Specification for Full Automted Concrete Block and Paver Production line as per instruction of Ethiopian Development Bank based in Addis Ababa, Ethiopia

1. Aggregate Hopper

Specification for Aggregate Hopper

Descriptions Model	:	Aggregate Hopper (Bolt System) / AHS Pro 800
Aggregate Capacity & Discharge	:	3 x 10 m^3
Door Opening System	:	Pneumatic (supported by Compressor 300 lt)
Door Feeder / Vibration Unit	:	3 x 0,5 kw Vibrators
Operation System	:	By PLC System (ATS Weighing Sytem + 4 loadcells)
Dimension	:	length = 9500mm / width = 2250mm / height = 3520mm
Weight	:	6558 kgs

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Pres Makina aggregate Hopper are designed and manufactured for heavy duty operation in accordance with related DIN norms. The electro-pneumatically controlled valves provide easiness and options in discharge. They also create an elevation that decreases ramp building costs and operation costs by helping the materials to slide and reduce friction and wear.

2. Weighing belt under aggregate hopper

Specification for Aggregate Weighing Belt

Descriptions Model	:	Aggregate Weighing Belt / BNT 10 MA
Aggregate Discharge Capacity	:	25 ton / Hour
Motor Power & Transmission Gear	:	5,5 kw @ 104 rev/min - Brand / YILMAZLAR
Rubber Belt	:	4 times coated
Load Cell	:	4 x 2.000 kgs
Operation System	:	By PLC System (ATS Weighing Sytem + 4 loadcells)
Dimension	:	Length = 10200 mm / Width = 1050 mm / Height = 500 mm
Weight	:	820 kgs

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3. Aggregate conveyor belt (Into Mixer)

Specification for Aggregate Weighing Belt

Descriptions Model	:	Aggregate Conveyor Belt / BNT 12 MA
Aggregate Discharge Capacity	:	30 ton / Hour
Motor Power & Transmission Gear	:	2,2 kw @ 104 rev/min - Brand / YILMAZLAR
Rubber Belt	:	4 times coated
Operation System	:	By PLC System
Dimension	:	Length = 12200 mm / Width = 850 mm / Height = 4050 mm
Weight	:	1220 kgs

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4. Mixer operator platform

Specification for Mixer operator platform

The mixer operator platform will be designed as per the full automatic line and has in general 3 main pcs and a safety items for the operator. During working of production line there will be no operator on mixer at all. All functions are controlled via PLC from the control room. Only by testing of aggregate the operator can visit the mixer for last checkup.

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5. Concrete Mixer

Specification for Concrete Mixer

Descriptions Model	:	Concrete Mixer / CBM 750 / Horizontal Single Shaft
Mixer Capacity	:	0,75 m^3 / Mortar capacity = 15 m3 per Hour
Motor Power & Transmission Gear	:	22 kw @ 101 rev/min - Brand / YILMAZLAR (ELK)
Wear Plates	:	ST 52 (C45) / Thickness of wear plates 15 mm
Mixer Arm	:	Ø70 ST52-3 (6 Arms)
Mixer Paddles	:	6 pcs / ST 52
Operation System	:	By PLC System
Dimension	:	Length = 2200 mm / Width = 2000 mm / Height = 2350 mm
Weight	:	4250 kgs

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6. Cement Silo

Specification for Concrete Mixer

Descriptions Model	:	Cement Silo (Bolt System) including 4 legs / CSS 100 BS
Silo Capacity	:	75 Ton
Level Indicator	:	Up and Bottom
Plate Thickness	:	4 – 6 mm
Cement Silo Top Filter	:	Including all equipments
Cement Silo Materials	:	Silo Legs = NPL 80 / Silo Body = NPU 80
Operation System	:	By PLC System
Dimension	:	Height = 16262 mm / Diameter = Ø 3060 mm
Weight	:	7300 kgs

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7. Cement Screw

Specification for Cement Screw (Conveyor)

Descriptions Model	:	Cement Screw Conveyor / SC Pro 100
Type	:	Universal Input Type
Motor Power	:	11 kw
Operation System	:	By PLC System
Dimension	:	Lenght = 8000 mm / Diameter = Ø 219 mm
Capacity	:	12 ton per hour

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8. Cement weighing hopper

Specification for Cement Weighing Hopper

Descriptions Model	:	Cement Weighing Unit / CWU Pro 750 CBM
Weighing Capacity	:	40 – 200 kgs
Load Cell	:	1 Unit
Pneumatic Valve	:	1 Unit
Operation System	:	By PLC System

