

# 6491B Cable H07Z-R

## Application

Suitable for use in conduit and for fixed, protected installation. For use where fire, smoke emission and toxic fumes create a potential threat to life and equipment.



## Standards

BS7211

## Conductor

Class 2 stranded plain copper conductors to BS EN 60228:2005 (previously BS6360)

## Insulation

LSZH  
(Low Smoke Zero Halogen)

## Insulation Colour

Black, Blue, Green/Yellow, Red, Yellow, White, Violet, Brown, Grey, Orange, Pink

## Voltage Rating

450/750V

## Temperature Rating

0°C to +90°C

## Minimum Bending Radius

Up to 10mm<sup>2</sup>:  
3 x overall diameter

## 10mm<sup>2</sup> to 25mm<sup>2</sup>:

4 x overall diameter

## Above 25mm<sup>2</sup>:

5 x overall diameter



## Dimensions

No. of Cores x Nominal Cross Sectional Area mm <sup>2</sup>	Nominal Thickness of Insulation mm	Nominal Overall Diameter mm	Nominal Weight kg/Km
1 x 1.5	0.7	3.4	22
1 x 2.5	0.8	4.2	35
1 x 4.0	0.8	4.8	50
1 x 6.0	0.8	5.4	72
1 x 10.0	1.0	6.8	121
1 x 16.0	1.0	8.0	182
1 x 25.0	1.2	9.8	285
1 x 35.0	1.2	11.0	390
1 x 95.0	1.6	17.0	980
1 x 120.0	1.6	19.0	1220
1 x 150.0	1.8	21.0	1500
1 x 185.0	2.2	23.5	1910
1 x 240.0	2.2	26.5	2490
1 x 300.0	2.4	29.5	3100
1 x 400.0	2.6	33.5	3950
1 x 500.0	2.8	37.0	5000
1 x 630.0	2.8	41.0	6350

## Conductors

### Class 2 stranded conductors for single core and multi-core cables

Nominal Cross Sectional Area mm <sup>2</sup>	Minimum Number of Wires in the Conductor						Maximum Resistance of Conductor at 20°C
	Circular		Circular Compacted		Shaped		
	Cu	Al	Cu	Al	Cu	Al	Plain Wires ohms/Km
1.50	7	-	6	-	-	-	12.1000
2.50	7	-	6	-	-	-	7.4100
4.00	7	-	6	-	-	-	4.6100
6.00	7	-	6	-	-	-	3.0800
10.00	7	7	6	6	-	-	1.8300

Datasheet continues»

6491B Cable continued»

1	2	3	4	5	6	7	8
Nominal Cross Sectional Area mm <sup>2</sup>	Minimum Number of Wires in the Conductor						Maximum Resistance of Conductor at 20°C
	Circular		Circular Compacted		Shaped		Annealed Copper Conductor
	Cu	Al	Cu	Al	Cu	Al	Plain Wires ohms/Km
16.00	7	7	6	6	-	-	1.1500
25.00	7	7	6	6	6	6	0.7270
35.00	7	7	6	6	6	6	0.5240
95.00	19	19	15	15	15	15	0.1930
120.00	37	37	18	15	18	15	0.1530
150.00	37	37	18	15	18	15	0.1240
185.00	37	37	30	30	30	30	0.0991
240.00	37	37	34	30	34	30	0.0754
300.00	61	61	34	30	34	30	0.0601
400.00	61	61	53	53	53	53	0.0470
500.00	61	61	53	53	53	53	0.0366
600.00	91	91	53	53	53	53	0.0283

Table in accordance with BS EN 60228:2005 (previously BS6360).

