

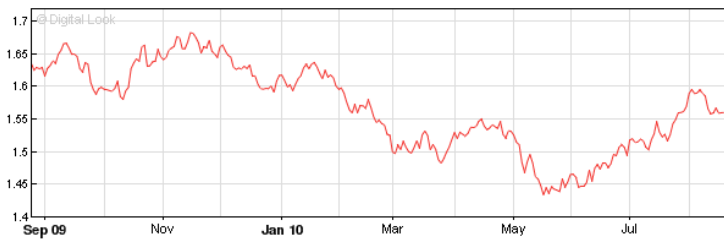
KIRK

PROCESS SOLUTIONS

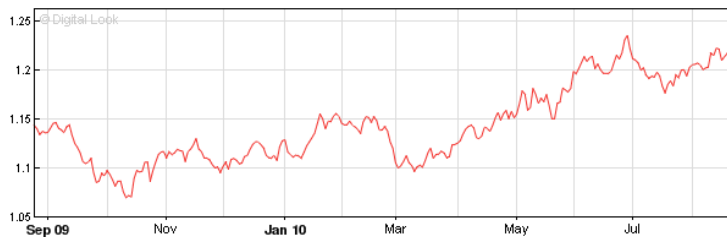
Welcome...

Welcome to the September 2010 *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



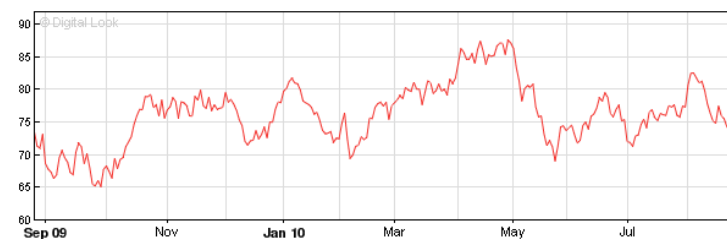
1 Pound Sterling = Euros



1 Euro = US Dollars



Brent Crude Oil: US Dollars/Bbl



Highspeed™ News...

September 2010
www.kirkprocess.com

What we do...

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

Market View...

Early summer saw confidence in a steady path to global growth evaporating, reflected in lower commodity prices and a weak USD, resulting in current stock markets still looking for a direction. BP's woes in the Gulf of Mexico added to the downbeat sentiment. Project awards are nevertheless being maintained at a reasonable level in many regions with operators taking the longer term view as well as capitalising on softer prices from contractors and suppliers needing to fill capacity.

News from KIRK Process Solutions...

NEW LITERATURE AVAILABLE ON WEBSITE

Downloads are now on our website covering our 3 primary areas of business:

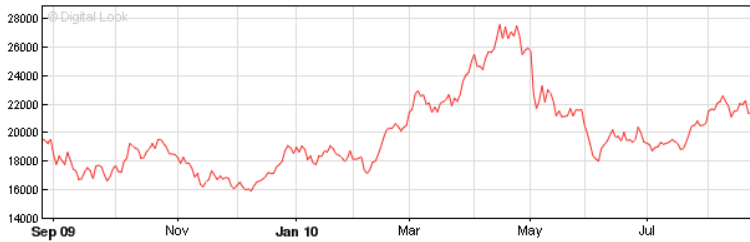
- Highspeed™ axial cyclones
- Sep-Calc™ design software
- Separator design consultancy

LATEST SEP-CALC™ SOFTWARE LAUNCHED

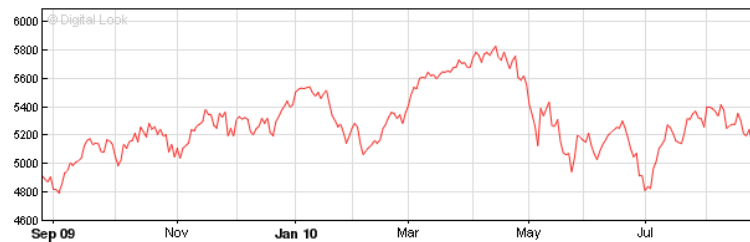


Our comprehensive range of competitively priced design spreadsheets for a variety of separator calculations has been updated and is selling fast. More details on our website, or to register your interest please e-mail us.

