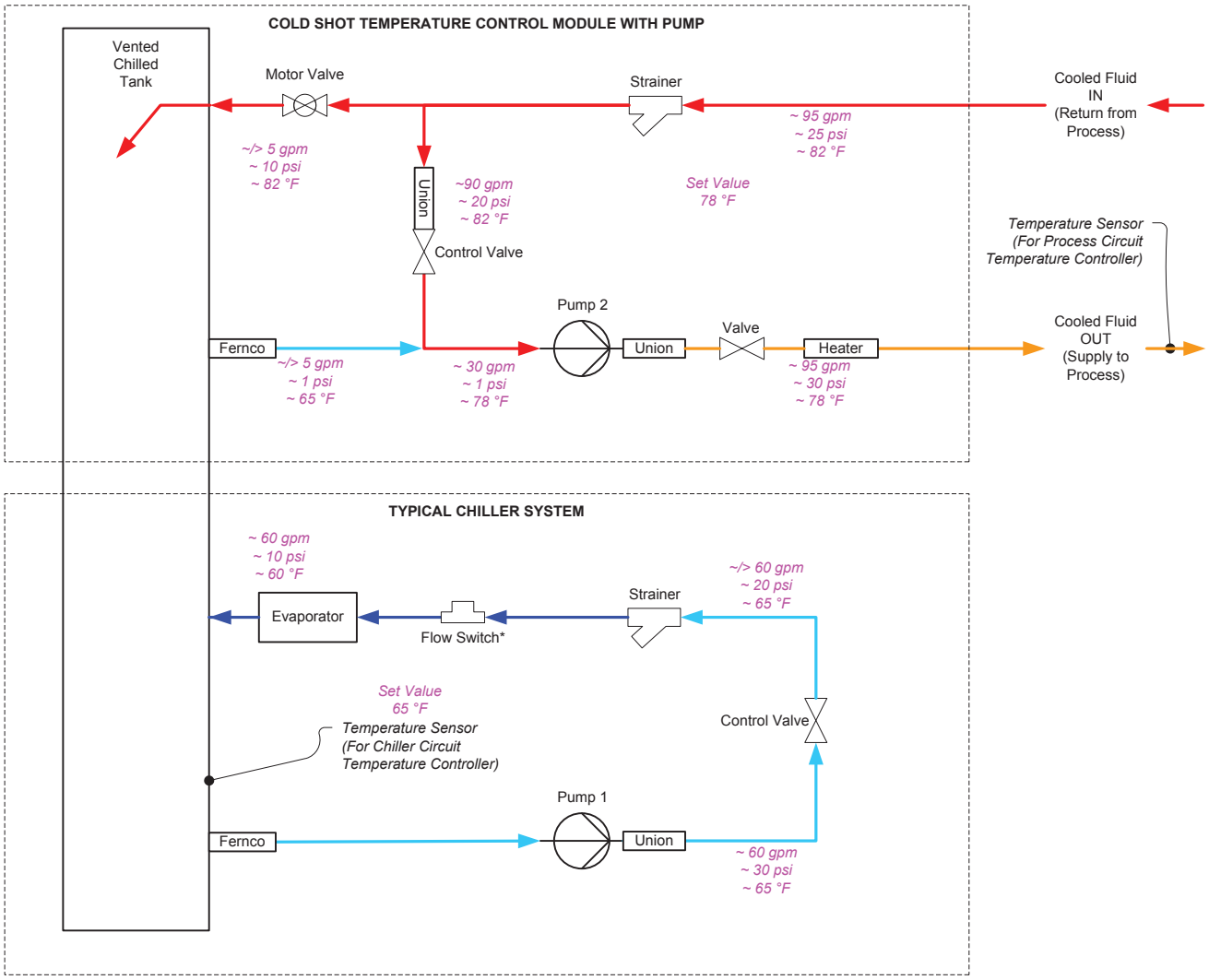
SHEET #:	SHEET:
1	Flow Diagram 3b

COLD SHOT TEMPERATURE CONTROL MODULE WITH PUMP AND 2-WAY MODULATING VALVE SYSTEM WITH COMMON FLUID WITHIN OR SEPARATE TO A TYPICAL CHILLER OR CHILLED TANK

NOTE: Values in Italics are for simulation purposes only.



SHOP NOTES

- OVERVIEW: Chilled fluid supply to the CSTC must be set well below the process temperature to ensure proper and efficient mixing of the fluids and capacity. The source for the chilled fluid can be a chilled tank or typical chiller. The CSTC with Pump can be added separately to any existing system.
- Pump 1 is for the chilled fluid circuit.
- Pump 2 is the dedicated pump for the secondary fluid circuit.
- Operation of Cooled Fluid Circuit:
  - Pump 2 pulls fluid off of the tank which it sends to the Cooled Fluid Out to the process.
  - The temperature controller will monitor the leaving fluid temperature and adjust the motorized valve to maintain a tight tolerance of the fluid.
  - When the fluid returns from the process:
    - If the temperature is too low, then the returning fluid is routed directly back to the pump suction because the pump suction is a slightly lower pressure than the tank piping.
    - If the temperature is too high, then some of the returning fluid is routed directly back to the tank. As the fluid fluid is returned to tank by the 2-way modulating valve, the pump will pull fluid from tank to make up for the process circuit.
- To provide additional pressure, Pump 2 suction can be connected to Pump 1 discharge instead of the tank. Return can be directly to the tank (for minimal back pressure) or to the typical chiller return (to provide typical differential pressure).
- To fill the system, the modulating valve must first start with directing back to tank until the process circuit is filled with fluid.
- Evaporator may be located inside or outside of the tank depending on design.

COLD SHOT CHILLERS®

DESCRIPTION

Typical Control Design for a Tight Tolerance Temperature Controller – Standard and typical variations shown or noted.

FILE: DWG_FlowDiagram-IES_(SingleCoolingCircuit)_081018.vsd

REF DATE: August 10, 2018

GENERAL NOTES

1. Circuit breaker(s) may be used in place of fuse(s).
2. WARNING-For continued protection against fire hazard replace fuses with the same type and rating only.
3. Unit must be permanently grounded and conform to N.E.C. & local codes.
4. Use copper conductors for field-wiring. Class 1, unless noted. All wire based on 105°C insulation wire, minimum.
5. Wire colors shown may differ from actual unit.
6. Drawing line item reference identification:
   - Number in parenthesis near output is location of controlled items. First number is sheet #, second & third are line#.
   - No underline indicates normally open (NO) contact, Underline indicates normally closed (NC) contact.
7. All intellectual property, including designs and programming logic are the property of Cold Shot Chillers and is not to be copied or used without permission from Cold Shot Chillers.
8. Design, specifications, and components are subject to change without notice.
9. Options and alternate design and components may exist and are typically dependent on design and specific parts used for the system.