

GEMEX Serie Drill Rig MP 1000 H

Gemsa General Makine Quality Drill Rig Manufacturer



*Reverse Circulation &
Core Drilling*

Designed for Professional Drillers

GEMSA

General Makine

Maximizing Productivity, Maximizing Operator Safety

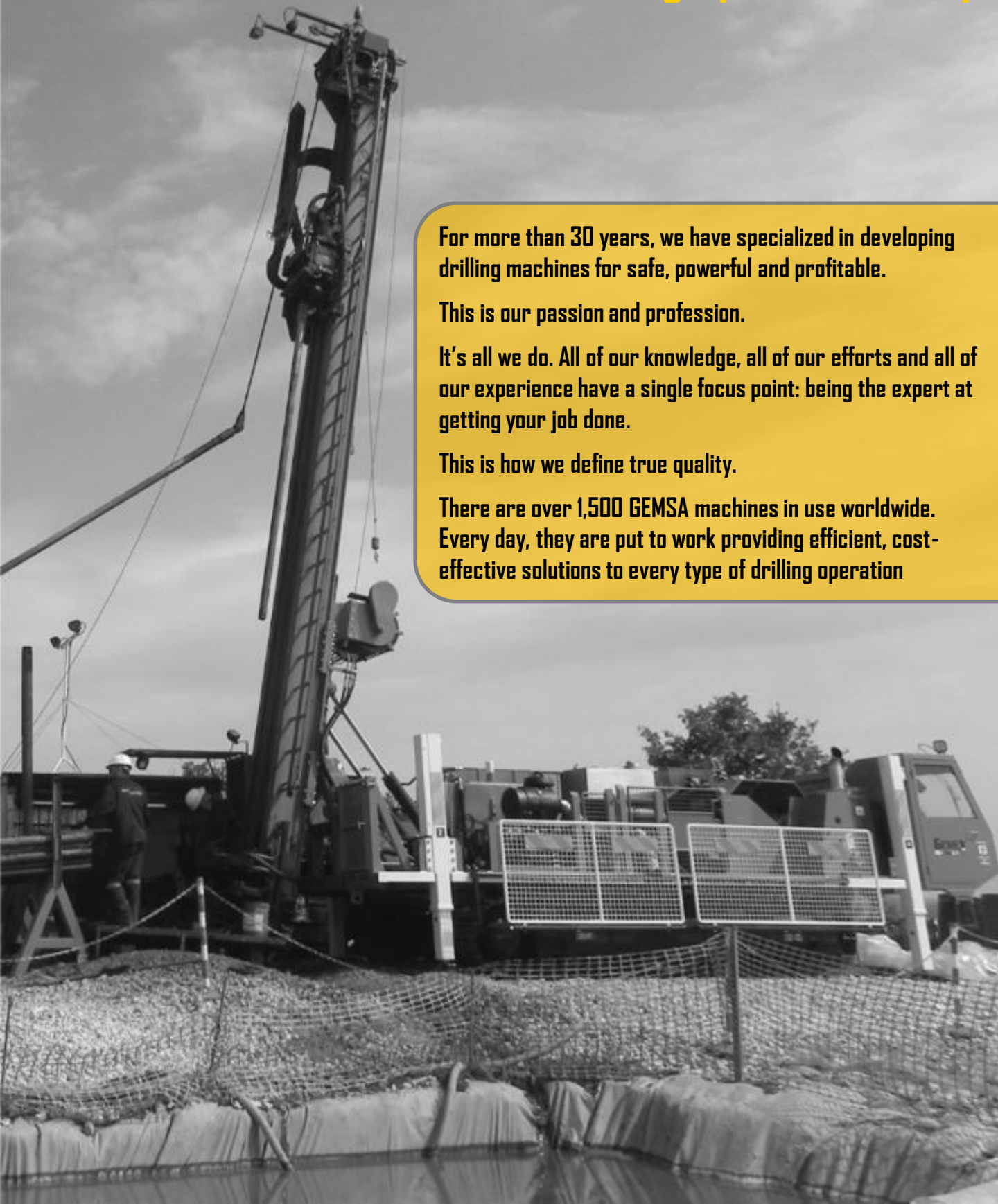
For more than 30 years, we have specialized in developing drilling machines for safe, powerful and profitable.

This is our passion and profession.

It's all we do. All of our knowledge, all of our efforts and all of our experience have a single focus point: being the expert at getting your job done.

This is how we define true quality.

