Tri-Loop®

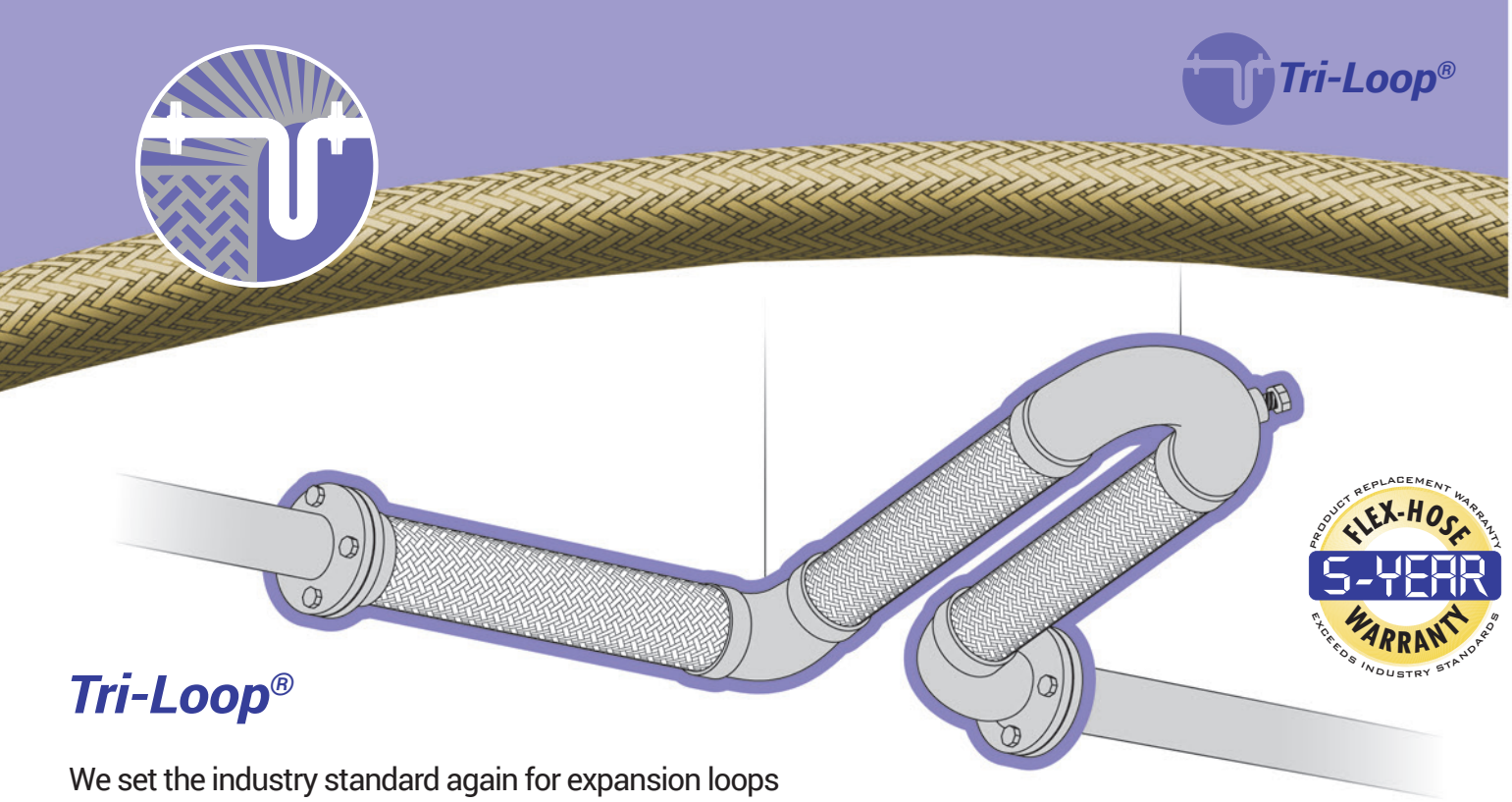
A FITTING SOLUTION.

