PRODUCT
SPECIFICATION

# RAPIDBATCH 120

MOBILE BATCHING PLANT

# RAPIDBATCH 120

**The Rapidbatch is a high capacity mobile batching plant suited to large construction, infrastructure and civil engineering projects. Offering outputs of up to 120m3/hr and fast setup times the Rapidbatch is well suited to wind farms, airports, construction and readymix applications.**

Rapid International's Rapidbatch 120 is designed to offer unrivalled production throughput and application flexibility. With no foundations required the Rapidbatch provides a small plant footprint.

Producing up to 120 cubic metres of material per hour, Rapidbatch delivers speed and cost efficiency. Fully mobile and quick setup times, Rapidbatch travels from site-to-site with ease.

The robust design with optional features such as a generous Winter package or efficient Admixture system to name a few, make the Rapidbatch 120 the most versatile mobile batching plant on the market today.


Rapid's Rapidbatch is a superior choice for a wide varying selection of construction projects, including but not limited to: Road building, Housing developments, Commercial yards, Car


parks / Parking lots, Pavements / Sidewalks, Wind farm bases, Warehouse flooring, and many more.

Features:

- Fully galvanised.
- Auto greasing system.
- Hard wearing liner on weigh belt conveyor and bin outlets.
- Hard wearing inner mixing chamber.
- Heavy duty gearboxes.
- Heavy duty hydraulic power pack.
- Reduced wear with extra thick chill cast tiles and paddles.
- Hexagonal heavy duty mixer shafts.
- Aerofoil arm design offering reduced wear and thorough mix
- Enlarged outlet on bins for quick charging
- Short mixing times and high outputs with Twin Shaft mixer
- Computerised control system

# TECHNICAL DATA

| MIXING UNIT TRANSPORT DIMENSIONS |
| --- |
| Length: 17.6m (58') |
| Width: 3m (9' 10") |
| Height: 4m (13' 12") |
| **MIXING UNIT WORKING DIMENSIONS** |
| Length: 18.6m (61 ') |
| Width: 3m (9' 10") |
| Height: 10.29m (34') |
| **MIXING UNIT TOTAL NET WEIGHT** |
| Weight: 40,000 kg (88,185 lbs) |
| **AGGREGATE BIN UNIT TRANSPORT DIMENSIONS** |
| Length: 16.6m (54') |
| Width: 3m (9' 10") |
| Height: 4m (14') |
| **AGGREGATE BIN UNIT WORKING DIMENSIONS** |
| Length: 16.35m (54') |
| Width: 3m (9' 10") |
| Height: 4m (13' 12") |
| **AGGREGATE BIN UNIT TOTAL NET WEIGHT** |
| Weight: 38,000 kg (83,776 lbs) |
| **CONTROL CABIN DIMENSIONS** |
| Length: 6.1m (20') |
| Width: 3m (9' 10") |
| Height: 2.5m (8' 2") |
| **CONTROL CABIN TOTAL NET WEIGHT** |
| Weight: 3,500 kg (7,717 lbs) |
| **OUTPUT PER HOUR** |
| 120 m3/hr (156.95 yds3/hr) |

| BATCH SIZE |
| --- |
| 3 m3 (3.92 yds3) |
| **AGGREGATE STORAGE BINS** |
| Quantity: 4No 21m3 compartments |
| Bin Storage Capacity: 21m3 (27.5 yds3) |
| Total Storage Capacity: 84m3 (110 yds3) |
| Charging via loading shovel on ramp |
| 3 No Pneumatically operated discharge doors |
| Electrical Vibrator (3/200) fitted 2 No Bins |
| |
| **BIN OUTLET FEEDER** |
| Belt Length & Width: 650mm wide Plain belt, 4.3m cc |
| Rate of Delivery: 133m3/hr (173.96 yds3/hr) |
| Inc Geared motor drive & Polyurethane belt scraper |
| **WEIGHED BELT / TRANSFER CONVEYOR** |
| Weigh System: 4 No Compression Load cells |
| Weigh Capacity: 4.5m3 (6000kgs) |
| Belt Length: 12m (39.4 ft) cc |
| 1000mm 3 Ply rubber belt |
| Lagged and crowned Head Drum |
| 180 W electrical vibrator |
| Screw take up belt tensioning mechanism |
| Polyurethane blade |
| **CONVEYOR TO MIXER INLET** |
| Belt Width: 1200mm wide vulcanized chevron belt |
| Belt Length: 11m (36 ft) cc |
| Rate of Delivery: 730m3 /hr (=1100TPH @ 1.5 T/m3) |
| |

| RT3000 TWIN SHAFT MIXER |
| --- |
| Input Capacity: 4.5 m3 (5.88 yds3) |
| Output Capacity: 3 m3 (3.92 yds3) |
| Output per Hour: 120 m3 (157 yds3) |
| 2No 55KW Electric Motors |
| Twin shaft (Left & Right) Gearbox (Power Range 55 kW) |
| Chill cast mixing tools & paddles |
| Total access to mixer via top & side hatches |
| **CEMENT WEIGH HOPPER** |
| Weigh Capacity: 1.45m3 (= 2030 kgs) |
| Weigh System: 3 No Load cells |
| 3 No. Aeration pads |
| 1 No 100W Electrical Vibrator (3/180) |
| Venting via 100 mm vent pipe and PVC sock |
| Pneumatic butterfly valve with rubber sock to mixer |
| **READYMIX CHUTE** |
| Located under the mixer door to direct material to the truck |
| 6 mm thick steel cone with hardox lining |
| **WATER WEIGHER** |
| Capacity: 900 Litres |
| Fully galvanised weigher |
| Pneumatic butterfly valve and pipework to mixer |
| **ADDITIVE SYSTEM** |
| 2No 19 litre = Total Liquid Capacity of 100 litres |
| 3 no. electric pumps enclosed in a panel |
| Outlets fitted with pneumatic pinch |
| Vessel in stainless steel construction |
| Water flush-out system fitted |

# TECHNICAL DATA

| DUST EXTRACTION SYSTEM | MIXER JETWASH SYSTEM | PLANT CONTROL SYSTEM |
|---|---|---|
| WAM reverse jet dust filter complete | 2 No Spray Heads | Aggregate Weighed Conveyor Loadcells |
| Complete with fan and screw conveyor | 4 No Nozzles | Aggregate & Mixer Area Pneumatic Control Valves |
| **PNEUMATIC SYSTEM** | Wash Cycle approx. 4 Minutes | Cement Weigh Hopper Loadcells |
| Rotary Vane 200 liter compressor with dryer unit | 2 No UDOR PUMPS EACH GC30/20 delivering 30 litres/min. | Non return Valve |
| Output Free Air Delivery: 0.57 m3/min | 2 No 11 kW (15 HP) Drive Motors | Cement Area Switch Box |
| 150 litre buffer receiver mounted on the bins module | Galvanised buffer tank | Cement Weigh Hopper Aeration Fittings |
| **CONTROL CABIN** | Manual Wash Lance: 18m (59ft) | Mixer Interlocking |
| 6100mm x 2500mm (6.1m x 2.5m) (20ft x 8.2ft) | **PLANT POWER SUPPLY** | Fluid Dynamix Additive Mixture Weigh System |
| Box section steel frame with sheet steel walls and roof | Via mains power supply or via a mobile generator set | Allen-Bradley 100 series contactors |
| Access door with lock including short steps from ground | Mains Power: Minimum 360kW power supply | Mains Isolator (lockable in the OFF position) |
| Heating and lighting points are fitted to the control room | Mobile Power: 1 No 450kVA Genset for running main plant | Dynamix Batching Control Solutions Software |
| | Mobile Power: 1 No 20kVA Genset for running plant control systems | Mixer Greaser System controls |
| | Mobile Power: 1 No 80kVA Genset needed if Winter package option is supplied | Plant alarms/ diagnostics |
| | | Stock control and usage |
| | | Built in Batch record printer |
| | | Plant Motor Starters |
| | | Water Weigh Hopper Loadcells |
| | | Remote access via WIFI & 3G Network connection |

