HT-S Technical Information and Installation Instructions

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1. HT-S PRODUCT TESTING DETAIL

CE Mark - 0086 - CPD - 566560

Test	Report Numbers	Products	Internal Diameters Covered by Test
BS EN 1856 - 1	54522/1 and 55693/1	HT-S Range with and without silicone sealant HT-S Range c/w ventilated plates	130mm to 350mm inclusive
BS 476	WARRES - 128942	HT-S Ventilated Fire Stop Plate arrangement	130mm to 350mm inclusive

2. REGULATORY / GUIDANCE DOCUMENTS

The designation of HT-S system chimney is in accordance with	EN 1856-1
The installed chimney shall be designated according to	EN 1443

In addition to the information in this document, please refer to regulatory and guidance documents to ensure that systems comply with relevant guidelines. A list of some relevant documents is available from the sales office.

3. APPLICATIONS / FUELS / GENERAL

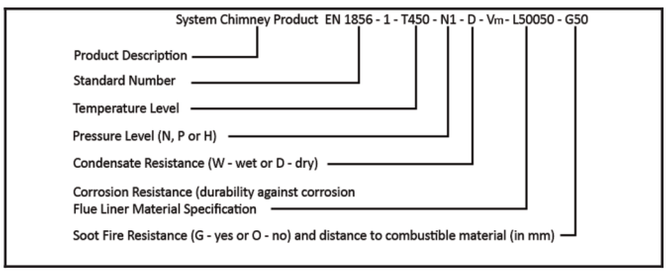
HT-S has a Vm & V3 corrosion resistance classification and a 316L inner liner making it suitable for use in many industrial and domestic applications with equipment fired by gas, oil, wood, coal and peat. HT-S can be installed with silicone sealant making it suitable for use at lower temperatures with gas and oil appliances or under pressure (Installation instructions must be followed).

Normal Maximum Continuous Operating Temperature is 450°C. HT-S can be installed externally. HT-S is not suitable for direct connection onto a solid fuel fireplace. For soot fire resistance Ventilated FSP and Support Plates must be installed. For T200 applications a minimum of 30mm clearance is required, however please note standard HT-S FSP gives 50mm clearance.

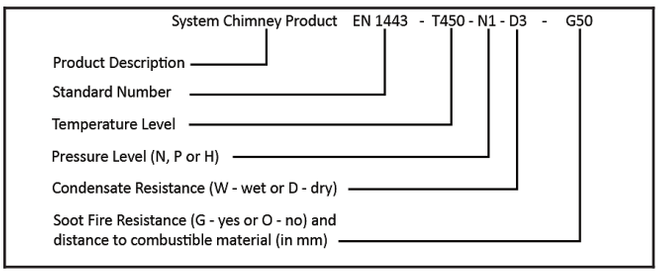
HT-S Product and Installation Designations EN 1856-1 and EN 1443 Respectively

Fuel, Pressure Application	System Chimney Product Designations	Corresponding Installation Designations
Solid Fuel, Negative	EN 1856 - 1 - T450 - N1 - D - V3-L50050 - G50	EN 1443 - T450 - N1 - D3 - G50
Gas / Oil, Negative	EN 1856 - 1 - T200 - N1 - D - V3-L50050 - O30	EN 1443 - T200 - N1 - D3 - O30
Gas / Oil, Positive / Condensing	EN 1856 - 1 - T200 - P1 - D - Vm-L50050 - O30	EN 1443 - T200 - P1 - D3 - O30

Product Designation System for system chimneys to EN 1856-1



Product Designation System for system chimneys to EN 1443



4. HT-S PRODUCT DATA

Material Specification

Material Specification	Material	Nominal Thickness (mm)	Minimum Thickness (mm)
Inner Lining	EN 1.4404 (316L)	0.5	0.45
Outer Casing	EN 1.4301 (304)	0.5	0.45

The product thickness appears as a three figure number in the EN designation e.g. 0.5mm thick has a designation of 050.

Product Weights Approximate (Kg)

	Diameter (mm)						
	130	150	180	200	250	300	350
Lengths 1000	5.37	6.33	7.13	8.20	9.94	11.89	13.73
Lengths 1500 (1250mm - 350ID)	8.28	9.73	10.96	12.59	15.24	18.20	N/A
Lengths 500	2.70	3.18	3.58	4.70	4.99	5.95	6.87
Lengths 300	1.64	1.92	2.16	2.48	3.00	3.58	4.13
Adjustable Lengths 320-520	3.10	3.65	4.15	4.70	5.70	6.40	7.00
Adjustable Lengths 520-920	5.20	6.20	6.60	7.65	9.40	10.00	10.80
90° Equal Tee	2.50	2.80	3.40	4.07	5.37	6.67	8.20
45° Tee	3.10	3.70	4.80	6.00	8.50	10.50	12.54
90° Boot Tee	2.90	3.60	4.70	5.53	7.33	9.13	12.87
Tee Cap	0.60	0.65	0.80	0.88	1.08	1.28	1.48
Tee Cap with Drain	0.62	0.82	1.00	1.19	1.57	1.95	2.33
90° Elbow	2.10	2.60	3.10	3.60	4.60	5.60	6.60
45° Elbow	1.20	1.60	1.90	2.27	2.97	3.67	4.37
30° Elbow	1.10	1.40	1.65	1.93	2.48	3.03	3.58
15° Elbow	0.85	1.25	1.35	1.60	2.10	2.60	3.10
Adjustable Roof plate	0.40	0.55	0.70	0.85	1.15	1.45	1.75
Flat Roof Plate	0.35	0.50	0.60	0.75	1.01	1.27	1.53
Cravat	0.12	0.13	0.14	0.15	0.18	0.23	0.28
Storm Collar	0.12	0.13	0.14	0.15	0.17	0.23	0.29
Standard Cowl	1.20	1.45	1.80	1.95	2.68	3.28	3.88
Double Inverted Cowl	1.20	1.45	1.80	2.08	2.68	3.28	3.88
Swedish Cowl	2.05	2.45	3.20	3.70	4.70	5.40	6.20
Top Stub	1.35	1.75	2.00	2.05	3.00	3.65	5.10
Split Clip Band	0.40	0.50	0.60	0.70	0.90	1.10	1.30
Wall Band	0.50	0.60	0.70	0.80	1.00	1.20	1.40
Single to Twin Adaptor	0.40	0.60	0.80	1.00	1.40	1.80	2.20
Appliance Connector	0.60	0.65	0.80	0.88	1.15	1.28	1.48
Fire stop Spacer	0.60	0.75	0.90	1.05	1.35	1.65	1.95
Locking Bands	0.20	0.22	0.24	0.28	0.36	0.44	0.52
Reducer	0.40	0.60	0.80	1.00	1.40	1.80	2.20
Trim Collar	0.12	0.13	0.14	0.15	0.17	0.19	0.21

Thermal Resistance of HT-S Chimney

The Thermal Resistance figures below are based on the thermal conductivity of the different types of insulation at 200°C mean temperature.

