

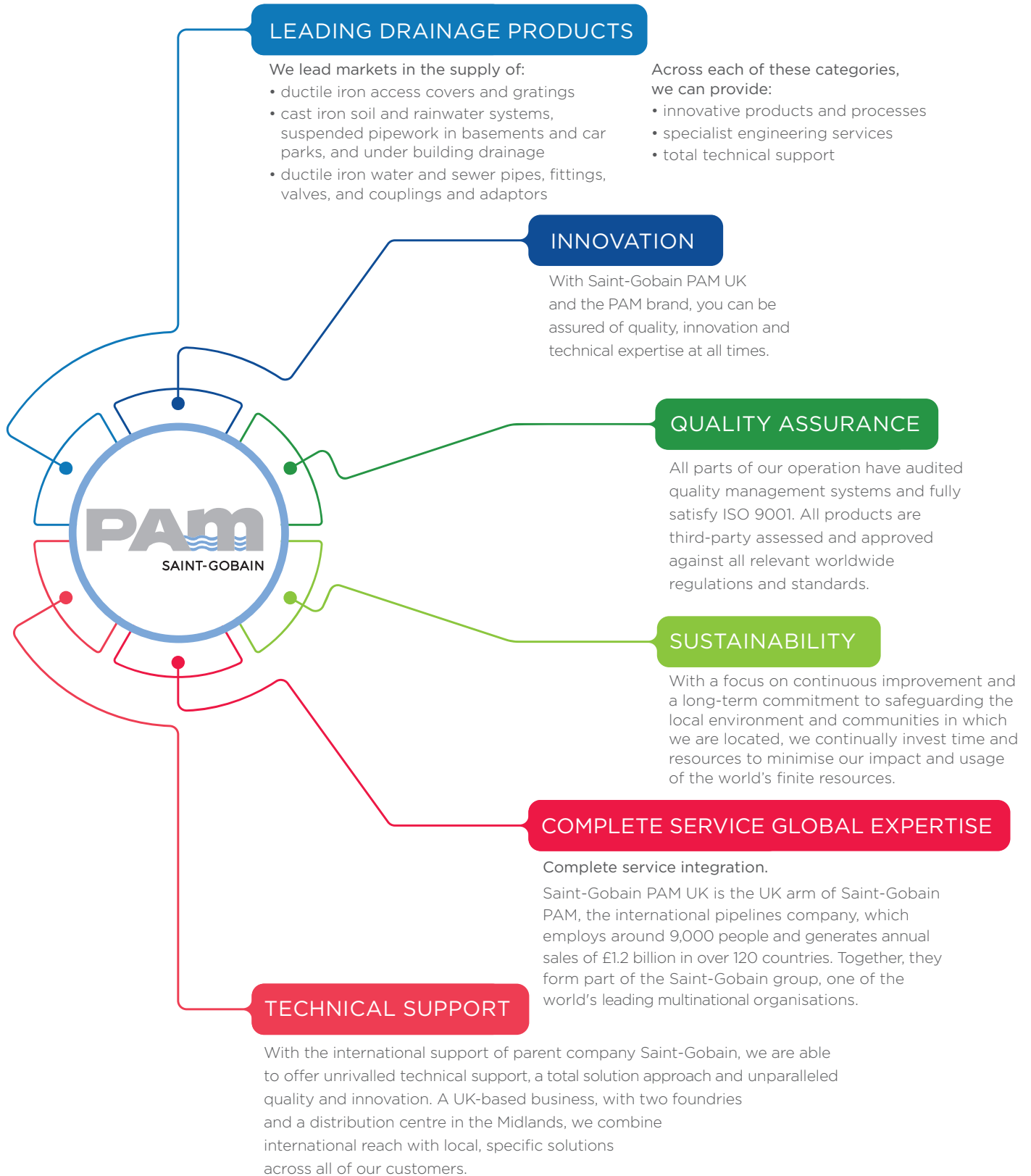
Install Plus and Install Plus Retro-Fit Frame Levelling and Installation System

SUSTAINABLE SOLUTIONS DESIGNED
AND MANUFACTURED IN THE UK



SUPPORTING THE REDUCTION
OF WHOLE-LIFE COSTS

With access to worldwide technical expertise and an extensive portfolio of products, Saint-Gobain PAM UK is able to combine the benefits of being part of a global organisation with the ability to develop solutions to satisfy local requirements.



