

## Fluorine-containing copolymer Insulated Flame Retardant PVC Sheathed Control Cables

### ◆ Standard

Fluorine-containing copolymer insulated flame retardant PVC sheathed control cable is manufactured according to Q/320412HLC010.

### ◆ Application

Fluorine-containing copolymer insulated flame retardant PVC sheath control cables have good resistance chemical solvent erosion. They are used as connection lines in instrument and automatic systems rated voltage ( $U_0/U$ ) up to and including 450/750V for petrol chemical, power plant, and metallurgical companies and so on.

### ◆ Product Property

- (1) Rated voltage ( $U_0/U$ ): 450/750V.
- (2) Max. conductor working temperature is 200°C, ambient temperature no more than 105°C.
- (3) Min. ambient temperature: -40°C for fixed laying up, -15°C for non-fixed laying up.
- (4) Laying up temperature: not less than 0°C.
- (5) Allowance bending radius:
  - No less than 12 times of diameter for Copper/plastics compound screened or steel tape armored cables;
  - No less than 6 times of diameter for other cables.

### ◆ Technical Data

Table 1

Item	Unit	Technical index								
		Sectional mm	0.75		1.0		1.5		2.5	
Conductor DC resistance at 20°C ≤	Ω/km	Type	Non-tinned	Tinned	Non-tinned	Tinned	Non-tinned	Tinned	Non-tinned	Tinned
		A、B	24.5	24.7	18.1	18.2	12.1	12.2	7.41	7.56
		R	26.0	26.7	19.5	20.0	13.3	13.7	7.98	8.21
Test voltage	kV/5min	3.0								
Flame retardant feature	Class A or B(tested as per GB/T18380 )									
Insulation resistance(MΩ•KM)	20°C ≥50									

### ◆ Type and Name, Structure and Diameter

#### 1. Type and Name

Type	Name
HCKFCV	Copper conductor fluorine-containing copolymer insulated PVC sheathed control cables
HCKFCVR	Copper conductor fluorine-containing copolymer insulated PVC sheathed control flexible cables
HCKFCVP	Copper conductor fluorine-containing copolymer insulated PVC sheathed copper wire braid control cables
HCKFCVRP	Copper conductor fluorine-containing copolymer insulated PVC sheathed copper wire braid control flexible cables

HCKFCV <sub>P2</sub>	Copper conductor fluorine-containing copolymer insulated PVC sheathed copper tape screened control cables
HCKFCV <sub>-22</sub>	Copper conductor fluorine-containing copolymer insulated PVC sheathed steel tape armored control cables
HCKFCV <sub>P2-22</sub>	Copper conductor fluorine-containing copolymer insulated PVC sheathed copper tape screened steel tape armored control cables
ZR-HCKFCV	Copper conductor fluorine-containing copolymer insulated PVC sheathed flame retardant control cables
ZR-HCKFCVR	Copper conductor fluorine-containing copolymer insulated PVC sheathed flame retardant control flexible cables
ZR-HCKFCVP	Copper conductor fluorine-containing copolymer insulated PVC sheathed copper braid flame retardant control cables
ZR-HCKFCVRP	Copper conductor fluorine-containing copolymer insulated PVC sheathed copper wire braid flame retardant control flexible cables
ZR-HCKFCV <sub>P2</sub>	Copper conductor fluorine-containing copolymer insulated PVC sheathed copper tape screened flame retardant control cables
ZR-HCKFCV <sub>-22</sub>	Copper conductor fluorine-containing copolymer insulated PVC sheathed steel tape armored flame retardant control cables
ZR-HCKFCV <sub>EP2-22</sub>	Copper conductor fluorine-containing copolymer insulated PVC sheathed copper tape screened steel tape armored flame retardant control cables
NH-HCKFCV	Copper conductor fluorine-containing copolymer insulated PVC sheathed fire resistant control cables
NH-HCKFCV <sub>-22</sub>	Copper conductor fluorine-containing copolymer insulated PVC sheathed steel tape armored fire resistant control cables
NH-HCKFCV <sub>P2</sub>	Copper conductor fluorine-containing copolymer insulated PVC sheathed copper tape screened fire resistant control cables
NH-HCKFCV <sub>P2-22</sub>	Copper conductor fluorine-containing copolymer insulated PVC sheathed copper tape screened steel tape armored fire resistant control cables

