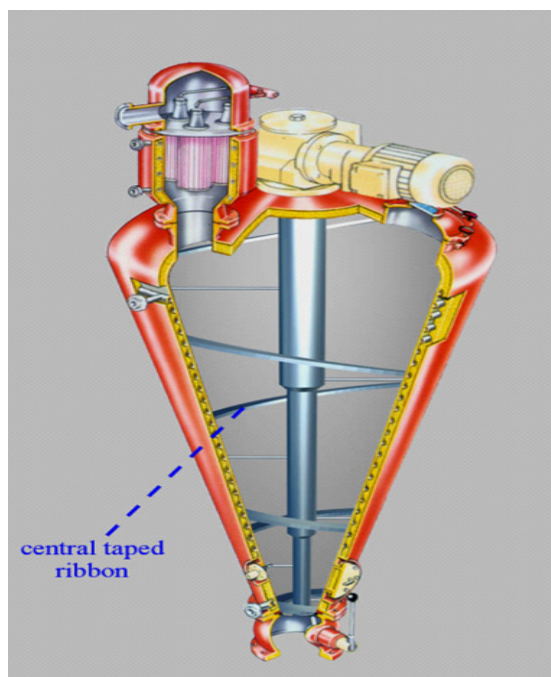


Case study: Vacuum Drying pharmaceuticals with CT- dryer Application

A pharmaceutical product has to be wetted with water under vacuum, must be homogenised, and sterilised by means of heating up the product under vacuum for 1,5 hours. The temperature of the product must be equal through the whole batch. After each batch the unit must be cleaned with an automatic CIP system

Requirements Products

| | | |
|----------------------------|---|-----------------------------------|
| Product | : | Active pharmaceutical |
| Moisture content | : | Feed 5 W.B. End 0,8 % W.B. |
| Max product temperature | : | 80 °C |
| Bulk density | : | 1000 kg/m ³ (wet cake) |
| Description of the product | : | Non-sticky Freeflowing |



Solution

After performing tests with this product in our test centre in Doetinchem the following solution is found.

| | | |
|--------------|---|------------------------------------|
| Dryer | : | The Hosokawa CT dryer to ensure: |
| | : | batch integrity |
| | : | good cleanability |
| | : | minimum of residue after discharge |
| | : | vacuum tight |

| | | |
|------------|---|--|
| CIP | : | With spray balls on strategic places in vessel, automatic CIP is possible. A special outlet valve is created to handle both product and CIP cleaning solvents. |
|------------|---|--|

Process Data

| | | |
|-----------------------------|---|----------------------|
| Content of the vacuum dryer | : | 60 liters of product |
| Feed capacity | : | 30 kg / batch |
| Feed moisture content | : | 5 % W.B. |
| Product moisture content | : | 0,8 % W.B. |
| Max. Product temperature | : | 80 °C |
| Design pressure | : | Full vacuum / 6 barg |
| Design temperature | : | 0 / + 165 °C |

Conclusion

The combination of vacuum and excellent mixing of the Hosokawa CT-dryer ensures An equal temperature during the process and perfect homogeneity the batch.