

GEMEX Serie Drill Rig **MP 1500 H 0A**

Gemsa General Makine Quality Drill Rig Manufacturer

*Multi-Purpose Compressor Onboard
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 1500 H OA



DRILLING DEPTH GUIDELINES	CORE DRILLING	
DRILL ROD / CORE BARREL	Hole Depth "METRIC"	Hole Depth "U.S."
NQWL	2.250 m	7.382 ft
NRQ V-Wall	2.600 m	8.531 ft
HQWL	1.500 m	4.922 ft
HRQ V-Wall	1.900 m	6.234 ft
PHD	1.000 m	3.281 ft
PHD V-Wall	1.400 m	4.593 ft

DRILLING DEPTH GUIDELINES	REVERSE CIRCULATION	
DRILL ROD / CORE BARREL	Hole Depth "METRIC"	Hole Depth "U.S."
4" (101,6 mm)	700 m	2.297 ft
4-1/2" (114,3 mm)	600 m	1.969 ft

BASE FRAME ASSEMBLY / UNDERCARRIAGE		METRIC	U.S.
Weight of the Rig		32.000 kg	70.547 lb
Length		12.500 mm	41 ft
Width		2.700 mm	8,85 ft
Height		3.600 mm	11,8 ft
Stabilization		Four hydraulic jacks on each sides of the rig	
Standard Undercarriage Type		Strickland Model Crawler Unit	
Crawler Capacity		40.000 kg	88.185 lb
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.	



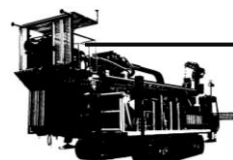
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POWER PACK			
		METRIC	U.S.
Engine Option 1		VOLVO 1643 VE	
Type of Cooling		Water - Cooled	
Fuel		Diesel	
Specific Fuel Consumption @1600 min ⁻¹ (rpm)	25%	223 g/kWh	0,361 lb/hph
	50%	202 g/kWh	0,327 lb/hph
	75%	195 g/kWh	0,315 lb/hph
	100%	197 g/kWh	0,319 lb/hph
Number of cylinders, Method of Operation		6 cylinders, 4 stroke	
Max. Power		565 kW @ 1850 min ⁻¹	768 hp @ 1850 rpm
Max. Torque		3.261 Nm @ 1300 min ⁻¹	2.398 lb/ft @ 1300 rpm
PTO Compressor		7 bar	101,5 psi
Electrical Circuit		24 V	
Engine Controller		VP Computer full engine display	
Engine Option 2		Cummins KTA-19 " Tier 1 "	
Type of Cooling		Water - Cooled	
Fuel		Diesel	
Fuel Consumption @2100 min ⁻¹ (rpm)		135,1 l/ h	35,7 gal/h
Number of cylinders, Method of Operation		6 cylinders, 4 stroke	
Max. Power		522 kW @ 2100 min ⁻¹	700 hp @ 2100 rpm
Max. Torque		1.526 Nm @ 1500 min ⁻¹	1.125 lb/ft @ 1500 rpm
PTO Compressor		7 bar	101,5 psi
Electrical Circuit		24 V	
Fuel Tank Capacity		800 liter	211 Gal



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AIR COMPRESSOR		
	METRIC	U.S.
Onboard Air Compressor (Option 1)	Atlas Copco 2 Stage Screw Compressor	
Working Overpressure Max.	30 bar	435 psi
Free Air Delivery	590 l/sec	1.250 cfm
Power (Full load)	415 kW	557 hp
Onboard Air Compressor (Option 2)	Sullair Combo 2 Stage Screw Compressor	
Working Pressure	34,5/ 24 bar	500/ 350 psi
Free Air Delivery	425/ 543 l/sec	900/ 1.150 cfm
Power Take Off	TWINDISC Clutch, Mechanic and Hydraulic Control	
Cooler Fan	Hydraulic motor driven, variable speed control according to temperature degree.	
Extra Outlet	Booster inlet	

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	
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	2600 min ⁻¹	2600 rpm
	Maximum	2850 min ⁻¹	2850 rpm
Working Pressure	Continuous	420 bar	6.000 psi
	Maximum	450 bar	6.500 psi
Flow at Operating Speed	370 l/min	97,7 gal/min	
Torque at Max. Displacement	2.87 Nm/bar	1.750 lbf in/1000 psi	



