

HARMER

BUILDING DRAINAGE

HARMER SML ABOVE AND BELOW GROUND SOIL & WASTE DRAINAGE SYSTEM TECHNICAL SUBMITTAL



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Certificates

The full spectrum of assessment procedures and quality control standards have been employed by Alumasc to monitor the manufacture and performance of its cast iron products and systems, ensuring a responsible engagement with customers and the environment.



Harmer SML Product Testing and Certification

Standard	Description
BS EN 877	European standard for cast iron pipes and fittings
BBA	British Board of Agrément certificate 05/4191
BSI	British Standards Institute Kitemark KM613802
CE Mark	European conformity
BS EN 12056	Gravity drainage systems inside buildings Part 3 roof drainage layout and calculation
EN 752	Drain and sewer systems outside buildings
EN 1610	Construction and testing of drains and sewers
BS EN 1253-1	Gullies for buildings. Requirements
BS EN 1253-2	
BS EN 1561	Founding - Grey cast irons
BS 13501-1	Reaction to Fire
BS EN ISO 1182	Non combustability
BS EN ISO 1716	Heat combustion (Calorific Value)
BS EN 13823 + A1	Single Burning Item (SBI)
DIN 19522	Cast iron drainage pipes and fittings without socket
ISO 6594	
BS EN 681	Elastomeric seals
ISO 4633	
BS EN 14366	Laboratory measurement for noise from waste water installations
BS EN ISO 14001	Environmental Management
BS EN ISO 9001	Quality Management
IZEG	Measures the quality of cast iron drainage products
GEG	A quality seal awarded to product that meet stringent quality regulations
TUV	A quality seal awarded to product that meet stringent quality regulations

Alumasc Environmental Policy

In addition to complying with environmental legislation, Alumasc is committed to developing its own measures to limit the adverse effects of its activities on the environment. To this end, Alumasc operates an environmental policy across all sites that fully integrates all aspects of company activities.

The Alumasc environmental policy sets the standards for site emissions, noise levels, vibrations, and also systematically assesses the introduction of new processes and procedures.

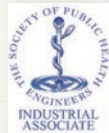
Environmental Protection

BS EN ISO 14001, *Manufacturing to Environmental Standards*.

Grey cast iron is 100% recyclable. Pipe cuttings can also be included in recycling because the internal coating is free from benzopyrene and other environmentally dangerous materials.

Trade Bodies

Harmer Drainage is a patron member of the Chartered Institution of Building Services Engineers (CIBSE) and the Society of Public Health Engineers (SoPHE).



BRE Green Guide to Specification

The Green Guide to Specification provides easy-to-use guidance on making the best environmental choices when selecting construction materials and components. Materials and components are assessed in terms of their environmental impacts, within comparable specifications, across their entire life cycles. This accessible and reliable information has been put together to assist those involved in the design, construction and management of buildings to reduce the environmental impacts of their properties.

BREEAM

High quality, long lasting products reduce the significant environmental and monetary cost of replacement during service life. Alumasc goods are able to contribute fully to achieving BREEAM credits for responsible sourcing of materials and as part of an overall water management scheme.

The Harmer SML Solution for Above & Below Ground

The Harmer SML system, with its comprehensive range of fittings and accessories, offers an innovative, whole-building solution for soil, waste and rainwater drainage installations. The system is fully compatible with other market-leading Harmer and Wade drainage products, including roof, floor, shower and channel drains.

This hospital building shows just some of the SML components available, including other compatible Harmer drainage systems.



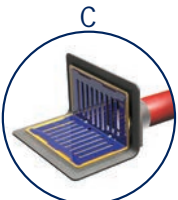
A
Modulock Raised Deck Supports
(See Harmer Roof Drainage Brochure)



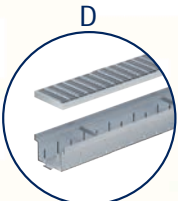
B
Aluminium Balcony Outlet
(See Harmer Roof Drainage Brochure)



Modulock Non Combustible
Pedestal Supports
(See Harmer Roof Drainage Brochure)



C
Aluminium Two-way Outlet
(See Harmer Roof Drainage Brochure)



D
Modulock Channel Drain
(See Harmer Roof Drainage Brochure)



E
SML Manifold Connection



F
Alumasc Rainwater & Skyline Fascias & Soffits
Standard and Bespoke
(See Skyline Architectural Fabrications Brochure)



G
Aluminium Roof Outlet
(See Harmer Roof Drainage Brochure)



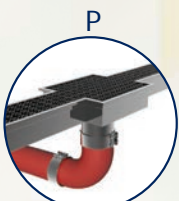
H
SML Couplings



R
SML Single Branch 88°



Q
SML Reducer



P
Stainless Steel Floor Channel
(See Harmer & Wade Floor & Shower Drainage Brochure)



O
Grease Converter
(See Wade Grease Converters Brochure)



N
Aluminium/ABS Shower Drain
(See Harmer Floor & Shower Drainage Brochure)



M
SML High Pressure Coupling



L
SML Single Bend 88°



J
SML Below Ground Inspection
Chambers



K
Cast Iron Floor Outlet & Grate
(See Harmer & Wade Floor & Shower Drainage Brochures)

The Harmer SML System

The Harmer SML lightweight cast iron pipework system is dry-jointed, BBA certified, and has a proven track record. With its comprehensive range of fittings and accessories, Harmer SML is the ideal soil and waste system for above and below-ground drainage, including rainwater installations, and is fully compatible with other Harmer drainage products.

All-Round Flexibility

The Harmer SML system consists of coated, socketless cast iron pipes and fittings simply joined with either ductile iron or stainless steel rubber-lined couplings. The range also includes bracketry for restraining the pipework vertically and supporting it horizontally, along with a choice of special connectors for linking with other materials.

Harmer SML provides value for money throughout the building life cycle, incorporating high performance materials, ease of installation and ease of access for maintenance.

Consequently, the Harmer SML system continues to be successfully used in market sectors ranging from hospitals, healthcare premises, commercial premises, offices, schools, industrial projects to civil engineering works and high rise housing.

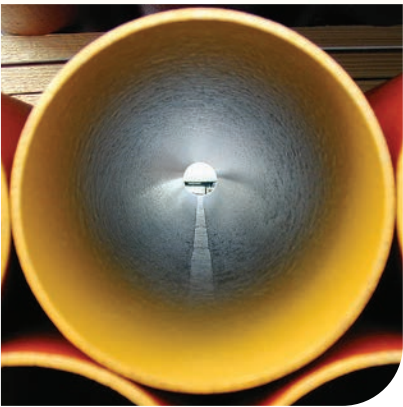
All-Round Standards

Harmer SML fully conforms to BS EN 877, the European standard for cast iron pipes and fittings along with conformity with the CE mark.

In addition, Harmer SML has been awarded a British Board of Agrément certificate for couplings, pipes and fittings.

A correctly installed Harmer SML system will meet the performance standards set by BS EN 12056, the code of practice for gravity drainage systems that covers sanitary pipework and roof drainage inside buildings. The Harmer SML system also meets the performance standards for drain and sewer systems outside buildings as set by BS EN 752.

Consequently, the SML drainage pipe system is eminently suitable for all drainage applications required within buildings in the UK. SML is also officially approved for use in numerous other countries including Australia, the Czech Republic, Denmark, Finland, Germany, Hungary, Norway, Russia, Singapore, Sweden, Switzerland and the Ukraine.



Key Features of Harmer SML

- A proven, Agrément certified system which meets the European standard BS EN 877.



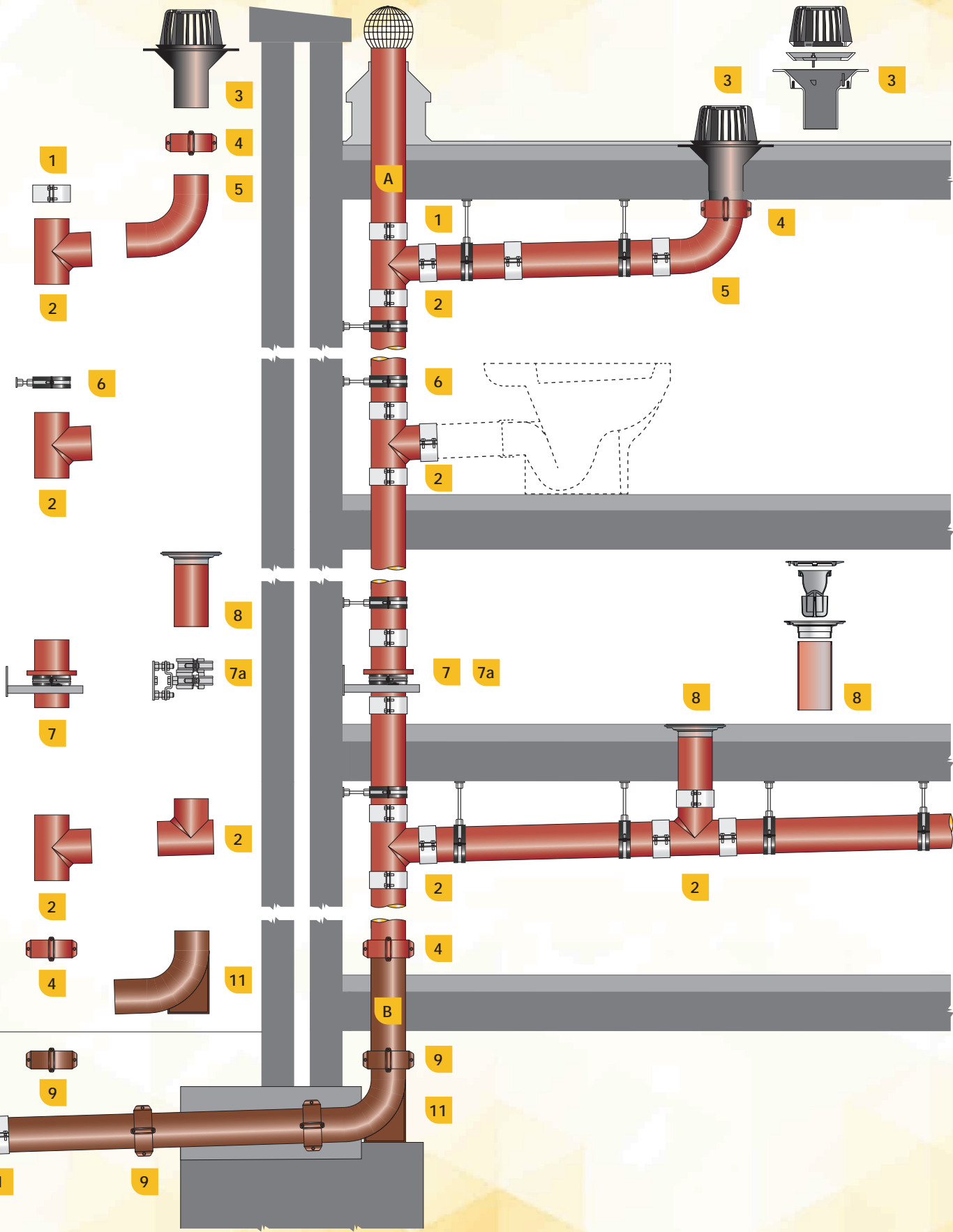
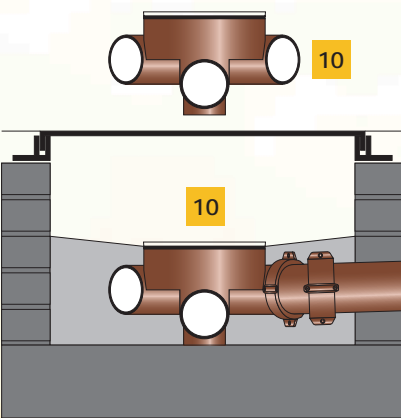
- Excellent acoustic performance – tested in accordance with BS EN 14366.
- Non-combustible.
- High tensile strength.
- Excellent compressive strength.
- Choice of ductile iron or stainless steel couplings.
- Secure socket-less fixing between pipe and fitting.
- The internal epoxy coating applied to above and below-ground pipes enables drainage systems to perform under extremely demanding chemical conditions.
- External anti-corrosive coatings are also applied to above and below-ground pipes and fittings.
- Low maintenance.
- 100% recyclable.
- Quick to assemble.

