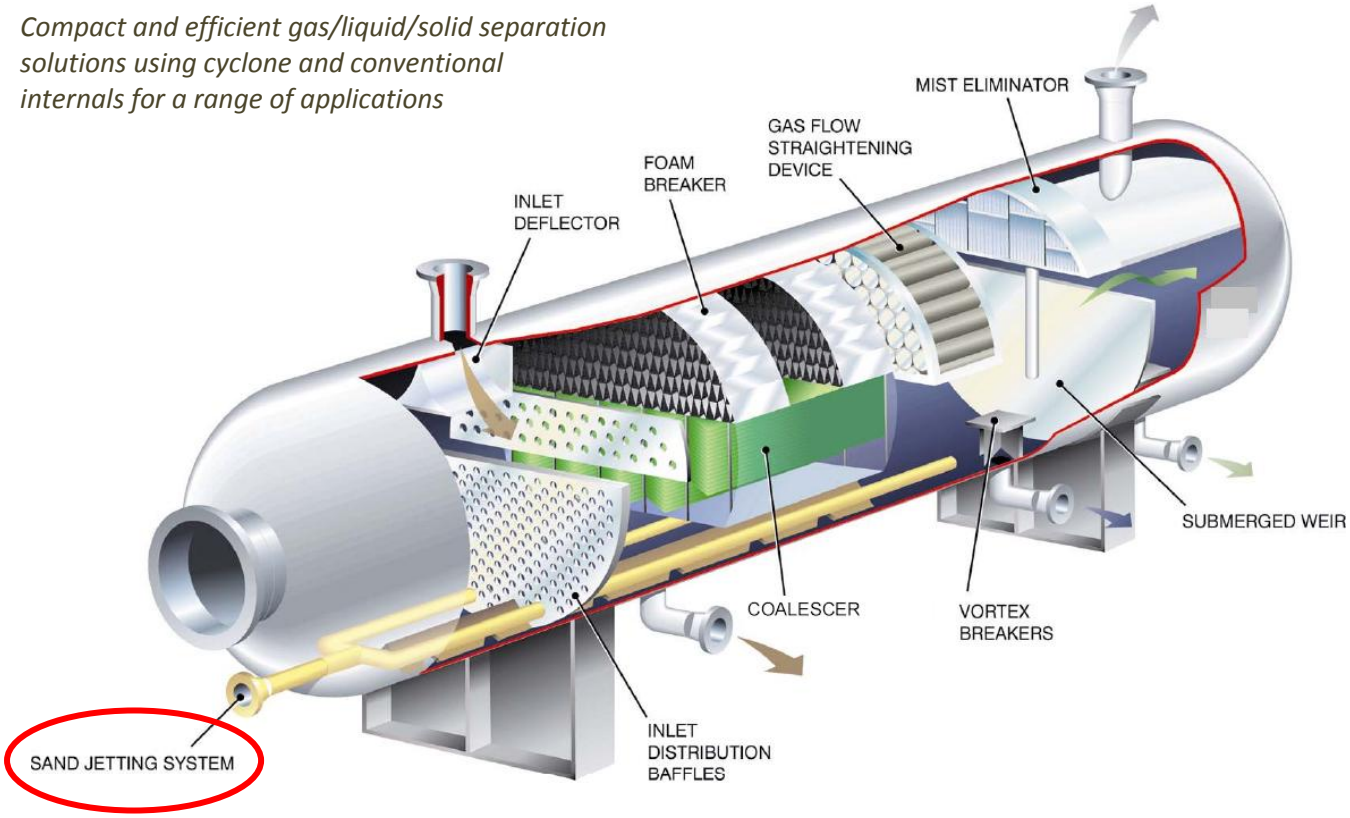
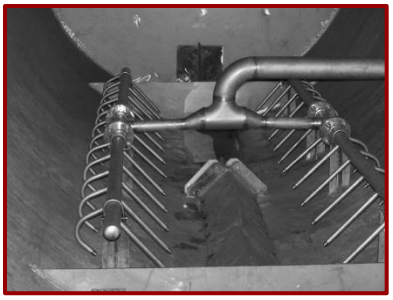
Achieving Separation

K-SEP™ Sand Jet Systems

Compact and efficient gas/liquid/solid separation solutions using cyclone and conventional internals for a range of applications