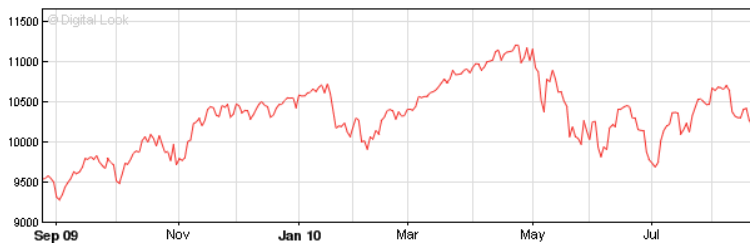
Nickel Price: US Dollars/tonne



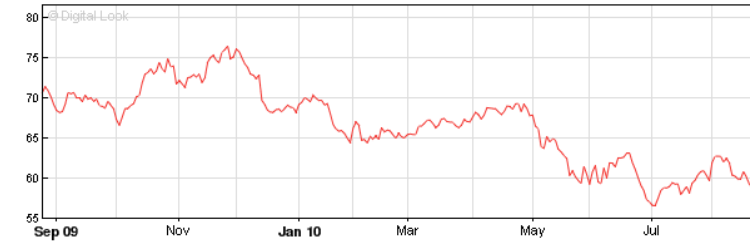
London FTSE-100 Stock Market Chart



NY Dow Jones Stock Market Chart



Exxon-Mobil Corp. Share Price



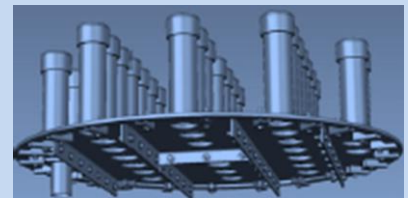
BP Share Price



Contract Awards & Deliveries...

HIGHSPEED CYCLONES FOR SALT CAVITY

Specialist internals manufacturer Norwood S&S LLC of Houston has selected Highspeed Axial Cyclones as demisters for the KO Drum withdrawing gas from a salt cavity storage project in the USA. The design uses 150 cyclones in a conventional, vertical gas flow arrangement.



...AND FOR LOW TEMPERATURE SEPARATORS

Ordered by HAT International Limited on behalf of an international filtration group, these 4 axial cyclone gas scrubbers destined for Russia are each fitted with 34 horizontal flow elements to remove solids and liquids prior to 2nd stage filter-coalescing.

SEPARATOR DESIGNS FOR INDIA

KPS has been supporting a client in India with the detailed process and internals design (including inlet distributors) of various HP and LP separators for ONGC.

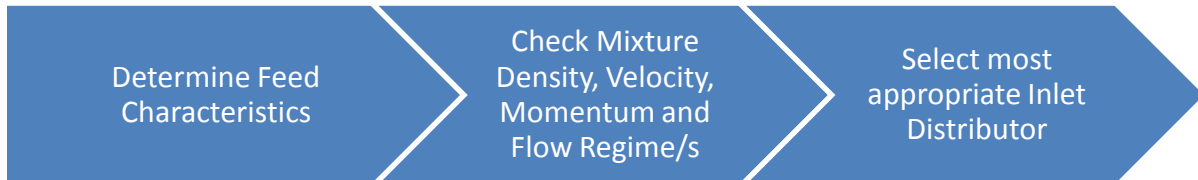
ADIPEC ABU DHABI

We will be visiting Abu Dhabi during and after the ADIPEC exhibition (01-04 November) so if you would like to arrange a presentation or meeting please contact us.



DESIGN GUIDE

SEPARATOR INLET DISTRIBUTOR SELECTION



For most oil & gas applications, the selection of the optimum inlet device to a separator is an important decision. It is not always necessary to specify the most sophisticated arrangement, but there are times when it will be necessary if the vessel is to meet the process performance expectations.

