



Wheel loaders

TORION

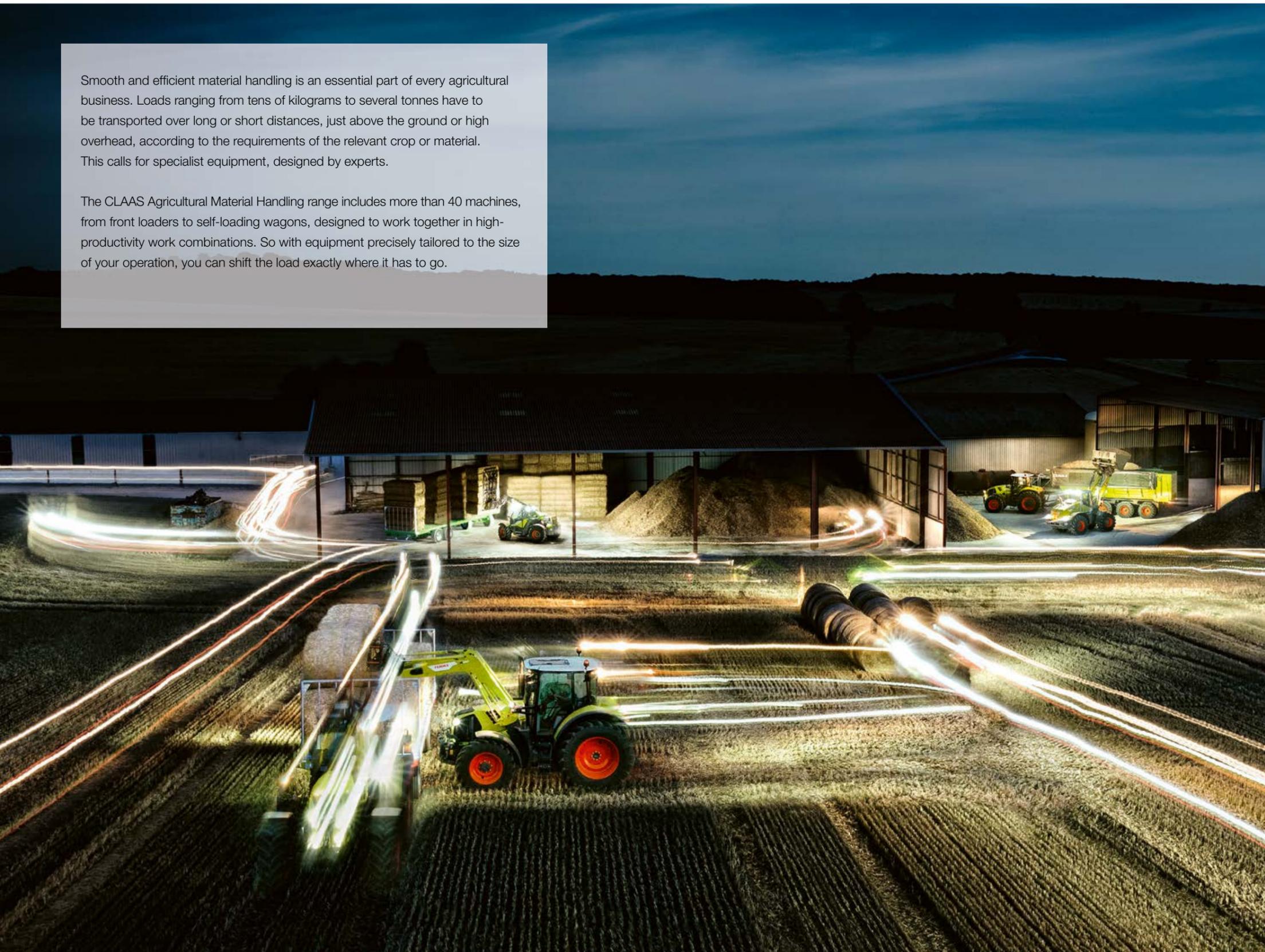
**CLAAS**



# Lightens the load – CLAAS Agricultural Material Handling.

Smooth and efficient material handling is an essential part of every agricultural business. Loads ranging from tens of kilograms to several tonnes have to be transported over long or short distances, just above the ground or high overhead, according to the requirements of the relevant crop or material. This calls for specialist equipment, designed by experts.

The CLAAS Agricultural Material Handling range includes more than 40 machines, from front loaders to self-loading wagons, designed to work together in high-productivity work combinations. So with equipment precisely tailored to the size of your operation, you can shift the load exactly where it has to go.



TORION wheeled loader



SCORPION telehandler



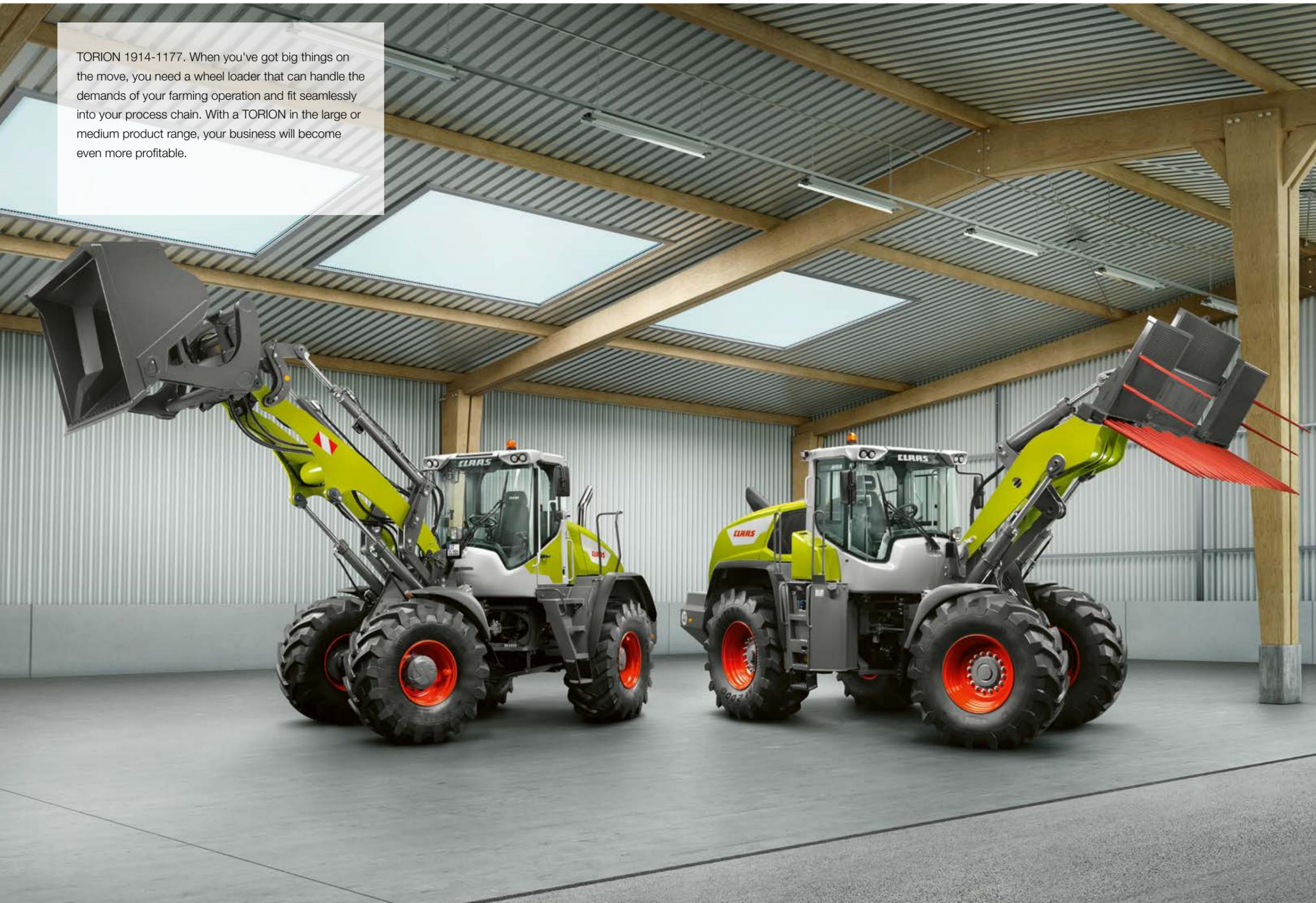
Front loader



CARGOS loader



TORION 1914-1177. When you've got big things on the move, you need a wheel loader that can handle the demands of your farming operation and fit seamlessly into your process chain. With a TORION in the large or medium product range, your business will become even more profitable.



<b>CLAAS Agricultural Material Handling</b>	<b>2</b>
<b>TORION 1914-1177</b>	<b>4</b>
Technology in detail	6
<b>CLAAS POWER SYSTEMS</b>	<b>10</b>
Engine	12
Cooling system	14
Ground drive	16
Running gear	20
<b>Loading system</b>	<b>22</b>
Mast and kinematics	24
SMART LOADING	26
Working hydraulics and hydraulic control circuits	28
<b>Cab and comfort</b>	<b>30</b>
Design	32
Display and operating instruments	34
Control terminal	36
Steering	38
Camera and safety systems, lighting	40
Servicing	42
<b>TORION 956 / 644 / 537 SINUS</b>	<b>44</b>
<b>TORION 639 / 535</b>	<b>62</b>
Electronics expertise	90
CLAAS Service & Parts	92
<b>Features</b>	<b>94</b>
SMART PUSH	96
Attached implements	98
<b>Specifications</b>	<b>102</b>

To find out more about the new TORION:

[torion.claas.com](http://torion.claas.com)

# TORION 1914 / 1812 – the large series.



- 1 Liebherr engine with up to 168 kW (228 hp)
- 2 Split-power CMATIC drive
- 3 Optimum weight distribution provided by unique engine mounting position
- 4 DYNAMIC COOLING: Electronic control of fan speed and reversible fan
- 5 Load-sensing system with up to 234-l capacity
- 6 3rd and 4th additional control circuits available
- 7 Choice of agricultural or Z-kinematics
- 8 SMART LOADING driver assist systems
- 9 Modern, ergonomic cab, joystick with electronic pilot control
- 10 7" display with touchscreen function
- 11 Rear camera
- 12 Choice of agricultural tyres optimised for different operating requirements
- 13 Fast, straightforward maintenance

### Lights concept.

Choice of LED or halogen lights for comprehensive 360° illumination around the machine.

- A Four LED lights on front of cab roof
- B Light mount for front road driving light and indicators
- C Two LED lights at rear of cab
- D Two LED lights at right and left at rear of cab
- E Rotating beacon
- F Four LED or halogen lights at rear on bonnet
- G Tail lights, reversing lights and indicators

# TORION 1511-1177 – the medium range.



- 1 DPS engine with up to 123 kW (167 hp)
- 2 Hydrostatic VARIPOWER drive system
- 3 Optimum weight distribution provided by unique engine mounting position
- 4 DYNAMIC COOLING: Electronic control of fan speed and reversible fan
- 5 Load-sensing system with up to 170-l capacity
- 6 3rd and 4th additional control circuits available
- 7 Choice of P- and Z-kinematics
- 8 SMART LOADING driver assist systems
- 9 Modern, ergonomic cab, joystick with electronic pilot control
- 10 7" display with touchscreen function
- 11 Rear camera
- 12 Choice of agricultural tyres optimised for different operating requirements
- 13 Fast, straightforward maintenance

### Lights concept.

Choice of LED or halogen lights for comprehensive 360° illumination around the machine.

- A Four halogen or LED lights at front of cab roof
- B Light mount for front road driving light and indicators
- C Two halogen or LED lights at rear of cab roof
- D Rotating beacon
- E Tail lights, reversing lights and indicators

# CLAAS POWER SYSTEMS (CPS) – TORION 1914-1177.

## Optimal drive for best results.

Equipment development at CLAAS means an ongoing effort for even greater efficiency and reliability as well as optimal profitability in the field.

In CLAAS POWER SYSTEMS (CPS), we have brought together top-quality components to create a drive system that is in a class of its own – one that always delivers the most efficient power when needed. CPS is ideally matched to the work system, featuring fuel-saving technology that quickly pays for itself.

Another key priority for the design of the CLAAS wheel loader was a seamless interaction between all elements of the drive system technology – to provide maximum power and safety and a long service life.



Delivers the power to make you more productive.



Clean exhaust.

The medium-sized TORION series is equipped with robust DPS four-cylinder engines, also meeting Stage IV (Tier 4) exhaust emissions requirements. Exhaust treatment is carried out by means of a diesel particulate filter (DPF) with integrated diesel oxidation catalyst (DOC) and SCR technology. Power ratings range from 103 kW (140 hp) to 123 kW (167 hp). Maximum output is available at an engine speed of 2,000 rpm.

Smart installation location.

The unique installation location of the engine, well back in the machine, has the effect of moving the centre of gravity rearwards and downwards. This means that the engine can also act as a counterweight, providing a high tipping load with no extra ballast.



Engine installation location in the TORION 1914-1177: Unique location of the engine and associated components for optimum weight distribution.

TORION	Engine output	
	kW	hp
1914	168	228
1812	143	195
1511	123	167
1410	114	155
1177	103	140

All the power you need.

Up for the challenge, whatever it may be. The two large models are equipped with powerful Liebherr four-cylinder engines, delivering 168 kW (228 hp) in the TORION 1914 or 143 kW (195 hp) in the TORION 1812, and developing maximum power at an engine speed of just 1,150 rpm. Both engines meet Stage IV (Tier 4) exhaust emissions requirements. Exhaust gas treatment is with SCR technology. A closed-circuit diesel particulate filter system is available as optional equipment.

Economical engine speed.

The low engine speed design concept provides more power for less diesel consumption. The engine, work hydraulics system and split-power CMATIC drive are electronically coordinated, so that in loading mode the engine is always running at optimum speed. The top ground speed of 40 km/h is reached at around 1,750 rpm, which, together with the lowered engine speed during idling, provides even greater fuel savings.



The "articulated tipping load" is defined as the load at the load centre of gravity that will cause the wheel loader to tip over the front axle, with the machine in its least favourable load-bearing position (most extended horizontally, wheel loader fully articulated).

According to ISO 14397-1, the load capacity may not exceed 50% of the articulated tipping load. This represents a safety factor of 2. The permissible load capacity is calculated from the formula:  

$$\text{load capacity (t)} = \text{articulated tipping load (t)} / 2$$

The maximum bucket size is calculated from the load capacity:  

$$\text{bucket size} = \text{load capacity (t)} / \text{material density (t/m}^3\text{)}$$



Cooling system for TORION 1914 / 1812



Cooling system for TORION 1511-1177

## Cooling according to the requirement.

The fan doesn't always have to be running at 100%. Lower fan speeds may well be sufficient in road transport or cruise mode. DYNAMIC COOLING detects the requirements of all the vehicle's cooling units, and uses thermosensors to adjust the fan speed electronically according to the requirement (100–1,050 rpm). This saves energy, and therefore fuel.

### Cooling units:

- Air-conditioning condenser
- Water cooler
- Intercooler
- Transmission oil cooler
- Hydraulic oil cooler
- Fuel cooler

## Automatic cleaning.

The reversible fan automatically clears particles of dirt and dust from the air intake surfaces. At regular intervals, the fan direction is reversed, and dirt in the area is literally blown away. The time interval for fan reversal is set conveniently on the terminal in the cab.

### How you benefit:

- Simple process for cleaning intake surfaces and the radiator
- Only minimal radiator soiling
- Long operating intervals
- Constant output



Anti-clockwise: Suction of intake air



Clockwise: Air is blown out



Dust and dirt removed from air intake surfaces and the radiator



## Clean air.

The cleaner the engine intake air, the higher the power delivered. If you work mainly in dirt-intensive environments, it is well worth having a pre-cleaner fitted, so that the intake air is pre-cleaned with an air filter cyclone. This significantly lengthens the maintenance interval for the air filter.

- 1 Conventional radiator sieve
- 2 Engine intake air pre-cleaner
- 3 Fine sieve for radiator



## Less dirt.

Air intake in the TORION happens via sieves located directly behind the driver's cab, where there is little exposure to dust and dirt. This reduces soiling of the fan vanes with straw, blades of grass and silage to a minimum. Large dust and dirt particles never get into the ventilation circuit in the first place. A fine sieve for the radiator provides extra protection against the radiator fins clogging up when the machine is operating in environments with particularly high dirt and dust levels. The combination of these measures significantly boosts cooling performance.

### How you benefit:

- Ample clean air supply
- Long operating periods, thanks to minimal soiling
- Reduced cleaning and maintenance outlay

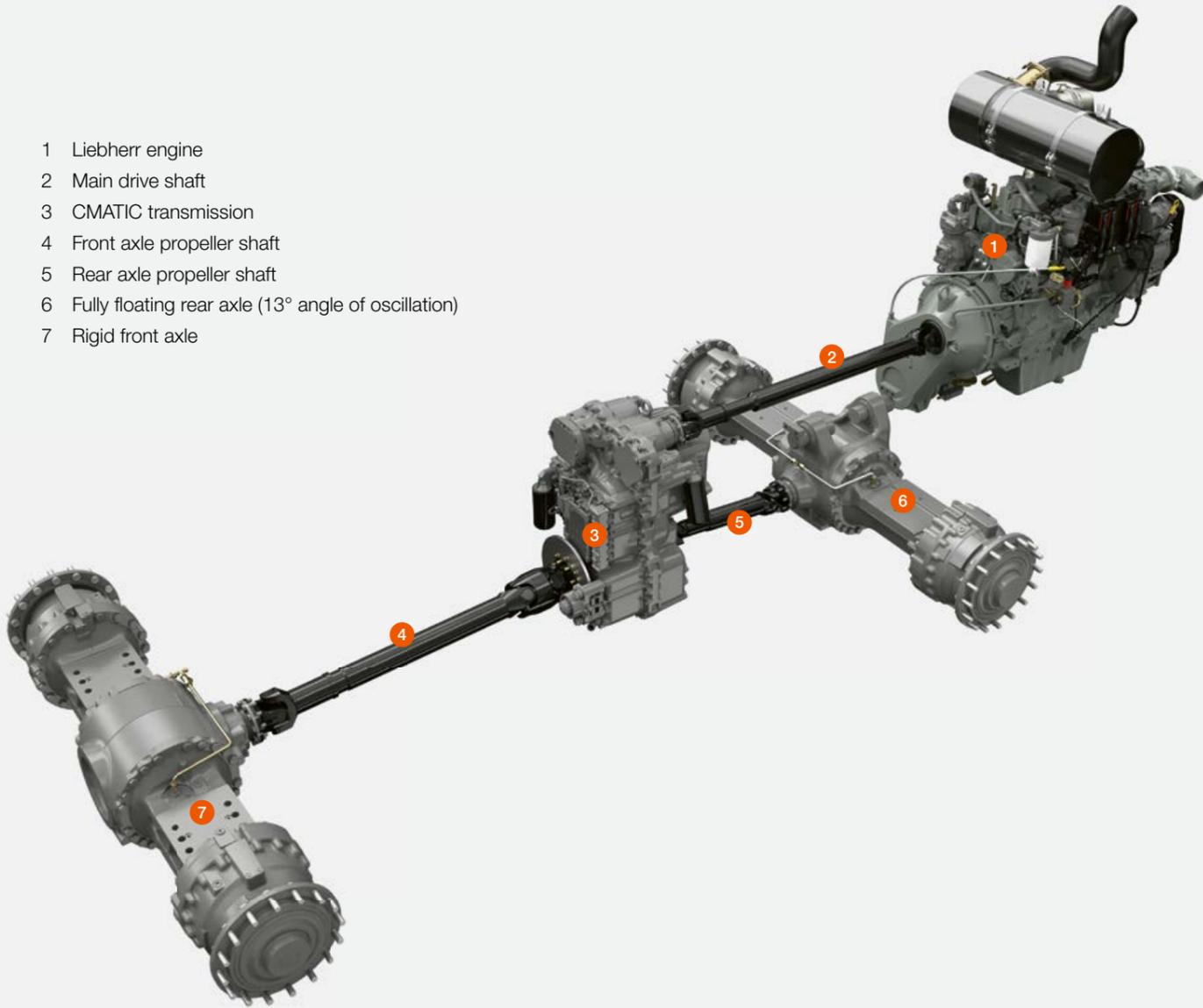


Fan speeds in the TORION (seen here: TORION 1914 / 1812) are continuously adjusted according to the circumstances



# Has the potential – CMATIC.

- 1 Liebherr engine
- 2 Main drive shaft
- 3 CMATIC transmission
- 4 Front axle propeller shaft
- 5 Rear axle propeller shaft
- 6 Fully floating rear axle (13° angle of oscillation)
- 7 Rigid front axle



## The best of both worlds.

The infinitely variable ZF transmission system in the TORION 1914 / 1812 successfully combines the benefits of hydrostatic and mechanical powertrains. The result is rapid, smooth acceleration in all speed ranges, with no gear changes or breaks in power transmission, and identical traction power in both directions.

