

SUPERHEAT OPTIMIZER SYSTEM

(SUPERHEAT SENSOR SYSTEM)

Retrofit to include:

As per the **superheat optimizer system** installation instruction, price the installation of the system on the critical low temperature cases (ice cream - may be reach-in doors, multi-deck type and/or bunkers) and low temperature walk-in boxes as required for the store. Contractor to include all labor and parts (new TXV's, heat exchanger, orifices, distributors) as specified in the **superheat optimizer system** instruction sheet. The only item not included in the price are the actual superheat sensors and the type K thermocouples to be supplied by the manufacturer.

NB: Check to ensure the system is fully charged with freon prior to expansion valve setup

NB: If the liquid lines are soldered to the suction lines, a new liquid line must be run and insulated as per the retrofit instruction

Example: TXV and distributor orifice sizing for 5 deck cases

Low Temp R404 - 20°F SST
12 ft Hussmann G6 5D frozen food 1760 BTU/FT

- 1) Total BTU = 1760 x 12' = 21120 BTU
- 2) Use 1.8 Factor = 21,120 x 1.8 = 38016 BTU
- 3) Tonnage 38016 ÷ 12000 = 3.168 tons
- 4) **Expansion Valve**
 Sporlan TX Valve at -20°F SST. Closest to this value is P.T. The closest valve to this value is found on page 7 of Sporlan bulletin 10-10: EBSSE 6Z (ZP) rated at 3.28 tons

5) Distributor Orifice

Use calculated tonnage (3.168 tons) and using Sporlan distributor bulletin 20-10 on page 12 R404. The distributor orifice to be used is a **#10 orifice providing 3.12 tons**

RESULT :

For this case you use a Sporlan TXV EBSSE 6Z (ZP) Sporlan distributor orifice #10 and 5/16" distributor lines as required.

Example: TXV and distributor orifice sizing for 5 door freezer rated at 1650 BTU per door at -20°F SST manufacturers rating using R-404

TX valve selection

- 1) BTU/door 1650
- 2) 5 door = 1650 x 5 = 8250 BTU
- 3) Using 1.8 factor from instructions:
 1.8 x 8250 BTU = 14850 BTU
- 4) Tonnage = 14850 ÷ 12000 = 1.237 tons
- 5) From Sporlan bulletin 10/10 PT on page 7 the closest TX valve to the value is **SBFSE-BZ which gives 1.37 at -20°F SST TX value would be SBFSE-BZ (ZP)**

Distributor Orifice Selection

- 1) Tonnage as figure above = 1.237 tons
- 2) Using Sporlan bulletin 20/20 P.12 at -20°F SST. R404
- 3) The closest orifice giving the required tonnage is **the #3 orifice = 1.17 tons**

Example of door cases

Based on 1650 BTU/door at -20°F SST R404

| DOOR FREEZERS | R404A SPORLAN EG TXV | R404A SPORLAN TXV | R404A DANFOSS TXV | ORIFICE # SPORLAN DISTRIB. | DISTRIB. LINES | SUPERHEAT SENSOR SIZE |
|---------------|----------------------|-------------------|-------------------|----------------------------|----------------|-----------------------|
| 1. DOOR | EGSE 1/4 Z (ZP) | SBFSE - AZA (ZP) | TUAE4 = 0.27T | # 3/4 = 0.29T | 1/4" | 5/8" |
| 2. DOOR | EGSE 1/2 Z (ZP) | SBFSE - AZ (ZP) | TUAE6 = 0.55T | # 1-1/2 = 0.57T | 1/4" | 5/8" |
| 3. DOOR | EGSE 1 Z (ZP) | SBFSE - AZ (ZP) | TUAE7 = 0.73T | # 2 = 0.78T | 1/4" | 5/8" |
| 4. DOOR | EGSE 1-1/2 Z (ZP) | SBFSE - BZ (ZP) | TUAE8 = 1.10T | # 2-1/2 = 0.97T | 1/4" | 7/8" |
| 5. DOOR | EGSE 2 Z (ZP) | SBFSE - BZ (ZP) | TUAE9 = 1.62T | # 3 = 1.17T | 1/4" | 7/8" |