ProTube®
DEWATERING TUBE

CONTAINMENT & DEWATERING

The use of specialty textiles fabricated into large diameter tubes has found increasing acceptance throughout the world as an effective alternative low cost method of dewatering a range of sludge materials, hazardous contaminated soils or dredged waste materials.

The use of the Global Synthetics ProTube works effectively by:

CONTAINING the fine grained material to be dewatered within the unique weave of the ProTube textile.

DEWATERING of the excess water through the specially constructed high flow pores of the ProTube textile. There is significant volume reduction of the material in this stage which allows for repeated filling of the ProTube product in many cases.

CONSOLIDATION of the fines occurring after the final cycle of filling and dewatering. The fine grained solids contained within the ProTube product continue to consolidate through desiccation with residual water vapour continuing to escape through the unique pore structure of the ProTube product. This results in the most effective state for final disposal of the waste.

"ProTube has been manufactured using ultra flow textile for superior dewatering function."

ENVIRONMENTAL ENGINEERING SOLUTIONS

Global Synthetics
Australian Company - Global Expertise

PRODUCT SPECIFICATIONS

GT50/50 and GT70/105 ProTube ULTRA FLOW TEXTILE

GT50/50 and GT70/105 high flow textile fabric used in the manufacture of the ProTube is composed of high-tenacity polypropylene filaments which are woven into a stable network such that the yarns retain their relative positions. GT50/50 and GT70/105 is inert to biological degradation and resistant to naturally encountered chemicals, alkalis and acids. GT50/50 and GT70/105 textile fabric has been constructed to maintain excellent tensile strengths and filtration properties required for the application of ProTube.

Mechanical Properties	Test Method	Units	ProFab GT50/50 MD	ProFab GT50/50 CD	ProFab GT70/105 MD	ProFab GT70/105 CD
Tensile Strength	ASTM D4595	kN/m	50	50	70	105
Elongation	ASTM D4595	%	20	12	18	18
Trapezoidal Tear Strength	ASTM D4533	N	600	550	800	1600
Static Puncture Resistance	ASTM D6241	N	4500		9000	
Hydraulic Properties						
Permittivity	ASTM D4491	sec-1	0.6		0.4	
Flow Rate (50mm Head)	ASTM D4491	l/min/m^2	1800		1200	
Apparent Opening Size (O_{95})	ASTM D4751	mm	0.425		0.425	
Flow Rate (100mm Head)	AS3706.9	l/min/m^2	3300		2200	
Roll Size		m	4.5x100		4.5 x 100	

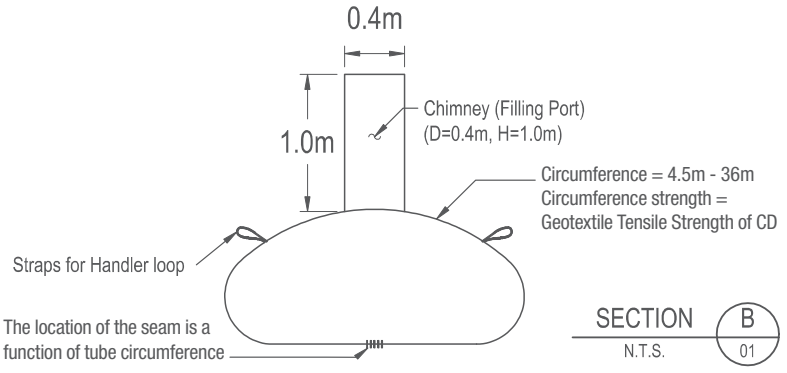
1. The values are indicative and correspond to typical average values obtained during production and from independent testing.
2. MD and CD refer to values obtained in the machine direction (roll length) and cross machine direction (cross roll)

ProTube STANDARD TUBE SIZES:

Fabric Type	Nominal Circ. (m)	Height (m)	Width (m)	Volume (m^3/m)
ProFab# GT50/50	4.5	1.1	1.6	1.4
	6.8	1.3	2.7	2.9
	9.0	1.4	3.7	4.3
ProFab GT70/105	13.5	1.7	5.6	8.2
	18.0	2.0	7.6	13.4
	27.0	2.0	12.0	21.7
	36.0	2.1	16.3	31.5

* Note that the filled width is at approximately 1/3rd height from the base.

Note that these specific tube sizes may be constructed using GT70/105 fabric. Please confirm fabric type at time of order.



N.B. ProTube may be constructed to a variety of sizes in both length and diameter. Please speak to Global Synthetics for your specific project requirements.

Efficient and cost effective dewatering solutions.

ProTube FILLING PROCEDURE

PREPARE THE AREA FOR PLACEMENT...

of the ProTube product by ensuring that the site is made level and that all debris is removed that may damage the ProTube. There may be a requirement for the installation of a suitable membrane to the base of the site. An effective future drainage blanket may be incorporated to the underside of the ProTube product (such as ProCell drainage cell) in conjunction with a suitable nonwoven geotextile (such as ProFab geotextile). Adequate area for access to the tubes is to be allowed for. It is advisable to place the ProTube product within a "bunded" cell area to minimise the risk of potential spillage. A slight "fall" in grade of 0.5% maximum may be helpful in the direction of ProTube length such that there can be a collection point for effluent water within the "bunded" cell area.

UNROLL THE PROTUBE...

product in the desired position. The tube cannot be moved once material has been placed in the tube. The tube position should allow for a sump within the "bunded area such that the effluent water may be pumped from the cell. If necessary use the webbing loops sewn into the seams to secure the ProTube during filling operations. These loops should be released as the ProTube is filled.

POLYMER ADDITION...

to the Protube should be considered to maximise the benefit of ProTube use. Speak to our consultants for specific advice on polymer addition.

THE PROTUBE IS THEN PUMPED...

full of material, to a predetermined height (safe fill height) and then left to dewater under gravity over time. Dewatering rates of ProTube will depend on type of waste material pumped into the tube. Excessive pumping pressures are to be avoided, as rupture of the ProTube may occur if the seams are over-stressed.

ONCE SUFFICIENT DEWATERING...

has taken place the ProTube may be pumped full again, to the same height and pressure restrictions as set for the first fill cycle. This cycle can be repeated until it is assessed that the ProTube contains sufficient solids that further filling is not warranted. The number of fill cycles is dependent upon the waste material to be dewatered.

CONSOLIDATION OF THE FINES...

within the ProTube starts occurring after the final cycle of filling and dewatering through desiccation with residual water continuing to escape through the unique pore structure of the GT70/105 textile. When it is assessed that the material within the ProTube has dried sufficiently the ProTube may be cut open and may be left to further air dry. The fill material may be disposed to a suitable waste site. Alternatively, small tubes can be manhandled and suitably disposed including the contained dewatered sludge.

Providing our customers with the highest quality.

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