Insulation Type	Mineral Wool Bulk	Mineral Wool Panel
Thickness	25mm	25mm
Density	128kg/m³	80kg/m³
Thermal Conductivity @200°C Mean Temp	0.070 W/mK*	0.066W/mK

* 0.061 x 1.15 = 0.070 Ask technical department for more information.

Internal Diameter (mm)	130	150	180	200	250	300	350
HT-S - Bulk 25mm - Fixed Lengths	0.34	0.38	0.35	0.38	0.39	0.40	0.40
HT-S - Panel 25mm - Fittings	0.39	0.43	0.40	0.44	0.45	0.45	0.45
HT-S - Vitreous Wool 50mm	0.72	0.75	0.72	0.75	0.75	0.75	0.76

Table showing thermal resistance in m^2k/w of HT-S chimney for each diameter.

Flow Resistance Factors of Chimney Lengths and Fittings

The table below shows the surface roughness for lengths and the coefficient of resistance for fittings.

	Coefficient of resistance										
Surface Roughness of lengths factor r (mm)	90° Tee	90° Boot Tee	45° Tee	Capped 90° Tee	Capped 90° Boot Tee	Capped 45° Tee	45° Elbow	30° Elbow	15° Elbow	90° Elbow	Discharge
0,001	1,2	0,75	0,3	2	1,5	0,5	0,3	0,2	0,1	0,6	1

Mechanical Resistance and Stability

Compressive Strength – Clause 6.1.1

The recommended installation distance between load bearing supports is 6m. The following load bearing components will however take loads in excess of this and these are detailed in the table below: -

Load in metres of equal internal diameter product. Figure 1 shows

Component	Internal Diameter (mm)						
	130	150	180	200	250	300	350
Maximum Loads **A** Telescopic Base Support Intermediate Wall Support Support Plate Ventilated Support Plate	12 m				8 m		
Reccomended Max Loads **B** Telescopic Base Support Intermediate Wall Support Support Plate Ventilated Support Plate	8 m				6 m		

Where the building is to support the chimney, the building structure must be capable of supporting the load both vertically and laterally.

Lengths and Fittings

Component	Internal Diameter (mm)						
	130	150	180	200	250	300	350
Maximum Loads 90° Tee 1000mm Length	200 kg			250 kg			300 kg

Tensile Strength – *Clause* 6.1.2

It is not recommended that product be installed so that its tensile strength is tested however where there is no alternative the product has been tested with a 50kg load, therefore for the purpose of EN 1856-1 the tensile strength of the product is stated as 50/1.5kgs. Also by riveting the product in accordance with these installation instructions (see section 5) the tensile strength is increased.

Lateral Strength – *Clause* 6.1.3

Maximum distances exposed between types of supports	130 to 350mm ID inc.
C - Maximum vertical distance between lateral supports	4m
D - Recommended distance between lateral supports (Internally)	3m
E - Recommended distance between lateral supports (Externally)	3m
F - Recommended distance between lateral supports (Exposed installations e.g. on masts)	2m
G - Maximum distance between non vertical supports	2m
H - Recommended distance between non vertical supports	1.5m
I - Maximum unsupported height above roof	2m
J - Recommended maximum unsupported height above roof *	1.5m

See Figure 1 and 2 for illustration of A to J dimensions

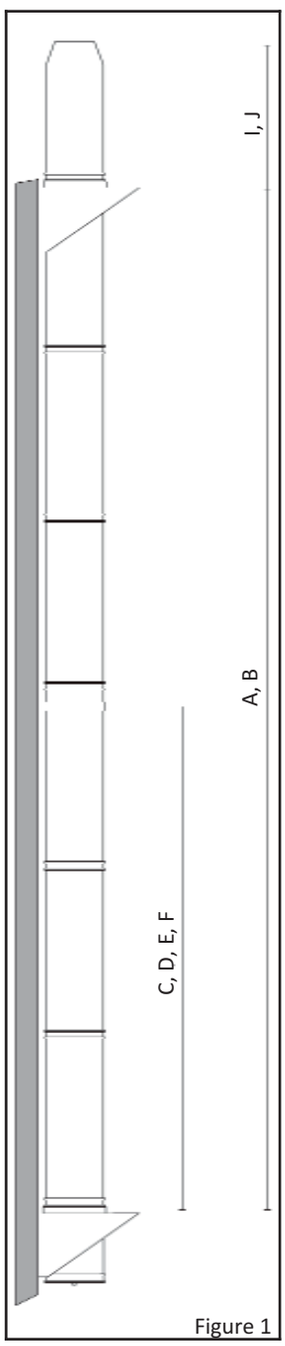


Figure 1

*Structural locking bands may be used to provide additional stability. Above this figure and up to 3m a suitable guy wire kit should be used. Above 3m alternative support arrangements may be required. Additional support may be required in areas that are exposed to high winds. TV and radio aerials must not be attached to the chimney. Riveting in accordance with these installation instructions will also provide additional stability (Please check section 14 Installing Lengths). If in doubt please ask!

If the chimney is to be supported by a free-standing structure or windshield the construction of the support must comply with EN 13084-1.

