

Zinc-Coated Steel Conduit and Fittings**1. Scope**

This standard covers the requirements for zinc-coated steel conduit and fittings consisting of elbows, couplings, and nipple stock.

2. Application

Zinc-coated steel conduit and fittings are used to construct smooth raceways for the pulling in of cable.

Design engineers should be aware that different types of conduit have widely different physical properties that affect their application. Less expensive Schedule 40 PVC, Schedule 80 PVC, and/or fiberglass conduit systems should be considered first.

Refer to Design Standard 9220.05 for more information matching conduit with cable and application.

For new construction, design engineers are directed to utilize the following standard conduit trade sizes:

- 1/2
- 1-1/2
- 2
- 3
- 4
- 5

Design engineers should move away from utilizing these trade sizes (IPS):

- 3/4
- 1
- 2-1/2
- 3-1/2

Steel conduit is also known as electrical rigid metal conduit - steel, abbreviated ERM-C-S. Conduit that is finished means it has a threaded coupling attached to one end.

Elbows are also known as bends. Large radius elbows are also known as sweeps or large sweeps. Five-inch trade size, 60-inch radius sweeps, Stock Number 734826, are used at the base of a riser pole.

Underground duct systems typically utilize elbows that are bent in the field from straight sections. Field bending elbows allows for custom angles and better nesting of multiple runs.

UL 6 defines a nipple to be a straight section of conduit 24 inches in length or less, with male pipe threads at each end. Technically, Seattle City Light purchases nipple *stock*, also known as running thread.

3. Industry Standards

Zinc-coated steel conduit and fittings shall meet the requirements of the following industry standard:

UL 6 - Standard for Electrical Rigid Metal Conduit - Steel, 14th Edition, dated November 30, 2007

4. Detailed Requirements**4.1 General**

Conduit and fittings shall be suitable for above ground use indoors or outdoors exposed to sunlight and weather, and for underground use by direct burial or encasement in concrete.

Conduit and fittings shall not have any features that can abrade or otherwise damage cable.

Conduit and fittings shall be provided with a primary coating of zinc.

Dimensional information cited in Sections 4.2 through 4.5 should be consistent with UL requirements and is provided for the convenience of Seattle City Light design engineers, construction crews, inspectors, and quality assurance personnel who do not have ready access to UL 6.

MATERIAL STANDARD

Zinc-Coated Steel Conduit and Fittings

standard number: **7050.05**

superseding: August 14, 2015

effective date: November 6, 2019

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4. Detailed Requirements, continued

4.2 Straight Section Conduit

Conduit shall be listed by Underwriters Laboratories, Standard UL 6.

Each straight conduit section shall be finished with one threaded coupling attached.



Table 4.2. Conduit

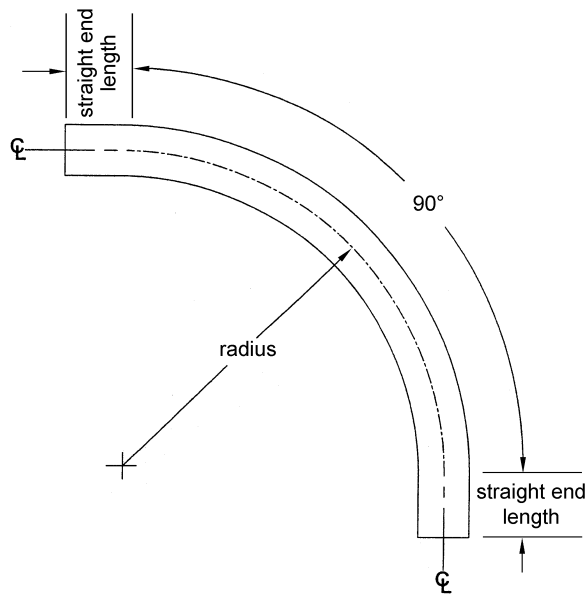
Stock No.	Trade Size (in)	Outside Diameter min (in)	Outside Diameter average (in)	Outside Diameter max (in)	Inside Diameter nom (in)	Wall Thickness nom (in)	Weight min (lbs / ft)
012085	1/2	0.825	0.840	0.855	0.632	0.104	0.79
012086	3/4	1.035	1.050	1.065	0.836	0.107	1.05
012087	1	1.300	1.315	1.330	1.063	0.126	1.53
734740	1-1/2	1.885	1.900	1.915	1.624	0.138	2.49
734741	2	2.351	2.375	2.399	2.083	0.146	3.32
734742	2-1/2	2.846	2.875	2.904	2.489	0.193	5.27
734743	3	3.465	3.500	3.535	3.090	0.205	6.82
734744	3-1/2	3.960	4.000	4.040	3.570	0.215	8.31
734745	4	4.455	4.500	4.545	4.050	0.225	9.27
734747	5	5.507	5.563	5.619	5.073	0.245	13.1