# OPTIONS

| |
|---|
| **ADDITIONAL ADMIX PUMPS** |
| Self contained units |
| Outputs available: 12 LPM, 28 LPM, 50 LPM (Litres per Minute) |
| Up to 4 Admix systems can be installed with separate outputs |
| **PRECAST BASES** |
| Rapid can provide precast bases to mount silos on for mobile and remote applications |
| **71m3 AUXILLARY STORAGE SILO & ACCESSORIES** |
| Sizes range from 30 tonnes to 1000 tonnes.<br>Up to 4 No. 71m3 (100 ton) Cement silos complete with reverse jet filters, ladders, filling pipes, level probes, aeration system and pressure relief valve.<br>NB: Precast concrete base not included, to be supplied by customer |
| **WINTER PACKAGE** |
| Fully winterised enclosure for plant, including heating systems for aggregates, water and mixer |
| **MOISTURE PROBE** |
| Supply and install Hydronix Moisture Probe to an aggregate storage bin. |
| **FACILITY TO CONNECT CLEAN WATER TANK** |
| Pneutrol will supply and install a 3" Pedrollo water pump, capable of handling clean water only |
| **FACILITY TO CONNECT DIRTY WATER TANK** |
| Pneutrol will supply and install a 2" Ebara water pump, capable of handling dirty water with up to 19mm soft solids. |
| **CUSTOMISED PLANT** |
| Customer colours can be used if specified |
| Additonal Decals of the company brand & business info can be included |

Specification subject to change without notice

CONTACT US:

Rapid International Ltd.
96 Mullavilly Road
Tandragee
Craigavon
Northern Ireland
BT62 2LX

Tel: (+44) 028 3884 0671
Fax: 028 3884 0880

Dealer Stamp:

| | |
|---|---|
| TYPE: | RAPIDBATCH – **120** |
| OUTPUT PER HOUR: | **120** m3/hr. |
| BATCH SIZE | **3** m3 (3.92 yds3) |
| NO. OF MODULES | **3** (Mixer Module Unit, Aggregate Bins Unit & Controls Cabin Unit) |

**MIXING UNIT:**

Fully covered with insulated sheeting consisting of Mixer, Batch Conveyor, Water Weigher, Cement Weigher, Additive Weigher, Discharge Chute, Starter Panels, Compressor, all mounted on a common chassis with tri-axle bogie.
Transport size: 16.6m long x 3m wide x 4m high.

| TRANSPORT DIMENSIONS: | |
|---|---|
| Length | 17.6m (57ft) |
| Width | 3m (9ft 10") |
| Height | 4m (13ft 12") |
| WORKING DIMENSIONS: | |
| Length | 18.6m (61 ft) |
| Width | 3m (9ft 10") |
| Height | 10.29m (33.76 ft) |
| WEIGHT: | 40 Tonnes (88,185 lbs) |

**AGGREGATE BIN UNIT:**

Consisting of 4No Aggregate Bins, (one with a belt feeder outlet) and weighed belt, all mounted on a chassis with tri-axle bogie.
Transport size: 16.6m long x 3m wide x 4m high..

| TRANSPORT DIMENSIONS: | |
|---|---|
| Length | 16.62m (54.53 ft) |
| Width | 3m (9ft 10") |
| Height | 4m (13ft 12") |
| WORKING DIMENSIONS: | |
| Length | 16.35m (53.64 ft) |
| Width | 3m (9ft 10") |
| Height | 4m (13ft 12") |
| WEIGHT: | 38 Tonnes (83,776 lbs) |

**CONTROL CABIN UNIT:**

Steel anti-vandal construction, fully insulated with heater, wide viewing window and drop-down support legs for ease of installation. The cabin is split into a control room with the batching control consoles and the other separate section is used as a storeroom.

| DIMENSIONS: | |
|---|---|
| Length | 6.1m (20 ft) |
| Width | 3m (9ft 10") |
| Height | 2.5m (8.2 ft) |
| | |
| WEIGHT: | 3.5 Tonnes (7,717 lbs) |

## AGGREGATE BINS:

The Aggregate Bins Unit has 4No storage bins, a belt feeder and the weighed belt mounted on a common chassis with tri-axle running gear. The bins incorporate fold down upper panels and drop down ramp boards (this enables ramps to be formed by heaping stones etc against the bins structure). For corrosion protection all of the structural members are galvanized.

**CAPACITY:** 4No 21m3 storage bins mounted in an in-line configuration, with 2 bins positioned over the weighed belt mounted on a common chassis.
(NB: 21 m3 = 31.5 Tonne @ 1.5 T/m3, Total Storage Capacity= 84 m3).

**Bin dimensions:** Each bin is 3.8 m long x 3.0 m wide forming a structure 3.0 m wide x 16.6 m long.
**Construction**: The bin consists of stanchion legs with beam and channel ring supporting the cone and division plates above.

**DUMPING WALLS:** The bins are loaded by loading shovels. Fold down dumping walls are provided on the machine to allow stones to be formed into access ramps to enable the loading shovel to load. These dumping walls can be located either side of the bins for different site layouts.

**DESIGN:** Each bin is 3.8 m long x 3.0 m wide forming a structure 3.0 m wide x 16.6 m long. Each Bin consists of a lower cone section with single outlet and an upper section with folding sides and division plates. The entire steel structure is galvanized after fabrication. 3 of the bins are fitted with a pneumatically operated discharge door. The 4th bin has a belt feeder fitted to extract sand efficiently from the bin

**OUTLETS:** 3No of the bins are fitted with a pneumatically operated discharge door, whilst the fourth bin is fitted with a belt feeder for discharging sand.

**AIR RECEIVER:** A 150-litre air receiver mounted in the bins provides a buffer supply for the cylinders.

**RUNNING GEAR:** The unit is towed as a semi-trailer with 5th wheel pin. Axle type: Standard tri-axle. Suspension: Multi leaf steel spring. Brakes: Standard air operated hub brakes with automatic slack adjusters. Wheels: Single wheel on each hub, (2 per axle total 6 tyres) Lights: Rear marker lights, including indicators, brake lights and side markers in accordance with regulations.

**VIBRATOR:** An electrical vibrator will be fitted to the sand bin to aid the discharge of this material with plates fitted to each other bin should other vibrators be required.

**MOISTURE PROBE:** Holes are provided for mounting optional moisture control probes near the outlet of each bin.

**LINING:** The lower section of the bin outlet is fitted with 6mm Hardox wear lining plate, for increased bin life.

**ACCESS:** Open mesh flooring walkway is provided alongside the weighed belt, with access ladders at each end. An interlocked door is provided at each end to prevent access whilst the machine is in use.

## BIN OUTLET FEEDER:

A belt conveyor feed is fitted on the outlet of the end bin. This feeder enables the sand to be extracted efficiently from the bin.

| | |
|---|---|
| **LENGTH:** | 4.3 m c/c |
| **BELT WIDTH:** | 650 mm |
| **FEED RATE:** | 133 m3/hr (= 200 T.P.H. @ 1.5 T/m3) |
| **DRIVE:** | 7.5 kW shaft mounted geared motor |
| **CONVEYOR TYPE:** | Troughed carrying rollers. |
| **BELT JOINT:** | Vulcanised |
| **CONSTRUCTION:** | Plate folded into channel section from S275 plate.<br>The structure is galvanized after fabrication. |
| **HEAD DRUM:** | Lagged and crowned to aid belt tracking. |
| **BELT TENSIONING:** | By screw take up assembly at tail drum. |
| **BELT SCRAPER:** | A pre-cleaner Polyurethane scraper is fitted to the front of the head drum. |
| **FEED BOOT:** | The feed boot is fabricated from 6mm plate with rubber skirting fitted to the outlet. Steel wear liner plates are fitted to the boot. |
| **MAINTENANCE ACCESS:** | Items requiring regular maintenance can be accessed from the walkway alongside the bins. |

## WEIGHED BELT CONVEYOR:

Collecting conveyor to weigh sand and aggregates and discharge onto the inclined batch conveyor. The conveyor has the facility to inch forward, whilst weighing, to enable the sand to feed into the belt and to reduce the size of the material peaks under the other bins.

