



ZIMKINA

YOUR NEEDS OUR PROJECTS

PRODUCT CATALOGUE

DYNAMIC EXPERIENCE

Z Makina Teknolojisi A.S. founded in 2008 with the aim of manufacturing equipment, tools and accessories initially for the mother company, ZetaS, which is subsidiary of Soletanche Bachy since 2011. ZETAS is an internationally recognized company in foundation engineering and contracting having operations in ten different countries in Central Asia and Middle East including Turkey over 30 years. During the past decade, Z MAKINA products range has expanded significantly and exported its products over 30 countries and have become a regional actor in foundation and soil improvement sector.

Z MAKINA moved to new facility 5000 m2 manufacturing and warehouse as 3800 m2 closed area in Dilovasi, 2016.

Using proven methods, along with unique and innovative features, Z MAKINA, based on the proprietary knowledge of mother company ZETAS, offers to its customers reliable equipment, made of noteworthy technological know-how and high quality and specialty materials. Our expert team is capable of realizing successfully the projects requirements, disturbances, bottle-neck limitations of any size and complexity with the purpose to cooperate in the transformation of great visions into feasible projects.

Z MAKINA COMMITS A GOOD REPUTATION



TABLE *OF CONTENTS*

WICK DRAIN	4
MECHANICAL GRAB	8
HYDRAULIC GRAB	16
JET GROUT KIT ON PILING RIG	22
POWER PACK	26
DESANDER	28
JET GROUT PLANT	32
BENTONITE PLANT	35
MINI GROUT MIXING AND PUMP UNIT	36
GROUT PUMP	37
MANUAL MIXER	38
BENTONITE TANKS	39
STOP-END WITH WATER STOP	40
FLAT STOP-END	41
EXTRACTORS	41
CHISEL - HAMMER	41
TREMIE PIPES	42
CASINGS	43
TWISTER	46
AUGERS-BUCKETS-CORE BARRELS	47
CONTINUOUS FLIGHT AUGER	48
DEEP SOIL MIXING	49
FULL DISPLACEMENT PILES	50
KELLY	52
CUTTER WHEEL	52
BORED PILE GRAB	53
MARINE WORKS	54



Prefabricated Vertical Wick Drain

Prefabricated Vertical Drains, also known as Wick Drains, are used to accelerate the consolidation of compressible soils. It is applied in soil improvement projects to provide a conduit for the pore water to flow easily. PVDs are installed into the ground using the hollow mandrel that hoses and protects the PVD material. The mandrel is hydraulically driven by means of a hydraulic cylinder with a crowd mechanism into the compressible soil to the design depth so that the wick drain anchors in the incompressible materials underlying the compressible soils. The mandrel is then withdrawn leaving the PVD in place. PVD installation rigs are equipped with Data Logger computerised measuring and recording systems that provide the installation details.

Suitable excavator installation is made according to the machine size. Depending on the soil conditions, it can be designed according to 2 different pressing and pulling forces. Machine height can be increased or decreased provided that the upper and lower booms and main booms are fixed. According that this application could be done with different depths.

It is designed to use in construction works such as building residences, malls, harbours, roads and runways for airports.



Wick Drain Cylinder System

		ZWD20-200	ZWD20-300	ZWD30-200	ZWD30-300
Drain depth capacity	m	20	20	30	30
Height Of Mast	m	24	24	34	34
Pull Down Force (at 320 BAR)	kN	204	305	204	305
Pull Up Force (at 320 BAR)	kN	130	200	180	180
Pull Down Speed	m/sec	1,30	0,90	1,30	0,90
Pull Down Speed Optional	m/sec	2,80	1,95	2,80	1,95
Pull Up Speed	m/sec	2,10	1,40	2,40	1,50
Suitable Excavator Weight	ton	45	45	70	70

STANDARD EQUIPMENT ZDATA Data Logger

- Recorded Parameters
- Depth Meter
- Driving Force
- Pressure Gauge
- Number of installed drains
- Cycle time of each drain



OPTIONAL EQUIPMENT DIALOG Data Logger

- Recorded Parameters
- Depth Meter
- Driving Force
- Pressure Gauge
- Number of installed drains
- Cycle time of each drain
- Positioning With GPS



SPEED UP SYSTEM

Approx 2x pull down speed engineered by Z Makina*

* if requested, the pull down speed can be increased by 2 times with an acceleration valve. With this acceleration valve it will run till 180 bars. When the pull down force exceeds 180 bars, it will outcome and be impact of normative work conditions depending on the enabling soil conditions.





Mechanical Grab

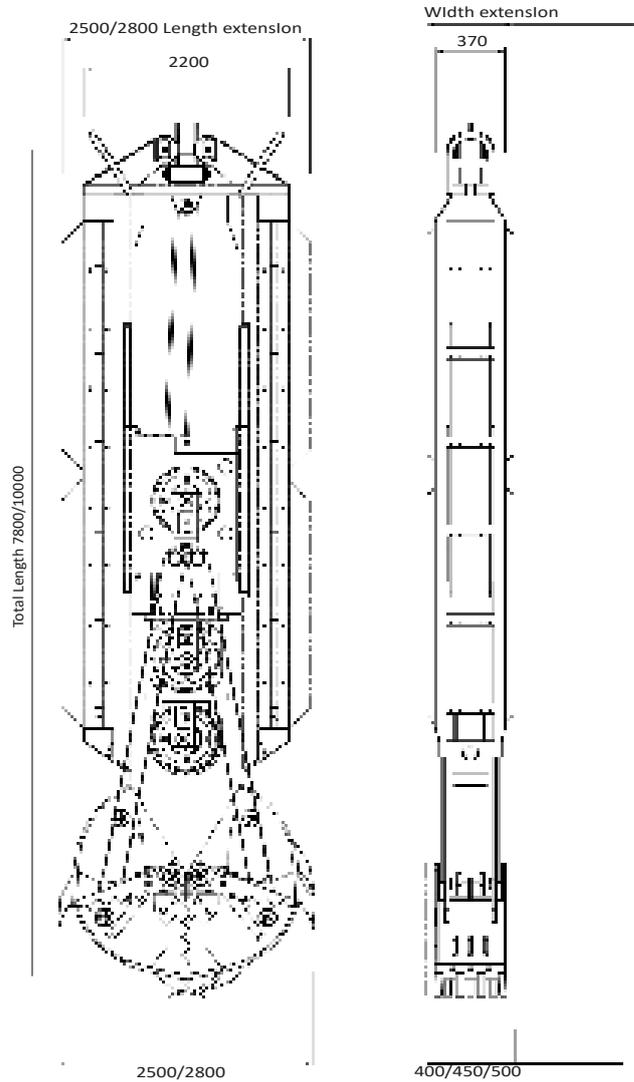
The Mechanical Grabs are manufactured of high wear resistant steels and can be manufactured in every required execution, capacity and weight. Z Makina manufactures the mechanical grab available with grab extensions for a total length of 7.8 to 10 m as MGK and MGU types and also with extra ballast to reach a total weight of up to 45 ton for even the most demanding projects.

Basically, the contact surfaces exposed to abrasion are manufactured by Hardox 500 material. The chassis and lever arms requiring endurance are manufactured by Weldox 700 material. The guides and holders are manufactured by S 355 material. Jaws may be rectangular or round shape. Jaws, pulleys, ropes and teeth can be quickly replaced on site without any problems. All rope and guide pulleys have adequately dimensioned, maintenance-free life-time seals and bearings filled with suitable oil. The demands of the bearings, of all turning parts are very high, because mechanical grab is constantly working in a mix of sand and liquid.



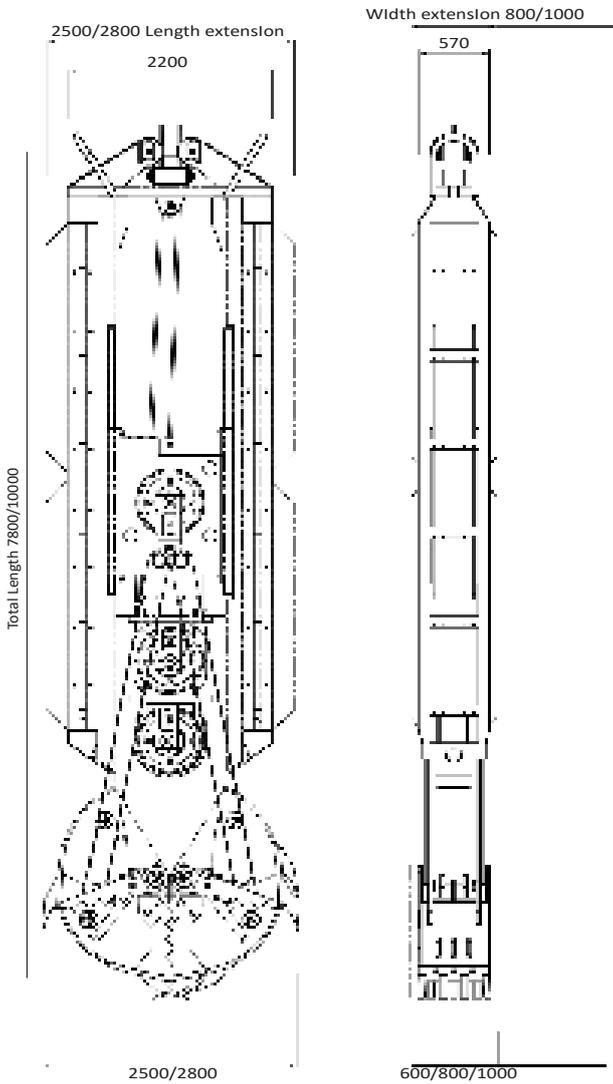


ZMG 400



	ZMG 400S						ZMG 400L					
Total Length (mm)	7800						10000					
Jaws Opening (mm)	2500			2800			2500			2800		
Jaws Width (mm)	400	450	500	400	450	500	400	450	500	400	450	500
Total Weight <i>Light Extension Type (kg)</i>	8720	9480	9880	9800	10520	10980	10040	10800	11200	11120	11840	12300
Total Weight <i>Heavy Extension Type (kg)</i>	8720	11200	13320	13680	16120	18300	10040	12520	14640	15000	17440	19620

