

PROTECTAMESH™HD

Rockshield

Pipe Protection Mesh



fiberweb



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PROTECTAMESH HD Rockshield Pipe Protection Mesh

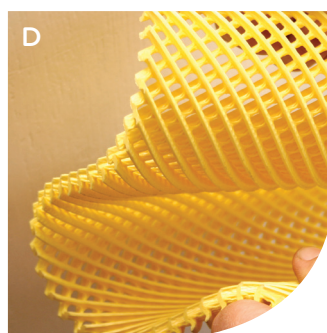
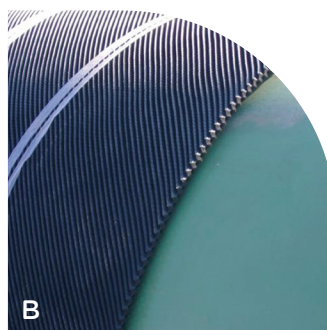
PROTECTAMESH HD rockshield is a thick pipeline protection mesh manufactured by Fiberweb for protecting pipeline coatings from rock backfills.

PROTECTAMESH HD cushions the impact of rocks that cause damage to the pipe coating and result in the corrosion of the pipeline. Protection is essential for projects where pipelines are constructed through rocky terrain.

- Mesh thickness of 10mm (0.40")
- Supplied in widths 1.22m, 1.53m or 1.83m (4ft, 5ft or 6ft)
- Can be supplied in rolls or in pads for easy installation (cut pieces)
- Black or Yellow colours available

PROTECTAMESH HD is a three dimensional bi-planar extruded diamond structured mesh manufactured from low-density polyethylene. PROTECTAMESH HD offers protection from abrasive objects after installation, prohibiting geologic movements from damaging your pipeline

- Flexible for easy handling at low temperature
- Chemically inert
- Porous mesh structure allows water flow for cathodic protection and testing High impact resistance to ASTM G13 MOD
- High impact strength and tensile strength
- Up to half the weight of alternative options



- A PROTECTAMESH HD is essential where pipelines are constructed through rocky terrain
- B PROTECTAMESH HD protects the pipes anti-corrosion coating
- C PROTECTAMESH absorbs any movement between the pipe and the concrete saddles
- D PROTECTAMESH HD is flexible even at sub-zero temperatures

PRODUCT DETAILS

Width	Thickness	Unit Weight		Color	Aperture (Diamond Structure)
		g/m ²	lb/ft ²		
1.22m (4 ft)	10mm (0.40")	1500	0.32	Black	4mm x 4mm (0.16" x 0.16")
1.22m (4 ft)	10mm (0.40")	1500	0.32	Yellow	4mm x 4mm (0.16" x 0.16")
1.53m (5 ft)	10mm (0.40")	1500	0.32	Black	4mm x 4mm (0.16" x 0.16")
1.53m (5 ft)	10mm (0.40")	1500	0.32	Yellow	4mm x 4mm (0.16" x 0.16")
1.83m (6 ft)	10mm (0.40")	1500	0.32	Black	4mm x 4mm (0.16" x 0.16")
1.83m (6 ft)	10mm (0.40")	1500	0.32	Yellow	4mm x 4mm (0.16" x 0.16")

Technical Data Sheet

Physical Properties		
Structure	Diamond Mesh	
Polymer	Polyethylene	
Color Options	Black or Yellow	
Blowing Agent	Yes	
Width	4 ft, 5 ft, or 6 ft 1.22m, 1.53m, or 1.83m	
Length	As required	
Thickness	0.40" 10 mm	
Weight	0.32 lb / ft ² 150 g/m ²	
Aperture Size	0.16" x 0.16" nominal 4 mm x 4 mm	

