

» **SAMSON PG II** 3-AXLE SLURRY TANKERS



- growing together

A large green Samson 3-axle slurry tanker is shown in a field. The tanker has a large cylindrical tank with the 'Samson' logo on the front. It has three axles and large tires. The background shows a cloudy sky and some trees.

SAMSON 3-AXLE PG II slurry tankers

With the 3-axle slurry tankers, SAMSON AGRO has developed a series of field slurry tankers of very high capacity and quality. The series additionally offers many new exciting functions designed to make it an attractive choice for many years to come. The series was launched by SAMSON AGRO for the 2014 slurry season.

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As the name implies, this slurry tanker has been developed primarily for driving in the field where it is filled from a slurry transport trailer or a field buffer container. In this way less time is spent on road transport and more time on field work. This gives a more rational operation, both in terms of the amount of slurry that can be applied within a given period and in terms of fuel consumption.

The large 3-axle PG II slurry tankers are a natural result of the increasing competition and therefore higher requirements for efficiency improvements in agricultural production. The individual farms now also produce larger quantities of slurry which means that the slurry has to be transported over longer distances to be used. The use of trucks to transport slurry has therefore increased in recent years; not least because the authorities in the different countries are imposing ever stricter regulations

on the use of agricultural machinery on public roads, both for safety reasons and because of the wear and tear on roads. The new field slurry tanker from SAMSON AGRO therefore fulfils many of the professional user's requirements for efficient and hard-wearing slurry application equipment. The PG II slurry tankers are available in three sizes: 27, 31 and 35 cubic metres (PG II 27, PG II 31 and PG II 35).

New construction

The new PG II slurry tankers from SAMSON AGRO have a very simple but robust construction with hydraulic suspension on the drawbar that can absorb the shocks that propagate to the tanker from the powerful tractors needed to pull them.

The tank is placed horizontally on two strong through-going profiles. The tank is also supplied with three anti-surge partitions for improved stability, also when carrying smaller loads. This type of construction gives a very strong and stable tanker that allows faster driving speeds, increasing the amount of slurry that can be applied within a given period.

Even when the vehicle is on level ground, the sloping floor construction ensures optimal flow to the centrifugal discharge pump at the front end of the slurry tanker.

New discharge pump

SAMSON AGRO has developed a completely new high-capacity discharge pump. The pump is centrifugal and of simple construction. There is no contact between the rotating blades and the casing. The pump can therefore cope with all forms of foreign objects including stones, bits of metal and plastic and is characterised as being particularly robust and requiring very little maintenance. The pump has a very high capacity of up to 15,000 litres per minute. This ensures that the full capacity can be utilised even with the widest booms, also at low engine speeds. A reduction gear is an optional extra if a lower pump capacity and a reduced diesel consumption is desired.



New pump tower

The new pump tower has a very compact design. The reflux pipe, hydraulic hoses, etc., are now better integrated inside the pump tower and therefore better protected. The pump tower consists of only two moving parts compared with three parts in the previous versions of the SAMSON AGRO pump towers. The new parts are very flexible, making the operation of the pump tower very fast and easy. The pump tower is also fitted with a double telescopic extension which makes it more compact while not compromising on reach. The new construction of the pump tower makes it easier to empty covered slurry lagoons and other slurry stores that are not easily accessible.

Working lights (optional extra) are also fully integrated in the pump tower, ensuring a perfectly lit working area around the pump tower.

A camera (optional extra) fitted underneath the pump tower is another new feature. It ensures a good view for the driver during filling and makes it very easy to fold the pump tower back into place once the tank is full. The driver can oversee the operation without the need to turn around in the seat. The long working days in the slurry season are in this way made more comfortable.

The diameter of the filling pipe is now 30% larger than on SAMSON AGRO's existing pump tower. The hydraulics of the pump tower have also been optimised in order to increase the capacity of the filling pump.



The pump tower is now more compact. The 6-inch reflux pipe is integrated into the pump tower. It now has a telescopic function giving it a longer reach.



