

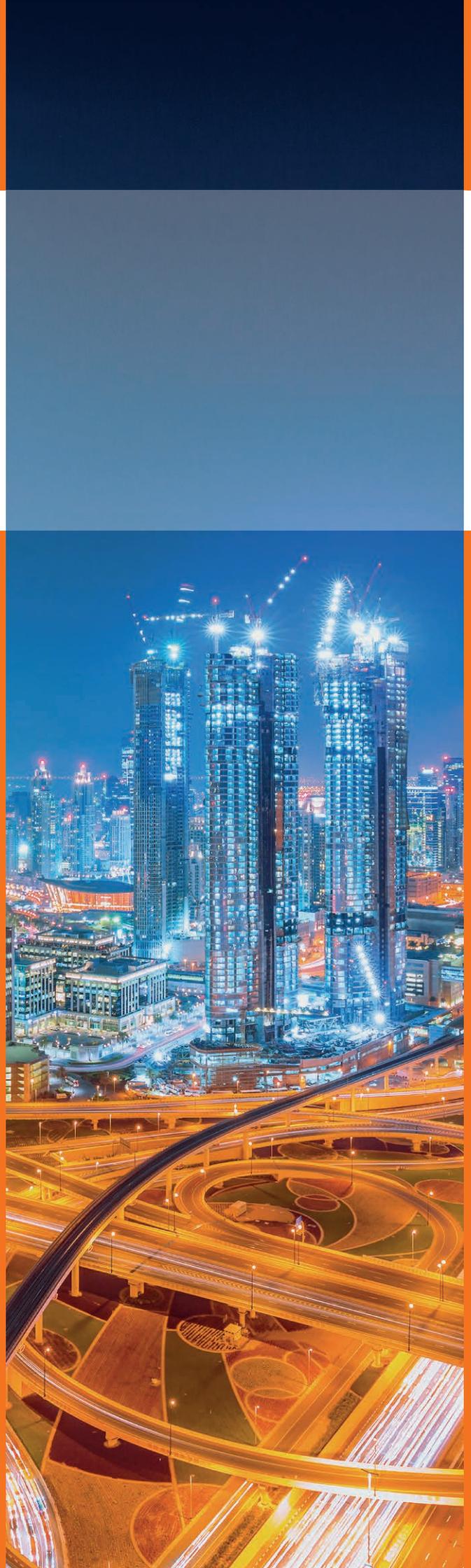
BASEC
BRITISH APPROVALS SERVICE FOR CABLES



Corporate Brochure

WORLDWIDE CABLE EXPERTS

Your guide to cable
certification and
testing services



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Introducing BASEC

BASEC (British Approvals Service for Cables) focuses exclusively on serving the needs and customers of the global cable industry.

Established in 1971, for over 45 years BASEC has been a mark of reassurance for those manufacturing, specifying, buying and installing cable. The BASEC name is synonymous with quality and safety and our cable certification and testing is trusted and respected around the world.

Core values:

- ✓ Customer first
- ✓ Trust
- ✓ Experts
- ✓ Integrity
- ✓ Independence

Vision - to be the preferred testing and certification partner to the worldwide cable industry.



Purpose - to be continuously improving quality and safety.

UKAS Accredited

United Kingdom Accreditation Service (UKAS) is the only national accreditation body recognised by the UK government which assesses organisations that provide certification, testing, inspection and calibration services. UKAS work to internationally agreed standards.

BASEC is accredited by UKAS for ISO/IEC 17065 for product certification, ISO/IEC 17025 for testing, and ISO/IEC 17021-1 for quality management systems and environmental management systems certifications.



About us
What we do



BASEC is a global leader in product testing and certification services for the cable industry across numerous sectors, including construction & electrical installation, power distribution, rail, marine, oil & gas and renewables.

In addition, you can access triple standard management systems certification, Construction Product Regulation (CPR) testing, bespoke type testing, impartial investigation of conformity issues, and testing and reporting to support you in the event of any potential disputes.

Working to worldwide standards

BASEC's goal is to ensure that cable products meet appropriate national, local e.g. European specific and international standards by carrying out detailed examinations of both manufacturers' production processes and regular, rigorous testing of their products.

Testing to:

- ✓ International standards
- ✓ European standards
- ✓ British and other national standards
- ✓ Private specifications
- ✓ Sector-specific standards (e.g. rail, marine)
- ✓ Utility standards

Working with:

- ✓ Cable manufacturers
- ✓ Standardisation bodies
- ✓ Manufacturer associations
- ✓ Installer associations
- ✓ Professional institutions
- ✓ Wholesalers
- ✓ Distributors
- ✓ Cable stockists

Not BASEC approved cable?

