

InstaFibre[®]
CAVITY WALL INSULATION

Installer manual

InstaFibre White Wool 034

Retrofit

BBA Certificate No: 14/5175 PS2

KIWA BDA Certificate BAW 17-071-S-A-UK

 **InstaGroup**

www.instagroup.co.uk

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The Company

InstaFibre is a division of the Insta Group of Companies based at Wokingham in Berkshire.

InstaFibre supplies a range of products and machinery to a network of approved installing companies throughout the United Kingdom and Southern Ireland.

InstaFibre products for Cavity Wall Insulation are British Board of Agrément approved in conjunction with specified machinery.

All commercial and technical enquiries concerning the InstaFibre Cavity Wall Insulation system should be addressed to:



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Equipment Check List

To undertake an effective and professional installation of Cavity Wall Insulation the following equipment will be required.

Installation equipment

- InstaFibre approved blowing machine (see page 9)
- Lorry or Trailer
- InstaFibre 034 Installation Kit, consisting of:
 - 2 x 15m length blue cap hose @ 63mm diameter
 - 1 x 15m length blue cap hose @ 51mm diameter
 - 1 x 63mm-51mm reducer
 - 1 x 63mm hose connector
 - 4 x 63mm hose clips
 - 1 x 51mm hose clip
 - 1 x 22mm Powermax drill bit
 - 1 x 20mm nozzle with ball valve powder coated in blue
 - 1 x 500mm x 500mm x 100mm test box
 - 1 x 30mm ball valve injection nozzle
- HSE approved extending ladders
- Additional approved access equipment as required
- Drilling machines – heavy duty, 110 volt single phase electric with safety clutch
- Cavity brushes (plus lines and weights)
- Density test box - 70mm x 500mm x 500mm
- Weighing scale (0 – 2kg)
- Stopwatch
- Airbrick sleeving material
- Borescope and inspection lamp/torch
- Meter box key
- Smoke pellets and matches

Making Good Equipment

- Bucket, trowel, mortar hawk, sand, cement, range of colour pigments, range of rendering finishes, air bricks or sleeving brush and proprietary combustion vent kits.
- Tool kit including hammer, chisel, spanners, screwdrivers, hacksaw, pliers, water hose, hose couplings, yard brush, shovel, dustpan and brush and tape measure.

Safety Equipment

- Ladder safety harness and ladder restraint equipment
- Hardhat
- Ear protectors
- Goggles
- Dust masks
- Safety shoes
- Protective clothing
- First Aid kit



The above is not an exhaustive list of equipment that you may be required to use.

All aspects of safety must conform to the current Health and Safety at Work Act regulations.

It is advised that you acquaint yourself with and understand your own company's current safety policy manual.

Further information

Please refer to the Knauf Site Preparation & Housebuilders Guide for new build installations.

<http://bitly.ws/PpQh>

Site Preparation

Before installation commences, each building must be assessed individually to ensure that it is suitable for Cavity Wall Insulation and all details must be recorded on the survey form and the Technicians Safety Check Sheet.

This suitability is assessed in conjunction with reference to the following publications:

- BBA Agrément Certificate 14/5175 & KIWA BDA Cert BAW-17-071-S-A-UK – InstaFibre White Wool 034 Cavity Wall Insulation system.
- IAA Assessors Guide – Suitability of external walls for filling with Cavity Wall Insulation.
- IAA Technicians Guide – Installing Cavity Wall Insulation.
- IAA Technicians Guide – Flues, chimneys and combustion air ventilators.
- IAA Technical Notes.

It is imperative that the position of all flues, chimneys and combustion air ventilators are located, recorded, as detailed above, and addressed to comply with the IAA Technicians Guide, (Flues, chimneys and combustion air ventilators).

Post installation checks are also vitally important and again all details should be recorded appropriately.

Further information

Please refer to the Knauf Site Preparation & Housebuilders Guide for new build installations.

<http://bitly.ws/PpQh>

Technician's Safety Check Sheet

Flues, Chimneys and Combustion Air Ventilators

This check sheet specifies the minimum checks, and actions that **must** be carried out during installation of CWI to buildings containing fuel-burning appliances.

It must be read in association with "Technicians guide to best practice – Flues, chimneys and combustion air ventilators."

