

# JOSKIN

**EN**    **DRAKKAR**



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**"TRANSPORT PAYLOAD,  
NOT STEEL!"**



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### ADAPTED SPECIAL STEEL TYPES WITH HIGH TENSILE LIMITS

The JOSKIN machines are completely made up of high-tensile steel. The constant search for the best steel quality/weight ratio has led to a significant decrease in the empty weight of the JOSKIN machines, while increasing their sturdiness. It is therefore possible to transport still higher payloads.



The following table aims at comparing the general specifications of the steel types used by JOSKIN:

#### Specifications of the steel types used by JOSKIN vs. traditional steel

Type of steel	Tensile limit (kg/mm <sup>2</sup> )	Ultimate stress (kg/mm <sup>2</sup> )
S235 or St 37-2 (traditional steel)	23,5	40
S355 or St 52-3 (traditional steel)	35,5	48
S420 (JOSKIN high-tensile steel)	42	55
S550 (JOSKIN high-tensile steel)	55	61
S690 (JOSKIN high-tensile steel)	69	75
HARDOX 450 (KTP HARDOX)	120	140

# JOSKIN fabrication



## ADVANCED TECHNIQUE

Thanks to the outstanding resistance of the high-tensile steel types selected by JOSKIN, the side reinforcements and the cross-pieces under the body are now limited, or even useless, while keeping a high sturdiness! The high-tech manufacturing concept goes along with the use of production tools able to handle the necessary steel plates: 8m laser cutting tables, 8,2m folding press with digital control, automatic folding angle correction device (making sure the steel plate is evenly folded on the whole length), 8m welding robots, etc.

## CAREFUL MANUFACTURING

The JOSKIN tipping trailers are manufactured in accordance with the JOSKIN production philosophy. Many automated machines allow an endless precision.

In the same way, the mounted and welded assemblies are exclusively made on templates. All components, including the body, are continuously welded. Much attention is also devoted to the surface treatment: the matter is first cleaned by shot-blasting (2.500kg of metal balls projected per minute) before applying an Ester Epoxy primer coat and a 2-component finishing paint. As part of the process, the paint is then dried at 60°C.



Turning machine with digital control



Welding robot



Folding machine with digital control



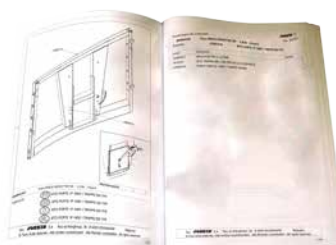
Laser cutting table

## FULLY COMPUTERIZED CONCEPTION AND DEVELOPMENT

The JOSKIN tipping trailers are completely computer-designed by means of 3D-engineering softwares. From the very beginning of the project, the new components are linked to the SAP global management program. This integrated architecture allows to standardize the production as much as possible and to rationalize the components in order to guarantee higher manufacturing precision and production flexibility.

## INDIVIDUALIZED PARTS BOOK

The most obvious expression of the computer-aided management of the integrated JOSKIN production is the individualized parts book JOSKIN delivers with each vehicle. This book includes the drawings and references of the components mounted on your vehicle, with the exclusion of any other part. In this way, many mistakes can be avoided when ordering spare parts - even years later.



# APPROPRIATE STRUCTURE



## STRONG AND LIGHT TIPPING TRAILERS

The JOSKIN monocoque agricultural tipping trailers (Trans-CAP and Trans-SPACE) embody the new generation of tipping trailers completely made of high tensile steel.

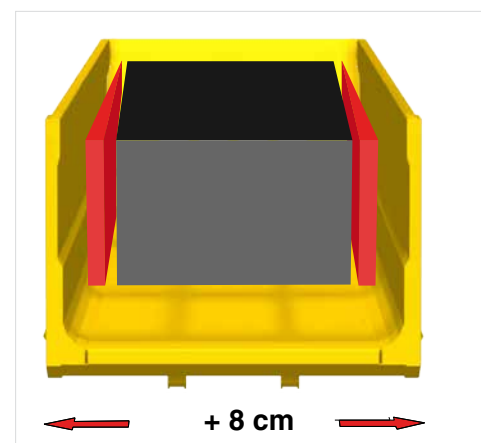
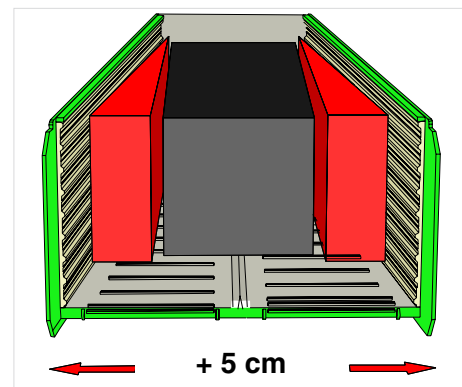
Thanks to this fabrication concept, the empty weight is significantly reduced and therefore allows to transport still higher pay loads. Your vehicle will then pay off more quickly.