One key factor with oil and gas treatment is that the feed flow rates and compositions are likely to be subject to change over time. Thus there is no fixed design point, but a range of characteristics that need to be considered. The figures and charts illustrated below aim to give a quick guide to the selection process.

The starting point is to gather the design criteria for the operating envelopes and calculate the individual phase flowing volumes (Q) as well as the combined mixed phase density (ρ) and velocity (v) for a given inlet diameter. Then calculate the flowing momentum (ρv^2) to determine the degree of inlet momentum reduction and flow distribution required.

As a general rule, the lower the inlet velocity or momentum, the lower the feed agitation and the simpler is the required distributor. However, it may be more economic to reduce the feed piping and nozzle size and thus a need for a more engineered inlet arises.

It is also useful to calculate the volume fraction of liquid and gas at the inlet to help understand the flow characteristics. Two methods are used:

$$1) \text{ Volume fraction of liquid, } X_L = \frac{Q_L}{Q_L + Q_G}$$

When the volume fraction reaches c. 1% the liquid flow distribution and momentum breaking needs to be seriously considered and when it reaches c. 10% it is a very significant portion of the feed and will form a major part of the inlet distributor selection and design.

$$2) \text{ Flow parameter, } \phi = \left(\frac{Q_L}{Q_G} \right) \times \left(\frac{\rho_L}{\rho_G} \right)^{0.5}$$

If $\phi < 0.01$ the gas is likely to contain only dispersed mist droplets (no slugs) and the inlet device does not need to consider how liquid is separated or distributed.

Fig.1. Guideline for selecting inlet distributor based on mixed phase inlet momentum (Pa)

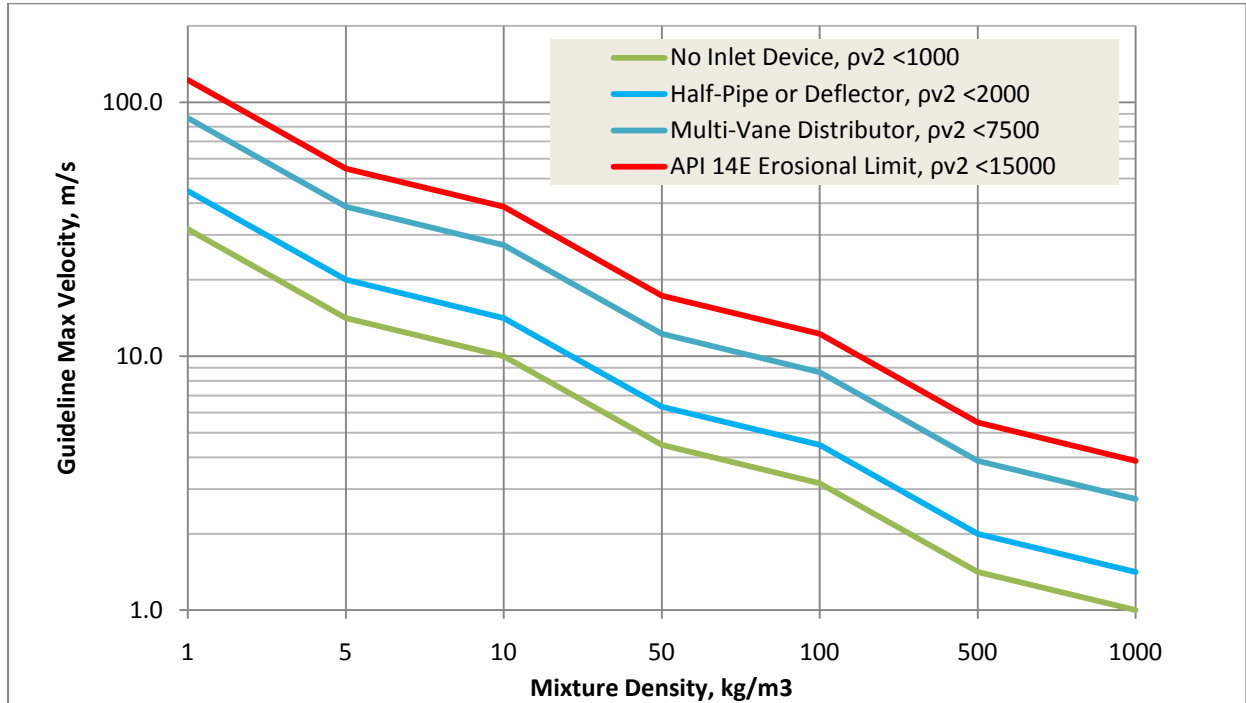
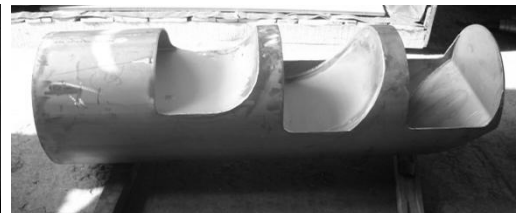


