

SEL Membrane Systems



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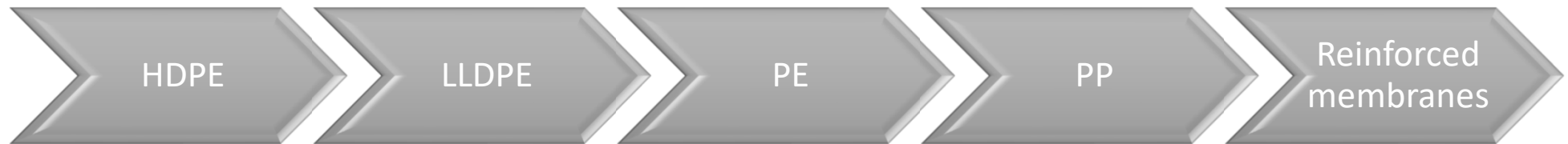


Who are SEL?

- SEL provide high quality, value-engineered solutions for SuDS and contaminated land remediation throughout the UK
- Adopt an open-minded approach to developing site specific solutions
- In-house stage 1 design capabilities (catchment analysis, sketch layouts, CAD)
- Forge and maintain close relationships with leading academic institutions, key research bodies, specialist Consultants and manufacturers
- Develop and manufacture a comprehensive range of unique products and bespoke components (flow controls, diffusers, prefab membranes)
- Maintain a highly skilled and specialised workforce together with bespoke plant and equipment



Types of Membrane



Types of Membrane

- HDPE
 - High density polyethylene.
 - High density polyethylene (HDPE) geomembrane liners are used in a wide range of containment applications. This material provides excellent durability and chemical resistance properties and is reliable in exposed applications, has ultraviolet protection and ageing resistance from the intense stresses of weather. This is a **very stiff** membrane.
 - Various thicknesses and large roll sizes available.
 - Usually has welded joints.



Types of Membrane

- LLDPE
 - Linear low density polyethylene
 - Provides much of the same durability and resistance properties found in high density polyethylene (HDPE) geomembranes, but with the added benefit of increased material flexibility because it is a lower-density polymer.
 - Various thicknesses and large roll sizes available.
 - Usually has welded joints.



Types of Membrane

- PE
 - Polythene
 - Polythene sheet is more commonly used as a damp-proof membrane.
 - Normally 1200 gauge thick (0.25mm) and supplied in rolls 4 m wide by 25 m long.
 - Usually has taped joints



Types of Membrane

- PP
 - Polypropylene
 - Outstanding flexibility, elongation (up to 700% before rupture), cold temperature resistance, long term UV stability, and advanced chemical resistance. Polypropylene is one of the most flexible membranes available for use as a fabricated geomembrane, making detail work such as creating corners an easy task.
 - Various thicknesses and large roll sizes available.
 - Usually has welded joints.

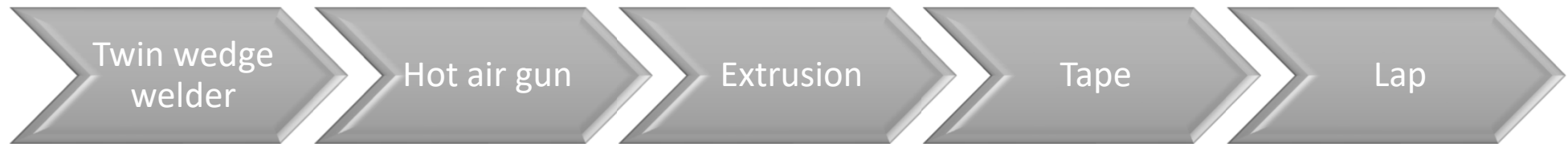


Types of Membrane

- Reinforced membranes
 - Usually laminated carrier and scrim (grid)
 - All the benefits of the membrane but with added strength and puncture resistance of the scrim (grid). Very low elongation.
 - Various thicknesses and large roll sizes available.
 - Usually has welded joints.



