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SPEC. No. 599-9445

SPECIFICATION

KVC-36SB

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1.Scope

The specification is applied to KVC-36SB which is heat resistant insulated and oil / heat resistant sheathed and braid shielded cables, rated less than 100 volts in Japan.

2.Type and size

Type and size are indicated in Table 1

Table 1

Type	Size	
	Nominal cross-sectional area	Number of cores(Twisted pairs)
KVC-36SB	0.1mm^2 (28AWG) 0.2mm^2 (25AWG) 0.3mm^2 (23AWG)	2(1P),3,4(2P),5(2P+1),6(3P),7(3P+1),8(4P), 10(5P),12(6P),14(7P),15(7P+1),16(8P), 20(10P),24(12P),30(15P),36(18P),40(20P), 50(25P),60(30P),64(32P)
	0.5mm^2(20AWG)	2,3,4,5,6,7,8,10,12,14,15,16,20,24,25,26,30,40,50,60

3. Adaptation standards

Adaptation standard are indicated in Table 2

Table 2

Type	Nominal cross-sectional area	Number of cores	Adaptation standard	Rating	
				Voltage	Temperature
KVC-36SB	0.1mm^2 (28AWG) 0.2mm^2 (25AWG) 0.3mm^2 (23AWG)	3 or less	UL 758(AWM Style 2936) CSA C22.2 No.210(AWM)	150V	80℃
		4 or more	UL 758(AWM Style 2576) CSA C22.2 No.210(AWM)	150V	80℃
	0.5mm^2 (20AWG)	4 or less	UL 758(AWM Style 2937) CSA C22.2 No.210(AWM)	300V	80℃
		5 or more	UL 758(AWM Style 2935) CSA C22.2 No.210(AWM)	300V	80℃

4. Materials and Constructions

4.1 Conductors

The conductors of 0.1mm^2 and 0.2mm^2 shall be stranded wires composed of tin coated annealed copper wires specified in JIS C 3152.

The conductors of 0.3mm^2 and 0.5mm^2 shall be stranded wires composed of annealed copper wires specified in JIS C 3102.

4.2 Insulation

The conductor described in 4.1 shall be covered with heat resistant polyvinyl chloride of the nominal thickness indicated in table 5 in the shape of a concentric circle.

4.3 Identification of insulated wire

・0.1 mm^2 , 0.2 mm^2, 0.3 mm^2

The identification of insulated wires shall be made by the insulation colors and straight line indicated in table 3.

Table 3

Twisted pair No.	1		2		3		4		5		6		7	
Insulation color	BK	BK	R	R	GN	GN	Y	Y	BN	BN	BL	BL	GY	GY
Straight line color	-	W	-	W	-	W	-	W	-	W	-	W	-	W

Twisted pair No.	8		9		10		11		12		13		14	
Insulation color	O	O	P	P	YG	YG	PK	PK	SB	SB	W	W	GN	GN
Straight line color	-	W	-	W	-	W	-	W	-	W	-	BK	BK	R

Twisted pair No.	15		16		17		18		19		20		21	
Insulation color	Y	Y	BN	BN	BL	BL	GY	GY	O	O	P	P	YG	YG
Straight line color	BK	R	BK	R	BK	R	BK	R	BK	R	BK	R	BK	R

Twisted pair No.	22		23		24		25		26		27		28	
Insulation color	PK	PK	SB	SB	R	R	BK	BK	W	W	BN	BN	BL	BL
Straight line color	BK	R	BK	R	BK	GN	GN	Y	GN	Y	GN	Y	GN	Y

Twisted pair No.	29		30		31		32	
Insulation color	GY	GY	O	O	P	P	YG	YG
Straight line color	GN	Y	GN	Y	GN	Y	GN	Y

BK : Black, W : White, R : Red, GN : Green, Y : Yellow, BN : Brown, BL : Blue, GY : Gray, O : Orange, P : Purple, PK : Pink, YG : Yellowish Green, SB : Sky Blue

·0.5 mm^2, 12 cores or less

The identification of insulated wires shall be made by the insulation colors indicated in table 4.

Table 4

Twisted pair No.	1	2	3	4	5	6	7	8	9	10	11	12
Insulation color	BK	W	R	GN	Y	BN	BL	GY	O	P	PK	YG

BK : Black, W : White, R : Red, GN : Green, Y : Yellow, BN : Brown, BL : Blue, GY : Gray, O : Orange, P : Purple, PK : Pink, YG : Yellowish Green,

·0.5 mm^2, 13 cores or more

The identification of insulated wires shall be made by numbering in blue color on white insulator surface.

4.4 Twisted pair

The insulated wires of 0.1mm^2, 0.2mm^2 and 0.3mm^2 indicated in table 3 shall be twisted.
The direction of lay of twist is right-hand.

4.5 Assembly

The insulated wires or twisted pairs shall be arranged such as indicated in figure 1 and assembled, with fillers if necessary, and rolled up with tape on the assembly.