Fitting Tri-Loop® into your plans makes fitting your construction piping connections into tight spaces and tight budgets easy.

MADE IN THE USA

FLEX-HOSE CO. INC.

A world of difference in critical piping connections since 1968.™



Tri-Loop®

We set the industry standard again for expansion loops and seismic pipe connections with Tri-Loop® the first multi-plane design to reduce the footprint by 50%.

Tri-Loop's superior patented design makes it the ideal solution for pipe connections in tight spaces. Trip-Loop can absorb and compensates pipe movement in six degrees of freedom. (three coordinates axes, plus rotation about those axes simultaneously.)

The multiplane movement design can reduce expansion devices required in a piping system by up to 50%. It is the safest and most reliable means of absorbing movement resulting from thermal changes and random seismic shifts in a piping system.

Simplifies Piping Design

Tri-Loop does not impose pressure thrust on the piping system. The braid is designed to take the stress of pressurization containing the core, reducing anchor loads by 93% compared to mechanical pipe loops.

Tri-Loops also eliminate pipe guides required by traditional pipe designs such as mechanical pipe loops.

Compact Design increases useable space and reduces system cost

Tri-Loop uses 80% less space than a mechanical pipe loop, and eliminates six welds. Fewer fittings and welds can be achieved in the piping system by positioning the Tri-Loop at directional changes and rotating one of the Tri-Loop elbows during manufacturing to incorporate directional change, eliminating 90° elbow in the field. It can also be designed to incorporate elevation changes in the piping system, saving space, fewer fittings and welds.

Applications

Common applications for Flex-Hose Co.'s Tri-Loop and sesimic connectors include:

- Domestic hot water
- Condenser water
- Chilled water
- Cryogenics
- Heating hot water
- Steam
- Medical gas

Designed To Fit Your Needs

- Tri-Loop makes a world of difference in your critical piping connections. They are designed to handle working pressures up to 1325 psi, or full vacuum and operating temperatures of -400°F to 1500°F.
- Tri-Loops are manufactured with 321 (ASTM A240) grade stainless steel or bronze (ASTM C51000) grade annular corrugated close pitch metal flexible hose.
- Tri-Loops are available with flanged ends, steel male NPT ends, weld ends, grooved ends, copper female sweat, or press fit ends.

Quality Assurance... Precision Manufacturing

- Tri-Loop units are pressure tested prior to release for shipment and have a five (5) year product replacement warranty.
- Tri-Loops are manufactured under our CSA-B51 quality system.
- Flexhose Co.'s manufacturing utilizes state-of-the-art welding technology and our welders are ASME (American Society of Mechanical Engineers) Section IX certified.
- Tri-Loops are 100% dye penetrant tested at the seal welds. The seal weld joins the hose, braid, and collar. It is one of the most critical welds in the manufacturing process.

Standard Sizes ½" to 12" I.D.
Custom sizes available to 30" I.D.
Other alloys and custom styles available.
Please consult factory.

U.S. Patent #10,458,575
Canadian Patent #2.970,107

New Press Fit ANSI/NSF-61

Design Specifications

Pressures and Motion Classifications
Threaded ends | Flanged ends | Grooved

PRESSURES

MAXIMUM WORKING PRESSURE:

Maximum operating pressure to which the assembly should be subjected. It is established at 25% of the nominal design burst pressure. Tri-Loop sizes 1"–3" are Factory Mutual tested and approved for 300 psi working pressure and sizes 4"–12" are Factory Mutual tested and approved for 175 psi working pressure.

MAXIMUM PROOF PRESSURE:

Maximum test pressure to which the assembly should be subjected. It is established at 150% of the maximum working pessure with the Tri-Loop installed in its neutral position.

No harmful deformation shall occur.

