



Certification and testing for construction products

# Building for the future: A partnership through compliance

*raising standards worldwide*™



As a Notified Body BSI can help you prepare for 2013, when CE marking will become mandatory under the Construction Products Regulation.

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## Introduction

Manufacturers operating in global markets are faced with the challenge of dealing with multiple regulatory systems, standards and requirements. BSI provides manufacturers, specifiers and consumers the confidence that their construction products have been certified and tested to the required standards. With BSI's representation on numerous industry committees, we understand the issues you are facing and are in the best place to help you and your business.

### Unrivalled knowledge and expertise

BSI is a Notified Body for 15 of the EU Directives, owner and operator of the Superbrand Kitemark schemes and has one of the most comprehensive testing capabilities available. Our experience and expertise in the construction products sector is unrivalled.

BSI is committed to raising standards in the sectors in which it operates by helping manufacturers meet and demonstrate their compliance with the relevant legislation, aiding specifiers to select safe, reliable and good performing products as well as delivering reassurance and trust to the end user. Through BSI manufacturers can gain real market advantage, specifiers can reduce risk and cost and consumers are reassured.

### Kitemark®

The Kitemark is the best known, most trusted and recognised quality certification mark in the construction sector and has been for many decades.



BSI can offer the prestigious Kitemark, the distinctive symbol of quality and trust, on many construction related standards. With **72%\*** of the UK adult population recognising the Kitemark logo and **69%\*** believing that a Kitemark product is safer. What better advantage could your business and products have. The Kitemark helps consumers and specifiers identify quality, reliable products and at the same time gives the manufacturer an advantage over their competitors.

The Kitemark is also accepted in several countries outside the UK, where it is held in high regard as a quality mark. This means you could save considerable time and cost in getting your products to market – perhaps ahead of your competitors.

### CE marking

With new regulations coming into force in 2013, now is the time for Construction product manufacturers now is the time to ensure all products are CE marked. As a Notified Body to the Construction Products Regulation, BSI offers complete CE marking services. CE marking for products falling under this Directive is a legal requirement for manufacturers wishing to sell or transport their products in Europe.



### Product Testing

With a worldwide reputation as an independent testing authority, BSI can not only test a wide range of products under the Construction Products Regulation, International and National standards, but in many cases can formulate test programmes to meet specific client needs, create test regimes beyond those required by published standards and identify problems early in the design process which can save clients considerable time and money.



The Kitemark is a key decision making tool for product selection, product specification and enforcement of the specification, by providing the benchmark for a product's current conformance to the appropriate Standards.

This is why NBS encourages specifiers and contractors to use the Kitemark and is working with BSI to make this even easier and more assured.

- John Gelder, Content Development Manager, National Building Specification

 Denotes CE marking capabilities for the Directive

 Denotes a Kitemark Scheme for the Standard

# Cement and Concrete

## **CE** **BS EN 197-1**

Cement. Composition, specifications and conformity criteria for common cements

## **CE** **EN 197-4**

Cement. Composition, specifications and conformity criteria for low early strength blast furnace cements

## **CE** **BS EN 14647**

Calcium aluminate cement

## **CE** **BS EN 413 -1**

Masonry cement

## **CE** **BS EN 934 -2, 3 & 4**

Admixtures for concrete, mortar & grout.

## **BS EN 206-1 and BS 8500**

Ready mixed concrete

## **CE** **BS EN 450-1:2005 + A1**

Fly ash for concrete

## **CE** **BS EN 13813**

Screed material & floor screed

## **CE** **BS 15167 -1**

Ground granulated blast furnace slag for use in concrete, mortar and grout

## **BS EN 206 -1**

Mobile batching units. Specification for performance, production and conformity of concrete to take account of the introduction of mobile batching units.

## **CE** **EN 13043, 13242, 12620 & 13139**

Aggregates for use with high safety requirements



Concrete is one of the most versatile, durable and cost-effective building materials available. Its role in buildings and infrastructure projects means that it needs to perform reliably and safely.

When specifying ready-mixed concrete there are a number of factors to take into account to ensure the integrity and suitability of the concrete. These may include the strength, density (light and heavyweight concrete), water/cement ratio, cement content, consistency, air content (for air-entrained concrete) and chloride content, when relevant. Certification marks provide independent verification that ready-mixed concrete meets the required standards.

A specific Kitemark scheme exists for mobile concrete production methods. These units enable concrete production at the job site in any amount with minimal waste. Unlike traditional truck mixers, mobile batching units are not restricted by the distance that they can travel because each batch is mixed fresh as and when it is required.

BSI operates a wide range of Kitemark schemes covering concrete as well as offering a full CE marking service for cement based products, aggregates, admixtures, building limes and other similar products.



# Masonry

Masonry is the cornerstone of the construction industry. The materials used, the quality of the mortar and workmanship, and the pattern the units are put in can strongly affect the durability of the overall construction.



Brick and concrete are the most common types of masonry – most of which have hollow cores - providing great compressive strength. Bricks are generally made from clay or stone and increase the thermal mass of a building.

Concrete masonry units are much larger than ordinary bricks and so are much faster to lay. They are often used as the structural core for a brick veneer, or stand alone for the walls of factories, garages and other “industrial” buildings. Furthermore, concrete blocks typically have much lower water absorption rates than brick.

BSI's testing and certification offers a Kitemark scheme for the BS EN 771 series of standards for the characteristics and performance requirements of masonry units.