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9. Water supply system

Specification for Water Supply System

Descriptions Model	:	Water Weighing Unit / WWU Pro 750 CBM
Weighing Capacity	:	10 – 1000 lt
Load Cell	:	1 Unit
Pneumatic Valve	:	1 Unit
Operation System	:	By PLC System

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10. Water pump

Specification for Water Supply System

Descriptions Model	:	Water Pump 2” inch
Water pump power	:	2 HP
Operation System	:	By PLC System

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11. Mortar conveyor belt

Specification for Mortar Conveyor Belt

Descriptions Model	:	Movable Mortar Conveyor Belt / BNT 8 MA
Aggregate Discharge Capacity	:	25 ton / Hour
Motor Power & Transmission Gear	:	2,2 kw @ 104 rev/min - Brand / YILMAZLAR
Rubber Belt	:	4 times coated
Operation System	:	By PLC System
Dimension	:	Length = 8200 mm / Width = 850 mm / Height = 4050 mm
Weight	:	820 kgs

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12. Mortar system Electric panel

Specification for Mortar Conveyor Belt

- The plant is fully automated and the system is controlled on an 8'' coloured touch-screen with integrated mouse and keyboard connection points.
- The system is equipped with Siemens electrical installation devices and sensors. Remote stations with distributed I/O stations are also part of the plant automation.
- Advanced PLC programs and error control algorithms enable high sensitivity in weighing and dosage control even at maximum capacity.
- The MCC and command panel is built for all working conditions and equipped with electrical protection systems
- The operator is able to set up all parameters, enter receipts and perform calibration operations on the touch screen.
All process, production and failure information are also visible and may be printed by the operator.
- The operator may chose between automatic or manual operations on the illuminated mimic diagram. Digital indicators enable the operator to follow voltage and current values on the screen.
- The system provides real-time simulation for the operator. This ensures fast and safe training with no lot material.

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13. Air Compressor

Specification for Air Compressor

Descriptions Model	:	DKC 500
Working Pressure	:	8 Bar / 115 Psi
Motor Power	:	5,5 kw / 7,5 HP
Connection	:	¾”
Operation System	:	By PLC System
Dimension	:	Length = 642 mm / Width = 1934 mm / Height = 1308 mm
Weight	:	308 kgs

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14. Automatic block machine

Specification for Automatic Block Machine

The PRO 800 DFA Version is a stationary full automatic concrete block and paver making machine. It is a double bunker model for course concrete and face concrete in the paver production. Manufactured with compact and robust mechanical, hydraulic and electrical components. The PRO 800 DFA version has a short vibration time and can manufacture all types of hollow block, solid block, paver block types, t or slab block, kerbstone by changing of the mould type.

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Technical Specification for Automatic Block Machine

Description	: Concrete Block and Paver Machine (Automatic)
Model	: Pro 800 DFA / Double Bunker
Crane Capacity	: 1.500 kgs (for mold changing)
Hopper Capacity	: 2 x 1300 dm^3
Pallet Dimension	: 980 x 980 x 30 mm (Legged)
Operation System	: Automated via PLC & Sortware
Buttom Vibration	: 4 x 5 kw @ 2920 rev/min - Brand / GAMAK
Top Vibration	: 2 * 0,5 kw @ 3000 rev/min - Brand / KEMP
Buttom Vibration Force	: min. 60 KN
Production Height	: min. 40 mm / max. 200 mm
Hydraulic Pressure	: 80 – 250 bars
Hydraulic Motor	: 15 kw @ 2920 rev/min - Brand / GAMAK
Hydraulic Tank	: 300 lt
Hydraulic Oil	: 0°C /+20°C N° 46 - 30°C/+50°C N° 68
Weight of Block Machine	: 9.300 Kgs
Dimensions	: Length = 5260 mm / Width = 1970 mm / Height = 3110 mm

Production Capacity Cycle : 3 pallets per minute for Hollow Block

Block Production per Pallet

Hollow Block	: 200 x 400 x 200mm = 8 pcs per pallet
Hollow Block	: 150 x 400 x 200mm = 10 pcs per pallet
Hollow Block	: 100 x 400 x 200mm = 14 pcs per pallet
Solid Block	: 100 x 400 x 200mm = 14 pcs per pallet
Paver Block (T – Block / Behaton)	: 60mm = 20 pcs per pallet
Paver Block (Zigzag)	: 60mm = 18 pcs per pallet
Paver Block (Rectangle)	: 60mm = 32 pcs per pallet
Paver Block (Hexagon)	: 60mm = 14 pcs per pallet
Curbstone Block	: 300 x 150 x 700mm = 2 pcs per pallet