The new pump tower is more flexible, making the operation of the pump tower easier when emptying covered slurry lagoons where you navigate through small openings, or when emptying underground slurry stores.

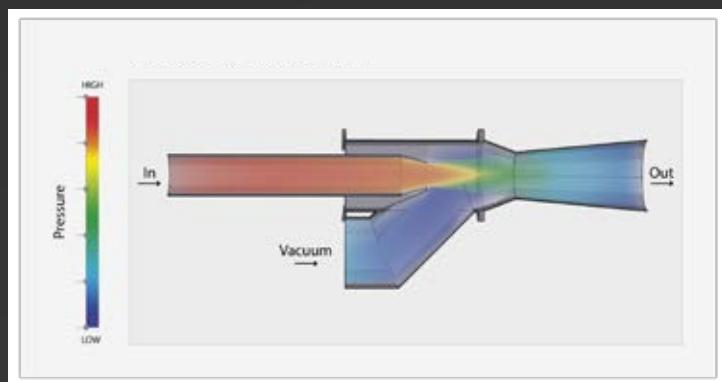
New revolutionary **Ejector**

SAMSON AGRO has developed a new powerful ejector-vacuum pumping system (simply called the ejector in the following). This is a robust pump that can pump any kind of liquid, needs very little maintenance, has very low operating costs and does not lose its effect over time.

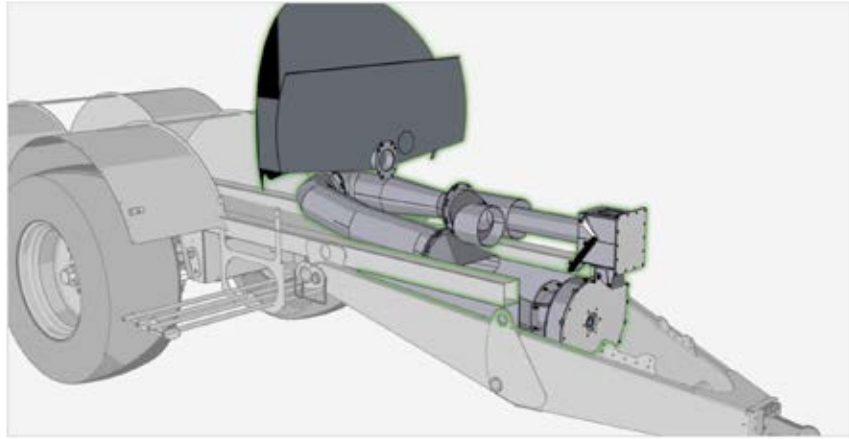
The ejector uses the so-called Venturi effect, which is named after the Italian physicist Giovanni Battista Venturi who described the effect back in the 19th century.

In simple terms, the Venturi effect is the acceleration of a fluid when it is compressed. This takes place, for example, if a fluid carried in a pipe has to go through a narrower section. In the narrowed part the velocity of the fluid will increase and a vacuum will be built around the fluid.

The SAMSON AGRO ejector is a so-called inline ejector, where the construction minimises flow losses and optimises the creation of a vacuum. This type of ejector is a well-recognised pumping technique within the maritime and offshore sector. The simplicity and robustness of the system also makes the ejector very handy when very difficult fluids need to be pumped.



