No.SP 97-31-9001Rev.1
Date Sep. 26, 2023

SPECIFICATION

FOR

600V ETHYLENE PROPYLENE RUBBER INSULATED
POLYCHLOROPRENE SHEATHED FLEXIBLE CABLE(Class 2)
Code : 600V 2PNCT
600V CUR-2PNCT

Quantity .....

Your Ref. No. .....

Our Ref. No. .....

Signed by T. Watanabe .....

TAKANOBU WATANABE
Manager

Engineering Dept. I
Electric Wire & Cable Business Unit

Proterial, Ltd.

Issue and revision record

REV. NO.		Issue date	Item	Prepared by	Reviewed by	Approved by
—	—	Oct.23,1997	FIRST ISSUE	M.IINUMA	—	R.KOIKE
1	—	Sep. 7,2012	・Revised date of JIS C 3327 was changed. : 1993→2000 ・4.Inspection'(6)～(10) item was deleted. ・5.Guide to usage was added. ・The following items are modified. ・125 mm² conductor diameter : 16.9→16.8mm ・5×1.25mm² : Approx. overall diameter : 12.0→12.5mm ・5×2mm² : Approx. overall diameter : 13.0→13.5mm ・6×22mm² : Nominal thickness of sheath : 3.1→3.2mm Approx. overall diameter : 34→35mm Approx. weight : 2170→2190kg/km ・20×5.5mm² : Nominal thickness of sheath : 3.1→3.2mm Approx. overall diameter : 34→35mm	Y.TANAKA	T.KASHIWA	M.SUZUKI
1	A	Sep.26,2023	Dielectric strength test method in table 1 was corrected.	K.YAMANE	N.ONO	T.WATANABE

1. Scope

This specification covers 600V Ethylene Propylene Rubber Insulated Polychloroprene Sheathed Flexible Cable, which is reference to JIS C 3327-2000(600V Rubber Insulated Flexible Cables), Japanese Electrical Appliance and Material Safety Law, Japanese Electrical Facility Regulation and Manufacturer's Standard.

2. Construction

2.1 Conductor

Conductor shall be stranded flexible conductor consisting of tinned annealed copper wires. Suitable separator tape(s) shall be applied over the conductor.

2.2 Insulation

Insulation shall consist of ethylene propylene rubber compound.
Nominal thickness shall be shown in the attached table.

Ave. thick : not less than 90% of the nominal thickness
Min. thick : not less than 80% of the nominal thickness

2.3 Core identification

The core identification shall be made by the color of the insulation or color of the insulation surface as shown in the attached figures.

2.4 Cabling of cores

The insulated conductors shall be cabled. Suitable fillers and binder may be applied at manufacturer's discretion, if necessary.

2.5 Sheath

Sheath shall consist of black polychloroprene compound.
Nominal thickness shall be shown in the attached table.

Ave. thick : not less than 90% of the nominal thickness
Min. thick : not less than 85% of the nominal thickness

2.6 Dimension

The dimension of the cable shall be in accordance with the attached table.

3. Marking

Manufacture's name and year of manufacture shall be marked by suitable methods.

4. Inspection

Inspection shall be made on the following items , and the results shall comply with the requirements of table 1.

(1) Appearance
(2) Construction
(3) Conductor resistance
(4) Dielectric strength
(5) Insulation resistance

