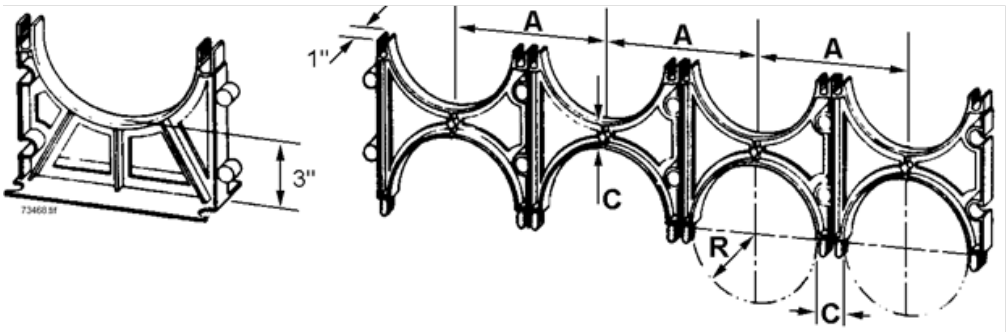
Conduit Spacers for PVC and FG Conduit



1. Scope

This standard provides the requirements for conduit spacers used with Polyvinyl Chloride (PVC) and Fiberglass (FG) conduit.

Conduit spacers are also referred to as duct spacers or spacers.

2. Application

This standard provides direction to Seattle City Light (SCL) crews, contractors, and customers regarding the requirements associated with conduit spacers installed in the right-of-way and on private property to construct the SCL electrical distribution system.

This standard applies to system duct banks of more than two conduits, and primary service duct banks with two or more conduits. Job-specific requirements are not covered in this standard.

Conduit spacers maintain consistent separation between conduits when installed in a duct bank system.

The National Electrical Safety Code (NESC) Part 3 Section 302, states, “While it is common practice to use the terms duct and conduit interchangeably, in Part 3 they have distinct definitions. Duct is a single enclosed raceway for conductors or cable; conduit is a structure containing one or more ducts; and conduit system is the combination of duct, conduit, conduits, manholes, handholes, and/or vaults joined to form an integrated whole”.

SCL standards documentation refers to the individual raceways containing conductors or cables as conduits and refers to the assembly of conduits, conduit spacers, encasement material, etc., as duct banks.

3. Industry Standards

Conduit spacers shall meet the requirements of the latest revisions of the following industry standard:

UL 651; Standard for Schedule 40 and 80 Rigid PVC Conduit and Fittings, 7th Edition, October 25, 2011

4. Requirements

Conduit spacer assemblies shall consist of base spacers and intermediate spacers and provide a completely enclosed and locked-in conduit assembly.

Conduit spacers shall be of the general configuration shown in figures 4a and 4b.

Conduit spacers shall be molded from a polymer material.

Spacers shall have provisions to interlock with adjacent spacers both horizontally and vertically.

Separation between the outside edge of conduits shall be a minimum of 2 inches for all sizes of spacers.

Base spacers shall ensure a minimum of 3 inches of clearance from the bottom of the base spacer to the lowest point of the conduit.

Base spacers shall have two pin connectors for interlocking on one side, and two socket connectors for interlocking on the other side. The top of the base spacer shall have two socket connectors for interlocking. The bottom of each base spacer shall have a foot. See Figure 4a.

Intermediate spacers shall have two pin connectors for interlocking on one side and two socket connectors for interlocking on the other side. The top of the intermediate spacer shall have two socket connectors for interlocking. The bottom of each intermediate spacer shall have two pin connectors for interlocking. See Figure 4b.

Manufacturers shall ensure interchangeability of similar-size products among the manufacturers listed in Table 8a.

Figure 4a. Base Spacer

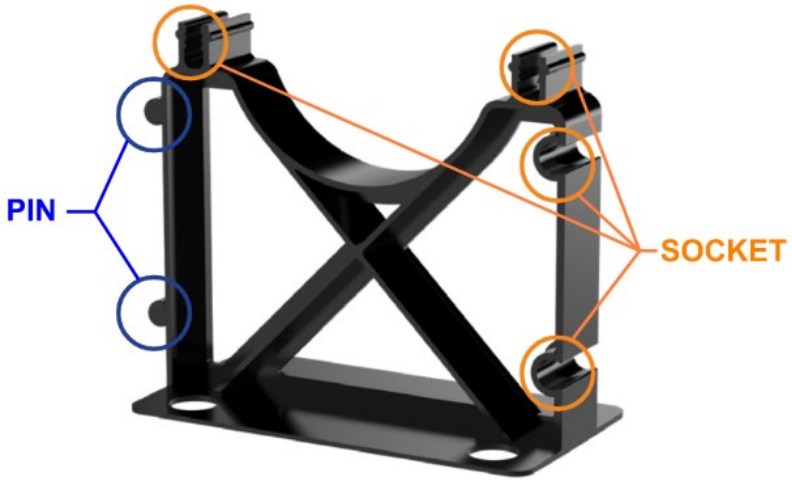
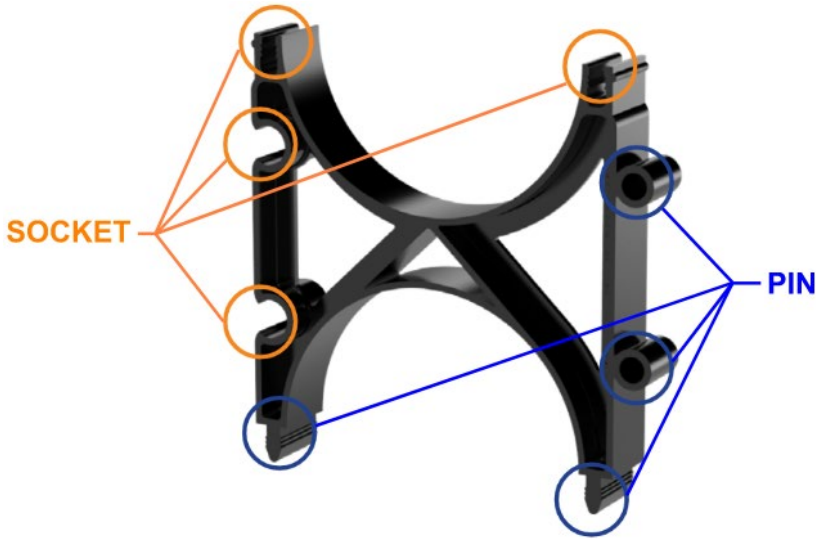


