

Bosch Packaging Technology showcases laboratory competence in R&D and Industry 4.0

One of the leading suppliers of process and packaging technology, Bosch Packaging Technology's new laboratory device Xelum R&D for continuous manufacturing is an example of how the Bosch Pharma Service and Industry 4.0 solutions support pharmaceutical manufacturers in increasing transparency and efficiency of their laboratory processes. "With our wide range of laboratory solutions, we offer our customers an ideal starting position for a fast time-to-market of their pharmaceuticals," says Fritz-Martin Scholz, product manager at the Bosch subsidiary Hüttlin.



With the Xelum R&D, Bosch allows pharmaceutical manufacturers an ideal start to continuous manufacturing.

Reduced development time thanks to continuous production

The Xelum R&D offers pharmaceutical manufacturers an ideal start to continuous OSD production. "The Xelum R&D is the first R&D machine to combine charging, dosing of several ingredients and blending with granulation, drying and discharging in one unit," Fritz-Martin Scholz explains. In contrast to continual mass flow, the Xelum R&D doses excipients and active ingredients as a discrete mass. This way, customers can dose even smallest amounts of APIs of less than one percent. Individual packages, so-called X-keys, continuously run through the process chain and are removed successively from the machine as packages into bins.

Moreover, the X-key approach makes the product traceable at all times. It reduces the system's failure susceptibility and process complexity, while increasing the product's accuracy and quality. Time-consuming scale-up is not needed, since the laboratory device uses the same components as the Xelum production platform. The identical process parameters can be directly transferred 1:1, which leads to a reduced development time. Additionally, the customer has the opportunity to move his product to continuous production or to a conventional batch process.

Customer support starts with the formulation

Bosch's laboratory portfolio supports customers in all development and production

phases of OSD forms. Every year, roughly 1,000 experiments with substances for various indications are conducted at the company's competence center in Schopfheim, Germany. "The key to achieving a fast time-to-market while meeting the highest quality standards is extensive experience and know-how," says Dr Marcus Knoell, Head of Pharma Service Solid at Hüttlin. "We offer customers everything from a single source: from formulation and analytical development, to stability tests and bioequivalence studies and dossier preparation." A specific focus is on scale-up and technology transfer: every product that is developed at the Bosch laboratory is tailored to the customer's machines, so that they can later manufacture the product in-house. ■

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The R&D device for the production of oral solid dosage (OSD) forms ensures short time to market and an optimum dosing of smallest amounts of API.

ECOFLUX* Corrugated Tube Heat Exchanger

HRS Process Systems Ltd, India, is part of UK-based HRS group of companies, a leading heat transfer technology provider. HRS is equipped with a strong network all across domestic and international market like UK, Spain, USA, India, Australia, New Zealand and Malaysia to fulfil technology needs of process industries.



The high demand for heat transfer equipments in industries like chemical, pharmaceutical, agrochemical, petrochemical, oil and fats, fertilizer, food and beverages, engineering and others is driving the advancement in heat transfer technology. Heating, cooling, chilling, condensing, re-boiling, pasteurizing, sterilizing, evaporating are the key processes in these industries. To carry out such processes effectively, heat exchanger becomes heart of the process plant.

During heat transfer process, over a period of time, deposition of substance occurs. Formation of this boundary layer is referred to as FOULING, a factor which

poses resistance to product flow. Fouling is typically high in shell and tube (smooth tube) heat exchangers and significantly impacts the heat transfer process.

HRS offers ECOFLUX corrugated tube heat exchanger (CTHE), which is a shell and tube heat exchanger where "corrugated tubes" are used instead of plain tubes. This is a definitive option to tackle fouling seen in regular shell and tube heat exchangers. The tubes in ECOFLUX CTHE are corrugated to induce turbulence in both the flows (product and service) even at lower

velocity. Corrugated tube thus, boosts heat transfer multi-fold even at low Reynold's number with minimum increase in pressure loss. This enables efficient heat transfer even in liquids with high viscosity, large fibers or particulates.

ECOFLUX corrugated tube heat exchangers are compact in yet give significantly enhanced performance over smooth tube heat exchanger. It can be customized according to the process needs with wide choice of MOC like SS-304L, SS-316L, 904L, 321, Titanium, Duplex, Hastelloy, Alloy 20 and Copper depending upon compatibility of process fluids.

ECOFLUX CTHE is offered in a range of models as per ISO, TEMA and latest design standards to suit different process applications. It enables continuous process running for longer duration, requires low maintenance and also gives high response to CIP. This proves to be a versatile, economical and energy-efficient equipment for multiple process industries. ■



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