

Wiring Duct – Wire Fill Capacity

NOTE: Wire fill is based on 50% fill of duct area.

NOMINAL DUCT SIZE (INCHES) W H	AREA (INCHES ²)	ELECTRICAL											DATA CABLE					
		8 AWG		10 AWG		12 AWG		14 AWG			16 AWG		18 AWG		22 AWG	24 AWG		
		0.216	0.153	0.122	0.158	0.105	0.139	0.165	0.096	0.125	0.084	0.113	0.065	0.217	0.250	0.422		
		THHN	THHN	THHN	MTW	THHN	MTW	MTW	THHN	MTW	THHN	MTW	MTW	UTP/CM CAT5E	UTP/CM CAT6	UTP/CM		
0.75 X 1.00	0.750	5	9	14	9	19	11	8	23	14	30	17	51	5	3	1		
0.75 X 1.50	1.125	7	14	22	13	29	17	12	35	21	46	25	76	7	5	2		
0.75 X 2.00	1.500	9	18	29	17	39	22	16	47	27	61	34	101	9	7	2		
1.00 X 1.00	1.000	6	12	19	11	26	15	10	31	18	40	22	68	6	5	2		
1.00 X 1.50	1.500	9	18	29	17	39	22	16	47	27	61	34	101	9	7	2		
1.00 X 2.00	2.000	12	24	38	23	52	30	21	62	37	81	45	135	12	9	3		
1.00 X 3.00	3.000	18	37	58	34	78	44	31	93	55	121	67	203	18	14	5		
1.00 X 4.00	4.000	24	49	77	46	104	59	42	124	73	162	90	270	24	18	6		
1.50 X 1.00	1.500	9	18	29	17	39	22	16	47	27	61	34	101	9	7	2		
1.50 X 1.50	2.250	14	27	43	26	58	33	24	70	41	91	50	152	14	10	4		
1.50 X 2.00	3.000	18	37	58	34	78	44	31	93	55	121	67	203	18	14	5		
1.50 X 3.00	4.500	27	55	86	52	117	67	47	140	82	182	101	304	27	21	7		
1.50 X 4.00	6.000	36	73	115	69	155	89	63	186	110	243	134	406	36	27	10		
2.00 X 1.00	2.000	12	24	38	23	52	30	21	62	37	81	45	135	12	9	3		
2.00 X 1.50	3.000	18	37	58	34	78	44	31	93	55	121	67	203	18	14	5		
2.00 X 2.00	4.000	24	49	77	46	104	59	42	124	73	162	90	270	24	18	6		
2.00 X 3.00	6.000	36	73	115	69	155	89	63	186	110	243	134	406	36	27	10		
2.00 X 4.00	8.000	48	98	154	92	207	118	84	248	146	324	179	541	49	37	13		
2.00 X 5.00	10.000	60	122	192	114	259	148	105	310	183	405	224	676	61	46	16		
2.50 X 2.00	5.000	30	61	96	57	130	74	52	155	91	202	112	338	30	23	8		
2.50 X 3.00	7.500	45	92	144	86	194	111	79	233	137	304	168	507	46	34	12		
2.50 X 4.00	10.000	60	122	192	114	259	148	105	310	183	405	224	676	61	46	16		
3.00 X 1.00	3.000	18	37	58	34	78	44	31	93	55	121	67	203	18	14	5		
3.00 X 2.00	6.000	36	73	115	69	155	89	63	186	110	243	134	406	36	27	10		
3.00 X 3.00	9.000	54	110	173	103	233	133	94	279	165	364	201	609	55	41	14		
3.00 X 4.00	12.000	72	146	230	137	311	177	126	372	219	486	269	811	73	55	19		
3.00 X 5.00	15.000	90	183	288	172	389	222	157	465	274	607	336	1014	91	69	24		
4.00 X 1.50	6.000	36	73	115	69	155	89	63	186	110	243	134	406	36	27	10		
4.00 X 2.00	8.000	48	98	154	92	207	118	84	248	146	324	179	541	49	37	13		
4.00 X 3.00	12.000	72	146	230	137	311	177	126	372	219	486	269	811	73	55	19		
4.00 X 4.00	16.000	96	195	307	183	415	237	168	496	293	648	358	1082	97	73	26		
4.00 X 5.00	20.000	120	244	384	229	518	296	210	620	366	810	448	1352	121	91	32		
6.00 X 4.00	24.000	144	293	461	275	622	355	252	744	439	972	537	1623	146	110	39		

Formula for Calculating Fill Capacity

$$\text{Number of wires} = \frac{\text{Duct } W \times H}{1.75 \times (\text{Wire O.D.})^2} \div 2$$

Properties of Materials Used in Wiring Duct

Property	Units	ASTM Test	PVC	Halogen Free
Specific Gravity		D792	1.43	1.10
IZOD	ft.-lb./in.	D256	2	5.0
Flexural Strength	psi	D790	10,900	12,800
Flexural Modulus	psi	D790	382,000	360,000
Tensile Strength	psi	D638	5,500	7,800
Compressive Strength	psi	D695	8,600	16,000
Water Absorption	24 hrs.-%	D570	0.10	0.07
Hardness	Rockwell	D785	R-111	R-115
	Duro D	D676	78	
Dielectric Strength 60Hz, 25° C,	vpm	D149		400
Dielectric Constant 60Hz, Dry 1MHz, Dry		D150		
			1.9	2.65
				2.64
Volume Resistivity	ohm-cm	D257		1017
Heat Deflecting (° F@ 264 psi)	° F	D648	158	212
Flammability			94 V-0	94 V-1

The above information is believed reliable. The user should, however, check the applicable specifications to verify values.

Rigid Polyvinyl Chloride (PVC)

- General-purpose material for indoor applications
- UL flammability rating of V-0
- UL94 recognized for use in temperatures up to 50° C (122° F)
- Economical wiring duct material

Halogen Free

- For use in halogen-free or high-temperature applications
- UL flammability rating of V-1
- UL94 recognized for use in temperatures up to 95° C (203° F)
- 20% lighter than PVC