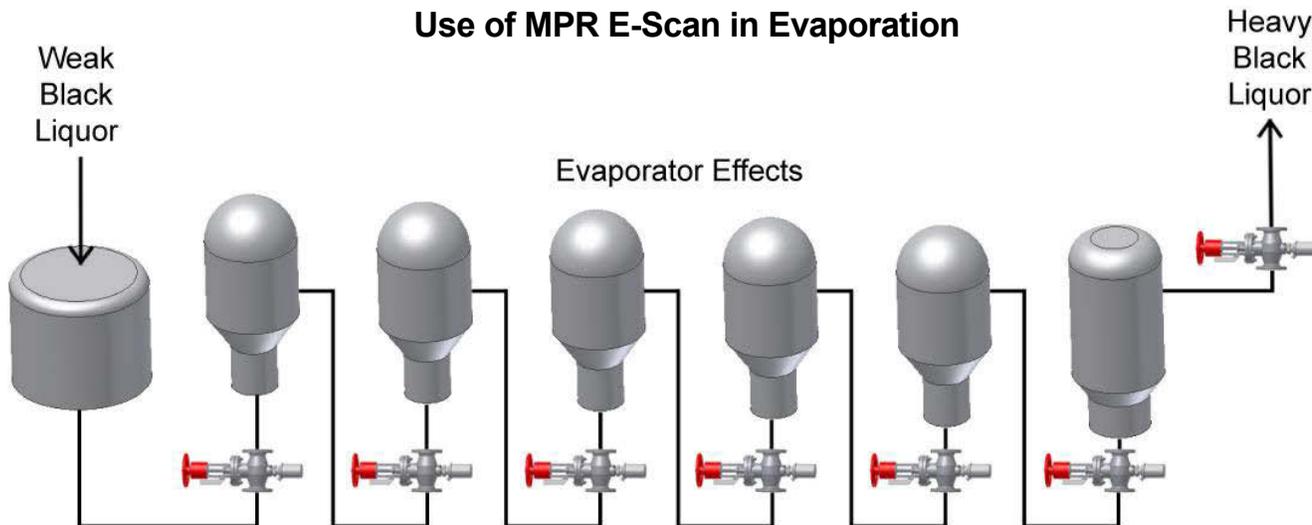




# ELECTRON MACHINE CORPORATION

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## Use of MPR E-Scan in Evaporation

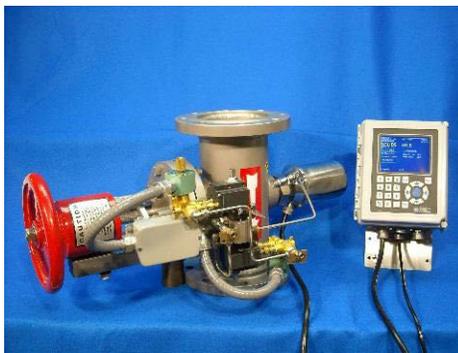


### Introduction:

Refractometers have long proven to be the instrument of choice for black liquor solids concentration. Electron Machine Corporation pioneered this technology to accurately measure black liquor dissolved solids nearly 50 years ago. The MPR E-Scan provides digital accuracy with rugged components required for years of reliable use when installed in harsh industrial environments. This combination allows for easy integration into your mill-wide monitor and/or control system providing operators the information needed for efficient control, yet remains easy to service.

### KEY BENEFITS:

- Consistent black liquor solids
- Minimize steam consumption
- Economical operation
- Optimize man hours
- Reduce costly evaporator cleanings



### Evaporation:

By installing the Electron Machine Corporation MPR E-Scan with Isolation Valve Adapters before and after each evaporator effect, the concentration and temperature output can be utilized to monitor efficiency, detect problems and operate economically. This monitoring allows control operators to adjust steam usage for optimal solids evaporation. Operators can determine if a quick flush cleaning can be performed to improve efficiency, prolonging the time between invasive, labor intensive cleanings. It also allows the detection of any problems before the liquor reaches the boiler, plus provides a consistent solids percentage for firing.

### Application:

An important and overlooked area for refractometers is the pulp washing operation. By monitoring the concentration output the washers can be balanced to meet the needs of the evaporation process and a mill is able to regulate the mixing liquor. This control allows a consistent concentration supply to the evaporators and boiler. This installation is simple and greatly reduces hand sampling.

### Conclusion:

With the addition of the Electron Machine Corporation MPR E-Scan to a mills process control system, a company can see increased profitability through the optimized control of steam usage, reduced labor cost from the reduction of offline hand sampling and the ability to prolong the time between labor intensive offline cleanings. This greater control provides more consistent firing solids allowing boilers to operator more efficiently.