ZMG 600

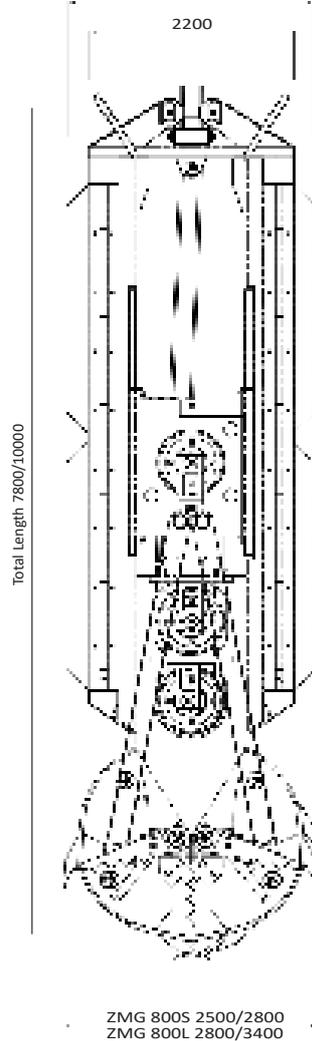


	ZMG 600S						ZMG 600L					
Total Length (mm)	7800						10000					
Jaws Opening (mm)	2500			2800			2500			2800		
Jaws Width (mm)	600	800	1000	600	800	1000	600	800	1000	600	800	1000
Total Weight Light Extension Type (kg)	10560	11810	12570	12060	13380	14260	12150	13400	14160	13650	14970	15850
Total Weight Heavy Extension Type (kg)	10560	14620	17840	16230	20360	12700	12150	16210	19430	17820	21950	25290

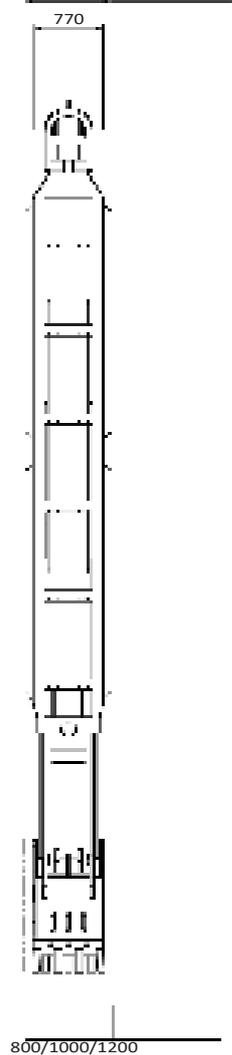
ZMG 800



ZMG 800S 2500/2800 Length extension
ZMG 800L 2800/3400 Length extension



Width extension 1000/1200

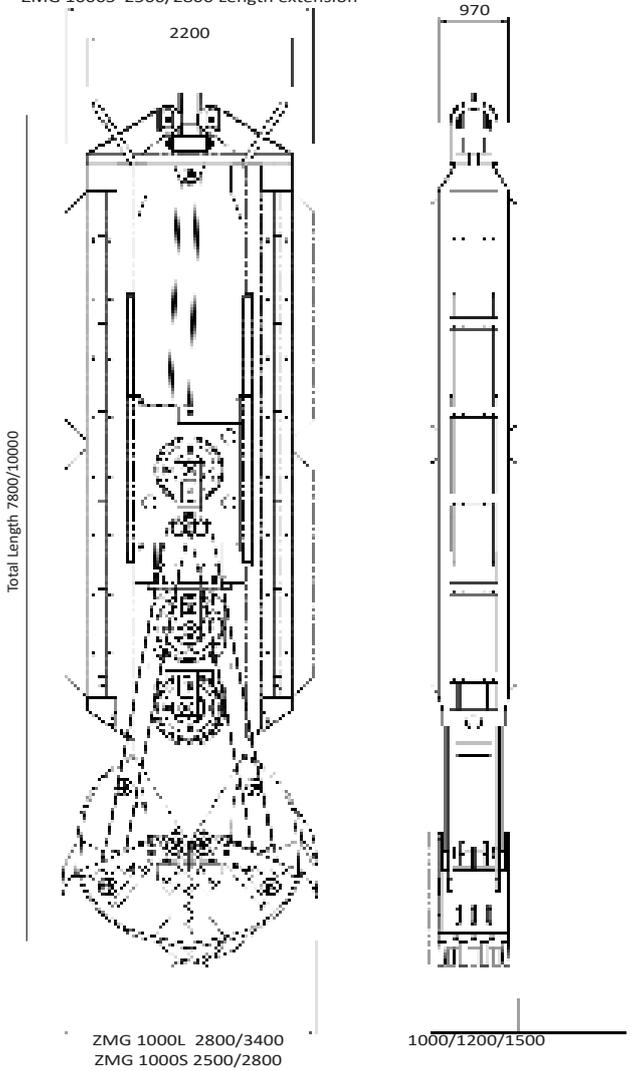


	ZMG 800S						ZMG 800L					
Total Length (mm)	7800						10000					
Jaws Opening (mm)	2500			2800			2500			2800		
Jaws Width (mm)	800	1000	1200	800	1000	1200	800	1000	1200	800	1000	1200
Total Weight <i>Light Extension Type (kg)</i>	12620	13940	15680	15180	16580	17810	14490	15810	17550	17050	18450	19680
Total Weight <i>Heavy Extension Type (kg)</i>	12620	16310	20110	18850	22620	25960	14490	18180	21980	20720	24000	27780

ZMG 1000

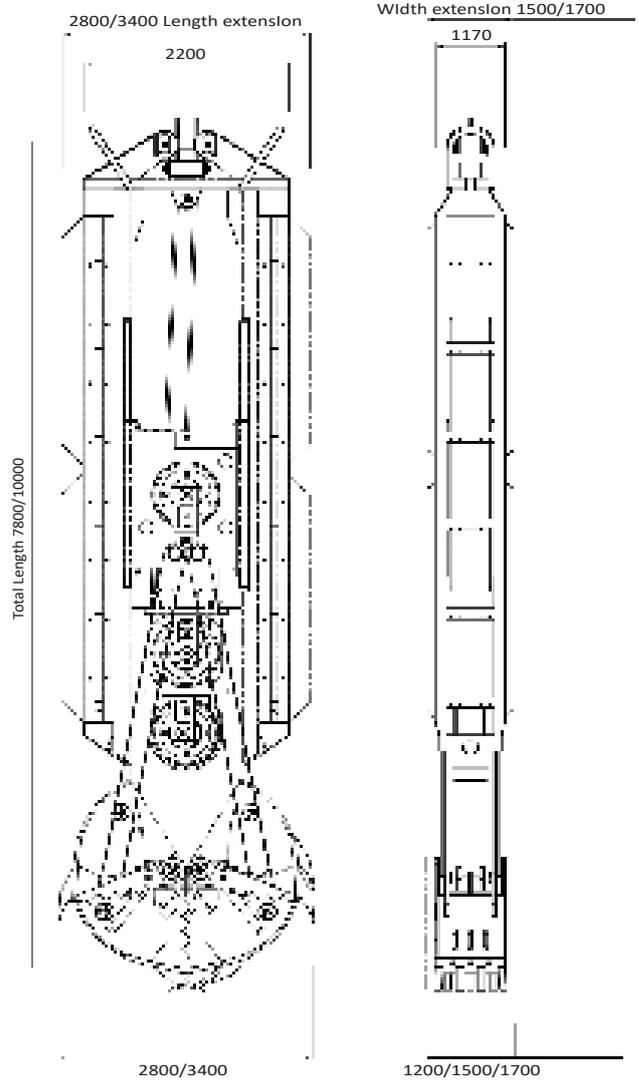
ZMG 1000L 2800/3400 Length extension
ZMG 1000S 2500/2800 Length extension

