Rockbestos Switchboard Wires

PLAINTIFF'S EXHIBIT P-233

Solid Switchboard Wire (UL Type AVB)

Table B, 600 Volts, Max. Operating Temp. 90C



Construction: Switchboard wires B and BS differ in conductor type. Table B wires are solid tinned copper; BS wires are stranded tinned copper. In both, varnished cambric insulation is covered with a felted wall of asbestos and a cotton braid having a flame and moisture-resistant finish.

Application: Both wires are recommended where premium quality construction is required.

Advantages: Heavy wall of asbestos and varnished cambric offers high dielectric strength and reliable operation under severe operating conditions.

Size	Nominal Thickness—Mils				Ampacity*	Nominal Finished Diameter Inches	Approximate Net Weight in Lbs. per 1000'
	Bare Diameter Inches	VC	Felted Wall	Cotton Braid			
14	.064	30	20	16	25	.200	30
12	.081	30	20	16	30	.220	40
10	.102	30	20	17	40	.240	55
8	.128	30	20	17	50	.270	80
6	.162	40	30	17	70	.340	125
4	204	40	30	17	90	.380	175
3	.229	40	30	20	105	.415	215
2	.258	40	30	20	120	.445	260
1	.289	40	40	20	140	.495	330
0	.325	40	40	20	155	.530	405
00	.365	40	40	20	185	.570	495
000	.410	40	40	20	210	.615	610
0000	.460	40	40	20	236	.665	750

*Ampacity based on 3 conductors in conduit, or enclosed cabinet, 30°C. ambient, at 90°C. conductor temperatures.

Stranded Switchboard Wire (UL Type AVB)

Table BS, 600 Volts, Max. Operating Temp. 90C



Size	Stranding	Bare Diameter Inches	VC	Felted Wall	Cotton Braid	Nominal Finished Diameter Inches	Ampacity*	Approximate Net Weight in Lbs. per 1000'
14	7/.0242	.073	30	20	16	.205	25	35
12	7/.0305	.092	30	20	16	.225	30	45
10	7/.0385	.116	30	20	17	.250	40	60
8	7/.0486	.146	30	20	17	.280	50	80
6	7/.0612	.184	40	30	17	.360	70	130
4	7/.0772	.232	40	30	20	.415	90	185
3	7/.0867	.260	40	30	20	.440	105	225
2	7/.0974	.292	40	30	20	.475	120	280
1	19/.0664	.332	40	40	20	.535	140	345
0	19/.0745	.373	40	40	20	.575	155	420
00	19/.0837	.419	40	40	20	.620	185	515
000	19/.0940	.470	40	40	20	.670	210	630
0000	19/.1055	.528	40	40	20	.730	235	780

*Ampacity based on 3 conductors in conduit, or enclosed cabinet, 30°C. ambient, at 90°C. conductor temperatures.

Flexible Stranded Hinge Cable (UL Type AVB)

Table BH, Max. Operating Temp. 90C



Construction: Flexible stranded tinned copper conductor, varnished cambric insulation covered with a felted wall of asbestos and a cotton braid with a flame and moisture-resistant finish.

Application: These switchboard wires are recommended for installations where a premium quality, flexible stranded construction is desired.

Advantages: Heavy wall of varnished cambric and felted asbestos offers high dielectric strength and reliable operation under severe operating conditions.

Size	Stranding Tinned	Nominal Thickness—Mils				Nominal Finished Diameter Inches	Ampacity*	Approximate Net Weight lbs./M'
		Bare Diameter Inches	VC Insert	1st Felted Wall	2nd Felted Wall	Cotton Braid			
14	41/.010	.075	30	10	15	16	.220	25	35
12	65/.010	.095	30	10	15	17	.240	30	45
10	104/.010	.120	30	10	15	17	.265	40	60
8	133/.0111	.167	30	10	15	17	.315	50	90

*Ampacity based on 3 conductors in conduit, or enclosed cabinet, 30°C. ambient, at 90°C. conductor temperatures.

RBB 00529

Solid Switchboard Wire (UL Type TA)



Table XB, 600 Volts, Max. Operating Temp. 90C

Construction: Switchboard wires XB and XBS differ in conductor type. Table XB wires are solid tinned copper; XBS wires are stranded tinned copper. In both, PVC insulation is covered with a felted wall of asbestos and a cotton braid having a flame and moisture-resistant finish.

Application: Both wires are recommended for switchboards, particularly where moisture may be present and either solid or stranded conductors are desired.

Advantages: The moisture-resistant wall of polyvinyl chloride over the conductor combines with felted asbestos to provide excellent service reliability.

