

FLEXIBLE PVC HOSE

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**Installation Standard
For
FLEXIBLE PVC HOSE**

IAPMO SIS 1-2003

This Standard shall govern the installation of Flexible PVC Hose (with solvent cemented joints) in Pools, Hot Tubs, Spas and Jetted Bathtubs. Installation, material and inspection shall comply with the current edition of the Uniform Swimming Pool Code and Uniform Plumbing Code published by the International Association of Plumbing and Mechanical Officials, and shall also comply with this Standard.

NOTE: *The following sections of the Uniform Swimming Pool Code and Uniform Plumbing Code apply to Flexible PVC Hose.*

USPC

201.0	Definitions
309	Piping
314.0	Joints and Connections
317.0	Tests
Table 6-1	Materials

UPC

218.0	Definitions of PVC
310.0	Workmanship
313.0	Protection of Piping, Material and Structures
315.0	Backfilling
Table 14-1	Materials

ABBREVIATIONS

ASTM	American Society for Testing and Materials
IAPMO	International Association of Plumbing and Mechanical Officials
UPC	Uniform Plumbing Code
USPC	Uniform Swimming Pool Code

1. MINIMUM STANDARDS

- 1.1. Material.** Materials shall perform to the appropriate Standard in Table 6-1 of the Uniform Swimming Pool Code.
- 1.2. Applicable Standards.** For applicable standards, see Table 6-1 of the Uniform Swimming Pool Code.

2. MARKINGS

- 2.1** Hoses, fittings, solvent cement and primer used shall be marked with the designated IAPMO certification mark to show compliance with this Standard.

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IAPMO INSTALLATION STANDARDS

3. PROTECTION OF HOSES

- 3.1 Storage.** Unprotected hose shall not be stored in direct sunlight. The hose shall be stored in a way to protect it from mechanical damage (slitting, puncturing, etc.). Exposure to sunlight during normal construction periods is not harmful. PVC solvent cements shall be stored in a cool place, except when actually in use at the job site. The solvent cement manufacturer's specific storage recommendations shall be followed.
- 3.2 Thermal Expansion.** Hose shall be "snaked" in the trench bottom with enough slack, at least 6 in. (152.4 mm) per 100 ft. (30.5 m), to compensate for thermal expansion and contraction before stabilizing hose. Stabilize hose by bringing it approximately to operating temperature before testing and backfilling by one of the following methods:
- (a) Backfill with a layer of soil for shading.
 - (b) Fill with water at operating temperature.
 - (c) Allow to stand overnight.
- 3.3 Exposed Hose.** Hose above grade when located on the exterior of the building or structure shall be protected from mechanical damage to the satisfaction of the Administrative Authority. Where exposed to sunlight the hose shall be wrapped with at least 0.040 in. (1.0 mm) of tape or other approved method acceptable to the Administrative Authority.

4. TRENCHING, COVER AND BACKFILL

- 4.1 Trenching and Cover.** Trench bottoms shall be uniformly graded and shall be of either undisturbed soil or shall consist of a layer or layers of compacted backfill so that minimum settlement will take place.
- 4.2 Backfill.** Selected backfill shall be used to provide firm continuous support and proper compaction. Backfill over hose, except that joints shall be left exposed. After inspection and pressure test, complete backfill to a minimum of 12 in. (0.3 m) cover.

5. INSTALLATION

- 5.1 Solvent Cement Joints**
- 5.1.1 Selection.** Solvent cement shall be recommended for flexible PVC hose by the manufacturer. Follow manufacturer's recommendations for types of solvent cement for flexible PVC hose.
- 5.1.2 Handling (to maintain effectiveness).** Use solvent cement in containers no larger than 1 quart (1 liter). Keep solvent cement can closed and in the shade when not in use. Keep applicator

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submerged in solvent cement between application. When solvent cement becomes thicker, THROW IT AWAY. Solvent cement shall NOT be thinned.

5.1.3 Size of Applicator. Follow manufacturer's recommendations.

5.1.4 Application. Follow manufacturer's recommendations.

5.1.5 General Principles

5.1.5.1 To consistently make good joints the following should be clearly understood and adhered to:

- (a) The joining surfaces must be softened (dissolved) and made semi-fluid.
- (b) Sufficient cement must be applied to fill the gap between hose and fitting.
- (c) Assembly of hose and fittings must be made while the surfaces are still wet and fluid.
- (d) Joint strength develops as the cement dries. In the tight part of the joints the surfaces will tend to fuse together; in the loose part the cement will bond to both surfaces.
- (e) When solvent welding flexible PVC hose to other than PVC fittings, follow manufacturer's installation instructions.

5.1.5.2 Penetration and dissolving can be achieved by the cement itself, by a suitable primer, or by the use of both primer and cement. A suitable primer will penetrate and dissolve the plastic more quickly than cement alone. In cold weather more time and additional applications are required (see Fig. 1).

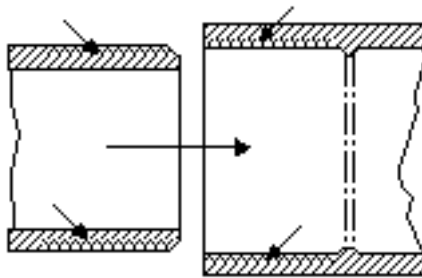


Fig. 1 Areas of Hose and Fittings to be Softened (Dissolved) and Penetrated

5.1.5.3 More than sufficient cement to fill the loose part of the joint must be applied (see Fig. 2). Besides filling the gap, adequate cement layers will penetrate the surfaces and also remain wet until the joint is assembled.