Efficiently blend cement slurries offshore

The Wilco™ WCM-100 skid-mounted batch mixer with lift frame efficiently blends cement slurries and discharges to downhole pumper equipment or cement mixing skid for fine tuning of your cement slurry. Our purpose-built manifold system is engineered to move water and/or pre-mixed cement and dry bulk cement to the batch mixer where it then blends and recirculates the cement through two 50-bbl tanks and then displaces to the cement pumper. This system is also designed to perform a variety of different styles of blending. The batch mixer is mounted on a skid with lift frame that can be optionally certified to 2.7-1 or other specification. Powered by diesel engine or electric motors.

Our standard designs are also available in 150-bbl, 50-bbl, and 25-bbl models.

The versatile Method I mixing-displacement manifold is designed for slurry or water displacement “from anywhere to anywhere.” During recirculation and loading of water and bulk material, the fluid and bulk mixture is pumped into the vessel through the mixing head. The mixture then flows through the mixing-agitation apparatus in the cement blending vessel. It is then pumped out the bottom of the vessel with a 6 x 5 x 11 centrifugal pump and then circulated back up to the mixing head. The process is continuous, as the recirculated fluid can be mixed with more water and bulk material at the Gryo Energy mixing head. This operation can be performed by both or either of the pumps mixing slurry in the separate tanks, simultaneously, or being used for discharge or water fill operation. Water can also be displaced directly into the mixing vessel, bypassing the mixing head.
Features

- Two 50-bbl mix tanks, 102-in. (8.5-ft) diameter, with 80° included angle bottom cone. One weir in each tank marked with 1-bbl increments and 5-bbl major increments. Each tank has a Ø20-in. manway.

- Either pump can be used for circulation through either one or both of the two mixing tanks, discharge, slurry fill, or water fill.
  - Pump 1: 6 x 5 x 11 centrifugal pump
  - Pump 2: 6 x 5 x 11 centrifugal pump

- 3 rows of paddle-style agitators in blender vessels designed to create toroidal flow within the blender.

- Conical prehydrator eductors may be optionally used for adding bulk material or chemical additives to the recirculation flow line “on the fly” during the recirculation mixing to one or both tanks.

- Powered by 350-hp Cat C9, standard or Zone 2, 24-v diesel engine. Available with Tier 4 or Tier 3 (export) emission compliance. Equipped with 150-gal fuel tank and 10-gal air receiver tank. Engine equipped with ASO (automatic shut-off) which closes off engine air supply for high temperature, low oil pressure or high engine rpm. Muffler is a spark arrestor.

- Panel-stand control console for remote control of air-actuated valves and engine and hydraulic drives. Control valves within reach of operator are manually operated. The console has various gauge displays and controls for centrifugal pumps and agitators. Engine controls and light switches are also mounted in the control console.

- Centrifugal pumps and agitators are hydraulically powered. Stainless steel hydraulic fluid tank includes baffles, suction strainer, sight glass, breather cap, and opening for maintenance and cleaning. Hydraulic system heat exchanger mounted on front of radiator.

- Support and bracing technique used for tanks and work platform is designed to minimize vibration on the work platform.

- Lift frame and skid structure made from rectangular steel tubing with tow bars on each end and lift eyes. Structural members are welded using third-party qualified ASME Sec. IX welding procedures. Drip tray is built into skid base.

- Manifold system is designed for easy cleanup and maintenance. The water or slurry supply and recirculation lines function independently of each other, but have some overlap. They can be optionally used with either or both vessels, and/or simultaneously if required. Fill and discharge lines are 4-in. Fig. 206.

- The Gyro Energy-type mixing head educts, rotates, and recirculates slurry, water, and dry bulk cement and is a dustless system. It is the confluence of lines for slurry recirculation, water fill, and dry bulk/additive fill. The mixing heads are located at the top of the cement blending vessels. The water fill lines allow the option of flowing to mixing head or directly into the blending vessel. A diffuser-flow deflector located at the outlet of the mixing head enhances hydration and blending of the bulk cement into the slurry.

- Work lights are all rectangular, 24-v LED lights. The top work area illuminated with four lights. Two lights are mounted on swivel arms over the batch mixers’ manways. Two lights are also mounted underneath the work platform to light the area of the centrifugal pumps and the recirculation, fill, and discharge manifolds. A work light is also mounted on a blender vessel so that it is directed to the power unit.

- Prewash system included. Tanks can also have optional internal spray nozzles for cleanup.

- Work platform is accessible via a ladder and has handrails and safety gates.

- Painted with three-coat offshore paint system that includes zinc-rich primer, epoxy intermediate coating, and chemical resistant urethane enamel top coat.

Options

- DNVGL-ST-271 (formerly DNV 2.7-1) certified or conforming unit with enveloping lift frame. Lift frame, skid base, equipment mounting, pad eyes, and lifting slings meet DNVGL-ST-271.

- MicroMotion densometer (non-radioactive) used for density measurement through recirculation line.

Quality management, assurance, and requirements

- ISO-9001 certification

- Bolt holes drilled or laser cut, not torch cut

- Third-party certified weld procedure specifications