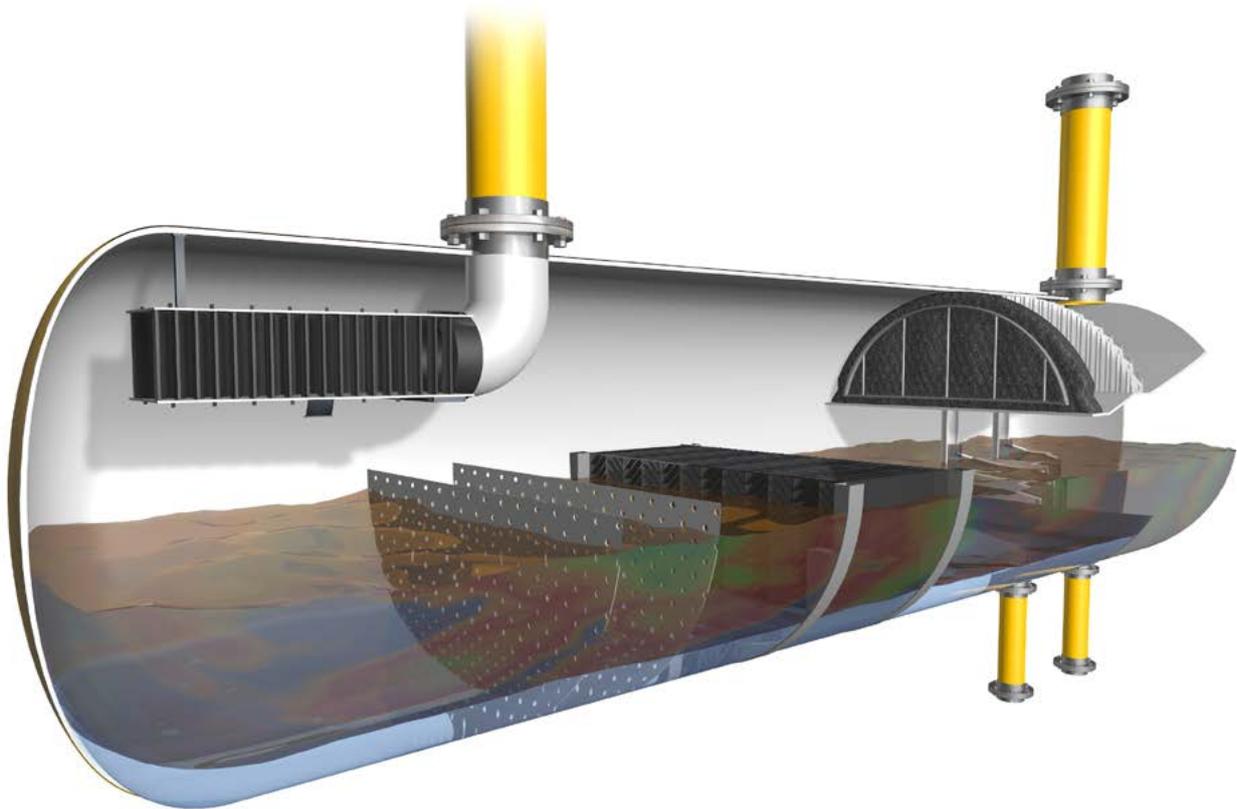




Advanced Separation Internal Solutions: (ASIS)