4.6 Shield

The assembly described in 4.5 shall be braided uniformly tin coated annealed copper wires specified in JIS C 3152, and the drain wire shall be inserted between the assembly and the shield.

4.7 Sheath

The assembly described in 4.6 shall be covered with oil and heat resistant polyvinyl chloride, the color is black, of the nominal thickness indicated in table 5 in the shape of a concentric circle.

Table 5-1 KVC-36SB 0.1mm² (28 AWG)

Number of cores (twisted pairs)	Nominal cross-sectional Area mm² (AWG)	Conductor		Insulation		Twisted pair	Assembly	Tape	Shield	Sheath		Approx. mass per unit length	Conductor resistance (20℃)	Insulation resistance (20℃)	Dielectric strength
		Number of strands /Diameter number /mm	Stranding Diameter mm	Nominal thickness mm	Diameter mm	Diameter mm	Diameter mm	Thickness mm	Thickness mm	Nominal thickness mm	Overall Diameter mm	kg/km	Max. Ω/km	Min. MΩ·km	V·min
2(1P)	0.1 (28AWG)	7/0.127	Approx. 0.38	0.25	Approx. 0.88	--	Approx. 1.8	Approx. 0.05	Approx. 0.3	0.5	Approx. 3.6	18	231	50	AC1500
3						--	Approx. 1.9			0.5	Approx. 3.7	20			
4(2P)						Approx. 1.8	Approx. 3.1			0.85	Approx. 5.3	35			
5(2P+1)							Approx. 3.2			0.85	Approx. 5.5	35			
6(3P)							Approx. 3.3			0.85	Approx. 5.6	40			
7(3P+1)							Approx. 3.4			0.85	Approx. 5.7	40			
8(4P)							Approx. 3.7			0.85	Approx 5.8	45			
10(5P)							Approx. 4.1			0.85	Approx 6.2	50			
12(6P)							Approx. 4.5			0.85	Approx 6.7	55			
14(7P)							Approx. 4.7			0.85	Approx 7.0	60			
15(7P+1)							Approx. 4.8			0.85	Approx 7.1	65			
16(8P)							Approx. 5.1			0.85	Approx 7.4	65			
20(10P)							Approx. 6.0			0.85	Approx 8.1	75			
24(12P)							Approx. 6.4			0.85	Approx 8.7	90			

Table 5-2 KVC-36SB 0.1mm² (28 AWG)

Number of cores (twisted pairs)	Nominal cross-sectional Area mm² (AWG)	Conductor		Insulation		Twisted pair	Assembly	Tape	Shield	Sheath		Approx. mass per unit length kg/km	Conductor resistance (20℃) Max. Ω/km	Insulation resistance (20℃) Min. MΩ·km	Dielectric strength V·min
		Number of strands /Diameter number /mm	Stranding Diameter mm	Nominal thickness mm	Diameter mm	Diameter mm	Diameter mm	Thickness mm	Thickness mm	Nominal thickness mm	Overall Diameter mm				
30(15P)	0.1 (28AWG)	7/0.127	Approx. 0.38	0.25	Approx. 0.88	Approx. 1.8	Approx. 6.9	Approx. 0.05	Approx. 0.3	1.0	Approx. 9.3	105	231	50	AC1500
36(18P)							Approx. 7.7			1.0	Approx. 10.0	120			
40(20P)							Approx. 7.9			1.0	Approx 10.5	130			
50(25P)							Approx. 9.2			1.0	Approx. 11.5	150			
60(30P)							Approx. 9.8			1.0	Approx. 12.5	175			
64(32P)							Approx. 10.0			1.0	Approx. 12.5	180			

Table 5-3 KVC-36SB 0.2mm² (25AWG)

Number of cores (twisted pairs)	Nominal cross-sectional Area mm² (AWG)	Conductor		Insulation		Twisted pair	Assembly	Tape	Shield	Sheath		Approx. mass per unit length	Conductor resistance (20℃)	Insulation resistance (20℃)	Dielectric strength
		Number of strands /Diameter number /mm	Stranding Diameter mm	Nominal thickness mm	Diameter mm	Diameter mm	Diameter mm	Thickness mm	Thickness mm	Nominal thickness mm	Overall Diameter mm	kg/km	Max. Ω/km	Min. MΩ·km	V·min
2(1P)	0.2 (25AWG)	7/0.18	Approx. 0.54	0.255	Approx. 1.05	--	Approx. 2.1	Approx. 0.05	Approx. 0.3	0.5	Approx. 3.9	21	113	50	AC1500
3						--	Approx. 2.3			0.5	Approx. 4.1	24			
4(2P)						Approx. 2.1	Approx. 3.4			0.85	Approx. 5.7	40			
5(2P+1)							Approx. 3.5			0.85	Approx. 5.8	45			
6(3P)							Approx. 3.6			0.85	Approx. 5.9	45			
7(3P+1)							Approx. 3.7			0.85	Approx. 6.0	50			
8(4P)							Approx. 4.1			0.85	Approx 6.4	55			
10(5P)							Approx. 4.5			0.85	Approx 6.8	65			
12(6P)							Approx. 5.1			0.9	Approx 7.5	75			
14(7P)							Approx. 5.3			0.9	Approx 7.7	80			
15(7P+1)							Approx. 5.4			0.9	Approx 7.8	80			
16(8P)							Approx. 5.8			0.9	Approx 8.2	90			
20(10P)							Approx. 6.6			0.9	Approx 9.0	105			
24(12P)							Approx. 6.7			0.9	Approx 9.1	115			