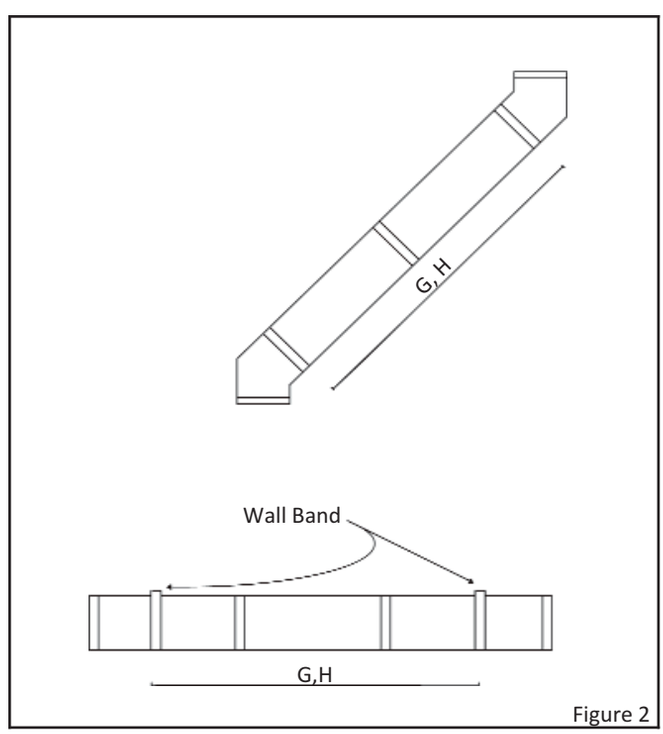


Figure 2

5. APPLIANCE CONNECTORS

Code	05	06	07	08	10	12	14
ID (mm)	130	150	180	200	250	300	350
Appliance Connector OD (mm)	123	150	175	200	250	300	350

In general the purpose of the HT-S Appliance Connector will be either to fit into SW 316 1mm or Vitrelux product; or to fit into an imperial size boiler spigot. All appliance connectors across the range are supplied with a PLAIN end.

6. PRE-INSTALLATION CHECKS

Check that all necessary instructions are on site with all the components. Check that the components are clean, dry and undamaged.

7. HANDLING AND STORAGE

Products are to be stored in a suitable location (dry conditions on a level floor), and left in their packaging until immediately prior to installation. Products should be stored in a vertical position with the crimped end of the outer upwards. On cold hard floors, polythene or pallets should be located underneath stored items to avoid damp damaging the packaging.

If items are being delivered by transport other than that of Midtherm, special care should be taken to ensure that damage is not caused during transit.

8. ASSEMBLY

1 The chimney should be installed with a minimum of horizontal runs and offsets. Where possible 15° or 30° elbows should be used, but 45° elbows can be used if necessary. For solid fuel or oil fired appliances the distance between the bends should not exceed 20% of the vertical height of the chimney. If the appliance is gas fired the distance between bends should not exceed half the vertical height of the chimney.

2 For appliances requiring the T450 and Soot Fire Resistance Classification, 50mm minimum clearance must be maintained from combustible materials, and where flues penetrate floors use the special ventilated fire stop and support plates. For appliances only requiring T200 classification, 30mm minimum clearance must be maintained from combustible material.

3 The chimney diameter should never be reduced to less than the diameter specified by the appliance manufacturer, in some cases this may involve an increase in diameter from the appliance spigot.

4 Ensure that adequate air is available for combustion. Refer to Building Regulations Approved Document J.

5 Ensure chimney termination has adequate clearance from the roof of the building. Do not allow products of combustion to be discharged where they can enter an opening window or ventilation inlet.

6 It's good practice to install a minimum vertical riser of 600mm on to an appliance before fitting a bend. If connecting to a draught diverter, a vertical riser of at least 600mm must be installed immediately above the diverter, or as recommended by the appliance manufacturer.

7 The chimney should be adequately supported. A full range of support brackets are available. We recommend no more than 6m vertical rise between load bearing support brackets. Lateral support brackets should also be installed at 3m intervals or 2m if exposed (vertical riser), and 1.5m intervals (incline/horizontal).

8 Provisions for inspection/sweeping must be made. Inspection lengths are available for this purpose.
and coded separately on the price list.

9 Joints within a floor or ceiling construction are prohibited.

10 Chimney components shall not be modified.

11 Chimneys penetrating walls shall be sleeved/shielded and weather proofed if though external walls.

12 Where required, lightning protection of the chimney shall be installed in accordance with EN 61024-1.

13 Fire stops, spacers and ceiling supports shall be installed as specified in these instructions.

14 Where there is a risk of combustibles being placed next to the chimney, the minimum distances to combustibles must always be maintained either by a permanent enclosure or shield.

15 Weather proofing where chimneys penetrates roofs shall be in accordance with HT-S Installation Instructions.

16 A variety of terminals are available for all applications. Chimneys in exposed locations can benefit from Anti Down Draught, 'H' or Rotor Cowls. Top Stubs are recommended for use on solid fuel appliances, drain points can be used to over come the problem of rain entering the open terminal. The use of mesh cowls should be avoided on solid fuel appliances as they need regular inspection and cleaning to avoid sooting up.

17 The finished installation shall have a chimney plate.

18 On completion of the installation it should be commissioned in line with requirements of EN 12391 including a smoke test. If there are any leaks or significant spillage, the fault must be rectified before the appliance is used.

19 Provisions must be made for draining condensate when required.

20 Installers must be competent to install for the particular application and also to handle the product. Solid fuel appliances should be installed by HETAS registered installers. Qualified chimney sweeps should be employed to carry out inspections and correct and thorough cleaning. The correct brush size must be chosen for each system. Mild steel brushes must not be used.

The above notes are an outline of only some of the aspects of good chimney installation practice. Please refer to relevant industry standards for further guidance. This product has not been tested for suitability for use on condensing appliances.

9. ACCIDENTAL HUMAN CONTACT

For T450 applications and where there could be accidental human contact, either a mesh shield or suitable enclosure should be installed. Standard HT-S meets the accidental human contact requirements for T200 applications without the need for extra insulation or shielding.

