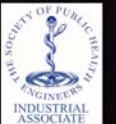


HARMER

DRAINAGE SYSTEMS

Harmer SML – Cast Iron Soil & Waste Drainage Technical Submittal Document



HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

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HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

1. The Alumasc Partnership

Alumasc is the UK specialist in lightweight cast iron soil and waste systems, which form part of the company’s renowned Harmer range.

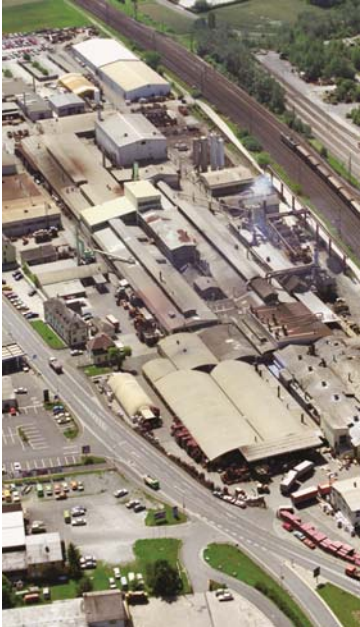
The Partnership

Alumasc has a long-standing partnership with Düker GmbH who manufacture Harmer SML at their plant in Karlstadt, Germany. Since their formal (GmbH) establishment in 1913, Düker has strived to incorporate the beneficial characteristics of cast iron within its drainage products.

In 1967, Düker revolutionised the cast iron drainage market by developing the spigot-only (i.e. socketless) jointing technique for drainage pipes, setting a new benchmark for reliability, quality and speed of installation.

The Düker foundry utilises state-of-the-art equipment and machinery in its production processes, with continuous investment in product development and technology.

Alumasc and Düker are committed to providing a high quality soil and waste system that meets the requirements of BS EN 877, the European standard for cast iron pipes and fittings.



Karlstadt Plant, Germany



Centrifugal casting process



HARMER SML – TECHNICAL SUBMITTAL DOCUMENT

2. Quality & Sustainability

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

British Board of Agrément Certificate No. 05/4191:

For couplings, pipes and fittings. SML also complies with numerous other certified standards.



BS EN 877: European Standard for cast iron pipes and fittings. This standard sets requirements for materials, dimensions and tolerances, mechanical properties and standard coatings for pipes, fittings and associated accessories.

CE Mark: European product conformity to harmonised standard BS EN 877 in accordance with Construction Products Regulation 2013.



ISO 6594: International Standard for socketless drainage systems in cast iron.

BS EN 681/ISO 4633: Specification for Elastomeric Seals for Joints in Pipework and Pipelines.

BS EN 14366: 2004, Laboratory measurement of noise from waste water installations. Harmer SML test certificate P-BA 164/2008e and P-BA 165/2008e.

EN 13501-1: Fire classification of construction products and building elements. Harmer SML has an A1 fire classification. Test report KB-Hoch-080195.

BS EN 1561: Founding. Grey Cast Irons.

Quality Assurance

BS EN ISO 9001: 2000, Registered No. 12 100 21864

This is a quality assurance scheme monitored by BSI's inspectorate that makes regular checks to ensure standards are maintained.

IZEG and GEG: IZEG is a resource centre for disseminating detailed information on the quality and performance of cast iron drainage products. The GEG quality seal is awarded to products that meet stringent quality regulations after rigorous testing undertaken by independent institutes.

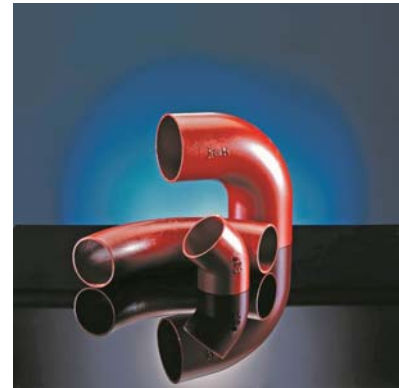


Codes of Practice

BS EN 12056-2: Code of Practice for gravity drainage systems inside buildings – sanitary pipework.

BS EN 12056-3: Code of Practice for gravity drainage systems inside buildings – drainage of roofs.

BS EN 752: 1996, Code of Practice for drain and sewer systems outside buildings.



Standards Specific to the Düker Company

DIN 19522: German Standard for drainage systems in cast iron.

RAL-GZ 698: Quality Systems Certificate for cast iron drainage pipe systems.

MPA Dortmund 11 000 1436/01/01: Conformity to EN 877.

CSI 1094RF: Fire Resistance Test Report.

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: 2004, 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)



HARMER SML – TECHNICAL SUBMITTAL DOCUMENT

3. Benefits of the Harmer SML System

Harmer SML, a proven, Agrément certified system which meets the European Standard BS EN 877, offers a wide range of benefits.

Fire Safe

- Non-combustible, therefore does not require costly fire protection collars.
- When tested by the MPA North-Rhine Westphalia Laboratory in Germany, SML cast iron proved superior compared to other drainage materials.
- Harmer SML has the highest fire classification A1 – tested in accordance with the requirements of EN 13501-1.

Robust

- Lightweight, strong and durable.
- High tensile 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 lifetime of 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.
- 100% recyclable material therefore all waste can be returned to the furnace to make new cast iron products.



HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

4. Benefits of Modern 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.

21st Century Technology

Cast iron's high carbon content (2%-4%) makes it very suitable for casting pipes and other cylindrical components by pouring molten iron into permanent moulds which are spun at high speed. The liquid is forced to the sides 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, where pipes can be made in longer lengths.

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).

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.

Harmer SML has been tested for its acoustic performance in accordance with BS EN 14366: 2004.

High Strength

The crystalline structure of cast iron also gives the material high strength and robustness. Once installed, cast iron components resist impact damage even in exposed areas, such as shopping centres, car parks and schools. Pipes can span longer distances and so less fixing back to supporting structures can be employed.

Durability

Inherent corrosion resistance coupled with tough epoxy coatings ensures that cast iron components will need minimal maintenance during the lifetime of a drainage installation. The durable nature of cast iron components is thus ideal when used in inaccessible or difficult to reach areas.

Environmental Considerations

Made from 100% recycled scrap metals, cast iron can be recycled indefinitely, and therefore should not be disposed of in landfill.



Fire Performance

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.



HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

5. Harmer SML Product Range Summary

All Harmer SML pipes and fittings comply with BS EN 877, being manufactured in Germany under strict factory-controlled conditions to meet the highest performance standards. They are durable, recyclable, quick and easy to install and require low maintenance.