One of BASEC's founding objectives is to enhance the quality and safety of all cable and related products in the marketplace. BASEC therefore, not only monitors approved cable products but also undertakes market surveillance testing of cables on sale that do not carry any third party approval.

Why?

When serious problems are found with compliance, BASEC gives you warnings, technical support and advice to the full cable supply chain and, if necessary notifies the relevant authorities.



“
This guide will tell you more about who we are, how we operate and the reasons why people around the world are demanding BASEC approved cable.
”

About us
Global Coverage



Working with companies worldwide

You access tailored services to meet you and your customer's needs, wherever you are located in the world. This forms a key part of our commitment to providing you with an excellent service. To further support this, we have regional teams now based in both the Middle East and Asia.

Alongside this global remit, we have not lost sight of our British roots and the rigour of the standards and testing that have been the foundation of BASEC's work from the beginning.

Our customers can be assured that the BASEC mark of approval carries the same weight and respect today as it has always done.

The benefits of BASEC approval

BASEC certification is amongst the most rigorous in the industry. By achieving it you will stand out clearly from your competitors and your cables will be recognised worldwide as market leaders in terms of quality, safety and ongoing conformity to all the relevant standards.

It will open up new opportunities and markets for you, as the BASEC mark has been a mark of reassurance for those specifying, buying and installing cable for over 45 years. We support our clients throughout the process and ensure that we deliver a truly international accreditation service.

BASEC operates globally, auditing in over 28 countries around the world and expanding all the time

- | | |
|-----------------------------------|--------------|
| UK & Ireland | MEAF |
| UK | Egypt |
| Ireland | Kuwait |
| Europe & Rest of World | Oman |
| Bosnia and Herzegovina | Qatar |
| Czech Republic | Saudi Arabia |
| Greece | UAE |
| Italy | Asia |
| Lithuania | Bangladesh |
| Netherlands | China |
| Poland | Hong Kong |
| Portugal | India |
| Spain | Taiwan |
| Switzerland | Thailand |
| Turkey | Vietnam |
| Trinidad and Tobago | |
| USA | |

About the service

Comprehensive product testing and approvals provide purchasers and contractors with the peace of mind that the cable they install is compliant, safe, fit for purpose and will provide years of reliable service.

Our certification scheme is recognised as one of the most demanding in the industry. Manufacturers of BASEC approved cables are subject to regular factory inspections and cables are sampled and tested several times a year to ensure ongoing conformity.

This thoroughness means that when purchasers and contractors specify BASEC approved cable they can be sure it meets the highest quality standards and that it conforms with all relevant regulatory requirements.

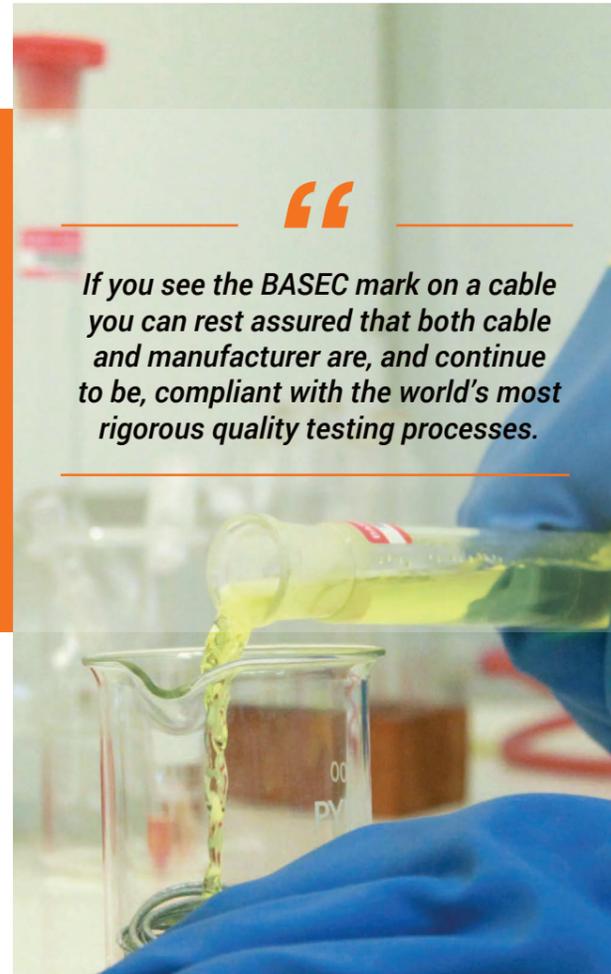
Rigorous testing and ongoing surveillance

During the application process and our subsequent factory visits we check:

- ✓ The manufacturer's range of cable types and sizes against the Product Certification Requirements (PCR)
- ✓ Production equipment (including witnessing cable being made)
- ✓ The manufacturer's laboratory, including witnessing testing and checking the reliability of results
- ✓ Calibration of machines and instruments

In addition to factory visits BASEC selects up to 200 cable samples a year from each factory to test in the independent BASEC laboratory. All certification systems are based on a sampled process as not every batch of cable can be independently tested.

