

# SIGMA

**Single Wall Connecting  
Flue Pipe For Multi-Fuel  
Appliances**

**Diameter Range  
130mm - 200mm**



# SIGMA Single Wall Connecting Flue Pipe

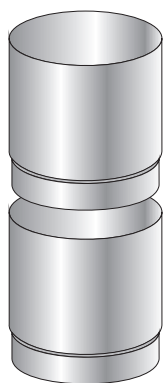
## Product Information

### Introduction

SIGMA has been specifically designed as a connecting flue pipe to facilitate connection between a multi-fuel appliance and either an existing brick chimney or a prefabricated twin wall system chimney. SIGMA has been designed to offer a smooth aesthetically pleasing joint without the need for additional Locking Bands. The SIGMA product is available in four diameters covering 130mm, 150mm, 180mm and 200mm. The product range covers lengths, fittings and support components to ensure simplicity of installation.

### Product Description

SIGMA is manufactured from corrosion resistant 316L (1.4404 : X2CrNiMo 17-12-2) stainless steel with a material thickness of 0.6mm. All components are fully welded to ensure integrity and stability of the product. The joint is designed to offer the appearance of a smooth continuous pipe, offering a very aesthetically pleasing finish to the product. This is achieved by slightly reducing the diameter of the male end to allow engagement with the female end. The joint is made by sliding the male end into the female end of the joint. Due to the tight tolerance interference fit and the 50mm of engagement a strong joint is formed, alleviating the need for any additional Locking Band when the product is installed under compression.



SIGMA is installed with the male end facing towards the appliance. Each component is simply pushed together by engaging the male tight into the female. The system is installed from the appliance up.

### Application

SIGMA is designed to be used internally as a multi-fuel connecting flue pipe and must be applied in accordance with National Building Regulations and installation instructions. The product is designed for use on natural draught dry systems where the flue gas temperature will not exceed 600°C. The SIGMA product is not suitable for fully condensing or positive pressure appliances, in these cases the Supra product should be used.

### Support

The system MUST only be supported by components within this system range.

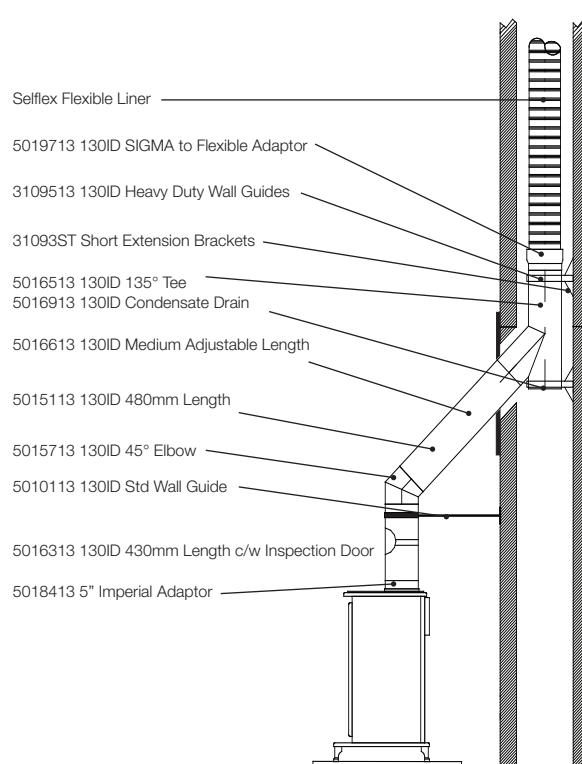
### Approvals

The SIGMA system is CE marked to BS EN 1856-2 to the performance designation as detailed within Table A and is suitable for use with solid fuel fired equipment.

### Quality

SIGMA is manufactured under a Quality Assurance Scheme, certificate no. FM557622, administered by British Standards in accordance with BS EN ISO 9001:2008. SIGMA is also manufactured under the requirements of the Construction Products Directive FPC system, certification no 0086-CPD-559419 for products manufactured to BS EN 1856-2.

