



## INTRODUCTION

BS 5467 and BS 6724 are British Standards for low voltage armoured cables for use in fixed industrial wiring and mains distribution. The standards specify two voltage ratings:

Most commonly specified: 600/1000V (0.6/1kV) - 600V AC Phase-to-earth and 1000V AC phase-to-phase

Also available: 1900/3300V (1.9/3.3kV)

## CONSTRUCTION

The standards specify Copper conductors. Generally they are Class 2 stranded - usually circular up to 25/35mm<sup>2</sup> and sectorial shaped for larger sizes. They can also have Class 1 solid conductors. Both cables have XLPE (Cross-linked Polyethylene) insulation allowing a maximum operating temperature of +90°C. BS 5467 has PVC bedding (inner sheath) and outer sheathing. BS 6724 has a Low Smoke Zero Halogen (LSZH) compound for bedding and sheathing.



### Core Identification

Single Core: ● Brown or ● Blue

2 Core: ● Brown, ● Blue

3 Core: ● Brown, ● Blue, ● Grey

4 Core: ● Brown, ● Black, ● Blue, ● Grey

5 Core: ● Green/Yellow, ● Brown, ● Blue, ● Black, ● Grey

6 Cores and above: ○ White cores with ● Black numbering

### Armouring

Under the sheathing material is a layer of round wire armour to provide mechanical protection.

Single core cables : Aluminium Wire Armour (AWA)

Multi core cables: Steel Wire Armour (SWA)

Single core cables use AWA rather than steel wires to avoid creating magnetic fields and eddy currents around the cable which can cause overheating in electrical systems. Both single core and multicore cables have a bedding layer underneath the armour to prevent damage to the insulation from the wire armour. In multicore cables it also helps to make the cable circular. The armour provides almost 100% coverage. It protects the conductor in the event the cable is pierced or damaged whilst in service.

## INSTALLATION

BS 5467 and BS 6724 can be installed internally or externally, in ducts, clipped direct, laid on tray or basket, or in free air. Additionally, the armour allows for installation direct in the ground (in free draining soil) or embedded in concrete according to BS7671 Wiring Regulations. In most cases, the black PVC or LSZH sheathing is also UV-resistant (although this should be confirmed against the precise cable specifications). BS 5467 and BS 6724 are generally supplied as CPR compliant as they are used in fixed installations, frequently terminated internally.



## USE OF BS 6724

BS 5467 and BS 6724 can often be used interchangeably. Where BS 6724 is recommended is for internal installations. The LSZH sheathing provides protection to life and to sensitive equipment in the event of fire. Unlike PVC materials which emit dense black smoke and toxic halogen gases when burnt, LSZH materials (Low Smoke Zero Halogen) do not. LSZH materials allow a minimum of 60% light transmittance through the smoke when tested under BS EN 61034, also known as 'the 3m cube test'. Additionally, they do not emit toxic chlorine gas. Chlorine gas turns to hydrochloric acid when it comes into contact with water - whether from fire suppressant sprinkler systems or present in the eyes, nose and mouth. In some countries, although not the UK, LSZH materials are mandatory for public building installations.

## OTHER REFERENCES

BS 5467 and BS 6724 are also referred to as: SWA, mains power, booklet power, booklet armoured. AWA is sometimes mistakenly referred to as Single Wire Armour.

Outside of the UK, the cable is sometimes referenced as being to international standard IEC 60502-1, where it is instead referenced as N2XRY for PVC and N2XRH for LSZH. Where made under the standard IEC 60502-1 it is also possible to use aluminium conductors : NA2XRY and NA2XRH.

It is recommended cables are BASEC accredited. Full technical details and electrical characteristics can be found on the website.