Table 1 : Characteristics

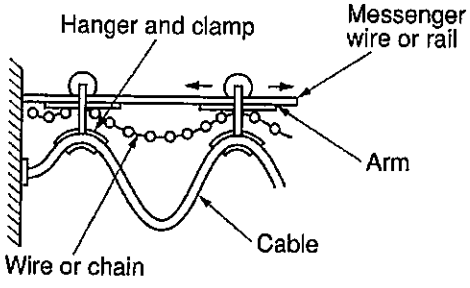
Item			Characteristics	Test method
Appearance			No scratches	4.1 of JIS C 3005
Construction			Shown in Attached Tables	4.3 of JIS C 3005
Conductor resistance			Not more than the value in Attached Tables	4.4 of JIS C 3005
Dielectric strength			Capable of withstanding 3000V for 1 min.	4.6 of JIS C 3005
Insulation resistance			Not less than the value in Attached Tables	4.7.1 of JIS C 3005
Insulation	Tensile strength		4MPa min.	4.16 of JIS C 3005
	Elongation		300% min.	
Sheath	Tensile strength		13MPa min.	
	Elongation		300% min.	
Thermal aging resistance	Insulation	Tensile strength	Not less than 80% of the value before heating	4.17 of JIS C 3005 Heating temperature Heating time Insulation 100±2℃、96hrs. Sheath 100±2℃、48hrs.
		Elongation	Not less than 80% of the value before heating	
	Sheath	Tensile strength	Not less than 65% of the value before heating	
		Elongation	Not less than 65% of the value before heating	
Oil resistance	Sheath	Tensile strength	Not less than 60% of the value before oil immersion. However, for the test piece less than 1mm in thickness, not less than 50%.	4.18 of JIS C 3005 Oil temperature Immersing time 120±2℃、18hrs.
		Elongation		
Flame retardance			To be extinguished naturally within 60 sec.	4.26 of JIS C 3005 Method 4.26.2 a) of JIS C 3005
Bending resistance ($38mm^2$ or under)			No damage nor crack to develop, number of broken component wires in conductors not to exceed 30%.	4.27.1 of JIS C 3005 $\leqq 3.5mm^2$: r=150, l=200 $5.5mm^2 \leqq$: r=100, l=300
Abrasion resistance			Sheath not to be so abrased as to expose the insulation.	4.29 of JIS C 3005 6.12 Table 6 of JIS C 3327

Table 2 : Electrical properties

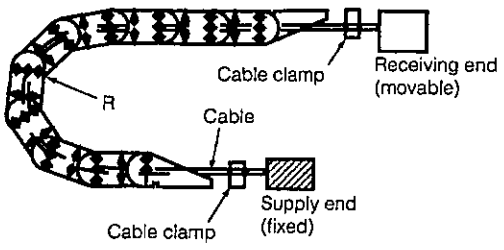
Nominal Cross-section area (mm^2)	Max. Conductor resistance at 20℃ (Ω/km)		Min. Insulation resistance at 20℃ (MΩ-km)
	single-core	multi-core	
0.75	25.8	26.6	500
1.25	15.5	16.0	500
2	9.91	10.2	500
3.5	5.38	5.54	400
5.5	3.46	3.56	400
8	2.45	2.52	400
14	1.39	1.43	300
22	0.892	0.919	300
(30)	0.661	0.681	300
38	0.525	0.541	200
(50)	0.411	0.423	200
60	0.329	0.339	200
(80)	0.243	0.250	300
100	0.193	0.199	200
(125)	0.156	0.161	200
150	0.136	0.140	200
200	0.0993	0.102	200
250	0.0803	0.0827	200

5. Guide to usage

This cable is designed for festoon system and cable chain system as shown below.



Festoon system



Cable Chain System

Table 3 : Dimensions

(Code : 600V 2PNCT
600V CUR-2PNCT)

