



Machinery Manufacturers  
to the Concrete Industry

## RAPIDMIX 400 C

The Rapidmix 400 C has been designed to be totally mobile and completely self-contained with its own power source. It is also completely self erecting, using the hydraulic system to change the plant from its travel mode into a fully operational plant in a few hours. The Rapidmix (C) Plants are **volumetric** continuous mixing systems. When the ingredients of concrete are flowing continuously and measured by volume, by using a calibrated rotary opening, a calibrated fixed-gate opening, or a combination of these, so that a known, predetermined volume of each ingredient is obtained in a designated time interval, the method of measurement is volumetric. Continuous volumetric measurement with multiple ingredients requires that the proper relationship among those ingredients be maintained. It is this calibration of speed and volume which provides a smooth, continuous release of materials. The Rapidmix 400 C is capable of mixing up to 400 tons per hour depending on application. Feed rates are fully adjustable for the aggregate, cement and water systems. The plant is designed for any mixing application where a cement or binder needs to be mixed into a base material. Products such as Roller Compacted Concrete, Cement Treated Base, Bentonite, Contaminated Soil Stabilisation can all be mixed in this machine.

### TRANSPORT DIMENSIONS

Length of Machine	63'-11" (19.5m)
Width of Machine	9'-10" (3.00 m)
Height of Machine	13'-5" (4.1 m)
Weight of Machine total	81,791 lbs (37,100 KGs)
Weight on Rear Tri-axles	56,747 lbs (25,740 KGs)
Weight on Front Pin	25,044 lbs (11,360 KGs)

### ERECTED DIMENSIONS

Length when erected	70'-7"
Width	Same
Height	41-45'

### CHASSIS

- **Construction:** Hollow section members fully welded into lattice design with brackets fitted for attaching hydraulic lifting rams, bin, silo, conveyors, mixer, and all ancillary items which make up the plant.
- **Running Gear:** Axle type: Standard tri-axle. Suspension: Single leaf steel spring. Brakes: Standard air operated hub brakes with automatic slack adjusters. Wheels: twin wheels on each hub, (4 per axle total 12 tires) Lights: Rear marker lights, including indicators, brake lights and side markers in accordance with regulations.
- **Access:** Walkways are provided along the chassis of the machine for maintenance access. The walkways are constructed from aluminum treadplate with handrails at appropriate locations.



### AGGREGATE HOPPER WITH VARIABLE SPEED BELT FEEDER

- **Capacity:** 15.6 cu yds (12.0 m<sup>3</sup>)
- **Loading Width:** 14 ft 2½ ins (4330 mm). The hopper can be loaded from either side of the machine.
- **Construction:** S275 plate with stiffening ribs. Steep sides for difficult materials. (end slopes of 60 degrees).
- **Removable Division Plate:** The hopper has a removable divider, allowing two materials to be used.
- **Lining:** To aid the discharge of the materials the hopper surfaces are fitted with low friction high molecular polyethylene lining material 1/2" (12mm thickness).
- **Adjustable Gates:** The outlet end of the hopper is fitted with adjustable gates to enable the material height and ratio on the conveyor belt to be varied. These are adjusted manually.
- **Belt Feeder:** The conveyor is fitted with a heavy duty 3 ply 1200mm (4') belt at the bottom of the hopper to provide feed from the hopper to the mixer. The conveyor is run by a geared motor drive with automatic variable speed control. It is additionally equipped with adjustable rubber skirts and heavy duty support rollers.