## Typical Installation



### Soot Fire Resistance

The SIGMA product has been tested at a temperature of 1000°C for 30mins as required under BS EN 1856-2 and has a sootfire resistance of G(400) M.

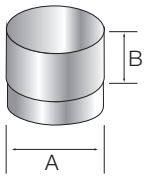
Table A

SIGMA product designations to BS EN 1856-2									
0086-CPD-559419	SIGMA	BS EN 1856-2	T600	N1	D	V2	L50060	G(XX)	NM
0086-CPD-559419	SIGMA	BS EN 1856-2	T600	N1	D	V2	L50060	G(400)	M
Standard number									
Temperature class									
Pressure class									
Condense resistance D=dry W=wet									
Corrosion class									
Material specification Liner grade 316L Liner thickness: 0.6mm									
Sootfire resistance G=yes O=no									
NM (Not Measured) M (Measured)									

(XX) is the distance to combustible material, for NM this is 3 X pipe diameter where the SIGMA product has been externally painted.

# Components

## Adaptors

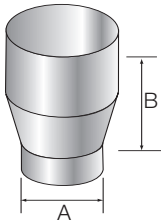


### Appliance Adaptor (Imperial)

Used to connect to an imperial appliance outlet.

Size	A (mm)	B (mm)	Code
130mm	124	50	5018413
180mm	174	50	5018418

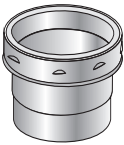
Tail: 50mm Long



### Increaser Adaptor

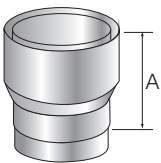
Used to increase the appliance outlet spigot by one diameter to the SIGMA range.

Size	A (mm)	B (mm)	Code
130mm	95	131	5019413
150mm	120	131	5019415
180mm	145	131	5019418
200mm	170	131	5019420



### Sigma to SFL Product Adaptors

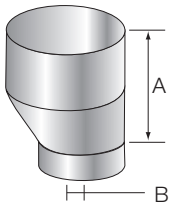
Please refer to the individual product literature for correct adaptor to Sigma.



### SIGMA to Flex Adaptor

Use to connect from SIGMA single wall to a generic flexible flue liner.

Size	A (mm)	Code
130mm	135	5019713
150mm	135	5019715
180mm	135	5019718
200mm	135	5019720

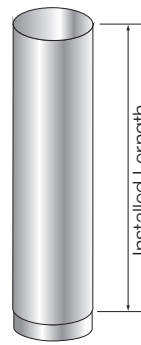


### 130ID to 150ID Eccentric Increaser

Used to offer a slight offset around a lintle etc.

Size	A (mm)	B (mm)	Code
130mm	194	10	5010613

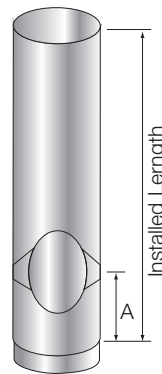
## Lengths



### Standard Lengths

Lengths are available in nominal sizes as detailed below. With care the female end can be cut down on site to suit requirements.

Size	Installed Length		
	1010mm	480mm	303mm
130mm	5015013	5015113	5015213
150mm	5015015	5015115	5015215
180mm	5015018	5015118	5015218
200mm	5015020	5015120	5015220

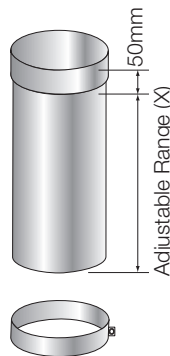


### Standard Lengths c/w Inspection Door

As per the Standard lengths but with an Inspection door fitted.

Size	Installed Length		
	1010mm	480mm	303mm
130mm	5016213	5016313	5016413
150mm	5016215	5016315	5016415
180mm	5016218	5016318	5016418
200mm	5016220	5016320	5016420

The dimensional position A of the Inspection Door is 140mm from the installed male end of pipe.