No. of cores	Conductor size	Conductor construction	Conductor diam.	Thick of insulation	Thick. of sheath	Approx. overall diameter	Approx. weight
	mm^2	No./mm	mm	mm	mm	mm	kg/km
1	0.75	30/0.18	1.1	0.8	1.5	5.8	42
	1.25	50/0.18	1.5	0.8	1.5	6.2	50
	2	37/0.26	1.8	0.8	1.5	6.5	60
	3.5	45/0.32	2.5	0.8	1.6	7.4	85
	5.5	70/0.32	3.1	1.0	1.6	8.4	120
	8	50/0.45	3.7	1.0	1.7	9.2	150
	14	88/0.45	4.9	1.0	1.8	11.0	225
	22	7/20/0.45	7.0	1.2	1.9	13.5	340
	(30)	7/27/0.45	8.1	1.2	2.0	14.5	425
	38	7/34/0.45	9.1	1.2	2.1	15.5	515
	(50)	19/16/0.45	10.4	1.5	2.2	18.0	660
	60	19/20/0.45	11.6	1.5	2.3	19.0	790
	(80)	19/27/0.45	13.5	2.0	2.5	22	1 080
	100	19/34/0.45	15.2	2.0	2.6	24	1 310
	(125)	19/42/0.45	16.8	2.0	2.6	26	1 550
	150	27/34/0.45	18.7	2.0	2.7	27	1 760
	200	37/34/0.45	21.2	2.5	3.0	32	2 420
	250	37/42/0.45	23.6	2.5	3.2	35	2 920
2	0.75	30/0.18	1.1	0.8	1.7	8.9	100
	1.25	50/0.18	1.5	0.8	1.7	9.7	120
	2	37/0.26	1.8	0.8	1.8	10.5	150
	3.5	45/0.32	2.5	0.8	1.9	12.5	215
	5.5	70/0.32	3.1	1.0	2.0	14.5	305
	8	50/0.45	3.7	1.0	2.1	16.0	385
	14	88/0.45	4.9	1.0	2.2	19.0	585
	22	7/20/0.45	7.0	1.2	2.6	24	925
	(30)	7/27/0.45	8.1	1.2	2.7	26	1 150
	38	7/34/0.45	9.1	1.2	2.9	29	1 400
	(50)	19/16/0.45	10.4	1.5	3.1	33	1 820
	60	19/20/0.45	11.6	1.5	3.3	36	2 170
	(80)	19/27/0.45	13.5	2.0	3.7	42	3 000
	100	19/34/0.45	15.2	2.0	3.9	45	3 620
	(125)	19/42/0.45	16.8	2.0	4.0	49	4 290
	150	27/34/0.45	18.7	2.0	4.2	52	4 850
	200	37/34/0.45	21.2	2.5	4.7	61	6 710
	250	37/42/0.45	23.6	2.5	5.0	66	8 090

Table 4 : Dimensions

(Code : 600V 2PNCT
600V CUR-2PNCT)

No. of cores	Conductor size	Conductor construction	Conductor diam.	Thick of insulation	Thick. of sheath	Approx. overall diameter	Approx. weight
	mm^2	No./mm	mm	mm	mm	mm	kg/km
3	0.75	30/0.18	1.1	0.8	1.7	9.3	115
	1.25	50/0.18	1.5	0.8	1.8	10.5	145
	2	37/0.26	1.8	0.8	1.8	11.0	175
	3.5	45/0.32	2.5	0.8	1.9	13.0	255
	5.5	70/0.32	3.1	1.0	2.0	15.5	370
	8	50/0.45	3.7	1.0	2.1	17.0	475
	14	88/0.45	4.9	1.0	2.3	20	735
	22	7/20/0.45	7.0	1.2	2.7	26	1 170
	(30)	7/27/0.45	8.1	1.2	2.8	28	1 460
	38	7/34/0.45	9.1	1.2	3.0	31	1 780
	(50)	19/16/0.45	10.4	1.5	3.3	36	2 330
	60	19/20/0.45	11.6	1.5	3.4	38	2 770
	(80)	19/27/0.45	13.5	2.0	3.8	45	3 820
	100	19/34/0.45	15.2	2.0	4.1	49	4 650
	(125)	19/42/0.45	16.8	2.0	4.2	52	5 540
	150	27/34/0.45	18.7	2.0	4.4	55	6 280
	200	37/34/0.45	21.2	2.5	4.9	65	8 670
	250	37/42/0.45	23.6	2.5	5.3	71	10 500
4	0.75	30/0.18	1.1	0.8	1.8	10.5	135
	1.25	50/0.18	1.5	0.8	1.8	11.5	175
	2	37/0.26	1.8	0.8	1.9	12.5	215
	3.5	45/0.32	2.5	0.8	2.0	14.0	320
	5.5	70/0.32	3.1	1.0	2.1	17.0	460
	8	50/0.45	3.7	1.0	2.2	18.5	590
	14	88/0.45	4.9	1.0	2.4	22	925
	22	7/20/0.45	7.0	1.2	2.8	28	1 460
	(30)	7/27/0.45	8.1	1.2	3.0	31	1 860
	38	7/34/0.45	9.1	1.2	3.2	34	2 260
	(50)	19/16/0.45	10.4	1.5	3.5	39	2 950
	60	19/20/0.45	11.6	1.5	3.7	42	3 540
	(80)	19/27/0.45	13.5	2.0	4.1	50	4 870
	100	19/34/0.45	15.2	2.0	4.4	54	5 930
	(125)	19/42/0.45	16.8	2.0	4.5	58	7 080
	150	27/34/0.45	18.7	2.0	4.7	61	8 020
	200	37/34/0.45	21.2	2.5	5.4	72	11 200
	250	37/42/0.45	23.6	2.5	5.8	79	13 500

