



# Honcha Fully Automatic Line



Exceed & Excel Your Expectations



# Preface

Honcha's Fully automatic concrete block production line designed based on **Hercules series** block making machine. It is high efficient; high intelligence there for saving manpower.

**Hercules** series is fully designed and made according to European standard, using 4 synchronized " **Germany**" electrical vibrators (**KNAURER**).

it is:

**Economic**

**Durable**

**High Productive**

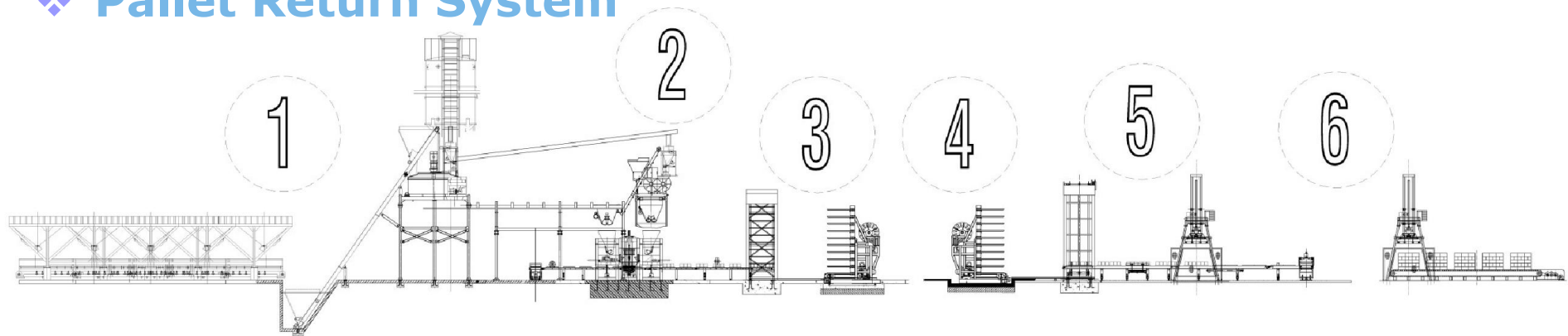
**Precise Product, tolerance up to  $\pm 0.5\text{mm}$**



# Equipment list

The fully-automatic line can be divided into 7 sections.

- ❖ Batching and Mixing plant
- ❖ Concrete Block Making system(Hercules)
- ❖ Pallet Elevator
- ❖ Finger Car System (Mother and Son Car)
- ❖ Pallet Lowerator
- ❖ Automatic Gantry Type Block Cubing System
- ❖ Pallet Return System





## Equipment list---Batching and Mixing Plant

- ❖ The batching plant consists of planetary mixer, cement silo, screw conveyors, cement scale, compartmental dozers and conveyor system. It will automatically prepare various raw materials for batching and mixing.



\*Note: The aggregate hoppers are used for storing aggregated materials. The capacity of each hopper can be made by client locally according to the provided drawings from us.



## Equipment list--- Concrete Block Making Machine

### Hercules series block making machine has 3 different sizes

- ❖ S-Pallet size: 1400x700mm (9pcs/pallet)
- ❖ M-Pallet size: 1400x900mm(12pcs/pallet)
- ❖ L-Pallet size: 1400x1100mm (15pcs/pallet)

\*Note: quantity of blocks calculating based on 8 inch hollow block.

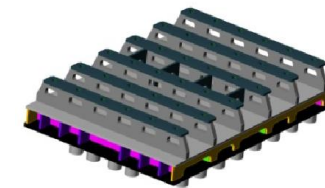




## Equipment list--- Concrete Block Making Machine

### Structure:

- The main frame is built of strong hollow and rectangle sections and process anti fatigue treatment after welding to strengthen the whole structure.
- Vibration source (Vibration table) is isolated with the main frame to prevent the destructive vibration damage on the main frame.
- The vibration table is light and stiff in order to provide high efficient vibration and transfer evenly distributed vibration across the vibration table.
- Using the mould clamp with air bags to prevent vibration transmit to vibration table to the main structure
- A cleaning door at the back of the hopper is installed to provide an access for cleaning works.
- Two sensors are installed inside the hopper to detect the level of the wet concrete materials and give signal to the mixer for blending materials or delivery blended materials to the hopper. An electric motor with 2 set gears to control the opening flap provides precise dosage and quick discharge.

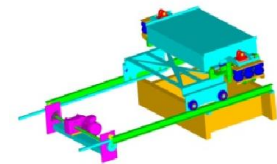




## Equipment list--- Concrete Block Making Machine

### Structure:

- Two strong driving arms are driven by two synchronized hydraulic cylinders. Filling box table is modified to be adjustable to avoid the materials escaping problem. Agitator is driven by a hydraulic cylinder, installed inside the filling box, to have fast filling performance.
- With concern of maintenance, wearing rails, rollers, wearing steel covers are designed to be changeable.
- Pit required to be built under the machine which provide the necessary space for ventilation while the motors are running and easy maintenance when changing the vibrators.
- Mould carriage car as a detachable device is applied which make the mould can be easily changed in half an hour. Also can be used as insulating block device to make the insulating blocks.
- Table lifting screw jack gear can lift the filling table up and down easily according to the different mould height.





# Equipment list--- Concrete Block Making Machine

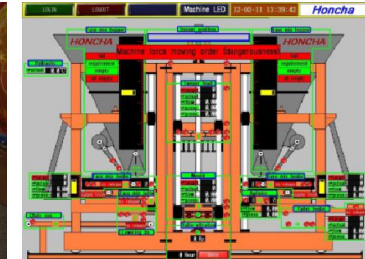
## Vibration table:

- The vibration table is equipped with 4 synchronized electrical vibrators bolted underside the vibration table. Vibration table is supported by several high quality dampers to maintain a consistent vibration across the table.



## Control panel:

- Full control visualization panel for easy operation, recipe management, fault location and troubleshooting.



## Hydraulic:

- Proportional valves are used in our hydraulic systems together with our German converter technology, to ensure the plant movement can always have smooth slowly start, high speed travelling and smoothly slow braking, and gives high productivity and low wear manufacturing.