### Adjustable Length

Used where standard lengths are not suitable, can be cut down if required. The Adjustable Length constitutes a slip length designed to slide into an existing standard length. A Clamp Band is then secured around the joint and finished with the provided self tapping screw.

Size	Adjustable Lengths		
	Short	Medium	Long
130mm	5014513	5016613	5014613
150mm	5014515	5016615	5014615
180mm	5014518	5016618	5014618
200mm	5014520	5016620	5014620

Size	Maximum Adjustment (x)		
	Short	Medium	Long
130mm	288mm	465mm	995mm
150mm	278mm	455mm	985mm
180mm	263mm	440mm	970mm
200mm	253mm	430mm	960mm

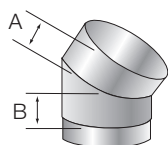
The above figures relate to the maximum amount of adjustment taking into account the required length for engagement. The minimum length for all sizes is 50mm

# Components

## Elbows & Fittings

### 15° Elbow

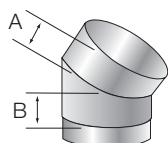
Used to provide a 15° change of direction or can be used in pairs as an offset.



Size	A (mm)	B (mm)	Code
130mm	100	50	5015413
150mm	100	50	5015415
180mm	100	50	5015418
200mm	100	50	5015420

### 30° Elbow

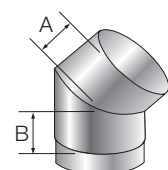
Used to provide a 30° change of direction or can be used in pairs as an offset.



Size	A (mm)	B (mm)	Code
130mm	100	50	5015513
150mm	100	50	5015515
180mm	100	50	5015518
200mm	100	50	5015520

### 45° Elbow

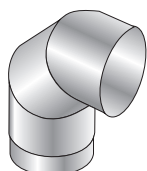
Used to provide a 45° change of direction or can be used in pairs as an offset.



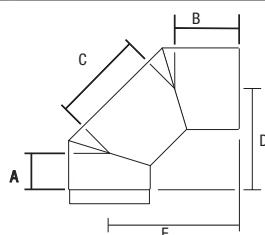
Size	A (mm)	B (mm)	Code
130mm	100	50	5015713
150mm	100	50	5015715
180mm	100	50	5015718
200mm	100	50	5015720

### 90° Elbow

Used to provide a 90° change of direction.



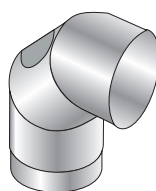
Size	Code
130mm	5015913
150mm	5015915
180mm	5015918
200mm	5015920



Size	Dimensions (mm)				
	A	B	C	D	E
130mm	46	86	102	118	158
150mm	51	91	112	130	170
180mm	57	97	125	145	185
200mm	62	102	133	155	195

### 90° Elbow c/w Inspection Door

Used to provide a 90° change of direction and includes an Inspection / Clean Out Door.



Size	Code
130mm	5016013
150mm	5016015
180mm	5016018
200mm	5016020

### Aperture Size

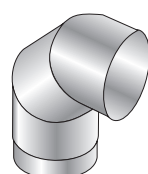
125ID - 150ID : 90mm X 135mm

180ID - 200ID : 120mm X 150mm

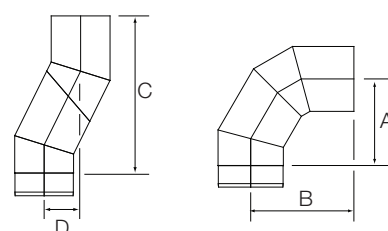
All other dimensions as standard 90° Elbow.

### 0 - 90° Adjustable Elbow

A fully adjustable elbow covering an angle from 0 to 90° for where flexibility of angle and offset are required.



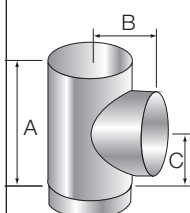
Size	Code
130mm	5011113
150mm	5011115



Size	A	B	C	D
130mm	197	190	310	76
150mm	197	190	310	76

### 90° Equal Tee

Used to provide a 90° change of direction. Also used as an inspection / cleaning component or at the base of a vertical chimney.

