



With over 60 years operating experience Plenty Mixers, an SPX FLOW Brand are acknowledged to be the market leader in the field of side entry mixing technology for the oil and petrochemical industries supplying major oil companies in over 60 countries around the world.

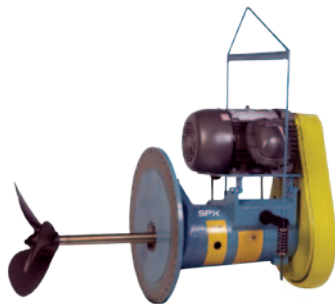
Plenty Side Entry Mixers have helped to set the industry international standard, outperforming other mixers on the market simply by virtue of their technically advanced design, which includes a simple and easily maintainable design, as well as a high efficiency, true helical pitch on piece 'cast' impeller incorporating high blade area and forward rake which was developed by Plenty.

SPX FLOW HEAVY DUTY SIDE ENTRY MIXERS

The Plenty Side Entry Mixer is an efficient converter of energy into fluid motion. Unlike jet mixer systems and do not suffer significant energy losses at the pump, in the pipework, in the bends, or most significantly, at the jet nozzles. Capital costs are low and access to in-tank components is not restricted, and the problem of frequent, urgent maintenance on tanks that must be emptied and cleaned is eliminated. Side Entry mixers are also efficient and are usually less expensive for larger diameter tanks and are ideal for use on tanks with floating roofs where practical considerations preclude the use of top entry mixers.

Standard Range:

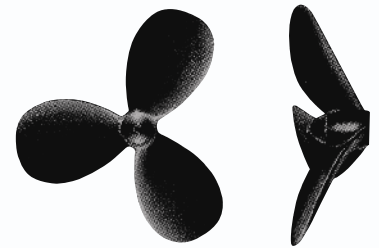
- 1.5 – 55kW (3 – 75 HP)
- Ø16" to Ø33" impellers
- Belt and Gear Drive
- Fixed and Swivel Angle



These four variables form the comprehensive standard range. A design concept to provide units suitable for long and continuous operation at remote sites with minimum maintenance.

IMPELLERS

Developed by Plenty for Side Entry Mixers, the high efficiency true helical pitch impeller with forward rake is a technically advanced design, having a large blade area that provides



the optimum cavitation-free suction conditions promoting maximum pumping rate and entrainment for any installed power. Each impeller is accurately cast as a one-piece component, thus eliminating the setting variances and welding problems often present with alternative fabricated designs. Rigid inspections of pitch, uniformity and balancing ensure minimal vibration and optimum pumping efficiency.

Advanced Impeller Design

- High Pumping
- High Thrust
- Minimum power draw
- Solid one-piece design
- Reliability
- Positive fixing and driving of the impellers on the shaft is achieved by the use of taper to taper shaft connection with side fitting key and retaining bolt.
- The mixer bearings in particular have been engineered to provide long life and to maximum bearing L10 Life.

TANK MOUNTING MANHOLE – FIXED AND SWIVEL

- The most common sizes of tank adaptor flanges to suit ANSI and API standard 24" and 30" are available as standard. Tank adaptor flanges can be supplied to suit all tank manhole/nozzle fixings.

GEAR DRIVEN MIXER

- Driven by a vertical electric motor which is flange mounted on the support bracket above the gearbox and connected by an all metal flexible coupling protected by a guard.

BELT DRIVEN MIXER

- A horizontal foot mounted motor is fitted above the main mixer frame on a steel mounting plate which allows adjustment for correct belt tensioning. Motor mounting plate hinges and belt adjustment screws are corrosion protected against atmospheric corrosion.

