Wire Safe™ Wireway And Wiring Trough

Tough on the job,
easy on you.

B-I-A Vertriebs GmbH / Germany
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www.BiaGmbH.com
www.BiaOnline.com

Further items on request. Dimensions mm.
Subject to change without notice.

Created 06.08.2001
L1735

No wires to pull, no hard-to-work-with metal components.

We lead the way with the world's broadest line of nonmetallic wiring management products designed for easier installation, greater performance, and lower installed cost. That includes our Wire Safe™ wireway, wiring trough, and fittings. It's the perfect solution for containing electrical, electronic, and communication wire and cable. That's because it's easy to install, provides durable protection, and eliminates the need to pull conductors, too. Just compare it point for point against the competition, and you'll see why it's the best alternative for you.

Rugged Yet Lightweight.

UV stabilized, high-impact resistant PVC provides a strong, durable, non-corrosive, non-conductive housing for wire and cable. At the same time, components are so light and easy to handle that installation can be done by one person.

Easy To Cut And Assemble.

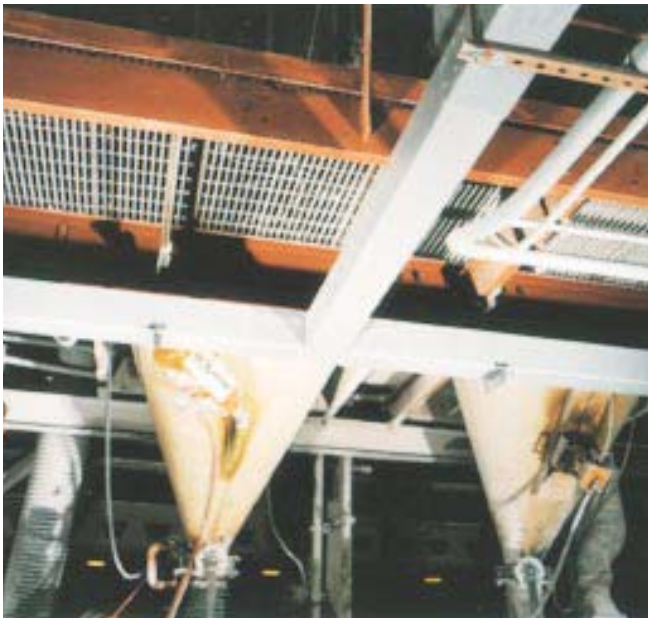
Wireway and trough can be cut easily and cleanly with either a hacksaw or fine tooth saw to make field fabrication a snap. And it's equally easy to couple components either with primer and PVC cement or nonmetallic push rivets.

No Wires To Pull.

Once your wireway or trough is installed, just lay your wire and cable in, pop the cover on, and you're done. It's as easy as that, and that's a lot easier than pulling wire or cable.

Easy To Rewire.

"Clip-on" cover design allows easy access for adding or removing wire and cable after initial installation.



Application Flexibility.

Wireway and trough are suitable for a wide range of applications from the most demanding commercial and industrial uses including food service companies and chemical plants to communication and computer facilities. Both wireway and trough can be used on walls, ceilings, or across supports.

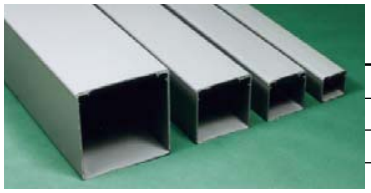
A Complete Nonmetallic System.

Both wireway and trough are available in 2" x 2", 3" x 3", 4" x 4" and 6" x 6" dimensions. Wireway comes cut in easy-to-use 10' lengths for larger jobs, and for tighter spaces, we offer specific lengths of wiring trough to fit distances of 1' to 10'. Both can be used with our nonmetallic enclosures, conduit, and fittings to create a total nonmetallic wire and cable management system far superior to metal counterparts.

Improved NEMA 12 Wireway End Caps.

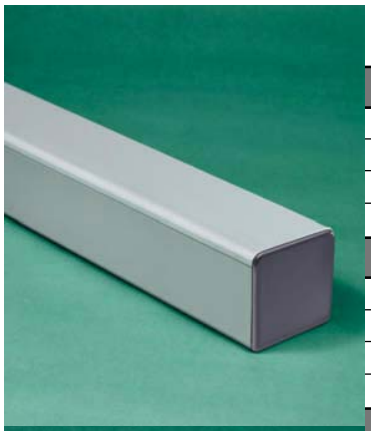
Our new wireway end caps are now made with pre-installed adhesive backed gaskets. This new design makes them easier to use and also qualifies them for a NEMA 12 rating.