| | |
|---|---|
| **WEIGH SYSTEM:** | 4 No. load cells. Pin devices are fitted to lock the weighed belt into position off the loadcells to prevent damage during transport. Mountings are provided on the conveyor for weight test and calibration. |
| **WEIGH CAPACITY:** | 6 000 kgs per batch. |
| **LENGTH:** | 12 m c/c. |
| **BELT WIDTH:** | 1000 mm |
| **RATE OF DELIVERY:** | 730m3/hr (=1100 T.P.H. @ 1.5 T/m3) |
| **BELT JOINT:** | Vulcanised |
| **CONSTRUCTION:** | Folded channel type. The main structural members including the feedboot are galvanized. |
| **CONVEYOR TYPE:** | Troughed carrying rollers. |
| **BELT JOINT:** | Vulcanised |
| **DRIVE:** | 15kW shaft mounted geared motor. |
| **FEED BOOT:** | 6 mm mild steel plate running the full length of the conveyor with rubber skirts to prevent spillage. |
| **LINING:** | The bottom section of the feed boot of the weighed belt is lined with 6mm hardox 400 plate. The lining is fixed with countersunk screws. |
| **BELT TENSIONING:** | By screw take up assembly at tail drum. |
| **BELT SCRAPER:** | A pre-cleaner Polyurethane scraper is fitted to the front of the head drum. |
| **MAINTENANCE ACCESS:** | Items requiring regular maintenance can be accessed from the walkway alongside the bins. |

**MIXER MODULE:**

This module takes the form of a semi-trailer with mixer, readymix chute, cement weigher, water weigher, dust extraction system, additive weigh vessels, conveyor from the weighed belt all contained inside it. The outer walls of the module are fitted with composite panel sheeting to provide weather protection. Fold out wings with walkways give access alongside the mixer. Stepped walkways run along both sides of the machine.

| | |
|---|---|
| **SUPPORTS:** | To raise the machine to the working position the semi-trailer is in effect tilted up by approx 30 degrees. The back end of the semi-trailer rests on the ground on skid feet that are incorporated into the structure. The upper end of the module is supported on box section legs with bracing bars that are pinned onto skid feet resting on the ground. |
| **CONSTRUCTION:** | Fabricated from mild steel stanchions, beams all suitably braced with angle and channel knee bracing. The mixer and readymix chute are supported from the structure at the lower level with the structure above the mixer supporting the cement weigh hopper and additive weigher. For corrosion protection all of the main structural members and walkways are galvanized. |
| **ENCLOSURE:** | Insulated cladding is fitted to the outside of the mixer module to give weather protection. |
| **RUNNING GEAR:** | The unit is towed as a semi-trailer with 5th wheel pin. Axle type: Standard tri-axle. Suspension: Multi leaf steel spring. Brakes: Standard air operated hub brakes with automatic slack adjusters. Wheels: Twin wheel on each hub, (4 per axle total 12 tyres) Lights: Rear marker lights, including indicators, brake lights and side markers in accordance with regulations. |
| **ACCESS:** | A set of steps is fitted alongside each side of the module beside the centrally mounted batch conveyor. These steps are constructed from galvanized open deck flooring. Handrails are mounted on either side of the steps. |
| **ACCESS WINGS:** | Fold out sections of walkway with composite panel sheeted walls are positioned alongside the mixer. These have sections of stepped walkway and quick assembly fittings. |
| **READYMIX CHUTE:** | The readymix chute is supported on wheels inside a track to move it from its transport to its working position. |

**CHUTE ACCESS WALKWAYS:** A small section of walkway is positioned under the mixer alongside each side of the readymix chute, to allow access to wash the chute.

**WATER MAIN PIPE:** A 3” galvanized water main pipe runs along the mixer module, bring water to the water weigher, mixer, ready-mix chute, additive weigher, washdown hoses and conveyor drip tray. A 2nd pipe brings a 2nd type of water to the water weigher only (can be used for hot or recycled water), this pipe is black flexible type.

**WASH DOWN HOSES:** 2No PVC washdown hoses with manual shut off valves are fitted beside the mixer to allow manual cleaning of the area beside the mixer.


**CONVEYOR TO MIXER INLET:**

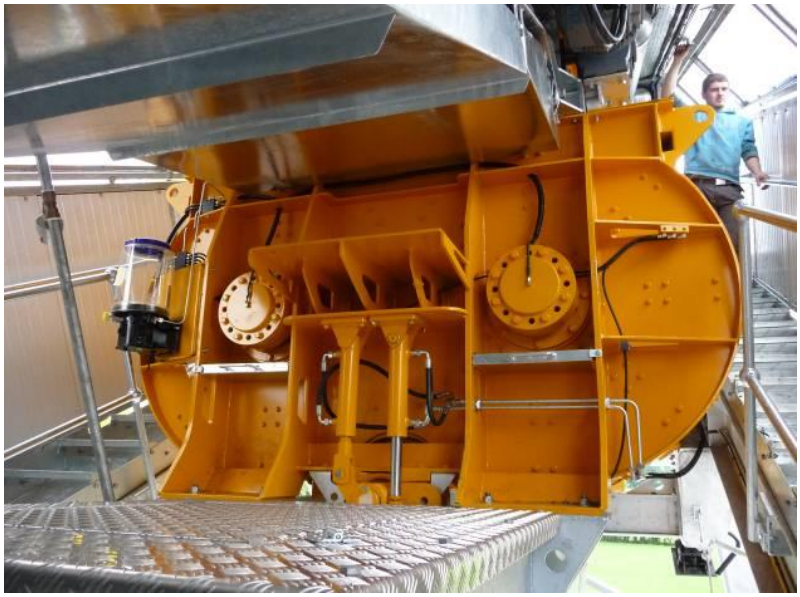
This conveyor transports the batch of aggregates to the mixer inlet.

| | |
|---|---|
| **BELT:** | 1200 mm chevron belt with vulcanized joint |
| **LENGTH:** | 13.6 m c/c. |
| **RATE OF DELIVERY:** | 730 m3/hr (= 1100 T.P.H. @ 1.5 T/m3). |
| **CONSTRUCTION:** | Folded channel type. The main structural members including the feed boot is galvanized. |
| **BELT JOINT:** | Vulcanized on site. |
| **BELT TENSIONING:** | By screw take up assembly at tail drum. |
| **DRIVE:** | 2No 22kW Electric geared motors, one mounted either side of the head drum. The motor is braked for anti-run back. |
| **HEAD DRUM:** | Lagged and crowned to aid belt tracking. |
| **BELT COVERS:** | Galvanized Steel Belt Covers are fitted on top of the conveyor. |
| **FEED BOOT:** | The feed boot is fabricated from 5mm plate with rubber skirting fitted to the outlet and runs the entire length of the conveyor to contain the material within the carrying trough. |
| **BELT SCRAPER:** | A rubber finger unit is fitted at the head section to dislodge material off the belt. |
| **DRIP TRAY:** | Galvanised drip trays are fitted along the whole length of the conveyor. A chute is fitted at the bottom end, so that material can be guided into a waste material barrow (supplied by others). |

**MAINTENANCE ACCESS:** Items requiring regular maintenance can be accessed from stepped walkways alongside the mixer module unit.

