

rapid

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Continuous Mix, Continuous Weigh, Volumetric-What's the Difference?

To no avail, one of the most popular questions we get is, "What's the difference?". This day in age it's no wonder. Terms and words are often interchangeably mistaken. I am sure you are fully aware of the differences, but to help you understand how our Rapidmix equipment provides the output you seek for your next job or inquiry, let me expand...**Continuous mixing**—When the output of the mixer is equivalent to the input of materials and the mixer can be operated without interruption to charge or discharge material.

Volumetric **measurement (CV)**—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 resulting in your next homogeneous mix.

- Silo Venting: 20m2 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.
- Ramsey Belt Scale

Models: 400C (up to 400 tons per hour) and 600C (up to 600 t.p.h.)

Continuous **Weigh (CW)-** Materials are continuously weighed from the aggregate hopper via load cells which weighs the material from the hopper to the mixing chamber. On route, the material from the silo, is collected in weigh hoppers where the silo material is then delivered to the mixing chamber for an accurately weighed and mixed final product.*Continuous Weigh (CW) Rapidmix Plant Attributes:*

- Wam Pulse Jet Cartridge Type dust collector
- Silo capability up to 70 t.p.h.
- Thames load cells

Available Models: 400CW or 600CW

Finally, to complete this continuous mixing process no matter which one you vie for: The Mixing Chamber- Here, the material is greeted with twin-shafts loaded to the hilt with 72 Ni-Hard cast mixing paddles moving at up to 110 r.p.m. (a rate near twice as fast as our competitors) and 2 Siemens flow metered water spray bars. This completes the continuous process, leaving you with the most homogeneous mix in the industry.

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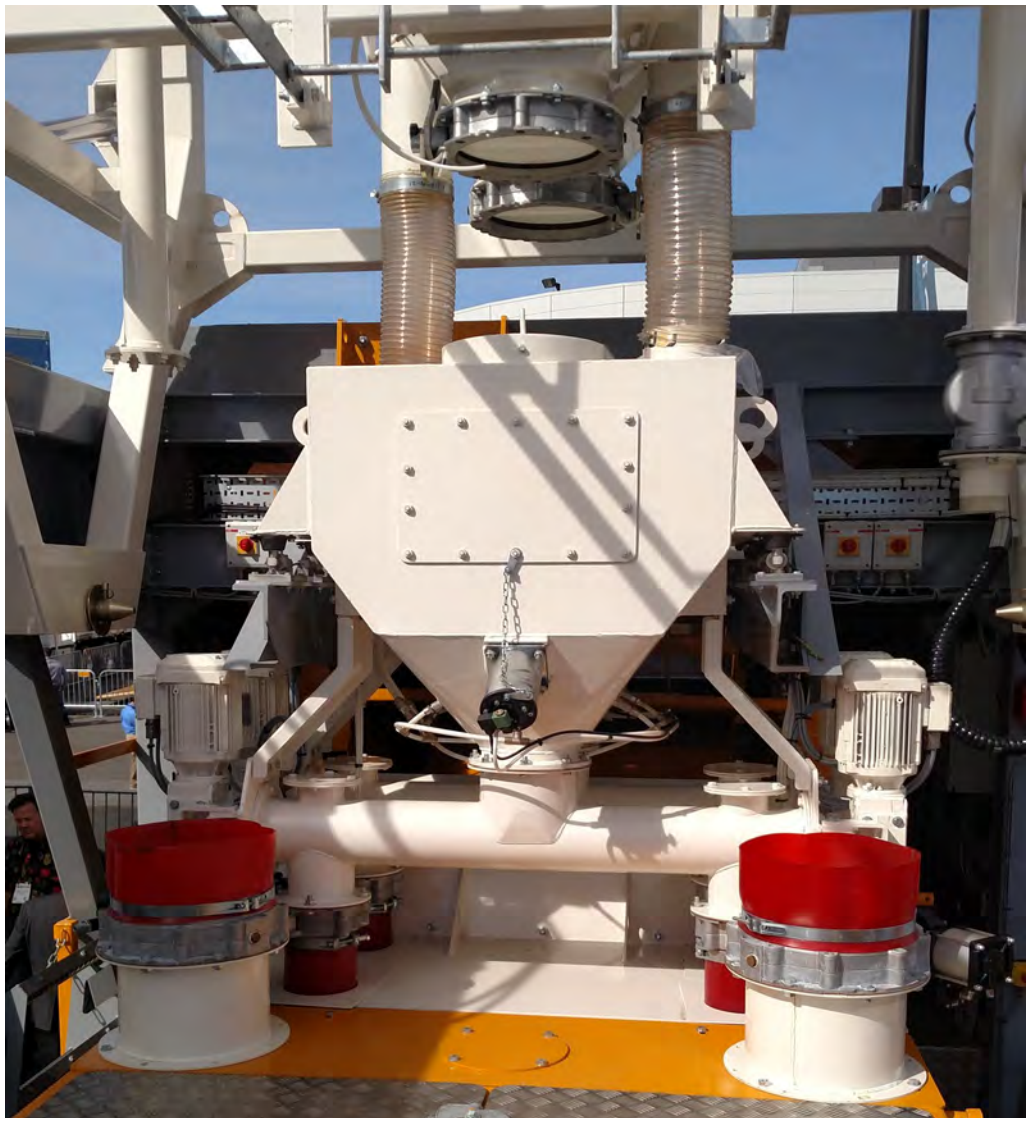
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RAPIDMIX 400CV VOLUMETRIC CONTINUOUS MIXING PLANT