2. Structure and Diameter and weight (Table 3~5)

Table 3

ZR-HCKFCV(R) ZR-HCKFCV22

No. of cores× section mm <sup>2</sup>	Structure (No./Diameter) mm			Approx. outer diameter mm		Approx. Weight kg/km	
	A	B	R	ZR-HCKFCV(R)	ZR-HCKFCV <sub>-22</sub>	ZR-HCKFCV(R)	ZR-HCKFCV <sub>-22</sub>
2×0.75	1/0.97	7/0.37	24/0.20	6.2	—	56	—
2×1.0	1/1.13	7/0.43	32/0.20	6.8	—	67	—
2×1.5	1/1.38	7/0.52	30/0.25	7.4	9.8	81	210
2×2.5	1/1.78	7/0.68	50/0.25	8.4	11.8	109	250
3×0.75	1/0.97	7/0.37	24/0.20	6.6	10.0	69	192
3×1.0	1/1.13	7/0.43	32/0.20	7.2	10.6	82	207
3×1.5	1/1.38	7/0.52	30/0.25	7.9	11.3	103	239
3×2.5	1/1.78	7/0.68	50/0.25	9.6	12.4	152	298

4×0.75	1/0.97	7/0.37	24/0.20	7.1	10.5	80	205
4×1.0	1/1.13	7/0.43	32/0.20	7.8	11.2	97	234
4×1.5	1/1.38	7/0.52	30/0.25	8.6	12.0	132	279
4×2.5	1/1.78	7/0.68	50/0.25	10.4	13.2	192	341
5×0.75	1/0.97	7/0.37	24/0.20	7.4	10.8	93	222
5×1.0	1/1.13	7/0.43	32/0.20	8.2	11.6	115	250
5×1.5	1/1.38	7/0.52	30/0.25	9.0	12.4	161	303
5×2.5	1/1.78	7/0.68	50/0.25	11.0	13.8	229	378
7×0.75	1/0.97	7/0.37	24/0.20	7.9	11.3	116	252
7×1.0	1/1.13	7/0.43	32/0.20	8.8	12.2	148	300
7×1.5	1/1.38	7/0.52	30/0.25	10.8	13.1	205	351
7×2.5	1/1.78	7/0.68	50/0.25	11.8	14.6	300	455
8×0.75	1/0.97	7/0.37	24/0.20	8.3	11.7	130	267
8×1.0	1/1.13	7/0.43	32/0.20	9.8	12.6	172	318
8×1.5	1/1.38	7/0.52	30/0.25	10.8	13.6	232	380
8×2.5	1/1.78	7/0.68	50/0.25	12.4	15.2	333	495
10×0.75	1/0.97	7/0.37	24/0.20	9.5	12.3	161	308
10×1.0	1/1.13	7/0.43	32/0.20	10.6	13.4	203	355
10×1.5	1/1.38	7/0.52	30/0.25	11.7	14.5	275	428
10×2.5	1/1.78	7/0.68	50/0.25	13.7	16.5	402	592
12×0.75	1/0.97	7/0.37	24/0.20	10.2	13.0	192	336
12×1.0	1/1.13	7/0.43	32/0.20	11.4	14.2	236	395
12×1.5	1/1.38	7/0.52	30/0.25	12.4	15.4	323	487
12×2.5	1/1.78	7/0.68	50/0.25	13.4	18.5	466	713
14×0.75	1/0.97	7/0.37	24/0.20	10.9	13.7	218	368
14×1.0	1/1.13	7/0.43	32/0.20	12.2	15.0	276	433
14×1.5	1/1.38	7/0.52	30/0.25	13.7	17.1	367	576
14×2.5	1/1.78	7/0.68	50/0.25	15.9	19.3	540	795
16×0.75	1/0.97	7/0.37	24/0.20	11.4	14.2	240	397
16×1.0	1/1.13	7/0.43	32/0.20	13.0	15.8	304	486
16×1.5	1/1.38	7/0.52	30/0.25	14.4	17.8	410	638
16×2.5	1/1.78	7/0.68	50/0.25	16.8	20.2	606	871
19×0.75	1/0.97	7/0.37	24/0.20	11.9	14.7	280	435
19×1.0	1/1.13	7/0.43	32/0.20	13.6	16.4	349	544
19×1.5	1/1.38	7/0.52	30/0.25	15.1	18.5	474	710
19×2.5	1/1.78	7/0.68	50/0.25	18.0	21.4	724	988
24×0.75	1/0.97	7/0.37	24/0.20	13.8	17.0	343	548
24×1.0	1/1.13	7/0.43	32/0.20	15.6	19.0	430	684
24×1.5	1/1.38	7/0.52	30/0.25	17.8	21.2	610	875
24×2.5	1/1.78	7/0.68	50/0.25	20.8	24.2	900	1206
27×0.75	1/0.97	7/0.37	24/0.20	14.1	17.4	374	584
27×1.0	1/1.13	7/0.43	32/0.20	16.0	19.5	473	739
27×1.5	1/1.38	7/0.52	30/0.25	18.3	21.7	672	944
27×2.5	1/1.78	7/0.68	50/0.25	21.4	24.8	992	1315