Pipes

Harmer SML pipes are available in standard 3m lengths, in diameters of 50mm to 400mm, providing everything for high performance, lightweight cast iron soil and waste systems.

Pipes have an exterior primer coating, minimum thickness 40 μm .

The interior of pipes has an epoxy coating with a minimum thickness of 120 μm .



Harmer TML

The Harmer TML underground drainage system has an identical material specification to Harmer SML but with additional coating specification to cope with aggressive ground conditions and waste water applications. Harmer TML and Harmer SML are fully compatible.



Fittings

Harmer SML fittings shown opposite are coated externally and internally with an epoxy coating, minimum thickness 60 μm .

HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

Harmer SML Product Range Summary



Bends and Offsets

A wide range of bends to accommodate change of direction, meeting a wide variety of design requirements, including - single bends, short and long tail double bends, long radius bends, bends with spigots, rest bends and offsets.



Branches

Fittings designed to accommodate connection of branch pipework to a principal vertical pipe stack. The available range includes single and double branches, swept entry branches, corner branches and combination branches.

Access Fittings

Designed to allow access for inspection and rodding – includes circular access pipes, rectangular access pipes, access bends and branches.



Bracketry

Maintaining the stability of above-ground pipework is vital, and to this end Alumasc has developed a range of support bracketry that supports both vertically and horizontally. The range includes vertical, horizontal hanging and stack support brackets, which are available in ductile cast iron, zinc plated or pre-galvanised, and fitted with sound-deadening runner linings.



Couplings and Adaptors

Harmer SML couplings are specially designed for joining lengths of Harmer SML pipe, and for joints between pipes and fittings. Couplings are available in stainless steel and ductile iron. Like Harmer SML pipes and fittings, all Harmer SML couplings have been subject to rigorous testing and meet the requirements of BS EN 877.

Completing the Product Range

The range also includes boss pipes, reducers, end caps, downpipe supports, bearing rings, manifold, connectors, flanged pipes and traps.

HARMER SML – TECHNICAL SUBMITTAL DOCUMENT

6. Technical Data: Pipes and Pipe Fittings

Quality Standard

Harmer SML meets the requirements of BS EN 877 and is manufactured under ISO 9001: 2008 Quality Management System (Certificate No.12 100 21864), and is approved under the British Board of Agrément (BBA Certificate No. 05/4191)

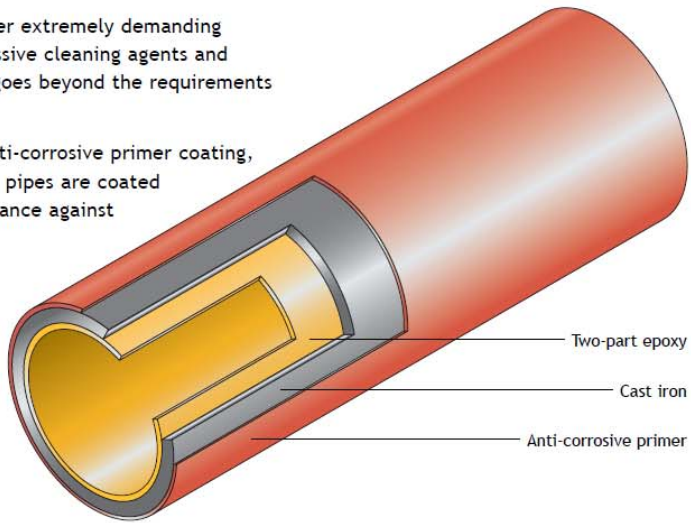
Material

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).

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.

SML drainage pipes are externally protected with anti-corrosive primer coating, which meets fire classification A1. On the inside the pipes are coated with two-part epoxy coating which offers high resistance against chemical and mechanical damage.



Pipe Coatings

External surface – anti-corrosive primer coating

Colour: Red

Thickness: Minimum of 40 µm

Internal surface – two-part epoxy coating

Colour: Ochre

Thickness: Minimum of 120 µm

Fitting Coatings

SML fittings are internally and externally coated with red two-part epoxy coating, dip applied to a thickness of 40 µm.

Other Coatings

For below ground application and other aggressive conditions, Alumasc offer other coating systems.

Consult Alumasc Technical Department for further details.

Chemical Resistance of Interior Coatings of SML Pipes

This table applies to applications with intermittent use.

Liquid		Up to 23°C	Up to 50°C	Up to 80°C
Acidic solutions	pH 0	BS EN 877		
	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

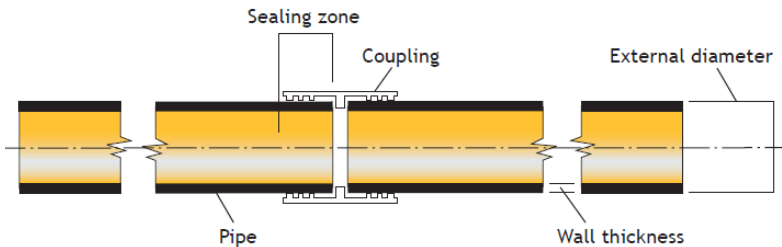
Conditions where interior coatings exceed chemical resistance requirements of BS EN 877

HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

Technical Data: Pipes and Pipe Fittings

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



Tolerance Definitions

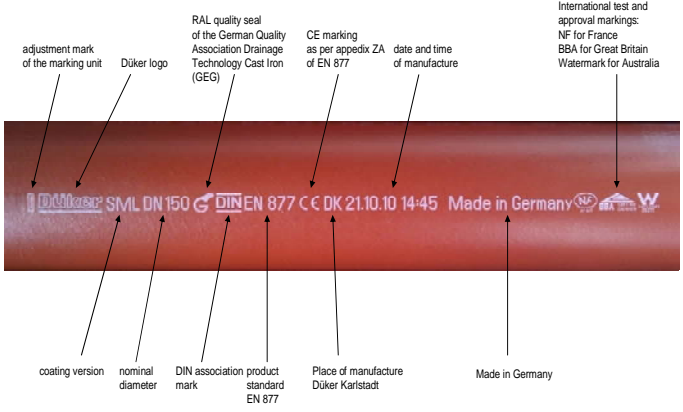
Weights
BS EN 877 stipulates: "The nominal masses of finished products (pipes, fittings and accessories) shall be given in the manufacturers' catalogues. When measured in accordance with Table 5.3 of the standard, the lower deviation shall not exceed 15% of the nominal mass".

Lengths
In accordance with clause 4.2.9 of BS EN 877, lengths of fittings shall be within a tolerance of $\pm 5\text{mm}$. Lengths of pipes shall be within a tolerance of $\pm 20\text{mm}$ 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.