LARGE 30” ROTARY VANE CEMENT FEEDER WITH A VARIABLE FREQUENCY DRIVE CAPABLE OF DELIVERING UP TO 60 TPH OF CEMENT DIRECTLY INTO THE MIXER

RAPIDMIX 400CW WEIGHING CONTINUOUS MIXING PLANT



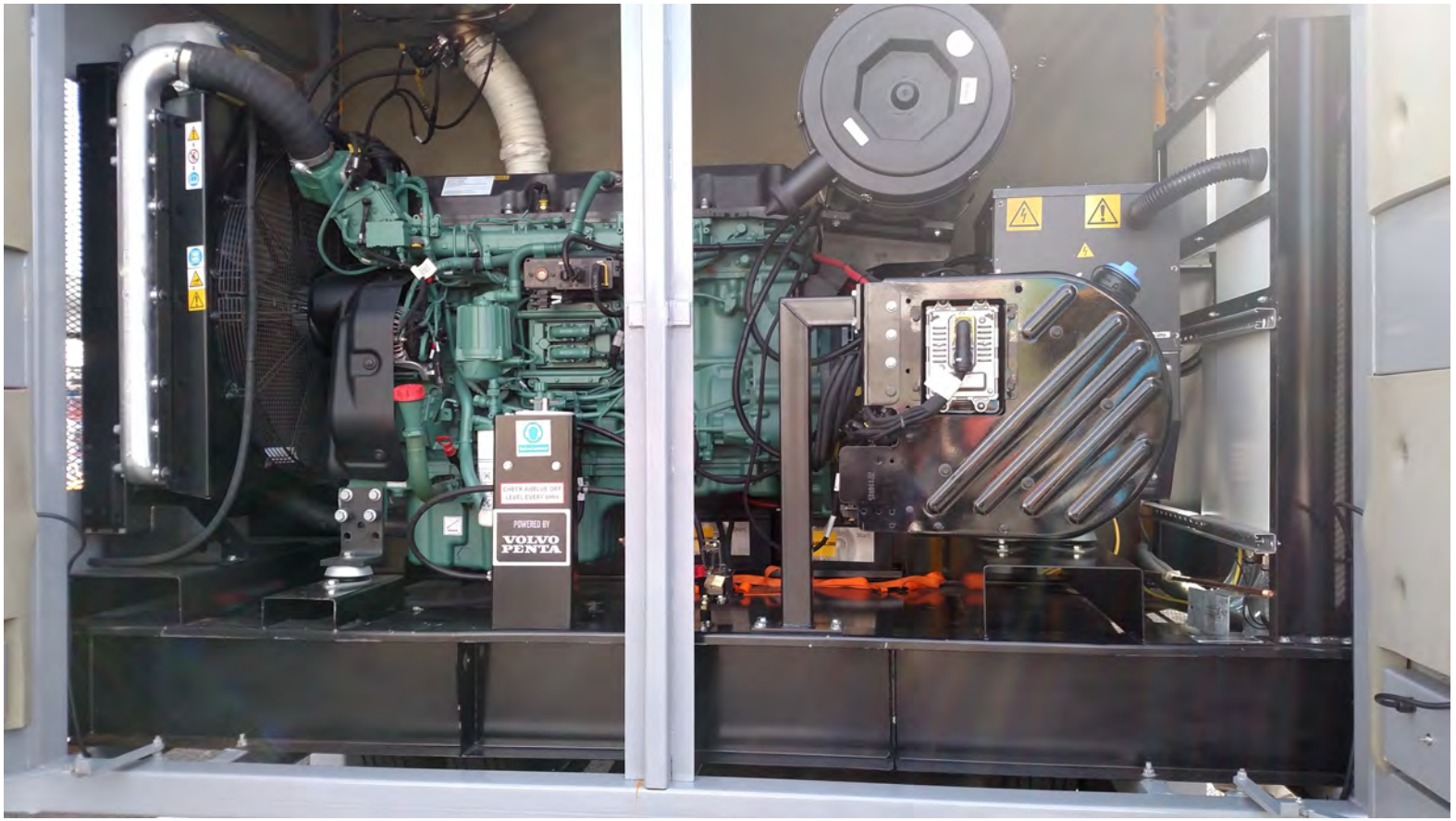
VIEW OF SILO DISCHARGE SHOWING THE CEMENT FEEDERS AND WEIGHING SCREWS. BEHIND THE WEIGHING SCREWS IS THE AGGREGATE WEIGH BELT. BOTH CEMENT AND AGGREGATE ARE CONTINUOUS WEIGHING SYSTEMS THAT REPORT BACK TO THE OPERATOR CONTROL PANEL.

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.



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 valves are fitted for the control of the gob hopper doors. A lubricator is provided for all pneumatic functions. Additionally, equipped with a regulator and pressure gauge to adjust the pressure as required.
- The Solenoid Valves and air treatment components come fully installed & tested inside of a mounted weather tight enclosure protected inside the plant, easily accessible from the walkway alongside of the plant.
- The pneumatic systems now also include a refrigerated air dryer with automatic drain to pull out an moisture from the air system prior to feeding air to the plant.







