Terra Variant eco

HOLMER exxact

11/2013

Terra Variant –
Efficiency through impact.

The HOLMER Terra Variant is the new, economical concept for tomorrow's commercial fertilizer injection systems. The highest-performing self-propelled slurry vehicle on the market offers impact and plenty of power reserves in every situation. It allows shorter and shorter processing windows to be used efficiently.

Its large-volume tires, offset-track driving, high tractive power and an extraordinary transport volume improve both process performance and soil protection.

Safe to use and optimally adjusted for incorporating valuable organic fertilizers, the Terra Variant offers top-quality modern technology along with the greatest comfort.

In addition to fertilizer injection technology, it is also available with attachments for sugar-beet and grain transport, solid-matter spreading, mineral-fertilizer incorporation and sowing. This innovative vehicle concept from HOLMER is setting new standards in the highest class of system vehicles, in the areas of cost-effectiveness, impact, reliability and soil protection.

Terra Variant

with ZUNHAMMER slurry technology.

Welcome to the big leagues

The Terra Variant, with its proven ZUNHAMMER slurry technology, is the highest-performing response to the challenges of today's and tomorrow's agriculture. Whether you are facing high mineral-fertilizer prices, stricter regulations for slurry injection and environmental protection, or the correspondingly shorter processing windows for organic commercial fertilizers – the Terra Variant reduces transit and work processes, thereby reducing the costs of crop production.

Soil protection due to a larger base area

During the injection process, the load is evenly distributed among four large Terra tires. Compared to drawn technology, this transmits the payload and tractive force evenly in crab steering mode, while simultaneously ensuring optimal slip values. The chassis of the Terra Variant thus protects the soil structure and vegetation in the long term.

Combined with customizable attachment devices, the Terra Variant effectively incorporates valuable organic commercial fertilizer into vegetation or over stubble, in an environmentally friendly and soil-protective way – even with a full payload.

Impact through tank volume

The 598-horsepower self-driving vehicle, with a tank volume of 21 m3 and a VOGELSANG pump system, uses a divided process to ensure reliably high daily outputs of up to 160 m3/h along with optimal incorporation.

Compared to conventional self-driving technology, the enormous tank volume reduces trips to suppliers by up to 40%. This extends the effective working times for the injection process, reduces the number of empty trips at the headlands, and creates the maximum impact.

Efficiency through logistics

The fast, cost-effective delivery of commercial fertilizer is handled by special suppliers in separate processes, which are optimally coordinated for road transport. That achieves low fuel and wear costs for all of the vehicles in the entire slurry injection system.

The slurry-injection system of tomorrow is already here. It's not just a machine – it's the Terra Variant concept.

- **Efficient power-to-weight ratio**
- **Intake while idling**
- **Up to 160 m3/h with an injection rate of 25 m3/ha**
- **Low diesel consumption**
- **Maximum base area with an outside width of just 3.00 m**
- **Loading and unloading the three-point mount for slitting technology**

Convenient suction transfers while idling

Technology
for maximum impact.

Speed due to an optimal flow of slurry

Short paths and optimal pipe diameters form the basis for the high efficiency of the Terra Variant's suction and pumping processes. A specially adapted suction line, measuring NW 250 mm, ensures minimal pressure losses in the system. Together with the high-performance rotary piston pump, extremely short suction times are achieved.

All of the pipes on the high-pressure side are designed at NW 200 mm for maximum dosing precision. Two hydraulic shutters and the integrated 3-way valve switch between the functions "fill tank," "tank transfer" and "inject."

Technical data:

Tank volume	21 m³
Slurry pump	Incrementally driven rotary piston pump, VOGELSANG VX 186-386 QD
Flow rate	max. 9.000 l/min
Suction pipe	NW 250 mm with 170° side swivel range
Range	5,70 m
Cutting unit	RotaCut® RCX-58 H max. 12.000 l/min
Controls	Hydrostatic pump regulation

High performance through a powerful rotary piston pump

The proven high-performance VX 186-368 QD rotary piston pump from VOGELSANG guarantees high suction and pump performances up to 9,000 l/min. In this way, 21 m3 of manure can be transferred in less than 3 minutes.
HiFlo® pistons and the mass-produced Quick-Service design guarantee long lifetimes, low maintenance costs and minimal pulsation.

