HITACHI
Inspire the Next
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SPECIFICATION

FOR

LEAD FREE MULTI CORE CABLE

[P/N: CO-VV (SPV1096) nx0.3SQ(7/0.26TA) LF]

(n ~ number of core)

Provisional Document

(Note) Official document shall be issued after 1st trial and evaluation

Prepared	Checked	Approved
H.T.Đệ 23-1-2018 HCV/DE	N.M.Cường 25-1-2018 HCV/SV	M.SUZUKI 25-1-2018 HCV/GM

Revision record

No.	Date	Rev.	Contents	Prepared by	Reviewed by	Approved by
1	Jun. 13th, 2017	Initial Issue	Initial Issue	Loan.NTT	Cuong.MN	Suzuki.M
2	Dec. 19th ,2017	01	Add item 4x0.3SQ	De.HT	Cuong.MN	Suzuki.M
3	Jan. 23rd, 2018	02	Change color core from Orange to Brown	Ha Thi De	N.M. Cuong	M. Suzuki

1. Scope

This specification covers lead free PVC insulated and jacketed multi core cables.
Rating: 80°C, 30V

2. Construction and Material

Description			Specification
Conductor	Material	-	Tinned annealed copper wire (TA) stranded
	Size	SQ	0.3
	Stranding	No./mm	7/0.26
	Diameter (Nom.)	mm	0.78
Insulation	Material	-	Heat resistant, Lead free PVC
	Thickness (Nom.)	mm	0.25
	Diameter (Nom.)	mm	1.28
	Color & Identification	-	See table 2
Cabling	Binder tape	-	Paper tape
	Diameter (Nom.)	mm	See table 1
Jacket	Material	-	Heat resistance, Lead free PVC
	Thickness (Nom)	mm	0.6
	Diameter (Nom.)	mm	See table 1
	Color (color code)	-	Black (BK)