## CMATIC equals efficiency.

Powerful acceleration, smooth deceleration: The CMATIC engine transmission management system displays its qualities in all conditions, and for all types of work. Manoeuvring loads on the clamp or picking up heavy bulk materials, for example, calls for maximum engine power delivered to the tyres. So in this case, force transmission is largely mechanical, providing outstanding efficiency and low fuel consumption. For transport operations, on the other hand – driving from the clamp to the biogas plant solids delivery point, or between the storage location and the transport vehicle – use of the hydrostatic component, with its smooth, continuous acceleration and self-locking braking action, provides a superbly comfortable ride.



## Drivers love CMATIC.

- Optimal acceleration and performance in load cycle
- Sensitive, agile driving characteristics
- Easy operation through user-friendly controls
- Engine and transmission management for maximum utilisation of available engine output
- Working at lower engine speeds for minimal fuel consumption

## Loading with kick-down function.

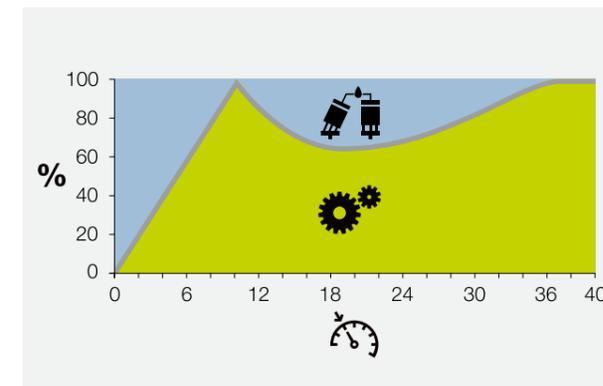
The kick-down function is perfect for loading operations with heavy material. As you approach the loading cargo, the machine is slowed from virtually any ground speed to a maximum of 8 km/h. Traction force adaptation is disconnected, and the drive torque increased. That means you have maximum thrust available for driving the bucket into the pile of material.

## Hydrostatic.

- Maximum thrust at lower speeds and lower engine speeds
- Progressive driving comfort

## Mechanical.

- Low fuel consumption at high ground speeds
- Quick acceleration



The perfectly coordinated combination of the hydrostatic and mechanical components maintains maximum efficiency at all times, in every speed range.

# Infinitely variable driving – VARIPOWER.

## Power with precision.

In the medium range of TORION machines, the VARIPOWER intelligent drive system makes the job easier. This infinitely variable hydrostatic drive offers outstanding driving characteristics and sensitive, precise driving at any speed, and the ability to set exactly the amount of thrust force required.

The engine and transmission management system provides optimum fuel efficiency and driving comfort, with no gear shifts, from 0 through to 40 km/h. Rapid acceleration is achieved in all speed ranges, with no noticeable breaks in propulsion. Speed and thrust force are automatically balanced and coordinated at all times.

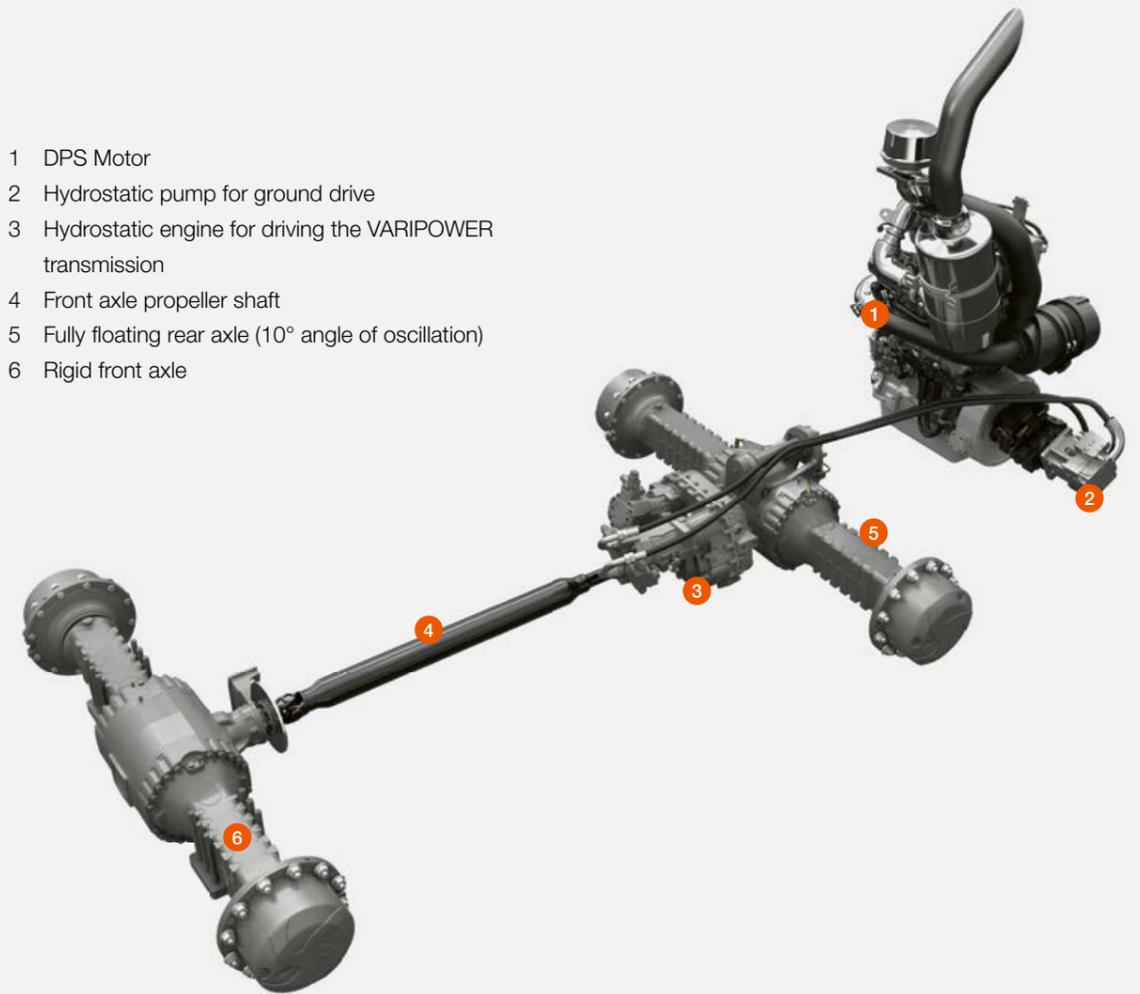


Setting precisely the power required is no problem with VARIPOWER

The TORION can be adjusted to suit any operating conditions with a choice of three speed ranges.

Speed range	Speed
F1	0–6 km/h
F2	0–16 km/h
F3	0–40 km/h

- 1 DPS Motor
- 2 Hydrostatic pump for ground drive
- 3 Hydrostatic engine for driving the VARIPOWER transmission
- 4 Front axle propeller shaft
- 5 Fully floating rear axle (10° angle of oscillation)
- 6 Rigid front axle



## Intelligent and economical.

At the heart of the VARIPOWER ground drive system is a variable displacement swash plate pump and two axial piston engines, in a closed-circuit configuration. At speeds of up to 16 km/h, both engines are in operation, delivering maximum thrust power for loading operations. At ground speeds of more than 16 km/h, the second engine is disconnected, for road travel with reduced fuel consumption. Reversal of the flow direction of the variable displacement pump provides identical driving performance in both directions (forward and reverse).



## Service brake with inching function.

A light touch on the brake/inching pedal causes a continuous progressive reduction in ground speed. Meanwhile, the engine speed remains the same. Fully depressing the brake pedal automatically reduces the ground speed down to close to zero, and activates the service brake (hydraulic pumped storage brake system with wet disc brakes). As well as reducing fuel consumption and brake wear, this technology allows precisely controlled driving at any engine speed.

## Engine brake with automatic control.

The large TORION 1914 / 1812 models have an automatic engine brake that can be activated when required via the drive system. This means that when the driver's foot is off the accelerator, the vehicle slows down and stops. As well as protecting the brakes and minimising wear, this additional engine retardation also optimises driver safety by preventing any excessive speeds on steep slopes and on downhill gradients.



## Parking brake at the push of a button.

The parking brake for the TORION is an electrohydraulically activated spring brake:

- TORION 1914 / 1812: On the transmission
- TORION 1511-1177: On the front axle

This provides reliable parking brake functionality, activated and deactivated manually by the driver with the push of a button. The button is within easy reach on the operating panel, providing a simple and reliable control mechanism.

## Articulated joint with 40° articulating angle.

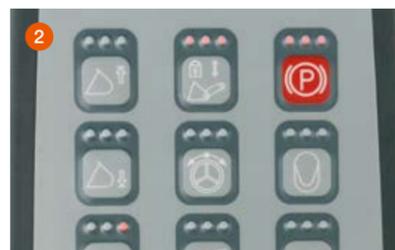
In the articulated joint between the forward and rear vehicle sections, there are two double-acting steering rams, allowing a turning angle of 40° on both sides. The resulting small turning radius makes the TORION agile and manoeuvrable even in tight spaces. The robust, long-life joint structure is designed for tough operating conditions, and maintenance is simplicity itself.

## Axles for maximum stability.

The strong axles and self-locking differential with 45% lock value provide maximum safety for operating in difficult conditions. The TORION has a rigid planetary axle at the front, and a fully floating planetary axle at the rear. The drive shafts are maintenance-free.

Angles of oscillation on each side:

- TORION 1914 / 1812: Angle of oscillation 13°
- TORION 1511-1177: Angle of oscillation 10°



1 Brake/inching pedal  
2 Parking brake



TORION 1511-1177:  
Wheel guard flare at rear for 620-mm-wide tyres



TORION 1511-1177:  
Wheel guard flare at rear for 750-mm-wide tyres

## Strength meets intelligence.

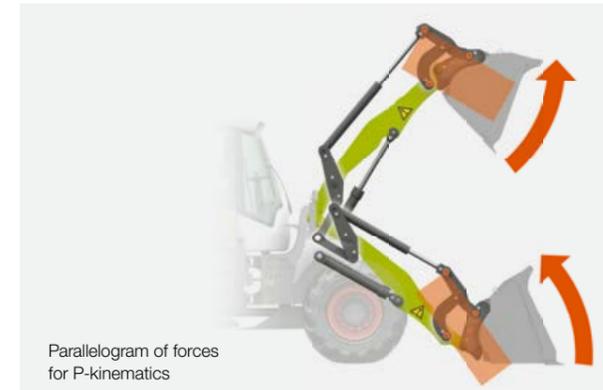
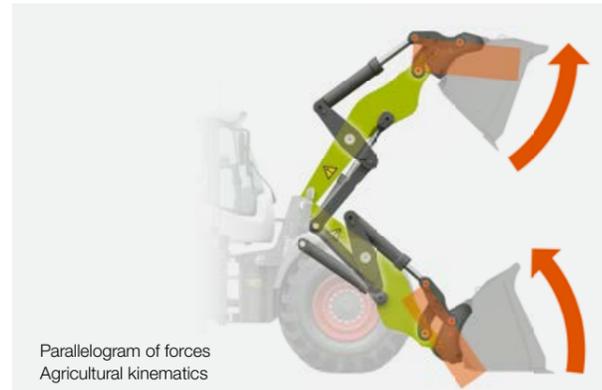
The TORION offers the operator a package of an enormously powerful working hydraulics system with kinematics made to measure for agricultural applications – plus intelligent automatic control functions such as bucket return, weighing system and mast programming, to optimise loading cycles and reduce operator stress.





## Implement carriers for the toughest assignments.

Agricultural, P- or Z-kinematics – whichever you choose, you can still count on an ultra-robust implement carrier. The carriers vary slightly in structure, but they are compatible with all mounted implements. Hydraulic locking pins (50 mm) provide a reliable, low-wear attachment mechanism for all mounted implements. The generously dimensioned zero-play mast bearing makes the TORION ideally suited for working in the toughest of conditions, day in, day out.



### How you benefit:

- Optical and acoustic alarms ensure simple and safe operation
- Locking status clearly indicated on the display and the implement carrier
- Durable and low-maintenance

## Agricultural kinematics for the TORION 1914 / 1812.

The agricultural kinematics system is ideal for a multipurpose agricultural loader. High holding forces and self-levelling linkage function over the entire lift range ensure the problem-free accommodation of heavy loads and mounted implements. Good quantities of bulk material can be precisely metered, for accurate load adjustment. The breakaway power is also very impressive.

## P-kinematics for TORION 1511-1177.

The models in the mid-size range are equipped with the P-kinematics system, providing a self-levelling linkage function over the entire lift range. Here again, impressive practical performance features include high breakaway power, high holding forces in the upper mast range and exemplary accuracy when working with heavy loads.

## Z-kinematics for all models.

On request, the TORION can be equipped with the Z-kinematics system, a proven model of clarity and efficiency. The very high breakaway power and high dumping speed make this the ideal configuration for stockpile removal operations. The bucket is filled quickly and easily, resulting in fast and efficient goods handling.



## Mast for maximum height.

If desired, you can have the P- or agricultural kinematics on your TORION fitted with a high-lift mast, for extreme overhead loading heights. According to the model, the bucket centre of rotation is then at a height of between 4.44 m and 4.64 m (see table on right).

Maximum height to bucket pivot point		1914	1812	1511	1410	1177
Standard mast, Z-kinematics	mm	3915	3915	3930	3930	3760
Standard mast, P-kinematics	mm	–	–	3930	3930	3860
Standard mast, agricultural kinematics	mm	4075	4075	–	–	–
High-lift mast (with P- or agricultural kinematics)	mm	4640	4640	4510	4510	4435

# Saving you time – SMART LOADING.



## More operator-friendly.

SMART LOADING bundles a suite of intelligent systems for machine optimisation for wheel and loaders and telehandlers into a unique assist system, to actively support loading operations involving many tonnes of heavy loads. A selection of perfectly coordinated, individually adjustable functions are used to optimise the entire load cycle, boosting both productivity and the efficiency of work processes. It all adds up to significantly less stress on the operator, and less wear on materials and machine.



Automatic bucket return is activated at the push of a button on the joystick

## Unrivalled efficiency.

For operations requiring the repeated and consistent use of the same mast working position, the lift height and lowering limiter function is a real bonus. The preferred ground clearance and dumping height can be programmed quickly and easily. The mast can then be moved to these saved positions with a single movement of the joystick.



## More assistance.

The automatic bucket return function is ideal for loading tasks requiring the bucket to be repeatedly lowered to a position close to the ground. Here too, the operator can simply program two bucket positions, to which the mast can then be moved fully automatically, with a movement of the joystick or by pushing a button.



## Greater accuracy.

The operating display incorporates a weighing system with many useful functions. For bulk goods loading operations, for example, the additive memory can be used to record the quantity of material transferred during the day so far. The reweighing function is used to set exactly the right quantity for the last bucket, avoiding the need to weigh the transport vehicle again.



### 1 Sum total weighing

Combination of the weights of several consecutive bucket loads.

### 2 Target weight weighing

Display after each loaded bucket of the remaining shortfall until the previously entered target weight is reached.

### 3 Trailer weighing

Two different target locations can be selected, with determination of the total bucket load weight at each. This allows the separate weighing of a truck and trailer, for example.

### 4 Statistics

Displays operational parameter values.

Keeping the pressure on – until the job is done.



**Powerful working hydraulics.**

Pushing and lifting heavy loads, fast and accurate loading operations – the working hydraulics system is expected to deliver top performance in all situations. The TORION models have a load-sensing system and load-independent proportional valves.

The single-lever control system with electrohydraulic pilot control makes operating the vehicle simplicity itself. The loading system is controlled precisely and accurately, and all loading system hydraulics functions can be operated simultaneously.



Everything prepared for the protected fitting of two hydraulic connections for an additional control circuit

**Two additional hydraulic circuits.**

For mounted implements with a double-acting control circuit, such as a bale grab or grab shovel, the TORION has additional hydraulic circuits with capacity of up to 234 l/min.

- Protected mounting of two double-acting hydraulic connections possible
- Independent control of both circuits with the joystick from the comfort of the cab
- Continuously variable adjustment of flow rate (in %) individually for each control circuit
- Continuous operation parameters easily preset via the display, activated when required with the push of a button

Working hydraulics		1914	1812	1511	1410	1177
Type		Load-sensing variable displacement swash plate pump			Load-sensing axial-piston pump	
Valves		Load-sensing proportional valve				
Max. pump capacity	l/min	234	234	170	170	136
<b>Max. operating pressure</b>						
Agricultural kinematics	bar	380	350	–	–	–
for P-kinematics	bar	–	–	350	350	330
for Z-kinematics	bar	360	330	350	350	330



# User-centred design – the operator's workstation.

## Convenience equals efficiency.

The spacious ergonomic operator's cab creates the ideal conditions for a comfortable, safe and productive working day. Every detail has been carefully thought through, and the cab provides outstanding all-round visibility. The touchscreen display is within easy reach, and the joystick integrated in the armrest is intuitive to use.





# The last word – when it comes to workplace comfort.



Full concentration on the job in hand.

Minimising stress is the sure-fire recipe for maximising productivity. The cab of the mid-size TORION model series is also designed for stress-free operation of the vehicle, including plenty of stowage compartments and facilities for cooling food and beverages.

Optimum seating comfort.

The TORION caters for the operator's comfort with an air-sprung, heated seat with a high backrest. The seat cushion depth and angle and back support are individually adjustable, and preferred settings can be saved for each driver. The control console is integrated in the right armrest, and swings in and out with the armrest. A left armrest can be fitted if desired.

Alternatively, the mid-size models (TORION 1511-1177) can be fitted with a mechanically sprung seat. This too eases the strain on the driver with superb comfort and numerous adjustment options.

## Keeping you productive at all times.

A safe and comfortable cab environment enables you to deliver outstanding work results. The cab design in the new TORION 1914 / 1812 sets new standards for space, user-friendliness and all-round visibility.

The expansive glazing surfaces also give the operator a clear view of the implement carrier at all times. Even with the mast fully raised, the driver can still keep an eye on the mounted implements and operate accurately at the maximum overhead height.

## The full picture.

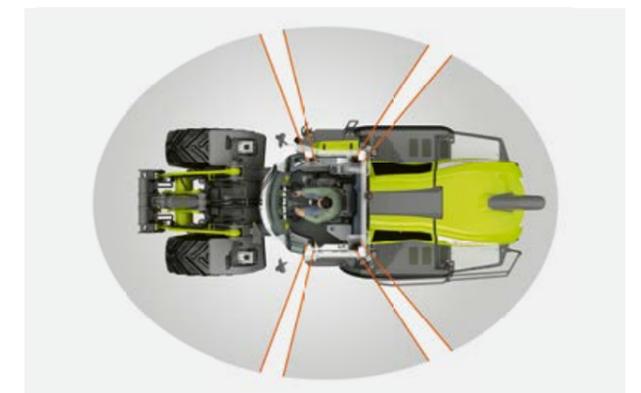
Anyone who has had to operate a wheel loader in a constricted space knows the importance of an unobstructed view of the surrounding environment. To keep yourself, and everyone else, safe, you always need to know exactly who or what is in front of you, and beside and behind the vehicle. The TORION provides 360° visibility with its rounded windscreen and the very narrow columns, set slightly back.

## Safe on the road at night.

The loader's safety-enhancing and user-friendly features also cater for use into the evening and night hours. All switches and many controls are backlit, and there are five brightness settings for the terminal, according to the conditions and the driver's preference.

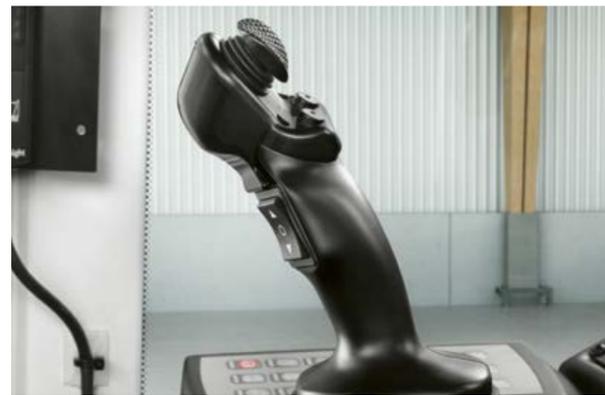


Unobstructed view of all mounted implements



360° view through rounded front windscreen

# Accurate work outcomes – with just a touch of operator intuition.



## Simple and convenient joystick.

With the ergonomically formed joystick, you have everything comfortably under control at all times. The joystick is integrated in the armrest, and swings in and out as required. This minimises hand fatigue on even the longest working days.

Electronic pilot control for accurate proportional control of all functions:

- Raising and lowering the mast
- Filling and dumping of implement
- Switch controlling driving direction (forwards, neutral, reverse)

## Intuitive and user-friendly: Multifunction control lever.

The multifunctional control lever with electronic pilot control, swinging in and out with the armrest, provides an accurate and ultra-convenient system for controlling the TORION. Its operation is simple and intuitive. The lever provides precise and sensitive control of not only the driving direction and loading system, but many more functions besides.

In addition to all the standard joystick functions, further functions can be programmed individually on the two joystick buttons.

## Clear and self-explanatory: Touchscreen display.

A colour 7" display with touchscreen function acts as the central source of information for the machine operator. The large, bright display screen can be adjusted to the preferred height and angle, and remains easy to read even in poor light conditions. The icons are self-explanatory, and the system is intuitive to operate.