Survey Identify and record:

- Fuel type(s) Gas Oil Coal Wood
- Appliance type(s) Boiler Gas Fire Open Fire Balance Flue
- Flue / chimney location(s) Internal Wall External Wall Front Side Rear
- Location of combustion air ventilator(s) Front Elevation Side Elevation Rear Elevation

Pre-Installation

- Appliance identified, flue / chimney routes, internal & external Yes No N/A
- Appliance run* Yes No N/A
- View and note flame colour* Yes No N/A
- Combustion gases checked externally* Yes No N/A
- Appliance checked (smoke test / spillage test)* Yes No N/A
- Smoke / spillage test satisfactory* Yes No N/A
- Combustion air supply adequate Yes No N/A

Installation – Visually Check

- Flue, chimney routes to avoid drilling into them Yes No N/A
- Flue, chimney routes to avoid ingress of material Yes No N/A
- Combustion air ventilator(s) unobstructed Yes No N/A

Post Installation

- Appliance(s) run at maximum for a minimum of five minutes* Yes No N/A
- Visual check that flame compares with pre-installation* Yes No N/A
- Smoke test / spillage test satisfactory* Yes No N/A
- If results were unclear, re-test after a further 10 minutes* Yes No N/A
- Re-test satisfactory* Yes No N/A

Comments

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If there is any doubt or any question answered 'N' then

1. Switch OFF appliance and
2. Issue WARNING NOTICE and
3. ADVISE occupants and owner and
4. CALL OUT a competent body or person such as fuel supplier or maintenance contractor (e.g. GAS SAFE for gas).

Installation address:

.....

.....

.....

Name of Technician

Signature

Date

* Only on appliances fitted to flues & chimney on external walls



It is the installing firm's responsibility to ensure that the Technician is trained to be able to discharge these responsibilities.

Failure to carry out these safety checks could lead to the death of an occupant and prosecution of the Technician

Drilling Operation

- Properties on site should be inspected and defects reported prior to the insulation being installed.
- With a new build property, installation is usually via the inner leaf, before the walls are plastered.
- Drilling must be in the mortar joints, to avoid spalling to the cavity face of the blocks.
- If drilling of facing brickwork is required, make sure the holes are drilled at the base of the mortar joint.
- All drilling must be completed on one elevation and at least 2m of the adjoining elevations before injection commences on that elevation.
- When drilling holes ensure a 90 degree angle is achieved.
- Every care should be taken to minimise the amount of debris that falls into the cavity.
- Care should be taken when drilling next to building features. It is advisable to drill at least two courses below such features.
- Injection must not be undertaken until all cavities are sealed. Internal installation should preferably take place before the walls are plastered.

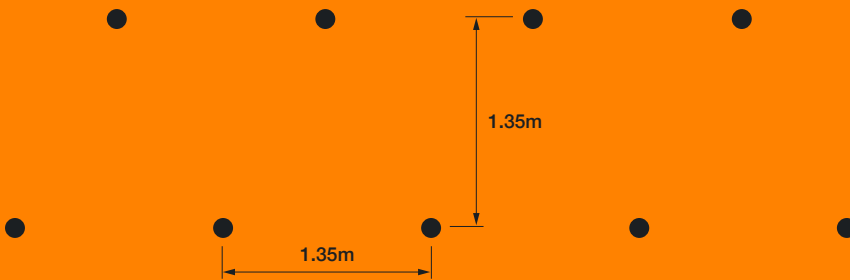


Drilling Pattern

Hole Diameters

InstaFibre 034: 22mm

Subject to the constraints given below, the distance between successive injection holes should be a maximum of 1.35m. Wherever possible, a diamond pattern should be used so that an injection hole in one row is midway between two holes in the rows below:



At the tops of walls and under gables, the topmost injection holes should not be more than 350mm below the upper edges of the cavity to be filled. Additionally under horizontal boundaries, for example under eaves windows or lintels, the centres between the topmost injection holes should not exceed 1.0m.