The Saint-Gobain PAM range of ductile iron access covers and gratings is the first choice solution for clients within the infrastructure, water and utilities sectors. With the aim of contributing to the reduction of whole-life costs, the PAM range offers enhanced performance in key areas such as durability, safety and security.



At Saint-Gobain PAM, we manufacture hundreds of products to suit a wide variety of applications and uses. Our systems, processes and products are third-party accredited and kitemarked to ensure full compliance with all British, European and global product, environmental and safety standards.

Our range of high performance products include:

Access Covers

Our access covers are the preferred choice of utilities, highways and telecom sectors for use in carriageway and pedestrian applications. Available in over 60 clear opening sizes and in load classifications from F900 to B125.

Gully Gratings and Kerb Drainage

We have solutions for all applications for the national and local road networks and pedestrian areas. Ranges are available to cope with even the highest volumes of surface water for all road types.

Surface Boxes

Used within the water and energy sectors, our surface boxes are designed to allow fast and easy access to below ground services such as hydrants and valves.

Channel Gratings

Suitable for linear drainage systems, our channel gratings are available in E600 to C250 load classifications.



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Designed to help support and level the frame during the early stages of installation, the **install plus** family of innovative solutions save time, make efficient use of materials and reduce whole-life costs by ensuring products are installed right the first time.

install+ reTrofit provides a solution for new ironwork installations and for the reinstatement and re-use of existing access covers and gully grating assets. This allows for a consistent approach to specification and installation methods regardless of the application.



As part of our research and development programme, we focused on arriving at a solution that would promote a right first time approach to installation. Its key aim was to provide a system that reduces the time taken, while enabling efficient use of materials that will ultimately reduce the whole-life cost.

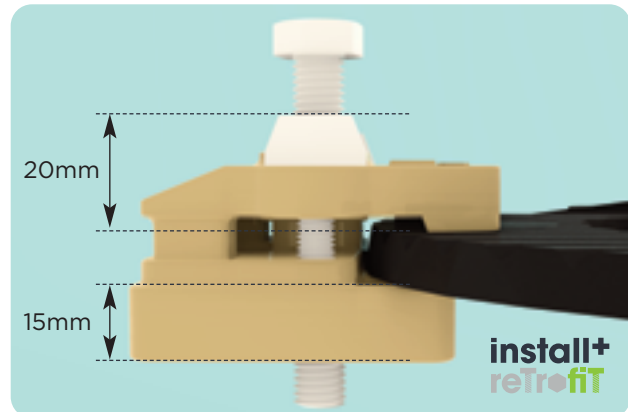
We wanted to understand how we can support this through our continued innovation and collaboration in allowing the use of the Install Plus system regardless of the type of Saint-Gobain PAM UK product used or if a new or existing installation.

install+ reTrofit builds on the **install plus** frame levelling and installation system, which promotes the adoption of a best practice approach to installation.



Install plus and **install+ reTrofit** include key design features that combine to guarantee the durability and long term performance of the installation. It helps:

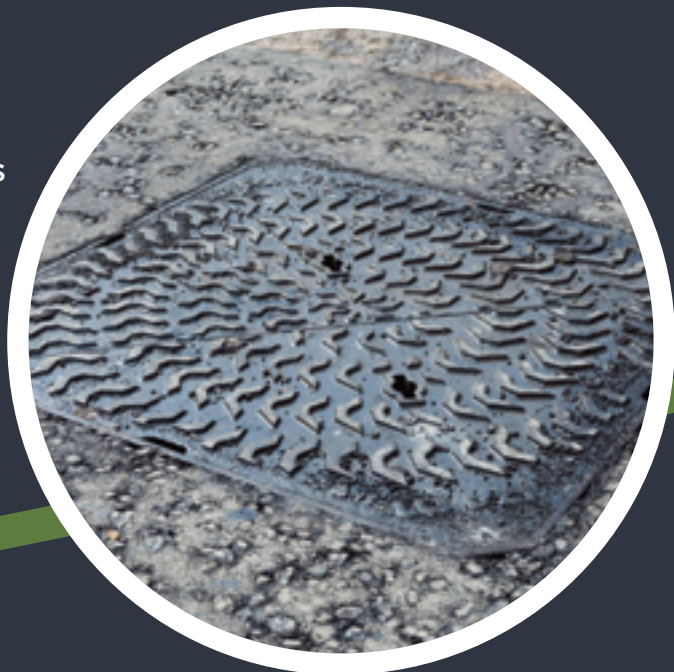
- ▶ Ensure the recommended minimum depth of the bedding material of 15mm below the flange.
- ▶ Achieve accurate adjustment of the frame allowing for height, gradient and camber.
- ▶ Provide a visual indicator to the recommended minimum depth of flowable mortar above the frame flange of 20mm.



Both Install Plus and Install Plus Retro-Fit variants are shown

“To be honest we don't go back to any covers, if rarely anymore since we started using **install plus**. We have not looked back as a business since using **install plus**. I would say we have had no issues with 95%, the other 5% are issues not attributable to the cover, such as road construction or 3rd party installations by others.”

Testimony from a major water PLC



Install Plus and Install Plus Retro-Fit
Making it difficult to get things wrong

To get the most from the **install plus** system, before beginning any reinstatement work, it is recommended that a site assessment is undertaken to determine the type of reinstatement required and to also include an assessment of the appropriate materials needed.

Following these simple steps will ensure that the installation is right the first time, saving time, reducing cost and minimising the disruption caused by streetworks.

1. Preparation

1.1 Bedding and reinstatement materials

The selection of the appropriate bedding and reinstatement materials is critical in ensuring optimum durability. It has long been acknowledged that the performance of the installation is directly attributed to the interaction between all the key components. Consideration should be given to:

- ▶ the design of the casting
- ▶ the road type
- ▶ the chamber type and material used whether concrete, brick, composite or plastic

We recommend that the guidance contained within paragraphs 24, 25 and 26 of Section 507 Chambers of 'Series 500 Drainage and Service Ducts Volume 1 Specification for Highway Works Manual of Contract Documents for Highway Works' is adopted prior to selecting the appropriate bedding and reinstatement materials. It states:

Chamber tops and gully tops should be bedded upon material which has the following properties:

- (a) the material should be non-shrink
- (b) the material should have a minimum workable life of 15 minutes
- (c) the compressive strength of the material should exceed 30N/mm² in 3 hours
- (d) the tensile strength of the material should exceed 5N/mm² in 3 hours

1.2 Excavation

Remove all failed reinstatement materials as recommended within SROH, which defines the width of trim back dependent on the reinstatement materials used. For self-levelling materials, SROH recommends that the trim back is the width of the frame flange plus the width of the compaction tool sole plate plus 50mm, typically 200mm.

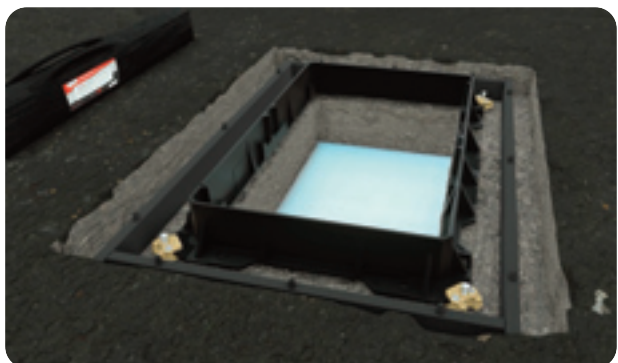
1.3. Preparing the substructure

All existing bedding mortar is removed and the supporting structure/chamber cut back until a sound base is achieved. The newly exposed substrate must be clean and structurally sound prior to commencing refurbishment work.