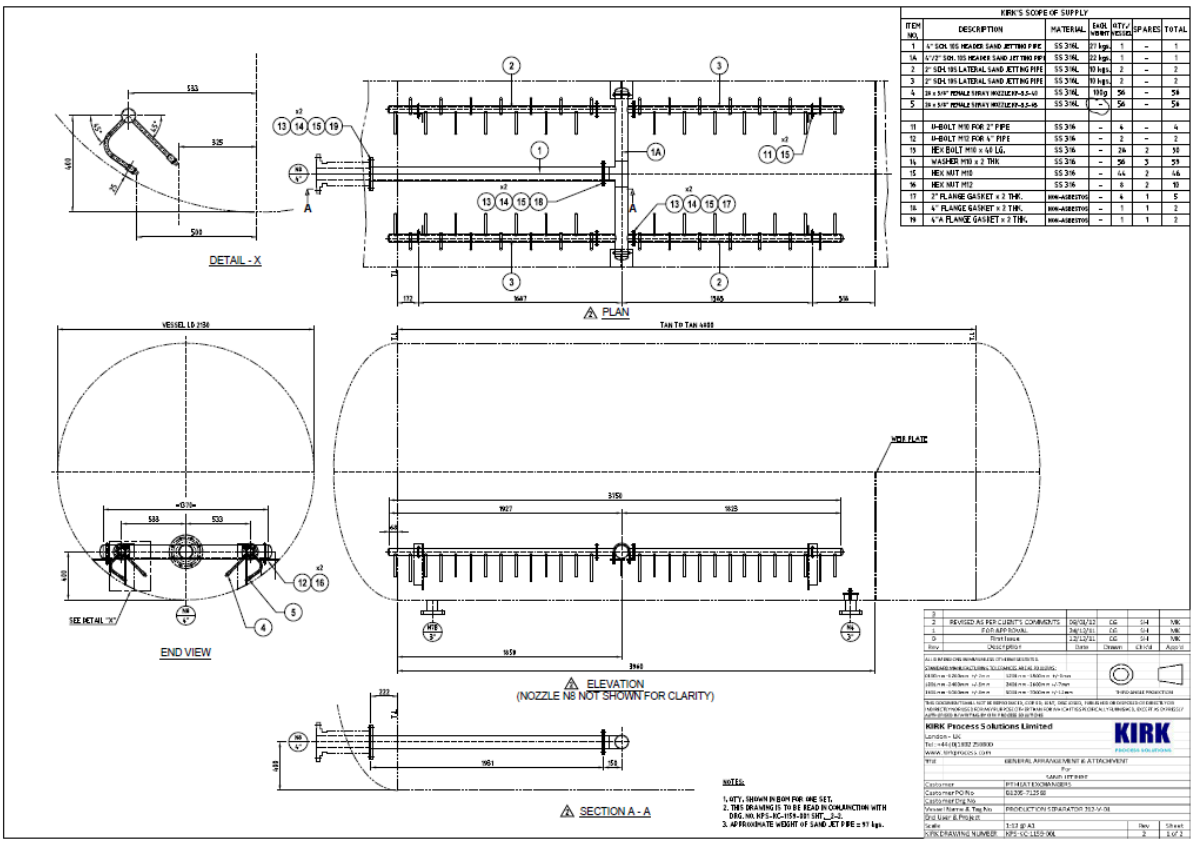
KSJ-HN Desanding System with Flat Spray Nozzles


Much work has been performed on the development of sand or sludge removal systems from separators over many years. However, no single “sand jet” system has evolved as clearly superior, rather there are a number of design features to choose from depending on the characteristics and nature of the problem. KIRK designs its sand jetting systems based on a wide range of features as shown below, to ensure that the sand deposits can be fluidised and hence drained satisfactorily in the most economic way.

One or more jet headers are placed either side of the centreline to provide maximum coverage. They can be split into several 'H' sections (partitioned) each separately fed with jet water, and separately drained so that sand deposition and flushing can be monitored and controlled at or above the critical Fluidisation Factor.

The headers are fitted with an array of smaller arms fitted with fan-jet nozzles to fluidise and sweep the solids most effectively. The selection of orifice size and fan angle depends on the vessel dimensions.



TYPICAL ARRANGEMENT INSIDE SEPARATOR VESSEL

A central sand pan prevents sand settling on the centreline and clogging the flushing out (sand removal) nozzles.

Segmentation of the sand area of the vessel is important for flushing purposes. It minimises jet water use and prevents fluidised solids from dissipating downstream. These segment lengths are calculated on an individual application basis. It is important to have the correct number and size of nozzles, although 'more' is not always good or necessary.

Large drain nozzles can interfere with the oil/water interface when flushing and drain-down is performed on-line, and may give excessive flows of slurry.

For detailed designs please refer to KIRK.