Simplifying Recovery Boiler Operation and Maintenance

Going from Two to One Dissolving Tank for CE Recovery Boilers

Valmet

Background

- A large number of older CE recovery boilers were designed with two dissolving tanks.
- The number of spouts used and the shape of the tanks were the main reason for using two tanks.
- Capacity of a dissolving tank is largely function of residence time.
- Typical capacity of CE spouts is about 700,000 lb DS/day per spout.
- Valmet spouts have a design capacity of up to 1.4 million lb DS/day, offering the possibility to greatly reduce the number of spouts and the elimination of the need for two dissolving tanks.

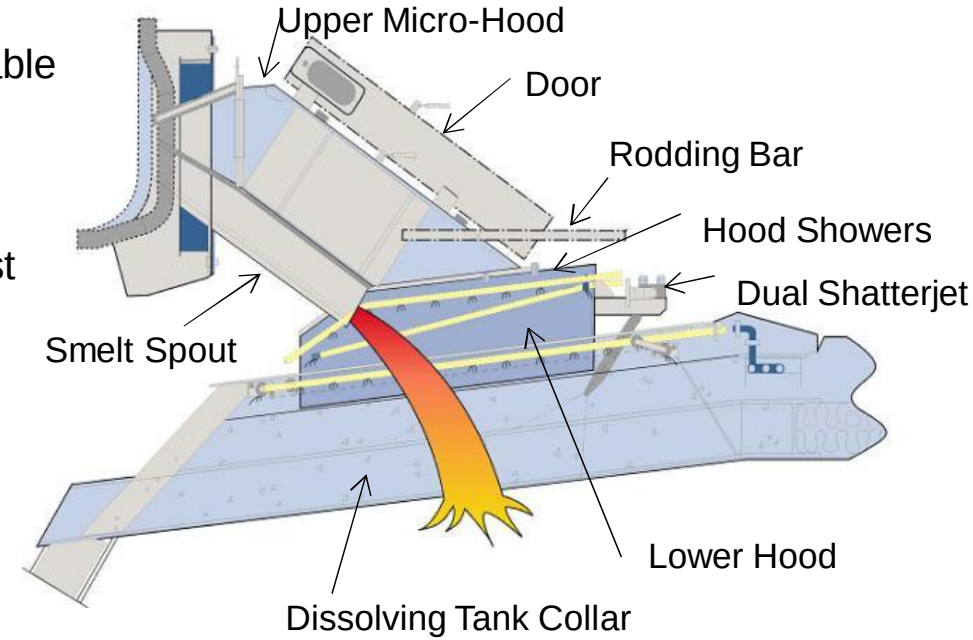
Advantages of Valmet Spouts

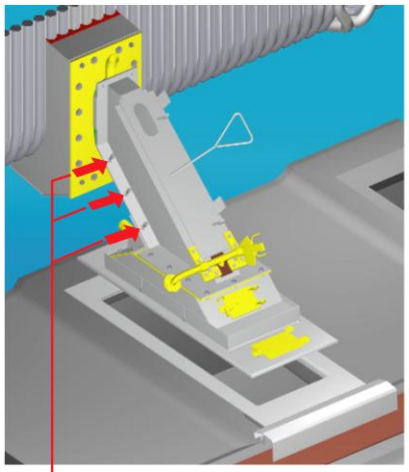
- Improved shattering
- Quieter spout deck
- Increased safety
- Improved density control
- Reduces load on vent stack
- Easier maintenance
- Shatter jet steam consumption ≤170 kg/spout/hr with one nozzle in operation

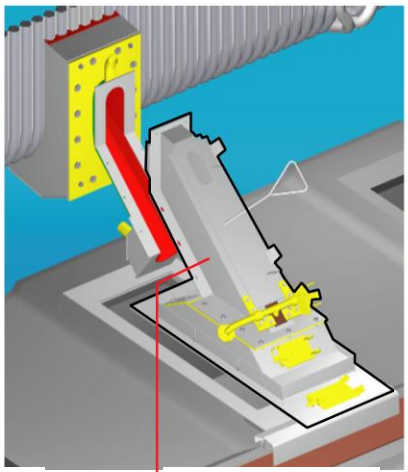
Valmet standard smelt spout assembly

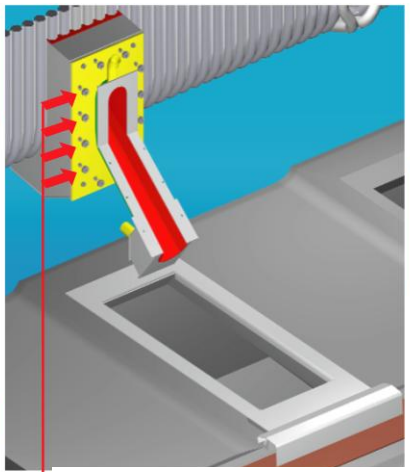
Benefits

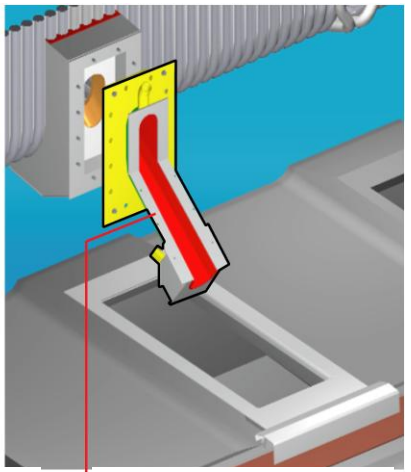
- Smelt Spout
  - -Steep design angle
  - -More even smelt flow
  - -Improved shattering
  - -Easier cleaning
  - -Water-cooled & insertable
  - -Self leveling
  - -Easier change-out
  - -Less Maintenance Cost
- Micro-Hoods
  - -Enclosed system
  - - Easier maintenance
  - -Improved dissolving tank/scrubber fan performance
- Dual Shatterjets
  - -Quieter spout deck
  - -Improved shattering
  - -Dramatically reduced steam consumption
  - -ROI ≤ 12 months
  - -Increased safety
  - -Full range of adjusability




Unscrew the bolts


Hood off


Unscrew the nuts


Smelt spout off

Benefits of Having Less Spouts and Going to a Single Dissolving Tank

- Reduced maintenance and operating cost for the tanks (piping, pumps, agitators, cleaning, inspection, tank repairs, venting)
- Easier to control green liquor density in one tank vs balancing both
- Less operator intervention / time needed with only one side of boiler.
- One less dangerous area around the boiler as spout decks require additional PPE
- Lower cost of spout changes with less spouts
- Better flow in each spout and easier to keep spout running with less spouts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