

CLAIMS

1. A sealed and thermally insulating tank (1) for storing a fluid, the tank (1) being anchored in a load-bearing structure (3), the tank (1) having a loading/unloading tower (2) suspended from a ceiling wall (9) of the load-bearing structure (3), the tank (1) having a support foot (31) that is fastened to the load-bearing structure (3) in a zone of the bottom wall (23) of the tank (1), said support foot (31) being arranged to guide a vertical translational movement of the loading/unloading tower (2), the tank (1) having at least one sump (30) that is formed in the bottom wall (23) of the tank (1), the bottom wall of the tank comprising a corrugated sealing membrane (7) that is intended to be in contact with the fluid, the corrugated sealing membrane (7) comprising at least first corrugations (60) extending in a first direction (x) and spaced apart from one another, wherein the sump (30) and the support foot (31) are spaced apart by a distance such that at least three first corrugations (60) pass between the sump (30) and the support foot (31).

2. The tank (1) as claimed in claim 1, wherein the sump (30) and the support foot (31) are spaced apart by a distance such that at least four first corrugations (60) pass between the sump (30) and the support foot (31).

3. The tank (1) as claimed in claim 1 or claim 2, wherein the sealing membrane comprises second corrugations extending in a second direction (y) perpendicular to the first direction, the sump (30) and the support foot (31) being positioned between the directrices of two second corrugations, and more particularly centrally between these.

4. The tank (1) as claimed in claim 3, wherein the sump (30) interrupts two first corrugations and two second corrugations.

5. The tank (1) as claimed in claim 3 or claim 4, wherein, in a zone of the bottom wall of the tank, remote from the support foot, the first corrugations are straight, parallel and equidistant, extending in the first direction, and the second corrugations are straight, parallel and equidistant, extending in the second direction, the distance between two adjacent first corrugations and the distance between two adjacent second corrugations being equal to the corrugation pitch.

6. The tank (1) as claimed in one of claims 3 to 5, wherein a first corrugation adjacent to one of the first corrugations interrupted by the sump (30) has a singular portion that is offset at a distance from the sump (30).

7. The tank (1) as claimed in claim 6, wherein the singular portion fits
5 between the sump (30) and the support foot (31).

8. The tank (1) as claimed in one of claims 1 to 7, wherein the load-bearing structure (3) is integrated into a ship, the ship having a longitudinal direction (x) and the first corrugations are longitudinal corrugations extending in the longitudinal direction (x) of the ship.

9. The tank (1) as claimed in one of claims 1 to 8, in combination with
10 claim 3, the load-bearing structure (3) is integrated into a ship, the ship having a longitudinal direction (x) and a transverse direction (y) that is perpendicular to the longitudinal direction (x), and the second corrugations are transverse corrugations extending in the transverse direction (y) of the ship.

10. The tank (1) as claimed in one of claims 1 to 9, wherein the
15 loading/unloading tower (2) comprises a base (27) that extends horizontally and supports at least a first pump (18, 20), attached to the base (27), and fitted with a suction member, the suction member of the first pump (18) being accommodated in the sump (30), the first pump (18, 20) being aligned with the support foot (31) in a first
20 transverse plane (P2) that is orthogonal to the first direction.

11. The tank (1) as claimed in claim 10, wherein the loading/unloading
tower (2) comprising a first, a second and a third vertical pylons (11, 12, 13) defining a triangular-section prism, each pylon having a lower end, the base (27) being fastened to the lower end of the first, second and third pylons (11, 12, 13), the first
25 pump (18, 20) being arranged outside the triangular prism and the support foot (31) extending the triangular-section prism.

12. The tank (1) as claimed in claim 11, wherein the first pylon and the
second pylon (11, 12) are aligned in a second transverse plane (P1) which is orthogonal to the first direction.

13. The tank (1) as claimed in claim 11 or claim 12, wherein the
30 loading/unloading tower (2) carries a second pump (18, 20) that is fastened to the base (27) and fitted with a suction member, the second pump (18, 20) being arranged

outside the triangular prism and being aligned with the first pump (18, 20) and the support foot (31) in the first transverse plane (P2).

5 **14.** The tank (1) as claimed in claim 13, wherein the tank (1) has a second sump (30) that is formed in the bottom wall of the tank (1) and that houses the suction member of the second pump (20).

15. The tank (1) as claimed in one of claims 11 to 14, wherein the base (27) has at least one first lateral flange (45, 46) that projects in the second direction beyond the triangular-section prism and to which the first pump (18, 20) is fastened.

10 **16.** The tank (1) as claimed in claim 13, wherein the base (27) has a second lateral flange (45, 46) that projects in the second direction beyond the triangular-section prism and to which the second pump (18, 20) is fastened.

17. A ship (70) having a load-bearing structure (3) and a tank (1) as claimed in any one of claims 1 to 16, anchored in said load-bearing structure (3).

15 **18.** A transfer system for a fluid, the system including a ship (70) as claimed in claim 17, insulated pipes (73, 79, 76, 81) arranged to connect the tank (71) installed in the hull of the ship to an onshore or floating storage facility (77) and a pump for driving a fluid through the insulated pipes to or from the onshore or floating storage facility to or from the tank on the ship.

20 **19.** A method for loading or unloading a ship (70) ~~as claimed in claim 47~~, in which the method comprises the following steps :
 - provide a ship as claimed in claim 17,
 - ~~a fluid is conveyed~~ convey a fluid through insulated pipes (73, 79, 76, 81) from or to a floating or onshore storage facility (77) to or from the tank (71) on the ship.