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.



Flow Capacities of Soil and Waste Systems

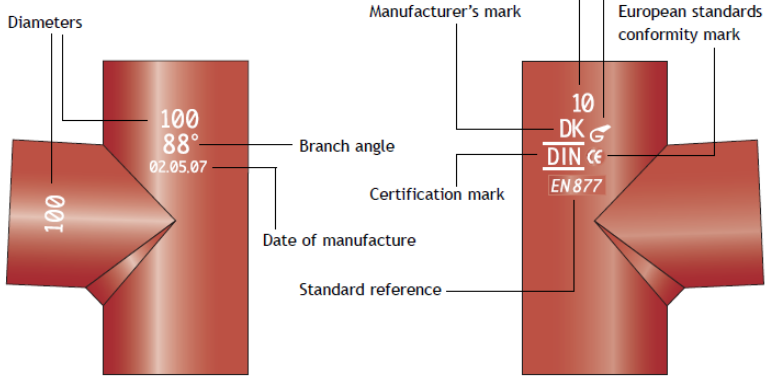
Maximum flow capacities (litres per second) of SML pipes, flowing at various gradients, with pipes flowing full (ks value = 0.6).

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	262.82

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

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

Fitting marks (both sides)



HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

7. SML Drainage System - British Board of Agrément Certificate



Designated by Government to issue European Technical Approvals

Alumasc Exterior Building Products Ltd

White House Works
Bold Road
Sutton
St Helens
Merseyside WA9 4JG
Tel: 01744 648400 Fax: 01744 648401

CI/SfB

(52)	lh3
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Agrement Certificate No 05/4191

HARMER SML CAST IRON DRAINAGE SYSTEM

Système d'évacuation
Abwassersystem

Product



- THIS CERTIFICATE RELATES TO THE HARMER SML CAST IRON DRAINAGE SYSTEM, THE COMPONENTS OF WHICH ARE REFERRED TO IN THE ACCOMPANYING DETAIL SHEETS.
- The system is for use in domestic, commercial and public buildings in accordance with BS EN 12056-1, -2, -3 and -5 : 2000 and BS EN 752-2 to -4 for the conveyance of rainwater, domestic drainage and sewage as is permitted to be discharged into public sewers by the Water Industry Act 1991, and sewage as is permitted and defined by the

continued

Regulations — Detail Sheet 1

1 The Building Regulations 2000 (as amended) (England and Wales)

The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of drainage systems with the Building Regulations. In the opinion of the BBA, the Harmer SML Cast Iron Drainage System, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: B3(4)	Internal fire spread (structure)
Comment:	See the tinted areas in the <i>Properties in relation to fire</i> section of the relevant accompanying Detail Sheets.
Requirement: E1	Protection against sound from other parts of the building and adjoining buildings
Comment:	See the tinted area in the <i>Noise</i> section of the relevant accompanying Detail Sheets.
Requirement: H1	Foul water drainage
Comment:	The system will convey the flow of foul or surface water and minimise the risk of blockages or leakage. See the tinted areas in the <i>Strength, Performance of joints, Flow characteristics, Resistance to elevated temperatures and Maintenance</i> sections of the relevant accompanying Detail Sheets.

Readers are advised to check the validity of this Certificate by either referring to the BBA's website (www.bbacerts.co.uk) or contacting the BBA direct (Telephone Hotline 01923 665400).

HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

8. SML Drainage System - EN 877 Certificate



Marsbruchstraße 186 • 44287 Dortmund • Postfach: 44285 Dortmund • Telefon (0231) 4502-0 • Telefax (0231) 45 85 49 • E-Mail: info@mpanrw.de

Translated summary of the TEST REPORT

No. 11 0001436 11

Surveillance inspection of
3rd and 4th November 2011

1st edition

Client Düker GmbH & Co. KGaA
Würzburger Straße 10
97753 Karlstadt

Factory Düker GmbH & Co. KgaA, Karlstadt

Basis of the surveillance inspection

- a) DIN EN 877, Cast iron pipes and fittings, their joints and accessories for the evacuation of water from buildings – Requirements, test methods and quality assurance, edition January 2010, and
- b) Regulations for quality and testing “Drainage Technology Cast Iron”, Quality Assurance RAL-GZ 698, Edition October 2008

Subject of the surveillance inspection Cast iron pipes and fittings for the evacuation of water from buildings and for private sewerage systems according to DIN EN 877

This document is a duplicate. Solely the duly signed and stamped document is legally binding.

This summary of the test report no. 11 0001436 11-01 includes 4 pages.

The results of the surveillance inspection refer exclusively to the subject of surveillance named above.

Test certificates and reports may only be published or reproduced without the permission of MPA NRW if unchanged in form and content. The abridged reproduction of a test certificate or report requires the consent of MPA NRW. In cases of any doubts the German version of this test report is valid.

HARMER SML - TECHNICAL SUBMITTAL DOCUMENT
9. SML Declaration of Conformity

Declaration of Conformity

In Accordance with Construction Products Regulation 2013

The Manufacturer	Düker GmbH & Co. KGaA Abflusstechnik Würzburger Str. 10, D-97753 Karlstadt	Name Division Address
------------------	--	-----------------------------

Declares that the Product

Description	Cast Iron Pipes & fittings, their joints and accessories for the evacuation of water from buildings
Type	SML
Nominal Dimension	DN 40 - 600

Complies with the requirements of the Directive

Applied Code	EN877:2010-01
Conformity assessment procedure	annex ZA of EN 877:2010-01



Any modification of the products which changes the technical layout and/or the field of application as specified in the operating instructions

Place, Date	Department	Signature
Karlstadt, 12.10.2011	QM Management	F.J. Behler

HARMER SML – TECHNICAL SUBMITTAL DOCUMENT

9. SML Declaration of Conformity



Declaration of Performance

No. SML 0001

1. Unique identification code of the product type SML 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 waste water or rain water from buildings
4. Name and contact address Düker SML
Düker GmbH & Co. KGaA
D-97753 Karlstadt
www.dueker.de
5. Where applicable, authorised representative not applicable
6. System of assessment System 3
7. 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.
8. Product with a European Technical Assessment not applicable

9. Declared performance	Essential characteristics	Performance	Harmonised technical specification
	<u>Reaction to fire</u>		
	Cast iron	A1	EN 877:2010-01
	System	A1	EN 877:2010-01
	Internal pressure strength	pass	EN 877:2010-01
	<u>Dimension tolerances</u>		
	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
	<u>Tightness</u>		
	Water tightness	pass	EN 877:2010-01
	Air tightness	pass	EN 877:2010-01
	<u>Durability aspects</u>		
	External coatings Pipes Fittings	pass Acrylharz Epoxy	EN 877:2010-01
	Internal coatings Pipes Fittings	pass Epoxy Epoxy	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:

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

Günter Schilde
i. V. *Oliver Jäger*

Signatures

Düker GmbH & Co. KGaA
Karlstadt works

Würzburger Straße 10
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Germany

Tel. +49 9353 791-0
Fax +49 9353 791-198

Internet www.dueker.de
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Managing directors
Dipl.-Wirt.-Ing. Martin Simons
Dipl.-Ing. Torsten Stein

President of supervision board
Dr. Klaus-Georg Hengstberger

Liabile 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



HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

10. SML Cast Iron Raw Materials

All SML pipes and fittings are manufactured from 100% recycled scrap iron.

