

PLAINTIFF'S EXHIBIT 5-180

ROCKBESTOS A.V.C.®

(N.E.C. Type AVA)

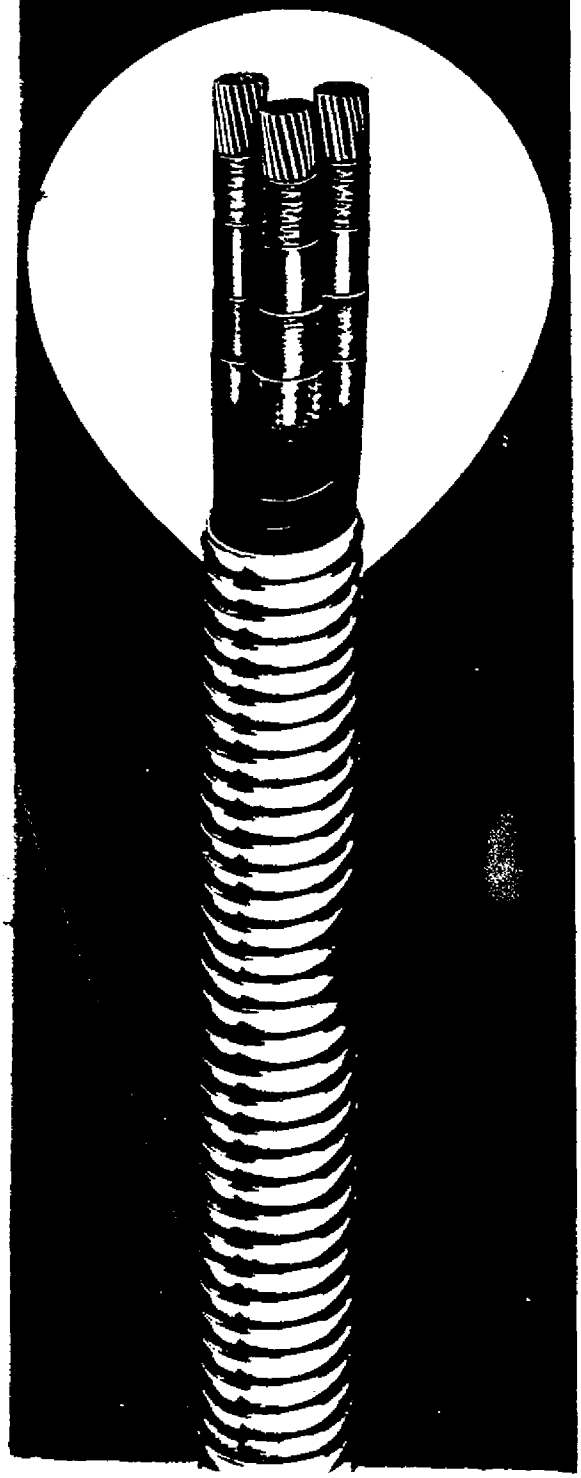
INTERLOCKING

ARMORED CABLE

FOR POWER DISTRIBUTION IN NEW PLANTS OR IN MODERNIZING OLD PLANTS

RBB 00524

ROCKBESTOS A.V.C.



INTERLOCKED ARMORED CABLE Provides a Flexible, Economical Method of Power Distribution for New Plants or Circuit Changes

In industrial plants today the advantageous design of secondary distribution systems has become increasingly important. The permanently fixed and rigid electrical loads of the past have given way to the flexible and indeterminate loads of the present. Production changes within a plant from year to year, or in shorter periods of time, require readily available power distributed as conveniently and economically as possible.

Rockbestos A.V.C. Interlocked Armored Cable is the answer to the old problem of costly, inflexible, rigid conduit systems.

Used for secondary leads from power centers to bus duct, or for general radial feed systems it can be easily strung in racks, on hangers, suspended beneath the ceiling or next to walls to meet power demands where needed. It can be quickly moved when circuit locations must be changed to meet new plant layouts, and best of all, it saves in material costs, labor and installation.

