

TECHNICAL DATA SHEET 6241B, 6242B & 6243B**Thermosetting insulated, single core 6241B, flat twin 6242B and flat 3-core 6243B sheathed cables with circuit protective conductor (CPC) 300/500 V***Traditional UK cable code:* **6241B** (single core), **6242B** (flat twin) & **6243B** (flat 3-core)*British standard:* **BS 7211:2012 + A1:2020***Conductor:* **Class 1 plain copper, solid or class 2 plain copper, stranded, as shown below***Insulation:* **Thermosetting insulation type GP 8***Sheath:* **Synthetic sheath type LTS 2***Colour of sheath:* **White (other colours may be used by agreement between manufacturer and customer)****TABLE 1: Core identification and sequence for thermosetting insulated, single core 6241B, flat twin 6242B and flat 3-core 6243B sheathed cables with circuit protective conductor (CPC) 300/500 V**

Number of cores	Colour of cores
1	Blue or Brown
2	Brown – Blue or Brown – Brown (for 2 x 1.0 + 1.0 & 2 x 1.5 + 1.0 cables)
3	Brown – Black – Grey

TABLE 2: Position of circuit protective conductor for thermosetting insulated, single core 6241B, flat twin 6242B and flat 3-core 6243B sheathed cables with circuit protective conductor (CPC) 300/500 V

Number of cores	Position
2	Centrally placed between cores in same plane
3	Centrally placed between black and grey core in same plane

TECHNICAL DATA SHEET 6241B, 6242B & 6243B**TABLE 3: General data for thermosetting insulated, single core 6241B, flat twin 6242B and flat 3-core 6243B sheathed cables with circuit protective conductor (CPC) 300/500 V**

Number and nominal cross-sectional area of conductors	Class of conductor	Maximum conductor resistance at 20 °C	Circuit protective conductor, minimum nominal cross-sectional area	Class of protective conductor	Maximum protective conductor resistance at 20 °C	Radial thickness of insulation	Radial thickness of sheath	Mean overall dimensions (maximum)	Minimum insulation resistance at 90 °C
(mm ²)		(Ω / km)	(mm ²)		(Ω / km)	(mm)	(mm)	(mm)	(MΩ • km)
1 x 1.0	1	18.1	1.0	1	18.1	0.7	0.9	5.0 x 6.3	0.011
1 x 1.5	1	12.1	1.0	1	18.1	0.7	0.9	5.3 x 6.6	0.011
2 x 1.0	1	18.1	1.0	1	18.1	0.7	0.9	5.0 x 9.2	0.011
2 x 1.5	1	12.1	1.0	1	18.1	0.7	0.9	5.3 x 9.7	0.011
2 x 2.5	1	7.41	1.5	1	12.1	0.7	1.0	6.0 x 11.2	0.0092
2 x 4	2	4.61	1.5	1	12.1	0.7	1.0	6.7 x 12.6	0.0070
2 x 6	2	3.08	2.5	1	7.41	0.7	1.1	7.5 x 14.6	0.0059
2 x 10	2	1.83	4	2	4.61	0.7	1.2	8.8 x 17.5	0.0047
2 x 16	2	1.15	6	2	3.08	0.7	1.3	10.1 x 20.5	0.0039
3 x 1.0	1	18.1	1.0	1	18.1	0.7	0.9	5.0 x 12.1	0.011
3 x 1.5	1	12.1	1.0	1	18.1	0.7	0.9	5.3 x 12.9	0.011

TABLE 4: Electrical tests for thermosetting insulated, single core 6241B, flat twin 6242B and flat 3-core 6243B sheathed cables with circuit protective conductor (CPC) 300/500 V

Test	Details of test	Specified limit	Standard
Conductor resistance	20 °C	Not more than the maximum value specified in the table 3	BS EN 60228:2005 + AMD 17085:2007
Absence of faults in the insulation	—	No breakdown of the insulation shall occur	BS EN 62230:2007 + AMD:2014 + COR: 2017
Voltage test	2.0 kV A.C. (5.0 kV D.C.) / 5 min	No breakdown of the insulation shall occur	BS EN 50395:2005 + AMD:2011
Voltage test on cores	2.0 kV A.C. / 5 min	No breakdown of the insulation shall occur	BS EN 50395:2005 + AMD:2011
Voltage withstand	2.0 kV A.C. / 15 min 1.0 kV A.C. / 5 min	No breakdown of the insulation shall occur No breakdown of the sheath shall occur	BS 7204:2012 + A1:2020

TECHNICAL DATA SHEET 6241B, 6242B & 6243B**TABLE 4: Electrical tests for thermosetting insulated, single core 6241B, flat twin 6242B and flat 3-core 6243B sheathed cables with circuit protective conductor (CPC) 300/500 V (continued)**

Test	Details of test	Specified limit	Standard
Insulation resistance	90 °C	Not less than the minimum value specified in the table 3	BS EN 50395:2005 + AMD:2011
Insulation resistance constant (K)	90 °C	Not less than the minimum value (3.67 MΩ • km) specified in the table 2 of standard BS 7655-1.3:2000	BS 6469-99.2:1992 + AMD 16086:2006

TABLE 5: Mechanical tests for thermosetting insulated, single core 6241B, flat twin 6242B and flat 3-core 6243B sheathed cables with circuit protective conductor (CPC) 300/500 V