Iron Usage

Iron usage for 1 ton of pipes or fittings

scrap class 2a	273 kg
scrap class 3a	16 kg
cast iron pellets	484 kg
scrap class cupola	137 kg
circulating material	120 kg
total	1030 kg

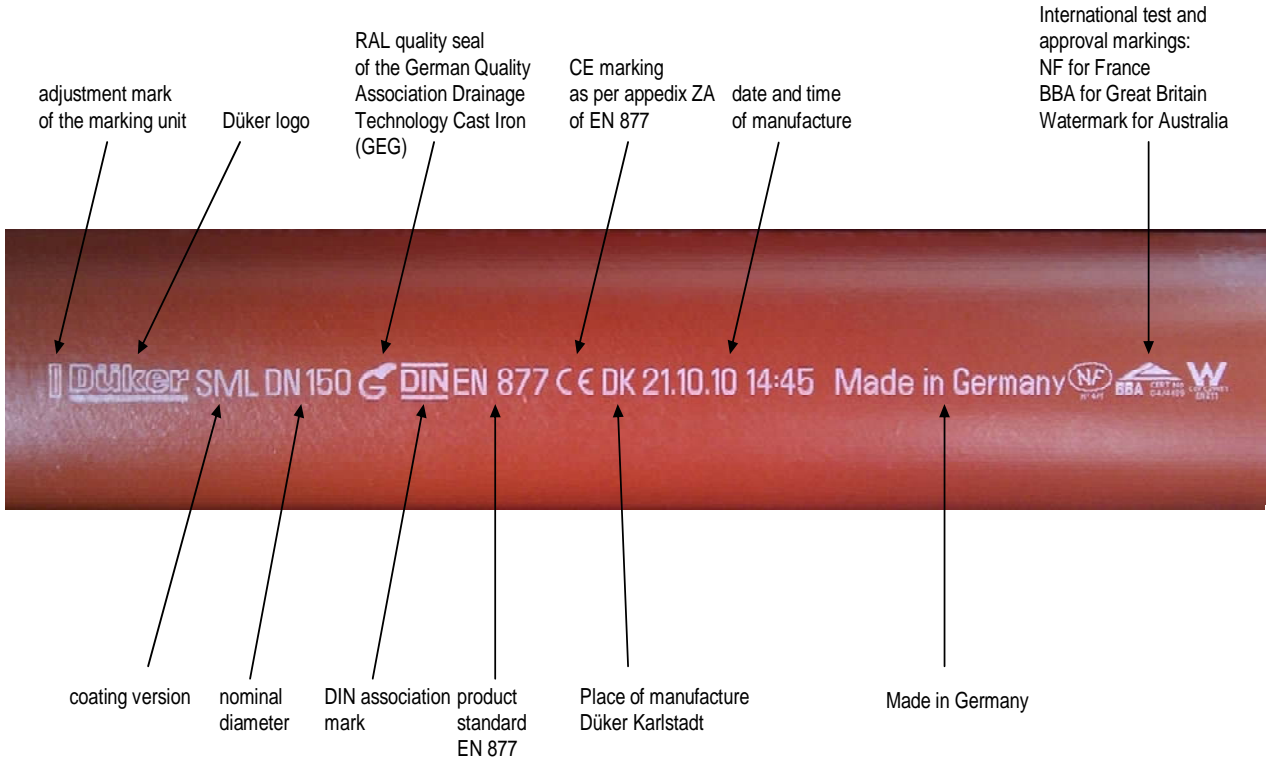


HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

11. SML Quality Control and Traceability (ISO 9001)



■ SML Marking



HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

12. Düker ISO 9001 Quality Certificate

ZERTIFIKAT ♦ CERTIFICATE ♦ CERTIFICADO ♦ CERTIFICAT ♦ СЕРТИФИКАТ ♦ 認證證書



Management Service

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH

certifies that

Düker GmbH & Co. KGaA
Würzburger Straße 10, D-97753 Karlstadt

scope of application:

Development, manufacture, supply and service of
drain pipes and fittings, castings made to specification,
centrifugal casting plants for production of castings
as well as cokeless cupola furnaces

Düker GmbH & Co. KGaA
Hauptstraße 39-41, D-63846-Laufach

scope of application:

Development, manufacture, supply and service of
valves used in water and gas supply, high pressure ductile iron
fittings, highly acid-resistant glass-lined components,
castings made to specification.

has established and applies
a Quality Management System.

An audit was performed, Report No. **70008454**

Proof has been furnished that the requirements
according to

ISO 9001:2008

are fulfilled. The certificate is valid until **2015-03-23**

Certificate Registration No. **12 100 21864 TMS**

Munich, 2012-04-11



QMS-TGA-ZM-07-92

HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

13. Düker CE Mark/IZEG GEG Quality Certificate

Urkunde



Die Gütegemeinschaft Entwässerungstechnik Guss e.V.
verleiht hiermit aufgrund des ihrem Güteausschuss
vorliegendem Prüfbericht der Firma

Eisenwerke
Friedr. Wilh. Düker GmbH & Co. KGaA

das von RAL Deutsches Institut für Gütesicherung und Kennzeichnung e.V.
anerkannte und durch Eintragung beim Deutschen Patent- und Markenamt
als Kollektivmarke geschützte

Gütezeichen Entwässerungstechnik Guss

in Verbindung mit der produktbezogenen Inschrift gemäß
nachfolgender Zeichenabbildung



Sankt Augustin, den *15. März 2004*
Gütegemeinschaft Entwässerungstechnik Guss e.V.

