

## Steam and Condensate Return Pumps (LMH-5 – LMH-65 models)

- A. Approved Manufacturers
1. Kadant Johnson Liqui-Mover
  2. ITT Hoffman Pumpless Pump
- B. General:
1. Provide a float free condensate pump system, pre-piped packaged, with elevated receiver. The pumping pressure to be steam, compressed air, or other compatible inert gas.
- C. Package Components:
1. The packaged condensate return system shall incorporate: pumping chamber, 2-probe conductance level control, electric or pneumatic operated motive 3-way valve, inlet and discharge check valves, level gauge glass assembly for all tanks, isolation hand valve ahead of inlet check valve, and be assembled on a steel skid.
- D. Operation:
1. Condensate enters the pump system at the receiver and flows by gravity, through the inlet check, and into the pumping chamber.
  2. When the condensate reaches a predetermined high level, the float free level control actuates a 3-way motive valve to admit steam (or other compatible inert gas) into the pumping chamber.
  3. Condensate is pushed out of the pumping chamber through the discharge check valve, into the return line.
  4. When the condensate reaches a predetermined low level, the level control will reset to its original position, allowing the cycle to repeat itself.
  5. The pumping system shall be of a non-cavitating design and capable of handling 365 F condensate in a closed or flash system.
- E. Construction:
1. Maximum design pressure is 150 psig
  2. Receiver to be steel and ASME labeled for 150 psig and include a replaceable magnesium anode for corrosion protection
  3. Pumping chamber to be steel and ASME labeled for 150 psig
  4. Manufacturers standard check valves on inlet and discharge of each pumping chamber
  5. 2-probe conductance level control with ductile iron electrode holder and control panel
  6. Electric or pneumatic operated 3-way motive valve manufactured by pump manufacturer
  7. Piping to be A53 schedule 40 with malleable iron fittings
  8. Level gauge glass assembly to have bronze hand valves and guard rods, and red line tubular glass
- F. Warranty (abbreviated):
1. Non-electric condensate pump to be warranted against defects in materials and workmanship for a period of one year after date of shipment. It is agreed that the limit of liability shall be, at the manufacturers sole option, the repair or resupply of a like quantity on non-defective products.
- G. Installation:
1. Install pumps per manufacturers instructions
  2. Install a pressure reducing valve in the motive pressure line ahead of the pumping chamber and set to approximately 20 psig higher than the backpressure
  3. Support piping adjacent to the pump so that no weight is carried on the pump assembly
- H. Optional Equipment (as scheduled):
1. NEMA 4 electric cycle counter
  2. Fiberglass insulation wrapped in aluminum jacket on receiver and pumping chamber
  3. Pressure gauge assembly with pigtail and shut-off valve
  4. Drain piping for pumping chamber and receiver