The body edges on the JOSKIN tipping trailers are smoothed off by successive folds of the two side sheets in order to limit the body/contents contact surface as much as possible when unloading. As a result, the friction strains are significantly restricted too.



## TAPERED BODIES

Next to being light and strong, the Trans-SPACE, Trans-CAP, Silo-SPACE as well as the DRAKKAR also have the particular feature of having a tapered body. It is indeed wider at the back than at front (+ 8cm on the monocoque bodies and + 5cm on the Silo-SPACE and DRAKKAR), which ensures a quicker and easier unloading.





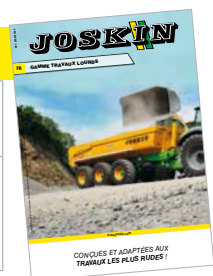
## Range

		Technically permissible payload (t)	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	22	24	26	27
AGRICULTURAL TIPPING TRAILERS	TRANS-CAP	Product								✓		✓		✓		✓		✓					
	TRANS-SPACE	Product																	✓	✓	✓	✓	✓
TIPPING TRAILERS WITH DROP SIDES	TRANS-EX	Product	✓	✓	✓		✓		✓														
	TETRA-CAP	Product				✓		✓		✓		✓		✓									
	TETRA-SPACE	Product																	✓				
	DELTA-CAP	Product					✓	✓		✓		✓		✓									
TRAILERS WITH MOVING FLOOR	DRAKKAR	Product																✓	✓	✓		✓	
	SILO-SPACE	Product																	✓	✓	✓	✓	
BALE TRAILERS AND LOW LOADERS	TRAILED WAGO	Product						✓					✓		✓				✓				
	SEMI-MOUNTED WAGO	Product					✓	✓				✓											
	WAGO-LOADER	Product						✓				✓	✓		✓				✓				
	WAGO CARRIER	Product			✓																		

## Range

More details in our buying guide.

		Technically permissible payload (t)	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	22	24	26	27
HEAVY DUTY	TRANS-KTP	Product						✓		✓				✓		✓		✓					✓



# DRAKKAR

Does not Push,  
Does not Tilt,  
Transports!



## DRAKKAR'S REVOLUTIONARY SYSTEM

The DRAKKAR has an industrial fluid-tight conveyor belt that is going, for the unloading operation, to transport the material. This high-resistance conveyor is rolled up on a cylinder driven by 2 hydraulic engines at the back of the trailer.

During the unloading operation, the front wall, that is connected to the moving floor, is going to support the material without compressing it. At the end of the operation, it is going to have a pushing effect resulting in compact and firm heaps. The use of a transparent perspex plate (10mm thick) ensures an excellent visibility when loading and unloading.

The floor and the wall resume their initial positions thanks to a hydraulic engine at the front of the trailer, that is connected to a system of shipping chains.



## GENERAL POINTS

The JOSKIN DRAKKAR is a multi-purpose trailer allowing to transport many different types of material (silage, grains, pulp, beets, potatoes, etc.). Thanks to the UV-resistant polyester/polyethylene side walls, the empty weight of the vehicle is lower. You can therefore transport a higher payload.

