RUBBER LINERS

General

LPCB Type A^{e} and FM approved fire sprinkler tanks as manufactured by CSTVulcan incorporate a rubber liner manufactured from material generally known as EPDM. This material is not WRC approved for use with potable water.

A BUTYL rubber liner manufactured from material that has received WRC approval (BS6920) and is listed by the Water Byelaws Scheme as approved for use in contact with potable water is available for lining potable water tanks.

Material

EPDM and BUTYL are flexible synthetic rubber membranes that are an ideal material for lining fire sprinkler tanks or potable water tanks using an approved BUTYL material. The sheeting provides a completely waterproof seal due its closely packed molecular structure making it extremely resistant to the transmission of liquids or vapour.

Both EPDM and BUTYL have outstanding ageing and weather-resistant properties. Their cross-linked molecular structure gives excellent ageing over a long period of time even when exposed to the atmosphere, sunlight, ultraviolet radiation and ozone. Strength and elasticity remains virtually unchanged over many years, without shrinking, hardening or cracking.

Refer to Material Specifications for further information related to the liner material.

Liner Specification

Liner Material	0.75 mm EDPM or 1.0 mm BUTYL
Scrim reinforcement	1.5 mm thick reinforced EDPM 150mm wide material Type 2 design, installed at the top of the liner
Eyelets	Brass type number 4 128 mm centres Fitted circ 40 mm from top of reinforcement scrim
Dimensions	Generally +50mm over tank diameter and +100mm over tank height

Handling

Due to its high degree of flexibility, damage by rough handling is minimized, and the material readily adapts to surface irregularities. The material has excellent resistance to abrasive wear, tearing, flex-cracking and puncturing. However, it may be damaged

by sharp tools, knives etc and it is recommended that clean rubber soled footwear is used when installing or inspecting rubber liners. A protective underlay is always supplied & must be fitted on the tank base, for extra protection against puncturing, prior to installation of the liner. Strips of this material or similar should be used to cover the bolts securing the tanks panels or other areas to prevent damage to the liner.

Storage Of Tank Liners

It is advisable to use the liners as soon as possible after they have been manufactured, as over a period of time the liner will develop creases. However, these creases are not permanent as the material has elasticity and memory which means that the main material will return to its original state.

The only exception to this is the reinforced band at the top of the liner, which by its nature does not have memory due to the reinforcing scrim within the material. However, problems are minimised due to the combination of the high tear strength of the scrim, and large number of fixing eyelets assist in pulling the reinforcing scrim back into shape.

The following guidelines should be followed when storing the liner:

- Liner is best stored inside at ambient conditions.
- The liner is normally supplied wrapped with several layers of protective polythene sheeting. This sheeting must not be removed. Additional protective crating can be supplied by special request.
- Do not stack items on top of the liner or immediately adjacent to it (even when it is in its packaging), as there is always the chance that a sharp item could puncture the liner. If in doubt provide additional protection.
- Liner should not be moved around excessively as this creates a chance of the liner being damaged

Repair

Although EPDM and BUTYL rubber liners are extremely tough and resistant to puncture, damage can occur. A repair can be carried out simply, quickly and economically on site. In most cases a repair using a heat/pressure process, similar to that used by the manufacturer is utilised
Repair kits are available upon request.

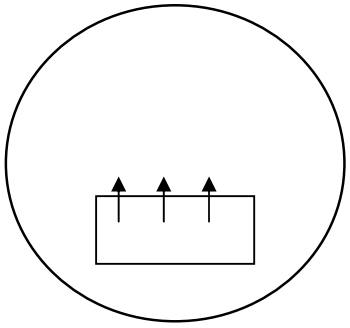
Installation

The following instructions should be followed to ensure efficient and damage free installation of the liner.

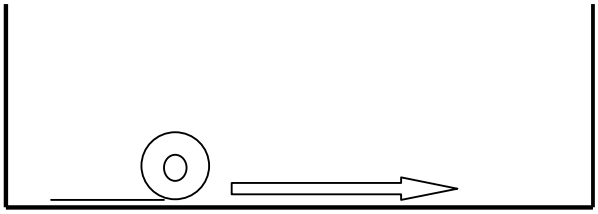
- Ensure that base of the tank is completely free of dirt, grit and foreign objects that could cause damage to the liner.
- Cover base of tank and relevant areas of the tank with protective matting or other protective material.
- Ensure that all personnel wear clean rubber soled footwear and that no sharp tools are used that could potentially damage the liner.