However, as BASEC samples more frequently than other certification schemes, you can be assured that any problems or deviations in production are identified quickly, and so can be promptly rectified.



If you see the BASEC mark on a cable you can rest assured that both cable and manufacturer are, and continue to be, compliant with the world's most rigorous quality testing processes.



The BASEC Mark

Only BASEC approved manufacturers are awarded the BASEC certificate which allows them to use the BASEC mark on their product.

Gaining the BASEC Mark

Manufacturers can apply for a licence to display the BASEC mark only when we are satisfied that their manufacturing systems are capable of consistently producing compliant cable products.

BASEC also verifies that the products comply with the relevant specifications through full type testing at the BASEC laboratory, or if appropriate, by witnessing tests at your factory.

Maintaining the BASEC Mark

To maintain a licence, manufacturers undergo both planned and unannounced factory audits to ensure ongoing conformity. Our global team of experts in cable-making and certification, audit manufacturer's sites several times a year, with a mixture of these visits.

Up to 200 cable samples a year are requested from each factory for surveillance testing in the BASEC laboratory to ensure the cables being produced continue to conform to the required standards.



The BASEC mark of approval isn't easy to earn – and isn't easy to keep. Approved manufacturers work hard to maintain their BASEC approvals, which is what keeps them ahead of the competition.

What is involved

Six steps to gaining and maintaining the BASEC mark

The certification process can be broken down into six steps and we will work closely with you throughout to ensure it runs smoothly.

Step 1 Planning & preparation

A pre-audit visit is offered to provide guidance and support in readying the necessary systems.

Step 2 Initial audit & audit report issued

The audit comprises of both a review of the management systems in place and of the processes involved in the operations and production lines.

Step 3 Samples sent to BASEC for testing

Cables are tested in the BASEC laboratory in accordance with the relevant standards.

Step 4 Certification

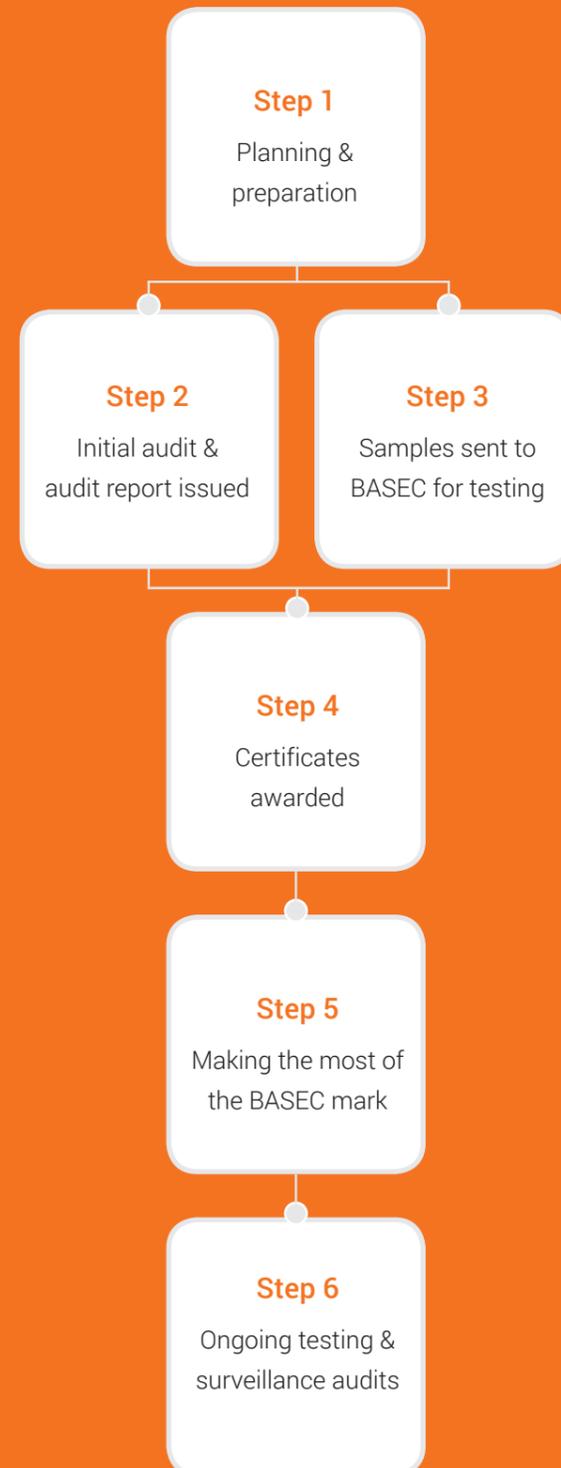
Following successful completion of the audit and testing, management systems certifications and product marking licences are awarded.

