

TECHNICAL DATA SHEET 6491X (H07V-R)

Single core non-sheathed cables with thermoplastic PVC insulation (general purpose cables for fixed wiring), 450/750 V

UK cable code: **6491X**

Harmonized cable code: **H07V-R**

British standard: **BS EN 50525-2-31:2011**

European standard: **EN 50525-2-31:2011**

Conductor: **Class 2 copper, stranded**

Insulation: **PVC type TI 1**

Colour of insulation: **Green/Yellow or black or blue or brown or grey or orange or pink or red or turquoise or violet or white**

Maximum operating temperature: **70 °C**

BASEC Product Certification Schedule No: **229/001/010 (expiry date: 04/12/2021)**

Range of approval: **BS EN 50525-2-31:2011 / Clause 4.1 & Table B.1 / 1.5 mm² to 35 mm² (Class 2 conductor) nominal cross-sectional area of conductors inclusive / Single core**

TABLE 1: General data for type 6491X (H07V-R)

Nominal cross-sectional area of conductors	Radial thickness of insulation	Mean overall diameter		Minimum insulation resistance at 70 °C	Maximum conductor resistance at 20 °C
		Lower limit	Upper limit		
(mm ²)	(mm)	(mm)	(mm)	(MΩ • km)	(Ω / km)
1.5	0.7	2.7	3.3	0.010	12.1
2.5	0.8	3.3	4.0	0.0099	7.41
4	0.8	3.8	4.6	0.0082	4.61
6	0.8	4.3	5.2	0.0070	3.08
10	1.0	5.6	6.7	0.0067	1.83
16	1.0	6.4	7.8	0.0056	1.15
25	1.2	8.1	9.7	0.0053	0.727
35	1.2	9.0	10.9	0.0046	0.524
50	1.4	10.6	12.8	0.0046	0.387
70	1.4	12.1	14.6	0.0040	0.268
95	1.6	14.1	17.1	0.0039	0.193
120	1.6	15.6	18.8	0.0035	0.153
150	1.8	17.3	20.9	0.0035	0.124
185	2.0	19.3	23.3	0.0035	0.0991
240	2.2	22.0	26.6	0.0034	0.0754

TABLE 2: Electrical tests for type 6491X (H07V-R)

Test	Details of test	Specified limit	Standard
Conductor resistance	20 °C	Not more than the maximum value specified in the table 1	BS EN 60228:2005 + AMD 17085:2007
Voltage test on completed cable	2.5 kV A.C. / 15 min	No breakdown of the insulation shall occur	BS EN 50395:2005 + AMD:2011

TECHNICAL DATA SHEET 6491X (H07V-R)

TABLE 2: Electrical tests for type 6491X (H07V-R) (continued)

Test	Details of test	Specified limit	Standard
Insulation resistance	70 °C	Not less than the minimum value specified in the table 1	BS EN 50395:2005 + AMD:2011
Long term resistance of insulation to d.c.	220 V D.C. / 60 ± 5 °C / 10 days	No breakdown of the insulation and no damage to the surface	BS EN 50395:2005 + AMD:2011
Absence of faults in the insulation	–	No breakdown of the insulation shall occur	BS EN 50395:2005 + AMD:2011 + BS EN 62230:2007 + AMD:2014 + COR: 2017

TABLE 3: Mechanical tests for type 6491X (H07V-R)

Test	Details of test	Specified limit	Standard
Minimum tensile strength before ageing	–	12.5 N / mm ²	BS EN 60811–501:2012 + AMD:2018
Minimum elongation at break before ageing	–	125 %	BS EN 60811–501:2012 + AMD:2018
Minimum tensile strength after ageing in air oven	80 ± 2 °C / 7 days	12.5 N / mm ²	BS EN 60811–401:2012 + AMD:2018 + BS EN 60811–501:2012 + AMD:2018
Maximum variation of tensile strength after ageing in air oven	80 ± 2 °C / 7 days	± 20 %	BS EN 60811–401:2012 + AMD:2018 + BS EN 60811–501:2012 + AMD:2018
Minimum elongation at break after ageing in air oven	80 ± 2 °C / 7 days	125 %	BS EN 60811–401:2012 + AMD:2018 + BS EN 60811–501:2012 + AMD:2018
Maximum variation of elongation at break after ageing in air oven	80 ± 2 °C / 7 days	± 20 %	BS EN 60811–401:2012 + AMD:2018 + BS EN 60811–501:2012 + AMD:2018
Maximum loss of mass after ageing	80 ± 2 °C / 7 days	2.0 mg / cm ²	BS EN 60811–401:2012 + AMD:2018 + BS EN 60811–409:2012
Pressure test at high temperature (maximum depth of indentation)	80 ± 2 °C / 4 hrs ⁽¹⁾	50 %	BS EN 60811–508:2012 + AMD:2018
Pressure test at high temperature (maximum depth of indentation)	80 ± 2 °C / 6 hrs ⁽²⁾	50 %	BS EN 60811–508:2012 + AMD:2018
Resistance to cracking	150 ± 2 °C / 1 hr	No cracks	BS EN 60811–509:2012 + AMD:2018
Bending test at low temperature ⁽³⁾	– 15 ± 2 °C / 16 hrs	No cracks	BS EN 60811–504:2012
Elongation test at low temperature (minimum elongation at break) ⁽⁴⁾	– 15 ± 2 °C / 4 hrs	30 %	BS EN 60811–505:2012
Impact test at low temperature	– 5 ± 2 °C / 16 hrs	No cracks	BS EN 60811–506:2012

⁽¹⁾: For cables having mean overall diameters up to and including 15.0 mm

⁽²⁾: For cables having mean overall diameters exceeding 15.0 mm

⁽³⁾: Only applicable for cables with an overall diameter up to and including 12.5 mm

⁽⁴⁾: Only applicable for cables with an overall diameter over 12.5 mm

TECHNICAL DATA SHEET 6491X (H07V-R)

TABLE 3: Mechanical tests for type 6491X (H07V-R) (continued)

Test	Details of test	Specified limit	Standard
Test under fire conditions (minimum distance from the lower edge of the top support to the upper onset of charring)	1 kW pre-mixed flame	50 mm	BS EN 60332-1-2:2004 + AMD:2015 + AMD:2016
Test under fire conditions (maximum distance from the lower edge of the top support to the lower onset of charring)	1 kW pre-mixed flame	540 mm	BS EN 60332-1-2:2004 + AMD:2015 + AMD:2016
Test under fire conditions (maximum distance from the upper to the lower onset of charring)	1 kW pre-mixed flame	425 mm	BS EN 60332-1-2:2004 + AMD:2015 + AMD:2016