

# Conduit and Cable

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## 1. Purpose

This specification covers plastic utility duct requirements per the latest revision of NEMA Publication No. TC6 & 8, unless otherwise specified, for polyvinylchloride (PVC) plastic conduit used for underground installations.

## 2. Terminology

The terminology used in this specification is in accordance with the definitions given in ASTM D883 and/or ASTM F412, Relating to Plastics, unless otherwise specified.

## 3. Materials

1. Plastic utility ducts shall comply with the NEMA TC6-1.02A material requirements. PVC conduits and fittings shall be manufactured from a virgin homopolymer PVC compound which meets the minimum cell classification of PVC 12254-A,B, or C as defined in ASTM D 1784.
2. Other PVC compounds, which have a different cell classification because one or more properties are superior to those of the compounds specified above, may be used.
3. Reworked material may be used provided the duct produced meets all of the requirements of these standards.

## 4. Workmanship

All conduits and fittings shall be homogeneous throughout and free from visible cracks, holes, burrs, foreign inclusions or other defects which could damage conductors or cables. The conduit shall be as uniform as commercially practicable in color, opacity, density and other physical properties.

## 5. Packaging and Marking

1. The conduit shall be bundled, packed or racked in packages so constructed as to insure acceptance by common or other carriers at the lowest rate to the point of delivery unless otherwise specified.
2. All ducts shall be marked per NEMA Standard Publication No. TC6 & 8 or ASTM F512.

## 6. Belled Ends


Plastic ducts with belled ends shall be manufactured per the latest revision of NEMA Standard Publication No. TC6 & 8. Plastic ducts without belled ends shall be supplied with a coupling cemented to one end.

## 7. Fittings

Fittings for PVC plastic conduits shall be manufactured per NEMA Standard Publication No. TC9.

## 8. Conduits

1. Direct bury conduit shall be a minimum rating of DB-120 for 2" and 3" conduit, DB-60 for 4" and 6" conduits.
2. Encasement bury conduit shall be a minimum rating of EB-35 for 2" and 3" conduit, EB-20 for 4" and 6" conduits.
3. All conduits shall be rated for 90° C cable and come in 20' sections.

|   |      |       |       |                                   |  |             |
|---|------|-------|-------|-----------------------------------|--|-------------|
|  |      |       |       | Electric Service Requirements     |  | RC-1        |
|   |      |       |       | Conduit:<br>Material Requirements |  |             |
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## 9. Conduit Applications

### 9.1 Underground Straight Lengths:

A minimum rating of DB-120 for 2" and 3" conduits and DB-60 for 4" and 6" conduits shall be the preferred conduit for buried conduit applications. No portion of a PVC conduit/sweep may be exposed above ground. Each conduit shall be one size conduit continuously, no reducers allowed.

### 9.2 Radius of Conduit Sweeps:

- A. 36" radius sweeps shall be the minimum for 2", 3", and 4" conduits.
- B. 48" radius sweeps shall be the minimum for 6" conduit.
- C. Note: The larger the radius sweep, the better for cable pulling.

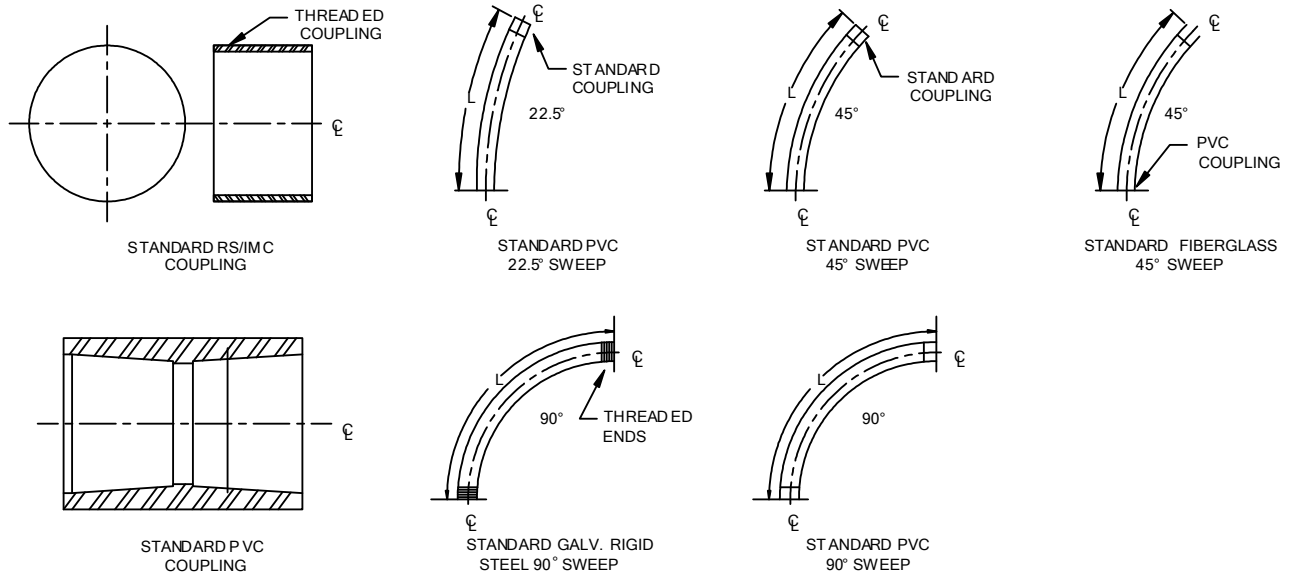
### 9.3 Selection criteria for 2", 90° Elbows:


- A. For pulling lengths of less than 500', schedule 40 elbows shall be utilized.
- B. For pulling lengths greater than or equal to 500', fiberglass elbows shall be utilized.

### 9.4 Selection criteria for 3", 4" and 6" 90° Elbows:

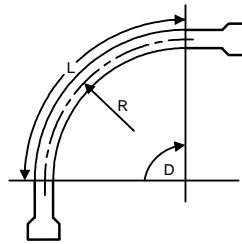
- A. For pulling lengths of less than 100', schedule 40 elbows shall be utilized except in instances NVE determines galvanized rigid steel is required.
- B. For pulling lengths greater than or equal to 100', galvanized rigid steel elbows shall be utilized.

### Conduit Applications



|   |      |       |       |   |  |             |
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Conduit Sweeps and Bends

**Table 1. Conduit Sweeps and Bends**

| Conduit Size | Degree Bend | Radius (Inches) | Length* (Inches) | Stock No.       |             |            |
|--------------|-------------|-----------------|------------------|-----------------|-------------|------------|
|              |             |                 |                  | Galv. Steel     | Schedule 40 | Fiberglass |
| 2"           | 22.5°       | 36              | 14 1/8           |                 |             |            |
|              |             | 48              | 18 7/8           |                 |             |            |
|              | 45°         | 36              | 28 1/4           |                 |             | 243335     |
|              |             | 48              | 37 11/16         |                 | 240915      | 243336     |
|              | 90°         | 36              | 56 9/16          | 243304 / 240350 | 240837      | 243334     |
|              |             | 48              | 75 3/8           |                 | 243309      | 243337     |
| 3"           | 22.5°       | 36              | 14 1/8           |                 |             |            |
|              |             | 48              | 18 7/8           |                 |             |            |
|              | 45°         | 36              | 28 1/4           |                 |             |            |
|              |             | 48              | 37 11/16         |                 |             |            |
|              | 90°         | 36              | 56 9/16          | 240360          | 243311      |            |
|              |             | 48              | 75 3/8           | 240370          | 243312      |            |
| 4"           | 22.5°       | 36              | 14 1/8           |                 |             |            |
|              |             | 48              | 18 7/8           |                 |             |            |
|              | 45°         | 36              | 28 1/4           |                 |             | 240351     |
|              |             | 48              | 37 11/16         |                 |             | 240352     |
|              | 90°         | 36              | 56 9/16          | 243326 / 240380 | 243313      |            |
|              |             | 48              | 75 3/8           | 240390          | 243327      | 240354     |
| 6"           | 11.25°      | 150             | 29 7/16          |                 | 243332      |            |
|              | 22.5°       | 36              | 14 1/8           |                 |             |            |
|              |             | 48              | 18 7/8           |                 |             |            |
|              | 30°         | 48              | 25 1/8           |                 | 243331      |            |
|              |             | 48              | 37 11/16         | 243325          | 243330      |            |
|              | 45°         | 60              | 47 1/8           |                 | 240355      |            |
|              |             | 48              | 75 3/8           | 240400          | 243314      |            |
|              | 90°         | 60              | 94 1/4           |                 | 240356      |            |

\*Length = Bend angle (converted to radians) multiplied by the radius.