**CE** **BS EN 771-1**   
Clay masonry units

**CE** **BS EN 771-3**   
Aggregate concrete masonry units

**CE** **BS EN 771-4**   
Autoclaved aerated concrete masonry

**CE** **BS EN 771-5**   
Manufactured stone masonry units

**BS EN 771-6**   
Natural stone masonry units

**BS EN 1338**   
Concrete paving blocks

**BS EN 1340**  
Concrete kerb units

**BS EN 490+A1**   
Concrete roofing tiles and fittings for  
roof coverings and wall cladding

**BS EN 1339**   
Concrete paving flags

**BS EN 1344**   
Clay pavers

**CE** **BS EN 998-2**   
Masonry mortar

**BS EN 12326-1**   
Slate and stone products for  
discontinuous roofing and cladding

**BS EN 1304**   
Clay roof tiles and fittings

### BS EN 124

Gully tops and manhole tops for vehicular and pedestrian areas

### PAS 25

Plastic frames for use in gully tops and manhole tops for pedestrian areas

### PAS 26

Manhole tops intended for use on service station forecourts and pavement areas

### BS EN 1433

Drainage channels for vehicle and pedestrian areas

### BS EN 1916

Concrete pipe fittings unreinforced, steel fibre and reinforced

### BS 5911-1 & 3

Reinforced and unreinforced concrete pipes (including jacking pipes) and fittings with flexible joints

### BS 5911-6

Road gullies and gully cover slabs

### BS EN 1917

Concrete manholes and inspection chambers. Unreinforced, steel fibre and reinforced

### BS EN 681-1

Vulcanised rubber

### BS EN 545

Ductile iron pipes, fittings accessories and their joints for water pipelines

### BS EN 598

Ductile iron pipes, fittings accessories and their joints for sewerage applications

### BS ISO 2531

Ductile iron pipes, fittings, accessories and their joints for water applications

### BS EN 877: 1997+A1

Cast iron pipes and fittings, their joints and accessories for the evacuation of water from buildings

### BS 65: 1991

Vitrified clay pipes, fittings and ducts, also flexible mechanical joints for use solely with surface water pipes and fittings

## Wastewater and Drainage

BSI offers a wide variety of Kitemark schemes and testing for a range of drainage products for the collection and conveyance of wastewater.

### Manhole covers and gully

**tops** with a clear opening up to and including 1000mm for installations within areas subjected to pedestrian and/or vehicular traffic, are rigorously tested for materials, design, construction, function, dimensions and marking. The Kitemark scheme that is available for these products is accepted by the Highways Agency in Volume 1 – Appendix B of the Specification for Highway Works.



### Concrete pipes inspection chambers and drainage gullies

are made from pre-cast concrete. Larger pipes and inspection chambers are tested on-site, are very often reinforced with steel, depending on their size and usage requirements. Comprehensive testing of these products includes durability, crush strength tests, watertight durability of joints, water absorption, core strength and quality of the precast concrete.

BSI is also a notified laboratory service for BS EN 1433.



### BS EN 295-1

Vitrified clay pipes, fittings and pipe joints for drains and sewers.

### BS EN 295-5

Requirements perforated vitrified clay & fittings

### BS EN 295-4

Requirements for special fittings, adaptors & compatible accessories

### BS EN 295-7

Requirements vitrified clay pipes & joints for pipe jacking

# Waterproofing Materials

Bituminous roofing products are perfect for the waterproofing of roofs on buildings as they move with the structure, are not too rigid and do not absorb water. Bituminous membranes protect insulation and can reflect harmful sun rays.

Roofing sheets are made up from several components, the base product being made from polyester, fibre glass, rag fibre (hessian), or paper. These products are then pulled through big rollers and saturated in bitumen.

When testing these products BSI look at their level of watertightness and if required, their ability to react to fire.

Bitumen basement tanking sheets for use in cellars and basement rooms can also be certified under a Kitemark scheme.

# Flood Protection

The climate is changing around the world and recent years have seen successive flooding in parts of the UK in particular. Protection from flood damage is available through manufacturers of a range of flood defence products to suit different buildings and situations. Many carry the Kitemark to show that they have been tested to ensure that they perform their purpose consistently, reliably and safely. When you want protection, Kitemark provides it.



## CE EN 13970

Flexible sheets for waterproofing – bitumen water vapour control layers

## CE EN 13707

Flexible sheets for waterproofing – reinforced bitumen sheets for roof waterproofing

## CE EN 13969

Flexible sheets for waterproofing – bitumen damp proof sheets including bitumen basement tanking sheets



# Flood Protection

## PAS 1188-1

– Flood protection products.  
Building aperture products

## PAS1188-2

–Temporary flood protection products

## PAS 1188-3

– Flood protection products for building skirt systems

## PAS 1188-4

– Flood protection demountable products

## Polymeric Pipes

The term polymeric can be used to cover a wide variety of materials including PVC-U, Acrylonitrile Butadiene Styrene (ABS), polypropylene, polyethylene and Glass Reinforced Plastic (GRP).

Polymeric pipes and fittings can be used for many applications such as water supply, gas supply, telecommunications and electrical cabling. Typical installations include waste water and drainage; hot and cold domestic heating systems; rainwater systems, water supply systems and gas distribution.

The Gas Distribution Networks - National Grid, Scotia Gas Networks, Northern Gas Networks, and Wales & West Utilities will only purchase products that have been Kitemark certified as conforming to the initial set of GISs implemented in October 2006.

Polymeric pipes are tested for:

- Dimension
- Impact
- Tensile strength
- High temperature performance
- Hydrostatic pressure
- Thermal stability
- Weathering

BSI thermal cycling and hydrostatic testing rigs for plastic pipes, support not only Kitemark applications but offer invaluable research and development of new piping systems.



**BS EN 12201-2** 

Polyethylene pipes for water supply

**ISO 4427** 

Polyethylene pipes for water supply

**BS EN 12201-3** 

Polyethylene pipes for water supply fittings

**BS 7291:-2 & 3** 

Thermoplastic pipes and associated fittings for hot and cold water for domestic purposes and heating installations in buildings

**BS EN 1452: -2 & 3** 

Piping systems for water supply – PVC-U pipes and fittings rainwater drainage systems

**BS EN 12200-1** 

Plastic rainwater piping systems for above ground external use – pipes and fittings

**BS EN 607** 

PVC-U eaves, gutters and fittings

**BS EN 1462** 

Brackets for eaves, gutters

**BS EN 15876** 

Polybutylene piping systems for hot and cold water installations - fittings

**BS EN 1329** 

PVC-U soil and waste discharge within the building structure – pipes, fittings and the system