Component Key

The examples shown of pipe fittings, brackets, couplings and supports are a very small selection of the wide range of components available in the Harmer SML drainage system.

Some compatible components from other Harmer drainage systems are also shown.

- A Above Ground Pipework
- B Below Ground Pipework
- 1 Duo Stainless Steel Coupling
- 2 Single Branch 88° 100mm connection
- 3 Harmer & Wade Aluminium Roof Outlets
- 4 Ductile Iron Coupling - Above Ground
- 5 Long Radius Bend 88°
- 6 Optimal Bracket with Wall Plate
- 7 Stack Pipe Support Bracket with Downpipe Support
- 7a Stand Pipe Support Bracket as alternative to Stack Pipe Support
- 8 Cast Iron Pipe Adaptor with Floor Outlet comprising Trap, Stainless Steel Grate and Bezel
- 9 Ductile Iron Coupling - Below Ground
- 10 Round, Square and Rectangular Inspection Chamber options
- 11 Rest Bend



Integrated Drainage Solutions

The Harmer SML system is fully compatible with Alumasc's ranges of Aluminium & Cast Iron Roof Outlets, Aluminium & Cast Iron Floor Drains, Aluminium and ABS Shower Drains, and Modulock Linear Channel Drains - enabling flexible design solutions to be found for all soil, waste and rainwater drainage configurations. Harmer SML is also supported by Alumasc's wide-ranging technical expertise and resources.

The Compatible Ranges

Harmer AV Aluminium Roof Outlets are high performance advanced flow vertical spigot and threaded outlets with circular flanges, suitable for all regular flat roofing applications with continuous membranes. AV Retro-Gully outlets are also available for refurbishment work. Grates incorporate a special patented baffle, which prevents water swirl and air entrapment, for optimum flow performance even in extreme rainfall conditions. Non-standard pipe and rainwater outlet configurations can be made on a bespoke basis to suit complicated designs.

Harmer Detail Aluminium Roof Outlets are used to cover all the awkward detailing situations that occur in building design and refurbishment. The range includes spigot and threaded outlets with 45° or 90° take-off, balcony outlets, gully outlets, car park outlets, and two-way outlets where the roof surface abuts a wall or parapet. Bespoke manufacture is also available.

Harmer and Wade Cast Iron Roof Outlets provide a practical solution to many building drainage applications. Available in medium sump and large sump bodies, two-way outlets, and an extensive range of load bearing grates and accessories.

Harmer and Wade Floor Drains offer the widest choice of materials, styles and capacities on the market. The full range extends across three principal material types: cast iron, aluminium and stainless steel. Drains are supplied trapped but trap can be removed manually. They are available with an extensive range of grates (including round, square, slot and linear configurations) available in stainless steel, nickel bronze or ductile iron. The stainless steel offer comprises both standard and compact units, and a range of standard and custom channels, designed with either slots or grates. All Harmer floor drains can be configured and designed to suit all types of floor construction and finish.

Harmer Shower Drains high-performance, antimicrobial aluminium, ABS, and stainless steel shower channels and outlets, for concrete or timber floors in both new build and refurbishment projects. A wide choice of attractive caps and grates is available to complement and enhance any shower or wet room design.

Harmer Modulock Linear Roof Channel Drains are designed to provide the ideal level access drainage solution where rainwater run-off and percolation are required to be intercepted at the perimeter of a building, or across thresholds and points of access into buildings, and then ducted away to drainage outlets. These advanced, linear, steel drainage ranges are designed for use within a raised deck structure. Combining threshold drainage with the level access requirements of the Building Regulations, these linear channel drains are particularly suited for use in combination with Harmer Modulock Raised Deck Supports.



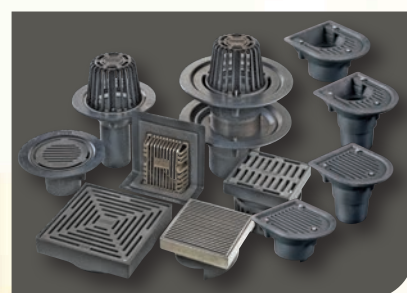
Harmer and Wade Cast Iron Floor Drains



Harmer and Wade Stainless Steel Floor Drains



Harmer Aluminum Roof Outlets



Harmer and Wade Cast Iron Roof Outlets

The Harmer SML socketless lightweight cast iron soil and waste system is BBA certified and meets the Standard of BS EN 877. The SML system combines modern, state-of-the-art drainage technology with the unique characteristics and benefits of cast iron as a preferred material for drainage installations.

Fire Safe

Non-combustible, therefore does not require costly fire protection collars.

Harmer SML has the highest product reaction to fire classification as A1 for BS EN 13501-1 as well as a system fire classification as A2 for BS EN 13823 Single Burning Item A2,s1-d0.

Robust

Lightweight, strong and durable.

High tensile strength and excellent compressive strength.

Totally secure socketless fixing between pipe and fittings.

Fit for Purpose

High resistance to positive and negative pressure — axial restraint up to 10 bar possible, therefore no need to change material in sensitive areas.

No expansion joints, deflection bends or other special expansion control techniques are required for the dimensionally stable pipes due to the low coefficient of thermal expansion of cast iron.

Quiet

Excellent acoustic performance, Harmer SML has been tested in accordance with BS EN 14366: 2004 — the latest test for acoustic performance of building materials.

Typically, no special sound insulation measures required.

Easy and Quick to Install

Assembled by means of twin screw couplings.

Easily connects to other materials via push-fit couplings.

No special installation equipment required.

No specialist experience required.

Low Maintenance

Epoxy coatings ensure pipes and fittings need minimal maintenance over the lifetime of a drainage installation.

Inherent resistance to external accidental damage and vandalism.

Value for Money

Less fixing necessary, as fewer brackets are required because of greater pipe spanning capability.

Cast iron has a proven track record for its longevity over the lifetime of a building.

Sustainable

Long life cycle (60+ years)

100% recyclable material, therefore all waste can be returned to the furnace to make new cast iron products.



Stainless Steel Coupling



Ductile Iron Coupling

Benefits of Cast Iron

For centuries, cast iron has been a preferred material for building construction because of its longevity in a wide range of applications. Advances in cast iron technology have ensured that today's products are fully attuned to modern construction needs.

High Strength and 21st Century Technology

The crystalline structure of cast iron gives the material high strength and robustness. Once installed, cast iron components resist impact damage and are therefore well suited to installation in potentially exposed areas, such as car parks, schools, shopping centres, and busy public buildings such as hospitals, indeed in any situation where heavy wear and impact can be expected.

Cast iron's high carbon content (2%-4%) makes it a very suitable material for casting pipes and other cylindrical components by pouring molten iron into permanent moulds, which are spun at high speed. The liquid is forced into the side of the mould lining, producing a casting that has a uniform wall thickness. As a result of this centrifugal force, the iron becomes denser and stronger than gravity cast iron, making it particularly well suited to drainage applications because pipes can be made in longer lengths.

Durability

Cast iron is not susceptible to changes in its material structure or composition over time and will therefore remain serviceable over longer periods when compared with other materials.

As a material, cast iron is extremely stable and therefore durable, and is not susceptible to environmental, chemical or mechanical stresses. Historically, cast iron has been shown to offer long and reliable service because of its stable mechanical properties over time.

Cast iron is not susceptible to deterioration under variable thermal conditions because its mechanical strength remains stable and unaffected by temperature change. As a material for drainage installations, cast iron offers significant benefits over plastics-based material in event of fire.

The two-part epoxy coating of the internal surface of Harmer SML pipe and the anti-corrosive primer external coating ensure that the Harmer SML system will require minimal maintenance during its installed lifetime. Cast iron is the ideal material for inaccessible or difficult-to-reach areas and therefore particularly suited to below-ground drainage installations.

Temperature Extremes and Linear Expansion

Cast iron's low coefficient of thermal expansion (0.0105 mm/m/K) means that components made from it can be subjected to extreme temperatures without distortion, thereby requiring no costly expansion joint provision to take up differential movement. This is particularly beneficial where cast iron components are used in conjunction with concrete structures (concrete has an almost identically low coefficient of thermal expansion).

Cast iron has a very low level of thermal expansion in comparison with plastic drainage. Cast iron pipework is not liable to creep at operating temperatures.

Mechanical Stability

Cast iron does not deform under mechanical strain. Its stiffness and stability are unaffected by temperature and are around eight times greater than that of plastic pipework. The tensile strength of cast iron is similarly superior to that of plastics.

The demand for building land has increased the need to utilise reclaimed ground or sites in areas where there may be ground movement. Cast iron is the ideal material for below ground drainage installation because it offers greater resistance to chemical attack, degradation and ground movement.



Centrifugal casting process



In addition to strength, durability, mechanical stability and superior fire resistant qualities, cast iron offers yet more benefits in terms of performance and environmental sustainability.

Acoustic Performance

The crystalline nature of cast iron gives the material a very high damping capacity thereby significantly reducing noise transmission through cast components installed within building structures.

Additional sound protection will not normally be required in Harmer SML drainage installations as regards water flow within the pipework. In above-ground installations, the Harmer SML system of support and bracketry keeps pipework away from direct contact with surfaces, which reduces likelihood of sound transmission through the building structure.

For more detailed information refer to the 'Technical Data' section.

Fire Performance

In drainage installations, safety in case of fire is the primary health and safety concern, both in terms of material properties and reaction in fire, and fire resistance to prevent collapse.

Cast iron is non-combustible and therefore does not propagate fire nor emit toxic gases, unlike plastics-based systems. Consequently, installed cast iron components do not require costly fire protection measures.

For more detailed information refer to the 'Technical Data' section.

No Thermal Ageing

The Harmer SML system offers long and reliable service because cast iron is a stable material over time. Cast iron is not susceptible to thermal ageing.

Economy and Functionality

Modern lightweight cast iron provides an economical and functional material solution for soil and waste drainage. Fewer fixings and support brackets are required for lengths of cast iron pipe, in comparison with pipework of other materials, which contributes to the cost competitiveness of cast iron. There is no requirement for expansion joints, deflection bends, or any other expansion control measures.

Environmental Considerations

Cast iron has a long useful life cycle - far longer than plastics, which degrade over time - and therefore represents a sustainable use of a building material. It is environmentally friendly with no negative impacts on the environment and is 100% recyclable.

Cast iron does not emit any volatile organic compounds (VOCs), which are extremely hazardous and pose dangers to health, including eye, nose and throat irritation, frequent headaches, nausea, and can also damage the liver, kidneys and central nervous system.

Recycling cast iron benefits the environment because all scrap iron can be returned to the furnace, rather than going to landfill. New cast iron products can be created utilising recycled scrap. The resultant products are of high quality because when cast iron is recycled there is no diminution in its inherent characteristics and functional performance. This is in marked contrast to products made from recycled plastic because, when plastic is recycled, its quality decreases markedly. Cast iron, unlike plastic, is both environmentally friendly and maintains its beneficial characteristics when recycled.