Table 5-4 KVC-36SB 0.2mm² (25AWG)

Number of cores (twisted pairs)	Nominal cross-sectional Area mm² (AWG)	Conductor		Insulation		Twisted pair	Assembly	Tape	Shield	Sheath		Approx. mass per unit length kg/km	Conductor resistance (20℃) Max. Ω/km	Insulation resistance (20℃) Min. MΩ·km	Dielectric strength V·min
		Number of strands /Diameter number /mm	Stranding Diameter mm	Nominal thickness mm	Diameter mm	Diameter mm	Diameter mm	Thickness mm	Thickness mm	Nominal thickness mm	Overall Diameter mm				
30(15P)	0.2 (25AWG)	7/0.18	Approx. 0.54	0.255	Approx. 1.05	Approx. 2.1	Approx. 7.7	Approx. 0.05	Approx. 0.3	0.9	Approx. 10.0	140	113	50	AC1500
36(18P)							Approx. 8.6			0.9	Approx. 11.0	160			
40(20P)							Approx. 9.0			0.9	Approx 11.5	170			
50(25P)							Approx. 10.2			0.9	Approx. 12.5	205			
60(30P)							Approx. 11.1			1.0	Approx. 14.0	245			
64(32P)							Approx. 11.1			1.0	Approx. 14.0	255			

Table 5-5 KVC-36SB 0.3mm² (23AWG)

Number of cores (twisted pairs)	Nominal cross-sectional Area mm² (AWG)	Conductor		Insulation		Twisted pair	Assembly	Tape	Shield	Sheath		Approx. mass per unit length	Conductor resistance (20℃)	Insulation resistance (20℃)	Dielectric strength
		Number of strands /Diameter number /mm	Stranding Diameter mm	Nominal thickness mm	Diameter mm	Diameter mm	Diameter mm	Thickness mm	Thickness mm	Nominal thickness mm	Overall Diameter mm	kg/km	Max. Ω/km	Min. MΩ·km	V·min
2(1P)	0.3 (23AWG)	12/0.18	Approx. 0.7	0.3	Approx. 1.3	--	Approx. 2.6	Approx. 0.05	Approx. 0.3	0.6	Approx. 4.6	28	62.3	50	AC1500
3						--	Approx. 2.8			0.6	Approx. 4.8	35			
4(2P)						Approx. 2.6	Approx. 3.9			0.85	Approx. 6.2	50			
5(2P+1)							Approx. 4.1			0.85	Approx. 6.4	55			
6(3P)							Approx. 4.5			1.0	Approx. 7.1	70			
7(3P+1)							Approx. 4.6			1.0	Approx. 7.2	70			
8(4P)							Approx. 5.2			1.0	Approx 7.8	85			
10(5P)							Approx. 5.9			1.0	Approx 8.5	100			
12(6P)							Approx. 6.6			1.05	Approx 9.3	115			
14(7P)							Approx. 6.7			1.05	Approx 9.4	120			
15(7P+1)							Approx. 6.8			1.05	Approx 9.5	125			
16(8P)							Approx. 7.2			1.1	Approx 10.0	135			
20(10P)							Approx. 8.5			1.15	Approx 11.5	170			
24(12P)							Approx. 8.9			1.15	Approx 12.0	185			

Table 5-6 KVC-36SB 0.3mm² (23AWG)

Number of cores (twisted pairs)	Nominal cross-sectional Area mm² (AWG)	Conductor		Insulation		Twisted pair	Assembly	Tape	Shield	Sheath		Approx. mass per unit length	Conductor resistance (20℃)	Insulation resistance (20℃)	Dielectric strength
		Number of strands /Diameter number /mm	Stranding Diameter mm	Nominal thickness mm	Diameter mm	Diameter mm	Diameter mm	Thickness mm	Thickness mm	Nominal thickness mm	Overall Diameter mm	kg/km	Max. Ω/km	Min. MΩ·km	V·min
30(15P)	0.3 (23AWG)	12/0.18	Approx. 0.7	0.3	Approx. 1.3	Approx. 2.6	Approx. 9.8	Approx. 0.05	Approx. 0.3	1.15	Approx. 13.0	215	62.3	50	AC1500
36(18P)							Approx. 10.8			1.2	Approx. 14.0	255			
40(20P)							Approx. 11.2			1.2	Approx 14.5	275			
50(25P)							Approx. 12.7			1.25	Approx. 15.5	335			
60(30P)							Approx. 14.0			1.25	Approx. 17.0	385			
64(32P)							Approx. 14.2			1.25	Approx. 17.5	405			