SAMSON AGRO Ejector vacuum system



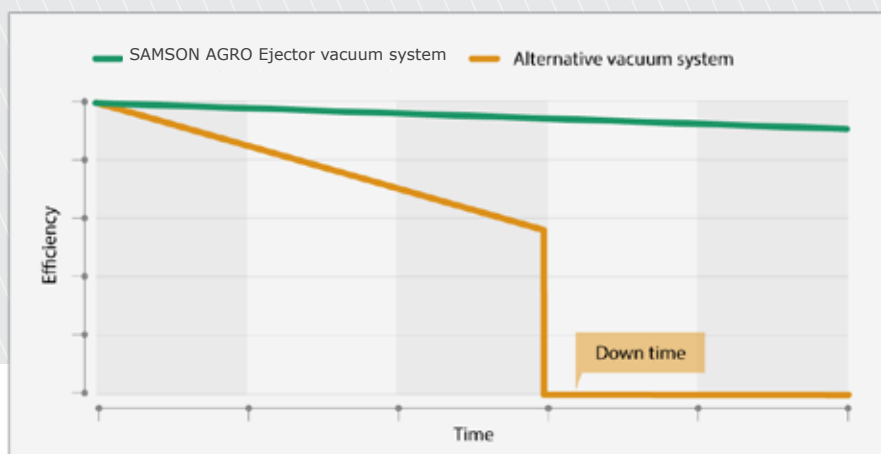
Sketch SAMSON AGRO's ejektor

More than just an ejector

In order to drive the SAMSON AGRO ejector, a small volume of slurry needs to be retained in the slurry tanker. The slurry is retained in a reservoir within the tanker. If the ejector is not used, this retainer function can be disconnected. The ejector can be used for filling the tanker under its own power via a valve at the side of the tanker or for vacuum attachment of centrifugal pumps to either the fixed filling pump, the SAP or pump tower. The use of centrifugal pumps results in a higher performance of the filling system. The ejector is fitted with a safety valve that ensures that the flow of slurry is only one way with no reflux.

No reduction in pump effect

Since the ejector does not have any moving parts, there is very little wear and tear. Even when slurry contains a lot of foreign objects, these will have free passage through the ejector. This means that the high capacity of the ejector will be maintained even after many years of heavy use. There is no need for regular renovations or repairs, which are normal practice for other pumping systems.



Advantages of the new SAMSON AGRO ejector

Foreign objects:

- Copes well with all forms of foreign objects in the slurry: stones, bits of metal, plastic, wood and wire/string from straw bales
- Needs no stone trap or slicers for chopping the slurry and foreign objects
- No unplanned stoppages or regular maintenance because of sharp objects in the slurry

Pump effect:

- Very high effect. Since there are no vacuum restrictors in the system, the ejector is capable of building a very high vacuum; under optimal conditions down to -0.9 bar. This means that emptying even from deeper stores is no problem
- Maximum filling capacity is up to 6,000 litres per minute in water at a lifting height of 1 m. Filling capacity will in practice depend on the filling method used, viscosity of the slurry, lift height, length of hose and hose diameter
- No risk of pumping system overheating. When filling at very high vacuum, there are no moving parts that can be worn or damaged and therefore result in reduced capacity
- Constant performance practically throughout the lifetime of the tanker

Inline-ejector principle:

- The tank on the vehicle is not exposed to a vacuum. This ensures a light construction
- No vacuum in the tank means that the slurry does not expand during filling and ensures that the tank is 100% full when filling has stopped
- No complicated valves and rubber balls for airing the tanker
- Quick priming of centrifugal pumps since only the pipe will be under vacuum and not the tank. This ensures a rapid start of the filling process
- Inbuilt safety valve. The valve ensures a one-way flow of slurry and no reflux. This prevents the slurry from running backwards and out of the filling system

Ejector:

- Simple system of pipes made from S235 steel. This ensures a high resistance to wear and a low weight
- Low unladen weight of approx. 150 kg
- No mechanical moving parts. This prevents wear and tear and the risk of broken parts
- No risk of incorrect operation or adjustments that damage the filling system

Service and maintenance:

- No topping up of lubricants or coolants needed
- No daily maintenance or inspections needed
- No regular repairs of the pumping system needed
- Only one annual clean and inspection needed





» Several Filling options

PG II slurry tankers can be filled in several ways. These filling options can be combined in different ways. Please check the price list for the different combinations. But the different options are:

» EXTERNAL FILL



External fill via
a funnel

» PUMP TOWER

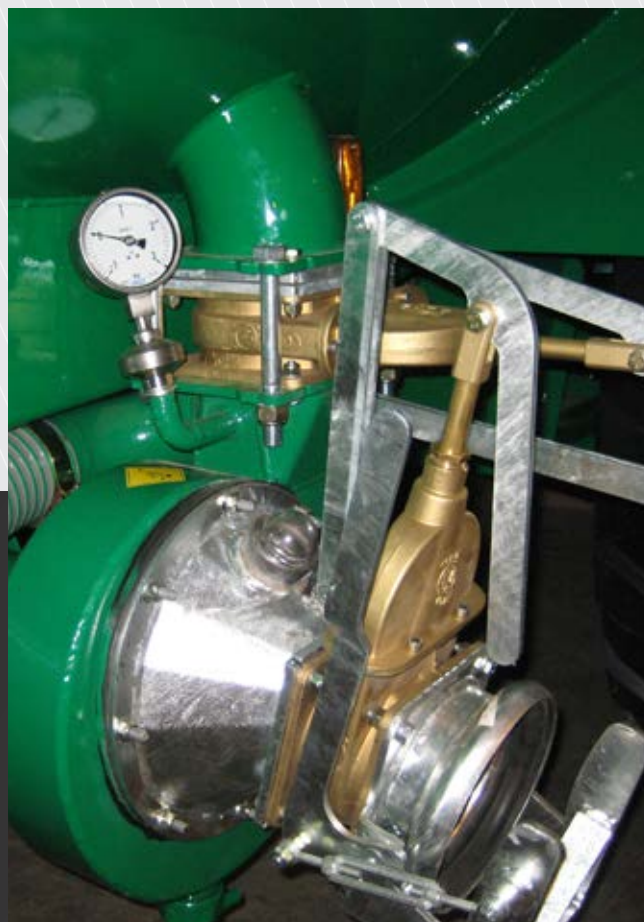


Pump tower with
telescopic arm

» EJECTOR



Hose connector



Hose with pump



Single-articulated SAP arm (SAP1) with or without pump

» EJECTOR



Double-articulated SAP arm (SAP2) with or without pump



Direct filling from underground storage of slurry



Filling by filling funnel

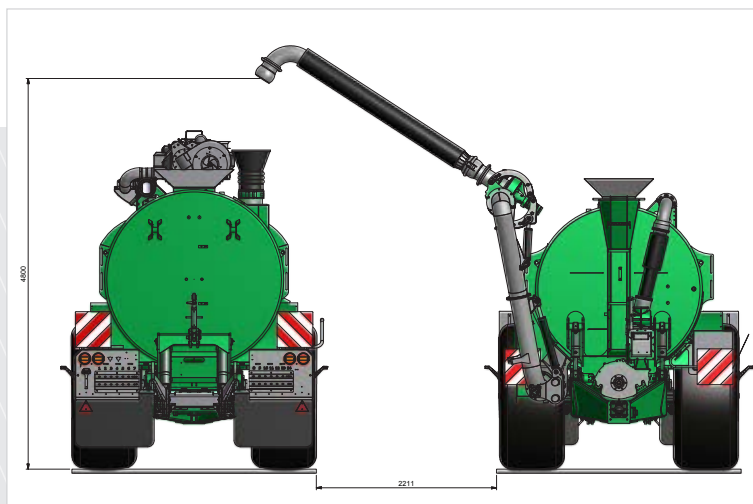


SAP2 with a filling hose mounted

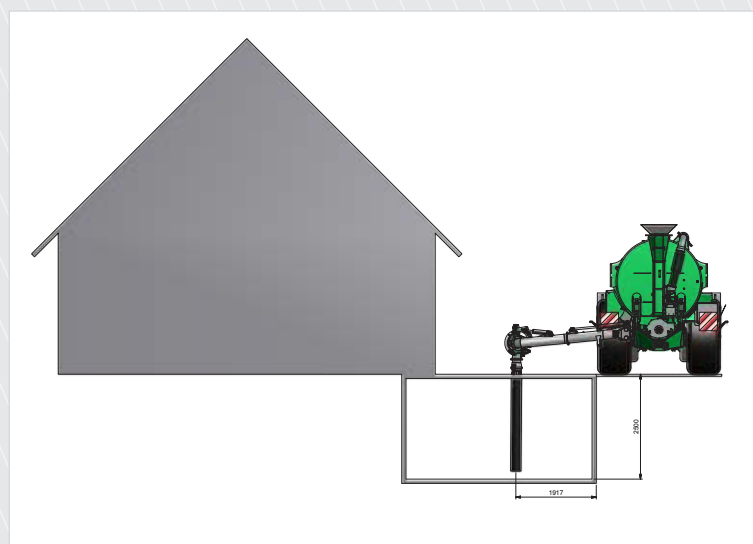
» Completely new filling possibilities with an ejector

The ejector pump can be combined with different filling solutions. Filling can take place via a hose connector or a hose and pump on the side of the slurry tanker, via a single-articulated SAP arm (SAP1) with or without a pump, via a double-articulated SAP arm (SAP2) with or without a pump, or via a pump tower with a suction plug/ connection.

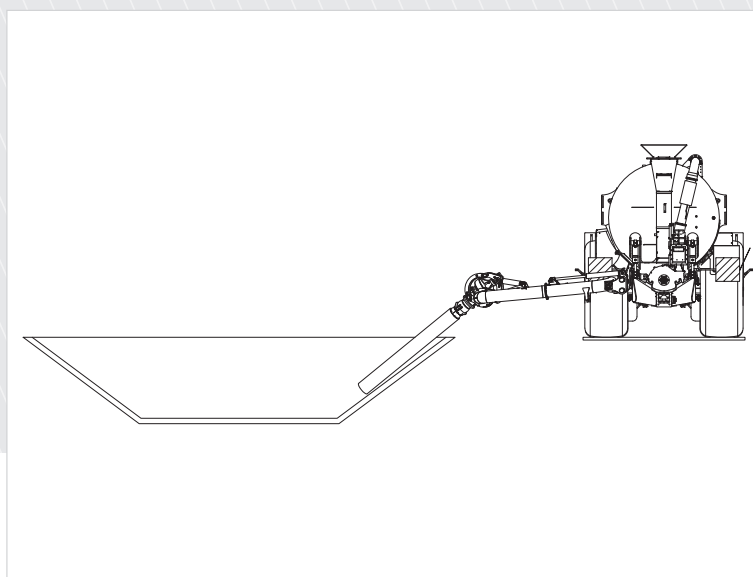
The SAP2 arm on the PG II slurry tanker enables the user to empty other tankers or trucks not equipped with a discharge pump. The user can also empty not easy accessible underground slurry stores or lagoons.



Emptying another slurry tanker or truck with slurry



Emptying a slurry storage under the stable



Emptying a slurry lagoon





» SAMSON AGRO- Control systems

SAMSON AGRO has expanded the product program of controlling systems, whereby the customers are offered both technical simple controlling systems with only few hydraulic functions and up to more comprehensive controlling systems with lots of hydraulic functions.

You can read more about these different controlling systems in separate information materials.



The well-known **SlurryMaster6000** control system from SAMSON AGRO.

Markedsforskelle på udstyret

Please be aware that on the different markets there may be variations in what is defined as standard equipment and what are optional extras for PG II slurry tankers.

This is SAMSON AGRO's attempt to adapt to the different traditions or requirements for slurry application equipment on the individual markets. There may also be a difference in the range of new equipment launched on the different markets. Finally, the selection of, for example, the SlurryMaster control system will have an effect on the type of equipment and optional extras that can be added. But all this will be explained in the price list.

» Standard

1. Adjustable suspended drawbar with jack

A new feature of the PG II slurry tankers is an adjustable drawbar with suspension. The drawbar absorbs shocks from both tractor and trailer, giving a more even ride. It also increases the lifespan of the slurry tanker since it reduces the stress on the chassis. The height of the drawbar can be adjusted to ensure that the coupling between tractor and trailer is optimal at all times.