**BS EN 1401-1** 

PVC-U piping systems for non-pressured underground drainage and sewerage

**WIS 4-35-01** 

Thermoplastic structured wall pipes, joints and couplers with a smooth bore for gravity sewers

**GIS/PL2-2** 

Polyethylene pipes and fittings for natural gas and suitable manufactured gas

**GIS/PL2-6** 

Specification for polyethylene pipes and fittings for natural gas and suitable manufactured gas Part 6: Spigot end fittings for electrofusion and/or butt fusion purposes

**GIS/PL2-8** 

Polyethylene pipes and fittings for natural gas and suitable manufactured gas. Part 8 - Pipes for use at pressures up to 7 bar

**GIS/PL3** 

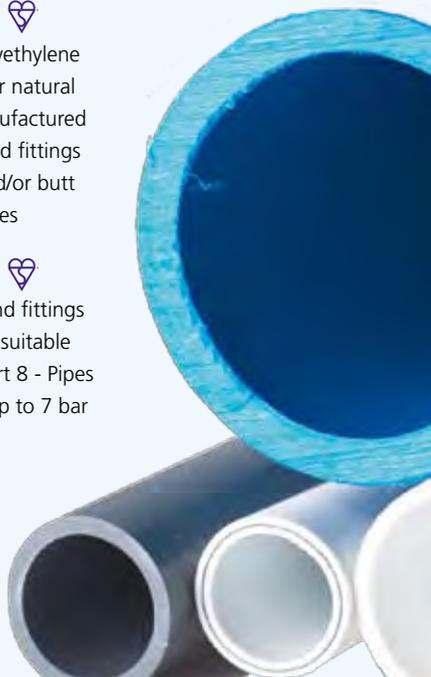
Technical specification for self anchoring Mechanical fittings for polyethylene pipe for natural gas and suitable manufactured gas

**GIS/PL2-4** 

Specification for polyethylene pipes and fittings for natural gas and suitable manufactured gas Part 4: Fusion fittings with integral heating element(s)

**BS EN 681-1 & 2** 

Elastomeric seals – material requirements for pipe joint seals used in water and drainage applications



# Plumbing and Heating

## CE BS EN 677

Gas-fired central heating boilers

## CE BS EN 483

Gas-fired central heating boilers

## CE BS EN 625

Gas-fired central heating boilers

## CE BS EN 297

Gas fired central heating boilers

## CE BS EN 303

Heating boilers with forced draught burners

## CE BS EN 60335 & EN 1151

Stationary circulation pumps for heating and service water installations

## BS EN 7838



Corrugated stainless steel semi-rigid pipe and associated fittings for low-pressure gas pipe work of up to 50mm

## PAS 010



Condensing boilers with pre-mixed burners

## BS 1566: -1 & 2



Copper cylinders for domestic purposes, double and single feed indirect cylinders

## BS 3198



Copper hot water storage combination units for domestic purposes

## EN 215

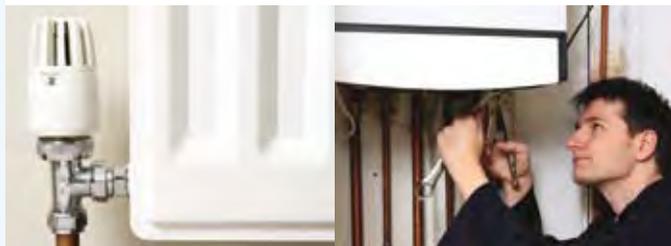
CenCer Keymark scheme for thermostatic radiation valves

BSI offers a range of services covering a multitude of products in the plumbing and heating arena. From copper cylinders to draining taps, from radiators through to thermal insulation products. Our full testing and certification services cover products such as copper pipes and cylinders, radiators and radiator valves, plumbing fittings (copper and copper alloys) and float operated valves to name a few.

BSI is a key player in the Radiator Mutual Acceptance of Certifications (RADMAC) scheme. The RADMAC scheme is an initiative between national certification bodies for manufacturers of domestic radiators to EN 442. Licensees who hold certification marks to EN 442 may benefit from the scheme.

**Thermostatic radiator valves:** BSI is an empowered certification body for the CenCer Keymark certification scheme for thermostatic radiator valves complying to EN215.

**Combination boilers:** There are specific requirements for the operation of domestic hot water combination boilers of nominal heat input not exceeding 70 kW for boilers, hot-water boilers, gas-powered devices, hot-water central heating, central heating, hot-water supply systems, water supply. Boilers are tested for temperature, domestic safety, fitness for purpose, leak tests, pressure testing, performance testing, thermal insulation, marking, instructions for use and energy conservation. BSI certifies to the Gas Appliance Directive and the Boiler Efficiency Directive.



# Plumbing and Heating

**Copper cylinders;** Copper indirect cylinders for domestic purposes such as single feed indirect cylinders, hot-water cylinders, water storage cisterns, domestic and copper are tested for indirect hot-water supply, dimensions, volume, thickness, pipe connections, screwed fittings, position, size, grades (quality), dome shape, design, marking, test pressure, curvature, water heaters, performance testing, heat loss, thermal testing and leakage. Copper indirect cylinders for domestic purposes such as open-vented copper cylinders are tested for direct hot-water supply, indirect hot-water supply, copper, volume, dimensions, performance testing, heat loss, thermal testing and copper alloys.

**Hot water storage tanks** help to keep heated water hot, in the most energy efficient way. That is why we test them for heat loss, design and performance.

**Copper tubes** used in plumbing applications such as central heating or water pipes that can be used in industrial applications, pipe fittings, fluid equipment, compression fittings, copper, copper alloys, are tested for diameter, size, design, thickness, performance, pressure, marking.

**Draining taps** – Kitemark covers ½ and ¾ nominal size copper alloy bodied taps for draining down hot and cold water installations and heating systems.

