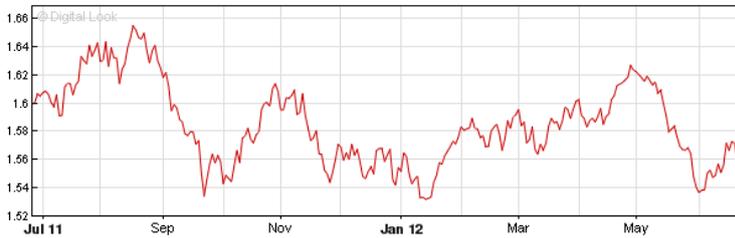


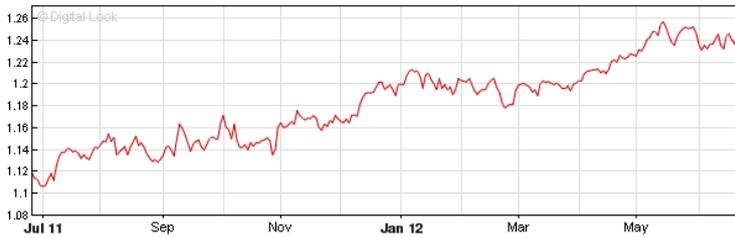
Welcome...

Welcome to the Summer 2012 *Highspeed™* e-newsletter from KIRK Process Solutions Limited. This edition brings you... market data tracking key exchange rates, commodity and share prices....industry news and project awards....the latest news from ourselves....and a special feature article!

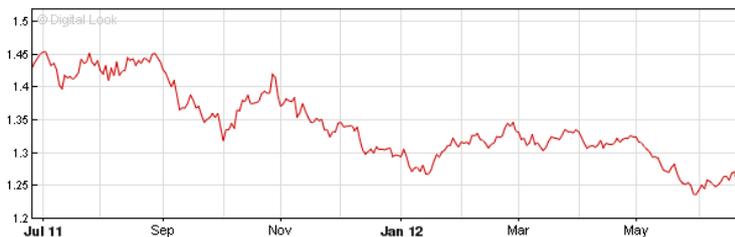
1 Pound Sterling = US Dollars



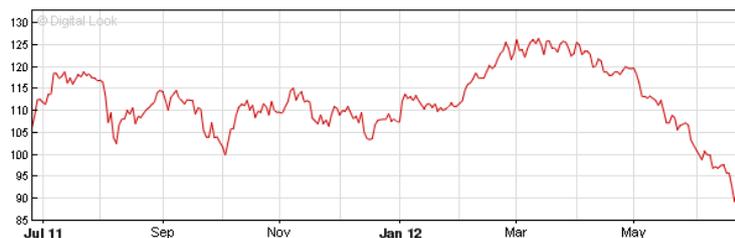
1 Pound Sterling = Euros



1 Euro = US Dollars



Brent Crude Oil: US Dollars/Bbl



What we do...

For those unfamiliar with our company, we are a process engineering business providing specialist vessel internals, software and design support to the oil, gas and petrochemical industries.

Market View...

Positive news is hard to find; with no resolution to the ongoing Euroland budget problems, growth prospects are being hit around the world, reflected in sinking commodity and oil prices.

The Euro has been the big loser against other major currencies this year and the risk remains on the downside in the event of default by Greece (leading to their ejection from the single currency area) and a potential Spanish bailout requiring the issue of Eurobonds or similar support mechanism.

According to the EIC*, project activity is showing some slight recovery in early 2012 compared with the previous quarter, although remaining lower than a year ago. Upstream projects dominate in Russia, Brazil, Canada and the USA; Midstream LNG is also strong in the USA; Downstream petrochemical complexes are planned in China, the Middle East and USA.

News from KIRK Process Solutions...