## Electrical Characteristics

### Current Carrying Capacity (amperes)

Nominal Cross Sectional Area mm <sup>2</sup>	Reference Method 4 (enclosed in conduit in thermally insulating wall etc.)		Reference Method 3 (enclosed in conduit on a wall or in trunking etc.)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray horizontal or vertical)		Reference Method 12 (free air)		
	2 Cables Single Phase AC or DC Amps	3 or 4 Cables Three Phase AC Amps	2 Cables Single Phase AC or DC Amps	3 or 4 Cables Three Phase AC Amps	2 Cables Single Phase AC or DC Flat and Touching Amps	3 or 4 Cables Three Phase AC Flat and Touching or Trefoil Amps	2 Cables Single Phase AC or DC Flat and Touching Amps	3 or 4 Cables Three Phase AC Flat and Touching or Trefoil Amps	Horizontal Flat Spaced	Vertical Flat Spaced	Trefoil
1	2	3	4	5	6	7	8	9	10	11	12
1.0	14	13	17	15	19	17.5	-	-	-	-	-
1.5	18	17	22	19	25	23.0	-	-	-	-	-
2.5	24	23	30	26	34	31.0	-	-	-	-	-
4.0	33	30	40	35	46	41.0	-	-	-	-	-
6.0	43	39	51	45	59	54.0	-	-	-	-	-
10.0	58	53	71	63	81	74.0	-	-	-	-	-
16.0	76	70	95	85	109	99.0	-	-	-	-	-
25.0	100	91	126	111	143	130.0	158	140	183	163	138
35.0	124	111	156	138	176	161.0	195	176	226	203	171
50.0	149	135	189	168	228	209.0	293	215	274	246	209

Datasheet continues»

6491B Cable continued»

Nominal Cross Sectional Area mm <sup>2</sup>	Reference Method 4 (enclosed in conduit in thermally insulating wall etc.)		Reference Method 3 (enclosed in conduit on a wall or in trunking etc.)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray horizontal or vertical)		Reference Method 12 (free air)		
	2 Cables Single Phase AC or DC Amps	3 or 4 Cables Three Phase AC Amps	2 Cables Single Phase AC or DC Amps	3 or 4 Cables Three Phase AC Amps	2 Cables Single Phase AC or DC Flat and Touching Amps	3 or 4 Cables Three Phase AC Flat and Touching or Trefoil Amps	2 Cables Single Phase AC or DC Flat and Touching Amps	3 or 4 Cables Three Phase AC Flat and Touching or Trefoil Amps	2 Cables Single Phase AC or DC or 3 Cables Three Phase AC Amps	2 Cables Single Phase AC or DC or 3 Cables Three Phase AC Amps	3 Cables Three Phase AC Amps
1	2	3	4	5	6	7	8	9	10	11	12
70.0	189	170	240	214	293	268.0	308	279	351	318	270
95.0	228	205	290	259	355	326.0	375	341	426	389	330
120.0	263	235	336	299	413	379.0	436	398	495	453	385
150.0	300	270	375	328	476	436.0	505	461	570	524	445
185.0	341	306	426	370	545	500.0	579	530	651	600	511
240.0	400	358	500	433	644	590.0	686	630	769	711	606
300.0	459	410	573	493	743	681.0	794	730	886	824	701
400.0	-	-	683	584	868	793.0	915	849	1065	994	820
500.0	-	-	783	666	990	904.0	1044	973	1228	1150	936
630.0	-	-	900	764	1130	1033.0	1191	1115	1423	1338	1069
800.0	-	-	-	-	1288	1179.0	1358	1275	1581	1485	1214
1000.0	-	-	-	-	1443	1323.0	1520	1436	1775	1671	1349

Ambient temperature: 30°C  
 Conductor operating temperature: 90°C

6491B Cable continued»

Voltage Drop (per ampere per metre)