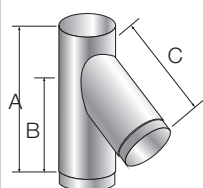


Size	Dimensions (mm)			Code
	A	B	C	
130mm	480	90	260	5013013
150mm	480	100	260	5013015
180mm	480	115	260	5013018
200mm	480	125	260	5013020

# Components

## 135° Booted Equal Tee

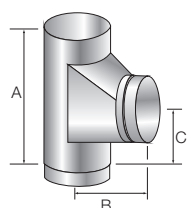
Used to provide a 45° change of direction. Also used as an inspection / cleaning component or at the base of a vertical chimney.



Size	Dimensions (mm)			Code
	A	B	C	
130mm	480	320	320	5016513
150mm	480	320	320	5016515
180mm	480	320	320	5016518
200mm	480	320	320	5016520

## 90° Swept Tee

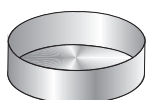
Used to connect to a rear outlet and to allow easy sweeping through the appliance. Can be used either with a Tee Cap or Condensate Drain (ordered separately).



Size	Dimensions (mm)			Code
	A	B	C	
130mm	335	160	125	5013113
150mm	335	160	125	5013115
180mm	335	160	125	5013118
200mm	335	160	125	5013120

## Tee Plug

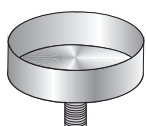
Used to close off the branch or base of a tee. Tee Plug has handle fitted.



Size	Code
130mm	5019113
150mm	5019115
180mm	5019118
200mm	5019120

## Condensate Drain

Used for the removal of condensation and rain water at the base of a vertical chimney or at the outlet of the appliance.



Size	Code
130mm	5016913
150mm	5016915
180mm	5016918
200mm	5016920

## Support Components



### Heavy Duty Wall Guide

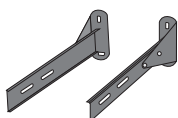
Used to laterally brace the connecting flue against a non-combustible surface. Can also be used within the chimney to support either a 90° or 135° Tee prior to connection to the flexible liner. This component offers a 50mm clearance between the outer surface of the pipe and fixing surface. Various Extension Brackets are available, see below.

Size	Code
130mm	3109508
150mm	3109510
180mm	3109513
200mm	3109515



### Extension Brackets

These are available in Short, Medium and Long and are used to extend the available clearance from the standard Heavy Duty Wall Guide detailed above.



Short	Codes		Long
	Medium		
31093ST	31093MD		31093LG

Size	Max / Min Clearance (mm)		
	Short	Medium	Long
130mm	55-234	55-305	55-510
150mm	55-224	55-295	55-500
180mm	55-209	55-280	55-485
200mm	55-199	55-270	55-475



### Standard Wall Guide

Used to laterally brace the connecting flue. This component can be cut as required to provide a clearance of between 50mm and 400mm between the outer flue and fixing surface.

Size	Code
130mm	5010113
150mm	5010115
180mm	5010118
200mm	5010120



# Installation Instructions

## 1 General

SIGMA has been specifically design for use as a connecting flue pipe to facilitate connection from the outlet of a multi-fuel appliance to the chimney. Where appropriate, the SIGMA connecting flue product can be used to connect to either a twin wall system chimney product such as Nova SM or in the case of an existing brick chimney, a multi-fuel flexible liner such as the SFL Selflex product. In all cases the product must be installed in accordance with Building Regulations Part J and the manufacturers installation instructions. Further guidance should also be sought from BS EN 15287-1: Design, installation and commissioning of chimneys.