When the slurry tanker is being filled the drawbar can be adjusted to ensure the tank remains in a horizontal position, thus allowing it to be fully filled. For emptying, the front end can be lowered to improve the flow to the pump at the front. An integrated hydraulic jack on the drawbar makes for easy hitching and unhitching when the tanker is parked.

2. BPW wheel axles

Wheels are mounted on specially designed, strong BPW axles with integrated speed sensor as standard. The brakes

(410x180 mm is standard) are dimensioned to comply with even the strictest legal requirements.

The large 15-degree steering angle of the axles combined with the compact 900 mm wide chassis results in a very manoeuvrable slurry tanker. This reduces the damage to plants while driving in the field and the wear on tyres when driving on the road.

The new steering system on the axles consists of a minimum of moving parts which results in fewer lubrication points and less maintenance.

3. Very large wheels

In order to reduce rolling resistance and diesel consumption and increase the tyre footprint area, PG II slurry tankers are supplied with very large wheels with a diameter of 182 cm. This reduces the tractive force needed and extends the lifespan of the tyres. It also minimizes damage to plants and soil compaction.



Drawbar suspension gives optimal driving comfort. The height can also be adjusted.



German BPW has supplied specially designed wheel axles for PG II slurry tankers.



The large wheels reduce rolling resistance.



4. LED Lights, mudguards and PTO

All PG II slurry tankers are fitted with LED lights that are highly reliable and require a minimum of maintenance. Mudguards are also standard on all slurry tankers to avoid splash from tyres onto implements.

A Walterscheid PTO drive shaft is standard on all tankers. This has the advantage of long service and maintenance intervals.

5. Hydraulic coupling

There is space for as many as 14 hydraulic couplings and central lubrication points on the back of the slurry tanker. The couplings are placed on each side of the slurry tanker under the rear lights to avoid the need to get in between tanker and implement when attaching hydraulic hoses. They are of the push-pull type which means that hydraulic hoses can be removed or attached by a simple push-pull mechanism. The 14 couplings are numbered to avoid errors when connecting hoses. The couplings have been turned 45 degrees towards the ground to avoid sharp bends in the hoses.



LED lights and mudguards are standard on PG II.



Coupling functions between tanker and tool are improved using the new push-pull mechanism.

» **Optional** extras and accessories



The new lift can lift up to 9 tonnes in a horizontal position and deliver a pressure of 5 tonnes.

6. Three-point lift

SAMSON AGRO has developed a brand-new three-point lift for the PG II slurry tankers. The lift has greater lifting capacity and lifting height. The higher lifting capacity meets the future requirements for larger and heavier implements. The improved lifting height ensures optimal clearance between the implement and the ground both when driving on the road and in the field. It will, for example, be easier to enter and exit fields without implements touching the ground.

The lift is no longer bolted onto the tanker. Instead it is welded to the chassis of the slurry tanker which means re-tensioning of the lift is no longer required and the construction more stable and solid.



The funnel is closed using a hydraulic slide valve to avoid surges and soiling of the vehicle during transport.

7. 10" rubber filling funnel with hydraulic shutters

As an optional extra, a 10" rubber funnel for external filling can be fitted. This meets the emerging requirement for a standard coupling on, amongst others, biogas-powered vehicles and other slurry transport trailers.

