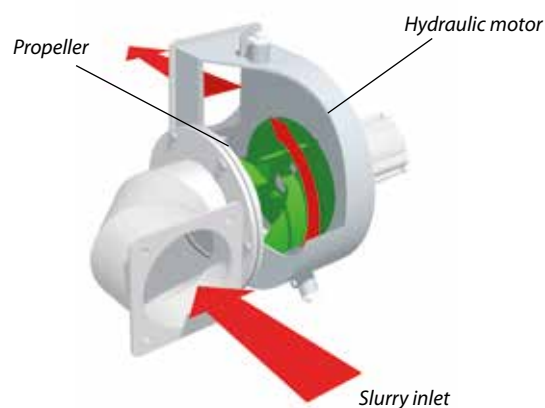
The angle opening of the rocking jaw allows to easily put the hose in the coupling.



JOSKIN uses two types of couplings: "Italy" and "Perrot" (standard). The first one is quite light but its round head can cope with imperfect alignments. The second one is stronger but the two parts must be set in a more or less straight line.



EQUIPMENT AUXILIARY PUMPING ACCESSORIES



Turbo on articulated side arm



Turbo on dorsal boom



Turbo on JUMBO arm



Submerged turbo

TURBO-FILLER

The turbo-filler makes it possible to pump and push a bigger volume faster and without burdening the pump.

In combination with a vacuum pump, it allows to better fill the spreaders and to accelerate the filling process.

Besides being sucked by the vacuum pump, slurry is also "pushed" into the tank. However, the volume of the sucked up slurry is higher. Indeed, it is possible to pump with a lower vacuum level thanks to the turbine. As a result, the slurry will expand to a lesser extent (natural property of slurry) and create less foam.

As a consequence, the sucked volume is very close from the one at rest for a better filling level.

SIMPLE-CUT CHOPPER

The Simple-Cut chopper is based on the patented technique of the Scalper® macerators. Indeed, any foreign body in the slurry is chopped by three self-sharpening circular blades turning against a counterblade fitted with conical openings.

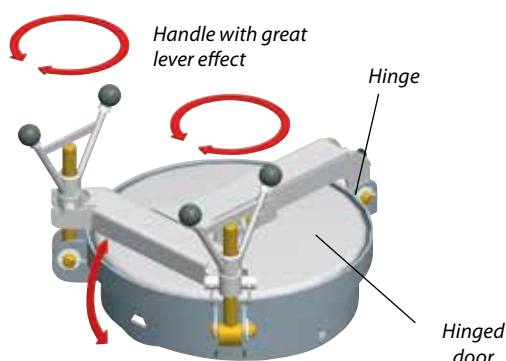
In this way, slurry is homogeneously distributed in the rear spreading implement while making sure that possible foreign bodies or stones do not prevent the macerator from working properly. These are collected in a trap that is easy to reach and has to be emptied regularly. This operation is made easier by a quick opening system.

Combined with volumetric pumps, the Simple-Cut offers an extra protection to the pump against foreign bodies.



EQUIPMENT

UPPER FILLING AND EMPTYING



GENERAL POINTS

The gravity filling system allows highest flows. The user can then choose the type of pump that is the best suited to the desired spreading flow (large spreading width, etc.).

JOSKIN proposes different systems, which can be placed according to your wishes on the top or at the back of the tank.

FILLING FUNNEL OF 500 x 500 mm



Ø 600 mm MANHOLE WITH CRANK OPENING

The equipment of this manhole also includes an inner and outer ladder, providing a quick access to the tank. Its cover presses on a seal, which makes this system hermetic.



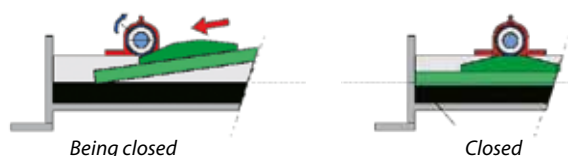
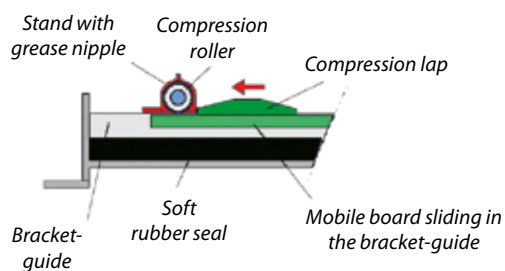
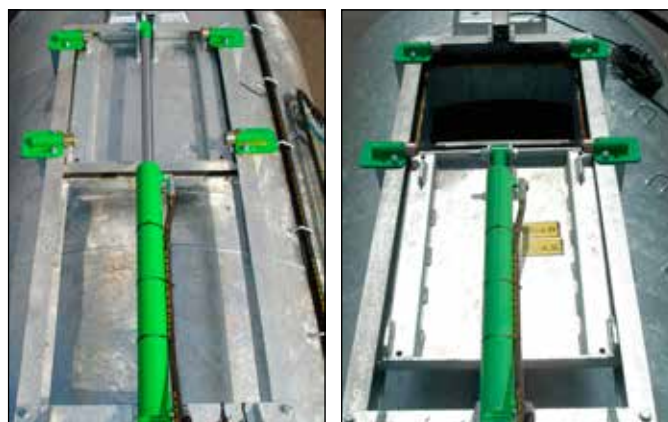
Manhole with quick opening

Ø 520 mm MANHOLE (NON-HERMETIC)

This model was inspired by the above-mentioned hermetic manhole. This variant is an economical solution for non-vacuum tankers. It can be controlled manually or by a double-acting hydraulic ram.

HYDRAULIC SLIDING DOOR 500 x 600 mm

This access is a large opening to place the filling arm and that is easy to reach. It is hermetically closed by rollers that press it against the rubber seal. Given its low height, it is ideal for tanks with a large diameter.





REAR OR UPPER FUNNEL

Fitted with an immersion pipe (option), this funnel allows to easily empty transport and spreading tankers. It can also be used to fill the tank. Also available in 200 or 250 mm (8" or 10") depending of the models.



Upper funnel



Rear funnel

4" ARM TO UNLOAD WATER INTO LARGE SPRAYERS



This active mixing system and the filling device are only available on slurry tankers MODULO2 from 10000 to 18000L.

This arm allows to fill tanks through their upper openings in 3-4 min.

Ø 8" GALVANIZED UNLOADING ARM ON THE LEFT OR ON THE RIGHT



The Ø 8 " unloading arm is another way to transfer the slurry. It allows the transport tanker to feed a nurse tanker or a spreading tanker through an upper outlet.

EQUIPMENT

NON ARTICULATED FILLING ARM

- SIDE JUMBO
- JUMBO LEFT/RIGHT



GENERAL POINTS

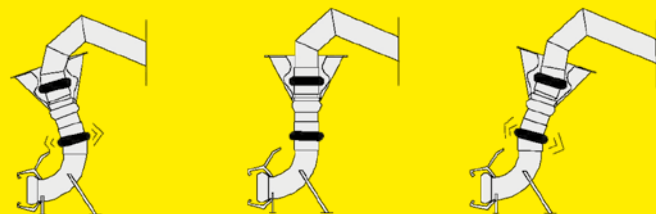
The JUMBO is a non articulated filling arm with side rotation, sucking slurry through a funnel that has to be connected to the pit. It is suited to both underground and off-ground tanks.

It is a reasonable investment in order to avoid the sometimes laborious task to connect pipes (especially if it is a Ø 200 mm one).

If pumping on one single side does not suit you, the left/right version is very easy to reverse. No tedious operation of the pipes is required. It is therefore very easy to have the ideal position to pump.

SIDE JUMBO

Some users sometimes choose simplified and lightened but still efficient systems. With a 8" diameter, this arm provides a good pumping capacity while offering the possibility to be mounted on the left of right side in driving direction. Thanks to its easy and sturdy design, it is a cheap asset while filling. A double acting hydraulic ram allows to lower and lift it from the tractor. In transport position, the arm is held by a safety hook, just like on the JUMBO arm.



The heads of the funnel and of the arm are mobile in order to ensure a permanent tightness of the coupling when pumping.



JUMBO LEFT/RIGHT

Thanks to this safety device, it is very easy to change the position of the arm and to lock it in vertical position.

JUMBOMATIC

The JUMBOMATIC is standard mounted on the JUMBO left/right and as an option on the side JUMBO.

Filling arms of the JUMBO left/right type are fitted with the "JUMBOMATIC" sequential block. Only one double-acting function is required to operate the arm. The sequential block successively operates the different hydraulic functions (pump change-over, lift/lower the arm, transport safety, valve and air intake control).

An electric switch makes it possible to isolate the function "pump change-over"; the vacuum in the tank is then created while the arm is still in vertical position, which is very practical if you are using the tanker without JUMBO arm for the filling operation or if you already want to create a depression, for instance, when leaving the field without having to move the filling arm in transport position.

FUNNEL SUPPORT ON JUMBO

To reduce the overall dimensions, it is possible to optionally fit the JUMBO arm with a funnel support. A support is standard mounted on the chassis of the tanker.



Funnel support on JUMBO arm



Support on chassis



To switch sides, the base of the hydraulic ram only has to be moved from right to left

ELECTRIC FUNNEL (OPTION)

A funnel with electric closing and remote control can be used in the case of an off-ground storing tank. Indeed, this useful option makes it possible to electrically close a valve that is directly located on the funnel in order to prevent slurry from flowing out when not pumping.

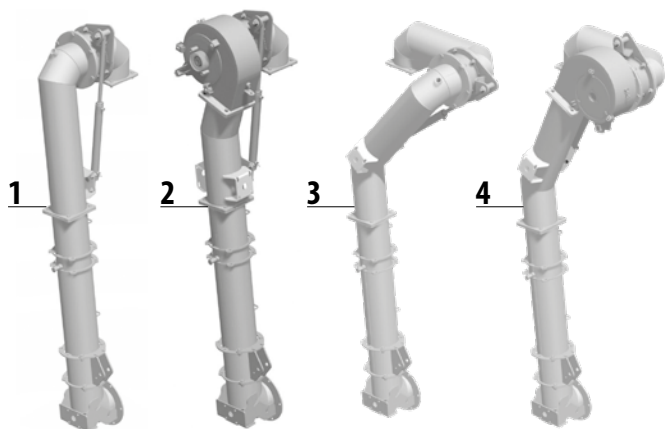
In this way, the driver no longer needs to leave his post to close the pit valve manually.

This funnel is also fitted with a second electric valve allowing the slurry to flow back in the prepit during the air evacuation of the filling arm. Finally, it is fitted with a transport triangle (female part) designed for the linkage of the tractor.



EQUIPMENT

ARTICULATED FILLING ARM



GENERAL POINTS

JOSKIN proposes currently 4 types of articulated filling arms (see models here-above):

- 1- Straight without turbo-filler
- 2- Straight with turbo-filler
- 3- Angled without turbo-filler
- 4- Angled with turbo-filler

These models are available with a diameter of 200 mm (8") or 250 mm (10"). Thanks to two double acting hydraulic hinges, the filling arm can reach most slurry storage tanks.

SPECIFICATIONS

For more reliability, all hydraulic pipes of the arm are rigid and the watertightness between the arm and the tank is ensured by a double acting industrial valve.

The JOSKIN articulated filling arms are available in self-supporting or built-in version. The built-in one is often chosen according to the tank volume (compulsory on EUROLINER and CARGO). It allows to limit the overall dimensions and provides the safety that is needed when driving on roads.

JOSKIN proposes two types of articulations:

- a knee-joint activated by a hydraulic ram (standard);
- a knee-joint driven by a hydraulic motor.