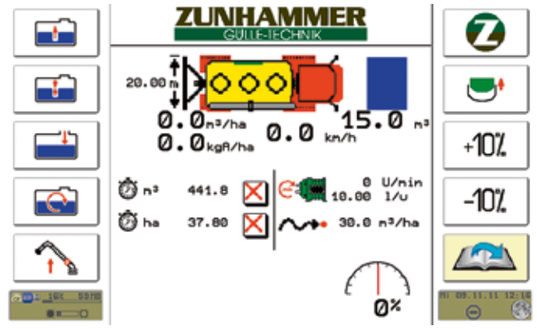
Protection through the precise cutting unit

For maximum protection of the slurry pump, all Terra Variant models are equipped with the VOGELSANG RotaCut® RCX-58 H cutting unit. Fibers and foreign objects, such as grass, straw or rocks, are reliably chopped up or separated out.

The high flow rate of the cutting sieve also ensures cavitation-free operation of the rotary piston pump during the suction process.

- **ACC – Automatic Cut Control: even pressure between the cutting blade and cutting sieve ensures consistently high cutting performance**
- **Pressure of the cutting blade can be adjusted even during operation**
- **Auto-reverse function for disruptive materials, such as branches**
- **Automatic change in rotation direction for even sharpness of the blade pairs**
- **Hydraulic rock-catching feeder**

At a glance: How to use the ISOBUS



Benefits:

- **5.70-m-long suction pipe for maximum suction range, can be pivoted 170° to the side**
- **All of the important functions can be controlled via the joystick**
- **Automatic shutoff of the filling process**
- **Suction pipe with automatic valve**
- **Precise, fully automated regulation of the spreading volume through ISOBUS controls**
- **Task controller, including order management**
- **Preparation for ZUNHAMMER VAN control**

RotaCut® cutting unit, including sieve

Terra Variant

for multiple applications.

HOLMER RB 35 beet holding tank

Technical data, beet holding tank:

Superstructure volume	35 m³
Conveyor elements	2 longitudinal slat conveyors, each divided in half Transverse slat conveyor, divided in half Discharge elevator
Drive elements	2 spur gears per transverse and longitudinal slat conveyor Removable forged slat conveyor chain system
Emptying	approx. 40 sec
Identically constructed, tested drive groups from the HOLMER Terra Dos T3 complete sugar-beet harvesters.	
Maintenance and cleaning valves for all of the important assembly groups	

Harvesting machines must work more and more efficiently in short windows of time. Holding times due to emptying the grain tank or the beet tank need to be reduced. For the sake of modern field logistics, HOLMER has therefore developed special grain and beet bodies for the Terra Variant. Harvest volumes are transferred using these bodies, directly from the combine harvester or complete sugar-beet harvester, and transported to the edge of the field in a way that protects the soil.

Under optimal harvesting conditions, harvesting takes place non-stop – the Terra Variant handles the logistics.

HOLMER GB 25 grain holding tank

Technical data, grain holding tank:

Superstructure volume	25 m³
Conveyor elements	2 longitudinal scrolls Transverse scroll Elevator Discharge scroll
Diameter of discharge pipe	550 mm
Drive systems for high-performance hydraulic engines at every conveyor organ	
Tank emptying	approx. 120 sec
Maintenance and cleaning valves for all of the important assembly groups	

Benefits:

- **Improves lifting and threshing performance**
- **Soil-protecting transport of harvested volume**
- **High discharge performance**
- **Reduces soil processing costs**
- **Minimizes deep tracks and over-rolling**
- **Increases the annual capacity of the harvesting machines**
- **HOLMER swap system with hydraulic support feet**