## Components

- Siemens (Beide) motor for motor larger than 3kw with power factor not less than 0.8.

- All bearing are SKF.





## Equipment list--- Pallet elevator & Lowerator

### Pallet elevator & Lowerator

- Made of solid steel section. The lifting elements consist of steel chains with solid angles to lift steel pallets. It is 10 levels whereby each level can contain 2 pallets.
- The pallets are stacked and un-stacked gradually and aligned accordingly to be conveyed to the cubing area.
- The elevator & lowerator are equipped with high sensitive sensors and electric eye controls to control the moving up displacement and safety.





## Equipment list--- Finger car System

### Mother car & Son car

- Finger car is used to transport green products from the wet side to the chambers and return cured products from the chambers to the dry side.

### Son car

- Load: 13T
- Son car is like a forklift car with multi forks. Arms tied by 6 bolts, enforced connecting heads with solid steel angles. Special treatment is applied on each fork to achieve precise leveling and enough strength to carry out 1.5 ton loading (a pair of forks) without bending and distortion.

### Mother car

- Load: 15
- Mother car travels on rails with variable speed controlled by frequency inverter and the distance is controlled by a precise distance-meter.
- The mother car park reach the destination with tolerance with +/-10mm and then the centering device refine the parking position by mechanical lock.





## Equipment list--- Automatic Gantry Type Block Cubing System

### Cuber

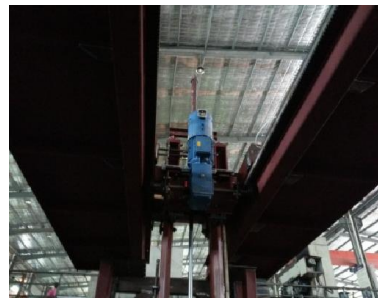
●Cuber collects cured blocks and packs them together by the main and side clamps. It will stack the blocks from the pallets to a packing wooden pallet. The process repeats until the blocks stack on the wooden pallets reach particular layers.

●Clamp can rotate 360° and it can carry 600kg (max.) for each cycle and moves up to 1,200 mm.

●It is equipped with high accuracy positioning meter to keep stable and fast movements, provides variable speed movements by variable frequency inverter and proportional valves.

●A special shape and material were used as rubber clamping head to prevent concrete blocks falling down during the traveling / clamping process.

●SEW gears are applied.





## Equipment list---Pallet return system

- The pallet return system consisted by return conveyor, cross conveyor, pallet turner and pallet brush.
- Pallets will be swept, clean, oiled and over turned to be return to the block making production cycle.

### Return & cross conveyor

- Transport the pallets with cured products from de-elevator to Cuber and transport the empty steel pallets from return conveyor to the pallet collecting box.
- It is equipped with positioning sensors, guide rails, movable frame to carry out pallets by gravity latches, stationary bracket and hydraulic cylinder with proportional valve.

### Pallet-turner

- The pallet-turner is to turn over pallets and use them on both sides.

### Pallet brush

- The brush is to clean and remove concrete pieces from the steel pallets by a rotating spiral core with steel strip. The height of the brush can be adjusted to suitable height





## Equipment list--Curing Room

- ◆ Curing Room can be made by concrete or steel structure with boiler and temperature control system to provide the Low pressure Steam Curing .





## Equipment list---Mould

We provide **Honcha mould** and **German Rampf mould**. (<http://www.rampf.com/>) **Rampf mould** will be more expensive. Two kinds of mould is optional for customers depending on their budgets.

About Rampf mould( it is produced in China Subsidiary of Rampf)

1. Advanced heat treatment process increase the hardness of the mould 30 – 50%.
2. Inner mould steel is imported from Germany.
3. Coordination between the flexibility and the hardness of the mould maximizes the lifespan of the mould.



Rampf Mould



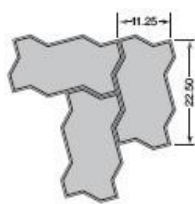
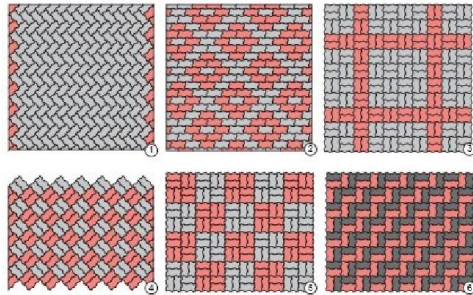
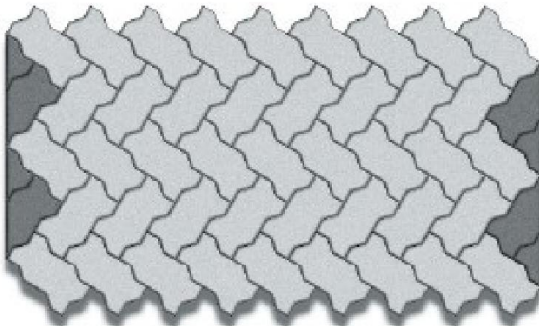
Honcha Mould



# Equipment list--Mould Samples

## UNI BLOCK

The standard paving stone

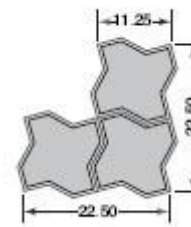
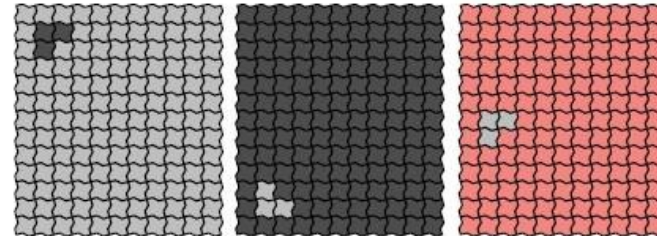
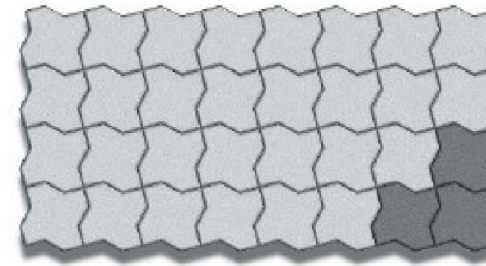


