

CLAIMS

1. A sealed and thermally insulating storage tank (1) for a fluid that is anchored in a load-bearing structure (3) that is built into a ship, the ship having a longitudinal direction (x), the tank (1) having a loading/unloading tower (2) suspended
5 from a ceiling wall (9) of the load-bearing structure (3), the loading/unloading tower (2) including first, second and third vertical pylons (11, 12, 13) defining a prism of triangular section, each pylon having a lower end, the loading/unloading tower (2) also having a base (27) that extends horizontally and that is fastened to the lower end of the first, second and third pylons (11, 12, 13); the loading/unloading tower (2) carrying
10 at least a first pump (18, 20) that is fastened to the base (27) and fitted with a suction member; 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) that extends the prism of triangular section, said support foot (31) being arranged to guide a vertical translational movement of the loading/unloading tower (2); the tank (1) having at least
15 one first sump (30) that is formed in the bottom wall (23) of the tank (1) and that houses the suction member of the first pump (18), the first pump (18, 20) being arranged outside the triangular prism and being aligned with the support foot (31) in a first transverse plane (P2) that is orthogonal to the longitudinal direction of the ship (x), or forms an angle other than 90° and between 75° and 105° with the longitudinal
20 direction (x) of the ship.

2. The tank (1) as claimed in claim 1, in which the 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
25 (31) in the first transverse plane (P2).

3. The tank (1) as claimed in claim 2, in which 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).

4. The tank (1) as claimed in any one of claims 1 to 3, in which the first
30 and second pylons (11, 12) are aligned in a second transverse plane (P1) that is orthogonal to the longitudinal direction (x) of the ship.

5. The tank (1) as claimed in claim 4, in which the loading/unloading tower (2) carries a third pump (19) that is fastened to the base (27), the third pump

(19) being aligned with said first and second pylons (11, 12) in the second transverse plane (P1) and arranged between said first and second pylons (11, 12).

6. The tank (1) as claimed in claim 4 or 5, in which the first pump (18, 20) is linked to a first unloading line (15, 17) that extends vertically along the loading/unloading tower (2), the first unloading line (15, 17) being aligned with said first and second pylons (11, 12) in the second transverse plane (P1) and arranged between the first and second pylons (11, 12).

7. The tank (1) as claimed in any one of claims 1 to 6, in which the base (27) has at least one first lateral flange (45, 46) that projects in the transverse direction beyond the prism of triangular section and to which the first pump (18, 20) is fastened.

8. The tank (1) as claimed in claim 7 taken in combination with claim 2, in which the base (27) has a second lateral flange (45, 46) that projects in the transverse direction beyond the prism of triangular section and to which the second pump (18, 20) is fastened.

9. The tank (1) as claimed in claim 8, in which the base (27) has a central stiffening structure between the first and second lateral flanges (45, 46), said central stiffening structure (37) having two stiffening members (38, 39) that are inclined in relation to the longitudinal direction (x) of the ship, one of the stiffening members (38) extending in a straight line between the third pylon (13) and the first pylon (11), and the other stiffening member (39) extending in a straight line between the second pylon (12) and the third pylon (13).

10. The tank (1) as claimed in claim 9, in which the central stiffening structure (37) also has a plurality of stiffening members that extend transversely to the longitudinal direction (x) of the ship between the two stiffening members (38, 39) inclined in relation to the longitudinal direction (x) of the ship.

11. The tank (1) as claimed in any one of claims 7 to 10, in which the first lateral flange (45, 46) has a half-box (47, 48) housing the first pump (18, 20), the half-box (47, 48) having a horizontal bottom (49) on which fastening lugs for said first pump (18, 20) are fastened, the bottom having a cutout through which said first pump (18, 20) can pass.

12. The tank (1) as claimed in any one of claims 7 to 11, in which the first lateral flange (45, 46) has stiffening members that extend transversely to the longitudinal direction (x) of the ship.

13. The tank (1) as claimed in any one of claims 1 to 12, in which the
 5 loading/unloading tower (2) is fitted with a radar device to measure the level of liquefied gas in the tank (1), the radar device including an emitter and a waveguide (25) that extends over substantially the entire height of the tank (1), the waveguide (25) being fastened using support members (26) to the cross members (14) that link the third pylon (13) to the first or second pylon (11, 12), the support members (26)
 10 extending in a third transverse plane that is orthogonal to the longitudinal direction (x) of the ship.

14. A sealed and thermally insulating storage tank (1) for a fluid that is anchored in a load-bearing structure (3) that is built into a ship, the ship having a longitudinal direction (x), the tank (1) having a loading/unloading tower (2) suspended
 15 from a ceiling wall (9) of the load-bearing structure (3), the loading/unloading tower (2) including first, second and third vertical pylons (11, 12, 13), each pylon having a lower end, the loading/unloading tower (2) also having a base (27) that extends horizontally and that is fastened to the lower end of the first, second and third pylons (11, 12, 13); the loading/unloading tower (2) also carrying at least a first pump (18,
 20 20) that is fastened to the base (27) and fitted with a suction member; the base (27) having a central stiffening structure, said central stiffening structure (37) having two stiffening members (38, 39) that are inclined in relation to the longitudinal direction (x) of the ship, one of the stiffening members (38) extending in a straight line from the third pylon (13) to the first pylon (11), and the other stiffening member (39) extending
 25 in a straight line from the second pylon (12) to the third pylon (13).

15. A ship (70) having a load-bearing structure (3) and a tank (1) as claimed in any one of claims 1 to 14, anchored in said load-bearing structure (3).

16. A method for loading or unloading a ship (70) comprising:
 - providing a ship according to claim 15,
 30 - routing a fluid through insulated pipes (73, 79, 76, 81) to or from an onshore or floating storage facility (77) to or from the tank (71) on the ship.

17. A transfer system for a fluid, the system including a ship (70) as claimed in claim 15, 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.