

Heavy Wall Rigid Schedule 40 Utility Conduit

Non-UL Listed

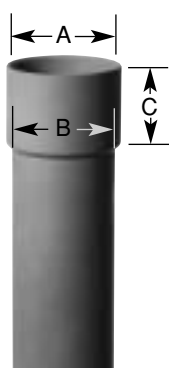
- Rated for 90°C conductors or cable
- For direct earth burial and concrete encasement, specifically designed for the power utility specifications.

With Integral Bell*



*Limited geographical area

Part No.		Std. Crate Qty.		Nom. Size	Dimensions		Wall	Wt. Per 100'
20'	10'	20'	10'		O.D.	I.D.		
59610-020	59610-010	4500'	2250'	1/2"	1.900	1.610	.145	56
59611-020	59611-010	2800'	1400'	2"	2.375	2.067	.154	75
59612-020	59612-010	1860'	930'	2 1/2"	2.875	2.469	.203	124
59613-020	59613-010	1760'	880'	3"	3.500	3.068	.216	172
59615-020	59615-010	1140'	570'	4"	4.500	4.026	.237	244
59616-020	59616-010	760'	380'	5"	5.563	5.047	.258	331
59617-020	59617-010	520'	260'	6"	6.625	6.065	.280	430
59618-020	59618-010	300'	150'	8"	8.625	7.981	.322	647



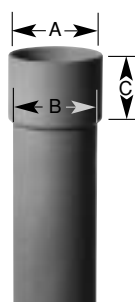
Dimensions in Inches of Utility Conduit Integral Bells

Trade Size	A		B		C
	At Entrance	Minimum	At Bottom	Minimum	Nominal Bell Depth
1 1/2	1.926	1.916	1.911	1.901	2.750
2	2.405	2.395	2.386	2.376	3.250
2 1/2	2.911	2.901	2.887	2.877	3.250
3	3.543	3.533	3.513	3.503	3.875
4	4.549	4.539	4.514	4.504	3.875
5	5.619	5.609	5.578	5.568	4.625
6	6.692	6.682	6.641	6.631	5.625
8	8.692	8.682	8.614	8.631	6.375

Deep Socket Schedule 40 Utility Elbows with Integral Belled Ends

Segment	Part No.	Nom. Diameter	Radius (in.)	Std. Ctn. Qty.	Std. Ctn. Wt. (lbs.)
90° Elbow	UC9BHB	1 1/2"	12"	20	25.00
	UC9DHB	1 1/2"	24"	1	2.13
	UC9FHB	1 1/2"	36"	1	3.05
	UC9BJB	2"	12"	1	1.44
	UC9DJB	2"	24"	1	2.82
	UC9FJB	2"	36"	1	4.14
	UC9HJB	2"	48"	1	5.15
	UC9DKB	2 1/2"	24"	1	5.00
	UC9FKB	2 1/2"	36"	1	7.15
	UC9DLB	3"	24"	1	6.57
	UC9FLB	3"	36"	1	9.15
	UC9DNB	4"	24"	1	10.59
	UC9FNB	4"	36"	1	13.64
	UC9HNB	4"	48"	1	17.72
	UC9FRB	6"	36"	1	25.80
	UC9HRB	6"	48"	1	32.24
45° Elbow	UC7FHB	1 1/2"	36"	1	1.74
	UC7FJB	2"	36"	1	2.07
	UC7CKB	2 1/2"	18"	1	2.27
	UC7FKB	2 1/2"	36"	1	4.12
	UC7FLB	3"	36"	1	5.00
	UC7FNB	4"	36"	1	8.15
	UC7HNB	4"	48"	1	9.36
	UC7HRB	6"	48"	1	17.19
	UC7ITB	8"	60"	1	33.00

Segment	Part No.	Nom. Diameter	Radius (in.)	Std. Ctn. Qty.	Std. Ctn. Wt. (lbs.)
22 1/2° Elbow	UC5CKB	2 1/2"	18"	1	1.45
	UC5FKB	2 1/2"	36"	1	2.49
	UC5FNB	4"	36"	1	5.18
	UC5FRB	6"	36"	1	11.82
	UC5HNB	4"	48"	1	5.57

