

Description

Title of Invention: Modular Fluid Processing Tank

Technical Field

The present invention generally relates to modular tanks for processing drilling fluids.

Background Art

The oil and gas industry requires drilling fluids in large quantities for their drilling operations. Many of these drilling operations occur on offshore drilling rigs and rely on land-based drilling fluid production plants for production and supply of these drilling fluids. The land-based drilling fluid production plants are generally designed for high production capacities and are fixed infrastructures. However, as oil exploration and drilling operations shift farther away offshore or along the shoreline, the transportation and storage of drilling fluids from the land-based plants become a growing concern.

Presently, the industry addresses these difficulties by increasing the number or the capacity of drilling fluid transportation vessels, and by seeking to produce mud on the offshore rigs. However, both of these solutions face scalability limitations. For example, the purchase or modification of the transportation vessels require significant capital investments and lead time. The transportation vessels are generally designed with fluid tanks to store specific drilling fluids, and modifications to the tanks are typically required if a different type of drilling fluid is to be stored (e.g. from a water-based drilling fluid to an oil-based drilling fluid).

The production plants are also designed with specific capacities, and with permanent piping and fixed foundation structures. Hence, any expansion in the capacity of the plants requires significant planning in advance and modifications to the existing structures which may be cost-prohibitive. Further, the current designs of production plants are not space-efficient as much space is allocated for external piping between the fluid tanks. Moreover, the production plants are difficult to be relocated due to dimensions and weight of the components. Many of the components (e.g. piping) are also designed specifically for the layout of the plant, which compounds to the problem of relocation.

Accordingly, what is needed is a modular fluid processing tank that seeks to address some of the above problems. Furthermore, other desirable features and characteristics will

become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and this background of the disclosure.

Summary of Invention

A first aspect of the present invention provides a modular fluid processing tank comprising a body having a plurality of vertical walls, wherein each of at least two opposing walls comprises a respective fluid connector, each fluid connector being configured to engage directly with a corresponding fluid connector of an adjacent tank such that the tank fluidly communicates with said adjacent tank and wherein each fluid connector is in fluid communication with a corresponding network pipe running inside the body between the two opposing walls.

The fluid connector may comprise a quick-coupling connector.

The fluid connector may be connected to an integrated valve.

The integrated valve may comprise one of a group consisting of a pneumatically actuated valve, a hydraulically actuated valve and an electromechanically actuated valve.

The integrated valve may be remotely controllable.

The tank may comprise a plurality of internal pipes, the plurality of internal pipes being in fluid communication with each other and coupled to the corresponding network pipe.

The tank may comprise a suction cavity disposed at a base of the tank, the suction cavity being in fluid communication with the plurality of internal pipes.

The tank may further comprise a fluid agitator disposed inside the body and configured to mix the fluid.

The fluid agitator may comprise a rotatable propeller configured to mix the fluid.

The tank may further comprise a plurality of reinforcement members disposed along the walls.

The tank may be compliant with ISO 1496 standard.

The tank may be compliant with DNV 2.7-1 standard.

The tank may further comprise a fluid level detector.

The tank may comprise a self-cleaning tank.

A fluid processing plant may comprise a plurality of tanks of the first aspect of the present invention, the plurality of tanks being connected adjacent to each other.

A second aspect of the present invention provides a method of manufacturing a modular fluid processing tank, the method comprising the steps of forming a body, the body having a plurality of vertical walls, affixing a fluid connector on each of at least two opposing walls having corresponding holes formed therein, and connecting a corresponding network pipe inside the body between the fluid connectors on the at least two opposing walls, wherein each fluid connector is configured to engage directly with a corresponding fluid connector of an adjacent tank such that the tank fluidly communicates with said adjacent tank.

Providing the fluid connector may comprise providing a quick-coupling fluid connector.

Providing the fluid connector may comprise providing the fluid connector connected to an integrated valve.

The integrated valve may comprise one of a group consisting of a pneumatically actuated valve, a hydraulically actuated valve and an electromechanically actuated valve.

The integrated valve may be a remotely controllable valve.

The method may further comprise connecting a plurality of internal pipes between the plurality of walls, the plurality of internal pipes being in fluid communication with each other; and coupling the plurality of internal pipes to the corresponding network pipe.

