

## V AND U CONNECTOR INSTALLATION

### General Installation Instructions

The installation instructions and design considerations are to be used in conjunction with the submittal drawings for the flexible V connectors and U connectors.

In expansion compensation situations, the V and U connector can be installed pre-compressed or pre-extended, only if the full range of motion will be encountered in only one direction. Larger connectors are supplied with shipping bars attached. These bars are tack welded on to maintain proper designed length. The shipping bars need to be removed from the V or U after installation. For steam applications, a drain port and plug are to be specified and factory installed into the bottom of the 90 or 180 degree elbow to allow condensate to be drained. Horizontal installation is recommended to avoid condensate buildup. An alternative position for steam service, is with the 90 or 180 degree elbow pointing upward. Installing the V or U connector in this way will allow natural drainage into the surrounding piping.

V and U connectors can be installed in a variety of positions. The standard position is with the 90 or 180 degree elbow hanging down. Horizontal and vertical mounting yields the same allowance for motion as long as the 90 or 180 degree elbow is supported properly to avoid sagging or torquing.

V or U connectors larger than 1½" diameter must be supported if installed in any other position than the standard position. Supporting cable or pipe hanger rods should be attached to an eyelet located at the bottom of the 90 or 180 degree elbow. Pipe hanger rods used to support the V and U connectors should be at least 1 foot in length to allow the 90 degree elbow to move back and forth 1/4" as the loop flexes.

End fittings are required to be in alignment with the adjoining pipe line. The adjoining pipe line connecting the V and U connectors must be guided and anchored to ensure that all motion being transferred to the V and U connectors is in a straight, direct line, creating axial motion only on the V and U connectors.

Anchors are required on either side of the V or U connector to react to the spring forces of the connector. Pressure thrust loads are not a consideration because the V or U connector will not impose pressure thrust onto the system. Anchors should be of sufficient strength to withstand the spring forces of the loops and the frictional forces of the pipe sliding through any pipe alignment guides.

Approximate spring forces for the V and U connector are as follows:

|         |         |         |         |         |         |         |         |          |          |          |          |          |          |
|---------|---------|---------|---------|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|
| ½"      | ¾"      | 1"      | 1 ¼"    | 1 ½"    | 2"      | 2 ½"    | 3"      | 4"       | 5"       | 6"       | 8"       | 10"      | 12"      |
| 35 Lbs. | 41 Lbs. | 46 Lbs. | 65 Lbs. | 68 Lbs. | 82 Lbs. | 87 Lbs. | 93 Lbs. | 127 Lbs. | 214 Lbs. | 228 Lbs. | 312 Lbs. | 345 Lbs. | 399 Lbs. |

Note : The figures above reflect the total force required to deflect the V and U connectors full rated movement, pressurized to 150 PSIG for ½" through 10" and 100 PSIG for 12"

### SEISMIC CONNECTORS MUST BE REPLACED AFTER ANY SEISMIC ACTIVITY