

STABILOY®
Type XHHW-2 and USE-2/RHH/RHW-2



grounded in service
wired to innovate™



grounded in service
wired to innovate™



www.cable.alcan.com

Type XHHW-2 and Type USE-2/RHH/RHW-2



Alcan manufactures XHHW-2 and USE-2/RHH/RHW-2 STABILOY® cables which are intended for use in general purpose wiring in residential, commercial and industrial construction. In addition, Type USE-2/RHH/RHW-2 is primarily used as Type USE-2 direct-buried underground service entrance, but is listed for RHH or RHW-2 for applications in general purpose lighting and power. As with all STABILOY® building wire, these products are high quality, dependable and offer tremendous flexibility. They exceed the requirements of the Underwriters Laboratories, Inc. standards and are approved for use in accordance with the recommendations of the National Electrical Code. STABILOY® alloy conductor is recognized by ASTM.

Product Features

Alcan Type XHHW-2 and USE-2/RHH/RHW-2 offer several exceptional features:

- **Lightweight for easier lifting** and handling because STABILOY conductors weigh half as much as copper.
- **Maximum operating temperature of 90°C** in dry and wet locations which exceeds the requirements for installations of service and feeder circuits.
- **Sunlight resistant, moisture resistant and flame-retardant insulation**, which enhances the life of the cable by fending off environmental elements that can cause deterioration.
- **Increased flexibility** because both XHHW-2 and USE-2/RHH/RHW-2 are made with STABILOY AA-8030 conductors which require less bending force and have less spring back than copper conductors.
- **Cross-linked polyethylene insulation (XLPE)** over STABILOY conductors offers higher short-circuit withstand capability than the traditional THHN/THWN-2 insulation used on copper conductors.
- **NEW! Size 900 kcmil now available as a better choice over 600 kcmil copper!**



Type XHHW-2



Description:

XHHW-2 is a compact stranded conductor. Mylar tape may be placed between the XLPE insulation and the conductor strands.

Application:

Installed in raceways for general-purpose wiring for up to 600V rated service and feeder circuits in residential, commercial, institutional and industrial buildings. Also, used in cable trays (with "CT USE" marking) and messenger supported wiring applications.

Marking:

Cables will bear the following surface marking: Alcan (Plant of Manufacture) (Size) Compact AL STABILOY® AA-8030 Series XLPE 600 V XHHW-2 SUN-RES (UL) (Year of Manufacture).

Available Options:

Contact Alcan Cable for:
600V XHHW-2 conductors rated for "CT USE" and other markings.

Size AWG or kcmil	NOMINAL DIMENSIONS					NOMINAL WEIGHT (LBS./1000FT.)		STANDARD PACKAGE	
	Insulation Thickness (Mils)	BARE Conductor Diameter (Inches)	XHHW-2 Conductor Diameter (Inches)	Bare Conductor Area (Sq. Inches)	XHHW-2 Conductor Area (Sq. Inches)	STABILOY	Total	Length	Reel
6	45	.169	.260	.0224	.0530	25	39	1000'	NRC 16.15
4	45	.213	.305	.0356	.0730	39	57	1000'	NRC 16.15
2	45	.268	.360	.0564	.1017	62	84	1000'	NRC 21.15
1	55	.299	.415	.0702	.1352	79	108	1000'	NRC 21.15
1/0	55	.336	.450	.0887	.1590	99	132	1000'	NRC 21.15
2/0	55	.376	.490	.1110	.1885	125	161	1000'	NRC 21.18
3/0	55	.423	.540	.1405	.2290	157	198	1000'	NRC 24.15
4/0	55	.475	.590	.1772	.2733	199	244	1000'	NRC 24.18
250	65	.520	.655	.2124	.3370	235	292	1000'	NRC 27.18
300	65	.570	.705	.2552	.3904	282	344	1000'	NRC 30.18
350	65	.616	.750	.2980	.4418	329	396	1000'	NRC 30.24
400	65	.659	.795	.3411	.4964	376	448	1000'	NRC 32.24
500	65	.736	.870	.4254	.5945	469	550	1000'	NRC 32.24
600	80	.813	.980	.5191	.7542	563	671	1000'	NRC 36.24
700	80	.877	1.040	.6041	.8494	657	774	1000'	NRC 40.24
750	80	.908	1.075	.6475	.9076	704	824	1000'	NRC 40.24
900	80	.999	1.169	.7838	1.0733	847	983	1000'	NRC 42.26
1000	80	1.060	1.230	.8825	1.1882	939	1079	1000'	NRC 48.25