The main difference between the two is the opening angle of the arm that is much bigger with the hydraulic knee-joint.



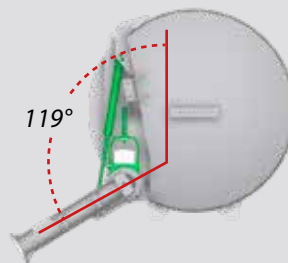
Built-in



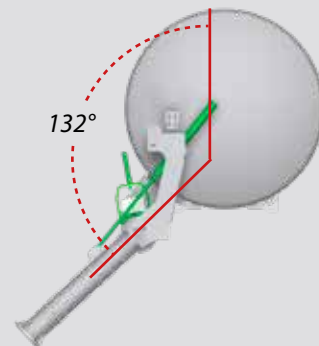
Self-supporting

FIRST ARTICULATION

BUILT-IN

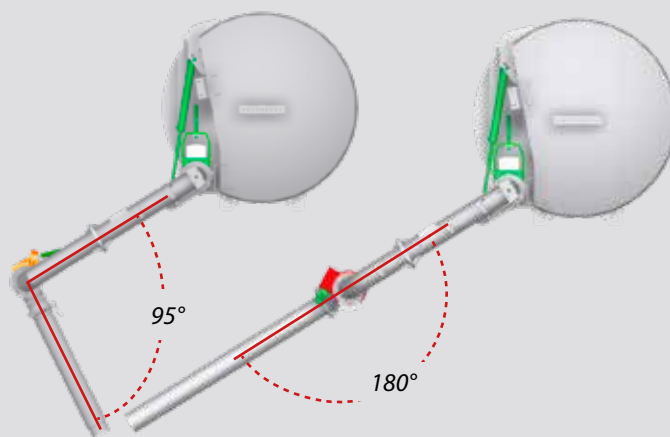


NOT BUILT-IN



With a built-in filling arm, the opening angle between the tank and the first arm articulation is max. 119°, while with a not built-in arm, it is max. 132°.

SECOND ARTICULATION



The max. angle of the second articulation (with knee-joint driven by a hydraulic ram) is 95°.

The max. angle of the second articulation (with knee-joint driven by a hydraulic motor) is 180°.

The Ø 250 mm model can also be fitted with a turbo-filler (lower depression rate of the pump and smaller filling time).



Turbo-filler

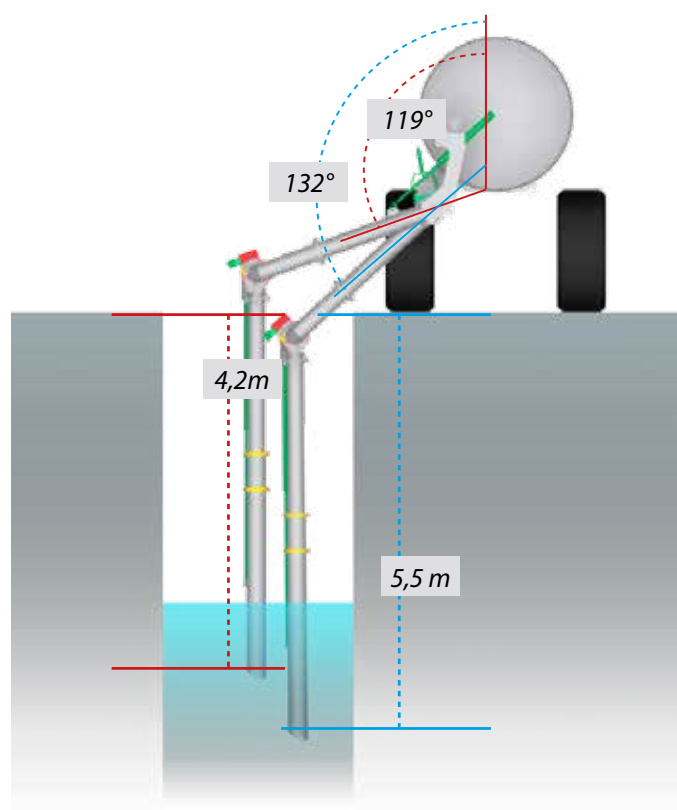


Submerged turbo on articulated arm



TELESCOPIC EXTENSION

Articulated filling arms can be fitted with the option telescopic extension (1.80 m), which allows to pump easily in very deep pits (± 4.5 m). It is available with a diameter of 8" or 10".



ARTICULATED ARM FITTED ON THE FRONT LINKAGE

The JOSKIN articulated arm fitted on the front linkage of the tractor, is a compact, comfortable and versatile filling solution.

Thanks to a pumping height up to 4.5m and a second part of 3m long it is possible to pump easily on headlands as well as from a slurry tanker, a transport tanker or a container fitted with a funnel and/or from a tower tank with funnel

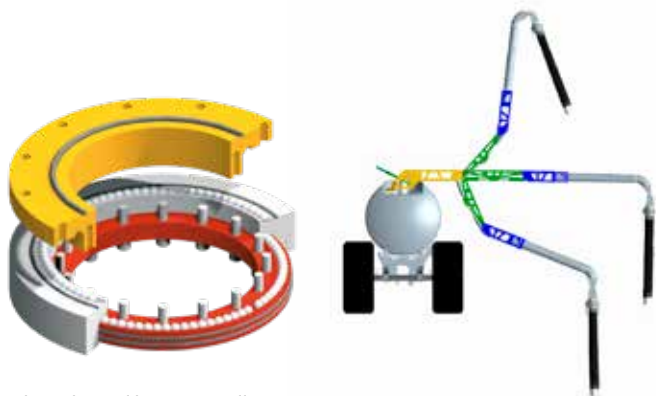
The DA ram linking the 2 parts of the arm drives the inclination of the moveable part. (100° max.)

The driver has an excellent visibility during filling.



EQUIPMENT

GALVANIZED DORSAL BOOMS



The industrial knee-joint allows to absorb side strains.



New dorsal boom with pivoting point at the back

GENERAL POINTS

Kinematic is designed for:

- a maximum lifting angle in case of **pumping in an overhead tank or an off-ground storing tank**;
- a maximum lifting angle in case of **pumping in off-ground storing tank**;
- an **easy pumping on a funnel** thanks to a design with small side clearance;
- receiving a **turbo-filler integrated** in the boom or a latest generation submerged turbo-filler.



Centrifugal



Suction hose



Suction on cone

SPECIFICATIONS

The dorsal boom can be used with different pieces of equipment and in various situations: vacuum pump, centrifugal pump, suction on funnel, etc. Different models are proposed: with pivoting point at the front or at the back, telescopic devices, turbo-filler (option) or submerged turbo. **A solution to every situation.**



Standard



With hydraulic articulation



With turbo-filler



With articulation and submerged turbo

TELESCOPIC EXTENSION

The JOSKIN dorsal booms can be fitted with an optional telescopic extension. This device becomes very interesting to reach higher depths!



ALL TYPES OF PITS



STORING

In order not to handle the dorsal boom for too long, it can be set, as an option, on one side of the spreader (left/right), thanks to two resting supports.



Case

ORIENTATION AND CONTROL

An advantage, in comparison with the articulated arm, is that the dorsal boom can be oriented in a circle in order to easily pump on both sides of the spreader.

Spreading implements can limit the rotation angle of the dorsal boom.

The boom cannot go over the tractor for obvious safety reasons (safety of the operator, protection of the front components of the spreader,...).

The 4 electrohydraulic controls together with the joystick makes it more comfortable and easier to operate.

When connected in ISOBUS, it is possible to use an AUX-N joystick.



NEW DORSAL BOOM WITH PIVOTING POINT AT THE FRONT OF THE TANK

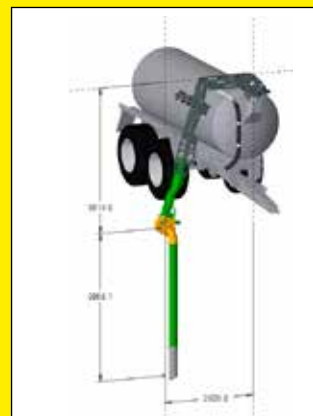
Even when a wide spreading boom is fitted on the tanker, this configuration allows to increase the pumping depth and not to collide with the folded spreading boom on the sides of the tank.

You also save space on the machine, as this boom is completely folded on the top of the tanker.

The dimensions of the boom elements - particularly the geometry of the first part of the tanker - are adapted to the configuration of the machine to optimize the performances and the handling.



New dorsal boom with pivoting point at the front



Dorsal boom in unfolded position - mounted on pivoting point at the front
(values vary according to the chosen configuration)



Boom on the funnel



Front boom with submerged turbo

EQUIPMENT

TANK ACCESSORIES

AND PRE-EQUIPMENT



LEVEL GAUGES

When using an injector, the operator will not be able to keep an eye on the slurry flowing out of the tanker. This is the reason why JOSKIN decided, as a forerunner, to equip all its slurry tankers with a level gauge.

The standard half-circular indicator(s) of your JOSKIN tanker can be replaced by one of the following options: the Ø 150 mm transparent communicating gauge (Ø 6"), the level float gauge and the 8 x 30 cm oblong indicator(s) that can be mounted where you wish on the tank.



Ø 150 mm transparent communicating gauge



Oblong indicators (8 x 30 cm)



2" half-circular indicator



Level float gauge



Ø 850 mm manhole on hinge (on MODULO2 without buttresses)



Ø 600 mm upper manhole on hinge



Standard manhole (Ø 600 mm)



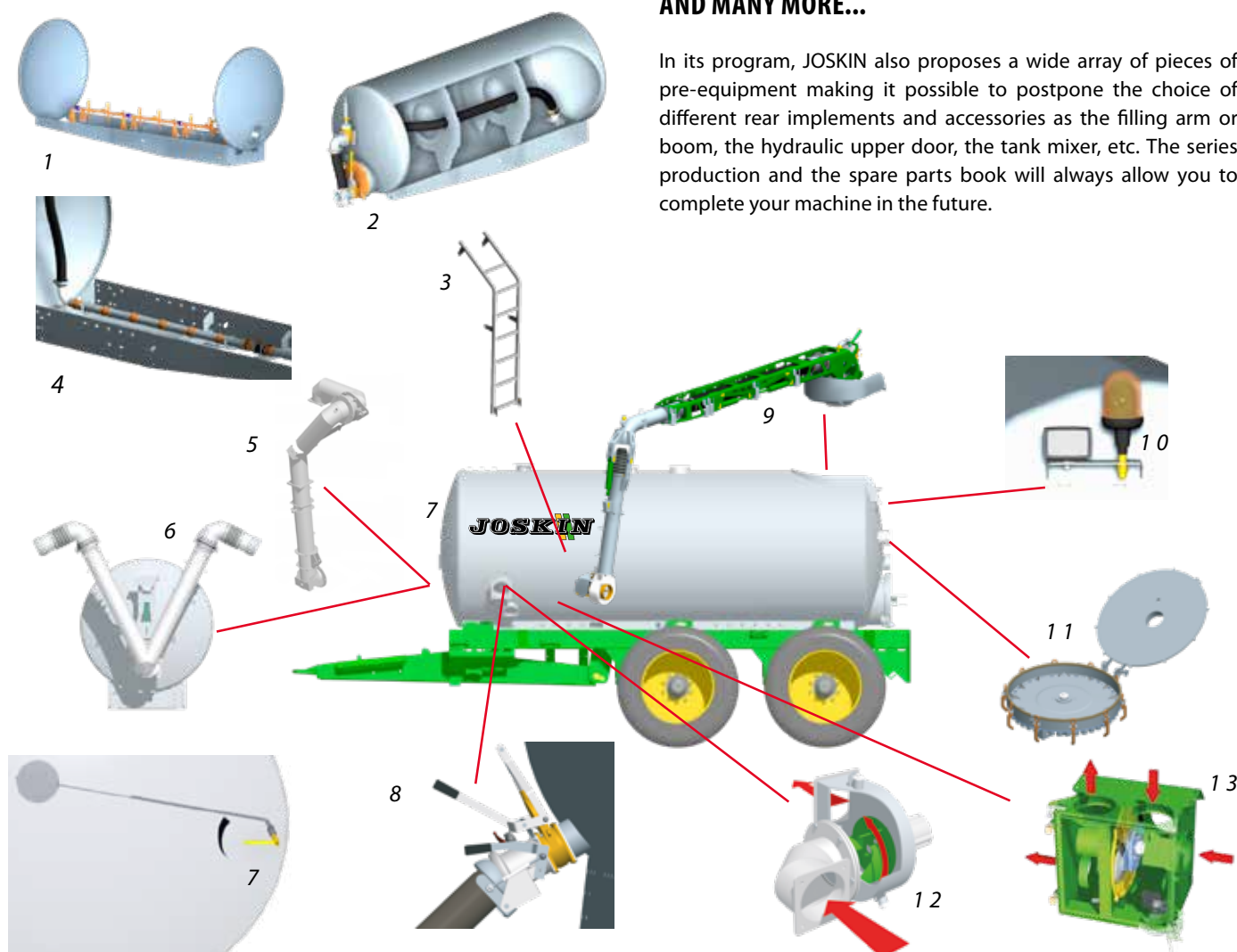
Upper manhole (Ø 600mm)





AND MANY MORE...

