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Single-Core PVC/PVC 6181Y

300/500 V



Application

PVC insulated and sheathed cable for fixed wiring purposes. Not suitable for direct burial.

Specifications

- In accordance with BS6004
- **Conductors:** Solid Class 1 or stranded Class 2 copper conductors to BS EN 60228
- **Insulation:** PVC insulation Type TI.1 to BS EN 50363-3
- **Sheath:** PVC sheath Type 6 to BS7655
- Flame retardant to BS EN 60332-1-2
- Normal colours available. (See 6491X page 1:2)
- **Temperature Rating:** 70°C maximum conductor operating temperature
- **Voltage Rating:** 300/500 V

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Anixter Number	Nominal Conductor Area mm ²	Conductor Class	Insulation Thickness mm	Minimum O/D mm	Maximum O/D mm	Approx Weight kg/km	Minimum Bending Radius (fixed bend) mm
A3-C01-0010-##-##	1.0	1	0.6	3.7	4.5	28	14
A3-C01-0015-##-##	1.5	1	0.7	4.2	5.0	34	15
A3-C01-0025-##-##	2.5	1	0.8	4.8	5.7	49	18
A3-C07-0004-##-##	4	2	0.8	5.5	6.8	75	21
A3-C07-0006-##-##	6	2	0.8	6.0	7.4	99	23
A3-C07-0010-##-##	10	2	1.0	7.3	8.8	155	27
A3-C07-0016-##-##	16	2	1.0	8.4	10.5	225	50
A3-C07-0025-##-##	25	2	1.2	10.0	12.5	340	50
A3-C07-0035-##-##	35	2	1.2	11.1	13.5	450	60

-##-## = colour, -02 = black, -06 = blue, -07 = brown, -09 = grey, -60 = green/yellow.

e.g. A3-C07-0035-02-02 = black insulation, black sheath. A3-C07-0035-07-02 = brown insulation, black sheath.

Other colours available upon request.

For further technical information see page 1:48.

For conductor short-circuit ratings see page 20:27.

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Technical Information

- Single-core PVC
- Single-core PVC/PVC (300/500 V)
- Single-core PVC/PVC (6181Y Types - 600/1000 V)
- Single-core PVC/PVC (6381Y Types - 450/750 V)

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)		Reference Method C ("clipped direct")	
	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.	2 Cables, Single Phase a.c. or d.c. Flat and Touching	3 or 4 Cables Three Phase a.c. Flat and Touching or Trefoil
1	2	3	4	5	6	7
mm²	A	A	A	A	A	A
1	11	10.5	13.5	12	15.5	14
1.5	14.5	13.5	17.5	15.5	20	18
2.5	20.0	18	24	21	27	25
4	26	24	32	28	37	33
6	34	31	41	36	47	43
10	46	42	57	50	65	59
16	61	56	76	68	87	79
25	80	73	101	89	114	104
35	99	89	125	110	141	129
50	119	108	151	134	182	167
70	151	136	192	171	234	214
95	182	164	232	207	284	261
120	210	188	269	239	330	303
150	240	216	300	262	381	349
185	273	245	341	296	436	400
240	321	286	400	346	515	472
300	367	328	458	394	594	545
400	-	-	546	467	694	634
500	-	-	626	533	792	723
630	-	-	720	611	904	826
800	-	-	-	-	1030	943
1000	-	-	-	-	1154	1058

Technical Information

If cables are to be used in ambient air temperatures other than 30°C the following rating factors should be applied:

Ambient air temp °C	25	30	35	40	45	50	55	60
Rating factor	1.02	1.0	0.94	0.87	0.79	0.71	0.61	0.50

Reference Method F (in free air or on perforated cable tray horizontal or vertical)		Reference Method F (in free air or on perforated cable tray horizontal, vertical or trefoil)		
		Horizontal Flat Spaced	Vertical Flat Spaced	Trefoil
2 Cables, Single Phase a.c. or d.c. flat and Touching	3 or 4 Cables Three Phase a.c. Flat and Touching	2 Cables, Single Phase a.c. or d.c. or 3 Cables Three Phase a.c.	2 Cables, Single Phase a.c. or d.c. or 3 Cables Three Phase a.c. Three Phase a.c.	3 Cables Trefoil Three Phase a.c.
8	9	10	11	12
A	A	A	A	A
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
131	114	146	130	110
162	143	181	162	137
196	174	219	197	167
251	225	281	254	216
304	275	341	311	264
352	321	396	362	308
406	372	456	419	356
463	427	521	480	409
546	507	615	569	485
629	587	709	659	561
754	689	852	795	656
868	789	982	920	749
1005	905	1138	1070	855
1086	1020	1265	1188	971
1216	1149	1420	1337	1079