Figure 4b. Intermediate Spacer



5. Marking

Conduit spacers shall be individually marked with the manufacturer name and the spacer size.

Spacer size shall be documented using the following naming convention.

'A' x 'B'

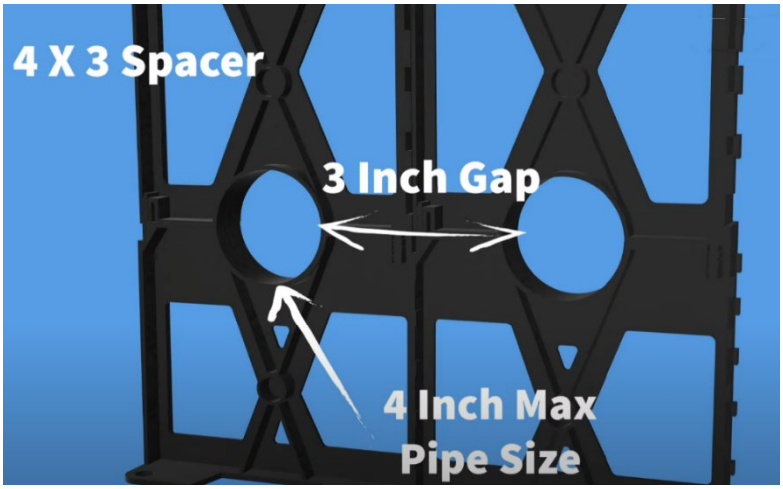
Where:

'A' = the maximum conduit size that will fit in the spacer

'B' = the minimum gap or separation between the outside edge of 'A' sized conduits.

For example, a 4 x 3 spacer shall be able to accommodate up to a 4-inch conduit and maintain a minimum of 3 inches of separation between the outside edges of two adjacent 4-inch conduits. See Figure 5.

Figure 5. Conduit Spacer Size Naming Convention Example



6. Packaging

Conduit spacers shall be packaged to prevent damage during shipping, handling, and storage.

Each standard package shall be legibly marked with the following information:

- Manufacturer identification
- Product description
- Seattle City Light stock number
- Quantity contained

Each shipping container shall be legibly marked with the following information:

- Manufacturer identification
- Country of origin
- Product description
- Seattle City Light purchase order number

7. Issuance

Stock Unit: EA

8. Approved Manufacturers

Table 8a shows the manufacturers and products that are approved for SCL use.

Table 8a. Approved Manufacturers for SCL Use

Spacer Type	Stock No.	Conduit Size, Nominal (in)	Spacer Size	Approved Manufacturers		
				CalAm	*GS Industries	Kraloy/Ipex
Base	010448	3	3 x 2	4030-20	159-1	BS4535
“	734690	4	4 x 2	4040-20	125-1	BS5535
“	734692	5	5 x 2	4050-20	131-1	BS6035
Intermediate	734669	3	3 x 2	4130-20	158-1	IS4535
“	734670	4	4 x 2	4140-20	124-1	IS5535
“	734680	5	5 x 2	4150-20	130-1	IS6035

Note: GS Industries spacers marked “Underground Products” are acceptable.

Table 8b shows the manufacturers and products that are approved for contractor only use within the SCL service area but are not stocked by SCL.

Table 8b. Approved Manufacturers for Contractor-Only Use

Manufacturer	Product Series
Underground Device Inc.	Wunpeece Duc Spacer
Cantex	53360xx and 53359xx
PWPipe	6268 and 6266

9. References

National Electrical Safety Code (NESC), C2-2023 Edition; Institute of Electrical and Electronics Engineers (IEEE) Inc., New York, NY, 2022

10. Sources

CalAm Manufacturing; https://calam.net/

GS Industries of Bassett, Ltd.; https://gsib.com/

Ipex; https://ipexna.com/en-us/

Lind, Edward; SCL Crew Chief and subject matter expert for 7015.80.

Kraloy; https://kraloyfittings.com/

Rehahn, Chad; SCL Standards Engineer, and subject matter expert for 7015.80.

SCL Construction Standard 0222.02; “Requirements for Primary Conduit and Duct Bank Installation”

SCL Construction Standard 0224.07; “Requirements for Secondary Conduit Installation”

SCL Material Standard 7346.8 (canceled); “Spacers, Plastic – Nonmetallic Conduit”