Technical Characteristics		
Measurement	Results	Test Method
Elongation at Max Strength (MD)	139%	ASTM D4595
Elongation at Max Strength (TD)	110%	ASTM D4595
Tear Strength (MD)	15.0 lbs 6.5 kg	ASTM D624
Tear Strength (TD)	16.2 lbs 7.35 kg	ASTM D624
Tensile Strength	44.6 lbs/inch of width 796 kg/m ²	ASTM D4595
Impact Strength	141.9 inch/lbs 7.94 m/kg	ASTM G14 spherical point
Impact Resistance	No Failure at 6" rock 150 mm	ASTM G13 MOD
Compressive Strength	90 psi for 50% compression 620 kPa	ASTM D1621
Melt Temperature	226.4° F 108° C	ASTM E794
Freeze Data	No Failure at -30° F -34° C 180° Bend	Custom
Cathodic Protection	No inhibiting effect	Custom

PRODUCT DESCRIPTION

PROTECTAMESH HD ROCKSHIELD is a three dimensional bi-planar extruded Diamond Structured Mesh. It offers a consistent thickness throughout the width of each roll or pad to provide full width protection to your pipeline during backfill operations.

PROTECTAMESH ROCKSHIELD also offers protection from abrasive objects after installation, restricting geologic movements from damaging your pipeline.

INSTALLATION

PROTECTAMESH HD ROCKSHIELD may be installed in pad or roll form, depending on pipe diameter.

Pads are to be wrapped around the pipe in a latitudinal fashion (Please see Installation Diagram page 10). All end to end overlaps shall be placed with an overlap of 50mm/ 2", and all pad overlaps shall be placed on the bottom side of the pipe with a 100mm/ 4" to 150mm/ 6" overlap.

Rolls can be applied longitudinally wrapped on all pipe 500mm/ 20" or less in diameter. (Please see Installation Diagram page 10). Simply place the roll on top of the pipe and unroll the product parallel to the pipe. Wrap the edges around the pipe with a 100mm/ 4" to 150mm/ 6" overlap. All PROTECTAMESH™HD ROCKSHIELD must be strapped to the pipe with a suitable polypropylene banding.

For smaller diameter pipe the "latitudinal wrap" method may be used. This method requires minimal overlap, and must be strapped to the pipe with a suitable polypropylene banding

SIZE AVAILABILITY

PROTECTAMESH™HD ROCKSHIELD is available in 10mm/0.4" thickness and in rolls up to 1.83m/ 6' wide.

PROTECTAMESH™HD ROCKSHIELD can be produced in roll lengths up to 30m. Pads can be produced in widths up to 1.83m/ 6' wide to your custom specifications.

Material Safety Data

PRODUCT AND COMPANY IDENTIFICATION

PROTECTAMESH HD Rockshield

Company:

Fiberweb, Inc.

Tel: +44 (0) 1621 874200

Blackwater Trading Estate

Fax: +44 (0) 1621

874299

Maldon, Essex CM9 4GG England

2. Hazardous Ingredients

.....NONE.....

3. PHYSICAL DATA

Boiling point : Solid

Vapour Pressure: Solid

Vapour Density: Solid

Specific Gravity: 0.8

Melting Point: 226.4°F / 108°C

Evaporation rate: Solid

Solubility in water: None

Appearance and odour: Mesh of extruded plastic - no specific odour

4. FIRE AND EXPLOSION DATA

Not considered to be self igniting or explosive under normal storage and processing conditions.

Flash Point: greater than 690°F / 365°C

Extinguishing Media: Water, foam, dry chemical and/or carbon dioxide

Special Fire and Explosion Hazards: Evolves carbon dioxide, carbon monoxide and other toxic gases when burned. Burning is accompanied by the release of flaming molten droplets of polymer that could ignite flammable material onto which it falls or to which it is in close proximity. Moderate amounts of smoke will be emitted when it burns and the smoke hazard development will be dependent upon ventilation prevailing in the area.

