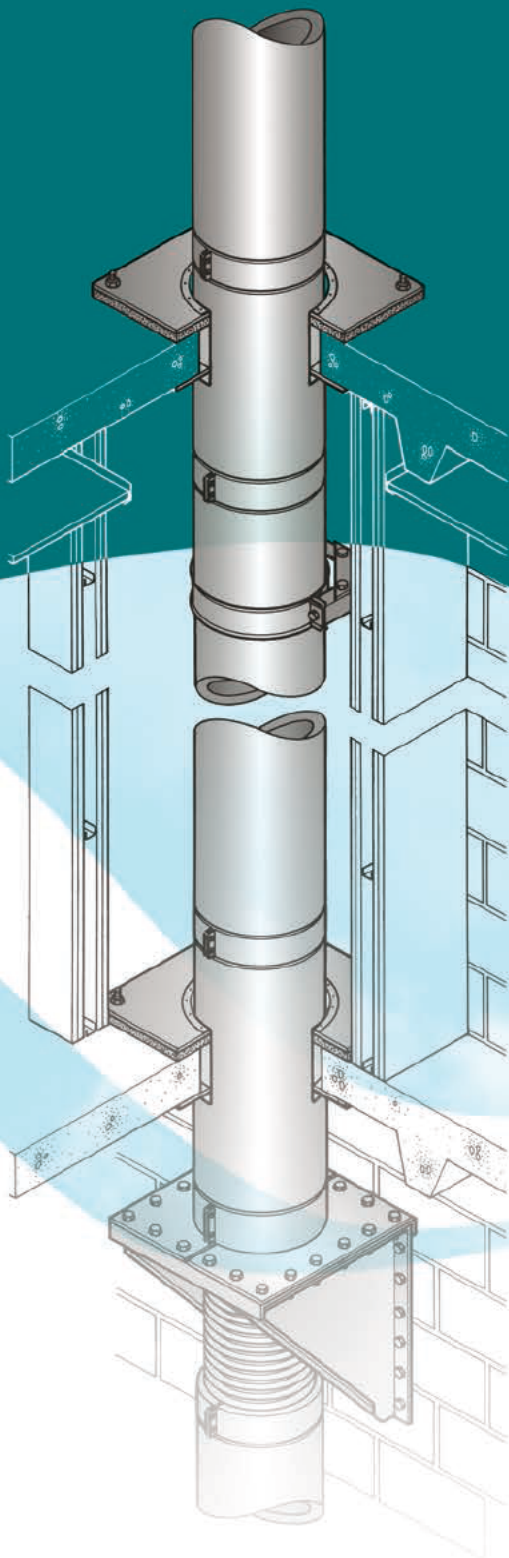




100% Made in the UK

EUROPA

High Pressure Twin-Wall
Stainless Steel
Multi-Purpose
Exhaust Duct and
Chimney System
100mm - 1200mm Internal




SFL
flues & chimneys
Solutions For Life

Introduction

Europa has been specifically designed for today's high performance appliances, offering an engineered system capable of meeting the demands for high temperature and high pressure applications.

Suitable for continuous flue gas temperatures up to 600°C (T600) and positive pressure applications up to 5000 Pa (H1), makes Europa Plus the ideal product for standby generators and combined heating and power (CHP) plant.

The system has also been tested for soot fire conditions at 1000°C for 30 minutes and is 4-hour fire rated to BS 476 Part 24: Method for determination of the fire resistance of ventilation ducts.

Applications

- Electrical generators
- Combined heating & Power (CHP)
- Condensing / conventional heating and hot water appliances
- Catering / Kitchen extract duct
- Lightweight particle movement
- Industrial process fume extraction
- Smoke extraction

Product Description

Europa is a pre-fabricated stainless steel exhaust vent, available in a range of material specifications and insulation thickness to meet the most demanding applications. As standard Europa Plus is offered as a twin wall insulated stainless steel exhaust system and is available in twenty two internal diameters ranging from 100mm to 1200mm. The fully welded liner is manufactured from corrosion resistance 1mm - 1.2mm 316L (1.4404 : X2CrNiMo 17-12-2) and a 304 (1.4301 : X5CrNiMo 18-10-2) outer case. The 25mm annulus is insulated with a high density mineral wool fibre to ensure rapid draught stabilisation and low surface temperature. Europa is also available to order in the following material specifications:

| Annulus | Inner | Outer | Code |
|----------------------|-------|-------|----------|
| 25mm Insulated (STD) | 316L | 304 | 174XXXXX |
| 25mm Insulated | 304 | 304 | 175XXXXX |
| 50mm Insulated | 316L | 304 | 144XXXXX |
| 50mm Insulated | 304 | 304 | 145XXXXX |
| 100mm Insulated | 316L | 304 | 184XXXXX |
| 100mm Insulated | 304 | 304 | 185XXXXX |
| 25mm Air | 316L | 304 | 178XXXXX |
| Single Wall | 316L | - | 179XXXXX |
| Single Wall | 304 | - | 173XXXXX |

All components within the range are designed to be installed without the need for modification, welding or cutting of the product. Europa offers a full range of components including set lengths, elbows, tees, appliance adaptors, terminals, and supports / fixings. Where used on condensing appliances, special angled components are available such as 95° Tees, Duct Drains, Condensate Collectors and Drain Sections to facilitate drainage of condensation back through the system to suitable drainage locations. Various expansion components are also included within the range to facilitate expansion and contraction of the system with temperature.

Approvals

Europa has been assessed and CE Marked to BS EN 1856-1: 2009 to the performance designation of Fig.1 below. The product has also been assessed by the Loss Prevention Council for fire resistance. A fire resistance of four hours can be achieved in accordance with the stability and integrity criteria of BS 476: Part 24.

Quality Management

All components are manufactured under a quality assurance scheme, certificate No. FM557622, administered by The British Standards Institute in accordance with BS EN 9001: 2008. In addition SFL hold EC Certificates as required under the Construction Products Directive 93/68/EEC for products manufactured to BS EN 1856-1/2. Certificate No's. 0086-CPR-496040 & 0086-CPD-559419 respectively.

Environmental Management

SFL care about our environment and operate a business wide Environmental Management System and is approved to ISO 14001.