Der Vorsitzende

Der Geschäftsführer

HARMER SML – TECHNICAL SUBMITTAL DOCUMENT

14. British Board of Agrément – Pipe Couplings

Electronic Copy



Designated by Government
to issue
European Technical
Approvals

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CI/SfB
| (52) | lb |

**Agrément
Certificate
No 99/3650**
Second issue*

MAGE NOMIC COUPLINGS
Raccordement de conduit
Formstücke

Product



- THIS CERTIFICATE RELATES TO MAGE NOMIC COUPLINGS FOR ABOVE GROUND APPLICATIONS.
- The couplings are for use in domestic, commercial and public buildings in accordance with BS EN 12056 (Parts 2 and 3), BS EN 752 (Parts 1 to 4) and BS EN 877 : 1999 for the conveyance of above ground rainwater, domestic drainage and sewage as is permitted to be discharged into public sewers by the Water Industry Act 1991, Chapter 56, and sewage as is permitted and defined by the Sewerage (Scotland) Act 1968 and the Water and Sewerage Services (Northern Ireland) Order 1973.

Regulations

1 The Building Regulations 2000 (as amended) (England and Wales)

The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of couplings with the Building Regulations. In the opinion of the BBA, MAGE Nomic Couplings, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: B3	Internal fire spread (structure)
Comment:	See section 13 of this Certificate.
Requirement: E1	Protection against sound from other parts of the building and adjoining buildings
Comment:	See section 14 of this Certificate.
Requirement: H1	Foul water drainage
Comment:	The couplings will convey the flow of foul or surface water and minimise the risk of blockages or leakage.
Requirement: H3	Rainwater drainage
Comment:	The couplings are acceptable.
Requirement: Regulation 7	Materials and workmanship
Comment:	The couplings are acceptable. See sections 8 and 17 of this Certificate.

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15. SML Pressure Testing Pipes, Fittings and Couplings



■ Working Pressures

DN	possible interior pressure charge		test pressure couplings**	pressure tightness and axial restraint	
	pipes up to	fittings* up to		Dükorapid® + Kombi grip collar	Dükorapid® + Universal collar
40	10 bar	10 bar	5 bar	10 bar	
50	10 bar	10 bar	5 bar	10 bar	10 bar
70	10 bar	10 bar	5 bar	10 bar	
80	10 bar	10 bar	5 bar	10 bar	10 bar
100	10 bar	10 bar	5 bar	10 bar	10 bar
125	10 bar	10 bar	5 bar	5 bar	10 bar
150	10 bar	5 bar	5 bar	5 bar	5 bar
200	10 bar	5 bar	5 bar	3 bar	5 bar
250	10 bar	3 bar	3 bar	1 bar	3 bar
300	10 bar	3 bar	3 bar	1 bar	3 bar
400	10 bar	2 bar	3 bar	1 bar	

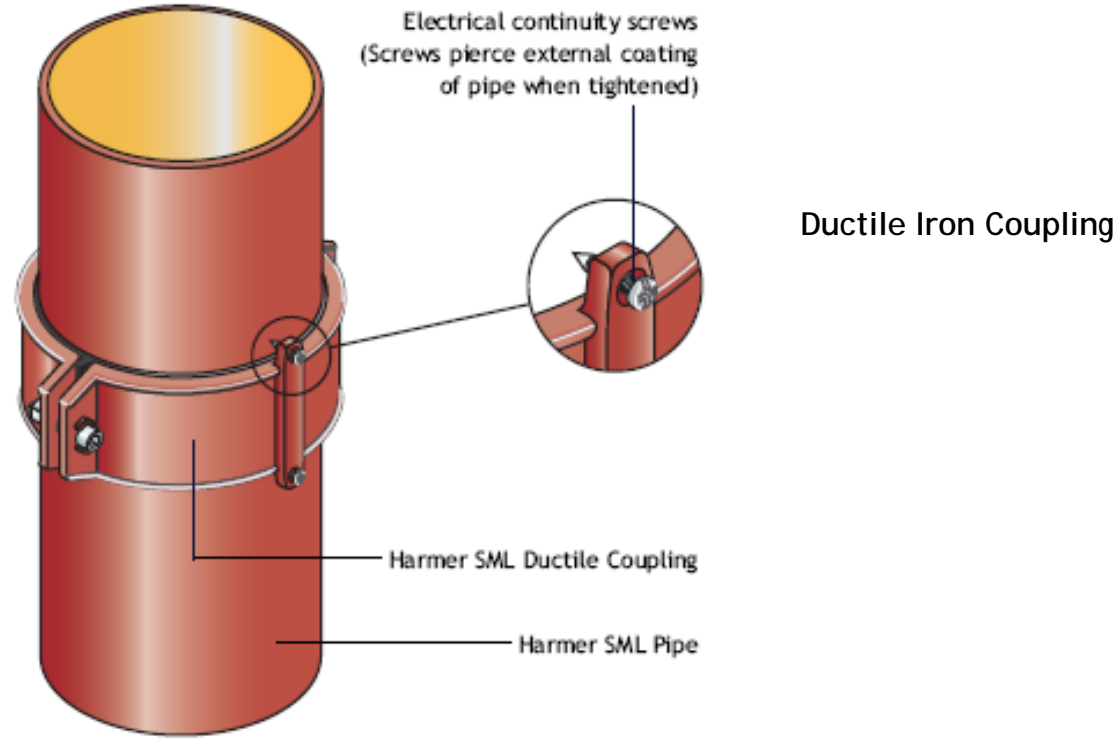
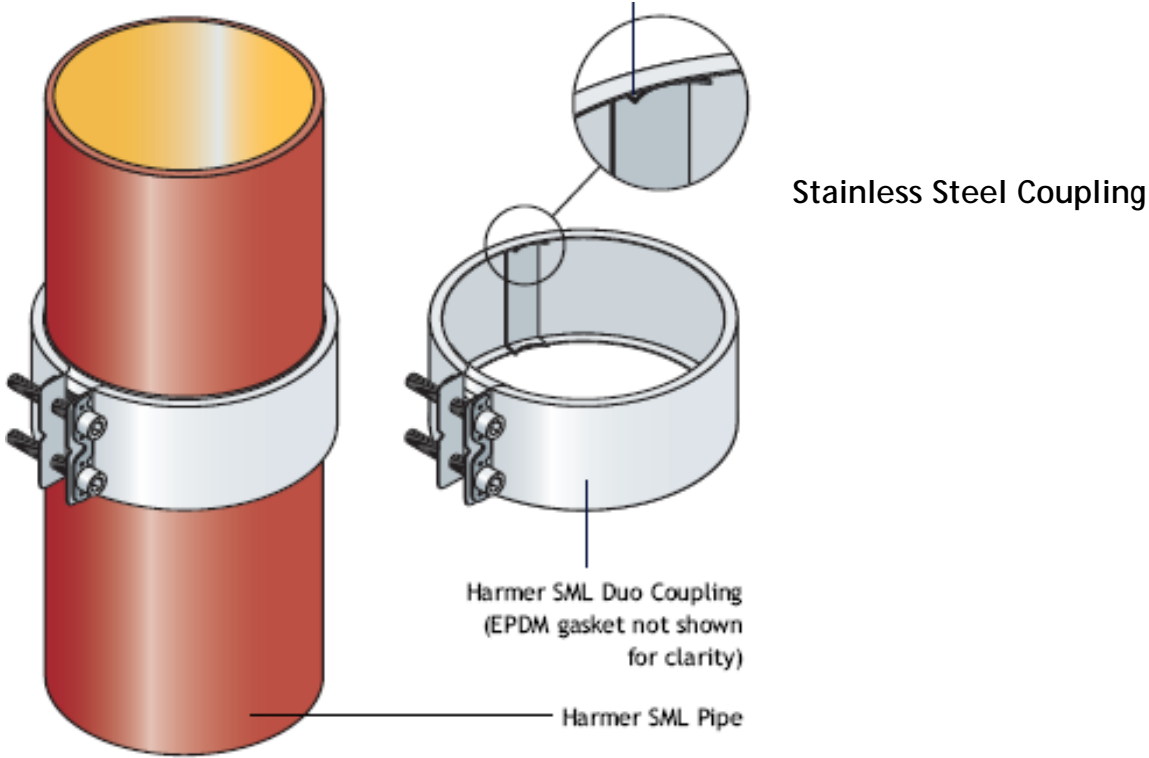
* except inspection pipes, odour traps, hermetic plugs and connecting pieces