Simple operation of all mounted implements, with additional control circuit with multifunction control lever



## Easy and quick to read: The main menu.

- 1 Home page
- 2 Rear camera
- 3 Control of heating and air-conditioning system
- 4 Status displays of operating media (e.g. engine oil pressure, coolant fluid and hydraulic oil temperature, battery charge)
- 5 System settings (e.g. selection of language and units of measurement)
- 6 Function settings (e.g. fan reverse interval, working hydraulics capacity, weigher)
- 7 Information on fuel and urea consumption
- 8 Service codes



# No IT degree required to operate this machine!

## Set exactly the quantities you need.

The outward and inward tip speed of the bucket or other mounted implement is easily set as required on the touchscreen display. This provides capability for individually setting the movement speed of two different mounted implements, for a more precisely metered bulk goods loading operation.

## Easy adjustment.

Where an implement is connected with an additional control circuit (e.g. high-tip bucket, grab shovel or bale grab), the operator can easily reverse the control device from inside the cab. The oil flow rate can also be individually adjusted on the touchscreen display according to the application and implement involved. This caters equally easily for high power demands, such as when removing silage from the clamp, and for the sensitive handling of straw bales in the field, for example.



## Optimised performance.

The "functional settings" sub-menu can be used to adjust a wide range of machine functions to make the operation of the wheel loader even more operator-friendly, and to significantly boost productivity.

- 1 Central lubrication system
- 2 Service management
- 3 Reversible fan drive
- 4 Dumping speed of mounted implement
- 5 Four pushbuttons on multifunctional control lever
- 6 Weigher

## Individual lubrication.

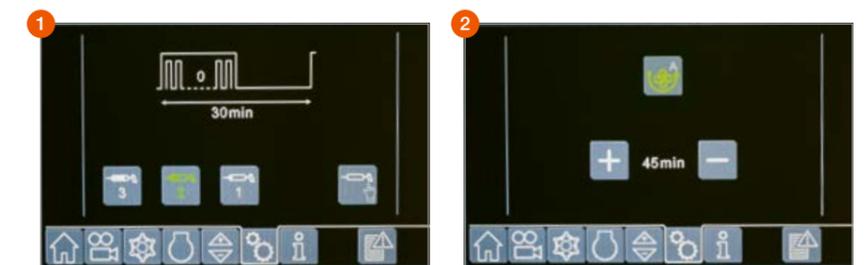
The lubrication intervals of the central lubrication system can be adjusted according to how hard the loader is working. Three levels are available. For easier tasks, lubrication is carried out every 45 minutes, but this can be increased to every 30 minutes for medium-intensity operations and 20 minutes for heavy tasks.

## Automatic reversal.

The time interval for the reversible fan can be programmed in 5-min intervals. The range extends from 5 min (e.g. for very intense dust exposure in the shed) to 90 min (for jobs with little exposure to dirt and soiling).



- 1 There is a choice of three settings for the central lubrication system interval
- 2 Fan reversal takes place fully automatically, according to the set time interval



Less muscle energy –  
for every turning movement.



Adjustable slope



Adjustable height



Adjustable angle

Steering columns adaptable for any driver.

The TORION 1914 and 1812 have a three-way adjustable steering column – so you can adjust the slope, height and angle of the steering wheel and spinner knob to your individual requirements.

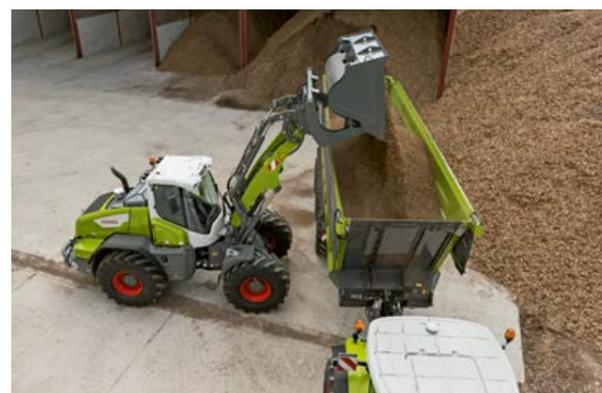
The mid-range model series (TORION 1511-1177) has a tilting steering column. Additional height adjustment is also available on request.

Dynamic steering when the going gets tough.

To save unnecessary strain on your arms, during jobs with frequent or repeated steering movements you can switch the TORION over to dynamic steering. This reduces the number of wheel turns needed to turn through a given angle. As a result, the job gets done faster, with no impact on operating safety.

Joystick steering for routine tasks.

Where you are repeating essentially the same sequence of steering movements time and time again, as in the Y-pattern required for completing a loading task, steering with the joystick can be a real boon. This function is activated with a toggle switch on the control joystick in the left armrest. The steering speed is then governed by operation of the joystick and the ground speed.



Highlights for even more comfortable driving.

- The air-conditioning system maintains exactly the cab temperature you have set. Ventilation intensity, air distribution and temperature are all individually programmable.
- You can also have the TORION set up for retrofitting and wireless devices (TORION 1914 / 1812 only). All the required brackets and cables are fitted and wired in the factory, ready for use when required.

- An adapter plate on the multifunction rail provides safe and practical stowage for mobile phone, tablets and other devices, so that they are within easy reach at all times.
- Comfort equipment includes a radio with MP3 function, Bluetooth hands-free system, USB connection and a removable control panel.



Air-conditioning system control via film keyboard or the touchscreen display, as you prefer.

# Seeing and being seen.

## Like having eyes in the back of your head.

A standard-equipment camera safely installed at the rear of the machine gives you an outstandingly clear view of what is happening behind you. No additional monitor is required. When the machine is being driven in reverse, the images automatically come up in full-screen mode on the touchscreen display.



Rear-view camera, 1914 / 1812



Rear-view camera, 1511-1177

## Bird's eye view.

In the TORION 1914 / 1812, there are four additional cameras monitoring the area all around the machine. The PROFI CAM 360° combines the individual images into an overall bird's-eye view, and transfers them to an additional display in the cab. The complete elimination of blind spots provides maximum safety for the driver.



## Obstacle warnings.

The reverse obstacle detector (1, 2) warns the driver of any people or obstacles located behind the machine. The detector is activated automatically when the machine is put into reverse.

The distance from the obstacle is displayed with a system of coloured LEDs (3). On the detection of an obstacle, a warning tone is sounded inside the cab, and also outside (TORION 1914 / 1812).

On request, a reversing horn (4) can also be provided for additional safety. This is an acoustic alarm to warn all those in the danger area, clearly audible even against high levels of background noise.



## Bright as day, with LEDs.

Pivoting LED work lights provide all-round 360° lighting of the machine environment throughout the long working day. These long-life lights combine impressive luminous power with low electricity consumption. Alternatively, you can have your TORION fitted with halogen lights.

Both LED and halogen lights can be pivoted and individually directed as required. Four lights are placed at the front of the cab, and either two or four at the rear.

## 12 lights in the TORION 1914 / 1812.

- 1 Four LED lights on front of cab roof
- 2 Light mount for front road driving light and indicators
- 3 Rotating beacon
- 4 Two LED lights at right and left at rear of cab
- 5 Two LED lights at rear of cab
- 6 Four LED or halogen lights at rear on bonnet
- 7 Tail lights, reversing lights and indicators

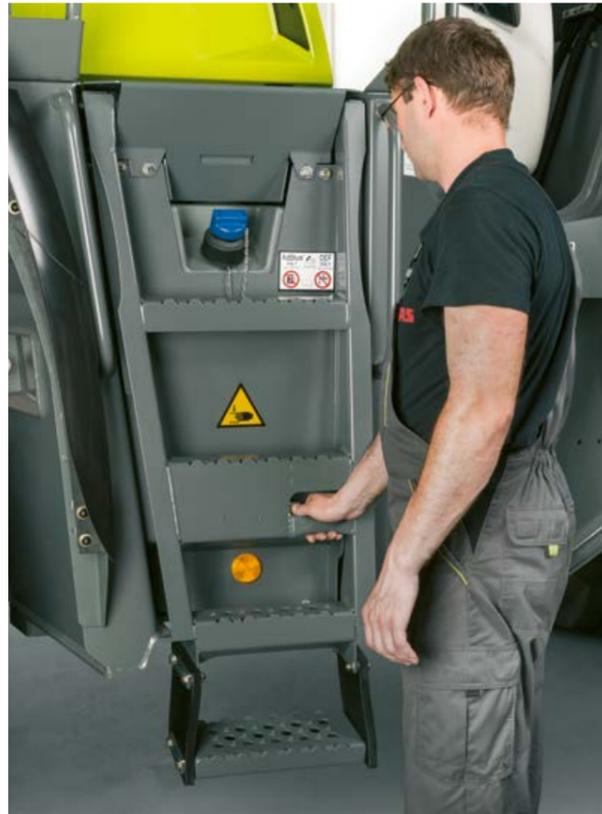
Three toggle switches are used to keep the working environment as bright as day



## Unobstructed access saves time.

Ease of access is the essential ingredient for efficient maintenance procedures. Anything that is not readily accessible or hidden away from view is likely to be forgotten or overlooked. The faster you can get at the machine's service points, the more you can save on time and costs. In the TORION, the key maintenance points for daily checking can be surveyed at a glance as you enter the cab.

- The electrically operated bonnet provides unobstructed access to the engine compartment (TORION 1914 / 1812)
- A special step inside the engine compartment offers a convenient place to stand while working on the machine (TORION 1914 / 1812)
- The front windscreen and cab filter box on the right are easily accessed with a fold-out ladder (TORION 1914 / 1812)
- Anti-slip steps and strong handrails extend all around the machine for maximum operating safety



## Central lubrication saves money.

Regular maintenance reduces wear. The automatic lubrication system ensures that all maintenance intervals are scrupulously observed. The lubrication cycles can be adapted to the conditions via the display or keyboard, with a choice of three cycles.

The central lubrication tank is located in the entry area. If the level falls below the recommended minimum, an LED display lights up in the keypad. Lubrication can be applied manually between intervals at the push of a button.

## Clear view of electronics.

In the TORION 1914 / 1812, the battery and battery disconnecter are in the rear ballast weight at the left of the machine, and in the TORION 1511-1177 they are placed to the right in the engine compartment. Further fuses are placed in the rear wall of the cab. For the TORION 1914 / 1812, there is an external switch for starting with an external power supply.

## Toolkit.

The TORION 1914 / 1812 carries a toolkit, safely stowed in a compact tool compartment in the entrance area.



The tanks for the central lubrication system and windscreen washer fluid are clearly visible in the entrance area



The battery and main switch of the TORION 1511-1177 are readily accessible



Convenient step inside the engine compartment for carrying out servicing procedures

TORION 956-537 SINUS. The 40-km/h TORION SINUS models specialise in heavy loads in tight spaces. They offer extreme manoeuvrability, thanks to the articulated joint and steered rear axle. The cab provides superior user comfort, giving the driver full confidence to complete even difficult and complex tasks with meticulous accuracy.



<b>TORION 956 / 644 / 537 SINUS</b>	<b>44</b>
TORION 956 SINUS	
Technology in detail	46
TORION 644 / 537 SINUS	
Technology in detail	48
<b>CLAAS POWER SYSTEMS</b>	<b>50</b>
Engine	52
Ground drive	54
Running gear	56
<b>Loading system</b>	
Mast and kinematics	58
<b>Cab and comfort</b>	<b>60</b>
Electronics expertise	90
CLAAS Service & Parts	92
<b>Features</b>	<b>94</b>
SMART PUSH	96
Attached implements	98
<b>Specifications</b>	<b>102</b>

# TORION 956 SINUS – the big class.



- 1 Powerful DPS engine (stage IV) with up to 76 kW / 167 hp
- 2 Infinitely variable hydrostatic transmission (with two synchronised gears)
- 3 High manoeuvrability, thanks to articulated joint and steering rear axle
- 4 Good view of mounted implements with Z-kinematics on mast
- 5 3.70-m loading height with high-lift mast
- 6 4-pillar cab for ideal all-round visibility



# TORION 644 / 537 SINUS – the compact class.



- 1 Robust Yanmar engine (Stage V) delivering up to 54 kW / 73 hp
- 2 Infinitely variable hydrostatic transmission (with two synchronised gears)
- 3 High manoeuvrability, thanks to articulated joint and steering rear axle
- 4 Rapid transfer between fields, with speed of 40 km/h
- 5 3.50-m loading height
- 6 Superior cab comfort, even in the 5-tonne and 6-tonne class

# CLAAS POWER SYSTEMS (CPS) – TORION 956 / 644 / 537 SINUS.

## Optimal drive for best results.

Equipment development at CLAAS means an ongoing effort for even greater efficiency and reliability as well as optimal profitability in the field.

In CLAAS POWER SYSTEMS (CPS), we have brought together top-quality components to create a drive system that is in a class of its own – one that always delivers the most efficient power when needed. CPS is ideally matched to the work system, featuring fuel-saving technology that quickly pays for itself.

Another key priority for the design of the CLAAS wheel loader was a seamless interaction between all elements of the drive system technology – to provide maximum power and safety and a long service life.



Delivers the power need to make the job easier.



Powerful engines.

As the specialist in heavy loads in tight spaces, a TORION SINUS is always in demand on the farm. To help you cope effortlessly with all your loading tasks, the big TORION 956 SINUS has a robust DPS four-cylinder engine. It delivers 76 kW (106 hp), with maximum torque of 405 Nm at 2,000 rpm. The two compact models, the TORION 644 and 537 SINUS, have Yanmar four-cylinder engines delivering 54 kW (73 hp).

TORION	Engine output	
	kW	hp
956 SINUS	76	106
644 SINUS	54	73
537 SINUS	54	73

Cleaning up.

The TORION front end performance is matched by minimal emissions at the rear. The big DPS four-cylinder engine in the TORION 956 SINUS meets the Stage IV (Tier4f) exhaust emissions standard. Exhaust treatment is carried out with a diesel particulate filter (DPF) with integrated diesel oxidation catalyst (DOC) and SCR technology. The Yanmar engine in the two compact SINUS models already fulfils the Stage V emissions standard. Exhaust treatment is with a diesel particulate filter (DPF) with integrated diesel oxidation catalyst (DOC).



Smart cooling.

All TORION SINUS models can be fitted with a reversible fan as optional equipment, for automatic cleaning of the radiator and radiator intake surfaces. The fan reverses its direction of rotation at regular intervals, and blows coarse dirt particles and fine dust out of the system.



Plenty of pressure.

To give the driver the required power whenever it is needed, all engines in the SINUS are fitted with a wastegate turbocharger. In combination with the two-speed hydrostatic transmission, the turbocharger noticeably enhances the driving dynamics of the vehicle.



The "articulated tipping load" is defined as the load at the load centre of gravity that will cause the wheel loader to tip over the front axle, with the machine in its least favourable load-bearing position (most extended horizontally, wheel loader fully articulated).

According to ISO 14397-1, the load capacity may not exceed 50% of the articulated tipping load. This represents a safety factor of 2. The permissible load capacity is calculated from the formula:

$$\text{load capacity (t)} = \text{articulated tipping load (t)} / 2$$

The maximum bucket size is calculated from the load capacity:

$$\text{bucket size} = \text{load capacity (t)} / \text{material density (t/m}^3\text{)}$$

# Two ratios, and a pleasure to operate.



- 1 Engine
- 2 Hydrostatic pump
- 3 Hydrostatic engine for ground drive
- 4 Front axle propeller shaft
- 5 Steered rear axle
- 6 Rigid front axle



## Smooth and accurate travel.

The TORION SINUS has a hydrostatic drive system with two driving ranges, for optimum adjustment to your operational requirements. You select the driving range with a switch, and then have precise, infinitely variable control of the speed via the accelerator pedal.

Driving range	Speed ranges
F1	0–18 km/h
F2	0–40 km/h

The top speed may vary according to the tyres fitted.

## Fast and convenient to use.

Farms with many different work locations and livestock buildings need a fast and agile wheel loader that gets the job done even when space is at a premium.

The user-friendly TORION SINUS models extend the CLAAS product range with one large wheel loader and two compact models, with top speeds of 40 km/h. As a result, the popular 40 km/h machines are now also available in the 4-tonne and 5-tonne classes.



When it's a long way between jobs, the TORION SINUS models are soon at the new location, thanks to the ground speed of up to 40 km/h.

Double steering,  
and twice the lifting power.



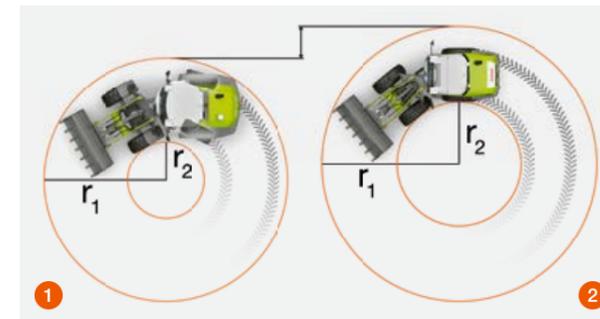
The TORION may have less articulation, but with the steered rear axle it is more manoeuvrable, and it lifts a bigger load



As soon as the driver turns the loader with the steering wheel, the rear axle is also steered in sync



The TORION SINUS negotiates smaller radii, and needs less space to move



TORION SINUS with steered rear axle (1) TORION with rigid rear axle: +11% (2)

TORION		956 SINUS	644 SINUS	537 SINUS
Wheelbase	mm	2600	2150	2150
Turning radius with standard tyres	mm	4200	3750	3510

### Safe on a firm footing.

With an articulation angle of 30 degrees and an angle of oscillation of 8 degrees on both sides, the robust and durable articulated joint keeps the wheel loader on a firm footing, even when it twists to the side on uneven ground. Driver comfort while working is further enhanced by damping in the joint.

Additionally, thanks to pre-stressed damper blocks on the rear axle, the TORION 956 SINUS can also oscillate by 5 degrees to the left and right.



### Standing firm on a tiny base.

The challenge was to design an agile wheel loader with even higher payload capacity. The solution was to maximise the vehicle's stability and anti-tip protection with a chassis that set new standards for loaders in these classes. The TORION SINUS is steered not only via the central articulated joint, but also via the rear axle. The front chassis is connected to the rear stub axle with two steering rods. As soon as the driver turns the loader with the steering wheel, the rear axle is also steered in sync.

This means that the TORION SINUS does not turn as far on full lock. This provides the following benefits: smaller turning circle, but increased stability and payload capacity. The TORION SINUS lifts more, is more manoeuvrable and even more comfortable to drive.



Clear view.

The Z-kinematics in the TORION SINUS give you a clear view of the implement in front. Thanks to maximised breakaway power and this dumping speed, this is the ideal configuration for stockpile removal operations. The bucket is filled and emptied quickly and easily, resulting in fast and efficient goods handling.



All hydraulic connections are positioned on the implement carrier, to be both easily accessible and securely protected.



Impressive loading height.

Depending on your farm's requirements for a wheel loader, the TORION SINUS 956 and 644 models can be equipped with either a standard mast or a high-lift mast. In the latter case, you have an impressive loading height of over 3.70 metres with the large model, and 3.50 metres with the more compact versions.

High-performance hydraulics.

For pushing and lifting heavy loads and fast, accurate loading, the working hydraulics of the TORION SINUS provides all the power needed for your mounted implements. All models can be equipped with up to two additional hydraulic circuits, and a free-flow return line and oil leakage pipe are also available.

Maximum height to bucket pivot point		TORION 956 SINUS	TORION 644 SINUS	TORION 537 SINUS
Standard mast	mm	3720	3345	3215
High-lift mast	mm	4010	3785	–

– Not available



The durability of the robust implement carrier of the TORION 956 SINUS is immediately obvious. The locking device is located well out of harm's way.



The TORION 644 and 537 SINUS have the proven implement carrier used on the small TORION series. The locking device of the front implement is hydraulically operated from the cab.

Leaves you plenty of room –  
for a relaxed working environment.



Plenty of room for productivity.

The generously dimensioned driver's cab, with its new, ergonomic design creates the user-friendly environment needed for everyday high productivity. The benefits start with the cab access. The door opens out 180 degrees, providing plenty of room to get set up for the day.

Once you've taken your seat, the four-pillar cab gives you a full all-round view. The large front windscreen provides a clear view of the working implement, and full control of all operational tasks.



Ease of operation.

A cab that feels right ensures high-quality work performance. As soon as you start the TORION SINUS up for the first time, you'll sense that everything in this cab is just where it should be. With the ergonomically shaped joystick, you have everything under control during the working day. The controls for all other machine and safety functions are within easy reach on the right. The controls are deliberately provided in the form of robust switches, for maximum efficiency and minimum complexity.



7-inch monitor for a full overview.

The colour 7-inch terminal of the TORION 956 SINUS keeps the driver informed of all key operating parameters and operating status of machine systems. The image from the rear camera is integrated in the display.

3-inch compact information display.

TORION SINUS 644 / 537 models have a colour 3-inch on-board monitor. All display icons are clearly legible and intuitive.