Methods of Jointing



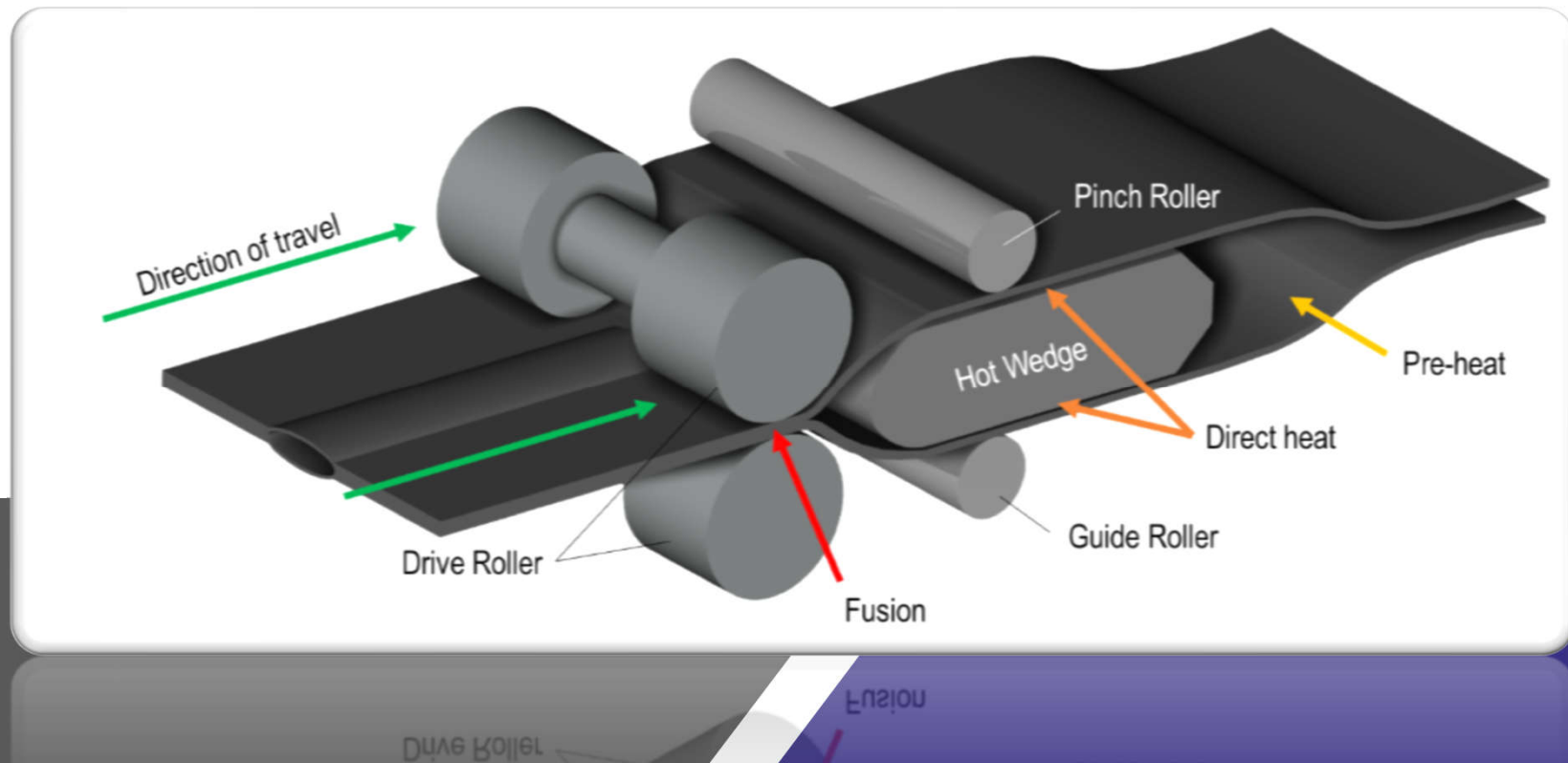
Methods of Jointing

Twin wedge welder



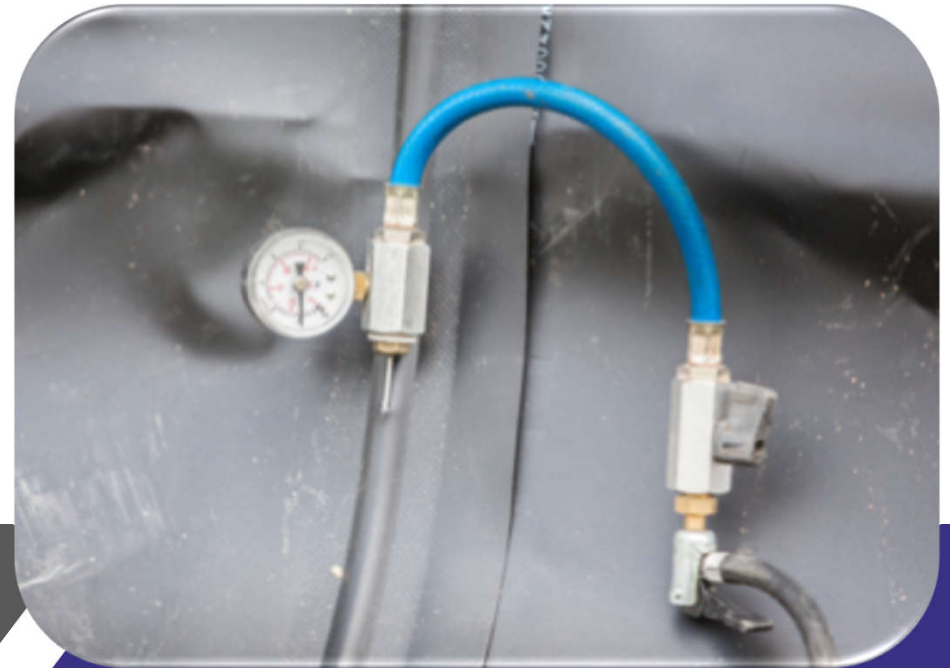
Methods of Jointing

Twin wedge welder



Methods of Jointing

Twin wedge welder – Testing, 1 bar/mm thickness for 5 minutes



Methods of Jointing

Hot air gun



Methods of Jointing

Hot air gun – Testing

- 55 PSI minimum
- 5mm nozzle.
- <100mm from seam
- Traversed at c.12m/min



Methods of Jointing

- Extrusion welding
 - Extruding molten plastic
 - Suitable for PE membranes where hot air welding is not suitable
 - Relatively slow and therefore expensive compared to other jointing methods



Methods of Jointing

- Extrusion welding
 - Spark test



Methods of Jointing

- Tape
 - Needs dry and clean surface
 - Cannot test joint
 - Limitations under hydrostatic pressure



Methods of Jointing

- Lap
 - Usually minimum 300mm
 - Only suitable where watertightness is not an issue i.e. leaky tank
 - Fast and cost effective where appropriate
 - “Token gesture”



Drainage Pipe Connections

Watertight

Robust

Fit Standard
Drainage



Drainage Pipe Connections

- Example of bad workmanship



Drainage Pipe Connections

- Example of good workmanship



Drainage Pipe Connections

- PVOD Components

160mm Ø Flat Membrane Sealed Tank Adaptor

PVOD03202

Description

The 160mm Ø Flat Membrane Sealed Tank Adaptor is specifically designed to provide a fully welded watertight and secure rigid connection point for drainage pipework or ventilation apparatus to an attenuation tank. The flexible membrane allows a watertight heat seal on to the impermeable membrane surrounding the attenuation tank. The flat membrane sealed tank adaptor can be placed at any location on the attenuation tank, ideal to provide an outlet from the base of the tank, or a vent connection to the top of an attenuation tank. The membrane sealed adaptor is compatible with standard 160mm Ø push fit couplings.