SHAFTS

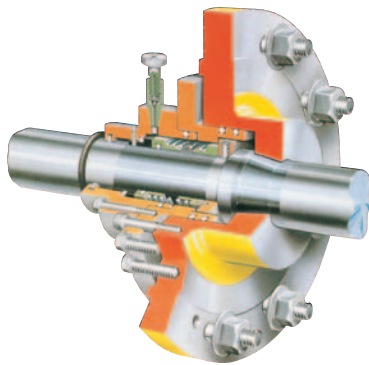
- Designed to minimize misalignment, deflection and vibration which all affect the mechanical seal and bearing life. A one-piece component with no intermediate couplings and is ground between centers at the bearing and seal areas. All shafts are hard-chrome plated in seal and shut off areas.

LEGISLATION REQUIREMENTS

- SPX FLOW Plenty Mixers are suitable for installation in coastal environments all over the world. Regional legislative needs are met as standard, these include:
 - CE, ATEX (up to Category 2G IIc gases), OSHA & GOST

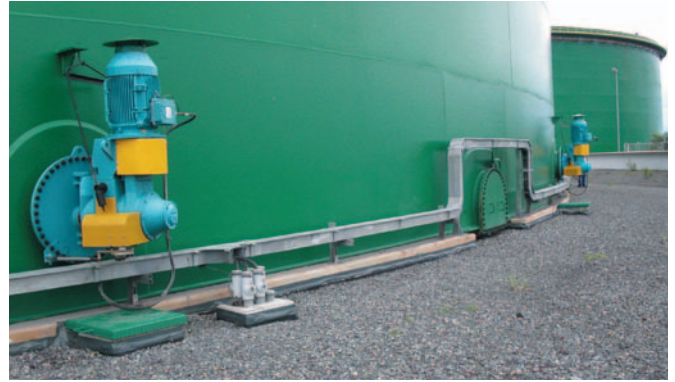
UNIQUE TANK SHUT-OFF DEVICE

All units incorporate a tank shut-off device to allow the shaft seal and bearings to be changed under full tank conditions. The tank shut-off mechanism incorporates tapered metal to metal faces, positively clamped by a bolted flange which both seals products in the tank and securely supports the shaft during bearing and/or shaft seal changes. The Plenty shut-off mechanism offers complete safety and security as it does not incorporate and flexible 'O' rings or gaskets which deform, wear or perish.



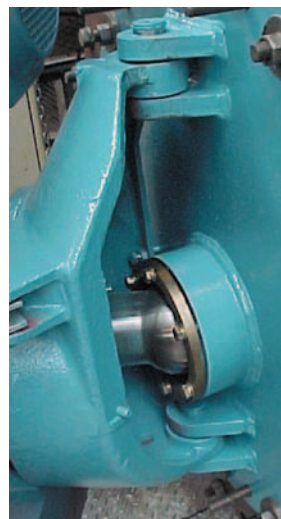
CRUDE OIL, BOTTOM SLUDGE AND WATER (BS&W)

The main purpose of the mixers in this application is to ensure the developed jet flow is used to lift the BS&W into the body of the crude oil to maintain a relatively clean tank floor.



55kW Swivel Gear Mixers installed with Automatic Actuator

Swivel Angle mixers incorporate a feature which allows the mixer angle of entry to be varied through 30° either side of the tank centreline in 10° increments and enable the entire tank floor to be directly scoured by the impeller flow stream. This is the only solution to BS&W control in large tanks and ensures that the heavy solids, water and corrosive salts which settle in areas least agitated by a permanently fixed mixer are maintained in suspension.



The mixer module is supported by two swivel hinge bearings which ensure ease of manual angle changing, the swivel seal is affected by a heavy duty static Solosetal™ acting on a stainless steel spherical ball.

The Automatic Swivel Actuator is a shaft belt driven or an electric motor driven speed reducer and linkage, which allows the mixer to swivel 30° in either direction.

The timer controller provided will cycle on for even 24 hours and swivel the mixer 10° each time, allowing for efficient cleaning of the tank bottom and eliminates the need for routine manual adjustment.

Main Benefits:

- Tankage is always available for storage and not out of commission being cleaned or repaired
- Problems of sludge disposal are overcome
- No environmental problems
- Hazardous, dangerous and costly tank cleaning is practically eliminated
- Elimination of "plugged" water drains