10. TYPICAL INSTALLATIONS

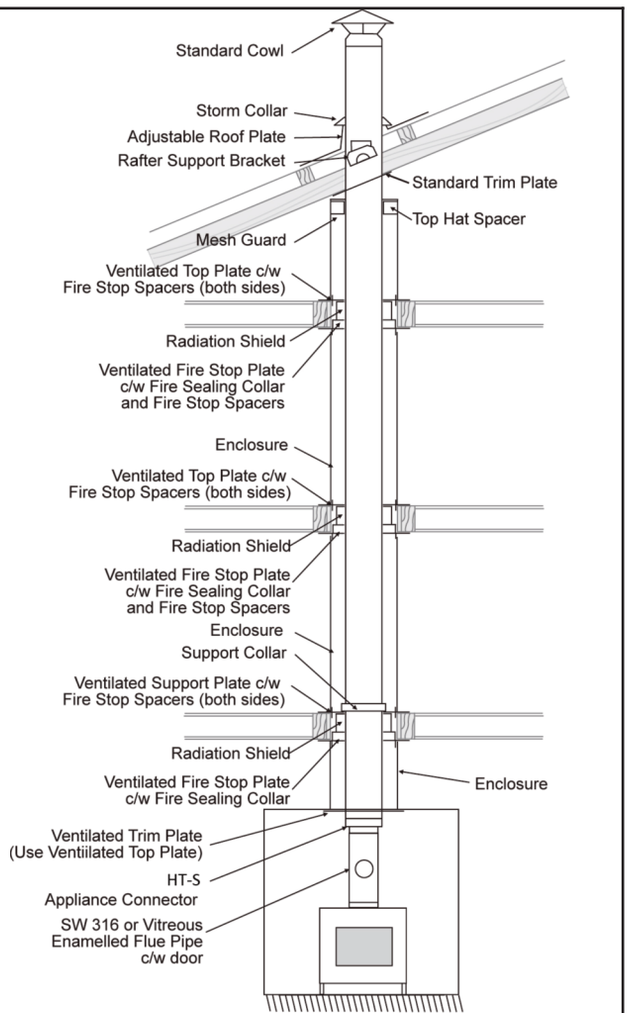


Figure 3 **Installation 1 - With T450 & G50 Characteristic. Accidental Human Contact Eliminated.**

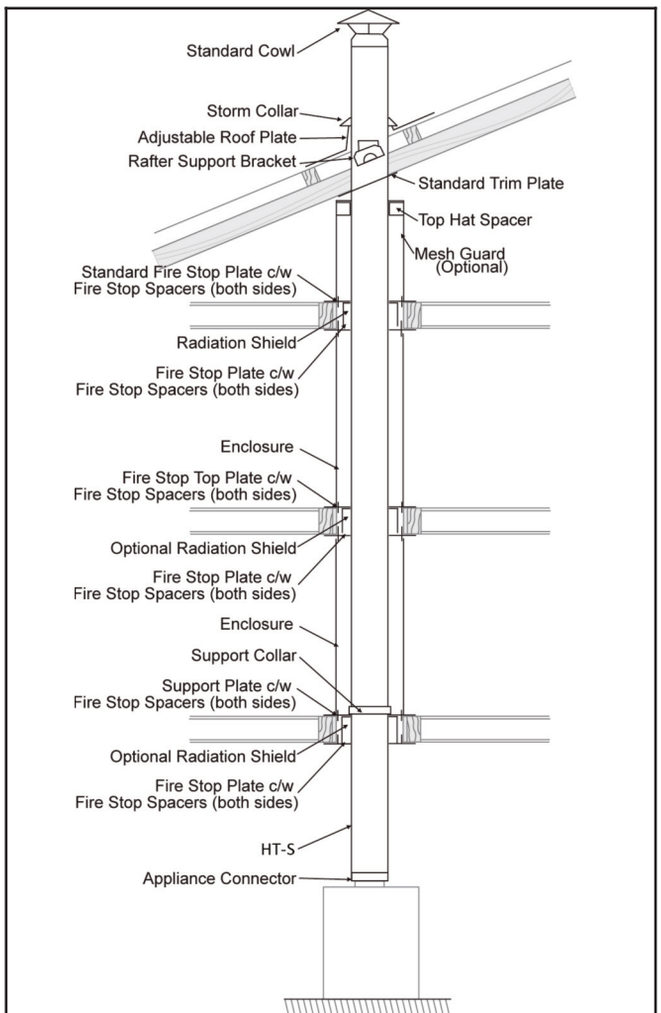


Figure 4 **Installation 2 - With T200 & O30 Characteristic. Meets Accidental Human Contact Requirements**

Notes - T450 applications must always be installed with ventilated fire stop plates, ventilated support plates and ventilated top plates.

T200 applications can be installed with standard support plates and fire stop plates. For this application the use of a radiation shield is optional. The standard support and fire stop plates are provided with a 50mm clearance to combustibles however special plates can be made up for the minimum clearance of 30mm should space be restricted.

11. CONDENSATE DRAINAGE

Where condense is anticipated the flue route should allow for condense to either run back into the appliance, or a Tee + Tee Cap c/w Drain, should be installed at the base of the riser to allow condense to run from the chimney to a drain tube. This product has not been tested for suitability for use on condensing appliances.

12. OPENINGS

An opening into the chimney is necessary where it cannot be inspected through the appliance or where the chimney route includes offsets. This can be achieved via a Tee or an Inspection Length, depending upon the route from the appliance and the product range. Both are available with the HT-S range.

Openings may be required for: -

- Cleaning and maintenance
- Appliance performance testing
- Draught Control

Lengths and fittings with pressure tight test points (socket and plug) can be made to order on request. Where required access shall be available so that the full length of the flue from the appliance adaptor to the chimney outlet can be cleaned and the chimney can be inspected. Openings must be located in areas where there is no risk from fire or explosion. Access must be provided where there is an offset of more than 30° or any other offset, which could not otherwise be inspected or cleaned. Cleaning access, draught regulation, appliance connection openings, etc. shall be separated by at least one internal diameter away from another, unless some other configuration has been tested.

13. CLEARANCE / SHIELDING

The installer should ensure that all electrical cabling, pipe work and any other obstructions are located so as not to disrupt the flue route. Any alterations that may be required to structural timbers, i.e. joists, should be carried out by a competent person to the relevant standard and allowing the specified minimum clearance from any combustible materials.

Floors - The minimum distance to combustible materials is dependant upon the application as detailed in the table below. Midtherm standard Fire Stop Plates and Ventilated Fire Stops give a minimum clearance of 50mm. For the lower temperature applications without the requirement for soot fire resistance and where space is restricted, special Fire Stop Plates giving 30mm clearance can be made to order.

Application	Minimum Clearance	Standard Plates Provide Clearance
T450 - G	50mm	50mm
T200 - O	30mm	50mm

Walls – Where flues penetrate walls the above distances to combustibles must be maintained (Dimension A). This can be achieved by ordering a galvanised or stainless steel wall sleeve stating 1.) the horizontal distance through the wall (Dimension B) and 2.) the angle from the horizontal, where appropriate (Angle C in Degrees). The enclosure should be capped with a trim plate on either side of the wall and a storm collar on external walls.