(Production capacities are calculated on 85% basis and depend on machine configuration. Other board sizes are available)

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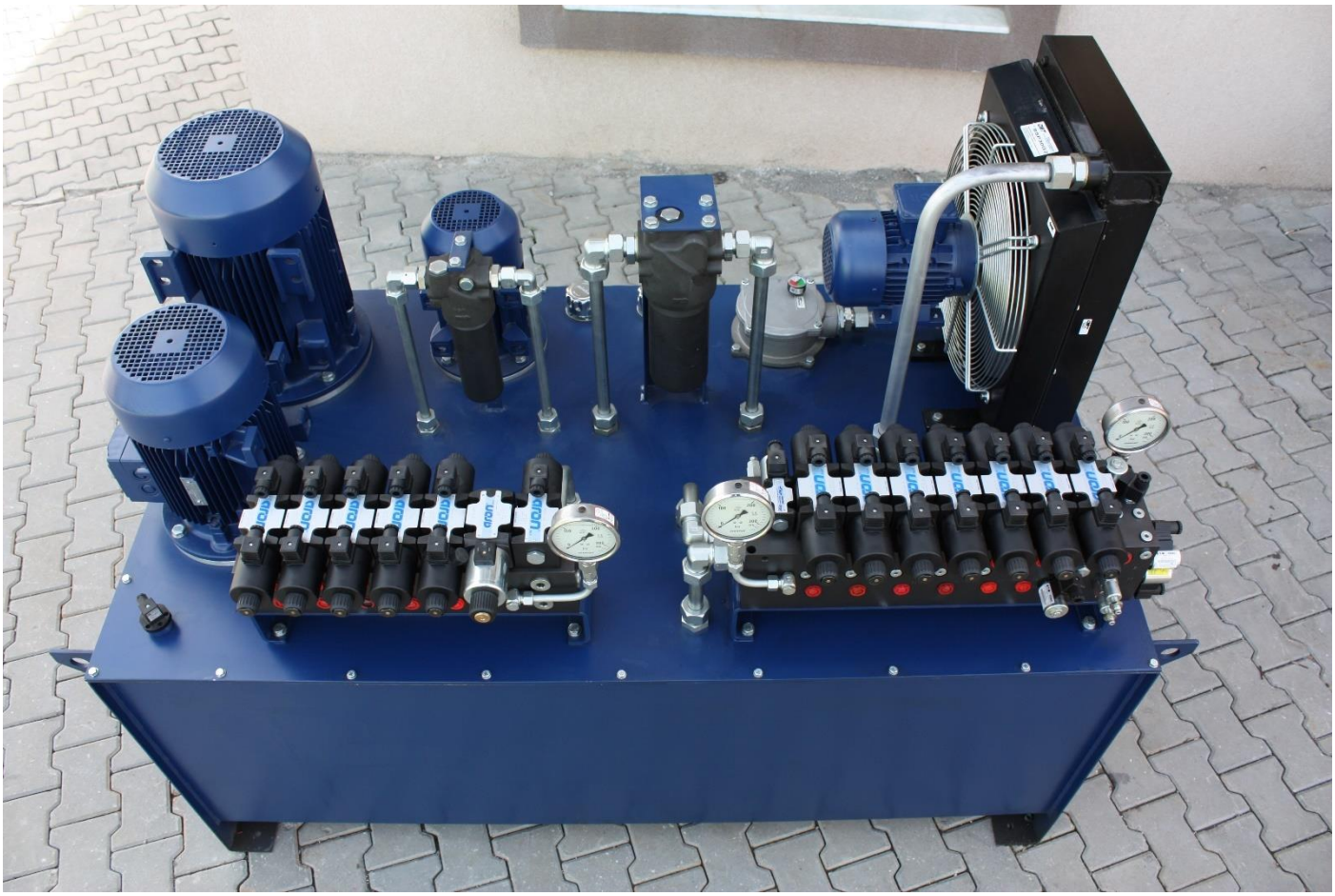
15. Machine Operator Platform

The Control Cabin (Machine Operator Platform will be designed by Pres Makina as per plot description of customer. The Control Cabin will have a closed room where are enough windows for controlling hole block machine in case any circumstances may happen. The Control Cabin will have enough space for min. 2 person. In the Control Cabin will be the Automatation Control Software where operator can control and handle the hole production line for each section.