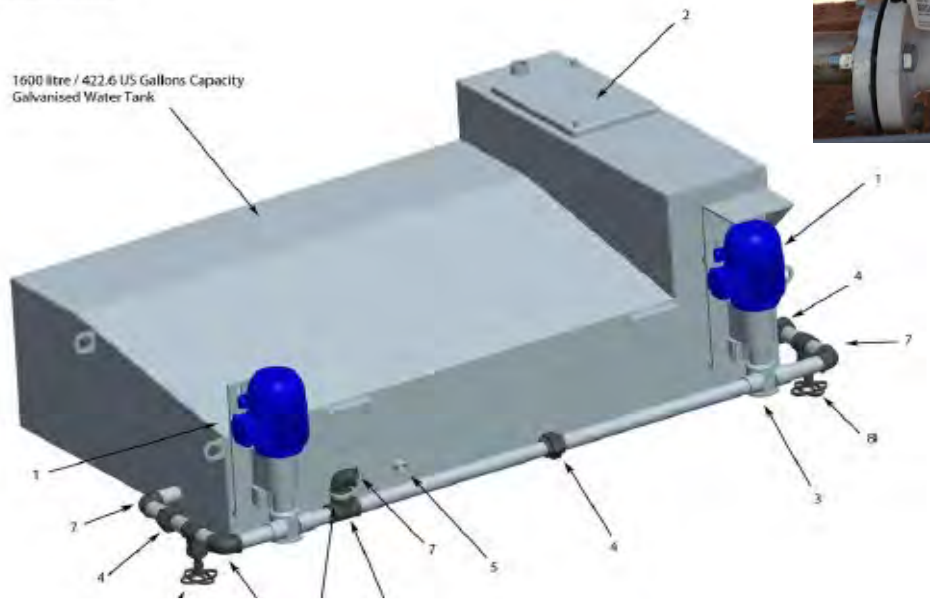




WATER SYSTEM

- Water Tank: A 1750 litre (462 US gal.) 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 flowmeter accurately measures water dispensed between pumps and mixing chamber.

Water Tank



BOTH SIDES OF MIXER HAVE FULL LENGTH HYDRAULICALLY OPERATED DOORS THAT OPEN FOR THE BEST ACCESS IN THE MARKET FOR MAINTENANCE AND CLEANUP

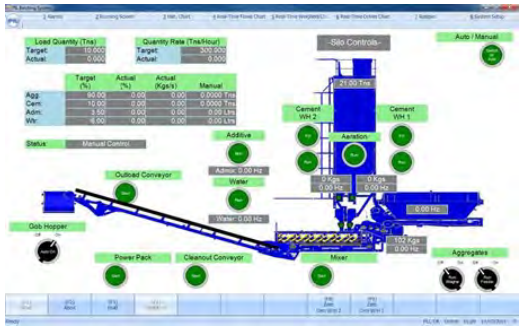




PLANTS INCLUDE A MIXER CLEANOUT CONVEYOR LOACTED IN THE BOTTOM OF THE MIXER TO EXPEDITE THE CLEANUP PROCESS

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 of all plant parameters and functions. Operator Control Panel: Consists of touchscreen buttons which allow automatic or manual control of the following:



- Mixer
- Air compressor
- High silo alarm
- Low silo alarm
- Silo Feeder
- Water Pumps
- Internal Lighting
- External Lighting
- Aggregate weigh belt conveyor
- Mixer clean out conveyor
- Outloading Conveyor
- Silo filter fan unit
- Gob hopper doors
- Auxiliary feeder
- 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.
- A thermal printer for printing batch and daily total tickets.

<u>The operator control panel also houses the following:</u>

PC touchscreen-based interface which allows the operator to store, edit and retrieve up to 50 recipes for the proportioning of different materials.

Manual rate meters which display the speed of the in feeds during manual operation.

A thermal printer for printing batch and daily total tickets.

<u>Starter Panels:</u> There are 2 starter panels. Panel 1 for mixer and Panel 2 for all other functions.

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, over-load relays, MCBs, Siemens or Emerson inverters, Siemens or Allen Bradley PLC.\, and all other components required to control the plant.