## SPECIFICITIES

Chassis	Width: 900mm - 300 x 100 x 6mm
Body	Tapered body with steel and polyethylene side walls
Running gear	- 6600D and 7600D: JOSKIN Roll-Over boggie with bolted table - 8600D: Hydro-Tandem - 8600T and 9600T: Hydro-Tridem
Hitching	6600D/7600D/8600D: sprung drawbar 8600T and 9600: hydropneumatic drawbar
Max. wheel dimensions	Ø 760 to 1.080mm / width 500mm

## MODELS

Technically permissible payload (t)	Body				Volume (m³)	Axle(s): □ (mm) - track (mm) - studs	Brakes (mm)		
	Inner body dimensions (m)								
	Length under	Length above	Width	Height	DIN	Dome 300mm			
<b>DOUBLE AXLE</b>									
6600/24D150	18	6,30	6,70	2,40	1,50	24	26	ADR 2x130x2000-10G	406 x 120
6600/28D180	18	6,30	6,70	2,40	1,80	28	31	ADR 2x130x2000-10G	406 x 120
7600/27D150	20	7,30	7,70	2,40	1,80	27	30	ADR 2x150x2000-10G	420 x 180
7600/33D180	20	7,30	7,70	2,40	1,80	33	36	ADR 2x150x2000-10G	420 x 180
8600/31D150	22	8,30	8,70	2,40	1,80	31	34	ADR 2x150x2000-10G	420 x 180
8600/37D180	22	8,30	8,70	2,40	1,80	37	41	ADR 2x150x2000-10G	420 x 180
<b>TRIPLE AXLE</b>									
8600/31T150	26	8,30	8,70	2,40	1,80	31	34	ADR 3x150x2000-10G	420 x 180
8600/37T180	26	8,30	8,70	2,40	1,80	37	41	ADR 3x150x2000-10G	420 x 180
9600/34T150	26	9,30	9,70	2,40	1,80	34	38	ADR 3x150x2000-10G	420 x 180
9600/41T180	26	9,30	9,70	2,40	1,80	41	46	ADR 3x150x2000-10G	420 x 180



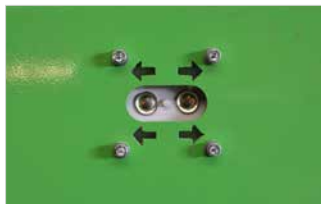
## GREAT REAR DOOR CLEARANCE

The trailer is unloaded easily and without blocking thanks to the significant rear door clearance (40cm) above the body. This door is operated by means of 2 double-acting cylinders.

A locking device mounted on the cylinder makes sure the door is properly closed and avoids any unexpected opening during transportation. A "stop" sensor on the door allows the floor to start moving only when the door is fully open.



In some situations, it is necessary to leave the door closed to empty through the grain chute(s) or to only slightly open it. To that end, there is a control box at the back of the vehicle which allows to progressively make the floor move forward or backward.



## SCRAPERS

The rear (upper and lower) scrapers allow to remove any remaining material on the moving floor. The one at the front prevents foreign bodies to accumulate between the bottom and the moving floor.



Front scraper



Rear scraper

## DRAKKAR BODY OPTIONS

It is possible to choose three grain chutes instead of one central one.



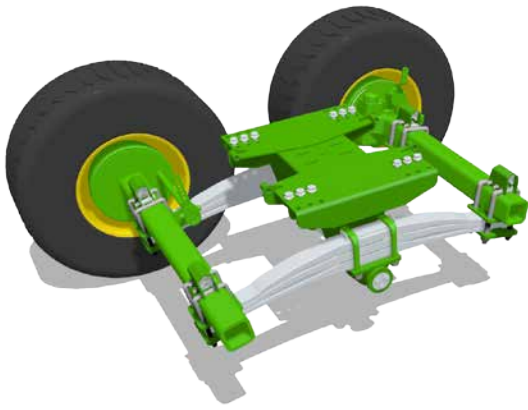
The DRAKKAR can be fitted with rigid or hydraulic galvanized extensions. Thanks to the hydraulic system, you can choose to mount extensions on your trailer or not. The independent control of the left and right-hand extensions allows to load the trailer with a forage harvester more easily.



A transfer system can be mounted on the rear door of the DRAKKAR. Two augers, one which is horizontally placed over the whole width of the body and the other vertically, drive the matter at 450rpm. A second door is provided to use the trailer without the auger.

# RUNNING GEARS

## A Tested Construction



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.