All pipes and fittings for Harmer SML above and below-ground soil and waste drainage are fully compatible and comply with BS EN 877*. They are durable, low-maintenance, recyclable, and quick and easy to install. Manufacture is under strict factory-controlled conditions to meet the highest performance standards.

* Cast iron pipes and fittings, their joints and accessories for the evacuation of water from buildings. Requirements, test methods and quality assurance.



Pipes, Couplings and Brackets

The pipes, in standard 3m lengths and in a choice of diameters from 50mm to 400mm, are connected to each other and to a wide range of bends and branches with stainless steel or ductile iron couplings for any proposed drainage system. Above and below-ground pipes are differentiated by colour.

Maintaining the stability of above-ground pipework is vital, and to this end Alumasc has developed a range of bracketry that supports both vertically and horizontally. The range includes vertical, horizontal hanging and stack support brackets, and fitted with sound-deadening rubber linings.

Harmer SML above-ground pipe has a two-part epoxy coating on the inside and anti-corrosion primer on the external surface. Harmer SML pipe for below-ground applications has the same material specification as above-ground pipework, but with a higher external coating specification to cope with aggressive ground conditions.

Bends, Branches and Pipe Access Components

The large choice of bends and branches available enables any configuration of above and below-ground pipe layouts to be achieved with ease.

The range includes single bends, short and long tail double bends, long radius bends, rest bends, offsets, single and double branches, swept entry branches, corner branches and combination branches.

The range also includes access pipes and fittings designed for easy inspection and rodding.

Fittings such as branches, bends and offsets are coated internally and externally to the same specification as Harmer SML pipe.



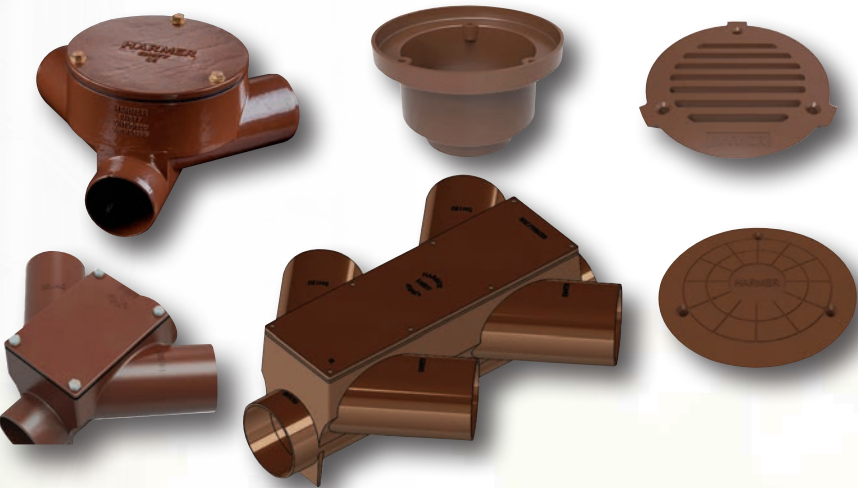
Boss Pipes, Reducers, End Caps, Pipe Supports, Bearing Rings and Connectors

A complementary range of miscellaneous fittings is available for increasing the configuration possibilities of a drainage system.



Wall Flanged Pipe, Traps, Adaptors and Puddle Flange

A complementary range of traps and adaptors in a variety of diameters is available for increasing the flexibility of use of a drainage system.



Inspection Chambers, Gully, Plate and Grate

A range of inspection chambers to connect 100mm and 150mm diameter pipes with 45° branch connections. Supplied with removable covers allowing easy access for maintenance.



Fixing Tools

A complete range of high quality fixing tools is available from Alumasc.

The Harmer Duomat fixing tool is recommended for securing Harmer Duo couplings. Bolts can be tightened simultaneously with precision.

Technical Data, Pipes & Pipe Fittings

Quality Standard

Harmer SML meets the requirements of BS EN 877 and is manufactured under ISO 9001: Quality Management System (Certificate No.12 100 21864), and is approved under the British Board of Agrément (BBA Certificate No. 05/4191)

Cast Iron Material

Harmer SML drainage pipe systems are manufactured from grey cast iron according to EN 1561 to a minimum material grade of EN-GJL-150 (EN-JL1020). Cast Iron material has an A1 fire classification

Protective Coatings

Soil and drainage pipe systems have to perform under extremely demanding conditions with domestic effluents containing aggressive cleaning agents and chemicals. The high-quality coating of Harmer SML goes beyond the requirements of BS EN 877. (See chemical resistance table below.)

Harmer SML drainage pipes are externally protected with anti-corrosive primer coating, which meets fire classification A2. On the inside the pipes are coated with two-part epoxy coating which offers high resistance against chemical and mechanical damage.

Coatings for Pipe and Fittings

Product		Coating Type		Average Thickness (µm)
		Above Ground	Below Ground	
Pipe	external	red primer coating	two-part brown & zinc base coating	70
	internal	two-part ochre epoxy	two-part ochre epoxy	70
Fittings	external	two-part red epoxy	two-part brown epoxy	70
	internal	two-part red epoxy	two-part brown epoxy	70

Specification

Harmer SML above-ground pipe as RAL 3009 oxide red external coating with fully cross-linked epoxy ochre internal coating. SML fittings dip applied as RAL 3009 oxide red internally and externally. Harmer SML below-ground as RAL 8011 nut brown external coating with fully cross-linked epoxy ochre internal coating. Additional thermal spray zinc coating to a minimum 130g/m² applied prior to top coat. SML below-ground fittings dip-applied as RAL 8011 nut brown internally and externally.

Other Applicable Standards

- BS EN 12056: Gravity Drainage Systems Inside Buildings.
- BS EN 752: Drainage and Sewer Systems Outside Buildings.
- BS EN 1610: Construction and testing of drains and sewers.

Below-Ground Risk Factors

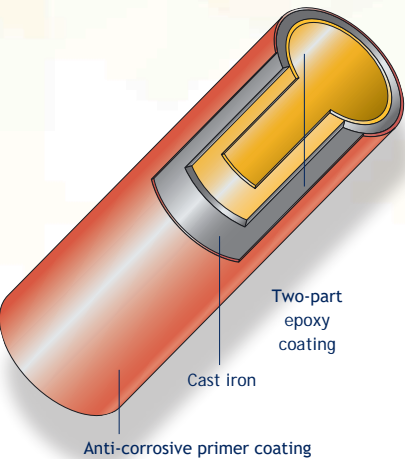
UV light degradation and the effect of mechanical damage are key factors in material selection. Cast iron provides key resistance benefits compared to other materials in below-ground pipe applications.

Hazard	Clay	Plastic	Cast Iron
Settlement	High Risk	Medium Risk	Low Risk
Shear Pressure	High Risk	Low Risk	Low Risk
Rodding Damage	Medium Risk	High Risk	Low Risk

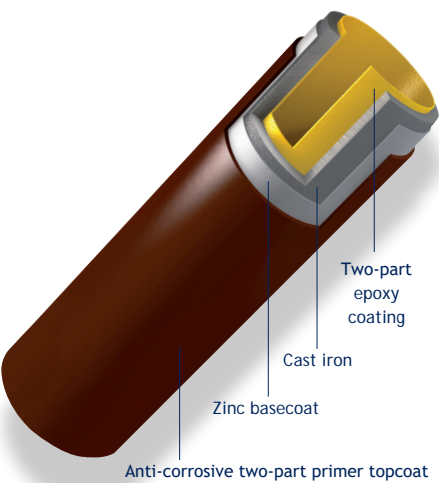
Cast Iron Soil & Waste pipe systems offer a greater resistance to natural ground movement and less likely to fail in unfavourable ground conditions.

Other drainage materials need additional pipe protection in areas where ground disturbance or extra loading is likely, for example a covering concrete slab. No additional protection is required in most circumstances for a Cast Iron system.

Above-Ground Pipe Coatings



Below-Ground Pipe Coatings



Chemical Resistance of Interior Coatings of SML Pipes

Liquid		Up to 23°C	Up to 50°C	Up to 80°C
Acidic solutions	pH 0			
	pH 1 (except organic acids)			
	pH 2 (except organic acids)			
	Lime-dissolving substances			
	Cleaning products			
	Detergents			
	Disinfectants			
	Stain removers			
	Oxidants			
	Water (pH 7), salts			
Alkaline solutions	Drain clearing products			
	Solvents			
	pH 12			
	pH 13			
	pH 14			

Conditions where interior coatings meet chemical resistance requirements of BS EN 877

Conditions where interior coatings exceed chemical resistance requirements of BS EN 877

This table applies to applications with intermittent use.

Weights

BS EN 877 stipulates: "The nominal masses of finished products (pipes, fittings and accessories) shall be given in the manufacturers' catalogues. When measured in accordance with Table 5.3 of the standard, the lower deviation shall not exceed 15% of the nominal mass".

Lengths

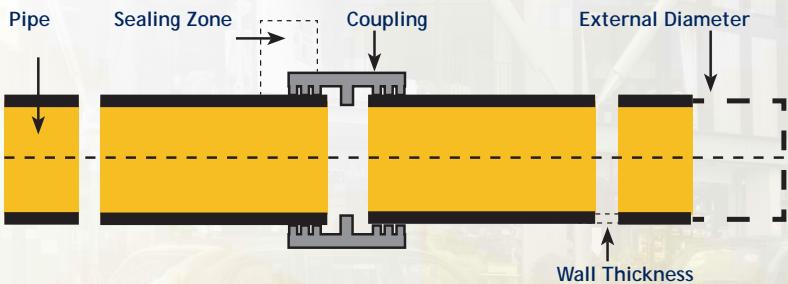
in accordance with clause 4.2.9 of BS EN 877, lengths of fittings shall be within a tolerance of +5mm. Lengths of pipes all be within tolerance of +20mm when measured in accordance with clause 5.2.7 of the standard.

Sealing Zone

Ovality of pipes and the sealing zone of fittings shall remain within the tolerance of the external diameter

Pipe Weights and Dimensional Tolerances

Nominal Pipe Dia (mm)	External Dia		Wall Thickness Min	Sealing Zone Min	Pipe Weight (kg/m)	
	Min	Max			Empty	Filled
50	57	60	3.0	30	4.3	6.4
70	77	80	3.0	35	5.9	9.9
100	109	112	3.0	40	8.4	17.7
125	133	137	3.5	45	11.8	24.5
150	158	162	3.5	50	14.1	32.3
200	208	212	4.0	60	23.1	54.6
250	271.5	276.5	4.5	70	33.3	87.7
300	323.5	328.5	5.0	80	43.2	120.8
400	426	431	5.0	80	60.0	196.2



Flow Capacities of Soil Waste Systems

Maximum flow capacities (litres per second) of SML pipes, flowing at various gradients, with pipes flowing full (ks value = 0.6).