Table 5 : Dimensions

(Code : 600V 2PNCT
600V CUR-2PNCT)

No. of cores	Conductor size mm²	Conductor construction No./mm	Conductor diam. mm	Thick of insulation mm	Thick. of sheath mm	Approx. overall diameter mm	Approx. weight kg/km
5	0.75	30/0.18	1.1	0.8	1.8	11.0	160
	1.25	50/0.18	1.5	0.8	1.8	12.5	205
	2	37/0.26	1.8	0.8	1.9	13.5	260
	3.5	45/0.32	2.5	0.8	2.1	15.5	390
	5.5	70/0.32	3.1	1.0	2.2	18.5	565
	8	50/0.45	3.7	1.0	2.3	21	725
	14	88/0.45	4.9	1.0	2.6	25	1 150
	22	7/20/0.45	7.0	1.2	3.0	31	1 820
	(30)	7/27/0.45	8.1	1.2	3.2	35	2 300
	38	7/34/0.45	9.1	1.2	3.4	38	2 800
	(50)	19/16/0.45	10.4	1.5	3.7	44	3 650
	60	19/20/0.45	11.6	1.5	4.0	47	4 400
	(80)	19/27/0.45	13.5	2.0	4.5	55	6 080
	100	19/34/0.45	15.2	2.0	4.8	60	7 400
	(125)	19/42/0.45	16.8	2.0	4.9	65	8 830
	150	27/34/0.45	18.7	2.0	5.1	68	9 990
	200	37/34/0.45	21.2	2.5	5.9	81	13 900
	250	37/42/0.45	23.6	2.5	6.3	89	16 800
6	0.75	30/0.18	1.1	0.8	1.8	12.0	185
	1.25	50/0.18	1.5	0.8	1.9	13.5	245
	2	37/0.26	1.8	0.8	2.0	14.5	305
	3.5	45/0.32	2.5	0.8	2.1	17.0	455
	5.5	70/0.32	3.1	1.0	2.3	20	675
	8	50/0.45	3.7	1.0	2.4	22	865
	14	88/0.45	4.9	1.0	2.7	27	1 380
	22	7/20/0.45	7.0	1.2	3.2	35	2 190
	(30)	7/27/0.45	8.1	1.2	3.3	38	2 750
	38	7/34/0.45	9.1	1.2	3.5	41	3 350
7	0.75	30/0.18	1.1	0.8	1.9	13.0	215
	1.25	50/0.18	1.5	0.8	2.0	14.5	285
	2	37/0.26	1.8	0.8	2.1	15.5	360
	3.5	45/0.32	2.5	0.8	2.2	18.0	530
	5.5	70/0.32	3.1	1.0	2.4	22	790
	8	50/0.45	3.7	1.0	2.6	25	1 030
	14	88/0.45	4.9	1.0	2.9	30	1 630
	22	7/20/0.45	7.0	1.2	3.3	38	2 550
	(30)	7/27/0.45	8.1	1.2	3.6	42	3 250
	38	7/34/0.45	9.1	1.2	3.8	45	3 960

Table 6 : Dimensions
(Code : 600V 2PNCT
600V CUR-2PNCT)