5. REACTIVITY

Stability: Stable Hazardous decomposition or by-products: Simple hydrocarbons, carbon dioxide, carbon monoxide, acrolein, acids, ketones and aldehydes

6. HEALTH HAZARD DATA

.....NONE.....

7. PRECAUTIONS FOR SAFE HANDLING AND USE

In case of released material: None Waste disposal methods: Not classified as 'Special Waste' and may be disposed of at approved landfill sites in accordance with local authority regulations.

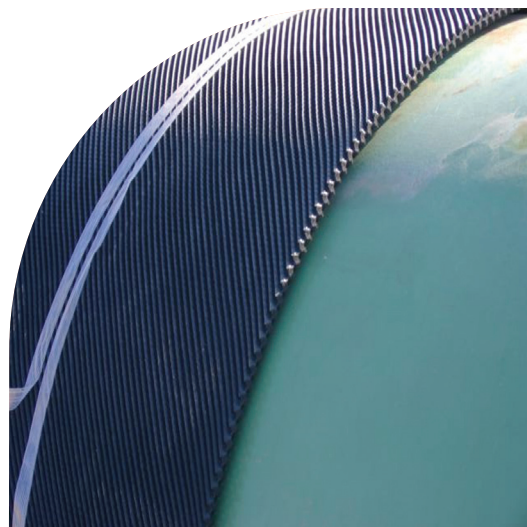
Handling and storage precautions: None

7. CONTROL MEASURE

Respiratory Protection: Due to its physical form the product does not evolve nuisance dust. Breathing noxious fumes from molten plastic should be avoided.

Ventilation: General ventilation of the work area is required to minimise the concentration of fumes if heat treating in confined places.

Other Protective Clothing or Equipment: None



Project Specification

Part 1. GENERAL

1.01 Section Includes

A. Requirements for PROTECTAMESH HD ROCKSHIELD as designed to offer protection from rock damage caused by backfill operations and/or damage caused by geological forces after compaction. PROTECTAMESH HD ROCKSHIELD protects the exterior coatings of all transmission pipes used in the transmission of oil, water, natural gas, and other petroleum based products.

1.02 References

A. American Society for Testing Materials (ASTM)

1.03 Quality Assurance

A. PROTECTAMESH HD ROCKSHIELD manufacturer shall maintain ISO 9001 Accreditation, and must have experience in producing protective Rock Shield.

1.04 Delivery, Storage and Handling

A. PROTECTAMESH HD ROCKSHIELD shall be stored indoors or under tarps, to protect from U.V. rays, oil and soil contamination.

Part 2. PRODUCTS

2.01 MATERIALS

A. PROTECTAMESH HD ROCKSHIELD shall be a three-dimensional bi-planar extruded diamond structured mesh, as manufactured by Fiberweb, Inc. +44 (0) 1621 874200 www.boddingtons-ltd.com

B. PROTECTAMESH HD ROCKSHIELD shall be extruded from an elastomeric material, comprised of LDPE or HDPE. No harmful PVC compounds should be used in the manufacturing of this product.

C. Minimum weight of PROTECTAMESH™HD ROCKSHIELD shall be 1500g/m²

D. PROTECTAMESH HD ROCKSHIELD is to be constructed as a three dimensional, bi-planarextruded diamond mesh netting.

E. PROTECTAMESH HD ROCKSHIELD shall be bi-directional in nature, and should sufficiently protect coatings/pipe regardless which side of the product is applied to the pipe.

F. The colour of the PROTECTAMESH HD ROCKSHIELD shall be black or yellow.

G. Performance Requirements as follows:

- Impact resistance (ASTM G-13 Modified) shall protect HD from 150mm (6") rock/1.83m (6') drop
- Must be Constructed of Polyethylene Material
- Cathodic Protection Shielding - PROTECTAMESH HD ROCKSHIELD must allow passage of CP current

2.02 ACCESSORIES

A. Polypropylene banding shall be used to secure PROTECTAMESH HD ROCKSHIELD to the pipe.

Part 3. EXECUTION

3.01 INSTALLATION

A. PROTECTAMESH HD ROCKSHIELD shall be installed in roll or pad form shall and shall be affixed to pipe utilising polypropylene banding.