30×0.75	1/0.97	7/0.37	24/0.20	14.5	17.9	405	633
30×1.0	1/1.13	7/0.43	32/0.20	16.4	19.9	515	786
30×1.5	1/1.38	7/0.52	30/0.25	18.7	22.1	732	1008
30×2.5	1/1.78	7/0.68	50/0.25	21.9	27.3	1090	1415
37×0.75	1/0.97	7/0.37	24/0.20	15.5	18.4	488	738
37×1.0	1/1.13	7/0.43	32/0.20	18.0	21.4	637	908
37×1.5	1/1.38	7/0.52	30/0.25	20.1	23.5	879	1178
37×2.5	1/1.78	7/0.68	50/0.25	23.6	27.1	1319	1669

Table 4

ZR-HCKFCV(R)P ZR-HCKFCVP-22

No. of cores× section mm <sup>2</sup>	Structure (No./Diameter) mm			Approx. O.D. mm		Approx. Weight Kg/km	
	A	B	R	ZR-HCKFCV(R)P	ZR-HCKFCVP-22	ZR-HCKFCV(R)P	ZR-HCKFCVP-22
2×0.75	1/0.97	7/0.37	24/0.20	6.4	—	69	—
2×1.0	1/1.13	7/0.43	32/0.20	7.0	—	82	—
2×1.5	1/1.38	7/0.52	30/0.25	7.6	10.0	99	229
2×2.5	1/1.78	7/0.68	50/0.25	8.6	12.0	131	277
3×0.75	1/0.97	7/0.37	24/0.20	6.8	10.2	84	208
3×1.0	1/1.13	7/0.43	32/0.20	7.4	10.8	99	224
3×1.5	1/1.38	7/0.52	30/0.25	8.1	11.5	123	259
3×2.5	1/1.78	7/0.68	50/0.25	9.8	12.6	177	322
4×0.75	1/0.97	7/0.37	24/0.20	7.3	10.7	98	222
4×1.0	1/1.13	7/0.43	32/0.20	8.0	11.4	117	254
4×1.5	1/1.38	7/0.52	30/0.25	8.9	12.2	156	302
4×2.5	1/1.78	7/0.68	50/0.25	10.6	13.4	218	378
5×0.75	1/0.97	7/0.37	24/0.20	7.6	11.0	111	240
5×1.0	1/1.13	7/0.43	32/0.20	8.4	11.8	137	271
5×1.5	1/1.38	7/0.52	30/0.25	9.8	12.6	187	327
5×2.5	1/1.78	7/0.68	50/0.25	11.2	14.0	259	406
7×0.75	1/0.97	7/0.37	24/0.20	8.1	11.5	136	272
7×1.0	1/1.13	7/0.43	32/0.20	9.1	12.4	172	324
7×1.5	1/1.38	7/0.52	30/0.25	10.5	13.3	233	378
7×2.5	1/1.78	7/0.68	50/0.25	12.0	14.8	334	487
8×0.75	1/0.97	7/0.37	24/0.20	8.4	11.9	152	288
8×1.0	1/1.13	7/0.43	32/0.20	10.0	12.8	199	343
8×1.5	1/1.38	7/0.52	30/0.25	11.0	13.8	262	408
8×2.5	1/1.78	7/0.68	50/0.25	12.6	15.4	369	528
10×0.75	1/0.97	7/0.37	24/0.20	9.7	12.5	187	332
10×1.0	1/1.13	7/0.43	32/0.20	10.8	13.6	231	382
10×1.5	1/1.38	7/0.52	30/0.25	11.9	14.7	309	455
10×2.5	1/1.78	7/0.68	50/0.25	14.1	16.9	451	642
12×0.75	1/0.97	7/0.37	24/0.20	10.4	13.2	220	362
12×1.0	1/1.13	7/0.43	32/0.20	11.6	14.4	267	425