Step 5 Using the BASEC mark

Once you have been awarded the BASEC mark you will be able to use it on your products, as well as on your sales and marketing materials.

Step 6 Ongoing testing and surveillance audits

Between two and four routine audits, plus one unannounced visit per year, depending on the size and complexity of your business. At each routine audit, samples will be selected for testing, in order to ensure ongoing conformity. Recertification takes place every three years.



Management systems certification

BASEC is a UKAS accredited certification body for management systems, for the specific requirements of the cable sector. This makes us perfectly placed to offer an integrated and discrete solution to your management systems requirements.

Integrated Triple Standard

Integration of management systems reduces duplication and improves efficiency. We offer an integrated service to companies seeking approval to two or more standards

- ✓ Quality management systems to ISO 9001
- ✓ Environmental management systems to ISO 14001
- ✓ Health & Safety management systems to ISO 45001 (formerly OHSAS 18001)

Reasons to integrate management systems:

- ✓ More efficient and cost effective than operating separate systems
- ✓ Reduces disruption to your business and the amount of time required for assessments
- ✓ Increases efficiency by reducing the duplication of policies, procedures and auditing
- ✓ Integrate management systems with the BASEC PCR and demonstrate industry best practice

The benefits of choosing BASEC

- ✓ BASEC Product Approval clients will benefit from cost savings when you move your management systems certifications to BASEC.
- ✓ Tailored requirements for ISO 14001 to local environmental and legislative obligations, to enhance your environmental performance.
- ✓ BASEC looks beyond the legislation and compliance to ISO 45001, to help you deliver good risk management and organisational continuity, addressing the needs of all of your stakeholders.

Discrete Standards

Where required BASEC issues stand-alone of your management systems certification for ISO 9001, ISO 14001 and ISO 45001



BASEC auditors all have cable manufacturing experience so bring real value to your audit and your business.

Sector specialists

As the experts in cables across numerous sectors, BASEC works with manufacturers to ensure the supply of safe and compliant cable, in line with sector-specific standards and regulations. Offering peace of mind to installers and specifiers when buying and sourcing cable products.

Many sectors, such as rail, marine and oil & gas, rely on third-party testing to demonstrate product conformity to their customers.

BASEC's laboratory can carry out a range of tests to verify a cable's construction, materials and its electrical properties. Our state-of-the-art fire testing laboratory carries out tests on fire resistance, circuit integrity and reaction to fire. BASEC also offers a range of smoke emission, halogens, acid gas and toxicity tests.

BASEC delivers product certification and approval, third-party testing, investigations and assessments of non-standard cables, pre-shipment testing, inspection and batch testing.



As cable experts, BASEC partners with manufacturers across multiple sectors to ensure the installation of safe and compliant cable. Ensuring that cable products are made and perform in line with sector specific standards and regulations, offering peace of mind to installers and specifiers.

Aerospace & Defence

Cables used in a variety of aerospace and defence applications often need to conform to special requirements and rigorous approval and procurement processes. Specific tests are applied to cable products to address the need to cope with high performance, lightweight and aggressive environments.

BASEC tests to DEF STAN 61-12 series and BS (G) series.



Construction & Electrical Installation

In the construction and electrical installation sector, cable must be installed to strict quality requirements and must conform to regulatory requirements such as local wiring codes and regulations like BS 7671 and CPR.

At BASEC we test to International, European and British standards for building wire, installation cables, flexible cables, armoured and non-armoured power distribution cables, control and instrumentation cables and modular wiring.



Fire & Security

Product performance is fundamental in the fire and security sector. Independent assurance of performance verified through rigorous testing and certification is expected.

At BASEC we test to International, European and British standards for fire resistance and fire performance cables. Standards include BS 6387, BS EN 50200, BS 8434-2, BS 8491, IEC 60331 and IEC 60332 series. BASEC is a Notified Body under the Construction Products Regulation meaning we are fully capable to undertake full CPR fire testing and classification.



Marine

Marine cables must operate in some of the most adverse conditions. The BASEC name is synonymous with quality and safety, and our cable testing enables you to demonstrate to your clients that your cables meet the required standards and will deliver reliable service for many years to come.