## 2 Diameter Selection

In general the diameter of the connecting flue pipe should be of the same cross sectional area as the appliance outlet or as recommended by the appliance manufacturer. More detailed guidance can be found under Section 2 Table 2 of the Building Regulations Part J and is summarised below:

Application	Size
Fireplace with opening up to 500mm X 550mm	200mm
Closed appliances up to 20kW output (Smokeless or Exempt Appliances)	130mm
Closed appliances up to 30kW output burning any fuel	150mm
Closed appliances above 30kW and up to 50kW output burning any fuel	180mm
Pellet burner or boiler which meets the requirement of the Clean Air Act	130mm*

\* This diameter may be reduced to no less than 100mm when permitted by the appliance manufacturer and supported by calculation in accordance with BS EN 13384-1.

## 3 Connection to the Appliance

The SIGMA product is designed to fit straight into a metric appliance outlet spigot without the need for an adaptor. For 5" and 7" outlet spigots, the Imperial Adaptor should be used to make the transition to the SIGMA product. Increaser Adaptors are also available where the connecting flue pipe needs to be increased in size. When making the connection, it is advisable to finish the joint between the appliance outlet and the SIGMA product by applying a seal of either fire cement or a suitable high temperature sealant.

## 4 Height of Connecting Flue Pipe

Excessive runs of single wall connecting flue pipe should be avoided and limited to no more than a maximum of 2.0 metres. Although single wall connecting flue pipes radiate heat into the room, heat is also lost from the flue gases. Excessive losses especially when the appliance is being slumbered can lead to poor draught and condensation / deposits forming in the chimney. This can lead to poor chimney performance, downdraughts and the potential risk of a chimney fire and reduced product life.

## 5 Elbows in Connecting Flue Pipes

### Top Outlet Appliance:

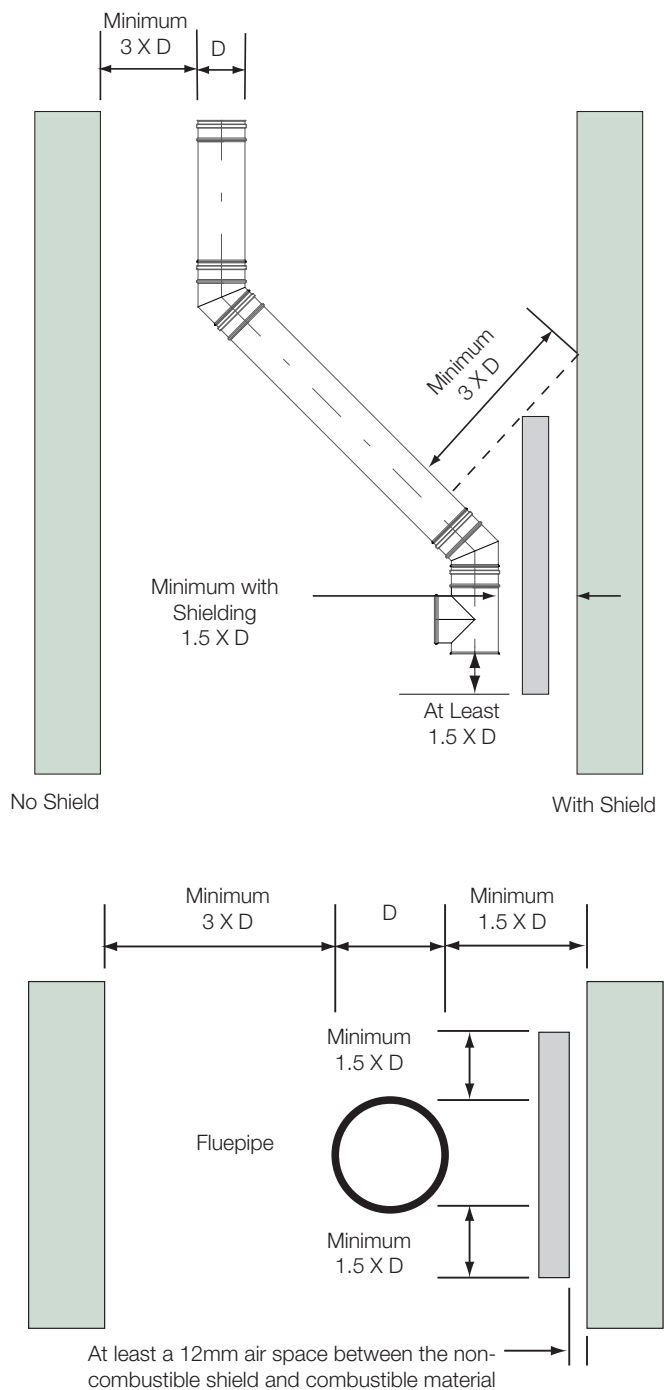
The connecting flue pipe should have no more than 2 elbows in its length with an angle no greater than 45° when measured from the vertical. Where possible the connecting flue pipe should rise vertically straight.