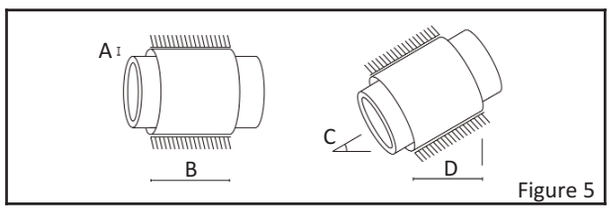


Figure 5

Other Areas where contact with combustibles is a risk – Wherever there is a risk of combustibles falling or being placed against a chimney either an enclosure should be built or a shield installed around the chimney at the minimum distances stated above. For example, a shield may be required in the loft space. Mesh sheets are available which can be cut to size on site. Top hat spacers are available to space the mesh from the chimney outer casing.

14. INSTALLATION INSTRUCTIONS FOR SPECIFIC COMPONENTS

Installing Lengths

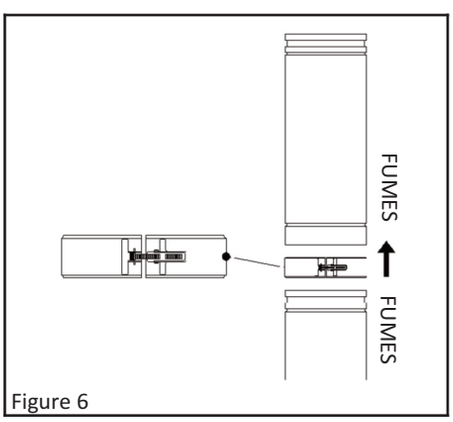


Figure 6

The flue joint must always be made with the male part of the outer liner (the outer crimped end) inserted into the upper length.

Locking Bands – Fit the locking band over the joint of the two lengths. Tighten the clip as necessary.

***Sealant** – In circumstances where a positive pressure up to 200 Pa is likely within the flue, the joints can be sealed with a silicone sealant. The sealant is applied on both the inner and outer. Care should be taken to ensure no surplus sealant is allowed on the external casing as it is difficult to remove and can leave a mark. Please see our work instruction for sealant application for more information.

Rivets/ Self Tappers – Prior to fitting the locking band, additional strength can be achieved if needed by using rivets on the outer casing. If this is considered necessary due to the difficulty in providing supports or where excessive wind load is expected on external runs, it should be carried out with stainless steel rivets at centres to suit the load, then these are concealed by the locking bands. Rivets should be S/S 1/8" 15mm long maximum. Self Tappers should be S/S ½".

CAUTION!! Care must be taken to ensure that the internal lining is not penetrated. The drill must therefore be set to ensure a maximum penetration of 15mm. After drilling carry out a visual inspection of the inner liner.

*Not suitable for T450 applications.

Fire stopping through combustible floors and walls: -

Combustible Walls

Where HT-S passes through a combustible wall a wall sleeve must be installed to maintain the minimum distances to any cavity wall infill.

Combustible Floors

Support Requirements	T450 G50 System	T200 O30*
Load Bearing System	B/ Ventilated Fire Stop Plate c/w Fire Sealing Collar C/ Radiation Shield D/ Ventilated Support Plate c/w Support Collar	Fire Stop Plate Optional Radiation Shield Support Plate c/w Support Collar
Non-Load Bearing System	B/ Ventilated Fire Stop Plate c/w Fire Sealing Collar C/ Radiation Shield E/ Ventilated Top Plate	Fire Stop Plate Optional Radiation Shield Fire Stop Plate

* Clearance provided by standard product is 50mm. 30mm components are available to order.

T450 Applications Combustible Floors

Useful Dimensions

Code	ID/OD (mm)	Box Section (mm)*	Plate Size SQ (mm)	Joist Shield OD (mm)
05	130/178	278	346	247
06	150/203	303	373	274
07	180/229	329	395	296
08	200/254	354	424	325
10	250/305	405	475	376
12	300/356	456	525	426
14	350/406	506	576	477

* If a plasterboard lining is to be installed increase these dimensions to suit.

The ventilated fire stop c/w fire sealing collar has been designed for fixing to wooden joists. If you need a plate to be attached to an alternative medium please inform our sales department when ordering.

Use 2" Long Zinc Plated Woodscrews to fix to wooden joists. Screw hole size is 4.5mm.

A/ General

Before installing the Midtherm Components the joist box section must be altered where necessary to the correct dimensions by a competent person. Although it is not a requirement determined by testing to BS 1856-1 and BS 476 for the box section to be lined with plasterboard when installing HT-S through a combustible floor, it is recommended as an additional safety precaution where space will allow it. In either case the 50mm clearance must be maintained (either to the bare wooden joists or the plasterboard lining if installed).

B/ Installation of Ventilated Fire Stop and Spacer

1. Pass a length of flue through the fire stop plate before passing the flue through the box section. Ensure that the protruding collar is pointing upwards. This collar will set the 50mm minimum clearance around the flue.
2. Check that the flue is central within the fire stop spacer, and that the flue is vertical with a spirit level.
3. Use wood screws to fix the fire stop plate securely to the joists.
4. Now fit the radiation shield.

C/ Installation of Radiation Shield

The radiation shield comes as an adjustable sleeve to fit the height of most joist spaces. The standard shield is designed to fit 150mm - 250mm height. If the required height is different, please advise our sales department when ordering.

1. Measure the height of the space in which the radiation shield is to sit. (The protruding collar of the fire stop plate will take up approximately 42mm of this space.)
2. Adjust the radiation shield to match this height.
3. Secure the radiation shield at this height with rivets.
4. Pass the radiation shield over the top of the flue and sit centrally on the fire stop plate.
5. Now fit the support plate and support collar.

D/ Installation of Ventilated Support Plate and Support Collar

The Ventilated Support Plate comes in one piece, which fits over the top of the flue.

1. Pass the support plate over the top of the flue.
2. Locate the support plate over the joists (or suitably constructed timber or metal frame).
3. Check that the support plate is central around the flue.
4. Securely fix the plate to the joist/timber frame with woodscrews
5. Fit the support collar, start each of the six bolts, tightening them alternately until securely fastened.

E/ Installation of Ventilated Top Plate

The ventilated top plate is a non-load bearing component and is supplied without a collar. This plate is to be installed as A and D above.