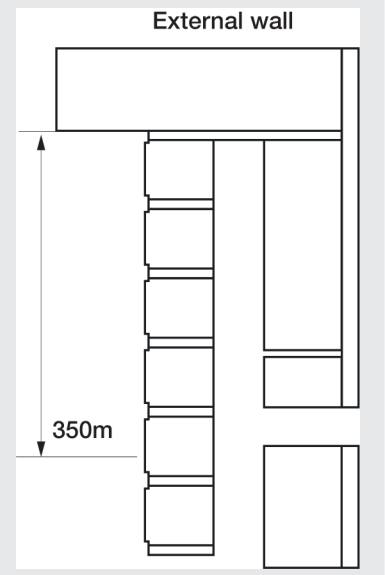
With sloping boundaries, for example under the eaves of a gable end, the centres between the successive injection holes should be spaced at 1.0 – 1.35m depending on the slope of the boundary.

The nearer the boundary is to the horizontal, the closer the holes should be.

The lowest blowing holes should not be more than 0.8m above the horizontal dpc.

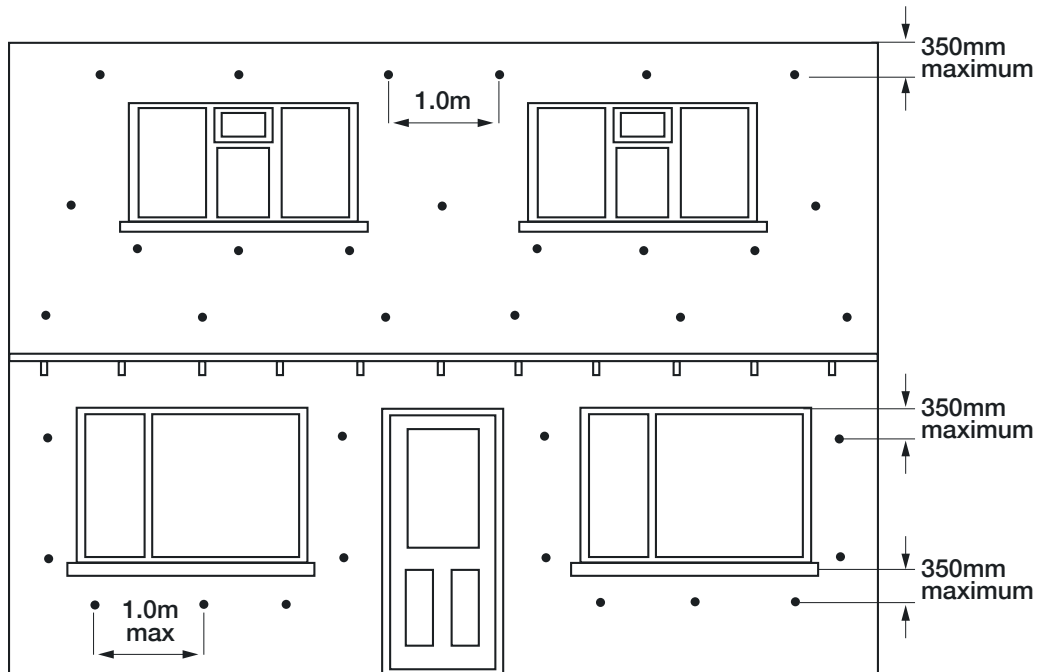
Extra injection holes will be required to ensure completeness of fill around building features.

Where lintels project beyond a vertical cavity closure the 350mm rule shall apply.