MOTION CLASSIFICATIONS

The Tri-Loop is the only flexible pipe loop that absorbs and compensates pipe movement in six degrees of freedom (three coordinates axes, plus rotation about those axes simultaneously.)

The patented multi-plane movement design make the Tri-Loop the safest and most reliable means of absorbing movement resulting from random seismic shifts and thermal pipe movement.

Tri-Loop manufactured with a 4:1 safety factory.

Threaded ends (SMN)

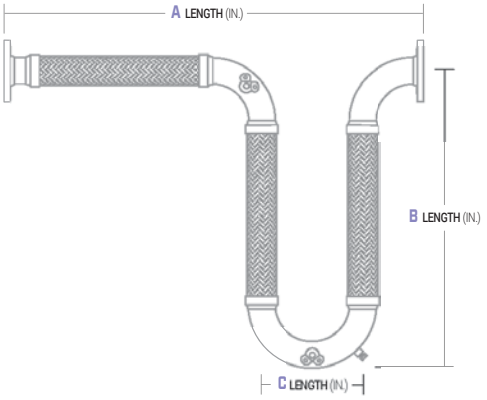
(Plate Steel Flange ANSI Class 150 Hole Pattern)

FHTRYL2SMN

NOMINAL PIPE SIZE (N.P.S.)	1/2	3/4	1.0	1.25	1.5	2.0	2.5	3.0	4.0
A LENGTH (IN.)	22.00	23.25	24.50	30.00	29.00	32.75	36.25	39.25	46.75
B LENGTH (IN.)	14.00	14.50	15.75	18.00	19.50	22.25	25.00	28.00	33.00
C LENGTH (IN.)	5.50	6.25	6.50	6.75	6.50	7.75	8.75	9.00	12.00
PRESSURE (PSI) 70°F	1100	800	750	725	565	500	400	285	250
MOVEMENTS									
COMPRESSION (IN.)	2	2	2	2	2	2	2	2	2
EXTENSION (IN.)	2	2	2	2	2	2	2	2	2
PARALLEL (IN.)	2	2	2	2	2	2	2	2	2
ROTATION "X" AXIS (°)	25°	20°	20°	15°	15°	10°	10°	10°	5°
NON-PARALLEL "Y" AXIS (IN.)	1	1	1	1	1	1	1	1	1
SPRING RATE @ 125 PSI	3	5	7	9	10	13	23	33	53
WEIGHT (LBS.)	1.9	2.6	4.4	6.4	7.8	14.0	25.0	35.0	59.0

FHTRYL4SMN

NOMINAL PIPE SIZE (N.P.S.)	1/2	3/4	1.0	1.25	1.5	2.0	2.5	3.0	4.0
A LENGTH (IN.)	29.50	31.25	33.25	36.38	38.00	42.75	45.50	48.75	56.00
B LENGTH (IN.)	18.00	18.50	20.50	22.50	24.50	28.25	31.00	34.00	40.00
C LENGTH (IN.)	9.50	10.25	10.50	10.75	10.50	11.75	12.00	12.50	14.25
PRESSURE (PSI) 70°F	1100	800	750	725	565	500	400	285	250
MOVEMENTS									
COMPRESSION (IN.)	4	4	4	4	4	4	4	4	4
EXTENSION (IN.)	4	4	4	4	4	4	4	4	4
PARALLEL (IN.)	4	4	4	4	4	4	4	4	4
ROTATION "X" AXIS (°)	35°	35°	30°	25°	25°	20°	20°	15°	10°
NON-PARALLEL "Y" AXIS (IN.)	2	2	2	2	2	2	2	2	2
SPRING RATE @ 125 PSI	3	5	7	9	10	13	23	33	53
WEIGHT (LBS.)	2.2	3.0	5.2	7.3	8.9	17.0	29.0	39.0	65.0



Flanged ends (SMP)

(Plate Steel Flange ANSI Class 150 Hole Pattern)