### TWIN SHAFT CONTINUOUS MIXER

- **Mixing Action:** The twin shafts mix the material at up to 110 r.p.m., whilst moving the material toward the end of the mixer.
- **Paddles:** The twin horizontal mixing shafts are fitted with 72 Ni-Hard cast paddles, which are intermeshed in a specially phased relationship to optimize mixing action and throughput. Each paddle measures: 7.625" X 5.625" / 42.891 total square inches.
- **Cleaning and Maintenance Access:** Special attention has been paid to give the user maximum access for maintenance and cleaning operations. The top of the mixer is fitted with hinged access covers, which when opened, give access to all of the mixing chamber. Additionally, both sides of the mixing chamber open via hydraulic cylinders.
- **Drive:** The shafts are driven by a 75 kW (100 HP) electric motor through a reduction gearbox with twin gears to synchronize the shafts.
- **Mixing Chamber:** The mixing chamber is formed by fabricated sloped sides with a troughed conveyor under the mixer forming the bottom of the mixer.
- **Water Addition:** Siemens flow meter controls 2 ball valve spray bars fitted into the top of the mixer to allow the water to be added to the material as it progresses along the mixer.
- **Clean-out Conveyor:** Mounted on the bottom of the mixer, forming the bottom of the mixing chamber, this conveyor allows the bottom of the mixer to be easily cleaned



out, when production is finished. The mixer should be lined with a bed of material every morning before production starts. The conveyor is fitted with a low speed geared motor drive.

### CEMENT/ BINDER SILO

- **Capacity:** 48 US tons based on material being 1500 kg/m<sup>3</sup> (93.64 lbs/ft<sup>3</sup>). Capable of up to 70 t.p.h. throughput.
- **Construction:** Square silo design constructed from all welded box section S275 plate with stiffening ribs.
- **Access to Roof:** The folding access ladder with safety cage is fitted with double tubular handrail and kicking strip. An access hatch is provided on top of the silo.
- **Outlet:** Flanged to suit the rotary valve paddle feeder. A shut-off plate is provided to close the silo outlet to allow maintenance to the feeder below.
- **Silo Venting:** 20m<sup>2</sup> Reverse Jet Filter with fan assistance. A pressure relief valve is fitted to protect the silo from over-pressurization.
- **Filling Pipes:** (2) 4" (100mm) steel pipes with screwed end for fitting cam locks or other type of delivery hose fitting.
- **Level Indication:** Wam Torex rotating paddle style level indicators for high and low level control.

### CEMENT PADDLE FEEDER

- **Type:** Rotolok 750mm (30") square rotary valve paddle feeder to feed the cement or binder material out of the silo.
- **Drive:** 2.2 kW (3 HP) geared electric motor with automatic variable speed control.

### OUT-LOADING CONVEYOR

- **Function:** Transporting the mixed material from the twin-shaft mixer to the truck. The conveyor is designed to handle the maximum feed rate from the mixer. A gob hopper fitted to the top end of the conveyor allows some mixed material to be "held" for a while, for example whilst the next truck drives under for collection.
- **Construction:** Boxed steel construction with mounting brackets for rollers and pivot mechanism. The top section of the conveyor incorporates a folding section for transportation.
- **Belt:** 800mm (31.5") 3 ply belt with heavy duty top cover and vulcanized joint.
- **Drive:** Motorized drum with rubber lagging.
- **Belt Scraper:** Polyurethane blade pre-cleaner scraper mounted on the face of the head drum.



- **Belt Scale:** A belt scale is fitted to this conveyor to monitor and control the feed rate and hence output of the plant.
- **Gob Hopper:** Hopper fitted to the top end of the conveyor with pneumatic discharge doors to prevent segregation. Constructed from S275 plate. 1 cu. yd. capacity.

## WATER SYSTEM

- **Water Tank:** A 1750 liter (462 US gals) is fitted complete with automatic shut off valve and galvanized steel piping.
- **Pumps:** Two positive displacement pumps are fitted to supply 2 water spray bars within the mixer.
- **Spray Bars:** Each mixer spray bar has a ball valve to allow addition of water early in the mix, later in the mix, or both together. A calibration point for accurate water weighing is also included.
- **Flowmeter:** Siemens flow meter accurately measures water dispensed between pumps and mixing chamber.

