



PVC PIPE DEFLECTION

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In large water projects such as rural water and irrigation systems, both gasketed pipe joints and solvent cemented joints are quite common. Use of a plow, trencher, or backhoe may be used in pipe placement. Some pipe may be placed through a plow chute or from the top of the ground behind the trencher or backhoe. In all cases, care must be taken not to exceed the recommended curvature limits for the pipe or serious pipe stress and breakage could occur.

The response of PVC pipe to longitudinal bending is considered a significant advantage of PVC pipe in buried applications. PVC pipe may be deliberately curved during the installation operation to make a change in alignment and grade, or to make a change in direction. The shortest longitudinal bending radius allowed for PVC pipe is equal to 300 times the pipe's outside diameter.

Most sewer projects do not allow for bends and curves but rather a straight line and grade from manhole to manhole. As with pressure pipe, Northern Pipe Products Inc. PVC sewer pipe may also be curved to allow for bending in the trenching operation to make a change in alignment and grade, or to make a gradual change in direction.

The next charts define the minimum radius of curvature and the maximum recommended offset per length of pipe.

PRESSURE PIPE BENDING ALLOWANCE

| Pipe Diameter | Pipe Length (in feet) | Min. Radius (in feet) | Max. Offset (in inches) |
|---------------|-----------------------|-----------------------|-------------------------|
| 1 1/2 | 20 | 48 | 50 |
| | 40 | 48 | 185 |
| 2 | 20 | 59 | 40 |
| | 40 | 59 | 155 |
| 2 1/2 | 20 | 72 | 30 |
| | 40 | 72 | 130 |
| 3 | 20 | 88 | 27 |
| | 40 | 88 | 105 |
| 4 | 20 | 110 | 22 |
| | 40 | 110 | 90 |
| 6 | 20 | 165 | 15 |
| | 40 | 165 | 60 |
| 8 | 20 | 215 | 11 |
| | 40 | 215 | 45 |
| 10 | 20 | 265 | 10 |
| | 40 | 265 | 36 |
| 12 | 20 | 315 | 8 |

SEWER PIPE BENDING ALLOWANCE

| Pipe Diameter | Pipe Length (in feet) | Min. Radius (in feet) | Max. Offset (in inches) |
|---------------|-----------------------|-----------------------|-------------------------|
| 4 | 14 | 55 | 18 |
| | 20 | 55 | 43 |
| 6 | 14 | 82 | 13 |
| | 20 | 82 | 29 |
| 8 | 14 | 110 | 10 |
| | 20 | 110 | 22 |
| 10 | 14 | 140 | 7 |
| | 20 | 140 | 18 |
| 12 | 14 | 165 | 6 |
| | 20 | 165 | 15 |
| 15 | 14 | 200 | 5 |
| | 20 | 200 | 12 |
| 18 | 14 | 280 | 3 |
| | 20 | 280 | 7 |