FHTRYL2SMP

NOMINAL PIPE SIZE (N.P.S.)	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0
A LENGTH (IN.)	31.63	35.13	38.13	43.63	54.50	60.63	74.25	89.25	103.25
B LENGTH (IN.)	22.25	25.00	28.00	33.00	41.25	45.00	53.25	63.38	72.38
C LENGTH (IN.)	7.75	8.75	9.00	12.00	15.00	18.00	24.00	30.00	36.00
PRESSURE (PSI) 70°F	500	400	285	250	200	220	215	200	160
MOVEMENTS									
COMPRESSION (IN.)	2	2	2	2	2	2	2	2	2
EXTENSION (IN.)	2	2	2	2	2	2	2	2	2
PARALLEL (IN.)	2	2	2	2	2	2	2	2	2
ROTATION "X" AXIS (°)	10°	10°	10°	5°	5°	3°	on application	on application	on application
NON-PARALLEL "Y" AXIS (IN.)	1	1	1	1	1	1	1	1	1
SPRING RATE @ 125 PSI	13	23	33	53	66	79	105	132	158
WEIGHT (LBS.)	22.0	36.0	47.0	72.0	120.0	158.0	310.0	506.0	748.0

FHTRYL4SMP

NOMINAL PIPE SIZE (N.P.S.)	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0
A LENGTH (IN.)	41.63	44.38	47.63	52.88	64.25	70.00	84.25	100.25	115.25
B LENGTH (IN.)	28.25	31.00	34.00	40.00	51.00	54.25	63.25	74.38	84.38
C LENGTH (IN.)	11.75	12.00	12.50	14.25	15.00	18.00	24.00	30.00	36.00
PRESSURE (PSI) 70°F	500	400	285	250	200	220	215	200	160
MOVEMENTS									
COMPRESSION (IN.)	4	4	4	4	4	4	4	4	4
EXTENSION (IN.)	4	4	4	4	4	4	4	4	4
PARALLEL (IN.)	4	4	4	4	4	4	4	4	4
ROTATION "X" AXIS (°)	20°	20°	15°	10°	10°	10°	5°	3°	3°
NON-PARALLEL "Y" AXIS (IN.)	2	2	2	2	2	2	2	2	2
SPRING RATE @ 125 PSI	13	23	33	53	66	79	105	132	158
WEIGHT (LBS.)	24.0	39.0	51.0	77.0	142.0	170.0	333.0	542.0	803.0

FHTRYL8SMP

NOMINAL PIPE SIZE (N.P.S.)	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0
A LENGTH (IN.)	42.88	46.50	49.38	54.13	65.75	70.00	84.25	100.25	115.25
B LENGTH (IN.)	37.50	41.50	45.75	50.25	63.75	69.50	83.50	99.50	114.50
C LENGTH (IN.)	13.00	14.00	14.25	15.50	16.50	18.00	24.00	30.00	36.00
PRESSURE (PSI) 70°F	500	400	285	250	200	220	215	200	160
MOVEMENTS									
COMPRESSION (IN.)	8	8	8	8	8	8	8	8	8
EXTENSION (IN.)	8	8	8	8	8	8	8	8	8
PARALLEL (IN.)	8	8	8	8	8	8	8	8	8
ROTATION "X" AXIS (°)	20°	20°	15°	10°	10°	5°	5°	3°	3°
NON-PARALLEL "Y" AXIS (IN.)	2	2	2	2	2	2	2	2	2
SPRING RATE @ 125 PSI	13	23	33	53	66	79	105	132	158
WEIGHT (LBS.)	30.0	45.0	57.0	84.0	153.0	183.0	363.0	595.0	892.0

Grooved (SVG)

(Sch 40 Carbon Steel)