There are over 1,500 GEMSA machines in use worldwide. Every day, they are put to work providing efficient, cost-effective solutions to every type of drilling operation



TECHNICAL INFORMATION

Drill Rig Specifications

GEMEX MP 1000 H



DRILLING DEPTH GUIDELINES	CORE DRILLING	
DRILL ROD / CORE BARREL	Hole Depth "METRIC"	Hole Depth "U.S."
NQWL	1.500 m	4.921 ft
NRQ V-Wall	1.750 m	5.742 ft
HQWL	1.000 m	3.280 ft
HRQ V-Wall	1.300 m	4.265 ft
PHD	650 m	2.133 ft
PHD V-Wall	950 m	3.117 ft

DRILLING DEPTH GUIDELINES	REVERSE CIRCULATION	
DRILL ROD / CORE BARREL	Hole Depth "METRIC"	Hole Depth "U.S."
4" (101,6 mm)	450 m	1.476 ft
4-1/2" (114,3 mm)	350 m	1.148 ft

BASE FRAME ASSEMBLY / UNDERCARRIAGE			
		METRIC	U.S.
Weight of the Rig		25.800 kg	56.880 lb
Length		11.000 mm	36,1 ft
Width		2.700 mm	8,85 ft
Height		3.500 mm	11,5 ft
Stabilization		Four hydraulic jacks on each sides of the rig	
Standard Undercarriage Type		Strickland Model Crawler Unit	
Crawler Width		500 mm	1,64 ft
Crawler Track Type		Steel wide triple grouser shoes	
Driving Speed	1 st Speed	1,8 km/h	1,12 mph
	2nd Speed	2,7km/h	1,68 mph
Truck Mounted Option		6x6 / 6x4 truck, or the customer's own support vehicle.	



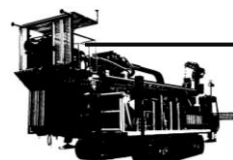
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POWER PACK			
		METRIC	U.S.
Engine Option 1		VOLVO 941 VE	
Type of Cooling		Water - Cooled	
Fuel		Diesel	
Specific Fuel Consumption @1800 min ⁻¹ (rpm)	25%	276 g/kWh	0,447 lb/hph
	50%	223 g/kWh	0,361 lb/hph
	75%	207 g/kWh	0,336 lb/hph
	100%	203 g/kWh	0,329 lb/hph
Number of cylinders, Method of Operation		6 cylinders, 4 stroke	
Max. Power		205 kW @ 1800 min ⁻¹	279 hp @ 1800 rpm
Max. Torque		1.151 Nm @ 1800 min ⁻¹	849 lb/ft @ 1800 rpm
PTO Compressor		7 bar	101,5 psi
Electrical Circuit		24 V	
Engine Option 2		VOLVO 943 VE	
Type of Cooling		Water - Cooled	
Fuel		Diesel	
Specific Fuel Consumption @1800 min ⁻¹ (rpm)	25%	249 g/kWh	0,404 lb/hph
	50%	213 g/kWh	0,345 lb/hph
	75%	201 g/kWh	0,326 lb/hph
	100%	203 g/kWh	0,329 lb/hph
Number of cylinders, Method of Operation		6 cylinders, 4 stroke	
Max. Power		267 kW @ 1600 min ⁻¹	363 hp @ 1600 rpm
Max. Torque		1.480 Nm @ 1600 min ⁻¹	1.092 lb/ft @ 1600 rpm
PTO Compressor		7 bar	101,5 psi
Electrical Circuit		24 V	
Engine Controller		VP Computer full engine display	
Fuel Tank Capacity		450 liter	119 gal



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HYDRAULIC SYSTEM		METRIC		U.S.	
		TWINDISC			
Pump Drive		TWINDISC			
Max. Input Torque		2.700 Nm		1.992 lbf ft	
Max. Output Torque per Pump Pad		1.050 Nm		774,4 lbf ft	
Max. Input Speed		2100 min ⁻¹		2100 rpm	
Max. Output Speed		2700 min ⁻¹		2700 rpm	
Oil Quantity		5 Liter		1,32 gal	
Pump 1		Close Circuit Axial Piston Pump Sauer Danfoss			
Working Input Speeds	Minimum	500 min ⁻¹		500 rpm	
	Continuous	3100 min ⁻¹		3100 rpm	
	Maximum	3400 min ⁻¹		3400 rpm	
Working Pressure	Continuous	420 bar		6.000 psi	
	Maximum	450 bar		6.500 psi	
Flow at Rated Speed		403 l/min		106 gal/min	
Torque at Max. Displacement		2.07 Nm/bar		1.260 lbf in/1000 psi	
Pump 2		Open Circuit Axial Piston Pump Sauer Danfoss			
Working Input Speeds	Minimum	500 min ⁻¹		500 rpm	
	Continuous	2200 min ⁻¹		2200 rpm	
	Maximum	2600 min ⁻¹		2600 rpm	
Working Pressure	Continuous	280 bar		4.060 psi	
	Maximum	350 bar		5.075 psi	
Flow at Rated Speed		286 l/min		75,6 gal/min	
Input Torque at Max. Displacement		2.069 Nm/bar		1.263 lbf in/1000 psi	
Pump 3		Open Circuit Gear Pump			
Working Input Speeds	Minimum	250 min ⁻¹		250 rpm	
	Maximum	2000 min ⁻¹		2000 rpm	
Working Pressure	Continuous	200 bar		2.900 psi	
	Maximum	250 bar		3.625 psi	
Flow at Rated Speed @ 1800 min ⁻¹ (rpm)		110 l/min		29,06 gal/min	
Displacement		61,26 cm ³ / rev		3,74 in ³ / rev	