Table 5-7 KVC-36SB 0.5mm² (20AWG)

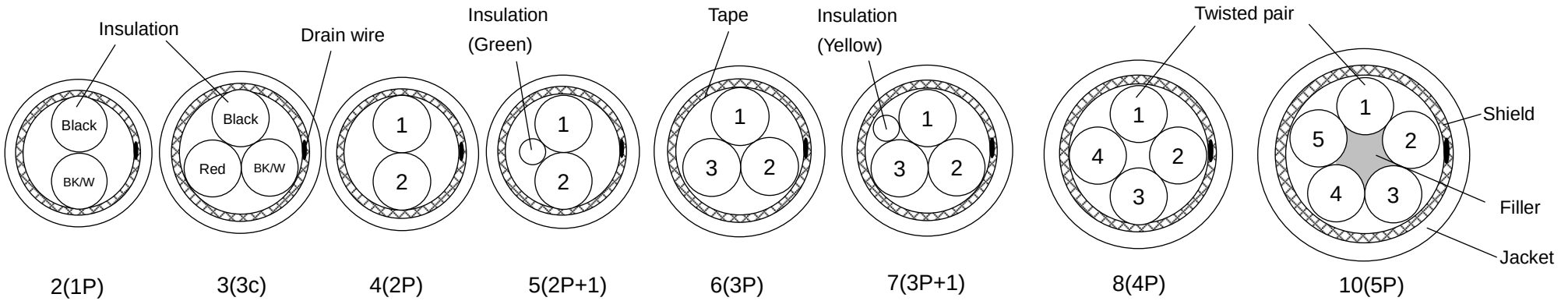
Number of cores	Nominal cross-sectional Area mm² (AWG)	Conductor		Insulation		Assembly	Tape	Shield	Sheath		Approx. mass per unit length kg/km	Conductor resistance (20℃) Max. Ω/km	Insulation resistance (20℃) Min. MΩ·km	Dielectric strength V·min
		Number of strands /Diameter number /mm	Stranding Diameter mm	Nominal thickness mm	Diameter mm	Diameter mm	Thickness mm	Thickness mm	Nominal thickness mm	Overall Diameter mm				
2	0.5 (20AWG)	22/0.18	Approx. 0.95	0.35	Approx. 1.65	Approx. 3.3	Approx. 0.05	Approx. 0.3	0.75	Approx. 5.6	45	34.3	50	AC2000
3						Approx. 3.6			0.75	Approx. 5.9	50			
4						Approx. 4.0			0.75	Approx. 6.3	60			
5						Approx. 4.5	Approx. 0.1		0.95	Approx. 7.0	80			
6						Approx. 5.0			1.05	Approx. 7.7	95			
7						Approx. 5.0			1.05	Approx. 7.7	100			
8						Approx. 5.5			1.05	Approx 8.2	115			
10						Approx. 6.6			1.05	Approx 9.3	140			
12						Approx. 6.9			1.05	Approx 9.6	150			
14						Approx. 7.3			1.05	Approx 10.0	165			
15						Approx. 7.5			1.05	Approx 10.5	175			
16						Approx. 7.8			1.05	Approx 10.5	190			
20						Approx. 8.8			1.1	Approx 12.0	225			
24						Approx. 9.9			1.1	Approx 12.5	265			

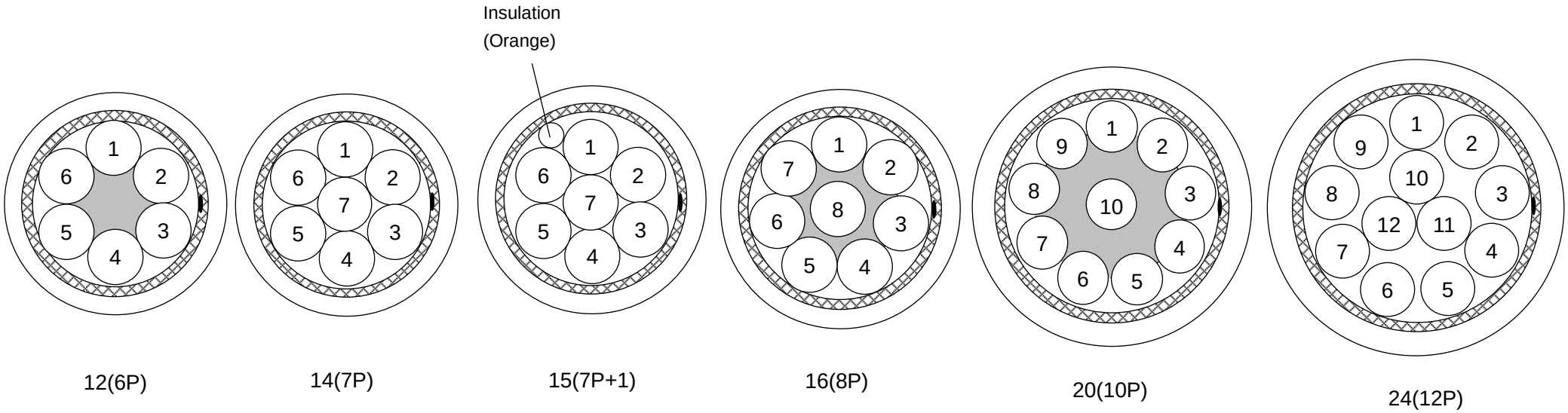
Table 5-8 KVC-36SB 0.5mm² (20AWG)