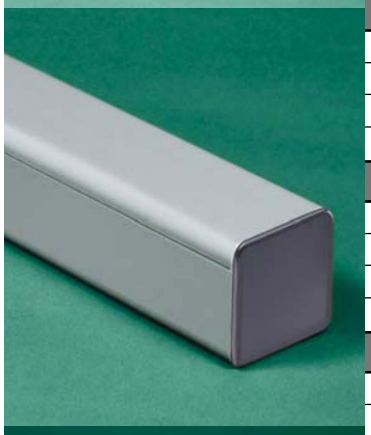
Wire Safe Wireway



Part Number	Outside Nominal Dimensions	Length	Standard Carton Qty.	Wt./Lbs. Per 10'
17011	2 x 2	10'	1	4.7
17013	3 x 3	10'	1	7.9
17015	4 x 4	10'	1	11.2
17017	6 x 6	10'	1	21.4

Wire Safe Wiring Trough



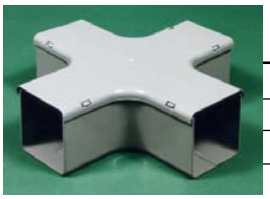


Part Number	Outside Nominal Dimensions	Standard Carton Qty.	Wt./Lbs. Each
12" Trough			
18111	2 x 2	1	0.6
18113	3 x 3	1	1.0
18115	4 x 4	1	1.4
18117	6 x 6	1	3.1
24" Trough			
18211	2 x 2	1	1.1
18213	3 x 3	1	1.8
18215	4 x 4	1	2.6
18217	6 x 6	1	5.3
36" Trough			
18311	2 x 2	1	1.5
18313	3 x 3	1	2.6
18315	4 x 4	1	3.7
18317	6 x 6	1	7.4
48" Trough			
18411	2 x 2	1	2.0
18413	3 x 3	1	3.3
18415	4 x 4	1	4.8
18417	6 x 6	1	9.6
60" Trough			
18511	2 x 2	1	2.5
18513	3 x 3	1	4.1
18515	4 x 4	1	5.9
18517	6 x 6	1	11.7
72" Trough			
18611	2 x 2	1	2.9
18613	3 x 3	1	4.9
18615	4 x 4	1	7.1
18617	6 x 6	1	13.8
120" Trough			
18011	2 x 2	1	4.8
18013	3 x 3	1	8.1
18015	4 x 4	1	11.6
18017	6 x 6	1	22.4

All wiring trough is made to order and is supplied with a pair of end caps.

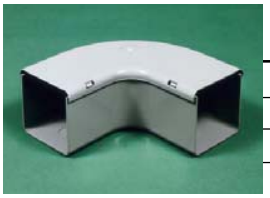
Wire Safe Wireway Fittings

Flat Cross (Clip-on Cover)



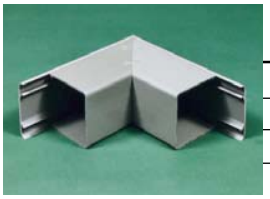
Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGFCJ*	2 x 2	1	0.5
EGFCL*	3 x 3	1	1.3
EGFCN †	4 x 4	1	1.7
EGFCR †	6 x 6	1	4.8

90˚ Bend Flat Cover (Clip-on Cover)



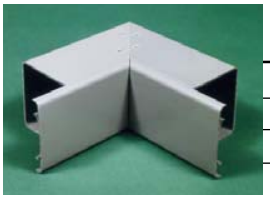
Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGLFJ*	2 x 2	1	0.3
EGLFL*	3 x 3	1	0.6
EGLFN †	4 x 4	1	1.1
EGLFR †	6 x 6	1	3.3

90˚ Bend External Cover (Clip-on Cover)



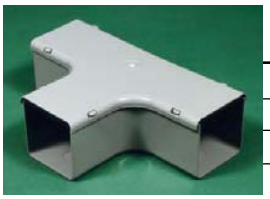
Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGLEJ*	2 x 2	1	0.3
EGLEL †	3 x 3	1	0.8
EGLEN †	4 x 4	1	1.2
EGLER †	6 x 6	1	3.3

90˚ Bend Internal Cover (Clip-on Cover)



