



Shieldmaster

Insulated Twin Wall Systems

Installation Guide

These notes and diagrams are provided as guidance for the installation of Hetas approved Shieldmaster twin wall flue systems only.

Shieldmaster installations must be certified in accordance with Approved Document J. of the current Building Regulations by a member of the Competent Persons Scheme or your local authority (Building Control Body) for validation of the Shieldmaster warranty terms.



Our Hetas approved sales team are on hand for full Shieldmaster technical support but remember it is the customers' responsibility to check the items you order meet the purpose intended. If purchasing from us and have any difficulties with the installation, we provide unlimited free technical support.

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An Introduction to Shieldmaster Twin Wall Systems

Shieldmaster is a precision engineered twin wall insulated flue system offering a complete range of components for every type of installation.

Crafted with ease of use in mind, Shieldmaster utilises a unique push fit connection which when sealed with the attached locking band, provides a secure and sealed joint between all parts.

By offering both stainless and matt black finishes, the Shieldmaster range is suitable for all locations and is fully CE and HETAS approved for compliance with building regulations and local legislation for smokeless zones and conservation areas.

The intelligent design of Shieldmaster allows for only a 60mm safe clearance to combustible materials and every part is covered under the manufacturer's twelve year guarantee. This product really is built to last.

Manufactured in Europe, we are proud to be official dealers of Shieldmaster twin wall insulated flue, enabling us to supply the range directly from the factory to you at unbeatable prices.

Insulation Properties

Shieldmaster utilises Kaminova stone wool 120 with a density of 120kg/m³ to insulate the twin walls of the flue. By doing so, this 25mm layer of compressed insulation protects the inner skin from rapid cooling and efficiently preserves the heat. Therefore the outer diameter of Shieldmaster twin wall components measure 2" greater than the inner diameter.

Approvals

Shieldmaster is CE certified for safe and legal operation in the UK, is tested as compliant to EN1856-1:2009 and is fully approved by HETAS, the official body of solid fuel domestic heating appliances (Hetas approval No. *ANC112*).

Material & Construction

Constructed from 0.5mm thick stainless steel, the 316 grade inner wall and 430 grade outer wall are insulated with a one inch layer of compressed stone wool

Fuel Compatibility

Wood, coal, all solid fuels, gas and oil.

Available Finishes

Stainless and powder coated matt black.

Designation Number

EN:1856-1 T450 N1 D VM L50050 G60

Shieldmaster twin wall has been tested and approved for its compatibility with all solid fuel appliances in addition to gas and oil and is suitable for use with heating appliances that do not exceed a continuous average flue temperature of 450°C.



The 60mm safe clearance to combustible materials must be maintained and not filled with additional insulating materials. The Hetas approval enables registered Hetas engineers to confidently install and sign off any Shieldmaster twin wall flue system under approved Document J. of the Building Regulations.

Internal Twin Wall Systems (passing through a roof)

For all flue systems passing through ceilings and/or roofs, you are required by law to convert to Twin Wall Insulated Flue Pipe a minimum of 150mm (6") from the underside of the first surface using the appropriate Shieldmaster Adapter. The standard Adapters from Single Wall to Twin Wall will maintain the diameter of your flue (5"-5", 6"-6") and the Increasing Adapters will step you up an inch (4"-5", 5"-6"). The male connection of the Adapter slides into the top of your single wall pipe (coming out of your stove) and allows you to begin your run of Shieldmaster twin wall.

Regulations & Additional Info:

- *all joints between single wall pipes require sealing with a suitable 1200°C heat resistant cement or silicone*
- *a maximum of four bends are permitted in any one flue system and a 90° elbow coming out the back of your stove accounts for two of these*
- *it is possible and acceptable to go straight out of your stove (with an adapter) in twin walled piping but we only advise this when using stainless Shieldmaster and not powder coated black*
- *unless your stove is Defra approved, the minimum internal diameter of the twin wall portion of a flue system must be 6" (150mm)*
- *the minimum diameter of a flue system is dictated by the outlet diameter of the stove and must never be reduced*

The first length of your Shieldmaster Twin Wall will provide the Locking Band to seal the connection to the Single Wall Adapter and these must always be located on the male (or lower) end. Simply push any two Shieldmaster components together, position the Locking Band over the joint and clamp secure by tightening the screws.

Regulations & Additional Info:

- *it is essential to ensure you install Shieldmaster the correct way around with the male end always facing downwards. This allows all condensates and tar to flow within the system and not spill out, ruining the finish of your pipes. The male end can be easily identified as having insulation recessed by approx. one inch*
- *Shieldmaster twin wall systems must be no less than 4.5m in length to create the optimum draw for any stove*

When exiting or entering any living spaces (such as passing through ceilings) you will need a Ventilated Fire Stop Plate placed on the underside and top side of the ceiling to cover the hole and provide the required 60mm clearance to the joists. This also allows air flow between the ground and the first floor or the attic space. A second ventilated plate should be used on the floor of the second level (although not if you are in a one storey building going through into an attic space). This is also an ideal opportunity to conceal Joist Supports to brace your Shieldmaster system.

Regulations & Additional Info:

- *when going through a ceiling, there should be at least 60mm from the side of the twin wall piping and any combustible materials (the firestop plate provides for this)*
- *remember, a 5" twin wall pipe will use a Ventilated Fire Stop Plate with a 7" hole (allowing for the extra 1" diameter all around associated with the second tube/insulation) – when ordering a firestop plate for a 5" pipe, always order a 5" firestop plate, not a 7"*
- *if going through a ceiling straight into the loft space you place a Ventilated fire stop plate on the underside of the ceiling, but you do not need to have a firestop plate on the floor above in the loft space*
- *You must not use Solid Fire Stop Plates for a solid fuel chimney system*
- *Ventilated Plates are white to match a ceiling*

Now you have to plan your route up through the ceiling(s), into the loft space and out of the roof, measuring the pipe lengths you require. If you need to offset the piping to allow for obstacles in the attic or elsewhere, this is normally achieved by using two 45° elbows and sometimes an additional piece of piping (generally no more than 200mm) which is fitted in between the elbows to extend the offset.