** except couplings for restricted use or connections to sanitary ware



HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

16. SML Pipe Coupling Earth Continuity



HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

17. SML Pipe Gradient and Filling Capacities

Filling level 50 % (h/d = 0,5)

SML	DN 70		DN 80		DN 100		DN 125		DN 150		DN 200		DN 250		DN 300	
	d=71		d=75		d=103		d=127		d=152		d=200		d=263		d=314	
J	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V
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% (h/d=0,7)

SML	DN 70		DN 80		DN 100		DN 125		DN 150		DN 200		DN 250		DN 300	
	d=71		d=75		d=103		d=127		d=152		d=200		d=263		d=314	
J	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V
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% (h/d=1,0)

SML	DN 70		DN 80		DN 100		DN 125		DN 150		DN 200		DN 250		DN 300	
	d=51		d=75		d=103		d=127		d=152		d=200		d=263		d=314	
J	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V
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

HARMER SML – TECHNICAL SUBMITTAL DOCUMENT

18. SML Pipe Acoustic Protection

Introduction

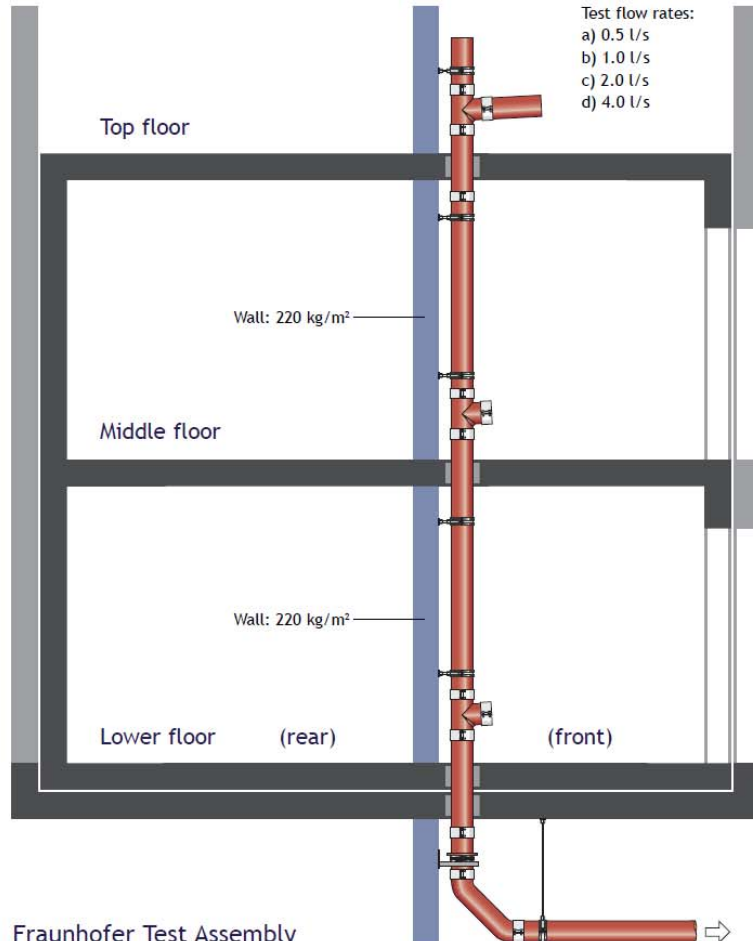
The discharge of soil, waste and rainwater through a pipe generates structure-borne and airborne sound between habitable spaces and usually occurs because the pipe is filled with a mixture of air and water. The resultant noise will then be transmitted to lightweight ceilings, cupboards and similar constructions.

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: 2004: *Laboratory measurement of noise from waste water installations* sets out a common test method by which airborne and structure-borne 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.



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 Structural-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.

Test Data

Pipe and Bracket Type (see drawing)	Airborne Sound Pressure Level $L_{p,RA}$ [dB(A)] (see note a)				Structure-borne Sound Characteristic Level $L_{s,RA}$ [dB(A)] (see note b)				Number of Brackets Used	Wall Density (kg/m ²)
	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		
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	45	47	5	9	14	19	2	220

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

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19. SML Pipe Coupling Torque Settings

In addition to the standard torque wrench for tightening stainless steel couplings, a more accurate and reliable means of torque tightening is achieved with a Harmer Duomat tool.

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.



Compatible Couplings

Harmer SML Cou- pling	Size Range	Torque Setting	Bit Size
Duo Coupling	DN 50 - DN 300	3.5 Nm - 9.0 Nm	5mm Allen
Grip Coupling	DN 50 - DN 200	7.5 Nm - 9.0 Nm	5mm Allen

Harmer Duomat Fixing Tool

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 DN 40 to DN 300.