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HYDRAULIC SYSTEM		METRIC		U.S.	
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 Axial Piston Pump Sauer Danfoss			
Working Input Speeds	Minimum	500 min ⁻¹		500 rpm	
	Continuous	2450 min ⁻¹		2450 rpm	
	Maximum	2880 min ⁻¹		2880 rpm	
Working Pressure	Continuous	280 bar		4.060 psi	
	Maximum	350 bar		5.075 psi	
Flow at Rated Speed		210 l/min		55,4 gal/min	
Input Torque at Max. Displacement		1.592 Nm/bar		972 lbf in/1000 psi	
Pump 4		Open Circuit Gear Pump			
Working Input Speeds	Minimum	700 min ⁻¹		700 rpm	
	Maximum	2300 min ⁻¹		2300 rpm	
Working Pressure	Operating	5 bar		72,5 psi	
	Maximum	210 bar		3.045 psi	
Flow at Rated Speed @ 2100 min ⁻¹ (rpm)		148 l/min		39,1 gal/min	
Displacement		70,74 cm ³ / rev		4,32 in ³ / rev	
Pump 5		Open Circuit Gear Pump			
Working Input Speeds	Continuous	2100 min ⁻¹		2100 rpm	
	Maximum	3000 min ⁻¹		3000 rpm	
Working Pressure	Continuous	180 bar		psi	
	Maximum	270 bar		3.900 psi	
Flow at Rated Speed @ 2100 min ⁻¹ (rpm)		73 l/min		gal/min	
Displacement		34,56 cm ³ / rev		2,11 in ³ / rev	



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DRILL MAST and FEED SYSTEM			
		METRIC	U.S.
Mast	Structure	Drill Head operating surfaces covered with Hardox plates. Box section of mast 400x100 mm ST52-3	
	Length	12.500 mm	41 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		40 m/min	131 ft /min
Pull Back Force		250 kN (25 tones @ 300 bar)	56.202 lbf @ 4.350 psi
Pull Back Speed		40 m/min	131 ft /min
Maximum Rod Length		6 m	19,68 ft
Slow Feeding		Hydraulic pressure controlled from Hold-back and Feed	

DRILL HEAD			
		METRIC	U.S.
Model		GM 1500	
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	1000 min ⁻¹	1000 rpm
Drill Head Torque	Low Gear	13.476 Nm	9.939 lbf ft
	High Gear	1.400 Nm	1032,5 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



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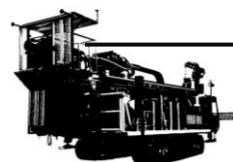
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CORE KIT			
		METRIC	U.S.
Rod Spinner (OPTIONAL)		Chuck type floating rod spinner with adjustable torque control and side swing in mounting	
Rod Spinner Capacity		PQ – HQ – NQ – PWT	
Maximum Torque	Make Up	2.100 Nm	1.555 lbf ft
	Breakout	3.000 Nm	2.220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

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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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.

MUD PUMP

		METRIC	U.S.
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	

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

AIR LINE LUBRICATOR

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



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WINCH		
	METRIC	U.S.
Winch 1	Main Winch	
Rope Drum Diameter	470 mm	18,5 in
Rope Diameter	24 mm	0,94 in
Max. Pulling Force	220 kN	49.458 lbf
Pulling Speed	40m/min	0- 131 ft /min
Max. Oil Pressure – (Max. Oil Flow)	350 bar – (310 l/min)	5.075 psi – (82 gal /min)
Hydarulic Motor	Open Circuit Piston Motor	
Winch 2	Wire Line Winch	
Rope Drum Diameter	120 mm	4,7 in
Rope Diameter	8 mm	0,314 in
Rope Length	2.700 m	8.858 ft
Max. Pulling Force	11 kN	2.473 lbf
Pulling Speed	5 m/sec	0- 16,4 ft /sec
Operating Oil Pressure – (Oil Flow)	180 bar – (160 l/min)	2.610 psi – (42,3 gal /min)
Hydarulic Motor	Radial Piston Motor with Negative Brake	
Winch 3	Gemsma 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		

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



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ACCESSORIES

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

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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general Makina

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