Fig. 2. Typical inlet distributors (photos courtesy HAT International Limited)



Top entry flow splitter for low-medium velocity and higher proportions of liquid content



Sectioned half-pipe for low-medium velocity and lower quantities of liquid in the feed



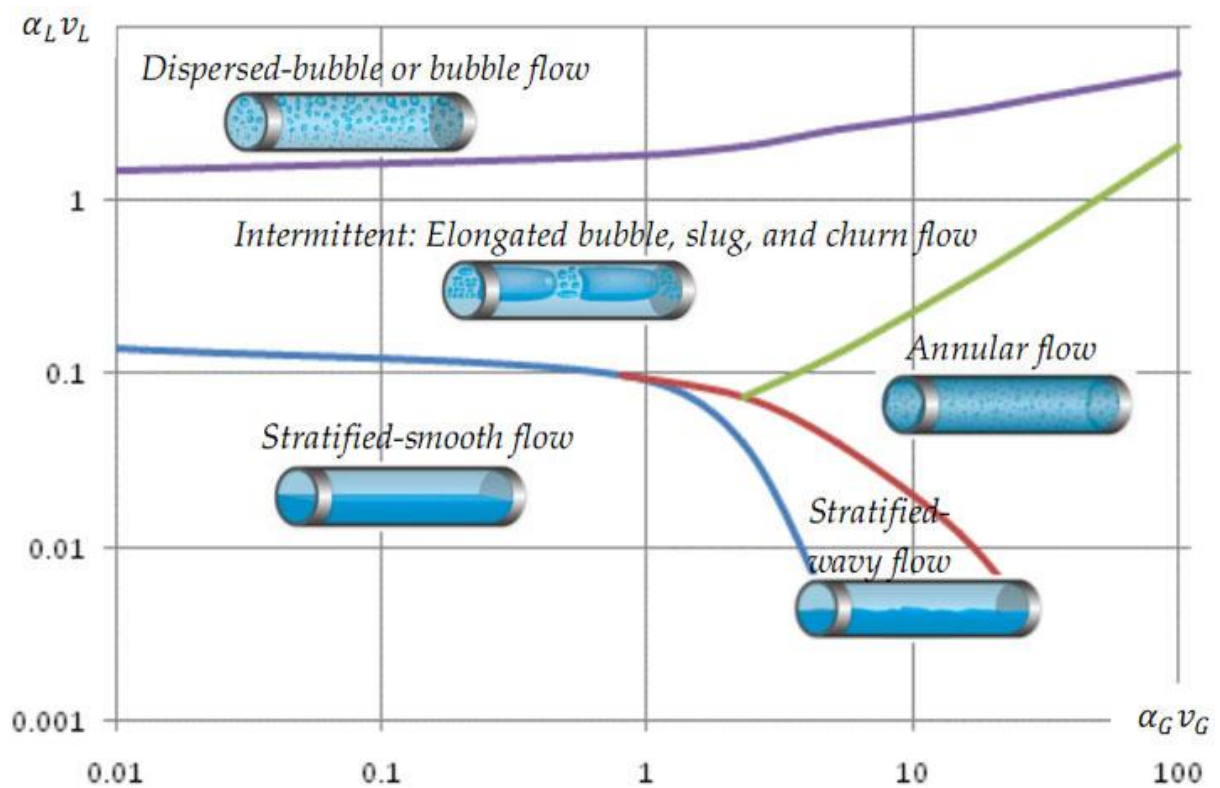
Multi-vane inlet distributor for medium-high velocity with all proportions of gas/liquid feed mix



