

KCID Cyclone Inlet Defoamers

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KIRK Process Solutions
London - Pune - Shanghai - Houston
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Key Benefits

- 1 Highly effective de-foaming action reducing or eliminating need for chemicals
- 2 High volumetric throughput means reduced vessel size
- 3 Easy installation and removal for new or retrofit applications
- 4 Economic capital cost
- 5 Excellent turn-down / turn-up performance
- 6 Rugged construction gives long life - even in corrosive or sandy service



Product Data Sheet

From the K-SEP® Range of Separator Internals

Background

KIRK Process Solutions is a leading, international supplier of process separator internals to the oil, gas and petrochemical industries.

Technology Development

To maintain a leading technical position, KIRK has developed a range of proprietary internals designed for effective phase separation.

Our cyclone separation internals are marketed under the **K-SEP®** trade name.

KCID Inlet Cyclones – A self regulating, low pressure drop inlet device for high liquid load service.

KMCE Multi Cyclones – A bank of small cyclones for moderate liquid load applications.

KSME Axial Swirl Mist Eliminators – An in-line cyclone deck for high performance in light liquid load services.



Typical units during manufacture

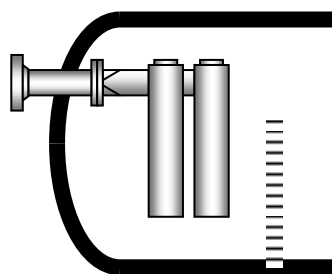
Boosts Capacity of Production Separators

Summary

Developed originally in the 1960's for the treatment of foamy crude oil in production equipment, early inlet cyclone devices suffered from a range of mechanical and fluid instability problems, and were not widely adopted.

Development work continued, however, and the design of the inlet cyclones evolved over the next 30 years from short, fat, single or dual cyclones into tall, thin, multi cyclone arrangements. The characteristics of these devices became better understood, and reliable performance envelopes were developed.

A characteristic of the cyclones is their high flow capacity, meaning that more



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throughput is possible through any given size separator.

Defoaming Mechanism

The primary purpose of the KCID inlet cyclone is that of foam elimination inside a separator. Many crude oils exhibit moderate or severe foaming tendency and the traditional approach to these problems is through a combination of oversized equipment using foam breaking packs and chemicals.

Inlet cyclones work on the principle of enhanced gravity separation by accelerating any incoming foam to high g-force, when it breaks down into separate liquid and gas phases.

The oil is flung to the perimeter of the cyclone tubes and flows down them into

the bulk oil layer, whilst the gas forms a central vortex core and escapes through a top outlet hole into the gas space.

There are many factors to take into account when designing these devices so please refer to KIRK for sizing confirmation.

Easy to Install

Manufactured as components that fit through a standard manway, KCID inlet cyclones comprise pre-stiffened cylinders and manifolds, requiring only simple supports and assembly within the vessel to achieve a secure fit.

KIRK provide full installation guidelines to ensure process integrity is not compromised. If required, we can also arrange to inspect equipment prior to start-up.

Wide Performance Range

KIRK will design the cyclone cluster to meet your specific requirements, but the design envelope of the whole separator usually means that performance can be guaranteed all the way down to zero turndown. In many cases there will be little loss in performance also should an additional 10-20% flow be required through the system.

KIRK also sometimes recommends the use of inlet weirs and flow distributor baffles, depending on the application.

Long Life Construction

Standard materials of construction are stainless steel grade 316 for all components. For very sour or corrosive service other materials such as Inconel can be furnished. Some contaminants may not be suitable for use with stainless steel; if in doubt please refer to KIRK.

KCID inlet cyclones can be used at any operating pressure and temperature likely to be experienced.

Applications

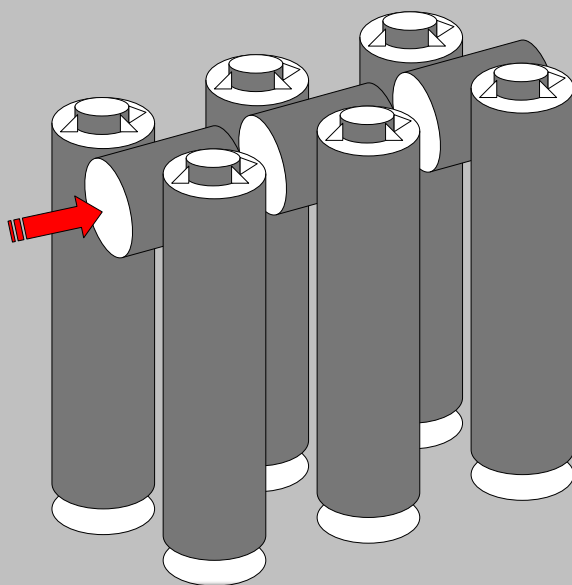
Common applications for KCID inlet cyclones include both horizontal and vertical:

- Production Separators
- Free Water Knock-Outs
- Degassing Vessels
- Slug Catchers

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Modular Construction



KIRK's unique modular design means future changes are easily made should the production profile change over time, or not be as expected. End, side and top entry designs are available.