NOTES:

1. Data are approximate and subject to normal manufacturing tolerances.
2. Standard lengths are subject to normal manufacturing tolerances of $\pm 10\%$.
3. Two, three or four conductors can be paralleled on a reel.
4. The suffix -2 indicates that these wire types can be used at a continuous 90°C operating temperature in wet and dry locations.



STABILOY XHHW-2 vs. Copper THWN & THHN Ampacities and Correction Factors

Conductor Size AWG or kcmil	AMPACITIES (AMPS) [†]				Conductor Size AWG or kcmil
	COPPER		STABILOY		
	THWN (75°C)	THHN, THHN-2 (90°C)	XHHW (75°C)	XHHW-2 (90°C)	
6	65	75	50	60	6
4	85	95	65	75	4
2	115	130	90	100	2
1	130	150	100	115	1
1/0	150	170	120	135	1/0
2/0	175	195	135	150	2/0
3/0	200	225	155	175	3/0
4/0	230	260	180	205	4/0
250	255	290	205	230	250
300	285	320	230	255	300
350	310	350	250	280	350
400	335	380	270	305	400
500	380	430	310	350	500
600	420	475	340	385	600
700	460	520	375	420	700
750	475	535	385	435	750
900	520	585	425	480	900
1000	545	615	445	500	1000

NOTES:

1. Based on NEC Table 310.16.

† See termination provisions for conductor sizing as given in Underwriters Laboratories Electrical Construction Materials Directory, "Equipment for Use in Ordinary Locations."

**Allowable Ampacities[†]
30°C (86°F) Ambient Temperature**

Ampacities are based on conductor operating temperatures only and do not take voltage drop into consideration.

When the number of current carrying conductors in a raceway or cable exceeds three, the allowable ampacity of each conductor shall be reduced to the following percentages of tabular values:

4 to 6	80%
7 to 9	70%
10 to 20	50%
21 to 30	45%
31 to 40	40%

In dwelling units, conductors are permitted to be utilized as 120/240 volt, 3-wire, single-phase service entrance conductors and feeder conductors in raceway or cable with or without an equipment grounding conductor. The allowable ampacity for Types XHHW-2, RHW-2 and RHH aluminum conductors are:

Size	Amps	Size	Amps	Size	Amps
#2AWG	100	3/0	175	350kcmil	300
1	110	4/0	200	500kcmil	350
1/0	125	250kcmil	225	600 kcmil	400
2/0	150	300kcmil	250		

STABILOY Type XHHW-2 and Type USE-2/RHH/RHW-2 conductors can be operated at 90°C in dry AND wet locations. This characteristic is advantageous when derating of conductor ampacity is required, for example, when there are four or more current carrying conductors in a raceway or cable in a wet location. In this instance one can begin with the 90°C ampacity from which to derate.

System design loads falling between values listed in this table for copper THHN often permit the use of a smaller STABILOY conductor than would be necessary based on the maximum ampacity of the copper conductor required.

Example:

For a design load of 380 amps, the required 500 kcmil copper THHN conductor would have to be replaced by a 750 kcmil STABILOY conductor (75°C, wet location). However, if the design load was between 336 and 375 amps (still requiring 500 kcmil copper), a 700 kcmil STABILOY conductor would be adequate.



