



# APPLICATION GUIDE

## BLACK LIQUOR RECOVERY BOILER



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### APPLICATION DATA SHEET

In the paper and pulp industries, black liquor recovery boilers are used to burn the black liquor from the processing plant to provide additional steam and to recover sodium salt from the liquor. If conducted improperly, this process could result in a reaction between water and sodium salt, low solid liquors, or the uncontrolled ignition of unburned fuel and gases which could cause a furnace explosion. Due to the complexity and high risks of this process, careful control of the operations are required to ensure safety.

To minimize the possibility of an explosion, the control of the black liquor injection guns and the flow of the black liquor through the indirect liquor heater or washout procedures are synchronized by using KIRK® trapped key interlocks.

A typical black liquor recovery process using a KIRK® trapped key interlock system is detailed on the reverse of this page.

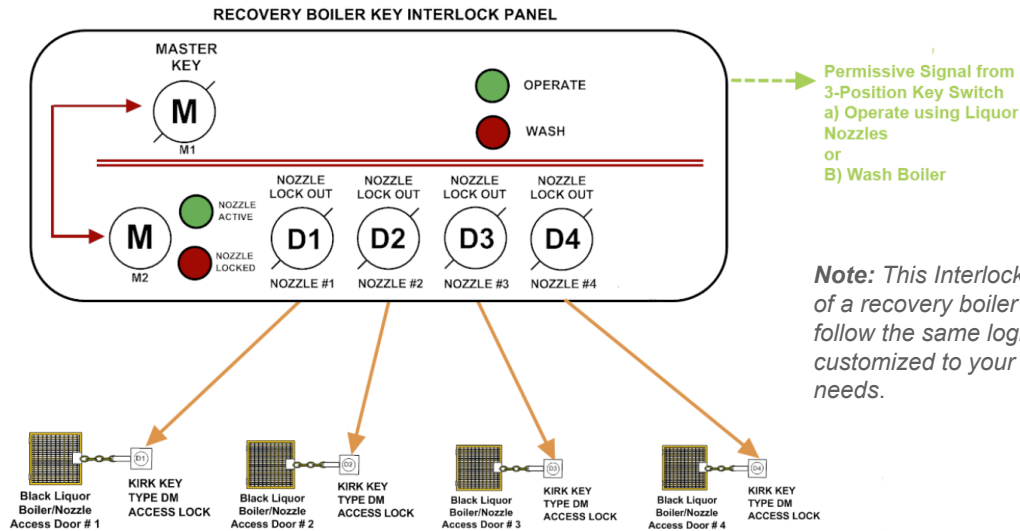


Type PPS



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# INTERLOCKING LOGIC



## OPERATION

### INITIAL SYSTEM STATUS:

System is non-active with Key M trapped in the Master Key position, all Black Liquor Nozzles are out of the boiler and the access doors are locked closed. Indicator Lights 'Operate' & 'Nozzle Locked' are illuminated.

### SYSTEM OPERATION:

#### a) TO PERFORM WASH ACTIONS

- 1) With Key M trapped in Master Position M1, in the Interlock Panel operate Switch to 'Wash' position, this operation sends a signal to Control to allow the wash procedure to be carried out – indicator lights accordingly. Note: Switch cannot be operated without Key M being trapped in Master position in panel.
- 2) On completion of the washout procedure turn Key to 'Operate' position – indicator light illuminates.

#### b) TO FIRE BOILERS USING BLACK LIQUOR

- 3) Rotate Key M in Master Position M1 to unlock to allow the key to be removed. This action illuminates the 'Nozzle Active' indicator lamp.
- 4) Enter Key M into the Liquor Control Position M2 on the Control Panel and rotate – this action illuminates 'Nozzle Active' indicator lamp and allows Keys D1, D2, D3, or D4 to be removed.
- 5) The operator removes any or all Keys D1, D2, D3, or D4 .
- 6) He then enters the key(s) into the relevant Access Door Lock(s) #1, #2, #3, or #4 to unlock and allow the door to be opened. When the door is open the relevant key is trapped in the lock and cannot be removed.
- 7) The operator selects the relevant Black Liquor Gun and commences firing with Black Liquor.
- 8) On completion of the firing operation reverse the procedure to return Key M to the Master Position M1.

Note: Additional Switch Contacts can be supplied on 'Wash/Operate Switch' and 'Liquor Control' key cylinder to provide signals to Control/remote location.