4.3 Elbows

Elbows shall be listed by Underwriters Laboratories, Standard UL 6.

Elbow angles shall be accurate to +/- 2% of specified.

Figure 4.3a. Conduit Elbows



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4. Detailed Requirements, continued**4.3 Elbows, continued****Table 4.3b. Standard Sweep Elbows**

Stock No.	Trade Size (in)	Degree Bend	Radius (in)	Straight End Length (in)
734805	3/4	90	4-1/2	1-1/2
734806	1	"	5-3/4	1-7/8
734808	1-1/2	"	8-1/4	2
734809	2	"	9-1/2	2
734810	2-1/2	"	10-1/2	3

**Table 4.3c. Large Sweep Elbows**

Stock No.	Trade Size (in)	Degree Bend	Radius (in)	Straight End Length (in)
734820	2	90	36	11
734821	2-1/2	"	36	11
734822	3	"	36	11
734823	3-1/2	"	36	11
734824	4	"	36	11
012176	4	"	48	12
734826	5	"	60	12
013749	4	22-1/2	48	12
013750	4	45	48	12
014580	3	90	24	9
014581	4	90	24	11

**4.4 Threaded Couplings**

Threaded couplings shall be listed by Underwriters Laboratories, Standard UL 6.

Threaded couplings shall be straight-tapped.

Table 4.4. Straight Threaded Couplings

Stock No.	Trade Size (in)
731091	1/2
731092	3/4
731093	1
731094	1-1/4
731095	1-1/2
731096	2
731097	2-1/2
731098	3
731099	3-1/2
731100	4
731102	5



4. Detailed Requirements, continued**4.5 Nipple Stock**

Nipple stock shall be provided in three-foot lengths.

Table 4.5. Nipple Stock

Stock No.	Trade Size (in)	Threads per in
734868	1/2	14
734869	3/4	14
734870	1	11-1/2
734872	1-1/2	11-1/2
734873	2	11-1/2
734874	2-1/2	8

Figure 4.5. Nipple Stock**5. Marking**

Each straight length of finished conduit, elbow, and threaded coupling shall be marked according to the requirements of UL 6, Section 7. This marking shall include, but not be limited to:

- Manufacturer's name or symbol
- "electrical rigid metal conduit" or "ERMC-S" (conduit and elbows only)
- "EC" (couplings only)

6. Testing

Conduit and fitting test data that establishes compliance with the requirements of UL 6 and this material standard shall be provided upon request.

7. Packaging

Straight conduit shall be furnished in 10 ft sections unless specified otherwise on the purchase order.

Each bundle shall be legibly marked with the following information:

- Manufacturer's identification
- Product description
- Seattle City Light's Purchase Order Number
- Seattle City Light's Stock Number
- Gross, net, and tare weight

8. Shipping

Conduit may be delivered on enclosed, covered, or flatbed trucks. If conduit is delivered on a flatbed truck, conduit shall be side-loaded.

Because Washington State law requires a 10-inch minimum side board when driving a forklift or pallet jack onto the bed of a truck or trailer, most flatbed trucks or trailers must be side-loaded to ease off-loading.

9. Issuance

Conduit FT

Fittings EA

10. Approved Manufacturers

Allied Tube and Conduit	Shamrock
Cal Conduit Products	Steelduct
Conduit Pipe Products	Torrance
Occidental	Triangle
Picoma	Western
Republic	Wheatland

11. References

7347.5; "Conduit and Fittings, Rigid Steel, Galvanized" (canceled); Material Standard; SCL

7347.6; "Elbow, 90° Large Sweep, Rigid Galvanized Steel Conduit" (canceled); Material Standard; SCL

9220.05; "Electric Power Cable and Conduit Application" (in development); Design Standard; SCL

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