## RT3000 TWIN SHAFT CONTINUOUS MIXER:

| | |
|---|---|
| **INPUT CAPACITY:** | 4.5 m3 |
| **OUTPUT CAPACITY:** | 3.0 m3 |
| **DISCHARGE DOOR** | Hydraulically operated, by independent hydraulic powerpack, with standby manual pump. |
| **ACCESS:** | Heavy duty lid with 2 opening access hatches. |
| **MIXING TOOLS:** | Heavy duty twin contra rotating shafts with chill cast steel legs and mixing paddles. |
| **MIXING CHAMBER:** | Fully lined with chill cast steel tiles as standard for long wear life. 20mm (3/4”) thick tiles. |
| **DRIVE:** | Twin 55 kW (75 HP) 3 phase electric motors driving shaft mounted gearbox via vee-belts and pulley. Shafts are synchronized by link shaft coupling between both gearboxes. |
| **WATER BAR:** | Twin large inlet pipes enable fast water addition. |
| **AUTOMATIC GREASER:** | The mixer gearbox is fitted with an electrically operated greasing system for lubricating the main shaft bearings and seals. A pump is supplied with grease from a large capacity reservoir unit. |



## CEMENT WEIGH HOPPER:

| | |
|---|---|
| **WEIGH CAPACITY:** | 1.45m3 (= 2,030 kgs @ 1400 kg/m3). (if topped up at upper inlets 1.7m3) |
| **WEIGH SYSTEM:** | 3 No. load cells. Pin devices are fitted to lock the weighed belt into position off the loadcells to prevent damage during transport. Mountings are provided on the hopper for weight test and calibration. |
| **CONSTRUCTION:** | 4mm plate. |
| **DISCHARGE AIDS:** | Pneumatic butterfly valve with rubber sock down to the mixer. |
| **VIBRATOR:** | 1 No Electrical Vibrator. |
| **LID:** | The top of the hopper is bolted on for maintenance access. |
| **INPUTS:** | 4 No. 273 mm. |
| **VENTING:** | Via a vent pipe and flexible sock to the mixer lid and dust. |
| **MAINTENANCE ACCESS:** | Pneumatic butterfly valve can be accessed from the access platform around the mixer. |

## READYMIX CHUTE:

This chute is located under the mixer door to direct the material into the truck mixer.

| | |
|---|---|
| **CONSTRUCTION:** | 6 mm thick steel cone with flexible rubber sock on the outlet of the chute. |
| **LINING:** | The cone is lined with 6mm Hardox 400 to reduce wear. |
| **MOVEMENT:** | The chute is mounted on wheels in a track that enable the chute to be move away from the mixer door for cleaning or for transport. |

**DUST EXTRACTION SYSTEM:**

WAM dust filter complete with fan, dust hopper and ducting to collect dust emissions from the mixer. Reverse jet filter with polyester media. Extraction Fan mounted on the filter. A screw conveyor fitted on the outlet of the hopper, lets the dust return to the mixer.

**COMPRESSOR:**

A compressor mounted in the mixer module provides the air supply for the complete plant. A 7.5 kW Hydrovane compressor with a receiver and drier. Output Free Air Delivery = 0.44 m3 per min. A 150 litre buffer receiver mounted on the bins module, improves the efficiency of the bin cylinder operation.

## WATER WEIGHER:

The water weigher is located above the mixer.

| | |
|---|---|
| **CONSTRUCTION:** | 3mm mild steel plate, with channel support bracket for loadcells. The weigher and pipework are galvanised. |
| **CAPACITY:** | 900 litres |
| **WEIGH SYSTEM:** | 3 No loadcells. Pin devices are fitted to lock the weigher into position off the loadcells to prevent damage during transport. Mountings are provided on the weigher for weight test and calibration. |
| **PIPEWORK:** | The (clean) water is pumped directly to the mixer via butterfly valve, centrifugal pump and flexible pipework. |

## ADDITIVE SYSTEM:

The additive weigher is located above the mixer and are fitted with 2no 19 litre compartments giving a total liquid capacity of 100 liters.

Supported on loadcells, 4 no. electric pumps enclosed in a panel are linked to the vessels by piping. Outlets fitted with pneumatic pinch valves. Vessel in stainless steel construction, water flush-out system fitted.

**CONTROL CABIN:**

An anti-vandal control cabin, fully insulated with steel shutter on window is supplied to house the control console and pc.

Overall size is 6.1m long x 2.5m wide.

The cabin is split equally into 2 rooms. The control room has a wide 2m long window. Heating and lighting points are fitted to the control room. The 2nd compartment is for storage.

## RAPID RJW2 JETWASH SYSTEM:

Supply of an ultra-high pressure washout system consisting of the following parts:

**SPRAY HEADS:** 2No spray heads in the roof of the mixer. The spray heads each consist of 2No nozzles mounted on a rotating unit, that rotates in both the horizontal and vertical planes giving a complete spherical cleaning action. The rotation is powered by miniature turbines inside the unit driven by the flowrate and pressure of the water, and is geared so that the complete wash cycle, takes approx. 4 minutes. The water is pressurised to 140 bar (2030 psi), providing a series of high intensity jets.

**PUMPS:** 2No 11 kW (15 HP) pumps delivering 30 litres/min each. The pumps are connected to the spray heads via a manifold system and high-pressure hydraulic hoses.

**CONTROL SYSTEM:** A control panel is fitted to control the pumps. Start / Stop buttons are fitted for manual operation and terminals are fitted for connection to remote starting, eg, from the mixer's automatic batching control system or a lance control. There is a key switch fitted on the panel so the operator can switch from remote to local control. The motors are started in sequence on timers to avoid overloading of the electrical supply. The panel has ammeters displaying the current drawn by each motor. A low water level sensor is fitted in the buffer tank, to shut-down the pump motors if water level is low. The wash cycle time can be adjusted inside the panel should it be necessary (from the standard time).

**WATER TANK:** A buffer water tank is fitted on the unit, complete with 3/4" ball cock. The client's water supply should be sized to match the output of the pumps which can deliver 90 - 120 litres/min depending on number of pumps. Drain valves are strategically located in the pipe-work system to enable the water to be drained out, in cold weather. (The Jetwash must be drained if it is likely to be frosty)

**BASE UNIT:** The pumps, tank, and control panel are fitted into one complete unit with a 6mm mild steel galvanized chassis and access covers. Brackets are fitted in the bottom of the chassis to suit lifting by forklift, and lifting eyes are fitted at the top of the chassis for lifting by hoist.

**MANUAL WASH LANCE:** An 12m length of hose and trigger operated lance are supplied for washing additional areas of the mixer.

## PLANT POWER SUPPLY:

The Rapid batch 120 can be powered via mains power supply or via a mobile generator set.

Rapid International are able to offer a vast range of highly powerful mobile generator units to ensure the plant is running at its optimum performance.

a. Mains Power Supply

Requirements: Minimum **360kW** power supply

b. Mobile Power Supply

The usage of a Mobile Power Supply eliminates the problem of the control system rebooting if the mixer is stop/started, also reduces running of main generator during long waiting periods, maintenance and plant cleaning etc., reducing fuel costs.

Requirements:

- 1 No **450kVA** Genset for running main plant items, mixer & bin units (mixer, conveyors etc.)
- 1 No **20kVA** Genset for running plant control systems, lights and maintenance power sockets etc.
- 1 No **80kVA** Genset if **Winter package option** is supplied with the plant. In such cases we recommend the **20kVA** genset is increased to a minimum **80kVA** to run winter package and plant control cabin.

***NB**: Rapid International's inhouse, Rapid Power Generation division can provide further specific Genset information and solutions to suit your requirements.*