Regulations & Additional Info:



- offsets can be created using 15°, 30° or 45° Elbows but not 90°
- the length of offset sections must not be greater than 20% of the total length of the chimney system

As you reach the roof, you can place a Finishing Plate on the underside (optional) and a Roof Support to the rafters. As you pass through the roof, the pipe needs to run through the appropriate weather proofing 'Flashing' for the roof type (tiled, slate, felt, corrugated etc.). This high or low temperature rubber seal works in conjunction with the Shieldmaster Storm Collar to protect your property from the elements.

Regulations & Additional Info:

- if there is less than 5m between stove and roof you shall require a high temperature Flashing
- a Fixing Kit is ideal for sealing the Flashing to the surface of a flat roof
- Flashings accommodate a range of diameter pipes and are easily cut back to the size required

Once through the roof surface, there are a few building regulations concerning the height your Shieldmaster twin wall system must attain. These are illustrated below:



For installations in single storey extensions where the Shieldmaster flue exits the roof within 2.3m of the main body of the property, then the height of the house must be considered as highlighted in Option One above. This also applies for neighbouring buildings or structures within 2.3m of any Shieldmaster system.

Regulations & Additional Info:

- where it is necessary to rise up the side of a building, Wall Brackets must be positioned 2m apart at most
- a Guy Wire Bracket and Kit must be used for 1.5m or more of freestanding Shieldmaster above the roof surface

You will want to finish off your Shieldmaster twin wall system with a terminal but selecting the correct cap for your installation is crucial. Whether open-sided, bird guard or anti-wind, your Rain Cap will not only shield the system from the elements but will offer protection against leaves and the interests of the local wildlife seeking a warm home for the winter.

Regulations & Additional Info:

- Anti-Wind Cows are recommended for exposed areas such as hillsides, open fields and waterfronts or where tall trees or structures may funnel the wind in the direction of the system



- however, these can have a detrimental effect on the draw of short systems (approx. 4.5m or less)

All joints between pipes in a Shieldmaster twin wall flue system require a locking band to seal the connection (supplied) and must be accessible and not concealed within joists or wall cavities. Exposed Shieldmaster passing through roof spaces and storage cupboards should be boxed in whilst adhering to the 60mm safe clearance to combustibles.

Regulations & Additional Info:

- your new Shieldmaster flue system falls under 'building work' and as such must be signed off by a Competent Person or local Building Control Body in line with Approved Doc. J of the current Building Regulations. Failure to do so will invalidate any and all warranties
- it is the responsibility of the end user to ensure **you are familiar with the building regulations** – you can check on-line or with your local authority (the best option)
- always make sure you have received all the materials you need for your installation before booking an installer

External Twin Wall Systems (passing through a wall)

For all flue systems passing through internal/external walls, you are required by law to convert to Twin Wall Insulated Flue Pipe a minimum of 150mm (6") before touching the first surface using the appropriate Shieldmaster Adapter. The standard Adapters from Single Wall to Twin Wall will maintain the diameter of your flue (5"-5", 6"-6") and the Increasing Adapters will step you up an inch (4"-5", 5"-6"). The male connection of the Adapter slides into the top of your single wall pipe (coming out of your stove) and allows you to begin your run of Shieldmaster twin wall. Passages through a wall can be at 15°, 30° or 45° (standard) but must not be horizontal.

Regulations & Additional Info:

- a maximum of four bends are permitted in any one flue system and a 90° elbow coming out the back of your stove accounts for two of these
- it is advisable to use a straight length of piping before turning at 45° so the hot gases can start to rise
- you need to leave a distance of 3 times the diameter of the single wall pipe between the pipe and the nearest combustible materials but only 60mm for Shieldmaster
- it is possible and acceptable to go straight out of your stove (with an adapter) in twin walled piping but we only advise this when using stainless Shieldmaster and not powder coated black
- unless your stove is Defra approved, the minimum internal diameter of the twin wall portion of a flue system must be 6" (150mm)
- the minimum diameter of a flue system is dictated by the outlet diameter of the stove and must never be reduced
- horizontal runs must not exceed 150mm in length

The first length of your Shieldmaster Twin Wall will provide the Locking Band to seal the connection to the Single Wall Adapter and these must always be located on the male (or lower) end. Simply push any two Shieldmaster components together, position the Locking Band over the joint and clamp secure by tightening the screws.

Regulations & Additional Info:

- it is essential to ensure you install Shieldmaster the correct way around with the male end always facing downwards. This allows all condensates and tar to flow within the system and not spill out, ruining the finish of your pipes. The male end can be easily identified as having insulation recessed by approx. one inch
- Shieldmaster twin wall systems must be no less than 4.5m in length to create the optimum draw for any stove

To safely pass your twin wall pipe through a wall you will need a Shieldmaster Wall Sleeve and Finishing Plates. The Sleeve prevents the piping from damaging the wall and the Plates cover the hole inside and out to prevent the ingress of water. Once outside you can just attach a 45° Elbow or preferably a 135° Tee Piece for cleaning access and continue directly up the external wall.