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VOLTAGE DROP (per Ampere per metre):

2 Cables - Single Phase a.c.										
Conductor Cross Sectional Area	2 cables d.c.	Reference Methods A & B (enclosed in conduit etc in or on a wall)			Reference Methods C & F (clipped direct or on trays, touching)			Reference Method C & F (spaced*)		
1	2	3			4			5		
mm ²	mV	mV			mV			mV		
1	44	44			44			44		
1.5	29	29			29			29		
2.5	18	18			18			18		
4	11	11			11			11		
6	7.3	7.3			7.3			7.3		
10	4.4	4.4			4.4			4.4		
16	2.8	2.8			2.8			2.8		
		r	x	z	r	x	z	r	x	z
25	1.75	1.80	0.33	1.80	1.75	0.20	1.75	1.75	0.29	1.80
35	1.25	1.30	0.31	1.30	1.25	0.195	1.25	1.25	0.28	1.30
50	0.93	0.95	0.30	1.00	0.93	0.19	0.95	0.93	0.28	0.97
70	0.63	0.65	0.29	0.72	0.63	0.185	0.66	0.63	0.27	0.69
95	0.46	0.49	0.28	0.56	0.47	0.180	0.50	0.47	0.27	0.54
120	0.36	0.39	0.27	0.47	0.37	0.175	0.41	0.37	0.26	0.45
150	0.29	0.31	0.27	0.41	0.30	0.175	0.34	0.29	0.26	0.39
185	0.23	0.25	0.27	0.37	0.24	0.170	0.29	0.24	0.26	0.35
240	0.18	0.195	0.26	0.33	0.185	0.165	0.25	0.185	0.25	0.31
300	0.145	0.16	0.26	0.31	0.15	0.165	0.22	0.150	0.25	0.29
400	0.105	0.13	0.26	0.29	0.12	0.160	0.20	0.115	0.25	0.27
500	0.086	0.11	0.26	0.28	0.098	0.155	0.185	0.093	0.24	0.26
630	0.068	0.094	0.25	0.27	0.081	0.155	0.175	0.076	0.24	0.25
800	0.053		-		0.068	0.150	0.165	0.061	0.24	0.25
1000	0.042		-		0.059	0.150	0.160	0.050	0.24	0.24

Technical Information

3 or 4 Cables - Three Phase a.c.											
Reference Methods A & B (enclosed in conduit etc in or on wall)			Reference Methods C & F (in trefoil)			Reference Methods C & F (flat touching)			Reference Methods C & F (flat spaced*)		
6			7			8			9		
mV			mV			mV			mV		
38			38			38			38		
25			25			25			25		
15			15			15			15		
9.5			9.5			9.5			9.5		
6.4			6.4			6.4			6.4		
3.8			3.8			3.8			3.8		
2.4			2.4			2.4			2.4		
r	x	z	r	x	z	r	x	z	r	x	z
1.50	0.29	1.55	1.50	0.175	1.50	1.50	0.25	1.55	1.50	0.32	1.55
1.10	0.27	1.10	1.10	0.170	1.10	1.10	0.24	1.10	1.10	0.32	1.15
0.81	0.26	0.85	0.80	0.165	0.82	0.80	0.24	0.84	0.80	0.32	0.86
0.56	0.25	0.61	0.55	0.160	0.57	0.55	0.24	0.60	0.55	0.31	0.63
0.42	0.24	0.48	0.41	0.155	0.43	0.41	0.23	0.47	0.40	0.31	0.51
0.33	0.23	0.41	0.32	0.150	0.36	0.32	0.23	0.40	0.32	0.30	0.44
0.27	0.23	0.36	0.26	0.150	0.30	0.26	0.23	0.34	0.26	0.30	0.40
0.22	0.23	0.32	0.21	0.145	0.26	0.21	0.22	0.31	0.21	0.30	0.36
0.17	0.23	0.29	0.16	0.145	0.22	0.16	0.22	0.27	0.16	0.29	0.34
0.14	0.23	0.27	0.13	0.140	0.19	0.13	0.22	0.25	0.13	0.29	0.32
0.12	0.22	0.25	0.105	0.14	0.175	0.105	0.21	0.24	0.10	0.29	0.31
0.10	0.22	0.25	0.086	0.135	0.16	0.086	0.21	0.23	0.081	0.29	0.30
0.08	0.22	0.24	0.072	0.135	0.15	0.072	0.21	0.22	0.066	0.28	0.29
	-		0.06	0.130	0.145	0.06	0.21	0.22	0.053	0.28	0.29
	-		0.052	0.130	0.140	0.052	0.20	0.21	0.044	0.28	0.28

For further guidance refer to the BS7671 (IEE Wiring Regulations - latest edition).

* spaced by one cable diameter.

Additional Technical Information

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