In its program, JOSKIN also proposes a wide array of pieces of pre-equipment making it possible to postpone the choice of different rear implements and accessories as the filling arm or boom, the hydraulic upper door, the tank mixer, etc. The series production and the spare parts book will always allow you to complete your machine in the future.



1. Hydraulic mixer
2. Special "mountain" emptying system
3. Outer ladder
4. Air mixer
5. Articulated hydraulic arm

6. Not built-in front JUMBO
7. Level gauge with float
8. Suction valve
9. Dorsal boom
10. Flashing beacon/working light

11. Macerator feeding
12. Turbo-filler on the left
13. Simple-Cut chopper

EQUIPMENT

DRIVING ACCESSORIES



Mudguards on single axle **WITH-OUT** wheel recessing



Mudguards on single axle **WITH** wheel recessing



Mudguards on double axle **WITH-OUT** wheel recessing



Mudguards on Vacu-CARGO with independent flaps



Small light + reflector



"Truck"-type light



Gauge light



Lateral light



Flashing beacon



LED working light

MUDGUARDS

All JOSKIN slurry tankers can be fitted with galvanized mudguards (standard on double and triple axle vehicles).

They are designed in a modular way, so that they can be adapted to the size of the wheels and the position of the running gear. In this way, the machines with possible wheel recessing have, in any case, a mudguard bolted to the tank, both in single and double axle.

Models without recessing will have the mudguards bolted on a bracket of the cradle (for MODULO2), the tank (EUROLINER and Vacu-CARGO) or the chassis (for other models).

It is to be noted that on double and triple axle models, the mudguards are also used as hose-carrying devices. They are therefore fitted with hooks.

AUTOMATIC LUBRICATION

All JOSKIN vehicles can be fitted with a centralized or automatic lubrication system, even the large ones with complex equipment.

This system represents an important time saving during the maintenance.



LIGHTING

All JOSKIN slurry tankers are fitted with the electric lighting system in accordance with the regulations (lighting boxes).

As an option, supports on the tank can be mounted for extra lighting like the flashing beacon and the rear working lights.

EQUIPMENT SPREADING SYSTEMS



The legislation regarding the spreading implements vary from one country to the other. Please comply with it.

1. EXACT SCATTERER

Nowadays, slurry is spread closer to the ground and the air resistance is significantly reduced thanks to the so-called "exact" scatterers that make slurry go downwards. They are part of the standard equipment of the JOSKIN slurry tankers.

The models with "Perrot" coupling are mounted on hinge in order to make pumping at the back of the tank easier and to limit the total length of the vehicle.

2. DOUBLE EXACT SCATTERER

The double exact scatterer is available as an option. It allows to double the doses per hectare at the same speed.

3. GOOSENECK SCATTERER

This scatterer directs the slurry flow towards the ground vertically, just like a wall: it is very useful next to roads. Its height can be adjusted, which allows to adapt the working width.

4. "MÖSCHA" SWINGING SCATTERER

This scatterer spreads slurry in a swinging movement from left to right and inversely. It allows to spread "big drops" at lower pressure. Several variants (flow/width) are available.

5. "MÖSCHA" DOUBLE SCATTERER

6. EISELE DOUBLE SCATTERER

7. "MOUNTAIN" SYSTEM (page 20)

8. BOOMS AND INJECTORS (page 68)



Double exact scatterer



Gooseneck scatterer



Swinging scatterer



MÖSCHA double scatterer



Eisele double scatterer



"Mountain" system

IMPLEMENT RANGE

ARABLE INJECTORS

TERRASOC



P.73



- Arable injector with 2 rows of rigid tines
- 24 cm wide duckfoot shares with 40 cm spacing
- Recommended working depth: from 10 to 12 cm
- Range from 2.80 m to 5.20 m wide

TERRAFLEX/2



P.74



- Arable injector with 2 rows of flexible tines
- 30, 37.5 or 40 cm spacing
- Straight reversible shares of 6.5 cm
- Recommended working depth: from 12 to 15 cm
- Range from 2.70 m to 7.12 m wide

TERRAFLEX/3 TERRAFLEX/2 XXL



P.75



- Large width for very powerful tractors
- Type TERRAFLEX/3 with 3 rows of tines instead of 2
- 30 or 40 cm spacing
- Designed to avoid blockages as much as possible
- Range from 4.40 m to 5.70 m wide

TERRADISC



P.76



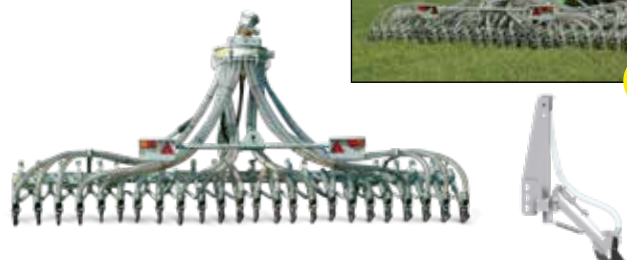
- Arable injector with 2 rows of curved discs (Ø 510 mm)
- Injection cones behind the first row
- Working depth up to 18 cm
- Outstanding stubble ploughing
- 4 m, 5 m or 6 m wide

MEADOW INJECTORS

MULTI-ACTION



P.78



- Injector with cutting skids
- Works with its own weight
- Working depth: from 0 to 3 cm according to the type of soil
- Multi-functional on stubble-fields, meadows, growing crops
- Range from 3.00 m to 7.74 m wide

SOLODISC



P.79



- Injector with discs with large diameter: 406 mm
- Constant pressure system to adjust the working depth
- Working depth: from 1 to 6 cm (according to the type of soil)
- Multi-functional on meadows, growing crops, stubble-fields and ploughed grounds
- Range from 3.00 m to 8.25 m wide

SPREADING BOOMS

MULTI-NOZZLE BOOMS

TWINJET



- Dual-nozzle spreading boom
- Traditional spreading over a large width
- Direct feeding: without Scalper® macerator
- Range from 15 m to 30 m wide

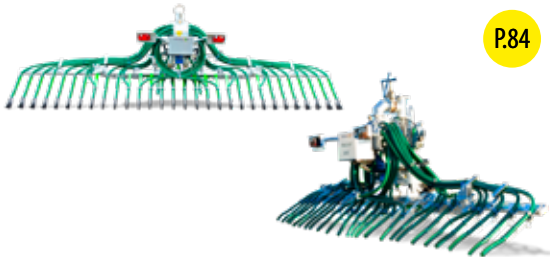
MULTITWIST RM/XXL



- Multi-nozzle spreading boom
- Spreading close to the ground with even distribution
- Direct feeding: without Scalper® macerator
- Spreading width from 12 to 27 m

LINE SPREADING BOOMS

PENDI-BASIC



P.84

- **Pendislid Basic:** spreading boom with skids to fertilize meadows
- **Penditwist Basic:** Line spreading boom to fertilize arable lands
- Autonomous and easy to use
- Compatible with small tankers
- Spreading width from 6 to 7.5 m

PENDISLIDE



P.85

- Spreading boom with ertalon skids
- Precisely laying slurry in a line on the ground
- Numerous applications (meadows, growing crops, etc.)
- 25 or 30 cm spacing between the shares

PENDISLIDE PRO



P.86

- Spreading boom with ertalon skids
- Integrated linkage
- Ideal for very mountainous areas
- Precisely laying slurry in a line on the ground
- Numerous applications (meadows, growing crops, etc.)
- 25 cm spacing between the shares

PENDITWIST



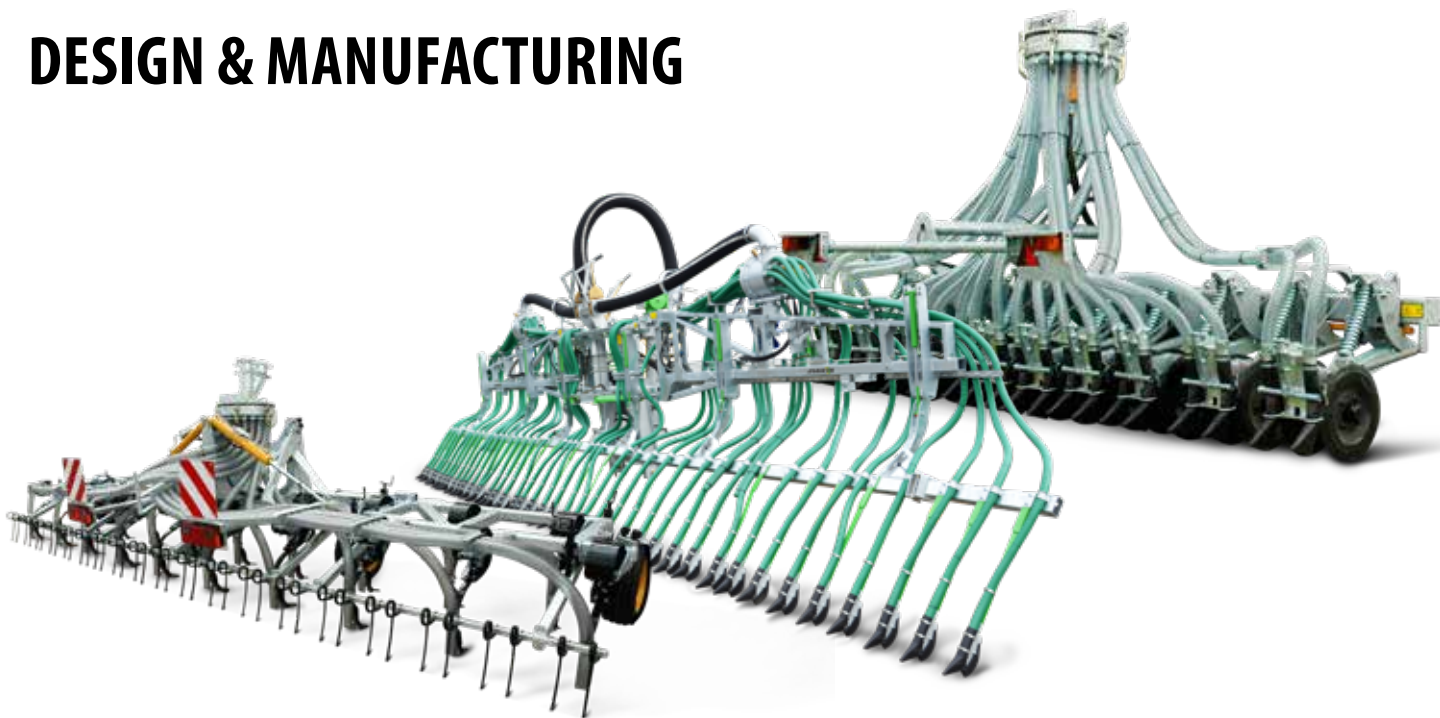
- Line spreading boom
- Laying slurry in a line on the ground
- Numerous applications (meadows, growing crops, etc.)
- 25 or 30 cm spacing between the hoses

VOGELSANG



- Line spreading boom
- Large working widths up to 36 m
- 26, 28 or 30 cm spacing
- Ø 40 mm outlet pipes

DESIGN & MANUFACTURING



SPREADING IMPLEMENTS PROGRAMME

It is essential to make an optimal use of farm manure because it is a rich and abundant resource to increase the yield of arable lands and meadows in a less expensive way than with chemical fertilizers. To ensure a high efficiency, it is essential to have the appropriate material. The current spreading methods significantly reduce volatile losses (which can reach up to 90% if the implement is not appropriate). The spread slurry remains in this way very rich in organic matter, nitrogen, phosphorus, potash, magnesium, etc.