FHTRYL2SVG

NOMINAL PIPE SIZE (N.P.S.)	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0
A LENGTH (IN.)	32.75	36.25	39.25	48.75	61.50	68.63	82.00	99.00	113.00
B LENGTH (IN.)	22.25	25.00	28.00	33.00	41.25	45.00	53.25	63.38	72.38
C LENGTH (IN.)	7.75	8.75	9.00	12.00	15.00	18.00	24.00	30.00	36.00
PRESSURE (PSI) 70°F	500	400	285	250	200	220	215	200	160
MOVEMENTS									
COMPRESSION (IN.)	2	2	2	2	2	2	2	2	2
EXTENSION (IN.)	2	2	2	2	2	2	2	2	2
PARALLEL (IN.)	2	2	2	2	2	2	2	2	2
ROTATION "X" AXIS (°)	10°	10°	10°	5°	5°	3°	on application	on application	on application
NON-PARALLEL "Y" AXIS (IN.)	1	1	1	1	1	1	1	1	1
SPRING RATE @ 125 PSI	13	23	33	53	66	79	105	132	158
WEIGHT (LBS.)	14.0	25.0	35.0	61.0	109.0	149.0	286.0	489.0	713.0

FHTRYL4SVG

NOMINAL PIPE SIZE (N.P.S.)	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0
A LENGTH (IN.)	42.75	45.50	48.75	58.00	71.25	78.00	92.00	110.00	125.00
B LENGTH (IN.)	28.25	31.00	34.00	40.00	51.00	54.25	63.25	74.38	84.38
C LENGTH (IN.)	11.75	12.00	12.50	14.25	15.00	18.00	24.00	30.00	36.00
PRESSURE (PSI) 70°F	500	400	285	250	200	220	215	200	160
MOVEMENTS									
COMPRESSION (IN.)	4	4	4	4	4	4	4	4	4
EXTENSION (IN.)	4	4	4	4	4	4	4	4	4
PARALLEL (IN.)	4	4	4	4	4	4	4	4	4
ROTATION "X" AXIS (°)	20°	20°	15°	10°	10°	5°	5°	3°	3°
NON-PARALLEL "Y" AXIS (IN.)	2	2	2	2	2	2	2	2	2
SPRING RATE @ 125 PSI	13	23	33	53	66	79	105	132	158
WEIGHT (LBS.)	17.0	29.0	39.0	66.0	130.0	161.0	309.0	526.0	769.0

FHTRYL8SVG

NOMINAL PIPE SIZE (N.P.S.)	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0
A LENGTH (IN.)	53.25	58.00	62.25	69.50	85.50	93.25	110.25	135.13	155.13
B LENGTH (IN.)	37.50	41.50	45.75	50.25	63.75	69.50	83.50	99.50	114.50
C LENGTH (IN.)	13.00	14.00	14.25	15.50	16.50	18.00	24.00	30.00	36.00
PRESSURE (PSI) 70°F	500	400	285	250	200	220	215	200	160
MOVEMENTS									
COMPRESSION (IN.)	8	8	8	8	8	8	8	8	8
EXTENSION (IN.)	8	8	8	8	8	8	8	8	8
PARALLEL (IN.)	8	8	8	8	8	8	8	8	8
ROTATION "X" AXIS (°)	20°	20°	15°	10°	10°	5°	5°	3°	3°
NON-PARALLEL "Y" AXIS (IN.)	2	2	2	2	2	2	2	2	2
SPRING RATE @ 125 PSI	13	23	33	53	66	79	105	132	158
WEIGHT (LBS.)	30.0	49.0	65.0	93.0	169.0	207.0	406.0	680.0	1085.0