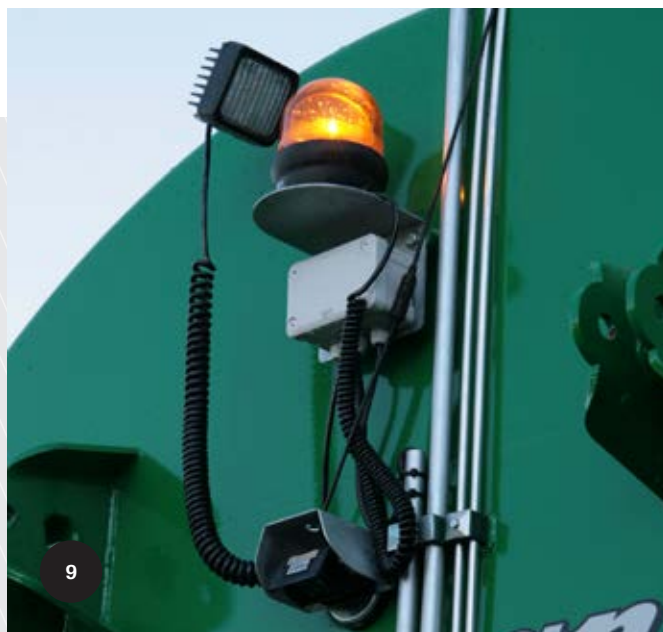
The funnel reduces the risk of spills during the filling process. The pipe from the funnel is led to the bottom of the tanker to minimise the degree of foaming during filling.



SAMSON AGRO's automatic tyre pressure regulation is a two-circuit system with shut-off valves in each wheel.

8. Tyre pressure regulation

The PG II slurry tankers can be fitted with an automatic tyre pressure regulation system to allow the driver to select different tyre pressures when, for example, changing from driving in the field to driving on the road. The pressure can also be adjusted according to soil and crop type. In this way crop damage and soil compaction are minimized. The compressor has a capacity of 3,300 litres per minute. The system is a two-circuit system with shut-off valves on each wheel. This has the advantage that there is only pressure on the turning parts when the pressure is adjusted. This minimizes the wear on these parts in the hubs.



Rotor beacons are used as a warning to prevent slurry tanker overflow.

9. Monitoring of external fill

A pressure sensor that monitors the external fill of the slurry tanker can be purchased as an optional extra. When the tanker is nearly full, the rotor beacon on the tanker is automatically activated. This warns the lorry driver to stop the pump before the slurry tanker overflows. The lorry driver can therefore do the monitoring from the seat in his cab.



This is why you have to buy a **PG II slurry tanker**

» Long lifespan

Strong construction

- The tank is made of 5 mm steel
- The tank is placed on two through-going supporting profiles
- The wheel guards are made of Domex 600 high-strength steel
- It has a fully-welded chassis
- A new anti-surge partition in the three sections of the slurry tanker ensure stability also at smaller loads
- Suspended adjustable drawbar able to absorb shocks and vibrations
- The wheels are positioned at the side of the slurry tank, which results in a low centre of gravity. This makes the construction more stable and less exposed to stress, extending the lifespan of the slurry tanker
- Can carry heavy and wide implements such as drip hose booms, grass disc injectors and black soil incorporators
- Less corrosion – strong surfaces on the inside and outside of the tank. The inside is epoxy-coated
- New durable ejector loading pump
- New optimised discharge pump

» High efficiency

High stability – faster driving and more loads per hour

- The wheels are positioned on the side of the slurry tank. This gives a low centre of gravity and allows for faster driving on the road and in the field
- Large 182 cm diameter wheels reduce rolling resistance
- Hydraulic suspension – stable driving
- A new optimised high-capacity unloading pump
- SM 80 ball hitch is standard

Effective workhorse

- Can use a wide range of implements such as drip hose booms, grass disc injectors and black soil incorporators
- New, more powerful lift with increased capacity and greater lifting height
- Numbered quick-release hydraulics couplings of the push-pull type between tanker and implement
- Rapid switches between implements
- New flexible pump tower that can be easily navigated into the openings on slurry lagoon covers
- Increased pump tower capacity
- Driver can remain in the cab during the filling process when using pump tower

Effective filling options

- Via pump tower
- Via filling plug/connector
- Via hose with a pump
- Via SAP arm (single- or double-articulated)



Effective ejector fill pump

- Large capacity
- Can pump even difficult, viscous or nonuniform fluids
- Does not lose its effect over time

Effective centrifugal pump for unloading

- The pump is instantly ready for use compared with a vacuum pump which needs time to build up a vacuum
- Can cope with many different types of liquid – results in fewer stoppages

