FULL CONTACT INTERNAL FLOATING ROOFS (IFR) FOR STORAGE TANKS

The most efficient solution for reduction of VOC (Volatile Organic Compound) emission on storage tanks is the direct contact IFR. Full contact Internal floating roofs (IFR’s) eliminate these emissions at the source. The roof covers the majority of the surface of the stored product and therefore prevents formation of vapours. This solution is categorised as BACT (Best Available Control Technique). CTS full contact internal floating roofs are manufactured from aluminium or stainless steel modules. These modules are bolted together on site, so no welding is required. This emission reduction solution maximises tank capacity, while reducing emission to almost zero.

Engineering
During the engineering phase our team of engineers will review all aspects of the specific tank and location the roof is fitted. We will also select the optimum solution for your application. Our engineering service includes assessment of emission requirements per API, EN, BREF IPPC, EPA and EEMUA 159 and local codes such as PGS 29 or Vlarem. CTS will also execute an emission review and can inspect the actual emission after installation of the floating roof solution. Completely in line with our sustainability vision we will strive to ensure optimal emission reduction during the service life of the IFR.

Solutions
• High quality unsinkable full contact roof
• No maintenance
• Compatible with all products stored, including 100% aromatics
• Suitable for between 6 and 120 meters diameter
• Al common tank seal designs can be installed
• Available in Aluminium and stainless steel

Highlights
• Reduction of VOC emission exceeding all major relevant codes and guidelines
• No vapour on the covered area
• Suitable for rim fire protection only (often deluge systems are also not required)
• Strong and durable
• Short installation time with experienced CTS crews
• Suitable for many operational activities such as high pump speeds, pigging and mixing
• Expected service life more than 30 years
INTERNAL FLOATING ROOFS (IFR’S)

Seal arrangements
There are several different seal arrangements available for internal floating roofs. Each seal has its own specific areas of service. Seal materials will have to be reviewed depending on the stored products.

The most common seal arrangements are:
• Single wiper seal
• Double wiper seal
• Liquid mounted mechanical shoe plate seal (often combined with a rim mounted independent secondary wiper seal)
• Foam seal

Let our team of specialists recommend you the preferred seal for your application.

Engineering aspects
Each roof will be designed for the tank it has to be fitted in. CTS has developed sheets with all relevant engineering information. This includes amongst others the tank diameter, stored product, cleaning routines, pumping rates and pigging requirements. The full contact internal floating roof normally requires an opening in the tank roof or tank shell for loading into the tank.

The roof modules, the vital part
The quality of the modules is essential for the long term performance of the roof. The modules consist of a skin with a light and strong aluminium honeycomb that gives the panel its strength. All our modules are seal welded and pressure tested with helium prior to shipment. The basic design of the roof exceeds the floatation requirements of API 650 by 350%, where the metallic skin exceeds API requirements for minimum thickness by more than 180%. This is the best way to ensure the all-important integrity of the roof.

Proven efficiency
Our roofs are extensively tested and monitored. Overall emission reductions have proven to exceed 98%. Feel free to request details of these emissions measurements and tests, so you will feel comfortable with our products and their performance.

Replacing corroded external roofs
Besides being used in fixed roof tanks an internal floating roof is an excellent alternative for replacing heavily corroded external floating roofs, when combined with an aluminium dome roof. This combination will eliminate rain water ingress, drain lines and will avoid extensive repairs such as blasting and painting. The converted tank will be more efficient in emission reduction when compared to a steel external floating roof tank. The gains go well beyond reducing only maintenance costs and out of service time!

Detailed product information
Obviously this leaflet could not address all details of our internal floating roofs. Full engineering information including material specifications, engineering drawings, references and other relevant information is available upon request. Please do feel free to ask for your copy.

Detailed product information
If this datasheet triggers more questions our team of experts will be always available to support and assist you in selecting the optimal solution for your specific application.

All our product information and specifications are drafted with care but can be subject to change. We reserve the right to change product specifications.