

# Expansion Joints

## Expansion Joints per NEC

NEC 2011 Article 355.44 Expansion Fittings. "Expansion fittings for RTRC shall be provided to compensate for thermal expansion and contraction where the length change, in accordance with Tables 355.44, is expected to be 6 mm (1/4 in) or greater in a straight run between securely mounted items such as boxes, cabinets, elbows, or other conduit terminations."

**Table 355.44**

### Expansion Characteristics of Reinforced Thermosetting Resin Conduit (RTRC)

Coefficient of Thermal Expansion =  $1.2 \times 10^{-5}$  in/in/°F ( $2.2 \times 10^{-5}$  m/m/°C)

TEMPERATURE CHANGE (°F)	LENGTH CHANGE OF RTRC CONDUIT (IN/100 FT)	TEMPERATURE CHANGE (°F)	LENGTH CHANGE OF RTRC CONDUIT (IN/100 FT)	TEMPERATURE CHANGE (°C)	LENGTH CHANGE OF RTRC CONDUIT (MM/M)
5	0.09"	105	1.89"	5	0.14
10	0.18"	110	1.98"	10	0.27
15	0.27"	115	2.07"	15	0.41
20	0.36"	120	2.16"	20	0.54
25	0.45"	125	2.25"	25	0.68
30	0.54"	130	2.34"	30	0.81
35	0.63"	135	2.43"	35	0.95
40	0.72"	140	2.52"	40	1.08
45	0.81"	145	2.61"	45	1.22
50	0.90"	150	2.70"	50	1.35
55	0.99"	155	2.79"	55	1.49
60	1.08"	160	2.88"	60	1.62
65	1.17"	165	2.97"	65	1.76
70	1.26"	170	3.06"	70	1.89
75	1.35"	175	3.15"	75	2.03
80	1.44"	180	3.24"	80	2.16
85	1.53"	185	3.33"	85	2.30
90	1.62"	190	3.42"	90	2.43
95	1.71"	195	3.51"	95	2.57
100	1.80"	200	3.60"	100	2.70

## Selection of Joints for Various Applications

- **Below Ground, Direct Buried, Water Tight Joint**
  - Gasketed Joint
  - Tight Lock Joint
- **Below Ground, Concrete Encased**
  - Interference Joint
  - Gasketed Joint can be used, however is not required
  - Tight Lock Joint can be used, however is not required
- **Under Bridge and Above Ground installations**
  - Tight Lock Joint

Note: Never use Interference Joint without adhesive or Gasketed Joint for above ground applications. The pull-out strength is not sufficient. Experience has shown that over the service life of an installation, Interference Joint without adhesive or Gasketed Joint may fail.