Pipe Dia (mm)	1:40 (l/s)	1:60 (l/s)	1:80 (l/s)	1:100 (l/s)
50	1.46	1.19	1.03	0.92
70	4.29	3.50	3.03	2.71
100	9.24	7.55	6.54	5.50
125	16.8	13.7	11.9	10.6
150	27.3	22.3	19.3	17.2
200	58.7	47.9	41.5	37.1
250	106.0	86.9	75.2	67.3
300	173.0	141.0	122.0	109.0
400	416.7	339.9	294.1	262.87

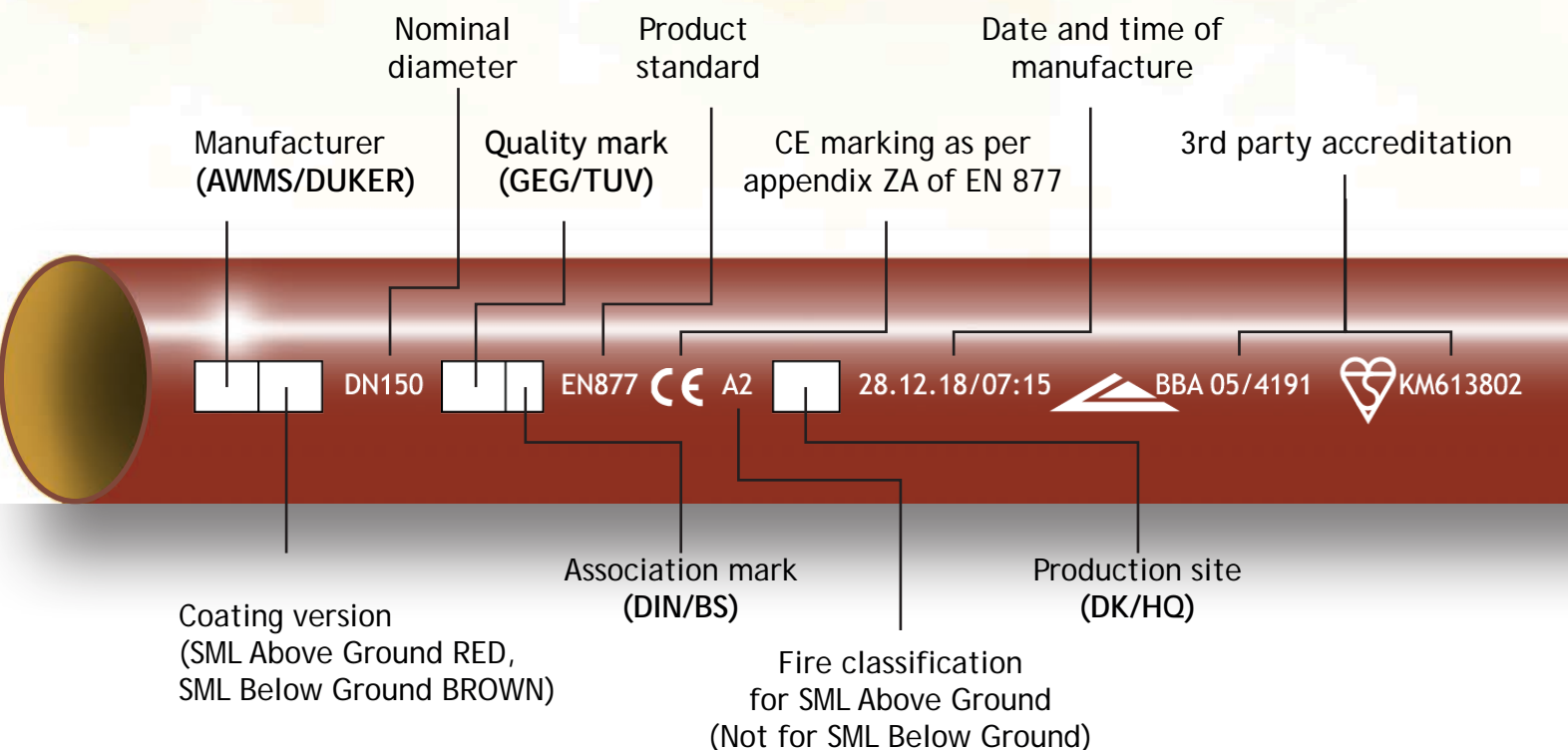
System design may limit soil and waste flow rates below these values. Higher flow rates will be possible for rainwater pipeworks.

For vertical flow capacities refer to BS EN 12056: 2000, Parts 2 & 3

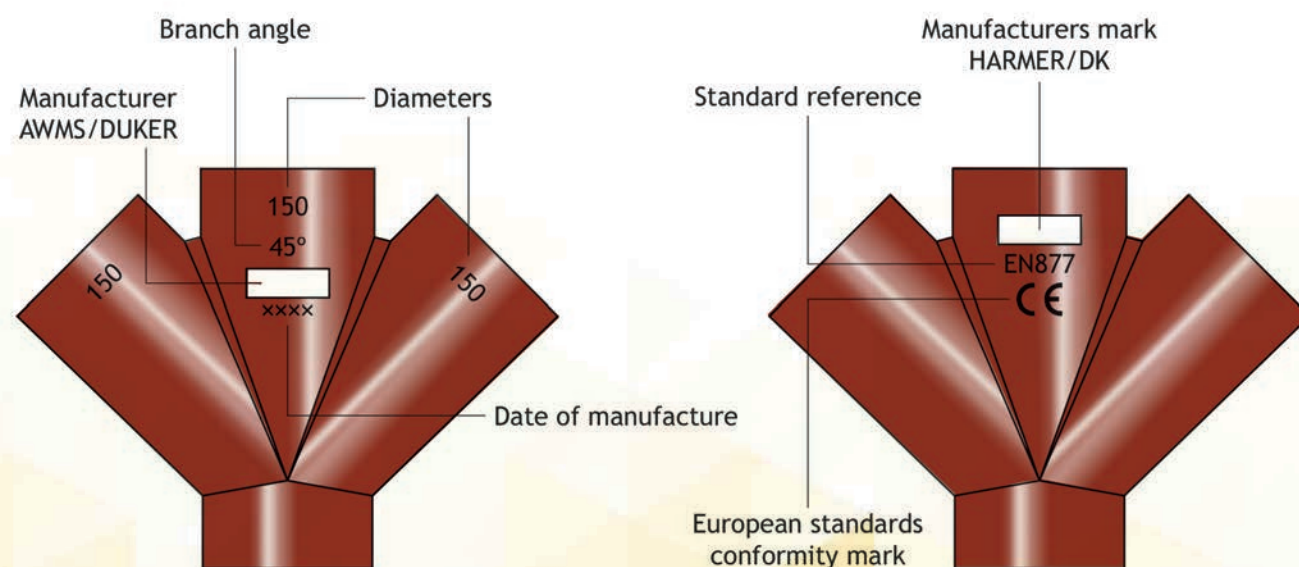


Product Identification

SML pipes and fittings are labelled during manufacture in accordance with the standard BS EN 877 and can be clearly identified as indicated below



Fitting marks (both sides)



The Harmer Duomat Fixing Tool from Alumasc is recommended for securing Harmer Duo Couplings which form part of the Harmer SML lightweight cast iron soil and waste system. Suitable for all power tools, the Duomat Fixing Tool enables bolts to be tightened simultaneously with precision.

Key Features

- The Duomat tool significantly reduces the installation time of all two-screw couplings by up to 50%
- Both screws are tightened simultaneously with two independent safety clutches ensuring the correct torque, irrespective of the pipe tolerances
- Adjustable for all couplings from DN40 to DN300



Calibration Control

All new Harmer Duomat tools are pre-set to the correct installation torque, but we recommend a sensible periodic calibration control with a hand torque wrench during each project installation

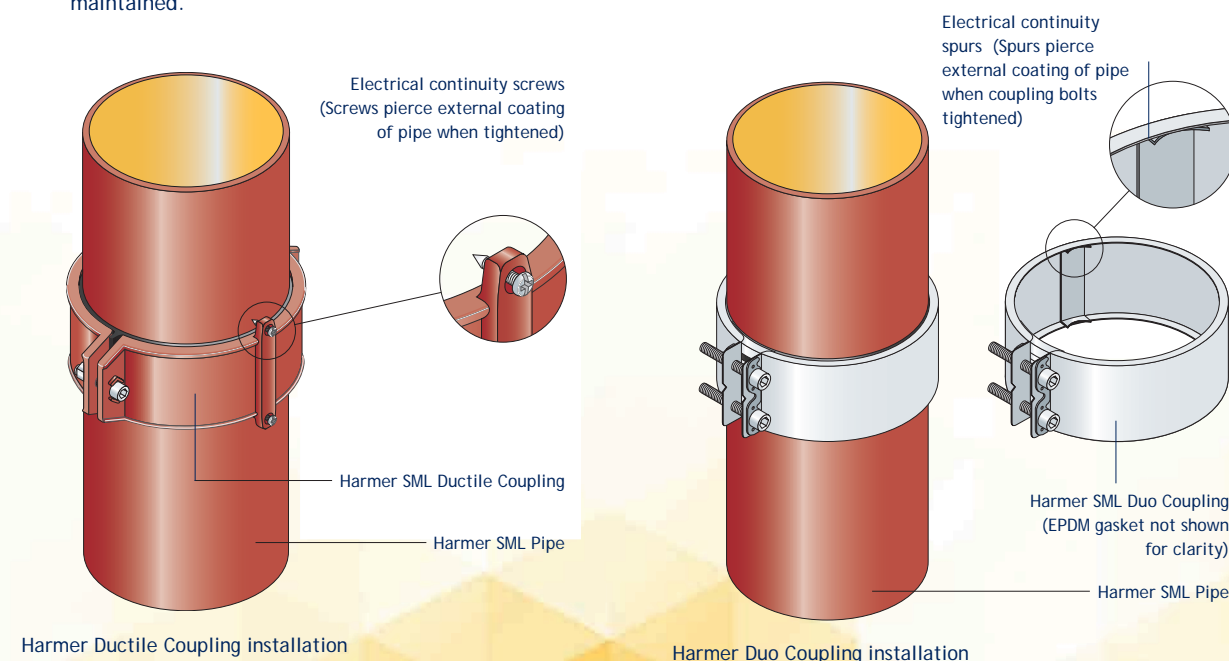
Electrical Continuity

The Harmer Ductile, Duo and Grip couplings will satisfy the electrical continuity requirements of the IEE regulations provided that the SML pipework is bonded to an electrical earth and these couplings are assembled, installed and tightened to the correct torque in accordance with our recommendations.

The procedure for testing electrical continuity should be in accordance with the requirements of BS EN 877 as follows:

'If provision is made for electrical continuity, the electrical resistance of the coupling shall not exceed 0.3 ohms, when tested in accordance with the following procedure: Apply a steadily increasing voltage not exceeding 50V ac, 50Hz, across the junction until a steady current of 25±1A flows through the coupling. Allow the current to flow for 30 seconds, maintaining it as necessary by adjusting the voltage. Calculate the resistance of the coupling by dividing the observed voltage by the current.'

The installation should be regularly checked for damage, or when modifications are proposed, to ensure that electrical continuity is maintained.



Introduction

In drainage installations, safety in case of fire is the primary health and safety concern, both in terms of material properties and reaction in fire, and fire resistance to prevent collapse. The modern, lightweight cast iron of the Harmer SML system offers marked benefits over plastics-based drainage materials and is CE marked.

Superior Performance and Safety in Event of Fire

Harmer SML cast iron pipework is non-combustible and fire safe - cast iron is the ideal material to promote fire safety. In drainage applications, particularly above ground, resistance to fire is the most essential safety requirement - both with regard to reducing risk of damage to the building structure during a fire, and contributing to safety in routes of escape.

