

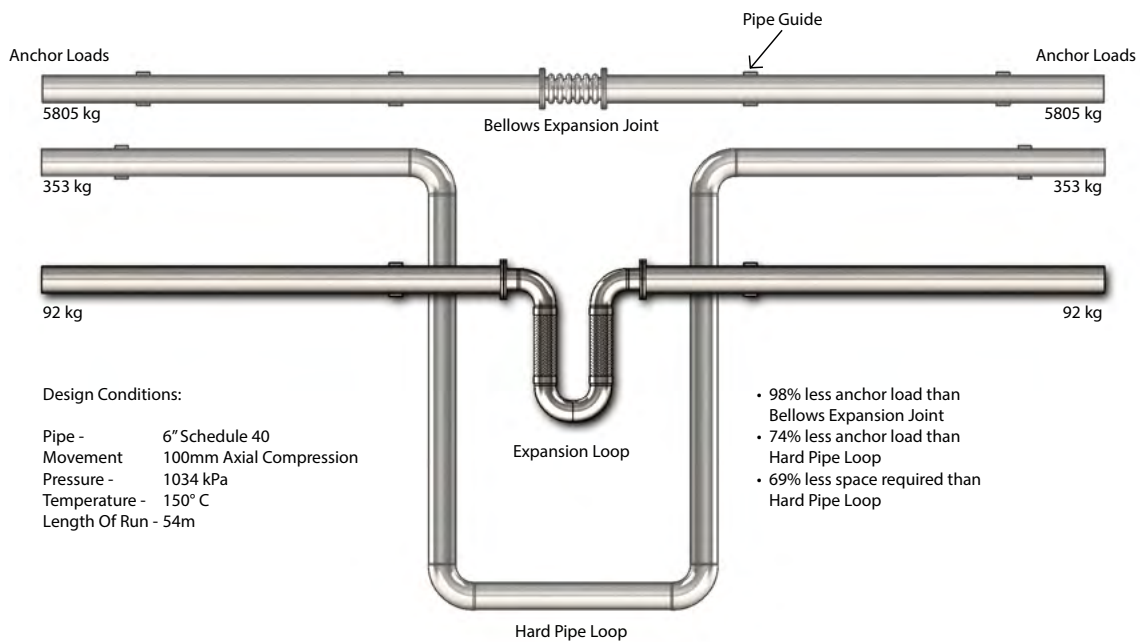
# Seismic Joints and Expansion Loops

## VITALFLEX® - Seismic Joints and Expansion Loops

Model name: VITALFLEX-U

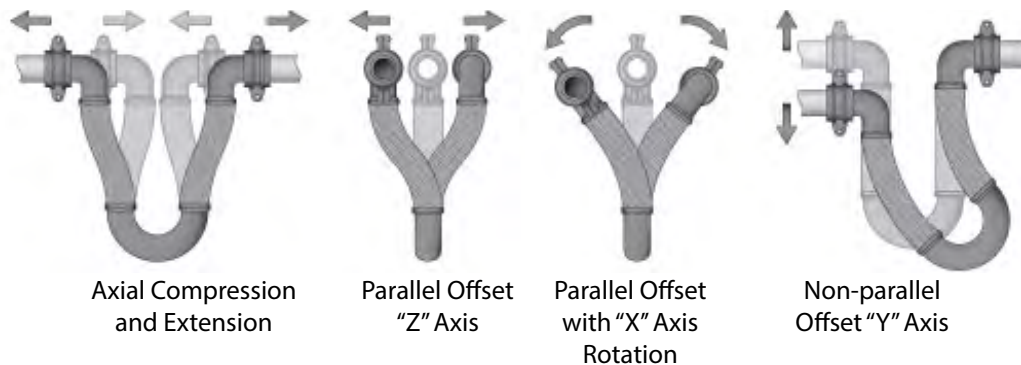
VITALFLEX® seismic joints and expansion loops are engineered to account for the cumulative movement(s) in piping systems. The VITALFLEX® joints have been designed to counter thermal expansion/contraction, offset and rotation.

Piping used in locations subject to seismic conditions have their own set of unexpected random movements. The random motion common to earthquakes, requires that seismic expansion joints be capable of movement in any direction and are able to withstand the acceleration forces.