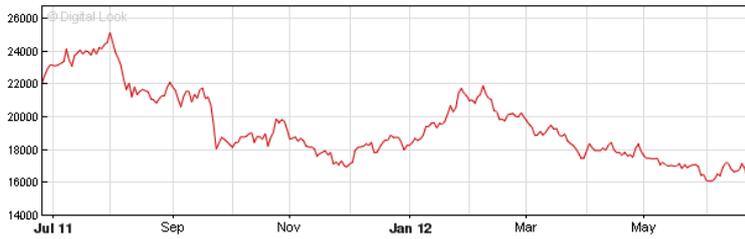
HIGHSPEED CYCLONE DUST FILTERS



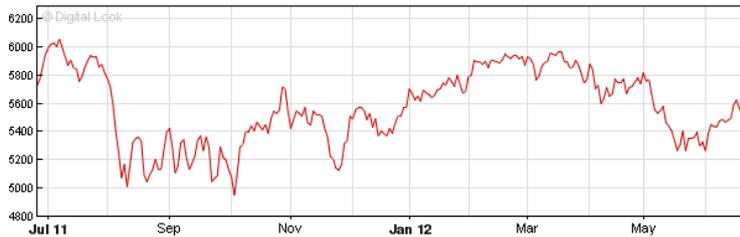
Banks of special stainless steel cyclones were manufactured recently and shipped to a customer in Austria for installation within a vertical dust filter vessel used in dry gas service.

News from KIRK Process Solutions...

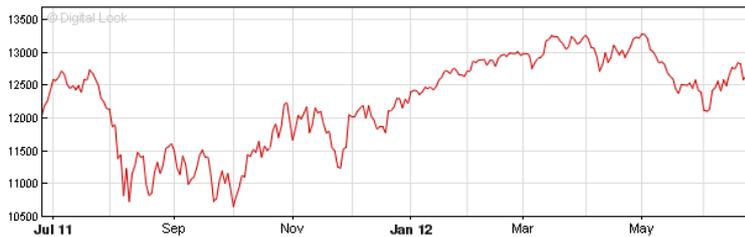
Nickel Price: US Dollars/tonne



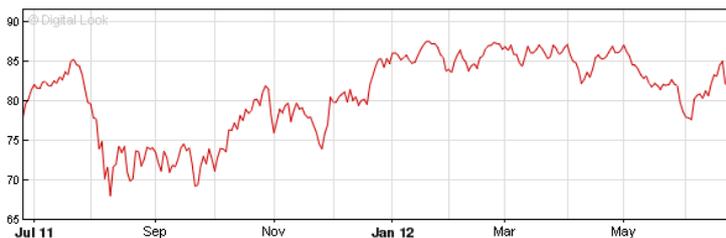
London FTSE-100 Stock Market Chart



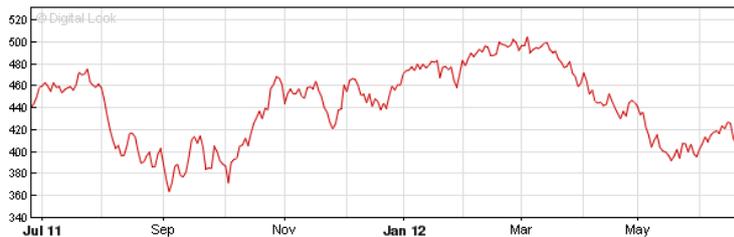
NY Dow Jones Stock Market Chart



Exxon-Mobil Corp. Share Price



BP Share Price



NEW WEBSITE

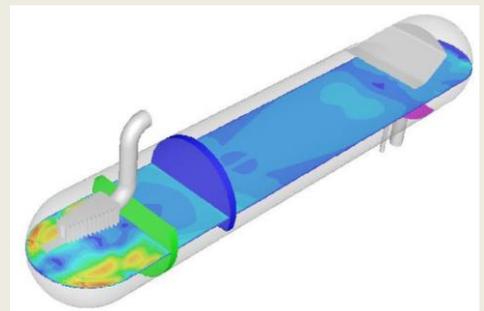
Check out our new website: www.kirkprocess.com, where you can find up to date news, market data, product literature and downloads as well as all past newsletters with technical articles.

CYCLONES IN SPECIAL ALLOYS

We recently delivered over 1000 Highspeed Axial Cyclones in Alloy 825 and Alloy 625 to different customers for use in aggressive environments. Standard materials are Stainless Steel 316 and Glass Filled Nylon, suitable for most sour hydrocarbon based applications.