Width extension 1200/1500



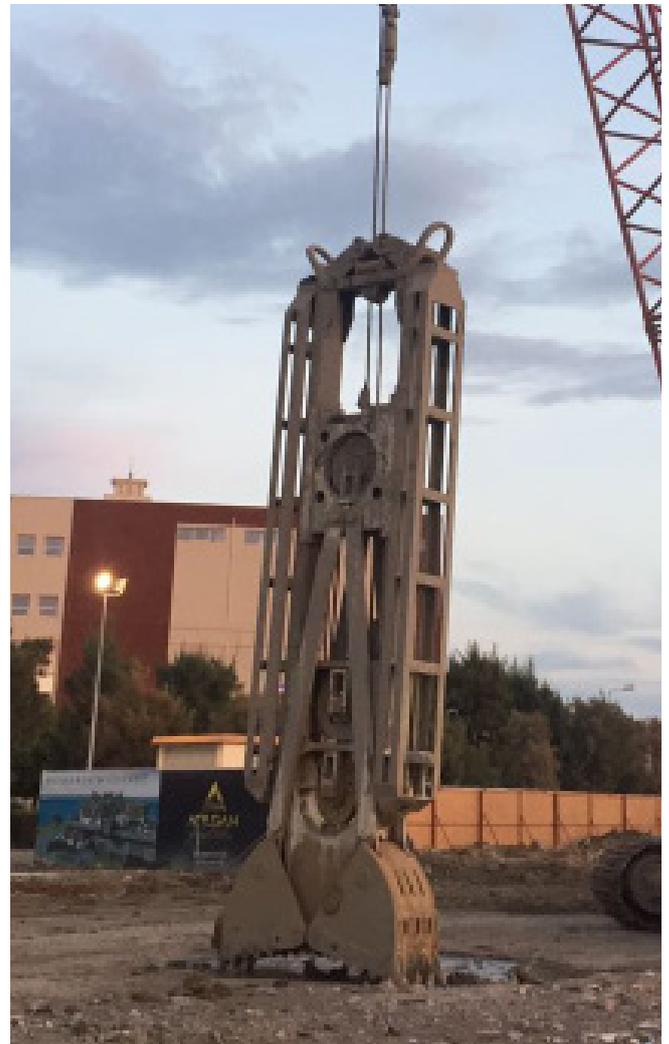
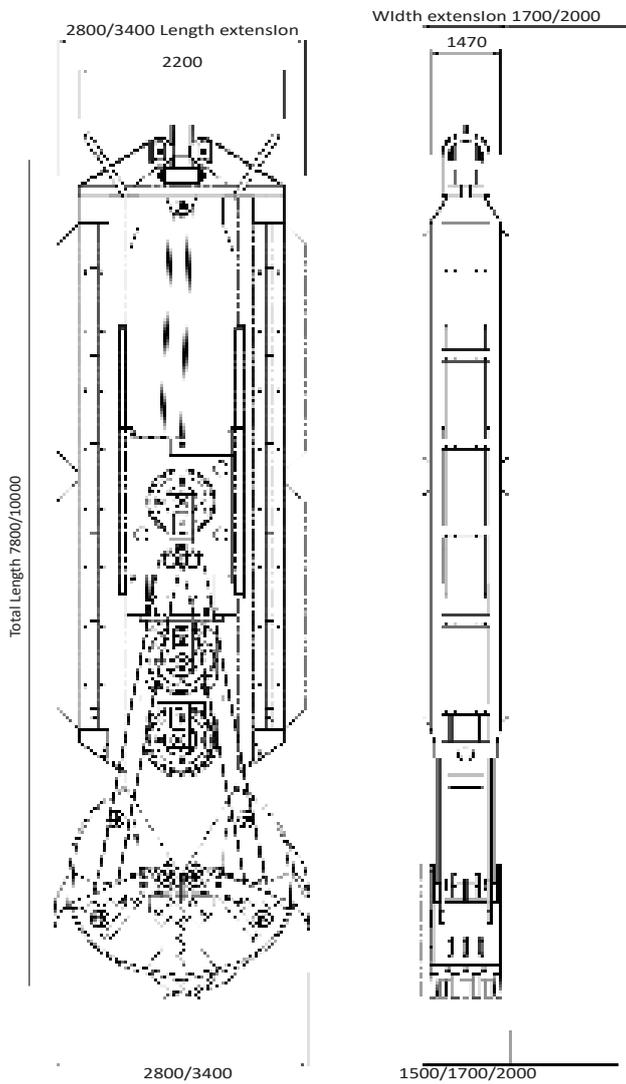
	ZMG 1000S						ZMG 1000L					
Total Length (mm)	7800						10000					
Jaws Opening (mm)	2500			2800			2500			2800		
Jaws Width (mm)	1000	1200	1500	1000	1200	1500	1000	1200	1500	1000	1200	1500
Total Weight Light Extension Type (kg)	14140	16040	18200	16780	18170	20430	16190	18090	20250	18830	20220	22480
Total Weight Heavy Extension Type (kg)	14140	18410	23610	20460	24820	29520	16190	20460	25660	22510	26270	31570

ZMG 1200



	ZMG 1200S						ZMG 1200L					
Total Length (mm)	7800						10000					
Jaws Opening (mm)	2800			3400			2800			3400		
Jaws Width (mm)	1200	1500	1700	1200	1500	1700	1200	1500	1700	1200	1500	1700
Total Weight <i>Light Extension Type (kg)</i>	18485	20645	22105	20615	22875	24055	21140	23300	24760	23270	25530	26710
Total Weight <i>Heavy Extension Type (kg)</i>	18485	24375	27515	29135	35125	37985	21140	27030	30170	31790	37780	40640

ZMG 1500



	ZMG 1500S						ZMG 1500L					
Total Length (mm)	7800						10000					
Jaws Opening (mm)	2800			3400			2800			3400		
Jaws Width (mm)	1500	1700	2000	1500	1700	2000	1500	1700	2000	1500	1700	2000
Total Weight Light Extension Type (kg)	20780	23380	24120	23010	25330	26140	23660	26260	27000	25890	28210	29020
Total Weight Heavy Extension Type (kg)	20780	28790	30920	31530	39260	41460	23660	31670	33800	34410	42140	44340





Hydraulic Grab

As experts in deep foundation equipment, hydraulic grab closing force is very high, they work more quietly and with less vibration than the mechanical grabs.

Z MAKINA manufactures a broad selection of hydraulic grab types for pile rig mounted with the proper telescopic Kelly, and the crane mounted type as per crane specifications with the proper design, appropriate hydraulic and electrical implementations, mechanical components as well.

Features:

- Reels with an automatic tensioning and recovery of the hydraulic hoses
- Excavation sets of different dimensions are interchangeable on the same grab frame.
- Mast mounted telescopic diaphragm Kelly or crane mounted grab can be powered by appropriate Z MAKINA hydraulic powerpack in case of inadequate hydraulic power of the base machine.
- Full guidance during excavation

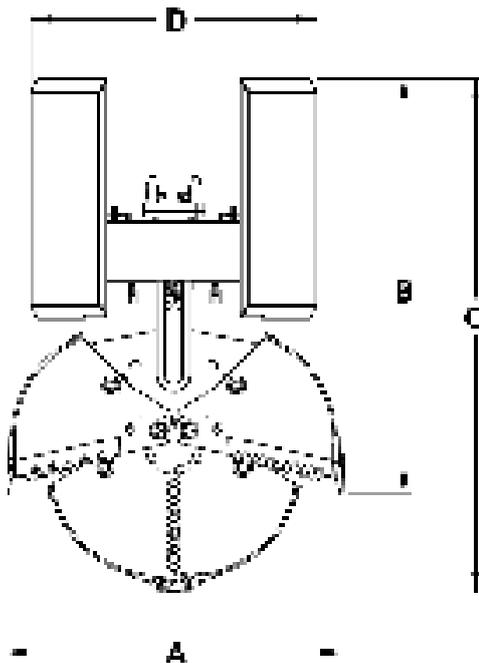
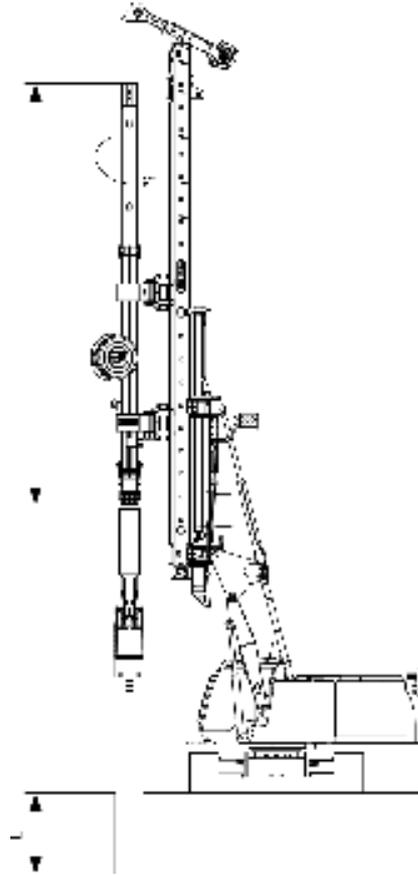
ZHG 1