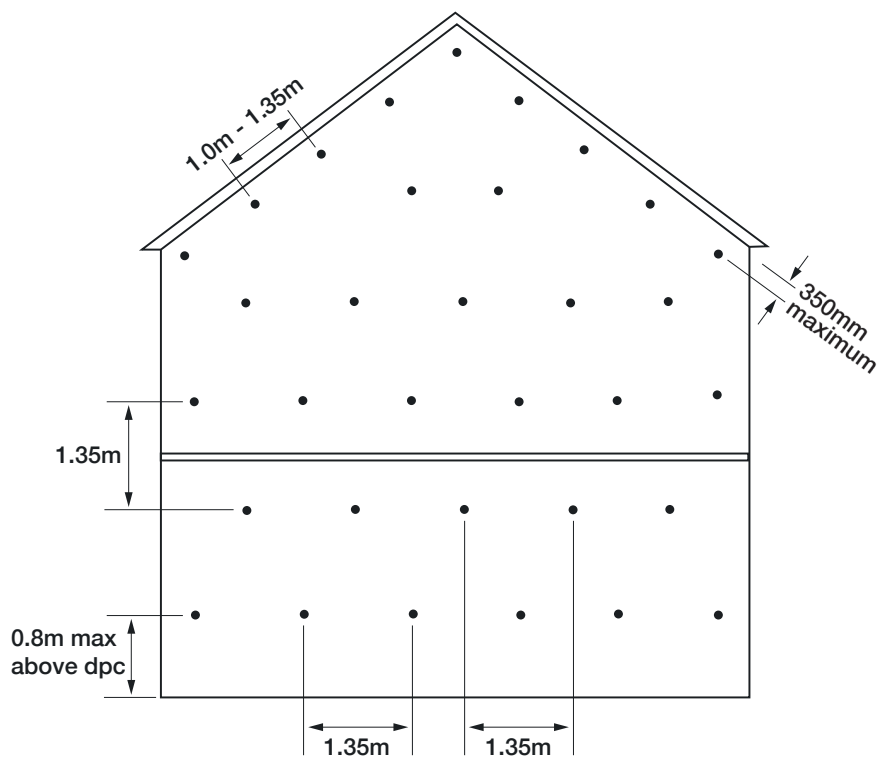
Typical InstaFibre 034 Drilling Pattern

Frontage



Typical InstaFibre 034 Drilling Pattern

Plain gable end



InstaFibre White Wool

Detached House – Standard drilling pattern



Blowing Machines

InstaFibre 034 insulation systems must be installed using an approved blowing machine.

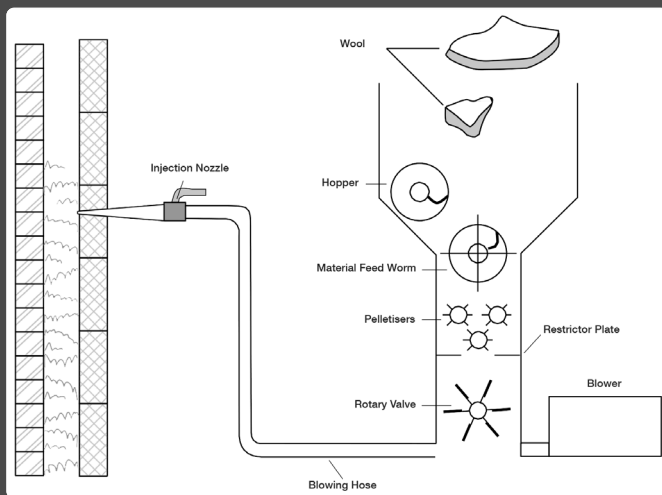
The following blowing machines are approved by InstaFibre and the British Board of Agrément (BBA):

Stewart Energy Electric 500

Stewart Energy Diesel 750

Stewart Energy Diesel 1000

Each blowing machine is identified as being approved by a plate/label showing the BBA Certificate No 14/5175 PS1 and KIWA BDA Certificate BAW 17-071-S-A-UK.



Installation in external wall

As far as the handling and treatment of InstaFibre 034 is concerned, the blowing machines are virtually identical.

The job of each piece of equipment is detailed below:

- The BALE BREAKER opens up the compressed bale of blowing wool
- The WORM SCREW meters the blowing wool at a fixed rate
- In the PELLETISING section, the wool length is reduced by the shredder bars and a pelleted form of the desired shape is given by circulation of the wool within the pelletising chamber
- The adjustable RESTRICTOR PLATE at the base of the pelletising chamber controls the wool residence time in the chamber, which in turn controls the pellet characteristics to achieve the required installed density
- As the processed insulation passes through the ROTARY VALVE it enters the airstream generated by the BLOWER and passes into the blowing hose and through the nozzle for delivery in to the cavity being insulated

A pressure switch is connected to the machine control circuits, when actuated it causes the drive clutches to disengage thus stopping the blower and wool feed once the cavity wall area is filled to the required density.

A dump/lift valve arrangement is fitted to all blowing machines and is used for fine control of the installed density.

Quality Checks

Pressure Switch

A daily calibration check should be carried out to ensure that the blowing machine pressure switch is operating correctly.