BERGMANN universal spreader

Technical data, universal spreader:

Superstructure volume	26 and 30 m³
Spreading system	2 spreading discs, Ø 1200 mm, disc drive system with 60-mm drive drums
Slat conveyor	controlled incrementally and hydraulically via a spur gear drive 4 feed chains (16 x 56 mm) Total load 100t
Milling machine	2 horizontal rollers with dual shredding tines
Weighing system	6 integrated weighing cells

Whether you are spreading compost, solid manure, separated digestates or carbonation mud, high-quality solid fertilizers need to be injected precisely within short periods of time. The basis for this is a high-impact injection technology. With the BERGMANN spreader superstructure, the Terra Variant combines impact and soil protection to inject a wide range of spreading media.

Benefits:

- **Large loading volume**
- **High working speeds**
- **Conical full-steel container**
- **Precise spreading**
- **Work widths up to 30 meters**

HOLMER VTU 19

Technical data, VTU 19:

Superstructure volume	19 m³ (2 x 9.5 m³)
Conveyor organs	2 radial fans 4 rotary feeders
Supply lines	2 x 2 units
Diameter	125 mm
Illumination	4 LED spotlights
Cover	Hydraulic rollup tarps
Weight	2,400 kg
Maintenance and cleaning valves for all of the important assembly groups	

Variable applications – specialized uses. With the VTU 19 transport superstructure, HOLMER is responding to growing demands in the area of mineral fertilizer incorporation. In the two 9.5 m³ halves of the tank, the VTU carries seeds and/or fertilizer for sowing, strip tillage or grubber fertilization. The high tractive output of the Terra Variant allows large work areas to be covered. The high transport capacity secures efficient machine usage through short holding times and long utilization times.

Benefits:

- **Precise mineral fertilizer incorporation**
- **Efficient fertilizer use**
- **Customized fertilizer mixtures possible**
- **Reduces the number of trips**

The concept
for maximum performance.

COMFORT CABIN

- 12.1-inch touch-screen terminal
- Integrated functional arm rest with:
  - Ergonomic joystick
  - Jog dial to control the terminal
  - Three-point mount and rear-valve steering
- Automatic climate control
- ActimoEvolution active seat (optional)