HERE'S HOW YOU BENEFIT WITH ROCKBESTOS A.V.C.® INTERLOCKED ARMORED CABLE

- Size for size, it gives you more current carrying capacity than cable in conduit or other armored cable.
- Costs less because you save on expensive conduit and ducts.
- Cuts installation time because snaking of wire through conduit is eliminated . . . can be installed up, down, or around walls and beams.
- Easier to install because no walls or floors need be torn up to put in conduit.
- Repairs can be quickly and easily made because cable is in the "open" and easily accessible.
- Plant layouts and expansion programs are given greater flexibility.

BUT THAT'S NOT ALL — EACH ROCKBESTOS A.V.C. CABLE IS A QUALITY CABLE AND A LOOK BENEATH THE BRAID SHOWS THE SEAMLESS FELTED ASBESTOS WALLS THAT INSURE UNINTERRUPTED SERVICE . . . PERMIT ROCKBESTOS A.V.C. TO CARRY MORE CURRENT.

RBB 00525

CIRCUIT LENGTH (ONE WAY) FOR 1 VOLT DROP AT RATED CURRENT

3 conductor **AVA** interlocking **STEEL** armored 600 volt power cable on racks—3 phase, 3 wire 80% PF at 30°C., 40°C., 50°C., and 60°C. ambients.

MCM Size (3 Cond.)	30°C. Rated Current Amps	30°C. Circuit Length Feet	40°C. Rated Current Amps	40°C. Circuit Length Feet	50°C. Rated Current Amps	50°C. Circuit Length Feet	60°C. Rated Current Amps	60°C. Circuit Length Feet
6	95	13.2	89	14.1	82	15.3	75	16.8
4	124	15.7	116	16.8	108	18.0	98	19.8
2	162	18.0	151	19.3	141	20.7	128	22.8
1	186	19.4	174	20.7	161	22.4	147	24.5
1/0	214	18.9	200	20.2	185	21.9	169	24.0
2/0	244	19.7	228	21.0	211	22.7	193	24.9
3/0	282	20.1	263	21.6	244	23.2	223	25.4
4/0	322	20.6	300	22.1	279	23.8	254	26.2
250	358	20.4	334	21.9	311	23.5	284	25.7
300	402	20.2	375	21.7	349	23.3	318	25.5
350	440	20.2	411	21.5	381	23.2	348	25.4
400	474	20.0	443	21.4	412	23.0	374	25.4
450	519	19.4	485	20.8	451	22.4	410	24.6
500	554	19.1	517	20.5	480	22.1	438	24.1
600	618	18.7	577	20.0	536	21.5	488	23.6
750	706	17.8	658	19.1	612	20.6	558	22.6

3 single conductor **RH** 600 volt power cables IN IRON CONDUIT—3 phase, 3 wire 80% PF at 30°C., 40°C., 50°C., and 60°C. ambients.

AWG or MCM Size	30°C. Rated Current Amps	30°C. Circuit Length Feet	40°C. Rated Current Amps	40°C. Circuit Length Feet	50°C. Rated Current Amps	50°C. Circuit Length Feet	60°C. Rated Current Amps	60°C. Circuit Length Feet
6	65	21.4	57	24.3	49	28.3	38	36.5
4	85	25.1	75	28.4	64	33.6	49	43.5
3	100	26.4	88	30.0	75	35.2	58	45.6
2	115	27.8	101	31.5	86	37.2	67	47.6
1	130	30.2	114	34.5	98	40.1	75	52.3
1/0	150	29.3	132	33.3	112	39.3	87	50.5
2/0	175	29.8	154	33.8	131	39.6	101	51.6
3/0	200	30.6	176	34.7	150	40.7	116	52.6
4/0	230	30.8	202	35.1	172	41.1	133	53.2
250	255	30.8	224	35.1	191	41.1	148	53.2
300	285	30.7	251	35.0	214	41.0	165	52.9
350	310	30.7	273	35.0	232	41.0	180	52.9
400	335	30.2	295	34.2	251	40.3	195	51.8
500	380	29.7	334	33.8	285	39.6	221	51.0
600	420	28.8	370	32.6	315	38.2	244	49.2
700	460	27.8	405	31.6	345	37.2	267	48.1
750	475	27.6	418	31.4	356	36.9	276	47.6
800	490	27.4	432	31.1	368	36.5	284	47.4
1000	545	26.5	480	30.0	409	35.2	316	45.5