Start the engine and insert the nozzle into a hessian bag. Start blowing wool into the bag whilst watching the blowing pressure gauge. Block off the nozzle gently inside the bag. Blowing should cease when the gauge registers pre-determined cut-off pressure.

If necessary adjust the switch. To adjust, using a small screwdriver turn the screw in to increase the pressure and out to lower the pressure.

Check visually that box has been completely filled.

Empty content of box into a plastic bag and weigh – optimum weight for InstaFibre 34 density as follows:

Product	Weight (kg)	Installed Density (kg/
InstaFibre 034	1.1Kg \pm 0.1Kg	25

If weight is below optimum weight, close restrictor plate one quarter turn at a time, blow into bag to clear pelletiser and fill test box.

Re-check weight.

If weight greater than optimum weight, open restrictor plate one quarter turn at a time (or reduce engine revs slightly). Blow into bag to clear pelletiser and refill test box.

Re-check weight.

Wool Density Check

Start up machine and blow into a hessian bag. Ensure machine is operating correctly.

Fill test box with wool and note time taken (between 15-35 seconds).



Note: The air dump valve fitted to the blowing machines should be used for a fine control of the density.

To increase density – reduce air being dumped.

To reduce density – increase air being dumped.

The Filling Operation

Filling should proceed from the bottom to the top of walls and from the most to the least restricted sections. Filling from the bottom ensures a uniform fill.

The blowing machine is simple to operate, 1-2 bales of wool can be emptied into the hopper at once. Do not allow the hopper to get less than half full. The feed rate is automatically controlled by the worm screw and the only necessary adjustment will be to the restrictor plate, dump valve or engine revs in order to obtain the correct density fill.

Insulant should be introduced into each injection hole in turn. Starting at one end of the elevation and at the bottom of the wall and working across from side to side.

The tip of the nozzle is located in the pre-drilled hole. Nozzle rotation is not required.

Once the blowing unit has started, the insulant will continue to flow at a steady rate until a signal from the pressure switch de-energises the clutches indicating that the part of the cavity adjacent to the injection hole is now filled to within the nominal density required.

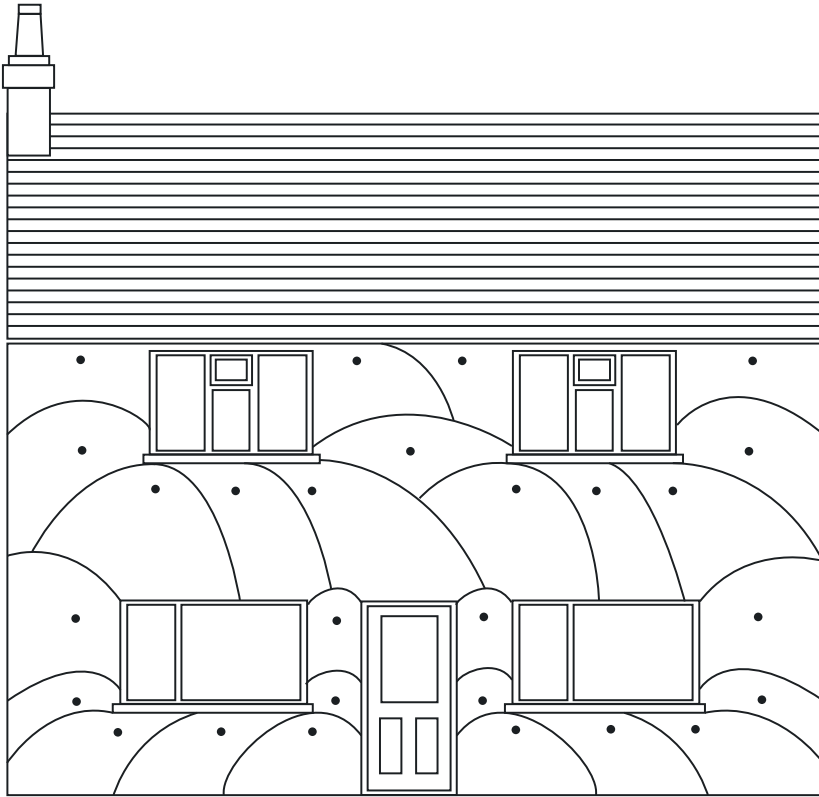
Close ball valve on nozzle before removing from each injection hole.