Fig. 1 - Performance Designation

| Product Performance Specification to BS EN 1856-1: 2009 | | | | | | | | | |
|---|--------------|------|----|---|----|--------|--------|--|--|
| Europa (100-300ID) | BS EN 1856-1 | T600 | H1 | W | V2 | L50100 | G(100) | | |
| Europa (100-300ID) | BS EN 1856-1 | T250 | H1 | W | Vm | L30100 | O(50) | | |
| Europa (350-450ID) | BS EN 1856-1 | T600 | H1 | W | V2 | L50100 | G(150) | | |
| Europa (350-450ID) | BS EN 1856-1 | T250 | H1 | W | Vm | L30100 | O(75) | | |
| Europa (500-600ID) | BS EN 1856-1 | T600 | H1 | W | V2 | L50100 | G(200) | | |
| Europa (500-600ID) | BS EN 1856-1 | T250 | H1 | W | Vm | L30100 | O(100) | | |
| Europa (>650ID) | BS EN 1856-1 | T600 | H1 | W | V2 | L50100 | G(400) | | |
| Europa (>650ID) | BS EN 1856-1 | T250 | H1 | W | Vm | L30100 | O(200) | | |

| | |
|---|--------------|
| Standard number | BS EN 1856-1 |
| Temperature class | T600 |
| Pressure class | H1 |
| Condense resistance D=dry W=wet | W |
| Corrosion class | V2 |
| Material specification Liner grade 316L Liner thickness: 1-1.2mm (Above 1000mm) | L50100 |
| Sootfire resistance G=yes O=no | G(100) |

CHOICE OF MATERIALS AND CHIMNEY ENVIRONMENT

Although Europa is supplied as standard with a highly corrosive 316L austenitic stainless steel liner and 304 austenitic stainless steel outer case, a corrosive environment can lead to premature failure of the product. The two main considerations are the internal environment within the appliance plant room and the external environment. Where the chimney is installed in coastal areas, it is recommended that any external portion is protected with a suitable anti-corrosion coating. It is also recommended that only stainless steel support components are used. Where galvanised steel components are used within this environment, it is suggested that they are coated with a protective finish to help prevent corrosion. Care must also be taken to ensure that there is no possibility of chemical contamination of the combustion air supply in the internal environment. Halogens, especially chlorine and chloride when entering into the combustion process through the combustion air duct can lead to the formation of aggressive compounds. Prolong exposure to such chemicals can lead to early deterioration of the chimney system. Chemicals which may result in corrosion of the chimney system include (but are not limited to):

- chlorinated or halogenated dry cleaning solutions
- fluorocarbon aerosol propellants
- titanium tetrachloride
- chlorine based bleaches and associated cleaning products
- fluorocarbon refrigerants (CFC)
- vinyl based plastics when burn't
- plating or etching baths and solutions

Where extraction systems are discharging externally in close proximity to an external chimney and where the products of the discharge could be corrosive in nature, it is recommended that a suitable protective coating is applied.

THERMAL EXPANSION

As the method of assembly for Europa provides a continuous inner wall, expansion of the vent must be allowed for. Any length of vent where expansion is likely to exceed 6mm between two fixed points, i.e., boiler outlet and elbow, wall supports, etc. must incorporate an expansion component to compensate for thermal movement.

The outer casing is free to expand independently of the inner liner. Floor and Wall Guides must be located to allow for the movement of any adjacent Channel Bands. As a general rule, expansion of the Europa system can be calculated by using the following formula: Liner expansion will be 1mm per metre per 50°C rise of gas temperature.

For example:

A 25 metre run of Europa subjected to a flue gas temperature of 470°C above ambient. (Δt)

$$= 1 \times 25 \times \frac{470}{50} = 235$$

Therefore, total expansion which needs to be accommodated is 235mm. Always assume 1100°C for kitchen / catering equipment extract ducts to allow for potential grease / duct fire.

Correctly installed the chimney will expand and contract along its entire length dependent upon the temperatures to which it is subjected. Conventional methods of attaching guys and braces directly to the outer wall must therefore not be used.

Guide Band assemblies will provide adequate support to the chimney and at the same time allow for thermal movement. Any additional support required for extensions of the vent beyond a roof or parapet level may require additional supports depending upon the freestanding height.

The Telescopic Flashing should always be used where Europa is subjected to vertical expansion through a roof.

JOINT DETAILS AND SEALANTS

All flange to flange inner liner joints are identical.

To provide protection to high temperature sealant whilst it is drying, it is necessary to apply low temperature sealant during the jointing process.

Assembly is accomplished in four easy stages.

1. Having ensured all flange surfaces are free from grit, grease and contaminants, apply a bead of low temperature sealant to the face of one flange surface and bring the parallel flanges of the two elements together.

Loosely connect the two halves of the Vee Band at one end only, and apply appropriate sealant to fill the groove of the Vee Band.

3. Position the Vee Band over the butted flanges and tightly clamp both joints using the nuts and bolts provided.

N.B. On horizontal runs of the vent, locate the securing nut and bolt joints on either side of the vent not top and bottom.

Light tapping with a rubber or nylon headed mallet all round the Vee Band while tightening the clamps is necessary to ensure correct alignment and a tight fit of the flanges. Repeat procedure (usually 2-3 times), until the screws will no longer tighten.

4. If required, wrap the provided insulation around the joint ensuring continuity of insulation. Locate the channel band over the joint so that the turned ends sit in the grooves and secure with the nuts and bolts provided.

N.B. For outdoor installation, apply a bead of suitable sealant in the groove at the upper edge of the channel band and at the overlap at its end. *If the product is to be painted, use Sikaflex sealant. Contact SFL for further details.

CAUTIONS

1. The channel bands are designed to slide in their mating grooves. Do not attach by screws into the outer casing.
2. Do not allow screws or bolts to penetrate the inner liner or outer skin at any point.

The integrity of the joint between components is dependent upon the use of the correct sealant. Choice of sealant will be influenced by the application of the Europa. There are two sealants:

Low temperature Sealant

Provided in 310ml cartridges for application by standard skeleton gun. Suitable for any application where the flue gas temperature does not exceed 300°C.

