



INSTALLATION GUIDELINE

GSE Polylock



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1. PRODUCT DESCRIPTION

GSE® Polylock is an extruded high density polyethylene profile designed for anchoring HDPE geomembranes to cast-in-place concrete. The smooth HDPE surface remaining exposed after installing the **GSE** Polylock in the concrete provides an ideal point for attaching the geomembrane to the concrete structure by standard extrusion welding. A **GSE** Polylock connection provides a strong, dependable smoothly finished joint, eliminating the problems sometimes caused by the irregular surface of a bolt and batten connection.

GSE Polylock, when installed properly and utilized with a geomembrane provides an outstanding barrier to leakage. However, **GSE** Polylock does not assure a leak-proof or pressure resistant seal across the embedded anchor legs. Therefore, the geomembrane connections should be arranged to prevent direct exposure of the **GSE** Polylock to the concrete joint if total leak resistance is required.

2. MATERIAL STORAGE AND HANDLING

GSE Polylock is UV stabilized and requires no special protection from moisture or sunlight. **GSE** Polylock is manufactured in 10 ft (3 meter) lengths, 6 in (152 mm) wide and is typically banded together in bundles of 10 pieces.

3. TYPICAL INSTALLATION PROCEDURES

GSE Polylock is a rugged, durable HDPE profile that can be cast or inserted into wet concrete leaving the welding surface exposed upon completion of concrete preparation. The embedment of anchor legs provides a high strength mechanical anchor to the concrete.

A. General

GSE Polylock can be cut with a hand or power saw to facilitate installation around various shapes and configurations. Joints can be mitered.

GSE Polylock can be bent to conform to smooth, fair curves for a radius' exceeding ± 30 in (760 mm). Bending to more intricate shapes or shorter radii' can be accomplished through a combination of heating and notching if necessary.

The flexibility of HDPE is reduced as temperature decreases. The **GSE** Polylock will not break or shatter under normal flexure, impact or handling at temperatures as low as -40 F (-5 C) or less. However, the material is more difficult to form at reduced temperatures.

GSE Polylock can be nailed, screwed or clamped to forms for placement in any position. The welding surface should be pressed firmly against the form surface to ensure that the desired configuration is maintained throughout the pouring procedure and until the concrete sets. It is also desirable to minimize the possibility of concrete intrusion between the **GSE** Polylock welding surface and the form. If the concrete does leak onto the **GSE** Polylock surface, however, it is easily removed since an adhesive bond is not formed.

The most common procedure is to nail the **GSE** Polylock to the inside of wooden forms in the position desired. The nail can be cut, broken off or pulled through the **GSE** Polylock for removal as the forms are removed. The small damaged area caused by removing the nail can be easily repaired by extrusion welding. The attachment can often be located so that the geomembrane covers those areas.

GSE Polylock is tough; special care with respect to pouring concrete of normal aggregate size is not required to prevent damage to the **GSE** Polylock. However, it is necessary to ensure that the pouring and vibrating procedure causes the concrete to completely fill the channels between the anchor legs and totally surround the **GSE** Polylock with the exception of the welding surfaces. Extra care to ensure vibrating of the concrete adjacent to the **GSE** Polylock during the pour is normally adequate to assure solid, void-free embedment. Excessive vibration may cause separation of the constituents of the concrete and create undesirable results.

B. Insertion

GSE Polylock may be inserted directly into horizontal surfaces of concrete immediately subsequent to pouring and screeding to near the finish level. This is accomplished by firmly pushing the **GSE** Polylock down into the wet concrete. A small vibrator can be used to assist the placement. Once it is embedded in the concrete, a vibrator should be used adjacent to the **GSE** Polylock to ensure that there are no voids in the concrete surrounding it.

Solmax suggests that the installer conduct a trial to ensure understanding of the most appropriate aggregate and moisture specifications and demonstration of the procedure before a pour is attempted. Temporary wooden “handles”, “floats” or cross battens can be nailed to the **GSE** Polylock to expedite and simplify the handling, positioning, and final location. Any minor damage caused by attachment can be easily repaired by extrusion welding if necessary.

In some instances, the **GSE** Polylock will try to float up if the concrete is unusually wet or as adjacent pouring, finishing or placement operations proceed. This is due to the fact that the density of HDPE is lower than that of water but may be an indication of air released and trapped under the **GSE** Polylock. It is desirable to have a few bricks or other handy weights to prevent this, as necessary. If the **GSE** Polylock tries to “float”, action should be taken to ensure that there are no large air pockets trapped under the **GSE** Polylock causing the problem.