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20. Mass Concrete Curing Temperature

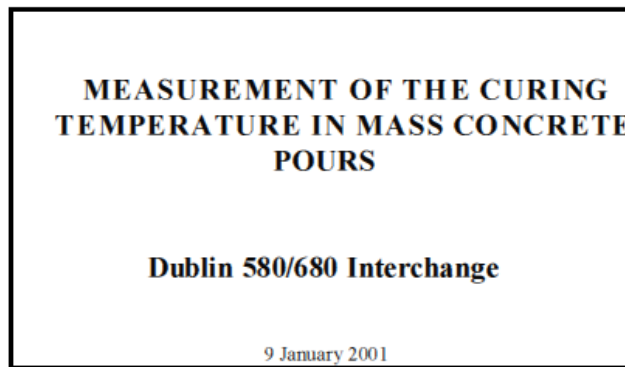
SML Protective Coating

Source material contained within a document published by State of California Department of Transport indicates a maximum mass concrete curing temperature of approximately 65°C, this temperature would not have any negative effect on either the internal and external protective coatings applied to SML pipes and fittings.

Before the application of the epoxy and paint, the SML fittings are pre-heated to approximately 30°C. SML pipes, coming directly from production, are up to 60°C hot. After application, the epoxy is burnt in at a temperature between 140°C and 170°C.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

INSTRUMENTATION FINAL REPORT



Prepared for

Ric Maggenti

By

Engineering Service Center
Materials Engineering and Testing Services
Instrumentation Services Branch

5900 Folsom Blvd.
Sacramento, CA 95819-0128

ORIGINAL SIGNED BY
Danny L. Callaway
Report By: _____
Danny Callaway, P. E.
Instrumentation Services



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21. Indices

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MPA NRW - Pipe Coupling Test Certificate



Marsbruchstraße 186 · 44287 Dortmund · Postfach: 44285 Dortmund · Telefon (02 31) 45 02 - 0 · Telefax (02 31) 45 85 49 · E-Mail: info@mpanrw.de

Test Report

No. 11 0001788

2nd Edition

Client

MAGE AG
Industriestraße 191
CH-Courtaman / Schweiz

Manufacturer

Courtaman

Type and designation of the test material

Clamping couplers with the designation "MAGE-NOMIC-DUO" / "MAGE-NOMIC-ELECTO" with nominal diameters from DN 40 to DN 300 for the connection of cast iron pipes and fittings without sockets for building drainage according to DIN EN 877 and DIN 19 522

Test results

The clamping couplers for the joint of cast iron pipes and fittings for drainage applications according to DIN EN 877 of the design "MAGE-NOMIC-DUO" / "MAGE-NOMIC-ELECTO" meet the requirements of the DIN EN 877.



This test report consists of 16 pages and 2 appendices

The results of the tests refer exclusively to the above-mentioned sample(s) (test objects).
The test reports are allowed to be published or copied without the consent of the MPA NRW only when they are unchanged in form and contents. The abridged publication of a test report is permitted only with the consent of the MPA NRW.

HARMER SML – TECHNICAL SUBMITTAL DOCUMENT

SML Pipe Coupling Test

Test report Nr. 11 0001788 of 06.12.2004
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- 3 Test material and sampling**
- 4 Scope of the tests**
- 5 Testing and test results**
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 - 5.1.2 Testing the material properties
 - 5.1.2.1 Chemical composition
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HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

SML Access Fittings Pressure Testing

premium products • proven solutions



Testing of Access doors in Harmer SML pipework

Rainwater ■

Drainage ■

Waterproofing ■

Metal Roofing ■

Façades ■

For Alumasc Exterior Building Products Ltd

By Dr Malcolm Wearing BEng PhD CEng MCIWEM FIOP

2 August 2004

Introduction

CRM Rainwater Drainage Consultancy Ltd were commissioned by Alumasc Exterior Building Products Ltd, to test access doors in SML cast iron pipework, for an ability to withstand an applied internal pressure of 10 bar.

Tests were carried out by CRM in their laboratory in Tottington, Lancs, under the supervision of Dr Malcolm Wearing BEng PhD CEng MCIWEM FIOP.

The test program involved pressurising the component and checking for failure or leakage over a minimum 5 minute period. Pressure was measured using a calibrated gauge.

Items tested

The following items were tested:

Item	Description
669586	Round access door (2 bolt)
669624	Rectangular access door
661174A	Access bend
661174AL	Long access bend
663174SA	Branch with access

Results

All the products tested withstood 10 bar internal pressure over a 5 minute period, though it should be noted that there was some weeping of water at seals unless bolts were tightened very well. As these products will only be subject to this pressure loading in the case of a blockage, this is probably not a significant issue.

HARMER SML - TECHNICAL SUBMITTAL DOCUMENT SML Acoustic Test Certificate (1)



Institution for testing, supervision and certification, officially recognized by the building supervisory authority. Approvals of new building materials, components and types of construction
Research, development, demonstration and consulting in the fields of building physics

Directors
Univ.-Prof. Dr. Gerd Häuser
Univ.-Prof. Dr. Klaus Sedlbauer

Test report P-BA 214/2010e

Determination of the Acoustic Performance of a Wastewater Installation System in the Laboratory

Client: Düker GmbH & Co. KGaA
Würzburger Straße 10
97753 Karlstadt/Main
GERMANY

Test specimen: Wastewater installation system consisting of "DÜKER SML" cast iron pipes and fittings (manufacturer: Düker) mounted with different pipe clamps

Contents:

Table 1:	Summary of test results
Figures 1 to 5:	Detailed results
Figure 6:	Test set-up
Annex A:	Measurement set-up, noise excitation, acoustic parameters
Annex F:	Evaluation of measurements
Annex P:	Description of test facility

The tests were performed in a laboratory accredited by the German Accreditation System for Testing (DAP, file no. PL-3743.26) according to standard EN ISO/IEC 17025.

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Stuttgart, January 25, 2011

Responsible Test Engineer: Head of Laboratory:

 
Dipl.-Ing. (FH) G. Mohr Dr. rer. nat. L. Weber



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HARMER SML - TECHNICAL SUBMITTAL DOCUMENT

SML Acoustic Test Certificate (2)



Fraunhofer Institut
Bauphysik

Baufachlich anerkannte Stelle
für Prüfung, Überwachung und
Zertifizierung
Zulassung neuer Baustoffe, Bauteile
und Bauarten
Forschung, Entwicklung,
Demonstration und Beratung auf
den Gebieten der Bauphysik

Institutsleitung
Univ.-Prof. Dr. Gerd Hauser
Univ.-Prof. Dr. Klaus Sedlbauer

Test report P-BA 164/2008e

**Determination of the Acoustic Performance
of a Wastewater Installation System in the Laboratory**

Client: Eisenwerke Fried. Wilh. Düker GmbH & Co. KGaA
Würzburger Straße 10
97753 Karlstadt/Main
GERMANY

Test specimen: Wastewater installation consisting of "Düker SML" cast iron pipes
and fittings (manufacturer: Düker) mounted with pipe clamps
"Optimal HD" respectively "Optimal" (company Alumasc).