The Harmer SML soil and waste system has been extensively tested for the Reaction to Fire under BS 13501-1. This incorporates BS EN 1716 "Heat Combustion", BS EN 13823 "Single Burning Item" and BS EN1182 "Non-combustibility" achieving the following results:

1. Cast Iron material classification A1
2. BS EN 877 states that products must be tested as a complete system to include for pipe connections with elastomer gasket couplings as well as associated fittings and coatings. The highest possible rating was achieved as A2-s1,d0 which is defined as follows:
 - A2 System classification for non-combustible materials
 - s1 Lowest smoke level
 - d0 No flaming droplets

Non-Combustible - Reduced Risk of Flashovers

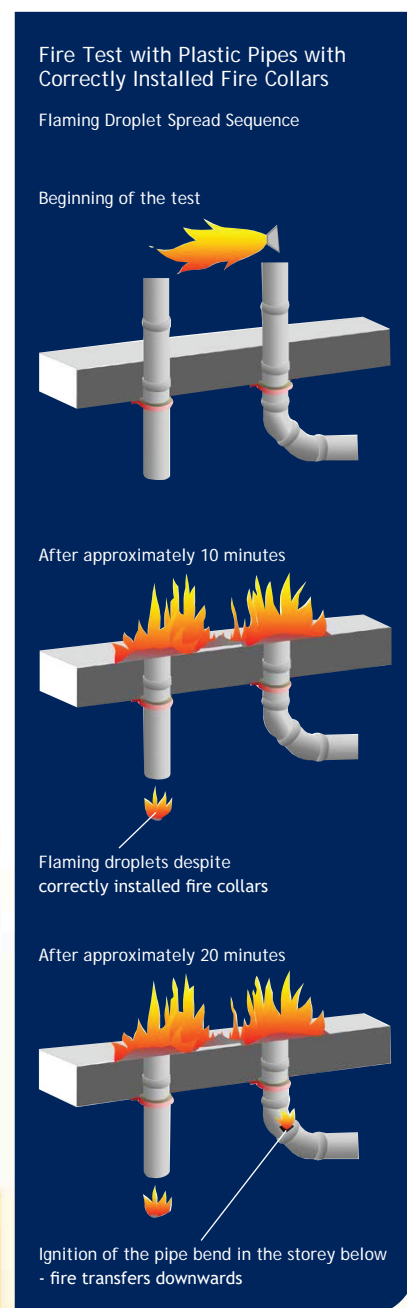
Because cast iron pipework is non-combustible it does not contribute to deadly flashovers, which can engulf a space with flame in seconds. Flashover is a phenomenon of near-spontaneous ignition, occurring when organic materials are heated and undergo thermal decomposition. This causes a release of flammable gases that lead to simultaneous ignition of combustible materials in any enclosed space. Flashover is a dangerous phenomenon, much feared by fire fighters, who are specially trained to deal with and mitigate the danger from shooting flames during flashovers.

Flashover effect



No Flaming Droplets

In fire, plastic pipework can melt and ignite to form flaming droplets, which can fall from burning material to initiate new fires away from the original point of ignition. Flaming droplets can pass through and spread fire downwards to different parts of a building via plastic pipework, even where fire collars are correctly installed (see diagram below). There is no such risk of fire spread to lower stories when Harmer SML cast iron pipework is installed, and the functionality of a drainage system is maintained throughout a fire if it is cast iron.



Minimal Smoke Generation

Being non-combustible, cast iron does not burn or generate smoke in the usual sense. Any smoke generated by heat effects on the inner coating of SML pipework is contained within the drainage system and evacuated to the exterior through roof vents.

Minimal Length Expansion

Cast iron has a low coefficient of linear expansion, far lower than that of plastics-based pipework, and any expansion of Harmer SML pipework through heat will be accommodated by the system couplings. With plastics-based pipework, special expansion compensators are required.

Resistance to Fire of Pipe Penetrations

When installed in a building, all water, sewage, heating, gas, ventilation or electric lines will have to penetrate ceilings and walls with a fire resistance requirement. However, penetrations through ceilings and walls are only allowed if the fire resistance of the ceiling or wall is not impaired. Therefore, pipe penetrations must have at least the same fire resistance duration as the ceiling or wall.

Pipe penetrations will be classified for: Integrity (E) Insulation (I)

Testing of the Resistance to Fire of Pipe Penetrations

Throughout Europe, tests for fire resistance of pipe penetrations are based on the test standard EN 1366-3.

Pipes are installed in a furnace, with penetrations through the ceiling and/or the wall of the furnace. With gas or fuel burners, the furnace is heated to a temperature of approximately 1000°C. The standard requires a certain temperature curve and pressure to be maintained.

The test will monitor:

Integrity (E)

by observation. Flames and smoke may not exit through the pipe penetration.

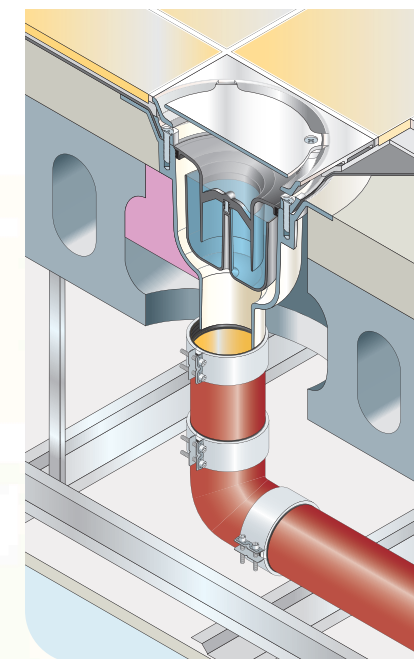
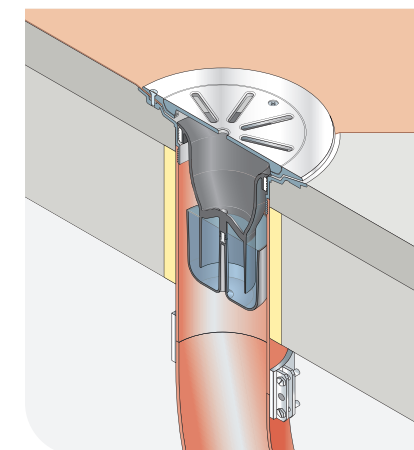
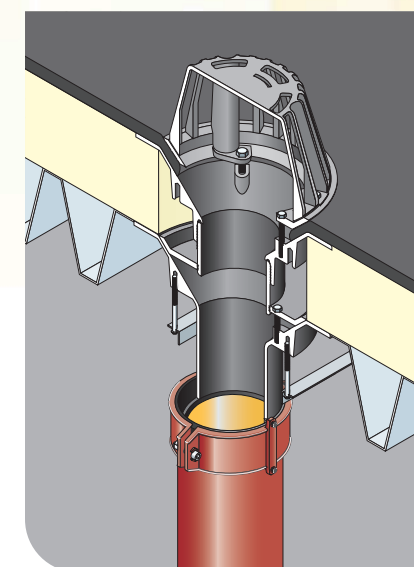
Insulation (I)

by temperature sensors in defined places on the ceiling and the pipe outside the furnace.

The temperature outside may rise by no more than 180°C peak value and no more than 140°C average value.



Some typical fire-proof constructions



Introduction

The discharge of soil, waste and rainwater through a pipe generates structure-borne and airborne sound between habitable spaces and usually occurs because the pipe is filled with a mixture of air and water. The resultant noise will then be transmitted to lightweight ceilings, cupboards and similar constructions.

Cast iron pipe systems however, because of the high mass per unit area of their pipe walls as well as the joint design characteristics, provide considerable noise reduction benefits when discharging soil, waste and rainwater within buildings.

Testing and Certification

BS EN 14366: 2005-02: *Laboratory measurement of noise from waste water installations* sets out a common test method by which structure-borne and airborne noise emitted by installed discharge systems is measured. Harmer SML has been independently tested to this new standard as certified by the Fraunhofer Institute of Building Physics – test report P-BA 164/2008e and P-BA 165/2008e. See table below.

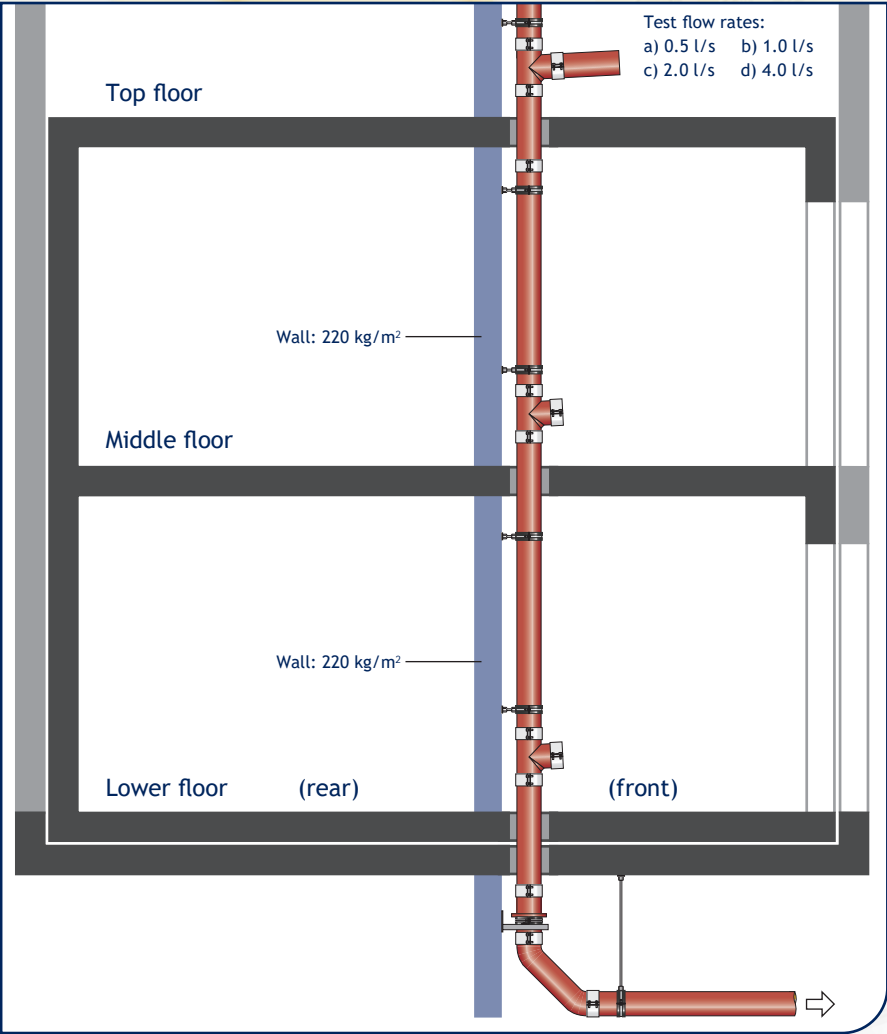
BS 8233: *Code of Practice for Sound Insulation and Noise Reduction for Buildings*, provides guidelines for indoor ambient noise levels for various room uses. The general requirement for residential/habitable rooms is 30-35 dB; the lowest design range is 20-25 dB for recording studios. The Harmer SML system is able to meet these low levels of acoustic performance.

Test Data

Pipe and Bracket Type (see drawing)	Airbourne Sound Pressure Level L _{a,A} [dB(A)] (see note a)				Structure-bourne Sound Characteristic Level L _{SC,A} [dB(A)] (see note b)				Number of Brackets Used	Wall Density (kg/m²)
Flow rate	0.5 l/s	1.0 l/s	2.0 l/s	4.0 l/s	0.5 l/s	1.0 l/s	2.0 l/s	4.0 l/s	—	—
1. Harmer SML with Optimal rubber-lined brackets	—	—	45	48	—	—	22	27	2	220
2. Harmer SML with Optimal rubber-lined brackets and spacers	39	43	45	48	9	14	19	24	2	220
3. Harmer SML with Optimal rubber-lined brackets with acoustic dampener (dB Fix) and Wall Plate	38	43	44	48	5	9	10	11	2	220

(a) Lower floor: front (b) Lower floor: rear

At 2.0 l/s - this corresponds more or less to a toilet flush. Using with optimum fixing technology is below 10 dB(A), that is, quieter than falling snow!



