No. SP 23-31-0870REV.2
Date April 15, 2024

SPECIFICATION

FOR

600V ETHYLENE PROPYLENE RUBBER INSULATED
POLYCHLOROPRENE SHEATHED FLEXIBLE CABLE
Code : 600V MM-CAR-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
—	July 7, 2023	FIRST ISSUE	K. Yamane	N. Ono	T. Watanabe
1	Dec. 25, 2023	Added 600V MM-CAR-2PNCT 1×150mm^2	K. Yamane	N. Ono	T. Watanabe
2	April 15, 2024	Added 600V MM-CAR-2PNCT 3×50mm^2, 600V MM-CAR-2PNCT 12×5.5mm^2	K. Yamane	N. Ono	T. Watanabe

1. Scope

This specification covers 600V Ethylene Propylene Rubber Insulated Polychloroprene Sheathed Flexible Cable, which is reference to Japanese Electrical Appliance and Material Safety Law or Japanese Electrical Facility Regulation, and Manufacture' s Standard.
This cable shall have flame retardant property as per IEEE Std. 383-1974 paragraph 2.5, Vertical Tray Flame Test (VTFT).

2. Construction and Materials

2.1 Conductor

Conductor shall be stranded flexible conductor consisting of tinned annealed copper wires.
A suitable separator tape shall be applied over the conductor.

2.2 Insulation

Insulation shall consist of black flame retardant ethylene propylene rubber compound.
Nominal thickness shall be shown in the table 1, 3, 5.
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 insulation or the color of Insulation surface as shown in the figures. (Fig. 3, 5)

2.4 Cabling of cores

The insulated conductors shall be cabled.
Suitable rubber filler 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 table 1, 3, 5.
Ave. thick. : not less than 90% of the nominal thickness
Min. thick. : not less than 85% of the nominal thickness

A straight line shall be marked on the surface of the sheath.

2.6 Dimension

The dimension of the cable shall be in accordance with the table 1, 3, 5.

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 prior to shipment.

Properties	Standard to comply with	Requirements	Test interval
Construction and dimensions	JIS C 3005 4.3	To comply with clause 2 and the attached table 1, 3, 5	Every shipment
Withstand voltage test	JIS C 3005 4.6	To withstand AC 3000V for 1 min. 600V MM-CAR-2PNCT 1×95mm² 600V MM-CAR-2PNCT 3×6mm² 600V MM-CAR-2PNCT 3×50mm²	Every shipment
		To withstand AC 3000V for 1 min. 600V MM-CAR-2PNCT 1×150mm² 600V MM-CAR-2PNCT 1×185mm² 600V MM-CAR-2PNCT 12×4mm² 600V MM-CAR-2PNCT 12×5.5mm² 600V MM-CAR-2PNCT 20×2.5mm²	First shipment
Conductor resistance	JIS C 3005 4.4	Not more than the value in the attached table 2, 4, 6	
Insulation resistance	JIS C 3005 4.7	Not less than the value in the attached table 2, 4, 6	

5. Guide to use

This cable is designed for carrier drum system(cable tender system) as shown below.

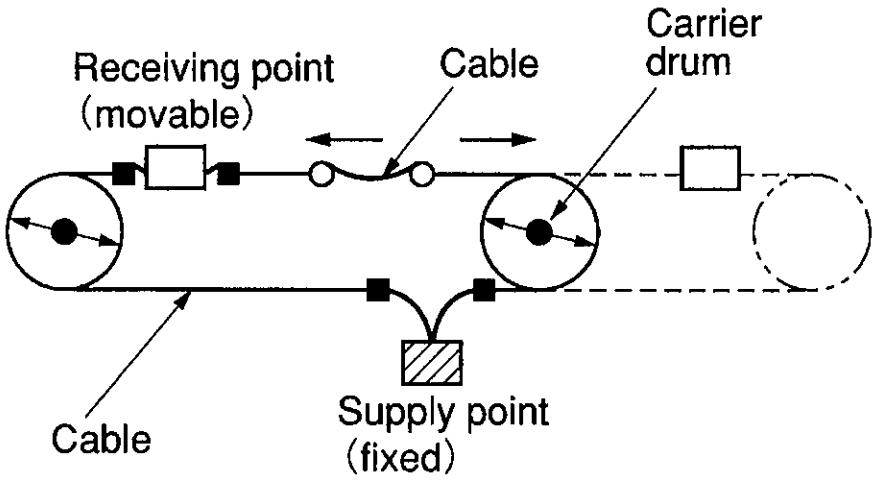
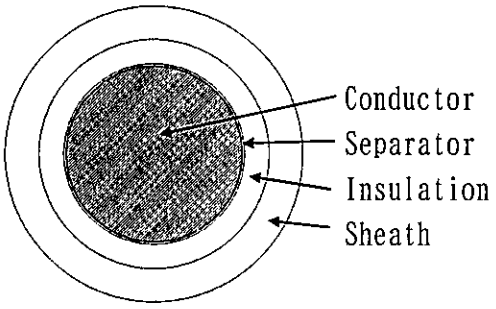


Table 1 : Dimensions
(Code : 600V MM-CAR-2PNCT 1×95mm², 1×150mm², 1×185mm²)

