than comparable R-12 and R-502 systems, a need has developed for an expansion valve which will prevent excessive discharge temperatures from occurring on these systems.

The Y1037 TREV solves this problem by modulating refrigerant flow in response to bulb temperature only.

**SPECIFICATIONS & OPERATION**

The Y1037 TREV uses the Type F body and a thermostatic element consisting of a sensing bulb and a bellows assembly similar to the direct acting ORI and CRO pressure regulating valves. The element is charged with a hydraulic fluid which expands as its temperature increases.

The Y1037 TREV modulates the flow of refrigerant in response to bulb temperature only. The valve does not have an equalizer connection, and is not influenced by pressure.

**INSTALLATION AND SERVICE**

When brazing solder type connections, it is recommended that a wet rag, chill block, or some other means be used to prevent excessive heating of the valve body.

Internal parts kits or replacement thermostatic elements will not be available for the Y1037 TREV. The valve, however, may be disassembled for inspection and cleaning when necessary. **Do not remove element.**

**DESCRIPTION**

The Type Y1037 Temperature Responsive Expansion Valve (TREV) was developed in response to the refrigeration industry’s move to R-22 as a refrigerant for medium and low temperature refrigeration. Since R-22 refrigeration systems run higher compressor discharge temperatures...
Capacity required from the TREV may be determined from the chart shown below. This chart lists the percentage of system capacity to maintain a 240°F bulb temperature given evaporator temperature and expected suction vapor temperature.

<table>
<thead>
<tr>
<th>Evaporator Temperature (°F)</th>
<th>Suction Vapor Temperature (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-20</td>
<td>00  20  40  65</td>
</tr>
<tr>
<td>-40</td>
<td>02  07 12  17  23</td>
</tr>
</tbody>
</table>

Values assume:
110°F condensing temperature discharge temp = isentropic compression + 80°F
TREV bulb temp = isentropic compression + 30°F

In this case, 8 percent of the system capacity is required, or $0.16 = 0.16 \text{ tons}$.  

Pressure drop across TREV:
- Condensing pressure (psig) ..........226
- Evaporator pressure (psig) ..........10

Y1037-FV-1/3 = 0.33 tons at 216 psi

Liquid correction factor: 0.94

$0.16 \text{ tons} = 0.17 \text{ tons corrected to 100°F liquid}$

$0.94$

$Y1037-$FV-$1/3 = 0.33 \text{ tons at 216 psi}$

% loading $= \frac{0.17 \text{ tons}}{0.33 \text{ tons}} = 0.52 \text{ or } 52\%$

The actual TREV bulb temperature can be estimated as follows: 10°F $\times 0.52 = 5.2°\text{F}$, or approximately 5°F. Therefore, a 240°F valve setting would control at approximately: $240°F + 5°F = 245°F$. The control temperature may actually be slightly higher due to cooling effects of ambient temperature on the valve body. As a result, actual tests must be performed to verify the valve controls at the desired bulb temperature.

### DIMENSIONS

- **Fitting Size** (Inches)
  - 3/8 SAE: 1.69, 1.61
  - 1/2 SAE: 1.80
  - 3/8 ODF Extended: 2.42

- **Dimensions**
  - **A**
  - **B**
  - **C**
  - **D**
  - Minimum distance before bending cap tube is 1" from top of element
  - Minimum distance before bending cap tube is 1" from top of element

![Diagram](image)