BASEC tests to sector standards and specifications for LV, MV and instrumentation & control cables including NEK 606, IEC 60092 series, IEEE 1580, BS 6883, BS 7917, IEC 60331, IEC 60332 series.



Nuclear

Cables supplied into the nuclear sector must hold high performance characteristics such as the ability to achieve reliable performance for the lifetime of the power plant as well as maintaining integrity in a loss of coolant accident (LOCA) scenario.

BASEC performs testing to measure thermal endurance, LOCA scenarios, and testing for enhanced fire performance. Fire testing is delivered to IEC 60332-3 series and IEC 60331 series, smoke emission to IEC 61034-2 and acid, gas and halogens to IEC 60754 series. Testing to IEEE 383 is also available.



Oil, Gas & Petrochemical

Cables supplied to the oil, gas & petrochemical sector must conform to strict regulatory and design standards as they are installed in hazardous areas and challenging environments.

BASEC tests to sector standards and specifications for LV, MV and instrumentation & control cables including NEK 606, IEC 60092 series, IEEE 1580, BS 6883, BS 7917, EEMUA 133, IEC 60331, IEC 60332.



Power Distribution

Huge structural changes are currently underway in the power industry. This, coupled with an ageing infrastructure, means that it's essential that the cabling supplied provides a reliable, long term service.

BASEC tests insulated power, armoured, non-armoured, control and instrumentation cables. Testing to BS 7870 series, BS 6622, BS 7835 and IEC 60502-2, is conducted on: copper, aluminium, alloy, reinforced, waveform, triplex, concentric and split concentric cables.



Rail

Cables supplied to rail networks and for rolling stock must conform to exacting performance and safety standards, often require additional fire safety and performance specifications.

For rolling stock BASEC tests to EN 50306 series, EN 50305, EN 45545, BS EN 50264 series and Transport for London (TfL) / London Underground Ltd (LUL) S1-085. For rail infrastructure, BASEC tests MV track feeder cables to Network Rail standards and LUL, BS 7835 / BS 6622 / IEC 60502-2, tests, L.V. and power cables to BS 7846, BS 6724, BS 8592, BS 7629-1.



Renewables

Cables for the renewables sector must also be resilient in often challenging weather conditions for example in harsh sunlight, extreme heat, high winds and regular contact with rain and saltwater.

BASEC tests to sector standards and specifications including IEC 62930 and EN 50618 for solar photovoltaic systems and MV cables to IEC 60502 for wind power.



Construction Products Regulation



As a designated Notified Body (No 2661) for the **CPR System 1+ and System 3**, BASEC tests and classifies cables to all of the requirements of the Construction Products Regulation (CPR). Compliance to CPR enables manufacturers and distributors from around the world to supply into the European Union.

CPR Explained

Since the 1st July 2017, under the European Construction Products Regulation (CPR), it was made mandatory for cable manufacturers and suppliers to apply CE marking to any products covered by the harmonised European standard EN 50575.

The CPR applies to all cables placed on the market for use in fixed installation in domestic, commercial and industrial premises as well as any other civil engineering works anywhere in the European Union.

It applies to all power, communications and fibre optic cables irrespective of the place of manufacture. This includes novel or unique cables and those which have not been designed to any particular standard. CPR and fire testing needs to be carried out by an independent Notified Body such as BASEC.



BASEC has invested heavily in new equipment allowing us to test to all of the requirements of the CPR, respective to cables. Enabling you, your manufacturer and traders to access a full service for testing.



Compliance to all of the requirements for CPR and fire, through BASEC testing and classification, means manufacturers and distributors from around the world can supply in to the European markets.

CPR Classification According to Fire Performance

Reduced fire performance



Depending on the classification sought - different tests are conducted.

BS EN/ISO 1716

The gross heat of combustion is measured for each of the cable's components.

Used for Class Aca only.



BS EN 60332-1-2

A single length of cable is exposed to a 1kW flame and the total char length is measured after all combustion has ceased.

Used for Classes B1ca, B2ca, Cca, Dca, Eca and Fca.



BS EN 50399

An array of individually spaced cable or spaced bundles of cable are exposed to a flame. The flame spread, heat release, smoke production and droplet generation are measured.

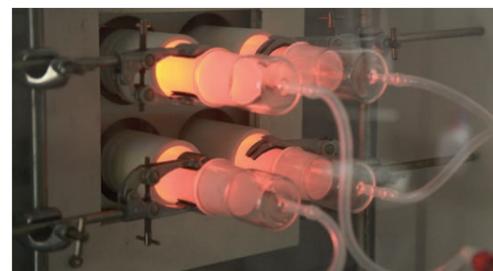
Used for Classes B1ca, B2ca, Cca, Dca.



BS EN 61034-2

The reduction in light transmission gives a measure of smoke density generated during the combustion of cables.

