

Canadian Conduit Fill Reference Guide

EMT · PVC Schedule 40 · Rigid Metal Conduit (RMC) — THWN / RW90 Conductors

cablify.ca · Greater Toronto Area · +1-647-846-1925 · Based on CEC Rule 12-910 & NEC Chapter 9, Table 1 · 40% Fill — 3 or More Conductors

Conduit Fill Rules — CEC Rule 12-910 / NEC Chapter 9 Table 1

Fill Rule	Condition	Max Fill	Use Case
1 Conductor	Single wire only	53%	Service entrance, large feeders
2 Conductors	Exactly two wires	31%	Two-wire circuits, 240V runs
3+ Conductors	Three or more wires	40%	Standard branch circuits — most common
<i>Nipple (≤600mm / 24")</i>	<i>Short conduit sections only</i>	<i>60%</i>	<i>Panel-to-panel nipples, junction boxes</i>

EMT (Electrical Metallic Tubing) Fill Chart — THWN / TWN75 / RW90 — 14 AWG to 2 AWG

Maximum conductors at 40% fill (3 or more conductors). For 2 conductors use 31% — values will be lower. For 1 conductor use 53% — see back of page.

Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"
14 AWG	12	21	35	61	83	138	241	364	476	608
12 AWG	9	16	25	44	61	100	176	266	347	443
10 AWG	5	10	16	28	38	63	111	167	218	279
8 AWG	3	5	9	16	22	36	64	96	126	161
6 AWG	2	4	6	11	16	26	46	69	91	116
4 AWG	1	2	4	7	9	16	28	42	56	71
3 AWG	1	2	3	6	8	13	24	36	47	60
2 AWG	1	1	2	5	7	11	20	30	39	50

EMT Fill Chart — 1 AWG to 500 kcmil

Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"
1 AWG	—	1	2	3	5	8	15	22	29	37
2 AWG	—	1	1	3	4	7	12	19	24	31

Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"
	—	—	1	2	3	6	10	15	20	26
	—	—	1	2	3	5	8	13	17	22
	—	—	1	1	2	4	7	10	14	18
cmil	—	—	—	1	2	3	5	8	11	14
cmil	—	—	—	1	1	2	5	7	10	12
cmil	—	—	—	1	1	2	4	6	8	11
cmil	—	—	—	1	1	2	3	5	7	9
cmil	—	—	—	—	1	1	3	4	6	8

Canadian Wire Type Equivalents — CEC vs NEC

Canadian Wire Type (CEC)	US Equivalent (NEC)	Rating	Common Use
RW90 / RW90XLPE	THHN / THWN-2	90°C wet & dry	General commercial — most common in Canada
TWN75	THWN	75°C wet, 90°C dry	General purpose, older installations
TW	TW	60°C	Dry locations, older residential
T90 Nylon	THHN	90°C dry	Dry locations, conduit runs

PVC Schedule 40 Conduit Fill Chart — THWN / RW90 — 14 AWG to 2 AWG

PVC Schedule 40 has slightly larger internal diameters than EMT in most sizes, allowing marginally more conductors.

Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"
14 AWG	12	22	36	62	85	140	200	308	412	531
12 AWG	9	16	26	45	62	102	146	224	301	387
10 AWG	5	10	16	28	39	64	92	141	189	244
8 AWG	3	6	9	16	22	37	53	81	109	140
6 AWG	2	4	6	12	16	26	38	58	78	101
4 AWG	1	2	4	7	10	16	23	36	48	62
3 AWG	1	2	3	6	8	14	20	30	41	52
2 AWG	1	1	3	5	7	11	16	25	34	44

PVC Schedule 40 Fill Chart — 1 AWG to 500 kcmil

Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"
1 AWG	—	1	2	3	5	8	12	19	25	32
2 AWG	—	1	1	3	4	7	10	16	21	27
3 AWG	—	—	1	2	3	6	8	13	18	23
4 AWG	—	—	1	2	3	5	7	11	14	19
6 AWG	—	—	1	1	2	4	6	9	12	15
8 AWG	—	—	—	1	2	3	4	7	10	12
10 AWG	—	—	—	1	1	2	4	6	8	11
12 AWG	—	—	—	1	1	2	3	5	7	9
14 AWG	—	—	—	1	1	2	3	5	6	8
20 AWG	—	—	—	—	1	1	2	4	5	7

Rigid Metal Conduit (RMC) Fill Chart — THWN / RW90 — 14 AWG to 2 AWG

Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"
14 AWG	12	22	36	62	85	140	224	333	440	562

Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"
14 AWG	9	16	26	45	62	102	163	243	321	409
12 AWG	5	10	16	28	39	64	103	153	202	258
10 AWG	3	6	9	16	22	37	59	88	116	148
8 AWG	2	4	6	12	16	26	43	63	84	107
6 AWG	1	2	4	7	10	16	26	39	51	66
4 AWG	1	2	3	6	8	14	22	33	43	56
2 AWG	1	1	3	5	7	11	18	27	36	47

Quick Reference — 1 Conductor (53% Fill) and 2 Conductors (31% Fill) — EMT

1 Conductor — 53% Fill

2 Conductors — 31% Fill

Wire Size	EMT 1/2"	EMT 3/4"	EMT 1"	Wire Size	EMT 1/2"	EMT 3/4"	EMT 1"
14 AWG	16	29	47	14 AWG	9	17	27
12 AWG	12	21	34	12 AWG	7	12	20
10 AWG	7	13	21	10 AWG	4	7	12
8 AWG	4	7	12	8 AWG	2	4	7
6 AWG	3	5	9	6 AWG	1	3	5
4 AWG	1	3	5	4 AWG	1	2	3
2 AWG	1	2	3	2 AWG	—	1	2

Conduit Internal Dimensions & Available Fill Area Reference

Trade Size	EMT ID	EMT Area (in ²)	40% Fill (in ²)	PVC40 Area (in ²)	40% Fill (in ²)	RMC Area (in ²)	40% Fill (in ²)
1/2"	0.622"	0.304	0.122	0.314	0.126	0.314	0.126
3/4"	0.824"	0.533	0.213	0.549	0.220	0.549	0.220
1"	1.049"	0.864	0.346	0.887	0.355	0.887	0.355

1-1/4"	1.380"	1.496	0.598	1.526	0.610	1.526	0.610
1-1/2"	1.610"	2.036	0.814	2.071	0.828	2.071	0.828
2"	2.067"	3.356	1.342	3.408	1.363	3.408	1.363
2-1/2"	2.731"	5.858	2.343	4.866	1.946	5.452	2.181
3"	3.356"	8.846	3.538	7.475	2.990	8.085	3.234
3-1/2"	3.834"	11.545	4.618	10.010	4.004	10.694	4.278
4"	4.334"	14.753	5.901	12.882	5.153	13.631	5.452

This reference guide is based on NEC Chapter 9, Table 1 and CEC Rule 12-910. All fill values calculated using 40% fill for 3+ conductors, 31% for 2 conductors, 53% for 1 conductor. Wire areas sourced from NEC Chapter 9, Table 5 (THWN/THHN). RW90 (Canada) is equivalent to THHN/THWN-2 — use same fill values. Always verify with the Authority Having Jurisdiction (AHJ) and your local electrical code before installation. For conduit runs with 4+ bends or over 30 metres, target 30% fill or less for safe cable pulling. © Cablify | cablify.ca | +1-647-846-1925 | 55 Village Centre Pl, Mississauga, ON L4Z 1V9