# TORION 639 / 535 – the small-size model series.



- 1 Yanmar engine, delivering up to 50 kW (68 hp)
- 2 Hydrostatic drive with two speed levels
- 3 Articulated joint
- 4 Implement carrier with hydraulic quick-attachment system
- 5 3rd and 4th control circuit
- 6 Z-kinematics with self-levelling linkage for pallet mode
- 7 Conical mast
- 8 Mechanical tilt indicator
- 9 Low-cut front windscreen
- 10 Spacious, clearly laid-out cab with intuitive controls
- 11 Low clearance height of max. 2.5 m with all tyre options
- 12 Convex rear window with columns moved forward and narrow bonnet for optimal visibility to the rear
- 13 Entrance door with catch to the rear

### Lights concept.

Choice of LED or halogen lights for comprehensive 360° illumination around the machine.

- A Four LED or two halogen lights placed at the front of the cab roof
- B Light mount for front road driving light and indicators
- C No or two halogen lights, two or four LED lights at the rear on the cab roof
- D Tail lights, reversing lights and indicators at the rear
- E Rotating beacon

# CLAAS POWER SYSTEMS (CPS) – TORION 639 / 535.

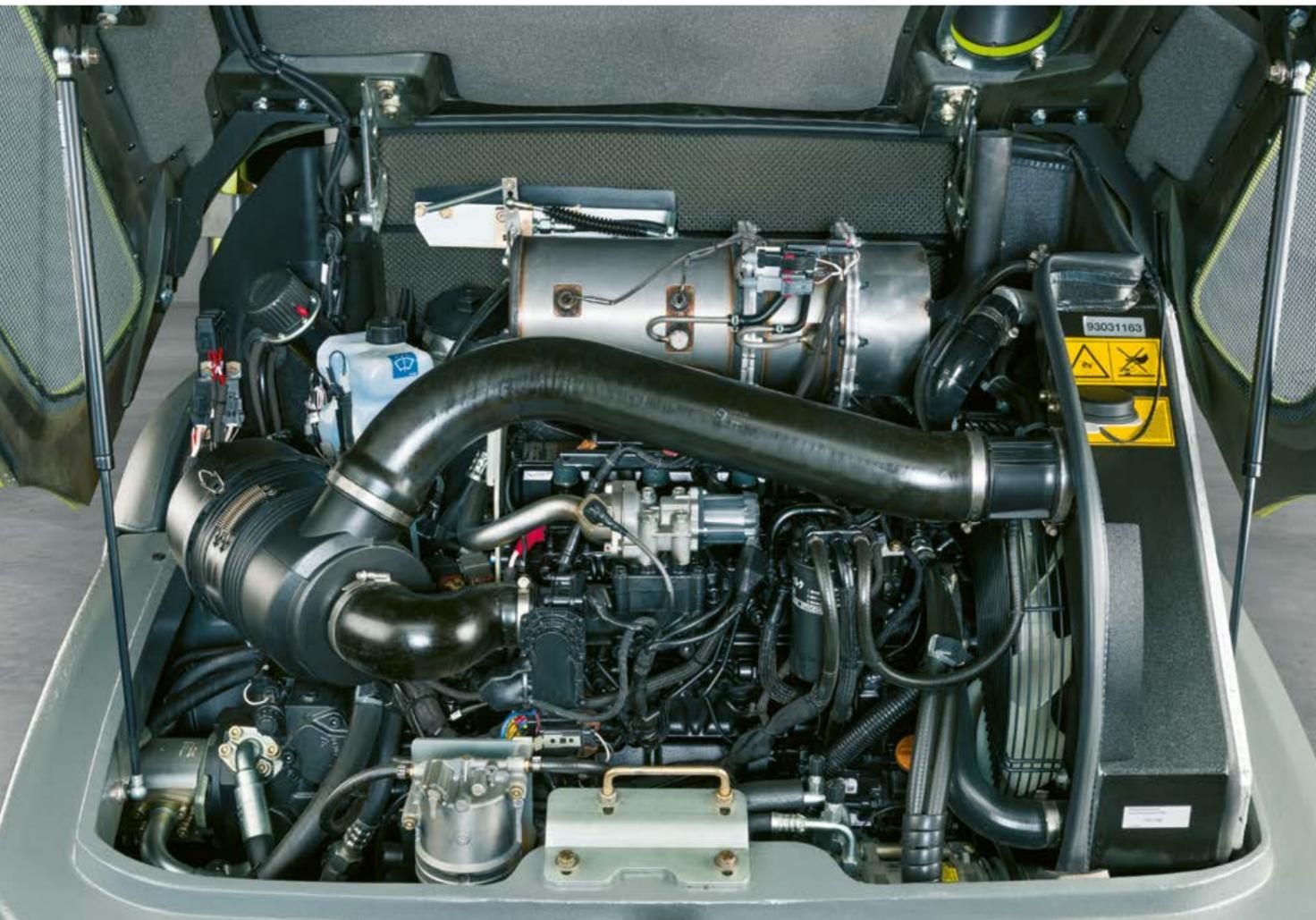
## Optimal drive for best results.

Equipment development at CLAAS means an ongoing effort for even greater efficiency and reliability as well as optimal profitability in the field.

In CLAAS POWER SYSTEMS (CPS), we have brought together top-quality components to create a drive system that is in a class of its own – one that always delivers the most efficient power when needed. CPS is ideally matched to the work system, featuring fuel-saving technology that quickly pays for itself.

A drive system based on the seamless interaction of all the individual components was also a high priority in the design of the TORION 639 / 535 – plus the need for robust components to keep on delivering the wheel loader's benefits to its proud owner, year in, year out.





### Clean air.

Both four-cylinder engines meet the requirements of exhaust standard Stage IIIB (Tier 4i). Exhaust treatment is carried out with a diesel particulate filter (DPF) with integrated diesel oxidation catalyst (DOC). The use of SCR technology is not required. The filter regeneration mode can be adjusted according to the conditions, with either manual or automatic regeneration, as preferred.



### Individual regeneration.

- Automatic regeneration occurs with no operator intervention while the machine is operating
- Manual regeneration simply requires the driver to press a button
- Regeneration can be temporarily switched off when conditions are unfavourable

TORION	639	535
kW	50	46
hp	68	63

### Smart ideas throughout.

The robust drive system is specifically designed for challenging assignments. The compact design also enables the operator to keep all parameters under control, in any conditions – not to mention the optimum weight distribution for machine stability.



Robust Yanmar engines provide ample power to meet any operating challenge

### Durable engines.

A wheel loader used every day needs an engine that will guarantee maximum operational reliability. Both small-size models are fitted with powerful four-cylinder Yanmar engines, delivering 50 kW (68 hp) in the TORION 639 and 46 kW (63 hp) in the TORION 535. These are robust, servicing-friendly units, reliably providing the power this all-rounder needs for its many and varied tasks around the farm.



The "articulated tipping load" is defined as the load at the load centre of gravity that will cause the wheel loader to tip over the front axle, with the machine in its least favourable load-bearing position (mast extended horizontally, wheel loader fully articulated).

According to ISO 14397-1, the load capacity may not exceed 50% of the articulated tipping load. This represents a safety factor of 2. The permissible load capacity is calculated from the formula:  
load capacity (t) = articulated tipping load (t) / 2

The maximum bucket size is calculated from the load capacity:  
bucket size = load capacity (t) / material density (t/m<sup>3</sup>)

# Staying cool, even when things are hotting up.

## Keeping the dust out.

Cleaner engine intake air means better compression and higher power. In the TORION, fresh air is drawn in from the radiator cooling package and prefiltered. The air filter is readily accessible on the left of the machine engine compartment. A dust extractor valve efficiently removes dirt and dust particles from the filter – protecting the filter and making servicing easier.



## Cool incoming air.

Again in the smaller TORION models, the generously sized radiator cooling package ensures there is plenty of cooling capacity in all climate conditions. The intelligently designed air supply route guarantees high cooling capacity right from the outset: the heat given off by the engine can leave the engine compartment without being drawn back into the system.



## Blowing away the cobwebs.

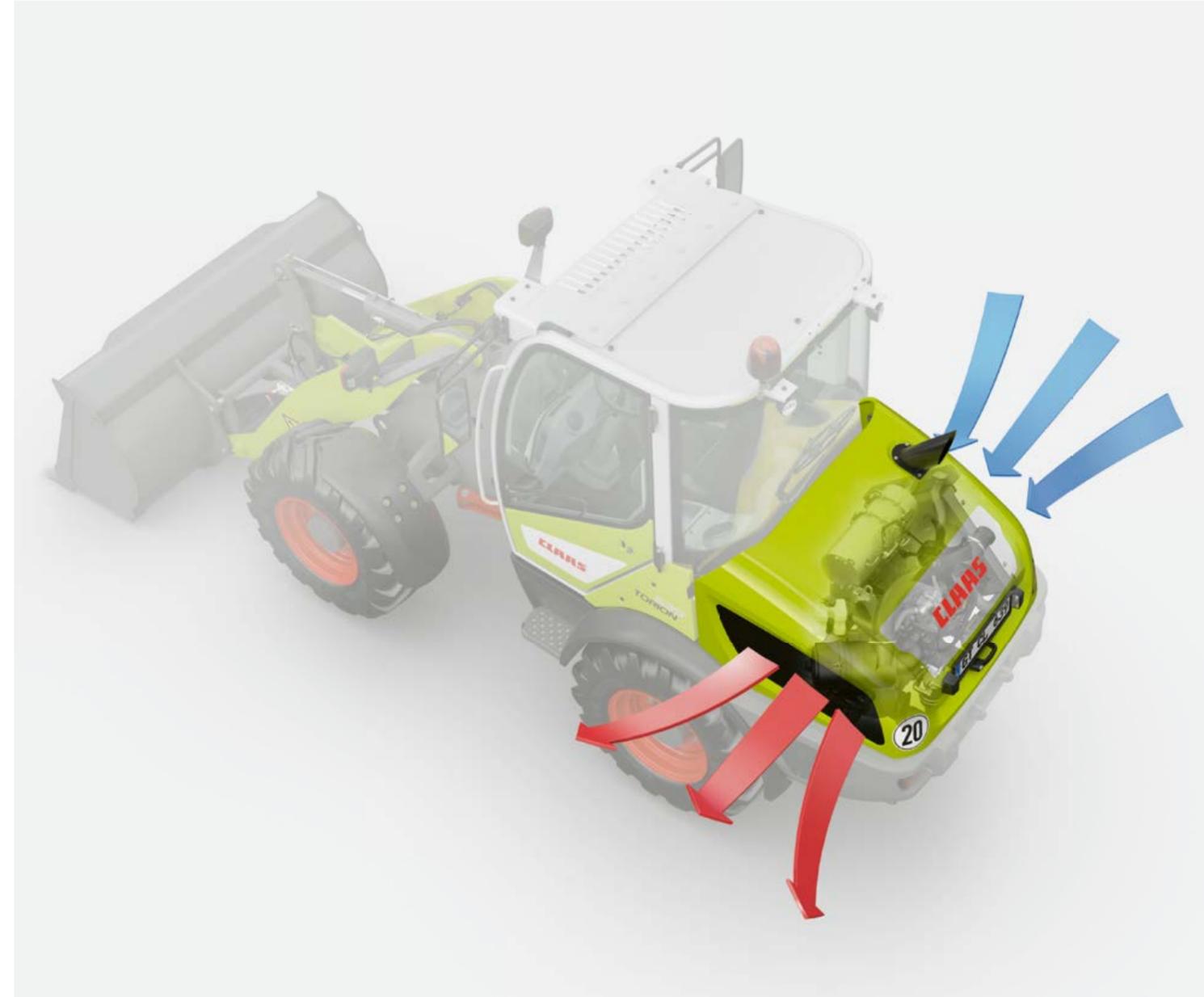
The robust design of all components of the radiator cooling package allows operation with long servicing intervals. And to help the process along, you can clean things up with a blast of compressed air or air sprayer from time to time. Regular machine servicing has never been so easy!



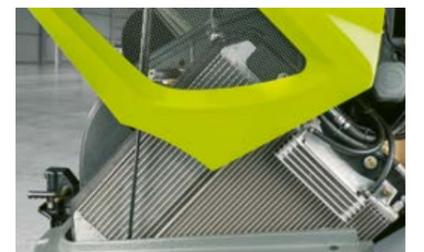
Quick and easy access to the air filter



A dust extractor valve reliably removes dust from the air filter

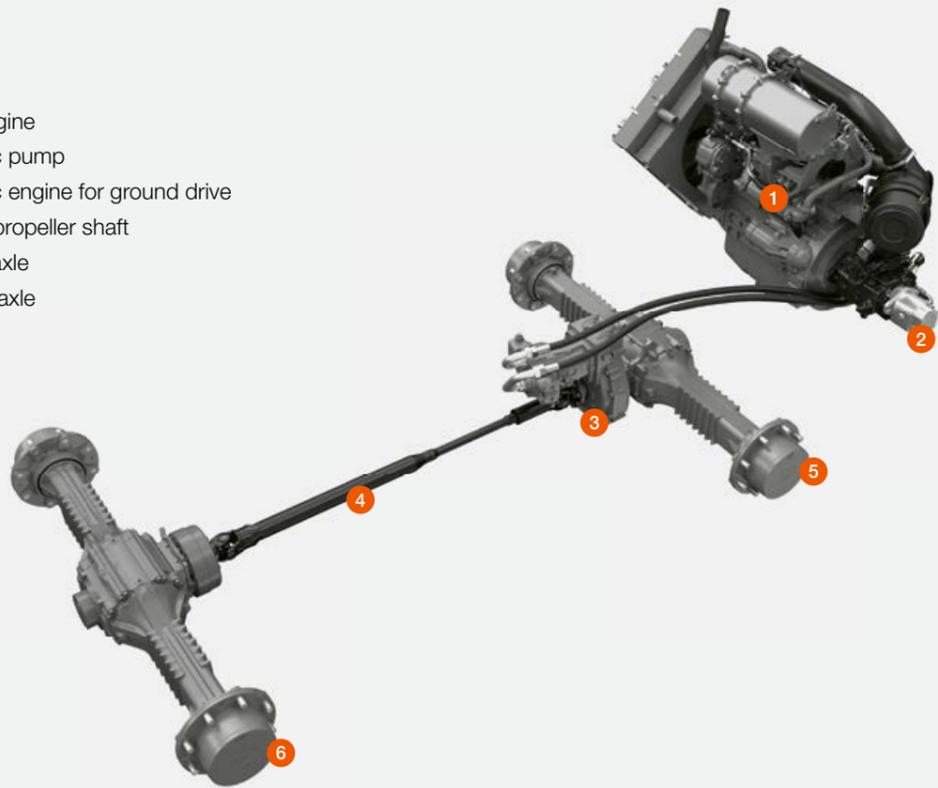


Generously sized air intake surface on the radiator cooling package



# Delighting operators – with infinitely variable driving performance.

- 1 Yanmar engine
- 2 Hydrostatic pump
- 3 Hydrostatic engine for ground drive
- 4 Front axle propeller shaft
- 5 Rigid rear axle
- 6 Rigid front axle



## Hydrostatic drive system.

The smaller TORION models feature an infinitely variable hydrostatic drive system to make the job easier. This system offers outstanding drive characteristics, sensitive and precise driving at any speed, and application of just the right amount of thrust required. Identical drive parameters are available for forward and reverse.

Two speed ranges are provided for adjusting the TORION to the operating conditions.

Speed range	Speed
F1	0–6 km/h
F2	0–20 km/h

The speed range is changed with a toggle switch.

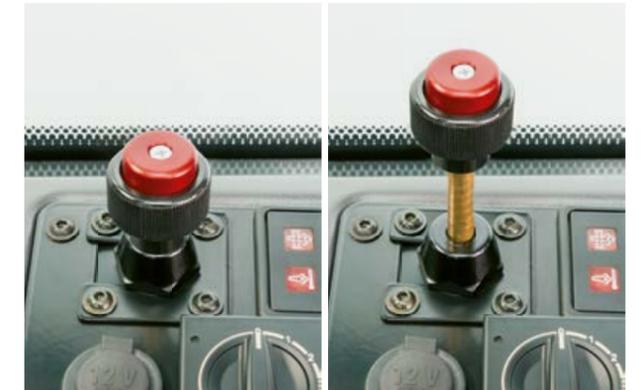
Hydrostatic transmission with self-locking braking action



## Braking with the inching pedal.

Pressing gently on the brake/inching pedal allows infinitely adjustable deceleration of the ground speed, with the engine speed remaining the same. Fully depressing the pedal automatically decreases the ground speed down to zero, and activates the service brake (hydraulically operated drum brake).

- Precise and sensitive driving at any engine speed
- Lower fuel consumption
- Less brake wear
- Maximum loading performance
- Comfortable, precise driving



## Constant slow-speed driving.

For tasks such as sweeping or bedding down, requiring high oil flow but low ground speed, the creep-speed facility is ideal. The machine is then driven at a constant speed in a set inching position. The required flow of hydraulic oil can be controlled with the accelerator via the engine speed.

- Continuously variable power adjustment between traction hydraulics and working hydraulics
- Work comfortably for long periods without tiring, with a set inching position

## Safe parking.

As the holding brake, the TORION has a mechanical drum brake at the front axle input, applied by hand. The grip is easily accessible, to the left of the driver seat, and provides an ultra-reliable parking brake for the machine.

Mechanical holding brake control at the left of the driver's seat



## Axles for maximum stability.

The strong axles and fully automatic multi-plate self-locking differential with locking value of 45% on both axles ensures maximum safety when the machine is operating in difficult conditions.

- Rigid-mounted planetary axles for high stability during all loader operations
- Even power transmission over all four wheels
- Zero-servicing propeller shafts for minimum servicing expense



The robust articulated joint with an angle of oscillation of 10° compensates for uneven ground, and provides optimum stability and driver comfort.



## Hitch for speedy road transport.

For road transport operations of all kinds, the TORION has an automobile ball hitch (K 50) or an automatic pin coupling. Maximum trailer loads are 750 kg (without braking) and 3,500 kg (with automatic overrun brake).

## Intelligent design for every farm.

Just like their larger counterparts, the smaller TORION models must be able to cope with high load capacities with maximum stability and protection against tipping. These requirements are met with the low centre of gravity and ultra-compact design in terms of height (total height of less than 2.50 m).

The articulated joint comes into its own in confined spaces, such as loading operations carried out around corners.

## Articulated joint with 40° articulating angle.

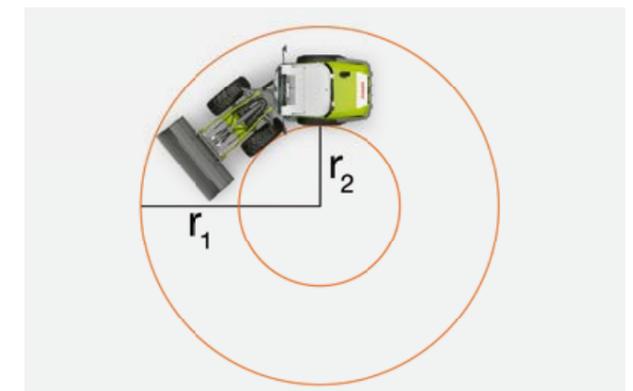
The central articulated joint between the front and rear sections of the loader has a double-acting steering ram, allowing an articulating angle of 10° and steering angle of 40° on each side. This robust, durable joint is designed to work in tough conditions – yet, thanks to its narrow turning radius, the TORION also remains impressively agile, even in confined spaces.



Radius		TORION 639	TORION 535
r1	mm	4465	4230
r2	mm	2060	2060

These figures apply for Dunlop 365 / 70 R 18 tyres (TORION 535) or Dunlop 365 / 80 R 20 tyres (TORION 639)

Automatic pin coupling



# The ultimate hard worker – the loading system.

Clever design concept for  
all loading situations.

The driver of a TORION can be certain of a vehicle that will make the working day easier, whatever the job in hand may be. That includes a working hydraulics system that develops the necessary power, kinematics with a self-levelling linkage function requiring no manual adjustments and a conical mast that guarantees optimum visibility of the implement carrier in every position.



# Convinces with features – for accurate and productive loading operations.

## Fast changeovers.

The implement carrier on the TORION is designed to provide a connection with minimum play and wear for the longest and toughest loading tasks. All implement changes are made quickly and easily. Robust hydraulic locking pins (40 mm) withstand the forces of the heaviest loads, while the short centre of gravity distance provides maximum lift and breakaway power.

- Generously dimensioned, open design (width x height: 856 x 315 mm)
- Easily accessible yet well-protected hydraulic connectors
- Maximum strength and durability
- Excellent forward visibility



## User-friendly damping function.

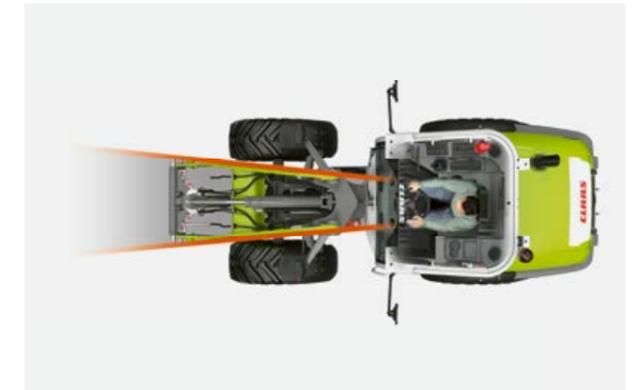
While the vehicle is moving, the front attachment damping function can be used to prevent bouncing. The function can be activated at any ground speed, with a simple toggle switch. As well as providing a much more comfortable ride, this allows better and more effective control of the loading system in difficult operating conditions. Wear on the machine components is also reduced.



