



ROCKARMOUR™

THE EFFICIENT ROCKSHIELD

PIPELINE COATING PROTECTION

THE EFFICIENT ROCKSHIELD

ROCKARMOUR™ IS THE LATEST INNOVATION IN ROCKSHIELD TECHNOLOGY FOR PIPELINE PROTECTION. IT PROVIDES A PROTECTIVE SHIELD AGAINST DAMAGE FROM BACKFILL MATERIAL AND LAND MOVEMENT WHILE MAINTAINING CATHODIC FLOW IN BURIED PIPES.

PROTECTION EFFICIENCY

RockArmour™ PRO is made of a perforated low-density polyethylene geomembrane that exceeds the typical industry standards in impact resistance. It comprises a multilayer polyethylene liner that is perforated on 1" centers.

It protects coated pipe from damage from stones during backfill operations, and it allows cathodic protection current to flow protecting the pipe from corrosion.





INSTALLATION EFFICIENCY

RockArmour™ PRO for pipe diameters ≥ 24 " comes in lengths up to 340 feet and with enough material to overlap approximately 6" on the bottom with a "cigarette" style wrap around the pipe. The width of each roll varies according to the pipeline's diameter, eliminating the need to cut on site.

RockArmour™ PRO has definite cost efficiency advantages in comparison with other products. For pipe diameters ≥ 24 ", rolls are placed on a special telescoping spreader bar designed to allow the rock shield to be easily applied directly over the pipe with on-site construction equipment, minimizing handling time and job site labor.

With **RockArmour™ PRO**, contractors may save as much as 75% in labor costs and maintain or exceed the run rate required to stay ahead in the field, **GIVING YOU MORE MILES FOR LESS.**

PIPE DIAMETER (in)	ROLL WIDTH (in)	SURFACE SQ. FT./ROLL LENGTH			PIPE DIAMETER (in)	ROLL WIDTH (in)	SURFACE SQ. FT./ROLL LENGTH
		30 ft	40 ft	50 ft			340 ft
8	31	78	103	129	24	85	2408
10	38	95	127	158	26	91	2578
12	44	110	147	183	30	103	2918
18	63	158	210	263	36	122	3457
20	70	175	233	292	42	139	3938
					48	157	4448

RockArmour™ PRO for pipes ≤ 20 " diameters, come in standard shorter lengths of 30 ft., 40 ft., and 50 ft. Custom lengths and widths are available upon request.



INSTALLATION - LONGITUDINAL WRAPPING METHOD

RockArmour™ PRO is installed longitudinally around the pipe as Figure 1 below, and it is secured by means of ties.

