



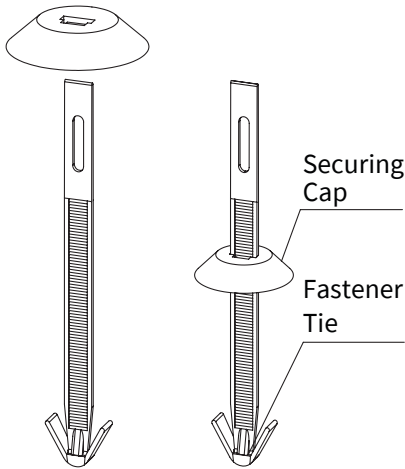
PipeSak® Pipeline Products

## Technical Notes

# PipeDefender™ Installation

**Install PipeDefender™ as quickly as 1 foot per minute!**

PipeDefender is simple to install due to its lightweight design, and custom blind fasteners, QuickZip. Each panel weighs 23 lbs (10.4 kg), and is designed with overlapping features to accommodate multiple pipe sizes. Each panel protects four feet of your pipeline.



### FOLLOW THE STEPS BELOW TO INSTALL:

#### Step 1: Prepare Fasteners

1. QuickZip fasteners are inserted from one side, at specific locations on the panels. Fasteners are supplied in two separate parts: fastener tie and securing cap ( Fig 1).
2. Place the securing cap on the leading edge of the fastener with the logo on the cap facing toward you.
3. Slide the securing cap down the fastener about three inches from the top (recommended to prepare fasteners prior to PipeDefender installation).
4. Refer to the **Materials Required** chart (Page 4) for recommended number of QuickZip fasteners.



(Fig. 1)



(Fig. 2)

#### Step 2: Assemble Panels

1. To expedite installation, it is recommended to prepare panels in sets of two in advance of installation on the pipe.
  - Assembly of the panels requires only one worker to complete.
  - Ensure connecting tabs of both panels are facing the same direction, then overlap and align the two connecting ridges. Secure the panels by inserting five fasteners in the specified rectangular-shaped locations.

Note: Trim excess from fasteners with side cutters. Refer to the **Materials Required** chart (page 4) to determine how many sets to prepare for each pipeline diameter.





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( Fig. 3 )



( Fig. 4 )



( Fig. 5 )



( Fig. 6 )

### Step 3: Begin Installation of Panel Set

1. For installation on the pipeline, it is recommended to have at least two workers present.
2. Drape assembled panel sets from step two over the pipe at the 12 o'clock position.
3. Refer to **Materials Required** chart (page 4 ) to determine the number of panels required to fully encircle pipeline OD.
4. For NPS12-NPS24, simply overlap the connecting ridges and secure using fasteners in the five specified locations.
5. For NPS 36 and above, fasten the additional panel OR the additional panel set to the panels on the pipeline, overlap the connecting ridges and secure using fasteners in the five specified locations.
6. Once the pipe is fully encircled, begin installing adjacent panels.





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(Fig. 7)



(Fig. 8)



(Fig. 9)



(Fig. 10)

### Step 4: Installing Adjacent Panels

1. Each PipeDefender panel has interlocking end tabs that are designed to fit into the underside of adjacent panels.
2. Drape individual panels, or panel sets from Step 2 over the interlocking teeth. Repeat instruction 4 or 5 from step 3 over the interlocking teeth, and secure using fasteners at 3-5 locations on the ends of each adjacent panel.
3. It is recommended to center the initial panels at 12 o'clock so that fastening is done at the 3 and 9 o'clock positions.
4. Repeat these steps until the pipeline is fully encircled, and the linear length of pipe requiring protection is achieved.

### Step 5: Add PipeDefender Strapping

1. For larger pipe OD, sagging is expected at 6 o'clock. For added support, place two cinch-style straps over the assembled panels. This will aid lowering-in operations and in connecting adjacent panels.







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## MATERIALS REQUIRED CHART:

| Panel Requirement                                | NPS 20 | NPS 24 | NPS 30 | NPS 36 | NPS 42 | NPS 48 |
|--|--------|--------|--------|--------|--------|--------|
| Panels Required per 4 ft (1.2 m)                 | 2      | 2      | 3      | 3      | 4      | 4      |
| Strapping Required 1 ft / 0.3 m) <sup>1</sup>    | 17     | 19     | 22     | 25     | 29     | 32     |
| Fasteners Required per 4 ft (1.2 m) <sup>2</sup> | 15     | 16     | 22     | 24     | 30     | 32     |

<sup>1</sup> Two straps required per 4 feet or 1.2 meter linear length. Recommended for NPS 20 and greater

<sup>2</sup> Estimated quantities, more fasteners may be required

## Get Even More Protection by Adding a Layer of PipeJacket or RockStop

- PipeDefender is compatible with PipeJacket and RockStop rockshields, and can be installed simultaneously for dual protection and optimal installation.
- Using PipeJacket or RockStop underneath PipeDefender not only increases pipeline protection, but also creates a snug fit around the pipe which may be advantageous for pipeline installation methods such as rolling cradles.
- Alternatively, apply RockStop to the exterior of PipeDefender to dramatically increase puncture resistance - particularly in areas of sharp or blasted rock.
- Use PipeDefender during undercrossings for temporary protection of foreign pipelines.
- PipeDefender works great in cased crossings to protect and electrically isolate the carrier pipe from the casing.

