



PipeSak® Pipeline Products

PipeDefender™ OVERVIEW

PipeDefender™ is a heavy duty rock protection system used for extreme pipeline protection - replacing wood lagging and thin concrete coating.

- Simple and quick install
- Cost effectively increase pipeline integrity
- Third party CP tested and approved
- Reduces on-site crushing and hauling

Industry leading impact performance to protect coatings

Made from high impact strength polyethylene, PipeDefender has been performance tested to ASTM G14 and custom rock drop tests to simulate worst case impacts involving large rocks and angular, dense backfill. The design incorporates a pattern of peaks and valleys, engineered to not only disperse the force of impact, but also absorb it through deformation. Expect PipeDefender to withstand boulders in excess of 60 lbs (27 kg) dropped from 10' (3 m).

Reduce bedding costs with PipeDefender™

With the pipe fully protected, imported or screened sand is no longer needed to pad or bed the pipeline. When PipeDefender is installed, a courser, on site bedding can often be used 3" (7.6 cm) minus recommended. Backfilling requirements can be conservatively broadened to include 11" (28 cm) rock dropped from 10' (3 m).



PipeDefender™ General Specifications

Pipe Size Availability	NPS 20 - 48
Panel Dimensions*	50" x 42" (127 x 105 cm)
Material Thickness / Panel Height	0.25" (6.35mm) / 2.25" (5.7 cm)
Material	HMPE

*Smaller panels available for NPS 20, 30 and 42.

Quick and Easy to install at 1 foot-per-minute

At only 23 lbs (10.5 kg) per panel, PipeDefender is easy to handle and can be installed quickly. The interlocking design makes installation with two workers simple. Custom QuickZip fasteners come supplied with every order. The modular design of the panels accommodates all pipeline sizes NPS 20 and larger. PipeDefender can even be field trimmed to better accommodate tight bends.

PipeDefender™ will not impede cathodic protection

The patented design of PipeDefender incorporates multi-channel drainage, allowing ground water an easy path into and out of PipeDefender. The free-flowing water ensures that resistivity levels remain within typical variations found in soils, and prevents water from pooling against the pipe surface.





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PipeDefender™ Specifications

Physical Property Data		
Property	Equivalent Test Method	Typical Test Result ¹
Impact Strength	ASTM G14 (modified) ²	5,500 in-lbs [621 j]
Impact Strength (Rock Drop)	Custom ³	9,000 in-lb [1016 j]
Compressive Strength	Custom ⁴	93 PSI @ 50% deflection [641 kPa]
Tensile Strength	ASTM D638	3,400 psi [23.44 MPa]
Elongation at Break	ASTM D638	450%
Flexural Modulus	ASTM D790	150,000 psi [1,034 MPa]
Low Temperature Brittleness	ASTM D746	-76°F [- 55°C]
Melt Flow	ASTM D1238	13.5 g/10 minutes
Specific Gravity	ASTM D1505	0.960
Cathodic Protection	Custom	No inhibiting effect
Wrap Test	Custom at -50°C [-58°F]	Fully wrapped around 36" (91.4 cm) OD pipe
Leach Test	EPA Method 8270E	Detection limits not exceeded

¹ Testing results are average values, and should not be taken as a guarantee of performance.

² Modified drop height utilized to achieve failure. Test included a 1" (25.4 mm) tup dropped in the center of a rib.

³ Test involved dropping rocks up to 78 lbs from 9.8 ft (3 m) at -50 °C (-58 °F), room temperature and +50 °C (122 °F) on one or more PipeDefender ribs covering an FBE coated pipe. Damage to coating evaluated as per ASTM G62. Successfully passed ASTM G13M.

⁴ Three ribs of PipeDefender™ compressed at a constant rate to identify compressive behavior. Stress taken at surface of PipeDefender.