### Rear Outlet Appliances:

Connection to a rear outlet appliance may be made using the swept 90° Booted Tee. A Tee Cap should be used at the based of the swept 90° Booted Tee to act as a debris trap and the joint secured with a stainless steel self tapping screw. The maximum horizontal distance from the outlet spigot to the centre line of the chimney should be no more than 150mm, subject to the appliance manufacturers installation instructions.

## 6 Distance to Combustible Materials

The SIGMA product must be installed at a minimum of 400mm from any combustible materials. Where the product has been painted, this distance must be a minimum of three times the nominal diameter of the connecting flue pipe. Where possible shielding may be applied to reduce this distance in line with the recommendations given in Part J of the Building Regulations and as summarised below. Where there is close proximity of combustible materials, SFL would suggest that a twin wall chimney product is used, such as Nova.



Where a shield is used, it must extend beyond the flue pipe by at least  $1.5 \times D$ .

## 7 Cleaning and Access

Provision must be made to inspect and clean both the connecting flue pipe and chimney. Some appliances have a removable baffle plate to facilitate sweeping through the appliance. Where this facility is not available, an Inspection / Clean Out Door component is required. For rear outlet appliance where no removable baffle plate is available, a check is required to determine whether sweeping can be applied through the debris trap in the swept 90° Tee. If this is not possible, then a further Inspection / Clean Out Door Length will be required directly above the Swept 90° Tee.

