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2012-05



Aluminium domes

Internal floating roofs

Tank seals

Industrial supplies



**INTRODUCTION BROCHURE**

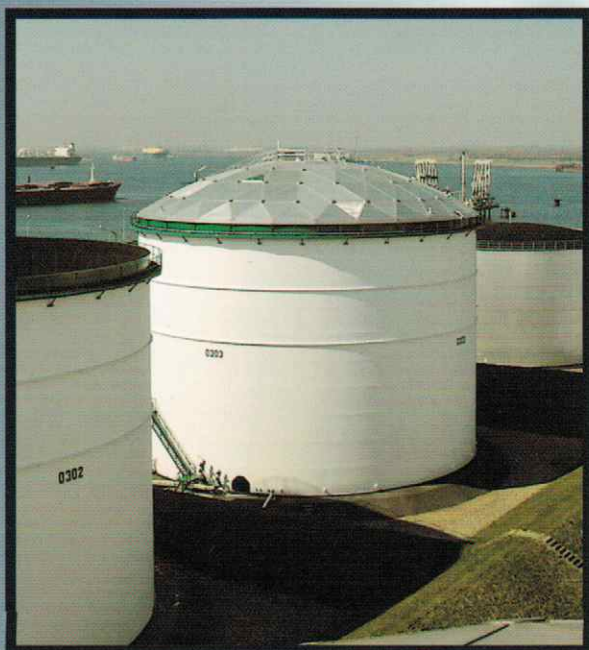


## GENERAL:

*CTS is specialized in the design, manufacturing, supply and installation of products and systems used in the safe and effective transfer and storage of chemicals and hydrocarbons. The management and staff of CTS has an extensive track record in this industry, and is therefore excellently positioned in servicing your requirements in this area. You and your organisation will be looking at a lot of different aspects when doing business, where we can assure you that CTS will honour all its commitments and will meet every individual expectation. Located within minutes from the Port of Rotterdam (The Netherlands) we are dedicated to support your requirements with respect to the following product lines:*

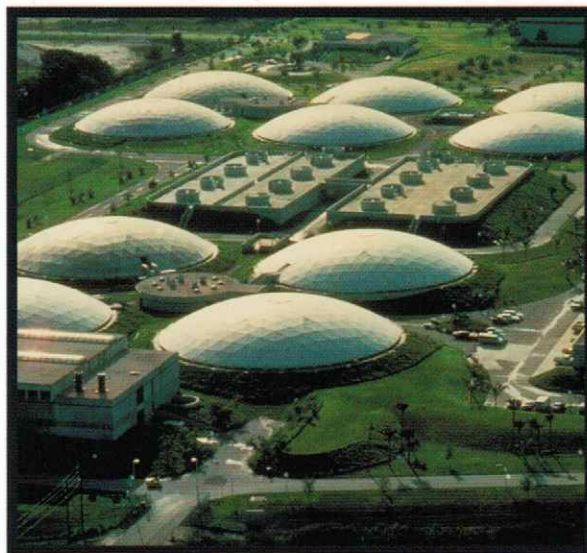
## ALUMINIUM DOME ROOFS FOR STORAGE TANKS:

Aluminium dome roofs have developed into the main tank covering product, replacing conventional steel roofs in many applications, including the area of atmospheric storage tanks. In recent years many external floating roof tanks have been covered by aluminium dome roofs both to eliminate rainwater ingress as well as to reduce emissions. Being free-span, light weight and maintenance free an aluminium dome roof is a long term investment and will prove to be a valuable asset for each terminal owner.



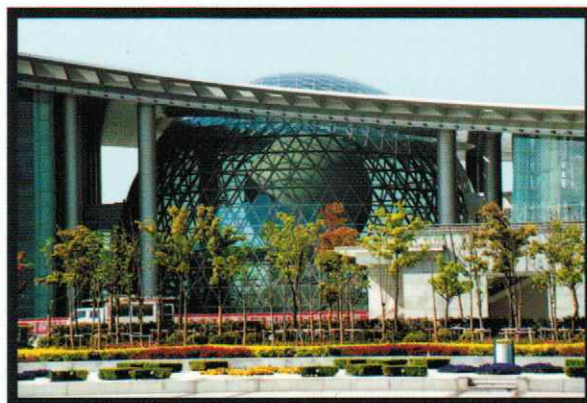
## ALUMINIUM DOMES FOR WASTE WATER APPLICATIONS:

Apart from being fitted to existing and new storage tanks aluminium domes have extensively been installed in waste water facilities, not only to reduce odours at these facilities but also to cover the process from the elements. Both the aluminium as well as the stainless steel grades used have proven themselves excellently suitable for the aggressive environment in waste water treatment facilities, even able to deal with the high Sulphur concentrations present in these applications.