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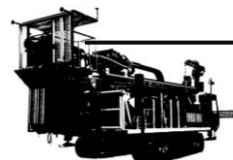
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HYDRAULIC SYSTEM		
	METRIC	U.S.
Hydraulic Valves	PVG Valves Sauer Danfoss	
Hydraulic Hose, Fittings, Gauges	Parker	
Hydraulic Oil Tank Capacity	600 liter	158,5 gal

MACHINE CONTROLS	
Engine Control	VP Computer full engine display
Drilling Controls	Pilot control, Sauer Danfoss rig drilling parameter function computer.
Drilling Control Panel	All controls and gauges ergonomically positioned for operator comfort.
Driving Controls	Radio control, Electrical control inside operator cabin, Manual control.
Platform	Manual adjusted separate operator foot stand platforms for control panel front, hydraulic activated for rod rack front and mast. Galvanized and anti-slip constructed folding platform for operator standing with shoe slide protection and no mud accumulated design.

DRILL MAST and FEED SYSTEM			
		METRIC	U.S.
Mast	Structure	Drill Head operating surfaces covered with Hardox plates. Box section of mast 300x100 mm ST52-3	
	Length	11.000 mm	36,1 ft
Mast Ladder		Mounted on right hand side of mast, Fitted with lanyard rope that allows a harness to be attached for ascending mast when vertical. Not available if a rod handler is fitted to the rig	
Cradle		Supported with rollers	
Feeding System		Double shaft hydraulic feed cylinder	
Feeding Stroke		7.000 mm	13,12 ft
Fast Feeding Down Speed		51 m/min	167 ft /min
Pull Back Force		150 kN (15 tones @ 280 bar)	33.721 lbf @ 4.060 psi
Pull Back Speed		51 m/min	167 ft /min
Maximum Rod Length		6 m	19,68 ft
Slow Feeding		Hydraulic pressure controlled from Hold-back and Feed	



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DRILL HEAD		METRIC		U.S.	
Model		GM 950			
Drill Head		Two Shift Floating Spindle			
Spindle Thread		4 ½" (114,3 mm)			
Drive Motor		Variable Displacement Sauer Danfoss Motor			
Drill Head Speed	Low Gear	90 min ⁻¹		90 rpm	
	High Gear	1100 min ⁻¹		1100 rpm	
Drill Head Torque	Low Gear	11.000 Nm		8.113 lbf ft	
	High Gear	1.200 Nm		885 lbf ft	
Operating Pressure		350 bar		5.076 psi	
Make Up		Torque Control			
Max. Break Out Pressure		350 bar		5.076 psi	
Drive Head Side Shift (hydraulic)		440 mm		17,3 in	

MUD PUMP		METRIC		U.S.	
Pump Option 1		American Manufacturing Horizontal Triplex Piston Pump			
Valve Type		Ball Valve			
Displacement		0,223 L/ rev		0,0589 gal/ rev	
Max. Pressure		70 bar		1.015 psi	
Variable Speed Control	350 min ⁻¹ (rpm)	78 l /min		20,6 gal /min	
	600 min ⁻¹ (rpm)	142 l /min		37,4 gal /min	
Pump Option 2		FMC Triplex Piston Pump			
Valve Type		Disc Valve			
Displacement		0,44 l /rev		0,116 gal /rev	
Max. Pressure		103,4 bar		1.500 psi	
Variable Speed Control	350 min ⁻¹ (rpm)	154 l /min		40,6 gal /min	
	600 min ⁻¹ (rpm)	264 l /min		69,7 gal /min	
Mud Pressure Gauge		High pressure OTECO water gauge			



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AIR LINE LUBRICATOR		
	METRIC	U.S.
Lubricator	Hydraulic Driven	
Operating Pressure	75 bar	1.087 psi
Lubricator Tank Capacity	30 Liter	8 gal