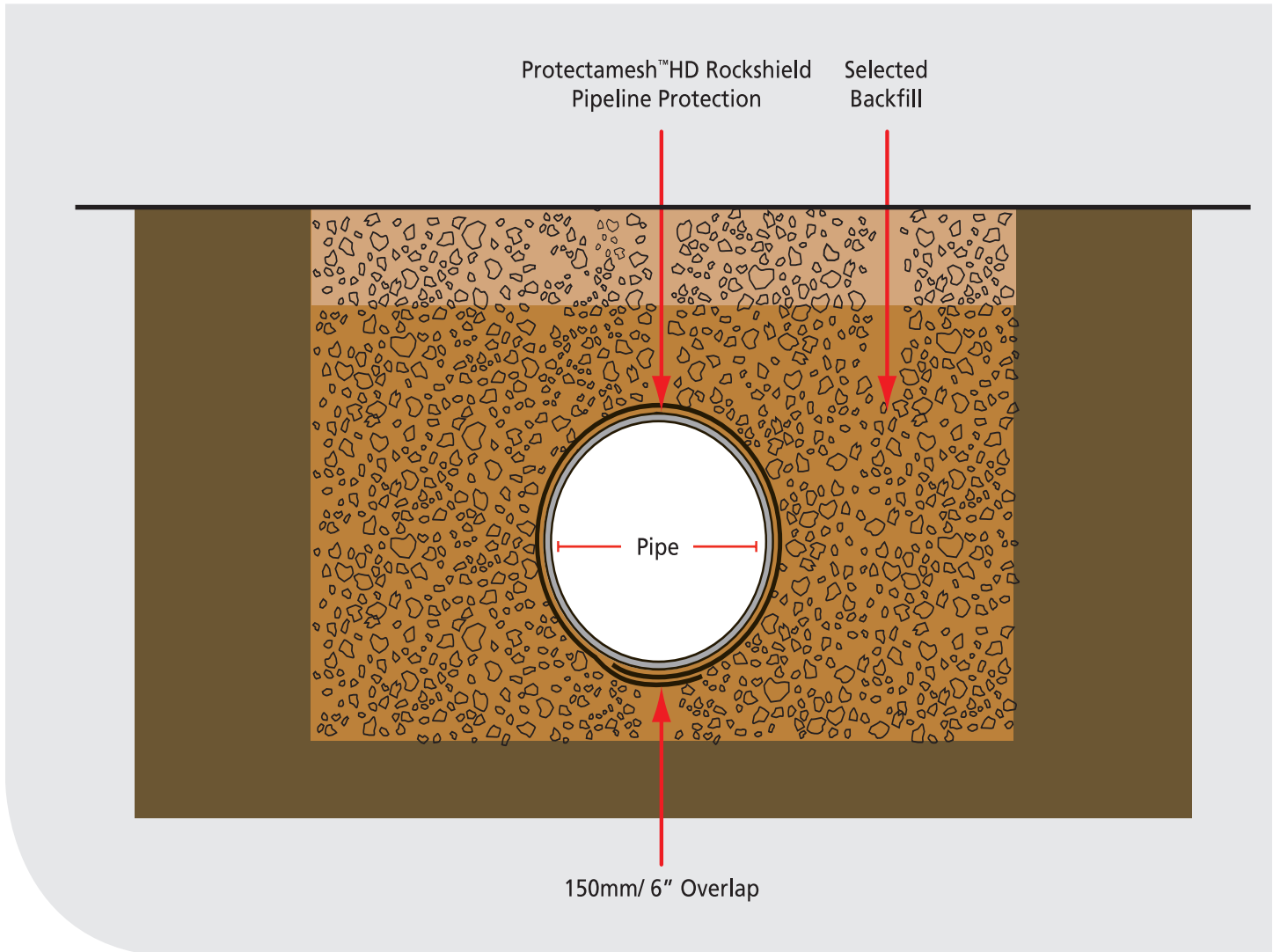
B. Polypropylene banding shall be used to secure PROTECTAMESH HD ROCKSHIELD to the pipe.