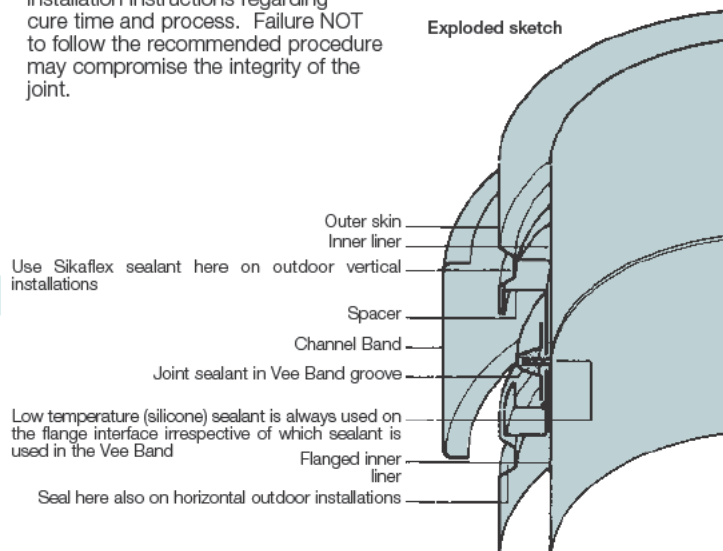
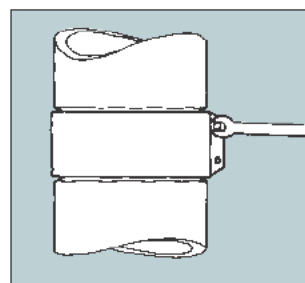
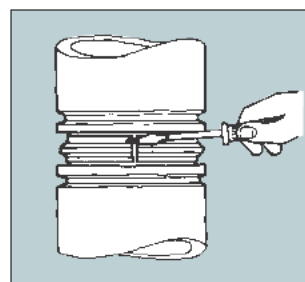
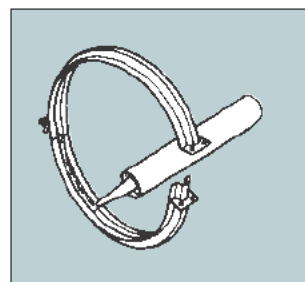
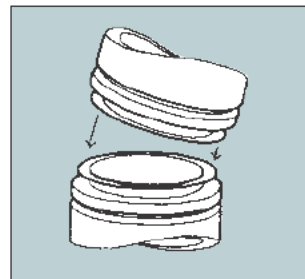
High temperature Sealant

Provided in 310ml cartridges for application by standard skeleton gun. Suitable for any application where the flue gas temperatures exceed 300°C.

Both sealants have been specially selected for Europa. No other sealants must be used, or it could compromise the integrity of the joint.

Sealant Curing Process

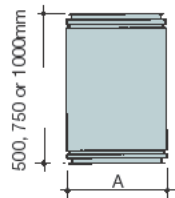
Please refer to individual sealant installation instructions regarding cure time and process. Failure NOT to follow the recommended procedure may compromise the integrity of the joint.



INDIVIDUAL COMPONENTS

All dimensions are based on the standard product with 25mm of insulation. Unless otherwise stated all components are supplied complete with a Vee Band.

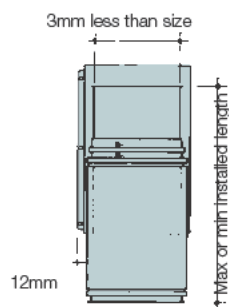
Lengths



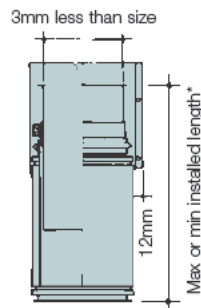
| Size | Dim. A | Code numbers | | |
|--------|--------|--------------|---------|---------|
| | | 500 | 750 | 1000 |
| 100mm | 152 | xxx1404 | xxx1204 | xxx1004 |
| 150mm | 202 | xxx1406 | xxx1206 | xxx1006 |
| 175mm | 227 | xxx1407 | xxx1207 | xxx1007 |
| 200mm | 252 | xxx1408 | xxx1208 | xxx1008 |
| 250mm | 302 | xxx1410 | xxx1210 | xxx1010 |
| 300mm | 352 | xxx1412 | xxx1212 | xxx1012 |
| 350mm | 402 | xxx1414 | xxx1214 | xxx1014 |
| 400mm | 452 | xxx1416 | xxx1216 | xxx1016 |
| 450mm | 502 | xxx1418 | xxx1218 | xxx1018 |
| 500mm | 552 | xxx1420 | xxx1220 | xxx1020 |
| 550mm | 602 | xxx1422 | xxx1222 | xxx1022 |
| 600mm | 652 | xxx1424 | xxx1224 | xxx1024 |
| 650mm | 702 | xxx1426 | xxx1226 | xxx1026 |
| 700mm | 752 | xxx1428 | xxx1228 | xxx1028 |
| 750mm | 802 | xxx1430 | xxx1230 | xxx1030 |
| 800mm | 852 | xxx1432 | xxx1232 | xxx1032 |
| 850mm | 902 | xxx1434 | xxx1234 | xxx1034 |
| 900mm | 952 | xxx1436 | xxx1236 | xxx1036 |
| 950mm | 1002 | xxx1438 | xxx1238 | xxx1038 |
| 1000mm | 1052 | xxx1440 | xxx1240 | xxx1040 |
| 1100mm | 1152 | xxx1444 | xxx1244 | xxx1044 |
| 1200mm | 1252 | xxx1448 | xxx1248 | xxx1048 |

Expansion Length

Designed to provide expansion movement between two fixed elements. Selection of the short or long version will be determined by the amount of expansion and application. This component is NOT loadbearing. Only suitable for low pressure applications N1 (40Pa).



| Size | Code numbers | |
|--------|--------------|---------|
| | Short | Long |
| 100mm | xxx2704 | xxx2604 |
| 150mm | xxx2706 | xxx2606 |
| 175mm | xxx2707 | xxx2607 |
| 200mm | xxx2708 | xxx2608 |
| 250mm | xxx2710 | xxx2610 |
| 300mm | xxx2712 | xxx2612 |
| 350mm | xxx2714 | xxx2614 |
| 400mm | xxx2716 | xxx2616 |
| 450mm | xxx2718 | xxx2618 |
| 500mm | xxx2720 | xxx2620 |
| 550mm | xxx2722 | xxx2622 |
| 600mm | xxx2724 | xxx2624 |
| 650mm | xxx2726 | xxx2626 |
| 700mm | | xxx2628 |
| 750mm | | xxx2628 |
| 800mm | | xxx2632 |
| 850mm | | xxx2634 |
| 900mm | | xxx2536 |
| 950mm | | xxx2638 |
| 1000mm | | xxx2640 |
| 1100mm | | xxx2644 |
| 1200mm | | xxx2648 |



*See data on page 17.

