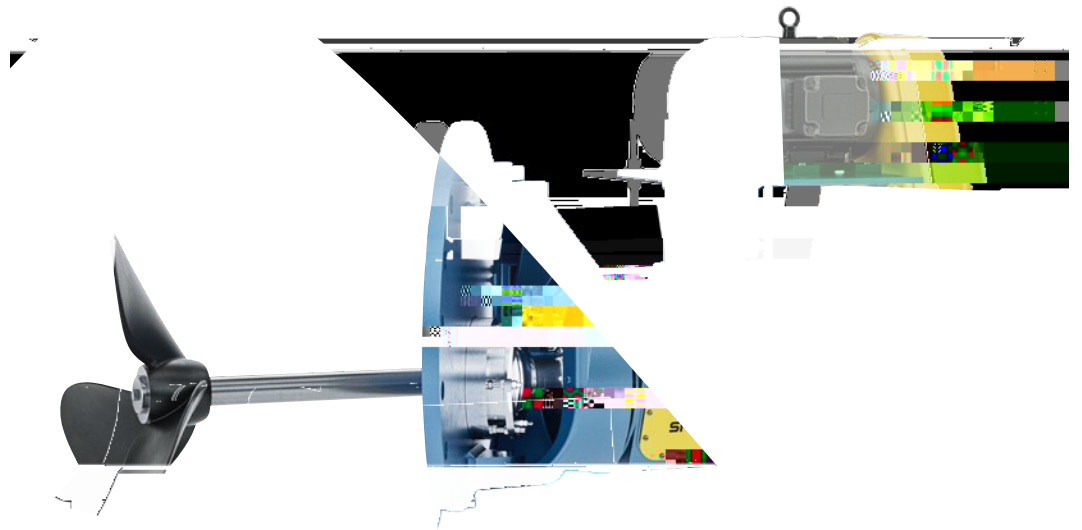


>Plenty®



HEAVY-DUTY SIDE-ENTRY MIXERS



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PLENTY MIXERS THE STANDARD FOR OIL STORAGE



The Plenty Side Entry Mixer is an efficient converter of energy into fluid motion



Plenty Side Entry Mixers have helped overcome the industry's international standard. They can operate from the mixer's own, the machine's impeller is of the highest technically advanced design, which includes a simple and easily maintainable design, a steel shaft high efficiency, the helical pitch one piece cast impeller into providing high blade area and footed blades which are developed by SPX FLOW.

Backed by over 60 years of engineering experience Plenty Mixers have a proven record of successful installation and operation in the most demanding conditions. Plenty Mixers are acknowledged to be the machine leader in the field of side entry mixing technology for the oil and petrochemical industries having been applied by all the world's major oil and petrochemical companies in over 60 countries around the globe.

Why side entry tank mixers

The Plenty Side Entry mixer is an efficient converter of energy into fluid motion. Unlike jet mixers, they do not require high energy losses through the pipe work, in the bend, from momentum change, as the jet nozzle. Capital cost is reduced and acceleration tank components are minimized, while the problem of fouling, gets maintenance on tank is minimized and cleaned is eliminated. Side Entry mixers are also efficient, and are available in a range of diameters. Side Entry mixers are ideal for the oil and petrochemical industry for the practical consideration of the use of open mixers.

Standard Range

The following is a table of the comprehensive standard range. In most cases the design concept has been developed to be suitable for long and continuous operation at a minimum maintenance.

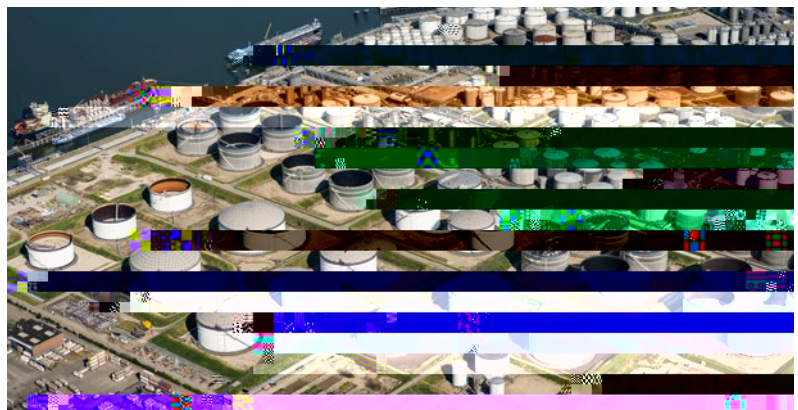
1.5 - 55kW (3 - 75 HP)

