

# **Beer Degassing Module (BDM)**

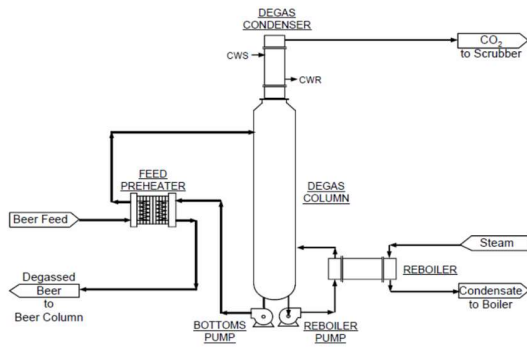
## **Custom-Built Bolt-On to Increase Plant Capacity**

**Degassing the beer reduces the load on the existing Beer Column. This load can translate into reduced energy consumption at a given feed rate or allow for an increase in feed rate (capacity) for a given beer column diameter. Depending on the system, installing a BDM can increase capacity by 7 - 10%.**

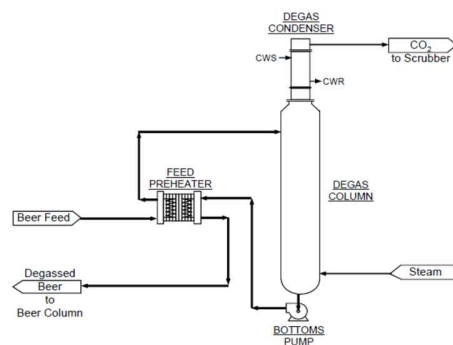
- ✓ If your current system is experiencing ethanol base losses in the Beer Column, installing the BDM and maintaining energy input to the Beer Column will significantly reduce or eliminate these losses. The amount of ethanol that can be recovered will depend on the amount of ethanol being lost with the stillage.
- ✓ Removing the non-condensables (CO<sub>2</sub>) in the BDM will increase the capacity of the existing Rectifier Overhead Condenser by improving the heat transfer coefficient, improving the log mean temperature difference, and decreasing the vapor flow to the condenser itself. The increase in performance of this exchanger will probably be most advantageous during hot summer months when cooling tower temperatures rise.
- ✓ In many cases, existing distillation systems are operated under vacuum. In such systems, if the CO<sub>2</sub> is left in the beer, this CO<sub>2</sub> ends up in the vacuum pump. This requires a large vacuum pump to handle all the CO<sub>2</sub>. By removing the CO<sub>2</sub> in the BDM, the existing vacuum pump can be replaced with a much smaller vacuum pump, for any capacity facility, significantly reducing electrical consumption.
- ✓ Because removal of CO<sub>2</sub> prior to a vacuum Beer Column reduces the vapor load to the vacuum system, a larger vacuum pump is replaced with a smaller unit, reducing seal water requirements 50 - 70%. This vacuum pump seal water is combined with the MSU purge and recycled back to the Rectifying Column. Less seal water results in less energy required in the Stripping Column (estimated reduction of 7 - 9%).
- ✓ If CO<sub>2</sub> is not removed from the beer, some of the CO<sub>2</sub> will end up in the 200 proof alcohol condensed after the MSU, resulting in high acidity ethanol. As a result, the product must then go through a flashing process to remove the dissolved CO<sub>2</sub>. This alcohol that is flashed off is then returned to distillation for recovery. Typically, this is about 5% of the alcohol product flow rate. By installing the BDM, flashing of the alcohol is no longer required, reducing recycle to the Rectifying Column and freeing up capacity in the Rectifying Column and Stripping Column by reducing the alcohol loading on these two columns.
- ✓ Degassing beer eliminates the need to flash 200 proof product, reducing ethanol content of the vent stream from distillation back to the Fermentation Scrubber. Ethanol sent to the Fermentation Scrubber is recovered in the scrubber water which typically contains less than 5% ethanol. Processing of this low ethanol concentration stream is energy intensive. Consequently, eliminating the vent stream from a 200 proof flash step will save significant energy.

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**Beer Degas Module with Reboiler**



**Beer Degas Module with Direct Steam**