STABILOY Ampacities and Correction Factors

Size AWG or kcmil	NOT MORE THAN THREE* SINGLE INSULATED CONDUCTORS IN A RACEWAY IN FREE AIR**		SINGLE INSULATED CONDUCTOR IN FREE AIR**		Size AWG or kcmil
	75°C (167°F)	90°C (194°F)	75°C (167°F)	90°C (194°F)	
	XHHW, RHH, RHW, USE	XHHW-2, RHH, RHW-2, USE-2	XHHW, RHH, RHW, USE	XHHW-2, RHH, RHW-2, USE-2	
8	40	45	55	60	8
6	50	60	75	80	6
4	65	75	100	110	4
2'	90	100	135	150	2'
1'	100	115	155	175	1'
1/0'	120	135	180	205	1/0'
2/0'	135	150	210	235	2/0'
3/0'	155	175	240	275	3/0'
4/0'	180	205	280	315	4/0'
250	205	230	315	355	250
300	230	255	350	395	300
350	250	280	395	445	350
400	270	305	425	480	400
500	310	350	485	545	500
600	340	385	540	615	600
700	375	420	595	675	700
750	385	435	620	700	750
900	425	480	700	785	900
1000	445	500	750	845	1000

Ampacity Correction Factors			
Ambient Temp. °C	For ambient temperatures other than 30°C (86°F), multiply the ampacities shown above by the appropriate factor shown below.		Ambient Temp. °F
	75°C	90°C	
21-25	1.05	1.04	70-77
26-30	1.00	1.00	79-86
31-35	.94	.96	88-95
36-40	.88	.91	97-104
41-45	.82	.87	106-113
46-50	.75	.82	115-122
51-55	.67	.76	124-131
56-60	.58	.71	133-140
61-70	.33	.58	142-158
71-80	-	.41	160-176

NOTES:

1. Ampacities are based on conductor operating temperatures only and do not take voltage drop into consideration.
2. A neutral conductor which carries only the unbalanced current from other conductors, as in the case of normally balanced circuits of three or more conductors, shall not be counted in determining Ampacity Adjustment Factors. But in a three-wire circuit consisting of two phase wires and the neutral of a four-wire three-phase Wye-connected system, a common conductor carries approximately the same current as the other conductors and shall be counted in determining ampacities.
3. Based on Ambient Air Temperature of 30°C (86°F).

* See 310.15(B)(4)

** See termination provisions for conductor sizing as given in Underwriters Laboratories Electrical Construction Materials Directory, "Equipment for Use in Ordinary Locations."

† In dwelling units, conductors shall be permitted to be utilized as 120/240 volt, 3-wire, single-phase service entrance conductors and feeder conductors in raceway or cable with or without an equipment grounding conductor. The allowable ampacity for Types XHHW-2, RHW-2 and RHH aluminum conductors shall be:

Size	Amps	Size	Amps	Size	Amps
#2AWG	100	3/0	175	350kcmil	300
1	110	4/0	200	500kcmil	350
1/0	125	250kcmil	225	600 kcmil	400
2/0	150	300kcmil	250		



Type USE-2/RHH/RHW-2



Description:

USE-2/RHH/RHW-2 is a compact stranded conductor. Mylar tape may be placed between the XLPE insulation and the conductor strands.

Application:

Primarily used as Type USE-2 direct-buried underground service entrance, but is also listed for RHH or RHW-2 making it suitable for applications in raceways for general purpose lighting and power circuits. This multiple listing offers a unique advantage to the installer to purchase one product that is suitable for installation on both sides of service-point and where service-point is located within the envelope of the building.

Marking:

Cables will bear the following surface marking: Alcan (Plant of Manufacture) (Size) Compact STABILOY® AA-8030 AL Series XLPE 600 V USE-2 or RHH or RHW-2 SUN-RES (UL) (Year of Manufacture).

Available Options:

Contact Alcan Cable for:

1. 600V RHH or RHW-2 conductors rated for "CT USE" and other markings.
2. 2000V RHH or RHW-2 conductors
3. 2000V RHH or RHW-2 conductors rated for "CT USE" and other markings.

