NSF International
Special Engineered Specification
NSF SE 31765-2025

SCHEDULE 40 AND 80 PVC ELECTRICAL CONDUIT, TRADE SIZES 8 TO 12

The Public Health and Safety Company.™

SPECIFICATIONS FOR A SPECIAL ENGINEERED (SE) PRODUCT
NSF SE 31765

SCHEDULE 40 AND 80 PVC ELECTRICAL CONDUIT, TRADE SIZES 8 TO 12

1 Purpose

This specification defines the product-specific requirements for SCH 40 and SCH 80 PVC Electrical Conduit Trade Sizes 8 to 12. UL 651 establishes requirements for trade sizes up to 6 only.

2 Scope

This specification identifies the application, reference documents, testing requirements, material requirements, product marking, and in-plant quality control testing for SCH 40 and 80 PVC Electrical Conduit in trade sizes 8 to 12.

3 Application

For electrical conduit use in sizes exceeding trade size 6 which are beyond the scope of the National Electrical Code such as power grid, solar power and wind power generation.

4 Reference Documents

ASTM Standards

ASTM D1784-20 Standard Classification System and Basis for Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds

ASTM D1785-21a Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120

UL Standards

UL 651-2022 Schedule 40 and 80, Type EB and A PVC Conduit and Fittings

NSF Standards

NSF/ANSI 14-2024 Plastics Piping System Components and Related Materials

5 Test Requirements

5.1 Construction

5.1.1 Schedule 40 and 80 PVC conduit shall comply with the requirements of UL 651, Section 4 with the exception of dimensions.

5.1.2 Dimensions shall comply with Tables 1 and 2.

Table 1: Limits in inches on outside diameters and wall thicknesses of Schedule 40 and 80 conduit

Trade size of conduit	Outside diameters (in)			Minimum wall thickness (in)	
	Average	Minimum	Maximum	Schedule 40	Schedule 80
8	8.625 ± 0.015	8.550	8.700	0.322	0.500
10	10.750 ± 0.015	10.675	10.825	0.365	0.593
12	12.750 ± 0.015	12.675	12.825	0.406	0.687

Table 2: Minimum average inside diameter of Schedule 40 and 80 rigid PVC conduit

Trade size of conduit	Minimum average inside diameter (in)	
	Schedule 40	Schedule 80
8	7.898	7.500
10	9.927	9.417
12	11.835	11.207

5.2 Performance

5.2.1 Schedule 40 and 80 PVC conduit shall comply with UL 651, Section 6 with the exception of Section 6.2 Tensile strength, Section 6.6 Resistance to impact and Section 6.9 Resistance to crushing – Schedule 40 and 80 and Type A.

5.2.2 Tensile strength

5.2.2.1 The average tensile strength of three aged specimens of finished rigid PVC conduit shall equal or exceed 95 percent of the average tensile strength of three unaged specimens on conduit.

5.2.2.2 The average tensile strength of the unaged specimens shall comply with the limit established for the compound used but shall not be less than 5,000 psi.

5.2.2.3 Preparation and conditioning of the samples shall be conducted per in accordance with UL 651, Section 6.2.1.1. Individual specimens shall be prepared in accordance with UL 651, Section 6.2.1.3, except for dimensional tolerances. The width of the reduced section of each finished tensile bar shall conform to the tolerances in Table 3 before aging or tensile testing.

Table 3: Tensile Bar Reduced Section Width Tolerances

Dimension	Nominal Size (in.)	Tolerance (in.)
Width of reduced section **(W)**	0.50	±0.02
Width at center of reduced section **(W_C)**	W	+0.000, -0.004[A]
[A]The width at the center shall be +0.000 in., -0.004 in. compared with width *W* at other parts of the reduced section. Reduction in width at center, if present, shall be gradual with no abrupt changes in width. The curved dimension *S* shall be measured according to UL 651, Section 6.2.1.3.2 at the same location as W_C.		

5.2.2.4 Testing shall be conducted in accordance with UL 651, Section 6.2.2.

5.2.2.5 Results shall be calculated and compared in accordance with UL 651, Section 6.2.3.

5.2.3 Resistance to impact

5.2.3.1 The test shall be conducted in accordance with UL 651, Section 6.6. The drop height requirement is indicated in Table 4.

Table 4: Drop Height Requirement

Trade size	Height of the face of the weight above the specimen before the weight is released			
	Schedule 40		Schedule 80	
	feet	(m)	Feet	(m)
8 to 12	11	3.35	7	2.13

5.2.4 Resistance to crushing

5.2.4.1 The test shall be conducted in accordance with UL 651, Section 6.9. The requirement for the load for the crushing test is indicated in Table 5.

Table 5: Load for crushing test

Trade size	Load for a 6-inch (150-mm) specimen					
	Schedule 40			Schedule 80		
	lbf	N	kgf	lbf	N	kgf
8 to 12	850	3780	385.5	2000	8896	907

6 Materials

6.1 Physical Properties Requirements – PVC compound shall be produced from PVC materials meeting or exceeding cell class 12123 when tested to the requirements of ASTM D1784 as referenced in UL 651.

6.2 Rework Material – The manufacturer shall be permitted to use their own clean rework compound as specified in UL 651 provided the pipe produced meets all the requirements of this specification.

7 Product Marking

7.1 Conduit marking shall comply with UL 651, Section 8 except shall not bear the standard designation UL 651.
7.2 The marking shall be in letters at least ½ inch high.
7.3 Conduit shall bear the marking NSF® Electrical SE 31765.

8 In-Plant Quality Control Requirements

8.1 A quality control program shall be operated and maintained to ensure that products conform to the applicable requirements of this standard on a continuous basis per Section 9 of NSF/ANSI Standard 14. In-plant QC testing shall conform to the minimum requirements listed below in Table 6.

Table 6: In-Plant QC Testing Requirements

Test	UL 651 for PVC Conduit Test Frequency
Pipe OD[2]	2 h
Pipe wall thickness[2]	2 h
Tensile strength	Annually
Deflection under heat and load	Annually
Extrusion process	Annually
Water absorption	Annually
Resistance to crushing[2]	Weekly[3]
Impact[2]	24 h
Flame test	Annually
90°C wire test	Qualification[1]
Resistance to reagents	Qualification[1]
Sunlight resistance	Qualification[1]
Permanency of printing	Annually
Product standards	UL 651

[1] Test shall be performed at the initial qualification on each pipe material.
[2] Testing required on each size
[3] Weekly testing is only required on schedule 40 conduit with a diameter greater than 3”. All other sizes shall be tested annually.