SEPARATOR DESIGNS & CFD MODELLING

KPS has been continuing to support several clients in India and the Middle East with the detailed process and internals design of a range of oil/gas/water separators, including performance prediction and the detailed design of suitable inlet cyclones, coalescer plate packs and mist eliminators.



Above: CFD verification of 3 phase separator design.

Left: Inlet cyclone cluster design

DESIGN GUIDE

UNDERSTANDING MIST ELIMINATORS

PREDICTING DROPLET CAPTURE THROUGH A VANE PACK

Separation of liquid droplets through a vane pack is based on the premise that, as the gas zig-zags through the vanes, liquid droplets strike the vanes themselves due to their momentum ($\rho.v^2$) which ensures their path does not deviate as much as the main gas stream. There are conflicting characteristics aiding and hindering this behaviour and it is useful to have an understanding of these factors:

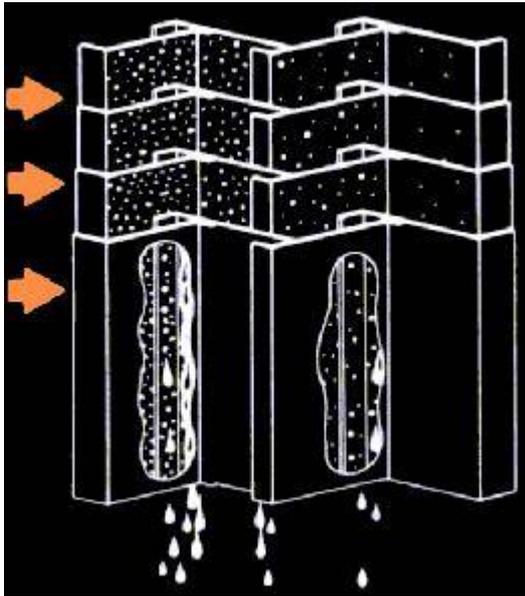
Primary Factors Assisting Separation	Primary Factors Hindering Separation
Vane design (plain, hooked or pocketed) and profile is correct for the application	Inappropriate use of hooks or pockets and poor drainage
Velocity (v) in the right range	Velocity not too low (little momentum) Velocity not too high (re-entrainment)
Density difference is large ($\rho_l - \rho_g$)	Density difference is low (e.g. high gas pressure and/or very light liquid)

Secondary Factors Assisting Separation	Secondary Factors Hindering Separation
Incoming droplets in the correct size range	Droplets very small (condensation or high pressure drop upstream)
Moderate-high surface tension (σ)	Very low surface tension (easily re-entrained)
Vane-vane pitch is correct for the required droplet diameter to be captured	Wide pitch will not capture small droplets Narrow pitch can cause high pressure drop and risks re-entrainment

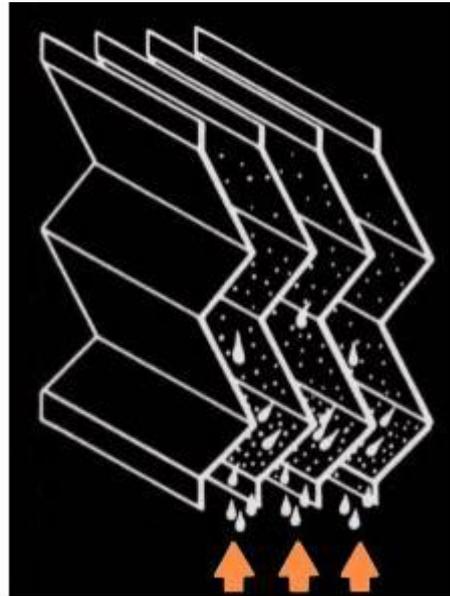
Other Factors Assisting Separation	Other Factors Hindering Separation
Good gas distribution across the pack	Insufficient flow area upstream or downstream causing cross-flow
Viscosity (μ) in the right range	Viscosity not too low (re-entrainment) Viscosity not too high (fouling/flooding)
Vane angle and design	Too shallow (limited separation) Too steep (high DP and re-entrainment)

Fortunately there are many ways the experienced designer can adapt the vane pack design to mitigate these risk factors using a range of design tools as well as product styles.