The method may further comprise forming a suction cavity at a base of the tank, the suction cavity being in fluid communication with the plurality of internal pipes.

The method may further comprise forming a suction cavity at a base of the tank, the suction cavity being in fluid communication with the plurality of internal pipes.

The method may further comprise installing a fluid agitator inside the body, the fluid agitator configured to mix the fluid.

Installing the fluid agitator may comprise installing a rotatable propeller configured to mix the fluid.

Forming the body may comprise affixing a plurality of reinforcement members along the walls.

Forming the body may comprise forming the body to comply with ISO 1496 standard.

Forming the body may comprise forming the body to comply with DNV 2.7-1 standard.

A method of storing a fluid may comprise the steps of connecting a plurality of modular fluid processing tanks of the first aspect of the present invention such that the tanks are adjacent and transporting the fluid in or out of a selected tank of the plurality of tanks by moving the fluid through at least one tank adjacent to said selected tank.

The method of storing a fluid may further comprise the step of remotely monitoring fluid levels in the plurality of tanks.

Brief Description of Drawings

Embodiments of the invention will be better understood and readily apparent to one of ordinary skill in the art from the following written description, by way of example only, and in conjunction with the drawings, in which:

Fig.1

Fig. 1 shows a perspective view of a modular fluid processing tank according to an example embodiment.

Fig.2

Fig. 2 shows a plan part-section view of the modular fluid processing tank of Fig. 1.

Fig.3

Fig. 3 shows a plan part-section view of a plurality of modular fluid processing tanks of Fig. 1

Fig.4

Fig. 4 shows a side view of the modular fluid processing tanks of Fig. 1 stacked on top of each other according to an example embodiment.

Fig.5

Fig. 5 shows a side view of the modular fluid processing tanks of Fig. 1 stacked on top of each other according to another example embodiment.

Skilled artisans will appreciate that elements in the figures are illustrated for simplicity and clarity and have not necessarily been depicted to scale. For example, the dimensions of

some of the elements in the illustrations, block diagrams or flowcharts may be exaggerated in respect to other elements to help to improve understanding of the present embodiments.

Description of Embodiments

The following detailed description is merely exemplary in nature and is not intended to limit the invention or the application and uses of the invention. Furthermore, there is no intention to be bound by any theory presented in the preceding background of the invention or the following detailed description. Herein, a modular fluid processing tank is presented in accordance with present embodiments having the advantages of transportability, modularity and scalability.

Fig. 1 shows a perspective view of a modular fluid processing tank according to an embodiment of the present invention. The modular fluid processing tank 100 comprises a body 102 having a plurality of vertical walls 104, 105, 106, 107. The vertical walls 104, 105, 106, 107 comprise respective fluid connectors 108, 110 positioned near the base of the tank 100. Typically, the fluid connectors on opposing walls 104 and 107, 105 and 106 are connected to each other and are in fluid communication with the interior of the body 102. In preferred implementations, the fluid connectors 108, 110 etc. are inter-connected through internal pipes disposed inside the body 102 (not shown in Figure 1). Suitable valves may be incorporated to control the connections.

Each of the fluid connectors of tank 100 allows the tank 100 to connect directly with an adjacent tank without the need for external piping between the tanks. In other words, each of the fluid connectors 108, 110 is configured to engage directly with a corresponding fluid connector of an adjacent tank that is placed beside the tank 100, such that the tank 100 fluidly communicates with the adjacent tank. For example, a first adjacent tank can be orientated similarly to the tank 100, and placed alongside wall 104 of the tank 100, such that fluid connector 108 is able to engage directly with the corresponding fluid connector of the first adjacent tank. A second adjacent tank can also be orientated similarly to tank 100, and placed lengthwise to wall 106 such that fluid connector 110 engages with another corresponding fluid connector on the second adjacent tank. Accordingly, tank 100 is also able to connect with a third and fourth adjacent tank using the fluid connectors positioned on the opposing walls 105, 107 of walls 104, 106, such that a network of similar tanks can be formed. The fluid connectors 108, 110 advantageously allow a network of similar tanks to be formed without a need for external piping in between the tanks. Elimination of external piping between the tanks can enhance the scalability of the network to expand or shrink through the addition or removal tanks as needed. In other words, the tanks can be daisy-chained to

increase or reduce capacity of the network. In embodiments of the present invention, the network of tanks may be configured such that the tanks can be filled or drained from just two connections, from a fluid inlet and a fluid outlet.