Test	Details of test	Specified limit (insulation)	Specified limit (sheath)	Standard
Minimum tensile strength before ageing	–	12.5 N / mm ²	6.0 N / mm ²	BS EN 60811-501:2012 + A1:2018
Minimum elongation at break before ageing	–	200 %	100 %	BS EN 60811-501:2012 + A1:2018
Minimum tensile strength after ageing in air oven	100±2 °C / 7 days	–	6.0 N / mm ²	BS EN 60811-401:2012 + A1:2018 + BS EN 60811-501:2012 + A1:2018
Maximum variation of tensile strength after ageing in air oven	135±2 °C / 7 days	±25 %	–	BS EN 60811-401:2012 + A1:2018 + BS EN 60811-501:2012 + A1:2018
Maximum variation of tensile strength after ageing in air oven	100±2 °C / 7 days	–	±40 %	BS EN 60811-401:2012 + A1:2018 + BS EN 60811-501:2012 + A1:2018
Minimum elongation at break after ageing in air oven	100±2 °C / 7 days	–	100 %	BS EN 60811-401:2012 + A1:2018 + BS EN 60811-501:2012 + A1:2018
Maximum variation of elongation at break after ageing in air oven	135±2 °C / 7 days	±25 %	–	BS EN 60811-401:2012 + A1:2018 + BS EN 60811-501:2012 + A1:2018
Maximum variation of elongation at break after ageing in air oven	100±2 °C / 7 days	–	±40 %	BS EN 60811-401:2012 + A1:2018 + BS EN 60811-501:2012 + A1:2018
Water absorption test of insulation / gravimetric method (maximum variation in mass)	85±2 °C / 14 days	1.0 mg / cm ²	–	BS EN 60811-402:2012
Hot set (maximum elongation under load)	200±3 °C / 15 min / 0.2 N/mm ²	175 %	–	BS EN 60811-507:2012
Hot set (maximum elongation after loading)	200±3 °C / 5 min	15 %	–	BS EN 60811-507:2012
Shrinkage test (maximum shrinkage)	130±2 °C / 1 hr	4 %	–	BS EN 60811-502:2012
Pressure test at high temperature (maximum depth of indentation)	90±2 °C / 4 hrs	–	50 %	BS EN 60811-508:2012 + A1:2018
Impact test at low temperature	– 15±2 °C / 4 hrs	–	No cracks	BS EN 60811-506:2012

TECHNICAL DATA SHEET 6241B, 6242B & 6243B

TABLE 5: Mechanical tests for thermosetting insulated, single core 6241B, flat twin 6242B and flat 3-core 6243B sheathed cables with circuit protective conductor (CPC) 300/500 V (continued)

Test	Details of test	Specified limit (insulation)	Specified limit (sheath)	Standard
Bending test at low temperature	- 15±2 °C / 16 hrs	–	No cracks ⁽¹⁾	BS EN 60811–504:2012
Elongation test at low temperature (minimum elongation at break)	- 15±2 °C / 4 hrs	–	30 % ⁽²⁾	BS EN 60811–505:2012
Compatibility test of completed cable	100±2 °C / 7 days	No exudation of insulation	No exudation of sheath	BS EN 60811–401:2012 + A1:2018 + BS 7204:2012 + A1:2020
Minimum tensile strength after ageing of completed cable in air oven	100±2 °C / 7 days	12.5 N / mm ²	6.0 N / mm ²	BS EN 60811–401:2012 + A1:2018 + BS EN 60811–501:2012 + A1:2018
Maximum variation of tensile strength after ageing of completed cable in air oven	100±2 °C / 7 days	±25 %	±40 %	BS EN 60811–401:2012 + A1:2018 + BS EN 60811–501:2012 + A1:2018
Minimum elongation at break after ageing of completed cable in air oven	100±2 °C / 7 days	200 %	100 %	BS EN 60811–401:2012 + A1:2018 + BS EN 60811–501:2012 + A1:2018
Maximum variation of elongation at break after ageing of completed cable in air oven	100±2 °C / 7 days	±25 %	±40 %	BS EN 60811–401:2012 + A1:2018 + BS EN 60811–501:2012 + A1:2018

⁽¹⁾: Only applicable for flat cables with a major axis dimension up to and including 12.5 mm⁽²⁾: Only applicable for flat cables having a major axis dimension over 12.5 mm**TABLE 6: Tests for thermosetting insulated, single core 6241B, flat twin 6242B and flat 3-core 6243B sheathed cables with circuit protective conductor (CPC) 300/500 V**

Test	Details of test	Specified limit (insulation)	Specified limit (sheath)	Specified limit (cable)	Standard
Corrosive and acid gases (maximum level of HCl)	–	0.5 %	0.5 %	–	BS EN 60754–1:2014 + A1:2020
Smoke emission (minimum light transmittance)	–	–	–	60 %	BS EN 61034–2:2005 + A2:2020
Assessment of halogens (minimum pH)	–	–	–	4.3	BS EN 60754–2:2014 + A1:2020
Assessment of halogens (maximum conductivity)	–	–	–	10.0 µS / mm	BS EN 60754–2:2014 + A1:2020
Flame propagation on single cable (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 + A12:2020
Flame propagation on single cable (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 + A12:2020

TECHNICAL DATA SHEET 6241B, 6242B & 6243B**TABLE 6: Tests for thermosetting insulated, single core 6241B, flat twin 6242B and flat 3–core 6243B sheathed cables with circuit protective conductor (CPC) 300/500 V**
(continued)

Test	Details of test	Specified limit (insulation)	Specified limit (sheath)	Specified limit (cable)	Standard
Flame propagation on single cable (maximum distance from the upper to the lower onset of charring)	1 kW pre-mixed flame	–	–	425 mm	BS EN 60332–1–2:2004 + A12:2020