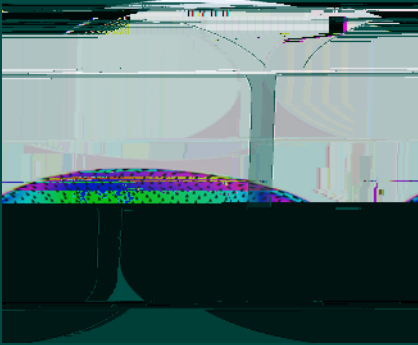
16", 20", 33" impeller diameters

Ball and Gear Drive

Fixed and Swivel Angle

TYPICAL PRODUCT APPLICATIONS:



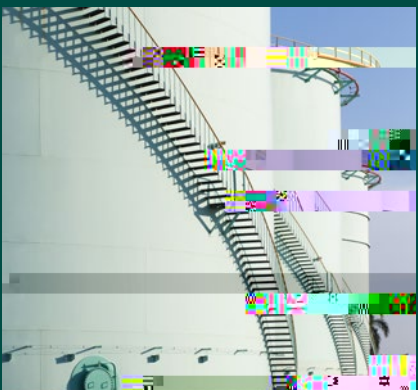


Process & Technology

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Blending, maintaining homogeneity and heat transfer

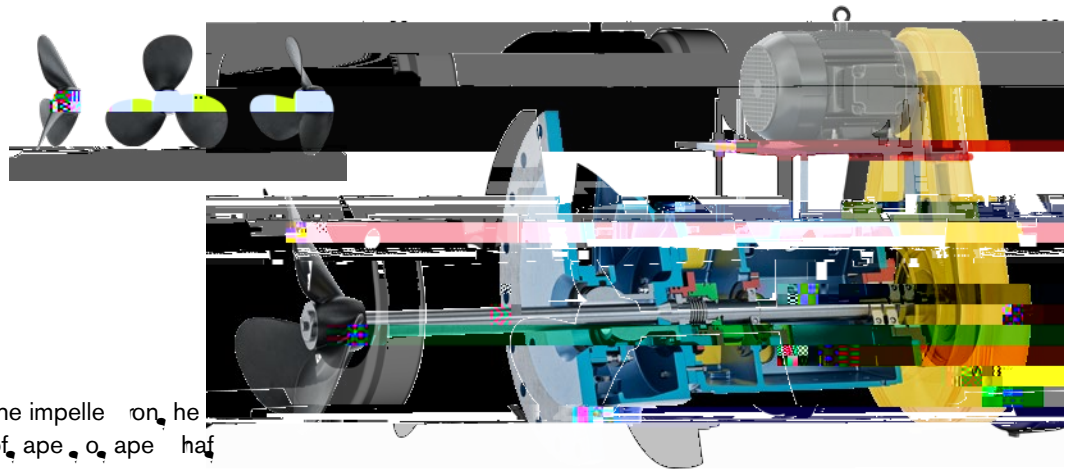
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Impellers

The high efficiency helical pitch impeller is the first choice for a dredge, developed by Pleq, features a large blade area and a high tip speed to maximize pumping capacity and productivity. One-piece casting eliminates the need for gaskets, common in welded design, ensuring uniformity and balance for minimal vibration and high efficiency. Rigorous testing assures optimal performance and durability.

Advanced Impeller Design:

- High pumping
- High head
- Minimal power demand
- Solid one piece design
- No cast iron
- Reliability

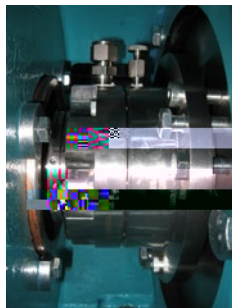


Impeller Fixing

Proper fitting and drilling of the impeller on the shaft is critical to the performance of the pump. The impeller is fixed to the shaft using a shrink disc and a locking bolt.