A valve cavity 112 may be disposed at one or more corners of the tank 100. The valve cavity 112 may comprise one or more fluid connectors 113. The valve cavity 112 is configured to receive external valves (shown in Fig. 2) directly connectable to the one or more fluid connectors 113. The external valves are not built into the tank 100 to facilitate manual operation, and are thus interchangeable. In other words, different types of valves may be chosen to facilitate different operations and to handle different fluid types. The external valves may be pneumatically or hydraulically actuated to control the fluid flow through the tank 100. The external valves may also be also electromechanically actuated. Examples of electromechanical valves include solenoid valves.

The fluid connectors 108, 110 are located within the envelope defined by the exterior of the tank. In other words, the fluid connectors 108, 110 do not protrude out of the tank profile. The position of the fluid connectors 108, 110 can advantageously reduce risk of damage that may be caused by impact from another tank or container during installation or transportation. In some embodiments, the fluid connectors 108, 110 may comprise connection flanges which require mechanical fasteners such as bolts to connect to the corresponding fluid connectors. Rubber seals may be used in addition to the mechanical fasteners. In alternate embodiments, the fluid connectors 108, 110, 113 may comprise quick coupling connectors which eliminate the need for mechanical fasteners. The use of the remotely actuated quick coupling connectors may advantageously allow the tanks to be packed closer together. For example, the tanks can be placed in close contact with each other, as the fluid connectors are able to capable of engaging with corresponding fluid connectors without manual intervention. Further, the fluid connectors 108, 110 may comprise a misalignment flange or a bellow flange if misalignments between the fluid connectors 108, 110 and corresponding fluid connectors are present, for example, if the supporting ground is uneven.

The modular fluid processing tank 100 is compliant with standards described within ISO 1496 (Series 1 Freight Container). The tank 100 can be transported empty or filled, by ship, rail or truck similar to standard shipping containers. In alternate embodiments, the tank 100 may be further compliant with DNV 2.7-1 standard for offshore containers, which allows the tank 100 to be used in an offshore environment, e.g. on offshore drilling platforms and ships. It will be appreciated by those skilled in the art that various modifications are possible. For example, the modular fluid processing tank can be designed as non-standard containers with uncommon sizes e.g. as 48-foot high-cube containers.

Reinforcement members 114, 115, 116 are disposed along the vertical walls of the body 102. The reinforcement members 114, 115, 116 may also extend along the top and bottom surfaces of the tank 100 to further strengthen the tank 100. Horizontal structural members 117 of the tank 100 may also be reinforced. The members 114, 115, 116, 117 enable the tank 100 to withstand loadings imposed during transportation, especially if tank 100 contains fluid within. The reinforcement members 114, 115, 116, 117 are connected to the walls 104, 106 which provide further structural strength. In the present embodiment, the walls 104, 106 comprise corrugated plates which can provide greater rigidity than flat panels, and are thus suitable if high density liquids are stored in the tank 100 while the tank 100 is being transported. One or more lifting points 118 are directly mounted to the skeleton structure of the tank 100. For example, the one or more lifting points 118 are connected to the reinforcement members 114, 115, 116, 117. The lifting points 118 allow the tank 100 to be lifted by an external crane with minimal stress to the walls 104, 105, 106, 107.

Access hatches 122, 124, 126 may be positioned on the vertical walls 104, 105, 106, 107 and on the top of the tank 100. One or more integrated ladders 120 fitted into a depression on the corrugated walls 104, 106 allow workers easy access to the access hatches 122, 124 positioned on the top of the tank 100. Similar ladders are also positioned within the tank 100 to allow workers to reach the bottom of the tank 100. One or more anchor points (not shown) may be present on the horizontal structural members 117 at positions near the integrated ladder 120 and near the access hatch 122, 124. Workers may attach their safety harness to the anchor points when working at heights to reduce the risk of falling. The top surface of the tank 100 may also feature slots into which hand-rails and lighting devices may be installed. The hand-rails and lighting devices also feature said anchor points. The lighting devices illuminate the working areas around the tank 100 and the hand-rails prevent workers from falls, improving the safety and accessibility of the tank 100.