Regulations & Additional Info:

- Adjustable Lengths of Shieldmaster are ideal for taking the system through a wall at an angle
- Tee Caps with Drains are the perfect solution to draining an external Shieldmaster twin wall run
- ideally you need to leave at least 60mm between each side of the twin wall piping



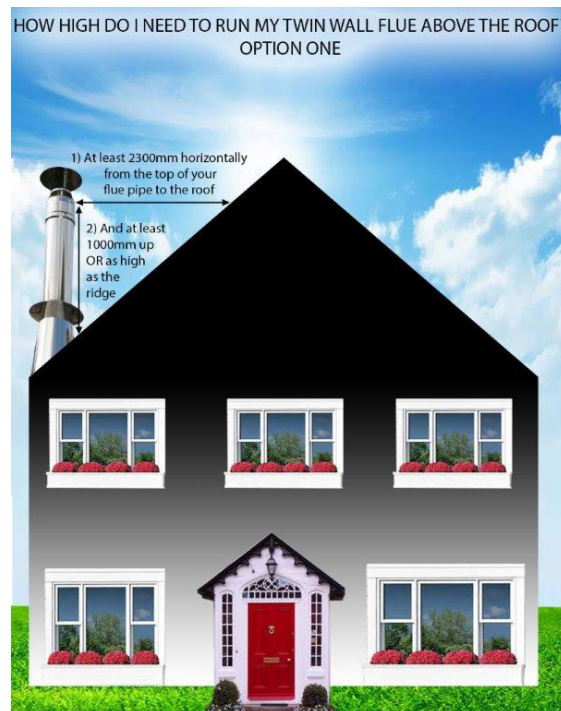
Now you have to plan your route up the side of the property and measure the pipe lengths you need. You may want to offset the piping to allow for guttering or other obstacles coming out of the wall. This is normally achieved by using two 45° Elbows and an additional piece of piping (normally no more than 200mm) which is fitted in between should you need to extend the offset.

To secure your twin wall piping, we recommend you use one Wall Bracket for every 2 metres of twin walled piping used. These can be fixed at 50mm or adjustable (50-80mm, 80-130mm and 130-210mm) with the distance taken from the surface of the wall to the outer skin of the piping.

Regulations & Additional Info:

- Adjustable Base Supports are required to provide a strong anchor point for long external Shieldmaster runs
- A Guy Wire Bracket and Kit is necessary for more than 1.5m of freestanding flue above the last Wall Bracket
- A 60mm clearance must be maintained between Shieldmaster and fascia boards or soffits

Once past the roof line (guttering), there are a few building regulations concerning the height your Shieldmaster twin wall system must attain. These are illustrated below:



You will want to finish off your Shieldmaster twin wall system with a terminal but selecting the correct cap for your installation is crucial. Whether open-sided, bird guard or anti-wind, your Rain Cap will not only shield the system from the elements but will offer protection against leaves and the interests of the local wildlife seeking a warm home for the winter.

Regulations & Additional Info:

- Anti-Wind Cowls are recommended for exposed areas such as hillsides, open fields and waterfronts or where tall trees or structures may funnel the wind in the direction of the system
- however, these can have a detrimental effect on the draw of short systems (approx. 4.5m or less)

All joints between pipes in a Shieldmaster twin wall flue system require a locking band to seal the connection (supplied) and must be accessible and not concealed within joists or wall cavities. Exposed Shieldmaster passing through roof spaces and storage cupboards should be boxed in whilst adhering to the 60mm safe clearance to combustibles.

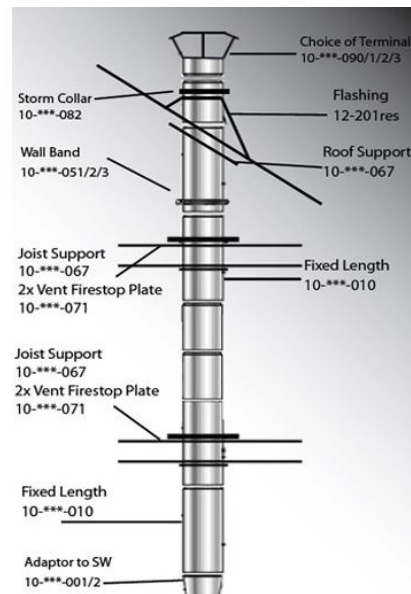
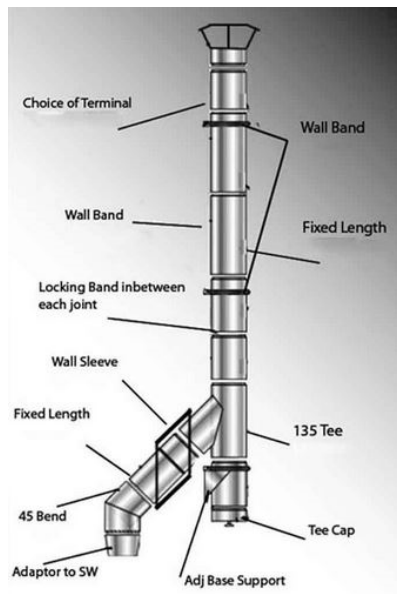


Regulations & Additional Info:

- your new Shieldmaster flue system falls under 'building work' and as such must be signed off by a Competent Person or local Building Control Body in line with Approved Doc. J of the current Building Regulations. Failure to do so will invalidate any and all warranties
- it is the responsibility of the end user to ensure **you are familiar with the building regulations** – you can check on-line or with your local authority (the best option)
- always make sure you have received all the materials you need for your installation before booking an installer

Approved Document J of the Building Regulations

All Shieldmaster systems must be installed in line with the current version of Approved Document J. of the Building Regulations and it is the responsibility of the end user to ensure they comply with any and all legislation.



Examples of typical internal and external twin wall insulated flue systems (above).