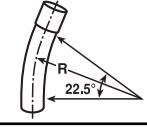
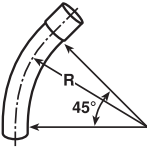
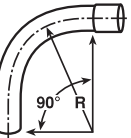


Dimensions in Inches of Utility Elbows Bells

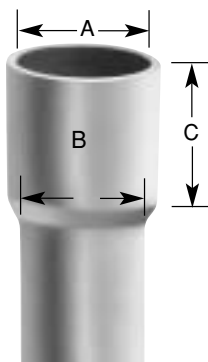
Trade Size	A		B		C	
	At Entrance	Min.	At Bottom	Min.	Nominal Bell	Min.
1 1/2	1.926	1.916	1.900	1.888	2.750	2.500
2	2.405	2.395	2.381	2.357	2.875	2.625
2 1/2	2.911	2.901	2.875	2.861	3.125	2.875
3	3.543	3.533	3.500	3.484	3.125	2.875
4	4.549	4.539	4.500	4.482	3.750	3.500
5	5.619	5.609	5.563	5.543	4.250	4.000
6	6.692	6.682	6.625	6.603	5.250	5.000
8	8.692	8.682	8.641	8.631	6.250	6.000

Elbows – Long Belled

Non-UL Listed

 22½° Elbow	Part Number	Nom. Diameter	Radius (In.)	Std. Ctn. Qty.	Std. Ctn. Wt. (lbs.)
	UC5FRBLB	6"	36	1	9.6
 45° Elbow	UC7CJBLB	2"	18	1	1.3
	UC7DJBLB	2"	24	1	1.4
	UC7DLBLB	3"	24	1	5.0
	UC7DNBLB	4"	24	1	5.8
	UC7DPBLB	5"	24	1	8.5
	UC7FJBLB	2"	36	1	2.2
	UC7FLBLB	3"	36	1	5.2
	UC7FNBLB	4"	36	1	7.8
	UC7FPBLB	5"	36	1	11.1
	UC7FRBLB	6"	36	1	9.6
	UC7HJBLB	2"	48	1	2.8
	UC7HLBLB	3"	48	1	6.6
	UC7HNBLB	4"	48	1	9.7
	UC7HPBLB	5"	48	1	13.7
	UC7HRBLB	6"	48	1	18.1
 90° Elbow	UC7CJBLB	2"	18	1	1.3
	UC7DJBLB	2"	24	1	1.4
	UC7DLBLB	3"	24	1	5.0
	UC7DNBLB	4"	24	1	5.8
	UC7DPBLB	5"	24	1	8.5
	UC7FJBLB	2"	36	1	2.2
	UC7FLBLB	3"	36	1	5.2
	UC7FNBLB	4"	36	1	7.8
	UC7FPBLB	5"	36	1	11.1
	UC7FRBLB	6"	36	1	9.6
	UC7HJBLB	2"	48	1	2.8
	UC7HNBLB	4"	48	1	9.7
	UC7HPBLB	5"	48	1	13.7
	UC7HRBLB	6"	48	1	18.1

Integral Belled End Dimensions



Trade Size	A At Entrance (in.)		B At Bottom (in.)		C Nominal Bell Depth (in.)
	Maximum	Minimum	Maximum	Minimum	
1 - 1½"	1.924	1.912	1.900	1.888	2 ¾"
2"	2.399	2.387	2.375	2.363	3 ¼"
2 - 2½"	2.897	2.883	2.875	2.861	3 ¼"
3"	3.523	3.507	3.500	3.484	4"
4"	4.524	4.506	4.500	4.482	4 ¾"
5"	5.603	5.583	5.563	5.543	5 ¾"
6"	6.669	6.647	6.625	6.603	6 ¼"

Rigid Nonmetallic Conduit – Technical Information

Typical Properties of Conduit Raw Material Compound

Thermal

	ASTM Test	Typical Values
Co-efficient of Thermal Expansion-inch/inch/°F (properties @ 73.4°F)	D696	3.38 x 10 ⁻⁵
Heat Distortion °F at 264 psi	D648	160°F
Thermal Conductivity BTU (hr.) (ft.) (°F/in.)	N/A	1.3