Where the gap between the frame flange and the vertical edge of the trim back is more than 50mm, to save costs, the use of the [SlotForm Install Plus Installation Shuttering System](#) is highly recommended.

For more details of SlotForm, see page 12.



2. Installing the frame

2.1 Frame adjustment

Place a straight edge across the top of the frame to determine its height in relation to the surrounding finished surface level. The frame top edge must be flush with the carriageway surface.

To adjust the frame height and to also allow for changes in gradient, rotate the nylon bolts clockwise until the desired height is achieved. The bolts have a range of movement between 15mm and 50mm and are permanently fixed in place once the material has cured.

Note: if the gap is >50mm, an additional brick course should be installed.

2.2 Mixing and placing the bedding materials

For optimum durability, the system has been designed to be used in conjunction with a high-performance flowable bedding material that exhibits the mechanical properties as defined within section 1.1.

To create a dam on the internal face of the frame, mix the bedding mortar to a stiff workable consistency in accordance with manufacturer's instructions. Using a trowel, or similar tool, place the mortar into the gap at the front edge of the frame and chamber, leaving no voids and allow this to stiffen (in normal conditions, this is approximately 15 minutes).



For more information on the benefits and use of Install Plus, please visit our website or contact our technical team on:

📞 0115 989 8903 ✉️ pamsales@saint-gobain.com



www.pamline.co.uk/install-plus

Scan to find
out more





To apply the flowable bedding material, mix in accordance with the manufacturer's instructions; the use of a mechanical mixer is recommended. In a controlled manner, pour in the flowable material immediately after mixing from the side of the excavation, allowing the mortar to flow under the frame, filling all voids, working the mortar all the way around.

Continue to mix and pour the mortar until it covers the base and the flange of the frame to a level of 20mm above the flange.



This is indicated by the height of the nylon cap, which sits on the flange.

Allow all materials to cure in accordance with the manufacturer's instructions and remove formwork or bunding if used.

Reinstate surrounding excavation in accordance with the adopting authority specifications. Care must be taken to avoid contact between any compaction equipment and the frame to prevent damage to the new installation.



Equipment and materials checklist

This checklist offers recommendations and guidance on the materials and equipment required to install carriageway frames and covers utilising the **install plus** frame levelling and installation system. It is recommended that this checklist should be read in accordance with other relevant requirements or specifications.

Notes for guidance

The recommended amount of bedding material assumes typical conditions and is based on the use of the SlotForm shuttering system to ensure the most efficient use of materials. Ensure you:

- ▶ use a minimum flowable mortar depth of 15mm below the frame
- ▶ envelope the frame flange to a depth of 20mm
- ▶ create an area 50mm beyond the outermost edge of the frame flange



Note: on uneven surfaces an internal seal of the shuttering is recommended to prevent the leaking of the flowable material. The seal material must conform to CD 534. As an alternative to shuttering a bund is permissible and the material must conform to CD 534.



TOOLS FOR MIXING AND APPLICATION OF INSTALLATION MATERIALS

- ▶ Mechanical Mixer
- ▶ Generator
- ▶ Gorilla tubs
- ▶ Trowels
- ▶ Water for cleaning down equipment



TOOLS FOR IRONWORK HANDLING & INSTALLATION

- ▶ Straight edge or level
- ▶ 2 x lifting keys
- ▶ 19mm socket or spanner to rotate Install Plus frame levelling bolts



OPTIONAL/OTHER MATERIALS

- ▶ Wearing course/asphalt, seal and tack coat, over-banding (dependent on local authority approval)
- ▶ Class A or B solid engineering bricks or concrete seating ring alternatives

For more information on the benefits and use of Install Plus, please visit our website or contact our technical team on:

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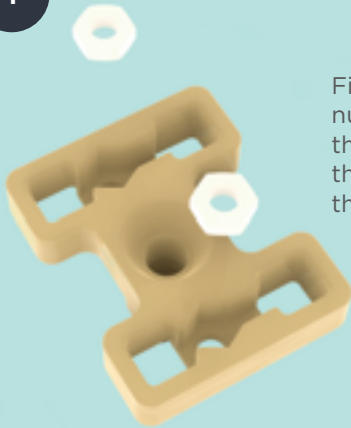


Install Plus Retro-Fit is supplied in an easy to use kit. Each kit contains four sets of components, enough to install one access cover or gully grating regardless of its size.

- ▶ 4 base plates
- ▶ 4 adjusting bolts
- ▶ 4 top sections
- ▶ 8 clamping screws and nuts

Easy assembly steps

1



Firstly, insert a nut into each of the recesses on the underside of the base plate.

3



Insert a clamping screw into each aperture on the top section and rotate until they engage with the nuts, tighten slightly but do not tighten completely at this point.

2



Turn the base plate over and slide the top section into place using the rails as a guide.

4

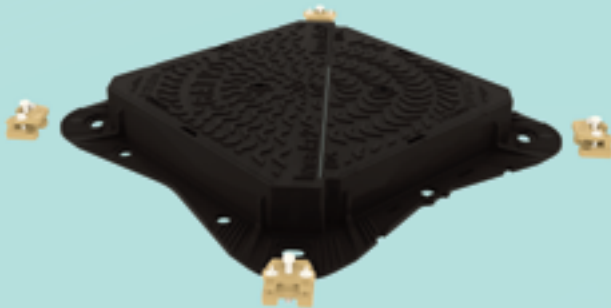


Thread the main adjusting bolt through the centre of the assembly. The components are now assembled. Repeat for the remaining three sets of components.

5

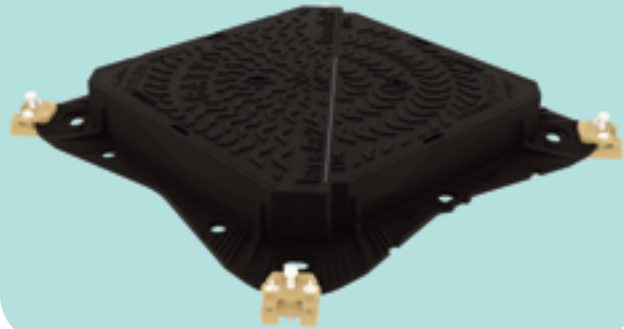


Each assembly should be placed so that it ensures the frame is balanced. For example, on or near the flange corner.



6

Fully tighten the clamping screws so that the assembly is secure on the flange. Repeat on the remaining three component assemblies. Once completed, the frame is ready to be installed.



7



For frame adjustment for height and gradient, please refer to paragraph 2.1 of the previous section or scan the QR code for more information.

For more information on the benefits and use of Install Plus Retro-Fit, please visit our website or contact our technical team on:

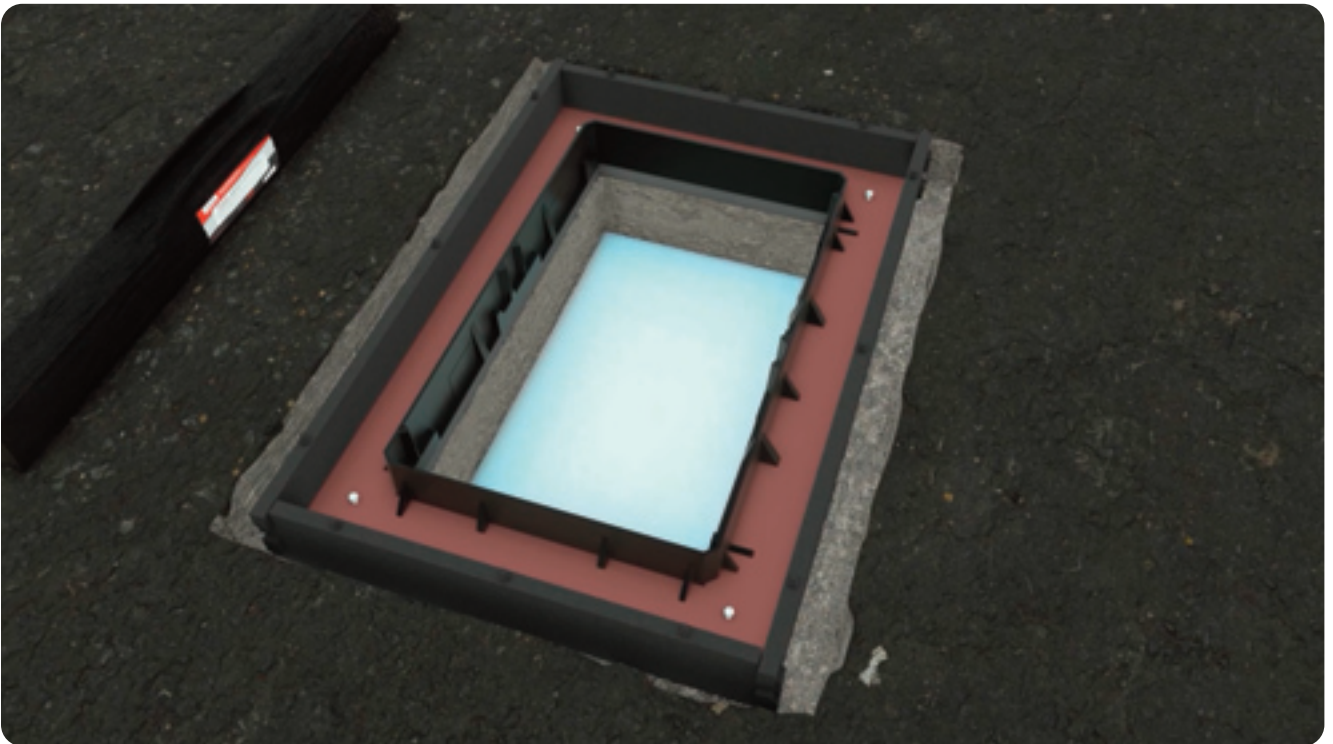
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Scan to find out more





SLOTFORM is designed to make installation easier when installing our access covers using flowable bedding mortar systems. Its modular design makes it lightweight and easy to handle and transport. It's simple to use as it requires no specialist tools. Simply connect each section together using the locator dowels and add more layers to achieve the required reinstatement depth, each plank is 100mm high.

SLOTFORM is made in the UK from durable recycled HDPE. It's UV stable, resistant to chemical attack and impervious to water, frost and most corrosive substances. At approximately 2kg per metre of material, it's lightweight, making it safe and easy to handle.

SLOTFORM is ideal for use in areas where the trim back is extensive. Each size of **SLOTFORM** is designed to allow the minimum 50mm space beyond the edge of the frame flange as required by legislation such as [the Specification for the Reinstatement of Openings in Highways](#) (commonly known as SROH). By defining the area where the flowable mortar is placed, it enables an accurate calculation of the optimal amount of material needed, eliminating waste and ensuring a robust installation.





It's supplied in kit form with each kit containing the components to create one layer of shuttering.

It is available in four sizes to suit 600 x 600mm, 915 x 445mm, 1220 x 685mm and 1830 x 685mm clear opening access covers with other sizes being added to the range soon.

SLOTFORM

Install Plus
installation
shuttering
system

SLOT
FORM

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out more



For more information and simple-to-follow usage instructions for SlotForm, please visit our website or contact our technical team on:

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www.saint-gobain-pam.co.uk/SlotForm

CASE STUDY

install plus

Frame Levelling and Installation System

Reducing whole-life costs through the adoption of Install Plus and best practice installation

IN COLLABORATION WITH ANGLIAN WATER REGIONAL WATER RECYCLING TEAM.