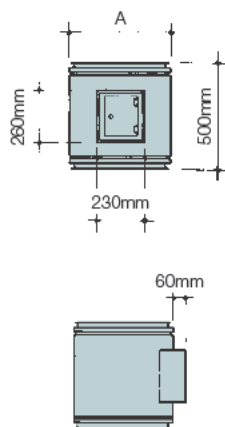
Adjustable Length

Designed to provide an adjustable link between two fixed elements. NOT loadbearing. Selection of the short or long version will be determined by the amount of adjustment required. NOT to be used to accommodate expansion.

| Size | Code numbers | |
|--------|--------------|---------|
| | Short | Long |
| 100mm | xxx2904 | xxx2804 |
| 150mm | xxx2906 | xxx2806 |
| 175mm | xxx2907 | xxx2807 |
| 200mm | xxx2908 | xxx2808 |
| 250mm | xxx2910 | xxx2810 |
| 300mm | xxx2912 | xxx2812 |
| 350mm | xxx2914 | xxx2814 |
| 400mm | xxx2916 | xxx2816 |
| 450mm | xxx2918 | xxx2818 |
| 500mm | xxx2920 | xxx2820 |
| 550mm | xxx2922 | xxx2822 |
| 600mm | xxx2924 | xxx2824 |
| 650mm | xxx2926 | xxx2826 |
| 700mm | | xxx2828 |
| 750mm | | xxx2830 |
| 800mm | | xxx2832 |
| 850mm | | xxx2834 |
| 900mm | | xxx2836 |
| 950mm | | xxx2838 |
| 1000mm | | xxx2840 |
| 1100mm | | xxx2844 |
| 1200mm | | xxx2848 |

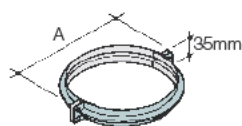
Inspection Length

This component is only suitable for low pressure N1 (40Pa) and Dry applications.



Aperture size: 140 x 200mm

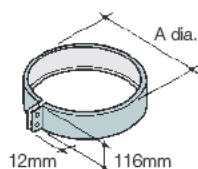
| Size | Dimension A | Code number |
|--------|-------------|-------------|
| 100mm | 152 | xxx6804 |
| 150mm | 202 | xxx6806 |
| 175mm | 227 | xxx6807 |
| 200mm | 252 | xxx6808 |
| 250mm | 302 | xxx6810 |
| 300mm | 352 | xxx6812 |
| 350mm | 402 | xxx6814 |
| 400mm | 452 | xxx6816 |
| 450mm | 502 | xxx6818 |
| 500mm | 552 | xxx6820 |
| 550mm | 602 | xxx6822 |
| 600mm | 652 | xxx6824 |
| 650mm | 702 | xxx6826 |
| 700mm | 752 | xxx6828 |
| 750mm | 802 | xxx6830 |
| 800mm | 852 | xxx6832 |
| 850mm | 902 | xxx6834 |
| 900mm | 952 | xxx6836 |
| 950mm | 1002 | xxx6838 |
| 1000mm | 1052 | xxx6840 |
| 1100mm | 1152 | xxx6844 |
| 1200mm | 1252 | xxx6848 |



A; clearance over joint clips

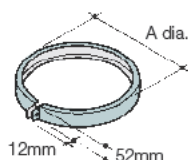
Vee Band

| Size | Dimension A | Code number |
|--------|-------------|-------------|
| 100mm | 145 | xxx4804 |
| 150mm | 195 | xxx4806 |
| 175mm | 220 | xxx4807 |
| 200mm | 245 | xxx4808 |
| 250mm | 295 | xxx4810 |
| 300mm | 345 | xxx4812 |
| 350mm | 395 | xxx4814 |
| 400mm | 445 | xxx4816 |
| 450mm | 495 | xxx4818 |
| 500mm | 545 | xxx4820 |
| 550mm | 595 | xxx4822 |
| 600mm | 645 | xxx4824 |
| 650mm | 695 | xxx4826 |
| 700mm | 745 | xxx4828 |
| 750mm | 795 | xxx4830 |
| 800mm | 845 | xxx4832 |
| 850mm | 895 | xxx4834 |
| 900mm | 945 | xxx4836 |
| 950mm | 995 | xxx4838 |
| 1000mm | 1045 | xxx4840 |
| 1100mm | 1145 | xxx4844 |
| 1200mm | 1245 | xxx4848 |



Channel Band

| Size | Dimension A | Code number |
|--------|-------------|-------------|
| 100mm | 154 | xxx4704 |
| 150mm | 204 | xxx4706 |
| 175mm | 229 | xxx4707 |
| 200mm | 254 | xxx4708 |
| 250mm | 304 | xxx4710 |
| 300mm | 354 | xxx4712 |
| 350mm | 404 | xxx4714 |
| 400mm | 454 | xxx4716 |
| 450mm | 504 | xxx4718 |
| 500mm | 554 | xxx4720 |
| 550mm | 604 | xxx4722 |
| 600mm | 654 | xxx4724 |
| 650mm | 704 | xxx4726 |
| 700mm | 754 | xxx4728 |
| 750mm | 804 | xxx4730 |
| 800mm | 854 | xxx4732 |
| 850mm | 904 | xxx4734 |
| 900mm | 954 | xxx4736 |
| 950mm | 1004 | xxx4738 |
| 1000mm | 1054 | xxx4740 |
| 1100mm | 1154 | xxx4744 |
| 1200mm | 1254 | xxx4748 |