Electrical

	ASTM Test	Typical Values
Dielectrical Strength volts/mil	D149	1100
Dielectric Constant 60 CPS @ 30°C	D150	4.00
Power Factor 60 CPS @ 30°C	D150	1.93

Mechanical

	ASTM Test	Typical Values
Specific Gravity	D792	1.43 - 1.6
Tensile Strength (psi) @ 73.4°F	D638	5,000-6,500
Izod Impact ft lbs/in. of notch	D256	0.65 - 1.5
Flexural Strength (psi)	D790	12,500
Compressive Strength (psi)	D695	9,000
Hardness (Durometer D)	D2240	85

Impedance (Volts lost per ampere per 100 feet)

	3Ø90% P.F.	80% P.F.	1Ø90% P.F.	80% P.F.
Steel Conduit	.0118	.0123	.0136	.0142
Schedule 40®	.0105	.0106	.0121	.0122

Using 250 KCMil Cu. conductor, comparable values for other conductor sizes.

Wire Fill

Maximum number of conductors in Schedule 40 PVC conduit

(Based on Table 1, Chapter 9 of the NEC)

Type Letters	Conductor Size AWG, MCM	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/4	5	6	8
THWN	14	13	24	39	69	94	154								
	12	10	18	29	51	79	114	164							
	10	6	11	18	32	44	73	194	160						
	8	3	5	9	19	22	36	51	71	106	136				
THHN	6	1	4	6	11	15	26	37	57	76	98	125	154		
	4	1	2	4	7	9	16	22	35	47	60	75	94	137	236
FEP (14 thru 2)	3	1	1	3	6	8	13	19	29	39	51	64	90	116	201
	2	1	1	3	5	7	11	16	25	33	43	54	67	97	169
FEPB (14 thru 8)	1	1	1	1	3	5	9	12	18	25	32	49	59	72	125
	1/0		1	1	3	4	7	10	15	21	27	33	42	61	105
PFA (14 thru 4/0)	2/0		1	1	2	3	6	8	13	17	22	28	35	51	88
	3/0		1	1	1	3	5	7	11	14	18	23	29	42	73
	4/0		1	1	1	2	4	6	9	12	15	19	24	35	61
PFAH (14 thru 4/0)	250			1	1	1	3	4	7	10	12	16	20	28	49
	300			1	1	1	3	4	6	8	11	13	17	24	42
	350			1	1	1	2	3	5	7	9	12	15	21	37
	400			1	1	1	3	5	6	8	10	13	19	33	
XHHW (4 thru 500MCM)	500				1	1	1	2	4	5	7	9	11	16	27
	600				1	1	1	1	3	4	5	7	9	13	22
	700					1	1	1	3	4	5	6	8	11	19
	750					1	1	1	2	3	4	6	7	11	19
XHHW	6	1	3	5	9	13	21	30	47	63	81	102	128	185	320
	600				1	1	1	1	3	4	5	7	9	13	22
	700					1	1	1	3	4	5	6	7	11	19
	750					1	1	1	2	3	4	6	7	10	18

Maximum number of conductors in Schedule 80 PVC conduit

(Based on Table 1, Chapter 9 of the NEC)

