CLAIMS

1. A mixer engagement system comprising:

an agitator comprising:

(a) a rotatable impeller comprising two or more blades, two or more magnets, and a shaft, wherein the impeller is configured to be driven by a drive unit magnetically coupled to the impeller;

(b) an impeller seat receiving the rotatable impeller, the impeller seat comprising an upwardly arranged cylindrical housing, a flange, and a base, the cylindrical housing comprising a central opening for the impeller shaft, and the base comprising a collar and at least 3 pins arranged to engage with a locking and centering mechanism; and,

(c) a locking and centering mechanism comprising a rotatable hollow cylindrical housing comprising at least 3 angled slots configured to receive the pins of the impeller seat, each slot comprising an open end, a downwardly angled channel, and a closed end; and

(d) a lever mounted to the rotatable hollow cylindrical housing, wherein, when the impeller seat is placed in contact with the locking and centering mechanism, with the pins in the open ends of respective slots, and the lever is in a first open position, movement of the lever from the first open position to a second closed position rotates the rotatable hollow cylindrical housing such that the pins move downwardly in the slots along the downwardly angled channels to the closed ends, locking the impeller seat into a fixed and compressed position.

2. A mixer system comprising:

the mixer engagement system of claim 1, and,

(e) a drive unit comprising a motor and two or more magnets, wherein the drive unit is removably insertable into the rotatable hollow cylindrical housing of the locking and centering mechanism, and once inserted, the drive unit can be operated to magnetically drive the impeller.

3. A mixing vessel for use in bioprocessing comprising:

a biocontainer comprising a closed container having an interior volume suitable for containing fluid, the container comprising a bottom wall having an interior surface and an exterior surface, a top wall, at least one side wall, the side wall(s) being joined to the top wall and the bottom wall; and at least one inlet port, and at least one drain port, the at least one drain port being arranged in the bottom wall; and,

the mixer engagement system of claim 1, wherein the flange of the impeller seat is mounted to the interior surface of the bottom wall.

4. A method for processing fluid comprising:

(A) obtaining a biocontainer comprising a closed container having an interior volume suitable for containing fluid, the container comprising a bottom wall having an interior surface and an exterior surface, a top wall, at least one side wall, the side wall(s) being joined to the top wall and the bottom wall; and at least one inlet port, and at least one drain port, the at least one drain port being arranged in the bottom wall; and,

a mixing engagement system comprising:

an agitator comprising:

(a) a rotatable impeller comprising two or more blades, two or more magnets, and a shaft, wherein the impeller is configured to be driven by a drive unit magnetically coupled to the impeller;

(b) an impeller seat receiving the rotatable impeller, the impeller seat comprising an upwardly arranged cylindrical housing, a flange, and a base, the cylindrical housing comprising a central opening for the impeller shaft, and the base comprising a collar and at least 3 pins arranged to engage with a locking and centering mechanism,

wherein the flange is mounted to the interior surface of the bottom wall of the container;

and,

(c) a locking and centering mechanism comprising a rotatable hollow cylindrical housing comprising at least 3 angled slots configured to receive

the pins of the impeller seat, each slot comprising an open end, a downwardly angled channel, and a closed end; and

(d) a lever mounted to the rotatable hollow cylindrical housing, wherein, when the impeller seat is placed in contact with the locking and centering mechanism, with the pins in the open ends of respective slots, and the lever is in a first open position, movement of the lever from the first open position to a second closed position rotates the rotatable hollow cylindrical housing such that the pins move downwardly in the slots along the downwardly angled channels to the closed ends, locking the impeller seat into a fixed and compressed position;

(B) moving the lever from the first open position to the second closed position and engaging the impeller seat with the locking and centering mechanism;

(C) inserting a removable drive unit comprising a motor and two or more magnets into the rotatable hollow cylindrical housing of the locking and centering mechanism, and, once the biocontainer contains fluid to be processed, operating the drive unit to magnetically drive the impeller and mix the fluid in the biocontainer.