## 8 Connection to the Chimney

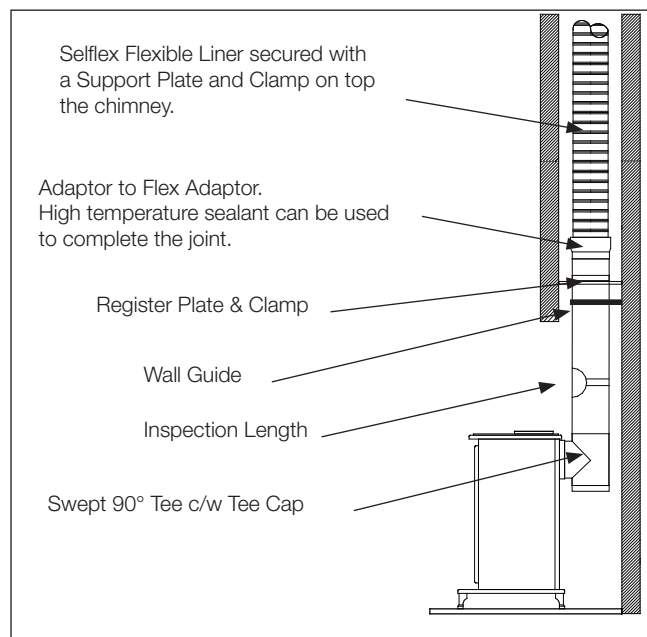
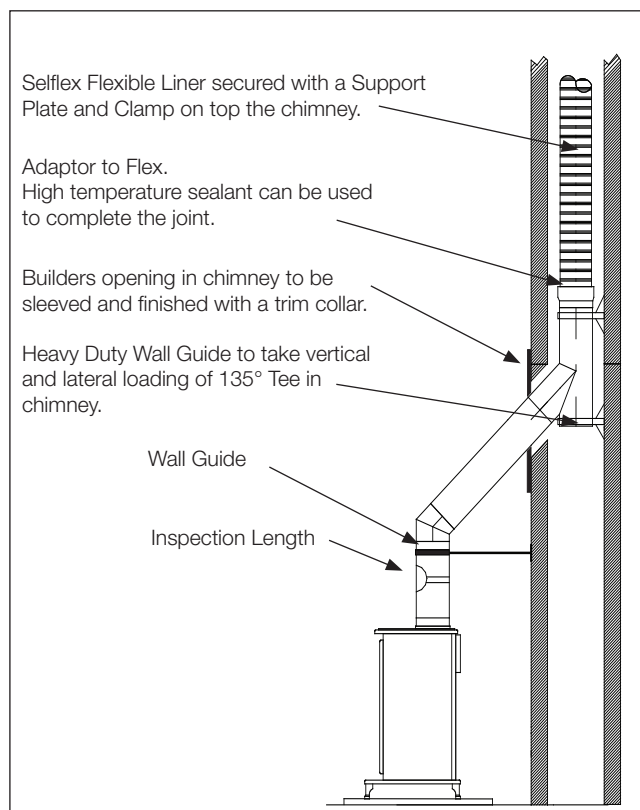
The SIGMA product must only be used to make the connection between the appliance outlet spigot and the chimney. It should not pass through any roof space, partition wall or floor, except to pass directly into a chimney through either a wall of the chimney or a floor supporting the chimney.

### Connecting to Twin Wall System Chimneys:

Connection to a twin wall pre-fabricated chimney system must be made using a suitable adaptor as supplied by the chimney manufacturer and installed in accordance with their installation instructions. A full range of SIGMA to Twin Wall Adaptors are available from SFL to facilitate connection to Nova, SMW and Omega Plus chimney systems.

### Connecting to a Flexible Liner within a brick chimney:

Connection to a flexible liner can be achieved either from directly under the chimney where the appliance is positioned within a fireplace or through the side of the chimney. This will ultimately depend on site conditions.



## 9 Structural Considerations

As SIGMA does not rely on Locking Bands to secure the joint, it is critical that the system is installed between two fixed and secured points (Appliance Outlet and Chimney Inlet).

Where an offset is installed, each elbow must be adequately braced using suitable support components to restrict any movement of the joint. This is especially important to stop the potential separation of joints while brushing through the system.

On completion of the installation, each joint within the connecting flue pipe should be physically pulled in tension to ensure that each joint is structurally sound and that there is no potential for movement between the appliance outlet and the chimney inlet.

## 10 Adjustable Lengths

Adjustable Lengths are not load bearing and must be supported from above or at each elbow when used in an offset. Once the desired length is determined, the Clamp Band is secured around the joint to prevent movement. Please note that this is only a frictional clamp and offers no loading capability to the component. The clamp should then be secured to the connecting flue pipe with the provided self tapping screw. With care, Adjustable Lengths can be cut down on site by trimming the female end.

## 11 Painting of Sigma Components

As standard the Sigma product is supplied in its natural stainless steel 2B finish. A suitable high temperature resistant paint coating can be applied to the product once it is installed. Where a paint coating is applied, the minimum distance to combustible material MUST revert to three times the outside diameter of the connecting pipe and not the declared distance to combustible of 400mm.

## 12 Handling

The product is relatively easy to handle, but care should be taken when holding, fitting or assembling any part of the system. Users are advised to take suitable precautions, gloves etc, to avoid injury on any sharp exposed edges.

The information contained in this brochure was accurate at the date of publishing. However the company reserves the right to introduce at any time modifications and changes of details as may be necessary. To avoid any misunderstanding, interested parties should contact the company to confirm whether any material alterations have been made since the date of this brochure.



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