TRANSMISSION

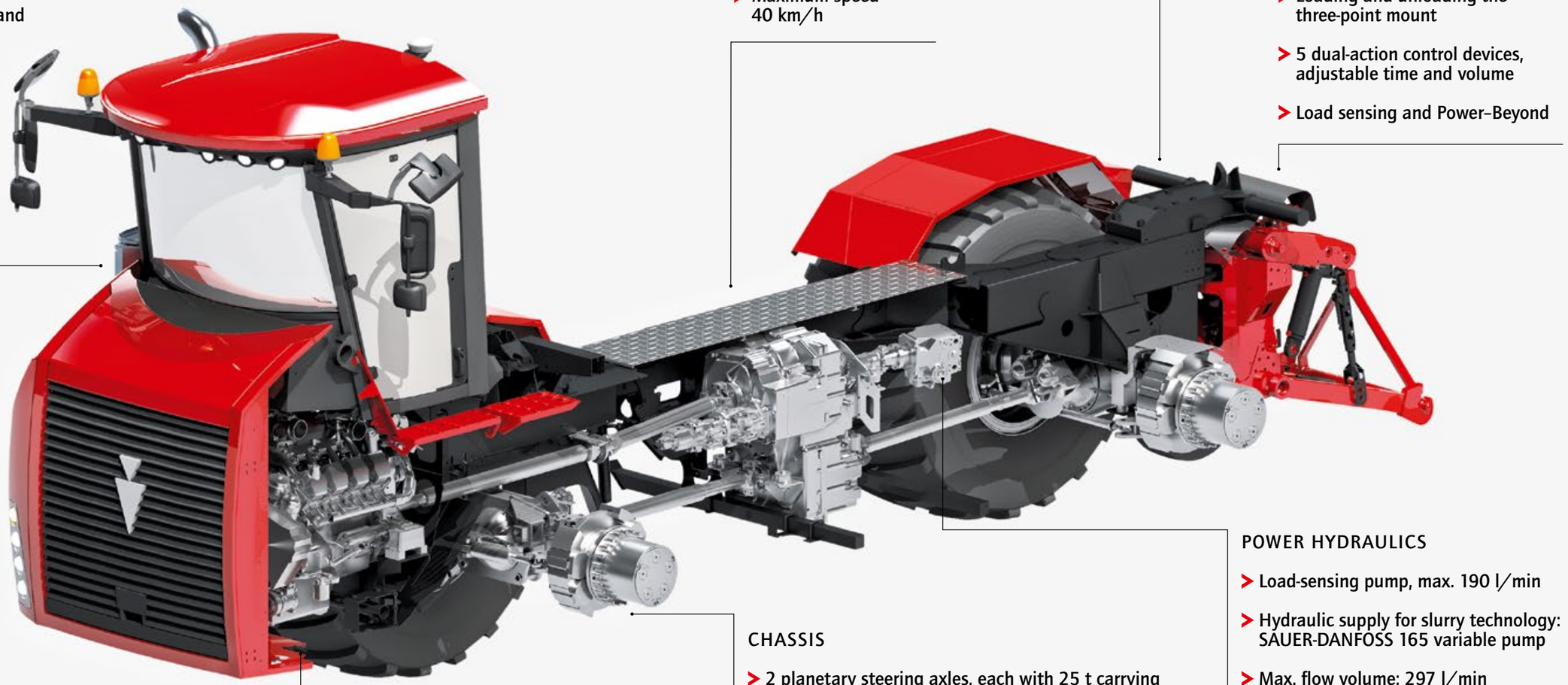
- FUNK DF 500 power shift transmission
- 18 forward gears
- 6 reverse gears
- Maximum speed 40 km/h

SWAP SYSTEM (OPTIONAL)

- 4 fixed connection points with lock pins
- Hydraulic lifting arm and lifting cylinder

REAR HYDRAULICS

- Hydraulically swiveling superstructure block on both sides; Category IV
- BUCHER BHR regulating hydraulics
- Loading and unloading the three-point mount
- 5 dual-action control devices, adjustable time and volume
- Load sensing and Power-Beyond



DIESEL ENGINE

- MERCEDES BENZ OM 502 LA E3B/2
- 8-cylinder V engine
- Incl. AdBlue unit
- Max. 440 kW/ 598 PS

CHASSIS

- 2 planetary steering axles, each with 25 t carrying capacity (depending on the tires)
- Hydraulically suspended oscillating axle in front
- Suspended stabilization system
- Pre-selectable pressure level for high side stability

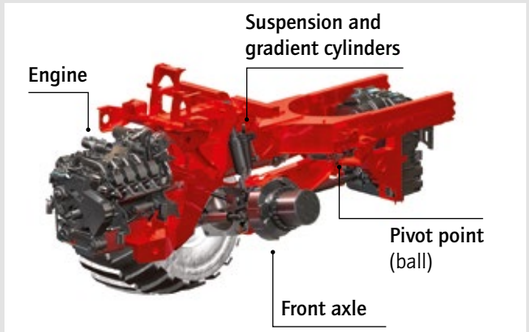
POWER HYDRAULICS

- Load-sensing pump, max. 190 l/min
- Hydraulic supply for slurry technology: SAUER-DANFOSS 165 variable pump
- Max. flow volume: 297 l/min

Engine | Transmission | Chassis
for efficient power conversion.