ZHG1/24

Extension	L	W
-----	24 m	11000 kg
5000 mm	29 m	11600 kg
7000 mm	31 m	11950 kg

ZHG1/30

Extension	L	W
-----	30 m	11600 kg
5000 mm	35 m	12200 kg
7000 mm	37 m	12550 kg

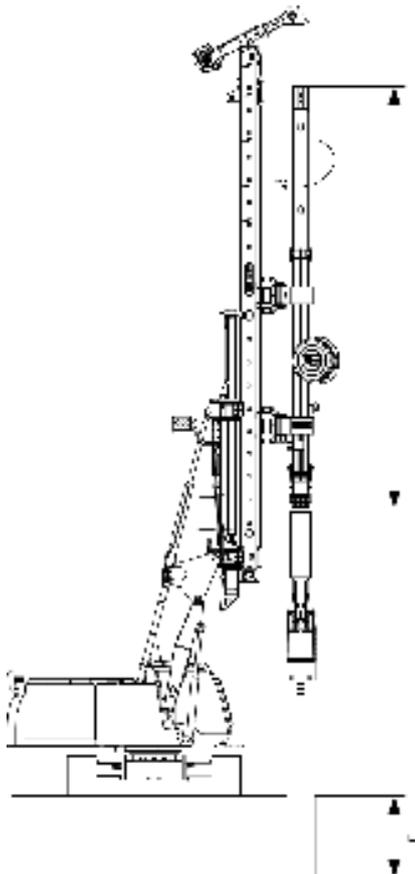


2500 OPENING			
Jaw width (E)	mm	600	800
Jaw weight	kg	1200	1600
Capacity	lt	600	900
Closing force	t	140	140

2800 OPENING			
Jaw width (E)	mm	600	800
Jaw weight	kg	1500	1900
Capacity	lt	800	1200
Closing force	t	140	140

Jaw Opening	A mm	2500	2800
Height With Open Jaws	B mm	3400	3500
Height With Closed Jaws	C mm	4100	4300
Width Of Guide	D mm	2400	2700

ZHG 2



ZHG2 /30

Extension	L	W
-----	30 m	12800 kg
5000 mm	35 m	13400 kg
7000 mm	37 m	13700 kg
9000 mm	39 m	14000 kg

ZHG2 /36

Extension	L	W
-----	36 m	13500 kg
2000 mm	38 m	13750 kg
5000 mm	41 m	14100 kg

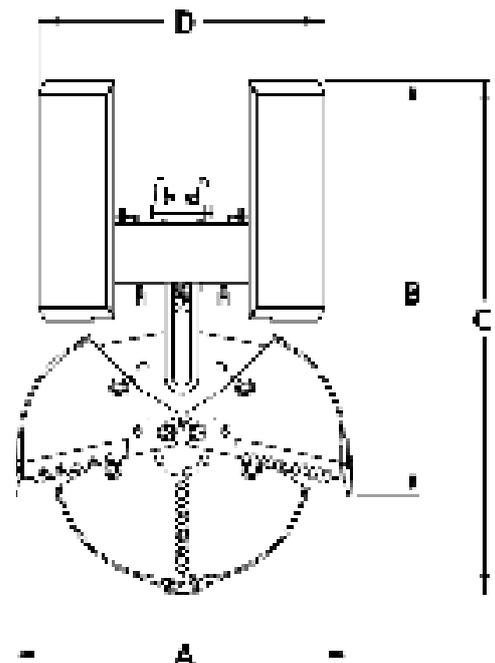
2500 OPENING

Jaw width (E)	mm	600	800	1000	1200
Jaw weight	kg	1200	1600	2000	2400
Capacity	lt	600	900	1200	1400
Closing force	t	140	140	140	140

2800 OPENING

Jaw width (E)	mm	600	800	1000	1200
Jaw weight	kg	1500	1900	2300	2700
Capacity	lt	800	1200	1500	1800
Closing force	t	140	140	140	140

Jaw Opening	A mm	2500	2800	3400
Height With Open Jaws	B mm	4400	4500	5200
Height With Closed Jaws	C mm	5100	5300	6300
Width Of Guide	D mm	2400	2700	3300



ZHG 3

ZHG3/30

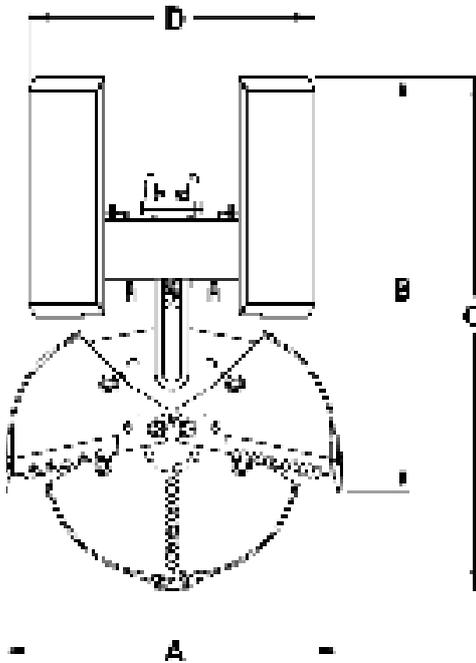
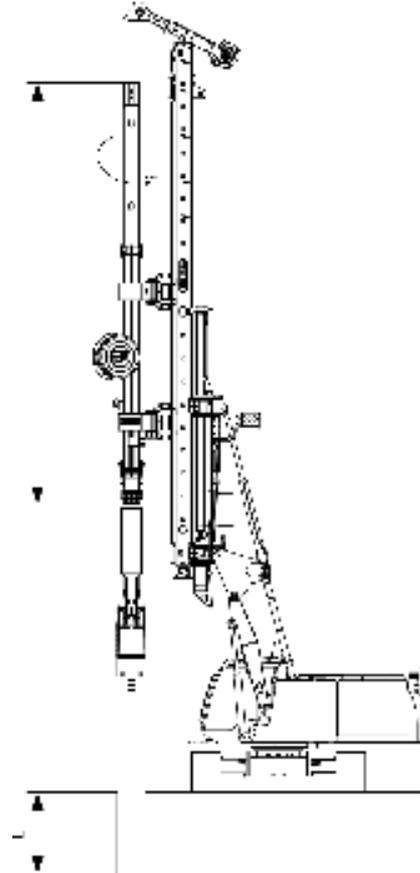
Extension	L	W
-----	30 m	14300 kg
5000 mm	35 m	14900 kg
7000 mm	37 m	15200 kg
9000 mm	39 m	15550 kg

ZHG3/36

Extension	L	W
-----	36 m	15100 kg
5000 mm	41 m	15700 kg
7000 mm	43 m	16000 kg
9000 mm	45 m	16350 kg

ZHG3/48

Extension	L	W
-----	48 m	19000 kg
2000 mm	50 m	19250 kg
5000 mm	53 m	19600 kg
7000 mm	55 m	19950 kg



2500 OPENING

	mm	800	1000	1200	1500
Jaw width (E)	mm	800	1000	1200	1500
Jaw weight	kg	1600	2000	2400	3000
Capacity	lt	900	1200	1400	1800
Closing force	t	180	180	180	180

2800 OPENING

	mm	800	1000	1200	1500
Jaw width (E)	mm	800	1000	1200	1500
Jaw weight	kg	1900	2300	2700	3300
Capacity	lt	1200	1500	1800	2300
Closing force	t	180	180	180	180

3400 OPENING

	mm	800	1000	1200	1500
Jaw width (E)	mm	800	1000	1200	1500
Jaw weight	kg	2500	2900	3300	3900
Capacity	lt	1600	1900	2200	2700
Closing force	t	180	180	180	180

	A mm	2500	2800	3400
Jaw Opening	A mm	2500	2800	3400
Height With Open Jaws	B mm	5400	5500	6200
Height With Closed Jaws	C mm	6100	6300	7300
Width Of Guide	D mm	2400	2700	3300





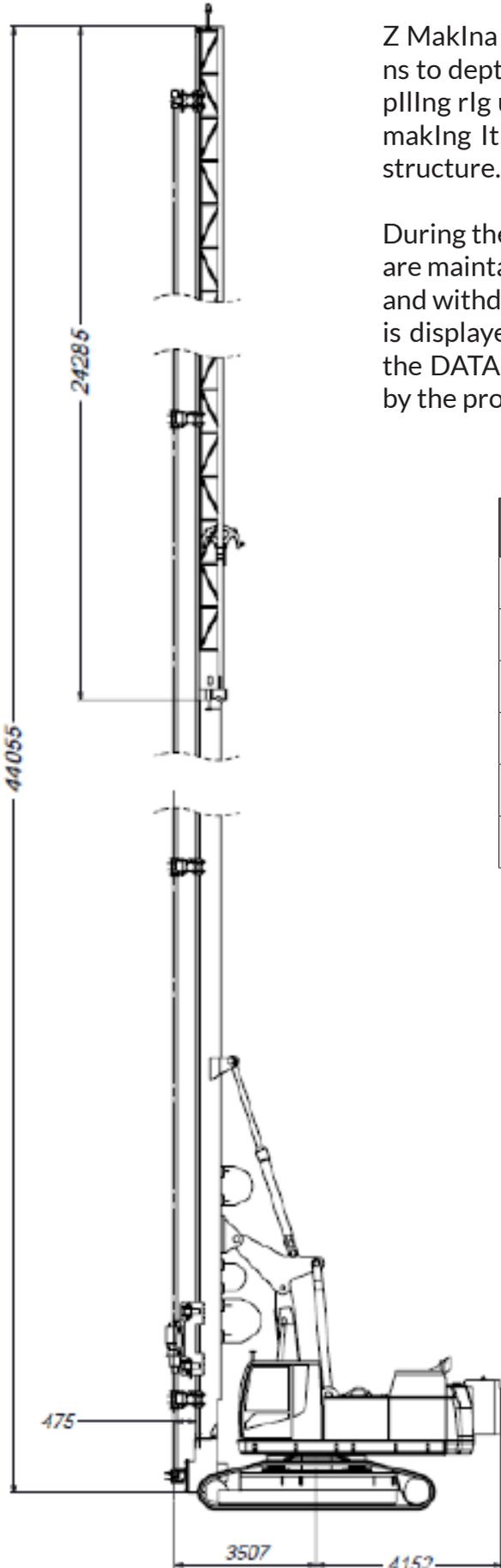
JET GROUTING KIT ON PILING RIG



JET GROUTING KIT ON PILING RIG

Z Makina has developed a jet grouting system with the single stroke columns to depths of 36 m capacity. It was designed which can be mounted on the piling rig used for jet grouting come in a range of different sizes; large ones, making it a perfect technique for improving the foundation of an existing structure.