rapid
power generation

**CONTROL SYSTEMS & COMPONENTS:**

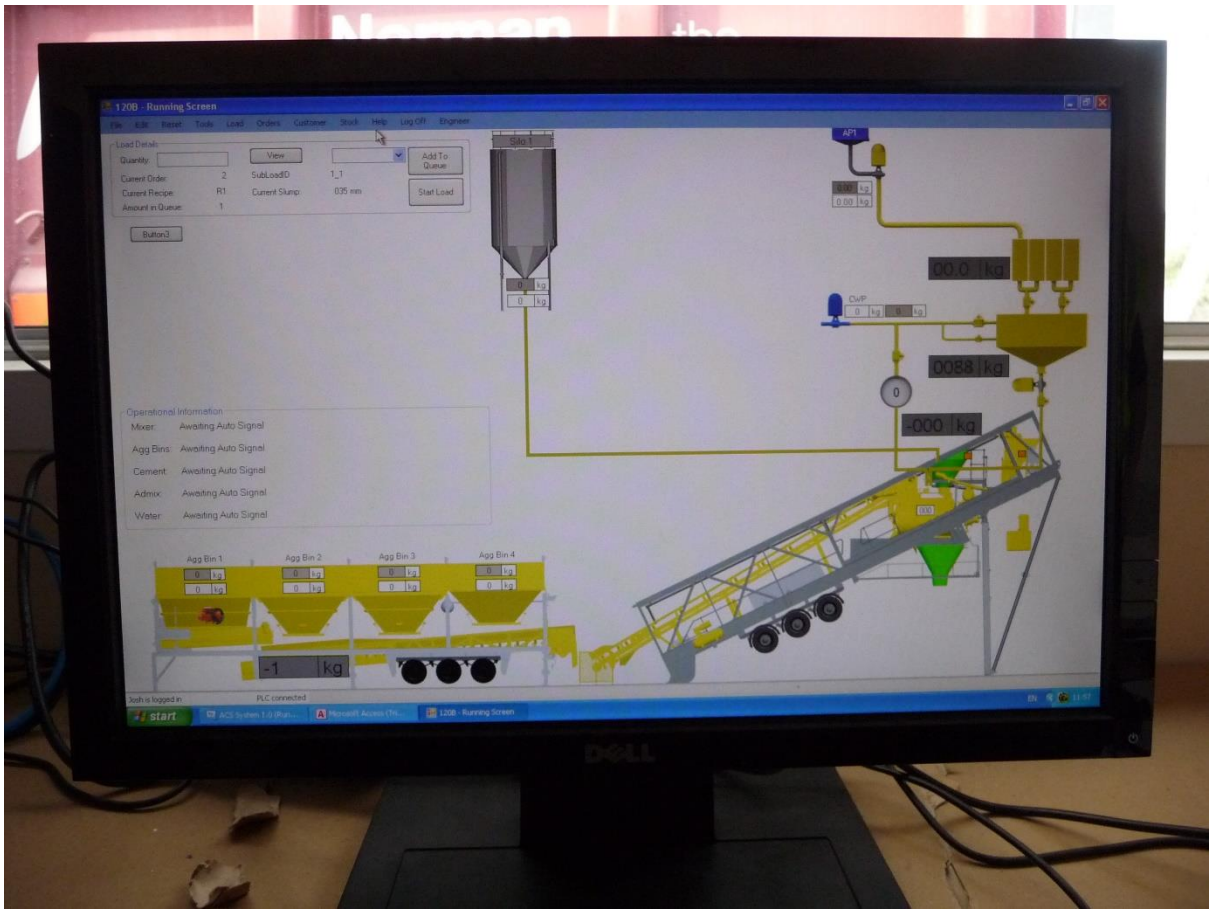
## DYNAMIX® BATCHING CONTROL SYSTEMS

The Dynamix System will be mounted in the control room and will comprise the following:

1 No. Industrial PC's loaded with the latest PIL batching software
1 No. Flat Screen Colour Monitor
1 No. Standard 102 Key QWERTY Keyboard
1 No. OKI ML280 Printer
1 No. Uninterruptible Power Supply (UPS)
Modem Link, allowing remote access, enabling:

a) Technical Engineers to interrogate the system and assist in fault finding or downloading new software updates.
b) Management can receive production reports
c) Stock can be assessed and ordered as required

All production and stock information are stored on hard disc for two years and can be accessed at any time.



SYSTEM PARAMETERS

**Running Screen:**
The running screen allows the operator to oversee the entire batch process.

- With our continuous batch facility activated, multiple loads can be tracked simultaneously through the system.
- Comparisons can be made between ideal and actual batch weighments.
- Gives an overview of each weigher's status.
- Gives an overview of mixer/holding hopper status and moisture contents.
- Gives drop report summary as they are completed.
- Ability to pause the batching process at any time.

**Load Queue:**
The operator has full control over the load queue:

- Loads can also be entered directly on the load queue.
- Jobs on the load queue can be swapped, edited or removed.
- Loads can be tracked as they progress through the plant.
- Concrete returned in the lorry can be compensated for in the next load.

**Recipe Screen:**
Recipes can be added easily by the operator.

- Unlimited recipes
- Automated control of up to 5 aggregates, 3 cements, 4 admixtures, clean and recycled water (extra will require the full Dynamix system).
- Recipe configurable weigh hopper capacities.
- Recipe configurable mixing times.
- Recipe configurable slump table selection.

**Accuracy:**
The accuracy of the system is constantly monitored and recorded. Built in intelligence means that the system teaches itself to be more accurate. System accuracy is achieved through the following features:

- Two/three stage control when weighing to improve accuracy
- Automatic inflight compensation
- Automatic dynamic jog
- Automatic tolerance checking when weighing up
- Stock accuracy. The recipe targets are compared to the actual weights to give a percentage error
- Water slump control

**Reporting/Stock Taking:**
The Dynamix Control System has reporting mechanisms for wide ranging reports relevant to the plant.

- Production screen giving a full detailed report of each drop.
- Material usage, indicating the ideal usage, actual usage and the percentage error of the weighing accuracy.
- Full stock inventory.
- Printer log.
- Record of stock accuracy.
- All reports can be saved as a TEXT or XML document.
- Two users allowing different levels of access within system.
- Only users with an authorised password can log in to the system.
- A comprehensive list of screens/settings which can be assigned to a user to grant full access, read only access or no access.

**Remote Access:**
The Dynamix Control System comes fully loaded with remote access for both management and PIL technical staff

- PIL Technicians can interrogate the system and assist in fault finding/viewing/analysis from their headquarters
- PIL Technicians can download new software updates
- Management/accounts staff can view/receive production reports from their own offices as required
- System can be started from a remote interface


**UPS Automatic Shutdown:**
Facility to automatically shut down the UPS in the event of a mains failure.

- Normally on mains failure the UPS cuts in and if the mains are not restored the UPS battery will expire.
- This new facility will shut down the UPS after a pre-set time. This will allow the PC to be shut down and then the UPS will shut down automatically and not drain the battery.
- When mains are restored the system will operate as normal with the UPS on charge / stand by.

**Water:**
a) Water Weigh Hopper Loadcells
Supply 3 No. Shear Beam loadcells c/w anti-vibration mounts for the water weigh hopper, installation by Rapid International.
Loadcell Junction Box and Earth Strap
b) Water Pipework, Meter & Valves Installation – See Option 2

**Plant Lighting:**
Supply and install plant lighting to the following areas:

*Mixer Area*
- 1 No. 150W Metal Halide Flood: Mixer Area
- 3 No. Emergency 58W Water Proof Fluorescent (Midway Left & Right)
- 3 No. Emergency 58W Water Proof Fluorescent (Back Left & Right)
- 3 No. Emergency 58W Water Proof Fluorescent (Front Left & Right)

*Aggregate Area*
- 2 No. Standard 58W Water Proof Fluorescent
- 4 No. Emergency 58W Water Proof Fluorescent
- Plant Lighting Waterproof Switches will be mounted at agreed locations.

*Exact locations of lights and sockets to be confirmed*

**Testing:** Plant is tested prior to dispatch.

***Installation***

a) Wire all starters to their respective motors using SWA cable to BS6436. UK Solenoid local isolators (IP65) will be fitted in close proximity to its respective motor. All isolators conform to the latest standards (VDE 0113, EN 60204 and IEC 204).

b) Mount pneumatic valve boxes and connect each valve to its respective cylinder, actuator and aeration nozzle using heat and UV light resistant nylon tubing manufactured to BS5409 and having temperature range of -35ºC to +70ºC.

c) All SY & SWA cables will be terminated to their respective panel/motor etc., using the appropriate cable glands to BS6112:Pt1. Brass earth tags will be fitted and wired.

d) The installation will be carried out to the CDM regulations which governs the health and safety of all our operatives on site.

e) The electrical installation and testing will be carried out to the IEE Wiring regulations (BS7671:2011)

f) All panel mounted electrical components are rated IP2X - Finger Protection.

g) All systems are designed and manufactured to meet the requirements of the EMC directive

h) All external safety and proximity switches have a high degree of protection against the ingress of dust and moisture

**SITE ATTENDANCES:**

**a) Electrical Power.** We stated in our notes on quotation that a stable power supply required. Your power supply sizing should include the plant and any ancillaries you are supplying yourselves e.g. water heating systems (air blowers), recycled water systems (stirrers etc). You must run your cables from this supply into our starter panel mounted in the middle of the mixer module. There is a connection point at our starter panel for the control cabin consumer unit (its lighting and heater), a cable will be supplied for this purpose, but your electrician must make the connection on site. If you are going to use a generator for the plant power supply please contact us for advice on sizing. You will also need a small generator to give 240V supply for the control cabin lighting and heating, rather than keeping a large generator running when the plant is not in use.