No. of cores	Conductor size mm²	Conductor construction No./mm	Conductor diam. mm	Thick of insulation mm	Thick. of sheath mm	Approx. overall diameter mm	Approx. weight kg/km
8	0.75	30/0.18	1.1	0.8	2.0	14.0	250
	1.25	50/0.18	1.5	0.8	2.0	15.5	325
	2	37/0.26	1.8	0.8	2.1	17.0	410
	3.5	45/0.32	2.5	0.8	2.3	19.5	615
	5.5	70/0.32	3.1	1.0	2.5	24	915
	8	50/0.45	3.7	1.0	2.7	27	1 190
	14	88/0.45	4.9	1.0	3.0	32	1 880
	22	7/20/0.45	7.0	1.2	3.5	41	2 970
	(30)	7/27/0.45	8.1	1.2	3.8	45	3 780
	38	7/34/0.45	9.1	1.2	4.0	49	4 600
9	0.75	30/0.18	1.1	0.8	2.0	15.0	285
	1.25	50/0.18	1.5	0.8	2.1	16.5	370
	2	37/0.26	1.8	0.8	2.2	18.0	470
	3.5	45/0.32	2.5	0.8	2.4	21	705
	5.5	70/0.32	3.1	1.0	2.6	26	1 050
	8	50/0.45	3.7	1.0	2.8	28	1 360
	14	88/0.45	4.9	1.0	3.2	35	2 160
	22	7/20/0.45	7.0	1.2	3.7	44	3 420
	(30)	7/27/0.45	8.1	1.2	4.0	49	4 340
	38	7/34/0.45	9.1	1.2	4.2	53	5 270
10	0.75	30/0.18	1.1	0.8	2.1	16.0	295
	1.25	50/0.18	1.5	0.8	2.2	17.5	390
	2	37/0.26	1.8	0.8	2.3	19.0	490
	3.5	45/0.32	2.5	0.8	2.4	22	730
	5.5	70/0.32	3.1	1.0	2.7	27	1 090
12	0.75	30/0.18	1.1	0.8	2.1	16.5	330
	1.25	50/0.18	1.5	0.8	2.2	18.5	435
	2	37/0.26	1.8	0.8	2.3	20	550
	3.5	45/0.32	2.5	0.8	2.5	23	835
	5.5	70/0.32	3.1	1.0	2.8	28	1 250
16	0.75	30/0.18	1.1	0.8	2.2	18.0	410
	1.25	50/0.18	1.5	0.8	2.3	20	545
	2	37/0.26	1.8	0.8	2.4	22	695
	3.5	45/0.32	2.5	0.8	2.6	26	1 070
	5.5	70/0.32	3.1	1.0	2.9	31	1 600

Table 7 : Dimensions
(Code : 600V 2PNCT
600V CUR-2PNCT)

No. of cores	Conductor size mm²	Conductor construction No./mm	Conductor diam. mm	Thick of insulation mm	Thick. of sheath mm	Approx. overall diameter mm	Approx. weight kg/km
20	0.75	30/0.18	1.1	0.8	2.3	20	500
	1.25	50/0.18	1.5	0.8	2.4	22	665
	2	37/0.26	1.8	0.8	2.5	24	850
	3.5	45/0.32	2.5	0.8	2.8	29	1 320
	5.5	70/0.32	3.1	1.0	3.1	34	1 980
24	0.75	30/0.18	1.1	0.8	2.4	22	595
	1.25	50/0.18	1.5	0.8	2.6	25	805
	2	37/0.26	1.8	0.8	2.7	27	1 030
	3.5	45/0.32	2.5	0.8	3.0	31	1 590
	5.5	70/0.32	3.1	1.0	3.4	38	2 400
30	0.75	30/0.18	1.1	0.8	2.5	24	700
	1.25	50/0.18	1.5	0.8	2.7	26	955
	2	37/0.26	1.8	0.8	2.8	29	1 230
	3.5	45/0.32	2.5	0.8	3.1	34	1 910
	5.5	70/0.32	3.1	1.0	3.5	41	2 890