12×1.5	1/1.38	7/0.52	30/0.25	12.8	15.6	359	521
12×2.5	1/1.78	7/0.68	50/0.25	15.2	18.9	522	770
14×0.75	1/0.97	7/0.37	24/0.20	11.1	13.9	249	396
14×1.0	1/1.13	7/0.43	32/0.20	12.4	15.2	312	466
14×1.5	1/1.38	7/0.52	30/0.25	14.1	17.5	419	629
14×2.5	1/1.78	7/0.68	50/0.25	16.3	19.7	602	856
16×0.75	1/0.97	7/0.37	24/0.20	11.6	14.1	272	426
16×1.0	1/1.13	7/0.43	32/0.20	13.4	16.2	353	523
16×1.5	1/1.38	7/0.52	30/0.25	14.8	18.2	465	693
16×2.5	1/1.78	7/0.68	50/0.25	17.2	20.6	673	934
19×0.75	1/0.97	7/0.37	24/0.20	12.1	14.9	314	467
19×1.0	1/1.13	7/0.43	32/0.20	14.0	16.8	399	594
19×1.5	1/1.38	7/0.52	30/0.25	15.5	18.9	531	767
19×2.5	1/1.78	7/0.68	50/0.25	18.4	21.8	794	1057
24×0.75	1/0.97	7/0.37	24/0.20	14.2	17.4	393	600
24×1.0	1/1.13	7/0.43	32/0.20	16.0	19.4	491	743
24×1.5	1/1.38	7/0.52	30/0.25	18.2	21.6	680	945
24×2.5	1/1.78	7/0.68	50/0.25	21.2	24.6	985	1290
27×0.75	1/0.97	7/0.37	24/0.20	14.5	17.8	426	636
27×1.0	1/1.13	7/0.43	32/0.20	16.4	19.9	536	800
27×1.5	1/1.38	7/0.52	30/0.25	18.7	22.1	744	1016
27×2.5	1/1.78	7/0.68	50/0.25	21.8	25.2	1080	1402
30×0.75	1/0.97	7/0.37	24/0.20	14.9	18.3	460	688
30×1.0	1/1.13	7/0.43	32/0.20	16.8	20.3	579	849
30×1.5	1/1.38	7/0.52	30/0.25	19.1	22.5	806	1081
30×2.5	1/1.78	7/0.68	50/0.25	22.3	25.7	1181	1505
37×0.75	1/0.97	7/0.37	24/0.20	15.9	19.3	549	797
37×1.0	1/1.13	7/0.43	32/0.20	18.4	21.8	707	978
37×1.5	1/1.38	7/0.52	30/0.25	20.5	23.9	960	1258
37×2.5	1/1.78	7/0.68	50/0.25	24.0	27.5	1419	1769

**Table 5**
**ZR-HCKFCVP<sub>2</sub> ZR-HCKFCVP<sub>2-22</sub>**

No. of cores× section mm <sup>2</sup>	Structure (No./Diameter) mm			Approx. outer diameter mm		Approx. Weight kg/km	
	A	B	R	ZR-HCKFCVP <sub>2</sub>	ZR-HCKFCVP <sub>2-22</sub>	ZR-HCKFCVP <sub>2</sub>	ZR-HCKFCVP <sub>2-22</sub>
2×0.75	1/0.97	7/0.37	24/0.20	6.4	—	71	—
2×1.0	1/1.13	7/0.43	32/0.20	7.0	—	80	—
2×1.5	1/1.38	7/0.52	30/0.25	7.6	10.0	100	229
2×2.5	1/1.78	7/0.68	50/0.25	8.6	12.0	124	277
3×0.75	1/0.97	7/0.37	24/0.20	6.8	10.2	85	208
3×1.0	1/1.13	7/0.43	32/0.20	7.4	10.8	100	224
3×1.5	1/1.38	7/0.52	30/0.25	8.1	11.5	120	259
3×2.5	1/1.78	7/0.68	50/0.25	9.8	12.6	166	322

