

THE GROUNDBREAKER

Ground investigation drill rigs



Technical Specifications

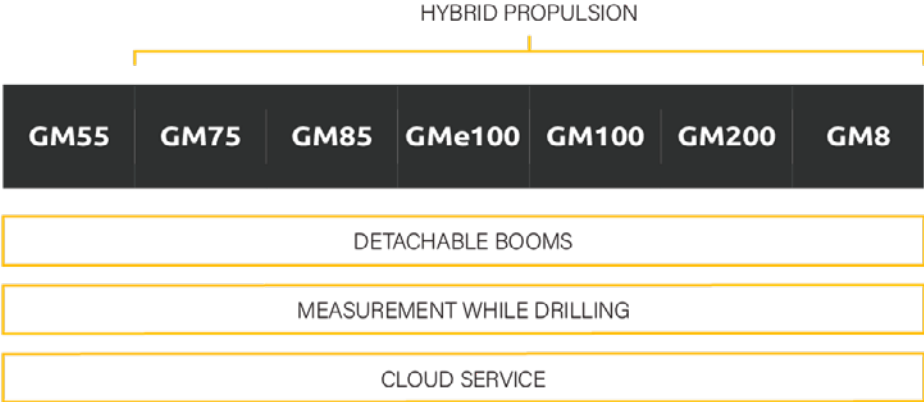
1/2024

 **Geomachine**

GROUND INVESTIGATION DRILL RIGS

- Our geotechnical drill rig range is the largest on the market. The smallest rig in the fleet, the two- tonne GM50, can be transported on a car trailer. At the other extreme, the eight-wheeled flagship model GM8 is a mammoth that can traverse even the most difficult terrain with low ground pressure.
- Our intelligent geotechnical drill rigs come with an electronic control system and the GMTracker data-logging software that allows the soil investigation and rig operating data to be uploaded to a cloud service for further use and analysis.
- The rigs are modular and can be configured with a boom and drilling accessories to suit the needs of individual users. The booms can also be installed on carriages other than Geomachine ones if they have the necessary hydraulics.
- Geotechnical drill rigs can be fitted with an optional electric power pack for emission-free and silent drilling.

The Groundbreakers



CONTROL SYSTEM AND DATA LOGGING

GM drill rigs are controlled by CAN BUS control system. GMTracker data-logging software collects all process and machine data. The data can be uploaded to GM cloud service for further use and analysis.

CONTROL SYSTEM AND DATA MANAGEMENT

Control system	IQAN
Remote operation	Scanreco
Automation	Automated drilling programs, mast automatic erection.
Safety mode	Secure operation mode for rod handling.
Datalogging	GMTracker with needed sensing as standard, support for EURO code methods (Rufco, Envi, and Geotech as options*).
CPTu system	Geotech acoustic system available to work with GMTracker.
DGPS	GMTracker has inbuilt GPS system to help in navigation to the investigation points. As an option an accurate (3 cm) DGPS system is available to automate the accurate coordinates management with rig.
Cloud service	Integrated inspection data, fleet maintenance and workflow management.



INVESTIGATION METHODS

We manufacture multipurpose drill rigs. All major eurocode ground investigation methods can be completed with our rigs.

RIG MODEL	GM55	GM75	GM85	GMe100	GM8	GM100	GM200
INVESTIGATION METHOD SUPPORT							
Installation groundwater standpipes (VP)	X	X	X	X	X	X	X
Sampling	X	X	X	X	X	X	X
Dynamic probing (HE)	X	X	X	X	X	X	X
Weight sounding (PA)	X	X	X	X	X	X	X
Percussion drilling (PO)	Openings	X	X	X	X	X	X
Casing drilling		X	X	X	X	X	X
Static (dynamic) penetration testing; SPT and DSPT (HP)	With needed equipment	With needed equipment	With needed equipment	With needed equipment	With needed equipment	With needed equipment	With needed equipment
Piezocene penetration testing; CPT and CPT-u (CU)	With needed equipment	With needed equipment	With needed equipment	With needed equipment	With needed equipment	With needed equipment	With needed equipment
DTH Drilling (DTH)		-	With needed equipment	With needed equipment	With needed equipment	With needed equipment	With needed equipment
Core sampling in rock		-	With needed equipment	With needed equipment	With needed equipment	With needed equipment	With needed equipment