## ALUMINIUM DOMES FOR ARCHITECTURAL PROJECTS:

As aluminium domes can create an impressive free-span and are aesthetically pleasing at the same time, many sporting arena's, landmark buildings, observatories and other impressive buildings were realised by using an aluminium dome structure. These structures were not only realised in

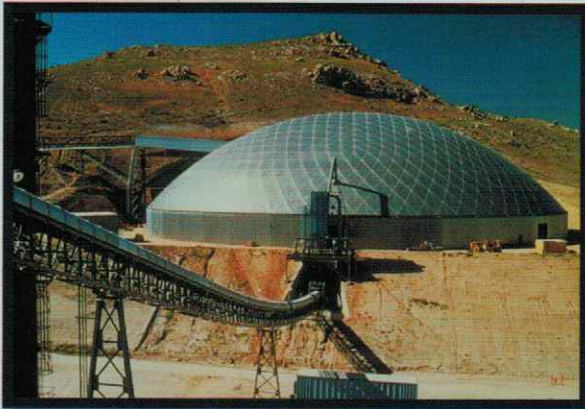


aluminium, but included many applications with transparent panels in the dome structure as well. Apart from the basic round base shapes, many other geometrical designs are possible, custom designed to suit your project.



### ALUMINIUM DOMES FOR BULK STORAGE:

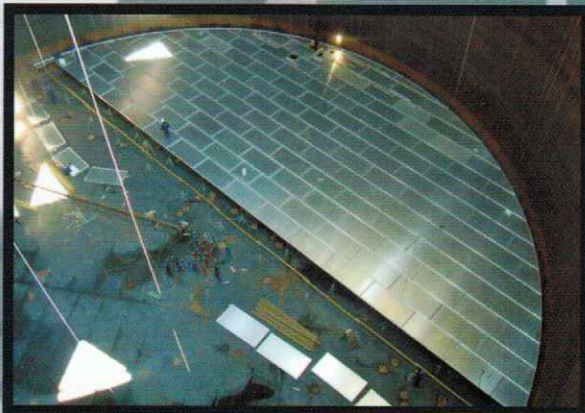
Industrial storage of bulk materials is another area where aluminium domes have developed into an important product for covering large areas against



minimal costs, shielding the stored materials from the elements and protecting the direct neighbours from bulk materials getting dispersed by the wind or drought. Apart from these important dome features, the domes will require no future maintenance and will also reduce spraying efforts drastically.

### INTERNAL FLOATING ROOFS:

CTS designs and supplies internal floating roofs to reduce emissions. Our designs include various types of contact and non-contact aluminium and stainless steel roofs designed and manufactured according to API 650 Appendix H and relevant other requirements. Apart from different roof designs we are able to supply a full range of seals on internal



floating roofs, both for new installations as well as for retrofit applications. In recent years we have gained extensive experience converting external steel floating roof tanks to a tank design incorporating an aluminium dome roof covering an internal floating roof. Some of the projects we covered included cable suspended internal floating roofs, eliminating roof legs contacting the tank bottom.

### FLOATING SUCTION LINES:

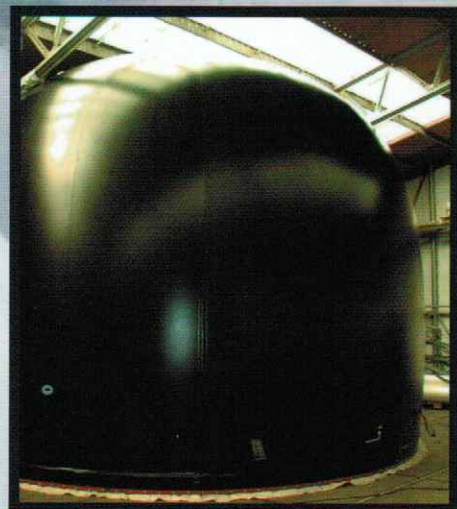
Floating suction systems are used within the storage tanks for petroleum and aviation fuels. Suspended by the surface of the liquid, the inlet to the pump is located in the clean dense product regardless of the constantly changing liquid level. For tanks with floating roofs, large bore roof skimmers move with the roof to drain away



unwanted liquid. CTS supplies a complete range of floating suction units from 2" to 30", designed for horizontal and vertical tanks, accommodating fixed and floating roof tanks. Used materials include aluminium, carbon steel and stainless steel.

### VAPOUR BLADDER:

Vapour bladders are used for buffering volatile organic carbons vapours, which is both economically as well as for preserving the environment of tremendous importance. Because the bladder will eliminate peak loads fitting a vapour bladder in your vapour recovery system will enable you to install smaller vapour recovery systems. It will ensure an uniform vapour pressure within your vapour recovery unit (VRU) 24 hours a day. Any VRU in your tank farm will benefit from the CTS designed and manufactured bladders, as they are detailed to last and virtually eliminate any future maintenance.





## PRIMARY TANK SEALS:

CTS provides many types of primary seals for floating roof tanks. These primary seal designs include state-of-the-art mechanical shoe seals, compression plate seals, foam seals and



special application type seals. These seals are designed for both external and internal type floating roofs. A wide range of materials of construction is incorporated into each type seal design to ensure compatibility with the stored liquid product and long service life. The seals are designed to prevent the stored hydrocarbon vapours from escaping to the atmosphere, even when subjected to adverse service conditions and wide variations in roof rim space.