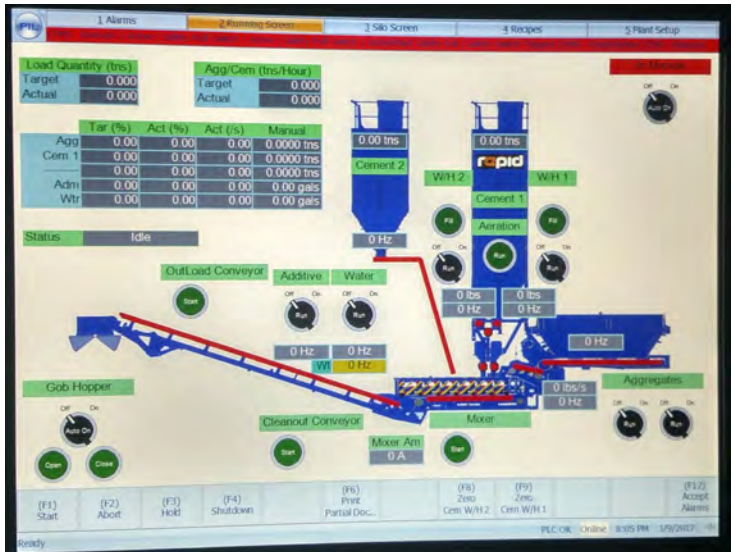


Example of Typical Ticket

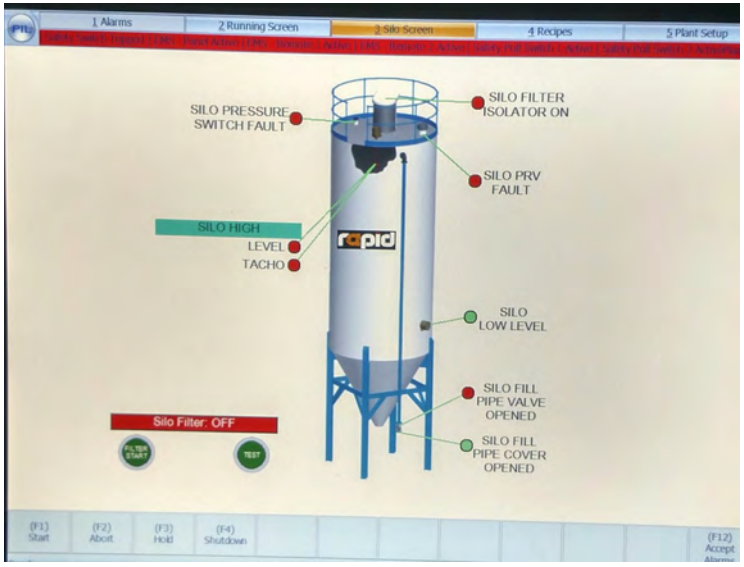


ADDITIONAL PLANT CONTROL PICTURES





All New Plants now ship with a Laptop PC to Wirelessly operate the Plant from a Control Room through the Plant's onboard Wi-Fi System