40°C. (104°F.) AMBIENT IS TYPICAL OF INDUSTRIAL PLANT CONDITIONS AND SHOULD BE USED EXCEPT WHERE AIR AMBIENT TEMPERATURE IS KNOWN TO BE HIGHER.

OTHER THAN RATED LOADS — An approximation of circuit lengths may be made for other than rated loads by multiplying by the ratio of the currents involved.

EXAMPLE — 400 amps at 40°C. using a 350 MCM AVA cable:

$\frac{411}{400} \times 21.5 = 22.1$ feet circuit length.

CAPACITY and REGULATION COMPARISONS

Between 3 conductor **AVA STEEL** armored power cable on racks and 3 single conductor RH rubber cable in conduit.

3 PHASE — 3 WIRE 80% PF: AT 40°C.

	3 CONDUCTOR AVA ARMORED				3 SINGLE CONDUCTORS RH			
Load Amps	No. of 3 Cond. Cables & Size MCM	Total Rated Amps	Cir. Length 1 volt drop—1 way at Load (feet)	Max. Run* 440 volts 2% drop (feet)	No. of Single Cond. Cables & Size MCM	Total Rated Amps	Cir. Length 1 volt drop—1 way at Load (feet)	Max. Run* 440 volts 2% drop (feet)
400	1-350	411	22.0	194	3-750	418	32.8	289
600	2-4/0**	600	22.1	195	6-500	668	37.6	331
800	2-350	822	22.0	194	6-750	836	32.8	289
1000	2-500	1034	21.2	186	9-500	1002	33.9	298
1200	3-350***	1233	22.0	194	9-750	1254	32.8	289
			AT 50°C.					
400	1-400	412	23.7	209	6-300	428	43.8	385
600	2-250	622	24.4	215	9-300	642	43.8	385
800	2-400	824	23.7	209	9-500	855	42.3	372
1000	3-300	1047	24.4	215	12-400	1004	40.5	356
1200	3-400	1236	23.7	209	18-300	1284	43.8	385
			AT 60°C.					
400	1-450	410	25.2	222	6-500	442	56.4	496
600	2-300	636	27.0	238	9-500	663	56.4	496
800	2-450	820	25.2	222	12-500	884	56.4	496
	3-350	1044	26.5	233	12-650	1024	49.9	449
	3-450	1230	25.2	222	18-500	1326	56.4	496

PRICE and PHYSICAL COMPARISONS

3 conductor **AVA STEEL** armored power cable on racks and 3 single conductor RH rubber cable in conduit.

3 PHASE — 3 WIRE 80% PF: AT 40°C.

	3 CONDUCTOR AVA ARMORED					3 SINGLE CONDUCTORS RH			
Load Amps	No. of 3 Cond. Cables & Size MCM	Diameter of Cable Inches (1-3 Cond. Cable)	Weight Per 1000' Pounds (1-3 Cond. Cable)	Price ☆ Per 1000' Dollars (1-3 Cond. Cable)	No. of Single Cond. Cables & Size MCM	No. of Conduits & Size	Conductor Price* Per 1000' (1-Cond.)	Conduit Pr. ☆ Per 1000' (1-conduit)
400	1-350	2.47	5350	$4392	3-750	1-3½"	$2350	$1708
600	2-4/0	1.93	3485	$3100	6-500	2-3"	$1632	$1303
800	2-350	2.47	5350	$4392	6-750	2-3½"	$2350	$1708
1000	2-500	2.66	7102	$5290	9-500	3-3"	$1632	$1303
1200	3-350	2.47	5350	$4392	9-750	3-3½"	$2350	$1708
				AT 50°C.				
400	1-400	2.47	5940	$4704	6-300	2-2½"	$1092	$ 997
600	2-250	2.14	4125	$3603	9-300	3-2½"	$1092	$ 997
800	2-400	2.47	5940	$4704	9-500	3-3"	$1632	$1303
1000	3-300	2.26	4770	$3981	12-400	4-3"	$1384	$1303
1200	3-400	2.47	5940	$4704	18-300	6-2½"	$ 982	$ 997
				AT 60°C.				
400	1-450	2.57	6525	$4989	6-500	2-3"	$1632	$1303
600	2-300	2.26	4770	$3981	9-500	3-3"	$1632	$1303
800	2-450	2.57	6525	$4989	12-500	4-3"	$1632	$1303
1000	3-350	2.37	5355	$4392	12-650	4-3½"	$2083	$1708
1200	3-450	2.57	6525	$4989	18-500	6-3"	$1632	$1303