### Significant cost and safety benefits found in VITALFLEX® seismic expansion joints

- It is an inexpensive alternative to dual-tied bellows expansion joints and especially ball joints
- During an earthquake, it protects equipment by allowing boilers, chillers, fan-coil units and other systems to move independently from buildings such as hospitals, high rises and stadiums
- Installation at the connection point, prevents nozzles from cracking or shearing off
- A break in the gas pipe work could start a fire and cause vast damage to the entire building. This Australian Gas Approval (AGA) certified seismic expansion joint will compensate for the movement that occurs during any seismic activity such as an earthquake
- Designed for potable water applications the VITALFLEX® joint can be Watermark certified in accordance with WMTS 520:2016



## Seismic Expansion Joints

### Installation Guide:

Reduce misalignment of the connecting pipes as any offset will change the design movements of the joint. When installing in any configuration other than with the product in a horizontal down position, the weight of the joint must be supported at the elbow connecting the two braided hoses. The recommended supports are wire cable or metal chain. These can be secured to the elbow used a pipe support clamp/bracket or on request to the hanging lugs which can be welded to the elbow in the manufacturing process.

### Typical Installation:

HORIZONTAL  
SIDE



HORIZONTAL  
DOWN



HORIZONTAL  
UP



NESTED



VERTICAL



UNDER-OVER



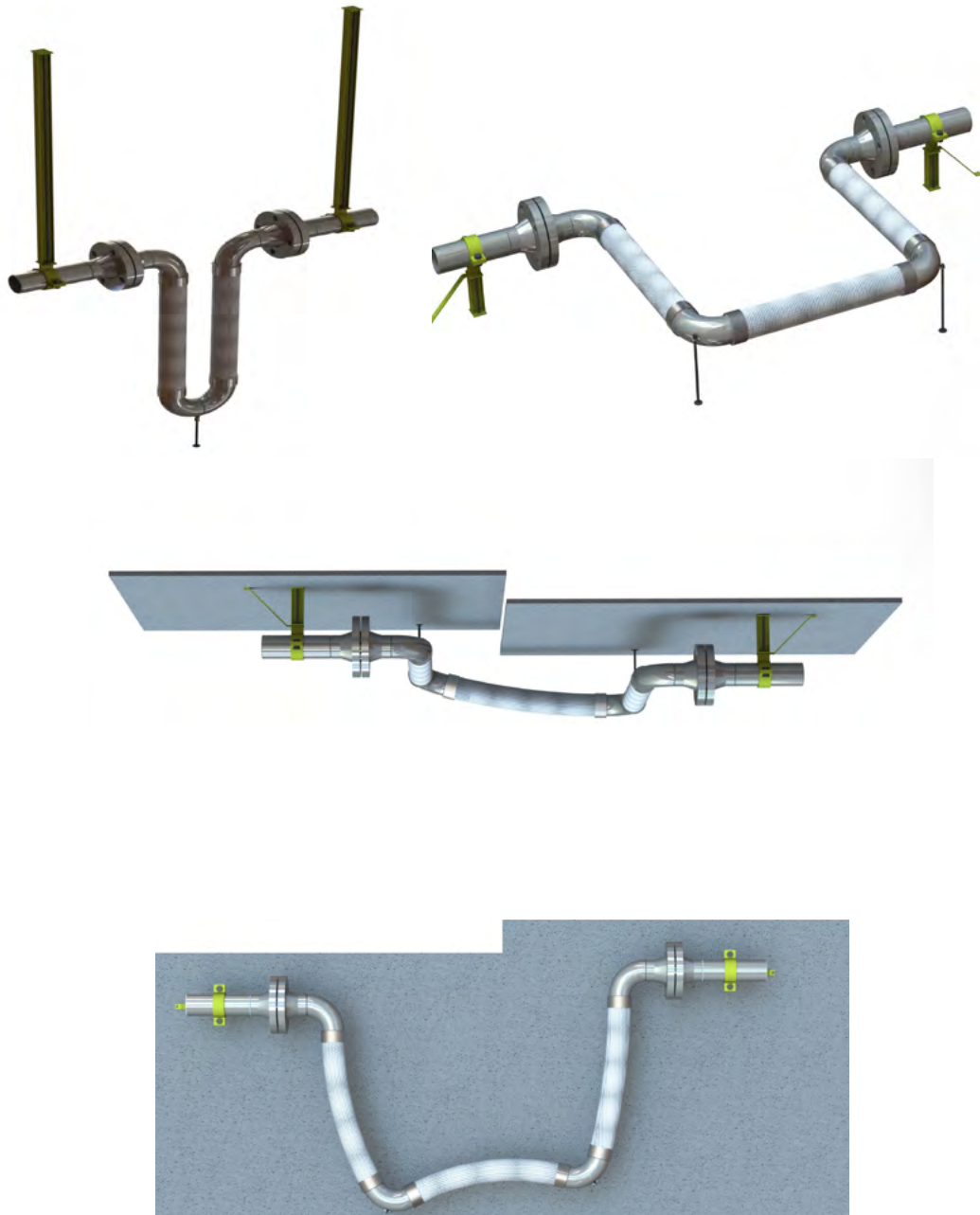
## Seismic Expansion Joints

### Maintenance Guide:

In the event of seismic activity or if excessive movements may have been applied, the product should be inspected to ensure that it has not incurred damage.