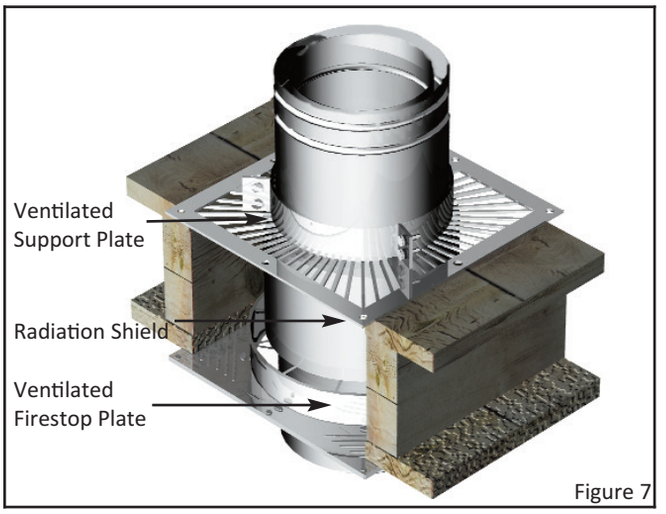


Figure 7

T200 Applications Combustible Floors

Code	ID/OD (mm)	Box Section (mm)*	Plate Size SQ (mm)
05	130/178	278	328
06	150/203	303	353
07	180/229	329	378
08	200/254	354	404
10	250/305	405	455
12	300/356	456	506
14	350/406	506	556

*Plasterboard lining is not required for T200 applications. These figures are for 50mm clearance with the standard Fire Stop Plate.

A/ General

Before installing the Midtherm Components the joist box section must altered where necessary to the correct dimensions by a competent person.

Check that the spacers on the fire stop plates are angled at 90° to the plate.

B/ Installation of Fire Stop and Spacer

1. Pass a length of flue through the fire stop plate before passing the flue through the box section. Ensure that the protruding collar is pointing upwards. This collar will set the 50mm minimum clearance around the flue.
2. Check that the flue is central within the fire stop spacer, and that the flue is vertical with a spirit level.
3. Use wood screws to fix the fire stop plate securely to the joists.
4. Now fit the radiation shield.

C/ Installation of Radiation Shield (Optional)

The radiation shield comes as an adjustable sleeve to fit the height of most joist spaces. The standard shield is designed to fit 150mm to 250mm height. If the required height is different, please advise our sales department when ordering.

1. Measure the height of the space in which the radiation shield is to sit.
2. Adjust the radiation shield to match this height.
3. Secure the radiation shield at this height with rivets.
4. Pass the radiation shield over the top of the flue and sit centrally on the fire stop plate.
5. Now fit the support plate and support collar.

D/ Installation of Support Plate and Support Collar

The Support Plate comes in one piece, which fits over the top of the flue.

1. Pass the support plate over the top of the flue.
2. Locate the support plate over the joists (or suitably constructed timber or metal frame).
3. Check that the support plate is central around the flue.
4. Securely fix the plate to the joist/timber frame with woodscrews.
5. Use the holes in the support collar to mark out fixing points on the flue outer casing.
6. Drill the outer casing of the flue to house stainless steel ½" self Tappers or rivets (1/8"). **CAUTION!! Care must be taken to ensure that the internal lining is not penetrated. The drill must therefore be set to ensure a maximum penetration of 15mm. After drilling carry out a visual inspection of the inner liner.**
7. Each hole in the support collar must be fixed to ensure that the support assembly is sufficient to carry the maximum loads.

E/ Installation of Fire Stop as a Top Plate

Where there is no requirement for a load bearing support on the floor, the fire stop plates can be installed above as well as below the floor. As this is a non-load bearing component there is no requirement for a support collar. This plate is to be installed as A and D above but without the requirement for the flue outer casing to be drilled as no collar will be fixed.

Four Hour Fire Rated Installations

See separate HT-S 4 Hour Fire Rating instructions.

Installing a Mesh Shield

When installing a mesh shield either internally or externally please specify the following information and we will supply mesh and top hat spacers to suit.

1. Flue OD
2. Mesh Height Required
3. Clearance required 50, 30mm or more
4. Number of spacers required (4 at top, 4 at bottom if necessary, 4 additional ones for each join in the mesh)

Note: Mesh is in roll 1.2m wide so for larger diameters there will be a joint if the mesh height is to be more than 1.2m.

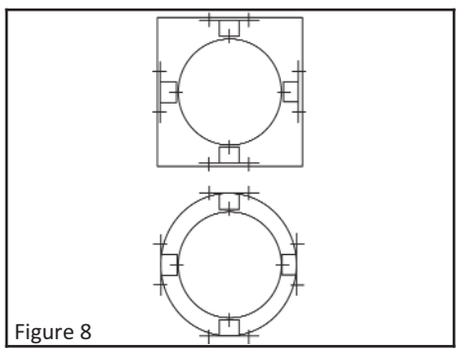


Figure 8

Rafter Support Bracket

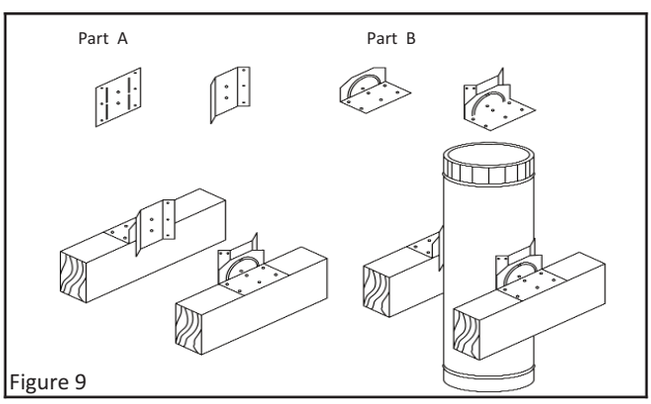


Figure 9

This bracket is to be installed so that the flue has a minimum of 50mm clearance to the nearest combustible material. A box section may be required to set this 50mm clearance and to house the rafter support bracket itself.

1. Bend down the line of slots on both sides of Part A. The bends need to be sufficient so that this part makes three contact points with the outer casing of the flue.
2. Use the nuts and bolts fixed to Part A to join it to Part B.
3. Assemble the flue system, ensuring the 50mm clearance is maintained (temporary support may be required).
4. Locate the rafter support bracket on top of the joist/box section. With Part A positioned around the flue mark out the points where holes need to be drilled in the outer casing.
5. Remove the flue and drill 12 off 3mm holes in the outer casing. **CAUTION!! Care must be taken to ensure that the internal lining is not penetrated. The drill must therefore be set to ensure a maximum penetration of 15mm. After drilling carry out a visual inspection of the inner liner.**
6. Relocate the flue between the brackets and fix the brackets on either side to the outer casing.
7. Secure the brackets to the timbers using 6 off 3mm wood screws (not supplied).