Conductor Size AWG, MCM		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5
# 14	THW	4	8	13	24	34	57	82	128		
	THHN	10	19	33	58	81	135	194	0		
12	THW	3	6	11	20	28	47	67	105	183	
	THHN	8	14	24	43	60	100	144	0		
10	THW	3	5	9	16	22	37	54	85	148	
	THHN	5	9	15	27	38	64	92	143		
8	THW	1	2	4	8	11	19	28	44	77	121
	THHN	1	4	7	13	18	31	45	70	123	195
6	THW	1	1	3	6	8	14	20	32	56	88
	THHN	1	3	5	9	13	22	32	50	88	140
4	THW	0	1	2	4	6	10	15	24	42	66
	THHN	1	1	3	6	8	13	20	31	54	86
3	THW	0	1	1	4	5	9	13	20	36	57
	THHN	1	1	2	5	7	11	17	26	46	73
2	THW	0	1	1	3	4	8	11	17	31	49
	THHN	1	1	1	4	5	9	14	22	38	61
1	THW	0	1	1	1	3	5	8	13	22	35
	THHN	0	1	1	3	4	7	10	16	28	45
0	THW	0	0	1	1	2	4	7	11	19	30
	THHN	0	1	1	2	3	6	8	13	24	38
00	THW	0	0	1	1	1	4	6	9	16	26
	THHN	0	1	1	1	3	5	7	11	20	32
000	THW	0	0	1	1	1	3	5	8	14	22
	THHN	0	0	1	1	2	4	6	9	16	26
0000	THW	0	0	1	1	1	3	4	6	11	18
	THHN	0	0	1	1	1	3	5	8	14	22
250	THW	0	0	0	1	1	1	3	5	9	14
	THHN	0	0	0	1	1	2	4	6	11	18
300	THW	0	0	0	1	1	1	3	4	8	13
	THHN	0	0	0	1	1	1	3	5	9	15
350	THW	0	0	0	1	1	1	2	4	7	11
	THHN	0	0	0	1	1	1	3	4	8	13
400	THW	0	0	0	0	1	1	1	3	6	10
	THHN	0	0	0	1	1	1	2	4	7	12
500	THW	0	0	0	0	1	1	1	3	5	8
	THHN	0	0	0	0	1	1	1	3	6	10
600	THW	0	0	0	0	0	1	1	1	4	7
	THHN	0	0	0	0	1	1	1	3	5	8
700	THW	0	0	0	0	0	1	1	1	3	6

Weight Comparison

Carlson Schedule 40® rigid nonmetallic conduit compared to other rigid conduit in pounds per 100 feet (approx.)

Nom. Size	Carlson Schedule 40® Rigid Nonmetallic Conduit	Carlson Schedule 80® Rigid Nonmetallic Conduit	Aluminum	Electrical Metallic Tubing (EMT)	Inter-mediate Metal Conduit (IMC)	Rigid Metal Conduit (RMC)
1/2	18	22	27	30	57	79
3/4	23	29	36	46	78	105
1	35	43	53	66	112	153
1 1/4	48	60	70	96	114	201
1 1/2	57	72	86	112	176	246
2	76	100	116	142	230	334
2 1/2	125	153	183	230	393	527
3	164	212	239	270	483	690
3 1/2	198		288	350	561	831
4	234	310	340	400	625	982
5	317	431	465	Not Made	Not Made	1344
6	412	592	612	Not Made	Not Made	1770

Expansion and Contraction

Temperature Considerations for Rigid Nonmetallic Conduit Compensation for Linear Expansion

Like all construction materials, PVC will expand or contract with variations in temperatures. The coefficient of linear expansion in PVC conduit is 3.38×10^{-5} in./in./°F as compared to 1.2×10^{-5} for aluminum and 0.6×10^{-5} for steel. An expansion coupling is needed whenever the change in length due to temperature variation will exceed 1/2 in.

Add 30°F to the estimated temperature range when conduit is installed in direct sunlight to allow for radiant heating.

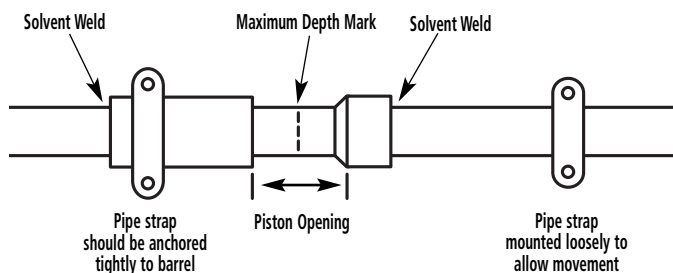
An expansion coupling consists of two sections of conduit, one telescoping inside another. When installing expansion couplings, alignment of piston and barrel is important. Be sure to mount expansion joint level for best performance.