If there is an indication of evidence that the joint may have performed movements outside the design parameters this information should be communicated to Pacific Hoseflex to assess if the joints need to be repaired or replaced.

When the joints are visible a 12 monthly inspection should occur to enforce preventative maintenance.



## Seismic Expansion Joints

### Expansion Joint - U Shape

**Construction:** Annular / Close Pitch  
**Profile:** High Flexibility / High Pressure  
**Material Available:** 304 / 316 Stainless Steel  
**Braid Available:** 304 / 316 Stainless Steel  
**Size Available:** 1/4" (06mm) - 16" (500mm)  
(Larger sizes upon Request)  
**Max Temp:** 700°C

	Low	Med	High
Flexibility	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Cycle Life	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Pressure Rating	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Chemical Resistance	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Wall Thickness	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

#### Installation:



#### Couplings:

**VITALFLEX® - Swivel Flange**  
**Model Name: VITALFLEX-U-AF4**



**VITALFLEX® - Rolled groove coupling**  
**Model Name: VITALFLEX-U-RG**



**VITALFLEX® - Male coupling**  
**Model Name: VITALFLEX-U-AF1**



**VITALFLEX® - Female Union coupling**  
**Model Name: VITALFLEX-U-AF12**



10  
9  
8  
7  
6  
5  
4  
3  
2  
1

EXPANSION JOINTS

## Seismic Expansion Joints (U Shape)

### Specifications

**Movement range:** Up to +/- 500mm

(Standard catalogue range: 50mm, 75mm, 100mm, 150mm and 200mm)

(Customised movement available upon request from 0 to > 500 mm)

**Pressure range:**

**WaterMark:** Full Vacuum up to 2500 kPa

(Compressed hose may be considered for negative pressure/vacuum applications)

(Temperature correction factors may apply)

(Pressure restrictions may apply related to pressure rating of end fittings used)

**Standards:**

Corrugated Metal Hoses: ISO 10380

AGA Approved: AS 4631 (upon request)

Watermark Approved: WMTS 520 (upon request)

Welding Compliant: AS 4041- Class 1 (upon request)

Seismic Rated: AS 1170 (upon request)

Fire Protection Systems (upon request)

**AGA (Australian Gas Association):** Full

**Vacuum up to 1500 kPa**

(Compressed hose may be considered for negative pressure/vacuum applications)

(Temperature correction factors may apply)

(Pressure restrictions may apply related to pressure rating of end fittings used)