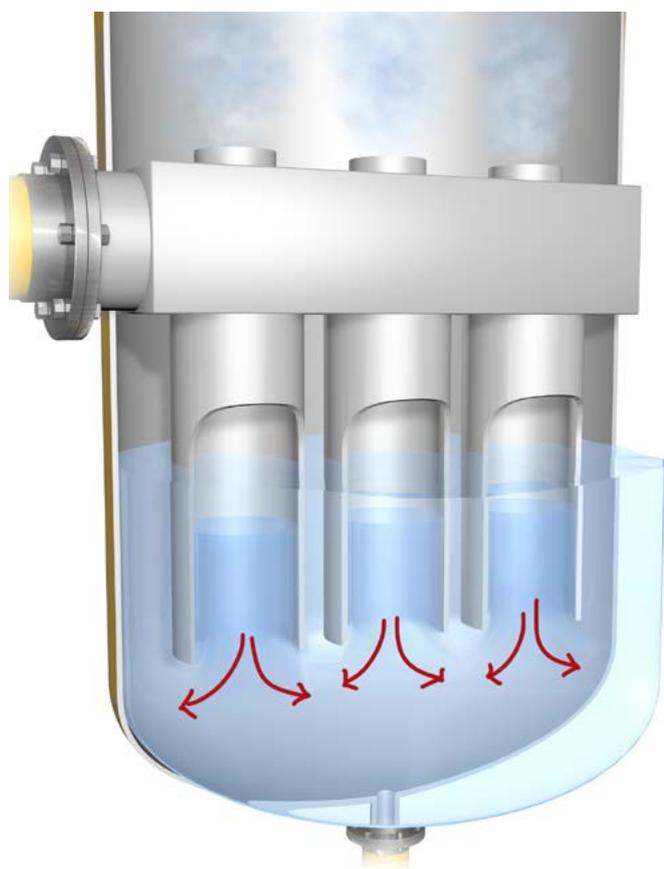
Advanced Separation Internal Solutions: (ASIS)



Separators and Scrubbers are key components in production trains and can often define the productivity limits for a given asset. Out-dated or standard, off the shelf equipment can restrict production in existing applications or create space & weight problems for new build applications. Adopting the Swift ASIS approach & equipment in your process system can increase production for existing process trains or provide more compact and light weight equipment for new developments.

Advanced Separation Internal Solutions: (ASIS)

The Swift ASIS approach starts by carefully reviewing the range of process conditions supplied to and required from your separation system and then designs & produces a tailored set of equipment to achieve the most effective solution. This system based approach is applied to both existing and proposed production trains. The Swift ASIS advantage is that the solution provided will be tailored



to your requirements rather than supplying the closest fit bit of hardware from a pre-determined set. Our advanced assessment and manufacturing techniques enable us to provide bespoke solutions to fit your needs rather than compromise your requirements to fit standard parts.

In retrofit applications the Swift ASIS approach is applied to your process train as a complete system, identifies the cause of the problem and provides a solution at the appropriate point(s) achieving an effective upgrade with the minimum intervention.

In New Build situations the Swift ASIS approach will optimize the solution taking into account the required performance level and any applicable constraints such as space, materials, access etc

Advanced Separation Internal Solutions: (ASIS)

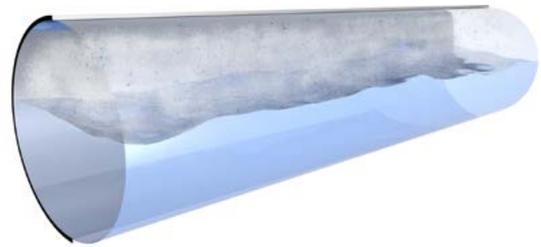
Swift ASIS Approach

“Vessel” type separators can be split into 3 main zones:

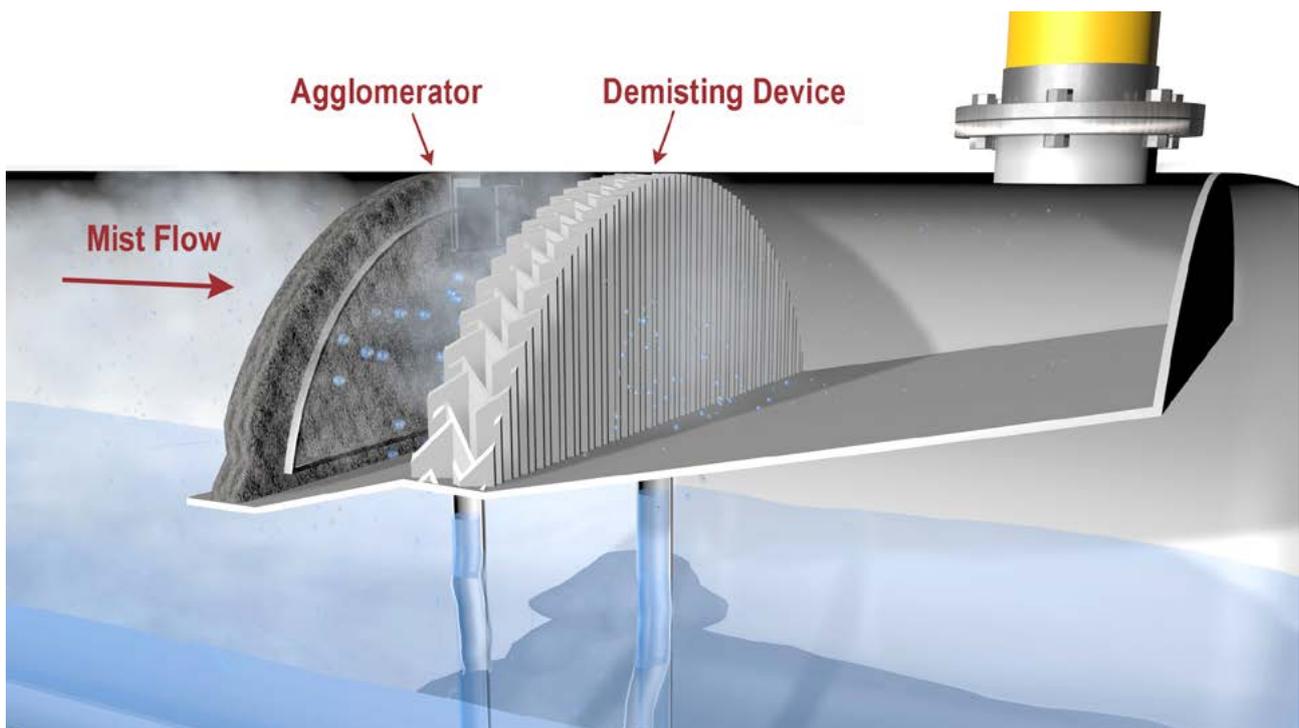
1. Fluid Inlet Zone
2. Gravity/Time Zone
3. Mist Capture Zone



1. The Inlet Zone is critical in setting the condition of the fluids throughout the rest of the vessel. A low performance device here will actually degrade the condition of the fluids making good separation more difficult.



2. The Gravity / Time Zone is one of the areas which tends to determine the overall size of the vessel. Separation in this area is a function of the gravitational effect and for how long it can be applied. There are a range of devices and techniques that can be applied in this zone to enhance the effects of gravity or extend the available effective time. Bulk Liquid / Gas separation and Liquid / Liquid separation is achieved in this zone.



3. The Mist Capture Zone is the final area before the gas outlet from the vessel. It is in this area that high performance devices and techniques are employed to eliminate or minimise any liquid carry over into the gas stream.

These zones are present in both vertical & horizontal Vessel type separators. Other cyclonic separation devices may be considered. Swift ASIS employs these techniques where appropriate.

Advanced Separation Internal Solutions: (ASIS)

Swift ASIS Equipment



Swift ASIS In-Vane

The Swift ASIS In-Vane is a vane type inlet device that diffuses and distributes the Inlet Zone fluids by reducing momentum and velocities while separating bulk liquid and providing proper vapour distribution. The

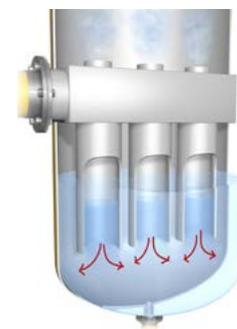


orientation, spacing and shape of the vanes are tuned to your application, maximising the efficiency of the other zones downstream.