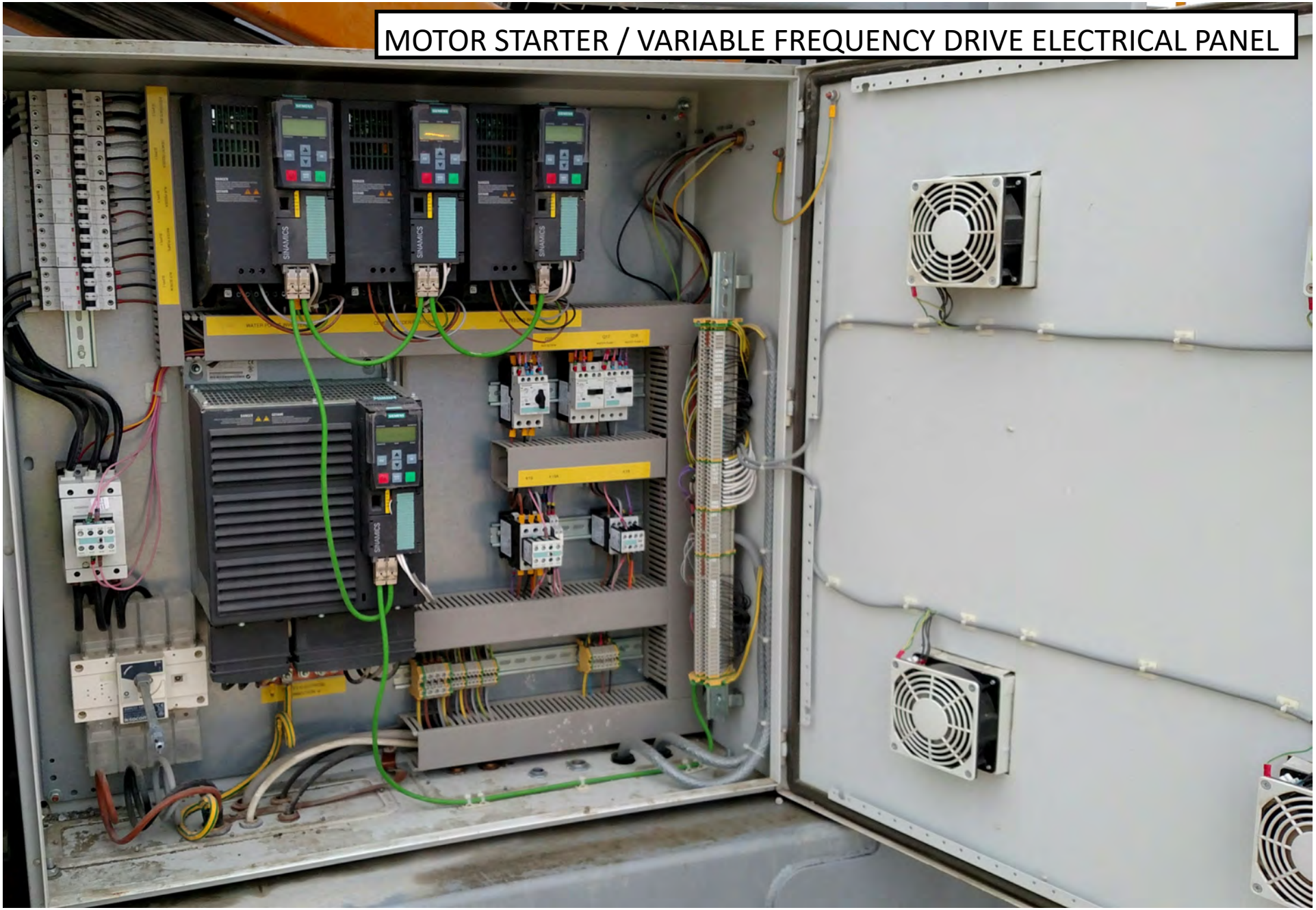


ELECTRICAL / CIRCUIT BREAKER PANEL



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.

MOTOR STARTER / VARIABLE FREQUENCY DRIVE ELECTRICAL PANEL



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.





HYDRAULIC SYSTEM

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







Isolation/Disconnect to Access

While the key is trapped the machine circuit is closed. Removal of the key opens the circuit, shutting down the machine.

Key from switch interlock can now be taken to the access interlock.

Access to the dangerous area is granted once the key is inserted and turned. The key cannot be removed from the access interlock until the door is closed.





CEMENT/BINDER SILO

- Capacity: 48 US tons based on material being 1500 kg/ m3 (93.64 lbs/ft3). 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: Equipped with a Wam bag house dust blow-er.
- 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.
- Weigh System: 2 independent weigh hoppers with screw style powder dispensers.