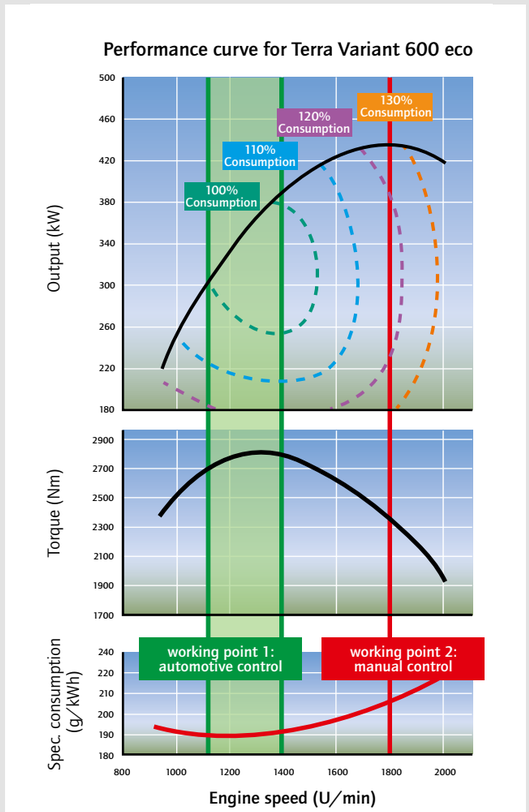
Engine technology from MERCEDES BENZ ensures maximum performance. With 440 kW (598 PS), tractive power can be used efficiently. The new SCR technology (selective catalytic reduction) allows the Terra Variant 600 eco to fulfill Exhaust-Gas Standard Stage IIIb (Tier 4i). Nitrogen oxides created in the combustion process are transformed into pure nitrogen and water in the post-treatment process.

- **Optimal use of power**
- **Post-treatment of exhaust gas**
- **AdBlue tank, approx. 85 liters**
- **Reduced fuel consumption**



Driving comfort was a primary development goal for the HOLMER Terra Variant. As a result, the proven FUNK DF 500 power shift transmission, with 18 forward and 6 reverse gears, always offers precise dosing and the most efficient power transmission, along with maximum tractive power. Safety and consistently high driving comfort are guaranteed by the special HOLMER front-axle suspension with gradient support and automatic leveling. Together with a wheel distance of 4.80 m and the extra-wide Terra tires, the Terra Variant easily masters slopes with maximum driving stability.

- **Fully automatic incremental level adjustments**
- **Adjustable spring stiffness**
- **Oscillating axle for terrain adjustments**
- **Full suspension comfort, even on slopes**
- **Adjustable gradient support pressure**



Reducing consumption with the automotive drive mode

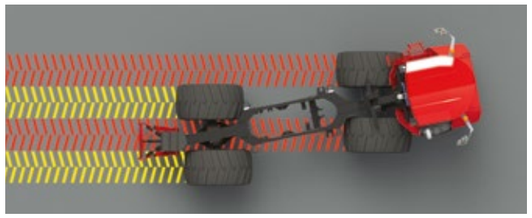
The standard **automotive drive mode** gives drivers the option of choosing among various driving strategies:

Eco Modus Depending on the power needs, the vehicle automatically chooses the best gear. At low engine torque, the Terra Variant saves fuel by driving at the power utilization limit.

Fixed torque The driver can set individual gears and save the torque for each gear. During field work, driving speeds are maintained, and the driver never needs to use the gas pedal.

Chassis concept
for soil protection in every situation.

In addition to the wide Terra tires, automatic steering mode is mainly used to prevent damaging compacting of the soil. As soon as the driver activates the crab steering, the rear axle pivots toward the desired side and prevents soil from being rolled over multiple times. At the same time, the three-point mount moves the superstructure into the right position. All of the components are designed for extreme uses, so crab steering is fully functional even during soil processing.



The driver can adjust the degree of left/right overlap in automatic steering mode

Various steering types are available to the driver during operation:

- **All-wheel drive – for maximum maneuverability**
- **Left/right automatic steering – for wide over-rolling as well as stable driving behavior on slopes**
- **Four-wheel steering – for using the multi-pass effect during in-track driving**
- **Manual steering – for independent steering of the rear axle using the joystick**
- **Street driving – for a high level of driving safety on public roads, through a hydraulic connection of the front and rear axles**

Three-point mount
holds true.