Used for Classes B1ca, B2ca, Cca, Dca where applicable.



BS EN 60754-2

The pH and conductivity of effluent gasses from the combustion of the cable components are measured to indicate the degree of acidity and corrosivity of the cable under fire conditions.

Used for Classes B1ca, B2ca, Cca, Dca.

Laboratory & Testing Facilities



BASEC's fully accredited, state-of-the-art laboratory is the largest independent cable testing service in the UK. At BASEC we test to any international standard, product code or bespoke requirement you may have.

Cable testing scope includes:

- ✓ Product certification
- ✓ Product approvals
- ✓ One-off type testing
- ✓ Pre-shipment and batch testing
- ✓ Operational failure analysis
- ✓ CPR testing

Our commitment to ongoing investment, the BASEC laboratory contains the latest state-of-the-art technology and equipment.

Extensive range of equipment includes:

- ✓ Tensometers
- ✓ Ageing ovens
- ✓ Freezers
- ✓ Conductor testers
- ✓ Fire test resistance
- ✓ Ladder fire test rig
- ✓ Voltage testers
- ✓ Smoke cube
- ✓ Chemistry laboratory



Testing is provided to enable certification and product approval purposes. BASEC also delivers independent testing for any party including trading standards, certification bodies, wholesalers, distributors, consultants and end users.



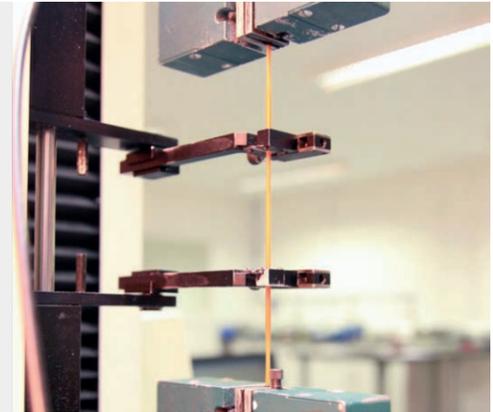
Fire & Smoke

Regulatory safety standards testing for cables used for emergency power, fire alarms and in public spaces including flammability, reaction to fire, resistance to fire, smoke emission and toxic gases.



Construction and Mechanical

Tests for conformity to specification and ease of identification, installation and usability including armour testing, marking and colour checking.



Chemical Testing

Testing for chemical composition of cable compounds (insulation and sheath) and other chemical tests on cable components such as metal coatings.



Electricity

Safety and performance tests including conductor resistance, insulation resistance, voltage tests and flex testing.



Materials and polymers

Testing for performance including ageing, compatibility of polymers, compliance of polymers for high and low-temperature conditions and checks on the correct processing of polymers during manufacture.



Training



All our courses are run by cable experts which means they are tailored specifically to your industry, and will focus on the issues that will make a difference to your organisation. BASEC training ensures your staff are up-to-date with the latest industry requirements, standards and new regulations. Courses can be run either at our Milton Keynes office or if you prefer, at your own site. They are relevant for those involved in testing, quality assurance and quality control, as well as those running BASEC systems.

BASEC's training courses include:

- ✓ CPR and fire
- ✓ Cable testing
- ✓ Cable standards
- ✓ LVD compliance
- ✓ Management systems
- ✓ BASEC PCR

Other Services

HAR Scheme

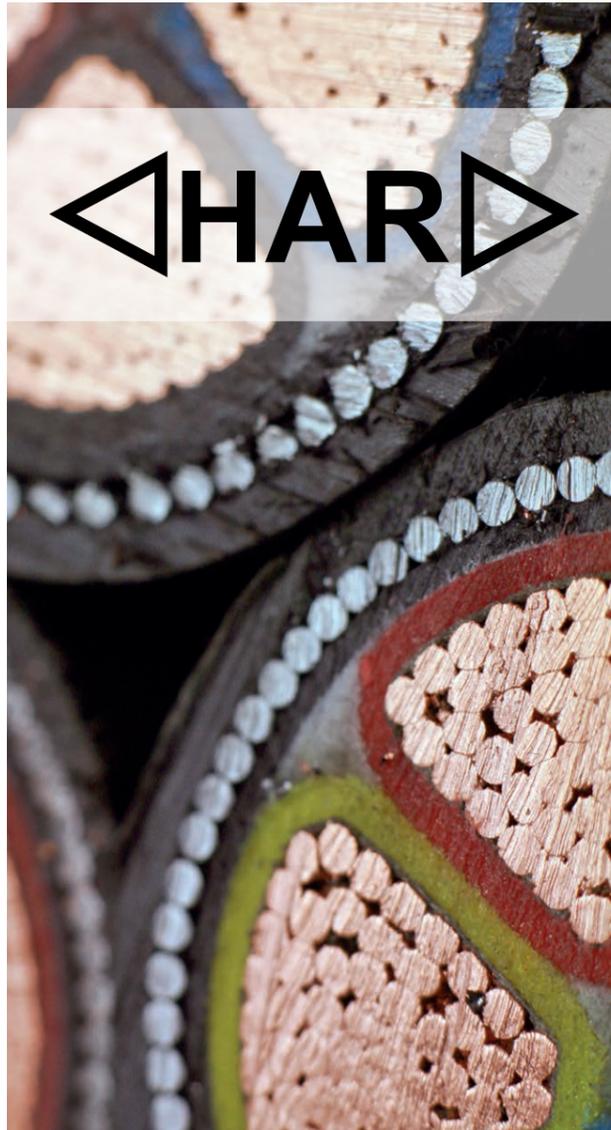
BASEC is a member of the pan-European HAR scheme, which is in place to demonstrate mutual acceptance and harmonised European standards of cable certification.