Size AWG or kcmil	NOMINAL DIMENSIONS			NOMINAL WEIGHT (lbs./1000 ft.)		STANDARD PACKAGE	
	Insulation Thickness (Mils)	Conductor Diameter (Inches)	USE-2 Conductor Diameter (Inches)	STABILOY	Total	Length	Reel
6	60	.169	.290	25	44	1000'	NRC 16.15
4	60	.213	.335	39	63	1000'	NRC 16.15
2	60	.268	.390	62	92	1000'	NRC 21.15
1	80	.299	.460	79	122	1000'	NRC 21.15
1/0	80	.336	.500	99	148	1000'	NRC 21.18
2/0	80	.376	.540	125	179	1000'	NRC 24.15
3/0	80	.423	.590	157	217	1000'	NRC 24.18
4/0	80	.475	.635	199	265	1000'	NRC 27.18
250	95	.520	.710	235	320	1000'	NRC 30.18
300	95	.570	.760	282	374	1000'	NRC 30.24
350	95	.616	.810	329	428	1000'	NRC 30.24
400	95	.659	.850	376	482	1000'	NRC 32.24
500	95	.736	.930	469	588	1000'	NRC 32.24
600	110	.813	1.035	563	713	1000'	NRC 36.24
700	110	.877	1.100	657	818	1000'	NRC 40.24
750	110	.908	1.130	704	870	1000'	NRC 40.24
900	110	.999	1.239	847	1042	1000'	NRC 48.28
1000	110	1.060	1.280	939	1132	1000'	NRC 48.28

NOTES:

1. Data are approximate and subject to normal manufacturing tolerances.
2. Standard lengths are subject to normal manufacturing tolerances of ±10%.
3. Two, three or four conductors can be paralleled on a reel.
4. The suffix -2 indicates that these wire types can be used at a continuous 90°C operating temperature in wet and dry locations.

ALCAN CABLE

		MAXIMUM NUMBER OF TYPE XHHW-2 COMPACT STABILOY® ALUMINUM ALLOY CONDUCTORS IN CONDUIT																																		
CONDUCTOR SIZE AWG/KCMIL	TABLE C7A LIQUID TIGHT FLEXIBLE METALLIC CONDUIT TRADE SIZES IN INCHES				TABLE C9A RIGID PVC CONDUIT, Schedule 80 TRADE SIZES IN INCHES				TABLE C11A Type A RIGID PVC CONDUIT TRADE SIZES IN INCHES				TABLE C12A Type EB, PVC CONDUIT TRADE SIZES IN INCHES																							
	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	2	3	4												
	6	4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
6	1	2	4	6	11	15	24	37	56	73	95	1	3	5	9	13	21	31	48	65	85	134	193	3	5	8	13	17	27	41	62	80	103			
4	1	1	3	4	8	11	17	26	41	53	69	1	1	3	6	9	15	22	35	47	61	98	140	1	1	3	6	9	12	20	30	45	58	75		
2	1	1	1	3	6	7	12	19	29	38	50	1	1	2	5	6	11	16	25	34	44	70	100	1	1	2	4	7	9	14	21	32	42	54		
1	0	1	1	2	4	6	9	14	22	28	37	1	1	1	3	5	8	12	19	25	33	53	75	1	1	1	3	5	7	10	16	24	31	40		
1/0	0	1	1	1	4	5	8	12	19	24	32	0	1	1	3	4	7	10	16	22	28	45	64	1	1	1	2	4	6	9	13	20	27	34		
2/0	0	1	1	1	3	4	7	10	16	20	27	0	1	1	2	3	6	8	13	18	24	38	54	1	1	1	3	5	7	11	17	22	29	34		
3/0	0	0	1	1	2	3	5	8	13	17	22	0	1	1	1	3	5	7	11	15	19	31	44	1	1	1	1	3	4	6	9	14	18	24	29	
4/0	0	0	1	1	1	3	4	7	11	14	18	0	0	1	1	2	4	6	9	12	16	26	37	0	1	1	2	3	5	8	12	15	20	26	34	
250	0	0	1	1	1	1	3	5	8	11	15	0	0	1	1	1	3	5	7	10	13	21	30	0	1	1	1	2	4	6	9	12	15	20	26	
300	0	0	0	1	1	1	3	5	7	9	12	0	0	1	1	1	3	4	6	8	11	17	25	0	1	1	1	1	3	5	8	10	13	17	22	28
350	0	0	0	1	1	1	3	4	6	8	11	0	0	1	1	2	3	5	7	10	15	22	0	0	1	1	1	1	3	5	7	9	12	15	20	26
400	0	0	0	1	1	1	2	4	6	7	10	0	0	1	1	1	3	5	7	9	14	20	0	0	1	1	1	1	3	4	6	8	11	14	18	23
500	0	0	0	0	1	1	1	3	5	6	8	0	0	0	1	1	2	4	5	7	11	17	0	0	1	1	1	2	3	5	7	9	12	15	20	26
600	0	0	0	0	1	1	1	2	4	5	6	0	0	0	1	1	1	3	4	6	9	13	0	0	1	1	1	2	3	4	5	7	9	12	15	20
700	0	0	0	0	1	1	1	1	3	4	6	0	0	0	0	1	1	3	4	5	8	12	0	0	1	1	1	2	3	4	5	7	9	12	15	20
750	0	0	0	0	1	1	1	1	3	4	5	0	0	0	0	1	1	2	3	5	7	11	0	0	1	1	1	2	3	4	6	8	10	13	17	22
900	0	0	0	0	0	1	1	2	3	4	0	0	0	0	0	1	1	2	3	4	6	8	0	0	1	1	1	2	3	4	6	8	10	13	17	22
1000	0	0	0	0	0	1	1	2	3	4	0	0	0	0	0	1	1	2	3	4	6	8	0	0	1	1	1	2	3	4	6	8	10	13	17	22