Fraunhofer Test Assembly

The Fraunhofer Institute of Building Physics test facility is constructed to a 220 kg/m² wall density. One of the most important parameters in the context of structure-borne sound is wall density, as changes can greatly affect the installation sound level. For example, a wall density reduced to 140 kg/m² gives an increase in laboratory acoustic measurement of 4 dB at 4 l/s. It should be noted that test data conducted in a controlled laboratory cannot be transferred to other building conditions without restrictions.

Filling Level 50%

SML	DN 70 d _i =71		DN 80 d _i =75		DN 100 d _i =103		DN 125 d _i =127		DN 150 d _i =152		DN 200 d _i =200		DN 250 d _i =263		DN 300 d _i =314	
	J	Q	J	Q	J	Q	J	Q	J	Q	J	Q	J	Q	J	Q
cm/m	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s
0,5	0,8	0,4	0,9	0,4	2,1	0,5	3,7	0,6	6,0	0,7	12,5	0,8	25,8	1,0	41,3	1,1
0,6	0,9	0,4	1,0	0,4	2,3	0,6	4,1	0,6	6,6	0,7	13,7	0,9	28,3	1,0	45,3	1,2
0,7	0,9	0,5	1,1	0,5	2,5	0,6	4,4	0,7	7,1	0,8	14,8	0,9	30,6	1,1	48,9	1,3
0,8	1,0	0,5	1,1	0,5	2,7	0,6	4,7	0,7	7,6	0,8	15,8	1,0	32,7	1,2	52,3	1,4
0,9	1,1	0,5	1,2	0,6	2,9	0,7	5,0	0,8	8,1	0,9	16,8	1,1	34,7	1,3	55,5	1,4
1,0	1,1	0,6	1,3	0,6	3,0	0,7	5,3	0,8	8,5	0,9	17,7	1,1	36,6	1,3	58,5	1,5
1,1	1,2	0,6	1,4	0,6	3,2	0,8	5,5	0,9	8,9	1,0	18,6	1,2	38,4	1,4	61,4	1,6
1,2	1,2	0,6	1,4	0,6	3,3	0,8	5,8	0,9	9,4	1,0	19,4	1,2	40,1	1,5	64,2	1,7
1,3	1,3	0,6	1,5	0,7	3,4	0,8	6,0	1,0	9,7	1,1	20,2	1,3	41,8	1,5	66,8	1,7
1,4	1,3	0,7	1,5	0,7	3,6	0,9	6,3	1,0	10,1	1,1	21,0	1,3	43,4	1,6	69,3	1,8
1,5	1,4	0,7	1,6	0,7	3,7	0,9	6,5	1,0	10,5	1,2	21,7	1,4	44,9	1,7	71,8	1,9
1,6	1,4	0,7	1,6	0,7	3,8	0,9	6,7	1,1	10,8	1,2	22,4	1,4	46,4	1,7	74,1	1,9
1,7	1,5	0,7	1,7	0,8	3,9	0,9	6,9	1,1	11,1	1,2	23,1	1,5	47,8	1,8	76,4	2,0
1,8	1,5	0,8	1,7	0,8	4,1	1,0	7,1	1,1	11,5	1,3	23,8	1,5	49,2	1,8	78,7	2,0
1,9	1,5	0,8	1,8	0,8	4,2	1,0	7,3	1,2	11,8	1,3	24,5	1,6	50,6	1,9	80,8	2,1
2,0	1,6	0,8	1,8	0,8	4,3	1,0	7,5	1,2	12,1	1,3	25,1	1,6	51,9	1,9	82,9	2,1
2,5	1,8	0,9	2,0	0,9	4,8	1,2	8,4	1,3	13,5	1,5	28,1	1,8	58,0	2,1	92,8	2,4
3,0	1,9	1,0	2,2	1,0	5,3	1,3	9,2	1,5	14,8	1,6	30,8	2,0	63,6	2,3	101,7	2,6

Filling Level 70%

SML	DN 70 d _i =71		DN 80 d _i =75		DN 100 d _i =103		DN 125 d _i =127		DN 150 d _i =152		DN 200 d _i =200		DN 250 d _i =263		DN 300 d _i =314	
	J	Q	J	Q	J	Q	J	Q	J	Q	J	Q	J	Q	J	Q
cm/m	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s
0,5	1,3	0,4	1,5	0,5	3,6	0,6	6,2	0,7	10,1	0,7	20,8	0,9	43,1	1,1	68,9	1,2
0,6	1,4	0,5	1,7	0,5	3,9	0,6	6,8	0,7	11,0	0,8	22,9	1,0	47,2	1,2	75,5	1,3
0,7	1,6	0,5	1,8	0,5	4,2	0,7	7,4	0,8	11,9	0,9	24,7	1,1	51,1	1,3	81,6	1,4
0,8	1,7	0,6	1,9	0,6	4,5	0,7	7,9	0,8	12,7	0,9	26,4	1,1	54,6	1,3	87,3	1,5
0,9	1,8	0,6	2,1	0,6	4,8	0,8	8,4	0,9	13,5	1,0	28,1	1,2	58,0	1,4	92,6	1,6
1,0	1,9	0,6	2,2	0,7	5,1	0,8	8,8	0,9	14,3	1,1	29,6	1,3	61,1	1,5	97,6	1,7
1,1	2,0	0,7	2,3	0,7	5,3	0,9	9,3	1,0	15,0	1,1	31,0	1,3	64,1	1,6	102,4	1,8
1,2	2,0	0,7	2,4	0,7	5,5	0,9	9,7	1,0	15,6	1,2	32,4	1,4	67,0	1,6	107,0	1,8
1,3	2,1	0,7	2,5	0,7	5,8	0,9	10,1	1,1	16,3	1,2	33,8	1,4	69,7	1,7	111,4	1,9
1,4	2,2	0,7	2,6	0,8	6,0	1,0	10,5	1,1	16,9	1,2	35,0	1,5	72,4	1,8	115,6	2,0
1,5	2,3	0,8	2,7	0,8	6,2	1,0	10,9	1,1	17,5	1,3	36,3	1,5	74,9	1,8	119,7	2,1
1,6	2,4	0,8	2,7	0,8	6,4	1,0	11,2	1,2	18,1	1,3	37,5	1,6	77,4	1,9	123,7	2,1
1,7	2,4	0,8	2,8	0,9	6,6	1,1	11,6	1,2	18,6	1,4	38,6	1,6	79,8	2,0	127,5	2,2
1,8	2,5	0,8	2,9	0,9	6,8	1,1	11,9	1,3	19,2	1,4	39,8	1,7	82,1	2,0	131,2	2,3
1,9	2,6	0,9	3,0	0,9	7,0	1,1	12,2	1,3	19,7	1,5	40,9	1,7	84,4	2,1	134,8	2,3
2,0	2,7	0,9	3,1	0,9	7,2	1,2	12,5	1,3	20,2	1,5	41,9	1,8	86,6	2,1	138,3	2,4
2,5	3,0	1,0	3,4	1,0	8,0	1,3	14,0	1,5	22,6	1,7	46,9	2,0	96,9	2,4	154,7	2,7
3,0	3,3	1,1	3,8	1,1	8,8	1,4	15,4	1,6	24,8	1,8	51,4	2,2	106,1	2,6	169,6	2,9

Filling Level 100%

SML	DN 70 d _i =71		DN 80 d _i =75		DN 100 d _i =103		DN 125 d _i =127		DN 150 d _i =152		DN 200 d _i =200		DN 250 d _i =263		DN 300 d _i =314	
	J	Q	J	Q	J	Q	J	Q	J	Q	J	Q	J	Q	J	Q
cm/m	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s	l/s	m/s
0,5	1,6	0,4	1,8	0,4	4,2	0,5	7,4	0,6	12,0	0,7	24,9	0,8	51,6	1,0	82,6	1,1
0,6	1,7	0,4	2,0	0,4	4,7	0,6	8,2	0,6	13,2	0,7	27,4	0,9	56,6	1,0	90,5	1,2
0,7	1,9	0,5	2,1	0,5	5,0	0,6	8,8	0,7	14,2	0,8	29,6	0,9	61,2	1,1	97,8	1,3
0,8	2,0	0,5	2,3	0,5	5,4	0,6	9,4	0,7	15,2	0,8	31,6	1,0	65,4	1,2	104,6	1,4
0,9	2,1	0,5	2,4	0,6	5,7	0,7	10,0	0,8	16,2	0,9	33,6	1,1	69,4	1,3	111,0	1,4
1,0	2,2	0,6	2,6	0,6	6,0	0,7	10,6	0,8	17,1	0,9	35,4	1,1	73,2	1,3	117,1	1,5
1,1	2,3	0,6	2,7	0,6	6,3	0,8	11,1	0,9	17,9	1,0	37,1	1,2	76,8	1,4	122,8	1,6
1,2	2,4	0,6	2,8	0,6	6,6	0,8	11,6	0,9	18,7	1,0	38,8	1,2	80,3	1,5	128,3	1,7
1,3	2,5	0,6	2,9	0,7	6,9	0,8	12,1	1,0	19,5	1,1	40,4	1,3	83,6	1,5	133,6	1,7
1,4	2,6	0,7	3,1	0,7	7,2	0,9	12,5	1,0	20,2	1,1	41,9	1,3	86,7	1,6	138,7	1,8
1,5	2,7	0,7	3,2	0,7	7,4	0,9	13,0	1,0	20,9	1,2	43,4	1,4	89,8	1,7	143,6	1,9
1,6	2,8	0,7	3,3	0,7	7,7	0,9	13,4	1,1	21,6	1,2	44,9	1,4	92,8	1,7	148,3	1,9
1,7	2,9	0,7	3,4	0,8	7,9	0,9	13,8	1,1	22,3	1,2	46,3	1,5	95,6	1,8	152,9	2,0
1,8	3,0	0,8	3,5	0,8	8,1	1,0	14,2	1,1	22,9	1,3	47,6	1,5	98,4	1,8	157,3	2,0
1,9	3,1	0,8	3,6	0,8	8,3	1,0	14,6	1,2	23,6	1,3	48,9	1,6	101,1	1,9	161,7	2,1
2,0	3,2	0,8	3,7	0,8	8,6	1,0	15,0	1,2	24,2	1,3	50,2	1,6	103,8	1,9	165,9	2,1
2,5	3,5	0,9	4,1	0,9	9,6	1,2	16,8	1,3	27,1	1,5	56,2	1,8	116,1	2,1	185,6	2,4
3,0	3,9	1,0	4,5	1,0	10,5	1,3	18,4	1,5	29,7	1,6	61,6	2,0	127,2	2,3	203,3	2,6



CfA
Centre for Assessment

Certificate of Registration

Alumasc Water Management Solutions

Station Road
Burton Latimer
Northamptonshire
NN15 5JP

BS EN ISO 9001:2015

Centre for Assessment Ltd confirms that this organisation has been audited and the requirements for registration have been met for the following scope:

Manufacture and buy sell of water management solutions for the construction industry

Certificate Number: 18/0213

Date of Initial Certification: 30th April 2003

Date of Expiry: 30th April 2021

Date of Issue: 18th June 2018

Revision: 0

Signed: 

On behalf of Centre for Assessment Ltd



This certificate remains the property of the Centre for Assessment and may be withdrawn without notice and is valid based on the above named organisation ensuring continued commitment to compliance against the harmonised standards as defined and or associated.