### Technical details

| Size (cm)                               | 22.5 x 11.25 |         |         |
|---|--------------|---------|---------|
| Thickness of Stone (cm)                 | 6            | 8       | 10      |
| Area per Stone (cm <sup>2</sup> )       | 253.125      | 253.125 | 253.125 |
| Stones/m <sup>2</sup>                   | 39.5         | 39.5    | 39.5    |
| Weight kg/m <sup>2</sup>                | 141          | 188     | 235     |
| m <sup>2</sup> /Layer                   | 0.886        | 0.886   | 0.886   |
| m <sup>2</sup> /Bundle (14/11/9 Layers) | 12.40        | 9.75    | 7.97    |
| m <sup>2</sup> /Trailer (22 Bundles)    | 272.89       | 214.41  | 175.43  |

## UNI COLOC

The heavy duty block for machine laying



### Technical details

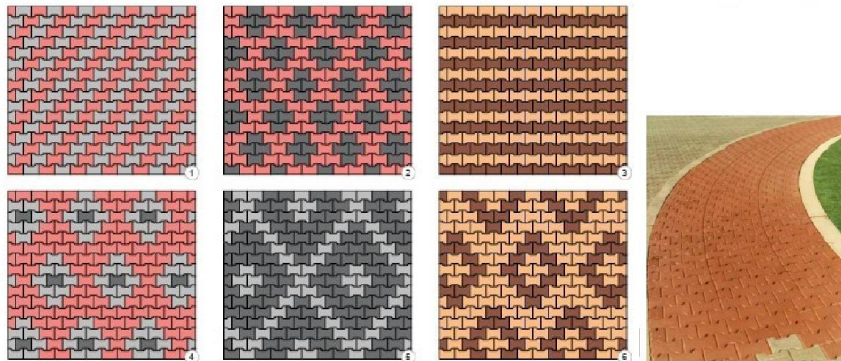
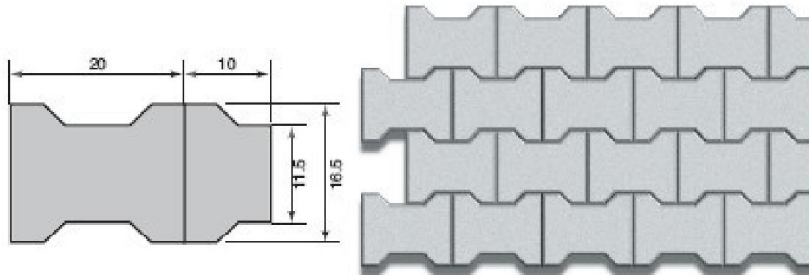
|                                      |             |
|--------------------------------------|-------------|
| Sizes (cm)                           | 22.5 x 22.5 |
| Thickness of Stone (cm)              | 8           |
| Area per Stone (cm <sup>2</sup> )    | 379.7       |
| Stones/m <sup>2</sup>                | 26.3        |
| Weight kg/m <sup>2</sup>             | 188         |
| m <sup>2</sup> /Layer                | 0.886       |
| m <sup>2</sup> /Bundle (11 Layers)   | 9.75        |
| m <sup>2</sup> /Trailer (22 Bundles) | 214.50      |



# Equipment list--Mould Samples

## TUFPAVE

Easy to lay, also suitable for machine laying



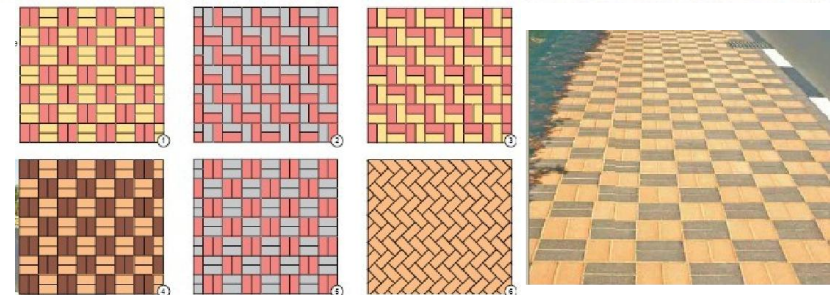
### Technical details

| Size (cm)                            | 16,5 x 20 |        |
|--------------------------------------|-----------|--------|
| Thickness of Stone (cm)              | 6         | 8      |
| Area per Stone (cm <sup>2</sup> )    | 280       | 280    |
| Stones/m <sup>2</sup>                | 35,7      | 35,7   |
| Weight/kg/m <sup>2</sup>             | 141       | 188    |
| m <sup>2</sup> /Layer                | 0,784     | 0,784  |
| m <sup>2</sup> /Bundle (14 Layers)   | 10,98     | 8,02   |
| m <sup>2</sup> /Trailer (22 Bundles) | 241,47    | 189,73 |



## RECTANGULAR<sup>®</sup>

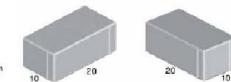
The timeless paving stone



### Technical details

| Sizes (cm)                           | 10 x 20 |        |
|--------------------------------------|---------|--------|
| Thickness of Stone (cm)              | 6       | 8      |
| Area per Stone (cm <sup>2</sup> )    | 200     | 200    |
| Stones/m <sup>2</sup>                | 50      | 50     |
| Weight/kg/m <sup>2</sup>             | 141     | 188    |
| m <sup>2</sup> /Layer                | 0,84    | 0,84   |
| m <sup>2</sup> /Bundle (14 Layers)   | 11,76   | 9,24   |
| m <sup>2</sup> /Trailer (22 Bundles) | 258,72  | 203,28 |