## PNEUMATIC SYSTEM

- **Compressor:** The Rapidmix is equipped with a Hydrovane compressor to provide the air supply for the gob hopper doors and the silo filter.
- **Valves, Regulator:** Solenoid spool valves are fitted for the control of the gob hopper doors. A lubricator is provided for the gob hopper cylinders. Additionally, equipped with a regulator and pressure gauge to adjust the pressure as required.

## HYDRAULIC SYSTEM

The hydraulic system is used to lift and level the machine, erect the silo and out-loading conveyor. It is also used in opening mixer doors for maintenance and cleaning.

- **Hydraulic Power-pack:** This consists of: Electric motor close coupled to a hydraulic pump unit, oil reservoir, return line filter, directional valve, filler/ breather, and level gauge.
- **Control Valves:** Lever operated valves for operating the cylinders.
- **Hydraulic Cylinders:** Double acting cylinders used on: jacking / leveling on 8 of 12 feet, silo elevation, out-loading conveyor fold-out, and mixer sides.



## GEN-SET

This unit provides electrical power for all machine functions. Diesel powered generating set rated at 200 KVA, 3 phase, 480/277 volts, 60 Hz, 1800 RPM at NTP conditions. Powered by a Volvo Tier 4 Final, 6 cylinder turbo charged diesel engine with directly coupled brushless generator.

Each GenSet features:

- Heavy duty fabricated steel skid type base frame with anti-vibration mounting pads.
- Electric starting system with heavy duty lead acid batteries and alternator charging system.
- High capacity air, fuel and lubricating oil filters.
- Fuel feed and return lines from engine to 12 hour capacity baseframe fuel tank.
- Industrial exhaust silencer system.
- Automatic engine shutdown protection equipment with LCD display for low oil pressure, high engine temperature, low coolant level, overspeed, and fail to start.
- Complete circuit breaker enclosure containing ABB 3 pole molded case circuit breaker.
- Instruction manuals and electrical wiring diagrams.

## PLANT CONTROL SYSTEM

The system uses an Allen Bradley PLC to control all of the plant functions for automatic control with manual backup. A touchscreen operator panel is used for the display and adjustment of all plant parameters and functions.

- **Operator Control Panel:** The operator control panel consists of a series of touch screen buttons to allow automatic or manual control of the following:
  - Mixer
  - Air compressor
  - Out loading conveyor
  - Aggregate conveyor
  - Silo feeder
  - Water pumps
  - Mixer clean out conveyor
  - Silo filter fan unit
  - Internal lighting
  - External lighting
  - Gob hopper doors
  - Auxiliary feeder
  - High Silo alarm



- Low Silo alarm
  - Low water alarm
  - Alarm mute button
  - Emergency stop and reset button
  - Panel live indicator
  - Generator remote start switch
- The operator control panel also houses the following:
- PC touchscreen based interface which allows the operator to store, edit and retrieve up to 100 recipes for the proportioning of different materials.
  - Manual rate meters which display the speed of the in feeds during manual operation.
  - Mixer amp meter to display the current being consumed during manual or automatic operation of the plant.
  - A thermal printer for printing batch and daily total tickets.
- **Starter Panels:** There are 2 starter panels. Panel 1 for mixer and Panel 2 for all other starters.
- **Panel 1** is located behind the mixer and houses the contactors, overload relays, timers and current transformers required to start and run the mixer motor using a star / delta sequence.
  - **Panel 2** is located under the operator control panel and houses all contactors, overload relays, MCB's, Siemens or Emerson inverters, Siemens or Allen Bradley PLC and all other components required to control the plant.

## COMMISSIONING

- Setup, calibration and and full capacity run at customer site.

## MANUALS

- Full operating and maintenance reference manuals are supplied with the machine.

*\*Equipment specifications herein are based on plants 2015 and newer, information provided is subject to change and varies per plant. We are able to provide plant specific specs on each plant after the plant has been manufactured.*