permovoid

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Drainage Pipe Connections

- PVOD Components

160mm Ø Invert Membrane Sealed Tank Adaptor

PVOD03102

Description

The 160mm Ø Invert Membrane Sealed Tank Adaptor has been developed to provide a fully welded watertight and secure rigid connection point for a drainage pipe to an attenuation tank. Fixed to the top or bottom edge of a tank, the flexible membrane allows a watertight heat seal on to the impermeable membrane surround to the attenuation tank. Providing a connection at the true invert level, allowing the tank to empty completely without leaving any residue. The membrane sealed adaptor is compatible with standard 160mm Ø push fit couplings.

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Membrane Protection

- Outer layer around membrane
- Occasionally on inside of membrane
- Prevent puncture during installation and backfilling
- Non-woven, needle punched
- Minimum 300g/m²



Membrane Protection



Quality Assurance

- ISO9001
 - Quality Plan
 - On site CQA



Quality Assurance

- Quality Plan

SEL Environmental Ltd



GEOSYNTHETICS AND WELDED GAS RESISTANT
MEMBRANE INSTALLATION

QUALITY PLAN

SEL Environmental Ltd, Stormer Hill Works, Mill Street, Tottington, Bury BL8 4AT Tel: 01204 885555



Quality Assurance

- On site CQA

SEL Environmental Limited



Material Delivery / Inventory Checklist (QA001)

Contract No : _____ Client : _____
Contract Title : _____ Material Description: _____
Date : _____ Truck No: _____
Location on Site : _____ Del. Note Number: _____

	Complete Roll No.	Batch No.	Roll Size	Damage Remarks
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
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16				
17				
18				
19				
20				

SEL Environmental Ltd, Canal House, Bonsall Street, Blackburn BB2 4DD Tel: 01254 589987

SELQA001





Any Questions?...



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