The JOSKIN "Spreading implements" programme offers a solution for the injection in meadows (with discs, trailing shoes or shares), in arable grounds (with rigid or flexible tines and with discs) or for boom spreading (line, multi-nozzle spreading booms). The working widths vary, according to the models, from 2.80 m to 36 m.

The use of an injector represents a profitable investment in the short term.

UMBILICAL SYSTEM

The whole range of spreading implements can be used with an umbilical system (use without tanker) since all implements are mounted independently on our slurry tankers or on a specific support for the 3-point hitch of the tractor.



MANUFACTURE OF THE REAR IMPLEMENTS

The frame is manufactured in accordance with the strict standards of the JOSKIN production. The automated machine tools used in our factories ensure an unmatched precision. The digital cutting lasers and saws cut the steel sections and steel sheets. Digital control lathes, machining centres, press brakes, for instance, are fully automated machines that limit the risks of errors.

The unbroken welding is carried out by robots, which allows to avoid splashes.

The hot-dip galvanization guarantees the long life span of the JOSKIN material.

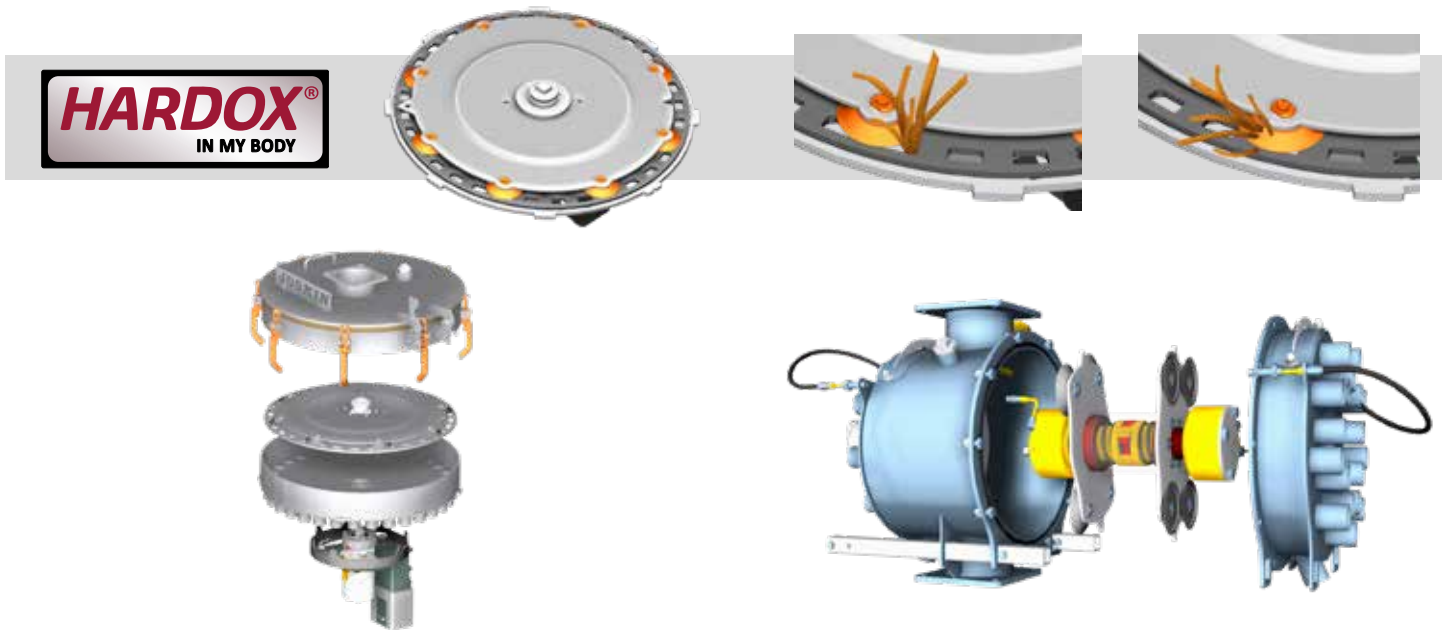


ASSEMBLY OF THE SPREADING IMPLEMENTS

The injectors and booms are assembled individually on a stationary place. First, the different parts of the injection or spreading elements, as well as the macerator(s), are assembled to be then mounted on the frame of the machine.

After that, the final touches are made. The implement is then tested and mounted on the slurry tanker so that final checks can be carried out.

DISTRIBUTING SLURRY



SCALPER® MACERATOR

A good macerator is essential to make sure the injector works properly because some kinds of slurry (especially cattle slurry) are full of fibres and foreign bodies. Now, a blocked opening means the spreading pattern will be uneven and the user will have to stop working.

The solution is the patented JOSKIN SCALPER® system: an extremely efficient macerator made up of **8 self-sharpening circular blades** turning freely and driven by a hydraulic motor.

The circular blades and the elliptical arched and off-centre openings of the blade holder inevitably cut all foreign bodies in the slurry.

When the blades strike against too hard obstacles, the rotation direction of the SCALPER® is reversed by the "Switch-Matic" system (option) until the obstacle is chopped. Furthermore, an electric reverser with manual control in the cabin is installed on all rear implements fitted with an automaton.

A multi-position manual valve, fixed at the macerator inlet, allows a step by step adjustment of the slurry injection. The precise adjustment is carried out by means of the pressure relief valve and the chosen model of counterblade. 3 types are proposed: flow from 7 to 20 m³/ha, from 12 to 30 m³/ha or from 25 to 50 m³/ha. A double feeding of the macerator is also possible for a higher flow.

The hydraulic circuit is isolated thanks to a cap. A drain makes it possible to check whether the water seal is faulty. The JOSKIN SCALPER® macerators are also sold separately in order to equip existing injectors.

The macerator is standard fed through a 6" rubber hose and a 6" adjusting valve.



VERTICAL SCALPER® MACERATOR

Given their larger width, line spreading booms require a vertical macerator with two cutting systems, one on each side. The slurry under pressure enters the central chamber through a 6" inlet, before being evenly distributed between the different openings (24 or 36 depending on the model). In order to have a regular flow, there is an inner air intake in the vertical macerator.

Its advantages are small overall dimensions, limited load losses in the injection pipes (less bends in the pipes) and a more homogeneous distribution of the slurry in the line spreading booms.



AN APPROPRIATE STRUCTURE



REQUIRED EQUIPMENT

Provided the adequate (pre-)equipment is available, all JOSKIN slurry tankers (self-supporting ones or with chassis) can be fitted with a rear implement (except the ALPINA, TETRALINER models).

JOSKIN offers many adaptation possibilities that are presented hereunder.

BUTTRESSES

Self-supporting vehicles can be fitted with the option "tank buttresses" that reinforces it over its whole height in such a way that the rear implement weight strains are transferred on the whole tanker. Spreading booms up to 18 m can be hitched to them, just like the MULTI-ACTION injectors, the SOLODISC injectors up to 6.02 m wide and the arable injectors with up to 11 tines.



Buttresses



Buttresses and linkage





LINKAGES

JOSKIN hitching systems are very compact in order to limit the side and vertical strains on the whole running gear. Made up of four points, they ensure a very high stability of the rear implement while reducing the overhanging part.

Several options are available on the linkages:

- the spring suspension allowing to take over a part of the load of the injector in order to avoid this one from sinking too deeply into wet and spongy grounds;
- an electric control at the back of the tanker making it easier to hitch the spreading implement;
- the connection of an exact scatterer through the linkage. Even with a rear implement, it is still possible to spread slurry traditionally thanks to the option "exact scatterer on injector".



*Integrated Lift linkage in the tank
on VOLUMETRA*



*L600 linkage on COBRA
(fastened by 4 tapered shafts to make it a solid construction)*



*Integrated Lift linkage (linkage fully integrated to the chassis)
on QUADRA, X-TREM, VOLUMETRA, TETRAX and EUROLINER*



*CARGO Low-lift linkage
on VACU-CARGO*

ARABLE INJECTORS

TERRASOC

P.75

TERRAFLEX2

P.76

TERRAFLEX2/XXL

P.77

TERRAFLEX3

P.77

TERRADISC

P.78



SPECIFICATIONS

STRUCTURE

Arable injectors make it possible to inject slurry deeply. They also loosen the ground.

They are fastened on a **galvanized** double-beam frame **reinforced** by radiant crosspieces. The main advantage of this assembly is to focus the strains of the implement on the tanker, which then transfers them to the tractor. The stress is therefore reduced and the tank is not subjected to distortion.

The basic frame is modular for all models: large width models are manufactured on the basis of the 2.80 m models with extensions.

The frame of the injectors wider than 3 m are fitted with a double-acting hydraulic folding system with anti-twisting safety stop. All these implements are fitted with a road lighting system.





TERRASOC

The TERRASOC arable injector is fitted with rigid tines ended by flat duckfoot shares (24 cm wide) with a 40 cm spacing between them and a shear-bolt security. The shape of the tines and the wide serration of the shares prevent any clogging risks. The advantages of this system are:

- an efficient soil ploughing;
- an injection depth ranging from 10 to 12 cm;
- an outstanding stubble ploughing (the share best suited to mechanical weeding);
- a smaller required tractor power (see here-after).

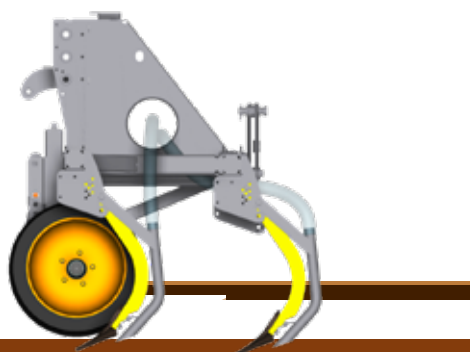


WORKING PRINCIPLE

The slurry, flowing through a hose having the same shape as the tine, is laid down under the foot of the share making a groove in the ground. With the TERRASOC, slurry is injected over the whole width of the share (from 15 to 25 cm depending on the type of slurry and ground), which allows a high spacing between the tines, as well as a small tractor power.