## Ideal kinematics.

The TORION is equipped with the Z-kinematics system, a proven model of clarity and efficiency. The very high breakaway power and high dumping speed make this the ideal configuration for stockpile removal operations. The bucket is filled quickly and easily, resulting in fast and efficient goods handling.

The conical mast tapers away towards the cab, resulting in optimum visibility of both implement and load in every mast position.



The parallel movement of the pallet fork over the entire lift range ensures safe and accurate loading, with no manual adjustments required.

TORION		Mast length	Max. overhead discharge height
639	mm	2300	3370
535	mm	2200	3190



The mechanical slope indicator provides a clear view of the implement carrier tilt angle at all times





**Three operating control options:**

- 1 User-friendly operation with the top key on the joystick
- 2 Operation with the two lower keys on the joystick
- 3 Operating mounted implement with the additional control lever



**Power hydraulics system with extra features.**

For pushing and lifting heavy loads, and fast and accurate loading, the working hydraulics system provides all the power needed for getting the job done quickly and efficiently. For mounted implements with a double-acting control circuit, such as a sweeper or grab shovel, the TORION has two additional control circuits with a capacity of up to 77 l/min (TORION 639) or 70 l/min (TORION 535). All hydraulic connections on the implement carrier are within easy reach, yet effectively protected. A banjo fitting is provided to prevent hose twisting problems.

**User-friendly operation alternatives.**

Both hydraulic circuits can be controlled from the cab, with the joystick or additional control lever. Three different control options are available for operating the mounted implement – opening and closing a grab shovel, for example, with the additional lever, joystick or pushbutton controls.

You also have a choice of three activation options for the continuous operation of the third control circuit. This makes it easy to operate implements such as a sweeper or feed distribution shovel.

Working hydraulics		639	535
Type			Gear pump
Valves			Priority valve
Max. pump capacity	l/min	77	70
Max. operating pressure	bar		230
Work cycle time at rated load			
Lifting speed	s	6.5	5.3
Dumping speed	s	1.5	1.3
Lowering speed (empty)	s	4.0	2.9

## Simplifying the task – the workstation.

### Intuitive operation.

The spacious, ergonomically designed driver's cab provides perfect conditions for a comfortable, safe and productive working day. The meticulously designed driver workstation features outstanding all-round visibility. The intuitive control system is quickly mastered, making this machine a reliable all-round performer for all tasks around the farm and in the shed.



Less driver stress –  
for higher productivity.



All-round view.

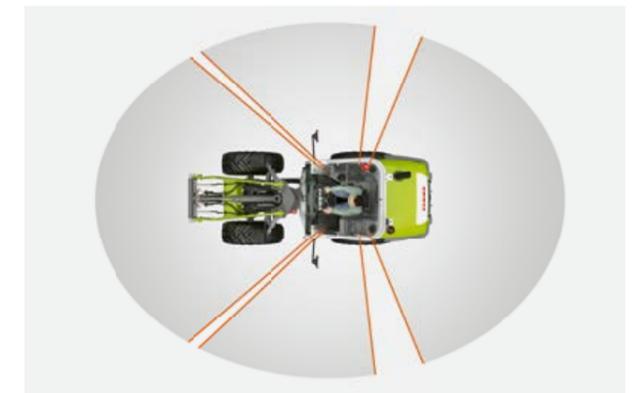
Working in a pleasant and safe environment enables you to deliver outstanding results. The cab in the smaller TORION models gives you all the space and equipment features you could wish for.

The low-cut front windscreen, convex rear window, a slimline bonnet and the B-columns set slightly forwards provide unobstructed all-round visibility. Both the entrance door and the right side window (with 180° opening angle on request) are held in place with a catch to the rear.

- 1 Low-cut front windscreen
- 2 Six ventilation nozzles and four slits
- 3 Brake/inching pedal
- 4 Accelerator pedal
- 5 Joystick with electronic pilot control, with button for selecting drive direction
- 6 Display showing the operating status of all machine systems
- 7 Heating and air-conditioning control unit
- 8 Creep-speed facility
- 9 12-V socket
- 10 Keypad for all machine functions
- 11 Numerous stowage compartments and lunch box



Unobstructed view of all mounted implements



360° view through convex rear window

Plenty of leg room.

The generously dimensioned interior with cab height of 1.50 m provides ample freedom of movement for all types of task. Even taller drivers are quickly able to find their optimum ergonomic position for working without stress and fatigue.

A wide range of facilities are provided for safely stowing your work items, including beverage holders for all kinds of bottles, a snacks or lunch box, a separate compartment for documents and papers, and a stowage compartment to the left of the driver's seat.

Comfortable work seat.

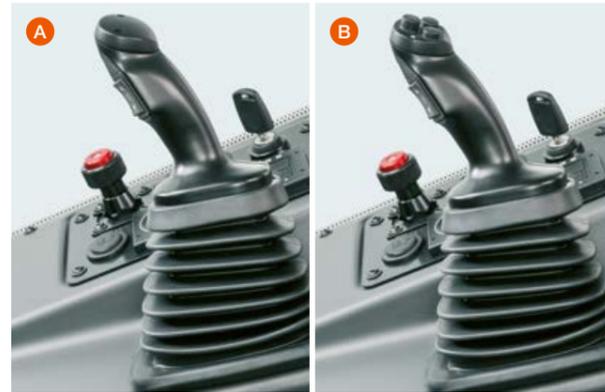
The TORION has an air-suspended heated seat with high back for maximum driver comfort. The seat cushion depth and angle are individually adjustable. The right armrest is integrated in the operating console. A left armrest is available on request.

Alternatively, the TORION can be fitted with a mechanically suspended seat, again relieving driver stress through optimum comfort and numerous adjustment settings provided.



Air-suspended seat with high backrest

# A hard worker – but easy to operate.



## Informative and self-explanatory.

The multi-colour display is the central source of information for the machine operator. The surface is at a slight angle, to align it with the driver's field of view. All displays and icons remain clearly visible in all lighting conditions.

All the essential machine parameters can be read at a glance, for an instant overview of the operating status of all the TORION's systems. The icons used in the display are self-explanatory.

- 1 All warning icons (red) are prominently displayed at the top of the screen
- 2 The status icons show the machine's current operating status (direction of travel, gear selected, locked working hydraulics, and much more besides)
- 3 Operating hours and service codes are displayed in digital format
- 4 The fuel level display is clearly visible right in the centre of the instrument panel

## Intuitive and ergonomic.

Whether you opt for the ergonomic joystick or the robust control lever (without buttons), either alternative puts you firmly in control of the TORION for all kinds of work operation. Both the joystick and control lever are intuitive for the operator, for accurate and ultra-convenient operation of the TORION. The hydraulic pilot control system ensures the sensitive, proportionally controlled activation of all functions.

### Control lever (A):

- Proven design concept
- Intuitive operation of loading system
- Hydraulic pilot control

### Joystick (B):

- Individually adjustable operating options
- Operation of third control circuit with top joystick button, or with lower buttons
- Simple and intuitive operation of loading system
- Hydraulic pilot control

## User-friendly adjustable steering.

The TORION has an infinitely adjustable steering column, enabling drivers to adjust the angle of the steering wheel and spinner knob quickly to their preferred setting.



Infinitely adjustable tilt angle of steering column

## Robust, clearly identified controls.

The controls for all other machine and safety functions are within easy reach of your right hand. With these colour-coded toggle switches, you can activate functions such as front attachment damping, select the speed range, set the additional control circuit to continuous operation, or lock the working hydraulics.





## Unobstructed access saves time.

Fast access to service points saves time and money on maintenance procedures. In the TORION, all key service points are easily reached from the ground from a standing position, with no need to get dirty. All check points and fluid

level indicators are clearly visible, and components in the engine compartment are designed for ease of access.



Safely protected basic central terminal compartment



All components readily accessible



## Central lubrication reduces costs.

Regular servicing reduces wear. The automatic lubrication system ensures that all lubrication intervals are precisely observed. Each lubrication point is continuously lubricated with exactly the right quantity of grease. The grease supply comes from a 1.9-kg transparent tank on the left side of the machine.



## Protection for electronics.

In the smaller TORION models, the battery and battery disconnect are conveniently located at the left of the engine compartment. Further fuse circuits (basic central terminals) are located in a protected compartment at the right side of the cab. The cover is easily removed, providing easy access to all components.



## Easily accessible sockets.

At the rear, the TORION has a 13-pin socket for trailer operation. For the operation of sweepers and other mounted implements, a seven-pin socket is provided at the front of the machine on the light mount, with two switchable outputs.

# Smart working – CLAAS electronics expertise.



## Operator assistance systems.

SMART LOADING bundles intelligent machine optimisation systems for wheel loaders and telehandlers into a single operator assist system to actively support the driver with all high-tonnage loading operations. Mast programming, automatic bucket return and a weighing system with reweighing function optimise the entire loading cycle, boosting both productivity and the efficiency of your work processes.



## Business and data management.

With CLAAS TELEMATICS, you can always see exactly what is happening with your CLAAS machines. The data regularly transmitted from the machines can be read on a PC or in your smartphone in the CLAAS TELEMATICS app. The automatic documentation function provides an accurate breakdown of machine activities in the field, around the farm and on the road. Several updates each year ensure that TELEMATICS stays up with the play.



## EASY – get connected.

Our EASY specialists are available to guide you through connecting the various components and systems. They will integrate your CLAAS machine into your system landscape and set it up for your automated steering system environment and data management structure. They will help to ensure that your CLAAS machines can send and receive data, to and from the locations you require. Protected against access by third parties, but user-friendly and reliable for you and your staff. That's why we say: "EASY – get connected."

# Whatever it takes – CLAAS Service & Parts.



## Your requirements count.

You can always rely on us: we'll be there whenever you need us – everywhere, quickly and reliably, around the clock if necessary, with precisely the solution that your machine or business requires. Whatever it takes.

## ORIGINAL parts and accessories.

Specially matched to your machine: precision-manufactured parts, high-quality consumables and useful accessories. From our comprehensive product range, we supply exactly the right solution required for the 100% operating reliability of your machine. Whatever it takes.

## For your business: CLAAS FARM PARTS.

CLAAS FARM PARTS offers one of the most comprehensive spare parts programmes, regardless of brand and sector, for all agricultural applications on your farm. Whatever it takes.

## Always up to date.

CLAAS dealers are among the most efficient agricultural technology companies in the world. Our service teams are ideally qualified and equipped with the all-important special tools and diagnostic systems. CLAAS Service stands for high-quality work which meets all your expectations. Whatever it takes.

## Reliability can be planned.

Our service products help you to increase machine reliability, minimise the breakdown risk and base your calculations on predictable costs. CLAAS MAXI CARE offers planned reliability for your machine. Whatever it takes.

## Worldwide coverage from Hamm.

Our central spare parts warehouse delivers all ORIGINAL parts quickly and reliably all over the world. Your local CLAAS partner can supply the right solution for your harvest or your business within a very short time. Whatever it takes.

## Always connected with your distributor and CLAAS.

Using Remote Service, your CLAAS distributor can access your machine and your specific data. Working together, you can address service and maintenance needs quickly and directly.

Additionally, with TELEMATICS, you can retrieve all of your important machine data via the internet, anytime, anywhere. Whatever it takes.



The CLAAS Parts Logistics Center in Hamm, Germany stocks more than 155,000 different parts and has a warehouse area of over 100,000 m<sup>2</sup>.



## Scaling up. TORION 1914 / 1812.

- Efficient Liebherr engines meeting the Stage IV (Tier 4) exhaust standard, with high output and low fuel consumption
- Powerful and efficient CMATIC transmission for maximum productivity
- Optimal weight distribution, thanks to unique engine mounting and intelligent arrangement of other drive components
- Optimised selection of agricultural and Z-kinematics
- Functions work together in perfect harmony to optimise the load cycles with numerous SMART LOADING functions
- Modern, ergonomic cab design for safe and comfortable operation even on long working days
- Up to 12 LED or halogen lights for optimum visibility when working at night
- High-quality touchscreen for simple operation of all machine and automated functions
- Durable and low-maintenance

## Focus on efficiency. TORION 1511-1177.

- Efficient DPS engines meeting the Stage IV (Tier 4) exhaust standard, with high output and low fuel consumption
- Efficient VARIPOWER transmission for maximum productivity
- Optimal weight distribution, thanks to unique engine mounting and intelligent arrangement of other drive components
- Optimised selection of P- and Z-kinematics
- Functions work together in perfect harmony to optimise the load cycles with numerous SMART LOADING functions
- Up to 8 LED or halogen lights for optimum visibility for working at night
- Modern, ergonomic cab design for safe and comfortable operation even on long working days
- Long service life – designed for challenging conditions

## Guaranteed manoeuvrability. TORION 956 / 644 / 537 SINUS.

- TORION 956 SINUS: efficient DPS 4-cylinder engine, 76 kW (106 hp), max. 405 Nm at 2,000 rpm, Stage IV (Tier 4f) exhaust standard
- TORION 644 / 537 SINUS: robust Yanmar 4-cylinder engine, 54 kW (73 hp), Stage V exhaust standard
- Hydrostatic drive, up to 40 km/h, with two driving ranges
- New chassis design with steered rear axle for optimum manoeuvrability
- Higher payload capacity, thanks to maximum stability and protection against tipping
- High-lift mast for loading heights of up to 3.70 metres
- Z-kinematics with optimum view of the implement in front
- Up to 8 LED or halogen lights for optimum visibility for working at night
- Modern, ergonomic cab design for safe and comfortable operation even on long working days

## Agile performer. TORION 639 / 535.

- Powerful Yanmar engine, up to 50 kW (68 hp)
- Maximum stability in all terrains with optimal low design and centre of gravity
- Optimal all-round view and perfect view of the tool carrier in every position, thanks to conical mast and intelligent cab design
- Up to 8 LED or halogen lights for optimum visibility for working at night
- Low overall height of less than 2.5 m
- Extremely manoeuvrable, thanks to 40° articulating angle (ideal for working in confined spaces)
- Easy and safe operation
- Reliable – designed for tough conditions
- Ideal as an all-round machine on livestock (including dairy) farms and farms growing special crops



# All the way up – SMART PUSH.



## SMART PUSH: No tipping movement.

The SMART PUSH bucket is not emptied by tipping. Instead, the material is simply pushed out of the bucket. This allows higher overhead discharge heights than with a normal bucket.

## SMART PUSH is robust.

The SMART PUSH bucket is filled like any other shovel or bucket – by driving it into a pile of bulk material such as wood chips, or with the use of the top grab, which is ideal for the removal of silage from a maize or grass clamp.

To empty the bucket, it is brought into the appropriate position – for example, above the forage mixing wagon, or the solids collection point of a biogas plant. Then the operator simply presses a button, and the back panel of the bucket is pushed forward hydraulically to empty the contents.

## How you benefit:

- Higher overhead discharge height without having to invest in a larger wheel loader
- Pushing rather than tipping enables you to work with higher overhead discharge heights
- Less weight means more load capacity
- Overload protection system eliminates any risk of bucket overloading
- SMART PUSH is the only push bucket with top grab available on the market

SMART PUSH	TORION 639	TORION 535
<b>Grab bucket</b>		
720 l	<input type="checkbox"/>	<input type="checkbox"/>
830 l	<input type="checkbox"/>	<input type="checkbox"/>
920 l	<input type="checkbox"/>	<input type="checkbox"/>
1020 l	<input type="checkbox"/>	–
1140 l	<input type="checkbox"/>	–
<b>Light material bucket, small</b>		
1600 l	<input type="checkbox"/>	<input type="checkbox"/>
1760 l	<input type="checkbox"/>	–

Available – Not available



## SMART PUSH more than a weight saver.

Smaller wheel loaders have difficulty with conventional high-tip buckets. These devices are often too expensive for an economy machine, and are often so heavy that not much load capacity is left. The SMART PUSH bucket is the perfect alternative in this situation.



**Earthmoving bucket with teeth (1)**

Volume (m³)	Width (mm)	Weight (kg)	1914	1812	1511	1410	1177	639	535
0.8	1900	303	-	-	-	-	-	-	□
1.0	2100	354	-	-	-	-	-	□	-
1.8	2500	880	-	-	-	-	□	-	-
2.0	2500	938	-	-	-	□	-	-	-
2.1	2500	950	-	-	-	-	□	-	-
2.2	2500	933	-	-	□	-	-	-	-
2.3	2500	-	-	-	-	□	-	-	-
2.5	2500	1040	-	-	□	-	-	-	-
2.8	2700	1140	□	-	-	-	-	-	-
3.0	2700	1180	-	□	-	-	-	-	-
3.3	2700	1215	□	-	-	-	-	-	-

**Light material bucket (3) for high-density bulk material (1 t/m³)**

Volume (m³)	Width (mm)	Weight (kg)	1914	1812	1511	1410	1177	639	535
1.4	2200	474	-	-	-	-	-	-	□
1.6	2400	507	-	-	-	-	-	□	-
2.5	2500	993	-	-	-	-	□	-	-
3.0	2700	1020	-	-	-	-	□	-	-
3.5	2700	1210	-	-	-	□	□	-	-
4.0	2700	1130	-	-	□	□	-	-	-
4.5	2700	1360	-	-	□	-	-	-	-
5.0	2950	1645	□	□	-	-	-	-	-

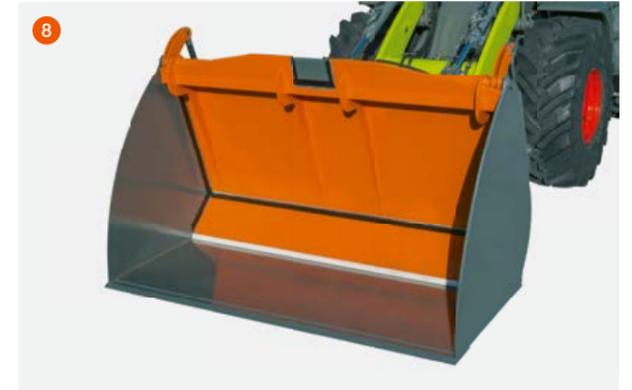
**Earth bucket with grader blade (2)**

Volume (m³)	Width (mm)	Weight (kg)	1914	1812	1511	1410	1177	639	535
0.8	1900	303	-	-	-	-	-	-	□
1.0	2100	378	-	-	-	-	-	□	-
1.8	2500	880	-	-	-	-	□	-	-
2.0	2500	938	-	-	-	□	-	-	-
2.1	2500	950	-	-	-	-	□	-	-
2.2	2500	933	-	-	□	-	-	-	-
2.3	2500	1000	-	-	-	□	-	-	-
2.5	2500	1042	-	-	□	-	-	-	-
2.8	2700	1140	□	-	-	-	-	-	-
3.0	2700	1400	-	□	-	-	-	-	-
3.3	2700	1430	□	-	-	-	-	-	-

**High-tip bucket (4)**

Volume (m³)	Width (mm)	Weight (kg)	1914	1812	1511	1410	1177	639	535
1.1 <sup>1</sup>	1900	-	-	-	-	-	-	□	□
2.5	2500	1450	-	-	-	-	□	-	-
3.0	2700	1850	-	-	-	□	□	-	-
3.5	2700	1952	-	-	□	□	-	-	-
4.0	2700	2012	-	-	□	-	-	-	-
4.0 <sup>3</sup>	2700	2010	-	□	-	-	-	-	-
4.0 <sup>4</sup>	2700	2290	-	□	-	-	-	-	-
4.5 <sup>1</sup>	2700	2100	□	□	-	-	-	-	-
4.5 <sup>2</sup>	2700	2390	□	-	-	-	-	-	-
5.0 <sup>1</sup>	2700	2140	□	-	-	-	-	-	-

<sup>1</sup> Inside rams  
<sup>2</sup> Outside rams  
<sup>3</sup> For agricultural kinematics with high-lift mast  
<sup>4</sup> For Z-kinematics



**Pallet fork (5)**

Fork carriage width (mm)	Tine width (mm)	Tine thickness (mm)	Tine length (mm)	Weight Fork carriage / tines (kg)	Load capacity (kg)	LC (mm)							
							1914	1812	1511	1410	1177	639	535
1245	100	45	1200	121 / 120	2400	500	-	-	-	-	-	□	□
	120	45	1200	121 / 132	2400	500	-	-	-	-	-	□	□
1778	150	50	1200	233 / 220	5000	500	-	-	□	□	□	-	-
	150	50	1500	233 / 257	5000	500	-	-	□	□	□	-	-
2000	150	70	1500	350 / 390	7360	600	□	□	-	-	-	-	-

**SMART PUSH bucket with top grab (6)**

Volume (m³)	Width (mm)	Weight (kg)	639	535
0.72	1400	540	□	□
0.83	1600	590	□	□
0.92	1800	630	□	□
1.02	2000	690	□	-
1.14	2200	730	□	-

**SMART PUSH bucket (7)**

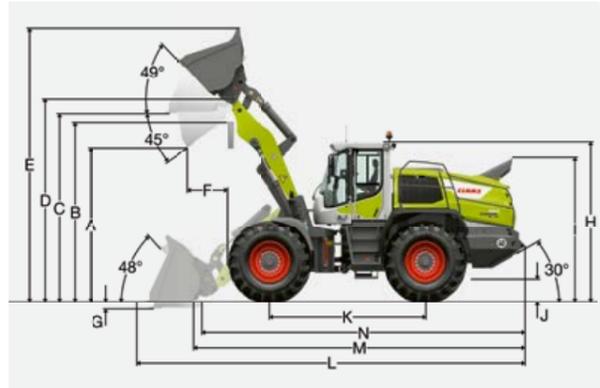
Volume (m³)	Width (mm)	Weight (kg)	1511	1410	1177	639	535
1.60	2000	680	-	-	-	□	□
1.76	2200	750	-	-	-	□	-
1.92	2400	810	-	-	□	-	-
2.00	2500	850	-	-	□	-	-
2.08	2600	885	-	-	□	-	-
2.24	2800	950	-	-	□	-	-
2.40	3000	1010	-	-	□ <sup>1</sup>	-	-

**SMART PUSH bucket (8)**

Volume (m³)	Width (mm)	Weight (kg)	1511	1410	1177	639	535
3.26	2400	1190	-	-	□ <sup>1</sup>	-	-
3.40	2500	1240	□	□	-	-	-
3.53	2600	1290	□ <sup>2</sup>	□ <sup>1</sup>	-	-	-
3.80	2800	1390	□ <sup>2</sup>	□ <sup>1</sup>	-	-	-
4.10	3000	1490	□ <sup>1</sup>	□ <sup>1</sup>	-	-	-

<sup>1</sup> Only with P-kinematics

<sup>2</sup> Only with P-kinematics or P-kinematics and high-lift mast



## TORION 1914 / 1812.

With agricultural kinematics, implement carrier with quick-attachment system and earthmoving bucket<sup>1</sup>.

