Thermal Management Chart

Step 1: Determine the internal heat load in Watts. (See page 2)

Step 2: Determine temperature difference between the maximum temperature outside the enclosure and the maximum allowable temperature inside the enclosure.

Step 3: Plot your application on the chart.
   a) Find the internal heat load in Watts. (vertical scale)
   b) Draw a horizontal line to the point of intersection with the diagonal line representing temperature difference.
   c) From that point, extend a vertical line down to the horizontal scale to determine your CFM requirement.
   d) Continue the vertical line to the table to identify applicable filter fan package(s).

Step 4: Select the filter fan package and exhaust grille kit which best fits the application.

Help Notes - Electronic Conversions:
1 Watt = 3.413 BTU/hr
Volts x Amps = Watts
Thermal Management Chart

ENCLOSURE TEMPERATURE RISE
HEAT DISSIPATION IN ELECTRICAL ENCLOSURES

Surface Area = \(2[(\text{Height} \times \text{Width})+(\text{Height} \times \text{Depth})+(\text{Width} \times \text{Depth})] \div 144\)
Input Power = Watts \(\div\) Total Sq. Ft.

**Example:**
Surface Area = \(2[(48 \times 36) + (48 \times 16) + (36 \times 16)] \div 144 = 42\) Sq. Ft.
Input Power = \(300 \div 42 = 8.1\) Watts per Sq. Ft

An enclosure generates 550 Watts of internal heat. Maximum temperature inside the enclosure is 100°F. The maximum temperature outside the enclosure is 85°F.

**Step 1:** 550 Watts
**Step 2:** 100°F - 85°F = 15°F (internal temperature difference)
**Step 3:** Plot application.
**Step 4:** Select best combination for filter and fan package(s) and exhaust grille kit(s).

**Alternate Method of Selection:**
**Step 1:** Choose a filter fan package.
**Step 2:** Draw a vertical line from the fan package.
**Step 3:** Draw a horizontal line from the internal heat load in Watts.
**Step 4:** The point of intersection is the approximate internal temperature difference using the selected fan package.

**SCE-FA/N12FA** (Fan Package)
*Filter, Fan & Grille*

**SCE-CF** (Cooling Fan)
*Fan Motor & Finger Guard*

**SCE-BP** (Blower Package)