b) **Water Supply.** Customer to supply a water tank or supply for clean fresh water, with an appropriately sized pump (3"). Your pipework should be connected to the steel pipe inlet at the bottom end of the mixer module. The starter panel has a connection point for you to connect wiring to activate your starter for a water pump when the plant needs water. A 2nd flexible pipe inlet point is provided at the bottom of the mixer module for a 2nd type of water e.g. recycled water or hot water, as just mentioned the tank etc, pump, pipework is by others.

c) **Additives.** Additive Pumps are mounted at the bottom of the mixer module. Customer to pipe their supplied tanks (e.g. IBC tank) to these pumps.

d) **Wood blocking**. It is advisable for wood blocking to be provided for resting the bin legs upon if the plant is positioned in the 90 degree configuration. The bins must be packed up slightly to suit the feed boot of the inclined conveyor. In general the plant must be set on level stone/ hard core area to ensure all weighers hang vertically etc.

e) **Stone for ramp.** Stone should be used to build the access ramp so that a loading shovel can fill the aggregates and sand into the top of the bins. The ramp sides are provided to enable the stone to be formed into position for this.

f) **Silos:** If silos are being supplied by others the following will be applicable also:

i) **Screw Conveyor Control**: We have only included for starter in the panel and power supply cable (with a section of control cable to monitor isolator) to the motor isolator for each of the 2No screw conveyors. These cables will be made to a specific length based on the maximum radius the screw inlet could be from the side of the machine. An isolator will be provided to be mounted on the screw conveyor itself near the inlet, wired into the motor itself. For safety these cables must be positioned in a safe route with protection from damage eg within some form of heavy duty ducting or conduit or trays.

ii) **Silo Safety:** Also as the silos are by others the following items/ work need to be supplied and fitted by others. Silo safety system components including a high level probe, pressure switch, fill pipe butterfly valve etc and control panel for

same to be supplied and fitted by others. (Power for this panel can be taken from a point on our starter panel (240V, 4A max)).

iii) **Silo Aeration** / **Discharge assist devices**: If your silo has blower system for aeration, or an electrical vibrator for example it would need to have its own starter system, as these are not allowed for in our controls. If the aeration is to use compressed air from the plant the silo needs to have its own aeration control valve. There is a connection point from where you can connect wiring to get the signal to open this aeration valve when the screw conveyor operates. It is likely your silo would need a pneumatic supply from plant for filter operation, fill pipe valve and aeration. If you can you confirm size requirement and we will see if it can be accommodated at the compressor system, where your silo supplier/ engineer can connect a pneumatic supply pipe for this purpose.

If you are using low level silos you will need the power supply sized to also allow for the discharge screw and any on board compressor or blower fitted to the silo.

## OPTION 1 ADDITIVE PUMPS

Additional admixtures can be added to the system if needed. (Up to a minimum of 6)

## OPTION 2 71m3 STORAGE SILO

Sizes range from 30 tonnes to 1000 tonnes.

| | |
|---|---|
| **CAPACITY:** | 71 m3 (=100 T @ 1.4 T/m3) |
| **DESIGN:** | Cylindrical welded construction supported by mild steel legs stiffened with mild steel wind bracing. |
| **CONSTRUCTION:** | Cone and Barrel rolled mild steel plate. The roof of the silo is surrounded at its perimeter by double tubular handrailing with kicking strip. |
| **OUTLET:** | Manually operated butterfly valve flanged to suit the screw conveyor. |
| **MANUAL ACCESS:** | A manhole is provided on top of the silo for maintenance access. |
| **PRESSURE RELIEF VALVE:** | Situated for ease of maintenance on the manhole lid. Designed to protect the silo from becoming over or under pressurized, WAM VCP375 type for 13000m3/hr (over-pressure mode) flowrate. |
| **PRESSURE SWITCH:** | A pressure switch will be fitted to the lid of the silo to signal when a preset pressure (approx 1 psi) is exceeded. This can be used to close the fill pipe valve. |
| **FILTER UNIT:** | 24 m2 WAM Reverse Jet type Filter. |
| **FILLER PIPE:** | 100 mm dia terminating in a unicone fitting at 1450 mm above ground level. A pneumatically operated butterfly valve is fitted in the pipe, close to the uni-cone fitting, which will close when the high level is reached, preventing the driver from over filling the silo. |

| | |
|---|---|
| **DISCHARGE AID:** | 8 No. Aeration pads located around the cone of the silo. |
| **LEVELS:** | Rotating paddle type high level probe. |
| **ACCESS TO SILO ROOF:** | By ladder with safety cage from ground level |
| **SCREW CONVEYOR:** | 273 dia screw conveyor with geared motor drive. Approx 12m cc, universal inlet, fixed outlet. 66m3/hr |
| **SILO SAFETY SYSTEM:** | Control panel to monitor the filling of the silo and shut off the fill pipe if it detects over-filling or over-pressure, or problem with some components. A warning light and siren is fitted. |

## OPTION 3 PRECAST BASES

Rapid can provide precast bases to mount silos on for mobile and remote application

## OPTION 4 WINTER PACKAGE

Fully winterized enclosure for plant, including heating systems for aggregates, water and mixer.

Winter package

## OPTION 4a PLANT ENCLOSURE & INSULATED SHEETING

The Area between the two main modules of the plant and the area around the Readymix chute will be enclosed with insulated sheeting (40mm insulation). This will be designed in panel sections with galvanized steel framework with the insulated sheeting panels fitted to them. A Hormann door will be provided for access into this area.

- The back end of the bins with access opening, each side along the inner walkways and the open side opposite the ramp will be fitted with removable insulated panels to totally enclose the plant.

- Roof unit over 4No bins, constructed with steel framework & 45mm insulated sheeting, opening lid with electric hoists to lift the roof panel for filling.

- Pipe work for turbo steam fitted to each aggregate bin including all valves etc.

- On site Assembly is included & would be completed along with initial plant set up.

## OPTION 4b POLARMATIC HEATING SYSTEM

**Type- Turbomatic PME-STD 1000 D**

- Capacity 1000 kW
  - Aggregates 100...700 Kw
  - Water 900...300 kW
- Fuel oil (diesel)
- Main electrical supply: 3~PE 400 V, 60 Hz, 100 A
- Max rated oil flow (Light fuel oil, biodiesel): 100 l/h
- Max rated natural gas flow (Natural gas): 100 m³n/h
- Pressurized air 7-8 bar(g), peak consumption: 200 l/min

Options:

- Full integrated oil tank located inside TURBO container (oil tank volume 4 000 l/20' container or 10 000 l/40' container); separated with fire wall and equipped with all necessary safety etc. accessories
- Combi-burner for dual fuel operation: light fuel oil or gas
- Gas-burner for propane or other gaseous fuels

**TURBOMATIC Container:**

- Thermally insulated, for outdoor usage
- Side door for easy access
- Standard 20'(l 6050 x w 2438 x h 2592) or 40' (l 12192 x w 2438 x h 2592) container; also, special containers as per customer requirements
- Painted as per customer requirements (acc. to RAL-specification)
- Weight approx. 9000 kg gross

**TURBO gas, - steam and hot water systems / TURBO generator:**

- Hot water tank
- Volume 8 000 litre

**Dosing water pump:**

- Volume flow 400 l/min
- Head (preliminary) 25 m
- Motor size (preliminary) 3,0 kW

**Recirculation pump:**

- Volume flow 50 l/min
- Motor size (preliminary) 0,55 kW.

**Fuel oil system:**

Oil burner:

- Fuel light fuel oil (diesel)
- Volume flow (max) 100 l/h
- Equipment flame detector

Oil pump:

- Volume flow 100 l/h
- Head max 20 bar
- Motor size (preliminary) 0,55 kW

**Combustion air system:**

Compressor:

- Type - ROOTS
- Volume flow (max) 1450 m3n/h
- Pressure (max) 0,5 bar
- Motor size 22 kW

PC-user interface:

- PC with 17” monitor, mouse and connecting cables
- Programmable logic controller (PLC)
- PLC installed in electrical cabinet OK1

Software:

- TURBOMATIC-software factory installed and tested

**TURBOMATIC – Additional Equipment Aggregate heating:**

Each bin is equipped with an individual bin valve in order to be able to control the heating of each bin individually. The bin valves are controlled automatically from the PC user interface of the TURBOMATIC control system.