**Smoke vents and Chimneys** – Single and multi-wall system chimney products with metal liners.



CE BS EN 1057



Copper & copper alloy tubes for water and gas in sanitary and heating applications

BS EN 13348 & BS 8537



Copper & copper alloy seamless round copper tubes for medical gases or vacuum

BS EN 1254



Copper & copper alloys plumbing fittings

BS 143, BS 1256 & BS EN 10242



Malleable cast iron and cast copper alloy threaded pipe fittings

BS EN 442 – 1, 2 & 3



Specification for radiators and convertors RADMAC

BS 7350



Double regulating globe valves and flow measurement devices for heating and chilled water systems

BS 2879



Specification for draining taps (screw-down pattern)

CE EN 12101 – 2 & 3

CE marking of smoke and heat control systems. Specification for natural heat & smoke vents and powered smoke and heat exhaust ventilators

BS EN 1856-1



Metal chimneys – system chimney products, metal liners and connection flue pipes

## Board Products

**BS EN 520** 

Gypsum plasterboard – definitions, requirements and test methods

**CE EN 986** 

Wood-based panels for use in construction

BSI's thorough Kitemark testing procedure for plasterboard involves witnessing by one of our client managers on-site. Testing includes dimension checking (height, width, thickness) and edge profiling. Material testing includes core cohesion, resistance to water penetration and bending strength.

## Ceramic tiles

**BS EN 14411** 

Ceramic tiles

Ceramic tiles are very commonly used to veneer walls and floors. Under the Kitemark scheme ceramic tile tests include; the ability of the glaze not to crack; the strength on certain loads; skid resistance; chemical resistance testing and its ability to be square with no camber allowing for complete surface adhesion.



# Electrical

## **Kitemark® Electrical Contractor Scheme:**

From 1st January 2005, the Government introduced new legislation, regulating electrical work carried out in homes and gardens. The new rules affect anyone considering electrical work in the home, including DIY enthusiasts.

Known as "Part P", the regulations are aimed at curbing the unacceptable number of deaths, serious injuries and house fires, caused by faulty electrical installations. Every year, 750 people are seriously injured and 10 actually die as a direct result of poor wiring. In 2003, there were 2,336 house fires attributed to faulty installations.

Electrical contractors can now achieve the Kitemark through meeting BS 7671 requirements for Electrical Installations. We offer an integrated certification service for electrical installation work leading to issue of a Kitemark Licence which, where applicable, will also confirm the business as a 'Competent Person' under the Government legislation requirements brought about by the introduction of Part P of the Building Regulations of England and Wales.

The Kitemark is also available to those electrical contractors who do not carry out work in 'dwellings' and are therefore not affected by Part P.

The electrical contracting business will be assessed by BSI regarding their competence in design, construction, inspection & test and certification of installations to BS 7671 and relevant parts of the Building Regulations as they apply to the installation. The assessment will also look at non-technical criteria such as relevant insurances, Health and Safety matters and generally how the business is conducted regarding conformity of product.