CONDUCTOR SIZES SELECTED IN ACCORDANCE WITH IPCEA RECOMMENDATIONS FOR MINIMUM 40°C. AMBIENT TEMPERATURE

*Assumed 2% feeder drop based on total 3% drop to load. The rated voltage of the transformers is actually 480 volts.

**1-3 conductor 750 MCM AVA can be used.

***2-3 conductor 750 MCM AVA can be used.

☆ Based on AVA, RH and Conduit prices as of June, 1957.

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The Rockbestos 600 volt three conductor interlocked armored cables covered on this Page are furnished with either .030" galvanized steel or aluminum armor overall. Single conductors are standard N.E.C. Type AVA power cables.

This same construction may be furnished in bronze armor as Table E3AB.

Insulation thicknesses for the individual conductors are standard as prescribed:

Dimensions in Mils

Sizes	1st Asb. Wall	VC	2nd Asb. Wall	Asb. Braid
6-2	15	30	20	45
1-4/0	20	30	30	45
213-500	25	40	40	45
501-750	30	40	40	45

SPECIFICATIONS

INDIVIDUAL CONDUCTORS

Stranded plain copper conductors
Inner felted asbestos wall
Varnished Cambric
Outer felted asbestos wall
Asbestos braid

Individual conductors cabled with special asphalt treated paper tape.

Interlocked armored coverings of galvanized steel or aluminum overall.

BENDING RADIUS: The recommended bending radius is 7 times the outside diameters over the armor for the cables listed below.

INTERLOCKING ARMORED 600 VOLT THREE CONDUCTOR CABLE

TABLE E3AS STEEL ARMORED

TABLE E3AA ALUMINUM ARMORED

AWG or MCM Size	Stranding	Overall Diameters, Inches		Weights per 1000 Ft.			
				Net		Shipping	
		Under Armor	Over Armor	Steel Armor	Aluminum Armor	Steel Armor	Aluminum Armor
6	7/.0612	.875	1.125	931	597	1118	717
4	7/.0772	.980	1.230	1156	786	1388	944
2	7/.0974	1.105	1.355	1562	1107	1875	1329
1	19/.0664	1.260	1.510	1871	1373	2246	1648
1/0	19/.0745	1.345	1.595	2183	1641	2621	1970
2/0	19/.0837	1.445	1.695	2538	1952	3047	2343
3/0	19/.0940	1.555	1.805	2968	2342	3563	2812
4/0	19/.1055	1.680	1.930	3486	2816	4185	3381
250	37/.0822	1.890	2.140	4124	3367	4951	4042
300	37/.0900	2.010	2.260	4772	3931	5729	4719
350	37/.0973	2.120	2.370	5354	4469	6427	5365
400	37/.1045	2.220	2.470	5940	5008	7131	6012
450	37/.1105	2.315	2.565	6525	5546	7833	6658
500	37/.1162	2.405	2.655	7102	6073	8526	7291
600	61/.0922	2.600	2.850	8227	7150	9876	8583
750	61/.1071	2.825	3.075	9810	8584	11777	10305

ROCKBESTOS WIRE & CABLE CO.
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