- Rectangular Paving Block
- Format 16x20x6 cm, 16x20x8 cm



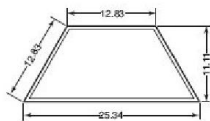
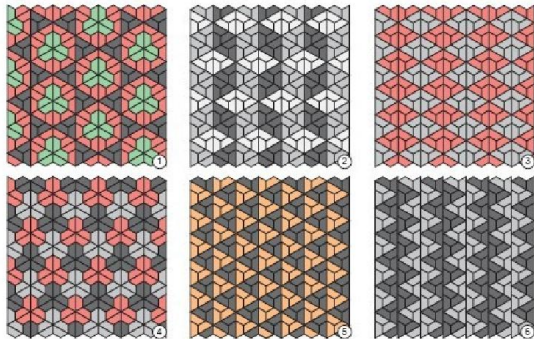
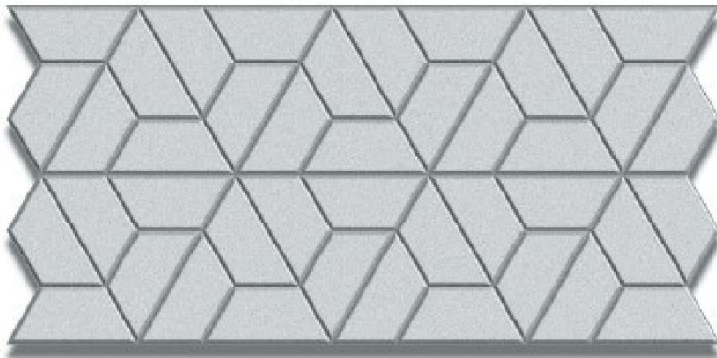




# Equipment list--Mould Samples

## DECOR

The decorative paving stone



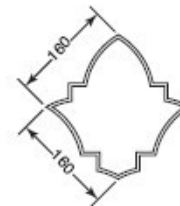
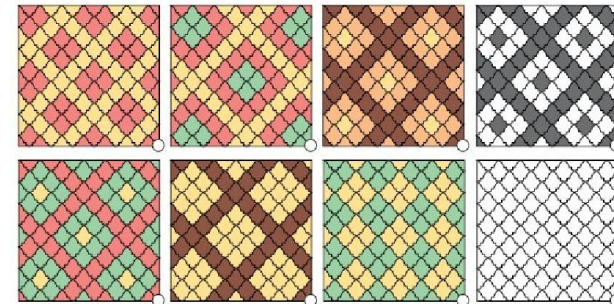
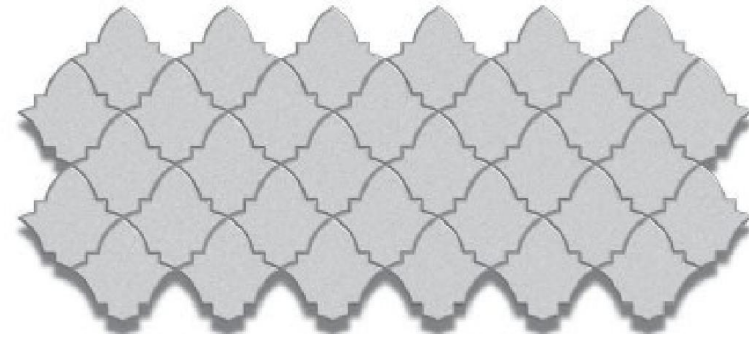
### Technical details

|                                      |                  |
|--------------------------------------|------------------|
| Size (cm)                            | 25.24 x 11.11    |
| Thickness of Stone (cm)              | 6    8           |
| Area/Stone (cm <sup>2</sup> )        | 213.8    213.8   |
| Stones per m <sup>2</sup>            | 46.8    46.8     |
| Weight kg/m <sup>2</sup>             | 141    188       |
| m <sup>2</sup> /Layer                | 0.896    0.896   |
| Layers / Bundle                      | 14    11         |
| m <sup>2</sup> /Bundle               | 11.97    9.405   |
| m <sup>2</sup> /Trailer (22 Bundles) | 263.34    206.91 |



## Lotus

Beautiful, timeless



### Technical details

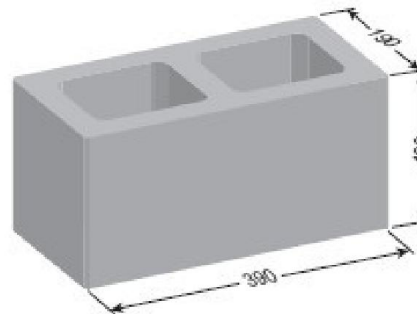
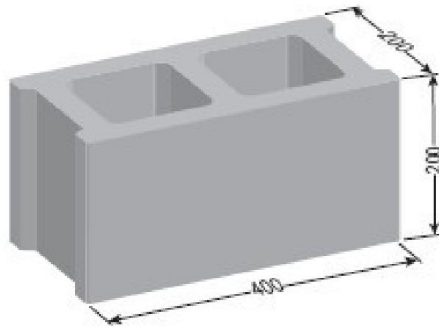
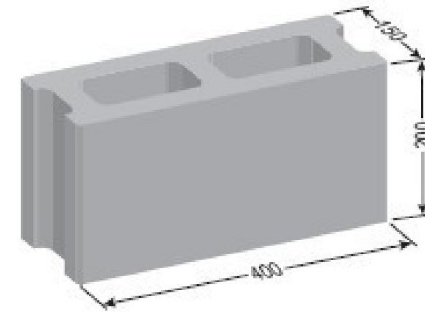
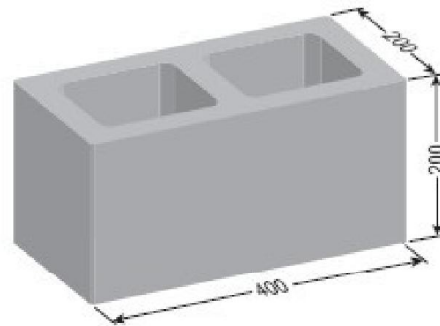
| Size                                  | 16 x 16 | 16 x 16 |
|---------------------------------------|---------|---------|
| Thickness of Stone (cm)               | 6       | 8       |
| Area/Stone (cm <sup>2</sup> )         | 256     | 256     |
| Stones per m <sup>2</sup>             | 39      | 39      |
| Weight kg/m <sup>2</sup>              | 141     | 188     |
| m <sup>2</sup> /Layer                 | 0.896   | 0.896   |
| m <sup>2</sup> /Bundle (14/11 Layers) | 12.54   | 9.856   |
| m <sup>2</sup> /Trailer (22 Bundles)  | 275.88  | 216.83  |