Once the nozzle has been moved to the next injection hole, open ball valve and injection of insulant can continue by activating the start switch.



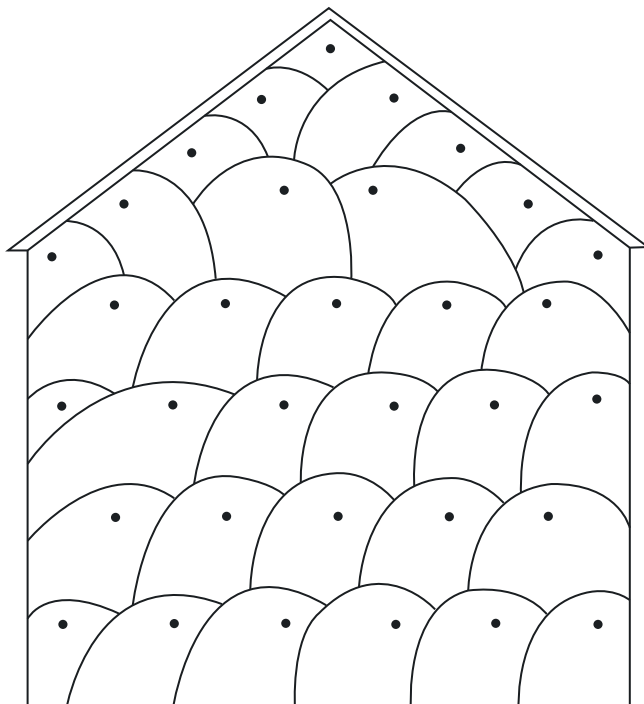
Typical InstaFibre 034 Insulant Filling Pattern

Frontage



Typical InstaFibre 034 Insulant Filling Pattern

Plain gable end



Installed Density

The wool to be used has been subjected to strict quality control procedures during the manufacture and it is necessary to check that it has been kept clean and dry.

To check that the correct fill has been obtained, the number of bales used on each property and average cavity width should be recorded on the work card and an average installed density calculated.

InstaFibre 34 example					
Gross area of walls	Less openings	Net area	Average cavity width	Volume of cavity	No of InstaFibre 034 bags used
110m ²	24m ²	86m ²	65mm = 0.065	86m ² x 0.065 = 5.59m ³	= 9 x 15.5kg = $\frac{139.5\text{kg}}{5.59\text{m}^3}$ = 25kg/m ³

Cavity widths can vary considerably within one building. Therefore at least ten cavity width measurements should be made at various heights in the building (cavity widths can tend to vary the greater distance from ground level).

NB. For an average density of 25kg/m³ the following coverage can be obtained.

Cavity Width – mm	50	55	60	65	70	75	80	85	90	95	100
Coverage – m ² / bale	12.4	11.3	10.3	9.5	8.9	8.3	7.8	7.3	6.9	6.5	6.2



Making Good

The importance of making good after the installation cannot be over-emphasised. Leaving the property in the same condition that you found it in is the best possible recommendation and source of new leads.

Making Good Holes

A mortar mix should be made up before the installation begins. That way the preceding holes can be made good while the next hole is filling. It is important to ensure that the entire hole is filled to leave no small gaps in order to prevent the transmission of noise.



Brick Faced Properties

Wet an area of wall to give you a better match indication

Choose the correct type and colour of sand for the local area

Different parts of the building may require different colours/mixes to match the existing mortar (mortar dyes may help to achieve the match)

In some cases it may be necessary to touch-up the corners of the brick mortar with dyes.

Rendered/Tyrolean-faced/ Pebble dash and Spa Chipping Finishes Walls

Special care must be taken with rendered walls, the colour and texture of the facing type being chip/pebble/spa-chippings, etc, these should be copied as closely as possible. It may be possible to re-use spa chippings from drilling debris. Remember that your mortar mix may need to be slightly wetter in order to retain to chippings.

Clearing Up

Ensure any excess material is swept up and disposed of in the appropriate manner to ensure the site is left clean and tidy as you found it.



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