C. PROTECTAMESH HD ROCKSHIELD shall completely encircle pipe with a minimum overlap of 100mm/ 4". All Overlaps shall be located at the bottom radius of the pipe (6 o'clock position).

D. Backfill should be shaded into the trench during the backfill operation, taking care to minimise direct impact on top of pipe.



PROTECTAMESH HD Rockshield Application Diagram



PADS

Custom cut pads should be wrapped around the circumference of the pipe, covering all exposed areas. Ensure that all pads are of sufficient dimension to protect the entire pipe.

All pad overlaps shall be placed at the 6 o'clock position of the pipe, taking care to secure the PROTECTAMESH HD ROCKSHIELD with a polypropylene banding.

Place all end to end overlaps min. 50mm/ 2"; all parallel pad overlaps min. 150mm/ 6".

All pads shall be secured to the pipe by using a min. 18mm/ 0.7" wide polypropylene banding.

After pads are secured to the pipe, the backfill process may take place.

ROLLS

All rolls should be of adequate coverage to entirely cover the circumference of the pipe.

PROTECTAMESH HD ROCKSHIELD is to be placed around pipe, whereby placing overlap portion at the 6 o'clock position of the pipe.

Place all end to end overlaps min. 50mm/ 2"; all parallel pad overlaps min 150mm/ 6".

In the event that a side overlap is used place the overlaps "shingle style". This will ensure that no backfill will protrude under the PROTECTAMESH HD ROCKSHIELD.

After pads are secured to the pipe, the backfill process may take place.

Installation Guidelines & Methods

PROTECTAMESH HD Rockshield is quick and easy to install in 3 different ways :

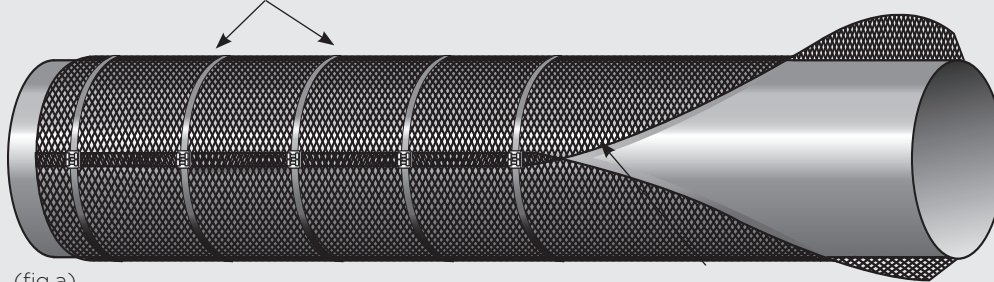
Work out the pipe circumference = Pipe Diameter x π

Longitudinal wrapping (fig.a)

For pipes with a circumference of less than 150mm (6") in relation to the width of the PROTECTAMESH HD Rockshield:

1. Unroll the mesh parallel to the pipe which is to be protected.
2. Place the mesh below the pipe.
3. Wrap the mesh around the pipe overlapping the edges by approx 150mm (6").
4. The mesh can be secured by plastic straps or can be heat bonded by use of a gas torch and pressing the two surfaces together.