Contents: Table 1: Summary of test results
Figures 1 to 5: Detailed results
Figure 6: Installation plan
Annex A: Measurement set-up, noise excitation, acoustic
parameters
Annex F: Evaluation of measurements
Annex P: Description of test facility

The tests were performed in a laboratory accredited by the German
Accreditation System for Testing (DAP, file no. PL-3743.26)
according to standard EN ISO/IEC 17025.

Any publication of this document in part is subject to written
permission by the Fraunhofer Institute of Building Physics (IBP).

Stuttgart, September 11, 2008

Responsible Test Engineer:

Head of Laboratory:

[Signature]
Dipl.-Ing.(FH) L. Meier

[Signature]
Dr. rer. nat. L. Weber

HARMER SML – TECHNICAL SUBMITTAL DOCUMENT**SML Fire Test Certificate**

Außenstelle Erwitte • Auf den Thränen 2 • 59597 Erwitte • Telefon (0 29 43) 8 97-0 • Telefax (0 29 43) 8 97-33 • E-mail: erwitte@mpanrw.de

**Report of the classification of the reaction to
fire performance****No. 230007442-13****issued 20 July 2010****English version****Sponsor**

Düker GmbH & Co. KGaA
Hauptstraße 39 – 41

63846 Laufach

Order

Classification of the reaction to fire behaviour according to DIN EN 13501-1 in consideration of DIN EN 877

Date of order:

17 February 2010

Name of the building product which is to be classified:

„SML“ cast iron pipes and cast iron fittings according to DIN EN 877

This report is to determine the classification of the above-mentioned building product in accordance with the test method stated in the standard DIN EN 13501-1:2007+A1:2009 and DIN EN 877 (January 2010)

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This classification report consists of 5 pages.

HARMER SML - TECHNICAL SUBMITTAL DOCUMENT**SML Fire Coupling Test Certificate****MPA** MPA STUTTGART
Otto-Graf-Institut

Materialprüfungsanstalt • Universität Stuttgart

Materialprüfungsanstalt - Otto-Graf-Institut • Universität Stuttgart
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E-mail mpa.ref17@po.uni-stuttgart.de
Section Fire Resistance of Construction Components

Original version in German. In any cases of doubt the German version is valid.

Fire Resistance Classification according to EN 13501-2:2007

Report No.:

0672-901 7132 000/Re/Pk

Subject:

**Pipe penetration seal „System Düker BSV 90“,
tested according to EN 1366-3:2004**

Customer:

**Eisenwerke
Fried. Wilh. Düker GmbH & Co. KGaA
Würzburger Straße 10
D-97756 Karlstadt/Main**

Date of issue:

**December, 7th, 2009
(German original version: February, 18th, 2009)**Period of validity until: **February, 28th, 2014**

This classification report includes 5 pages and applies to the test report named under paragraph 3.1. The publication of the classification report is only allowed to the full extent.

This document does not represent an authorization or certification of the product and it is no replacement for relevant documents according to the German building law approved by the building authorities (e.g. technical approval).

In compliance with DIN EN ISO 9001:2000 accredited Testing Lab. Accreditation Body recognized by DAP. Accreditation valid for testing methods (DAP-Reg.-Nr DAP-PL2307.38) listed in the certificates. Additional Accreditation granted in compliance with DIN EN ISO/IEC 17025 granted by DNDP/TS, KBA, ZLS and certification on the basis of DIN EN ISO 9001:2000 by the TÜV. PLZ body approved by DIBt, body notified to EU 0672 and 1280.

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BIC/SWIFT-Code: SOLADEST33XXX

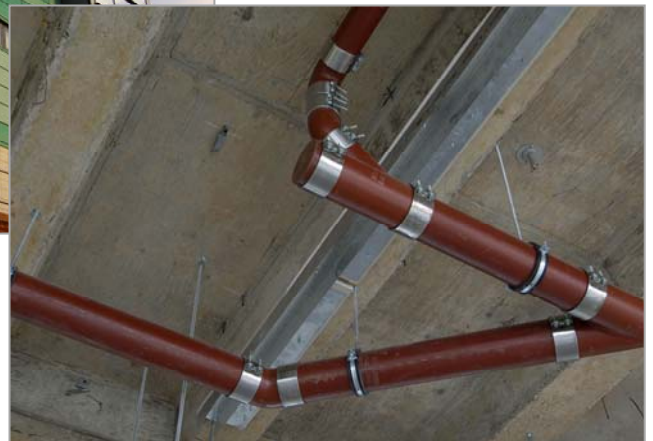
HARMER SML - TECHNICAL SUBMITTAL DOCUMENT
22. Project Gallery

Harmer SML
Cast Iron Soil and
Rainwater Systems

Projects Gallery



Derby Hospital
Installed by East Goscote Plumbers
Completed with Skanska



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Chelsea Creek
Main Contractor Fascilitas
Installed by Dennis Cox



Bankside Blocks A,B,C & D
Consultant Hoare Lea
Installed by Interserve

HARMER SML - TECHNICAL SUBMITTAL DOCUMENT



Battersea Reach
Consultant White Young Green
Installed by Dennis Cox



Royal London & St Barts NHS Trust
Main Contractor Skanska, Installed by J A Brooks & PSI



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Canary Wharf BP2
Completed with Aquasafe Environmental



Millennium Stadium
Installed by Drake & Scull (Emcor)



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Marks & Spencer, Cheshire Oaks
Eco-Store



Olympics Energy Centre
Completed with Bovis
Installed by SF Installations

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Norfolk & Norwich Hospital
Completed with Laing
Installed by Crown House Technologies



Coventry Hospital
Completed with Skanska
Installed by East Goscote Plumbers & SGD



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Harmer SML Projects



London Cancer Clinic
Completed with Alan Baxter Associates



BRI, Bristol Royal Infirmary
Installed by Crown House Technologies

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North Staffordshire Hospital
Installed by Crown House Technologies



Alder Hey Hospital
Consulting Engineers Hoare Lea
Currently supplying by Crown House Technologies 2013

HARMER

DRAINAGE SYSTEMS

Harmer SML - Lightweight Cast Iron Soil & Waste Drainage Technical Submittal Document