The issues faced

Working closely with the Anglian Water Regional Water Recycling Team, Saint-Gobain PAM UK undertook a detailed inspection and survey of an access cover located in Devonshire Road in Grays, Essex. This was a continuing problem for Anglian Water as Devonshire Road is a main trunk road that links with Tilbury Docks, so is used predominantly by HGV traffic. The instability of the ironwork installation was causing a noise nuisance to local residents while the repeated repair of the reinstatement around the ironwork within this busy route was resulting in disruption to road users caused by streetworks at busy times.



Findings

The inspection identified a combination of factors resulting in the repeated failures. The severe stresses created by such a high concentration of HGV traffic had accelerated the breakdown of the reinstatement and installation materials. It was also identified that the materials and methods used to install the ironwork could be improved.



The solution

Install Plus FRAME LEVELLING AND INSTALLATION SYSTEM

Designed to help support and level the frame during the early stages of installation, **Install Plus** saves time, makes efficient use of materials and reduces whole-life costs by ensuring products are installed right the first time.

The development of the patented **Install Plus** system resulted in an engineered solution to help eliminate the issues faced when installing carriageway access covers and gratings. Key elements combine to guarantee the durability and long term performance of the installation.

- ▶ Accurate and simple frame adjustment for finished surface level, camber and gradient by using four sacrificial nylon bolts placed at each corner. The bolts have a range of adjustment of between 15mm-50mm.
- ▶ The recommended minimum bedding mortar depth of 15mm through integral spacers fitted below the frame. These spacers also support the weight of the frame while the bedding mortar cures.
- ▶ An indicator on the top of the frame to ensure the optimum amount of mortar is used to envelope the frame.



The value

By adopting a collaborative approach to product selection and installation, Anglian Water has significantly increased the longevity of the installation, reduced whole-life costs and helped ensure road users suffer no further inconvenience or disruption.

Install Plus is just one of several innovative solutions offered by Saint-Gobain PAM UK. For more information and advice on any other products or services offered, please contact our team on **0115 989 8903** or visit **www.pamline.co.uk**



SAINT-GOBAIN

Please visit www.pamline.co.uk to download electronic versions or request hard copies of any of our brochures.

Technical Enquiries

T: +44 (0)1664 814014

E: technical.covers.uk.pam@saint-gobain.com

Sales Enquiries

T: +44 (0)115 989 8903

E: pamsales@saint-gobain.com

Head Office

Unit 2 Orchard Place
Nottingham Business Park
Nottingham
NG8 6PX

T: +44 (0)115 930 5000

Quality Assurance



The information given in this literature is, to the best of our knowledge, correct at the time of going to print. However, we're constantly looking at ways of improving our products and services and therefore reserves the right to change, without prior notice, any of the data contained in this publication. Any orders placed will be subject to our Standard Conditions of Sale, which are available on request.

We are proud to manufacture our products

Saint-Gobain PAM UK proudly remains at the forefront of the design and manufacture of high-performance ductile iron access cover and gully grating solutions for the infrastructure, civil engineering, water and utilities sectors.



We ensure that our products are manufactured to the highest health and safety, quality and environmental standards. Below are details of our system, product and sustainability accreditation.

SYSTEM, PRODUCT AND SUSTAINABILITY ACCREDITATION

Product Certification	BS EN 124-2:2015 access covers and gratings kitemark licence number KM30794
	BS 5834-2 specification for small surface boxes kitemark licence number KM07199
	BS 5834-3 specification for large surface boxes kitemark licence number KM14164
BS EN ISO 9001	Quality management systems kitemark licence number FM12908
BS EN ISO 14001	Environmental management systems kitemark licence number EMS83973
ISO 45001	Health & safety management systems kitemark licence number OHS 570684
Carbon Reduce	Carbon Reduce certification demonstrates our Company's ongoing commitment to measuring, managing, and reducing greenhouse gas emissions in a robust and credible way. Certificate number 2016053J
BES 6001	Responsible sourcing of construction materials kitemark licence number BES613621