

**MASTENBROEK**  
TRENCHING

## MACHINE CONTROL

Take control of water management  
and maximise yields



# PRODUCTS

## LASER TRANSMITTERS AND GRADE CONTROL SYSTEMS FOR 2D APPLICATIONS

The Trimble line of Spectra Precision® laser transmitters can be used to perform a variety of water management tasks.



### Spectra Precision Laser GL700 Series:

The most advanced laser transmitter offering unmatched accuracy and beam stability for drainage and field levelling with automatic machine control. Up to 450 metres range and the capability to set single or dual slopes, with optional remote hand held control.



### Spectra Precision Laser GL600 Series:

A highly reliable laser transmitter with the ability to set single or dual slopes for drainage and field levelling applications with automatic machine control. Up to 400 metres range.



### Spectra Precision Laser AG401:

An entry level laser transmitter for zero grade applications where the grade does not need to be adjusted. Self levelling and can be used for automatic machine control at up to 450 metres range.

Automated Grade Control Systems for levelling or drainage equipment maximises productivity and accuracy.



### AG GCS100 Grade Control System:

The most economical solution for vehicles pulling scrapers or add on drainage equipment requiring a PT valve connection. Operates with a single receiver on rigid mast.



### AG GCS200 Grade Control System:

Ideal for equipment with PT valve connection, using either a single electric mast or dual rigid mast control. The system includes a digital elevation display and can be used in both survey and control modes.



### AG GCS300/400 Grade Control System:

Most advanced system for proportional valve connection, using a single electric mast operation.

# HIGH PRECISION GPS FOR 3D APPLICATIONS

Using GPS and GLONASS satellite constellations, with RTK-level corrections, the Trimble® WM-Drain® and FieldLevel™ II systems provide the highest performance RTK positioning available for 'on grade' sub-surface drainage and land levelling surface water management. The Trimble farm drainage solution is a concept to completion tool set that streamlines the survey, analysis, design, installation and mapping of sub-surface and surface drainage.

Benefits of GPS drainage solutions include:

- 🟡 More pipe installed per day
- 🟡 More efficient placement and minimised use of backfill aggregates
- 🟡 Reduced labour in the field
- 🟡 Lower skill level operators can work to pre-designed plans
- 🟡 Less susceptible to adverse weather
- 🟡 Reduced time to survey and present drainage plans to potential customers
- 🟡 Accurate as installed mapping and bills of material for invoicing the job



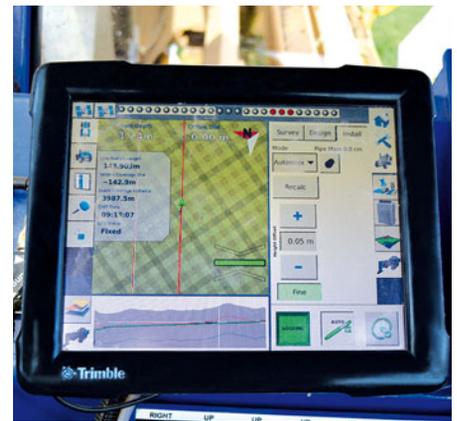
## Control Panels, Valves and Wiring

Mastenbroek in house engineering manufacture a range of standard and bespoke control panels with hydraulic valves and wiring kits to suit a variety of self propelled trenchers and vehicles. Applications include both 'on grade' depth control and auto steering.



## WM-Topo™ Survey System:

A topographic hand held data collector that can be taken into areas inaccessible by vehicles, for example ditches or mature crops. Mark out new pipe junctions, or existing schemes, prior to commencing drainage work. Survey data can be transferred to Farm Works™ Surface software or directly to the Trimble in-cab integrated FmX® display, and used to create surface models for better informed water management decisions.



## FmX® In-cab Integrated Display:

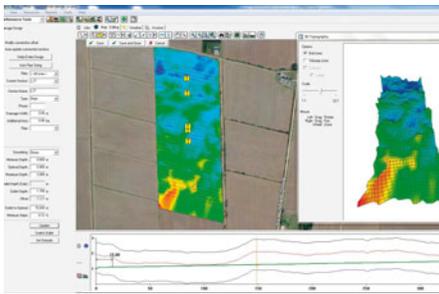
This integrated display is at the heart of automatic machine control for surface and sub-surface drainage. Installed on the self propelled drainage trencher, or vehicle with add-on drainer or leveller, it is used for machine control, topographical surveying ➔ analysis ➔ design ➔ mapping, without having to leave your trencher. Additionally it can be removed and installed onto for example a vehicle or quad bike for topographical surveying.

# FARM WORKS SURFACE SOFTWARE

An analysis and design tool for use with Trimble WM-Drain farm drainage solution, ensuring the optimum placement of sub-surface drains and surface water management.

Utilise 3D modelling for each field, detailing high and low spots.

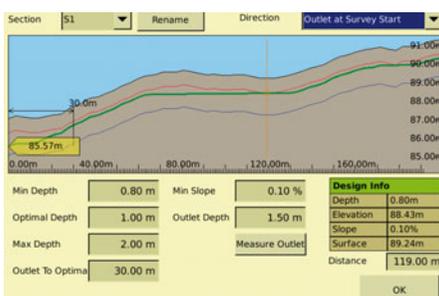
Determine the various watershed zones to assist with collector and lateral pipe placement.



Enable flow arrows and tributary lines to assist with tracing the natural surface water flows.