The fully hydraulic pivoting rear power lifter of the Terra Variant was developed especially for professional slurry applications.

With a transverse pivoting cylinder at the bottom, and due to its position on the main frame, the entire three-point connection system pivots to the left or right fully automatically. Because of the fully pivoting frame, all of the connection points between the vehicle and the superstructure device are always in a straight line, even in crab steering mode.

For slitting devices, increasing and reducing the load is a standard feature. At the touch of a button in the terminal, the driver can either add pressure to the superstructure under dry conditions, or reduce the pressure under wet conditions.

- **Three-point mount, Category IV**
- **5 double-acting control units**
- **Load-sensing and Power-Beyond**
- **Hydraulic upper-link stabilization**
- **Three-point mount override can be set**

Fully pivoting three-point mount for maximum stability

Operating instructions
for relaxed work.

Clear display with a 12.1-inch touch-screen terminal

The 12.1-inch touch-screen terminal clearly shows all of the important vehicle statuses. The machine parameters can be adjusted quickly and easily by touching the screen.

Under the individual menu items, the driver can adjust detailed settings for machine parameters as before. For servicing purposes, there is also an error memory in addition to the familiar vehicle diagnosis.

Comfortable use thanks to the HOLMER functional arm rest

With the new arm rest, the driver can intuitively access all of the relevant operation groups, from the joystick and rear hydraulic steering to the automatic three-point system.

A jog dial in the arm rest directly behind the joystick also allows the driver to easily access the individual functional fields of the touch terminal while driving.
The driver has everything under control with just one hand.

Networking through interfaces

The Terra Variant features the standard electronic interfaces for agricultural technology:

With the **HOLMER ISOBUS solution**, the superstructure functions are shown clearly on a separate ISOBUS terminal. A task controller, including order management, also records the most important process data in ISO-XML format for further processing on the home PC.

The **signal socket** allows auxiliary devices to be operated, for instance catch-crop spreaders. A speed and lifting assembly signal allows these devices to be integrated into normal working processes.

Comfort cabin
for long assignments.

Ergonomics through the HOLMER comfort cabin

The completely new HOLMER comfort cabin guarantees both cost-effective and comfortable use of the machines around the clock.

- **Generous space with storage areas**
- **Unobstructed views, including tinted heat-insulating glass**
- **Outstanding noise insulation, only 61 DB**
- **High-performance automatic climate control**
- **Driver-oriented operating elements**

For long shifts, the optional Actimo Evolution active seat from GRAMMER provides additional driving comfort. It automatically adjusts to the driver's weight, provides shock absorption and creates a sense of well-being through active seat ventilation. With a pneumatic lumbar support and active shock reduction, the driver remains relaxed and fully concentrated on the work. The HOLMER comfort cabin offers the greatest driving comfort to meet the highest standards.

Safety through all-around lighting

The lighting concept, including xenon spotlights (optional), also provides an optimal view during night shifts. The machine's working area is 100% illuminated by the side xenon spotlights and the additional LED spotlights (optional), even in the back. This ensures the greatest possible safety during suction processes and allows the superstructure to be monitored at night.

Driver assistance systems
for maximum driver support.

Turning made easy with HOLMER TerraControl

The Terra Variant's headlands management automatically performs all of the desired processes and relieves the driver during long assignments. The driver combines the desired settings, such as crab steering / lower superstructure / slurry pump on / activate torque drive. All of the relevant vehicle and superstructure functions can be saved separately.

Intuitive operation:

- **Select, add, save & run**
- **Detailed adjustments for individual processes at the terminal**
- **Save various sequences**

Record the processed area with remote logging

Ready for GPS with Trimble READY

Today, track guidance systems use precise parallel tracking to relieve the driver, to save operating materials and to protect resources. In addition, previously processed tracks can be recorded down to the centimeter, and reused in later processing.

That is why the Terra Variant features Trimble ready™ as an option. At various development levels, customized Trimble-based systems can be constructed upon request, with a precision of 30 to 3 cm and high reproducibility.