Bin valves:

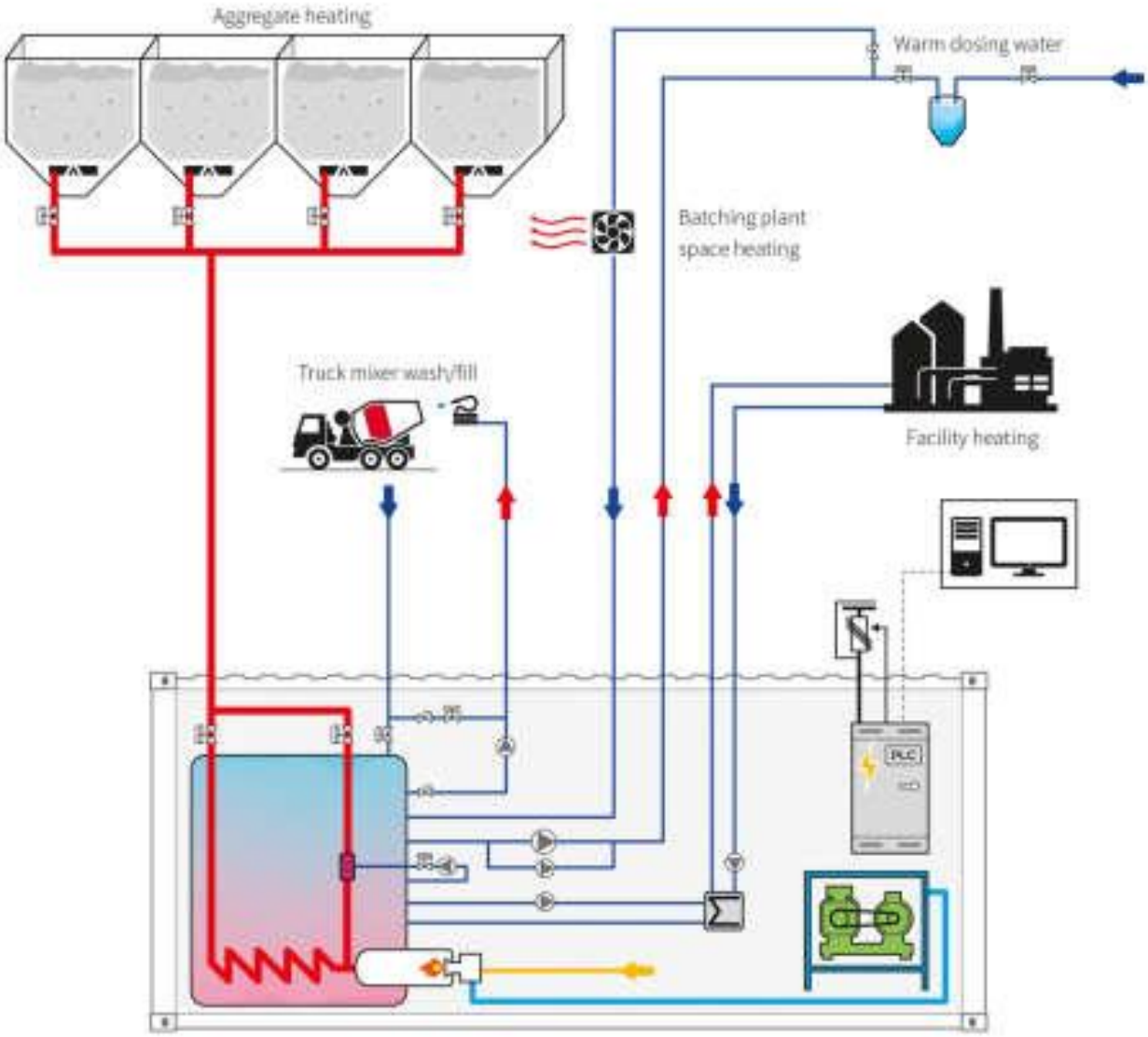
- No of bins 4 pcs
- No of valves 4 pcs

**Batching plant facility heating:**

Warm air blowers

- Number 3 pcs
- Capacity 20 kW / pcs
- Equipment thermostat (1 pc / air blower)

- **OPTION 4b POLARMATIC HEATING SYSTEM**




**OPTION 4c LIFTING ROOF COVERS**

Supply roof cover with one side hinged to open up for loading. The roof covers are made of sheet steel material with box section framework. The hinged lids are lifted by hydraulic cylinders powered from a separate hydraulic powerpack

## OPTION 5 MOISTURE PROBE

Supply and install Hydronix Moisture Probe to an aggregate storage bin. The Hydro Probe II sensor is designed to give the greatest possible flexibility for measuring moisture content within aggregate storage bins and is the first microwave sensor to use digital measuring techniques, providing greater accuracy and range of measurement than any other sensor on the market. The Hydro Probe II detects rapid changes in moisture content by sampling the material 25 times per second and then providing the Control system with a direct analogue signal allowing the water/weight compensation figure to be calculated. Engineers will mount the probe and install all cabling.

## OPTION 6 FACILITY TO CONNECT CLEAN WATER TANK

Pneutrol assume the clean water tank will be within 10m of the bottom of the mixer module/incline conveyor. Pneutrol will supply and install a 3" Pedrollo water pump, capable of handling clean water only. Flexible pipe will be used to connect the clean water pump to the mixer module. A float switch will be fitted to the clean water tank.

## OPTION 7 FACILITY TO CONNECT DIRTY WATER TANK

Pneutrol assume the recycled water tank will be within 10m of the bottom of the mixer module/incline conveyor. Pneutrol will supply and install a 2" Ebara water pump, capable of handling dirty water with up to 19mm soft solids. Flexible pipe will be used to connect the recycled water pump to the mixer module. If this option is taken, 2" flexible pipe will be installed from the bottom of the mixer module up to the water weigh hopper. A float switch will be fitted to the recycled water tank.

**Notes on our Quotation**

1. None of the above prices include VAT or local taxes. VAT or the relevant tax will be added to these prices at time of ordering, where applicable.

2. All contracts are undertaken subject to our conditions of sale, available upon request.

3. Prices are valid for 60 days from date of quotation. After this date check with our sales department.

4. Customer to provide a clean supply of water at an adequate pressure and flowrate. Water systems are designed for clean water only unless stated otherwise in the quotation.

5. Cleaning: the mixer and all equipment handling concrete must be cleaned regularly (daily or more frequently depending on application) when in use. Any damage to equipment as a result of not being cleaned will invalidate warranty and all repair expenses will be charged to the client.

6. Any defect in equipment supplied must be reported to us in writing immediately. If the defect is not notified to us and is allowed to continue and cause damage to itself and/or surrounding plant, any repair expenses will be charged to the client.

## CONDITIONS OF SALE

**1. General**

1.1 In these conditions (unless the context otherwise requires) the expression "Company" means Rapid International Ltd and the expression "Customer" means the person, firm or company to whom the tender /quotation is addressed or whose order is addressed or whose order is accepted by the Company.

1.2 These conditions shall be deemed to be incorporated into all contracts made by the Company and all work undertaken by the Company shall be deemed to be carried out pursuant to a contract incorporating these conditions notwithstanding anything to the contrary in the Customer's order.

1.3 No representative or agent of the Company has any authority to vary or add to these conditions. Any variation or alteration shall only be valid if authorised in writing; signed by a Director of the Company.

1.4 The Customer shall be liable to the Company as a principal for all costs, charges and expenses that shall be due to the Company in respect of work carried out by the Company subject to these conditions whether or not such Customer purports to contract as an agent. A Customer may not assign the benefit or burden of any contract with the Company.

1.5 Any tender or quotation by the Company shall be deemed to be withdrawn unless accepted within 30 days of the date thereof. No order shall bind the Company unless and until the Customer has received written confirmation from the Company.

1.6 Any information from the Customer necessary to enable the Company to proceed with any order must be furnished within a reasonable time otherwise the Company may at its option cancel the order or charge the Customer an additional fee for the delay.