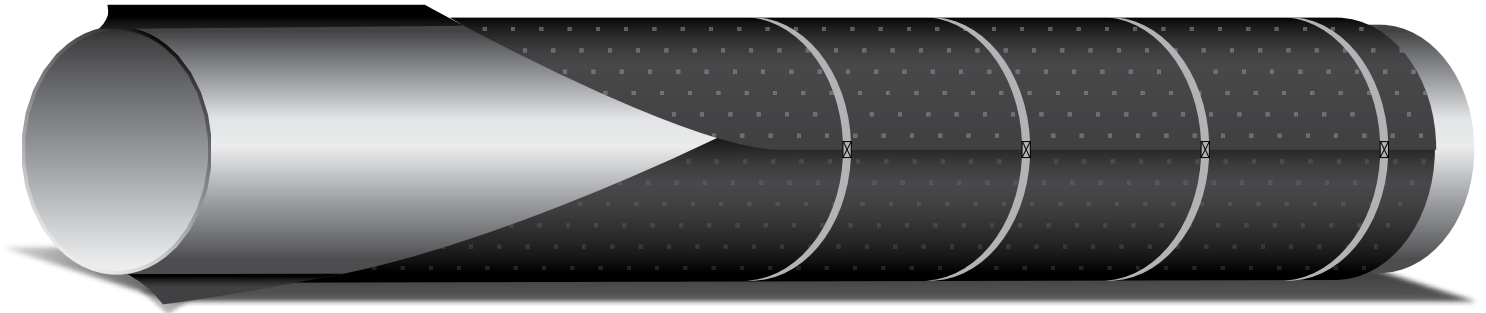


Figure 1: Longitudinal Wrap

INSTALLATION FOR PIPE WIDTH $\geq 24''$

Pipe Diameter ≥ 24 inches: Rolls are typically 340 ft. in length but custom lengths can be delivered on request. These longer rolls are installed using a special assembly that allows the roll to be installed on the center of the roll. This results in a reduced labor process and faster installation.

1. Place roll of **RockArmour™ PRO** on to roll assembly to prepare for installation.
2. Unroll the **RockArmour™ PRO** parallel onto the pipe.
3. Wrap the **RockArmour™ PRO** around the pipe over lapping the edges.
4. Begin inserting connector heads on the support ties.
5. Position the ties on top of the pipe and begin tightening the **RockArmour™ PRO** onto the pipe.



INSTALLATION FOR PIPE WIDTH $\leq 20''$

Pipe Diameter ≤ 20 inches: Rolls are typically 30 - 50 ft. in length but custom lengths can be delivered on request.
(figure of short roll on pipe slightly unrolled)

1. Place roll of **RockArmour™ PRO** on to top of pipe.
2. Unroll the **RockArmour™ PRO** parallel onto the pipe.
3. Wrap the **RockArmour™ PRO** around the pipe over lapping the edges.
4. Begin inserting connector heads on the support ties.
5. Position the ties on top of the pipe and begin tightening the **RockArmour™ PRO** onto the pipe.

Around Skid Sets:

1. **RockArmour™ PRO** is sliced next to skid set utilizing snips or utility knife
2. A tie is then tightened at edge to secure overlap
3. Once skid set is removed then fasten ties around **RockArmour™ PRO** around pipe section.



RockArmour™ PRO BENEFITS

- **Cost effective**
- **Manufacturer attached pipe ties speed up installation**
- **Easy installation by one four-person crew**
- **Increased footages per day**
- **Does not inhibit cathodic protection**

TECHNICAL DATA

PROPERTY	TEST METHOD	RESULTS
Impact strength	ASTM G14 (-30F)	204 (lbs./in)
Tensile strength	ASTM D412	4270 (psi)
Elongation	ASTM D412	561 %
Tear strength	ASTM D624	741 (lbs./in)
Tear resistance	ASTM D1004	38 (lbs.)
Puncture resistance	ASTM D4833	105 (lbs.)
Volume resistivity	ASTM D4496	10 (Ohm-m)
Impact resistance	ASTM G13 (Modified)	*No damage to pipe coating

* Rocks of varying size were combined to create an impact force of 50 and 75 ft. lbs. of force drops from a distance of 6 ft. The pipe coupons were coated with 0.02" thick bonded coating and were covered with one wrap of 80 mil RockArmour™ PRO protective wrap.

GIVING YOU MORE SCOPE

RockArmour™ GRID is a proprietary polyethylene based formulation extruded grid material to protect coated pipe in various construction and site applications. It protects the pipeline coatings from the impact of angular rocks during the backfill process and provides extended protection from the stones in close proximity from the coated pipe.

RockArmour™ GRID PLUS is a proprietary polyethylene based formulation extruded grid with an additional polypropylene nonwoven geotextile laminated material for additional protection to protect the coated pipe in various construction and site applications. It protects the pipeline coatings from the impact of angular rocks during the backfill process and provides extended protection from the stones in close proximity from the coated pipe.

RockArmour™ GRID BENEFITS

- Absorbs the impact during backfill operations
- Protects pipe coating from angular stones in trench
- Minimizes damage to coating from pipe movement in trench
- Does not inhibit cathodic protection
- Easy to install
- Cuts with a utility knife
- Available in custom rolls and sizes



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THE EFFICIENT ROCKSHIELD

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