The tank 100 further comprises mounting brackets 128, 130 to which motors for agitators may be mounted. The mounting brackets 128, 130 allow the agitators to be mounted either on top of, or within the tank 100. The agitators (not shown) circulate the fluid mixture within the tank 100, and prevent suspensions from settling. In the present embodiment, each of the mounting brackets 128, 130 is adjacent to the top of the tank 100 and the agitators can be mounted above the top of the tank. In alternate embodiments, the mounting brackets 128, 130 may be positioned within the tank. The motor will hence be submerged in the liquid that it is circulating. Advantageously, the placement of the motor within the tank 100 allows multiple tanks to be placed closely together, possibly eliminating the need for spacing between the tanks. Further, as the top surface of the tank 100 is available, it may be used as

a light storage area. The motors may also be removed when agitation is not required to increase the capacity of the tank 100.

Fig. 2 shows a plan part-section view of the modular fluid processing tank 200. The modular fluid processing tank 200 comprises tank 100 of Fig. 1 installed with removable valves 210, 211, 212, 213. . The tank 200 comprises a body with a plurality of vertical walls 202a, 202b, 202c, 202d, wherein each of the walls 202a, 202b, 202c, 202d comprises at least one fluid connector 204a, 204b, 204c, 204d. The fluid connectors 204a, 204b, 204c, 204d on each of the walls 202a, 202b, 202c, 202d are arranged such that the tank 200 is orientation agnostic. In other words, the tank 200 is symmetrical about a vertical axis through the center of the tank, and the tank 200 is identical in terms of connections and external dimensions when turned half a circle about this vertical axis. The fluid connectors 204a, 204b, 204c, 204d are connected to corresponding pipes 206, 208 running between the opposing walls within the tank 200. For example, the fluid connector 204a is connected to a corresponding pipe 206 running between the walls 202a, 202b, and the fluid connector 204c is connected to a corresponding pipe 208 running between walls 202c, 202d. The pipes 206, 208 are part of the plurality of pipes within the tank 200, the plurality of pipes being in fluid communication with each other. The tank 200 further comprises a suction cavity 203 disposed at the base of the tank 200. The suction cavity 203 is in fluid communication with the plurality of pipes, and is configured to draw fluid from within the tank.

The fluid connectors 204a, 204b, 204c, 204d are connected to respective integrated valves, e.g. 210, 212 positioned within the tank 200. The integrated valves 210, 212 remove the need for external valves when the tank 200 is connected to other adjacent tanks. The suction cavity 203 may also comprise an integrated valve 211. The integrated valves 210, 211, 212, 213 may be pneumatically, hydraulically or electromechanically actuated to regulate fluid flow within the tank 200, and may be controlled and monitored remotely. The remote control and monitoring capabilities allow for identification and self-isolation of the tank 200 in case of leakage. The integrated valves 210, 211, 212, 213 may be switched alternately to allow the fluid to flow in certain desired directions.

The modular fluid processing tank 200 is capable of storing and mixing fluids. The fluid to be stored within the tank 200 may first pass through an external chamber (not shown) at a high pressure, where solid or liquid additives and other constituents are introduced into the flow and allowed to be blended before being directed into the tank 200 at high pressures through one or more fluid connectors 204a, 204b, 204c, 204d. The fluid connectors 204a, 204b, 204c, 204d direct the fluid flow through the plurality of pipes within the tank 200 toward one or more nozzles 214 disposed within the tank 200. The tank 200 also features one or more

agitators 216 disposed within the body of the tank 200. The agitators 216 prevent the fluid from settling into its constituents and facilitate further mixing of the fluid by continuously agitating the fluid. In one example, each agitator 216 comprises a rotatable propeller. In another example, the one or more nozzles 214 configured to direct fluid into the tank 200 may also be used to agitate the fluid stored within the tank 200. The one or more nozzles 214 may be connected to an external pump which draws the fluid within the tank 200 through the suction cavity 203 and redirect the fluid through the nozzles 214 at high pressures. Each agitator 216 may be configured to be removable. For example, the agitators 216 may be removed from the tank 200 if the fluid is a solution which does not require agitation, as compared to a suspension.