Safety

- Specially designed BPW axles
- Stronger brakes, 410x180mm
- Electronic wheel steering
- Hydraulic supporting legs
- LED lights
- Rotating beacon and LED working light at the back

» Optimal application of slurry - optimal yield

- The centrifugal pump gives a more precise and consistent application along the entire width of the implement compared with a vacuum pump
- The weight of the slurry tanker is relatively low for its size, which minimizes crop damage and soil compaction
- The slurry tanker is made up of sections and the rearmost section is emptied first. This ensures high

weight transfer to the tractor and minimizes the risk of wheel spin and damage to the field

- Because of the high loading and unloading capacity, there is a greater chance of being able to apply the slurry and its nutrients at the most suitable time for crop uptake and in the most suitable weather conditions

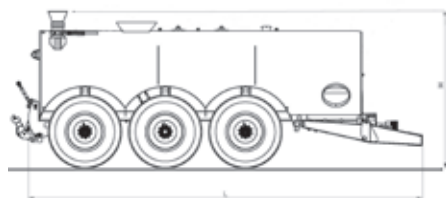
» Low energy consumption (diesel)

- The tanker has a relatively low weight for its size
- The tanker is emptied from the back first
- There is an effective centrifugal pump for unloading. The pump is immediately ready for use compared with a vacuum pump which needs some time to build up pressure

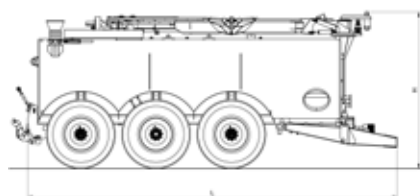
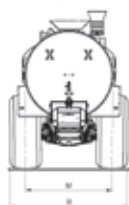
» Low maintenance costs

- Ejector has very low maintenance costs
- The centrifugal pump is made of standard components and replacements are available everywhere
- The unloading pipe is galvanised and bolted onto the tanker so that it can be easily modified and replaced
- The Danfoss PVG32 valve block is standard

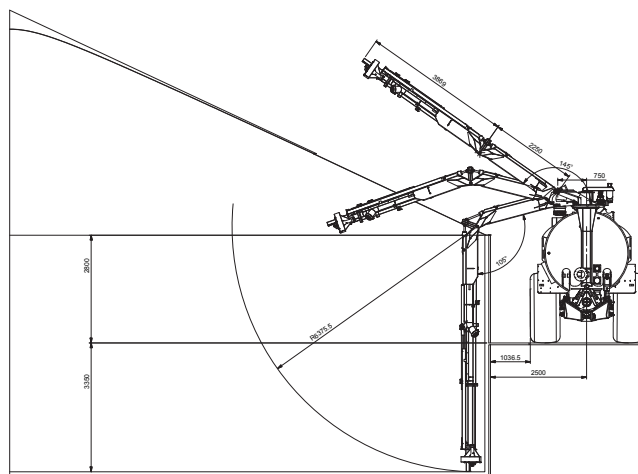
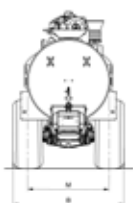
» TECHNICAL SPECIFICATIONS



Basic model 1 – without pump tower



Basic model 1 – with pump tower



Reach of PG II

Measurements in mm/Tanker size		PGII 27	PG II 31	PG II 35
Length	L	9815	10815	11815
Tank diameter	Ø	2200		
Height*	H	4000		
Alliance, 800/60R32	B	3000		
Nokian, 800/60R34	B	3000		
Hub length	M	2150	2150	2150
Unladen weight for basic model**, kg	M	12385	12750	13125
Gross volume, cubic meters***		27,2	30,9	34,5

*Height depends on accessories; however max height 4 m.

**Weight of accessories:

Pump tower 1.275 kg

Lift (Excl. the integral part on tanker) 350 kg

*** When retention of slurry to ejector subtract 0.5 cubic meters