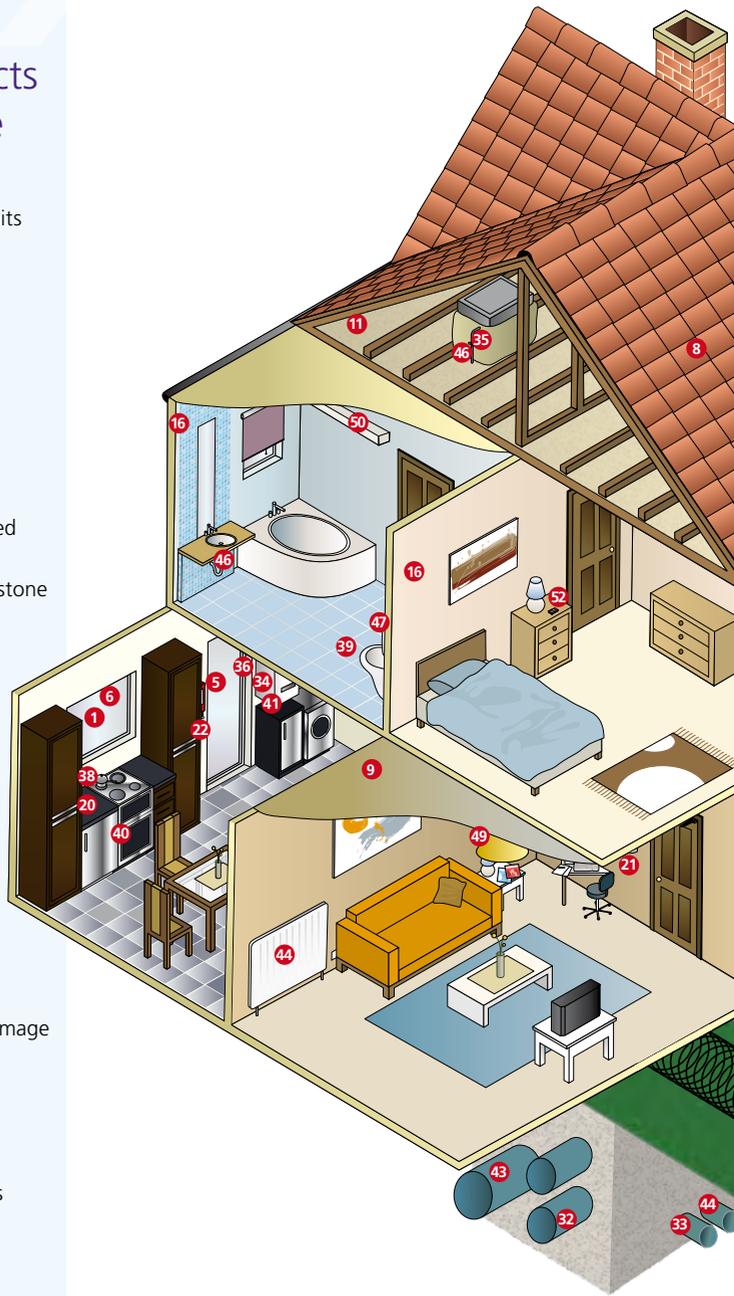
**BS 7671** 

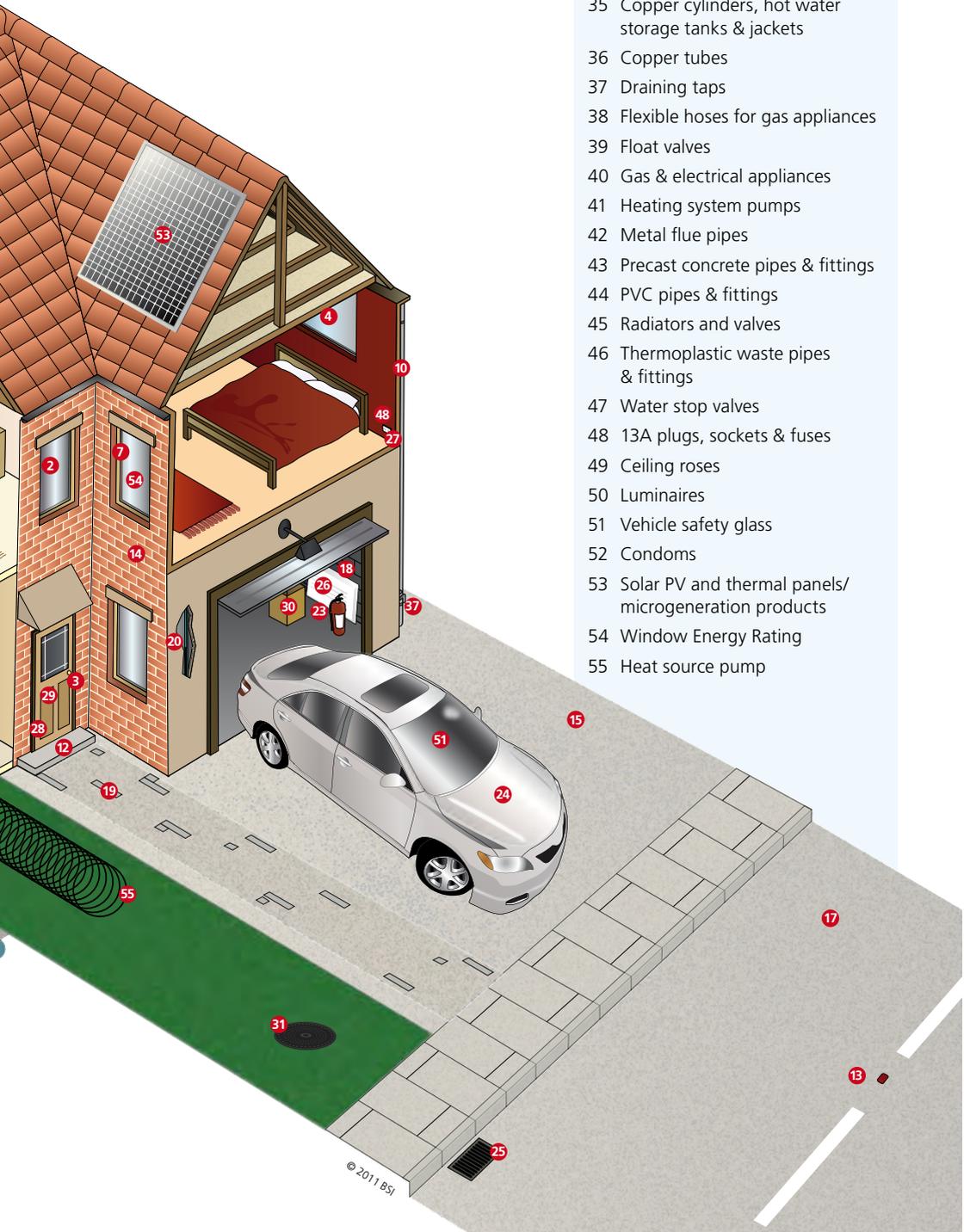
Electrical installations. Competent persons scheme under Part P of Building Regulations



# Kitemark® products around the home

- 1 Aluminium alloy windows
- 2 Insulating double glazing units
- 3 Security Locks
- 4 PVC-U windows
- 5 Safety glass
- 6 Steel window frames
- 7 Timber window frames
- 8 Roofing tiles & fittings
- 9 Mastic asphalt
- 10 PVC-U gutters & drains
- 11 Thermal insulation for pitched roof spaces
- 12 Cast stone & reconstructed stone
- 13 Road marking
- 14 Clay bricks
- 15 Concrete
- 16 Gypsum plasterboard
- 17 Hot rolled asphalt
- 18 Concrete blocks
- 19 Concrete & clay pavers
- 20 PVC insulating cables
- 21 Smoke detectors & carbon monoxide detectors
- 22 Fire blankets
- 23 Fire extinguishers
- 24 Garage services & vehicle damage repair
- 25 Drainage channels
- 26 Flood protection products
- 27 Electrical installations
- 28 Window & door installations
- 29 External Doors
- 30 Domestic removals
- 31 Manhole cover & gully tops
- 32 Polyethylene pipes
- 33 Clay pipes & fittings
- 34 Combination & biomass boilers





- 35 Copper cylinders, hot water storage tanks & jackets
- 36 Copper tubes
- 37 Draining taps
- 38 Flexible hoses for gas appliances
- 39 Float valves
- 40 Gas & electrical appliances
- 41 Heating system pumps
- 42 Metal flue pipes
- 43 Precast concrete pipes & fittings
- 44 PVC pipes & fittings
- 45 Radiators and valves
- 46 Thermoplastic waste pipes & fittings
- 47 Water stop valves
- 48 13A plugs, sockets & fuses
- 49 Ceiling roses
- 50 Luminaires
- 51 Vehicle safety glass
- 52 Condoms
- 53 Solar PV and thermal panels/microgeneration products
- 54 Window Energy Rating
- 55 Heat source pump

## CE BS EN 13162

Thermal insulation products for buildings – factory made mineral wool products

## CE EN 13163

Thermal insulation products for buildings – factory made products of expanded polystyrene

## CE EN 13164

Thermal insulation products for buildings – factory made products of extruded polystyrene foam

## CE EN 13165

Thermal insulation products for buildings – factory made rigid polyurethane foam products

## CE EN 13166

Thermal insulation products for buildings – factory made products of phenolic foam

## CE EN 13167

Thermal insulation products for buildings – factory made cellular glass products

## CE EN 13168

Thermal insulation products for buildings – factory made wood wool products

## CE EN 13169

Thermal insulation products for buildings – factory made products of expanded perlite

## CE EN 13170

Thermal insulation products for buildings – factory made products of expanded cork

## CE EN 13171

Thermal insulation products for buildings – factory made wood fibre

## Insulation Material

Energy efficiency is high on the priority list of many buildings both old and new these days. Homeowners and construction companies alike are ensuring roof spaces and wall cavities are filled with thermal insulation to keep heat in and so reduce their carbon emissions.