NEC is a registered trademark of The National Fire Protection Association

STABILOY® is a registered trademark of Alcan Products Corporation for AA-8030 Aluminum Alloy Conductor Material

DATA FROM THE NATIONAL ELECTRICAL CODE®

ALCAN CABLE

MAXIMUM NUMBER OF TYPE XHHW-2 COMPACT STABILOY® ALUMINUM ALLOY CONDUCTORS IN CONDUIT

CONDUCTOR SIZE AWG/KCMIL	TABLE C1A ELECTRICAL METALLIC TUBING TRADE SIZES IN INCHES				TABLE C3A FLEXIBLE METALLIC CONDUIT TRADE SIZES IN INCHES				TABLE C5A LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT (FIMC-B) TRADE SIZES IN INCHES																		
	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	1/2	3/4	1	1 1/4	1 1/2	2											
	6	1	4	6	11	15	25	44	66	87	111	2	4	6	9	14	24	37	53	72	95	1	2	4	6	11	15
4	1	3	4	8	11	18	32	48	63	81	1	3	4	7	10	18	27	38	52	69	1	1	3	4	8	11	17
2	1	1	3	6	8	13	23	34	45	58	1	1	3	5	7	13	19	28	38	49	1	1	1	3	6	7	12
1	1	1	2	4	6	10	17	26	34	43	1	1	2	3	5	9	14	21	28	37	0	1	1	2	4	6	9
1/0	1	1	1	3	5	8	14	22	29	37	1	1	1	3	4	8	12	17	24	31	0	1	1	1	4	5	8
2/0	1	1	1	3	4	7	12	18	24	31	1	1	1	2	4	7	10	15	20	26	0	1	1	1	3	4	7
3/0	0	1	1	2	3	6	10	15	20	25	0	1	1	1	3	5	8	12	17	22	0	0	1	1	2	3	5
4/0	0	1	1	1	3	5	8	13	17	21	0	1	1	1	2	4	7	10	14	18	0	0	1	1	1	3	4
250	0	1	1	1	2	4	7	10	13	17	0	1	1	1	1	4	5	8	11	14	0	0	1	1	1	1	3
300	0	0	1	1	1	3	6	9	11	14	0	0	1	1	1	3	5	7	9	12	0	0	0	1	1	1	3
350	0	0	1	1	1	3	5	8	10	13	0	0	1	1	1	3	4	6	8	11	0	0	0	1	1	1	3
400	0	0	1	1	1	2	4	7	9	11	0	0	1	1	1	2	4	5	7	10	0	0	0	1	1	1	2
500	0	0	0	1	1	1	4	6	7	9	0	0	0	1	1	3	4	6	8	11	0	0	0	0	1	1	1
600	0	0	0	1	1	1	3	4	6	8	0	0	0	1	1	2	3	5	6	9	0	0	0	0	0	1	1
700	0	0	0	1	1	1	2	4	5	7	0	0	0	1	1	1	3	4	6	8	0	0	0	0	0	1	1
750	0	0	0	1	1	1	2	3	5	6	0	0	0	1	1	1	3	4	5	7	0	0	0	0	0	1	1
900	0	0	0	1	1	1	2	3	4	5	0	0	0	1	1	2	2	3	4	5	0	0	0	0	0	1	1
1000	0	0	0	1	1	1	1	3	4	5	0	0	0	1	1	1	2	3	4	5	0	0	0	0	0	1	1