# Equipment list--Mould Samples

## HOLLOW BLOCK

- **Hollow block**  
building block
- **Format**  
5 type of blocks  
H20, H20P, H19, H15P, H10



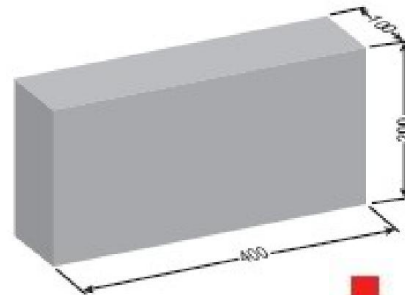
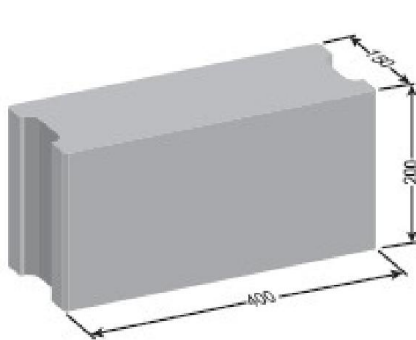
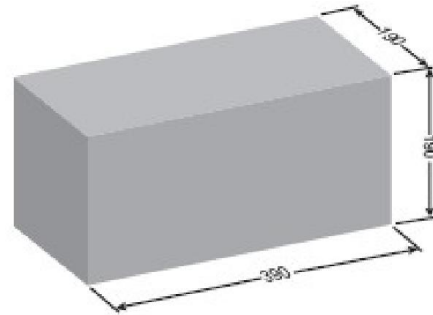
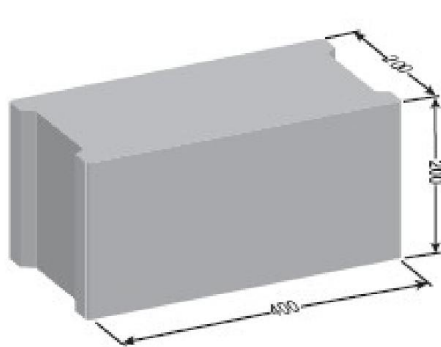
### Technical details

|                                      |           |        |
|--------------------------------------|-----------|--------|
| Size (cm)                            | 16.5 x 20 |        |
| Thickness of Stone (cm)              | 6         | 8      |
| Area per Stone (cm <sup>2</sup> )    | 280       | 280    |
| Stones/m <sup>2</sup>                | 35.7      | 35.7   |
| Weight kg/m <sup>2</sup>             | 141       | 188    |
| m <sup>2</sup> /Layer                | 0.784     | 0.784  |
| m <sup>2</sup> /Bundle (14 Layers)   | 10.98     | 8.62   |
| m <sup>2</sup> /Trailer (22 Bundles) | 241.47    | 189.73 |



# Equipment list--Mould Samples

## SOLID BLOCK



**Technical details**

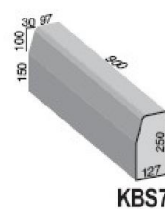
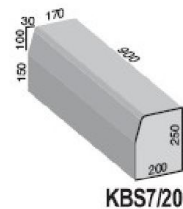
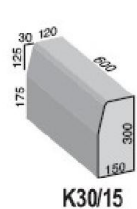
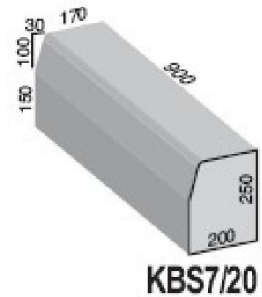
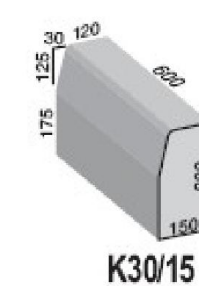
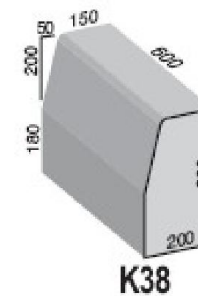
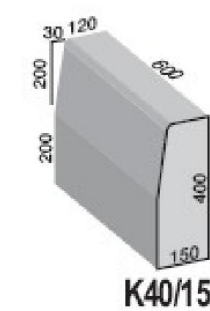
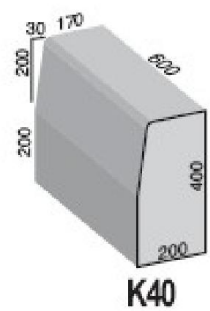
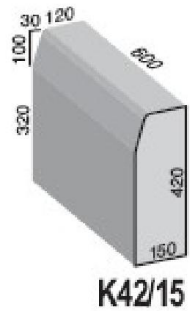
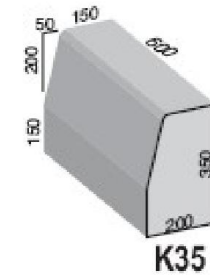
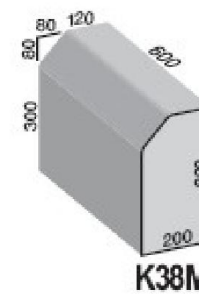
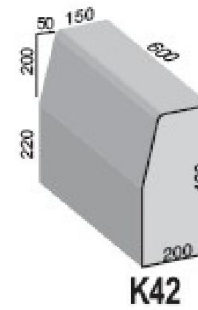
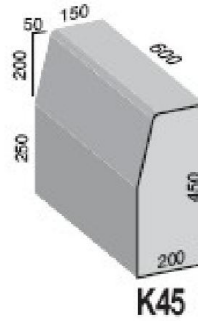
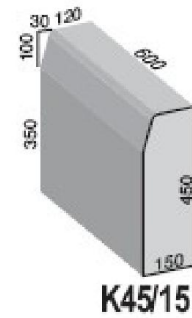
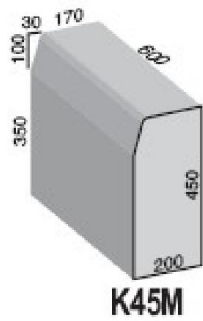
| Code            | S20P | S19  | S15P | S10  |
|-----------------|------|------|------|------|
| Depth (cm)      | 20   | 19   | 20   | 20   |
| Blocks/Bundle   | 48   | 48   | 64   | 88   |
| Bundles/Trailer | 22   | 22   | 22   | 22   |
| Blocks/Trailer  | 1056 | 1056 | 1408 | 1936 |