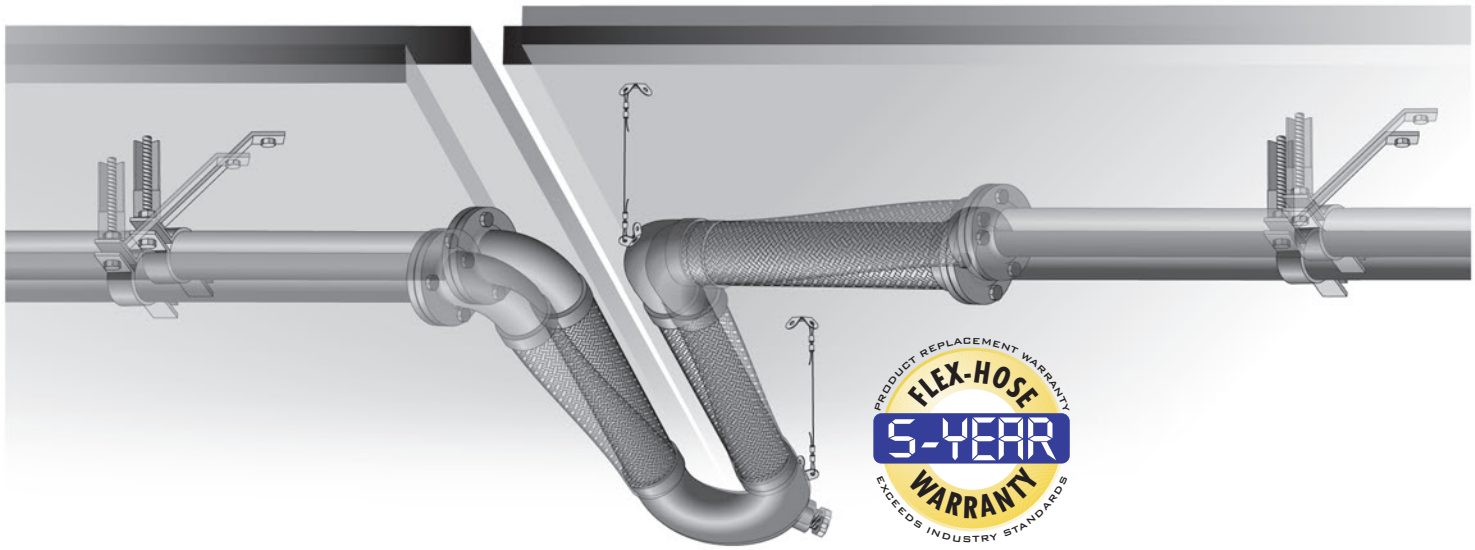
Seismic Connectors

Horizontal Pipe Run Spanning a Building Seismic Joint

The Tri-Loop's patented design of three flexible sections allow it to compensate pipe movement in six degrees of freedom (three coordinates axes, plus rotation about those axes simultaneously). It is the safest and most reliable means of absorbing movement resulting from random seismic shift.

The Tri-Loop is capable of accommodating seismic displacements for vertical piping between floors of the building, where pipes pass through or bridge building seismic joints or building expansion joints. **They are also used for horizontal piping across building seismic and building expansion joints** to accommodate the resultant drift of each building unit, or where rigidly supported pipes connect to equipment mounted on vibration isolators.

Seismic Horizontal and Vertical Displacement



Tri-Loop Saves Space and System Costs!