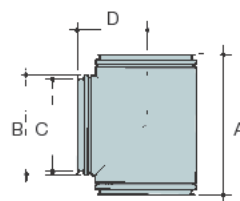


Narrow Channel Band

| Size | Dimension A | Code number |
|--------|-------------|-------------|
| 100mm | 154 | xxx4604 |
| 150mm | 204 | xxx4606 |
| 175mm | 229 | xxx4607 |
| 200mm | 254 | xxx4608 |
| 250mm | 304 | xxx4610 |
| 300mm | 354 | xxx4612 |
| 350mm | 404 | xxx4614 |
| 400mm | 454 | xxx4616 |
| 450mm | 504 | xxx4618 |
| 500mm | 554 | xxx4620 |
| 550mm | 604 | xxx4622 |
| 600mm | 654 | xxx4624 |
| 650mm | 704 | xxx4626 |
| 700mm | 754 | xxx4628 |
| 750mm | 804 | xxx4630 |
| 800mm | 854 | xxx4632 |
| 850mm | 904 | xxx4634 |
| 900mm | 954 | xxx4636 |
| 950mm | 1004 | xxx4638 |
| 1000mm | 1054 | xxx4640 |
| 1100mm | 1154 | xxx4644 |
| 1200mm | 1254 | xxx4648 |

90° Tee

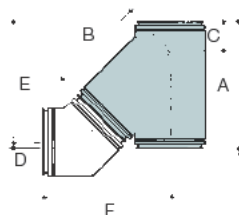
| Size | Dimensions A | B | C | D | Code number |
|--------|--------------|------|------|-----|-------------|
| 150mm | 400 | 202 | 150 | 185 | xxx1906 |
| 175mm | 400 | 227 | 175 | 198 | xxx1907 |
| 200mm | 500 | 252 | 200 | 210 | xxx1908 |
| 250mm | 500 | 302 | 250 | 235 | xxx1910 |
| 300mm | 600 | 352 | 300 | 260 | xxx1912 |
| 350mm | 600 | 402 | 350 | 285 | xxx1914 |
| 400mm | 700 | 452 | 400 | 310 | xxx1916 |
| 450mm | 700 | 502 | 450 | 335 | xxx1918 |
| 500mm | 750 | 552 | 500 | 360 | xxx1920 |
| 550mm | 750 | 602 | 550 | 385 | xxx1922 |
| 600mm | 825 | 652 | 600 | 410 | xxx1924 |
| 650mm | 900 | 702 | 650 | 435 | xxx1926 |
| 700mm | 1000 | 752 | 700 | 460 | xxx1928 |
| 750mm | 1000 | 802 | 750 | 485 | xxx1920 |
| 800mm | 1050 | 852 | 800 | 510 | xxx1932 |
| 850mm | 1100 | 902 | 850 | 535 | xxx1934 |
| 900mm | 1150 | 952 | 900 | 560 | xxx1936 |
| 950mm | 1200 | 1002 | 950 | 585 | xxx1938 |
| 1000mm | 1250 | 1052 | 1000 | 610 | xxx1940 |
| 1100mm | 1350 | 1152 | 1100 | 660 | xxx1944 |
| 1200mm | 1500 | 1252 | 1200 | 710 | xxx1948 |



The Tee will support a maximum vertical loading of up to 11m of Europa product.
Supplied complete with two Vee Bands.

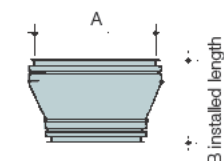
135° Tee

| Size | Dimensions A | B | C | D | E | F | Code number |
|--------|--------------|------|-----|-----|------|------|-------------|
| 150mm | 500 | 328 | 172 | -4 | 504 | 474 | xxx2006 |
| 175mm | 500 | 358 | 142 | 1 | 499 | 504 | xxx2007 |
| 200mm | 600 | 388 | 212 | 6 | 594 | 534 | xxx2008 |
| 250mm | 600 | 449 | 151 | 16 | 584 | 596 | xxx2010 |
| 300mm | 700 | 509 | 191 | 27 | 673 | 655 | xxx2012 |
| 350mm | 750 | 570 | 180 | 38 | 712 | 715 | xxx2014 |
| 400mm | 825 | 630 | 195 | 47 | 778 | 777 | xxx2016 |
| 450mm | 900 | 690 | 210 | 58 | 842 | 836 | xxx2018 |
| 500mm | 950 | 751 | 199 | 69 | 881 | 896 | xxx2020 |
| 550mm | 1025 | 811 | 214 | 79 | 946 | 957 | xxx2022 |
| 600mm | 1100 | 871 | 229 | 89 | 1011 | 1017 | xxx2024 |
| 650mm | 1175 | 931 | 244 | 99 | 1076 | 1078 | xxx2026 |
| 700mm | 1250 | 992 | 258 | 110 | 1140 | 1138 | xxx2028 |
| 750mm | 1325 | 1051 | 274 | 120 | 1205 | 1197 | xxx2030 |
| 800mm | 1400 | 1113 | 287 | 130 | 1270 | 1260 | xxx2032 |
| 850mm | 1475 | 1171 | 304 | 140 | 1335 | 1318 | xxx2034 |
| 900mm | 1525 | 1233 | 292 | 151 | 1374 | 1379 | xxx2036 |
| 950mm | 1625 | 1291 | 309 | 185 | 1440 | 1439 | xxx2038 |
| 1000mm | 1675 | 1354 | 321 | 174 | 1501 | 1500 | xxx2040 |
| 1100mm | 1800 | 1475 | 325 | 192 | 1608 | 1622 | xxx2044 |
| 1200mm | 1950 | 1596 | 354 | 213 | 1737 | 1742 | xxx2048 |

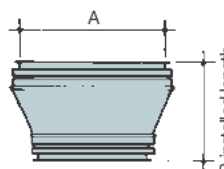


The Tee will support a maximum vertical loading of up to 11m of Europa product.
Supplied complete with two Vee Bands.