BSI is a certified test lab for the testing of thermal insulating mineral wool products under BS EN 13162 as well as offering Kitemark certification for this standard. Not only do we test these products for their thermal conductivity, but also fire performance to ensure they don't increase risk in a fire situation.

**Water tank insulating jackets** help to keep heated water hot, in the most energy efficient way. That is why BSI test these jackets for heat loss, design, performance testing, marking and thermal insulating properties.



# Ladders & Access Equipment

It is vital any access equipment from ladders, access towers or timber access boards, must be capable of supporting the correct loads in line with its intended use.

In the UK portable ladders, step ladders, trestles and stagings are manufactured in grades or classifications, according to their safe working load and frequency of use. In BS 2037 these classifications are:

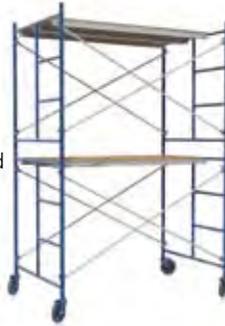
**Class 1:** industrial. For heavy duty where relatively high frequency and onerous conditions of use, carriage and storage occur. Suitable for industrial purposes. Duty rating 130 kg.

**Class 2:** light trades (folding trestles only). For medium duty where relatively low frequency and reasonably good conditions of use, storage and carriage occur. Suitable for light trade purposes. Duty rating 110 kg.

**Class 3:** domestic. For light duty where frequency of use is low and good storage and carriage conditions pertain. Suitable for domestic and household purposes. Duty rating 95 kg.

It is now HSE policy that all access equipment on construction sites be class 1 type.

BSI offers Kitemark certification on many of these standards. Rigorous testing includes rung endurance, drop testing on loft ladder hinges, comprehensive strength and durability. Testing is undertaken both at our extensive testing facilities and/or at the manufacturer's premises. Our testing can also involve working closely with clients testing new products at the developmental stage.



## BS 1129

Portable timber ladders, steps, trestles and stagings

## BS 2037

Portable aluminium ladders, steps trestles and lightweight stagings

## BS EN 131 – 1 & 2

Ladders

## BS EN 14975

Loft ladders. Requirements, marking and testing

## BS 2482

Timber scaffold boards

## BS EN 1004

Mobile access and working towers made of prefabricated materials



# Glass and Glazing

**CE BS EN 12150** 

Safety glass for use in buildings

**BS 857** 

Safety glass for land transport

**BS 5544** 

Safety glass - Anti bandit glazing

**BS 3193** 

Toughened glass - Thermally toughened glass for use in domestic appliances

**CE BS EN 14449** 

Glass in building. Laminated glass and laminated safety glass. Evaluation of conformity/product standard

**BS MA 25** 

Ships Windows

**BS EN 14179**

Heat soaked thermally toughened glass

The safety of glass in buildings is an essential consideration for specifiers, builders and homeowners. Therefore it is critical to ensure that architectural glass possesses a safe break pattern when used in areas where human body impact is a possibility.

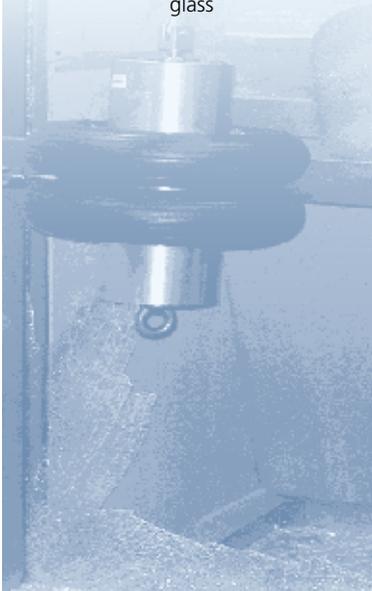
## Safety & toughened glass

Safety glass is recommended in instances where the glass is used in potentially dangerous situations – such as the thermally toughened glass panels for use in domestic appliances, patio doors or where such panels can be exposed to thermal and/or physical shock.

To avoid serious injury it is critical to ensure that architectural glass withstands such impacts or breaks safely to avoid injury, especially when used in areas where people (adults or children) and glass come into contact.

Glass product tests include:

- Impact testing
- Strength testing
- Fragmentation testing
- Stress testing
- Humidity & boil testing
- Heat testing



# Glass and Glazing

## Insulating glass units

Insulating glass units will continue to be an important factor in the fight to reduce energy consumption and waste whilst at the same time improving efficiency of energy usage.

Insulating glass units (IGUs) can be defined as a combination of two or more panes of glass with a hermetically sealed air space between the panes of glass. This space may or may not be filled with an inert gas, such as argon.

The Kitemark scheme for insulating glass units is specified by the National House Building Council (NHBC) and the Kitemark is recognised as the best way to identify certified, quality safety glass for use in buildings. The NHBC is the leading warranty and insurance provider for new and newly converted homes in the UK and specifies the BSI Kitemark for insulated glass units used in windows for their new homes.

The BSI testing facility for insulating glass is amongst the largest and most modern in Europe. It has been established to provide the glazing industry with sufficient testing capacity to allow manufacturers the opportunity to complete the required initial type testing in support of CE marking which BSI offers under its Notified Body status.