CARRIAGE SPECIFICATIONS

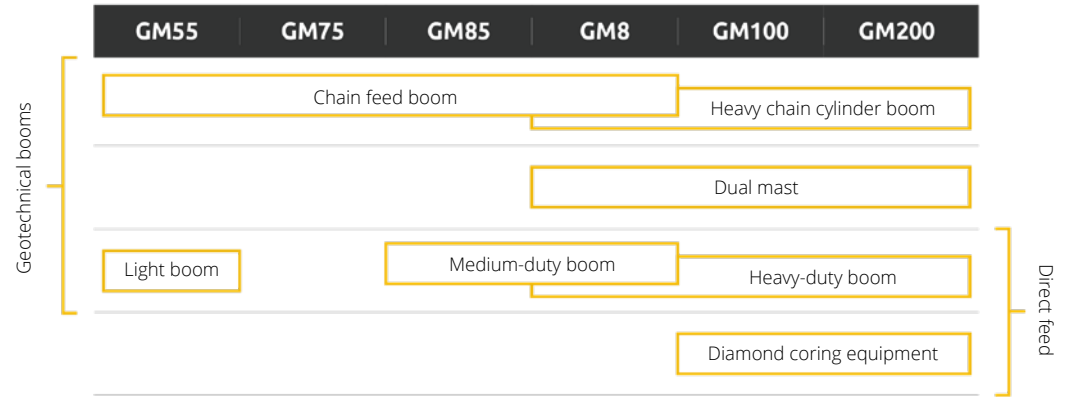
Bigger rigs provide more power and functionality.
Unfortunately they also come in a bigger package.

RIG MODEL	GM55	GM75	GM85	GMe100	GM8	GM100	GM200
MAIN DIMENSIONS							
Weight (based on options)	c. 2 ton	c. 4,5 ton	c. 5,5 ton	c. 10 ton	c. 9 ton	c. 8 ton	c. 10 ton
Length	270 cm	400 cm	430 cm	685 cm	685 cm	580 cm	610 cm
Width	130 cm	186 cm	210 cm	215 cm	215 cm	210 cm	240 cm
Height	176,5 cm	212 cm	225 cm	230 cm	230 cm	250 cm	265 cm
Ground clearance	280 mm	330 mm	400 mm	440 mm	700 mm	480 mm	480 mm
POWER PACK AND HYDRAULICS							
Engine type	TBD	Perkins	Cummins	Electric	Cummins	Cummins	Cummins
Engine power	55 kW	100 kW	129 kW	60 kW + 38 kW (nominal)	140 kW	129 kW	119 kW
Fuel tank	50 litres	120 litres	210 litres	N/A	340 litres	200 litres	200 litres
Hydraulic pumps	1 pcs	2 pcs (load sensing)	2 pcs (load sensing)	1 pcs (load sensing)	2 pcs (load sensing)	2 pcs (load sensing)	2 pcs (load sensing)
Hydraulic tank	50 litres	120 litres	300 litres	340 litres	340 litres	280 litres	280 litres
TRACKS							
Tracks	Rubber belts with steel profiles	Rubber belts with steel profiles	Rubber belts with steel profiles	Rubber belts with steel profiles	8 wheels, no tracks	Rubber belts with steel profiles	Rubber belts with steel profiles
Driving motors	2 pcs	2 pcs	2 pcs	2 pcs	8 pcs	2 pcs	2 pcs
Tensioning	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Travelling speed	0-4 km/h	0-5 km/h	0-5 km/h	0-5 km/h	0-5 km/h	0-6 km/h	0-6 km/h