Size	Diameter Inches	Minimum Thermoplastic Insulation Mils	Nominal Thickness—Mils: Felted Wall	Nominal Thickness—Mils: Cotton Braid	Nominal Finished Diameter Inches	Approximate Net Weight in Lbs. per 1000'	Standard Shipping Length Feet	Ampacity*
14	.064	20	20	16	.185	30	500' C	25
12	.081	20	20	16	.200	40	500' C	30
10	.102	20	20	16	.225	55	500' C	40
8	.128	20	20	17	.250	75	500' C	50
6	.162	30	25	17	.315	120	500' R	70
4	.204	30	25	17	.360	175	500' R	90
3	.229	30	25	17	.385	210	500' R	105
2	.258	30	25	20	.420	260	500' R	120

*Ampacity based on 3 conductors in conduit, or enclosed cabinet, 30°C. ambient, at 90°C. conductor temperatures.

Stranded Switchboard Wire (UL Type TA)



Table XBS, 600 Volts, Max. Operating Temp. 90C

Size	Stranding	Bare Diam. Inches	Minimum Thermoplastic Insulation Mils	Nominal Thickness—Mils: Felted Wall	Nominal Thickness—Mils: Cotton Braid	Nominal Finished Diameter Inches	Approx. Net Wgt. in Lbs. per 1000'	Standard Shipping Length Feet	Ampacity*
14	7/.0242	.073	20	20	16	.195	32	500' C	25
12	7/.0305	.092	20	20	16	.215	41	500' C	30
10	7/.0385	.116	20	20	17	.240	56	500' C	40
8	7/.0486	.146	20	20	17	.270	79	500' C	50
6	7/.0612	.184	30	25	17	.340	125	500' R	70
4	7/.0772	.232	30	25	17	.395	180	500' R	90
3	7/.0867	.260	30	25	20	.425	240	500' R	105
2	7/.0974	.292	30	25	20	.455	265	500' R	120
1	19/.0664	.332	40	30	20	.525	345	500' R	140
0	19/.0745	.373	40	30	20	.565	420	500' R	155
00	19/.0837	.419	40	30	20	.610	515	500' R	185
000	19/.0940	.470	40	30	20	.660	635	500' R	210
0000	19/.1055	.528	40	30	20	.720	780	500' R	235

*Ampacity based on 3 conductors in conduit, or enclosed cabinet, 30°C. ambient, at 90°C. conductor temperatures.

Flexible Stranded Switchboard Wire (UL Type TA)



Table XBH, 600 Volts, Max. Operating Temp. 90C

Construction: Flexible stranded tinned copper, PVC insulation covered with a felted wall of asbestos and a flameproof cotton braid.

Application: General purpose switchboard wire where a flexible foundation is desired, such as hinge cable applications.

Advantages: Table XBH switchboard wire has a moisture-resistant wall of polyvinyl chloride over the conductor which, combined with felted asbestos, provides an excellent combination for service reliability.

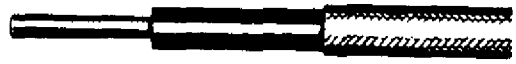
Size	Stranding	Bare Diam. Inches	Minimum Thermoplastic Insulation Mils	Nom. Thickness—Mils: Felted Wall	Nom. Thickness—Mils: Cotton Braid	Nominal Finished Diameter Inches	Approx. Net Wgt. in Lbs. per 1000'	Standard Shipping Length Feet	Ampacity*
14	41/.010	.075	20	20	16	.195	31	500' C	25
12	65/.010	.095	20	20	16	.215	42	500' C	30
10	104/.010	.120	20	20	17	.245	57	500' C	40
8	133/.0111	.167	20	20	17	.290	84	500' C	50
6	133/.0140	.210	30	25	17	.365	130	500' R	70
4	133/.0177	.266	30	25	20	.425	190	500' R	90
3	133/.0199	.299	30	25	20	.460	230	500' R	105
2	133/.0223	.335	30	25	20	.495	280	500' R	120
1	259/.0180	.378	40	30	20	.570	360	500' R	140
0	259/.0202	.424	40	30	20	.615	435	500' R	155
00	259/.0227	.477	40	30	20	.670	535	500' R	185
000	259/.0255	.536	40	30	20	.730	660	500' R	210
0000	259/.0286	.601	40	30	20	.795	810	500' R	235

*Ampacity based on 3 conductors in conduit, or enclosed cabinet, 30°C. ambient, at 90°C. conductor temperatures.

RBB 00530

Solid Switchboard Wire (UL Type TBS)

Table SPB, 600 Volts, Max. Operating Temp. 90C



Construction: Solid tinned copper conductor insulated with an extrusion of PVC and covered with a flame-proof cotton braid.

Application: General purpose 600 volt switchboard wire, requiring a solid conductor.

Advantages: Minimum diameter and weight and low initial cost.