Adjustments:

- The gauge wheels ensure a centralized adjustment of the working depth.
- The tines are fitted with an individual 3-position adjustment of the depth by tightening or loosening the bolts at their fixing points on the frame.
- The same principle allows to modify the sloping angle of the tines to loosen the ground more or less effectively.



STUBBLE PLOUGH

The injector is fitted with a support that can be hitched to the standardized 3-point linkage of a tractor. In this way, it can be used as a simple stubble plough or with an umbilical system.



OPTIONS

The model 5200/13SH can be fitted with an extra pair of gauge wheels. This larger width ensures a more precise adjustment and a better stability when working on fields.

TERRASOC MODELS

Models	Working width (m)	Transport width (m)	Number of shares	Spacing (cm)	Weight (kg)
2800/7S	2.80	2.60	7	40	700
3600/9SH	3.60	2.70	9	40	840
4400/11SH	4.40	2.70	11	40	920
5200/13SH	5.20	2.85	13	40	1,000

TERRAFLEX/2

The TERRAFLEX models are fitted with flexible tines fixed on wide spring leaves (*Everstrong* type) ended by a 6.5 cm wide reversible straight share.

These tines ensure:

- an improved ground loosening thanks to the vibrating effect;
- a good vegetable residue mixing;
- a perfectly torn plough soil and a better prepared seed bed;
- a working depth ranging from 12 to 15 cm.

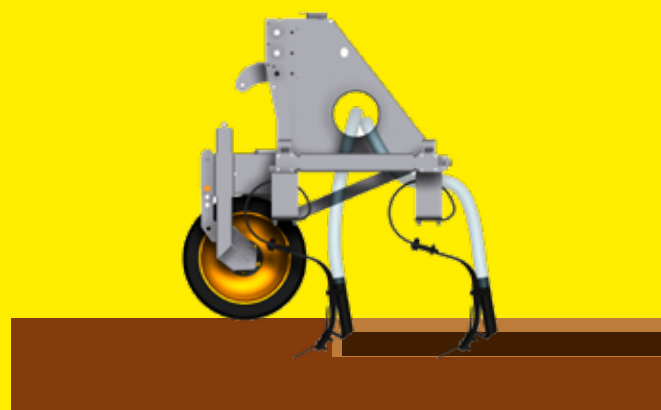


WORKING PRINCIPLE

The share makes a groove in the ground and the slurry is then laid down by the injection hose that is just behind the share. As they are vibrating, these tines are more resistant to obstacles (stones, etc.) but offer a less regular working depth.

The working depth is adjusted by a central adjusting device on the gauge wheels.

Like the TERRASOC, the TERRAFLEX injector can be used as a stubble plough or with an umbilical system.

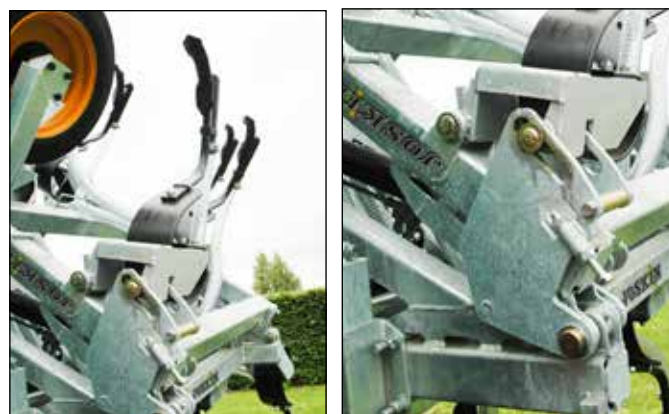


TERRAFLEX/2

In order to choose the best compromise between flow rate, distribution and organic matter flow, the row spacing on the TERRAFLEX/2 is 30 or 40 cm, depending on the model.

TRANSPORT

In order not to exceed the maximum transport width and not to strike against obstacles, the TERRAFLEX/2 (5200/13SHK and 5100/17SHK) and TERRAFLEX/3 injectors are fitted with retractable outer tines.



Retractable tines

OPTIONS

Just like for the TERRASOC, an extra pair of gauge wheels can optionally be mounted on the TERRAFLEX/2 5100 and 5200.

As an option, TERRAFLEX/2 injectors can be fitted with a levelling harrow.



Gauge wheels

Levelling harrow

TERRAFLEX/2 MODELS

Models	Working width (m)	Transport width (m)	Number of tines	Spacing (cm)	Weight (kg)
2700/9SK/2	2.70	2.60	9	30	800
3900/13SHK/2	3.90	2.60	13	30	1,040
4500/15SHK/2	4.50	2.60	15	30	1,150
5100/17SHK/2	5.10	2.70	17	30	1,540
2800/7SK/2	2.80	2.60	7	40	720
4400/11SHK/2	4.40	2.70	11	40	1,080
5200/13SHK/2	5.20	2.60	13	40	1,040



TERRAFLEX/2 XXL

The TERRAFLEX/2 XXL offers the possibility to work on larger widths from 6 to 7.12 m. The row spacing on the TERRAFLEX/2 XXL is 30 or 37,5 cm, depending on the model.

TERRAFLEX/3

The row spacing of the TERRAFLEX/3 is 30 or 40 cm. The tines are distributed on 3 rows, which leaves a bigger space between them. JOSKIN designed this injector to avoid blockages. It is thus particularly interesting when the vegetation is abundant.

The spacing between the 1st and 2nd rows is moreover larger than between the 2nd and 3rd rows.



TERRAFLEX/2 fitted with a levelling harrow



OPTIONS

Tines with 11 cm reversible and reinforced blue share (type *Kongskilde Vibroflex*) can replace the standard models. They are designed to bury and mix larger quantities of straw and vegetable residues. Their specifications are:



- two folds allowing to make the earth go up and the vegetable matter down;
- a vertical area (above the share) to mix the plants and the ground in an optimal way;
- a 11 cm width;
- a further improved sturdiness;
- a certain reversibility;
- a design for mulch seeding;
- a very good mechanical seeding effect (roots and seeds).



TERRAFLEX/3

TERRAFLEX/2 XXL MODELS

	Models	Working width (m)	Transport width (m)	Number of tines	Spacing (cm)	Weight (kg)
NEW	XXL 5700/19SHK/2	5,70	2,60	19	30	1,675
NEW	XXL 6300/21SHK/2	6,30	2,60	21	30	1,900
NEW	XXL 5625/15SHK/2	5,62	2,60	15	37,5	1,650
NEW	XXL 6375/17SHK/2	6,37	2,60	17	37,5	1,875
NEW	XXL 7125/19SHK/2	7,12	2,60	19	37,5	2,075

TERRAFLEX/3 MODELS

	Models	Working width (m)	Transport width (m)	Number of tines	Spacing (cm)	Weight (kg)
	4400/11SHK/3	4,40	2,65	11	40	1,240
	5200/13SHK/3	5,20	2,65	13	40	1,540
	6000/15SHK/3	6,00	2,65	15	40	1,620
	5100/17SHK/3	5,10	2,65	17	30	1,240
	5700/19SHK/3	5,70	2,65	19	30	1,680

TERRADISC

The discs with a diameter of 510 mm of the TERRADISC are each mounted on a shock absorbing element, which is bolted to the frame.

This implement ensures:

- an efficient incorporation of slurry;
- a working depth up to 18 cm;
- a perfect stubble ploughing work.



WORKING PRINCIPLE

The TERRADISC, which was recently developed by JOSKIN, is made up, depending of the implement width, of 32 to 48 discs with a diameter of 510 mm spread over two rows that are bolted to the frame.

The first one will open the ground in which the injection cones, located next to these discs, will lay the slurry.

The second one, whose elements are positioned in the opposite direction as those of the first one, will cover up and bury the slurry.

The TERRADISC has many advantages:

- a high speed work allowing high yields;
- an homogeneous mixing of the slurry with the ground;
- a quality stubble ploughing;
- almost no losses of fertilizing elements.



FOLDING

Two powerful double-acting hydraulic rams fold both parts of the injector upwards in order to get a transport width of 2.90 m.

The machine is in this way compact during transport while keeping a light overhang.



TERRADISC MODELS

Models	Working width (m)	Transport width (m)	Number of discs	Spacing (cm)	Weight (kg)
4000/32TDH	4.00	2.90	32	12,5	1,900
5000/40TDH	5.00	2.90	40	12,5	2,160
6000/48TDH	6.00	2.90	48	12,5	2,420

MEADOW INJECTORS

MULTI-ACTION

P.80

SOLODISC

P.81

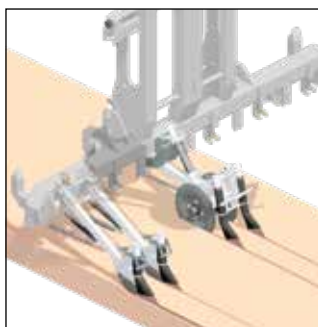
GENERAL POINTS

Meadow injectors make it possible to inject slurry in the ground while avoiding damages to the surface dressing as much as possible.

They are mounted on identical galvanized frames. This standardization makes it possible to interchange the spreading elements.

These single-beam frames are made of high tensile steel offering the best compromise between strength and lightness.

The highly compact design and the folding system of the injector lead to a particularly limited overhang, which allows to significantly reduce the strains at the back of the slurry tanker.



PINCERS

JOSKIN injectors are standard fitted with mechanical anti-drip pincers that automatically release the injection pipe when the injection element hits the ground (and inversely when the element leaves it).

Each pincer is fitted with a rounded jaw and a pinching stop in order to limit the wear to the rubber injection cone as much as possible. They can be replaced by hydraulic pincers.



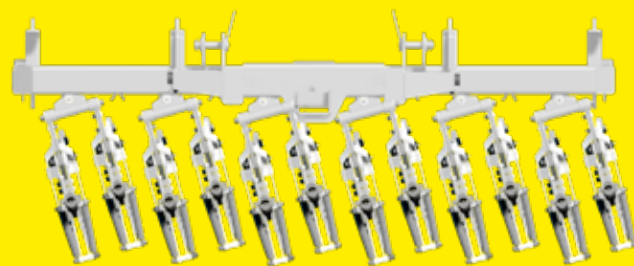
Hydraulic pincers



Mechanical pincers

FREE STEERING ELEMENTS

The injection elements are made up of 2 outlets and are fixed to the frame by means of an axis. They can pivot by 30° in bends (15° to the left and 15° to the right) and without lifting the machine nor damaging the meadow.



LOCK-MATIC

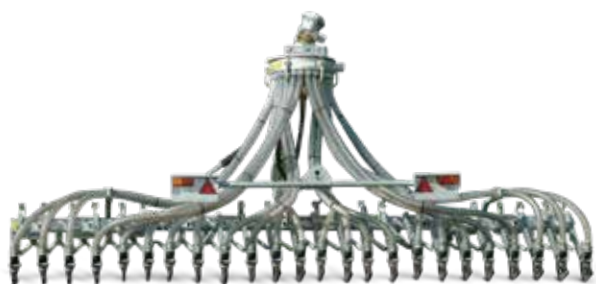
Models that are more than 3 m wide are fitted with a double acting (DA) hydraulic folding system in order to respect the prescribed transport width.

In this case, the folding system is fitted with the Lock-Matic® automatic locking in order to enhance the driving safety as much as possible, namely on the road. This locking device is operated by the same hydraulic function as the folding system, thanks to the steered valves.



MULTI-ACTION

The major advantage of the Multi-ACTION is its low weight. This injector combines modularity, simplicity of construction and requires little maintenance.