Single or multi-cyclones for de-foaming usually with significant liquid in the feed

The designer should also check the likely flow regimes that the inlet distributor may experience as this will confirm the selection and may also indicate a need to mechanically strengthen the device in the event that high velocity slugging could be encountered. The diagram below offers guidance in this regard, but more detailed analysis (if required) will require a comprehensive design as outlined in standard reference texts.

Fig. 3. Probable flow regime for flow in horizontal pipes (courtesy drbratland.com) based on superficial liquid V_L and gas V_G velocities in the pipe (m/sec).



INDUSTRY NEWS & HEADLINES

Courtesy of www.yourprojectnews.com

L&T lands ONGC order for two natural gas processing facilities

Wednesday, Aug 25, 2010

Larsen and Toubro Limited (L&T) has bagged two projects worth US\$ 250M from ONGC to set up Additional Processing Units at its Gas Processing complexes at Hazira and Uran.

The Additional Processing Units (APU) project at Uran complex shall enhance the Gas Processing capacity at the Uran complex by 5 MMSCMD. New facilities to be setup include a Gas Sweetening Unit (GSU), LPG Recovery Unit (LPG), Condensate Fractionation Unit (CFU), Condensate Handling Unit (CHU) and other Utilities.

The Additional Gas Processing Facilities (AGPF) project for Hazira complex is for augmenting the Gas Processing capacity in the Hazira complex by 5.6 MMSCMD. New facilities to be set up include a Gas Sweetening Unit (GSU), Gas Dehydration Unit (GDU), Dew Point Depression Unit (DPDU) and Offsite & Utilities.

Halliburton Awarded Letter Of Intent For Development Of Majnoon Field In Iraq

Monday, Aug 23, 2010

Halliburton (NYSE: HAL) has been awarded a letter of intent by Shell Iraq Petroleum Development B.V. for the development of the Majnoon field in Southern Iraq.

The giant Majnoon field is one of the world's largest oilfields. The letter of intent provides that Halliburton will serve as project manager for the development work, in affiliation with Nabors Drilling and Iraq Drilling Company (IDC). The contract is still subject to final approval by the appropriate Iraqi authorities.

The Schahin Group and MODEC, Inc. Land Guara FPSO for Petrobras and the companies of Consortium BM-S-9

Monday, Aug 23, 2010

MODEC announced today that Petrobras, through its wholly owned subsidiary PNBV, on behalf of Consortium BM-S-9, has signed a letter of intent for the supply, respectively, charter, and operations of a Floating, Production, Storage, and Offloading (FPSO) vessel for the Guara Block in the giant "pre-salt" region of the Santos Basin. The BM-S-9 block is under concession to a consortium formed by Petrobras (45%), BG (30%), and Repsol (25%).

The Schahin Group and MODEC, Inc. are responsible for the engineering, procurement, construction, mobilization, and operation of the FPSO, including topsides processing equipment as well as hull and marine systems. SOFEC will design and provide the spread mooring. MODEC will convert the VLCC Radiant Jewel into the *FPSO Cidade de Sao Paulo MV23*. The FPSO will be capable of processing 120,000 barrels of oil or 150,000 barrels of total fluids per day. Scheduled for delivery during the 4th quarter of 2012.

AMEC awarded £60m contract by EDF Energy for gas storage facility extension

Thursday, Aug 19, 2010

AMEC, the international engineering and project management company, has been awarded a contract worth over £60 million by EDF Energy to extend a gas storage facility in Cheshire.

The contract, at the Hill Top Farm facility at Warmingham, will see AMEC design, install and commission the filtration and compression facilities, after-cooling, de-hydration, metering and utility equipment. This award extends AMEC's long history with Hill Top as the existing two facilities at the plant were originally designed and engineered by the company. The work will enable EDF Energy to significantly increase its gas reserves, and therefore contribute to the security of the UK's gas supplies. Engineering will start immediately with planned completion in July 2012, after which AMEC will be well positioned for future asset maintenance work.

