SECONDARY SOLUTIONS MAKER FEEDING

Yield improvement by minimized degradation

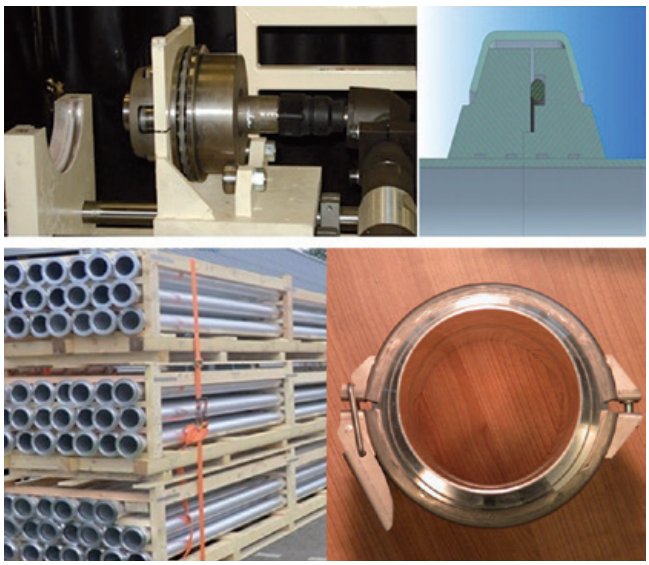
The objective of this product line is purely driven by the balance between economics and sustainability. Manufacturing cost is highly dominated by the cost of tobacco. Controlled transportation of the high value, fragile, cut filler is essential to maintain high level filling power.

Design and lay-out

A robust design consists of proper feeding pipe, especially the alignment, and an optimal routing (GCM balancing). Further this is combined with a smart and ergonomic blend selector design and stable operating dust collectors and fans.

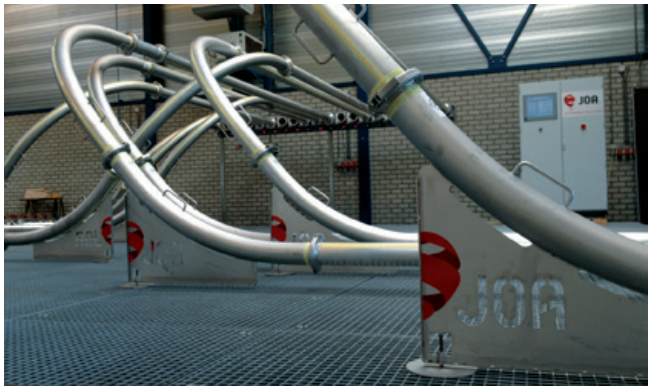
JOA piping and coupling

JOA Aluminum feeding piping is standardized on diameters 110 mm, 125 mm and 150 mm. Bends are provided in Stainless Steel. The specially designed 'easy rolling' process allows for quickly connecting the flanges to the pipe.



Blend Selector design

The JOA modular docking station allows for great flexibility in Blend Selector design.



Main differentiators:

1. Flexible / Extensible / Compact (dual level design option) / Ergonomic.
2. Smart tracking and tracing applying Node technology, capable of communicating blend settings to the FBFC control unit.

ΔVAT™ – FBFC conveying

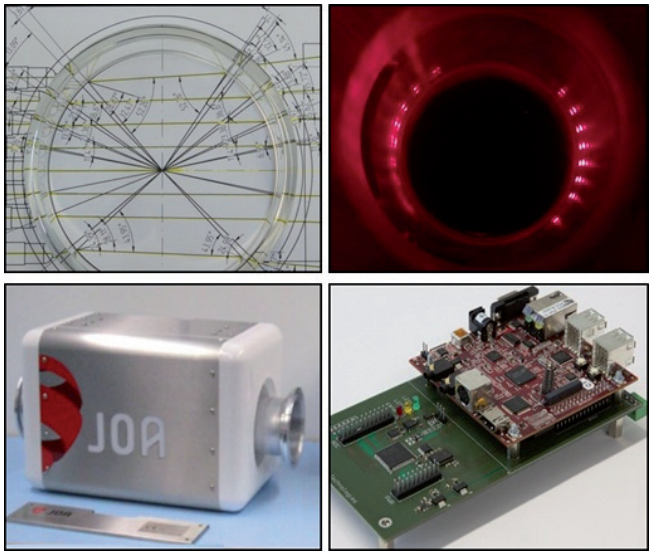
Based on the patent pending ΔVAT™ optical sensor, controlled feeding is realized by determining:

- ΔVAT™ slip ratio
- Tobacco Speed
- Tobacco loading and Dune shape

Based on project results, we conclude that these topics contribute approximately equally towards economic gain, resulting in a ROI of < 2 years.