Utilise drawing tools to tie laterals to collectors, create parallel lateral spacings, and clip drainage lines to length.

Utilise Autoslope technology to produce optimal depth designs resulting in a consistent water table.



Verify that the pipe network will successfully drain to the main outlet before beginning the installation.

Export survey data to the FmX display for an on-the-go solution.

Design planned guidance lines to follow terraces, boundaries and other features.

Print out maps that include useful information such as drain lengths and bill of materials.

View the field analysis over the top of aerial images, or overlay design plans onto digital map formats, or scan and overlay onto old original hard copy plans.

# TRIMBLE'S WM-DRAIN FARM DRAINAGE SOLUTION:

Connects the survey, analysis, design, installation, and mapping steps in surface and sub-surface drainage projects.

**SURVEY:** collect 3D field data with ease by using the FmX or WM-Topo survey system.

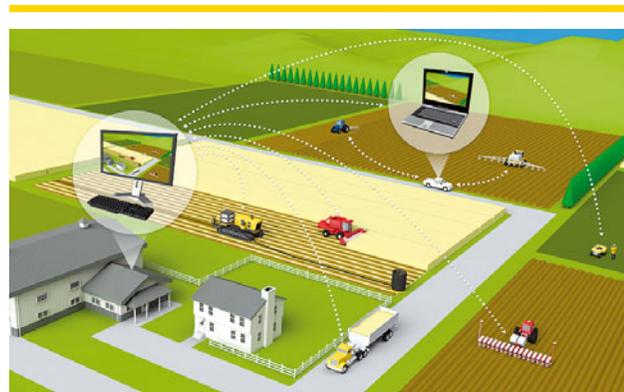
**ANALYSE:** analyse the 3D field data using Farm Works Surface software to make better informed drainage decisions.



**DESIGN:** design and verify complete 3D drainage system using Surface software in the office, or design drainage lines on-the-go without having to leave the trencher.

**INSTALL:** take your designs back to the field and utilise the WM-Drain module on the FmX display and Trimble's 3D machine control technology for precise installation of your pipes or surface ditches.

**MAPPING:** map the true location of your installed drainage pipes or ditches and utilise the records for future maintenance or drainage expansion projects.



Your investment in Trimble water management technology can also be leveraged over other agricultural solutions, such as precision guidance, seeding, flow and application control, and yield monitoring. Supported by Trimble's global network of sales and support dealers, this cross-functional utility means you get more from your investment.

# LAND LEVELLING:



**SURVEY:** map your fields, create boundaries and sections, calculate true area of your field.

**DESIGN:** create a best-fit surface using Autoplane technology, define primary and cross slopes, utilise Multiplane design software for more complex field requirements.

**LEVEL:** drive the scraper hydraulic valves automatically using any type of vehicle and scraper, operate both tandem and dual scraper systems.

# LEEVE DESIGN & INSTALLATION:

Utilise the survey, design and level capabilities for levees, and incorporate Trimble's various auto-steering systems to guide the vehicle as the levees are being installed.



# APPLICATIONS

At Mastenbroek, we are world renowned for our expertise in the design and manufacture of self propelled trenchers. We combine our in-depth knowledge of machine control technology with many years' experience working in the drainage sector to ensure the build quality, reliability, productivity and ease of use customers throughout the water management industry demand.

We first incorporated a laser transmitter and receiver to control the depth and grade of drainage trenchers in 1973. Today, high precision GPS is revolutionising drainage in the same way the laser did in the 70s, with its ability to also auto-steer the trencher. Yet again, Mastenbroek is proud to be at the forefront of adopting new technology to provide faster, more accurate, more profitable drainage solutions.

In addition to the core range of Mastenbroek trenchers, we engineer solutions for a host of other applications, including other brands:

- Laser and GPS 'on grade' depth control and auto steering
- GPS, with RTK accuracy for all aspects of drainage survey, analysis, design, installation and as installed mapping
- Trenchers and plows for farm drainage
- Trenchers for horticulture, including orchards and glasshouses
- Field levelling scrapers for surface water management
- Add-on trenchers and wheels for farm and sports field drainage
- Deep trenchers for horizontal de-watering
- Rock trenchers requiring on grade pipes and specialised drainage



## **Mastenbroek drainage trencher with GPS 'on grade' and autosteer**

Operating in tandem with Mastenbroek tracked crawler truck following in the drainage trencher tracks to accurately place backfill into the trench with minimal crop damage.

Mastenbroek is proud to support the global cable and pipe laying industry in the field of utility, offshore and agricultural applications. We supply the precision engineered machines our customers rely on to perform day in, day out, in often arduous conditions.

The Mastenbroek product range includes trenchers, plows and cable/pipe laying systems, along with trench backfill machines, tracked gravel trucks, tractor-pulled gravel trailers and 'one off' specialist machinery designed and built to customers' exact specifications.



Mastenbroek is a long-standing TRIMBLE® Authorised Dealer offering customers access to their comprehensive range of water management solutions based on laser and GPS technology.



**MASTENBROEK**



TRENCHING



OFFSHORE



ENVIRONMENTAL

Mastenbroek Ltd. 83 Swineshead Road, Wyberton Fen, Boston, Lincs, PE21 7JG England

+44 (0) 1205 311313 [info@mastenbroek.com](mailto:info@mastenbroek.com)

[www.mastenbroek.com](http://www.mastenbroek.com)