Unfolding Instructions For Tank Liners

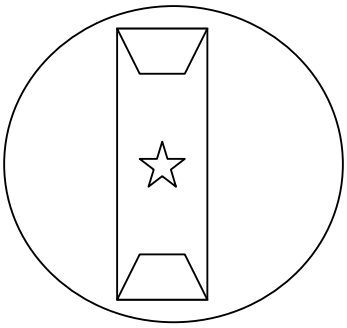
1. Remove all of the outer wrapping. Position the liner as close to the edge of the tank as possible with the white arrows on the liner facing towards the centre of the tank.



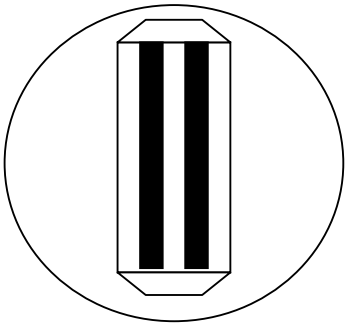
2. Ensure that the loose flap (i.e. end of roll) is underneath the roll and closet to the near tank wall.



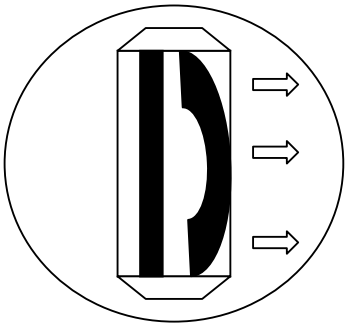
3. Unroll the liner towards the centre of the tank. As the liner is unrolled the white centre marking will be revealed. If necessary, the liner should be moved so that the marking corresponds to the centre of the tank.



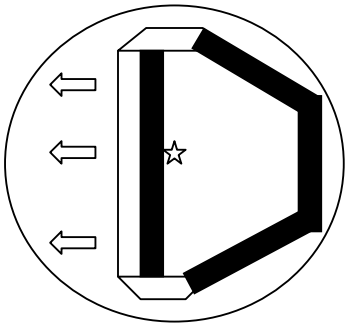
4. Once the liner has been unrolled completely, unfold the ends so that the eyeleted reinforcement scrim on the top of the liner is revealed.



5. Open the right side of the liner by pulling the eyeleted reinforcing scrim to the right as far as the wall.



6. Open the left side of the liner by pulling the eyeleted reinforcing scrim to the left until the liner is fully open.



7. Finally adjust the position of the liner so that the white centre mark is in the middle of the tank. The liner is now ready to hang.

Material Specifications

Varnamo EPDM Greenseal

Physical properties	Unit	Requirements/typical value		Test Methods
Hardness	IRH	65 ± 5	65	BS903 A26
Modulus at 300% elongation	Mpa	5,0	6,9	BS 903 A2
Tensile Strength	Mpa	min 9,0	10,1	BS 903 A2
Elongation at break	%	min 300	405	BS 903 A2
Tear Strength	kN/m	min 30	37	BS 903 A3C
Properties after ageing 168/121º C				BS 903 A19
Tensile Strength	Mpa	min 7,5	9,7	BS 903 A2
Elongation at break	%	min 300	345	BS 903 A2
Brittle point	ºC	max. –40	-53	BS 903 A25

Additional Information

Approvals	DIN 7864 part. 1 1984, Swedish Type Approval No 2224/82
Thickness	Nominal ±10%
Identification	Each roll marked with product name, article- and roll number, dimensions, date of manufacture and signature.
Packing	Polyethylene-film wrapping

Varnamo WRC Butyl

Physical properties	Unit	Requirements	Test Methods
Hardness	°IRH	65±5	BS 903 A26
Modulus at 300% elongation	Mpa	min 4,5	BS 903 A2
Tensile Strength	Mpa	min 9,0	BS 903 A2
Elongation at break	%	min 350	BS 903 A2
Tear Strength	kN/m	min 23	BS 903 A3 C
Properties after aging 168h/121 C			BS 903 A19
Tensile Strength	Mpa	min 7,5	BS 903 A2
Elongation at break	%	min 300	BS 903 A2
Ozone resistance 96h/30 C	-	No Cracks	BS903 A43
50 pphm and 80% elongation	-	Max. –30	BS 903 A25

Additional Information

UK Approvals	Water byelaws scheme, approval to BS 6920 Test report M010093, List No 5044
Thickness	Nominal ± 10%
Length and width of rolls	As ordered
Identification	Each roll marked with product name, article and roll number, dimensions, date of manufacture and signature.
Packing	Polyethylene-film wrapping