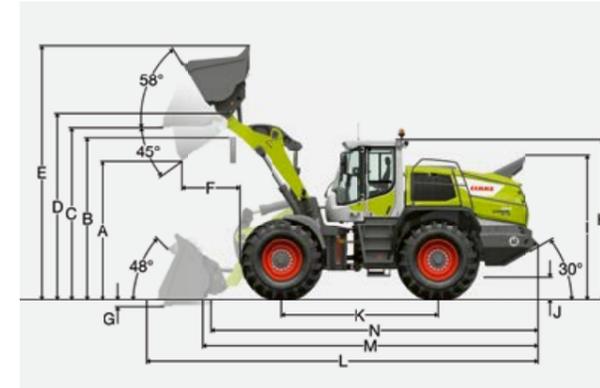
	TORION 1914		TORION 1812	
	STD	HL	STD	HL
Cutting tool	USM	USM	USM	USM
Mast length	mm	2600	3000	2600
Bucket capacity according to ISO 7546 <sup>2</sup>	m <sup>3</sup>	3.30	3.00	2.80
Bucket width	mm	2700	2700	2700
Dumping height at max. lift height and 45° dumping angle (A)	mm	2850	3460	2880
Bucket clearance height (B)	mm	3500	4100	3500
Max. height to bucket base (C)	mm	3795	4360	3795
Max. height to bucket pivot (D)	mm	4075	4640	4075
Max. height to bucket top (E)	mm	5620	6160	5580
Reach at max. lift height and 45° dumping angle (F)	mm	1174	1015	1135
Digging depth (G)	mm	80	80	80
Height above cab (H)	mm	3370	3370	3370
Height above exhaust (I)	mm	3020	3020	3020
Ground clearance (J)	mm	490	490	490
Wheelbase (K)	mm	3395	3395	3395
Overall length (L)	mm	8605	9080	8550
Overall length to outer edge of implement carrier (M)	mm	7330	7850	7330
Overall length to bucket pivot point (N)	mm	7149	7670	7149
Turning radius over bucket outside edge	mm	6650	6885	6630
Breakaway power (SAE)	kN	130	125	125
Straight tipping load <sup>3</sup>	kg	14400	11800	12800
Articulated tipping load <sup>3</sup>	kg	12400	10100	11100
Operating weight <sup>3</sup>	kg	19500	19750	18700
Tyre size		23.5 R 25 (L3)		23.5 R 25 (L3)

<sup>1</sup> Earthmoving bucket with short straight base for quick attachment.

<sup>2</sup> The bucket capacity can be approx. 10% greater in practice than as calculated according to ISO 7546. Bucket filling level depends on the material.

<sup>3</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).

STD = standard mast length, HL = high-lift mast, USM = grader blade



## TORION 1914 / 1812.

With Z-kinematics, implement carrier with quick change and earthmoving bucket<sup>1</sup>.

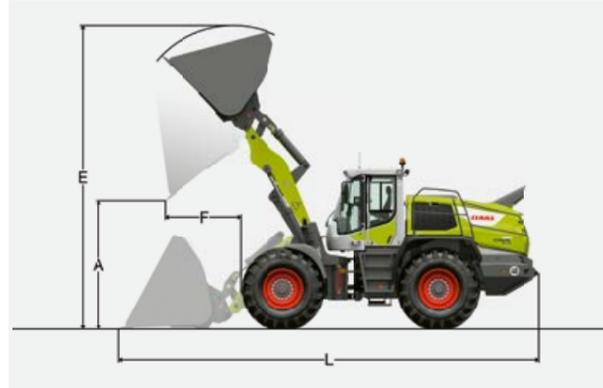
	TORION 1914		TORION 1812	
	STD	HL	STD	HL
Cutting tool		USM		USM
Mast length	mm	2600		2600
Bucket capacity according to ISO 7546 <sup>2</sup>	m <sup>3</sup>	4.00		3.60
Bucket width	mm	2700		2700
Dumping height at max. lift height and 45° dumping angle (A)	mm	2740		2810
Bucket clearance height (B)	mm	3500		3500
Max. height to bucket base (C)	mm	3645		3645
Max. height to bucket pivot (D)	mm	3915		3915
Max. height to bucket top (E)	mm	5775		5695
Reach at max. lift height and 45° dumping angle (F)	mm	1250		1170
Digging depth (G)	mm	85		85
Height above cab (H)	mm	3370		3370
Height above exhaust (I)	mm	3020		3020
Ground clearance (J)	mm	490		490
Wheelbase (K)	mm	3395		3395
Overall length (L)	mm	8580		8480
Overall length to outer edge of implement carrier (M)	mm	7300		7300
Overall length to bucket pivot point (N)	mm	7158		7158
Turning radius over bucket outside edge	mm	6635		6610
Breakaway power (SAE)	kN	140		130
Straight tipping load <sup>3</sup>	kg	15550		13800
Articulated tipping load <sup>3</sup>	kg	13500		12000
Operating weight <sup>3</sup>	kg	18500		17800
Tyre size		23.5 R 25 (L3)		23.5 R 25 (L3)

<sup>1</sup> Earthmoving bucket with short straight base for quick attachment.

<sup>2</sup> The bucket capacity can be approx. 10% greater in practice than as calculated according to ISO 7546. Bucket filling level depends on the material.

<sup>3</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).

USM = grader blade

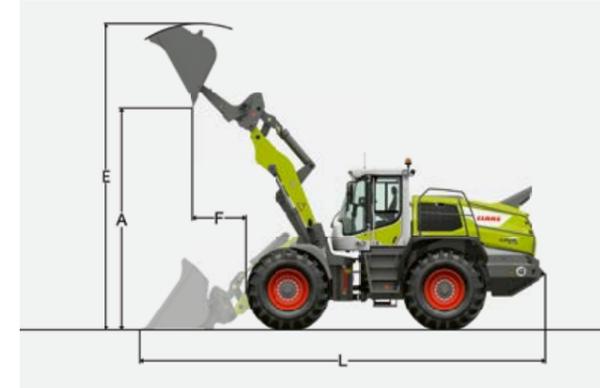


## TORION 1914 / 1812.

With agricultural kinematics, implement carrier with quick-attachment system and light material bucket.

High bulk material density (1 t/m <sup>3</sup> )	TORION 1914		TORION 1812	
	STD	HL	STD	HL
Cutting tool	USM	USM	USM	USM
Bucket capacity	m <sup>3</sup> 5.50	5.00	5.00	4.50
Bucket width	mm 2950	2950	2950	2950
Dumping height at max. lift height (A)	mm 2450	3130	2550	3220
Max. height to over bucket top (E)	mm 6060	6480	5900	6320
Reach at max. lift height (F)	mm 1550	1330	1450	1250
Overall length (L)	mm 8900	9280	8770	9170
Straight tipping load <sup>1</sup>	kg 13200	11100	11900	9800
Fully articulated tipping load <sup>1</sup>	kg 11300	9400	10200	8300
Operating weight <sup>1</sup>	kg 20100	20300	19200	19400
Tyre size	23.5 R 25 (L3)		23.5 R 25 (L3)	

<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).  
STD = standard mast length, HL = high-lift mast, USM = grader blade

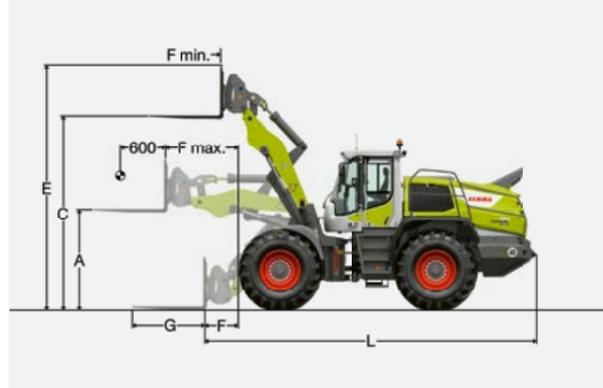


## TORION 1914 / 1812.

With agricultural kinematics, implement carrier with quick-attachment system and high-tip bucket.

High bulk material density (1 t/m <sup>3</sup> )	TORION 1914		TORION 1812	
	STD	HL	STD	HL
Cutting tool	USM	USM	USM	USM
Bucket capacity	m <sup>3</sup> 5.00	4.50	4.50	4.00
Bucket width	mm 2700	2700	2700	2700
Dumping height at max. lift height (A)	mm 4590	5160	4550	5040
Max. height to over bucket top (E)	mm 6850	7300	6680	7120
Reach at max. lift height (F)	mm 1820	1650	1790	1560
Overall length (L)	mm 9120	9550	9000	9410
Straight tipping load <sup>1</sup>	kg 12900	10500	11400	9200
Fully articulated tipping load <sup>1</sup>	kg 10900	8900	9700	7700
Operating weight <sup>1</sup>	kg 20600	20800	19700	19900
Tyre size	23.5 R 25 (L3)		23.5 R 25 (L3)	

<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).  
STD = standard mast length, HL = high-lift mast, USM = grader blade



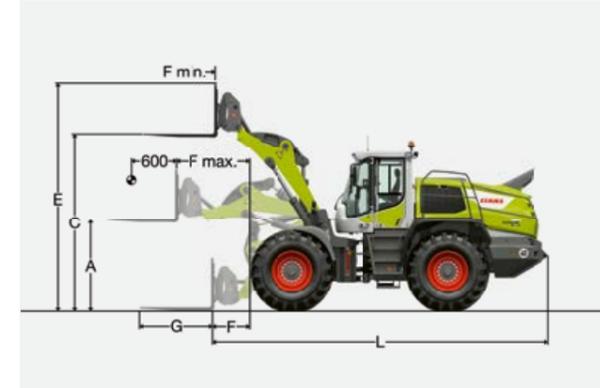
## TORION 1914 / 1812.

With agricultural kinematics, implement carrier with quick-attachment system and pallet fork.

FEM IV pallet fork		TORION 1914	TORION 1812
Lift height at max. reach (A)	mm	1840	1840
Max. lift height (C)	mm	3835	3835
Max. height to over pallet fork (E)	mm	4825	4825
Reach in loading position (F)	mm	985	985
Maximum possible reach (F max.)	mm	1680	1680
Reach at max. lift height (F min.)	mm	750	750
Fork tine length (G)	mm	1500	1500
Basic machine overall length (L)	mm	7380	7380
Straight tipping load <sup>1</sup>	kg	10700	9500
Fully articulated tipping load <sup>1</sup>	kg	9200	8300
Permissible load capacity on even ground = 60% of articulated static tipping load <sup>2</sup>	kg	5520	4980
Permissible load capacity on even ground = 80% of articulated static tipping load <sup>2</sup>	kg	7360	6640
Operating weight <sup>1</sup>	kg	18500	17800
Tyre size		23.5 R 25 (L3)	23.5 R 25 (L3)

<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).

<sup>2</sup> According to EN 474-3.



## TORION 1914 / 1812.

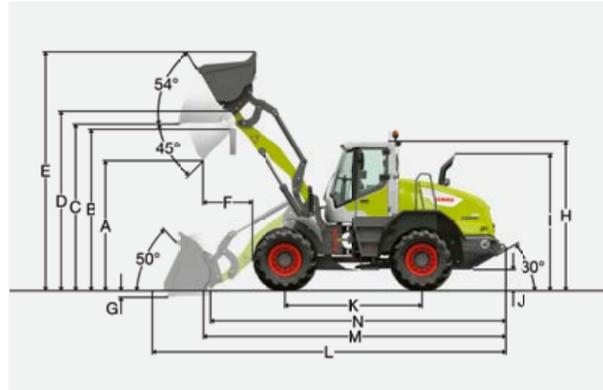
With Z-kinematics, implement carrier with quick-attachment system and pallet fork.

FEM IV pallet fork		TORION 1914	TORION 1812
Lift height at max. reach (A)	mm	1780	1780
Max. lift height (C)	mm	3680	3680
Max. height to over pallet fork (E)	mm	4680	4680
Reach in loading position (F)	mm	1020	1020
Maximum possible reach (F max.)	mm	1655	1655
Reach at max. lift height (F min.)	mm	835	835
Fork tine length (G)	mm	1500	1500
Basic machine overall length (L)	mm	8300	8300
Straight tipping load <sup>1</sup>	kg	10700	9500
Fully articulated tipping load <sup>1</sup>	kg	9200	8300
Permissible load capacity on even ground = 60% of articulated static tipping load <sup>2</sup>	kg	5490	4830
Permissible load capacity on even ground = 80% of articulated static tipping load <sup>2</sup>	kg	6500 <sup>3</sup>	5800 <sup>3</sup>
Operating weight <sup>1</sup>	kg	18050	17400
Tyre size		23.5 R 25 (L3)	23.5 R 25 (L3)

<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).

<sup>2</sup> According to EN 474-3.

<sup>3</sup> Load capacity limited by tilt rams of Z-kinematics.



## TORION 1511-1177.

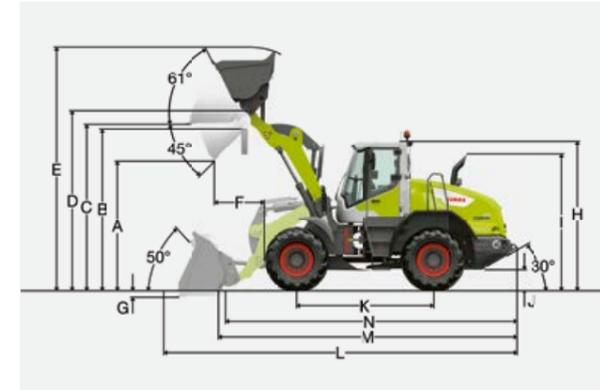
With P-kinematics, implement carrier with quick-change system and earthmoving bucket.

	TORION 1511		TORION 1410		TORION 1177		
	STD	HL	STD	HL	STD	HL	
Cutting tool	USM	USM	USM	USM	USM	USM	
Mast length	mm	2570	3000	2570	3000	2570	3000
Bucket capacity according to ISO 7546 <sup>1</sup>	m <sup>3</sup>	2.50	2.50	2.30	2.30	2.10	2.10
Bucket width	mm	2500	2500	2500	2500	2500	2500
Dumping height at max. lift height and 45° dumping angle (A)	mm	2740	3305	2790	3350	2775	3335
Bucket clearance height (B)	mm	3480	4040	3480	4040	3380	3980
Max. height to bucket base (C)	mm	3680	4260	3680	4260	3610	4190
Max. height to bucket pivot (D)	mm	3930	4510	3930	4510	3860	4435
Max. height to bucket top (E)	mm	5350	5910	5290	5860	5130	5700
Reach at max. lift height and 45° dumping angle (F)	mm	1160	1080	1110	1030	1170	1100
Digging depth (G)	mm	55	25	55	25	120	95
Height above cab (H)	mm	3250	3250	3250	3250	3200	3200
Height above exhaust (I)	mm	2950	2950	2950	2950	2900	2900
Ground clearance (J)	mm	490	490	490	490	460	460
Wheelbase (K)	mm	2975	2975	2975	2975	2925	2925
Overall length (L)	mm	7790	8330	7720	8260	7690	8220
Overall length to outer edge of implement carrier (M)	mm	6528	7074	6528	7074	6581	7120
Overall length to bucket pivot point (N)	mm	6372	6915	6372	6915	6424	6963
Turning radius over bucket outside edge	mm	6110	6390	6090	6370	5950	6220
Breakaway power (SAE)	kN	112	112	108	108	100	100
Tip load, straight <sup>2</sup>	kg	10920	9000	10300	8410	9000	7400
Fully articulated tipping load <sup>2</sup>	kg	9750	7800	9100	7350	7750	6500
Operating weight <sup>2</sup>	kg	14300	14560	13900	14160	12620	12880
Tyre size		20.5 R 25 (L3)		20.5 R 25 (L3)		17.5 R 25 (L3)	

<sup>1</sup> The bucket capacity can be approx. 10% in practice than as calculated according to ISO 7546. Bucket filling level depends on the material.

<sup>2</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).

STD = standard mast length, HL = high-lift mast, USM = grader blade



## TORION 1511-1177.

With Z-kinematics, implement carrier with quick change and earthmoving bucket<sup>1</sup>.

	TORION 1511		TORION 1410		TORION 1177	
	STD	HL	STD	HL	STD	HL
Cutting tool	USM	USM	USM	USM	USM	USM
Mast length	mm	2500	2500	2400		
Bucket capacity according to ISO 7546 <sup>2</sup>	m <sup>3</sup>	2.50	2.30	1.80		
Bucket width	mm	2500	2500	2500		
Dumping height at max. lift height and 45° dumping angle (A)	mm	2710	2760	2720		
Bucket clearance height (B)	mm	3480	3480	3320		
Max. height to bucket base (C)	mm	3680	3680	3510		
Max. height to bucket pivot (D)	mm	3930	3930	3760		
Max. height to bucket top (E)	mm	5330	5270	4980		
Reach at max. lift height and 45° dumping angle (F)	mm	1110	1060	975		
Digging depth (G)	mm	40	40	80		
Height above cab (H)	mm	3250	3250	3200		
Height above exhaust (I)	mm	2950	2950	2900		
Ground clearance (J)	mm	490	490	460		
Wheelbase (K)	mm	2975	2975	2925		
Overall length (L)	mm	7680	7610	7380		
Overall length to outer edge of implement carrier (M)	mm	6432	6432	6360		
Overall length to bucket pivot point (N)	mm	6273	6273	6203		
Turning radius over bucket outside edge	mm	6080	6050	5890		
Breakaway power (SAE)	kN	105	100	86		
Straight tipping load <sup>3</sup>	kg	11200	10200	8300		
Articulated tipping load <sup>3</sup>	kg	9800	9000	7200		
Operating weight <sup>3</sup>	kg	14400	13700	11400		
Tyre size		20.5 R 25 (L3)		17.5 R 25 (L3)		

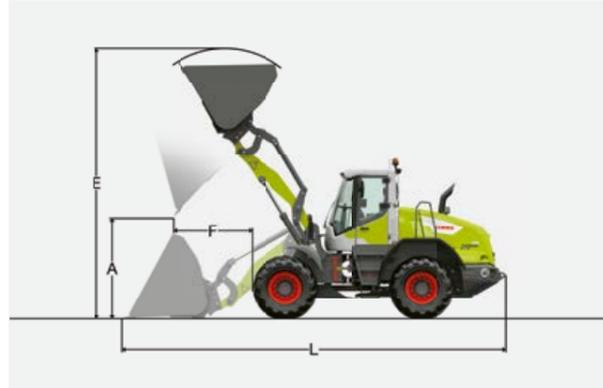
<sup>1</sup> Earthmoving bucket with short straight base for quick attachment.

<sup>2</sup> The bucket capacity can be approx. 10% in practice than as calculated according to ISO 7546. Bucket filling level depends on the material.

<sup>3</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).

USM = grader blade

Note: For stockpile removal operations, teeth, hydraulic quick-attachment systems and installation kits are not permitted.

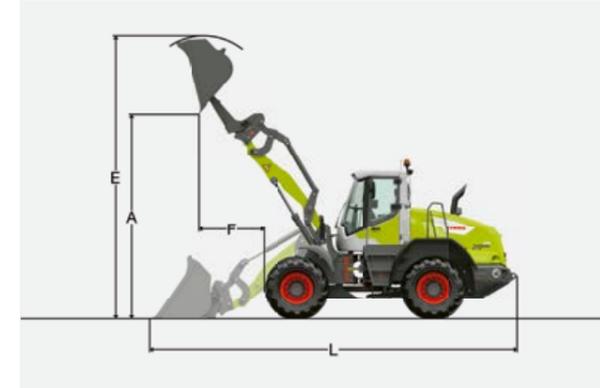


## TORION 1511-1177.

With P-kinematics, implement carrier with quick-attachment system and light material bucket.