Bearings

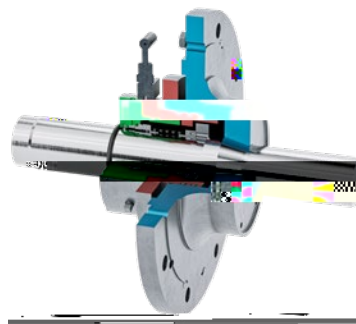
The bearings are designed for minimal maintenance,



Belt Driven Mixer

A horizontal foil mixer is mounted above the main mixer frame on a reel mounting plate which allows adjustment for correct belt tensioning. Mixer mounting plate hinge and belt adjustment centre are co-ordinated against a magnetic coil. The mixer and main frame are connected by a Fire Resistant Anti-Static (FRAS) High Tensile Die (parallel chevron) Trough Belt connected to an auxiliary motor. The pulley has a safety lock which allows the motor to be removed and is enclosed in a protective guard. Die clearance is 1.5 minimum.

The main mixer frame is a rigid one-piece casting piggy backed onto the reel mounting frame which incorporates a



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

The Sibel Angle mixer is a feature which allows the mixer angle of equipment to be adjusted through 30 degrees of the tank center line in 10 degree increments and enable the equipment to be directed by the impeller to stream. This is the only feature of BS&W control in large tank and enables the head solid to be and control the amount which is in a separate stage of the process.

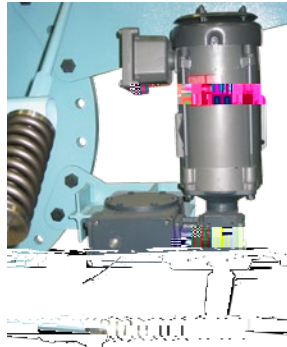
The mixer model is supported by a Sibel hinge bearing which enables the manual angle changing and the Sibel seal is affected by a head Sibel Solo seal, acting on a single reel spherical ball.

An alternative to the manual facility, an automatic Sibel actuator can be supplied as an optional extra.

The Automatic Sibel Actuator is a half driven or an electric motor driven speeded cable linkage, which allows the mixer to be set to the 30 degree position in either direction.

Using the half driven actuator provides a constant motion of the Sibel hinge mixer in operation. This option does not require the need for the pen in the additional welding (not available for ATEX certification).

With the electric motor driven actuator, the time controlled cycle can be set in 24 hours and the mixer 10 degrees each time. This allows for efficient cleaning of the tank bottom and eliminate the need for the manual adjustment.



TM SERIES: FIXED ANGLE MIXERS

MIXER POSITIONING



Homogeneity

Side Entry mixer induces a partial focused circulation of the tank content in all directions from the area of the tank. This stream is initially only adjacent to the high level of the bottom of the tank, but in time, providing the necessary circulation, will gradually penetrate to the high level of the tank providing high efficiency circulation and oblate the face between the agitator blades and achieve a full homogeneous mixture. If the actual height/diameter (Z/T) is too great, circulation will not be achieved. For each application the agitator minimum position should be determined, which may be longer than the mixer is capable of achieving. For products to be agitated, the agitator should be 1.1kW per 1000m³ (0.25HP per 1000 bbl).

Figure 1: Recommended mixer (fixed angle) positions for effective blending, homogeneity and temperature uniformity

Blending

It will be appreciated that to blend the tank content in 12 hours would be approximately half the position indicated, or do the same in 6 hours and approximately twice as much position would be necessary in 24 hours.

In the above example, the necessary position is indicated, where the agitator should be positioned before the necessary circulation can be achieved, the mixing process commences. A standard diagram of the agitator minimum position is provided for a general guide below. In which the necessary agitator position should be developed for minimal process requirements.