C. Welding Polylock joints

Most **GSE** Polylock applications require no special attention at end-to-end joints. The concrete holds them in position. If the **GSE** Polylock is to be utilized as a seal as well as an anchor, it may be desirable to weld the joints.

Improved joint strengths and sealing ability may be achieved by welding the joint on the smooth side (without anchor legs) prior to placing the concrete. This is frequently more easily accomplished prior to placing the **GSE** Polylock in the form. The top of the joint, i.e. the seam on the welding surface, can be welded subsequent to installation and curing the concrete. The joining parts should be beveled with a sharp knife or grinder to ensure a clean surface and adequate allowance for weld penetration.

Sections of **GSE** Polylock shorter than about one foot (30 cm) will develop design anchor retention if they are properly embedded. However, it is sometimes difficult to place or retain short sections in the desirable position. The problem can be eliminated by welding the short section to an adjacent **GSE** Polylock section, nailing it to a wooden anchor, or trimming an adjacent longer section to eliminate the undesirable short piece.

APPENDIX: A CONCRETE EMBEDMENT STRIP

GSE Polylock was the first extruded HDPE concrete embedment strip in the geosynthetic industry, and it is the most effective and economical cast-in-place mechanical anchor system available for polyethylene geomembranes. **GSE** Polylock can be cast-in-place or inserted into wet concrete, leaving the welding surface exposed upon completion of concrete preparation. The embedment of anchor fingers provides a high strength mechanical anchor to the concrete. When properly installed and utilized with a geomembrane, **GSE** Polylock delivers an outstanding barrier to leakage.

GSE Polylock specifications	
Standard length, ft (m)	10 (3)
Width, in (cm)	6 (15)
Anchor finger length, in (cm)	1 (2.5)
Chemical resistance	Excellent
Tensile strength, lb/in2 (MPa)	> 4,000 (28)
Low temperature brittleness, °F (°C)	< -120 (< 84)

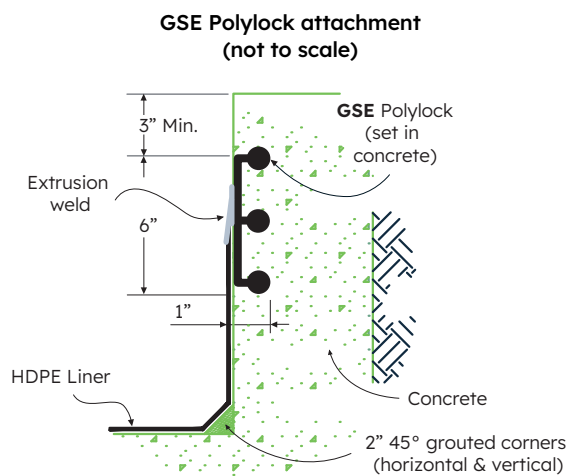


Figure 1: Typical GSE Polylock attachment

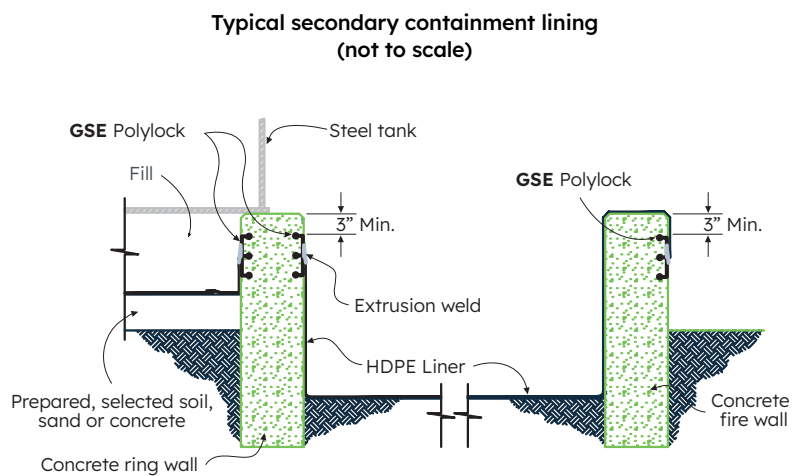


Figure 2: Typical secondary containment with attached GSE Polylock

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