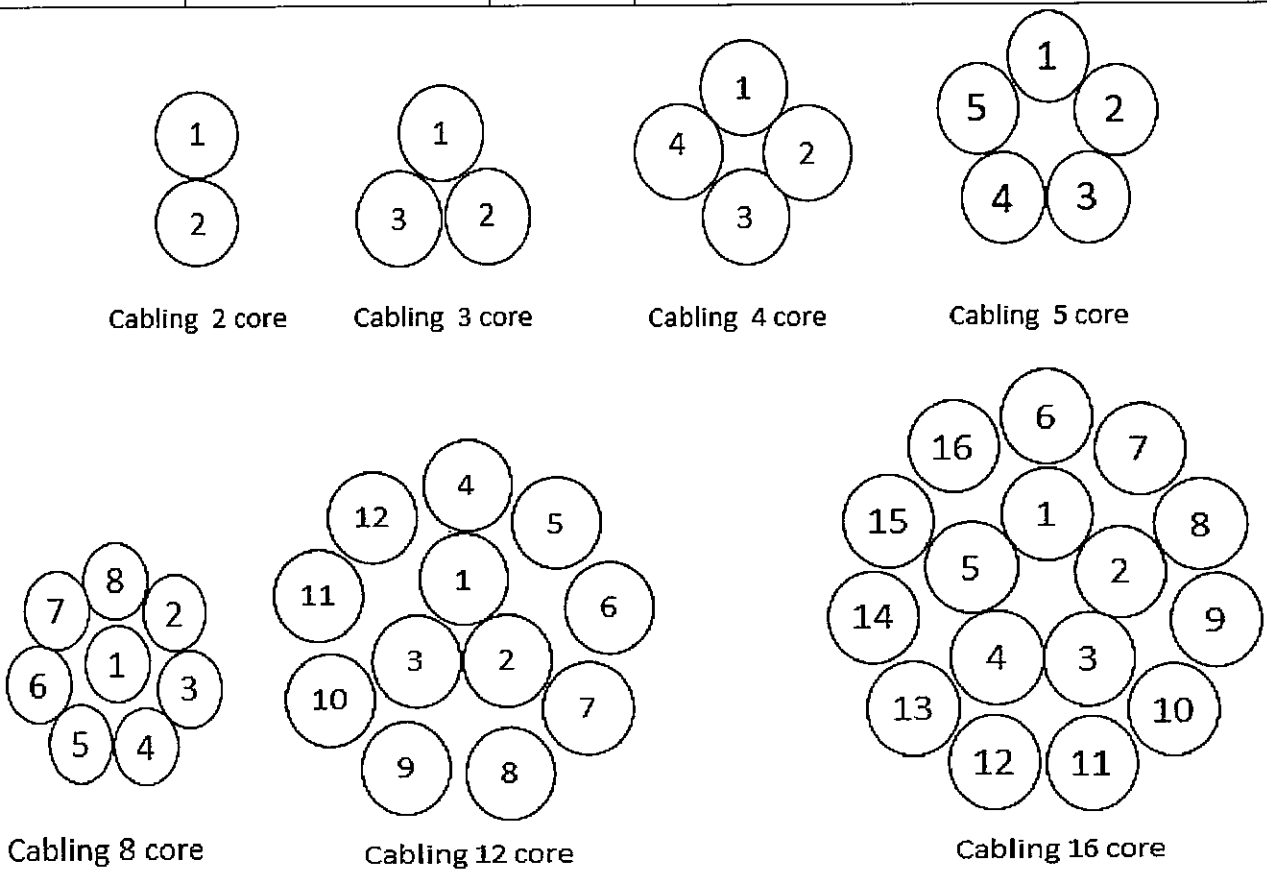
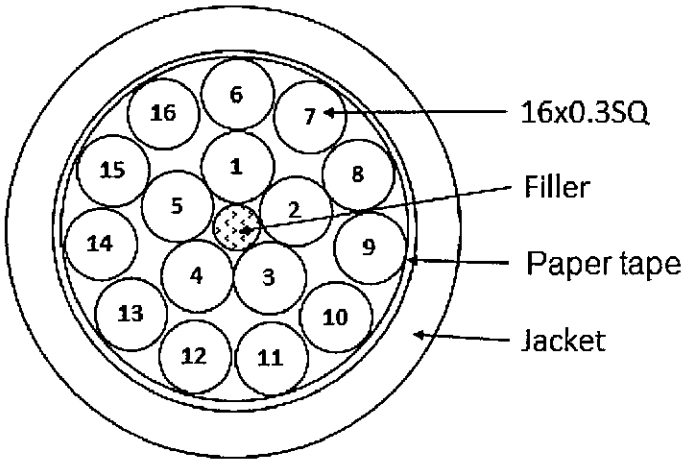


Fig. 1 Lay out of cabling

Example item 16x0.3SQ



(*) Suitable fillers may be applied to make a circular cross section.

Fig. 2 Cross-section of cable

3. Marking

The completed cable shall be printed following marking format on the surface throughout entire length by regular interval

Example:

HITACHI *Manufacture year*

Note: Making format subject to change without notice according with safety revision

4. Properties

No.	Test Item	Test Detail	Standard	Test		
				Routine	Type	Approval
1	Dielectric strength	AC 500V/1min No breakdown	Specification	Yes	X	Yes
2	Conductor resistance	Max. 54.4 Ω/km at 20°C	Specification	X	Yes	Yes
3	Insulation resistance	Min 10 MΩ-km (20°C)	Specification	X	Yes	Yes
4	Current rating	See table 1	Specification	X	X	Yes

5. Packing

5.1 Packing

Each product shall be packed in coil for transportation, and unit length: see table 1.