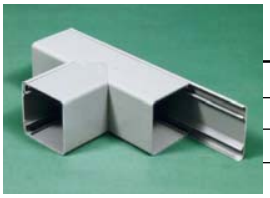
Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGLIJ*	2 x 2	1	0.3
EGLIL †	3 x 3	1	0.7
EGLIN †	4 x 4	1	1.1
EGLIR †	6 x 6	1	3.0

Tee Flat Cover (Clip-on Cover)



Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGTFJ*	2 x 2	1	0.4
EGTFL*	3 x 3	1	0.9
EGTFN †	4 x 4	1	1.4
EGTFR †	6 x 6	1	3.8

Tee External Cover (Clip-on Cover)



Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGTEJ †	2 x 2	1	0.4
EGTEL †	3 x 3	1	0.9
EGTEN †	4 x 4	1	1.4
EGTER †	6 x 6	1	3.8

Flange

Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGFJ▲	2 x 2	10	1.1
EGFL▲	3 x 3	10	1.4
EGFN▲	4 x 4	10	2.2
EGFR▲	6 x 6	10	3.0

End Cap (UL NEMA 12 Rated)

Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGSEJ*	2 x 2	10 Pair	0.6
EGSEL*	3 x 3	10 Pair	0.9
EGSEN*	4 x 4	10 Pair	1.6
EGSER ††	6 x 6	10 Pair	5.0

External Coupling

Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGCEJ	2 x 2	10	1.3
EGCEL	3 x 3	10	2.2
EGCEN	4 x 4	10	2.5
EGCER	6 x 6	10	7.8

Internal Coupling

Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGCIJ▲	2 x 2	10	1.3
EGCIL▲	3 x 3	10	2.2
EGCIN▲	4 x 4	10	2.5
–	6 x 6	N/A	N/A

Push Rivets

Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGPR▲	N/A	200	0.4

Hangers

Part Number	Size	Standard Carton Qty.	Wt./Lbs. Each
EGSBJ▲	2 x 2	10	0.9
EGSBL▲	3 x 3	10	1.3
EGSBN▲	4 x 4	10	1.9
EGSBR▲	6 x 6	10	2.8

* Indicates molded fitting – couplings not needed
† Indicates fabricated fitting – order couplings separately
†† Indicates no coupling is required for 6" fabricated end cap
UL File No. E163227 except where noted with ▲

Installation Instructions

Description. Wire Safe wireway and wiring troughs are manufactured from extruded PVC. The standard color is gray. The wireway consists of a base channel that is formed to receive a "clip-on" cover. Wiring troughs include a pair of ready-to-install end caps.

Cover Installation and Removal. The cover can be installed by exerting hand pressure along its front face in such a manner as to engage and clip projections on the side walls of the base channel. The cover can be removed by inserting a tool (i.e., a screwdriver shaft) into one end of the wireway enclosure and exerting pressure against the underside of the cover, which is then "peeled off" from the base.

Wireway Fittings. Fittings enable the wireway to be positioned around corners and enable tees and crosses to be created without detracting from the protective characteristics. Interconnecting pieces can be assembled using couplings and rivets or cement as necessary.

Molded fittings do not require couplings since they fit on the exterior of the wireway. However, primer and solvent cement are needed. See cementing instructions.

Fabricated fittings do require internal or external couplings, and these must be ordered separately. To install fittings, a 9/32" diameter hole should be drilled in the wireway to match the external coupling hole. A push rivet should be used to connect the two pieces. To connect an internal coupling to the inside of a fitting, use Quick-Set Clear Cement.

Applications. These systems are designed for use in commercial and industrial areas. They may be used for the containment of electrical wiring/cables for power and lighting circuits and also communication and computer facilities. They are suitable for mounting on the surface of walls or ceilings or suspended across suitably positioned supports. Ambient temperatures should not exceed 140^{0}F.

Installation.
1. Mark the surface upon which the wireway is to be mounted.
2. Measure, run, and identify position of fittings.
3. Remove cover from wireway, starting at one end, with a peeling action (use of a screwdriver or similar lever is recommended).
4. Drill mounting holes through base at 60" centers maximum. Two rows of mounting holes should be drilled, adjacent to each wall of the wireway in order to evenly distribute the load.
5. The holes in the wireway should be drilled oversize to allow for expansion. Washers should be mounted under the head of the mounting device, which should not be tightened to its full extent.
6. Mount the wireway using screws or bolts.
7. Affix the wireway cover by aligning it to the wireway base and then pressing it into its engaged position, starting at one end.
8. The cover should be made to overlap the base joint in order to improve rigidity of the joint.