Centre for Assessment Limited, Lee House, 9C Great Bridgewater Street, Manchester, M1 5JW
Web: www.centreforassessment.co.uk Tel: 0161 237 4060



Certificate of Registration



By Royal Charter

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2015

This is to certify that:

Alumasc Building Products
T/A Alumasc Water Management Solutions
Station Road
Burton Latimer
Kettering
NN15 5JP
United Kingdom

Holds Certificate Number:

EMS 556085

and operates an Environmental Management System which complies with the requirements of ISO 14001:2015 for the following scopes:

Design, manufacture and supply of rainwater and drainage systems.

For and on behalf of BSI:



Andrew Lunn, BSI Systems Certification Director

Original Registration Date: 2010-10-20

Latest Revision Date: 2015-05-25

Effective Date: 2015-10-21

Expiry Date: 2021-10-20





Page: 1 of 1

...making excellence a habit.

This certificate was issued electronically and remains the property of BSI and is bound by the conditions of contract. An electronic certificate can be authenticated [online](http://www.bsigroup.com/ClientDirectory). Printed copies can be validated at www.bsigroup.com/ClientDirectory.

Information and Contact: BSI, Wilebrook Court, Weybridge, Surrey TW20 9PF. Tel: +44 (0) 1483 893000
BSI Assurance UK Limited, registered in England under number 7605321 at 389 Chiswick High Road, London W4 4AL, UK.
A Member of the BSI Group of Companies.

Alumasc Building Products Ltd
t/a Alumasc Water Management Solutions
Station Road
Burton Latimer
Kettering
Northamptonshire NN15 5JP

Tel: 01536 383810 Fax: 01744 648401
e-mail: info@alumascwms.co.uk
website: www.harmerdrainage.co.uk



Agrément Certificate
05/4191
Product Sheet 1

HARMER SML CAST IRON DRAINAGE SYSTEM

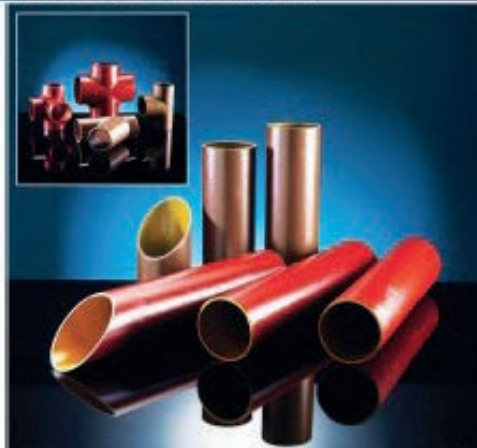
HARMER SML CAST IRON DRAINAGE SYSTEM PIPES, COUPLINGS AND FITTINGS FOR ABOVE-GROUND AND BELOW-GROUND APPLICATIONS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Harmer SML Cast Iron Drainage System Pipes, Couplings and Fittings for above-ground and below-ground applications, cast iron products for use in the conveyance of foul and surface water in domestic, commercial and public buildings.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Strength — the products have adequate strength in service when installed in accordance with this Certificate (see section 6).

Performance of joints — joints within the pipeline remain watertight under conditions where pipeline movement is in excess of that expected to occur in normal good drainage practice and will not be adversely affected by thermal expansion or contraction (see section 7).

Flow characteristics — a cast-iron soil system using the pipes, couplings and fittings will have satisfactory flow characteristics (see section 8).

Resistance to elevated temperatures — the products have adequate resistance to the temperatures likely to occur in service (see section 10).

Durability — the products have a service life equivalent to that of the building in which they are installed (see section 14).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Paul Valentine
Technical Excellence Director

Claire Curtis-Thomas
Chief Executive

Date of Third issue: 14 October 2019

Originally certificated on 13 January 2005

The BBA is a UKAS accredited certification body – Number 113.
The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerbs.co.uk
Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.
Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

British Board of Agrément

Bucknalls Lane
Watford
Herts WD25 9BA

©2019

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www.bbacerts.co.uk

bsi.

Kitemark™ Certificate



This is to certify that:

Alumasc Building Products
T/A Alumasc Water Management Solutions
Station Road
Burton Latimer
Kettering
NN15 5JP
United Kingdom

Holds Certificate Number:

KM 613802

In respect of:

BS EN 877

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

This issues the right and licence to use the Kitemark in accordance with the Kitemark Terms and Conditions governing the use of the Kitemark, as may be updated from time to time by BSI Assurance UK Ltd (the "Conditions"). All defined terms in this Certificate shall have the same meaning as in the Conditions.

The use of the Kitemark is authorized in respect of the Product(s) detailed on this Certificate provided at or from the above address.

For and on behalf of BSI:

Chris Lewis - Certification Director, Product Certification

First Issued: 2014-12-19

Latest Issue: 2018-10-04

Effective Date: 2018-10-04

Expiry Date: 2021-10-03

Page: 1 of 5



...making excellence a habit.™

This certificate has been issued by and remains the property of BSI Assurance UK Ltd, Kitemark Court, Davy Avenue, Knowlhill, Milton Keynes MK5 8PP, United Kingdom and should be returned immediately upon request.
To check its validity telephone +44 (0) 345 080 9000. An electronic certificate can be authenticated online.

BSI Assurance UK Limited, registered in England under number 7805321 at 389 Chiswick High Road, London W4 4AL, UK.
A member of BSI Group of Companies.

Declaration of Performance

No. SML AG/BG 0001

1. Unique identification code of the product type: SML Above and Below Ground drainage fittings made of Cast Iron
2. Batch number: Item no., nominal width, angle and manufacturing date – see each product
3. Intended use: Drainage of water from sites in below ground installation
4. Name and address: Alumasc Exterior Building Products Limited
T/A Alumasc Water Management Solutions
Station Road
Burton Latimer
Northamptonshire
NN15 5JP
www.alumascwms.co.uk
5. Where applicable - Authorised representative: Not Applicable
6. System of assessment: System 3
7. Details: The notified body Exova and Interisk performed initial type testing for the reaction to fire as per EN877:1999+A1:2006 annex ZA and issued a report for the classification.
8. Product with a European Technical Assessment: Not Applicable
9. Declared performance:

Essential characteristics	Performance	Harmonised technical specification
Reaction to fire		
Cast Iron	A1	EN 877:1999+A1:2006
System	A2-s1, d0 (above ground only)	EN 877:1999+A1:2006
Internal pressure strength	Pass	EN 877:1999+A1:2006
Dimension tolerances		
External diameter	Pass	EN 877:1999+A1:2006
Wall thickness	Pass	EN 877:1999+A1:2006
Ovality	Pass	EN 877:1999+A1:2006
Impact resistance	Pass	EN 877:1999+A1:2006
Tightness		
Water tightness	Pass	EN 877:1999+A1:2006
Air tightness	Pass	EN 877:1999+A1:2006
Durability aspects		
External coatings	Pass	
- Fittings	Epoxy	EN 877:1999+A1:2006
Internal coatings	Pass	
- Fittings	Epoxy	EN 877:1999+A1:2006

10. Conclusion: The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Mike Morgan, RCM Engineer



Revised Issue: 14th March 2019

Burton Latimer / 10th October 2015

ALUMASC WATER MANAGEMENT SOLUTIONS

SKYLINE, RAINWATER, HARMER
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tel: 01536 383 810
email: info@alumascwms.co.uk • web: www.alumascwms.co.uk

GATIC
Poulton Close, Dover, CT17 0UF
tel: 01304 203 545 • fax: 01304 215 001
email: info@gatic.com • web: www.gatic.com

Registered Office: Burton Latimer, Kettering, Northamptonshire, NN15 5JP. Registration No. 2992960. VAT Reg No. GB 395 9417 96. A member of The Alumasc Group plc

Declaration of Performance

No. SML BG 0002

1. Unique identification code of the product type: SML Stainless Steel and two part Ductile Iron couplings for drainage pipes made of Cast Iron
2. Batch number: Item no., nominal width, angle and manufacturing date – see each product
3. Intended use: Drainage of water from sites in above and below ground installations
4. Name and address: Alumasc Exterior Building Products Limited
T/A Alumasc Water Management Solutions
Station Road
Burton Latimer
Northamptonshire
NN15 5JP
www.alumascwms.co.uk
5. Where applicable - Authorised representative: Not Applicable
6. System of assessment: System 3
7. Details: The notified body Exova performed the initial type testing of the reaction to fire as per EN877:1999+A1:2006 annex ZA and issued a report for the classification.
8. Product with a European Technical Assessment: Not Applicable
9. Declared performance:

Essential characteristics	Performance	Harmonised technical specification
Reaction to fire		
Cast Iron	A1	EN 877:1999+A1:2006
System	A2-s1, d0	EN 877:1999+A1:2006
Internal pressure strength	Pass	EN 877:1999+A1:2006
Dimension tolerances		
External diameter	Pass	EN 877:1999+A1:2006
Wall thickness	Pass	EN 877:1999+A1:2006
Ovality	Pass	EN 877:1999+A1:2006
Impact resistance	Pass	EN 877:1999+A1:2006
Tightness		
Water tightness	Pass	EN 877:1999+A1:2006
Air tightness	Pass	EN 877:1999+A1:2006
Durability aspects		
External coatings	Pass	
- Fittings	Epoxy	EN 877:1999+A1:2006
Internal coatings	Pass	
- Fittings	Epoxy	EN 877:1999+A1:2006

10. Conclusion: The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Mike Morgan, RCM Engineer



Burton Latimer / 24th November 2015

ALUMASC WATER MANAGEMENT SOLUTIONS

SKYLINE, RAINWATER, HARMER
Station Road, Burton Latimer, Kettering, Northamptonshire, NN15 5JP
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Registered Office: Burton Latimer, Kettering, Northamptonshire, NN15 5JP. Registration No. 2992960. VAT Reg No. GB 395 9417 96. A member of The Alumasc Group plc

CERTIFICATE

Düker

ISO 9001:2015

DEKRA Certification GmbH hereby certifies that the organization

Düker GmbH

Scope of certification:

Development, manufacture, supply and service of cast iron drainage pipe systems, castings made to specification.

Certified location:

Würzburger Straße 10-16, 97753 Karlstadt, Deutschland

Scope of certification:

Development, manufacture, supply and service of ductile iron shut-off valves and pressure pipe fittings, castings made to specification.

Certified location:

Hauptstraße 39-41, 63846 Laufach, Deutschland

has established and maintains a quality management system according to the above mentioned standard. The conformity was adduced.

Certificate registration no.: 30819545 Certificate valid from: 2019-08-15
Certificate valid to: 2021-04-10

A. Nagel
Dr. Gerhard Nagel
DEKRA Certification GmbH, Stuttgart, 2019-08-15



DEKRA Certification GmbH * Handwerkstraße 15 * D-70565 Stuttgart * www.dekra-certification.de

page 1 of 1

CERTIFICATE

Düker

ISO 45001:2018

DEKRA Certification GmbH hereby certifies that the organization

Düker GmbH

Scope of certification:

Development, manufacture, supply and service of cast iron drainage pipe systems, ductile iron shut-off valves and pressure pipe fittings, castings made to specification.

Certified location:

Würzburger Straße 10-16, 97753 Karlstadt, Germany
(further locations see annex)

is a member of the certified body that establishes and maintains an occupational health and safety management system in accordance with the above mentioned standard. This was verified by audit report no.. A19061001.

Certificate registration no.: 270819023 Certificate valid from: 2018-04-11
Validity of previous certificate : --- Certificate valid to: 2021-04-10
Most recent update: 2020-06-24

Language translation

A. Nagel
Dr. Gerhard Nagel
DEKRA Certification GmbH, Stuttgart, 2020-06-24



DEKRA Certification GmbH * Handwerkstraße 15 * D-70565 Stuttgart * www.dekra-certification.de

page 1 of 2

CERTIFICATE

Düker

ISO 50001:2011

DEKRA Certification GmbH hereby certifies that the organization

Düker GmbH

Scope of certification:

Development, manufacture, supply and service of cast iron drainage pipe systems, castings made to specification.