During the jetting process it is imperative that the desired jetting parameters are maintained. Typically, the DATA Logger system monitors the rotation rate and withdrawal rate, as well as the grout, air, and grout flow. This information is displayed in real time for the operator, and raw data's are transmitted to the DATA Logger database where it is post-processed, stored and reviewed by the project team.



JET GROUTING KIT ON PILING RIG		
Rod Diameter	mm	Ø 51-114
Jetting Depth	m	36
Overall Height	m	44
Mast Inclination	°	± 5
Rotary Drive Torque (Max)	kNm	14,5
Revolving Clam Tightening Torque (Max)	kg	5890





POWER PACK

A power pack is a dedicated power source for any application where more hydraulic horsepower is desirable. Z MAKINA manufactures a wide range of hydraulic power units depending on the variety of applications in soil improvement. The compatible hydraulic system, with variable speed control, provides infinite speed and pump settings for maximum recovery and efficiency.

Z MAKINA manufactures multipurpose power packs for flexible operations or proper designed for specific projects as well.

Applications:

- Extractors
- Vibro hammers
- Stop-end with water stop equipped with hydraulic jacks
- Closed loop hydraulic circuits for CFA, DSM, FDP, Vibro Floating, Stone Column
- In Marine Decks Products
- Special Projects
- Power tong

		ZHP 100	ZHP 200	ZHP 300	ZHP 400	ZHP 500	ZHP 600
Power	<i>kW/hp</i>	65/90	147/200	220/300	295/400	368/500	155/620
Max. Flow	<i>lt/min</i>	94	230	348	470	580	720
Max. Pressure	<i>bar</i>	350	350	350	350	350	350
Working Pressure	<i>bar</i>	320	320	320	320	320	320
Oil Tank Cap.	<i>lt</i>	400	600	800	1000	1200	400
Length	<i>mm</i>	2400	4000	4400	4600	4600	4800
Width	<i>mm</i>	1200	1500	1600	1700	1700	1800
Height	<i>mm</i>	1700	2200	2400	2500	2500	2550
Weight	<i>kg</i>	2700	3500	4500	5000	5600	6200





DESANDER

Desander and desilter are solids control equipment with a set of hydro cyclones that separate sand and silt from the drilling mud used on drilling rigs. They can be mounted either separately or completely. Desander is assembled on top of the mud tank following shale shaker and vacuum degasser, but before the desilter. Desilter is mounted on top of the mud tank following Desander.

Z MAKINA manufactures a wide range of desanders and desander desilters. Main differences between desander and desilter as following:

- Desander is the second stage solids control equipment, desilter is in the third stage;
- Desander make separations between 50 and 75 μm , desilter separate solids between 20 and 50 μm ;
- They have different hydro cyclone sizes.

Desanding plants have further applications in gravel pits, in the mining industry and in microtunneling projects.

Desander



		ZD140	ZD250	ZD500
Power	kW	22	45	90
Tank Capacity	lt	1800	3500	7000
Main Screen	m ²	1,2	1,7	3,5
Secondary Screen	m ²	1	1,5	3
Cyclone	mm	Ø420	2x420	4x420
Pump Capacity	m ³ /h	140	250	500
Vibro Motors	kW	2x1,1	2x2	2x7
Sand Content (Before Treatment)	%	%9-10	%9-10	%9-10
Sand Content (After Treatment)	%	%0,5-1,5	%0,5-1,5	%0,5-1,5
Dimensions	mm	2500x1230x2500	3950x1380x2500	6500x1380x2500
Weight	kg	2200	4000	9000

Desander & Desilter



		ZDD140	ZDD250	ZDD500
Power	<i>kW</i>	45	90	180
Tank Capacity	<i>m³</i>	4	5	10
Main Screen	<i>m²</i>	1,6	2,2	4,4
Secondary Screen	<i>m²</i>	1,5	2	4
Hydrocyclone	<i>mm</i>	2x250 + 6x100	2x400+12x100	4x400+24x100
Pump Capacity	<i>m³/h</i>	140	250	500
Vibro Motors	<i>kW</i>	1,1x2	2x2	2x2
Screening Diameter	<i>μm</i>	20	20	20
Dimensions	<i>mm</i>	3650x2340x2900	4500x2340x2900	7000x2340x2900
Weight	<i>kg</i>	4400	5400	5400

Grout Plant

Z MAKINA produces a wide variety of mixing units. Depending on the customer requirements, the mixing units can be mounted on open skids or containerized, and endowed with manual or fully automatic controls. Z MAKINA produces compact Injection plant units for colloidal mixing and Injection of suspensions for a range of different applications as well. Combination of mixing units and grout pumps can be configured as per special projects. The system can consist of water tanks, horizontal/vertical silo, conveyor, etc. depending on the customized solutions on request.

The mixing plants' automatic operation is equipped with electro-pneumatic system upon load cells and a PLC that monitors the ingredient dosing, mixing time and slurry transfer to the agitator tank.

The control panel is located in separate with comfortable working conditions based on the climate conditions. The compressor and the electrical connections mounted in isolated conditions. That equipment can be manufactured for Zone 0, 1, 2 to follow the ATEX standards for equipment intended for use in areas at risk of explosion.





Jet Grout Plant



Z MAKINA offers a selection of jet grout plants with volumetric flow rates from 20 to 30 m³/h. Registration of desired number of mixes and rates of the ingredients for each single mix enables the continuous production. Mixing occurs in a high turbulence in primary mixer. At the end of the primary mixing cycle, the mixture is conveyed to agitator tank then to the pump. It enables high mixing capacity due to short mixing time. The control panel is located in separate with comfortable working conditions. It is equipped with manual or fully automatic controls.

		ZM 20	ZM 25	ZM 30
Mixer Capacity	<i>m³/h</i>	1400	1750	2000
Agitator Capacity	<i>lt</i>	2750	3000	3400
Water Tank Capacity	<i>lt</i>	3000	3000	3000
Power	<i>kW</i>	40	45	45
Mixing Capacity	<i>m/h</i>	20	25	30
Hydraulic Tank	<i>lt</i>	200	200	200
Dimensions	<i>mm</i>	6000x2400x2600	6000x2400x2600	6000x2400x2600
Weight	<i>lt/min</i>	6000	6400	6800

Applications:

- Anchor injection
- Jet grouting
- Drilling
- Concreting
- Cavity filling
- Bottom injection
- Tunnel applications
- Dam injection applications

Bentonite Plant

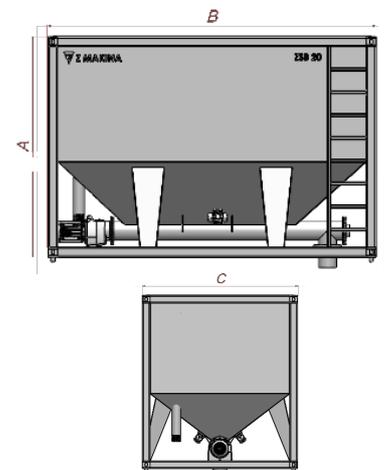
		ZMB 150S
Mixer Capacity	lt	700
Mixing Time	min	4
Pump Capacity	m ³ /h	150
Power	kW	15
Water Tank Capacity	lt	2500
Compressor	bar	8
Compressor Tank Capacity	lt	100
Water Pump	lt/min	90
Weight	kg	4900
Dimension	mm	6000x2400x2600



ZSB Bentonite Silo:

It can be mounted on top of the ZMB Bentonite Plant. Bentonite reinforcement does not require for a long period by its high capacities. It is endowed to prevent bentonite compression possible to occur inside silo by two vibro engines and by two air inlets. Since the screw conveyor located at the base, the transfer of bentonite into the silo to the mixer is performed by it.

