

PVC Expansion Fittings

**E09050, E09075, E09100,
E09125, E09150, E09200**

PVC expansion fittings allow for expansion and contraction of conduit, while protecting from conduit bowing, distorted boxes, and broken couplings or fittings.

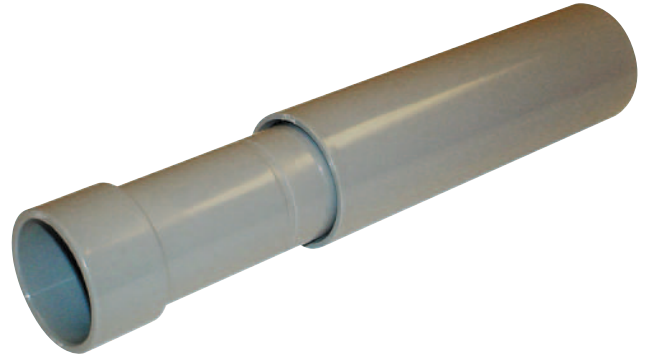
Usually expansion fittings are used in aboveground installations when the straight run length is greater than 25 feet and the temperature change is greater than 60°F.

Changes in conduit temperature outdoors can exceed 140°F, with summer heat and winter cold. This means a 100 foot run of conduit could change approximately 6 inches in length. When expansion fittings are installed outside in the sun, add 30°F to the air temperature change to account for absorption of the sun's heat.

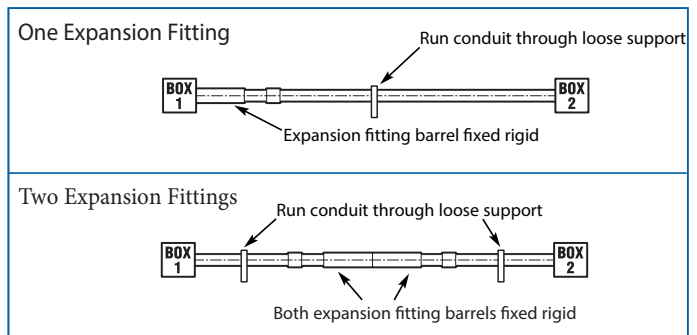
Although expansion fittings generally are not used in inside installations, attics are a common area where expansion fittings are required.

Pre-Installation Instructions

- **Determine the expansion allowance needed** for your installation, based upon the run length and the expected temperature change, to choose the correct fitting(s). Use the chart to the right.
- **Determine where and how many expansion fittings to install.**
 - For example, if one expansion fitting is needed between two boxes, the barrel of the fitting must be securely fastened close to one box. The conduit must be fastened loosely so as to allow for movement during expansion and contraction.
 - If there is more than one expansion fitting used, then fittings are installed at the boxes with the center of the conduit run rigidly fixed. With two expansion fittings utilized, the center of the conduit must be fixed so as to properly proportion expansion or contraction between the two fittings. Otherwise, the expansion or contraction would only occur at the free fitting, while the tighter fitting would not move.
 - In a very long run, two or more fittings should be placed in series with one another. The barrels of each expansion fitting must be anchored so as to allow each length of conduit to expand or contract freely. Each section acts independently.



Length of Run (Feet)	Inches of Expansion Allowance Needed for Temperature Changes of:				
	60°F	80°F	100°F	120°F	140°F
25	5/8	3/4	1	1 1/4	1 3/8
50	1 1/4	1 5/8	2	2 3/8	2 3/4
75	1 3/4	2 3/8	3	3 1/2	4 1/8
100	2 3/8	3 1/8	4	4 3/4	5 1/2
125	3	4	5	6	7
150	3 5/8	4 3/4	6	7 1/8	8 1/4



The most common mistake made is not using enough expansion fittings.

Installation Instructions

- 1. Mount the expansion fitting so that the piston can move in a straight line within the barrel.** If alignment is not straight, the piston will bind and prevent the fitting from working properly.

Most fittings are installed horizontally.

If the expansion fitting must be installed vertically, install it near the top of the run with the barrel pointing down. Fasten the open end securely in the down position and make sure the conduit run is fastened securely at the bottom. This ensures upward movement during length change,

- 2. Place the expansion fitting in the correct, initial setting position,** so that it can accommodate the expected length change.

If an expansion fitting was installed completely closed with the piston bottomed on a cool day, there would be no travel available when the conduit warmed up and expanded. If it was installed in a maximum open position on a hot day, the expansion fitting would pull apart when cooled. Thus, "setting" the expansion fitting is very important.

The setting position depends upon:

- installation ambient temperature
- expected length change

- 3. Clamp the expansion fitting barrel(s) tightly and the conduit loosely, using nonmetallic conduit straps.**