Size AWG	Stranding	Insulation Mils	Braid Mils	Ampacity*	Nominal Finished Diameter Inches	Approx. Net Wgt. in Lbs. per 1000'
14	Solid	31	16	25	.163	26
12	Solid	31	16	30	.180	36
10	Solid	31	16	40	.201	50
8	Solid	47	17	50	.222	81
6	Solid	63	17	70	.325	124

*Ampacity based on 30°C. ambient at 90°C. conductor temperatures, 3 conductors in conduit, per NEC.

Stranded Switchboard Wire (UL Type TBS)

Table SPBS, 600 Volts, Max. Operating Temp. 90C



Contruction: Stranded tinned copper insulated with a PVC extrusion and covered with a flame-proof cotton braid.

Application: General purpose switchboard wire where a stranded conductor is desired.

Advantages: Small diameter, light weight and minimum cost.

Size AWG	Stranding	Insulation Mils	Braid Mils	Ampacity*	Nominal Finished Diameter Inches	Approx. Net Wgt. in Lbs. per 1000'
14	7/.0242	31	16	25	.172	28
12	7/.0305	31	16	30	.191	37
10	7/.0385	31	16	40	.215	52
8	7/.0486	47	17	50	.279	85
6	7/.0612	63	17	70	.349	133

*Ampacity based on 30°C. ambient at 90°C. conductor temperatures, 3 conductors in conduit, per NEC.

Flexible Stranded Switchboard Wire (UL Type TBS)

Table SPBH, 600 Volts, Max. Operating Temp. 90C



Construction: Flexible stranded tinned copper insulated with an extrusion of PVC and covered with a flame-proof cotton braid.

Application: General purpose 600 volt switchboard wire where a flexible copper foundation is desired.

Advantages: Small diameter, light weight and minimum cost.

Size AWG	Stranding	Insulation Mils	Braid Mils	Ampacity*	Nominal Finished Diameter Inches	Approx. Net Wgt. in Lbs. per 1000'
14.	41/.010	31	16	25	.174	28
12	65/.010	31	16	30	.194	38
10	104/.010	31	16	40	.219	53
8	133/.0111	47	17	50	.300	86
6	49/.0231	63	17	70	.350	146

*Ampacity based on 30°C. ambient at 90°C. conductor temperatures, 3 conductors in conduit, per NEC.

RBB 00531

X Link® Polyethylene Solid Switchboard Wire (UL Type SIS)

Table SIS, 600 Volts, Max. Operating Temp. 90C



Construction: Solid tinned copper, cross-linked polyethylene insulation.

Application: General purpose 600 volt switchboard wire, solid conductor.

Advantages: Minimum diameter and weight, tough extruded insulation with no outer covering.

Size	Stranding	Insulation Mils	Nominal O.D.	M Ft. Net Weight	Ampacity*
14	Solid	31	.130	19	25
12	Solid	31	.150	28	30
10	Solid	31	.170	41	40
8	Solid	47	.230	69	50
6	Solid	62	.300	110	70

*Ampacity based on 3 conductors in conduit, or enclosed cabinet. 30°C. ambient, at 90°C. conductor temperatures.

X Link® Polyethylene Stranded Switchboard Cable (UL Type SIS)

Table SISS, 600 Volts, Max. Operating Temp. 90C



Construction: Stranded tinned copper conductors insulated with an extrusion of cross-linked polyethylene.

Application: General purpose 600 volt switchboard wire where a stranded conductor is desired.

Advantages: Moisture-resistant, tough extruded insulation with no outer covering.

Size	Stranding	Insulation Mils	Nominal O.D.	M Ft. Net Weight	Ampacity*
14	7/.0242	31	.140	20	25
12	7/.0305	31	.160	28	30
10	7/.0385	31	.180	42	40
8	7/.0486	47	.250	70	50
6	7/.0612	62	.320	113	70
4	7/.0772	62	.370	167	90
2	7/.0994	62	.430	251	120
1	19/.0664	62	.470	310	140
1/0	19/.0745	78	.545	398	155
2/0	19/.0837	78	.590	489	185
3/0	19/.0940	78	.640	604	210
4/0	19/.1055	78	.700	750	235

*Ampacity based on 3 conductors in conduit, or enclosed cabinet. 30°C. ambient, at 90°C. conductor temperatures.

X Link® Polyethylene Flexible Stranded Switchboard Wire (UL Type SIS)

Table SISF, 600 Volts, Max. Operating Temp. 90C



Construction: Flexible stranded tinned copper insulated with an extrusion of cross-linked polyethylene.

Application: General purpose 600 volt switchboard wire where a flexible stranded copper conductor is desired.

Advantages: Moisture-resistant, tough extruded insulation with no outer covering.