Standard Requirements

All twin wall flue installations fall under one of the two illustrated above; Internal (passing through floors and the roof of the property)



or external (passing through an external wall at no greater than 45° and rising vertically up the outside of the property) and the typical components required for both systems are highlighted. The provision or extension of a chimney system is defined as building work in reg. 3 of the building regulations and as such must be approved and notified by a member of the Competent Persons Scheme or checked by Building Control Bodies. The relevant sections include (but are not limited to) J1 *Air Supply*, J2 *Discharge of Products of Combustion*, J3 *Warning of Release of CO*, J4 *Protection of Building* and J5 *Provision of Information*. We would advise researching Approved Document J of the building regulations in its entirety before purchasing or seeking technical advice from a Hetas approved retailer:

- All flue systems for closed heating appliances must maintain a minimum internal diameter of 150mm (6"). If Defra approved for use in smokeless zones, this can be reduced to 125mm (5") internal diameter where the outlet collar allows.
- All offsets or turns in the system must not be greater than 45° and you are limited to a maximum of four bends in any one system (a 90° Elbow in the rear of the stove accounts for two bends).
- A horizontal run from the rear exit of a stove must not be greater in length than 150mm.
- All safe clearances to combustible materials must be adhered to. This includes but not limited to timber, fabric, drywall and plasterboard.
- Joints between flue parts must be accessible at all times and not concealed within floors, ceilings or wall spaces.
- The conversion to insulated twin wall flue must occur at least 150mm (6") before the system passes through any surface.
- Systems passing through roof spaces, cupboards, storage areas and voids should be enclosed and the 60mm clearance to combustibles adhered to.
- A Ventilated Fire Stop must be utilised for all solid fuel systems entering and exiting a living space.
- Additional bracing in the form of Guy Wire Kits should be used for systems rising 1.5m of higher above the last point of support.
- A minimum system length of 4.5m should be attained for the optimum performance of any stove and chimney.
- A Wall Sleeve must be in place to line all twin wall passages through any wall.

The regulations covered above are only a brief overview of the most common areas encountered on all installations but it is the responsibility of the end user to ensure they are competent in Approved Document J. of the current Building Regulations prior to installing any flue system or seek advice from a specialist or local Building Control Body.

Twin Wall Chimney Systems



The components of a Shieldmaster twin wall chimney system are precision engineered to exhaust heat appliances operated by various types of fuel. Closed heating appliances come to temperature faster than traditional open fires and as a result the average flue temperature of combustion products rapidly grows higher than the “*dew point*”, the volume of condensates decrease and a good draw for the emission of combustion products is achieved. In addition to this, the smooth walls of Shieldmaster twin wall chimneys eliminate the possibility for sedimentation of carbon deposits.

Shieldmaster twin wall chimney systems are the simplest solution for the assembly of any flue, no matter how complex. The range consists of a standard set of separate components connected from the base (or male end) using a simple but secure push fit and locking band combination. The inner skin is installed in such a way that any condensates inside the system will drain continuously through the system and cannot physically spill out. This will only be achieved if installed upside down.

Standard Requirements for All Chimneys:

- The twin wall system should provide complete emission of combustion products into the atmosphere
- Every heating appliance must have a separate chimney system
- The internal diameter of the chimney system must not be less than that of the outlet collar on the stove
- Twin wall should be manufactured of high quality steel alloy with enhanced corrosion resistance and a wall thickness no less than 0.5mm
- Any one chimney system should have no more than four turns, and their bending radius should be no less than the pipe's diameter
- The height of chimney pipes along their whole length should be planned as a minimum of 4.5m. Such height complies with building regulations and ensures the required draw

Chimney System

The Shieldmaster twin wall insulated chimney consists of two pipes (*inner and outer*) of different diameters. The inner pipe is manufactured of acid resistant stainless steel (*1.4404 EN*) consisting of chrome, nickel and molybdenum. The outside pipe is stainless steel (*1.4016 EN*).

There is a layer of stone wool Kaminova 120- Density 120kg/m³ and SW PLUS NLB 100 (Density 250kg/m³) heat insulation between the pipes to isolate the inner and outer skins. When assembling a Shieldmaster system, the inner pipes are inserted into one another with the outer skins overlapping to prevent the ingress of moisture on the thermal insulation.

The chimney flues should not come in contact with the electrical wiring, the gas lines and other types of communication.

The chimney pipes should be cleaned out at least twice during the heating season.

Health and Safety at Work Etc. Act 1974



We would like to remind the end user of their responsibilities under the *Health and Safety at Work etc. Act 1974* which defines the general duties of employers, employees, contractors and the suppliers of goods and substances for use in the workplace. We would like to draw your attention specifically to the following:

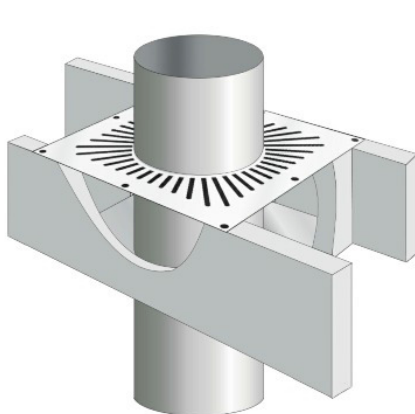
- Potential exposure to dangerous materials including but not limited to the caustic nature of heat resistant cements and sealants.
- The disturbance of asbestos in older properties.
- Ensure, so far as is reasonably practicable, that the substance will be safe and without risks to health at all times when it is being used, handled, processed, stored or transported by a person at work or in work premises.
- Perform such testing and examination as may be necessary to ensure safety.

Please ensure appropriate Personal Protective Equipment (PPE) is worn when handling any potentially hazardous substances or installing any flue components.

Correct Installation of Ventilated Fire Stop Plates

A minimum safe clearance of 60mm must be maintained between the outer skin of Shieldmaster insulated twin wall and any combustible materials whether the system is enclosed or not. This air gap must remain open and not be filled with any material. To ensure Shieldmaster is installed in accordance with the standards to which it is approved (BS EN1856-1), the appropriate Fire Stop Plate must be installed as the system penetrates a floor.