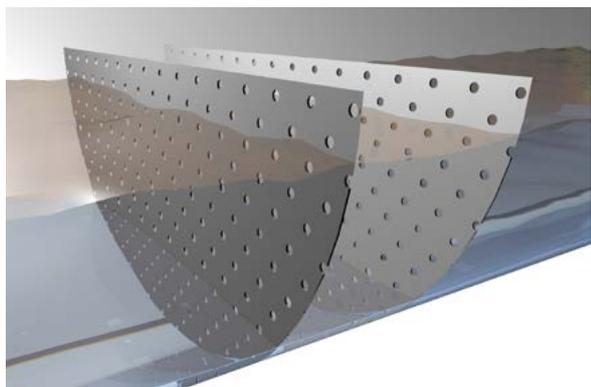
Swift ASIS In-Spin

The Swift ASIS In-Spin is a cyclonic inlet device (single or multi-cluster) placed in the Fluid Inlet Zone. By inducing a controlled spinning flow regime the effect of gravity is enhanced and this effect is used to pre-separate the incoming fluid phases including Gas/Liquid separation, Liquid/Liquid separation and foam or emulsion crushing (thus reducing



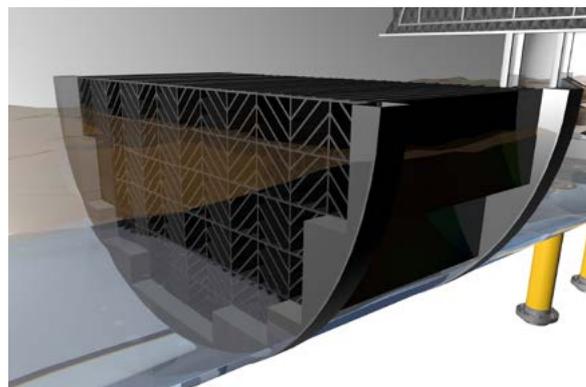
de-foaming chemical requirements). The number and size of the cyclone tubes is tuned to your application maximising the efficiency of the other zones downstream.

Swift ASIS In-Calm



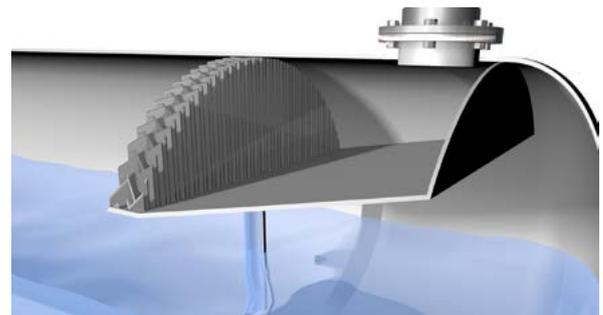
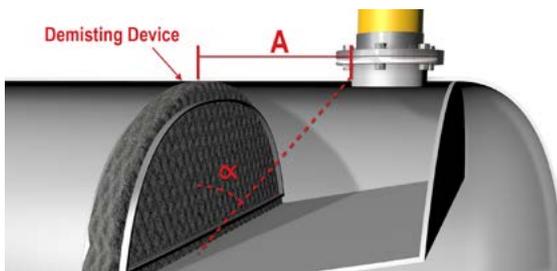
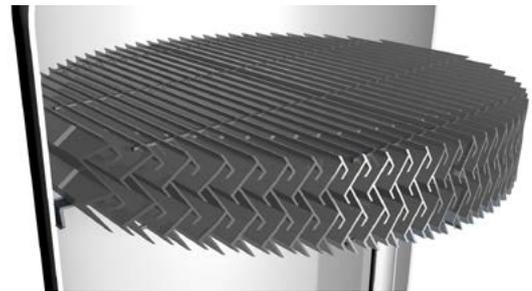
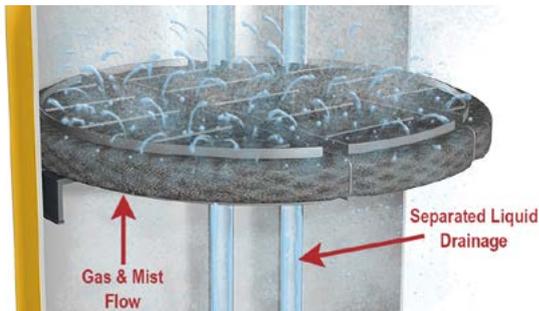
The Swift ASIS In-Calm technique uses combinations of perforated plates and baffles of varying geometries to control and direct the fluid flow at the start of the Gravity / Time Zone. Although apparently simple and basic, these devices are often critical in achieving the required flow regime for the downstream devices to achieve their optimum performance. Years of CFD modelling and real fluid testing have provided the Swift ASIS method the knowledge to select the correct geometry for your application, especially on moving applications such as FPSOs where fluid motion control is critical.