## CE BS EN 1279 -2

Long term test method for requirements for moisture penetration

## CE BS EN 1279 -3

Long term test method and requirements for gas leakage rate and for gas concentration tolerances

### IGU testing includes:

- Gas leakage from insulating units
- Fogging due to release of volatile substances
- Dew point measurement
- Moisture absorption capacity and content

“Kitemark windows are recognised by the NHBC as consistently meeting or exceeding the performance requirements of the relevant standards”.

Mr. P. Crane, Head of Standards, NHBC.



## Doors and Windows

### Window and door test include:

- Weathertightness
- Impact strength
- Durability
- Security
- Installation
- Temperature cycling heat retention and radiation
- Noise penetration
- Operation and strength performance testing
- Kitemark Window Energy Rating
- Kitemark U value Rating
- Enhanced security
- Thief resistant locks
- Lock cylinders

Windows and doors are expected to perform a variety of functions including enhancing the appearance of the building, protection from weather and intruders, providing thermal insulation and noise reduction. A window or door is a hard working element in any building which is why BSI offer one of the most comprehensive certification and testing facilities in the industry.

### Unrivalled reputation...

BSI have been providing Kitemark certification, CE marking and product testing for more than 25 years and as such has earned an unrivalled reputation for providing the very best service and certification.

### Specifier's choice...

Some of the major specifying organisations such as London Housing Consortium (LHC), National House Building Council (NHBC) and National Building Specification (NBS) express strong preferences for Kitemark and in many instances insist on Kitemark products or services.

### The benefits...

Among the benefits of Kitemark certification are revenue growth, wide market access and opportunities, reputation enhancement, competitive edge and customer satisfaction.

Our modern test facilities enable assessment of these products to both British and European standards and test methods. These services are UKAS accredited and include a modern, computer operated weather tightness test facility. We are also leaders in the assessment of security and offer the Kitemark against BS 7950 and PAS 24.



# Doors and Windows

## Enhanced security windows & doors:

With crime at the forefront of many developers' and homeowners' minds, vulnerability of areas such as windows and doors are key factors in the purchase decision process.



The Secured by Design (SBD) scheme was introduced in 1989 by the Association of Chief Police Officers to help them stem the rising tide of burglaries. The SBD document requires that all window

and door assemblies are covered by Kitemark or equivalent certification to BS 7950 for domestic windows and PAS 24 for residential doors.

Windows are tested by replicating the forces that would be applied by an adult male intruder using implements such as a screwdriver and crowbar. All hardware and potential access points on the window are tested in an attempt to create a hole through which an average adult male could enter. The test for enhanced security is purely against intruder attack rather than a test of individual hardware components.

Enhanced security tests include:

- Manipulation of hardware
- Assessment of glazing security
- Mechanical loading test
- Manual check test



## BS 7950

Specification for enhanced security performance of windows made from unplasticized polyvinyl chloride (PVC-U), aluminium, timber, steel or metal composite for domestic applications

## PAS 24-1

Enhanced security performance requirements for door assemblies made from PVC-U, aluminium, timber or composite materials.

## BS 644

Timber windows –factory assembled

## BS 4873

Aluminium alloy windows

## BS 6510

Steel-framed windows and glazed doors.

## BS 7412

Plastic windows made from unplasticized polyvinyl chloride (PVC-U) extruded hollow profiles

## PAS 23-1

General performance requirements for door assemblies made from PVC-U, aluminium, timber or composite materials

## BS 7619

Extruded cellular PVCUE profiles

*The standards continue on the next page*

# Doors and Windows

**BS 5286** 

Aluminium framed sliding doors

**EN 12209**

Locks and latches for doors in buildings

**BS 3621** 

Thief resistant lock assembly.  
Key egress

**BS 8621** 

Thief resistant lock assembly.  
Keyless egress

**BS 10621** 

Thief resistant dual-mode lock assembly

**BS 7386** 

Draught strips for the draught control of existing doors and windows in housing

**BS EN12608** 

PVC-U profiles for the fabrication of windows and doors

**BS EN 1154**

Controlled door closing devices

**BS EN 179** 

Emergency exit devices

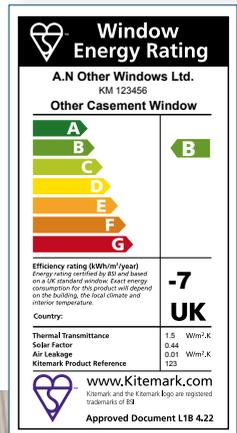
## Kitemark Window Energy Rating and U-values

The BSI Kitemark Scheme for Window Energy Rating (WER) also includes U-values for doors. It is based on the Approved Document L of the Building Regulation which came into force on the 1st October, which requires a Window Energy Rating or U-value declaration for all Windows and Doors.

Following the success of our WER scheme, the addition of the U-value label, allows doors as well as windows to show their thermal compliance with a Kitemark.

The Kitemark schemes have been tailored to meet the needs of both individual fabricators and system suppliers. They provide a quality assured process and supporting audit trail from simulation through to installation and is therefore accepted by Building Control and FENSA.

The Kitemark WER and U-value verification labels can be used on the product throughout the supply chain ensuring that retailers and installers can use WER and U-value Kitemark certified products.



# Door and Window Installation

The Kitemark scheme for window installations has been developed to combat poor installation and finishing of double-glazed windows and doors. Based on BS 8213-4, the Kitemark scheme for window installations sets parameters to encourage quality workmanship and covers design, surveying, installation practice, staff training, property care, building regulations compliance, material quality and inspection. The scheme covers new build, replacement and commercial markets irrespective of the types of materials used. In true Kitemark style, Kitemark looks specifically for quality of installation and not just Building Regulations compliance.

If you are looking for a clear edge over your competitors; to gain recognition for your quality of workmanship and customer service; make cost savings; increase your customer satisfaction and gain a clear advantage when tendering for commercial projects, then this scheme is for you.

“It’s an honour to have received the Kitemark after all the effort put in to meet the stringent standards required”

Ian Leigh – Managing Director, Banaglaze



**BS 8213-4** 

Windows, doors and rooflights.  
Code of practice for the survey and installation of windows and external doorsets.