Telescopic Base Support

The telescopic base support will require a sound and level floor to which it can be bolted.

1. Loosely assemble the tee and collar on the base support for locating purposes.
2. Move the base support into the correct position to house the flue system, mark out fixing points on the floor and then remove base support and drill suitable holes.
3. Adjust the height to enable the tee to pick up the appliance connection, remove the tee. Then secure the adjustable sleeve in position using the holes provided.
4. Re-assemble the tee, tee cap and collar.

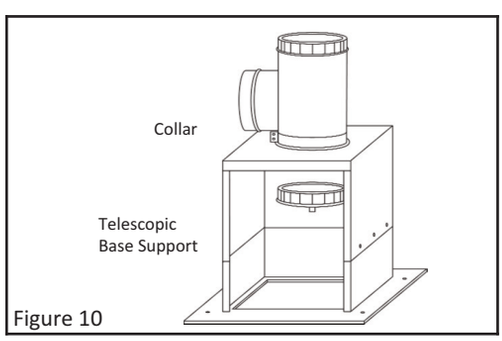


Figure 10

Intermediate Wall Support

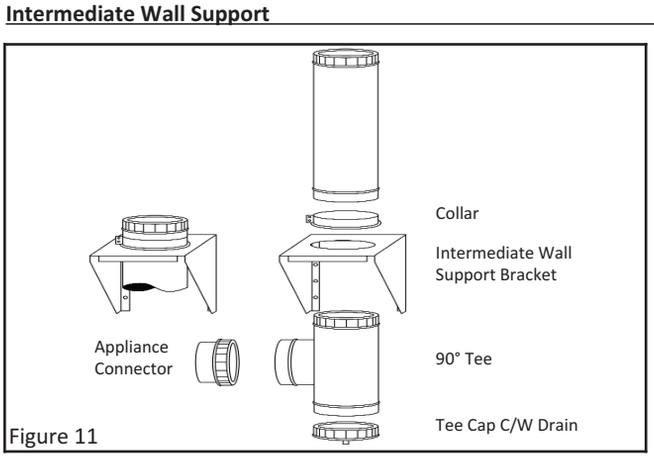


Figure 11

Ensure that the brick wall or other media is suitable to house a support bracket. Suitable bolts will be required to fix the bracket to the wall.

Assemble the support plate and two side plates using the holes provided.

1. Determine the best location for the bracket considering that the support collar is best situated just under the inverted swage before the male end of the flue. If this is not possible then the bracket can be located anywhere other than right on a joint.
2. With the bracket in position fix it securely to the wall starting at the bottom and working up.
3. Pass the flue up through the bracket and locate the collar underneath the swage.
4. Alternatively, pass the flue up, locate the collar along the length of the flue and mark out the fixing points.
5. Remove the flue and carefully drill the outer casing. **CAUTION!! Care must be taken to ensure that the internal lining is not penetrated. The drill must therefore be set to ensure a maximum penetration of 15mm. After drilling carry out a visual inspection of the inner liner.**

Installation of Flashings and Weather Proofing

Flashings

Aluminium, lead and flexible pipe flashings are available and the external chimney casing temperature and the type of roof surface should be considered when choosing the appropriate flashing. In general the HT-S Aluminium flashing plates will be suitable. For flat or nearly flat roofs the flat flashing plate should be used. The adjustable flashing plate should be used for roof pitches from 5° to 45°. Flashing plates can be made to order for pitches outside this range.

Installation Procedure

Locate the chimney route so that it will penetrate the ceiling through the joists and rafters where this is possible. Otherwise it may be necessary to seek the advice of a structural engineer. Approval from a structural engineer would be required for example if you were to cut through a rafter on a trussed rafter roof, or cut through a purlin or ridge timber on either roof system. Any alterations must be carried out by a competent person.

Inside Preparations

Inside, determine the centre point where the chimney will penetrate the ceiling. This point should be clear of electric cables and water pipes etc. Drill a small hole with a masonry bit and mark the spot with a small length of dowel or a pencil to aid locating the penetration point from outside.

Outside Preparations

For pitched roofs remove and set aside sufficient tiles from the penetration point to allow the flashing to be fitted. Mark out a circle in the roof liner using the hole in the roof plate as a template. Cut back to the circle in segments.

Pass the chimney through the roof lining segments and then tape the roof lining segments to the flue. Pass the roof plate over the chimney. Fit the roof plate across the joists and fix with 30mm woodscrews and washers. Then replace the tiles.

For flat roofs use the roof plate as a template to mark out a circle which is then to be cut out and removed. Then mark out a square approximately 2” larger than the roof plate all around. Cut back to this line in segments. Lift back the segments and fit the roof plate over the flue and fix to the battens. Re-fit the segments forming a weatherproof dressing. Only weatherproof up to 1 or 2” below the top edge of the roof plate.

Sealing

After the roof plate is fitted a storm collar is then simply clamped into place on the outer casing of the chimney directly above the flashing plate. Waterproof silicone based sealant (suitable for use in operating temperatures of up to 180°) should be used to seal the collar and any lock-formed joints exposed above the collar, e.g. on 1500mm lengths.

If a 1500mm length is installed through the roof, the lock formed joint along it’s length must be sealed with a bead of silicone sealant. Where tees are installed externally in exposed locations it is recommended that the point where the tee branch intercepts the tee body is sealed with silicone sealant to ensure that driving rain cannot enter the insulation cavity.

Weatherproofing External Walls

Where the chimney passes through an external wall you will require a trim plate, storm collar and waterproof silicone based sealant. Ensure that the external wall surface is free from dust. Pass the chimney through the wall, then fit the trim plate using sufficient silicone sealant to seal between the wall and the trim plate. Then clamp the storm collar around the flue and again apply sufficient sealant to form a seal between the storm collar and the trim plate and also between the storm collar and the chimney.

Guy Wire Bracket

See also ‘Lateral Strength’. To install guy wires you shall need a guy wire bracket and a guy wire kit. The kit contains 30m of cable which will be more than sufficient for each installation. The structure which the guys are being fixed to must be structurally sound. Clamp the guy wire bracket around the flue above a locking band. Measure the guys, cut and assemble. The guys must be fitted so that their angle from the vertical (Φ) is more than 30°. Once installed tighten the guys to remove any slack. Be careful not to over tighten the guys.

Step by step instructions are available from the sales office.