Engineering Specifications

Code Approvals. Wire Safe Wireway and Wiring Trough is recognized by the current National Electrical Code, Article 362-B, for nonmetallic wireways. It is UL Listed for electrical wiring up to 600 volts. UL File Numbers: UL E151021.

Specification for Wire Safe Wireway and Wiring Trough. The wireway and wiring troughs shall be Wire Safe Wireway and Wiring Trough.

The Wire Safe Wireway and Wiring Trough shall provide protection for electrical, low voltage, data and communication wiring or cables.
The Wire Safe Wireway and Wiring Trough shall be listed and installed per the NEC Article 362-B for nonmetallic wireways.
The Wire Safe Wireway and Wiring Trough shall be manufactured from gray precision extruded Polyvinyl Chloride (PVC) meeting UL 94 V-0 requirements and shall be suitable for field painting.
The Wire Safe Wireway and Wiring Trough shall include base, cover, fittings, etc.
The Wire Safe Wireway and Wiring Trough shall provide all fittings required to form a complete, integrated surface raceway system. End caps shall be gasketed and shall have a NEMA Type 12 rating.
The Wire Safe Wireway and Wiring Trough shall provide raceway with the following cross sectional areas:

1. 2 x 2 - 3.165 in.^{2} (20.4 cm^2)
2. 3 x 3 - 7.378 in.^{2} (47 cm^2)
3. 4 x 4 - 13.694 in.^{2} (88 cm^2)
4. 6 x 6 - 31.871 in.^{2} (205 cm^2)

Fittings. Internal and external elbow shall be a fitting cover that snaps onto the main base. Flat elbows and flat tees shall be a fitting cover that snaps on to the main base. End caps shall be gasketed and NEMA Type 12 rated.

Installation. Install in accordance with the manufacturer's instructions, NFPA 70 and NECA standard.
Install base, cover, fittings, accessories, etc., as necessary for a complete system.

Cementing Instructions

1. Make a square cut using a miter box or precisely marked line on the wireway to provide a smooth connection.
2. Make certain surfaces to be bonded are free of dirt, dust, etc., by wiping them clean with a rag, and by removing sawcut burrs with a knife or rasp.
3. With a dauber, place a coating of Clear Primer on the wireway and its mating parts. Thoroughly coat the surfaces to be mated.
4. Allow the Clear Primer a few seconds to soften the PVC surface (the time may need to be adjusted, depending upon the temperature).
5. Apply a complete coating of Quick-Set Clear Cement to matching ends that will be joined.
6. Hold the parts in position by exerting pressure on the surfaces with clamps.
7. Allow 15 minutes or more before removing clamps.

Clear Primer

Part Number	Standard Size	Standard Carton Qty.	Standard Carton Wt.
VC9903	Pint Dauber Top	24	25.0 lbs.
VC9902	Quart Dauber Top	12	24.0 lbs.

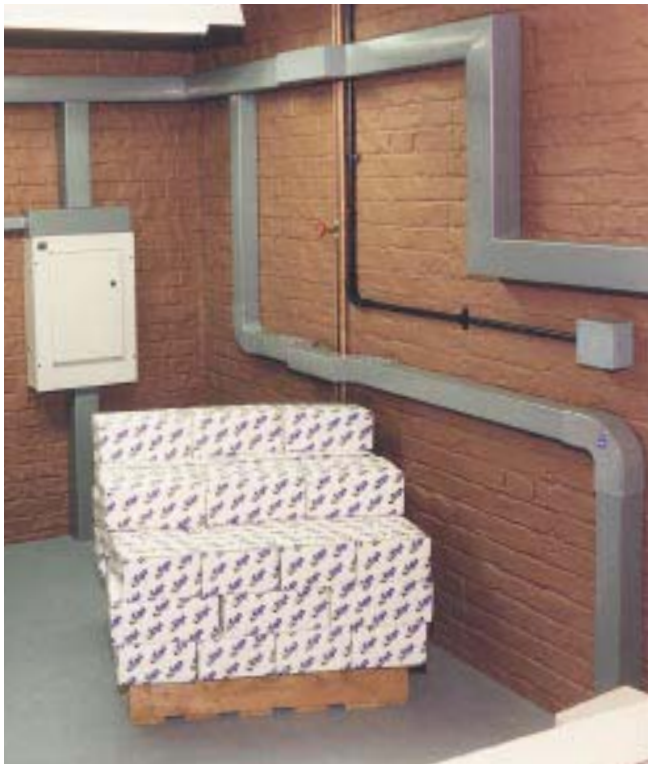
Cement and primer not needed for end caps.