All of the known parallel tracks can already be selected in automatic steering and cruise mode:

- **AB line for simple parallel tracking**
- **A+ line for stubble breaking with a preselected angle to the processing direction**
- **Adaptive curve for parallel tracking in contour mode**
- **Identical curve for one-time detours around obstacles**

Swap system
for multiple applications.

With the fast-swap system designed specifically by HOLMER, which has proven successful over many years, superstructures can be exchanged within 30 minutes. The superstructure change is easy with support from the on-board hydraulics.

- **Releasing the 4 lock pins**
- **Raising the superstructure using the hydraulic cylinders on the vehicle**
- **Extending the superstructure supports**
- **Setting down the superstructure**
- **Releasing the hydraulic couplers**

Thanks to the various superstructures, the Terra Variant can be used as a self-propelled machine in not just one, but in many processes. Whether it is for spreading organic fertilizer, transferring grain and beets, or sowing and processing the soil, every task enjoys the full benefits of the tractive force, superstructure space and soil protection.

HOLMER service
for high customer satisfaction.

Close to customers, reliable, competent, fast – the impressive performance of the Terra Variant is continued through need-based consulting and other services.

- **Customized service offerings from HOLMER's Customer Service**
- **Ensuring comprehensive support-point service**
- **24-hour service and replacement parts shipping during the campaign**
- **Extensive training program for customers**
- **All of the replacement parts can be conveniently ordered from the online shop**

Technical data

Engine	Mercedes Benz OM 502 LA 3B/2
Cylinder	V-8
Piston displacement	15,93 l
Rated engine speed	1.800 U/min
Rated power at 1,800 U/min	440 kW/598 PS
Max. torque at engine speed of 1,300 U/min	2.800 Nm
Fuel tank capacity	approx. 850 l
AdBlue tank capacity	approx. 85 l

Travel drive	
Power shift transmission	FUNK DF 500; 18 FORWARD GEARS, 6 REVERSE GEARS
Final speed	40 km/h
All-wheel drive	Permanent

Axles	
Differential locks	Front and rear axles can be connected pneumatically
Axle suspension with integrated slope compensators	Independently suspended front axle beam: hydraulic suspension with level control Hydraulic support for side slope stability

Chassis	
Steering modes	All-wheel steering, four-wheel steering, automatic steering left / right

Tires	Terra tires 1050/50 R 32 T2 low-profile (outer width 3.00 m)
	Terra tires 1050/50 R 32 M28 high-profile (outer width 3.00 m)
	Twin tires 710/75 R 34 (outer width 4.30m)
	800/65 R 32 (outer width 2.55 m)

Brakes	
Service brake	Transmission brake and disc brake
Parking brake	Transmission brake and disc brake
Hydraulic system	
Capacity of hydraulic oil tank	130 l
Load-sensing max. delivery rate	190 l/min
Power-Beyond connector max. delivery rate	190 l/min

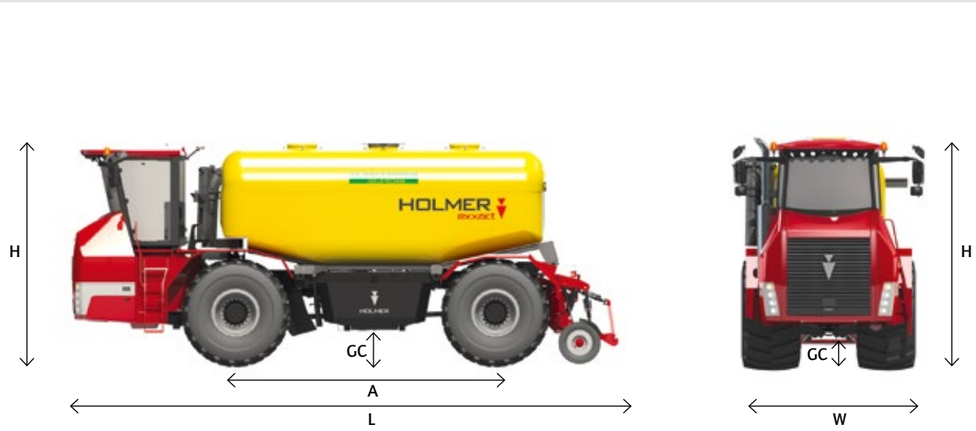
Power hydraulics (optional)	
Variable pump (slurry superstructure)	Sauer Danfoss H1 P 165
Max. pressure	420 bar
Max. delivery rate at 1,800 U/min	297 l/min
Variable pump (slurry superstructure)	LINDE HPV 280-02 RE1
Max. pressure	420 bar
Max. delivery rate at 1,800 U/min	500 l/min
Max. hydraulic output	approx. 350 kW