It is essential a Ventilated Fire Stop Plate is installed for an enclosed flue system, even if ventilation grills are present in the enclosure walls. Please ensure the Ventilated Fire Stop Plate is secured correctly to the ceiling and top side of the joist before passing the flue pipe through the floor and is installed in conjunction with the correct Joist Supports.



Complete Shieldmaster Parts List



Part Name	Relevant Dia.	Available Finishes	Locking Band
1000mm Fixed Length	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
500mm Fixed Length	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
200mm Fixed Length	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
500-880mm Adjustable Length	125, 150, 175, 200mm	Stainless & Matt Black	2 Included
350-500mm Adjustable Length	125, 150, 175, 200mm	Stainless & Matt Black	2 Included
250-350mm Adjustable Length	125, 150, 175, 200mm	Stainless & Matt Black	2 Included
15° Elbow	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
30° Elbow	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
45° Elbow	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
90° Elbow	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
90° Tee Piece	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
135° Tee Piece	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
Tee Cap	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
Tee Cap With Drain	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
Wall Sleeve	-	Stainless	N/A
45° Adjustable Wall Sleeve	-	Stainless	N/A
0°-30° Finish Plate	175, 200, 225, 250mm	Stainless & Matt Black	N/A
30°-45° Finish Plate	175, 200, 225, 250mm	Stainless & Matt Black	N/A
Adjustable Base Support	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
50mm Fixed Wall Bracket	175, 200, 225, 250mm	Stainless & Matt Black	N/A
50-80mm Adj. Wall Bracket	175, 200, 225, 250mm	Stainless & Matt Black	N/A
80-130mm Adj. Wall Bracket	175, 200, 225, 250mm	Stainless & Matt Black	N/A
130-210mm Adj. Wall Bracket	175, 200, 225, 250mm	Stainless & Matt Black	N/A
Single Wall Adapter	125, 150, 175, 200mm	Stainless & Matt Black	Not Included
Single Wall Increasing Adapter	125, 150, 175, 200mm	Stainless & Matt Black	Not Included
Guy Wire Bracket	175, 200, 225, 250mm	Stainless & Matt Black	N/A
Basic Rain Cap	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
Rain Cap With Bird Guard	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
Anti-Wind Cowl	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
Cone Top Cowl	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
Replacement Locking Band	175, 200, 225, 250mm	Stainless & Matt Black	-
Console Plate	125, 150, 175, 200mm	Stainless & Matt Black	1 Included
Roof Support	175, 200, 225, 250mm	Stainless & Matt Black	N/A
Joist Support	175, 200, 225, 250mm	Stainless	N/A
Ventilated Fire Stop Plate	175, 200, 225, 250mm	White	N/A
Solid Fire Stop Plate	175, 200, 225, 250mm	Stainless	N/A
Storm Collar	175, 200, 225, 250mm	Stainless & Matt Black	N/A
Adapter From Chimney Liner	125, 150, 175, 200mm	Stainless	Not Included
Adapter To Chimney Liner	125, 150, 175, 200mm	Stainless	1 Included



Shieldmaster Twin Wall Insulated Components



Adapters from Single Wall to Shieldmaster Twin Wall

An adapter is required to start all twin wall systems whether connecting to single wall pipe or directly to the outlet of a stove. Available as standard (5"-5", 6"-6", 7"-7", 8"-8") or increasing (4"-5", 5"-6", 6"-7", 7"-8"), all adapters come in stainless or powder coated black but due to the powder coating, black cannot be connected directly to a stove. The male connection slides inside the part below which must be sealed with an appropriate heat resistant sealant. No locking bands are supplied with the adapters as they utilise the band supplied with the next component.



Fixed Lengths (1000mm, 500mm & 200mm)

Fixed straight lengths will constitute the bulk of the twin wall system and are available in stainless or powder coated black. The adapters above are required to connect fixed lengths to single wall pipe and the locking band supplied with this length will secure the simple push fit connection.



Adjustable Lengths (250-350mm, 350-500mm & 500-880mm)

Ideal for situations where the exact length of flue required is unknown (such as passing through walls at an angle) or the desired length cannot be achieved with fixed lengths alone, all adjustable pipes are available in stainless or powder coated black, are supplied with additional insulation (can be cut to length) and two locking bands; one to secure the connection and one to lock the pipe at the desired length. The telescopic lengths are designed to be tight and secure and as such, require a little force to separate.



Elbows (15°, 30°, 45° & 90°)

All changes in direction or offsets in a twin wall system must be at no greater angle than 45°. A maximum of four bends are permitted in one installation such as offsetting around joists or soffits and all elbows are available in stainless or powder coated black and come with a locking band to secure the push fit connection.



90° Tee Piece

The 90° Tee Piece is usually installed when you are connecting the twin wall flue directly to the rear outlet of the stove (via an adapter). It means that the flue can be cleaned via the bottom outlet of the 90° Tee Piece. It also allows a connection between horizontal and vertical runs. Available in stainless or powder coated black, locking bands are supplied with Tee Pieces and there is a choice of Tee Caps for the base.



135° Tee Piece

The 135° Tee is used outside when you want cleaning access at the base of the piping. It is the first piece installed on the external wall connected to the pipe running through the wall at 45°. The 135° Tee is shaped in such a way that it does not restrict the flue gases and is available in stainless or powder coated black. There is a choice of Tee Caps for the base.



Tee Cap (Standard or with drain)

Fitted to the base of either Tee Piece, the Cap is easily removed for cleaning and draining of external twin wall runs. The version with drain features an additional hollow bolt to connect ducting. Available in stainless or powder coated black, all caps come with a locking band for easy secure connections





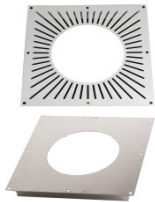
Wall Sleeve (straight or 45°)

Positioned in a cavity wall, this sleeve protects the twin wall piping in the wall passage when the flue system passes to the outside wall. The gap between the flue and the Wall Sleeve can be filled with rockwool or left clear. When going through the wall at 45 degrees, you will have to taper-cut the sleeve so that it fits flush into the wall. It can be cut using a grinder or a hacksaw. Wall Sleeves are only available in stainless as they are hidden from view.