S-solid P-Pocket



# Equipment list---Mould Samples

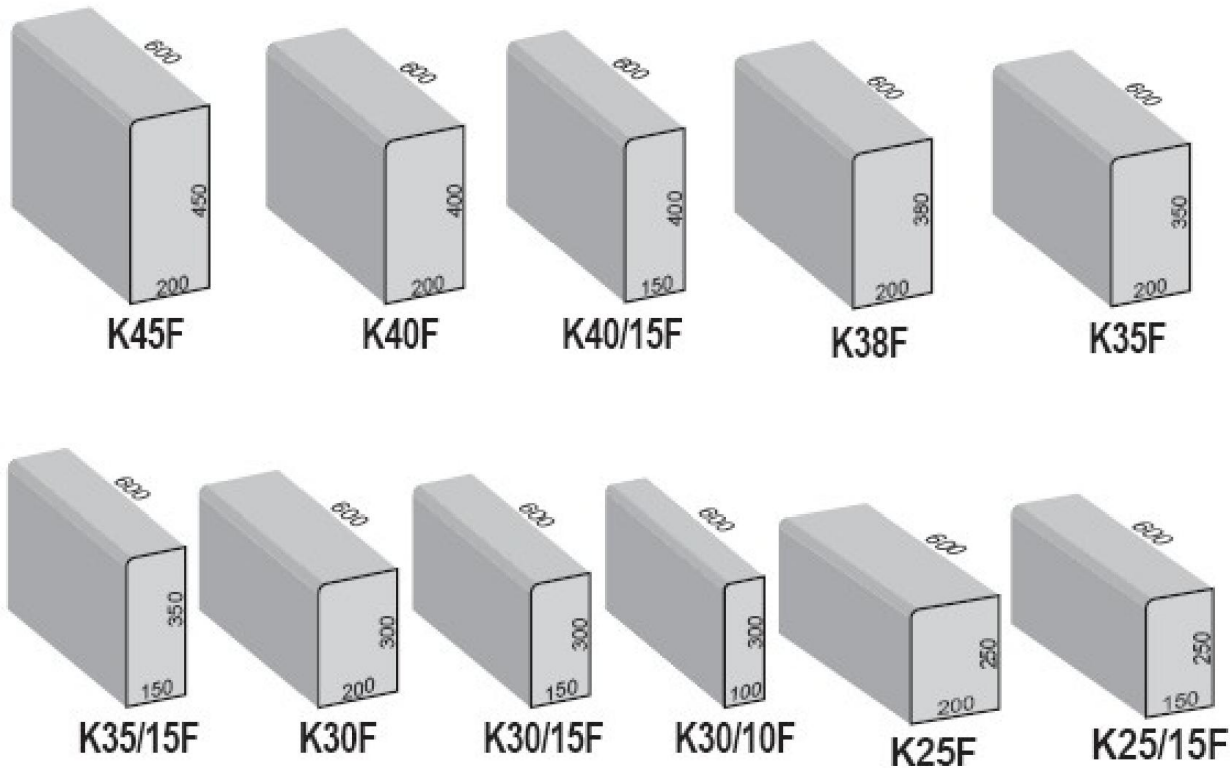
## Upright Kerbs





# Equipment list--Mould Samples

## Flush Kerbs



**\*NOTE:**  
Moulds can be customized according to your requirement, please advise us the shape and size, we can make the mould accordingly.