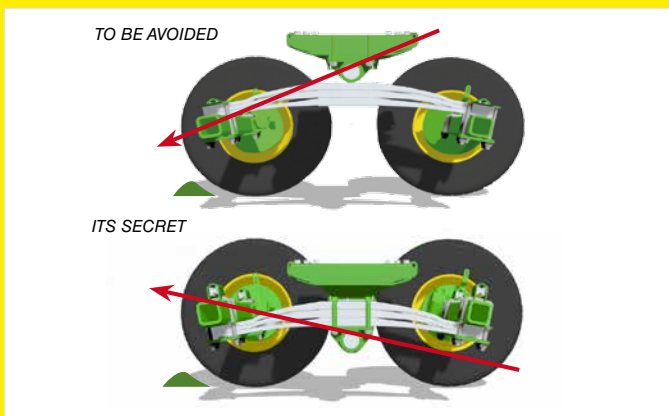
### SINGLE AXLE SUSPENSION

The single-axle vehicles are standard fitted with a fixed axle and can be fitted with a running gear suspension with parabolic leaves.

### JOSKIN ROLL-OVER BOGGIE

Thanks to their design, the double-axle vehicles with Roll-Over boggie offer an extra suspension system of the wheels and a larger contact surface with the ground. The boggie 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 +/- 240mm).

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

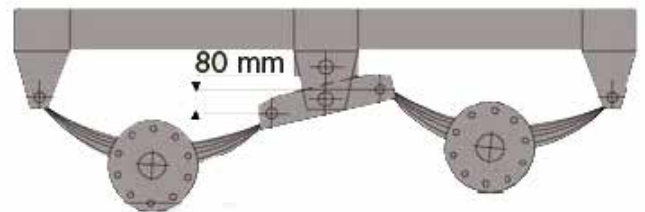


JOSKIN assembles its own boggies, thereby offering personally adapted boggies to suit to your vehicle.

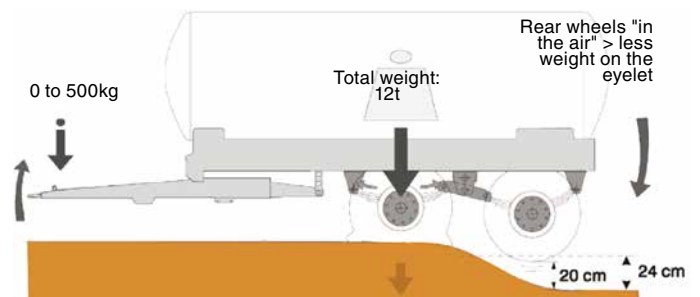
The distance between the leaves and the axle square are elements that can be adapted to each machine.

Moreover, all JOSKIN boggies are bolted and adjustable.

### TANDEM/TRIDEM: DESCRIPTION OF A TRADITIONAL TANDEM WITH RODS



- Low cost
- Low clearance ( $\pm 8 - 10\text{cm}$ )
- Higher traction needed:
  - more hp needed
  - increased consumption
- Low obstacle clearance potential



- The weight of the whole vehicle is supported by one single axle!
- Wheel and axle overloading
- Maximum leaf crushing
- Too high strains on leaf supports, axes, etc.

In order to lessen the impact of these elements, JOSKIN has developed its own hydraulic running gear: Hydro-Tandem + Hydro-Tridem.





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

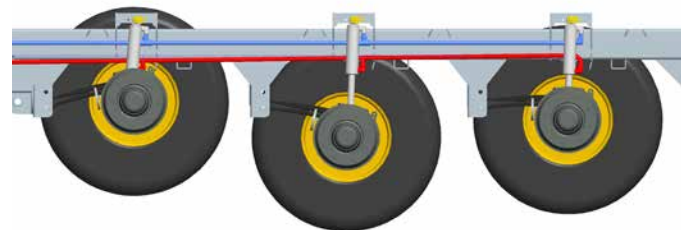
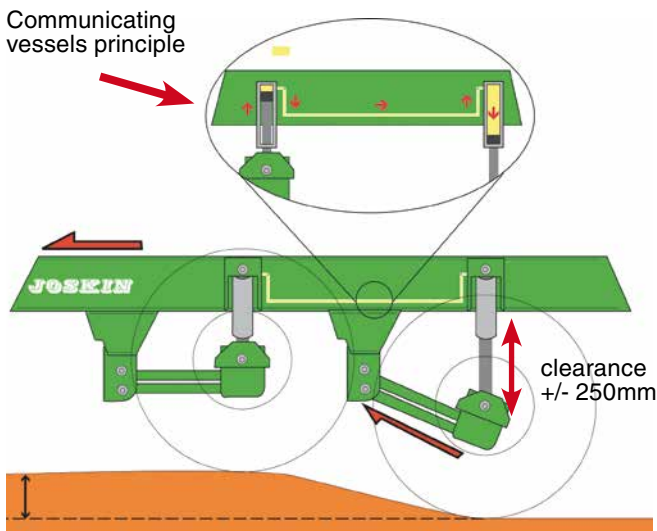
Simplicity, clearance and stability: these are the three key characteristics of the Hydro-Tandem/Hydro-Tridem running gears. They combine the following advantages: the axles can easily be pulled over obstacles and they are semi-independent (double-axle). That is why it allows a significant clearance (up to +/- 250mm).