		TORION 1511		TORION 1410		TORION 1177	
		STD	HL	STD	HL	STD	HL
Cutting tool		USM	USM	USM	USM	USM	USM
Bucket capacity	m <sup>3</sup>	4.50	4.00	4.00	3.50	3.50	3.00
Bucket width	mm	2700	2700	2700	2700	2700	2700
Dumping height at max. lift height (A)	mm	2380	3110	2490	3140	2480	3215
Max. height to over bucket top (E)	mm	5705	6170	5585	6020	5390	5900
Reach at max. lift height (F)	mm	1470	1260	1360	1230	1460	1220
Overall length (L)	mm	8110	8500	7955	8450	7940	8290
Straight tipping load <sup>1</sup>	kg	10200	8700	9900	8000	8450	7150
Fully articulated tipping load <sup>1</sup>	kg	9010	7600	8730	7040	7400	6280
Operating weight <sup>1</sup>	kg	14710	14740	14100	14450	12950	13050
Tyre size		20.5 R 25 (L3)		20.5 R 25 (L3)		17.5 R 25 (L3)	

<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).  
STD = standard mast length, HL = high-lift mast, USM = grader blade



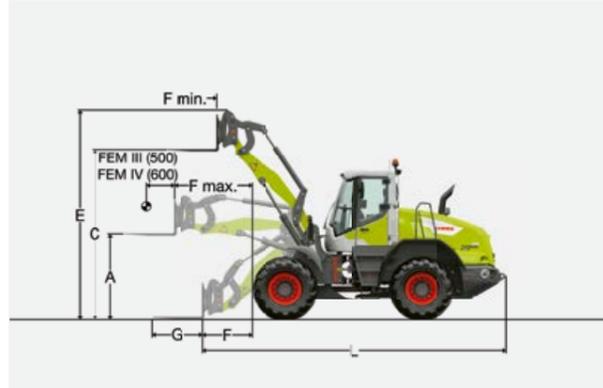
## TORION 1511-1177.

With P-kinematics, implement carrier with quick-attachment system and high-tip bucket.

		TORION 1511		TORION 1410		TORION 1177	
		STD	HL	STD	HL	STD	HL
Cutting tool		USM	USM	USM	USM	USM	USM
Bucket capacity	m <sup>3</sup>	4.00	3.50	3.50	3.00	3.00	2.50
Bucket width	mm	2700	2700	2700	2700	2700	2500
Dumping height at max. lift height (A)	mm	4470	5300	4560	5320	4530	5090
Max. height to over bucket top (E)	mm	6410	7095	6420	6985	6260	6680
Reach at max. lift height (F)	mm	1550	1270	1460	1250	1550	1370
Overall length (L)	mm	8210	8620	8080	8590	8080	8530
Straight tipping load <sup>1</sup>	kg	9280	7680	8800	7100	7420	6380
Fully articulated tipping load <sup>1</sup>	kg	8200	6760	7720	6280	6510	5590
Operating weight <sup>1</sup>	kg	15360	15560	14930	15090	13590	13450
Tyre size		20.5 R 25 (L3)		20.5 R 25 (L3)		17.5 R 25 (L3)	

<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).  
STD = standard mast length, HL = high-lift mast, USM = grader blade





## TORION 1511-1177.

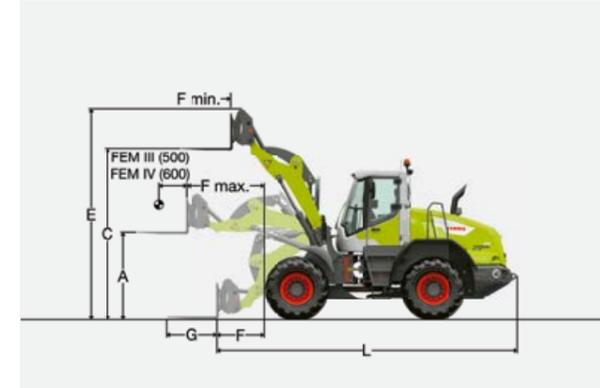
With Z-kinematics, implement carrier with quick-attachment system and pallet fork.

Pallet fork		TORION 1511		TORION 1410		TORION 1177
Pallet fork type		FEM IV	FEM III	FEM IV	FEM III	FEM III
Mast length	mm	2570	2570	2570	2570	2570
Lift height at max. reach (A)	mm	1700	1740	1700	1740	1670
Max. lift height (C)	mm	3705	3740	3705	3740	3675
Max. height to over pallet fork (E)	mm	4700	4664	4700	4664	4600
Reach in loading position (F)	mm	1080	1060	1080	1060	1240
Maximum possible reach (F max.)	mm	1680	1700	1680	1700	1800
Reach at max. lift height (F min.)	mm	715	735	715	735	840
Fork tine length (G)	mm	1200	1200	1200	1200	1200
Basic machine overall length (L)	mm	6620	6590	6620	6590	6650
Straight tipping load <sup>1</sup>	kg	8650	8750	8080	8150	7110
Fully articulated tipping load <sup>1</sup>	kg	7650	7710	7120	7200	6240
Permissible load capacity on even ground = 60% of articulated static tipping load <sup>2</sup>	kg	4550	4620	4270	4320	3700
Permissible load capacity on even ground = 80% of articulated static tipping load <sup>2</sup>	kg	6000	5000 <sup>3</sup>	5700	5000 <sup>3</sup>	4900
Operating weight <sup>1</sup>	kg	14040	13810	13670	13430	12200
Tyre size		20.5 R 25 (L3)		20.5 R 25 (L3)		17.5 R 25 (L3)

<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).

<sup>2</sup> According to EN 474-3.

<sup>3</sup> Load capacity limited by FEM III fork carriage and tines to 5,000 kg.



## TORION 1511-1177.

With Z-kinematics, implement carrier with quick-attachment system and pallet fork.

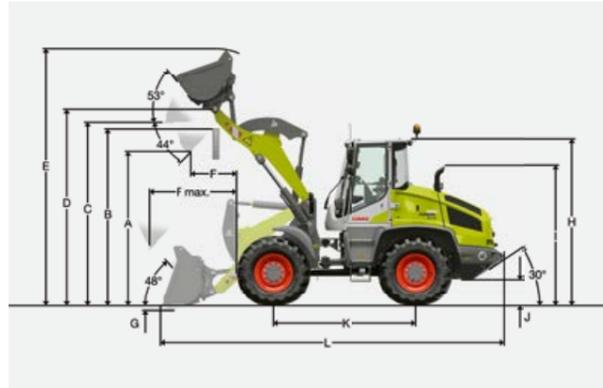
Pallet fork		TORION 1511		TORION 1410		TORION 1177
Loading fork type		FEM IV	FEM III	FEM IV	FEM III	FEM III
Mast length	mm	2500	2500	2500	2500	2400
Lift height at max. reach (A)	mm	1740	1780	1740	1780	1680
Max. lift height (C)	mm	3700	3740	3700	3740	3570
Max. height to over fork carriage (E)	mm	4695	4664	4695	4664	4500
Reach in loading position (F)	mm	995	965	995	965	1010
Maximum possible reach (F max.)	mm	1640	1660	1640	1660	1650
Reach at max. lift height (F min.)	mm	690	710	690	710	730
Fork tine length (G)	mm	1200	1200	1200	1200	1200
Basic machine overall length (L)	mm	6530	6510	6530	6510	6435
Straight tipping load <sup>1</sup>	kg	8500	8580	7620	7700	6200
Fully articulated tipping load <sup>1</sup>	kg	7500	7560	6700	6800	5500
Permissible load capacity on even ground = 60% of articulated static tipping load <sup>2</sup>	kg	4480	4520	4000	4050	3290
Permissible load capacity on even ground = 80% of articulated static tipping load <sup>2</sup>	kg	5200 <sup>3</sup>	5000 <sup>4</sup>	5200 <sup>3</sup>	5000 <sup>4</sup>	4200 <sup>3</sup>
Operating weight <sup>1</sup>	kg	14060	13820	13450	13200	11060
Tyre size		20.5 R 25 (L3)		20.5 R 25 (L3)		17.5 R 25 (L3)

<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).

<sup>2</sup> According to EN 474-3.

<sup>3</sup> Load capacity limited by tilt rams of Z-kinematics.

<sup>4</sup> Load capacity limited by FEM III fork carriage and tines to 5,000 kg.



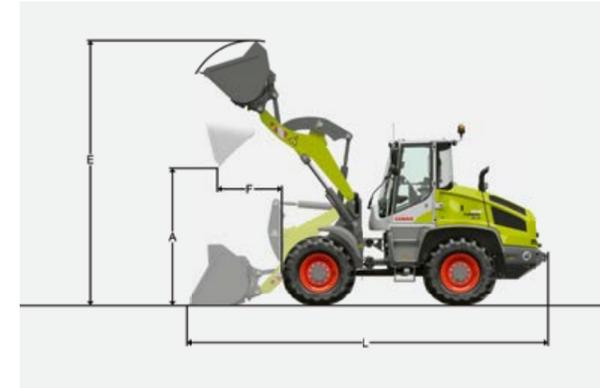
## TORION 956 SINUS.

With Z-kinematics, implement carrier with quick-attachment system and earthmoving bucket.

	TORION 956 SINUS	
	STD	HL
Cutting tool	USM	USM
Mast length	mm 2400	2645
Bucket capacity according to ISO 7546 <sup>1</sup>	m <sup>3</sup> 1.40	1.30
Bucket width	mm 2400	2400
Material density	t/m <sup>3</sup> 1.80	1.60
Dumping height at max. lift height and 44° dumping angle (A)	mm 2915	3170
Bucket clearance height (B)	mm 3370	3645
Max. height to bucket base (C)	mm 3500	3785
Max. height to bucket pivot (D)	mm 3720	4010
Max. height to bucket top (E)	mm 4795	5020
Reach at max. lift height and 44° dumping angle (F)	mm 785	860
Max. reach at 44° dumping angle (F max.)	mm 1630	1915
Digging depth (G)	mm 70	125
Height above cab (H)	mm 3025	3025
Height above exhaust (I)	mm 2525	2525
Ground clearance (J)	mm 430	430
Wheelbase (K)	mm 2600	2600
Overall length (L)	mm 6360	6750
Overall length to outer edge of implement carrier (M)	mm 5600	5960
Overall length to bucket pivot point (N)	mm 5445	5781
Turning radius over bucket outside edge	mm 4450	4675
Breakaway power	kN 68	70
Tip load, straight <sup>2</sup>	kg 6095	5275
Tip load, articulated at 30° <sup>2</sup>	kg 5575	4825
Operating weight <sup>2</sup>	kg 9070	9120
Tyre size	17.5 MI XTLA L2	

<sup>1</sup> The bucket capacity can be approx. 10% in practice than as calculated according to ISO 7546. Bucket filling level depends on the material.

<sup>2</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).  
STD = standard mast length, HL = high-lift mast, USM = grader blade

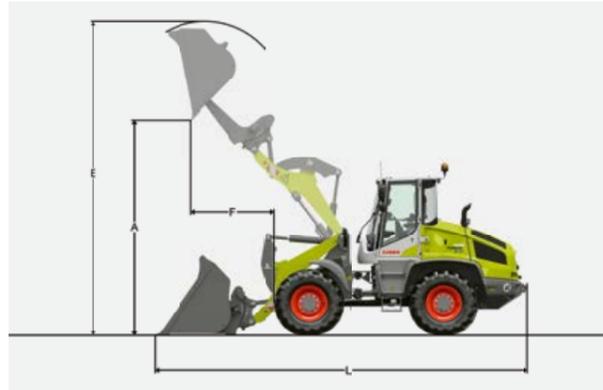


## TORION 956 SINUS.

With Z-kinematics, implement carrier with quick-attachment system and light material bucket.

	TORION 956 SINUS	
	STD	HL
Cutting tool	USM	USM
Bucket capacity	m <sup>3</sup> 2	2
Bucket width	mm 2500	2500
Dumping height at max. lift height (A)	mm 2745	3020
Max. height to over bucket top (E)	mm 4970	5265
Reach at max. lift height (F)	mm 1010	1020
Overall length (L)	mm 6540	6865
Straight tipping load <sup>1</sup>	kg 5680	4955
Tip load, fully articulated at 30° <sup>1</sup>	kg 5200	4535
Operating weight <sup>1</sup>	kg 9250	9610
Tyre size	17.5 MI XTLA L2	

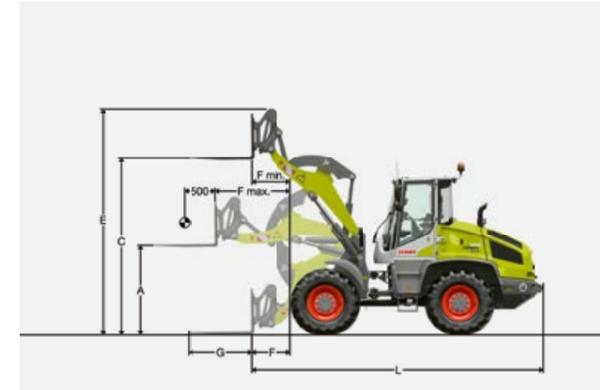
<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).  
STD = standard mast length, HL = high-lift mast, USM = grader blade



## TORION 956 SINUS.

With Z-kinematics, implement carrier with quick-attachment system and high-tip bucket.

High dumping weight	TORION 956 SINUS	
	STD	HL
Cutting tool	USM	USM
Bucket capacity	m <sup>3</sup> 2.20	1.80
Bucket width	mm 2500	2200
Dumping height at max. lift height (A)	mm 4200	4580
Max. height to over bucket top (E)	mm 5760	6060
Reach at max. lift height (F)	mm 1400	1470
Overall length (L)	mm 6965	7300
Straight tipping load <sup>1</sup>	kg 4655	4150
Tip load, fully articulated at 30° <sup>1</sup>	kg 4260	3800
Operating weight <sup>1</sup>	kg 9985	9870
Tyre size	17.5 MI XTLA L2	



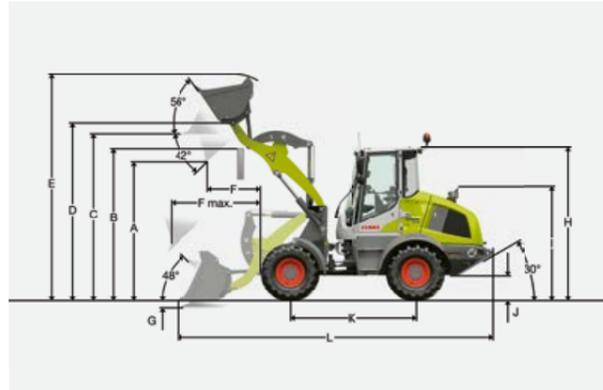
## TORION 956 SINUS.

With Z-kinematics, implement carrier with quick-attachment system and pallet fork.

	TORION 956 SINUS	
	STD	HL
Loading fork type	FEM III	FEM III
Mast length	mm 2400	2645
Lift height at max. reach (A)	mm 1745	1724
Max. lift height (C)	mm 3575	3865
Max. height to over fork carriage (E)	mm 4495	4785
Reach in loading position (F)	mm 765	1095
Max. reach (F max.)	mm 1460	1705
Reach at max. lift height (F min.)	mm 615	645
Fork tine length (G)	mm 1200	1200
Basic machine overall length (L)	mm 5640	5970
Straight tipping load <sup>1</sup>	kg 4500	3980
Tip load, fully articulated at 30° <sup>1</sup>	kg 4120	3640
Permissible load capacity on even ground = 60% of articulated static tipping load <sup>2</sup>	kg 2475	2185
Permissible load capacity on even ground = 80% of articulated static tipping load <sup>2</sup>	kg 3300	2900
Operating weight <sup>1</sup>	kg 8930	9030
Tyre size	405/70R18 L2	

<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).  
STD = standard mast length, HL = high-lift mast, USM = grader blade

<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).  
<sup>2</sup> According to EN 474-3.



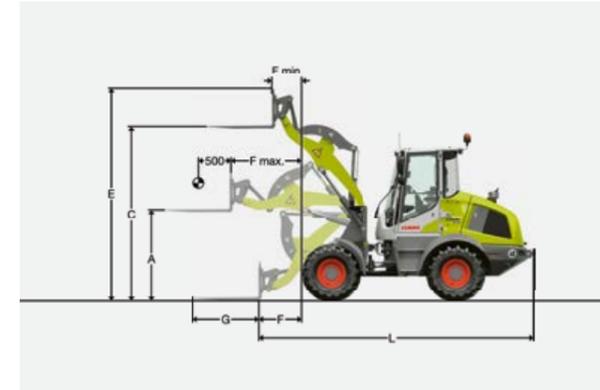
## TORION 644 / 537 SINUS.

With Z-kinematics, implement carrier with quick-attachment system and earthmoving bucket.

		TORION 644 SINUS		TORION 537 SINUS
		STD	HL	STD
Cutting tool		USM	USM	USM
Mast length	mm	2250	2560	2150
Bucket capacity according to ISO 7546 <sup>1</sup>	m <sup>3</sup>	1.20	1.00	0.90
Bucket width	mm	2330	2100	2050
Material density	t/m <sup>3</sup>	1.80	1.80	1.80
Dumping height at max. lift height and 42° dumping angle (A)	mm	2645	3145	2550
Bucket clearance height (B)	mm	2870	3000	3450
Max. height to bucket base (C)	mm	3145	3585	3015
Max. height to bucket pivot (D)	mm	3345	3785	3215
Max. height to bucket top (E)	mm	4260	4680	4040
Reach at max. lift height and 42° dumping angle (F)	mm	910	875	815
Max. reach at 42° dumping angle (F max.)	mm	1645	1935	1500
Digging depth (G)	mm	95	110	80
Height above cab (H)	mm	2780	2780	2750
Height above exhaust (I)	mm	2010	2010	1980
Ground clearance (J)	mm	295	295	285
Wheelbase (K)	mm	2300	2300	2150
Overall length (L)	mm	5815	6170	5495
Overall length to outer edge of implement carrier (M)	mm	4900	5285	4660
Overall length to bucket pivot point (N)	mm	4830	5200	4590
Turning radius over bucket outside edge	mm	4225	4325	3885
Breakaway power	kN	55	59	48
Tip load, straight <sup>2</sup>	kg	4850	4100	4070
Tip load, fully articulated at 30° <sup>2</sup>	kg	4430	3750	3750
Operating weight <sup>2</sup>	kg	6390	6630	5550
Tyre size		405/70R18 L2		365/70R18 L2

<sup>1</sup> The bucket capacity can be approx. 10% in practice than as calculated according to ISO 7546. Bucket filling level depends on the material.

<sup>2</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).  
STD = standard mast length, HL = high-lift mast, USM = grader blade



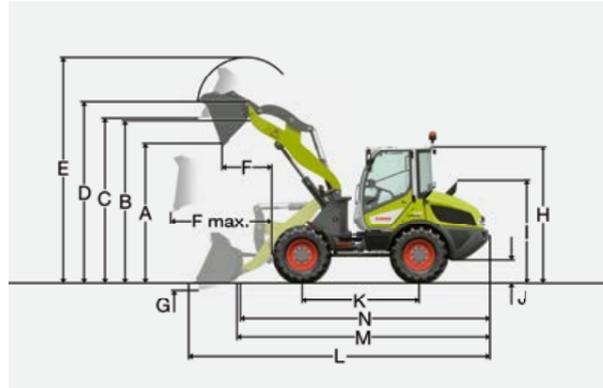
## TORION 644 / 537 SINUS.

With Z-kinematics, implement carrier with quick-attachment system and pallet fork.

		TORION 644 SINUS		TORION 537 SINUS
		STD	HL	STD
Loading fork type		FEM II	FEM II	FEM II
Lift height at max. reach (A)	mm	1500	1490	1450
Max. lift height (C)	mm	3175	3615	3045
Max. height to over fork carriage (E)	mm	3840	4280	3715
Reach in loading position (F)	mm	810	1200	740
Max. reach (F max.)	mm	1330	1640	1235
Reach at max. lift height (F min.)	mm	570	500	525
Fork tine length (G)	mm	1200	1200	1200
Basic machine overall length (L)	mm	5040	5425	4825
Straight tipping load <sup>1</sup>	kg	3840	3400	3215
Tip load, fully articulated at 30° <sup>1</sup>	kg	3500	3090	2930
Permissible load capacity on even ground = 60% of articulated static tipping load <sup>2</sup>	kg	2100	1850	1820
Permissible load capacity on even ground = 80% of articulated static tipping load <sup>2</sup>	kg	2500	2470	2300
Operating weight <sup>1</sup>	kg	5445	6175	6490
Tyre size		405/70R18 L2		365/70R18 L2

<sup>1</sup> The values shown apply for the tyres specified, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change the operating weight and tipping load (fully articulated tipping load according to ISO 14397-1).

<sup>2</sup> According to EN 474-3.