Fig. 3 shows a plan part-section view of the plurality of modular fluid processing tanks 200 (Figure 2) in fluid communication with each other. The plurality of modular fluid processing tanks 200 forms a portion of a fluid processing plant. Fig. 3 shows in detail how a fluid may be circulated within the tank 302. The plurality of tanks 200 is configured to have a fluid outlet 304 and a fluid inlet 306. An external pump (not shown) is connected to the plurality of tanks 200 through fluid outlet 304 and fluid inlet 306. The external pump draws at a low pressure, fluid contained within tank 302 through suction cavity 308 disposed at the base of the tank 302. Integrated valves 310a, 310b, 310c, within the plurality of tanks 200 are actuated such that a flow path is formed which fluidly connects the suction cavity 308 with the fluid outlet 304 and the external pump. For example, the integrated valve 310a is operated to direct flow of fluid through integrated valve 310b and onward to integrated valve 310c. The integrated valves 310d, 310e are similarly operated to prevent alternate flow-paths from forming within the plurality of tanks 200. The fluid is compressed to a high pressure in the external pump and directed back into the tank 302 through the fluid inlet 306 along flow-path 314. For example, the integrated valves 316a, 316b, 316c, 310e, 316d along the flow-path 314 are operated to direct the high pressure fluid stream into the tank 302 through nozzles 318 while valve 310b is operated to prevent an alternate flow path from forming. The fluid is agitated and is prevented from settling within tank 302.

Fig. 4 shows a side view of two modular fluid processing tanks 200 of Fig. 2 stacked on top of each other according to an example embodiment. The stacked configuration 400 can be used onsite, as well as during transportation if the transportation means is capable of carrying the tanks 200 in said configuration. The tanks 200 include connection points 401a, 401b on the top and bottom surfaces which enables the tanks to be connected to each other. Further, the tanks 200 may be in fluid communication with each other via respective fluid connectors (not shown). Similar to the tank 100 of Fig. 1, the tanks 200 comprise reinforcement members 402a, 404a, 406a, 402b, 404b, 406b disposed along the lengthwise

direction of the tanks 200. The reinforcement members 402a, 404a, 406a, 402b, 404b, 406b strengthen the tanks 200 and prevent walls 408a, 408b from buckling under pressure. When high density fluids are present within the tanks 200, the tanks may be stacked up to only a height of two tanks, as strict restrictions may be imposed on the type and load bearing capacity of the surface upon which tanks 200 may be placed on. The tanks 200 may fluidly communicate through one or more valves between the two tanks. The tanks 200 also comprise mounting brackets 410, 412 similar to mounting brackets 128, 130 of tank 100 in Fig 1. The motors 414 and the agitators 416 in the present embodiment are mounted to the mounting brackets 410, 412 and positioned within the tanks 200, and advantageously allow close stacking of tanks 200.

Fig. 5 shows a side view of the modular fluid processing tanks 200 of Fig. 2 stacked on top of each other according to another example embodiment. In Fig. 5, the configuration 500 comprises stacking spacers 502, 504 provided at the corners of tanks 200. The stacking spacers 502, 504 are detachable vertical members that are connected to the corner castings 506, 508 through locks 510, 512. The locks 510, 512 may be a standardized rotating connector known as twist-lock in the art. The configuration 500 comprising the stacking spacers 502, 504 advantageously provide access space 505 to the top and bottom of tanks 200. The access space 505 may be used to allow inspection of the tanks 200, or to provide space for piping underneath the tanks. The access space 505 also allows external agitator devices 514, 516 to be mounted on the exterior of tanks 200. As mentioned above, the top surface of the tanks 200 feature slots 518 into which hand-rails 520 may be affixed. The hand-rails 520 comprise anchor points 522 to which workers may attach their safety harness when working at heights to reduce the risk of falling.