Nominal Cross-Sectional Area mm <sup>2</sup>	2 Cables, Single Phase AC											3 or 4 Cables, Three Phase AC																
	2 Cables DC mV/A/m	Reference Methods 3 & 4 (enclosed in conduit etc, in or on a wall) mV/A/m			Reference Methods 1 & 11 (clipped direct or on trays, touching) mV/A/m			Reference Method 12 (spaced*) mV/A/m			Reference Methods 3 & 4 (enclosed in conduit etc, in or on a wall) mV/A/m			Reference Methods 1, 11 & 12 (in trefoil) mV/A/m			Reference Method (flat and touching) mV/A/m			Reference Method 12 (flat spaced *) mV/A/m								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22							
1.0	46.0		46.0			46.0				46.0				40.0				40.0				40.0				40.0		
1.5	31.0		31.0			31.0				31.0				27.0				27.0				27.0				27.0		
2.5	19.0		19.0			19.0				19.0				16.0				16.0				16.0				16.0		
4.0	12.0		12.0			12.0				12.0				10.0				10.0				10.0				10.0		
6.0	7.9		7.9			7.9				7.9				6.8				6.8				6.8				6.8		
10.0	4.7		4.7			4.7				4.7				4.0				4.0				4.0				4.0		
16.0	2.9		2.9			2.9				2.9				2.5				2.5				2.5				2.5		
		r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z	r	x	z
25.0	1.850	1.850	0.31	1.90	1.850	0.190	1.850	1.850	0.28	1.85	1.600	0.27	1.650	1.600	0.165	1.60	1.600	0.190	1.600	1.600	0.27	1.65						
35.0	1.350	1.350	0.29	1.35	1.350	0.180	1.350	1.350	0.27	1.35	1.150	0.25	1.150	1.150	0.155	1.15	1.150	0.180	1.150	1.150	0.26	1.20						
50.0	0.990	1.000	0.29	1.05	0.990	0.180	1.000	0.990	0.27	1.00	0.870	0.25	0.900	0.860	0.155	0.87	0.860	0.180	0.870	0.860	0.26	0.89						
70.0	0.680	0.700	0.28	0.75	0.680	0.175	0.710	0.680	0.26	0.73	0.600	0.24	0.650	0.590	0.150	0.61	0.590	0.175	0.620	0.590	0.25	0.65						
95.0	0.490	0.510	0.27	0.58	0.490	0.170	0.520	0.490	0.26	0.56	0.440	0.23	0.500	0.430	0.145	0.45	0.430	0.170	0.460	0.430	0.25	0.49						
120.0	0.390	0.410	0.26	0.48	0.390	0.165	0.430	0.390	0.25	0.47	0.350	0.23	0.420	0.340	0.140	0.37	0.340	0.165	0.380	0.340	0.24	0.42						
150.0	0.320	0.330	0.26	0.43	0.320	0.165	0.360	0.320	0.25	0.41	0.290	0.23	0.370	0.280	0.140	0.31	0.280	0.165	0.320	0.280	0.24	0.37						
185.0	0.250	0.270	0.26	0.37	0.260	0.165	0.300	0.250	0.25	0.36	0.230	0.23	0.320	0.220	0.140	0.26	0.220	0.165	0.280	0.220	0.24	0.33						
240.0	0.190	0.210	0.26	0.33	0.200	0.160	0.250	0.195	0.25	0.31	0.190	0.22	0.290	0.170	0.140	0.22	0.170	0.165	0.240	0.170	0.24	0.29						
300.0	0.155	0.175	0.25	0.31	0.160	0.160	0.220	0.155	0.25	0.29	0.150	0.22	0.270	0.140	0.140	0.20	0.135	0.160	0.210	0.135	0.24	0.27						
400.0	0.120	0.140	0.25	0.29	0.130	0.155	0.200	0.125	0.24	0.27	0.130	0.22	0.250	0.110	0.135	0.18	0.110	0.160	0.195	0.110	0.24	0.26						
500.0	0.093	0.120	0.25	0.28	0.105	0.155	0.185	0.098	0.24	0.26	0.100	0.22	0.240	0.090	0.135	0.16	0.088	0.160	0.180	0.085	0.24	0.25						
630.0	0.072	0.100	0.25	0.27	0.086	0.155	0.175	0.078	0.24	0.25	0.090	0.21	0.230	0.074	0.135	0.15	0.171	0.160	0.170	0.068	0.23	0.24						
800.0	0.056		-		0.072	0.150	0.170	0.640	0.24	0.25		-		0.062	0.130	0.15	0.059	0.155	0.165	0.055	0.23	0.24						
1000.0	0.045		-		0.063	0.150	0.165	0.054	0.24	0.24		-		0.055	0.130	0.14	0.050	0.155	0.165	0.047	0.23	0.24						

Conductor operating temperature: 90°C

r = Resistive Component  
x = Reactive Component  
z = Impedance Value

Notes

- Where the conductor is to be protected by a semi-enclosed fuse to BS3036, see item 6.2 of the preface to appendix 4 within the 16th edition regs.
- The current-carrying capacities in columns 2 to 5 are also applicable to flexible cables BS7211 table 3(b) where the cables are used in fixed installations.
- For cable in rigid PVC conduit the values stated in table 4D1 are applicable (see Regulation 512-02).
- Where a conductor operates at a temperature exceeding 70°C it shall be ascertained that the equipment connected to the conductor is suitable for the conductor operating temperature (see Regulation 512-02).
- Where cables in this table are connected to equipment or accessories designed to operate at a temperature not exceeding 70°C, the current ratings given in the equivalent table for 70°C PVC insulated cables BS6004, BS6346 shall be used (see Reg 523-01-01).

\* Spacings larger than those specified in Method 12 (see table 4A 16th edition regs) will result in larger volt drop.