Claims

1.

Tank feasible for storage and transport of fluids at cryogenic temperatures, comprising:

an inner tank,

thermal insulation, and

an outer shell that is airtight,

wherein the thermal insulation is arranged outside the inner tank and the outer shell is arranged outside the thermal insulation,

further comprising a coupling through the outer shell, wherein a vacuum pump outside the tank can be coupled for suction of air and gas from the volume between the inner tank and the outer shell, and

further comprising an opening from outside the tank to inside the inner tank for loading and unloading of fluid,

wherein the inner tank in operation contains fluid and the volume between the inner tank and the outer shell is at vacuum,

c h a r a c t e r i s e d i n that

the thermal insulation comprises several block elements arranged side by side on the inner tank, with a gap in between the block elements,

wherein the outer shell comprises several parts that have been joined together to cover the whole outer surface of the insulation, wherein parts of the outer shell covering an insulation block element have shape matching the insulation block element shape and parts of the outer shell covering the gaps between the block elements have inward or outward oriented curved shape if seen in cross section along the respective gaps and are flexible by contracting or stretching the curved shape.

2.

Tank according to claim 1, wherein the curved parts of the outer shell have a cosine shape, a cosine-like shape, or another smoothly corrugated shape if seen in cross section along a gap.

3.

Tank according to claim 1 or 2, wherein the curved parts, at positions where two curved parts are crossing, have a superimposed cosine shape or a superimposed, smoothly corrugated shape.

4.

Tank according to any one of claim 1 - 3, wherein the curved parts of the outer shell covering said gaps are not form stable but contract when the inner tank cools down and contracts and stretch when the inner tank warms up and expand, while the parts of the outer shell over said block elements are form stable and are fastened to the block elements by glue and/or mechanical devices and are not deformed relative to the respective block elements.

5.

Tank according to any one of claim 1 - 4, wherein the tank comprises outer shell parts with curved superimposed shape where two curved parts are crossing, at the area center of the part, wherein the curved superimposed shape is without joints and the joints between outer shell parts are at locations of minimum stress, whereby the curved shapes are arranged along centerlines of the outer shell parts.

6.

Method of fabricating the tank of any one of claim 1-5, c h a r a c t e r i s e d b y t h e steps:

to fabricate or provide the inner tank,

to fabricate or provide insulation block elements,

to fabricate or provide an opening piece for filling or emptying fluid,

to fabricate or provide a coupling for a vacuum pump,

to fabricate or provide outer shell parts,

to arrange and fasten the block elements on the outer surface of the inner tank, side by side,

to arrange the opening piece and the coupling for a vacuum pump,

to arrange and join together the outer shell parts.

7.

Method according to claim 6, wherein the insulation is formed by a spray-on step followed by a step for carving out insulation blocks.

8.

Method according to claim 7, whereby the outer shell parts are fabricated by punch and die drawing, deep-drawing or bulging plate elements of austenitic stainless steel or aluminium or other material suitable for the purpose, with the curved parts at the centrelines and with the superimposed parts at the centre of the plate elements.

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Use of a tank according to any one of claim 1-5, for storage and transport of cryogenic fluid or other cold or warm fluid having temperature differing more than 30 °C from ambient temperature.