All Weather Quick-Set Clear Cement

Part Number	Standard Size	Standard Carton Qty.	Standard Carton Wt.
VC9984	1/2 Pint Dauber Top	10	6.0 lbs.
VC9983	Pint Dauber Top	24	30.0 lbs.
VC9982	Quart Dauber Top	12	29.0 lbs.
VC9981P	Gallon Pour Top	6	53.0 lbs.

Expansion And Contraction

Wireway will expand or contract with variations in temperatures. To compensate for this expansion and contraction, during installation leave 0.25" gap at joint, glue only one side of internal coupling, or use external coupling with push rivets. All mounting holes should be drilled oversize, and fasteners should not be tightened fully to allow for expansion and contraction.



Materials

PVC Homopolymer (ASTM F1784)	minimum cell class 12354B
Specific Gravity (ASTM D792)	1.46
Thermal Conductivity (ASTM C177)	1.3 Btu/hr./ft.^{2}/^{0}F/in.
Heat Deflection Temperature @264 psi (ASTM D648)	70^0 C
Tensile Strength (ASTM D638)	6000 psi
Flammability (UL 94)	V-0

Physical Properties

Size	Crush Strength[1] (lbs.)	Impact Strength[2] (ft.-lbs.)
2 x 2	650	40
3 x 3	500	30
4 x 4	500	40
6 x 6	600	50

1. Load on 6" long sample just prior to wall buckling; fully recoverable.
2. Five lb. weight with 1-1/4" dia. face at 73^0 F.

Dimensions

Outside Nominal Size (in.)	Outside Actual Size (in.)	Inside Height (in.)	Inside Width (in.)	Inside Area (in.^{2})	Wireway Thickness (in.)	Cover Thickness (in.)	Wt./Ft. (lb./ft.)
2 x 2	1.97 x 1.97	1.8	1.79	3.31	0.09	.08	0.6
3 x 3	2.96 x 2.96	2.8	2.76	7.94	0.10	.08	0.85
4 x 4	3.94 x 3.94	3.75	3.72	14.39	0.11	.08	1.48
6 x 6	5.91 x 5.91	5.67	5.67	13.48	0.12	.12	2.29

All information represents typical values and does not represent a minimum performance specification.