ÿNumber

Number of cores	Nominal cross-sectional Area mm² (AWG)	Conductor		Insulation		Assembly	Tape	Shield	Sheath		Approx. mass per unit length kg/km	Conductor resistance (20℃) Max. Ω/km	Insulation resistance (20℃) Min. MΩ·km	Dielectric strength V·min
		Number of strands /Diameter number /mm	Stranding Diameter mm	Nominal thickness mm	Diameter mm	Diameter mm	Thickness mm	Thickness mm	Nominal thickness mm	Overall Diameter mm				
25	0.5 (20AWG)	22/0.18	Approx. 0.95	0.35	Approx. 1.65	Approx. 9.9	Approx. 0.1	Approx. 0.3	1.1	Approx. 13.0	275	34.3	50	AC2000
26						Approx. 9.9			1.1	Approx. 13.0	280			
30						Approx. 10.5			1.1	Approx. 13.5	310			
40						Approx. 12.6			1.1	Approx. 15.5	400			
50						Approx. 13.8			1.2	Approx. 17.0	490			
60						Approx. 14.9			1.2	Approx. 18.0	580			

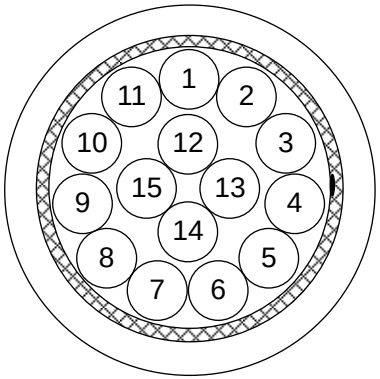
Figure 1-1 Arrangement of KVC-36SB 0.1mm², 0.2mm², 0.3mm²





*BK/W : Black insulation with White straight line.
*The number of figure indicates twisted pair number.

Figure 1-2 Arrangement of KVC-36SB 0.1mm², 0.2mm², 0.3mm²



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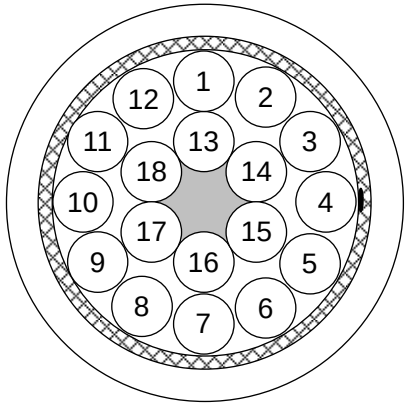

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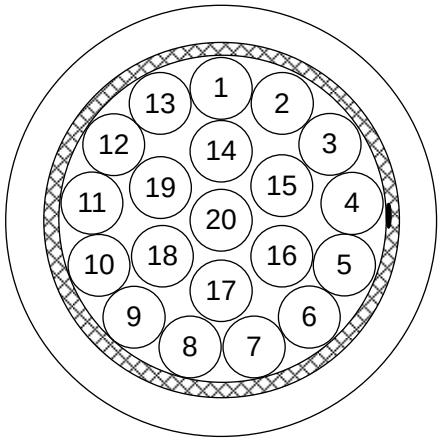

