Table IV.—Rubber-insulated Cables : Current-carrying Capacity and Corresponding Fall in Pressure.

(Standard Annealed Copper.)

Number and Diameter (Inches) of Wires comprising Conductor.*	Nominal Area.	Maximum Current permissible (subject to Voltage-drop).				Approximate Total Length in Circuit (Lead and Return) for 1-volt drop with Maximum permissible Current (Col. 4).
		One Single Cable.	Two Single Cables.	One Concentric or Twin Cable.	One Three-core Cable.	
1.	2.	3.	4.	5.	6.	7.
	Sq. in.	Amps.	Amps.	Amps.	Amps.	Ft.
1/·036	0·001	5	4·1	4·1	4·1	30
1/·044	0·0015	7	6·1	6·1	6·1	30
3/·029	0·002	9	7·8	7·8	7·8	30
3/·036	0·003	13	12·0	12·0	12·0	29
1/·064	0·003	14	12·9	12·9	12·9	29
7/·029	0·0045	20	18·2	17·5	16·0	28
7/·036	0·007	27	24·0	22·0	19·5	33
7/·044	0·01	34	31·0	26·0	23·3	39
7/·052	0·0145	41	37·0	31·0	27·0	45
7/·064	0·0225	51	46·0	38·5	33·0	55
19/·044	0·03	59	53·0	45·0	39·0	61
19/·052	0·04	71	64·0	53·0	47·0	71
19/·064	0·06	92	83·0	69·0	61·0	83
19/·072	0·075	108	97·0	80·0	71·0	90
19/·083	0·1	131	118·0	96·0	87·0	98
37/·064	0·12	144	130·0	108·0	99·0	103
37/·072	0·15	169	152·0	125·0	115·0	112
37/·083	0·2	204	184·0	150·0	140·0	123
37/·093	0·25	238	214·0	176·0	165·0	132
37/·103	0·3	267	240·0	200·0	—	145
61/·093	0·4	320	288·0	244·0	—	162
61/·103	0·5	369	332·0	280·0	—	172
91/·093	0·6	427	384·0	—	—	181
91/·103	0·75	512	461·0	—	—	185
127/·093	0·85	569	512·0	—	—	190
127/·103	1·0	661	595·0	—	—	200

* The current-carrying capacity of a conductor having wires of a number or diameter not specified in this table shall be taken to be proportionate to that of the cases specified.

(i) Cables laid together.　　　　　Multiply amps. for one cable by

　　　　3　..　　　　..　　　　..　　　　..　　0·85
　　　　4　..　　　　..　　　　..　　　　..　　0·80

(ii) Where cable is laid　　　　Multiply amps. in above columns by
　　　(a) In a duct underground　　..　　　..　　1·1
　　　(b) On the solid system　　　　..　　　..　　1·2
　　　(c) Direct in dry earth　　　　..　　　..　　1·3
　　　(d) Direct in wet earth　　　　..　　　..　　1·4
　　　(e) Direct under water　　　　..　　　..　　1·5

(iii) The figures given in the table apply to one single cable, two single cables run in iron conduits or in wood casing, and to single cables sheathed with tough rubber compound, and to concentric, twin, and three-core cables of any finish, run singly.

(iv) The maximum permissible currents (subject to voltage-drop) for the various sizes of conductors up to 1 sq. in. in cross-sectional area are shown in columns 3, 4, 5, and 6 of the table, which allow for a rise in temperature of 20° F. for rubber-insulated cables. For sizes below 0·007 sq. in. the table is based on a current density of 4,000 amperes per square inch.

(v) The table refers to situations where the temperature of the air does not exceed 80° F., and thus the normal maximum running temperature is 100° F. Rubber-insulated cables should not be allowed to attain a temperature higher than 120° F. for long periods, or 130° F. for a short period. The figures, therefore, in the latter case allow of a margin of 30° F.

(vi) Where the temperature of the air exceeds 80° F. the permissible current shall be reduced in accordance with the following reduction factors :—

Initial Air Temperature. Degrees F.			Amperes permissible to be multiplied by
90	..	..	.. 0·87
100	..	..	.. 0·71
110	..	..	.. 0·50

(vii) The further limitation of the size of conductor by the permissible drop in voltage is dealt with in Regulation 43-21 hereof.