**Temperature range:** -276 °C to 700 °C

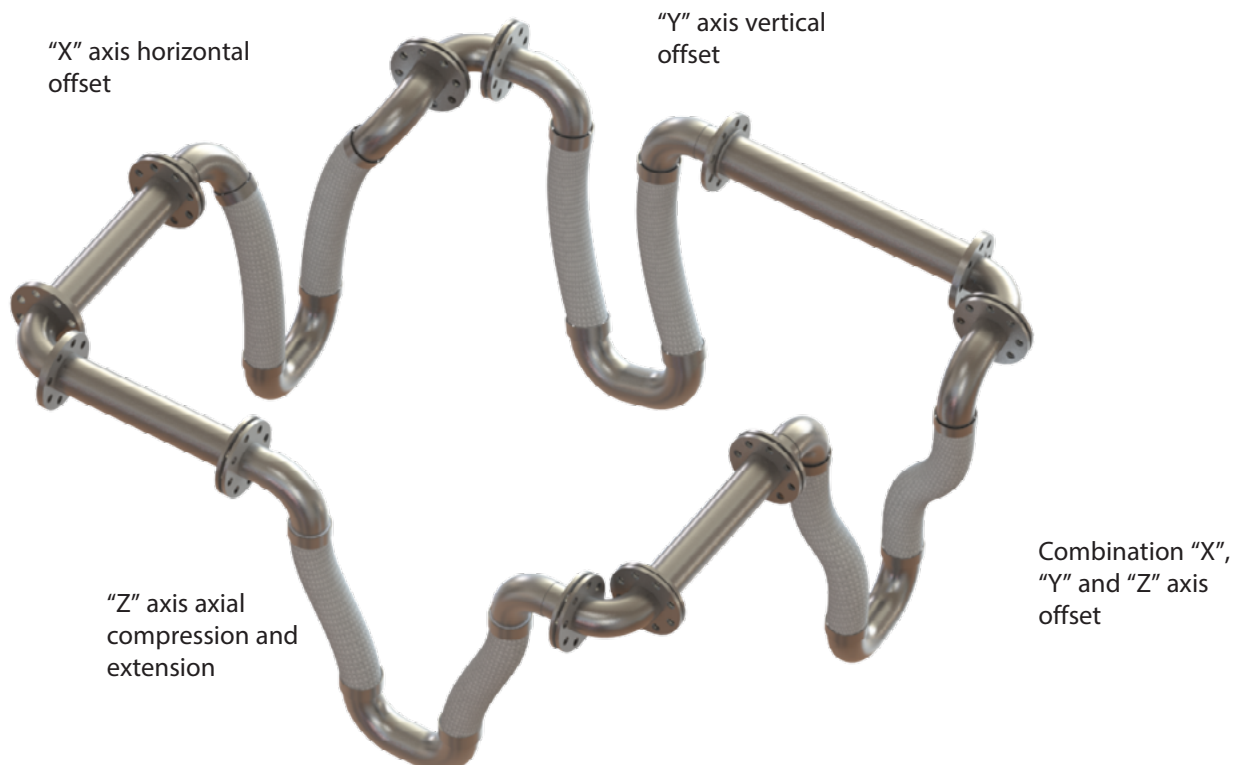
(Restrictions from applicable standards for assemblies and end fittings may apply)

(Calculated values available for single braided hose MAOP, double braided hose MAOP, 100 kPa, 500 kPa, 800 kPa, 1000 kPa, 1200 kPa,, 1500 kPa, 2000 kPa 2500 kPa)

**Pressure thrust range:** 0.01 kN to 147.39 kN

(Calculated values available for single braided hose MAOP, double braided hose MAOP, 100 kPa, 500 kPa, 800 kPa, 1000 kPa, 1200 kPa,, 1500 kPa, 2000 kPa 2500 kPa)

**Unit weight range:** Refer to technical catalogue for unfilled and filled water values (Available on request)



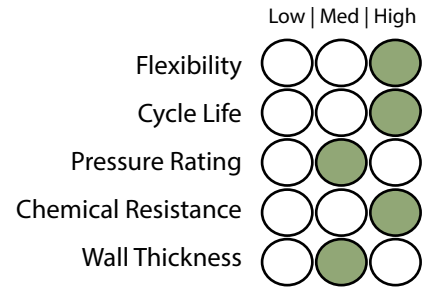




## Seismic Expansion Joints

### Expansion Joint - U Shape

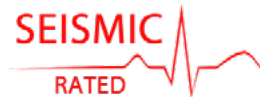
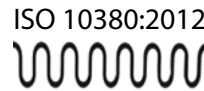
**Construction:** Annular / Close Pitch  
**Profile:** High Flexibility / High Pressure  
**Material Available:** 304 / 316 Stainless Steel  
**Braid Available:** 304 / 316 Stainless Steel  
**Size Available:** 1/4" (06mm) - 16" (500mm)  
(Larger sizes upon Request)  
**Max Temp:** 700°C



#### Construction

**Use:**  
 Used in a variety of applications and locations where subject to seismic conditions or large amounts of pipework movement. The random motion common to earthquakes requires that seismic expansion joints to be capable of movement in any direction.

**Standards:**  
 Corrugated Metal Hoses: ISO 10380  
 AGA Approved: AS 4631 (upon request)  
 Watermark Approved: WMTS 520 (upon request)  
 Welding Compliant: AS 4041- Class 1 (upon request)  
 Seismic Rated: AS 1170 (upon request)  
 Seismic Rated: NZS 4219 - 2009 (upon request)  
 Fire Protection Systems (upon request)