Given the conception and construction of the JOSKIN Hydro-Tandem/Hydro-Tridem, vehicles have a very large ground contact surface. The ground compression is largely reduced and the ground structure is therefore better protected.

The stability of the vehicle will therefore also be significantly improved. Each axle is pulled by leaves attached to a fixing element which is located ahead of the axle.

Four or six hydraulic cylinders are placed two by two or three by three on both sides of the chassis. The cylinders 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 both sides of the vehicle ensures a certain clearance. The vehicle can thus always stay in a perfect horizontal position behind the tractor while driving. This explains why it is less likely to incline when driving in bends.

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



# RUNNING GEARS

## Steering Axles

To improve 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 more or less 15° on each side of the front tyre axis.

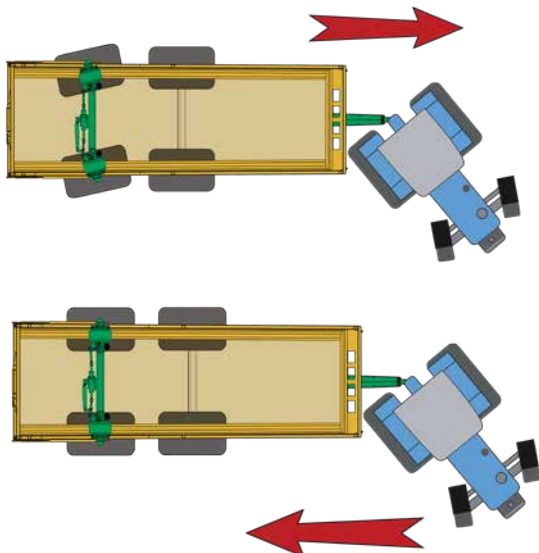
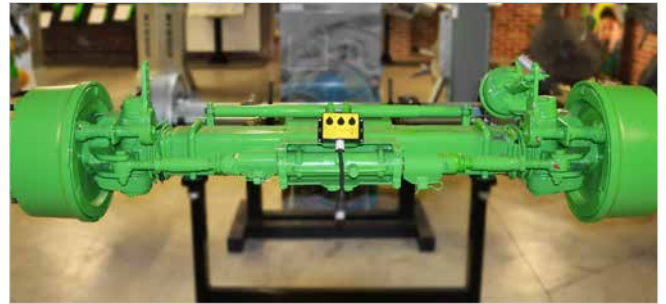
To drive on the road (> 15km/h) or to reverse, an ultra-powerful hydraulic locking device perfectly aligns the running gear with the front axle and makes the carriage safe to use. Two shock-absorbers stand for the stability of the free steering axle by preventing too significant vibrations.



*Free steering axle*

### DOUBLE FREE STEERING AXLE (STEERING WHEN 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!





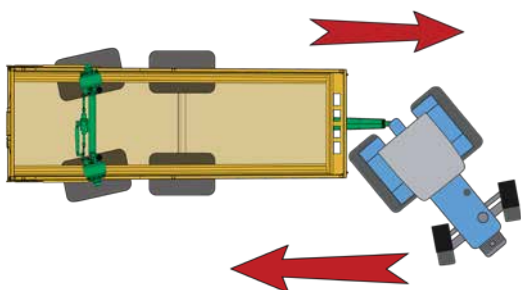
## SELF STEERING AXLE(S) (STEERING WHEN DRIVING FORWARD AND REVERSING)

The self steering axle is an important safety component as it keeps your vehicle in the tractor driving line. The 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 axle cylinder 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, via the sensor cylinder, the hydraulic circuit operating the steering cylinder. The system is balanced by the compensated cylinders 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.