STRUCTURE

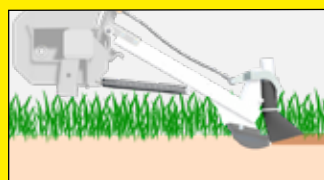
The Multi-ACTION is made up of a single-beam frame carrying free steering elements fixed with a 21.5 cm spacing. The end of each of them, which is fully galvanized and made up of two arms with independent deflection, is fitted with a self-sharpening share followed by an injection cone.

The cutting share makes a groove in the ground (between 0 and 3 cm deep), while the injection cone smoothly and homogeneously lays down the slurry in the middle of this groove without splashing the plants.

The stay springs, combined to the springs serving as mechanical shock absorbers, only start working from a given operating height and allow to apply the shares on the ground with a given pressure. This ensures ground clearance for the frame and a flexibility in the deflection of the elements.

The long arms on which the shares are fixed allow:

- to ensure a great deflection up to 25 cm to compensate the ground unevenness;
- to avoid all vibrations on the elements, even at a speed higher than 10 km/h;
- to ensure a regular slurry deposit on the ground without splashes.



LOCKING THE ELEMENTS FOR TRANSPORT



Once the injector is folded, the elements that are located on the upper arms are maintained in position by a locking system. A simple notch prevents each element from making a rotation round its axis and from falling down. The elements remain thus very rigid in relation to the vibrations due to transport.

OPTIONS



Several options are available to complete the equipment of your Multi-ACTION, notably:

- discs (Ø 250 x 3 mm) to be placed before the shares;
- a mechanical or hydraulic side bumper.



MULTI-ACTION MODELS

Models	Working width (m)	Transport width (m)	Number of shares	Space between the shares (cm)	Weight (kg)
3010/14MA	3.01	3.00	7	21.5	440
4300/20MAH	4.30	2.60	10	21.5	860
5160/24MAH	5.16	2.60	12	21.5	1,140
6020/28MAH	6.02	2.60	14	21.5	1,260
6880/32MAH	6.88	2.60	16	21.5	1,340
7740/36MAH	7.74	2.60	18	21.5	1,480



SOLODISC

The SOLODISC meadow injector is the ideal multi-functional implement for a highly precise spreading on your meadows. It is made up of discs with large diameter (406 mm x 19 mm), which makes it multi-functional both on meadows as on growing crops, stubble-fields, etc.

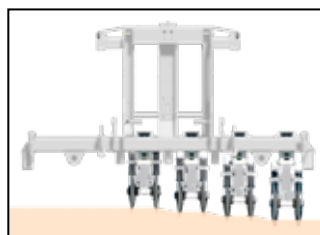


STRUCTURE

The SOLODISC is made up of free steering elements that are fully galvanized and each fitted with a pair of discs, followed by a 2-position injection cone. The discs are placed at a distance of 21.5 cm from each other. As far as the injection cone is concerned, it is made up of a galvanized spout, an anti-drip pincer and a very flexible injection cone of profiled rubber.

The working depth can be adjusted (max. 6 cm) and is kept constant by means of the application of a constant pressure on the linkage. The pressure has simply to be modified, by means of an adjusting wheel, to adapt the working depth.

Besides, springs are used as mechanical shock absorbers and apply the discs with a given pressure on the ground, thereby limiting the injection depth variations and allowing a vertical deflection of the elements in order to adapt to the transverse ground unevenness (up to 25 cm). As an option, the springs can be replaced by a hydraulic cross-compensation system keeping the same ground pressure for each element (communicating vessels principle).



DISCS

The SOLODISC injector is also characterized by easily interchangeable discs. As a result, it is very easy to adapt the machine to your own needs. Self-sharpening discs (Ø 406 mm x 19 mm) are standard mounted on all machines. Made of cast steel, they are very resistant, and therefore everlasting. Another model is available as an option: Ø 300 x 3 mm with share. They allow to somewhat lighten the injector. They are combined to groove widening shares in order to keep a high spreading volume.

The discs are mounted on hubs with (tightening) conical bearings, which are hermetically closed and over-dimensioned. Because of the resistance of the Ø 406 mm discs, the SOLODISC requires less maintenance, even if it has been used for years.



SOLODISC XXL

This new injector is suited for large farms and contractors.

Advantages:

- up to 8.25 m wide;
- 2 vertical macerators for a constant and homogeneous flow;
- a new tubular frame;
- a row spacing of 18.75 cm;
- a limited weight.

SOLODISC MODELS

Models	Working width (m)	Transport width (m)	Number of discs	Spacing between the discs (cm)	Weight (kg)
3010/14SD	3,01	3,00	14	21,5	845
4300/20SDH	4,30	2,64	20	21,5	1.240
5160/24SDH	5,16	2,64	24	21,5	1.420
6020/28SDH	6,02	2,64	28	21,5	1.600
6880/32SDH	6,88	2,64	32	21,5	1.900
7740/36SDH	7,74	2,64	36	21,5	2.120
7500/40SDH2	7,5	2,96	40	18,75	2.200
8250/44SDH2	8,25	2,96	44	18,75	2.640

MULTI-NOZZLE BOOMS



GENERAL POINTS

Traditional spreading systems allow to work on larger widths. The different models propose to choose between traditional spreading or spreading close to the ground.

Since JOSKIN booms are fully galvanized, they are optimally protected and have a longer lifetime. Furthermore, they are all fitted with a hydraulic folding system.



TWINJET



GENERAL POINTS

The Twinjet spreading boom makes it possible to spread slurry in a traditional way by means of a "dual-nozzle" system. The two pipes have a swinging scatterer at their end, allowing to spread over a very large width. The distribution box has two Ø 125 mm outlets with quick coupling and a deflecting plate holding back the foreign bodies. The stone trap is emptied by an access to the distribution box. The swinging scatterer is activated by the spreading pressure, combined with an ingenious mechanical system.

Thanks to this design, slurry is thrown out alternately in one and the other direction, so that these "umbrella"-like jets offer a very low air resistance.



TWINJET MODELS

Models	Spreading width (m)	Number of nozzles	Weight (kg)
15/2 RT	15	2	630
18/2 RT	18	2	660
21/2 RT	21	2	680
24/2 RT	24	2	700
27/2 RT	27	2	800
30/2 RT	30	2	820

MULTITWIST RM



GENERAL POINTS

The JOSKIN MULTITWIST multi-nozzle spreading booms allow to spread slurry homogeneously on widths from 12 to 15 m.

This spreading implement is made up of two main pipes supported by two triangular frames. On the version of 12 m, each main pipe feeds 4 of the 8 smaller pipes ended by splash plates.

There is a splash plate at the end of each pipe of the MULTITWIST booms. The slurry is then spread close to the ground, under the form of "umbrella" jets.

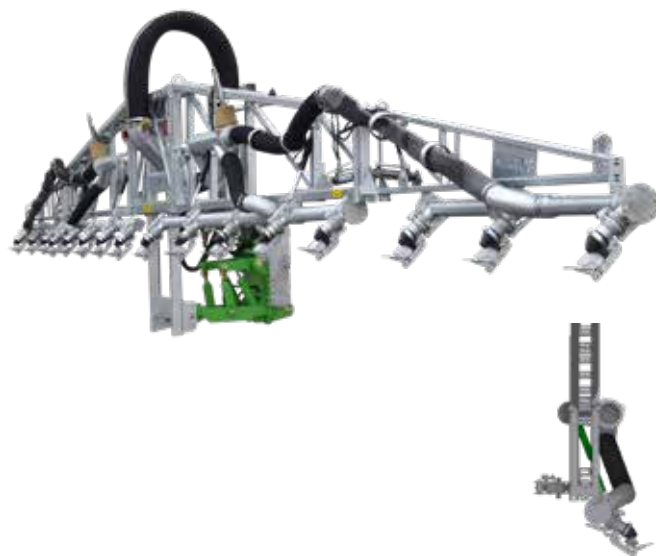
Note that the Twist system can be mounted both on the 4-point linkage and directly on the tank buttresses. The same applies for the TWINJET boom.



MULTITWIST RM MODELS

Models	Spreading width (m)	Number of nozzles	Weight (kg)
12/8 RM	12	8	870
15/10 RM	15	10	930

MULTITWIST XXL



GENERAL POINTS

The JOSKIN MULTITWIST XXL boom allows to reach a spreading width of 27 m.

In order to have an homogeneous slurry distribution in each nozzle, a 6" double feeding is necessary. Through two flexible rubber hoses (Ø 125 mm), each pipe brings the slurry in the middle of the main pipes so that it is not braked and that the pressure is maximal and uniform on each spreading nozzle.

The projection system mounted at the end of each nozzle is made of a rubber cone directed to a splash plate. A rear plate ensures a regular spreading.

4-POINT FRAME

The MULTITWIST RM is characterized by its 4-points rear frame that makes it possible to hitch it on a rear linkage.

Furthermore, given the working width, JOSKIN developed the automatic locking device (when folding or unfolding the boom) and the passive slope adjustment, which reduces the strains the boom is subjected to on uneven grounds and allows to follow the slope if needed.



MULTITWIST XXL MODELS

Models	Spreading width (m)	Number of nozzles	Weight (kg)
15/10 RMX ⁽¹⁾	15	10	1,520
18/12 RMX ⁽¹⁾	18	12	1,820
18/12 RMXD ⁽¹⁾	18	12	1,860
21/14 RMXD ⁽¹⁾	21	14	1,900
24/16 RMXD ⁽¹⁾	24	16	1,940
27/18 RMXD ⁽¹⁾	27	18	1,980

⁽¹⁾ The letter X indicates a MULTITWIST XXL and the letter D a double folding system

COMMON EQUIPMENT TO THE SPREADING BOOMS

HYDRAULIC FOLDING

All booms are fitted with a hydraulic folding system that has an insignificant overhang and that does not affect at all the driving of the carriage. During transport, the whole is fastened by a boom clipping system that has a height adjustment device and a cradle with a damping rubber.

The hydraulic folding system has the following specifications:

- hydraulic safety device;
- locking of the boom wings in transport position thanks to interlocking supports;
- diagonally positioned rams (not vertically) to better hold the boom in position (reduction of the swinging movement).

For a higher safety, the folded boom is such that the position of the macerators is pointed inwards so as not to exceed the boom size.

Beyond 18 m wide, a double folding system is required.



TWIST AND ANTI-DRIP SYSTEMS

JOSKIN booms (except the TWINJET) are all standard fitted with the (double acting) **anti-drip** lifting device with Twist system. It allows a transport in a very clean way thanks to the complete rotation of the line spreading hoses, which prevents any loss of slurry on the road as well as in the fields when manoeuvring.

JOSKIN line spreading booms are standard fitted with the **Twist system** allowing a 150° rotation of the boom.

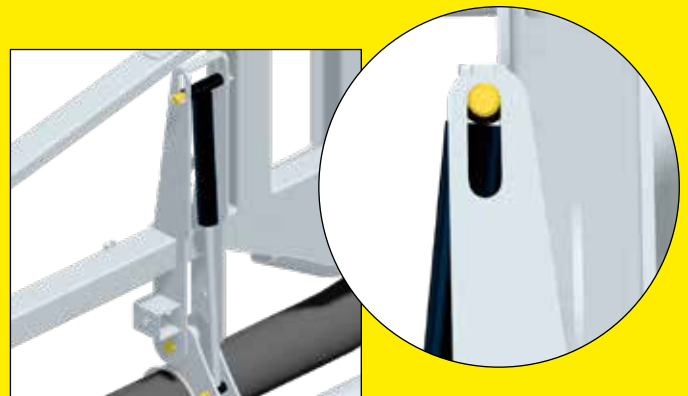
Besides this anti-drip function, the Twist system has other advantages:

- it offers a limited overhang;
- it allows, as an option, to spread with an exact scatterer without having to take off the boom. The macerator and two manual or hydraulic valves just have to be added.