## TORION 639 / 535.

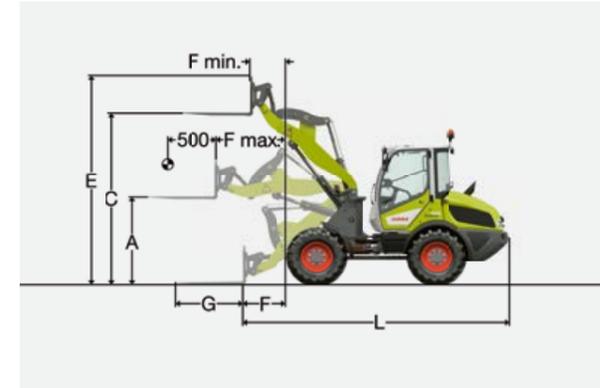
With Z-kinematics, implement carrier with quick-attachment system and earthmoving bucket.

		TORION 639	TORION 535
Cutting tool		USM	USM
Mast length	mm	2300	2200
Bucket capacity according to ISO 7546 <sup>1</sup>	m <sup>3</sup>	1.00	0.80
Bucket width	mm	2100	1900
Material density	t/m <sup>3</sup>	1.80	1.80
Dumping height at max. lift height and 42° dumping angle (A)	mm	2640	2525
Bucket clearance height (B)	mm	3000	2800
Max. height to bucket base (C)	mm	3180	2990
Max. height to bucket pivot (D)	mm	3370	3190
Max. height to bucket top (E)	mm	4260	4030
Reach at max. lift height and 42° dumping angle (F)	mm	810	750
Max. reach at 42° dumping angle (F max.)		1600	1490
Digging depth (G)	mm	57	70
Height above cab (H)	mm	2460	2460
Height above exhaust (I)	mm	1810	1810
Ground clearance (J)	mm	325	325
Wheelbase (K)	mm	2150	2150
Overall length (L)	mm	5515	5415
Overall length to outer edge of implement carrier (M)	mm	4640	4595
Overall length to bucket pivot point (N)	mm	4570	4525
Turning radius over bucket outside edge	mm	4465	4230
Breakaway power (SAE)	kN	56	46
Tip load, straight <sup>2</sup>	kg	4400	3900
40° articulated tipping load <sup>2</sup>	kg	3850	3450
Operating weight <sup>2</sup>	kg	5600	5180
Tyre size		340/80 R 18	340/80 R 18

<sup>1</sup> The bucket capacity can be approx. 10% in practice than as calculated according to ISO 7546. Bucket filling level depends on the material.

<sup>2</sup> The above values apply for the specified tyres, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change operational weight and tipping load (40° articulated tipping load according to ISO 14397-1).

USM = grader blade



## TORION 639 / 535.

With Z-kinematics, implement carrier with quick-attachment system and pallet fork.

		TORION 639	TORION 535
Loading fork type		FEM II	FEM II
Lift height at max. reach (A)	mm	1470	1370
Max. lift height (C)	mm	3200	3000
Max. height to over fork carriage (E)	mm	3865	3680
Reach in loading position (F)	mm	830	780
Max. reach (F max.)	mm	1330	1220
Reach at max. lift height (F min.)	mm	515	450
Fork tine length (G)	mm	1200	1200
Basic machine overall length (L)	mm	4744	4700
Straight tipping load <sup>1</sup>	kg	3500	3200
40° articulated tipping load <sup>1</sup>	kg	3100	2800
Permissible load capacity on even ground = 60% of articulated static tipping load <sup>2</sup>	kg	1850	1650
Permissible load capacity on even ground = 80% of articulated static tipping load <sup>2</sup>	kg	2400 <sup>3</sup>	2000 <sup>3</sup>
Operating weight <sup>1</sup>	kg	5470	5050
Tyre size		340/80 R 18	340/80 R 18

<sup>1</sup> The above values apply for the specified tyres, including all lubricants, full fuel tanks, ROPS / FOPS cab and driver. Tyre size and additional equipment change operational weight and tipping load (40° articulated tipping load according to ISO 14397-1).

<sup>2</sup> According to EN 474-3.

<sup>3</sup> Load capacity limited by tilt rams.



TORION	1914	1812	1511	1410	1177	
<b>Loading system</b>						
Operating weight <sup>1</sup>	kg	19500	18700	14300	13900	12620
Mast variants available		Agricultural / Agricultural High-Lift / Z	Agricultural / Agricultural High-Lift / Z	P / P High-Lift / Z	P / P High-Lift / Z	P / P High-Lift / Z
Tip load, fully articulated (max.) <sup>2</sup>	kg	12400	11100	9750	9100	7750
Tip load, straight <sup>2</sup>		14400	12800	10920	10300	9000

#### Engine – Stage IV (Tier 4)<sup>3</sup>

Manufacturer		Liebherr	Liebherr	DPS	DPS	DPS
Model		D944 A7	D934 A7	404HFL09	404HFL09	404HFL09
Layout / number of cylinders		R 4	R 4	R 4	R 4	R 4
Cubic capacity	l	7.96	7.01	4.50	4.50	4.50
Max. gross power according to ISO 3046 and SAE J1995	kW/hp	168/228 (at 1100–1800 rpm)	143/195 (at 1100–1800 rpm)	123/167 (at 2000 rpm)	114/155 (at 2000 rpm)	103/140 (at 2000 rpm)
Max. net power according to ISO 9249 and SAE J1349	kW/hp	165/224 (at 1100–1800 rpm)	140/191 (at 1100–1800 rpm)	121/165 (at 2000 rpm)	112/152 (at 2000 rpm)	101/137 (at 2000 rpm)
Max. torque according to ISO 9249 and SAE J1349	Nm	1433 (at 1100 rpm)	1215 (at 1100 rpm)	682 (at 1500 rpm)	628 (at 1500 rpm)	548 (at 1500 rpm)
Exhaust aftertreatment		DOC + SCR <sup>4</sup>	DOC + SCR <sup>4</sup>	DPF + DOC + SCR	DPF + DOC + SCR	DPF + DOC + SCR

#### Working hydraulics

Gear pump, priority valve	l/bar	–	–	–	–	–
LS pump, LS valves (Z-kinematics)	l/bar	234/360	234/330	170/350	170/350	136/330
LS pump, LS valves (P-kinematics)	l/bar	–	–	170/350	170/350	136/330
LS pump, LS valves (agricultural kinematics)	l/bar	234/380	234/350	–	–	–
Filtration		Return-line filter in hydraulic tank		Return-line filter in hydraulic tank		

#### Working cycle time at rated load

Kinematics variant		Agricultural	Z	Agricultural	Z	P	Z	P	Z	P	Z
Lifting	s	5.50	5.50	5.50	5.50	6.00	6.40	6.00	6.40	5.40	5.20
Dumping	s	3.50	2.30	3.50	2.30	4.70	3.40	4.70	3.40	3.00	2.00
Lowering (empty)	s	2.70	2.70	2.70	2.70	5.60	3.90	5.60	3.90	5.00	2.90

#### Ground drive

Transmission type		CMATIC (split-power)		VARIPOWER (hydrostatic)			
Driving ranges	km/h	0–40 (limitable)	0–40 (limitable)	0–6 / 0–16 / 0–40 (limitable)	0–6 / 0–16 / 0–40 (limitable)	0–6 / 0–16 / 0–40 (limitable)	0–6 / 0–16 / 0–40 (limitable)
Top speed, max. <sup>5</sup>	km/h	40	40	40	40	40	40

● Standard ○ Optional □ Available – Not available

TORION	1914	1812	1511	1410	1177	
<b>Tank capacity overview</b>						
Fuel tank – diesel	l	280	280	205	205	205
Urea tank	l	67.50	67.50	20.00	20.00	20.00
Hydraulic oil – total quantity	l	175	175	180	180	170

#### Axles

Front axle		Rigid		Rigid		
Rear axle <sup>6</sup>		Full floating with 13° oscillation angle on each side		Full floating with 10° oscillation angle on each side		
Front differential lock		Self-locking differential, 45% in both axes		Self-locking differential, 45% in both axes		
Articulation angle (on each side)	degrees	40	40	40	40	40

#### Service brake

Type		Hydraulic pump accumulator brake system (wet disc brake, two separate brake circuits)		Hydraulic pump accumulator brake system (wet disc brake, two separate brake circuits)	
Location		Front and rear axle final drive		Front and rear axle differential housing	

#### Parking brake

Type		Electrohydraulically operated spring disc brake		Electrohydraulically operated spring disc brake	
Location		Transmission		Front axle	

TORION	1914	1812	1511	1410	1177
<b>SMART LOADING / electronics expertise</b>					
Programmable bucket return position	●	●	○	○	○
Set lifting and lowering heights	●	●	○	○	○
Weighing system	○	○	○	○	○
TELEMATICS	○	○	○	○	○

<sup>1</sup> The values shown vary according to tyres, earthmoving bucket (bucket capacity in accordance with ISO 7546, may be up to 10% more in practice, bucket filling level depends on type of material), kinematics variant, includes all lubricants, full fuel tank, ROPS/FOPS cab and driver. Tyre dimensions and supplementary equipment will affect the operating weight and tipping load.

<sup>2</sup> According to ISO 14397-1.

<sup>3</sup> TORION 639 and 535 models according to Stage IIIB (Tier 4i).

<sup>4</sup> Diesel particulate filter available as optional equipment.

<sup>5</sup> The TORION 1914-1177 models are available for registration as self-propelled work machines with maximum top speed limitation to 20 km/h or 25 km/h.

<sup>6</sup> Oscillation angle is limited according to tyre variant.

● Standard ○ Optional □ Available – Not available

TORION	1914	1812	
<b>Tyres<sup>1</sup></b>			
23.5 R 25 Michelin XHA2 (L3), industrial	m	2.65	2.65
23.5 R 25 Bridgestone EM VJT (L3), industrial	m	2.67	2.67
23.5 R 25 Goodyear RT-3B (L3), industrial	m	2.67	2.67
23.5 R 25 Goodyear TL-3A+ (L3), industrial	m	2.67	2.67
23.5 R 25 Michelin XTLA (L2), industrial	m	2.65	2.65
650 / 75 R 32 Michelin Mega X Bib, AS	m	2.71	2.71
650 / 75 R 32 Trelleborg TM 2000, AS	m	2.67	2.67
750 / 65 R 26 Michelin Cerebib, AS	m	2.89	2.89

TORION	1511	1410	1177	
<b>Tyres<sup>1</sup></b>				
17.5 R 25 Bridgestone EM VJT (L3), industrial	m	–	–	2.44
17.5 R 25 Michelin XHA2 (L3), industrial	m	–	–	2.46
17.5 R 25 Michelin XTLA (L2), industrial	m	–	–	2.46
17.5 R 25 Goodyear RT-3B (L3), industrial	m	–	–	2.46
17.5 R 25 Goodyear TL-3A+ (L3), industrial	m	–	–	2.46
20.5 R 25 Bridgestone EM VJT (L3), industrial	m	2.48	2.48	2.48
20.5 R 25 Michelin XHA2 (L3), industrial	m	2.48	2.48	2.48
20.5 R 25 Michelin XTLA (L2), industrial	m	2.51	2.51	2.51
20.5 R 25 Goodyear RT-3B (L3), industrial	m	2.49	2.49	2.49
20.5 R 25 Goodyear TL-3A+ (L3), industrial	m	2.50	2.50	2.50
620 / 75 R 26 Michelin Mega X Bib, AS	m	2.60	2.60	2.60
620 / 75 R 26 Trelleborg TM 2000, AS	m	2.64	2.64	2.64
620 / 70 R 26 Michelin Cerebib, AS	m	2.69	2.69	2.69
750 / 65 R 26 Michelin Mega X Bib, AS	m	2.85	2.85	2.85

<sup>1</sup> The values shown are indicative and may differ in practice.

<sup>2</sup> Over tyres.

CLAAS continually develops its products to meet customer requirements. This means that all products are subject to change without notice. All descriptions and specifications in this brochure should be considered approximate and may include optional equipment that is not part of the standard specifications. This brochure is designed for worldwide use. Please refer to your nearest CLAAS dealer and their price list for local specification details. Some protective panels may have been removed for photographic purposes in order to present the function clearly. To avoid any risk of danger, never remove these protective panels yourself. In this respect, please refer to the relevant instructions in the operator's manual. All technical specifications relating to engines are based on the European emissions regulation standards: Stage. Any reference to the Tier standards in this document is intended solely for information purposes and ease of understanding. It does not imply approval for regions in which emissions are regulated by Tier.

● Standard ○ Optional □ Available – Not available

TORION		956 SINUS	644 SINUS	537 SINUS	639	535
<b>Loading system</b>						
Operating weight <sup>1</sup>	kg	9070	6390	5550	5600	5180
Mast variants available		Z	Z	Z	Z	Z
Tip load, fully articulated (max.) <sup>2</sup>	kg	5575	4430	3750	3850	3450
Tip load, straight <sup>2</sup>		6095	4850	4070	4400	3900

#### Engine – Stage IV (Tier 4)<sup>3</sup>

Manufacturer	DPS	Yanmar	Yanmar	Yanmar	Yanmar	
Model	4045HLC07	4TNV98CT	4TNV98CT	4TNV98C	4TNV98C	
Layout / number of cylinders	R 4	R 4	R 4	R 4	R 4	
Cubic capacity	l	4.50	3.32	3.32	3.32	
Max. gross power according to ISO 3046 and SAE J1995	kW/hp	78/106	54/73	54/73	50/68 (at 2400 rpm)	46/63 (at 2200 rpm)
Max. net power according to ISO 9249 and SAE J1349	kW/hp	76/103	52/71	52/71	–	–
Max. torque according to ISO 9249 and SAE J1349	Nm	405	280	280	239 (at 1560 rpm)	239 (at 1400 rpm)
Exhaust aftertreatment		DPF + DOC + SCR	DPF + DOC	DPF + DOC	DPF + DOC	DPF + DOC

#### Working hydraulics

Gear pump, priority valve	l/bar	115/240	93/210	70/230	77/230	70/230
Additional gear pump	l/bar	+35/240 (optional)	+35/240 (optional)	+35/240 (optional)	–	–
Filtration		Return-line filter in hydraulic tank			Suction return-line filter in hydraulic tank	

#### Working cycle time at rated load

Kinematics variant	Z	Z	Z	Z	Z	
Lifting	s	6.90	5.60	4.90	6.50	5.30
Dumping	s	3.00	2.00	1.70	1.50	1.30
Lowering (empty)	s	4.90	4.10	3.50	4.00	2.90

#### Ground drive

Transmission type		Hydrostatic (2-speed)			Hydrostatic
Driving ranges	km/h	0–18 / 0–40	0–18 / 0–40	0–18 / 0–40	0–6 / 0–20
Top speed max. <sup>4</sup>	km/h	40	40	40	20

#### Tank capacity overview

Fuel tank – diesel	l	155	90	90	50	50
Urea tank	l	18	–	–	–	–
Hydraulic oil – total quantity	l	115	102	102	90	90

#### Axes

Front axle	Rigid			Rigid	
Rear axle <sup>5</sup>	Articulated joint with 8° oscillation angle on each side and 25° stub axle steering on each side			Articulated joint with 10° oscillation angle on each side	
Front differential lock	Self-locking differential, 45% in both axes	100% lock in front axle, manual switching		Self-locking differential, 45% in both axes	
Articulation angle (on each side)	degrees	30	30	40	40

#### Service brake

Type	Dual circuit brakes (drum brake and wet multiple disc brake)			Hydraulically operated drum brake	
Location	Drum brake at front axle input and wet multiple disc brake in front axle			Axle input on front axle	

#### Parking brake

Type	Negative brake system for wet multiple disc brake in front axle			Mechanically operated drum brake	
Location	Front axle			Axle input on front axle	

● Standard ○ Optional □ Available – Not available

TORION		956 SINUS	644 SINUS	537 SINUS	639	535
<b>SMART LOADING / electronics expertise</b>						
Automatic bucket return position		●	○	○	–	–
TELEMATICS		–	–	–	○	○

TORION		956 SINUS	644 SINUS	537 SINUS	
<b>Tyres<sup>6</sup></b>		<b>Vehicle width<sup>7</sup></b>			
550 / 65 R 25 Michelin XLD65 L3, industrial	m	2.47	–	–	
550 / 65 R 25 Bridgestone EM VTS L3, industrial	m	2.47	–	–	
17.5 R 25 Goodyear TL-3A+ (L3), industrial	m	2.38	–	–	
17.5 R 25 Goodyear RT-3B+ (L3), industrial	m	2.38	–	–	
17.5 R 25 Michelin XHA2 (L3), industrial	m	2.38	–	–	
17.5 R 25 Michelin XTLA (L2), industrial	m	2.38	–	–	
17.5 R 25 Bridgestone VUT L2, industrial	m	2.36	–	–	
17.5 R 25 Bridgestone EM VJT (L3), industrial	m	2.36	–	–	
540 / 70 R 24 Michelin XMCL, AS	m	2.45	–	–	
405 / 70 R 20 Bridgestone VUT (L2), industrial	m	–	2.09	1.96	
405 / 70 R 20 Mitas EM-01 155A2 / 143B L2, industrial	m	–	2.09	1.96	
405 / 70 R 20 Dunlop SPT9 155A2 / 143B L2, industrial	m	–	2.08	1.95	
400 / 70 R 20 Michelin XMCL 149A8 / 149B, AS	m	–	2.09	1.96	
405 / 70 R 18 Mitas EM-01 168A2 / 156B L2, industrial	m	–	2.09	1.96	
405 / 70 R 18 Dunlop SPT9 153A2 / 141B L2, industrial	m	–	2.08	1.95	
365 / 80 R 20 Firestone Duraforce UT 153A2 / 141B L2, industrial	m	–	2.05	1.92	
365 / 80 R 20 Dunlop SPT9 153A2 / 141B L2, industrial	m	–	–	1.91	
15.5 / 55 R18 Dunlop SPPG7 146A2 / 135B L2, industrial	m	–	2.05	1.92	
340 / 80 R 18 Firestone Duraforce UT 143A8, industrial	m	–	–	1.90	

TORION		639	535
<b>Tyres<sup>6</sup></b>		<b>Vehicle width<sup>7</sup></b>	
15.5 / 55 R 18 Dunlop SPPG7 (L2), industrial	m	1.76	1.76
365 / 70 R 18 Mitas EM-01 (L2), industrial	m	–	1.76
365 / 70 R 18 Dunlop SPT9 (L2), industrial	m	–	1.75
365 / 80 R 20 Dunlop SPT9 (L2), industrial	m	1.75	1.75
365 / 80 R 20 Firestone Duraforce UT (L2), industrial	m	1.76	1.76
365 / 80 R 20 Mitas EM-01 (L2), industrial	m	1.76	1.76
365 / 80 R 20 Bridgestone VUT (L2), industrial	m	1.75	1.75
400 / 70 R 20 Michelin XMCL, AS	m	1.79	1.79
400 / 70 R 20 Michelin Bibload (L2), industrial	m	1.78	1.78
400 / 70 R 20 Firestone Duraforce UT (L2), industrial	m	1.78	1.78
400 / 70 R 20 Firestone R8000 UT, AS	m	1.78	1.78
400 / 70 R 20 Trelleborg TH400 (L2), AS	m	1.78	1.78
405 / 70 R 18 Dunlop SPT9 (L2), industrial	m	1.78	1.78
405 / 70 R 18 Firestone Duraforce UT (L2), industrial	m	1.79	1.79
405 / 70 R 18 Mitas EM-01 (L2), industrial	m	1.79	1.79
405 / 70 R 20 Mitas EM-01 (L2), industrial	m	1.79	1.79
405 / 70 R 20 Dunlop SPT9 (L2), industrial	m	1.78	1.78
405 / 70 R 20 Bridgestone VUT (L2), industrial	m	1.79	1.79

<sup>1</sup> The values shown vary according to tyres, earthmoving bucket (bucket capacity in accordance with ISO 7546, may be up to 10% more in practice, bucket filling level depends on type of material), kinematics variant, includes all lubricants, full fuel tank, ROPS/FOPS cab and driver. Tyre dimensions and supplementary equipment will affect the operating weight and tipping load.

<sup>2</sup> According to ISO 14397-1.

<sup>3</sup> TORION 639 and 535 models according to Stage IIIB (Tier 4).

<sup>4</sup> Depending on the tyre variant, the TORION 1914-1177 models are available for registration as self-propelled work machines with maximum top speed limitation to 20 km/h or 25 km/h.

<sup>5</sup> Oscillation angle is limited according to tyre variant.

<sup>6</sup> The values shown are indicative and may differ in practice.

<sup>7</sup> Over tyres.

● Standard ○ Optional □ Available – Not available



Ensuring a better **harvest.**

CLAAS UK  
Saxham  
Bury St. Edmunds  
Suffolk  
IP28 6QZ  
Tel 01284 763100  
claas.co.uk  
info-uk@claas.com

HRC / 420012130618 KK LC 0818

365FarmNet enables you to manage your entire agricultural business by means of a single, non-proprietary software solution. Interfaces to intelligent applications created by partners in the agricultural sector offer expert support for your business 365 days a year. CLAAS is a 365FarmNet partner.

www.365farmnet.com