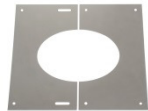
Adjustable Base Support

A Base Support offers a secure anchor point for extended runs of external Shieldmaster. Used in conjunction with Wall Brackets, this part is ideally located beneath a Tee Piece and is recommended for all systems. Available in stainless or powder coated black.



Firestop Plate (ventilated and solid)

The Firestop Plates are used to allow the chimney to pass between floors, for example, when a Shieldmaster system goes through the ceiling on the ground floor through to the first floor. Coated white to match the ceilings, the Ventilated Firestop Plate is designed to provide the appropriate distance to combustibles (i.e. joists) whilst allowing cool air to pass between the floors and is a building regulation requirement for all solid fuel chimneys. Solid Plates must only be used with gas systems.



Finishing Plate (0°-30° and 30°-45°)

This is a two piece (split) plate that covers the hole where the pipe goes through a wall or is placed on the underside of the roof. Situated internally or externally, the Finishing Plates can be retro fitted around the outer diameter of the Shieldmaster piping. Plates are available in stainless or powder coated black.



Locking Band

This is used to connect the twin wall pieces together at the joints and come supplied free of charge with all components that require one. Available in stainless or black to match your pipe and can be purchased separately also.



Wall Brackets (50mm fixed and 50-80mm, 80-130mm, 130-210mm Adjustable)

This is an adjustable wall bracket to secure the Shieldmaster twin wall piping to a wall. Offers lateral support only and should be used every 2000mm to 2500 mm. Available in stainless or powder coated black, the bracket measurement is taken from the surface of the wall to the outer skin of the piping.



Joist Support

The Joist Support is used as a support on the top side of combustible floor where a Shieldmaster system passes by a joist. It is used in conjunction with a Ventilated Firestop Plate and features 150mm straps either side to secure to the surface (screws not supplied). Not available in black.



Roof Support

The Roof Support is attached to the rafters in the roof space. The twin wall pipe passes through the support and is attached to the rafters by screwing through holes to give a secure fixing (screws not included). This will give the twin wall piping a solid support at the point where it exits the roof and is available in stainless or powder coated black.





Guy Wire Bracket

For Shieldmaster systems freestanding for more than 1500mm beyond the last Wall Bracket or Roof Support, a Guy Wire Bracket is required. Used in conjunction with the Guy Wire Kit (sold separately), the wire ropes of the kit attach to the three lugs on this Bracket and anchored back to the roof for added stability. Available in stainless or powder coated black.



Storm Collar

The Shieldmaster Storm Collar is positioned approx. 100mm above the Flashing to ensure water tightness in the passage through the roof and protects against extreme weather conditions. Once secure, run a bead of silicone around the top edge and the twin wall piping to complete the water-tightness.

TERMINALS



Rain Cap

The basic, open-sided Rain Cap not only protects the Shieldmaster system from the ingress of rain water but also the insulation within the twin skins of the piping. Available in stainless or powder coated black, the Cap push fits onto the female top end of the last section of pipe and is secured in place with a Locking Band.



Anti-Wind Cowl

The Anti-Wind Cowl fits to the top of the twin wall piping system to stop any water coming down the flue. The protective shroud stops wind from affecting the system. Available in stainless or powder coated black, the Cowl push fits onto the female top end of the last section of pipe and is secured in place with a Locking Band.



Bird Guard Cowl

The Rain Cap with Bird Guard Cowl protects the system from the ingress of water but also keeps leaves from entering the flue and also rebuffs the attentions of the local wildlife. Available in stainless or powder coated black, the Cowl push fits onto the female top end of the last section of pipe and is secured in place with a Locking Band.



Cone Top Cowl

The Cone Top Cowl fits to the top of the flue system and behaves like a traditional chimney pot. It's shaped in such a way that it prevents prevailing winds from affecting the flue and is ideal for use on open fires.



Role of HETAS

Heating Equipment Testing & Approval Scheme



HETAS are the official body recognised by the Government to approve biomass and solid fuel domestic heating appliances, fuels and services including the registration of competent installers and servicing businesses. Working closely with the Government, appliance and chimney manufacturers, retailers, engineers, fuel producers, distributors and associated parties, the primary goals of Hetas are to advance training, raise awareness and improve end user safety.

Hetas also represent the industry through presence on various British and European standard committees covering topics from building regulations and appliance performance to efficiency and smoke control.

Hetas are responsible for the Hetas Guide, the Hetas Competent Persons Scheme and industry recognised approval schemes for chimney sweeps, retailers and showroom staff, solid fuel burning and biomass appliances, chimney products and ancillary equipment, quality assured fuel and Microgeneration Certification.

Shieldmaster is fully CE and Hetas approved.

Troubleshooting

When installed in line with current regulations and all instructions herein, Shieldmaster insulated twin wall is precision engineered to provide an efficient and effective exhaust system for all heating appliances. In the uncommon event of any issues with the draw or effectiveness of a chimney system ensure you have first addressed all issues highlighted below:

Less than 4.5m of flue installed

This distance is the minimum required to create a sufficient change in pressure to draw the fumes up.

Too much vitreous pipe used

It is not recommended to use more than 1.8m of single wall flue as the gases will cool and drop due to heat loss.

Poor quality of pipe with rough surface

Pipe must be smooth internally as rough edges will restrict gas flow.

Fire is not burning hot enough

Reduced heat input will affect the flow of the gases. The hotter they are, the better the system works. The same applies for the Air Wash.

