



Welcome to the latest newsletter from HAT International, aimed at keeping all our customers up to date with the latest products and developments within our company, as well as some general news on what's going on in the industry. We trust you find it informative and we welcome any comments or suggestions you may have to improve the format.

If you wish to unsubscribe, simply reply at any time with 'UNSUBSCRIBE' in the subject box.

LATEST DEVELOPMENTS

Joining us this month in our **Pune, India, Operations Office** is chemical engineer **Dilip Shirke**. Dilip brings a wealth of experience in mass transfer equipment design, commissioning and operation to support our expansion. In his role as **Process & Proposals Manager**, he will be involved in designing our full range of mass transfer and separation internals, and supporting our installation and commissioning services.

Orders this month include contracts from 2 customers for the supply of **separator and scrubber internals** for FPSO projects to NORSOK standards; sixteen high performance **vane mist eliminator packs** for a middle east fuel gas treatment plant; and 3 sets of **column structured packing and internals** for glycol dehydration plants for a middle east offshore platform.

Recent deliveries include a full set of **glycol dehydration column internals** for Iran, 2 sets of **valve trays** for sidestream stripper columns for north africa, various **separator internals** and **vane mist eliminators** for customers in the far east and a set of **static mixers** and **liquid/liquid coalescers** for Norway.

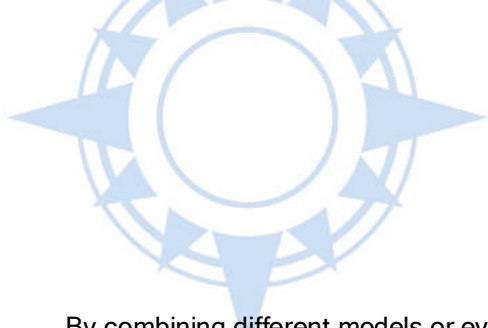
Our **latest company CD's** with full product information are now available. For a copy, please e-mail a request to info@hatltd.com with your mailing address details.

FEATURED APPLICATION - CO2 CARBON CAPTURE FROM FLUE GAS

Our feature this month looks at the current hot topic of carbon capture from waste gas streams such as fired heaters, boilers, generators, etc, which would commonly be encountered on many process plant sites. Assuming the CO₂ can be feasibly extracted, then it can be sent for long term storage or possibly used in other processes, reducing the greenhouse effect from the total installation. A number of technologies have been looked at in the past and many are currently under development (particularly membrane systems), but the current large scale process appears to be the use of liquid wash systems using chemically enhanced solvents such as amines or ammonia. These are treated to withstand the side reactions created by the presence of Oxygen and oxides or combustion by-products of other components such as Sulphur or Nitrogen, etc.

Particular issues relating to this process involve the size of the equipment. There are two key aspects, the size of the gas handling columns and the size of the liquid handling equipment. The circulation rate is mainly set by the duty (tonnes/hour of carbon dioxide to be removed) whilst the column diameters are mainly set by the gas throughput and pressure drop. It is the latter aspects that concern us at HAT International. We have a range of product technologies available for these applications in 3 main groups:

Coarse, medium and fine **structured packings and grids** in a range of metals and plastics
Conventional and state-of-the-art **random packings** also in a wide range of heat and chemically resistant materials
Effective **liquid and gas distributors** to ensure peak efficiency is achieved within the packings



By combining different models or even types of product within the absorber and stripper sections of the plant, it is possible to optimise the mass transfer regions to significantly reduce the diameter and height of the treating columns and thus save on capital cost and visual impact.

If you would like an assessment of your current project packed column specification, please contact us for further details.

INDUSTRY MARKET NEWS

OIL PRICE SLIPS.....From an average of USD 76/Bbl in July, Brent Crude was trading around USD 69/Bbl in late August, although falling US inventories and the hurricane season could cause ripples.

NICKEL PRICE LOWER.....Continuing July's falls, Nickel has continued to trend slowly downwards to late August levels of USD 12.50/lb on rising inventories and China interest rate hike, possibly cooling demand.

DOLLAR BOUNCES.....The US currency's recent rally stalls slightly to stand at USD1.00 = 0.74 Euros and 0.50 GBP (23 August) on FED interest rate cut expectations to stimulate growth.

Thank you for reading, if you would like more details about the above topics or our product range, please contact us any time using info@hatltd.com