WINCH			
	METRIC	U.S.	
Winch 1	Main Winch		
Rope Drum Diameter	420 mm	16,5 in	
Rope Diameter	20 mm	0,78 in	
Max. Pulling Force	150 kN	33.721 lbf	
Variable Pulling Speed	100 - 150 kN	0-40m/min	0- 131 ft /min
	0 - 100 kN	0-48m/min	0- 157,5 ft /min
Max. Oil Pressure – (Max. Oil Flow)	300 bar – (240 l/min)	4.350 psi – (63,4 gal /min)	
Hydarulic Motor	Variable Displacement Sauer Danfoss Motor Load Sensing		
Winch 2	Wire Line Winch		
Rope Drum Diameter	200 mm	7,87 in	
Rope Diameter	8 mm	0,315 in	
Max. Pulling Force	9 kN	2.023 lbf	
Pulling Speed	5 m/sec	0- 16,4 ft /sec	
Operating Oil Pressure – (Oil Flow)	150 bar – (125 l/min)	2.175 psi – (33 gal /min)	
Hydarulic Motor	Sauer Danfoss Orbital Motor		
Winch 3	Gemsa Model Service Winch (Standard)		
Rope Drum Diameter	130 mm	5,12 in	
Rope Length – Diameter	18 m- 10 mm	59 ft - 0,39 in	
Max. Pulling Force	5 kN	1.124 lbf	
Variable Pulling Speed			

ROD CARRIER	
Standard Rod Carrier	One rod carrier on the left hand side of the rig 30 Rods (Ø 114,3x6.000 mm)



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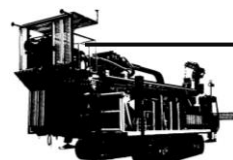
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CORE KIT			
		METRIC	U.S.
Rod Spinner (OPTIONAL)		Chuck type floating rod spinner with adjustable torque control and side swing in mounting	
Rod Spinner Capacity		PQ – HQ – NQ – PWT	
Maximum Torque	Make Up	2.100 Nm	1.555 lbf ft
	Breakout	3.000 Nm	2.220 lbf ft
Max. Hydraulic Pressure Supply		180 bar	2.611 psi
Control		Pilot Control	

Foot Clamp (OPTIONAL)	Hydraulic Control Gemsa Model	
Max. Hydraulic Pressure Supply	180 bar	2.611 psi
Rod Capacity	PQ – HQ – NQ – PWT (One set of jaw supplied for use)	
Water Swivel		

RC KIT			
		METRIC	U.S.
Rod Keys		Hydraulic Double Rod Key Unit	
Rod Thread Breaker	Type	Cylinder actuated, mounted on lower right hand side of mast	
	Tool	Wrap around Spanner	
Blow Down		Hydraulic Control	
Blow Down Inserts		Replaceable Wear Tubes	
Cyclone	Metal frame cyclone with replacement wear plates and nylon bag base. Sample inlet port is coated with ceramic. Easy to clean, top opened Cyclone suitable for sample collection RC Drilling.		
Cyclone Capacity		39,64 m ³ /min	1400 cfm
Drive Subs		114,3 mm	4 ½ in



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WATER PUMP		
	METRIC	U.S.
Pump	DYNASET HPW	
Max. Water Flow	30 l/min	7,92 gal/min
Max. Pressure	200 bar	2.900 psi
Max. Pumping Power	10 kW	13,41 hp

WELDING GENERATOR		
	METRIC	U.S.
Welding Generator	DYNASET HWG	
Welding Current "A"	40-220 ADC	
Welding Electrode	Ø 5 mm	Ø 0,19 in
Welding Current Adjustment	Selector Switch 3x7 Positions 35% / 220A - 60% 170A	
Arc Striking Voltage – (Welding Voltage)	73 VDC – (21,6 V – 28,8 V)	
Auxiliary Electricity	1- Phase	230 VAC / 3.5 kVA
	3- Phase	400 VAC / 6.5 kVA

ACCESSORIES	
Rig Lighting	Working led lights, Trimming lights, Service Lights
Tool Box	Lockable tool cabinet
HD Steel Work Bench with HD Work Vice	



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SAFETY SYSTEM

Winch Over Ride Safety.	
Hose socks on all high-pressure air hoses fixed to anchor points.	
Safety Cage	Opening cage restricts oil flow to drive head motor thus limiting drive head rotation speed.
Safety Stops	On each side of the machine where operator and assistant can reach easily.
Alarm Horn & Back Drive Beeper	Alarm horn higher than 100 decibel controlled from operator cabin and back drive beeper for back drive warning.
Fire Extinguishers	There are 12 kg fire extinguishers several places where operator and assistant can reach easily .Also fire sensitive balls inside the engine cabinet .
Walkways	Manual fold up/down, hardened anti-slip inserts. Three point of contact hand railings.
Mast Ladder	Foldable mast ladder with non-slip rungs/ non-slip anchor rope for safety harness
Safety Decals	

OPTIONAL EQUIPMENT

	METRIC	U.S.
Extra Valve Outlet		
Cold Start System		
Rig Lighting	Extra Led Lights Optional	
Drill Rig Color	Standard Color : International Harvester Orange – Black & White Colored (Customer's choice is Optional)	



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