Duties for fixed angle mixers:

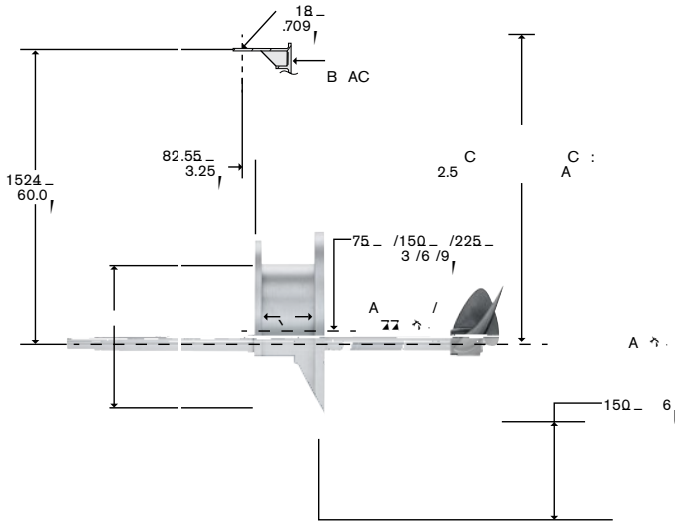
Maintaining Homogeneity

To maintain homogeneity of the entire mixture the agitator should be positioned to chemical plant feed stock proportionate to the required specification. This demand complete movement of the agitator. The agitator should be positioned at the top of the tank. The agitator should be positioned at the top of the tank. The agitator should be positioned at the top of the tank. The agitator should be positioned at the top of the tank.

Blending

To mix two or more different components together.

MANWAY DIMENSIONS

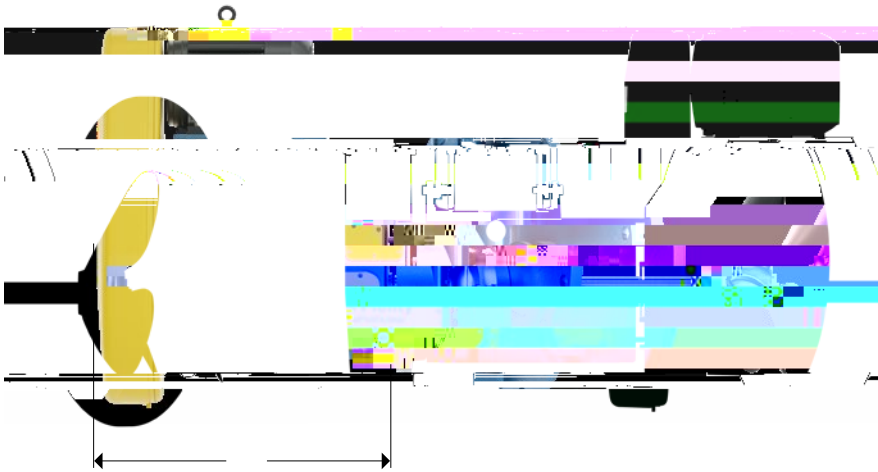


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 and d :
 18", 20", 24", 30" ANSI and API D illing pa e n r

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GEAR MIXERS

SM Series: Fixed Angle Mixer

SHAFT DIA: AT SEAL		60 MM	85 MM
DRIVE / *NOMINAL RPM		425	420
A (Diameter)		To S _d Specific Process Condition	
B	mm / in.	875 / 34 "	1185 / 46 ³ / ₄ "
C	mm / in.	515 / 20 "	695 / 27 "
E (Bore)	mm / in.	203 / 8"	254 / 10"
H	mm / in.	1076 / 42 "	1475 / 58"
J	mm / in.	340 / 13 "	425 / 16 ³ / ₄ "

* Based on 60Hz motors

Dimension are approximate and certified drawing will be applied at time of order.

SSM Series: Swivel Angle Mixer

SHAFT DIA: AT SEAL		60 MM	85 MM
DRIVE / *NOMINAL RPM		425	420
A (Diameter)		To S _d Specific Process Condition	
B	mm / in.	720 / 28 "	930 / 36 "
C	mm / in.	770 / 30 "	995 / 39 "
H	mm / in.	1076 / 42 "	1475 / 58"
J	mm / in.	340 / 13 "	425 / 16 "

* Based on 60Hz motors

Dimension are approximate and certified drawing will be applied at time of order.