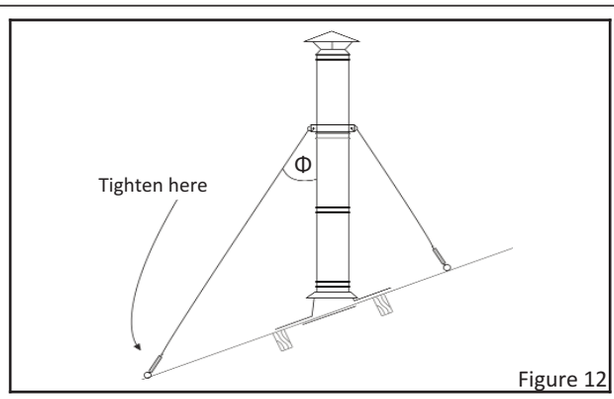
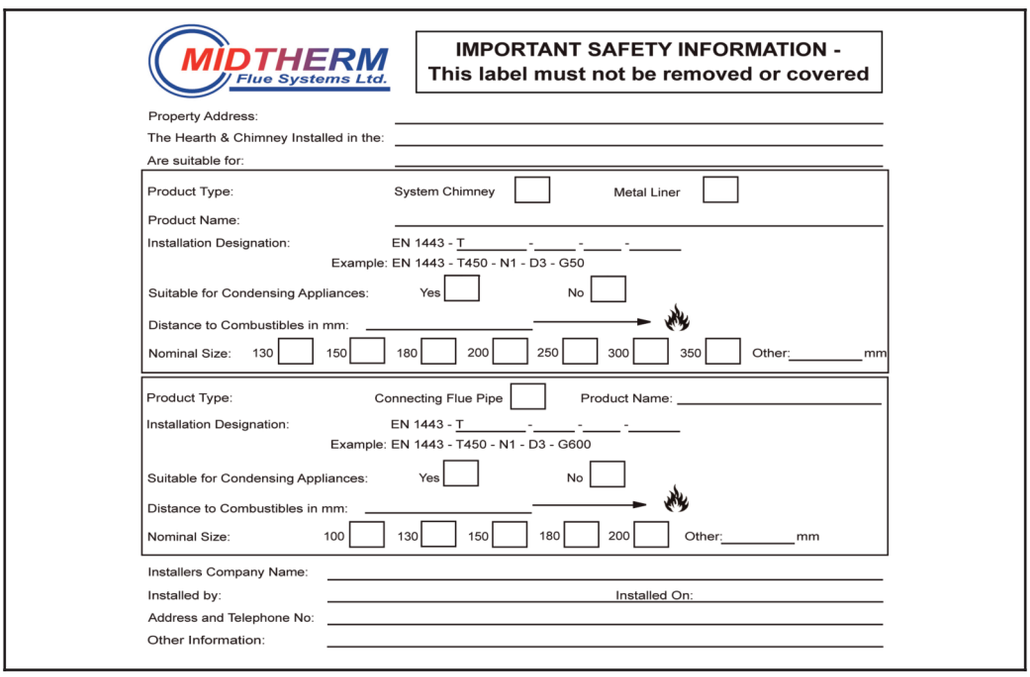


Figure 12

Chimney Plate

The plate should be permanently and indelibly marked and fixed in a visible position. The plate must not be covered or removed. Possible locations are by the cleaning/inspection access, the side of a fireplace, at the chimney inlet or possibly by the electricity / gas / water meter.


MIDTHERM Flue Systems Ltd.

IMPORTANT SAFETY INFORMATION - This label must not be removed or covered

Property Address: _____

The Hearth & Chimney Installed in the: _____

Are suitable for: _____

Product Type: System Chimney ☐ Metal Liner ☐

Product Name: _____

Installation Designation: EN 1443 - T_____-_____-_____-_____

Example: EN 1443 - T450 - N1 - D3 - G50

Suitable for Condensing Appliances: Yes ☐ No ☐

Distance to Combustibles in mm: _____

Nominal Size: 130 ☐ 150 ☐ 180 ☐ 200 ☐ 250 ☐ 300 ☐ 350 ☐ Other:_____mm

Product Type: Connecting Flue Pipe ☐ Product Name: _____

Installation Designation: EN 1443 - T_____-_____-_____-_____

Example: EN 1443 - T450 - N1 - D3 - G600

Suitable for Condensing Appliances: Yes ☐ No ☐

Distance to Combustibles in mm: _____

Nominal Size: 100 ☐ 130 ☐ 150 ☐ 180 ☐ 200 ☐ Other:_____mm

Installers Company Name: _____

Installed by: _____ Installed On: _____

Address and Telephone No: _____

Other Information: _____

Guidance on completing the "Installation Designation"

Example Installation Designation:

HT-S on multi fuel appliance (ventilated plates installed)	EN 1443 – T450 – N1 – D3 – G50
HT-S on gas/oil fired appliance for positive pressure applications with silicone sealant	EN 1443 – T200 – P1 – D3 – O50
HT-S on gas/oil fired appliances without silicone sealant	EN 1443 – T200 – N1 – D3 – O50

The "Installation Designation" shall reflect the combination of products installed. For example HT-S has a temperature rating of T450 when tested to EN 1856-1 and installed as detailed in these instructions to achieve the soot fire classification G50 (i.e. with ventilated fire stop and support plates). However if the product is installed with standard fire stop and support plates then the "Installation Designation" will be T200 and without soot fire resistance (i.e. "O" classification). **IF IN DOUBT** please call the sales or technical department.

Likewise the HT-S product label states N1 as the pressure designation, however if the product is installed with the silicone sealant then the Chimney Plate for the installation can state P1.

15. OPERATION AND MAINTENANCE

Once correctly installed the flue should be operated and maintained correctly. Please see the appliance manufacturers operation and maintenance instructions and System Chimney operation and maintenance instructions for further information.

16. HEALTH AND SAFETY

When carrying out any installation/site work it is the Installer / Installation company's legal duty to ensure all Regulations made under the Health and Safety at Work Act 1974 are complied with including: - The Management of Health and Safety at Work Regulations, The Manual Handling Operation Regulations, The Workplace (Health, Safety and Welfare) Regulations, The Provision and Use of Work Equipment Regulations, The Personal Protective Equipment Regulations and The Control Of Substances Hazardous to Health Regulations.

This product does not contain asbestos. COSHH Data sheets are available on request.

Stainless steel flue products may have sharp edges and suitable PPE may be required as per the installer/installation companys Risk Assesment. It is the responsibility of the installer/installation company to determine any possible building, structual or asbestos risks on site prior to installation.