BASEC provides HAR scheme certification to manufacturers based in the UK, Ireland and other eligible European markets.

Certificate of Assessed Design

We offer a Certificate of Assessed Design (CAD) for new concepts where no national or international standards exist, or for variants from an existing standard. This enables manufacturers to offer innovative new designs to the market, whilst at the same time verifying their quality, safety and fitness for purpose.

All BASEC Notified Body services are valid under the European Directives.



Cable standards

One of the most common causes of confusion and issues on site when specifying cable is understanding the various standards that cables must comply to.

Most importantly, BASEC aims to give you a measure and mark you can trust in – to be sure that the cable you are using is compliant and will not cause any problems or damage your reputation as an installer or specifier.

A key part of our role is to ensure that the claims of conformity made by the cable manufacturers about the cable are valid. Only when we are completely satisfied with each cable's test results do we allow manufacturers to use the BASEC mark.



BASEC provides certifications and approvals to all global cable standards



Global range of cable standards

BASEC's rich British heritage means we are well versed in certifying and approving to British and European standards.

In order for you to manufacture, supply, or install cable, we understand that there is a vast number of local standards across the global that you may need support in complying and obtaining approvals for.

Our business has been set up to cater to your requirements with dedicated teams in each of the following regions:

Geographical standards and the coding prefixes to look out for:

UK & Ireland

British (BS)
Irish (IS)

Europe & Rest of World

Brazilian (ABNT/NBR)
Canadian (CSA)
European (EN)
French (NF)
German (DIN/VDE)
Italian (UNI)
Norwegian (NEK)

Asia

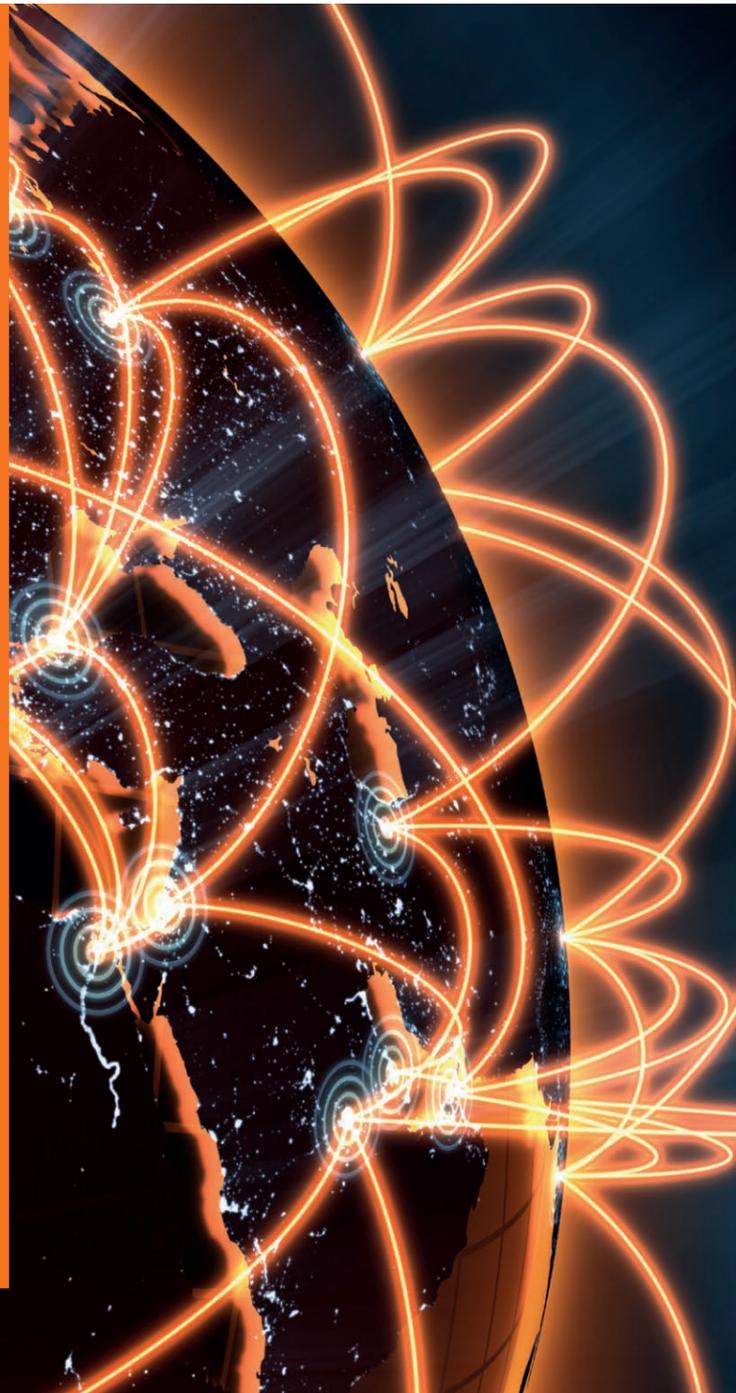
Australian (AS)
Indian (BIS)
Indonesian (SNI)
Malaysian (MS)
New Zealand (NZS)
People's Republic of China (GB/T)
Singapore (SS)
Taiwan (CNC)
Thailand (TIS)