In embodiments of the present invention, the amount of liquid stored in the tanks may be measured using various methods. One or more proximity measuring devices may be installed within the tanks to estimate the height of the fluid contained within, and a separate device may determine the volume of fluid using the geometrical dimensions of the tanks. Alternatively, the tank may comprise one or more pressure sensors disposed at the bottom of the tank, which uses the pressure to determine the height assuming a predetermined density. The tank may also comprise one or more weight sensors positioned at the foot of the tanks to estimate the weight of the loaded tank by assuming a uniform weight distribution. Yet alternatively, one or more flow measuring devices may be disposed at the fluid inlets and outlets of the tank. The one or more flow measuring devices track the amount of fluid entering and exiting the tank, and estimate the quantity of fluid contained within the tank. Various modifications and combinations will be apparent to those skilled in the art. For example, the tank may be fitted with one or more proximity measuring devices and one or

more flow measuring devices to provide alternate readings of the quantity of fluid contained within the tank. The devices may further report the measurements to a remote location. The sensors may comprise a wireless communication means to convey the measurement to the remote location. The use of wireless communications beneficially reduces the need for cabling, and facilitates quicker tank installations. Moreover, the readings from the devices may be monitored to ensure that there are no leaks in the tanks. In the case of a fluid processing plant, where the tanks are daisy-chained, a detected leak may be addressed either through manual intervention, or an automatic self-isolation mechanism, wherein a pneumatic, hydraulic or electromechanical valve is actuated.

In embodiments of the present invention, the tank may comprise a self-cleaning device. The self-cleaning device facilitates the cleaning of the tank, which may be required before the tank stores a different fluid, or for during general maintenance. The self-cleaning device may comprise one or more high-pressure nozzles which spray cleaning fluids at high pressure to all the walls of the tank. The one or more high-pressure nozzles may be powered by an external pump that is also used to power the one or more nozzles 214 in Fig. 2. In alternate embodiments, the tank may be built such that the internal surfaces are substantially smooth. The internal surfaces may also have a clear view of the geometric center of the tank such that any self-cleaning device mounted close to the geometric center, or moved in a vertical direction through the geometric center will be able to effectively reach and clean the entire internal surface of the tanks. Alternatively, one or more self-cleaning devices may be distributed within the interior of the tank such that all surfaces could be cleaned. Advantageously, the self-cleaning devices eliminate the need for any personnel to enter the tank in order to clean it. Further, the self-cleaning devices may be re-purposed to spray additional coats of paint or other coating that may be required in order for the tank to store certain chemicals.

In embodiments of the present invention, the tanks may be used in chemical storage and processing facilities, fluid/fluid mixture storage facilities, and pharmaceutical facilities. The tanks are also suitable for paint/ emulsifier mixing and food processing. Further, the tanks in embodiments of the present invention are especially well-suited for use in drilling fluid processing plants, and as drilling fluid storage/mixing units. The tanks may be used on land-based processing plants, offshore drilling rigs and platforms, or onboard floating barges and drillships. The tanks may further comprise additional spraying devices disposed on the outer surfaces of the tanks. The spraying devices may be attached to the stacking spacers 502, 504 shown in Fig. 5. The spraying devices are configured to cool the tanks and the contents, especially if the tank is used to store chemicals which react exothermically within the tank.

Thus it can be seen that the modular fluid processing tank in accordance with the present embodiments have the advantages of transportability, modularity and scalability. While exemplary embodiments have been presented in the foregoing detailed description of the invention, it should be appreciated that a vast number of variations exist.

It should further be appreciated that the exemplary embodiments are only examples, and are not intended to limit the scope, applicability, operation, or configuration of the invention in any way. Rather, the foregoing detailed description will provide those skilled in the art with a convenient road map for implementing an exemplary embodiment of the invention, it being understood that various changes may be made in the function and arrangement of elements and method of operation described in an exemplary embodiment without departing from the scope of the invention as set forth in the appended claims.