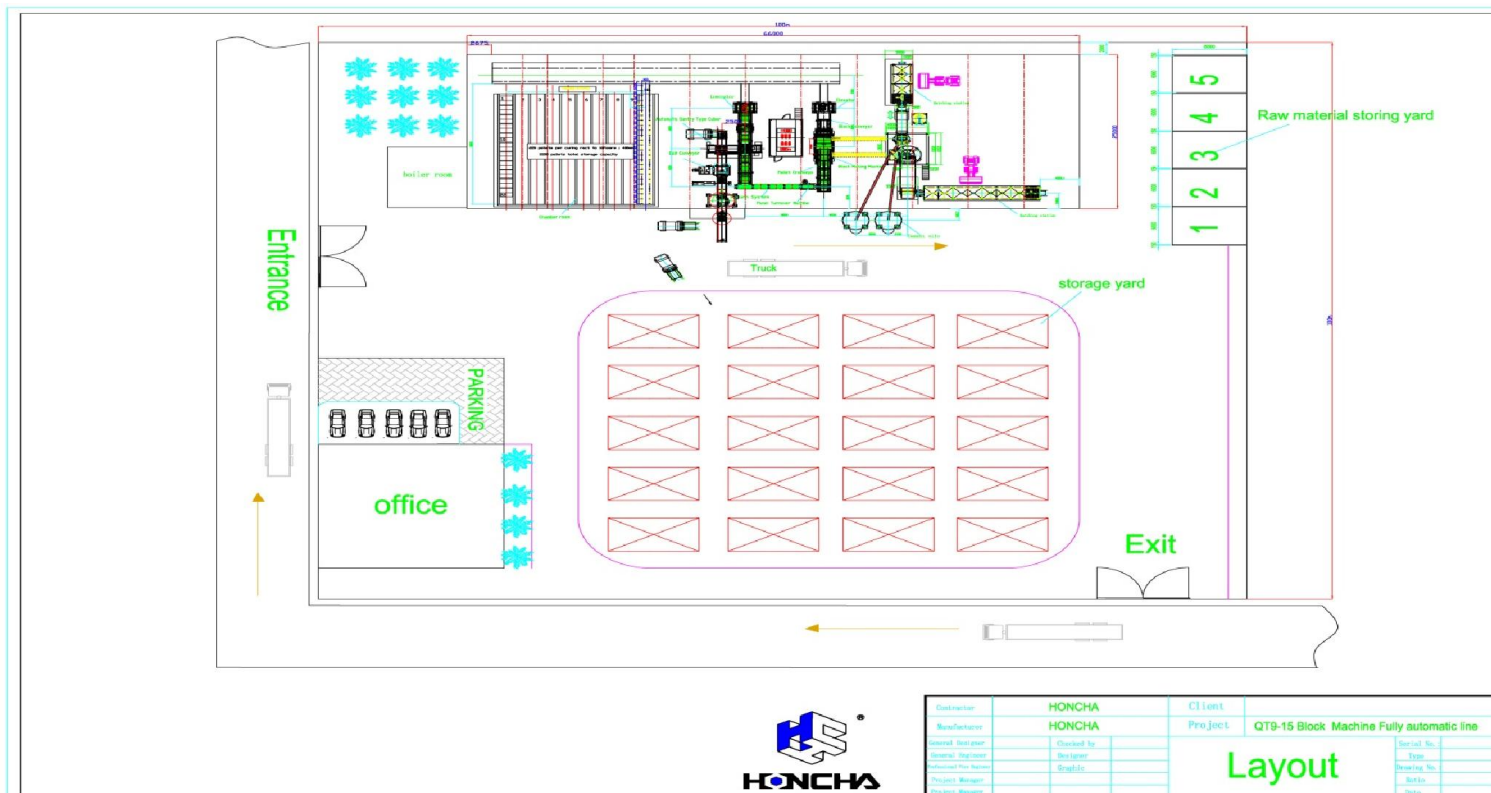
# Productivity

| Machine size                                       |                 | S               | M                           | L                          |                                      |                                     |                               |
|--|-----------------|-----------------|-----------------------------|----------------------------|--------------------------------------|-------------------------------------|-------------------------------|
| Pallet Size  |                 | 1400*700        | 1400*900                    | 1400*1100                  |                                      |                                     |                               |
| Efficient Molding Area                             |                 | 1380*650        | 1380*850                    | 1380*1050                  |                                      |                                     |                               |
|  |                 |                 |                             |                            |                                      |                                     |                               |
| Pallet Size  | No. stone/Mould | Cycle time sec. | Production piece<br>100% 8h | Production piece<br>85% 8h | Production m <sup>2</sup><br>100% 8h | Production m <sup>2</sup><br>85% 8h | Production piece<br>100% 24 h |
| <b>Hollow Block(20*20*40),no face concrete</b>     |                 |                 |                             |                            |                                      |                                     |                               |
| 1400*650   | 9               | 15              | 17280                       | 14688                      | -                                    | -                                   | 51840                         |
| 1400*850   | 12              | 15              | 23040                       | 19584                      | -                                    | -                                   | 69120                         |
| 1400*1100  | 15              | 15              | 28800                       | 24480                      | -                                    | -                                   | 86400                         |
| <b>Paving Stone(10*20*6cm), no face concrete</b>   |                 |                 |                             |                            |                                      |                                     |                               |
| 1400*650   | 30              | 15              | 57600                       | 48960                      | 1152                                 | 979                                 | 172800                        |
| 1400*850   | 42              | 15              | 80640                       | 68544                      | 1613                                 | 1371                                | 241920                        |
| 1400*1100  | 54              | 15              | 103680                      | 88128                      | 2074                                 | 1763                                | 311040                        |
| <b>Paving Stone(10*20*6cm), with face concrete</b> |                 |                 |                             |                            |                                      |                                     |                               |
| 1400*650   | 30              | 22              | 39273                       | 33382                      | 785                                  | 668                                 | 117819                        |
| 1400*850   | 42              | 22              | 54981                       | 46734                      | 1099                                 | 934                                 | 164943                        |
| 1400*1100  | 54              | 22              | 70691                       | 60087                      | 1414                                 | 1202                                | 212073                        |
| <b>Curbstone(15*30*100cm),no face concrete</b>     |                 |                 |                             |                            |                                      |                                     |                               |
| 1400*850   | 4               | 21              | 6171                        | 5246                       | -                                    | -                                   | 18513                         |
| 1400*1100  | 6               | 21              | 8229                        | 6994                       | -                                    | -                                   | 22539                         |
| <b>Curbstone(15*30*100cm), with face concrete</b>  |                 |                 |                             |                            |                                      |                                     |                               |
| 1400*850   | 4               | 24              | 5400                        | 4590                       | -                                    | -                                   | 16200                         |
| 1400*1100  | 6               | 24              | 7200                        | 6120                       | -                                    | -                                   | 21600                         |



# Cost analysis---Layout and Land area

- A fully-automated production line requires 10,000 – 12,000m<sup>2</sup> of space with approximately 1,000m<sup>2</sup> of shaded area for workshop.
- ❖ Note: Land Area mentioned includes the area for raw material assembly, workshop, office and assembly yard for complete products.