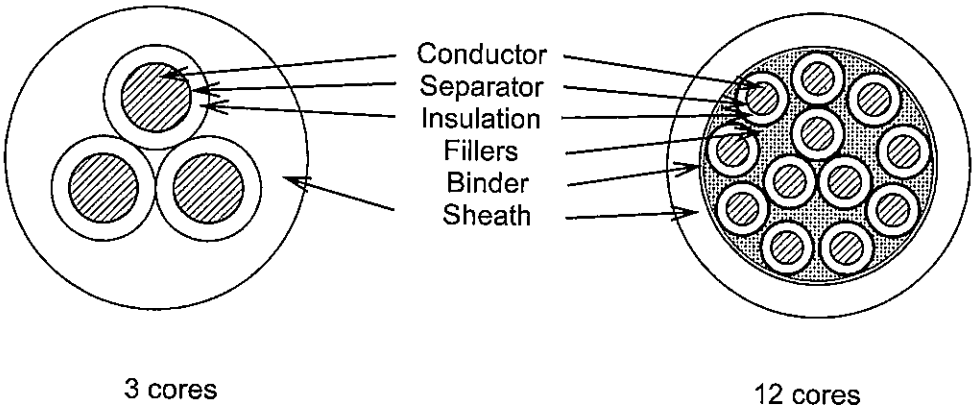
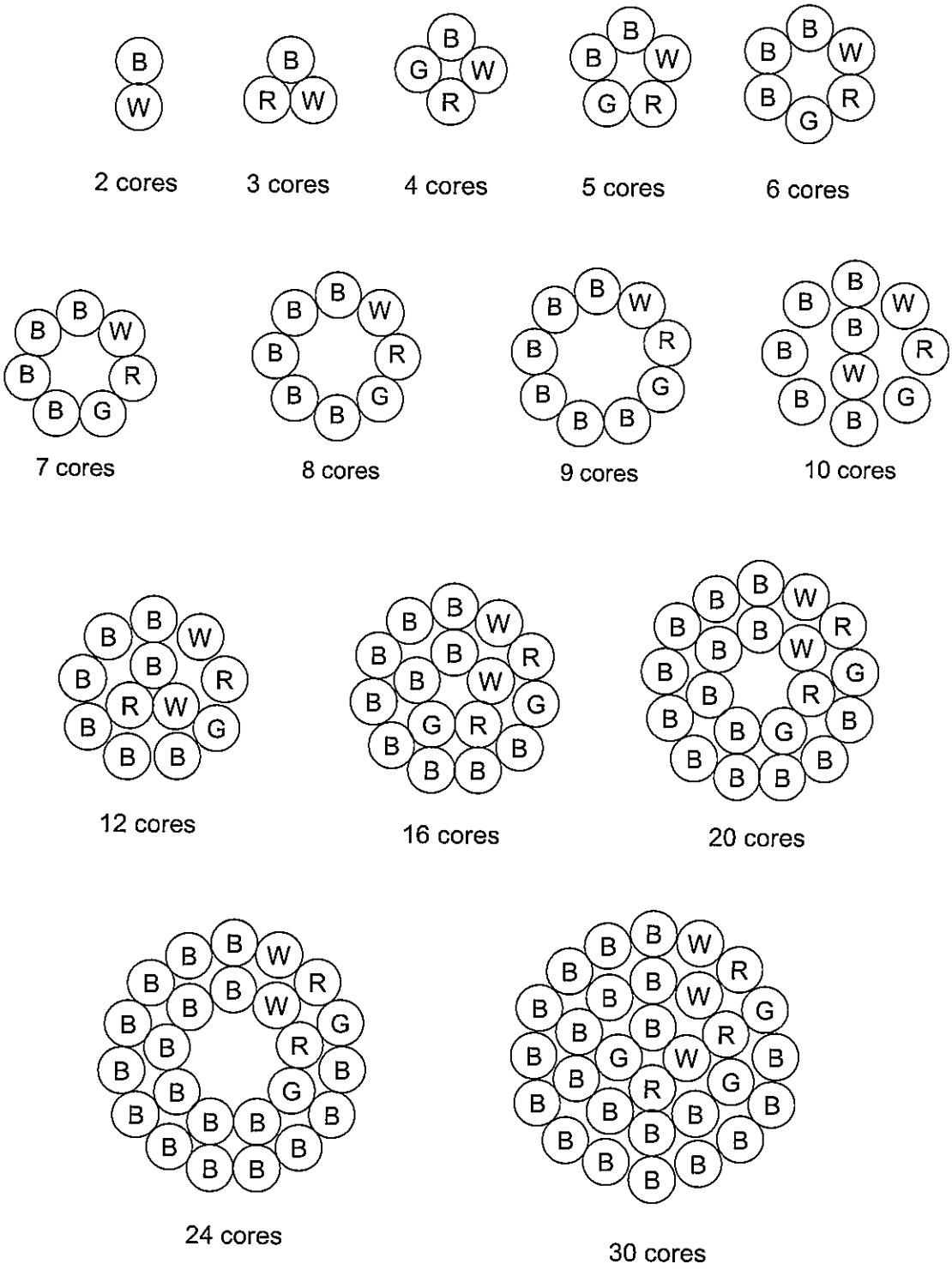


Fig.1 Cable Cross Section



Note) B : Black
W : White
R : Red
G : Green

Fig.2 Core identification