For a vertical run, the expansion coupling must be installed close to the top of the run with the barrel jointing down, in order that rain water does not run into the opening. The lower end of the conduit run must be secured at the bottom so that any length change due to temperature variation will result in an upward movement.

Expansion Characteristics of PVC Rigid Nonmetallic Conduit

Coefficient of Thermal Expansion = 3.38×10^{-5} in./in./°F

Temperature Change in Degrees F	Length Change in inches per 100 Ft. of PVC Conduit	Temperature Change in Degrees F	Length Change in inches per 100 Ft. of PVC Conduit	Temperature Change in Degrees F	Length Change in inches per 100 Ft. of PVC Conduit	Temperature Change in Degrees F	Length Change in inches per 100 Ft. of PVC Conduit
5	0.2	55	2.2	105	4.2	155	6.3
10	0.4	60	2.4	110	4.5	160	6.5
15	0.6	65	2.6	115	4.7	165	6.7
20	0.8	70	2.8	120	4.9	170	6.9
25	1.0	75	3.0	125	5.1	175	7.1
30	1.2	80	3.2	130	5.3	180	7.3
35	1.4	85	3.4	135	5.5	185	7.5
40	1.6	90	3.6	140	5.7	190	7.7
45	1.8	95	3.8	145	5.9	195	7.9
50	2.0	100	4.1	150	6.1	200	8.1



Determine the Piston Opening

The expansion joint must be installed to allow both expansion and contraction of the conduit run. The correct piston opening for any installation condition should use the following formula:

$$O = \left[\frac{T_{\text{max}} - T_{\text{installed}}}{\Delta T} \right] E$$

Where:

- O = Piston opening (in.)
- T max = Maximum anticipated temperature of conduit (°F)
- T inst. = Temperature of conduit at time of installation (°F)
- Δ T = Total change in temperature of conduit (°F)
- E = Expansion allowance built into each expansion coupling (in.)

Example

380 ft. of conduit is to be installed on the outside of a building exposed to the sun in a single straight run. It is expected that the conduit will vary in temperature from 0°F in the winter to 140°F in the summer (this includes the 30°F for radiant heating from the sun.) The installation is to be made at a conduit temperature of 90°F. From the table, a 140°F temperature change will cause a 5.7 in. length change in 100 ft. of conduit. The total change for this example is $5.7 \times 3.8 = 21.67$ which should be rounded to 22". The number of expansion couplings will be $22 \times$ coupling range (4" for Carlon trade sizes 1/2" through 1-1/2", and 8" for sizes 2" through 6"). If the E945D coupling is used, the number will be $22 \times 4 = 5.50$ which should be rounded to 6. The coupling should be placed at 62 ft. intervals (380×6). the proper piston setting at the time of installation is calculated as explained above.

$$O = \left[\frac{140 - 90}{140} \right] 4.0 = 1.4 \text{ in.}$$

Insert the piston into the barrel to the maximum depth. Place a mark on the piston at the end of the barrel. To properly set the piston, pull the piston out of the barrel to correspond to the 2.1 in. calculated above. See drawing at lower left.

Summary

1. Anticipate expansion and contraction of PVC conduit in aboveground, exposed installation.
2. Use an expansion coupling when length change due to temperature variation will exceed 1/2".
3. PVC conduit expands 4.1" for each 100 feet of run and a 100°F temperature change.
4. Align expansion coupling with the conduit run to prevent binding.
5. Follow the instructions to set the piston opening.
6. Rigidly fix the outer barrel of the expansion coupling so it cannot move. Mount the conduit connected to the piston loosely enough to allow the conduit to move as the temperature changes.

Corrosion Resistance of Carlon Schedule 40 and Schedule 80 PVC Conduit and Fittings

Carlon Schedule 40 and Schedule 80 are generally acceptable for use in environments containing the chemicals below. These environmental resistance ratings are based upon tests where the specimens were placed in complete submergence in the reagent listed. Schedule 40 and Schedule 80 can be used in many process areas where

chemicals not on this list are manufactured or used because worker safety requirements dictate that any air presence or splashing be at a very low level.