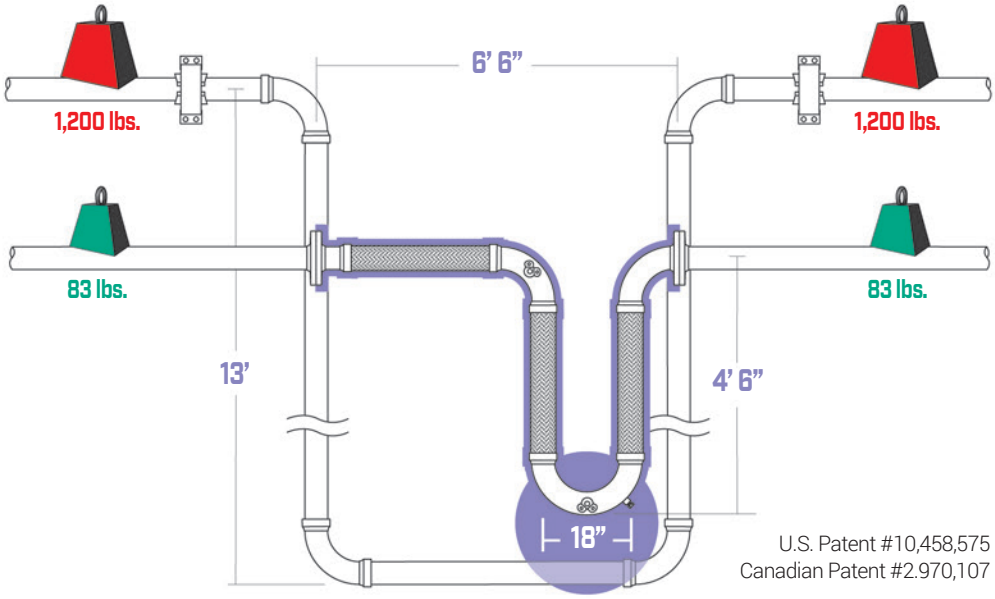
MECHANICAL HARD PIPE LOOPS

- Large footprint
- Excess anchor weight
- TWO pipe guides

TRI-LOOP SYSTEM

- Up to 80% LESS SPACE
- 95% Lighter achor weight
- ZERO pipe guides

- 5 year product warranty
- Made in USA
- ASME Section IX Welders
- 4 to 1 safety factor
- NSF61–low lead



U.S. Patent #10,458,575
Canadian Patent #2.970,107

Hanger Assembly Kit and Accessories

Save Labor Costs with these Tri-Loop Accessories!

The UL Listed Seismic Wire Rope/Cable™ used in our hanger assemblies conform to the requirements of the ASCE (American Society of Civil Engineers) guidelines for structured applications of wire rope, in that the cable is pre-stretched and the permanent end fittings maintain the breakstrength of the cable with a safety factor of two.

LISTED

- *Color Coded*
- *Pre-stretched*
- *Breakstrength Certified*

Color coded, factory cable cutter & crimper to meet cable specifications

Color coded for Tri-Loop installations of up to 8" diameter

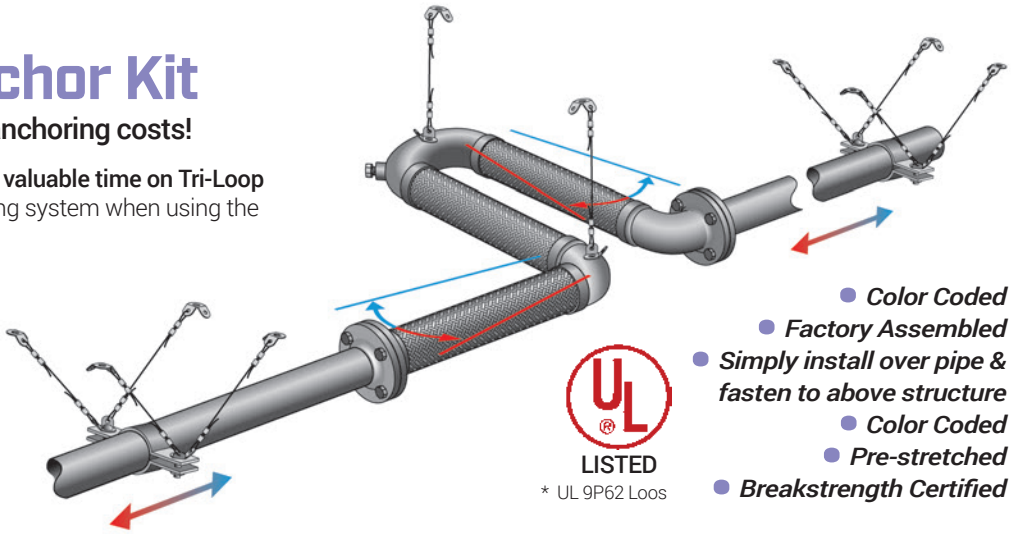
Color coded for Tri-Loop installations of 10" and larger in diameter

Factory Cable Anchor Kit

It's simple, reliable & it reduces pipe anchoring costs!