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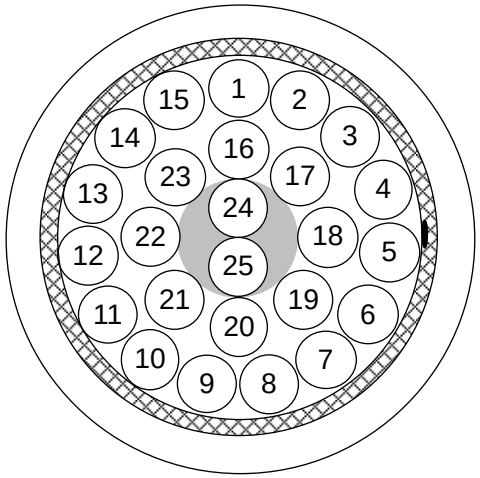
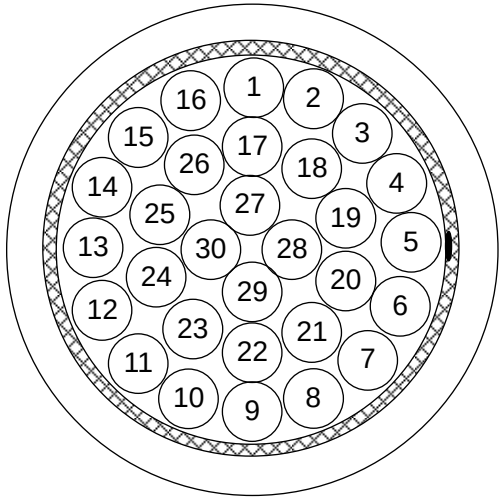
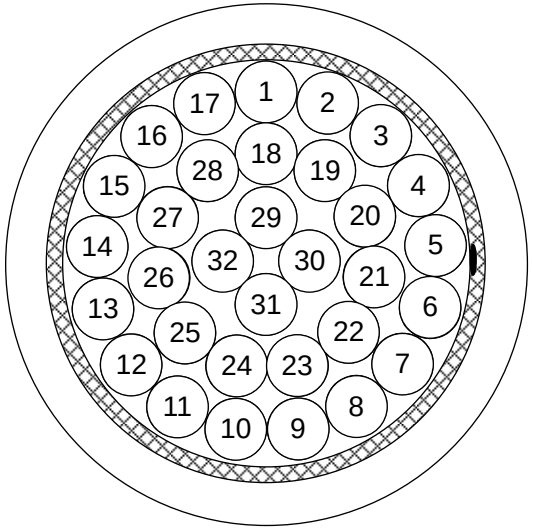


50(25P)



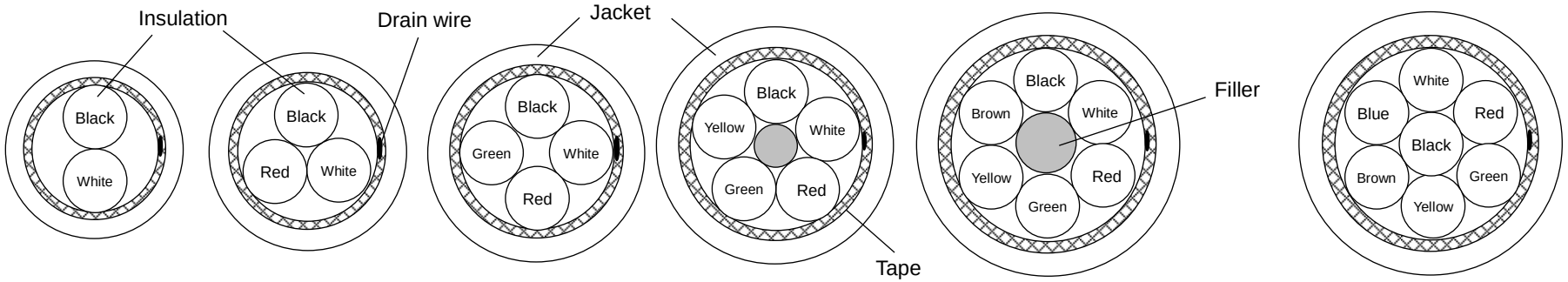
60(30P)



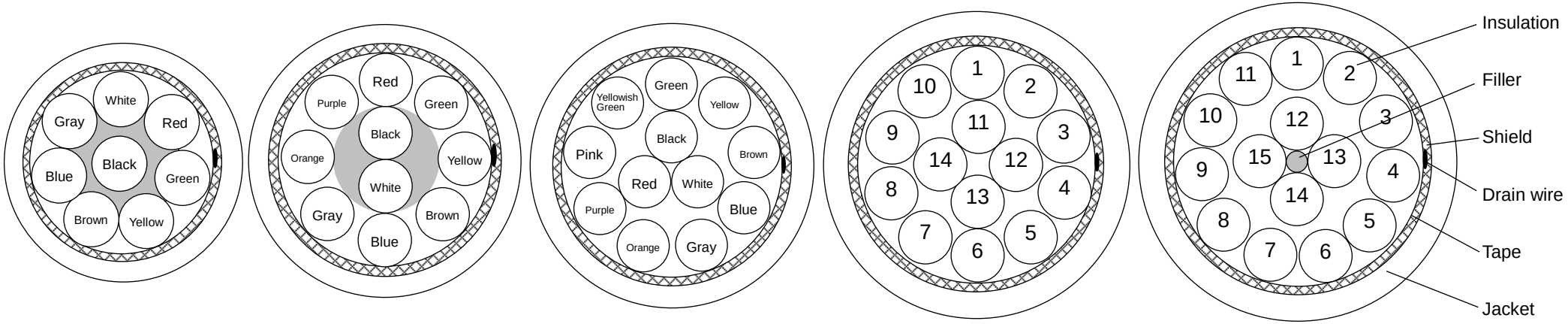
64(32P)

*The number of figure indicates twisted pair number.