CONDUCTOR SIZE AWG/KCMIL	TABLE C2A ELECTRICAL NONMETALLIC TUBING TRADE SIZES IN INCHES				TABLE C4A INTERMEDIATE METALLIC CONDUIT TRADE SIZES IN INCHES				TABLE C6A LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT (FIMC-A) TRADE SIZES IN INCHES														
	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	1/2	3/4	1	1 1/4	1 1/2	2							
	6	1	3	6	10	14	24	4	7	12	16	27	38	59	80	103	1	2	4	6	11	15	25
4	1	2	4	7	10	17	1	3	5	9	12	20	28	43	58	74	1	1	3	4	8	11	18
2	1	1	3	5	7	12	1	1	3	6	8	14	20	31	41	53	0	1	1	3	6	8	13
1	1	1	2	4	5	9	1	1	3	5	6	10	15	23	31	40	0	1	1	2	4	6	10
1/0	1	1	1	3	5	8	1	1	4	5	9	13	20	26	34	4	0	1	1	1	3	5	8
2/0	0	1	1	3	4	7	1	1	3	4	7	11	17	22	29	7	0	1	1	1	3	4	7
3/0	0	1	1	2	3	5	0	1	1	3	4	6	9	14	18	24	0	0	1	1	2	3	6
4/0	0	1	1	1	3	4	0	1	1	2	3	5	7	11	15	20	0	0	1	1	1	3	5
250	0	0	1	1	1	3	0	1	1	2	4	6	9	12	16	2	0	1	1	1	2	4	
300	0	0	1	1	1	3	0	0	1	1	3	5	8	10	13	0	0	0	1	1	1	3	
350	0	0	1	1	1	3	0	0	1	1	3	4	7	9	12	0	0	0	1	1	1	3	
400	0	0	1	1	1	2	0	0	1	1	3	4	6	8	11	0	0	0	1	1	1	3	
500	0	0	0	1	1	1	1	1	2	3	5	7	9	11	14	0	0	0	1	1	1	3	
600	0	0	0	1	1	1	1	1	2	4	5	7	9	12	16	0	0	0	1	1	1	3	
700	0	0	0	1	1	1	1	1	2	3	5	6	8	10	13	0	0	0	1	1	1	3	
750	0	0	0	1	1	1	1	1	2	3	4	6	8	11	14	0	0	0	1	1	1	3	
900	0	0	0	1	1	1	1	1	2	3	4	5	7	9	12	0	0	0	1	1	1	3	
1000	0	0	0	1	1	1	1	1	3	4	5	7	9	12	16	0	0	0	1	1	1	3	

DATA FROM THE NATIONAL ELECTRICAL CODE®

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