Under Part L of the Building Regulations.

“The BSI Kitemark for the survey and installation of windows and doors is a welcome addition to the tools available to specifiers”.

Richard Atkinson – Building Surveyor,  
Gateshead Housing Company.



## Lifts

**BS 6277** 

Insulated flexible cables for lifts and other flexible connections

**CE EN 81** 

Electric lifts

**ISO 9386-2** 

Power operated lifting platforms

**CE Lift Directive 95/16/EC**

Certification for lift installations and safety components



From domestic stairlifts to high-rise lifts continue to be a vital part of any building project to ensure disabled access as well as to cater for the increase in high-rise building around the world. Through BSI testing and certification you can be sure that your lift systems components can deliver the best in safety and reliability.



Since 1 July 1999, it has been mandatory for lifts and lift safety components for sale or transport in any of the European member states, to comply with the Directive (95/16/EC).

The Directive covers lifts, their safety components and their installation. CE marking of a product by a trusted body such as BSI proves your compliance credentials have been certified. In addition to its Notified Body status, BSI is also a partner for joint testing projects conducted in China and Japan with SISE and NETEC, two of the main authorities for lifts.

Support services from the local operation in China and Japan means that BSI are available to all lift manufacturers in the area, in their own language and in their own local time. They provide a convenient and effective way for these manufacturers to establish or expand their presence in Europe and thereby grow their businesses.



# Road Products

The purpose of the road products scheme is to provide certification of safety materials used in road marking applications, especially on highways administered by the Highways Agency and Local Authorities.

The scheme operates the UK National Road Trials in respect of European standards BS EN 1824, BS EN 1436, BS 7962 and BS EN 1463. Manufacturers laying permanent or temporary hot thermoplastic line marking product, preformed cold plastic or other line materials must conform to the relevant standards. The permanent and temporary products are tested again after a set period of time to the respective European standards.

## Road Signs

BSI Kitemark certification for road traffic signs is a simple, effective and efficient way to demonstrate compliance with the new European Legislation and the scheme now reflects the revisions to EN12899-1

This new Kitemark will allow specifiers to identify those manufacturers who are already complying with the future requirements of the new Directive and who are adhering to strict quality processes to ensure the continuing high standard of their products. The Kitemark scheme is also available to the manufacturers of the sheeting material. In addition to helping sheet manufacturers to comply with the requirements for CE marking, sign manufacturers who select Kitemark certified material can drastically reduce the cost of Kitemark certification for the finished signs.



### CE BS EN 1423

Road marking drop on materials and glass beads

### BS EN 13108-6

Bituminous mixture mastic asphalt

### CE BS EN 13108-1, -2, -3, -4 -5 -7

Bituminous mixtures for road construction

### BS EN 1871

Road marking materials

### BS 5759 (BS EN 12195-2)

Load restraint assemblies on road vehicles - safety

### CE BS EN 12899-1

Fixed, vertical road traffic signs

### CE EN 13043 & 12620

Aggregates for bituminous mixtures and surface treatments for roads, airfields and other trafficked areas and aggregates from concrete.

### CE BS EN 1463

Road marking materials.  
Retroreflecting road studs

### BS EN 1424

Road drop on materials and glass beads

### CE BS EN 1227 & BS EN 12273

Road construction products, surface treatments of roads.

### BS EN 122591, BS EN 13924 BS EN 14023

Road construction products, surface treatments of roads.

## Sport/Playground Facilities

**BS EN 1176** 

Playground equipment

**BS EN 15312** 

Outdoor multi-sports equipment

“Collaboration with BSI, through the Kitemark® scheme, gives total confidence that all the necessary safety requirements have been properly considered.”

Andy Yates, Technical Director,  
SMP Playgrounds Ltd

Best practice in play area design offers visible challenges and risk for product manufacturers as they must design and create environments that deliver the client brief whilst remaining within well-developed safety standards.

In leisure, most local authorities, schools and public establishment chains require independent third-party certification to confirm that playground equipment complies with relevant European standards. BSI can offer this, along with the Kitemark which the Association of Play Industries has endorsed as their preferred method of third-party certification.

Manufacturers can also achieve the prestigious Kitemark for a wide range of leisure equipment such as bespoke swings, slides, runways, carousels and rocking equipment.

Wheeled sports facilities, such as ramps and jumps used by skate boarders, BMX-ers and inline skaters also have a Kitemark scheme to show that they are safe and reliable for use.

With Kitemark being accepted in several European countries you can gain the advantage. In Holland, for example, play equipment bearing the Kitemark symbol is acknowledged as fit to trade in the Dutch market.



# Talk to us

## Management systems assessment



### Health & Safety - BS OHSAS 18001:

Occupational Health & Safety Management system encourages a safe and healthy working environment by managing and organisation's health and safety risks.

**Business Continuity Management** – BS 25999: Continued operations in the event of a disruption for whatever cause is a fundamental requirement for a successful organisation.

**Environmental & Energy Management** – BS ISO 50001, ISO 14001

**Quality Management** – ISO 9001.

## Training

**Health & Safety** – BS OHSAS 18001: including: introduction, implementation, auditor courses and IOSH eLearning modules.

**Business Continuity** – BS 25999: including: introduction, implementation and auditor courses.

**Quality Management** – ISO 9001 –including: introduction, implementation and auditor courses.

**Energy Management** – including: introduction, BS EN 16001 introduction & implementation.

## Software

Improve business performance and manage risks with this management system software.

## Standards

Development of standards relevant to your business and industry.

**For more information call +44 (0)845 080 9000  
or visit [www.bsigroup.com](http://www.bsigroup.com)**





# A partnership through compliance

With a wealth of experience in the testing and certification field, BSI is ideally equipped to work in partnership with manufacturers, guiding them through the testing and compliance process, helping businesses to get their products into the marketplace.

Whatever level of service is required, from certification to a published standard to custom product testing or project management for specialist outsourced testing, BSI is here to help every step of the way.

**Call +31 (0)20 346 0780 today**  
[www.bsigroup.nl](http://www.bsigroup.nl)

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