Tapered Increaser / Reducer



| Size | Dimensions | | | Code number |
|-----------------|------------|-----|-------|-------------|
| | A | B | "K" | |
| One Step | | | | |
| 100mm | 150 | 300 | 0.200 | xxx1504 |
| 150mm | 200 | 300 | 0.100 | xxx1506 |
| 175mm | 200 | 300 | 0.026 | xxx1507 |
| 200mm | 250 | 300 | 0.060 | xxx1508 |
| 250mm | 300 | 300 | 0.044 | xxx1510 |
| 300mm | 350 | 300 | 0.033 | xxx1512 |
| 350mm | 400 | 300 | 0.026 | xxx1514 |
| 400mm | 450 | 300 | 0.020 | xxx1516 |
| 450mm | 500 | 300 | 0.017 | xxx1518 |

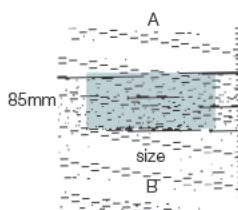


| | | | | |
|-----------------|------|-----|-------|---------|
| Two Step | | | | |
| 100mm | 200 | 400 | 0.300 | xxx1604 |
| 150mm | 250 | 400 | 0.217 | xxx1606 |
| 175mm | 250 | 400 | 0.137 | xxx1607 |
| 200mm | 300 | 400 | 0.163 | xxx1608 |
| 250mm | 350 | 400 | 0.127 | xxx1610 |
| 300mm | 400 | 400 | 0.101 | xxx1612 |
| 350mm | 450 | 400 | 0.083 | xxx1614 |
| 400mm | 500 | 400 | 0.068 | xxx1616 |
| 450mm | 600 | 500 | 0.101 | xxx1618 |
| 500mm | 600 | 400 | 0.049 | xxx1620 |
| 600mm | 700 | 400 | 0.037 | xxx1624 |
| 700mm | 800 | 400 | 0.029 | xxx1628 |
| 800mm | 900 | 400 | 0.023 | xxx1632 |
| 900mm | 1000 | 400 | 0.019 | xxx1636 |
| 1000mm | 1100 | 400 | 0.016 | xxx1640 |
| 1100mm | 1200 | 400 | 0.014 | xxx1644 |

Provided with a Vee Band to suit flue size. (If used as a "reducer", a Vee Band of "A" diameter must be ordered separately).

Step Increaser/Reducer

Non-load bearing version of above, for use in limited access area.



Provided with a Vee Band to suit flue size. (If used as a "reducer", a Vee Band of "A" diameter must be ordered separately).

| Size | Dimensions | | | Code number |
|-------|------------|-----|-------|-------------|
| | A | B | "K" | |
| 150mm | 200 | 254 | 0.200 | xxx1704 |
| 150mm | 200 | 254 | 0.191 | xxx1706 |
| 175mm | 200 | 254 | 0.055 | xxx1707 |
| 200mm | 250 | 304 | 0.130 | xxx1708 |
| 250mm | 300 | 354 | 0.093 | xxx1710 |
| 300mm | 350 | 404 | 0.070 | xxx1712 |
| 350mm | 400 | 454 | 0.550 | xxx1714 |
| 400mm | 450 | 504 | 0.044 | xxx1716 |
| 450mm | 500 | 554 | 0.036 | xxx1718 |
| 500mm | 600 | 654 | 0.093 | xxx1720 |

Other sizes can be manufactured to order.

Elbows

Elbows facilitate changes of directions within the system. When employed on a wet system, a 95° Elbow can be used to provide a slight incline to allow the back flow of condensation through the system to a suitable drainage component. All Elbows must be protected from thermal expansion and bending forces, please refer to Page 20 for installation example. Elbows are not load bearing and must be adequately braced and supported. All Elbows are provided with a Vee Band.

15° Elbow

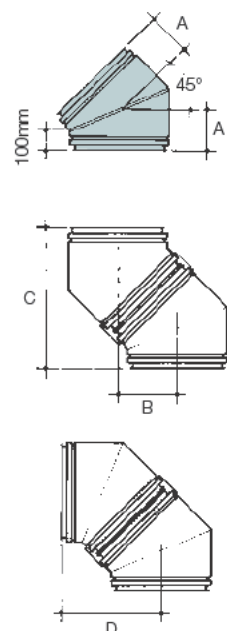
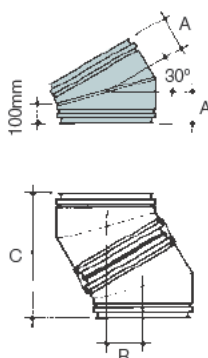
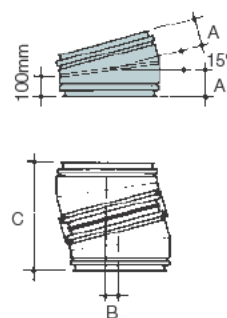
| Size | Dimensions | | | Code number |
|--------|------------|----|-----|-------------|
| | A | B | C | |
| 100mm | 110 | 57 | 432 | xxx2204 |
| 150mm | 113 | 58 | 444 | xxx2206 |
| 175mm | 115 | 59 | 452 | xxx2207 |
| 200mm | 117 | 60 | 460 | xxx2208 |
| 250mm | 120 | 62 | 472 | xxx2210 |
| 300mm | 123 | 64 | 484 | xxx2212 |
| 350mm | 126 | 65 | 495 | xxx2214 |
| 400mm | 130 | 67 | 511 | xxx2216 |
| 450mm | 133 | 69 | 523 | xxx2218 |
| 500mm | 136 | 70 | 535 | xxx2220 |
| 550mm | 140 | 72 | 550 | xxx2222 |
| 600mm | 143 | 74 | 562 | xxx2224 |
| 650mm | 146 | 76 | 574 | xxx2226 |
| 700mm | 150 | 77 | 588 | xxx2228 |
| 750mm | 153 | 79 | 602 | xxx2230 |
| 800mm | 156 | 81 | 614 | xxx2232 |
| 850mm | 163 | 83 | 629 | xxx2234 |
| 900mm | 163 | 84 | 640 | xxx2236 |
| 950mm | 166 | 86 | 653 | xxx2238 |
| 1000mm | 169 | 88 | 665 | xxx2240 |
| 1100mm | 176 | 91 | 691 | xxx2244 |
| 1200mm | 182 | 94 | 717 | xxx2248 |