1.7 The singular in all cases shall include the plural and vice versa.

**2. PRICES**

2.1 All published prices are subject to VAT where applicable and are subject to revision without notice.

2.2 Orders are only accepted on condition that they are executed at the prices ruling at the date of despatch.

**3. CONDITIONS & WARRANTIES**

3.1 Whilst the Company shall make every endeavour to use the best materials available no liability is accepted by the Company for any loss, damage or injury to property or persons, lost income or consequential financial loss, directly or indirectly from any failure or defect in the machinery or equipment shipped.

3.2 The Company, at its discretion, undertakes to replace or repair free of cost any part or parts supplied by it direct to the Customer of which it shall receive written notice and which shall be proved to the satisfaction of the Company to be defective in workmanship or materials either within a period of twelve months (or 2000 verified operating hours) of delivery or if the Company is responsible for erection within a period of twelve months (or 2000 verified operating hours) from the date when the machinery is ready for starting and provided:

(a) The written notice of complaints is given to the Company within one day of the discovery of the defect.
(b) That the part is returned carriage paid to the Company.
(c) That the part, if replaced, shall become the property of the Company.
(d) That the Company shall not be liable for the cost, of removal of the defective part or the cost of fitting a new part.
(e) That the defect has not been caused by carelessness, improper or inadequate lubrication, inadequate maintenance or cleaning, or excessive use.
(f) No un-authorized alteration or modification has been made to the plant or machine or component subject to the claim.

3.3 The new part will be delivered by the Company to the Customer's premises in the UK or port of exportation.

3.4 In the case of parts or components not manufactured by the Company, the Customer shall be entitled to the benefits in so far as they may be transmitted to the Customer of any guarantees given by the manufacturer in respect thereof and the Company's liability in respect of such parts or components is limited to make the benefit of the manufacturer's guarantee available as aforesaid.

3.5 In so far as permitted by statue or otherwise the guarantee contained in paragraph 3.2 above is in lieu of and excludes any other conditions or warranties expressed or implied statutory or otherwise and in no event shall the Company be liable (except to the extent, if any) of its undertaking or by statute as aforesaid for any loss, injury or damage howsoever caused or arising.

**4. DRAWINGS, CAPACITIES, ETC.**

4.1 Dimensions, details and statements as to the suitability of machinery for any particular purpose or as to the capacity, type or power specified or contained in any drawings, quotations, catalogues, shipping or other specifications etc., and any illustrations or photographs referred to, though carefully given are not intended as, and must not be treated as, the contractual description.

4.2 The Company undertakes no responsibility for sites or foundations or any for any framework or support for machinery or compliance with any local By – Law or statutory regulations or for the fulfilment of any special requirements which the Customer may be bound to observe or fulfil. The Customer shall be responsible for the proper adaption of any designs to his own circumstances

**5. DELIVERY**

5.1 The Company shall not be liable for delays caused by any of the following:

(a) Industrial disputes.
(b) Strikes.
(c) Lock-outs.
(d) Fire.
(e) Accident.
(f) Non-delivery or late delivery of materials or parts by other manufacturers.
(g) Faulty castings or forgings.
(h) Works breakdown.
(i) Any other cause beyond the Company's control

5.2 Times and dates for delivery or performance are estimates only and not contractual obligations of the Company

5.3 The Company will make every endeavor to deliver by the time or date given, but accepts no liability for any loss caused by delay howsoever caused.

5.4 If the Customer shall be unable or unwilling to take delivery when the goods or part thereof are ready for despatch, then the Customer shall pay to the Company a reasonable charge for storage until such time as he is able and willing to take delivery of such goods or part thereof. Any payments due but delayed because the Customer is unable or unwilling to take delivery shall, if not already due, fall immediately due.

**6 TRANSIT**

6.1 Notwithstanding anything in the tenders, quotations, order or contract, as to the place of delivery, or payment of carriage the Customer agrees that any goods in transit shall be at his risk, and accordingly all consignments shall be deemed to be in the Customer's possession (whether the property therein shall have passed or not) after a despatch from the Company's premises.

6.2 All shipping delays, demurrage charges and shipping charges of any description, after the Company has fulfilled its obligation (if appropriate) to deliver to United Kingdom docks, shall be at the Customer's expense.

6.3 All unloading shall be at the risk of and expense of the Customer, except when the Company is contracted to erect the machinery.

6.4 The Customer shall keep goods fully insured and shall, if appropriate indemnify the Company against any loss or damage.

**7 PACKING**

All machinery shall be freighted open with small component parts crated unless specifically requested on the order "to be crated." Packing cases on all exports will be charged to the Customer at cost.

**8 COMMISSIONING**

8.1 Where the Company's sale includes commissioning the Company accepts no contractual obligation in respect provision of work or materials for the preparation of a proper site with suitable and sufficient access thereto. Unless otherwise expressly agreed in writing the Customer shall be responsible for and bound to provide at his own expense:

(a) A properly prepared, safe, site, with suitable foundations and adequate access and hard-standing for vehicles and plant.

(b) All necessary lifting tackle, raw materials for the process involved, fuel, water, oil and other stores and,

(c) Also sufficient labour and assistance to enable the Company to proceed properly with and complete the erection of and the starting and setting to work of the machinery.

8.2 If the Customer shall require training for his personnel he shall provide operators of acceptable caliber and physical capability to the Company, who shall provide suitable training at the Customer's expense. If necessary an interpreter shall be made available at the Customer's expense. The Customer shall indemnify the Company against any claims, damages, costs and expenses in respect of any accident, injury or loss sustained by personnel recruited by the Customer and arising out of and in the course of training of such personnel by the Company. The Customer shall on recruitment of such personnel effect the necessary employer's liability insurance in respect of them.

8.3 ….

8.4 Prices quoted for erection are based on the Company's normal order and acceptance terms. Overseas travel of the Company's employees; board and keep shall be the responsibility of the Customer unless specific alternative arrangements are agreed in writing between the Customer and the Company.

**9 PATENT RIGHTS**

The Customer shall indemnify and keep indemnified the Company against all claims, damages, costs and expenses to which it may become liable through executing an order in accordance with the Customer's specification which constitutes an infringement of any patent or registered design.

**10 PAYMENT**

10.1 Payment shall be made net to the Company's head office or its appointed bank upon notice of the goods being ready for collection or despatch. Cheques, money orders, BACS or other negotiable documents must be made payable to the Company and only the Company's official receipt shall be valid. For export orders payments shall be in Sterling or in a currency specified by the Company against shipping documents at a bank in the United Kingdom, unless expressly stated otherwise by the Company.

10.2 The contract price will be payable by the Customer in strict accordance with the contract terms, notwithstanding any delay in delivery or performance on the contract or any adjustment or correction for minor defects which may be required to the plant machinery or work. The Company may suspend performance on any contractual obligation to the Customer so long as any account of the Customer is overdue.

10.3 Daily Interest at 5% APR will be charged, at the Company's discretion, on all overdue accounts, until the payment is confirmed in our bank account.

10.4 In no case, will the property in any goods pass to the Customer (notwithstanding that possession or risk shall have passed to the Customer) until payment has been made to the Company for the full contract price of the goods, including the price for erection or other work or services (if any) to be done by the Company.

10.5 In case of default by the Customer after the delivery of any goods and before the goods have become the Customer's property the Company may give notice to the Customer terminating the Customer's rights to possession where upon the Customer shall be bound, at his expense, to return the goods to the Company. In all such cases the Company may (whether with or without previous notice) itself retake possession of the goods and the Company is in such circumstances irrevocably authorised by the Customer to enter the premises on which the goods are situated and to dismantle and remove the goods from the same at the Customer's expense.

**11 SAFETY**

To the best of the Company's knowledge the machinery and plant manufactured by the Company complies with the requirements imposed on a Manufacturer under the regulations enforced in the United Kingdom or any part thereof. Should special or additional guards be required to meet the particular local requirements of the Customer they will be charged as additional items.

**12 JURISDICTION**

This contract is governed in all respects by the law of Northern Ireland within the United Kingdom and the Customer Submits to the Jurisdiction of the Courts of Northern Ireland.