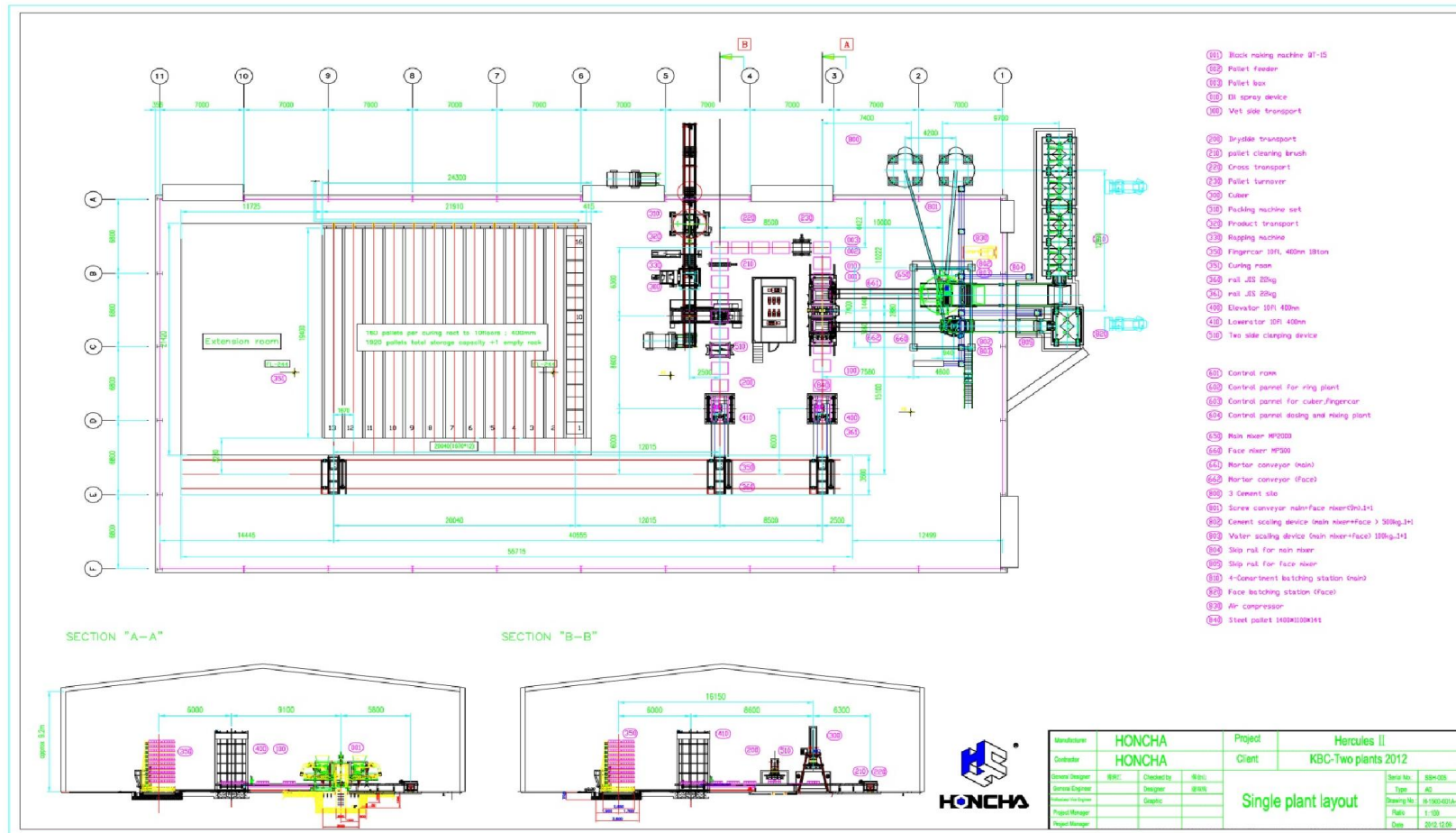


|                    |              |          |   |
|--------------------|--------------|----------|---|
| Customer:          | HONCHA       | CI Unit: |   |
| Manufacturer:      | HONCHA       | Project: | QT9-15 Block Machine Fully automatic line |
| General Site plan: | Checked by:  |          |   |
| General Site plan: | Designed by: |          |   |
| General Site plan: | Reviewed by: |          |   |
| Project Manager:   | Scale:       |          |   |
| Author:            |              |          |   |
| Checker:           |              |          |   |

**Layout**



# Cost analysis---Layout and Land area







# Cost analysis---Power Required

- ❖ Fully-automated production line: approximately 380kW
- ❖ Per hourly power usage: approximately 250kW/hr

| Item                          | Motor                                     |                  |            |     |
|-------------------------------|---|------------------|------------|-----|
|                               | Description                               | Brands           | Power (kw) | QTY |
| Block making machine          | Big oil pump motor                        | Siemens          | 30         | 2   |
|                               | Vibrator of vibration table               | Knauer (Germany) | 3.75       | 4   |
|                               | motor for open/close material hopper gate | SEW              | 2.2        | 2   |
| Block Sweeper                 | Motor                                     | Defeng           | 1.5        | 1   |
| Planetary Mixer(2000)         | Mixing motor                              | (beid)Siemens    | 55         | 1   |
|                               | Elevator skip motor                       | (beid)Siemens    | 22         | 1   |
|                               | Water pump motor×2                        | Hengta (China)   | 4          | 1   |
|                               | Discharging motor                         | (beid)Siemens    | 3          |     |
| 4 Compartments Batching       | Conveyor belt                             | (beid)Siemens    | 7.5        | 1   |
|                               | Hopper vibrator                           | OLI(Italy)       | 0.25       | 4   |
|                               | Air compressor                            | (beid)Siemens    | 11         | 1   |
|                               | Oil pump motor                            | Siemens          | 30         | 2   |
| Cubing System                 | Motor for rotation                        | NORD             | 0.75       | 1   |
|                               | Motor for (right- left)                   | SEW              | 7.5        | 1   |
|                               | Motor                                     | Siemens          | 7.5        | 1   |
| Finger Car                    | Mother car motor                          | Siemens          | 7.5        | 1   |
|                               | Son car motor                             | Siemens          | 5.5        | 1   |
|                               | Finger car's elevator motor               | Siemens          | 7.5        | 1   |
|                               | Positional motor mother car               | Siemens          | 1.5        | 1   |
|                               | Winding wire motor                        | Yuxing(Taiwan)   | 3.7        | 1   |
| Elevator                      | Motor                                     | Siemens          | 22         | 1   |
| Lowerator                     | Motor                                     | Siemens          | 22         | 1   |
| Pallet Tumber                 | Motor                                     | Siemens          | 3          | 1   |
| Pallet Brush Cleaner          | Motor                                     | Siemens          | 0.185      | 2   |
| Block down system             | Motor for chain                           | Siemens          | 2.2        | 1   |
| Finished Block Pushing System | Motor for chain                           | Siemens          | 2.2        | 1   |
|                               | Mixing motor                              | (beid)Siemens    | 18.5       | 1   |
|                               | elevator skip motor with brakes           | (beid)Siemens    | 7.5        | 1   |
|                               | water pump motor                          | Hengta(China)    | 0.75       | 1   |
| Packing machine               | Discharging motor                         | Hengta(China)    | 0.75       | 1   |
|                               | packing motor                             | TCG              | 0.37       | 1   |
|                               | packing motor                             | TCG              | 0.75       | 1   |
|                               | packing motor                             | TCG              | 0.2        | 1   |

**KNAUER  
ENGINEERING**

**SIEMENS**

**SEW  
EURODRIVE**

**NORD  
MOTOR**