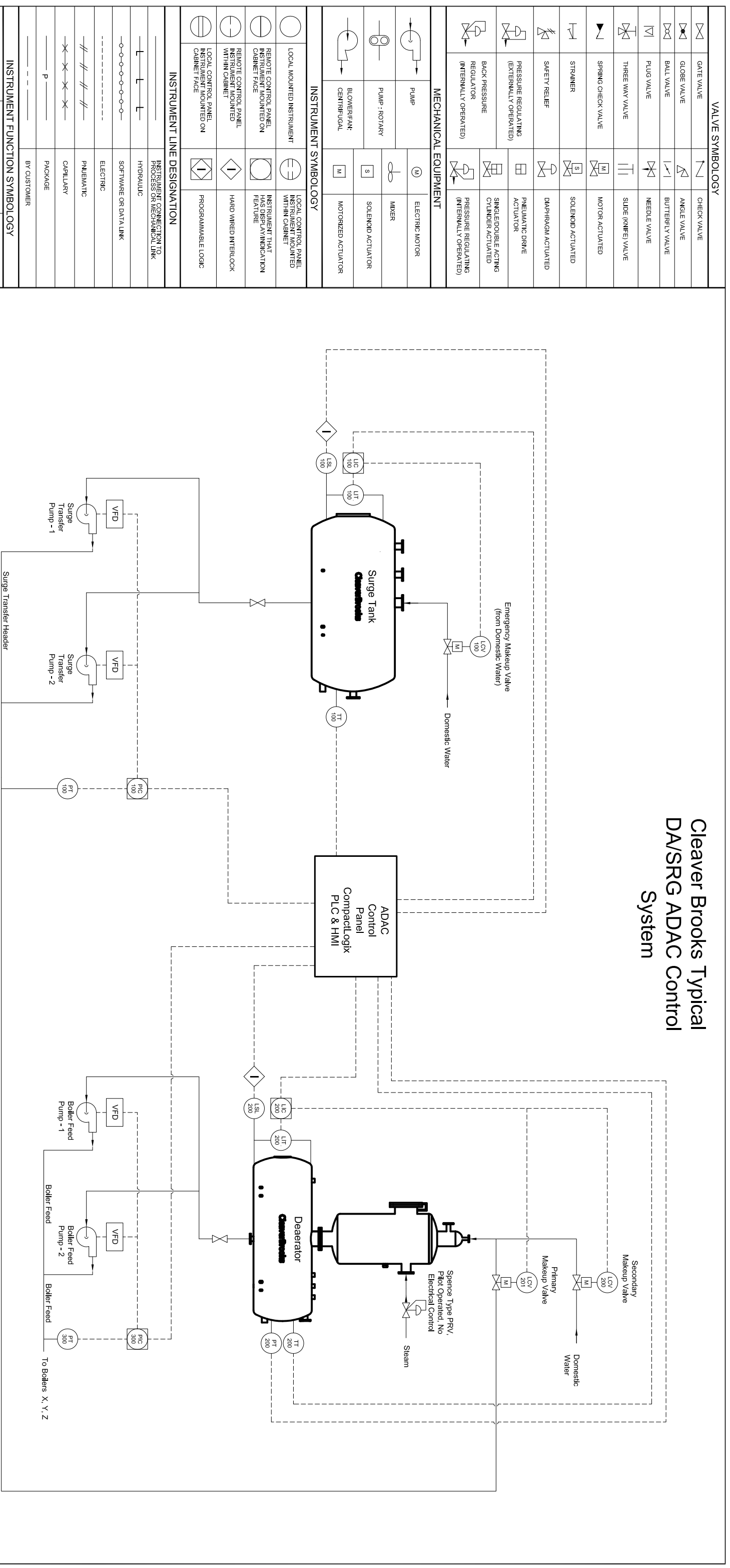


Cleaver Brooks Typical DA/SRG ADAC Control System



VALVE SYMBOLOLOGY			
	GATE VALVE		CHECK VALVE
	GLOBE VALVE		ANGLE VALVE
	BALL VALVE		BUTTERFLY VALVE
	PLUG VALVE		NEEDLE VALVE
	THREE WAY VALVE		SLIDE (KNIFE) VALVE
	SPRING CHECK VALVE		MOTOR ACTUATED
	STRAINER		SOLENOID ACTUATED
	SAFETY RELIEF		DIAPHRAGM ACTUATED
	PRESSURE REGULATING (EXTERNALLY OPERATED)		PNEUMATIC DRIVE ACTUATOR
	BACK PRESSURE REGULATOR (INTERNALLY OPERATED)		SINGLE DOUBLE ACTING CYLINDER ACTUATED
	PRESSURE REGULATING (INTERNALLY OPERATED)		PRESSURE REGULATING (INTERNALLY OPERATED)

MECHANICAL EQUIPMENT			
	PUMP		ELECTRIC MOTOR
	PUMP : ROTARY		MAKER
	BLOWER/FAN: CENTRIFUGAL		SOLENOID ACTUATOR
	BLOWER/FAN: CENTRIFUGAL		MOTORIZED ACTUATOR