ANTI-CRASH

JOSKIN booms are all standard fitted with the anti-crash device that offer an extra safety when working on hilly ground. Every boom wing is fitted with springs and articulations that, when spreading on a bumpy ground, retract the ends of the boom (max. 55 cm) if it hits the ground. Mounting the wings at the end of the oblong holes allows them to pivot and makes it possible to adjust their height.



MULTI-NOZZLE BOOMS AND LINE SPREADING BOOMS



GENERAL POINTS

JOSKIN line spreading booms allow to spread on large widths by laying slurry at the foot of the plants without dirtying them, which allows to reduce the nutrient losses, not to slow down the growth of the plants and to prevent slurry residue in the forage. Both models allow to choose between laying on the ground or injection.

They however have a very similar design. The PENDISLIDE and PENDITWIST indeed have a triangular structure articulated on a central frame and supporting line spreading hoses that are fixed with a 25 or 30 cm space between them. Since they are fully galvanized, they are optimally protected and have a longer lifetime.

Furthermore, all booms are fitted with a hydraulic folding system. PENDITWIST from 18 m are standard fitted with the double folding system.

Both models are standard fitted with linking crosspieces to adjust their height. They are then hitched to the JOSKIN 4-point linkage of the tanker.

Furthermore, provided your slurry tanker is equipped with the option "Exact scatterer through the linkage or fitted on the boom", it is possible to spread in a traditional way.



PENDI-BASIC



GENERAL POINTS

The Basic series includes 2 models and it was recently developed to extend the range of JOSKIN rear implements in order to meet smaller tanker owners' specific needs and therefore provide them with a quality spreading solution at an attractive price.

Pendi-Basic booms are first of all characterised by their outstanding ease of use. This feature can already be seen when the booms are fitted on the tanker: no linkage nor rear buttress is necessary. These booms are designed to be directly fitted on the rear manhole (diameter: 600 mm). They can therefore be fitted on both new and existing machines, without any pre-equipment.

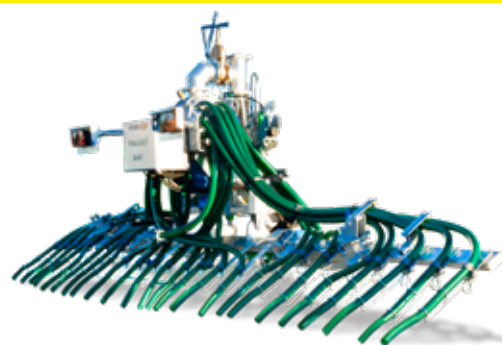
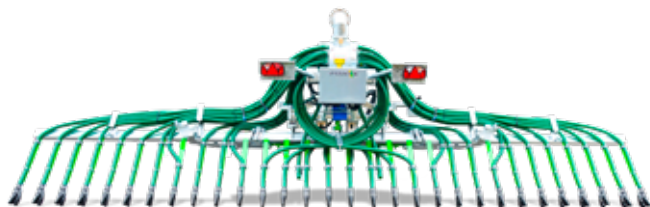
These booms are also characterised by their high autonomy. Thanks to the automaton that is directly connected to the tractor, they have all the necessary electro-hydraulic equipment for a proper working.

The presence of many high-tech specifications, such as a Scalper vertical macerator, the Twist anti-drip system or the Lock-Matic folding system, ensures an even better quality, whereby they provide the same comfort of use and spreading efficiency as a company machine.

Even if they have the same structure, both Pendi-Basic models meet specific needs:

Pendislide Basic: With the skids applying a constant pressure on the ground while moving apart the vegetation, this boom ensures a precise distribution of the slurry as close as possible to the roots without dirtying the leaves or fodder. These features make of this spreading boom an implement that is particularly suited to the fertilization of meadows.

Penditwist Basic: Thanks to the line spreading hoses close to the ground, this spreading boom allows to lay the slurry at the foot of the plant without slowing down its growth. It is therefore an implement that is particularly suited to the fertilization of arable lands.



PENDISLIDE-BASIC MODELS

Models	Spreading width (m)	Number of outlets	Row spacing (cm)	Weight (kg)
60/24PS1	6	1x24	24/25	N.A.
75/30PS1	7.5	1x36	30/25	940

PENDITWIST-BASIC MODELS

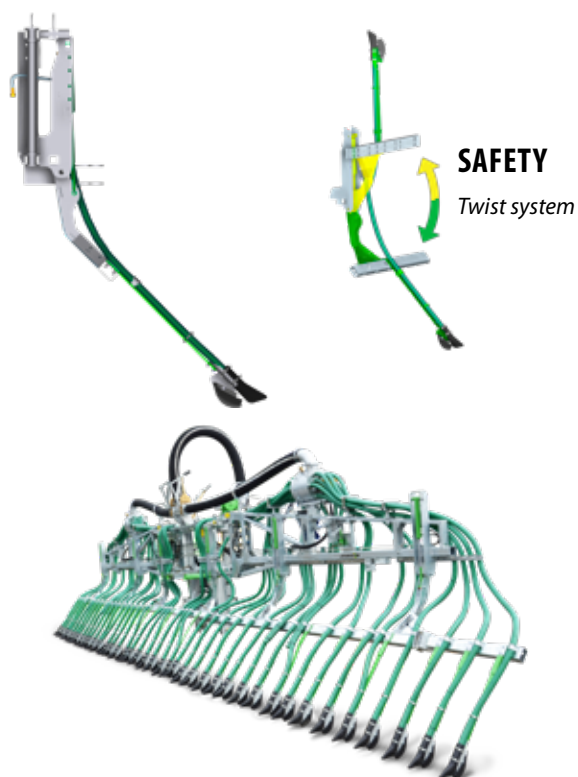
Models	Spreading width (m)	Number of outlets	Row spacing (cm)	Weight (kg)
60/24RP1	6	1x24	24/25	N.A.
75/30RP1	7.5	1x36	30/25	880

PENDISLIDE



PRECISION

The PENDISLIDE is a line spreading boom whose particularity is to be fitted with ertalon skids allowing the slurry to be applied more precisely on fields of growing plants, without dirtying them. Thanks these skids, the line spreading hoses perfectly follow the ground and ensure a homogeneous slurry distribution on the surface to be spread.



OPTIONS

It is still possible to spread slurry in a traditional way (with an exact scatterer). Thanks to the height adjustment by means of the cross-pieces, it is not necessary to remove the boom to spread traditionally. It is possible to fit your PENDISLIDE with ball valves allowing to reduce the spreading width to 6 outlets by end and to 3 by wheel tracks.

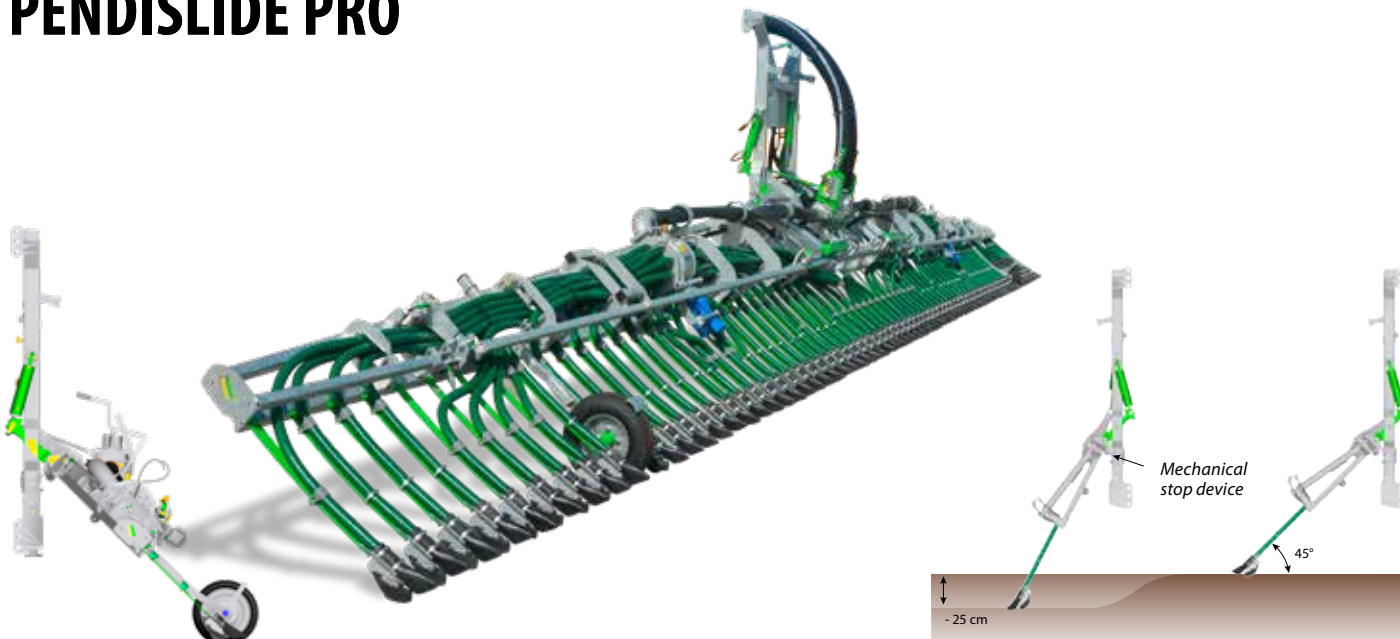
The Section Pilot option also allows to adjust the working width.



PENDISLIDE MODELS

Models	Spreading width (m)	Number of outlets	Spacing (cm)	Weight (kg)
90/PS1	9	30/36	30/25	1,500/1,550
120/PS2	12	40/48	30/25	1,790/1,850

PENDISLIDE PRO



STURDY STRUCTURE

The JOSKIN PENDISLIDE PRO spreading boom increases the spreading precision and has a sturdy and ingenious chassis. This boom has the following specifications:

- During manoeuvres, when the anti-drip system is lifted (at the row end), a pendulum effect is ensured by the 4 hydraulic rams. On hilly grounds, this horizontal balance protects the boom and ensures the required flexibility between the boom and tanker.



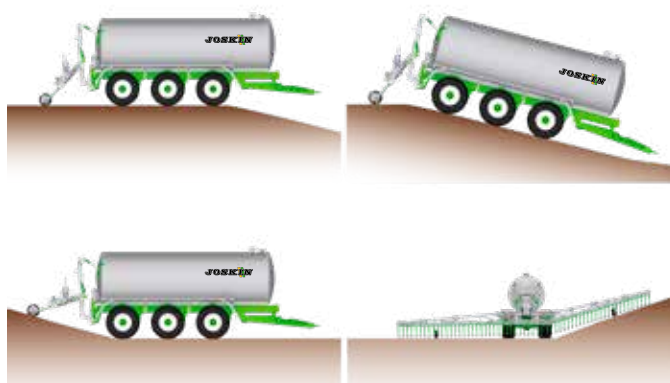
- It does not require a traditional 4-point linkage with a wheel diameter lower than or equal to 1,675 mm.
- The 2 vertical SCALPER® macerators ensure an efficient distribution of the slurry, whatever its type. An access to the macerator through a 6" quick coupling makes interventions easier.
- As an option from 15 m, the 2 boom ends can be fitted with a double hydraulic folding system (1.50 m on each side). In this way, the working width can be, if necessary, reduced by means of ball valves. It is also possible to fit them on shorter tankers.
- The boom is also – standard – fitted with an anti-crash safety device (of 80 cm), which allows the outer parts of the boom to retract in case of shock.