SILO		ZSB 20	ZSB 30
Storage Capacity	m ³	20	30
Transfer Capacity	lt/min	400	500
Conveyor Engine	kW	7,5	7,5
Vibro Motors	kW	2x1,1	2x1,5
Weight	kg	2900	3300
Dimension	mm	6000x2400x2200	6000x2400x2600



Mini Grout Mixing and Pump Unit



They are especially designed for construction sites. The mixers/mixing units are available in manual operation, semi-automatic dosage of mixing components.

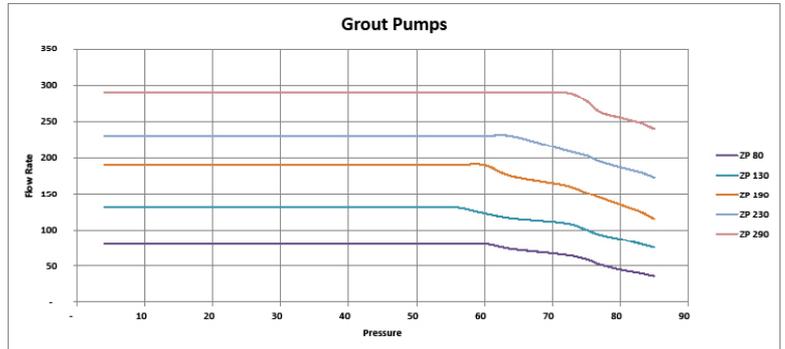
Z MAKINA supplies two types of mini grout plants as ZM5 and ZM10 with adequate technology incorporated to maximize equipment efficiency, yet not so much as to compromise ease of operation or maintenance. The concepts of ease of maintenance are focused in the design of Z MAKINA grouting systems.

Mixer		ZM5/ZP80	ZM10/ZP130
Mixing Capacity	lt	5	10
Agitator Capacity	lt	550	700
Mixer Capacity	m ³ /h	-	20
Injection Pump			
Max. Flow Rate	lt/min	80	130
Max. Pressure	bar	90	90
Stroke	mm	305	305
Outlet Diameter	inch	1 ½	1 ½
Hydraulic System			
Electric Motor	kW	7,5/15	11/22
Pump	cc	28	28
Hydraulic Tank	lt	180	200
Dimensions	mm	2200x1800x2000	2500x1800x2000
Weight	kg	2250	2500

Possible application areas are:

- Anchor, rock injection
- Ground stabilization
- Geothermal applications
- Well building
- Sewer renovation
- Sealing grouting
- Gap sealing
- Contact grouting
- Pipe roof grouting
- Sleeve pile injection
- Backfilling
- Cavity filling
- Special civil engineering
- Seal water sealing

Grout Pump



Regarding with the occupational safety and health and as its size are small, the grout pumps worked with the electrical motor type is preferred to carry out grouting in enclosed areas such as tunnel and shaft. Besides this, hydraulic power can be produced by diesel engine on customer request as well; however, most commonly electrical type is used in manufacturing.

Z MAKINA produces the grout pumps to run in applications requiring different work pressure and flow according to desirable injection type. Grout pumps are double acting, continuous working in different flow and pressures. Semi-automatic control and wired remote control are available. It enables pressure and flow adjustment control by means of valves through the hydraulic system ensuring the pressure and flow rate set at desired values.

Advantages

- Ease of use, and maintenance
- Easy to assemble/disassemble the parts
- Repair maintenance costs are more economical compared to other type of pumps,
- Supplies high pressure and flow,
- Based on the working conditions can be manufactured equipped with electrical motor or diesel engine.

		ZP80	ZP130	ZP190	ZP230	ZP290
Max. Flow Rate	L/Min	80	131	190	230	290
Max. Pressure	Bar	90	90	90	90	90
Power	kW	15	30	37	45	45
Hydraulic Pump	cc	27	45	57	71	71
Stroke	mm	305	305	305	305	305
Outlet Diameter	Inch	1 ½	1 ½	2	2	2
Length	mm	1600	1910	1910	2025	2025
Width	mm	620	640	640	750	750
Height	mm	1800	1800	1800	1950	1950
Weight	mm	1050	1150	1350	1450	1500

Manual Mixer



Z MAKINA Manual Mixers are specially designed for continuous mixing, and very useful in construction areas due to its small dimensions. Mixing time is about 2-3 mins that it can fast mix slurry.

MODEL		ZM 100	ZM 150
Power	<i>kW</i>	7,5	15
Mixer Capacity	<i>lt</i>	1100	1700
Production Capacity	<i>m3/h</i>	20	25
Mixing Time	<i>min</i>	2	2
Pump Capacity	<i>m3/h</i>	100	150
Dimensions	<i>mm</i>	2350x1900x1440	2900x2150x1540
Weight	<i>kg</i>	1100	2000

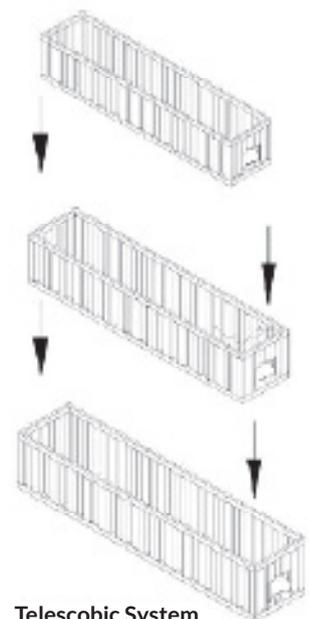
Bentonite Tanks



The bentonite tanks for bentonite muds and plastic mixtures are enormously strong that is stiffened oversized profiles, and electro-welded pressed steel sheet with the appropriate thickness.

Z MAKINA manufactures in various capacities on the customised solutions on request. Telescopic bentonite tanks and cylindrical silos are manufactured for easy transportation and increased the slurry storage capacity as well.

MODEL		ZTS 20	ZTS 30	ZTS 40	ZTL 40	ZTL 60	ZTL 80
Width	mm	1720	2060	2400	1920	2260	2600
Height	mm	2000	2200	2400	2300	2500	2700
Length	mm	5220	5610	6000	11220	11610	12000
Capacity	m ²	18	25	35	40	60	80
Weight	kg	2200	3100	4000	7000	7500	8170



Telescopic System
Teleskopik Sistem

Stop-End With Water Stop

CUT-OFF WALL WITH STOP-END WITH WATER STOP

Cut-off wall systems are shoring systems applied to ensure the impermeability of the shoring system that will be constructed under high ground water table. The main function of this shoring system is to prevent ground water intrusion into the excavation, which can be implemented with diaphragm walls and intersecting bored piles. During production of cast in situ concrete diaphragm walls, the crucial point, especially to achieve a watertight joint, will be the use of the right stop end elements.

Stop-End with Water Stops has been developed and patented by Z MAKINA, provides water-tightness with water-holding band concreting process. For this purpose, a special rubber seal will be mounted on the side of Stop End Element which will come into contact with the concrete. The lateral movement of the stop-end element during extraction leaves the water-stop fixed in the concrete. Stop-end element is removal after concrete setting using suitable cranes.

Z MAKINA supplies Stop End Elements in various widths and lengths. The Stop End Elements are composed of: head element that is used for lifting and extraction, intermediate elements, starter element, and a platform on the ground for fixing the whole set.

In addition, to facilitate the use of Stop End Elements, Z MAKINA manufactures a special cleaner chisel for easy extraction.



Flat Stop-end



Stop-ends are easily placed to the ground and coupled together through special steel bars. They are made of sheet metal welded and internal pipes reinforcing the structure increasing its strength and toughness to prevent it from any damage. It is easy to connect or disconnect.

Z MAKINA provides flat stop-ends in various lengths and widths as per customer requirements with the auxiliary proper equipment such as extractor, power pack.

Extractors



As soon as the concrete begins to set, extractors pull out the stop-end elements. Z MAKINA produces for the extraction of stop-end elements having a width from 500 to 1500 mm and pulling capacity up to 4000 kN. The system is complete with locking system pins to prevent dropping of the column. Z MAKINA supplies the hydraulic power pack for the extractors, customized for the adequate power. A remote control integrated with power pack to operate the unit is also available as optional.

In addition, they can be provided as customer requirements in various dimensions.

		ZE 100	ZE 150
Stop-End Capacity	mm	500-1000	500-1500
Height of Extractor	mm	2350	2350
Pulling Capacity	kN	2000/4000	2000/4000

Chisel - Hammer



Z MAKINA Diaphragm wall and pile rig chisels penetrate rocks, boulders, and soil limitations to accelerate the grab excavation. Z MAKINA produces a broad selection of chisels in free-fall use to penetrate through the obstructions during excavation. Z MAKINA Chisels incorporate high-tensile, Hardox 500 steel and S 355 on the cutting edges to abrasion for resistance to wear and cold bending.

Z MAKINA manufactures a wide variety types depending on the project requirements.