Middle East & Asia

Gulf Cooperation Council (GSO)
South Africa (SANS)
United Arab Emirates (ESMA)

International

IEC / IEEE / ISO



Common standards for the differing cable applications

Building Wire

Standards for harmonised and final building circuits in buildings using PVC or low smoke halogen free (LSHF) variations – single core and multicore, for fixed and flexible applications.

Low voltage power

Applicable to all types of armoured and non-armoured PVC, XLPE, elastomeric, LSHF and MDPE sheathed single and multicore variants.

Medium & high voltage

Applicable to armoured and non-armoured cables with PVC and other polymeric insulated cables for use across distribution and generation utilities.

Flexible

Arctic-grade, HAR scheme (where applicable), light, ordinary and heavy duty, at high and low temperatures - PVC, PCP, PU, LSHF, sheathed variants.

Data and telecoms

Applicable to all cable types involved in the transmission of data and telecommunications networks – including LSHF variants.

Control and instrumentation

Used in the control and monitoring of plant processes linked to their power systems – armoured, screened, non-armoured and lead sheathed variants.

Fire test performance

Mineral insulated (bare or served), armoured power, armoured control, fire alarm, emergency lighting, evacuation alarm, single core and multicore cables - small scale flame propagation, large scale ladder.

Fire test standards

Standards for fire, with or without direct or indirect shock, with or without water spray or jet, mounted bare, or in conduit, or on fire resistant board, flame temperatures from 500C to 1000C; various performance grades; monitoring of circuit integrity or data transmission.



The rigour of BASEC's testing, coupled with the experience of our team, offers you reassurance that any cable tested and approved by BASEC is fit for purpose, safe to use and will deliver long-term reliability.

Typical Standards

Building Wire

BS 6004 / BS 7211 / BS EN Series / IEC 60227-3 / IEC 60227-4 / BS 8436 / I.S.201-4 / IS 694 (India)

Low voltage power

BS 5467 / BS 6724 / BS 7846 / BS 7889 / BS 8573 / BS 8436 / IEC 60502-1 / I.S.273 / CSA C22.2 / NF C32

Medium & high voltage

BS 6622 / BS 7835 / BS 7870 series / IEC 60502-2 / IEC 60840 / I.S.273 / CSA C22.2 / NF C32

Flexible

BS 6004 / BS EN 50525 series / IEC 60227-5 / IEC 62821-3 / AS/NZS 3191

Data and telecoms

IEC 11801 / BS EN 50173 / ANSI TIA 568

Control and instrumentation

BS 6231 / PAS 5308 / IEC 60227-6 / IEC 60227-7 / BS EN 50288-7

Fire test performance

BS 7629-1 / BS 7846 / BS EN 60702-1 and IEC 60702-1 / BS 5839-1 / SS 299-1

Fire test standards

BS EN 50399 / BS EN 60332-3 / BS 6387 / BS EN 50200 / BS 8434-2 / BS 8491 / BS EN 61034 / BS EN 60754 / IEC 60331 and 60332

BASEC
BRITISH APPROVALS SERVICE FOR CABLES



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