EFFICIENT SPREADING SYSTEM

The position of the skids in a 45° angle to the ground allows to ideally follow the unevennesses in all circumstances. For very steep areas, the skids can go down to 250 mm under the zero level. The flexion of the 70 mm bended leaves compensates small unevennesses.

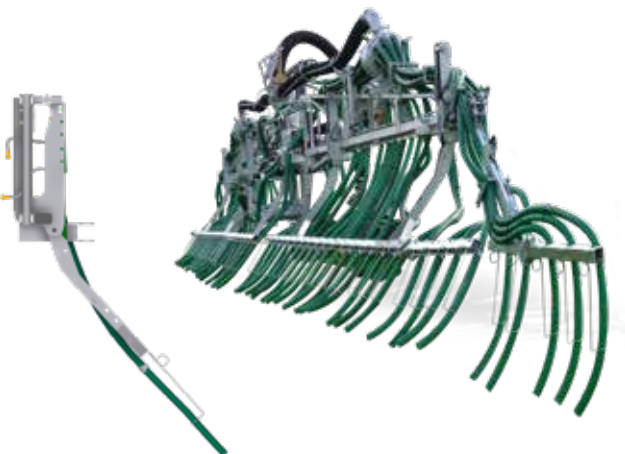
The PENDISLIDE PRO has a 25 c row spacing to ensure an homogeneous spreading pattern.



PENDISLIDE PRO MODELS

Models	Spreading width (m)	Number of outlets	Spacing (cm)	Weight (kg)
120/PS2	12	48	25	N.A.
135/PS2	13.5	54	25	N.A.
150/PS2	15	60	25	N.A.
180/PS2	18	72	25	N.A.

PENDITWIST



GENERAL POINTS

The PENDITWIST lays slurry directly on the ground through spreading pipes that are oriented backwards. Its spreading width can reach 18 m.

This boom has many applications. It makes it possible to lay slurry down without slowing down the growth of the plants and with no slurry residue in the forage: grass or maize silage, meadows, growing crops, etc.

NEW: the new JOSKIN spreading booms of 13.5 m and 16 m provide a wider choice of working widths. As a result, their users can divide the ground compaction and the ruts formation by two (since the sprayer drives in the same ruts).



PENDITWIST MODELS

Models	Spreading width (m)	Number of outlets	Spacing (cm)	Weight (kg)
90/RP1	9	30/36	30/25	1,050/1,100
120/RP2	12	40/48	30/25	1,140/1,220
135/RP2	13.5	46/54	30/25	1,290/1,370
150/RP2	15	50/60	30/25	1,470/1,560
160/RP2	16	54/64	30/25	1,500/1,530
180/RP2	18	60/72	30/25	1,590/1,620

VOGELSANG



GENERAL POINTS

VOGELSANG line spreading booms allow to spread on widths up to 36 m.

Despite their large working widths, they were designed so as to reduce the weight as much as possible and to guarantee a certain compactness during transport.

For an homogeneous slurry distribution in the line spreading hoses and a precise spreading, VOGELSANG booms are fitted with two macerators feeding 40 or 48 outlets.

TOPSWING

The ends are hydraulically folded to 180° and placed on the basis boom to reduce the transport width.

DROP-STOP

During transport on road, the line hoses are folded upwards to 180° to prevent the slurry from flowing on the road.



MODELS OF VOGELSANG LARGE WIDTH BOOMS

Models	Spreading width (m)	Number of hoses/outlets	Spacing (cm)	Weight (kg)
SwingMax3	21	80	26	2,200
SwingMax3	24	80	30	2,500
SwingMax3	27	96	28	2,800
SwingMax3	30	96	31	3,100

Note: consult us for lengths of 33 and 36 m.

EQUIPMENT MANAGEMENT AND CONTROL

HYDRAULIC MANAGEMENT: JOSKIN CONTROL BOX

Thanks to this installation, it is possible to feed several hydraulic functions, by means of one single hydraulic control valve on the tractor or through the Load Sensing.

They are controlled by switches that are gathered on one single control box in the cabin of the tractor.



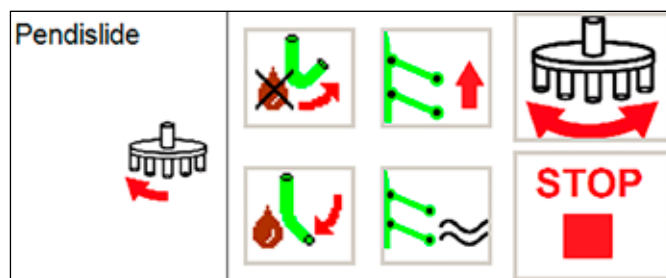
IMPLEMENT MANAGEMENT

AUTOMATIC MANAGEMENT

To easily operate the increasing number of hydraulic functions on agricultural machines while protecting the material and the meadows, an automatic management system is absolutely necessary.

A. ELECTRONIC MANAGEMENT: AUTOMATON

Part of the standard equipment on the whole range, the automaton manages the different electro-hydraulic functions by a programmed sequence, depending on the chosen implement. The Touch-Control control box is an ergonomic and efficient solution to easily control a combination of hydraulic functions of a spreading implement. This touch screen is installed in the tractor cabin.



In automatic mode, the START key launches the registered sequence: opening the feeding valve, starting the macerator, lowering the implement, etc.

A manual mode is also available in order to act on some functions during the sequence.



	JOSKIN		
	Terrasoc/flex/disc		
Solodisc	Penditwist 9-12M		
Multiaction	Penditwist 15-18M		
Pendislide		- 5 / 10 +	

The spreading sequences differ from one implement to another. That is the reason why there are all recorded in the computer memory. The implement hitched to the vehicle then only has to be selected, which allows an easy use and change of implements.



B. SEQUENTIAL BLOCK



Easymatic



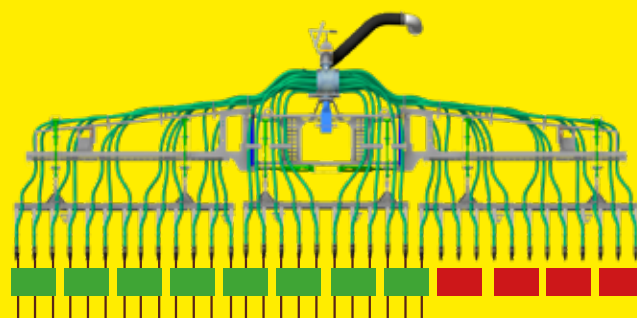
Polymatic

It operates the hydraulic functions that are linked to the working of the spreading implement. Their automated sequence allows the driver to only care about the lowering or lifting and the unfolding of the spreading implement.

Example (depending on the chosen sequential block):

- lifting - lowering the implement (driver);
- lowering speed two times faster in relation to the oil supply of the tractor;
- opening of the slurry feeding valve;
- starting the slurry macerator(s);
- control of the automatic reverse of the macerator;
- opening-closing the hydraulic anti-drip pincers on SOLODISC meadow injectors;
- constant ground pressure according to the height differences;
- etc.

SECTION PILOT



The IsoBus application can control the "Section Control" to automatically open/close the different sections of a slurry injector or spreading boom combined to the spreader itself. An outer GPS antenna receives the position according to the Section Control standard and the IsoBus application compares it with the previously recorded positions in order to close the sections on areas that have already been fertilized.

WET SPOT DEVICE

All arable injectors (TERRASOC, TERRADISC, TERRAFLEX/2 and TERRAFLEX/3) and meadow injectors (MULTI-ACTION and SOLODISC) with sequential block include, standard or as an option depending on the model, a system allowing to lift the injector on wet spots. This device is made up of a valve allowing to lift the rear implement when going from a dry area to a humid one, while the feeding valve and macerator remain active.



EQUIPMENT MANAGEMENT AND CONTROL

ISO BUS

iso-CONTROL 2.0



ISOBUS tractor terminal

TANKER AND IMPLEMENT MANAGEMENT

C. ISOBUS

The interface of the JOSKIN control box, just like that of the automaton, can be replaced by the ISOBUS terminal that is already present in the tractor cabin. If there is none yet, the JOSKIN terminal can be delivered.

The aim is to ensure the communication between different tractors and the many implements (and vice versa) through a standardized language. This international standard is ever more used and allows a quick and easy connection ("plug & play") between various brands.

The AUX-N feature allows to match any Isobus function with a compatible AUX-N Joystick. On top of making it easier to use, the AUX-N feature allows to select the functions associated to the Joystick

AUX-N

TC-GEO

TC-SC

TC-BAS

UT

EXTRA APPLICATIONS



VARIABLE RATE-CONTROL - Allows to process application maps in Shape format. Up to 5 different flow rates are possible. They are specified by means of maps with theoretical values. Applications are adapted in a specific way to the location, according to the regulations.



TRACK-LEADER TOP - Carries out an automatic guidance via the TRACK-LEADER functions. Besides the App, the system includes an extra guidance computer and a GPS-receiver. The automatic guidance relieves the driver, increases the yield performance per surface and reduces the diesel consumption.



TRACK-LEADER - Allows to have parallel tracks with different driving modes. The guiding direction and the bypass force are displayed on the screen. The software also gives information about the spread area and writes the tracks and field edges to memory.



SECTION-CONTROL - Allows the automatic activation and deactivation of the machines and an automatic partial width change. As soon as a section spreads party of totally on an already spread area, it is deactivated.

AVAILABLE TERMINALS

ISO CONTROL allows, for instance, to centralize the electro-hydraulic controls, the flow meter, the pressure sensors, the Section Pilot, the GPS, etc.

ISO CONTROL TOUCH 800

- 10,4" screen
- Touch screen
- Multigraphic window
- Video input



ISO CONTROL TOUCH 1200

- 12,1" screen
- Touch screen
- Multigraphic window
- Video input



OPTIONAL ACCESSORIES

PRINTER



JOYSTICKS ISOBUS



GPS



System

Precision

- DGPS
- TERRASTAR
- RTK

- 20 cm
- 5 cm
- 2 cm

ELECTRONIC FLOW METER

An excellent flow rate is necessary to spread with accuracy! JOSKIN has therefore developed to that end an electronic flow meter (Ø 150 or 200 mm) delivering an exact flow at any time. Whatever the driving speed, the spreading pattern remains uniform thanks to the system adjusting the flow in proportion to the advancement speed (DPA).

The flow meter constantly measures the slurry injection flow while sensors, fitted in the wheels, measure the driving speed.

By interpreting these data, a computer will automatically regulate the slurry flow according to the driving speed, by way of an electric valve. This device requires an ISO terminal.



DETERMINE YOUR MANAGEMENT MODE ACCORDING TO YOUR NEEDS

	Functions	Implements	Flow meter	POSSIBLE MANAGEMENT
	Single	/	/	Direct conn. to tractor
	Many	/	/	
	Many	yes	/	 + sequential block
				 + 
	Many	yes	yes	 + ()
				 + ()

NIR TECHNOLOGY

In collaboration with John Deere, JOSKIN offers a real time technology thanks to an infrared lens (subject to availability in your country). The slurry composition (total nitrogen (N), phosphorus (P), potassium (K), ammoniacal nitrogen (NH4) and dry matter) is measured in real time during spreading. JOSKIN integrates this analysis system on its tankers fitted with a proportional flow meter by ISOBUS. The whole allows the DPA to integrate a spreading instruction expressed in units of nitrogen / ha (for example) and not in m³ / Ha as a conventional DPA system.



JOSKIN

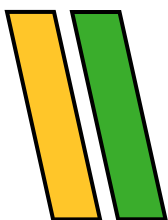


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