Item		Unit	Specified Value		
No. of conductor		—	1	1	1
Conductor	Nominal cross-section area	mm²	95	150	185
	Construction	No. /mm	19/25/0.5	27/34/0.45	37/25/0.5
	Approx. diameter	mm	14.4	18.7	20.2
Nominal thickness of insulation		mm	2.0	2.0	2.5
Nominal thickness of sheath		mm	2.5	2.7	3.0
Approx. diameter of completed cable		mm	24	27	32
Maximum diameter of completed cable		mm	25.2	28.4	33.6
Approx. weight of completed cable		kg/km	1200	1720	2270

Table 2: Characteristic

Item	Unit	Specified Value		
Conductor nominal cross-section area	—	95	150	185
Maximum conductor resistance at 20℃	Ω/km	0.210	0.136	0.108
Minimum insulation resistance at 20℃	MΩ·km	300	200	200
Permissible minimum bending radius	mm	150	170	200



1×95mm²

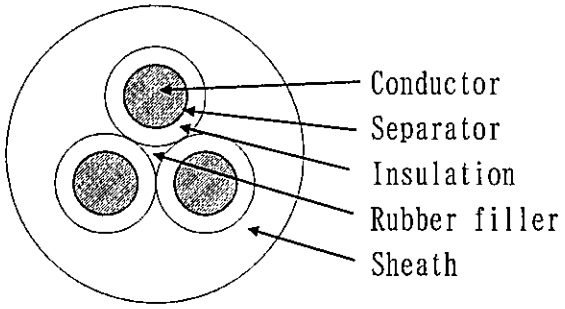
Fig. 1 Cable cross section

Table 3 : Dimensions
(Code : 600V MM-CAR-2PNCT 3×6mm², 3×50mm²)

Item		Unit	Specified Value	
No. of conductor		—	3	3
Conductor	Nominal cross-section area	mm²	6	50
	Construction	No./mm	84/0.3	19/16/0.45
	Approx. diameter	mm	3.2	10.4
Nominal thickness of insulation		mm	1.0	1.5
Nominal thickness of sheath		mm	2.1	3.2
Approx. diameter of completed cable		mm	16.5	35
Maximum diameter of completed cable		mm	17.4	36.8
Approx. weight of completed cable		kg/km	400	2260

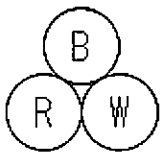
Table 4: Characteristic

Item	Unit	Specified Value	
Conductor nominal cross-section area	—	6	50
Maximum conductor resistance at 20℃	Ω/km	3.39	0.423
Minimum insulation resistance at 20℃	MΩ·km	400	200
Permissible minimum bending radius	mm	100	210



3×6mm²

Fig. 2 Cable cross section



3 cores

Note) B : Black
W : White
R : Red

Fig. 3 Core identification

Table 5 : Dimensions
(Code : 600V MM-CAR-2PNCT 12×4mm², 12×5.5mm², 20×2.5mm²)

Item		Unit	Specified Value		
No. of conductor		—	12	12	20
Conductor	Nominal cross-section area	mm²	4	5.5	2.5
	Construction	No./mm	56/0.3	70/0.32	49/0.25
	Approx. diameter	mm	2.6	3.1	2.1
Nominal thickness of insulation		mm	1.0	1.0	0.8
Nominal thickness of sheath		mm	2.6	2.8	2.7
Approx. diameter of completed cable		mm	26	28	26
Maximum diameter of completed cable		mm	27.3	29.4	27.3
Approx. weight of completed cable		kg/km	1010	1200	1050

Table 6: Characteristic

Item	Unit	Specified Value		
Conductor nominal cross-section area	—	4	5.5	2.5
Maximum conductor resistance at 20℃	Ω/km	5.09	3.56	8.21
Minimum insulation resistance at 20℃	MΩ·km	400	400	500
Permissible minimum bending radius	mm	160	170	160

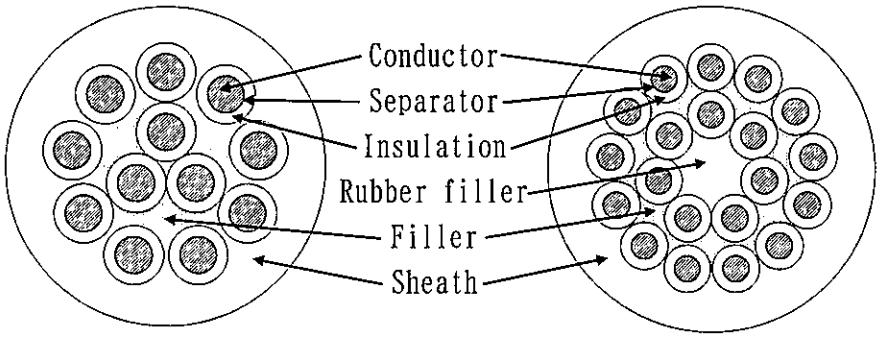


Fig.4 Cable cross section

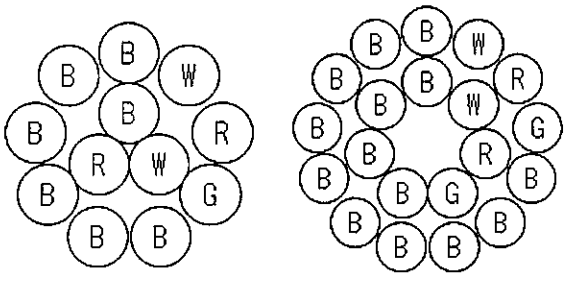


Fig.5 Core identification