RIG MODEL	GM55	GM75	GM85	GMe100	GM8	GM100	GM200
STANDARD EQUIPMENT							
Compressor	-	2,5 m3 / 7 Bar	5,0 m3 / 7 bar	2,5/5,0 m3 - 7 bar	5,0 m3 / 7 bar	5,0 m3 / 7 bar	5,0 m3 / 7 bar
Waterpump	50 bar / 50 l/min	50 bar / 50 l/min	90 bar / 60-142 l/min	90 bar / 60-142 l/min	90 bar / 60-142 l/min	90 bar / 60-142 l/min	90 bar / 60-142 l/min
Winch	Electric	Hydraulic (6800 kg)	Hydraulic (6800 kg)	Hydraulic (8160 kg)	Hydraulic (9000 kg)	Hydraulic (8160/13600 kg)	Hydraulic (8160/13600 kg)
Motor heater	Electric 220 V	Electric 220 V & Eberspächer	Electric 220 V & Eberspächer	N/A	Electric 220 V & Eberspächer	Electric 220 V & Eberspächer	Electric 220 V & Eberspächer
Rod magazine	Rigid rod case	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic	Hydraulic
Warning and working lights	Led	Led	Led	Led	Led	Led	Led
Manual flushing valve with flow and pressure meter	-	X	X	X	X	X	X
Tool cabinets	All with locks	All with locks	All with locks, 1 with heating	All with locks	All with locks, 2 with heating	All with locks, 3 with heating option	All with locks
Bulldozer blade, Vise, Hitch, Fire extinguisher	X	X	X	X	X	X	X
Electricity outlets	2x12 V	2x12 V	2x24 V	12 V, 24 V, 220 V	12 V, 24 V	2x24 V	2x24 V
OPTIONS TO CARRIAGE							
Hybrid readiness		X	X	N/A	X	X	X
Hybrid		400 V 63 a	400 V 63 a	N/A	400 V 63 a	400 V 63 a	400 V 63 a
Extra battery pack		121 kWh	121 kWh	121 kWh	121 kWh	121 kWh	121 kWh
Generator					220 V, Dynaset	220 V, Dynaset	220 V, Dynaset
Hydraulic grinder	Dynaset	Dynaset	Dynaset	Dynaset	Dynaset	Dynaset	Dynaset
Spray rinse system		X	X	X	X	X	X
Hydraulic outlet		X	X	X	X	X	X
Fuel pump	X	X	X	X	X	X	X
Electric valve for flushing air and water		X	X	X	X	X	X
Additional rod magazine on bulldozer blade		X	X	X	X	X	X
Additional box for inner rods (1m)		X	X	X	X	X	X
Hydraulic waterhose reel		X	X	X	X	X	X
Heated waterpump cabin		-	X	X	X	X	X
Working Platforms with safety cage		-					X
Rubber tracks		300 mm wide	300 mm wide	400 mm wide		400 mm wide	400 mm wide

BOOM SPECIFICATIONS

Due to the configurability of our drill rigs right boom can be chosen to right carriage based on customers drilling needs



