RETROFIT INSTALLATION INSTRUCTIONS

SUPERHEAT OPTIMIZER SYSTEM
(SUPERHEAT SENSOR SYSTEM)

Low & Medium Temperature Refrigerated Display Cases

A) TXV Sizing

1) Multiply the manufacturer's evaporator BTU rating at the design SST, for the specified refrigerant, by a factor of 1.8. Select the closest available valve size from the manufacturers engineering tables for the design SST and appropriate Freon (do not use nominal expansion valve values)

B) Distributor Orifice Sizing

1) Select the distributor orifice with the closest rating to the BTU value calculated in section A

C) Distributor Line Sizing

1) Distributor lines can be 3/16" or 1/4"
2) 5 deck low temp cases must use 5/16" lines

D) Superheat Sensor Sizing

1) Door cases - one, two and three door cases use 5/8" sensors
2) Door cases - four and five door cases use 7/8" sensors. The contractor must disconnect the soldered liquid line, run a new liquid line & install a new heat exchanger to feed the TXV
3) Tiered and bunker cases less than 6000 BTUs (per the manufacturers rating at the design SST) use 5/8" sensors
4) Sensors for cases with capacities exceeding 6000 BTUs (per the manufacturers rating at the design SST) are sized to match the evaporator suction line size of the coil

E) Required Components

1) Properly sized superheat sensor, distributor lines, distributor orifices and expansion valve
2) A manufactured heat exchanger
3) Two 15' type K thermocouples. Attach one (1) thermocouple on the TXV bulb on the superheat sensor & attach the other thermocouple to the suction line on the compressor side of the heat exchanger

Walk-In Boxes - the superheat sensor, which is bi-directional, may be positioned in either the vertical or horizontal position before the heat exchanger or any suction line trap. The superheat sensor DOES NOT have to be installed at a 45° angle for this application

A) TXV Sizing (same as above)

B) Distributor Orifice Sizing (same as above)

C) Distributor Line Sizing

1) Distributor lines can be 3/16", 1/4" or 5/16" as found on the evaporator

Installation and Insulation

1) The superheat sensor must be as close as possible to the evaporator outlet before the suction line goes to any hot gas looping underneath the evaporator coil. Superheat sensors are bi-directional and must be installed on a 45° angle to the horizontal plane with the outlet of the sensor at the top
2) The superheat sensor must be mounted so the TXV bulb groove is turned to either 5 o'clock or 8 o'clock positions
3) The entire TXV bulb must be strapped in the superheat sensor groove provided, as close to the exit of the sensor as the groove allows
4) The TXV bulb strap bolts must be on the opposite side of the sensor to the TXV bulb
5) The TXV bulb must be mounted so that the capillary line is on the top with the bulb pointing downward as per diagram (page 2)
6) One 15' type K thermocouple is attached to the superheat sensor under the top TXV bulb strap. The other is attached to the suction line on the compressor side of the manufactured heat exchanger, not on the heat exchanger itself as per diagram (page 2)
7) All liquid lines components, such as: existing liquid line headers, filters, strainers, hand shutoff valves, etc., must not be in contact with cold air when the case is operating. They must be insulated completely with 1/2" insulation
8) The superheat sensor and manufactured heat exchanger must be insulated with 1/2" insulation
9) In hot gas defrost systems, the return line must be re-piped so that the return line is teed back to the liquid line on the receiver side of the heat exchanger
10) If the OEM has the liquid line soldered to the suction line, the contractor must disconnect the soldered liquid line, run a new liquid line and install a new heat exchanger
11) The TXV cannot be mounted with the power element on the bottom

If any questions should arise with the above instructions /specifications, contact:

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