Terminal Resistance

Anti-Downdraught cowls can prevent flue gases from escaping.

Poor quality wood

High moisture content or low density wood will burn inefficiently and produce visible smoke.

Air starvation

Has the chimney been swept? Is it blocked?

Air ventilation



Is there a permanent air vent in the room? Double glazing, insulation, home improvements will all reduce the air supply to the stove.

Over-sized flue

An over-sized flue such as an unlined open chimney may never warm up and will cause smoke.

Joints not sealed

The joints between flue pipes, particularly where you adapt from one type to another, are weak points in the system and if not appropriately sealed will lose pressure affecting the stove and its performance.

No insulation

Insulation keeps the flue gases hot so they rise better.

No Flexible Liner Used

Flexible liners ensure a sealed flue all the way to the pot, maintains the correct diameter and heat up quickly to get the draw going.

Unsuitable Chimney Pot

Round chimney pots on square flues create obstructive ledges.

Reduced flue diameter

If the flue system narrows in diameter at any point, this will restrict the flow of the flue.

90° elbows and horizontals

The best flue system is vertical with no bends. Right angled bends will restrict the flow of gas and horizontal lengths leave a large surface area for soot and tar to be deposited, clogging the flue.

Cold inside and hot outside

If it is cold in the house and hot outside, the flue will not draw. This will always improve with heat.

Powder Coating Bubbling / Coming Away - Black powder coated Shieldmaster must not be connected directly to a heating appliance.

12 Year Shieldmaster Manufacturer's Warranty

Shieldmaster insulated twin wall is precision engineered to be free from defects in both construction and material and is covered for a period of twelve years from date of purchase by the manufacturer's warranty. We will provide like for like components (only) free of charge **excluding any installation or consequential loss or costs**. Replacement items claimed under this warranty will be provided only to the original consumer.

The Shieldmaster 12yr manufacturer's warranty is only valid if installed in accordance with all information contained within this Shieldmaster Installation Guide, complies with all current building regulations and signed off by a member of the Competent Persons Scheme or Local Building Control Body. Products must be installed for their intended purpose only. Products must be connected to a CE approved appliance listed with an accredited testing laboratory.

Performance certificates (stove and chimney) and Hetas certificates may be requested upon any claim under this manufacturer's warranty.

Failure to action every component contained within this guide will render any warranty claim void.

All installer details and Hetas numbers will be verified upon receipt of the completed form below before a warranty is actioned.



Shieldmaster Warranty Registration Form

(To be printed off, completed and returned to address below by end user)

Volsom Ltd, 20-28 Albert Road, Braintree, Essex, CM7 3JQ

Customer Details

Customer Name:- _____

Customer Address:- _____

Date of Purchase:- _____

Order Number:- _____

Installation Details

Installation Date:- _____

Name of Heating Engineer:- _____

Address of Heating Engineer:- _____

Registered Hetas Number:- _____

OR Name of Local Building Control:- _____

Declaration

I hereby confirm all information provided herein is accurate.

Customer Signature:- _____

Heating Engineer Signature:- _____

The Shieldmaster 12yr manufacturer's warranty is only valid if installed in accordance with all information contained within this Shieldmaster Installation Guide, complies with all current building regulations and signed off by a member of the Competent Persons Scheme or Local Building Control Body. All installer details and Hetas numbers will be verified upon receipt of this completed form before the warranty is actioned.



Shieldmaster Product Designation Number**EN:1856-1 T450 N1 D VM L50050 G60****EN:1856-1**

European Norm is the standard accepted in Europe for metal chimneys. Shieldmaster conforms to EN1856-1.

T450

Temperature rating indicates Shieldmaster is tested up to an average continuous flue temperature of 450°C which far exceeds the average operating temperature of a standard heating appliance / multi-fuel wood burner.

N1

Pressure level.

D

This relates to the condensate resistance of the chimney system. 'D' denotes Shieldmaster is approved as compatible with dry systems.

VM

Corrosion resistance

L50050

The material specification highlights the thickness of steel used, in the case of Shieldmaster this is 0.5mm thick.

G60

'G' denotes Shieldmaster is soot fire resistant and '60' confirms the approved safe clearance to combustibles of 60mm.



Declaration of Performance No 02/2016



1. Unique identification code of the product-type: **Twin-wall chimney system "Shieldmaster"**
2. Type, batch or serial number or any other element allowing identification of the construction product:
T450-N1-D-VM-L50050-G-60
3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer: **for the discharging combustion products from heating plants.**
4. Name, registered trade name or registered trade mark and contact address of the manufacturer:

**„Dumvadumeistars”, Ltd, no. 50003731161, Rubenkalnastr, Riga, LV -1057, Republic of Latvia,
Tālr. +371 67138590, fakss +371 67138596. E-mail: dm@dumvadumeistars.lv ; www.dumvadumeistars.lv**
5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks:

Volsom Ltd. ,20-28 Albert Road Braintree Essex CM73JQ , tel. 0844 585 2319 enquiries@volsom.co.uk
6. System or systems of assessment and verification of constancy of performance of the construction product: **2+**
7. In case of the declaration of performance concerning a construction product covered by a harmonised standard:

LVS EN 1856-1:2009 Certification Centre of the Latvian Academy of Sciences, NB 1327 performed under system 2+ and issued certificate of conformity of the factory production control No1327.
8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued: not provided. (Name and identification number of the Technical Assessment Body, if relevant) issued (reference number of the European Technical Assessment) on the basis of, (reference number of the European Assessment Document) performed under system (description of the third party tasks) and issued (certificate of constancy of performance, certificate of conformity of the factory production control, test/calculation reports – as relevant)
9. Declared performance