BOOM TYPE	LIGHT	CHAIN CYLINDER	MEDIUM DUTY	HEAVY DUTY	HEAVY CHAIN CYLINDER	EXPLORATION	DUAL MAST	
BOOM PERFORMANCE								
Feed type	Direct cylinder feed	Chain cylinder Feed	Direct cylinder feed	Direct cylinder feed	Chain cylinder feed	Direct cylinder feed	Direct cylinder feed	Chain cylinder feed
Feed length	1400 / 2200 mm	2400 mm	2400 / 2700 mm	2700 mm (3500 mm as an option)	2400 mm	3500 mm	1200 mm	2400 mm
Lifting capacity	6 ton	7 ton	10 ton	14 ton	10 ton	14 ton	16 ton	8 ton
Feedforce	4 ton	5 ton	7 ton	9 ton	7 ton	9 ton	20 ton	10 ton
Movement speed	0,3 m/s	0,4 m/s down, 0,3 m/s up	0,25 m/s down, 0,2 m/s up	0,2 m/s down, 0,15 m/s up	0,3 m/s down, 0,25 m/s up	0,2 m/s down, 0,15 m/s up	0,2 m/s down, 0,25m/s up	0,4 m/s down, 0,5 m/s up
Mast vertical displacement	500 mm	600 mm	900 mm	1500 mm	1100 mm	1500 mm	600 mm	
Mast Tilting	10 degrees front and side ways	10 degrees front and side ways	10 degrees front and side ways	10 degrees front and side ways	10 degrees front and side ways	10 degrees front and side ways	10 degrees front and side ways	
Rod locks	Hydraulic rod lock	Hydraulic double rod lock, upper one with opener	Hydraulic double rod lock, upper one with opener	Hydraulic double rod lock, upper one with opener	Hydraulic double rod lock, upper one with opener	Hydraulic opener, roll lifter	Hydraulic	Hydraulic double rod lock, upper one with opener
Anchoring	Option	Option	Option	Option	Option	-	Option	
BOOM OPTIONS								
Drill table	Single	V300	V300 / V700	V700	V700	V900	-	V300
Electric safety radar	X	X	X	X	X	X		X
Mast winch	Electrical, 363 kg	Electrical, 363 kg	Electrical, 363 kg	Electrical, 363 kg	Electrical, 363 kg	Electrical, 363 kg	Electrical, 363 kg	
Light rod opener	X	X	X	X	X	X		X
Galge		X	X	X	X	X		X
Aluminium boom extension	X		X	X				
Roll lifter						X		
Wireline winch						X		
Boom extension						X		

DRILL TABLES

GM rigs have double drill table that is configured according to investigation and drilling needs

TABLE TYPE	Single		V300		V500/700 Large		V900	
	Center	Left	Right	Left	Right	Left	Right	
Rotation unit	V300	V300	V300	V500 / V700	V500	V500 / V700	V900	
Rotation speed	0-80 rpm	0-80 rpm	0-80 rpm	V500: 0-90 rpm, V700: 0-70 / 0-35 rpm	0-90 rpm	V500: 0-90 rpm, V700: 0-70 / 0-35 rpm	0-1900 / 0-600 rpm	
Max Torque	1900 Nm	1900 Nm	1900 Nm	V500: 2800 Nm, V700: 3250 / 6200 Nm	2800 Nm	V500: 2800 Nm, V700: 3250 / 6200 Nm	240 / 740 Nm	
Equipment	Lifton LH180 hammer, Hydraulic chuck 32-55 mm /19-45 mm above table	Hydraulic chuck 32-55 mm /19-45 mm above table	Soosan SQ30 Hammer	Soosan SQ35 hammer V700 option Doofoor 550	Hydraulic chuck 32-55 mm /19-45 mm below table	Soosan SQ35 hammer V700 option Doofoor 550	Hydraulic chuck, max diameter 77,5 mm	
Floating table	Standard	Standard	-	-	Option	-	-	
Options	SPT / DSPT Unit, CPTu equipment, Field vane testing equipment, Different adapters and water hose connec- tions based on used equipment	SPT/DSPT Unit, CPTu equipment, Field vane test equipment, GM V800 T56	Different adapters and water hose connec- tions based on used equipment	Different adapters and water hose connec- tions based on used equipment	SPT/DSPT Unit, CPTu equipment, Field vane test equipment, GM V800 T56	Different adapters and water hose connec- tions based on used equipment	Epiroc U4, SPT/DSPT Unit, CPTu equipment, Field vane test equip- ment, GM V800 T56	