Wrap with polypropylene banding every 800mm/ 2.6'



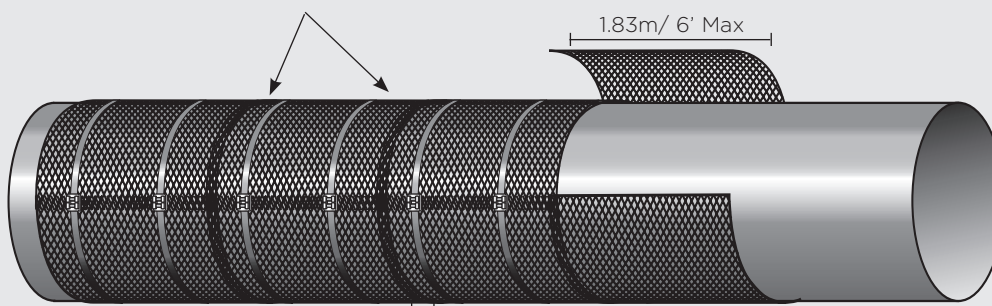
(fig.a)

Overlapping Protectamesh HD Rockshield by 150mm/ 6"

Latitudinal wrapping (fig.b) For pipes with a larger circumference than the roll width:

1. Cut the mesh into pieces 100-150mm (4-6 inches) extra than the circumference of the pipe.
2. Wrap the pipe with the mesh overlapping the adjacent installed mesh by 150mm (6").
3. Fix the mesh with plastic straps or heat bond the longitudinal join using a gas torch and pressing the two surfaces together.

Wrap with polypropylene banding two places per pad



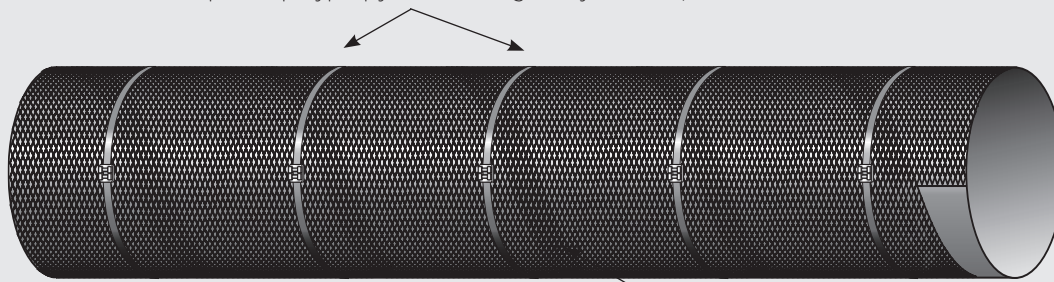
(fig.b)

Overlapping Protectamesh HD Rockshield by 150mm/ 6"

Spiral wrapping (fig.c) This process can be applied to larger circumference pipes:

1. Start wrapping the pipe moving along the length of the pipe, so that the mesh overlaps slightly.
2. Use plastic strapping to secure the mesh in situ as the mesh is wrapped.

Wrap with polypropylene banding every 800mm/ 2.6'



(fig.c)

Overlapping Protectamesh HD Rockshield by 150mm/ 6"

Determine Correct Sizing

Pipe Diameter		Pipe Circumference		Pad Size	
mm	inches	mm	inches	mm	inches
50	2	157	6.3	300	12
100	4	315	12.3	450	18
150	6	472	18.6	600	24
200	8	629	25.1	750	32
250	10	786	31.5	900	36
305	12	960	37.75	1100	44
355	14	1100	439.9	1250	45
405	16	1270	50.2	1400	54
355	18	1430	56.5	1550	60
510	20	1605	62.8	1750	67
560	22	1760	69	1900	72
610	24	1915	75.3	2050	80
660	26	2075	81.6	2200	98
710	28	2230	87.9	2350	92
760	30	2390	94	2500	98
815	32	2560	100.5	2700	104
865	34	2720	106.75	2850	111
915	36	2875	113	3000	117
1065	42	3350	131.8	3500	136
1220	48	3835	150.7	3950	155



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By intelligently applying our high-performance fiber technology, we are helping industry solve its most complex material challenges, and providing our customers with the answers they will need tomorrow.

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