Size	Stranding	Insulation Mils	Nominal O.D.	M Ft. Net Weight	Ampacity*
14	41/.010	31	.140	20	25
12	65/.010	31	.160	28	30
10	105/.010	31	.190	43	40
8	133/.0111	47	.270	75	50
6	133/.0140	62	.340	119	70
4	133/.0177	62	.400	170	90
2	133/.0223	62	.470	254	120
1	259/.0180	62	.515	326	140
1/0	259/.0202	78	.595	412	155
2/0	259/.0227	78	.650	508	185
3/0	259/.0255	78	.710	630	210
4/0	259/.0286	78	.770	780	235

*Ampacity based on 3 conductors in conduit, or enclosed cabinet. 30°C. ambient, at 90°C. conductor temperatures.

RBB 00532

Stranded Hook-Up Wire

Table EMA, 1000 Volts, Max. Operating Temp. 90C

Construction: Stranded tinned copper insulation with 10 mils of synthetic tape, covered with a solid wall of asbestos and a cotton braid with a heat and moisture resisting finish.

Application: Table EMA conductors are recommended for use where a 1000 volt 90°C. lead wire is desired.

Advantages: Small diameter and high quality construction make this construction advantageous for lead wire where the greatest degree of reliability is desired.

Size AWG	Stranding	Bare Diameter Inches	Nominal Thickness—Inches			Nominal Finished Diam. Ins.	Ampacity*	Approx. Net Wgt. in Lbs. per 1000'	Standard Shipping Length Feet
			Synthetic Tape	Felted Wall	Braid Thickness				
14	19/.0142	.071	.010	.020	.0125	.156	30	23	500' C
12	19/.0179	.090	.010	.020	.0125	.175	40	31	500' C

*Ampacity based on 30°C. ambient at 90°C. conductor temperatures, 3 conductors in conduit, per NEC.

Flexible Stranded Hook-Up Wire

Table ZM, 1000 Volts, Max. Operating Temp. 125C

Construction: Stranded tinned copper covered with synthetic tapes and insulated with solid asbestos and a glass braid overall.

Application: Table ZM conductors are recommended for use where a high quality, 1000 volt hook-up wire is desired.

Advantages: Small diameter and high dielectric properties make this construction advantageous for specialty 125°C. lead wire applications.

Size AWG	Stranding	Bare Diameter Inches	Nominal Thickness—Inches			Nominal Finished Diam. Ins.	Ampacity*	Approx. Net Wgt. in Lbs. per 1000'	Standard Shipping Length Feet
			Synthetic Tape	Felted Wall	Braid Thickness				
18	16/.010	.045	.0065	.0085	.0075	.090	20	8	1000' S
16	26/.010	.059	.0065	.0085	.010	.109	30	12	1000' S
14	41/.010	.075	.010	.0085	.010	.132	40	19	1000' S
12	65/.010	.095	.010	.010	.010	.155	50	28	1000' S
10	104/.010	.120	.010	.010	.010	.180	70	42	1000' S

*Ampacity based on 30°C. ambient at 125°C. conductor temperatures, 3 conductors in conduit, per NEC.

RBB 00533

Type PN High Molecular Weight Polyethylene-Nylon Control Wire

600 Volts, Single Conductor, Max. Operating Temp. 75C

Construction: Stranded bare copper conductors insulated with color coded, high molecular weight polyethylene, covered with a nylon sheath.

Application: Type PN conductor is recommended for general purpose 600 volt machine tool wire applications.

Advantages: Very small diameter and high quality electrical insulation provide an excellent combination for industrial wiring applications, particularly where exposed to oil and chemical environments.



	Size	Stranding	Nominal O.D.	Weight	Ampacity*
PND	9	19/22	.171	40	35
PNT	12	19/25	.134	20	20
PNF	14	19/27	.116	15	15

*Ampacity based on 30°C. ambient at 75°C. conductor temperatures, 3 conductors in conduit, per NEC.

Type PNX Linear Polyethylene-Nylon Control Wire

600 Volts, Single Conductor, Max. Operating Temp. 90C

Construction: Stranded tinned copper conductors insulated with color coded, high density polyethylene, covered with a nylon sheath.

Application: Type PNX conductor is recommended for general purpose 600 volt machine tool wire applications.

Advantages: Very small diameter and high quality electrical insulation provide an excellent combination for industrial wiring applications, particularly where exposed to oil and chemical environments.



	Size	Stranding	Nominal O.D.	Weight	Ampacity*
PNTX	9	19/22	.190	53	45
PNDX	12	19/25	.152	28	30
PNFX	14	19/27	.134	22	25

*Ampacity based on 30°C. ambient at 90°C. conductor temperatures, 3 conductors in conduit, per NEC.

RBB 00534