If there are any questions for specific suitability in a given environment, prototype samples should be tested under actual conditions.

Acetic Acid 0-20%	Butyl Alcohol	Fluorine Gas – Wet	Mercurous Nitrate	Sodium Arsenite
Acetic Acid 20-30%	Butyl Phenol	Fluorine Gas – Dry	Mercury	Sodium Benzoate
Acetic Acid 30-60%	Butylene	Fluoroboric Acid	Methyl Sulfate	Sodium Bicarbonate
Acetic Acid 80%	Butyric Acid	Fluorosilicic Acid	Methylene Chloride	Sodium Bisulfate
Acetic Acid – Glacial	Calcium Bisulfite	Formaldehyde	Mineral Oils	Sodium Bisulfite
Acetic Acid Vapors	Calcium Carbonate	Formic Acid	Naphthalene	Sodium Bromide
Acetylene	Calcium Chlorate	Fructose	Nickel Chloride	Sodium Chlorate
Adipic Acid	Calcium Chloride	Gallic Acid	Nickel Nitrate	Sodium Chloride
Alum	Calcium Hydroxide	Gas – Coke Oven	Nitric Acid, Anhydrous	Sodium Cyanide
Aluminum Chloride	Calcium Hypochlorite	Gas – Natural (Dry)	Nitric Acid 20%	Sodium Dichromate
Aluminum Fluoride	Calcium Nitrate	Gas – Natural (Wet)	Nitric Acid 40%	Sodium Ferricyanide
Aluminum Hydroxide	Calcium Sulfate	Gasoline – Sour	Nitric Acid 60%	Sodium Ferrocyanide
Aluminum Oxychloride	Carbonic Acid	Gasoline – Refined	Nitrobenzene	Sodium Fluoride
Aluminum Nitrate	Carbon Dioxide Gas – Wet	Glucose	Nitrous Oxide	Sodium Hydroxide
Aluminum Sulfate	Carbon Dioxide – Aqueous Solution	Glycerine (Glycerol)	Oils and Fats	Sodium Hypochlorite
Ammonia-Dry Gas	Carbon Monoxide	Glycol	Oils – Petroleum – (See Type)	Sodium Nitrate
Ammonium Bifluoride	Caustic Potash	Glycolic Acid	Oleic Acid	Sodium Nitrite
Ammonium Carbonate	Caustic Soda	Green Liquor (Paper Industry)	Oxalic Acid	Sodium Sulfate
Ammonium Chloride	Chloracetic Acid	Heptane	Palmitic Acid 10%	Sodium Sulfide
Ammonium Hydroxide 28%	Chloral Hydrate	Hexanol, Tertiary	Perchloric Acid 10%	Sodium Sulfite
Ammonium Metaphosphate	Chlorine Gas (Dry)	Hydrobromic Acid 20%	Phenylhydrazine Hydrochloride	Sodium Thiosulfate (Hypo)
Ammonium Nitrate	Chlorine Gas (Moist)	Hydrochloric Acid 0% - 25%	Phosgene, Gas	Stannic Chloride
Ammonium Persulfate	Chlorine Water	Hydrochloric Acid 25% - 40%	Phosphoric Acid – 0-25%	Stannous Chloride
Ammonium Phosphate – Neutral	Chlorosulfonic Acid	Hydrocyanic Acid or	Phosphoric Acid – 25-50%	Stearic Acid
Ammonium Sulfate	Chromic Acid 10%	Hydrogen Cyanide	Phosphoric Acid – 50-85%	Sulfur
Ammonium Sulfide	Chromic Acid 30%	Hydrofluoric Acid 10%	Photographic Chemicals	Sulfur Dioxide – Gas Dry
Ammonium Thiocyanate	Chromic Acid 40%	Hydrofluorosilicic Acid	Plating Solutions	Sulfur Trioxide
Amyl Alcohol	Chromic Acid 50%	Hydrogen Phosphide	Potassium Bicarbonate	Sulfuric Acid – 0-10%
Anthraquinone	Citric Acid	Hydrogen Sulfide – Dry	Potassium Bichromate	Sulfuric Acid – 10-75%
Anthraquinonesulfonic Acid	Copper Chloride	Hydrogen Sulfide – Aqueous Solution	Potassium Borate	Sulfuric Acid – 75-90%
Antimony Trichloride	Copper Cyanide	Hydroquinone	Potassium Bromide	Sulfurous Acid
Aqua Regia	Copper Fluoride	Hydroxylamine Sulfate	Potassium Carbonate	Tannic Acid