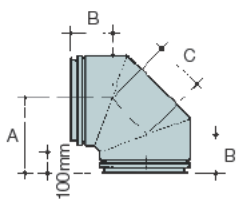
30° Elbow

| Size | Dimensions | | | Code number |
|--------|------------|-----|-----|-------------|
| | A | B | C | |
| 100mm | 120 | 120 | 448 | xxx2304 |
| 150mm | 127 | 127 | 474 | xxx2306 |
| 175mm | 130 | 130 | 485 | xxx2307 |
| 200mm | 134 | 134 | 500 | xxx2308 |
| 250mm | 141 | 141 | 526 | xxx2310 |
| 300mm | 147 | 147 | 549 | xxx2312 |
| 350mm | 154 | 154 | 575 | xxx2314 |
| 400mm | 161 | 161 | 601 | xxx2316 |
| 450mm | 167 | 167 | 623 | xxx2318 |
| 500mm | 174 | 174 | 649 | xxx2320 |
| 600mm | 187 | 187 | 698 | xxx2324 |
| 650mm | 194 | 194 | 724 | xxx2326 |
| 700mm | 201 | 201 | 749 | xxx2328 |
| 750mm | 208 | 208 | 776 | xxx2330 |
| 800mm | 214 | 214 | 799 | xxx2332 |
| 850mm | 221 | 221 | 825 | xxx2334 |
| 900mm | 228 | 228 | 849 | xxx2336 |
| 950mm | 234 | 234 | 873 | xxx2338 |
| 1000mm | 241 | 241 | 899 | xxx2340 |
| 1100mm | 254 | 254 | 949 | xxx2344 |
| 1200mm | 268 | 268 | 999 | xxx2348 |

45° Elbow

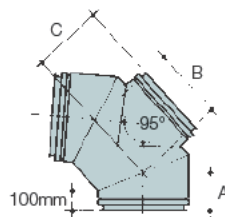
| Size | Dimensions | | | | Code number |
|--------|------------|-----|------|-----|-------------|
| | A | B | C | D | |
| 100mm | 132 | 187 | 451 | 319 | xxx2404 |
| 150mm | 142 | 201 | 485 | 343 | xxx2406 |
| 175mm | 147 | 208 | 502 | 355 | xxx2407 |
| 200mm | 152 | 215 | 519 | 367 | xxx2408 |
| 250mm | 163 | 231 | 557 | 394 | xxx2410 |
| 300mm | 173 | 245 | 591 | 418 | xxx2412 |
| 350mm | 183 | 259 | 625 | 442 | xxx2414 |
| 400mm | 194 | 274 | 662 | 468 | xxx2416 |
| 450mm | 204 | 288 | 696 | 492 | xxx2418 |
| 500mm | 214 | 303 | 731 | 517 | xxx2420 |
| 550mm | 225 | 318 | 768 | 543 | xxx2422 |
| 600mm | 235 | 332 | 802 | 567 | xxx2424 |
| 650mm | 246 | 348 | 840 | 594 | xxx2426 |
| 700mm | 256 | 362 | 873 | 617 | xxx2428 |
| 750mm | 266 | 376 | 908 | 642 | xxx2430 |
| 800mm | 277 | 391 | 945 | 668 | xxx2432 |
| 850mm | 287 | 406 | 980 | 693 | xxx2434 |
| 900mm | 297 | 420 | 1015 | 717 | xxx2436 |
| 950mm | 308 | 436 | 1052 | 744 | xxx2438 |
| 1000mm | 318 | 450 | 1085 | 767 | xxx2440 |
| 1100mm | 339 | 479 | 1156 | 817 | xxx2444 |
| 1200mm | 359 | 508 | 1227 | 867 | xxx2448 |





90° Elbow

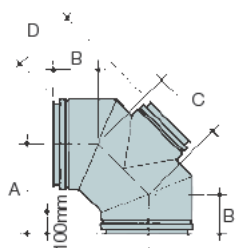
| Size | Dimensions | | | Code number |
|--------|------------|-----|-----|-------------|
| | A | B | C | |
| 100mm | 212 | 132 | 113 | xxx8504 |
| 150mm | 236 | 142 | 134 | xxx8506 |
| 175mm | 249 | 147 | 144 | xxx8507 |
| 200mm | 261 | 152 | 154 | xxx8508 |
| 250mm | 286 | 163 | 175 | xxx8510 |
| 300mm | 311 | 173 | 196 | xxx8512 |
| 350mm | 336 | 183 | 217 | xxx8514 |
| 400mm | 361 | 194 | 237 | xxx8516 |
| 450mm | 386 | 204 | 258 | xxx8518 |
| 500mm | 411 | 214 | 279 | xxx8520 |
| 550mm | 436 | 225 | 299 | xxx8522 |
| 600mm | 461 | 235 | 320 | xxx8524 |
| 650mm | 486 | 245 | 341 | xxx8526 |
| 700mm | 511 | 256 | 361 | xxx8528 |
| 750mm | 536 | 266 | 382 | xxx8530 |
| 800mm | 561 | 276 | 403 | xxx8532 |
| 850mm | 586 | 287 | 424 | xxx8534 |
| 900mm | 611 | 297 | 444 | xxx8536 |
| 950mm | 636 | 307 | 465 | xxx8538 |
| 1000mm | 661 | 318 | 486 | xxx8540 |
| 1100mm | 711 | 339 | 527 | xxx8544 |
| 1200mm | 761 | 359 | 569 | xxx8548 |



95° Access Elbow

As per the 95° Elbow but with the addition of an access opening which can be used with a Drain Tee Cap or Blanking Plate for access and cleaning. Must be ordered separately.

| Size | Dimensions | | | Code number |
|--------|------------|-----|-----|-------------|
| | A | B | C | |
| 100mm | 132 | 189 | 160 | xxx8804 |
| 150mm | 142 | 218 | 185 | xxx8806 |
| 175mm | 147 | 233 | 198 | xxx8807 |
| 200mm | 152 | 248 | 210 | xxx8808 |
| 250mm | 163 | 277 | 235 | xxx8810 |
| 300mm | 173 | 306 | 260 | xxx8812 |
| 350mm | 183 | 335 | 285 | xxx8814 |
| 400mm | 194 | 365 | 310 | xxx8816 |
| 450mm | 204 | 394 | 335 | xxx8818 |
| 500mm | 214 | 423 | 360 | xxx8820 |
| 550mm | 225 | 453 | 385 | xxx8822 |
| 600mm | 235 | 482 | 410 | xxx8824 |
| 650mm | 245 | 512 | 435 | xxx8826 |
| 700mm | 256 | 541 | 460 | xxx8828 |
| 750mm | 266 | 570 | 485 | xxx8830 |
| 800mm | 276 | 599 | 510 | xxx8832 |
| 850mm | 287 | 628 | 535 | xxx8834 |
| 900mm | 297 | 658 | 560 | xxx8836 |
| 950mm | 307 | 687 | 585 | xxx8838 |
| 1000mm | 318 | 716 | 610 | xxx8840 |
| 1100mm | 339 | 775 | 660 | xxx8844 |
| 1200mm | 359 | 833 | 710 | xxx8848 |



Can be used with a Drain Tee Cap or Blanking Plate for access and cleaning. Must be ordered separately.

