IMC – Electrical Conduit Data

Table A9.2.1-1; IMC Conduit – 40% Copper Fill.

Conduit Size (in)	Conduit O.D. (in)	Conduit I.D. (in)	Conduit Weight Empty (lb/ft)	Copper Weight (lb/ft)	Conduit + Copper (lb/ft)
1/2	0.815	0.675	0.56	0.55	1.11
3/4	1.029	0.879	0.76	0.94	1.70
1	1.290	1.120	1.09	1.52	2.61
1-1/4	1.638	1.468	1.41	2.62	4.03
1-1/2	1.883	1.703	1.72	3.52	5.24
2	2.360	2.170	2.30	5.72	8.02
2-1/2	2.857	2.557	4.33	7.94	12.27
3	3.476	3.196	4.98	12.40	17.38
3-1/2	3.971	3.691	5.72	16.54	22.26
4	4.466	4.186	6.46	21.27	27.73

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Table A9.2.1-2; IMC Conduit Maximum Support Spacing - Bending.

Conduit Size (in)	O.D. (in)	I.D. (in)	I (in^4)	Conduit + Copper (lb/ft)	Maximum Support Spacing (ft)[1]
1/2	0.815	0.675	0.0115	1.11	11.27
3/4	1.029	0.879	0.0257	1.70	12.12
1	1.290	1.120	0.1066	2.61	17.79
1-1/4	1.638	1.468	0.1254	4.03	13.78
1-1/2	1.883	1.703	0.2042	5.24	14.39
2	2.360	2.170	0.4343	8.02	15.15
2-1/2	2.857	2.557	1.1721	12.27	18.29
3	3.476	3.196	2.0447	17.38	18.40
3-1/2	3.971	3.691	3.0953	22.26	17.75
4	4.466	4.186	4.4556	27.73	17.99

1) Determined by assuming that the conduit was a beam with fixed ends and an evenly distributed load equal to the weight of the conduit and a 40% fill of copper. The conduit material was assumed to be equal to cold rolled carbon steel sheet with a yield stress of 45,000 psi – 50,000psi.

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Table A9.2.1-3; IMC Conduit Maximum Support Spacing – Buckling[1].

Conduit Size (in)	I (in^4)	Force Class I[2, 8]	Force Class II[3, 8]	Force Class III[4, 8]	Force Class IV[5, 8]	Force Class V[6, 8]	Force Class VI[7, 8]
1/2	**0.0115**	**6.88**	**4.86**	**3.44**	**2.43**	**1.54**	**1.09**
3/4	**0.0257**	**10.28**	**7.27**	**5.14**	**3.63**	**2.30**	**1.63**
1	**0.1066**	**20.94**	**14.80**	**10.47**	**7.40**	**4.68**	**3.31**
1-1/4	**0.1254**	**22.71**	**16.06**	**11.35**	**8.03**	**5.08**	**3.59**
1-1/2	**0.2042**	**28.98**	**20.49**	**14.49**	**10.25**	**6.48**	**4.58**
2	**0.4343**	**42.26**	**29.88**	**21.13**	**14.94**	**9.45**	**6.68**
2-1/2	**1.1721**	**69.43**	**49.09**	**34.71**	**24.55**	**15.52**	**10.98**
3	**2.0447**	**91.70**	**64.84**	**45.85**	**32.42**	**20.50**	**14.50**
3-1/2	**3.0953**	**112.82**	**79.78**	**56.41**	**39.89**	**25.23**	**17.84**
4	**4.4556**	**135.36**	**95.72**	**67.68**	**47.86**	**30.27**	**21.40**

1) The Maximum Support Spacing based on Buckling relies on Euler's Theory of Column Buckling. There is a Factor of Safety of 2:1 with respect to the applied Horizontal Seismic Load. Both ends of the conduit are assumed to be fixed, and the conservative end condition factor of 1.00 was used.
2) Horizontal Force Class I: 0 lbs. ≤ Horizontal Seismic Force ≤ 250 lbs.
3) Horizontal Force Class II: 251 lbs. ≤ Horizontal Seismic Force ≤ 500 lbs.
4) Horizontal Force Class III: 501 lbs. ≤ Horizontal Seismic Force ≤ 1,000 lbs.
5) Horizontal Force Class IV: 1,001 lbs. ≤ Horizontal Seismic Force ≤ 2,000 lbs.
6) Horizontal Force Class V: 2,001 lbs. ≤ Horizontal Seismic Force ≤ 5,000 lbs.
7) Horizontal Force Class VI: 5,001 lbs. ≤ Horizontal Seismic Force ≤ 10,000 lbs.
8) For Actual Horizontal Forces that fall between the minimum and maximum values for a given Horizontal Force Class, the Maximum Support Spacing for Buckling may be determined by multiplying the appropriate value from Table A9.2.1-3 by the following factor.

$$K_S = [\text{ Upper Horizontal Force Class Limit / Actual Horizontal Seismic Force }]^{1/2}$$

Example: 1/2″ EMT with and Actual Horizontal Seismic Force of 50 lbs (Force Class I Range).

$$K_S = [\text{ 250 lbs. / 50lbs. }]^{1/2} = \underline{2.24}$$

The Actual Maximum Support Spacing = 2.24 x 4.44 ft. = <u>9.95 ft.</u>

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