Arsenic Acid 80%	Copper Nitrate	Iodine	Potassium Chloride	Tanning Liquors
Arylsulfonic Acid	Copper Sulfate	Kerosene	Potassium Chromate	Tartaric Acid
Barium Carbonate	Cottonseed Oil	Lactic Acid 28%	Potassium Cyanide	Titanium Tetrachloride
Barium Chloride	Cresylic Acid 50%	Lauric Acid	Potassium Dichromate	Triethanolamine
Barium Hydroxide	Crude Oil – Sour	Lauryl Chloride	Potassium Ferricyanide	Trimethyl Propane
Barium Sulfate	Crude Oil – Sweet	Lauryl Sulfate	Potassium Ferrocyanide	Trisodium Phosphate
Barium Sulfide	Demineralized Water	Lead Acetate	Potassium Fluoride	Turpentine
Beet – Sugar Liquor	Dextrin	Lime Sulfur	Potassium Hydroxide	Urea
Benzene Sulfonic Acid 10%	Dextrose	Linoleic Acid	Potassium Nitrate	Vinegar
Benzoic Acid	Diglycolic Acid	Linseed Oil	Potassium Perborate	Whiskey
Bismuth Carbonate	Disodium Phosphate	Lubricating Oils	Potassium Perchlorite	White Liquor (Paper Industry)
Black Liquor (Paper Industry)	Ethyl Alcohol	Magnesium Carbonate	Potassium Permanganate 10%	Wines
Bleach – 12.5% Active CL ₂	Ethylene Glycol	Magnesium Chloride	Potassium Persulfate	Zinc Chloride
Borax	Fatty Acids	Magnesium Hydroxide	Potassium Sulfate	Zinc Chromate
Boric Acid	Ferric Chloride	Magnesium Nitrate	Propene	Zinc Cyanide
Brine	Ferric Nitrate	Magnesium Sulfate	Propyl Alcohol	Zinc Nitrate
Breeder Pellets – Dane. Fish	Ferric Sulfate	Maleic Acid	Silicic Acid	Zinc Sulfate
Bromic Acid	Ferrous Chloride	Malic Acid	Silver Cyanide	
Bromine – Water	Ferrous Sulfate	Mercuric Chloride	Silver Nitrate	
Butane		Mercuric Cyanide	Silver Plating Solutions	
Butadiene			Sodium Acetate	

Suggested Format for Specifying Carlon Nonmetallic Conduit, Conduit Fittings and Junction Boxes

- A.** The Carlon rigid nonmetallic conduit system shall be installed as indicated on the drawings and as specified herein.
- B.** All wiring shall be installed in Carlon rigid nonmetallic conduit. All conduit shall be secured by means of proper fittings. All fittings shall be Carlon.
- C.** Carlon outlet boxes, fittings and junction boxes shall be used for all outlets, pull boxes and junction points. (Lighting fixtures shall not be supported or hung from PVC junction boxes but be supported in position by other means.)
- D.** Exposed conduits shall be mounted securely by suitable hangers or straps with the maximum spacing of points of supports not greater than indicated by Section 352.30 of the NEC.
- E.** Except where embedded in concrete or direct buried, Carlon conduit shall be supported to permit adequate lineal movement to allow for expansion and contraction of conduit due to temperature change.
- F.** For aboveground installations where temperature change in excess of 14°C (25°F) is anticipated, expansion joints shall be installed. See Table 352.44(A) NEC for expansion characteristics.
- G.** Proper care shall be taken when field bending is employed to maintain the internal diameter and wall thickness of the conduit.