Certified location:

Würzburger Straße 10-16, 97753 Karlstadt, Deutschland

Scope of certification:

Development, manufacture, supply and service of ductile iron shut-off valves and pressure pipe fittings, castings made to specification.

Certified location:

Hauptstraße 39-41, 63846 Laufach, Deutschland

has established and maintains an energy management system according to the above mentioned standard. The conformity was adduced.

Certificate registration no.: 180819029

Certificate valid from: 2019-08-15
Certificate valid till: 2021-08-21

A. Nagel
Dr. Gerhard Nagel
DEKRA Certification GmbH, Stuttgart, 2019-08-15

DEKRA Certification GmbH * Handwerkstraße 15 * D-70565 Stuttgart * www.dekra-certification.de



page 1 of 1

CERTIFICATE

Düker

BS OHSAS 18001:2007

DEKRA Certification GmbH hereby certifies that the organization

Düker GmbH

Scope of certification:

Development, manufacture, supply and service of cast iron drainage pipe systems, castings made to specification.

Certified location:

Würzburger Straße 10-16, 97753 Karlstadt, Deutschland

Scope of certification:

Development, manufacture, supply and service of ductile iron shut-off valves and pressure pipe fittings, castings made to specification.

Certified location:

Hauptstraße 39-41, 63846 Laufach, Deutschland

has implemented and maintains an occupational health and safety management system according to the above mentioned standard. The conformity was adduced.

Certificate registration no.: 270819023 Certificate valid from: 2019-08-15
Certificate valid to: 2021-03-11

A. Nagel
Dr. Gerhard Nagel
DEKRA Certification GmbH, Stuttgart, 2019-08-15

DEKRA Certification GmbH * Handwerkstraße 15 * D-70565 Stuttgart * www.dekra-certification.de



page 1 of 1

CERTIFICATE

Düker

ISO 14001:2015

DEKRA Certification GmbH hereby certifies that the organization
Düker GmbH

Scope of certification:

Development, manufacture, supply and service of cast iron drainage pipe systems, castings made to specification.

Certified location:

Würzburger Straße 10-16, 97753 Karlstadt, Deutschland

Scope of certification:

Development, manufacture, supply and service of ductile iron shut-off valves and pressure pipe fittings, castings made to specification.

Certified location:

Hauptstraße 39-41, 63846 Laufach, Deutschland

has established and maintains an environmental management system according to the above mentioned standard. The conformity was adduced.

Certificate registration no.: 170819087 Certificate valid from: 2019-08-15
Certificate valid to: 2021-04-10

A. Nagel
Dr. Gerhard Nagel
DEKRA Certification GmbH, Stuttgart, 2019-08-15

DEKRA Certification GmbH * Handwerkstraße 15 * D-70565 Stuttgart * www.dekra-certification.de



page 1 of 1

Düker

Declaration of Performance

No. TML 003

1. Unique identification code of the product type TML drainage pipe system consisting of pipes and fittings made of cast iron
2. Batch number Item no., nominal width, angle and manufacturing date see each product
3. Intended use Drainage of water from sites in underground installation
4. Name and contact address Düker TML
Düker GmbH
D-97753 Karlstadt
www.dueker.de
5. Where applicable, authorised representative not applicable
6. System of assessment System 4
7. Details The manufacturer performs a factory production control.
8. Product with a European Technical Assessment not applicable
9. Declared performance

Essential characteristics	Performance	Harmonised technical specification
Reaction to fire		
Cast iron	A1	EN 877:2010-01
System	NPD	EN 877:2010-01
Internal pressure strength	pass	EN 877:2010-01
Dimension tolerances		
External diameter	pass	EN 877:2010-01
Wall thickness	pass	EN 877:2010-01
Ovality	pass	EN 877:2010-01
Impact resistance	pass	EN 877:2010-01
Tightness		
Water tightness	pass	EN 877:2010-01
Air tightness	pass	EN 877:2010-01
Durability aspects		
External coatings	pass	EN 877:2010-01
Pipes	Zinc, Epoxy	
Fittings	Epoxy	
Internal coatings	pass	EN 877:2010-01
Pipes	Epoxy	
Fittings	Epoxy	

10. Conclusion The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9. This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Christian Fries, Head of Quality Management

and

Jochen Zöller, Design and Development Department

Names and functions

Karlstadt, 09 April 2020

Place and date of issue

Signatures

Düker GmbH

Karlstadt works
Würzburger Straße 10-16
97753 Karlstadt/Main
Germany

Managing director
Oliver Kraxner

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E-Mail info@dueker.de

Registered

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Tax number: 231/115/20283

Bank details

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SWIFT (BIC) HYVEDEMM407

BLZ 795 200 70

IBAN DE48 7952 0070 0001 5500 12



BW-Bank, Stuttgart

Kto. 74 245 000 31

SWIFT (BIC) SOLADEST600

BLZ 600 501 01

IBAN DE87 6005 0101 7424 5000 31

Declaration of Performance

No. Verbinder 0001

- Unique identification code of the product type: Couplings for drainage pipe systems made of cast iron.
- Batch number: Item and nominal width see each product
- Intended use: Drainage of waste water or rain water from buildings
- Name and contact address: Dükorapid®, BSV 90, ductile iron coupling, Düker CV and dual ring coupling
Düker GmbH & Co. KGaA
D-97753 Karlstadt
www.dueker.de
- Where applicable, authorised representative: not applicable
- System of assessment: System 4
- Details: The manufacturer performs a factory production control.
- Product with a European Technical Assessment: not applicable
- Declared performance:

Essential characteristics	Performance	Harmonised technical specification
Reaction to fire		
Cast iron	A1	EN 877:2010-01
System	NPD	EN 877:2010-01
Internal pressure strength	pass	EN 877:2010-01
Dimension tolerances		
External diameter	NPD	EN 877:2010-01
Wall thickness	NPD	EN 877:2010-01
Ovality	NPD	EN 877:2010-01
Impact resistance	NPD	EN 877:2010-01
Tightness		
Water tightness	pass	EN 877:2010-01
Air tightness	pass	EN 877:2010-01
Durability aspects		
External coatings ductile iron coupling	pass Epoxy	EN 877:2010-01
Internal coatings	NPD	EN 877:2010-01

- Conclusion: The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9.
This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.
Signed for and on behalf of the manufacturer by:

Günter Schilde, Head of Quality Management
and
Oliver Jäger, Head of Design and Development Department
Names and functions
Karlstadt, 01 July 2013
Place and date of issue

i. V. 

Signatures

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Germany
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Internet www.dueker.de
E-Mail info@dueker.de

Managing directors
Dipl.-Wirt.-Ing. Martin Simons
Dipl.-Ing. Torsten Stein

President of supervision board
Dr. Klaus-Georg Hengstberger

Liabe shareholder
EWD Eisenwerke Verwaltungs GmbH

Registered
Amtsgericht Würzburg HRB 7009
VAT No.: DE 132 979 543

Quality Management System
Certified as per
EN ISO 9001:2008
Reg.-No. 12 100 21864 TMS



Declaration of Performance

No. SML 003



- Unique identification code of the product type: SML Drainage pipe system consisting of pipes and fittings made of cast iron
- Batch number: Item no., nominal width, angle and manufacturing date see each product
- Intended use: Drainage of waste water or rain water from buildings
- Name and contact address: Düker SML
Düker GmbH
D-97753 Karlstadt
www.dueker.de
- Where applicable, authorised representative: not applicable
- System of assessment: System 3
- Details: The notified body Materialprüfungsamt Nordrhein-Westfalen 0432 performed the initial type testing of the reaction to fire as per EN 877:2010-01 annex ZA and issued a certificate for the classification.
- Product with a European Technical Assessment: not applicable
- Declared performance:

Essential characteristics	Performance	Harmonised technical specification
Reaction to fire		
Cast iron	A1	EN 877:2010-01
System	A1	EN 877:2010-01
Internal pressure strength	pass	EN 877:2010-01
Dimension tolerances		
External diameter	pass	EN 877:2010-01
Wall thickness	pass	EN 877:2010-01
Ovality	pass	EN 877:2010-01
Impact resistance	pass	EN 877:2010-01
Tightness		
Water tightness	pass	EN 877:2010-01
Air tightness	pass	EN 877:2010-01
Durability aspects		
External coatings Pipes Fittings	pass Acrylic resin Epoxy	EN 877:2010-01
Internal coatings Pipes Fittings	pass Epoxy Epoxy	EN 877:2010-01

- Conclusion: The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9.
This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

Christian Fries, Head of Quality Management
and
Jochen Zöller, Design and Development Department
Names and functions
Karlstadt, 09 April 2020
Place and date of issue

ppa. 
i. A. 
Signatures

Düker GmbH
Karlstadt works
Würzburger Straße 10-16
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Germany
Phone +49 9353 791-0
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Internet www.dueker.de
E-Mail info@dueker.de

Managing director
Oliver Kraxner

Registered
Amtsgericht Würzburg HRB 13344
VAT-No.: DE 132 979 543
Tax number: 231/115/20283



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BLZ 795 200 70
IBAN DE48 7952 0070 0001 5500 12

BW-Bank, Stuttgart
Kto. 74 245 000 31
SWIFT (BIC) SOLADEST600
BLZ 600 501 01
IBAN DE87 6005 0101 7424 5000 31



Declaration of performance

Coupling 3140

1. Unique identification code Of the product type Couplings for drainage pipe systems made of cast iron.
2. Batch number Item and nominal width see each product
3. Intended use Drainage of waste water or rain water from buildings
4. Name And contact address PMJ-tec AG, Industriestrasse 34, CH-1791 Courtaman
5. Where applicable, Authorised representative not applicable
6. System of assessment System 4
7. Details The manufacturer performs a factory production control
8. Product with a European Technical Assessment not applicable

Essential characteristics	Performance	Harmonised technical specification
Reaction to fire		
Cast iron	AT	EN 877-2010-01
System	NPD	EN 877-2010-01
Internal pressure strength	pass	EN 877-2010-01
Dimension tolerances		
External diameter	NPD	EN 877-2010-01
Wall thickness	NPD	EN 877-2010-01
Quality	NPD	EN 877-2010-01
Impact resistance	NPD	EN 877-2010-01
Leakage		
Water tightness	pass	EN 877-2010-01
Air tightness	pass	EN 877-2010-01
Durability aspects		
External coatings	pass	EN 877-2010-01
ductile iron coupling	Epoxy	EN 877-2010-01
Internal coatings	NPD	EN 877-2010-01

10. Conclusion The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9.

This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by Wolfgang Sponer, Technical Director

Courtaman, 30 September 2015

i. V.

PMJ-tec AG | Industriestrasse 34 | CH-1791 Courtaman | Tel: +41 26 684 74 00 | Fax: +41 26 684 74 99 | e-mail: ch.info@pmj-tec.com | www.pmj-tec.com

IMPORTANT NEWS about name change from MAGE to PMJ: www.pmj-tec.com → news

Project Gallery

The Harmer SML lightweight above and below-ground cast iron soil and waste system is ideal for specification across a wide spectrum of building types, including retail, commercial, civil, transport, sport, health and welfare. The Harmer SML system is fully compatible with other Harmer & Wade drainage ranges - including roof, floor and shower drains, and linear channel drains - for a fully integrated total building drainage solution.



HARMER

BUILDING DRAINAGE

Technical Support

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ALUMASC

WATER MANAGEMENT SOLUTIONS



www.alumascwms.co.uk