Wirefill Chart

Conductor Size AWG-MCM	Area of Conductor (sq. in.) A RFH-2, RH, RHH, ***RHW, ***SF-2	B TF, THW, †TW	C TFN, THHN, THWN	D XHHW, ††ZW	Wire Safe Wireway Size and Maximum Number of Conductors Allowed (Areas shown are 20% of the full interior cross sectional area of the wireway.) 2x2 (0.6 in.²) A	B	C	D	3x3 (1.5 in.²) A	B	C	D	4x4 (2.7 in.²) A	B	C	D	6x6 (6.4 in.²) A	B	C	D
18	.0167	.0088	.0062	–	36	68	96	–	89	170	241	–	161	306	435	–	383	727	1032	–
16	.0196	.0109	.0079	–	31	55	76	–	76	137	189	–	137	247	341	–	326	587	810	–
14	.0230	.0135	.0087	–	26	44	69	–	65	111	172	–	117	200	310	–	278	474	735	–
14	*.0327	–	–	–	18	–	–	–	45	–	–	–	82	–	–	–	195	–	–	–
14	–	†.0206	–	.0131	–	29	–	46	–	72	–	114	–	131	–	206	–	310	–	488
12	.0278	.0172	.0117	–	21	35	51	–	53	87	128	–	97	156	230	–	230	372	547	–
12	*.0384	–	–	–	16	–	–	–	39	–	–	–	70	–	–	–	166	–	–	–
12	–	†.0252	–	.0167	–	24	–	36	–	59	–	89	–	107	–	161	–	253	–	383
10	.0460	.0222	.0184	–	13	27	33	–	32	67	81	–	58	121	146	–	139	288	347	–
10	–	.0311	–	.0216	–	19	–	28	–	48	–	69	–	86	–	125	–	205	–	296
8	.0845	.0471	.0373	–	7	13	16	–	17	31	40	–	31	57	72	–	75	135	171	–
8	–	†.0598	–	.0456	–	10	–	13	–	25	–	32	–	45	–	59	–	107	–	140
6	.1238	.0819	.0519	.0625	4	7	11	10	12	18	28	24	21	32	52	43	51	78	123	102
4	.1605	.1087	.0845	.0845	4	6	7	7	9	13	17	17	16	24	31	31	39	58	75	75
3	.1817	.1263	.0995	.0995	3	5	6	6	8	11	15	15	14	21	27	27	35	50	64	64
2	.2067	.1473	.1182	.1182	3	4	5	5	7	10	12	12	13	18	22	22	30	43	54	54
1	.2715	.2027	.1590	.1590	2	3	4	4	5	7	9	9	9	13	16	16	23	31	40	40
1/0	.3107	.2367	.1893	.1893	2	2	3	3	4	6	7	7	8	11	14	14	20	27	33	33
2/0	.3578	.2781	.2265	.2265	1	2	2	2	4	5	6	6	7	9	11	11	17	23	28	28
3/0	.4151	.3288	.2715	.2715	1	1	2	2	3	4	5	5	6	8	9	9	15	19	23	23
4/0	.4840	.3904	.3278	.3278	1	1	1	1	3	4	4	4	5	6	8	8	13	16	19	19
250	.5917	.4877	.4026	.4026	1	1	1	1	2	3	3	3	4	5	6	6	10	13	15	15
300	.6837	.5581	.4669	.4669	–	1	1	1	2	2	3	3	3	4	5	5	9	11	13	13
350	.7620	.6291	.5307	.5307	–	–	1	1	1	2	2	2	3	4	5	5	8	10	12	12
400	.8365	.6969	.5931	.5931	–	–	1	1	1	2	2	2	3	3	4	4	7	9	10	10
500	.9834	.8316	.7163	.7163	–	–	–	–	1	1	2	2	2	3	3	3	6	7	8	8
600	1.1940	1.0261	.8791	.9043	–	–	–	–	1	1	1	1	2	2	3	3	5	6	7	7
700	1.3355	1.1575	1.0011	1.0297	–	–	–	–	1	1	1	1	2	2	2	2	4	5	6	6
750	1.4082	1.2252	1.0623	1.0936	–	–	–	–	1	1	1	1	1	2	2	2	4	5	6	5
800	1.4784	1.2908	1.1234	1.1499	–	–	–	–	1	1	1	1	1	2	2	2	4	4	5	5
900	1.6173	1.4208	1.2449	1.2668	–	–	–	–	–	1	1	1	1	1	2	2	3	4	5	5
1000	1.7530	1.5482	1.3623	1.3893	–	–	–	–	–	–	1	1	1	1	1	1	3	4	4	4
1250	2.2062	1.9532	–	1.7671	–	–	–	–	–	–	–	–	1	1	–	1	2	3	–	3
1500	2.5475	2.2751	–	2.0612	–	–	–	–	–	–	–	–	1	1	–	1	2	2	–	3
1750	2.8832	2.5930	–	2.3779	–	–	–	–	–	–	–	–	–	1	–	1	2	2	–	2
2000	3.2079	2.9013	–	2.6590	–	–	–	–	–	–	–	–	–	–	–	1	1	2	–	2

* Dimensions of RHH and RHW.
*** Dimensions of RHH and RHW without outer covering are the same as THW No. 18 through No. 10, solid as well as No. 8 and larger, stranded.
† Dimensions of THW in sizes No. 14 through No. 8. No. 6 THW and larger are same dimension as TW.
†† No. 14 through No. 2.

NOTES: 1) The ampacities of the conductors shall be reduced as shown in the table at right.
2) Refer to the National Electrical Code for ambient temperature correction factors.

Number of Conductors	Column A – Percent of Values In Tables as Adjusted for Ambient Temperature if Necessary	Number of Conductors	Column B** – Percent of Values In Tables as Adjusted for Ambient Temperature if Necessary
4 through 6	80	4 through 6	80
7 through 9	70	7 through 9	70
10 through 24*	70	10 through 20	50
25 through 42*	60	21 through 30	45
43 and above*	50	31 through 40	40
		41 through 60	35

* These factors include the effects of a load diversity of 50 percent. ** No diversity.