Rear hydraulics	
Category	KAT IV
Lifting capacity	80 kN
Functions	Lifting, lowering, loading / unloading on both sides, hydraulic pivoting
BUCHER BHR control hydraulics	Traction control, position control, mixing control Vibration absorption
Rear connectors	5 double-acting control units with floating position Time and volume control
External actuation	Rear button
Cabin	12.1-inch touch-screen terminal
	Multifunctional arm rest with joystick, jog-dial for terminal control BHR control element Use of three-point functions Automatic climate control Hydraulic pivot for servicing
Interfaces	ISOBUS connection option
	Signal socket with speed signal and lifting-gear position

Coupling (optional)	
Drawbar	Ø 38 and 50 mm
Ball head	Ø 80 mm

Dimensions and weights	
Total length with three-point mount (L)	10250 mm
Width (W)	3000 mm
Height (H)	3980 mm
Ground clearance (GC)	620 mm
Wheelbase (A)	4800 mm
Smallest turning radius	5500 m

Optional equipment	
	Xenon headlights Xenon spotlights, side LED spotlights, rear Reverse camera on superstructure Central lubrication system Compressed air brake for coupled devices GRAMMER Actimo Evolution active seat HOLMER TerraControl headland management Dual corn formation unit 380/90 R 46



ZUNHAMMER slurry technology	
Structure	Tank capacity 21 m3 Lightweight GFK tank with outlet sump; corrosion-resistant 3 transverse baffle boards with overflow Visual and analog fill-level display Superstructure can be hydraulically tipped for maintenance work
Suction pipe	Length 5.70 m 170° pivot to the side Two fluid stop valves for emptying pipe residue
Suction lines	NW 250 mm
Pressure lines	NW 200 mm
Slurry computer controls	ISOBUS terminal WTK Field Operator 300 Task Controller with order management
Controlling suction, re-pumping, injection	Feeder NW 250; three-way valve NW 200, each hydraulically controlled

Slurry pump	
Type	VOGELSANG VX 186-368 QD Quick-Service design with HiFlo® pistons
Delivery rate	Max. 9.000 l/min

Cutting unit	
Type	VOGELSANG RotaCut® RCX-58 H Quick-Service design with HiFlo® pistons
Flow-through volume	Max. 12.000 l/min
Chopping technology	Interchangeable cutting blades made of cutlery steel ACC, Automatic Cut Control for consistent pressure from the cutting blade Adjustable pressure Auto-reverse function with automatic rotation direction change Particle separator with hydraulic rock-catcher feeder

Optional equipment	
	LED spotlights, rear
	Reverse camera on superstructure
	VOGELSANG VX 128 Q small-volume pump; 3-inch pressurized line in stainless steel
	Dosing unit for nitrification inhibitor, including stainless-steel tank, approx. 530 l
	VAN control for nutrient-controlled slurry injection: vacuum-side connection

Available superstructures	
	HOLMER beet holding tank (35 m³) BERGMANN universal spreader (26 m³) HOLMER grain holding tank (25 m³) HOLMER VTU 19 (2 x 9.5 m³)

Subject to changes for the purpose of technical progress; approved by TÜV and the employer's liability insurance association; meets the CE requirements.

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