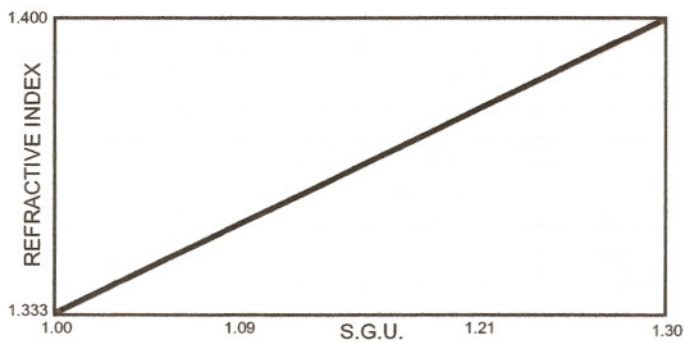
THE ELECTRON MACHINE CORPORATION

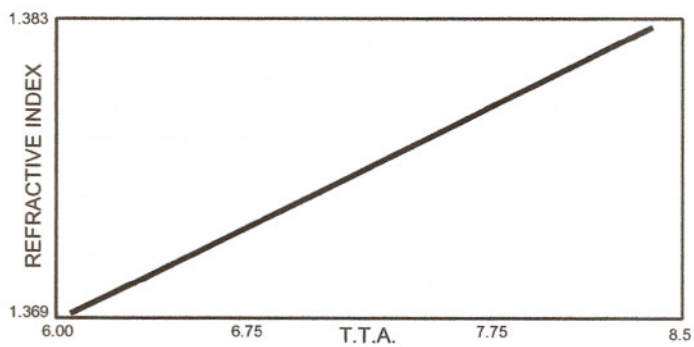
APPLICATION ENGINEERING DATA #031215
GREEN LIQUOR HPC-2

The Electron Machine Corporation has been accurately measuring green liquor solids in the paper industry for over 25 years using refractometers. An optical coating problem associated with green liquor has been an ongoing cleaning problem resulting in the adaptation of several different cleaning methods. These have included everything from hand cleaning at regular intervals to muriatic acid purging, all of which were either labor intensive or only marginally effective.

The most recent innovation introduced by Electron Machine Corporation several years ago is the High Pressure Cleaner, which is now successfully being used at numerous installations. This system is activated by the refractometer at regular intervals and utilizes a small water jet in the pipeline. A high pressure pump generates up to 2800 psi of water pressure against the prism to blast away any coating build-ups on the sapphire measurement prism. With a clear optical interface, the refractometer is able to very accurately measure and control the green liquor solids.

A common configuration in the cooking liquor preparation process is to have reversible lines for the smelt dissolver to the green liquor clarifier and the weak wash storage to the smelt dissolver tank. This setup is ideal for the installation of a MPR Dual E-Scan refractometer paired with the HPC-2 High Pressure Cleaner system. Depending on which line is currently being used for control, the output for the corresponding sensing head is used as a direct error indicator. Since both sensing heads are cleaned with a single high pressure pump and the entire system is controlled by one electronics console, this system is a cost effective way to control green liquor solids. The ultimate result is maximized efficiency of the cooking liquor preparation process with reduced labor efforts.





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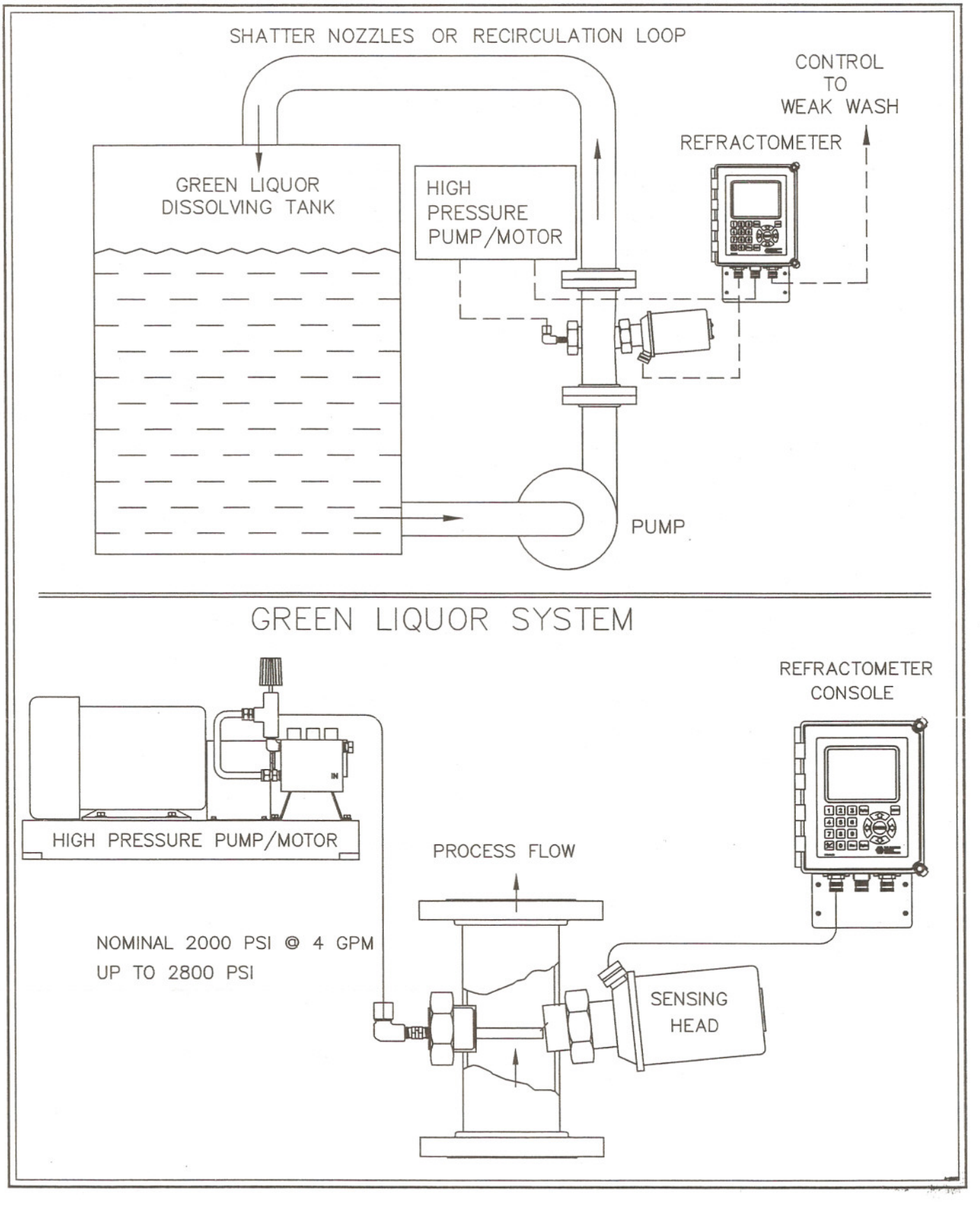
SHATTER NOZZLES OR RECIRCULATION LOOP
CONTROL TO WEAK WASH
REFRACTOMETER
GREEN LIQUOR DISSOLVING TANK
HIGH PRESSURE PUMP/MOTOR
PUMP
GREEN LIQUOR SYSTEM
REFRACTOMETER CONSOLE
HIGH PRESSURE PUMP/MOTOR
PROCESS FLOW
NOMINAL 2000 PSI @ 4 GPM
UP TO 2800 PSI
SENSING HEAD

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