5.2 Marking on the Package

Each package shall be tagged to show the following information

(1) Production name
(2) Conductor size
(3) No of conductor
(4) Color
(5) Lot No.
(6) Length
(7) Date of manufacturing
(8) Name of manufacturer

6. Order form

Example:

CO	-	VV	(SPV1096)	16	x	0.3SQ(7/0.26TA)	LF	BK	C100
1		2	3	4		5	6	7	8

1	CO	For Computer
2	VV	PVC insulation and jacket
3	SPV1096	Specification No. SPV-02-1096
4	16	No of core
5	0.3SQ(7/0.26TA)	Conductor size & stranding
6	LF	Lead Free
7	BK	Jacket Color (Black)
8	C100	Packing style and unit length, "C" for coil in m

7. Control of Chemical Substances

Control of Chemical Substances in this product shall be controlled as below.

7.1 6 substances of RoHS Directive

(1) Applicable standard and statute

(a) Directive 2011/65/EU of the European Parliament and of the Council on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment)

(b) 2005/618/EC COMMISSION DECISION of 18 August 2005

(amending Directive 2011/65/EU of the European Parliament and of the Council for the purpose of establishing the maximum concentration values for certain hazardous substances in electrical and electronic equipment)

(c) JIS C 0950:2008(The marking for presence of the specific chemical substances for electrical and electronic equipment)

(2) The maximum concentration values for certain hazardous substances.

	Chemical Substances	Concentration value	
		Resin, a paint, and ink	Others
1	Cadmium and Cadmium Compounds	Less than 5ppm	Less than 75ppm
2	Hexavalent Chromium Compounds	Less than 1000ppm	
3	Lead and Lead Compounds	Less than 100ppm	Less than 1000ppm
4	Mercury and Mercury Compounds	Less than 1000ppm	
5	Polybrominated Biphenyls(PBBs)	Less than 1000ppm	
6	Polybrominated Diphenyl ethers(PBDEs)	Less than 1000ppm	
7	Bis (2-ethylhexyl) phthalate (DEHP) * 1 (CAS No.117-81-7)	Intentional use prohibited * 2	
8	Benzyl butyl phthalate (BBP) * 1 (CAS No. 85-68-7)	Intentional use prohibited * 2	
9	Dibutyl phthalate (DBP)(CAS No. 84-74-2) * 1	Intentional use prohibited * 2	
10	Diisobutyl phthalate (DIBP) * 1 (CAS No. 84-69-5)	Intentional use prohibited * 2	

**1 : COMMISSION DELEGATED DIRECTIVE (EU) 2015/863*

**2 : Provisional until the guarantee of material (up to 1000ppm) is obtained*

7.2 Any substances of Hitachi Metals, Limited Cable Material Company's voluntarily controlled chemical substances.

(1) Applicable Standard

Cable Materials Company Green Procurement Standard; document No. HKS01 (Latest version), Level A Prohibited Substances Group List.

(2) Maximum concentration value.

Intentional use shall be prohibited and maximum concentration value limited according to each substance. 6 substances of the clause 7.1 shall be controlled as 7.1 (2).

HKS01 Perform the adapted management to quote laws and regulations of HKS01 (Latest version).

Table 1: Dimension of cable

No. of core	Cabling diameter Nom. (mm)	Jacket diameter (mm)	Unit length (m)	Current rating Max. (A)
2	2.7	3.9 ± 0.5	200	7.5
3	2.9	4.1 ± 0.5	200	6.3
4	3.2	4.4 ± 0.5	200	5.6
5	3.6	4.8 ± 0.5	200	5.3
8	4.3	5.5 ± 0.5	200	4.4
12	5.4	6.6 ± 0.5	100	3.9
16	6.1	7.3 ± 0.5	100	3.6

Table 2: Color and Identification for Core

Core No.	Color	Dot mark	Dot mark color
1	Brown	■ (1 short dot)	Black
2	Brown		Red
3	Yellow		Black
4	Yellow		Red
5	Light Green		Black
6	Light Green		Red
7	Gray		Black
8	Gray		Red
9	White		Black
10	White		Red
11	Brown	■ ■ (2 short dots)	Black
12	Brown		Red
13	Yellow		Black
14	Yellow		Red
15	Light Green		Black
16	Light Green		Red