INSTRUMENT SYMBOLOLOGY			
	LOCAL MOUNTED INSTRUMENT		LOCAL CONTROL PANEL INSTRUMENT MOUNTED WITHIN CABINET
	REMOTE CONTROL PANEL INSTRUMENT MOUNTED ON CABINET FACE		INSTRUMENT THAT HAS DISPLAY/INDICATION FEATURE
	REMOTE CONTROL PANEL INSTRUMENT MOUNTED WITHIN CABINET		HARD WIRED INTERLOCK
	LOCAL CONTROL PANEL INSTRUMENT MOUNTED ON CABINET FACE		PROGRAMMABLE LOGIC

INSTRUMENT LINE DESIGNATION			
	HYDRAULIC		INSTRUMENT CONNECTION TO PROCESS OR MECHANICAL LINK
	SOFTWARE OR DATA LINK		
	ELECTRIC		
	PNEUMATIC		
	CAPILLARY		
	PACKAGE		
	BY CUSTOMER		

INSTRUMENT FUNCTION SYMBOLOLOGY			
MEASURED VARIABLE	FUNCTION	MODIFIER	
LETTER	DESCRIPTION	LETTER	DESCRIPTION
A	ALARM	A	ACTUATOR
B	BURNER COMBUSTION	C	CONTROLLER
F	FLOW RATE	D	DIFFERENTIAL
H	HAND OPERATED	E	PRIMARY ELEMENT
L	LEVEL	I	INDICATOR
M	MOTOR	IC	INDICATOR & CONTROLLER
P	PRESSURE	R	RECORDER
T	TEMPERATURE	S	SWITCH
Z	POSITION	T	TRANSMITTER
X	USER DEFINED	V	VALVE

ADAC Control Panel:
One, Rockwell Automation Compactlogix PLC with One, 10" HMI Color Touch Screen. To Control/Monitor the Following:
1. Deaerator Tank Level Monitoring using GEMS SureSite Magnetic Level Transmitter (Differential Pressure Transmitter Optional). Low-Low Tank Level Cutout Switch (pump protection, Interlock)
2. Control Deaerator Tank level, via modulation of Primary and Secondary (Optional) Level Control Valves (Siemens 599 Motorized, Modulating Valve) (Fisher or Flowserve Pneumatic Optional)
3. Monitoring of Deaerator Tank pressure and temperature. Alarms provided. (Optional Transmitters)
4. Main Feedwater header pressure monitor and control. The pump VFD (VFD Optional, or Starters) speed and the lag pump(s) starting and stopping is based upon main feedwater header pressure and the operator pressure setpoint. The lead boiler feed pump is a continuous run pump when pump H-C-A selector switch is in Automatic position. As the individual Boiler Feedwater Valves modulates open/closed, then the feedwater header pressure will vary, and the lead pump speed and lag pumps adjust accordingly.
5. Pump differential pressure switch for proof of pump operation (Optional, or Current Switch, or Pressure Switch). If differential pressure switch is low, which is indication of pump failure, and the ADAC PLC is commanding the pump to run, then the PLC will shutdown the pump, and alarm the condition.
6. Surge Tank Level Monitoring using GEMS SureSite Magnetic Level Transmitter (Differential Pressure Transmitter Optional). Low-Low Tank Level Cutout Switch (pump protection, Interlock)
7. Control Surge Tank level, via modulation of Emergency, Level Control Valves (Siemens 599 Motorized, Modulating Valve) (Fisher or Flowserve Pneumatic Optional)
8. Monitoring of Surge Tank temperature. Alarms provided. (Temperature Transmitter Optional)
9. Main Surge Transfer header pressure monitor and control. The surge pump VFD (VFD Optional, or Starters) speed and the lag pump(s) starting and stopping is based upon main transfer header pressure and the operator pressure setpoint. The lead transfer pump is a continuous run pump when pump H-C-A selector switch is in Automatic position. As the Deaerator Primary Makeup Valve modulates open/closed, then the transfer header pressure varies, and the transfer pump speed and lag pumps adjust accordingly.

- * ITEM SHIPPED LOOSE
- ** ASSEMBLED, SHIPPED LOOSE
- *** RECOMMENDED, NOT BY C&B DIV.

REVISIONS		SCALE		DATE	
		N.T.S.			

CAUTION		WARNING	
DIMENSIONS SHOWN ARE APPROXIMATE AND SHOULD NOT BE USED IN RESTRICTIVE LAYOUTS OR TO PREFABRICATE ASSEMBLIES UNLESS CLEVERBROOKS HAS BEEN CONSULTED. IT IS STRONGLY RECOMMENDED THAT THE CUSTOMER REQUEST CERTIFIED DRAWINGS FOR THESE CASES.		LIFTING LUGS PROVIDED ON THE VESSEL SHALL ONLY BE USED TO LIFT THE VESSEL WHEN IT IS DRY.	

WARNING	
CHANGES, MODIFICATIONS OR ALTERATIONS ARE STRICTLY PROHIBITED. CHANGES TO THIS DRAWING AND SUBSEQUENT MODIFICATION OF EQUIPMENT COULD RESULT IN DAMAGE TO PERSONAL INJURY.	

Piping & Instrumentation Diagram		DRAWN		CHECKED BY	
SIZE	D				

DEAERATOR		SHT 01 OF 01		NCB	

CleverBrooks®	
Deaerator - Surge System P&ID, Conceptual	
DRWG. NO. 00	