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Flexible Cables and Cords

Single-Core PVC Insulated H05V-K & H07V-K

70°C 300/500 V and 450/750 V



Application

For fixed protected installation inside appliances and in/on light fittings, where increased flexibility is required to assist installation.

Specifications

- In accordance with Cenelec code H05V-K1 and H07V-K1
RoHS Compliant
- **Conductors:** Flexible Class 5 copper conductors to
BS EN 60228
- **Insulation:** PVC Insulation Type TI.1 to BS EN 50363-3
- Flame retardant to BS EN 60332-1-2
- **Temperature Rating:** 70°C maximum conductor
operating temperature
- **Voltage Rating:** 300/500 V, 450/750 V

Single-Core PVC Insulated H05V-K & H07V-K

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Anixter Number	Cenelec Code	Nominal Conductor Area	Nominal Conductor Stranding	Insulation Thickness	Maximum O/D	Approximate Weight
		mm ²	#/mm	mm	mm	kg/km
HCN-K1-A-##	H05V-K1	0.5	16/0.2	0.6	2.5	10
HCN-K1-B-##	H05V-K1	0.75	24/0.2	0.6	2.7	13
HCN-K1-C-##	H05V-K1	1.0	32/0.2	0.6	2.8	16
HDN-K1-D-##	H07V-K1	1.5	30/0.25	0.7	3.4	21
HDN-K1-E-##	H07V-K1	2.5	50/0.25	0.8	4.1	33
HDN-K1-F-##	H07V-K1	4.0	56/0.3	0.8	4.8	50
HDN-K1-G-##	H07V-K1	6.0	84/0.3	0.8	5.3	70
HDN-K1-H-##	H07V-K1	10	80/0.4	1.0	6.8	117
HDN-K1-I-##	H07V-K1	16	126/0.4	1.0	8.1	175
HDN-K1-J-##	H07V-K1	25	196/0.4	1.2	10.2	290
HDN-K1-K-##	H07V-K1	35	276/0.4	1.2	11.7	398
HDN-K1-L-##	H07V-K1	50	396/0.4	1.4	13.9	565
HDN-K1-M-##	H07V-K1	70	360/0.5	1.4	16.0	769
HDN-K1-N-##	H07V-K1	95	475/0.5	1.6	18.2	1010
HDN-K1-P-##	H07V-K1	120	608/0.5	1.6	20.2	1260
HDN-K1-Q-##	H07V-K1	150	765/0.5	1.8	22.5	1570
HDN-K1-R-##	H07V-K1	185	925/0.5	2.0	24.9	1900
HDN-K1-S-##	H07V-K1	240	1221/0.5	2.2	28.4	2500

= colour, -01 = white, -02 = black, -03 = red, -04 = green, -05 = yellow, -06 = blue, -07 = brown, -08 = orange, -09 = grey, -10 = violet, -12 = pink, -60 = green/yellow. etc.

Other colours available upon request.

For further technical information refer to pages 2:45 (H05V-K) and 2:46 (H07V-K).

Conductor Resistances

Max. DC Conductor Resistances

Flexible Class 5 Copper Conductors to BS EN 60228 and IEC60228 Single Core & Multi-Core Cables

Nominal Conductor Area	Max DC Conductor Resistance @ 20°C	
	Plain Wires	Metal-coated Wires
mm ²	ohms/km	ohms/km
0.22	92.0	92.4
0.5	39.0	40.1
0.75	26.0	26.7
1.0	19.5	20.0
1.25	15.6	16.1
1.35	14.6	15.0
1.5	13.3	13.7
2.5	7.98	8.21
4.0	4.95	5.09
6.0	3.30	3.39
10	1.91	1.95
16	1.21	1.24
25	0.780	0.795
35	0.554	0.565
50	0.386	0.393
70	0.272	0.277
95	0.206	0.210
120	0.161	0.164
150	0.129	0.132
185	0.106	0.108
240	0.0801	0.0817
300	0.0641	0.0654
400	0.0486	0.0495
500	0.0384	0.0391
630	0.0287	0.0292