Figure 1-3 Arrangement of KVC-36SB 0.5mm^2



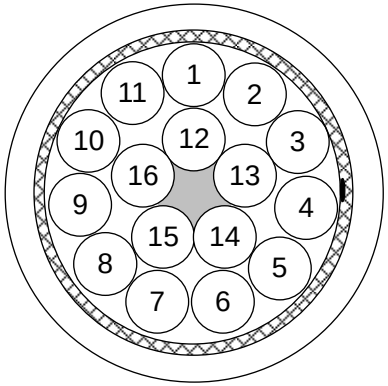
2c 3c 4c 5c 6c 7c



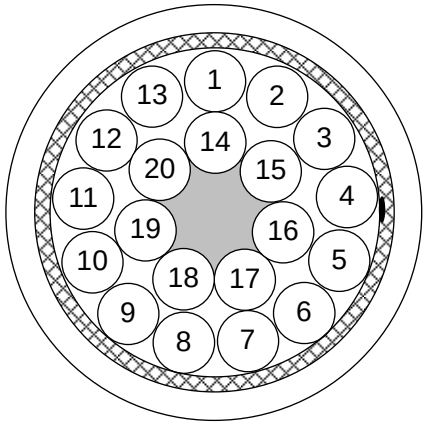
8c 10c 12c 14c 15c

*Insulation is colored white and printed Arabic numerals by blue ink.

Figure 1-4 Arrangement of KVC-36SB 0.5mm^2



16c



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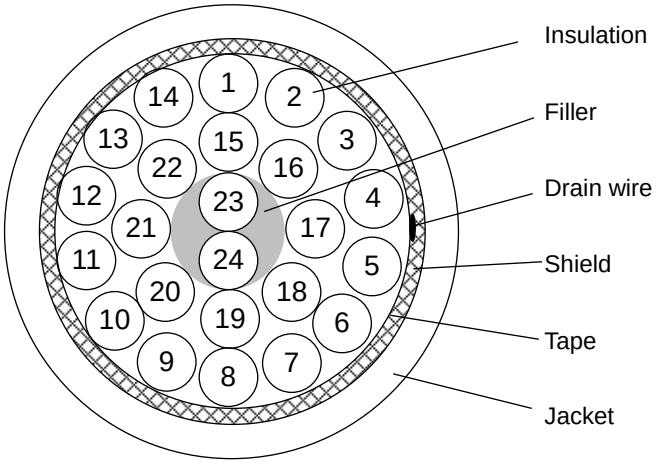

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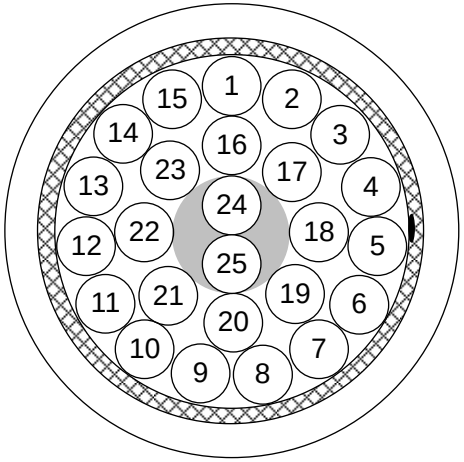

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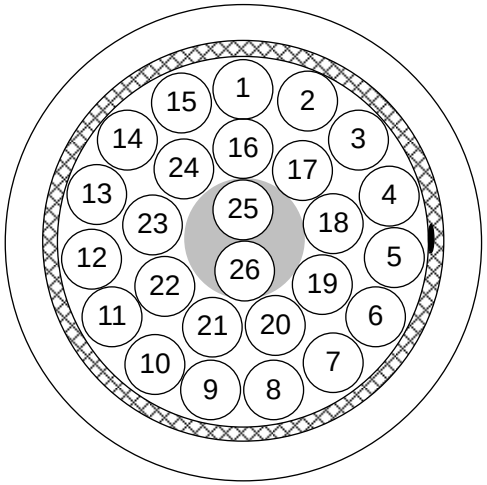
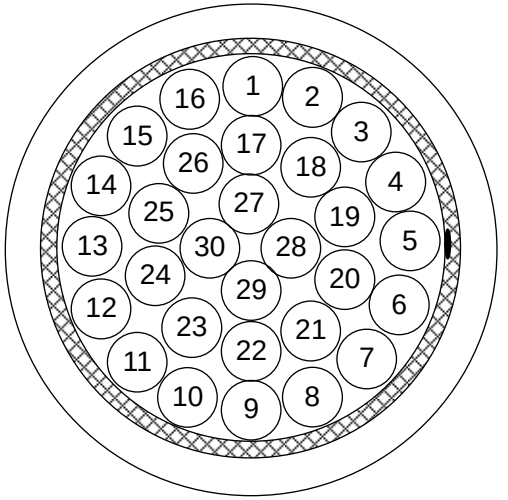


