



ROCKSHIELD FOR PIPELINE COATING PROTECTION TUFF-N-NUFF®

- Greatly Reduces Or Eliminates The Need For Costly Dig Ups To Repair The Pipeline Coating
- Reduces Construction Costs Over Using Select Fill Or Padding Machines And Allows For Faster Project Completion
- Does Not Interfere With Cathodic Protection Of Pipelines
- Tested & Trusted By Pipeline Owners For Nearly 30 Years



TUFF-N-NUFF®

ROCKSHIELD FOR PIPELINE COATING PROTECTION

**TUFF-N-NUFF® is
unmatched in impact
resistance properties
compared to other field
installed rockshields.**

Tuff-N-Nuff® also has a random, strand matrix design, proven to not interfere with cathodic protection through independent lab testing.

LABORATORY TESTED FOR:

- Impact Resistance
- Compatibility with CP Systems
- Compression
- Cathodic Access
- High Temp Resistance
- Low Temp Flexibility
- Tensile / Elongation
- Penetration Resistance



Feature	Advantage	Benefit
Custom size rolls or pads available for every pipeline diameter size	Eliminates waste and allows for a quicker installation	Reduces construction costs and allows for faster project completion
Random strand matrix, flexible PVC construction	Cushion like and softer material won't wear down the pipeline coatings once the pipeline begins to vibrate during service	Allows for a longer life for the pipeline coatings, thereby reducing future maintenance costs
Holds up to 6" stones in the modified ASTM G-13 Rock Drop Test (Superior Impact Resistance)	Minimizes the chances of expensive to repair holidays occurring during backfilling operations	Greatly reduces or eliminates the need for costly dig ups to repair the pipeline coating
Random strand matrix design	Does not interfere with cathodic protection being supplied to pipelines	Allows the cathodic protection being supplied to the pipeline to work correctly to protect the pipeline from corrosion
Patented folding technology of RIP Shield for small diameter pipelines	Allows for significantly quicker installation times	Reduces labor costs associated with installation
Formulated for flexibility in cold weather environments	Allows for installation in cold weather climates	Speeds up installation time over other rockshields that become rigid or crack in cold weather conditions



Tuff-N-Nuff® was designed and has been sold specifically as a rockshield for nearly 30 years

INSTALLATION

Tuff-N-Nuff® is an easily installed rockshield, which can be “cigarette-wrapped” around pipelines in the field during construction for instant protection from backfill. In addition, the product was designed to be flexible in extremely cold weather - functioning well during installation in the winter months in Canada and the Northern United States. The product can also be used on a “as needed basis” when rocky or harsh backfill is encountered, providing a more flexible option over factory applied abrasion resistant coating, select fill, or padding machines.

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ROCKSHIELD PIPELINE COATING PROTECTION

Physical Property Data – 11 mm (3/8”) Tuff-N-Nuff Rockshield

Property	Test Method	Typical Results*
Impact Resistance	ASTM G13 (Modified)	No failure @ 6” rock ¹
Puncture Strength	ASTM D6241 (Modified)	150 lbs
Tear Strength	ASTM D4533	150 lbs/in
Compressive Strength	ASTM D1621	2.20 lbs/in ² @ 10% deflection
Diaphragm Burst	ASTM D3787	150 lbs
Abrasion Resistance	ASTM D4886	75 psi
Grab Strength	ASTM D4632	99 lbs & 100% elongation at break
Low Temp Brittleness	ASTM D746	>-65°F (exceeded chamber capability)
Bacteria Resistance	ASTM G22	No Growth
Density	ASTM D792	0.860 (Minimum)
Cathodic Protection	Custom	No inhibiting effect
Melt Temperature	Custom	320°F

¹Test modified to include rocks which progress in size from 1 ½”, 3”, 4” and 6”, 10 drops each. Each drop consisted of released 50+ lbs of stone from a height of 6’ onto a fusion bonded epoxy coated steel plate protected by Tuff-N-Nuff. The FBE coated steel plate is visually inspected for holidays after each drop.

*Results may differ based upon statistical variations depending upon equipment, temperature, application methods, test methods, and actual site conditions.





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ROCKSHIELD PIPELINE COATING PROTECTION

- Tuff-N-Nuff is the most widely used and specified rockshield in the United States and Canada
- Unmatched impact resistance properties compared to other field installed rockshields
- A custom size rockshield is available for every pipeline diameter size; this saves installation time and labor by not having to cut the rockshield to size in the field
- Formulated for flexibility in cold weather environments to aid in installation
- Tuff-N-Nuff was developed and has always been manufactured specifically for use as a rockshield since 1988
- Tuff-N-Nuff has a porous, random strand matrix design which has been proven with laboratory testing to not interfere with the cathodic protection being supplied to pipelines
- Eliminates the need for select fill, as the on-site native soil can be used to backfill the pipeline

TUFF-N-NUFF®

SIZING CHART

Tuff-N-Nuff Rolls					
Pipe Diameter	Pipe Circum.	Roll Width	Roll Length		
			30ft	40ft	50ft
			Square ft per Roll		
2"	7.45"	12"	12" x 60ft RIP Shield		
4"	13.9"	18"	45	60	75
6"	19.6"	24"	60	80	100
8"	27"	32"	80	106.7	133.3
10"	33.75"	36"	90	120	150
12"	40"	44"	110	146.7	183.3
14"	43.9"	48"	120	160	200
16"	50.2"	54"	135	180	225
18"	56.5"	60"	150	200	250
20"	62.8"	67"	167.5	223.3	279
22"	69"	72"	180	240	300

Tuff-N-Nuff Pads				
Pipe Diameter	Pipe Circum.	Roll Width	Pad Width x 6 ft	
			Square ft per Pad	
24"	75.3"	80"	40	
26"	81.6"	86"	43	
28"	87.9"	92"	46	
30"	94"	98"	49	
32"	100.5"	104"	52	
34"	106.75"	111"	55.5	
36"	113"	117"	58.5	
42"	131.8"	136"	68	
48"	150.7"	155"	77.5	

All sales of Tuff N Nuff products are subject to current Crest Cormix Terms and Conditions of Sale available on request by calling +61 3 9887 0422. Prior to each use of Tuff N Nuff products, the user must always read and follow the warnings and instructions on the product's most current Product Data Sheet, product label and Safety Data Sheet, which are available at by calling Crest Cormix Technical Services at +61 3 9887 0422. Nothing contained in any documents relieves the user of the obligation to read and follow the warnings and instructions for Tuff N Nuff product as set forth in the current Product Data Sheet, product label and Safety Data Sheet prior to product use.

The sale of all Tuff N Nuff products are subject to the following Limited Warranty:

LIMITED MATERIAL WARRANTY

Manufacturer warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Product Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor.

NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. CREST CORMIX AND MANUFACTURER SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. CREST CORMIX AND MANUFACTURER SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.

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