High Viscosity Drum Decanting System DDS HV

Emptying, dosing and rinsing station for drums

ABB High Viscosity Drum Decanting System - DDS HV - is designed to pump and dose highly viscous liquids from drums and to incorporate them in formulation processes. It is recommended when high accuracy dosing and repeatability is required.

Applications

- Lubricants/Additives
- Specialty chemicals

Advantages

Increased productivity and process repeatability

- Process feeding through pigged line directly from the drum.
- Short time cyle (use of drum oven reduced).
- Improved decanting operation.

Handling time of drums reduced by 50%

Pumping high performance

- Pumping rate can be adjusted according to product type.
- Mechanical design enabling the optimization of the pumping time.

Pumping of viscous liquids up to 20,000 centistokes

High safety level

- Virtual safety barrier and transparent screen to protect the operator.
- Handling of drums by the operator is practically nil.
- CE certification.

Eliminate hazards for the operator

Process control

- Stand-alone automatic unit with possible integration within a plant-wide control system.
- Supplied with operator terminal for recipe management and real-time monitoring the dosing operations.

Accuracy, repeatability and traceability of operations

Mitigation of pollution and cross-contamination risks

- Reduction of waste quantities.
- Drum cleaning with rinsing product and re-incorporation of effluents as part of recipe.
- Integrated pigged transfer system to lower the risk of cross-contamination.

Reduction of environmental footprint

Savings

- Less product losses thanks to high dosing accuracy (0,2 kg).
- Reduction of residual quantities (less than 2 kg for 8000 Cst).
- Reduced maintenance.

Low investment cost for maximum profitability (raw materials, process and man hours)

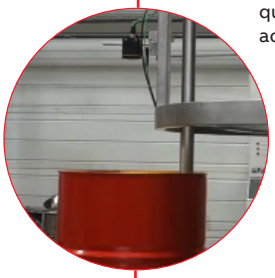
Process description

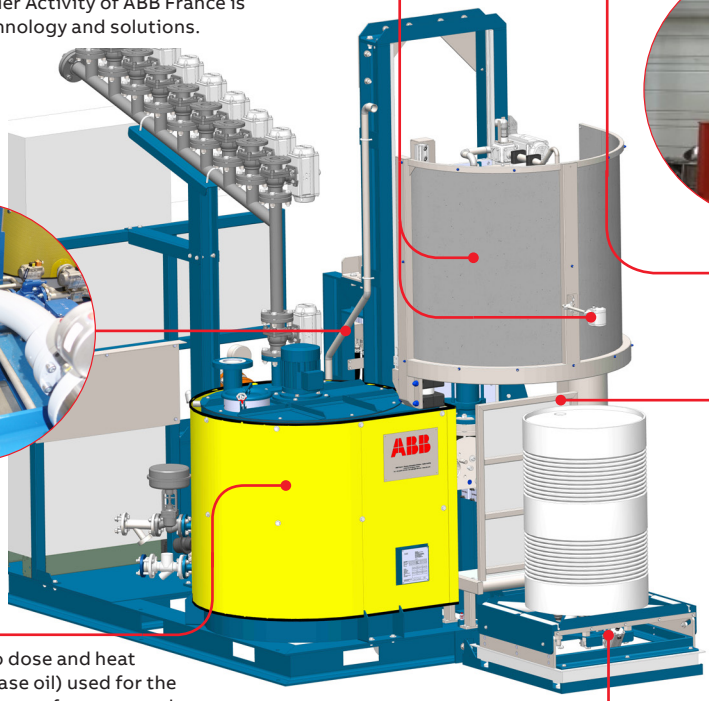
Safety devices
A protection screen protects the operators working on the DDS HV station. Video motion detection creates a virtual safety barrier around the drum decanting area. Any detection of movement within this area leads to the immediate stop of the machine.

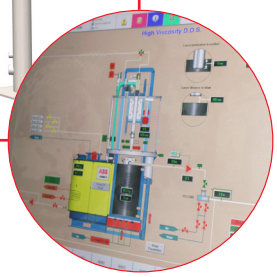
Centering and rinsing lance
The centering lance enables the semi-automatic positioning of the drum for the safety of the operator. The operator roughly places the drum bunghole under the centering lance and activates the lance descent using the foot pedal. The lance end - thanks to its conical form - correctly positions the drum. An integrated spring system immobilizes the drum in position.

Product transfer
Liquids pumped through the suction lance are directly discharged in a pigged line for their transfer without product loss to one or several users. The transfer circuit can be cleaned after each dosing operation in order to avoid any cross-contamination between successively dosed products. The use of a pigged line maximises the return on investment. Cellier Activity of ABB France is specialized in pigging technology and solutions.

Suction lance
The suction lance follows automatically the product level and pumps the preset quantity of product with an accuray of +/- 0.2 kg.

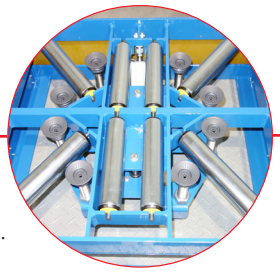






Rinsing tank
The rinsing tank is designed to dose and heat the main recipe component (base oil) used for the rinsing of drum, suction lance, transfer pump and pigged line. The whole quantity of base oil used for these operations is incorporated in the ongoing formulation. Drum rinsing is performed through a specific pump and rinsing lance which enters into the drum and sprays hot oil on the drum wall.

Tilting weighing conveyor
When the drum is emptied (before or after rinsing), a small quantity of product remains on the drum wall and bottom. The tilting function of the weighing conveyor enables the pumping in the drum bottom to be optimized. Furthermore, the rinsing lance rotates so as to perfectly rinse the drum wall and minimize the waste quantity.



Process control
The recipe is managened by the embedded control system which enables the control and acknowledgement of operations. A synoptic screen installed inside the control cabinet allows the operator to monitor in real-time the dosing operations.

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