The key to degradation reduction is operating with optimal loading at a ΔVAT™ ratio ranging > 0,8. In combination with Dune generation control, this technology reduces degradation, maintains Filling Power and minimizes feeding time. Additionally, blend segregation is prevented (e.g. DIET, Kretek).

The ΔVAT™ Sensor combines an advanced optical sensor with high precision static pressure measurements, for real time data processing applying embedded hardware (FPGA – DSP).

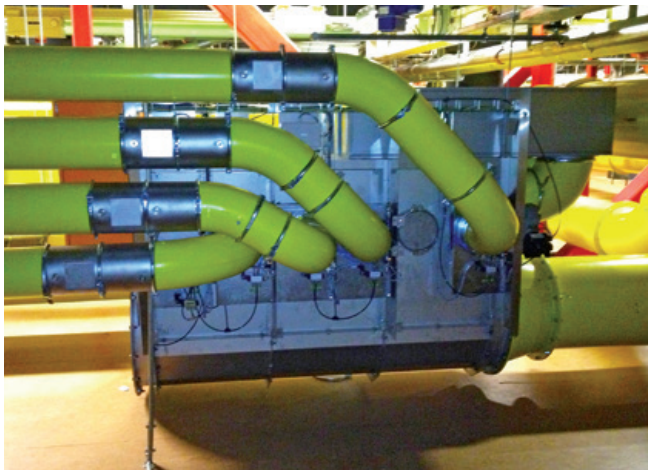


By determining the ΔVAT™ (Slip ratio between Tobacco speed and Conveying air velocity) it is possible to optimize for stable dune conveying [ΔVAT™ ratio > 0.8]. The dune shape and interval are important contributors in combination with tobacco loading [range 1.5-3 kg tobacco / kg air]. Smart algorithms process the real-time data, controlling the FBFC, servo driven flow control valve.
Result: minimized cut filler tobacco degradation at optimal tobacco loading with increased feeding capacity.

Additional features

Airlock leakage correction, plant elevation correction and full integration with JOA central systems (Dust collectors / Fans / Automation).

STABILITY IMPROVEMENT BY BALANCED DEDUSTING

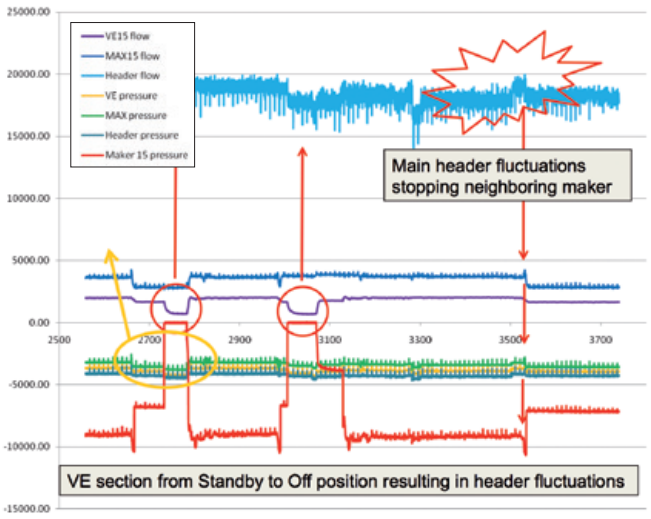


The JOA Carrousel minimizes uncontrolled maker stops, by eliminating header pressure fluctuations (see graph below).

For increased maker uptime and production flexibility, it is essential to prevent dynamic pressure fluctuations over +/- 150 Pa, in the central dedusting system.

To achieve this, the following technology is used:

- Carrousel systems, controlling header pressures by compensating for neighboring maker start, stop and stand-by conditions.
- GCM pressure- and flow balancing at 1 Pa.
- If possible separation of Maker and Tipper.
- Additional capability to compensate for internal maker blower wear.
- Regular / Mint-oil dust separation.



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