16. Machine Hydraulic Unit



Specification for Hydraulic Unit

Descriptions & Units	:	There will be Hydraulic Unit for Block Machine, Concrete Mixer and Front and Back Robot.
Working Pressure	:	All Hydraulic Units are between 80 – 250 Bars
Motor Power	:	Between 5 – 30 kw
Connection	:	¾”
Operation System	:	By PLC System

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17. Electric Unit

Total Power Consumption						
No	Description	kW		rev/min	Amper	
		Single	Total		Single	Total
1	Vibration Motor	4,00	16,00	2920,00	7,40	29,60
2	Top Vibration Motor	0,50	1,00	3000,00	1,70	3,40
3	Front Bunker Feeding Motor	1,10	1,10	59,00	4,26	4,26
4	Back Bunker Feeding Motor	1,10	1,10	59,00	4,26	4,26
5	Front Belt Motor	1,50	1,50	40,00	5,72	5,27
6	Hydraulic Tank Motor	15,00	45,00	1460,00	21,80	21,80
7	Hydraulic Tank Fan Motor	0,11	0,33	2500,00	0,45	0,45
8	Mixer Motor	22,00	22,00	101,00	41,40	41,40
9	Aggregate Hopper Vibration	0,50	1,50	3000,00	1,70	3,40
10	Compressor Motor	4,00	4,00	2800,00	7,83	7,83
11	Weighing Belt Motor	5,50	5,50	104,00	Spec.	Spec.
12	Cubber Robot	19,50	19,50	268,00	Spec.	Spec.
13	Latch Conveyor	7,50	7,50	85,00	Spec.	Spec.
14	Screw Conveyor Motor	11,00	11,00	1460,00	21,80	21,80
15	Mixer Hydraulic Motor	3,00	3,00	1457,00	6,74	6,74
16	Movable Conveyor Belt	2,20	2,20	104,00	8,05	8,05
17	Movable Conveyor Belt direction motor	0,75	0,75	1450,00	3,07	3,07
18	Crusher Motor Power	5,50	11,00	1400,00	10,90	10,90
19	Mortar Coveyor Belt	2,20	6,60	104,00	8,05	8,05
Total Power Consumption		106,96	160,58		138,76	180,28

Specification for Electric Unit

All Electric Pannels will be placed in the control cabin. All electric pannels have safety instruction guides and are installed as DIN Norms. Furthermore all electric pannels will be designed as per country conditions. Pres Makina has the right to amend change or develop at any time the parameters for the favor of the customers production line.

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18. Front output conveyor (Latch Conveyor)

The Latch Conveyor is transporting the stacked blocks (Blocks has been stacked by Product Collecting Robot "Cubber Robot") to side so that workers can strap the blocks and the forklift driver is able to collect the stacked blocks into the stock area or directly into the truck.

19. Front full pallet stacking robot (Elevator Robot)

The front full pallet stacking robot (elevator robot) will take the fresh manufactured product and will stack it top on top max. 8 pallets. The Forklift Driver will take the pallets into the drying & irrigation area.

20. Pallet unloader (Lowerator Robot)

The pallet unloader (lowerator robot) is taking dried products pallets max. 8 pallets and forward them into the product collecting robot (cubber robot) where blocks will taken from the pallets.

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21. Concrete block Moulds Qty : 4 sets

1 Unit of Hollow Block	: 200 x 400 x 200mm = 8 pcs per pallet
1 Unit of Hollow Block	: 150 x 400 x 200mm = 10 pcs per pallet
1 Unit of Hollow Block	: 100 x 400 x 200mm = 14 pcs per pallet
1 Unit of Solid Block	: 100 x 400 x 200mm = 14 pcs per pallet

22. Paving block Moulds Qty : 4 sets

1 Unit of Paver Block (T – Block / Behaton)	: 60mm = 20 pcs per pallet
1 Unit of Paver Block (Zigzag)	: 60mm = 18 pcs per pallet
1 Unit of Paver Block (Rectangle)	: 60mm = 32 pcs per pallet
1 Unit of Paver Block (Hexagon)	: 60mm = 14 pcs per pallet

23. Curbstone Mold Qty : 1 set

1 Unit of Curbstone Block	: 300 x 150 x 700mm = 2 pcs per pallet

24. Plastic pallet with metal glass

Specification for Plastic pallet with metal glass

1000 pcs Legged Plastic pallet with steel frame (Dimensions 980 x 980 x 30mm)

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25. Product collecting Robot (Cubber Robot)

The Product collecting Robot (Cuber Robot) is collecting the dried blocks from the pallets and stack it into the Elevator 6 floors.

26. Generator

The Generator will be min. 275 KVA all specifications mention in the catalogue separately.

27. Recommended Spare parts

The recommended spare parts will be mentioned separately in the spare parts catalogue invoice including picutures and specifications.

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