Swift ASIS Sep-Pak



The Swift ASIS Sep-Pak uses the tilted plate technique to enhance the Liquid/ Liquid separation in the Gravity/Time Zone. The detail in the design of this apparently simple apparatus is critical and is tuned to meet the application requirements. Again the Swift ASIS method is founded upon years of CFD modelling and real fluid testing and validation.

Advanced Separation Internal Solutions: (ASIS)



Swift ASIS Mist-Mesh

The Swift ASIS Mist-Mesh system is a flexible technology that can be deployed in most Mist Capture Zones. The Mist-Mesh can be used in both vertical & horizontal orientations and can be drained or plain. Mist-Mesh can also act as a stand alone separation device or as an agglomerator taking very fine droplets and combining them into larger drops to be more easily removed by a second stage.

Swift ASIS Vari-Vane

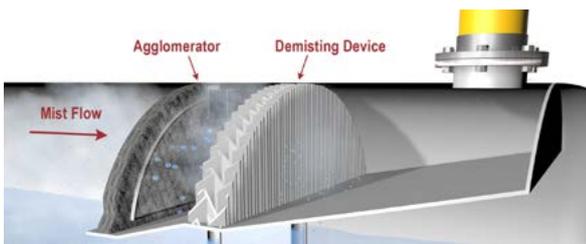
The Swift ASIS Vari-Vane system is an adaptive technology that can be deployed in most Mist Capture Zones. The Vari-Vane can be used in both vertical & horizontal orientations and can be drained or plain. This enables the Vari-Vane to act as a stand alone flow separation device or as the second stage following an agglomerator to remove the larger drops generated by the first stage.



Swift ASIS Mist-Twist

The Swift ASIS Mist-Twist system uses 'through flow' cyclones to remove entrained droplets in the Mist Capture Zone. Clusters of Mist-Twist cyclones can act as a stand alone flow separation device or as the second stage following an agglomerator to remove the larger drops generated by the first stage.

Below: Two typical examples of a Swift ASIS application of Mist-Mesh and Vari-Vane devices to create a 2 stage Mist Capture Zone.



Other Swift ASIS Technologies

Swift ASIS Stream-Spin Hydrocyclones

The Swift ASIS Stream-Spin Hydrocyclone system uses an advanced geometry reverse flow cyclone to provide improved performance and longevity from existing vessels from a simple retrofit without modification to the vessel or tube sheets.

Swift ASIS Sand-Sweep De-sanding System

The Swift ASIS Sand-Sweep De-sanding system uses an advanced spray geometry to give complete vessel bottom clearance while minimizing wash fluid consumption and process fluid disturbance.

Swift TG Solutions is Part of the Swift Technology Group

Swift Technology Group is a technology driven organisation that offers complete end to end product development. We are dedicated to supporting industrial skills and capabilities and to creating new, innovative, high quality solutions.

With our industry leading expertise in design, manufacturing, marketing and maintenance we can bring your concepts to market using in house companies to give you results of the highest quality. Whether for the Aircraft, Marine, Automotive, Oil and Gas or Renewable Energies industries, our diverse range of state of the art technologies can deliver advanced solutions by drawing on our years of experience in design and manufacture.



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