Tremie Pipes



They are connectable pipes used to transfer concrete from the buckets and hopper to the bottom of the pile. They are easy to connect and disconnect. Products in various lengths and diameters can be provided as customer requirements. The tremie set are composed as follows:

- Tremie Pipe
- Hopper
- Tremie Platforms
- Holder
- Suspension Jig
- Pipe Cleaner and so on

TREMIE PIPES					
Pipe Diameter	mm	195	219	245	275
Wall Thickness	mm	8	8	8	8
Socket Diameter	mm	225	255	272	310
Length of Tremie	mm	1000-6000	1000-6000	1000-6000	1000-6000
Weight Of Tremie (1m)	kg	40	80	120	240
Weight Of Tremie (2m)	kg	46	92	138	276
Weight Of Tremie (3m)	kg	52	104	156	312
Weight Of Tremie (6m)	kg	58	116	174	348
Weight of Hopper	kg	245	250	255	260

Double Wall Casings



The Casings are used to protect the whole drilling operation; principally the rotary drilling tool during the operation, performs inside a mechanical protection executed by the casings fixed into the ground. Those casings are recovered for reuse.

Moreover, the casing oscillator is used with cohesive and plastic materials or thickeners ones basically into all geological conditions that increase the friction between the siding and the drilled soil.

Z MAKINA manufactures in wide variety diameters, convenient use in casing oscillators as well depending on the customer requirements.

Products are: Single Wall Casings, Casing Shoe, Double Wall Casings, Casing Drive Adaptor (Twister)

DOUBLE WALL CASINGS										
D1/D2 (mm)	S1 (mm)	S2 (mm)	T (mm)	Bolts	Weight					
					1m	2m	3m	4m	5m	6m
620/540	12	8	40,00	8	420	756	1,096	1,535	1,918	2,302
750/670	12	8	40,00	10	490	882	1,279	1,790	2,238	2,686
800/720	12	8	40,00	10	550	990	1,436	2,010	2,512	3,015
880/800	12	8	40,00	10	600	1,080	1,566	2,192	2,741	3,289
1000/920	12	8	40,00	10	680	1,224	1,775	2,485	3,106	3,727
1080/1000	12	8	40,00	10	780	1,404	2,036	2,850	3,563	4,275
1200/1120	16	8	40,00	12	850	1,530	2,219	3,106	3,882	4,659
1280/1200	16	8	40,00	12	900	1,620	2,349	3,289	4,111	4,933
1300/1220	16	8	40,00	12	950	1,710	2,480	3,471	4,339	5,207
1500/1400	20	10	50,00	12	1,450	2,610	3,785	5,298	6,623	7,947
1600/1500	20	10	50,00	12	1,600	2,880	4,176	5,846	7,308	8,770
1800/1700	20	10	50,00	16	1,750	3,150	4,568	6,395	7,993	9,592
2000/1880	20	15	60,00	12	2,500	4,500	6,525	9,135	11,419	13,703
2120/2000	20	15	60,00	12	2,600	4,680	6,786	9,500	11,876	14,251
2200/2080	20	15	60,00	12	2,750	4,950	7,178	10,049	12,561	15,073
2500/2380	20	15	60,00	16	3,500	6,300	9,135	12,789	15,986	19,184
3000/2880	20	20	60,00	16	5,000	9,000	13,050	18,270	22,838	27,405

Single Wall Casings



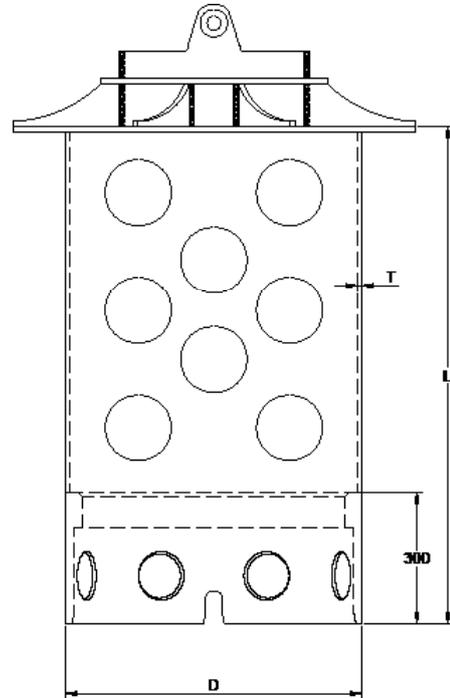
SINGLE WALL CASINGS									
D1/D2 (mm)	S (mm)	T (mm)	Bolts	Weight					
				1m	2m	3m	4m	5m	6m
620/540	15	40,00	8	350	630	914	1,279	1,599	1,918
750/670	15	40,00	10	408	735	1,066	1,492	1,865	2,238
800/720	16	40,00	10	458	779	1,130	1,582	1,977	2,373
880/800	16	40,00	10	500	850	1,233	1,726	2,157	2,588
1000/920	20	40,00	10	567	963	1,397	1,956	2,444	2,933
1080/1000	20	40,00	10	650	1,105	1,602	2,243	2,804	3,365
1200/1120	20	40,00	12	708	1,204	1,746	2,444	3,056	3,667
1280/1200	20	40,00	12	750	1,275	1,849	2,588	3,235	3,882
1300/1220	20	40,00	12	792	1,346	1,951	2,732	3,415	4,098
1500/1400	25	50,00	12	1,208	1,933	2,803	3,925	4,906	5,887
1600/1500	25	50,00	12	1,333	2,133	3,093	4,331	5,413	6,496
1800/1700	25	50,00	16	1,458	2,333	3,383	4,737	5,921	7,105
2000/1880	30	60,00	12	2,083	3,333	4,833	6,767	8,458	10,150
2120/2000	30	60,00	12	2,167	3,467	5,027	7,037	8,797	10,556
2200/2080	30	60,00	12	2,292	3,667	5,317	7,443	9,304	11,165
2500/2380	30	60,00	16	2,917	4,667	6,767	9,473	11,842	14,210
3000/2880	30	60,00	16	4,167	6,667	9,667	13,533	16,917	20,300

Casing Shoe



CASING SHOES			
D1/D2 (mm)	Length	Weight	Teeth Quantity
620/540	500,00	286	15
750/670	500,00	350	19
800/720	500,00	375	20
880/800	500,00	414	22
1000/920	500,00	473	25
1080/1000	500,00	513	27
1200/1120	500,00	572	30
1280/1200	500,00	611	32
1300/1220	500,00	621	33
1500/1400	750,00	1,340	38
1600/1500	750,00	1,433	41
1800/1700	750,00	1,618	46
2000/1880	750,00	2,152	51
2120/2000	750,00	2,285	54
2200/2080	750,00	2,374	56
2500/2380	750,00	2,706	64
3000/2880	750,00	3,261	77

Twister



TWISTER		
D1/D2 (mm)	Length	Weight
620/540	1.200,00	789
750/670	1.200,00	902
800/720	1.200,00	1,021
880/800	1.200,00	1,268
1000/920	1.200,00	1,320
1080/1000	1.200,00	1,380
1200/1120	1.200,00	1,400
1280/1200	1.200,00	1,520
1300/1220	1.200,00	1,650
1500/1400	1.500,00	2,160
1600/1500	1.500,00	2,250
1800/1700	1.500,00	2,650
2000/1880	1.500,00	3,200
2120/2000	2.000,00	3,240
2200/2080	2.000,00	3,600
2500/2380	2.000,00	4,200
3000/2880	2.000,00	6,500

Augers

The augers are tools to excavate on clay grounds and in any case on soils with good cohesion. Z MAKINA Augers in the clay and rock version incorporating high resistance steel properly welded to ensure sturdiness and durability.

Clay auger: It is manufactured with different pitch according to the diameter. In the standard version the auger is equipped with an adjustable counter bore mounted on top of the auger. The teeth are mounted on the bottom, and

Rock auger: The body is made out of a thickness tube. On the external surface of the screw it is inserted a special wear-resistant material.



Buckets

Buckets are used for drilling in grounds with scarce cohesion or with presence of water. All the components are made with high resistance steel and welded with appropriate method.

Z MAKINA manufactures :

- Rock Bucket
- Clay Bucket



Core Barrels

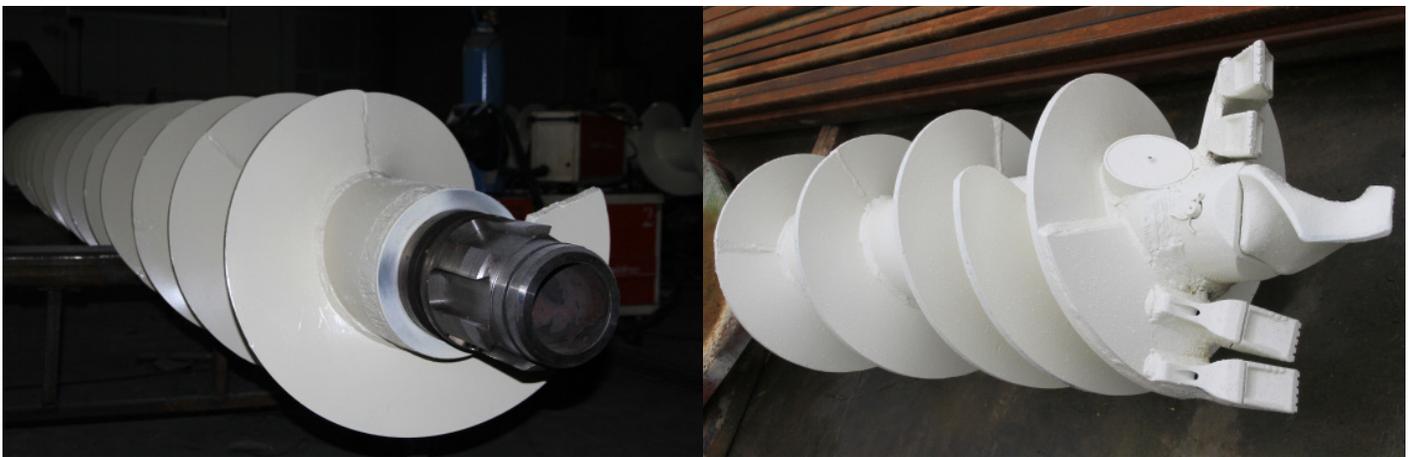
The core barrels are particularly suitable for drilling in hard, compact, boulder/rocky grounds. All the components are made welded high resistance steel plate, the available standard version mount different accessories according to the different operative needs.