**NOTES:**


1. Do not use stock number 240360 or 240370 with primary cable.
2. Length does not include tangent ends which vary in type and length per manufacturer.

|        |      |       |       |   |  |  |      |
|--------|------|-------|-------|---|--|--|------|
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**Table 2. Service Conductors**

| # of Runs | Conductor Size | Ampacity |       |        |       | Conduit |      |
|-----------|----------------|----------|-------|--------|-------|---------|------|
|           |                | 100% LF  | Total | 50% LF | Total | Size    | Qty. |
| 1         | 4-#2/0         | 172      |       | 191    |       | 2"      | 1 ea |
|           | 4-#4/0         | 226      |       | 255    |       | 4"      | 1 ea |
|           | 4-350 MCM      | 304      |       | 346    |       | 4"      | 1 ea |
|           | 4-500 MCM      | 372      |       | 429    |       | 4"      | 1 ea |
|           | 3-500 MCM      | 340      |       | 381    |       | 4"      | 1 ea |
|           | 3-750 MCM      | 426      |       | 483    |       | 4"      | 1 ea |
| 2         | 4-#2/0         | 167      | 334   | 190    | 379   | 2"      | 2 ea |
|           | 4-#4/0         | 219      | 437   | 253    | 506   | 4"      | 2 ea |
|           | 4-350 MCM      | 293      | 585   | 343    | 685   | 4"      | 2 ea |
|           | 4-500 MCM      | 357      | 714   | 424    | 848   | 4"      | 2 ea |
|           | 3-500 MCM      | 329      | 659   | 378    | 756   | 4"      | 2 ea |
|           | 3-750 MCM      | 411      | 823   | 479    | 957   | 4"      | 2 ea |
| 3         | 4-#2/0         | 143      | 429   | 175    | 525   | 2"      | 3 ea |
|           | 4-#4/0         | 185      | 555   | 232    | 696   | 4"      | 3 ea |
|           | 4-350 MCM      | 245      | 735   | 312    | 936   | 4"      | 3 ea |
|           | 4-500 MCM      | 297      | 891   | 383    | 1149  | 4"      | 3 ea |
|           | 3-500 MCM      | 280      | 840   | 348    | 1044  | 4"      | 3 ea |
|           | 3-750 MCM      | 347      | 1041  | 437    | 1311  | 4"      | 3 ea |
| 4         | 4-#2/0         | 138      | 553   | 173    | 693   | 2"      | 4 ea |
|           | 4-#4/0         | 179      | 715   | 229    | 916   | 4"      | 4 ea |
|           | 4-350 MCM      | 236      | 942   | 308    | 1230  | 4"      | 4 ea |
|           | 4-500 MCM      | 285      | 1141  | 377    | 1580  | 4"      | 4 ea |
|           | 3-500 MCM      | 270      | 1081  | 344    | 1375  | 4"      | 4 ea |
|           | 3-750 MCM      | 334      | 1338  | 431    | 1725  | 4"      | 4 ea |
| 6         | 4-#2/0         | 117      | 702   | 158    | 948   | 2"      | 6 ea |
|           | 4-#4/0         | 151      | 906   | 206    | 1236  | 4"      | 6 ea |
|           | 4-350 MCM      | 197      | 1182  | 275    | 1650  | 4"      | 6 ea |
|           | 4-500 MCM      | 238      | 1428  | 335    | 2010  | 4"      | 6 ea |
|           | 3-500 MCM      | 228      | 1368  | 310    | 1860  | 4"      | 6 ea |
|           | 3-750 MCM      | 281      | 1686  | 387    | 2322  | 4"      | 6 ea |
| 9         | 4-#2/0         | 107      | 963   | 149    | 1341  | 2"      | 8 ea |
|           | 4-#4/0         | 137      | 1233  | 194    | 1746  | 4"      | 8 ea |
|           | 4-350 MCM      | 179      | 1611  | 257    | 2313  | 4"      | 8 ea |
|           | 4-500 MCM      | 215      | 1935  | 313    | 2817  | 4"      | 8 ea |
|           | 3-500 MCM      | 208      | 1872  | 293    | 2637  | 4"      | 8 ea |
|           | 3-750 MCM      | 255      | 2295  | 364    | 3276  | 4"      | 8 ea |

|   |   |       |       |                            |             |
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|  | Electric Service Requirements             |       |       |                            | <b>RC-1</b> |
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