4×0.75	1/0.97	7/0.37	24/0.20	7.3	10.7	96	222
4×1.0	1/1.13	7/0.43	32/0.20	8.0	11.4	116	254
4×1.5	1/1.38	7/0.52	30/0.25	8.9	12.2	152	302
4×2.5	1/1.78	7/0.68	50/0.25	10.6	13.4	214	378
5×0.75	1/0.97	7/0.37	24/0.20	7.6	11.0	113	240
5×1.0	1/1.13	7/0.43	32/0.20	8.4	11.8	130	271
5×1.5	1/1.38	7/0.52	30/0.25	9.8	12.6	186	327
5×2.5	1/1.78	7/0.68	50/0.25	11.2	14.0	255	406
7×0.75	1/0.97	7/0.37	24/0.20	8.1	11.5	135	272
7×1.0	1/1.13	7/0.43	32/0.20	9.1	12.4	170	324
7×1.5	1/1.38	7/0.52	30/0.25	10.5	13.3	231	378
7×2.5	1/1.78	7/0.68	50/0.25	12.0	14.8	326	487
8×0.75	1/0.97	7/0.37	24/0.20	8.4	11.9	158	288
8×1.0	1/1.13	7/0.43	32/0.20	10.0	12.8	202	343
8×1.5	1/1.38	7/0.52	30/0.25	11.0	13.8	160	408
8×2.5	1/1.78	7/0.68	50/0.25	12.6	15.4	363	528
10×0.75	1/0.97	7/0.37	24/0.20	9.7	12.5	196	332
10×1.0	1/1.13	7/0.43	32/0.20	10.8	13.6	245	382
10×1.5	1/1.38	7/0.52	30/0.25	11.9	14.7	316	455
10×2.5	1/1.78	7/0.68	50/0.25	14.1	16.9	442	642
12×0.75	1/0.97	7/0.37	24/0.20	10.4	13.2	228	362
12×1.0	1/1.13	7/0.43	32/0.20	11.6	14.4	266	425
12×1.5	1/1.38	7/0.52	30/0.25	12.8	15.6	359	521
12×2.5	1/1.78	7/0.68	50/0.25	15.2	18.9	521	770
14×0.75	1/0.97	7/0.37	24/0.20	11.1	13.9	249	396
14×1.0	1/1.13	7/0.43	32/0.20	12.4	15.2	303	466
14×1.5	1/1.38	7/0.52	30/0.25	14.1	17.5	400	629
14×2.5	1/1.78	7/0.68	50/0.25	16.3	19.7	585	856
16×0.75	1/0.97	7/0.37	24/0.20	11.6	14.1	278	426
16×1.0	1/1.13	7/0.43	32/0.20	13.4	16.2	341	523
16×1.5	1/1.38	7/0.52	30/0.25	14.8	18.2	450	693
16×2.5	1/1.78	7/0.68	50/0.25	17.2	20.6	658	934
19×0.75	1/0.97	7/0.37	24/0.20	12.1	14.9	311	467
19×1.0	1/1.13	7/0.43	32/0.20	14.0	16.8	383	594
19×1.5	1/1.38	7/0.52	30/0.25	15.5	18.9	516	767
19×2.5	1/1.78	7/0.68	50/0.25	18.4	21.8	779	1057
24×0.75	1/0.97	7/0.37	24/0.20	14.2	17.4	385	600
24×1.0	1/1.13	7/0.43	32/0.20	16.0	19.4	468	743
24×1.5	1/1.38	7/0.52	30/0.25	18.2	21.6	640	945
24×2.5	1/1.78	7/0.68	50/0.25	21.2	24.6	967	1290
27×0.75	1/0.97	7/0.37	24/0.20	14.5	17.8	422	636
27×1.0	1/1.13	7/0.43	32/0.20	16.4	19.9	523	800
27×1.5	1/1.38	7/0.52	30/0.25	18.7	22.1	727	1016
27×2.5	1/1.78	7/0.68	50/0.25	21.8	25.2	1063	1402

30×0.75	1/0.97	7/0.37	24/0.20	14.9	18.3	465	688
30×1.0	1/1.13	7/0.43	32/0.20	16.8	20.3	575	849
30×1.5	1/1.38	7/0.52	30/0.25	19.1	22.5	799	1081
30×2.5	1/1.78	7/0.68	50/0.25	22.3	25.7	1168	1505
37×0.75	1/0.97	7/0.37	24/0.20	15.9	19.3	554	797
37×1.0	1/1.13	7/0.43	32/0.20	18.4	21.8	700	978
37×1.5	1/1.38	7/0.52	30/0.25	20.5	23.9	851	1258
37×2.5	1/1.78	7/0.68	50/0.25	24.0	27.5	1412	1769