Self Steering Axle



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

The electronic steering systems also use hydraulic cylinders 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 the other systems, the electronic steering system adapts the angle of lock of the steering in proportion to the speed. The trailer is therefore stable during road transportation and remains particularly easy to handle during manoeuvres.

Advantages of the compact electronic system:

- manoeuvrability and stability (in case of speed increase, lowering of the degree of the steering angle and locking at 50km/h);
- no effort between the tractor and the vehicle, especially when reversing;
- possibility to manoeuvre the trailer so as to get out of a complicated situation thanks to a control box in the cabin (option).



# JOSKIN

## AFTER-SALES SERVICE



## Automated Storage Systems

JOSKIN has understood that the after-sales service is a duty, not only for each representative or dealer, but also for the manufacturer, first of all for the user's satisfaction, and in the second place, for the future development of the products. Thanks to a centralized stock for all Europe, located in the centre of a European road interchange, and given the current efficiency of the (accelerated) parcel delivery services, JOSKIN offers a quick and quality after-sales service to its customers.

The current used system of QR codes provides satisfaction to our partners and customers. Combined with the individualized spare parts book, these stickers allow the customer to make sure the parts he got corresponds to the reference he found in his nomenclature.

Today, there are two automated storage areas for the spare parts in Soumagne. The first one, which is fully automated, is active since July 2014 and houses large spare parts. With a volume of 28.000m<sup>3</sup>, this space allows a optimal management of the stocks and therefore a faster response to the demand! The second one includes 21

automated carousels for small spare parts. These installations respect JOSKIN's aim, which is to always have all spare parts in stock so as to guarantee a quality after-sales service.

Moreover, JOSKIN promises to supply the spare part within 24 to 48 hours after the order has been taken in order to reduce wastes of time, and therefore of money, that a defective part could cause in a farming concern.



Automated Storage Area of 28.000m<sup>3</sup>

# JOSKIN

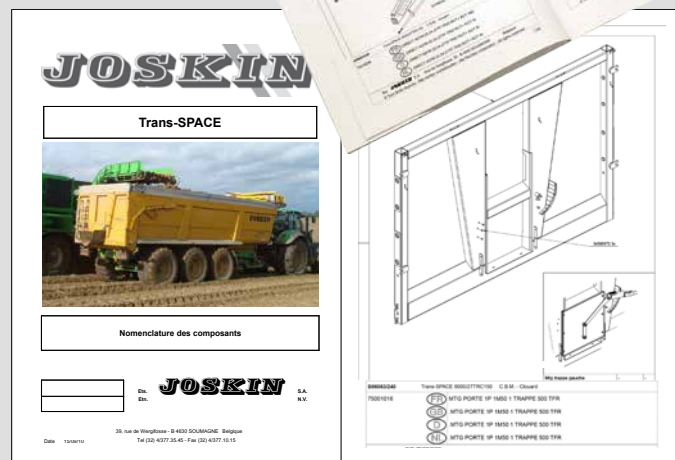


## Parts Book

Since 1996, JOSKIN has been delivering each vehicle with an individualized parts book, which allows to easily identify and efficiently supply the spare parts for life. It is the very expression of the Group's precision.

This book only contains the components used for the fabrication of the machine. They can easily be identified thanks to the detailed plans of each assembly, which allow to order the part to be replaced with the greatest accuracy.

Furthermore, JOSKIN has filed the used components since 1984 and will always supply you the appropriate spare part. The individualized parts book, far from being a luxury, is the key of a good lifetime service but also the warranty of a longer lifetime of your machine.



## Assistance service

Next to the after-sales service, JOSKIN also has its own assistance service. It includes technicians who roam the roads in order to provide constant advice and support to dealers.

In order to constantly improve its assistance service, JOSKIN is regularly organizing trainings on its site of Soumagne. Their aim is to prepare in the best possible way the actors on the ground

who will be in charge of maintaining or repairing your machines. Given the constant evolution of the machines and the addition of new technologies or new products, they are indispensable and aim at updating technicians' knowledge.



# JOSKIN



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Your local JOSKIN partner