Petrofac Awarded Water Injection Project with Kuwait Oil Company

Monday, Aug 09, 2010

Petrofac, the international oil & gas facilities service provider, announces that it has been awarded a KD123 million (approximately US\$430 million) contract by Kuwait Oil Company (KOC) for the engineering, procurement and construction of effluent water and central sea water injection facilities.

The project involves the installation of a new central injection pumping facility and modifications to three of the existing gathering centres and seawater treatment plant. When completed, both effluent water and sea water will be fed into a central injection pumping facility and injected into the wells with the objective of increasing the oil recovery capacity in the Raudhatain and Sabriyah fields. The competitively tendered project is scheduled to commence shortly and estimated for completion within 36 months.

Foster Wheeler Wins Feed from E.ON UK plc for CO₂ Capture and Compression Plant

Thursday, Aug 05, 2010

Foster Wheeler AG (Nasdaq: FWLT) announced that a consortium, including its Global Engineering and Construction Group, has received an order from E.ON UK plc to support the front-end engineering design (FEED) for a post-combustion carbon dioxide (CO₂) capture and compression plant proposed as part of E.ON's planned new supercritical coal-fired power station in Kent, England, UK. Foster Wheeler's consortium partner for the carbon dioxide capture element of the project is Mitsubishi Heavy Industries, Ltd. (MHI) of Japan.

E.ON is planning to replace its existing coal-fired units at Kingsnorth Power Station with two new high-efficiency 800 megawatt coal-fired units using the latest supercritical technology, which E.ON has said will produce power from coal more efficiently than ever before in the UK. The planned CO₂ capture plant will be designed to separate and capture CO₂ from flue gas generated by the new coal-fired units, enabling the CO₂ to be transported and stored permanently within a depleted gas reservoir under the North Sea.

Maire Tecnimont lands LSTL Acid-Gas Removal Project in Kuwait

Thursday, Jul 29, 2010

Maire Tecnimont S.p.A. announces that its main operating company Tecnimont S.P.A. has been awarded a contract to develop an acid-gas removal plant (AGRP) for Kuwait National Petroleum Company (KNPC), the State Refiner controlled by the Kuwait Petroleum Company (KPC). The project will be executed on a Lump-Sum Turnkey contract basis for approximately USD400 million. The completion is expected by 2014.

The contract foresees the provision of engineering, procurement, construction and commissioning ("EPC") services for a brand new process train of gas handling and sweetening facilities (New AGRP Unit), as well as for the revamping of the existing gas handling facilities (Existing AGRP Unit), within the Mina Al-Ahmadi Refinery (Kuwait City). The New AGRP facilities will be capable of handling as much as 230 million cubic feet-a-day of gas and 78,000 barrels a day of condensates and are an integral part of Kuwait's environmental plans and commitment and will contribute in a significant manner to reduce emissions by producing clean fuels.

RWE Dea invests US\$3.6 Billion in gas and Development Field, Egypt

Monday, Jul 26, 2010

Rwe Dea will be investing 3.6 billion US-Dollars in the field development in the North Alexandria and West Mediterranean Deep Water concessions - the biggest single investment for the company to date. Jointly the Egyptian Petroleum Minister Sameh Fahmy, the Egyptian state owned company EGPC and the operator BP, RWE Dea signed the agreement which had been approved by the Egyptian Cabinet and the Egyptian parliament, in Cairo.

50 billion cubic meters plus in reserves of natural gas, the fields in the North Alexandria and West Mediterranean deep Water concessions are among the largest in RWE Dea's portfolio. Thomas Rappuhn, Chief Executive Officer of RWE Dea AG stated: "Our aim is to proceed with this field at a rapid pace, so that we can go into production by 2014. Amongst other field development projects of RWE Dea, such as Breagh in the United Kingdom and Gjøa in Norway, North Alexandria will make a substantial contribution to the company's growth target, which is to double production over the next five years."