Essential Characteristics	Declared Performance	Corresponding Harmonised Standard
Tightness	N1	LVS EN 1856-1:2009
Fire Resistance, Distance to Combustibles	60 mm	LVS EN 1856-1:2009
Thermal Resistance	T450	LVS EN 1856-1:2009
Steam and Water Penetration	D	LVS EN 1856-1:2009
Corrosion Resistance	Vm, Pass	LVS EN 1856-1:2009
Thermal Shock Resistance	Pass	LVS EN 1856-1:2009
Compression Strength	2,7 kN	LVS EN 1856-1:2009
Compressive Strength of wall console type1	Pass	EN 1859:2013
Compressive Strength of wall console type2	Pass	EN 1859:2013
Compressive Strength of roof console	Pass	EN 1859:2013
Lateral Strength	Pass	EN 1859:2013

10. 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:

Jevgenijs Ignatovičs

Rīga, September



Offsets for 150mm Internal 200mm External

	Total Offset		Total Height
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Pipe Length	2 x 15°		2 x 30°		2 x 45°	
2 x Elbows	70	470	125	450	200	420
200	109	615	200	580	306	526
300	135	712	250	667	377	597
400	161	808	300	753	447	667
500	187	905	350	840	518	738
300+400	238	1098	450	1013	660	880
400+400	264	1195	500	1100	730	950
400+500	290	1291	550	1186	801	1021
1000	316	1388	600	1273	872	1092

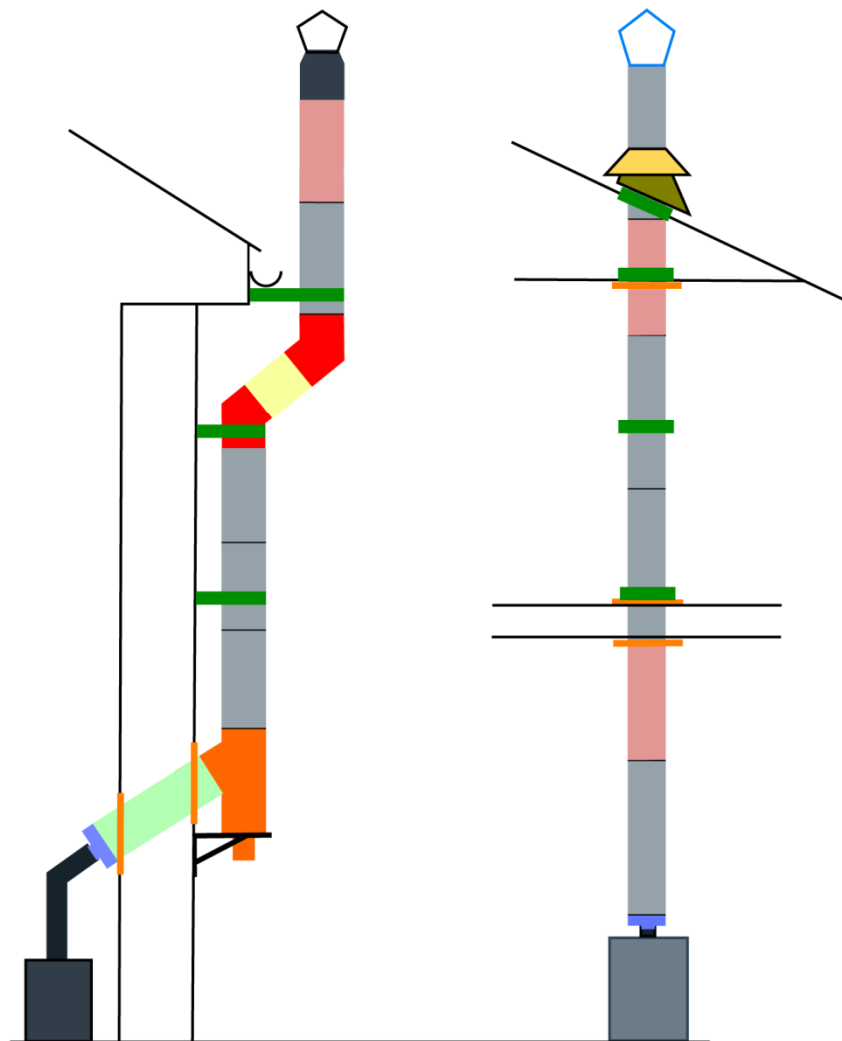
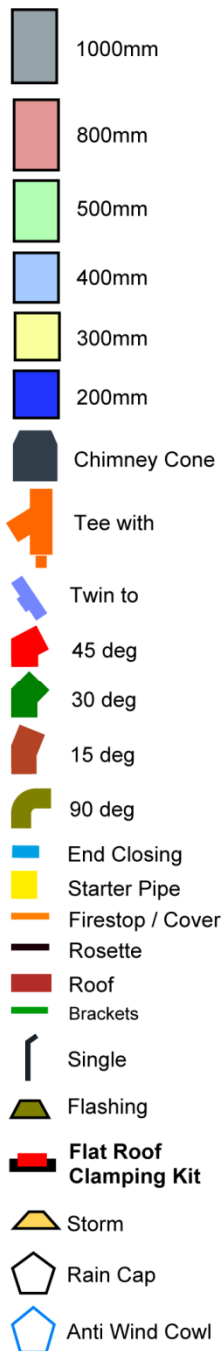


Offsets for 125mm Internal 175mm External

Pipe Length	2 x 15°		2 x 30°		2 x 45°	
2 x Elbows	44	415	78	535	175	400
200	83	560	153	565	281	506
300	109	657	203	652	352	577
400	135	753	253	738	422	647
500	161	850	303	825	493	718
300+400	212	1043	403	998	635	860
400+400	238	1140	453	1185	705	930
400+500	264	1236	503	1171	776	1001
1000	290	1333	553	1258	847	1072



Example Layouts for Shieldmaster



ENDS