Z MAKINA manufactures :

- Core barrels with bits
- Core barrels with widia inserts
- Core barrels with bits and unloading piston



Continuous Flight Auger



CFA piles are a type of drilled foundation in which the pile is drilled to the final depth in one continuous process using a CFA then concreting through the augers while extracting the tools.

Z MAKINA produces clay & rock head types with appropriate dimensions and lengths. The proper adapters, kelly extension, concrete head, auxiliary element are manufactured by Z MAKINA as well. In addition the CFA tools, Z MAKINA can execute all necessary implementations on the pile rig machine for CFA operation.

Deep Soil Mixing



DSM method is an in-situ soil mixing technology that mixes existing soil with cementitious materials. DSM is effective for liquefaction mitigation of seismically sensitive soil layers, foundation improvement under future structures and in-situ stabilization of contaminated soils for environmental remediation among other uses.

Z MAKINA produces DSM tools with appropriate adapters, Kelly extension, swivel grout head, auxiliary elements. Moreover, Z MAKINA can execute all necessary implementations on the pile rig machine for DSM operation.



FDP - Full Displacement Piles

The method of displacement piles is performed while taking the material from the bore via special drilling tools and displacing to the bore walls.

The payload is increased by way of low soil excavation, non-vibrating and impactless performance. Under favour of this method, there won't be much concrete consumption and also the problem of involved materials' excavation will be effaced.

This method is suitable for compressible loose ground. They can be manufactured in required diameters and dimensions for several ground conditions.



Counter rotating flight body compress the loosened soil while pulling

Cylinder body part stabilizes the displaced soil

Conical shape part displace the soil horizontally because of its design.

Starter auger part breaks the soil and conveys upwards by the flights.

Kelly



Kelly bar is the main part of a drilling machine, and the performance of the machines is affected by its quality. The fundamental goal of kelly bar is to transfer the maximum torque and pressure supplied by the drilling machine. Z MAKINA provides kelly bar for all types of rotary drilling rigs.

Cutter Wheel



Standart Cutter Wheel



Round Shank Chisel Cutter Wheel

Due to the rotation of the cutting wheels, the soil is loosened and shattered. These soil parts are mixed with the support slurry in the pit and conveyed to the ground with slurry pump. It can be produced in the desired width.

Z MAKINA manufactures following types of cutting wheels for trench cutters from 640 mm to 1500 mm based on the gearboxes of base machine.

1. Cutting wheels with Round Shank
2. Cutting Wheels with Flat Bits

Z MAKINA manufactures following auxiliary parts :

- Suction Box
- Shock absorbers
- Reamer plates

Bored Pile Grab



X-Linked Type



Pulley Type

X-LINKED TYPE				
Type	Jaws Opening (mm)	Length (mm)	Capacity (lt)	Weight (kg)
ZKL 1000	1000	4000	450	3500
ZKL1200	1200	4400	600	4500
ZKL1300	1300	4500	850	6800
ZKL1500	1500	4700	1100	7400
ZKL1600	1600	4970	1250	7900
ZKL1800	1800	5430	1700	9600
ZKL2000	2000	5600	1800	10000
ZKL2200	2200	5700	1900	12300
ZKL2500	2500	6830	2400	14000

Pulley TYPE					
Type	Jaws Opening (mm)	Casing Diameter (mm)	Length (mm)	Capacity (lt)	Weight (kg)
ZKP600	600	720/640	3650	55	1560
ZKP640	640	750/670	3700	60	2000
ZKP690	690	800/720	3750	70	2050
ZKP770	770	880/800	3770	90	2400
ZKP850	850	980/900	3785	110	2500
ZKP890	890	1000/920	3790	125	2600
ZKP970	970	1180/1100	3800	150	3400
ZKP1050	1050	1180/1100	3850	200	3450
ZKP1070	1070	1180/1100	3900	250	3700
ZKP1140	1140	1250/1170	3985	300	3750
ZKP1170	1170	1300/1220	4000	310	3800

MARINE WORKS

Z MAKINA specializes spud barges in customized barge manufacturing for use pile driving, crane barge, drilling barge, etc. Barges can be spudded in place (sea or lake) due to its special design and it provides easy application. They differ in size and structural design, depending upon their intended use.

Advantages;

- Easy for montage
- Easy for transportation due to dimensions
- The feet can be installed will work as a Jack-Up Spud Barge.





JACK UP BARGE

By implementing all the feet components to Moduler Barges, it converts it to work as a Jack Up Barge. Maneuver the barge over the water makes a stable, safe work platform in both shallow and deep water in various sizes. The jack up equipment is designed to withstand the rigid marine environment as a reliable alternative to standard floating platforms. The feet with hydraulic piston support are designed according to the water draft and the payload capacity. The Feet design is made according to the seabed terrain (rock, sand etc.).

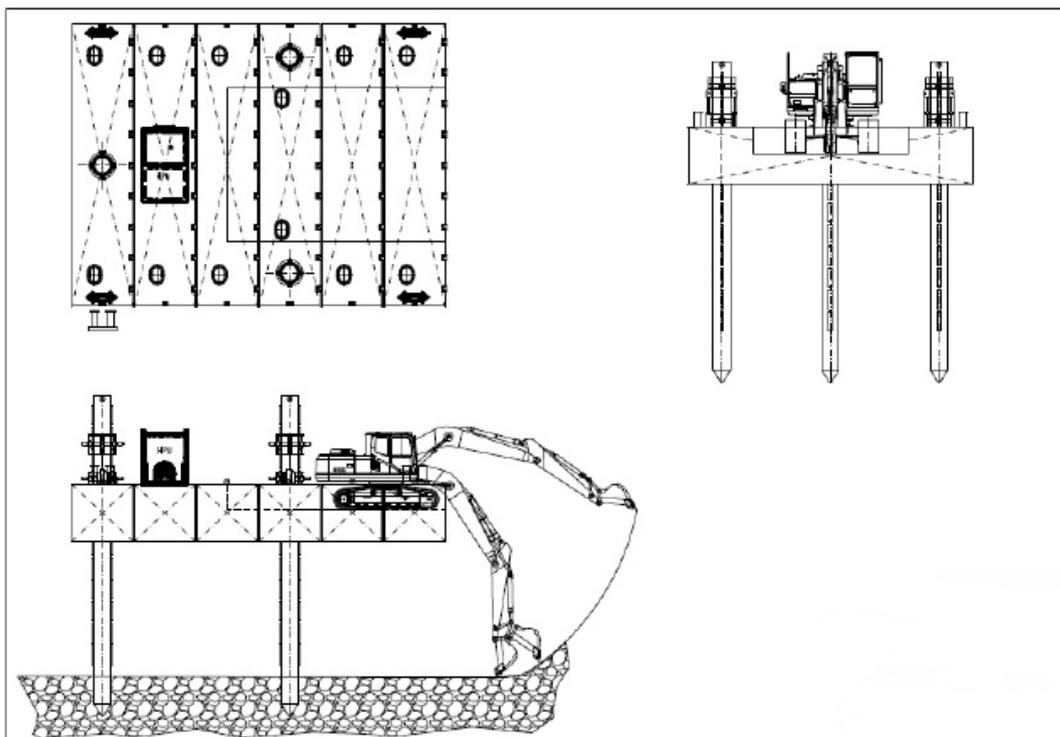
Z MAKINA can increase the capacity of our Jack Up Barges, improve mobility and create safe, quality work environment on the pontoon by making special designs according to our customers' demands. Additional equipment can be endowed as followings:

- Power pack
- Generator
- Marine winches

Z MAKINA provides the class certificates of the barges depending on the requirement.

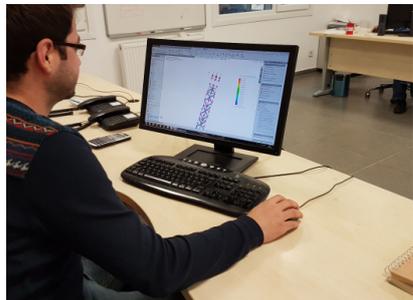
Advantages;

- The Spud Legs can move down & up by means of hydraulic pistons.
- Based on the working draft the the length of the spud legs can vary up to max depth.
- The Locking System is under automatic controller.





We trade with more than 30 countries worldwide





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