Technical Specifications for Flexible Cords

Applicable to: 2491X, 218*Y, 318*Y, 309*Y, 318*B, 318*P, 318*TQ, 398*P
H05V-K, H03V-F, H05VV-F, H05V2V2-F, H05Z1Z1-F, H05RN-F, H05BN4-F, H07RN-F

CORRECTION FACTOR FOR AMBIENT TEMPERATURE

60°C rubber and PVC cords:

Ambient air temp °C	35	40	45	50	55
Rating factor	0.91	0.82	0.71	0.58	0.41

90°C rubber cords having a HOFR sheath or a heat-resisting PVC sheath and for 90°C heat-resisting PVC cords:

Ambient air temp °C	35 - 50	55	60	65	70
Rating factor	1.0	0.96	0.83	0.67	0.47

180°C rubber cords:

Ambient air temp °C	35 - 150	155	160	165	170	175
Rating factor	1.0	0.92	0.82	0.71	0.57	0.40

For cables where four or more cores or loaded, the following factors should be applied:

No. of cores loaded	4	5	6	7	10	12	14	19	24
Rating factor	0.78	0.72	0.67	0.63	0.56	0.53	0.51	0.45	0.42
No. of cores loaded	27	30	37	-	-	-	-	-	-
Rating factor	0.40	0.39	0.36	-	-	-	-	-	-

These factors need not be applied if the number of cores loaded does not exceed the square root of the total number of cores in the cable.

Technical Specifications for Flexible Cords

BS6500, H05V-K, H03VV-F, H05VV-F, H05V2V2-F, H05Z1Z1-F, H05RN-F, H05BN4-F, H07RN-F

CURRENT CARRYING CAPACITY (Amperes):

Conductor Cross Sectional Area 1	Current Carrying Capacity	
	Single Phase a.c. 2	Three Phase a.c. 3
mm ²	A	A
0.5	3	3
0.75	6	6
1	10	10
1.25	13	-
1.5	16	16
2.5	25	20
4	32	25

VOLTAGE DROP (per Ampere per metre):

Conductor operating temperature: 60°C*

Conductor Cross Sectional Area 1	d.c. or Single Phase a.c. 2	Three Phase a.c. 3
mm ²	mV	mV
0.5	93	80
0.75	62	54
1	46	40
1.25	37	-
1.5	32	27
2.5	19	16
4	12	10

*NOTE: The tabulated values above are for 60°C rubber insulated and PVC-insulated flexible cords and for other types of flexible cords they are to be multiplied by the following factors:

For 90°C rubber or PVC insulated 1.09.

180°C rubber insulated 1.31.

Technical Specifications for H07V-K

CURRENT CARRYING CAPACITY (Amperes):

Conductor Cross Sectional Area	Reference Method A (enclosed in conduit in thermally insulating wall etc)		Reference Method B (enclosed in conduit on a wall or in trunking etc)	
	2 Cables, Single Phase a.c. or d.c.	3 or 4 Cables, Three Phase a.c.	2 Cables, Single Phase a.c. or d.c.	3 or 4 Cables, Three Phase a.c.
1	2	3	4	5
mm ²	A	A	A	A
1	11	10.5	13.5	12
1.5	14.5	13.5	17.5	15.5
2.5	20	18	24	21
4	26	24	32	28
6	34	31	41	36
10	46	42	57	50
16	61	56	76	68
25	80	73	101	89
35	99	89	125	110
50	119	108	151	134
70	151	136	192	171
95	182	164	232	207
120	210	188	269	239
150	240	216	300	262
185	273	245	341	296
240	321	286	400	346
300	367	328	458	394
400	-	-	546	467
500	-	-	626	533
630	-	-	720	611

BS6004 - 6701X Types, PVC insulated only.

Ambient temperature: 30°C Conductor operating temperature: 70°C.

Technical Specifications for H07V-K

For ambient air temperatures other than 30°C, the following factors should be applied.