#### Specifications

Hose Size (mm)	Hose Size (inch)	Model	MOVEMENT (mm)	Dimension A	Dimension B	Pressure (kPa) @ 23 deg c	Hydrostatically Filled Hose weight (kg) (+/- 5%) Excluding all pipe bends and end fittings	Pneumatically Filled Hose weight (kg) (+/- 5%) Excluding all pipe bends and end fittings	Hose Spring Rate (Kg/Cm)	Hose Pipe load (kgs)
12	1/2"	VITALFLEX-U-12	50	202	245	8445	0.131	0.079	0.31	1.55
20	3/4"	VITALFLEX-U-20	50	202	262	7128	0.336	0.187	0.73	3.65
25	1"	VITALFLEX-U-25	50	202	276	5487	0.488	0.249	0.75	3.75
32	1 1/4"	VITALFLEX-U-32	50	240	329	4136	0.909	0.446	0.96	4.8
38	1 1/2"	VITALFLEX-U-38	50	279	366	3840	1.327	0.616	1.26	6.3
50	2"	VITALFLEX-U-50	50	355	417	3930	2.063	0.941	1.68	8.4
65	2 1/2"	VITALFLEX-U-65	50	381	522	2826	4.149	1.537	1.64	8.2
75	3"	VITALFLEX-U-75	50	457	582	2310	5.830	1.982	5.27	26.35
100	4"	VITALFLEX-U-100	50	610	704	1654	9.830	2.881	5.46	27.3
125	5"	VITALFLEX-U-125	50	762	817	1316	15.848	4.503	5.55	27.75
150	6"	VITALFLEX-U-150	50	914	934	1137	22.321	5.523	5.58	27.9
200	8"	VITALFLEX-U-200	50	1219	1134	1643	40.108	9.458	12.21	61.05
250	10"	VITALFLEX-U-250	50	1524	1410	1585	81.140	23.111	16.29	81.45
300	12"	VITALFLEX-U-300	50	1829	1582	1110	107.676	28.433	26.73	133.65

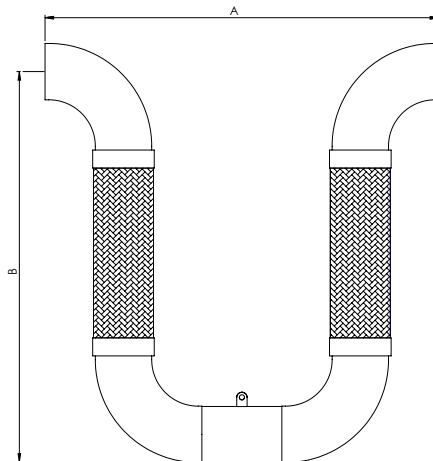
EXPANSION JOINTS 1 2 3 4 5 6 7 8 9 10

## Seismic Expansion Joints

### Expansion Joint - U Shape

Hose Size (mm)	Hose Size (inch)	Model	MOVEMENT (mm)	Dimension A	Dimension B	Pressure (kPa) @ 23 deg c	Hydrostatically Filled Hose weight (kg) (+/- 5%) Excluding all pipe bends and end fittings	Pneumatically Filled Hose weight (kg) (+/- 5%) Excluding all pipe bends and end fittings	Hose Spring Rate (Kg/Cm)	Hose Pipe load (kgs)
12	1/2"	VITALFLEX-U-12	100	252	322	8445	0.190	0.115	0.11	1.1
20	3/4"	VITALFLEX-U-20	100	252	342	7128	0.480	0.267	0.25	2.5
25	1"	VITALFLEX-U-25	100	252	357	5487	0.704	0.359	0.28	2.8
32	1 1/4"	VITALFLEX-U-32	100	290	422	4136	1.308	0.641	0.35	3.5
38	1 1/2"	VITALFLEX-U-38	100	329	465	3840	1.903	0.884	0.47	4.7
50	2"	VITALFLEX-U-50	100	405	519	3930	2.958	1.350	0.69	6.9
65	2 1/2"	VITALFLEX-U-65	100	481	646	2826	5.893	2.183	0.61	6.1
75	3"	VITALFLEX-U-75	100	557	714	2310	8.321	2.829	1.99	19.9
100	4"	VITALFLEX-U-100	100	610	849	1654	13.998	4.103	2.07	20.7
125	5"	VITALFLEX-U-125	100	762	972	1316	22.578	6.416	2.15	21.5
150	6"	VITALFLEX-U-150	100	914	1100	1137	31.749	7.855	2.27	22.7
200	8"	VITALFLEX-U-200	100	1219	1308	1643	56.924	13.424	5.47	54.7
250	10"	VITALFLEX-U-250	100	1524	1555	1585	104.119	29.657	8.83	88.3
300	12"	VITALFLEX-U-300	100	1829	1795	1110	153.002	40.403	11.62	116.2

**Note :**  
- Dimension 'A' and 'B' are approx dimensions without Fitting only and are subject to change without notice.



### Applications



EXPANSION JOINTS