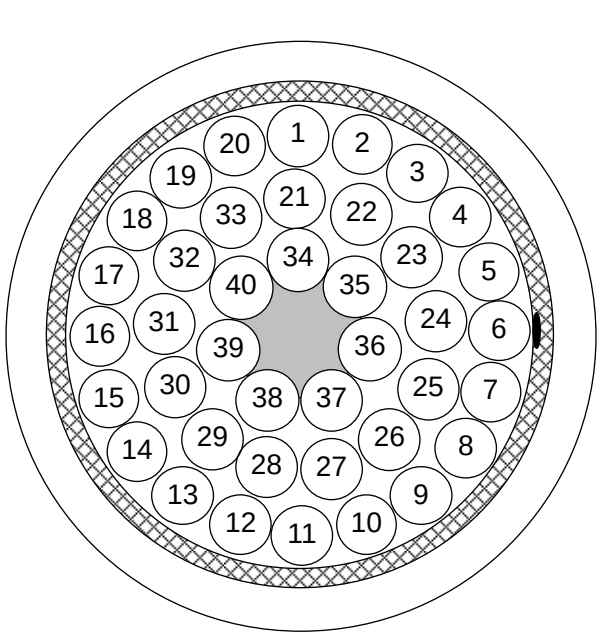
26c



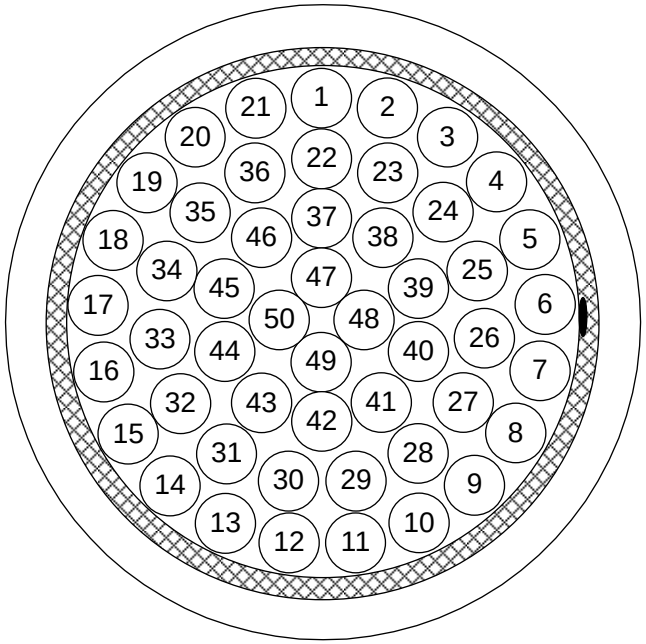
30c

*Insulation is colored white and printed Arabic numerals by blue ink.

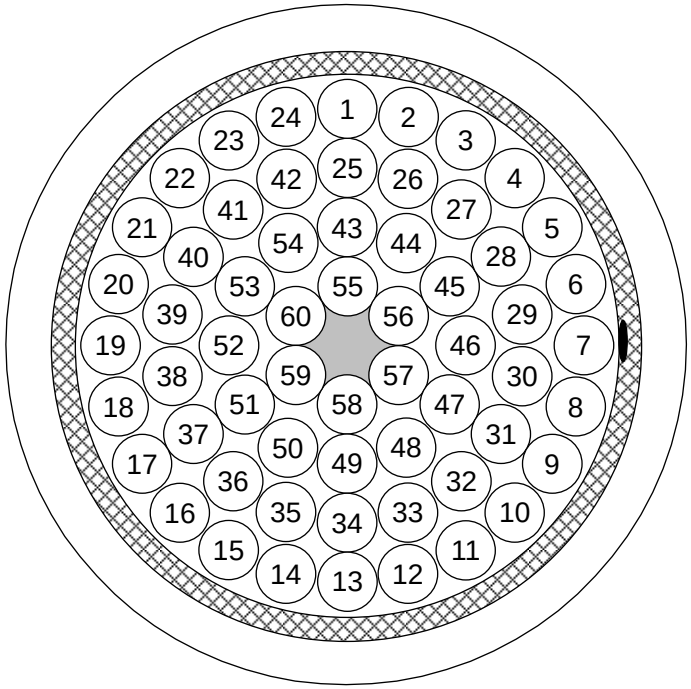
Figure 1-5 Arrangement of KVC-36SB 0.5mm²



40c



50c



60c

*Insulation is colored white and printed Arabic numerals by blue ink.