Ambient air temp °C	25	30	35	40	45	50	55	60	65
Rating factor	1.03	1.0	0.94	0.87	0.79	0.71	0.61	0.50	0.35

VOLTAGE DROP (per Ampere per metre):

Conductor Cross Sectional Area	2 Cables d.c.		Reference Methods A & B (enclosed in conduit etc in or on a wall) 2 Cables Single Phase a.c.			Reference Methods A & B (enclosed in conduit etc in or on a wall) 3/4 Cables Three Phase a.c.		
	1	2	3			4		
mm ²	mV	mV	mV	mV	mV	mV	mV	mV
1	44	44	44	44	38			
1.5	29	29	29	29	25			
2.5	18	18	18	18	15			
4	11	11	11	11	9.5			
6	7.3	7.3	7.3	7.3	6.4			
10	4.4	4.4	4.4	4.4	3.8			
16	2.8	2.8	2.8	2.8	2.4			
			r	x	z	r	x	z
25	1.75	1.80	1.80	0.33	1.80	1.50	0.29	1.55
35	1.25	1.30	1.30	0.31	1.30	1.10	0.27	1.10
50	0.93	0.95	0.95	0.30	1.00	0.81	0.26	0.85
70	0.63	0.65	0.65	0.29	0.72	0.56	0.25	0.61
95	0.46	0.49	0.49	0.28	0.56	0.42	0.24	0.48
120	0.36	0.39	0.39	0.27	0.47	0.33	0.23	0.41
150	0.29	0.31	0.31	0.27	0.41	0.27	0.23	0.36
185	0.23	0.25	0.25	0.27	0.37	0.22	0.23	0.32
240	0.180	0.195	0.195	0.26	0.33	0.17	0.23	0.29
300	0.145	0.160	0.160	0.26	0.31	0.14	0.23	0.27
400	0.105	0.130	0.130	0.26	0.29	0.12	0.22	0.25
500	0.086	0.110	0.110	0.26	0.28	0.10	0.22	0.25
630	0.068	0.094	0.094	0.25	0.27	0.08	0.22	0.24

Conductor Short-Circuit Ratings

PVC Insulated Cables

Short-Circuit Ratings

Conductor Size mm ²	0.2s duration kA	1.0s duration kA	3.0s duration kA
1.5	0.385	0.172	0.099
2.5	0.642	0.287	0.165
4.0	1.02	0.460	0.265
6.0	1.54	0.690	0.398
10	2.57	1.15	0.663
16	4.11	1.84	1.06
25	6.42	2.87	1.65
35	9.0	4.02	2.32
50	12.8	5.75	3.31
70	18.0	8.05	4.64
95	24.4	10.9	6.30
120	30.8	13.8	7.96
150	38.5	17.2	9.95
185	47.5	21.2	12.2
240	61.7	27.6	15.9
300	77.1	34.5	19.9
400	92.1	41.2	23.7
500	115	51.5	29.7
630	145	64.8	37.4

N.B: The above ratings assume an adiabatic temperature rise and are based on a conductor temperature of 70°C at start of short-circuit and 140/160°C* at end of short-circuit.

* 160°C cables up to and including 300mm²

* 140°C cables above 300mm²

GUIDE TO MINIMUM BENDING RADII ON FLEXIBLE CORDS AND CABLES

Cable Type	Cable Diameter (mm)			
	$\leq 8 \leq$	$> 8 \leq 12$	$> 12 \leq 20$	> 20
	M.B.R. (Minimum Bending Radius)			
Flexible Cable Thermoplastic (e.g. PVC)				
Fixed installation	3D	3D	4D	4D
Free movement*	5D	5D	6D	6D
Flexible Cable Elastomeric (e.g. rubber)				
Fixed installation	3D	3D	4D	4D
Free movement*	4D	4D	5D	6D

Where D = cable diameter.

The above values are based on recommendations given in BS7540 "Use of cables with a rated voltage not exceeding 450/750 V".

*These values do not apply to cables used on festoon, reeling drum, cranes, robotics, etc., where repetitive flexing and/or twisting is anticipated.

For further details refer to BS7540.