The Tri-Loop Factory Cable Anchor Kit saves valuable time on Tri-Loop installation, making it easy to anchor the piping system when using the revolutionary Tri-Loop.

The UL Listed Seismic Wire Rope/Cable™ used in our hanger assemblies conform to the requirements of the ASCE (American Society of Civil Engineers) guidelines for structural applications of wire rope, in that the cable is pre-stretched and the permanent end fittings maintain the break strength of the cable with a safety factor of two.

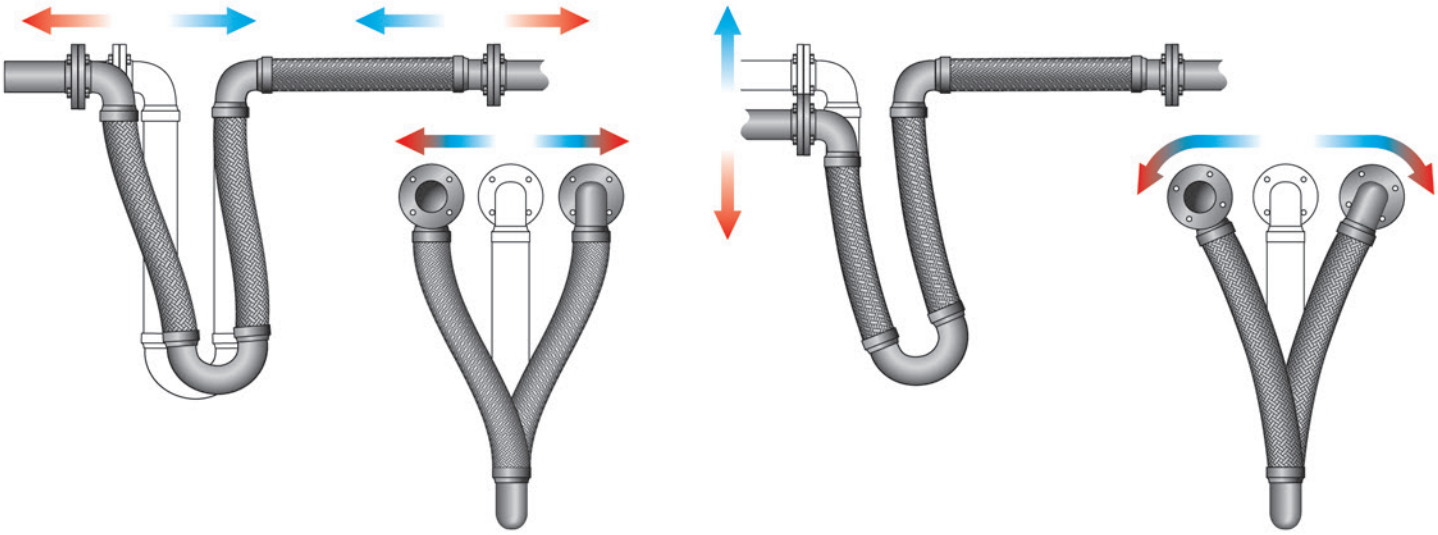


LISTED

* UL 9P62 Loos

- *Color Coded*
- *Factory Assembled*
- *Simply install over pipe & fasten to above structure*
- *Color Coded*
- *Pre-stretched*
- *Breakstrength Certified*

Tri-Loop Movement Capabilities



Tri-Loop®

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Celebrating Years

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NSF/ANSI 61

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