Folded up for Transport



Un-Folded up for Operation

OUT-LOADING CONVEYOR

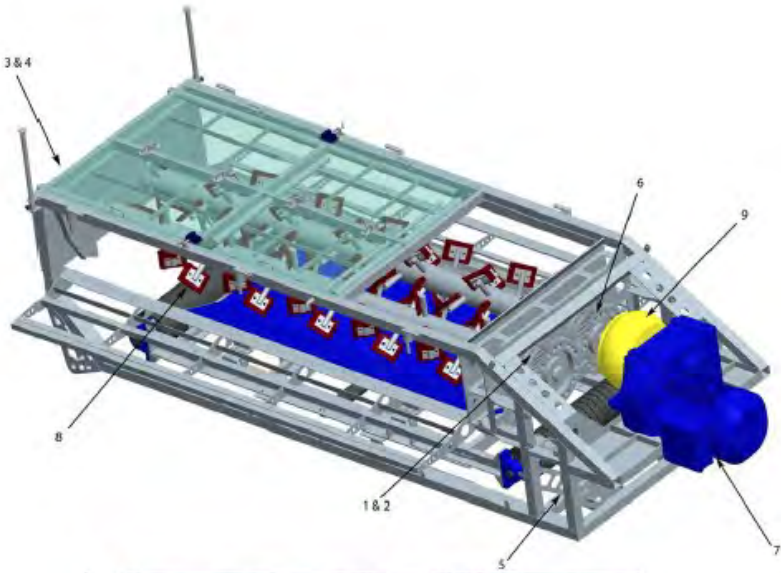
- Function: Transporting the mixed material from the twin shaft mixer to the truck. The conveyor is designed to handle the maximum feed rate from the mixer. A gob hopper fitted to the top end of the conveyor which allows some mixed material to be “held” for a while, for example: while the next truck 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.
- Gob Hopper: Hopper fitted to the top end of the conveyor with pneumatic discharge doors. Constructed from S275 plate. 1.5 cu. yd. capacity

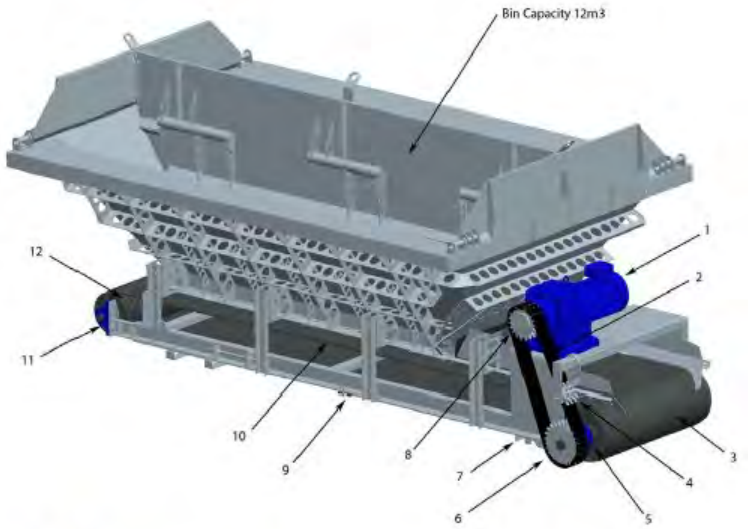
TWIN SHAFT CONTINUOUS MIXER

- 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.
- 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 100 HP on Model 400 Plants, 150 HP on Model 600 Plants 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/Maintenance 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, post-production. The mixer should be lined with a bed of material prior to production. The conveyor is fitted with a low speed geared motor drive.









AGGREGATE HOPPER

- Capacity: 15.6 cu yds (12.0 m3)
- 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 vary the ratio of materials and material weight manually.
- Belt Feeder: A conveyor boasts a 3 ply 1200 mm (4') weigh belt fitted at the bottom of the hopper, weighing material from the hopper to the mixing chamber. It is additionally equipped with adjustable rubber skirts and heavy duty support rollers.



Bins can be fed from either side and divider is removable

Hopper Discharge Gates can be Adjusted for Aggregate Blending





ERECTED DIMENSIONS

Length when erected: 70'-7" Width: 9 '-10" (3.00 m) Height: 41-45'

Front Axle - 8,720 Kgs (4410 on Operator Side, 4310 on Tool Box Side) Middle Axle - 8,770 Kgs (4460 Operator Side, 4310 - Tool Box Side)
Rear Axle - 8,430 Kgs (4180 on Operator Side, 4250 on Tool Box side)

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.



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)

	Model 400	Model 600
Weight of Machine total:	73,680 lbs	79,060 lbs
Weight on Rear Tri-axles:	48,880 lbs	53,705 lbs
Weight on Front Pin:	24,804 lbs	25,355 lbs







Most Common Ways for Discharging Material from Rapidmix











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