1. **Tubing Version:** Remove the tubing nut from the discharge valve cartridge on the top of the pump head. Install the supplied Viton O-ring (#L1501200-VTN)* into the groove around the tubing tip on the valve cartridge. Hand-tighten the 5-Function Valve onto the discharge valve of the pump. Connect the discharge tubing to the “OUTLET” port and the bypass tubing to the “RETURN” port of the 5-Function Valve.

**PRESOAK TUBE:** Prior to assembly soak tube end in 180°F to Boiling Water (approx. the water temperature from the discharge of an office coffee maker). Soak time should be a minimum of 30 seconds.

2. **NPT Version:** Apply plumbers tape or sealant to the threads of the 5-Function Valve. Screw “INLET” connection into the discharge valve of the pump head. Connect piping to the “OUTLET” and “RETURN” port connections of the 5-Function Valve.

*If Viton is not compatible with fluid being pumped and alternate Teflon O-Ring is available (L1501200-TFE). Viton is the preferred sealing material with difficult to seal fluids like Sodium Hypochlorite and similar
5-FUNCTION VALVE OPERATIONS:

Pressure Relief Function (PRV):
Designed to relieve excessive pump discharge pressure (approximately 50% above PRV rating). PRV is functional anytime the bottom control knob is turned to the letter “C”, also labeled “PUMP” position.

Color code for PRV Rating:
Black........40-psi Spring part #L1104400-000
Blue.......100-psi Spring part #L1104500-000
Green.....150-psi Spring part #L1104600-000
Red........250-psi Spring part #L1104700-000

1. Back Pressure Function:
The back pressure function allows the pump to meter to atmosphere by creating a discharge restriction of approximately 20-psi. Back pressure is provided anytime the top knob is turned to “A”, also labeled “ON” position. Note: The back pressure function is not intended to prevent flow-through from elevated supply tanks. The pumps’ rated pressure does not have to be de-rated when the back pressure knob is in the “ON” position.

2. Anti-Siphon Function:
The anti-siphon function prevents siphoning through the pump when pumping to a receptacle lower than the pump. This feature is active when the top knob is turned to the letter “A”, also labeled “ON” position.

3. Pump head Air Bleed Function:
This function is used when starting the pump to aid in priming. It allows for removal of air from the pump head by bypassing air and fluid out the “RETURN” connection. This feature will function when the bottom knob is turned to the letter “D”, also labeled “BLEED” position.

4. Discharge Drain Function:
This function is used to depressurize and/or drain the pump discharge line. This is accomplished by turning the top knob to the “B”, also labeled “OFF” position, and the bottom knob to the “D”, also labeled “BLEED” position. This will bypass the discharge line fluid through the “RETURN” line of the 5-Function Valve.

Maintenance:
The only maintenance required is to replace the diaphragms whenever the pump head diaphragm is replaced. Sometimes when pumping dirty fluids, solids may become trapped between the PRV diaphragm (bottom one) and the PRV seat. This may cause the PRV to weep slightly. This is easily remedied by removing the diaphragm and wiping it with a cloth and reinstalling it, if the damage is excessive, the diaphragm must be replaced.
5-FUNCTION VALVE

SPECIFICATIONS:

Material of construction:
Valve body: Polyvinylidene Fluoride (PVDF)
Diaphragm: PTFE faced Hypalon
O-rings: TFE
Hardware: 18-8 Stainless Steel (recessed)
Maximum Flow: 240-GPD
Maximum Viscosity: 1000-CPS
Pressure Relief settings: 40-PSI (approximately 50)
                                   100-PSI (approximately 140)
                                   150-PSI (approximately 200)
                                   250-PSI (approximately 300)

Note: Pressure relief may occur at 50% above maximum pressure rating of the valve assembly.

Connections:
.25in.-NPT (male)
.38in.-I.D. x .50in.-O.D.-TUBING
.25in.-I.D. x .38in.-O.D.-TUBING
G-1/2-A (metric)

METRIC TUBING COUPLING NUT KITS
4x6mm-Tubing  L9909100-HPV
4x10mm- Tubing  L9909200-HPV
6x10mm- Tubing  L9909201-HPV
6x12mm- Tubing  L9909300-HPV
10x14mm- Tubing  L9909400-HPV
10x16mm- Tubing  L9909401-HPV

<table>
<thead>
<tr>
<th>.25 in. - MALE NPT CONNECTION</th>
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<th>.38 IN. - O.D. TUBING CONNECTION</th>
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## 5-FUNCTION VALVE ASSEMBLY

![Diagram of the 5-Function Valve Assembly]

### Functions:
1. **Pressure Relief**
2. **Back Pressure**
3. **Anti-Siphon**
4. **Bleed**
5. **Drain**

### Hardware Assembly Detail

#### Item | Part # | Description | Qty
--- | --- | --- | ---
1 | L1100300-PVD | NUT (PVD), .38in TUBE COUPLING | 2
2 | L1104000-PVD | NUT (PVD), .50in TUBE COUPLING | 2
3 | L1104000-PVD | BODY (PVD), .38in TUBE VALVE | 1
4 | L1104010-PVD | BODY (PVD), .50in TUBE VALVE | 1
5 | L1704500-000 | LABEL, 5-FUNCTION INSTRUCTION DECAL | 1
6 | L1104200-PVD | BODY (PVD), BLOCK | 1
7 | L0301900-000 | DIAPHRAGM AS'Y | 2
8 | L9805001-188 | FW (SST) #10 .403X.203X.04 | 6
9 | L1900600-FPP | KNOB (FPP), ADJUSTMENT | 2
10 | L1104400-000 | SPRING, P.R.V. 40-PSI (BLACK) | 1
11 | L1104500-000 | SPRING, P.R.V. 100-PSI (BLUE) | 1
12 | L1104600-000 | SPRING, P.R.V. 150-PSI (GREEN) | 1
13 | L1104700-000 | SPRING, P.R.V. 250-PSI (RED) | 1
14 | L1104400-000 | SPRING, P.R.V. 40-PSI (BLACK) | 1
15 | L9804600-188 | WASHER (SST), FLAT | 2
16 | L9804700-188 | SCREW (SST), #10-32x1.50-lg.,FILLISTER PHIL. | 6
17 | L9809700-188 | NUT (SST), #10-32 x .25 thk. HEX | 6
18 | L1701600-000 | LABEL, KNOB, BLACK | 1
19 | L1701601-000 | LABEL, KNOB 40-PSI (BLACK) | 1
20 | L1701602-000 | LABEL, KNOB 100-PSI (BLUE) | 1
21 | L1701603-000 | LABEL, KNOB 150-PSI (GREEN) | 1
22 | L1701604-000 | LABEL, KNOB 250-PSI (RED) | 1
23 | L1501200-VTN | GASKET (VTN), O-RING, 2-013 | 1
24 | 06-008-26-E | SCREW (SST), #8 x 1.0in.-lg. TYPE-A PHP | 2
25 | L9904400-188 | WASHER (SST), CURVED SPRING | 3
26 | L9404500-000 | MANUAL, 5-FUNCTION VALVE | 1
27 | L1715xxx-005 | LABEL, DECAL 5-FUNCTION VALVE | 1
28 | L1504100-000 | O-RING, .989 X 1.121 X .066 VITON | 2
29 | J27903 | GSK (TFE) .05X.455X.69 | 1