## SECONDARY TANK SEALS:

A complete range of secondary seals for external floating roof tanks is manufactured by CTS. These secondary seal designs range from CTS20 compression plate seals to special secondary shoe plate seals for both external and internal floating roofs. Typically the CTS-developed secondary seals will be designed for product stored compatibility and will provide a long term reliable tank seal, reducing emissions and eliminating rainwater ingress to the product stored. There where it is important to maximize tank capacity CTS carries the designs which enable you to utilize the maximum capacity of your storage tanks.



## TANK INSPECTION:

*Maintenance of atmospheric storage tanks often requires a dedicated approach, especially when systems as dome roofs, tank seals, internal floating roofs or drain systems are involved. The CTS' staff responsible has an extensive record in conducting tank inspections prior to recommending or engineering these products. We will either be conducting tank inspections ourselves or we will facilitate a third party inspection with our detailed inspection sheets. At an inspection we will be concentrating on analyzing all tank data influencing product design, where typically our inspection focuses on aspects like the stored product, existing systems, site access, local requirements, dimensional reports and every other relevant aspect. Our extensive experience and profound knowledge of relevant codes as API 650, EPA and EEMUA will ensure a sound approach on the basis of this important and extensive tank inspection.*



## INTEGRAL FOAM DAM:

Welded foam dams are prone to causing corrosion of the rim of an external floating roof. To eliminate this phenomena an integral foam dam is an economic alternative, no longer



trapping water and product in the area directly behind the rim. Apart from reducing corrosion of the floating roof, an integral foam dam reduces the quantity of foam required for fighting a rim fire significantly, as the space to be filled with the foam is drastically reduced.



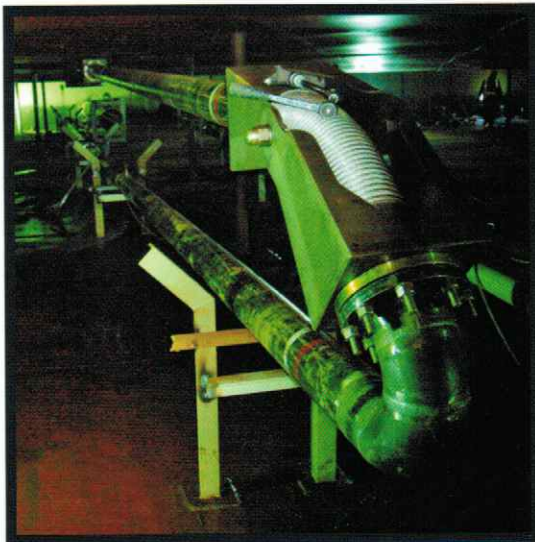
## LOADING ARMS:

In cooperation with reputable world class manufacturers CTS is able to support the supply and installation of marine loading arms and truck loading arms, either being bottom loading arms or top loading arms. These can be provided in a wide range of materials and designs, covering the safe and economic transfer for the entire envelope of often volatile liquids and gases to be safely transferred in or out from your tank terminal.



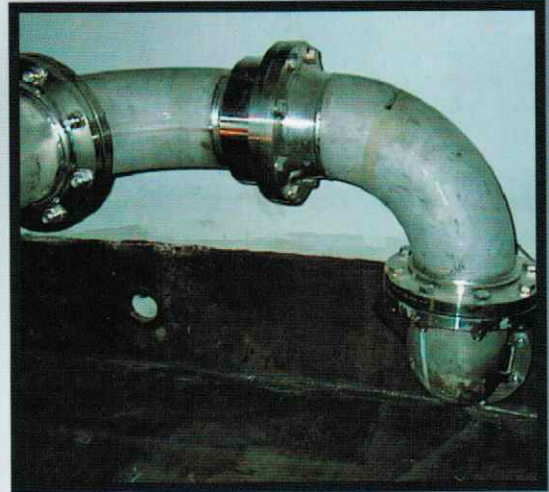
## TANK ROOF DRAIN SYSTEMS:

Rainwater draining from external floating roofs is of great importance to secure integrity of the floating roof. CTS offers several types of reliable roof drain systems for external floating roofs. These drain systems include conventional pipe drain systems, roof hose drains, flexible pipe drains with a repeatable lay pattern and a combination of both a hose and a rigid pipe system in our Drainmaster designed system. Some of these systems can be designed to deliver fire-fighting foam to a floating roof tank as well.



## SWIVEL JOINTS:

The heart of all loading arms and most floating suction and tank drain lines is the swivel joint. CTS offers the largest range from 1" to 30" in a variety of materials and seal options to enable effective long life handling of bulk



products. From corrosive acids to petroleum products, from LPG to Molasses, from fruit juice to dry bulk pellets. Learn more about the revolutionary new swivel joint range by requesting full details and documentation.

## COMPOSITE AND SPECIAL HOSES:

Hoses will always be catering for an important part of liquid, gas and solids transfer operations. Through its relationships with



several global leaders in manufacturing these products CTS is able to support your requirements for both composite hoses and special cargo transfer hoses. All supplied hoses will be meeting relevant standards as BS, DIN, USCG, Ghost, IMO and other standards applicable.





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