Horizontal Gas Flow through Hooked Vanes



Vertical Gas Flow through Plain Vanes



Using vanes with hooks or pockets allows liquid droplets to be more easily captured and also protects them from re-entrainment. Normally installed vertically for horizontal gas flow, these designs permit higher gas velocities and thus offer improved separation efficiency at smaller droplet sizes.

Normally selected for more challenging applications (higher gas densities and lighter liquids) they can be used at moderate pressures with good efficiency (40 bar, 10-20 microns removal) or at higher pressures and lower efficiencies (60-100 bar, 20-40 microns removal).

These designs can cope with some solids contamination although they operate best with liquid to wash away any deposits.

Using plain vanes without hooks or pockets gives a simple construction and low pressure drop. Normally installed horizontally for vertical gas flow, these designs need lower gas velocities due to the counter-current drainage feature and thus have reduced capacity and separation efficiency at smaller droplet sizes.

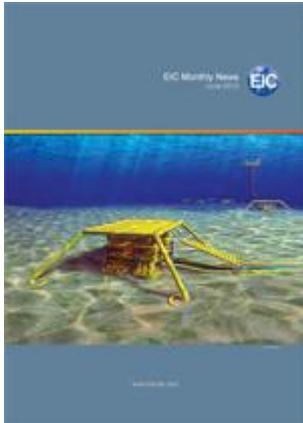
They are normally used for bulk liquid removal (large spray or mist droplets) and low pressure applications with water as the main contaminant (high density and surface tension) where they can achieve removal of water droplets down to 20 microns or less.

However, they can also have a role where the application is severely fouling in nature, as they resist plugging well.

Please refer to KPS for a detailed performance prediction as there are many variables in the optimisation of the mist eliminator design!

INDUSTRY NEWS & HEADLINES

Courtesy of www.yourprojectnews.com and www.the-eic.com



[Click to view latest edition of the Energy Industries Council latest news.](#)

<ul style="list-style-type: none"> Oil and Gas Directory Oil and Gas Projects Your Industry News Oil & Gas News Commodities News Cracking News Refining News Oil and Gas Trading News Oil Market News Oil Product News Oil Refineries News Oil Services News Petrochemical News Plastics News Production News Project News Storage News Construction News Oil of Interest Oil of Note Oil of the Week Special Oil News Your Regional News Asia South America South America Europe India/SEI Others 	<p>Total Steps Up Exploration Activities In Kenya with the Award of the Offshore L22 License in the Lamu Basin Wednesday, Jun 27, 2012</p> <p>Technip awarded two contracts for a petrochemical complex in Russia Wednesday, Jun 27, 2012</p> <p>Algeria will build three offshore vessels after 8 months of delays 27-06-2012</p> <p>Domestic Value Energy Ltd announces updated technical production rates and economic drilling results 27-06-2012</p> <p>Deep drilling under further investigation since 'oil-in-seawater' spill 27-06-2012</p> <p>Equinor-Tenax Trial Management assistance firm bringing significant offshore know-how 27-06-2012</p> <p>Land lease to Exploration Activities in Kenya with the Award of the Offshore L22 License in the Lamu Basin 27-06-2012</p> <p>Technip awarded two contracts for a petrochemical complex in Russia 27-06-2012</p> <p>Almar Solutions awarded frame agreement with Kvaerner 27-06-2012</p> <p>Germany secures government contract for key North Sea offshore 27-06-2012</p> <p>Heurich Oil to drill HPTF explorative well in Denmark 27-06-2012</p> <p>Heuretic Tera Oil & Gas Company announces Yorke project update 27-06-2012</p> <p>Briga Energy ASA agrees farm-down on PL007/4078 27-06-2012</p> <p>Obor provides Cambay and Titar Sea operations update 27-06-2012</p> <p>Rust Petroleum provides operational update 27-06-2012</p> <p>Arctic Energy Sec. commences customer VRB program 27-06-2012</p> <p>Novartis.com contract gas imports 90 percent 27-06-2012</p> <p>Longport Petroleum reports April and May 2012 revenues up 4.5% year-over-year to \$65.2 million 27-06-2012</p> <p>Contract awarded supply contract to Inna valued at about \$300 27-06-2012</p>
---	---

[Click to link to latest Oil & Gas, Petrochemical and Industry news.](#)