Claims

1. A modular fluid processing tank comprising:
a body having a plurality of vertical walls, wherein each of at least two opposing walls comprises a respective fluid connector, each fluid connector being configured to engage directly with a corresponding fluid connector of an adjacent tank such that the tank fluidly communicates with said adjacent tank; and wherein each fluid connector is in fluid communication with a corresponding network pipe running inside the body between the two opposing walls.
2. The modular fluid processing tank of claim 1, wherein each fluid connector comprises a quick-coupling connector.
3. The modular fluid processing tank of claim 1 or 2, wherein each fluid connector is connected to an integrated valve.
4. The modular fluid processing tank of claim 3, wherein the integrated valve comprises one of a group consisting of a pneumatically actuated valve, a hydraulically actuated valve and an electromechanically actuated valve.
5. The modular fluid processing tank of claim 3 or 4, wherein the integrated valve is remotely controllable.
6. The modular fluid processing tank of claim 1, wherein the tank comprises a plurality of internal pipes, the plurality of internal pipes being in fluid communication with each other and coupled to the corresponding network pipe.
7. The modular fluid processing tank of claim 6, wherein the tank further comprises a suction cavity disposed at a base of the tank, the suction cavity being in fluid communication with the plurality of internal pipes.
8. The modular fluid processing tank of any one of claims 1 to 7, further comprising a fluid agitator disposed inside the body and configured to mix the fluid.
9. The modular fluid processing tank of claim 8, wherein the fluid agitator comprises a rotatable propeller configured to mix the fluid.
10. The modular fluid processing tank of any one of claims 1 to 9, further comprising a plurality of reinforcement members disposed along the walls.

11. The modular fluid processing tank of any one of claims 1 to 10, wherein the tank is compliant with ISO 1496 standard.
12. The modular fluid processing tank of any one of claims 1 to 11, wherein the tank is compliant with DNV 2.7-1 standard.
13. The modular fluid processing tank of any one of claims 1 to 12, further comprising a fluid level detector.
14. The modular fluid processing tank of any one of claims 1 to 13, wherein the tank comprises a self-cleaning tank.
15. A fluid processing plant, comprising a plurality of tanks as claimed in any one of claims 1 to 14, the plurality of tanks being connected adjacent to each other.
16. A method of manufacturing a modular fluid processing tank, the method comprising the steps of:
 - forming a body, the body having a plurality of vertical walls;
 - affixing a fluid connector on each of at least two opposing walls having corresponding holes formed therein; and
 - connecting a corresponding network pipe inside the body between the fluid connectors on the at least two opposing walls;wherein each fluid connector is configured to engage directly with a corresponding fluid connector of an adjacent tank such that the tank fluidly communicates with said adjacent tank.
17. The method as claimed in claim 16, wherein providing each fluid connector comprises providing a quick-coupling fluid connector.
18. The method as claimed in claim 16 or 17, wherein providing each fluid connector comprises providing the fluid connector connected to an integrated valve.
19. The method as claimed in claim 18, wherein the integrated valve comprises one of a group consisting of a pneumatically actuated valve, a hydraulically actuated valve and an electromechanically actuated valve.
20. The method as claimed in claim 18 or 19, wherein the integrated valve is a remotely controllable valve.

21. The method as claimed in claim 16, further comprising:
 - connecting a plurality of internal pipes between the plurality of walls, the plurality of internal pipes being in fluid communication with each other; and
 - coupling the plurality of internal pipes to the corresponding network pipe.
22. The method as claimed in claim 21, further comprising forming a suction cavity at a base of the tank, the suction cavity being in fluid communication with the plurality of internal pipes.
23. The method as claimed in any one of claims 16 to 22, further comprising installing a fluid agitator inside the body, the fluid agitator configured to mix the fluid.
24. The method as claimed in claim 23, wherein installing the fluid agitator comprises installing a rotatable propeller configured to mix the fluid.
25. The method as claimed in any one of claims 16 to 24, wherein forming the body comprises affixing a plurality of reinforcement members along the walls.
26. The method as claimed in any one of claims 16 to 25, wherein forming the body comprises forming the body to comply with ISO 1496 standard.
27. The method as claimed in any one of claims 16 to 26, wherein forming the body comprises forming the body to comply with DNV 2.7-1 standard.
28. A method of storing a fluid, the method comprising the steps of:
 - connecting a plurality of modular fluid processing tanks as claimed in any one of claims 1 to 15 such that the tanks are adjacent; and
 - transporting the fluid in or out of a selected tank of the plurality of tanks by moving the fluid through at least one tank adjacent to said selected tank.
29. The method as claimed in claim 28, further comprising the step of remotely monitoring fluid levels in the plurality of tanks.