90° Access Elbow

| Size | Dimensions | | | | Code number |
|--------|------------|-----|-----|-----|-------------|
| | A | B | C | D | |
| 100mm | 266 | 132 | 189 | 160 | xxx8604 |
| 150mm | 296 | 142 | 218 | 185 | xxx8606 |
| 175mm | 312 | 147 | 233 | 198 | xxx8607 |
| 200mm | 327 | 152 | 248 | 210 | xxx8608 |
| 250mm | 359 | 163 | 277 | 235 | xxx8610 |
| 300mm | 390 | 173 | 306 | 260 | xxx8612 |
| 350mm | 420 | 183 | 335 | 285 | xxx8614 |
| 400mm | 452 | 194 | 365 | 310 | xxx8616 |
| 450mm | 483 | 204 | 394 | 335 | xxx8618 |
| 500mm | 513 | 214 | 423 | 360 | xxx8620 |
| 550mm | 545 | 225 | 453 | 385 | xxx8622 |
| 600mm | 576 | 235 | 482 | 410 | xxx8624 |
| 650mm | 607 | 245 | 512 | 435 | xxx8626 |
| 700mm | 638 | 256 | 541 | 460 | xxx8628 |
| 750mm | 669 | 266 | 570 | 485 | xxx8630 |
| 800mm | 700 | 276 | 599 | 510 | xxx8632 |
| 850mm | 731 | 287 | 628 | 535 | xxx8634 |
| 900mm | 762 | 297 | 658 | 560 | xxx8636 |
| 950mm | 793 | 307 | 687 | 585 | xxx8638 |
| 1000mm | 824 | 318 | 716 | 610 | xxx8640 |
| 1100mm | 887 | 339 | 775 | 660 | xxx8644 |
| 1200mm | 948 | 359 | 833 | 710 | xxx8648 |



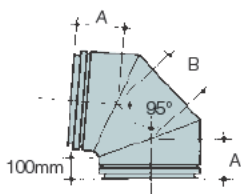
Hood Transition

Used to provide connection to flanged outlet of appliance or hood.

| Size | Code number |
|--------|-------------|
| 100mm | xxx4204 |
| 150mm | xxx4206 |
| 175mm | xxx4207 |
| 200mm | xxx4208 |
| 250mm | xxx4210 |
| 300mm | xxx4212 |
| 350mm | xxx4214 |
| 400mm | xxx4216 |
| 450mm | xxx4218 |
| 500mm | xxx4220 |
| 550mm | xxx4222 |
| 600mm | xxx4224 |
| 650mm | xxx4226 |
| 700mm | xxx4228 |
| 750mm | xxx4230 |
| 800mm | xxx4232 |
| 850mm | xxx4234 |
| 900mm | xxx4236 |
| 950mm | xxx4238 |
| 1000mm | xxx4240 |
| 1100mm | xxx4244 |
| 1200mm | xxx4248 |

95° Elbow

| Size | Dimensions | | Code number |
|--------|------------|-----|-------------|
| | A | B | |
| 100mm | 132 | 113 | xxx8704 |
| 150mm | 142 | 134 | xxx8706 |
| 175mm | 147 | 144 | xxx8707 |
| 200mm | 152 | 154 | xxx8708 |
| 250mm | 163 | 175 | xxx8710 |
| 300mm | 173 | 196 | xxx8712 |
| 350mm | 183 | 217 | xxx8714 |
| 400mm | 194 | 237 | xxx8716 |
| 450mm | 204 | 258 | xxx8718 |
| 500mm | 214 | 279 | xxx8720 |
| 550mm | 225 | 299 | xxx8722 |
| 600mm | 235 | 320 | xxx8724 |
| 650mm | 245 | 341 | xxx8726 |
| 700mm | 256 | 361 | xxx8728 |
| 750mm | 266 | 382 | xxx8730 |
| 800mm | 276 | 403 | xxx8732 |
| 850mm | 287 | 424 | xxx8734 |
| 900mm | 297 | 444 | xxx8736 |
| 950mm | 307 | 465 | xxx8738 |
| 1000mm | 318 | 486 | xxx8740 |
| 1100mm | 339 | 527 | xxx8744 |
| 1200mm | 359 | 569 | xxx8748 |

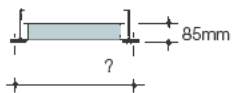


Can be used to provide a 5° incline on wet systems to allow back-flow of condensation through the system.



Appliance Connector

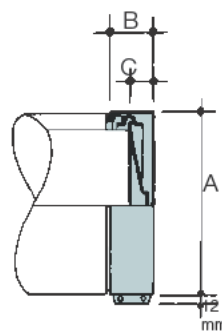
| Size | Code number |
|-------|-------------|
| 100mm | xxx8904 |
| 150mm | xxx8906 |
| 175mm | xxx8907 |
| 200mm | xxx8908 |
| 250mm | xxx8910 |
| 300mm | xxx8912 |
| 350mm | xxx8914 |
| 400mm | xxx8916 |
| 450mm | xxx8918 |
| 500mm | xxx8920 |
| 550mm | xxx8922 |
| 600mm | xxx8924 |



See Page X

Flange Adaptor

| Size | Code number |
|--------|-------------|
| 100mm | xxx4404 |
| 150mm | xxx4406 |
| 175mm | xxx4407 |
| 200mm | xxx4408 |
| 250mm | xxx4410 |
| 300mm | xxx4412 |
| 350mm | xxx4414 |
| 400mm | xxx4416 |
| 450mm | xxx4418 |
| 500mm | xxx4420 |
| 550mm | xxx4422 |
| 600mm | xxx4424 |
| 650mm | xxx4426 |
| 700mm | xxx4428 |
| 750mm | xxx4430 |
| 800mm | xxx4432 |
| 850mm | xxx4434 |
| 900mm | xxx4436 |
| 950mm | xxx4438 |
| 1000mm | xxx4440 |
| 1100mm | xxx4444 |
| 1200mm | xxx4448 |



Blanking Plate

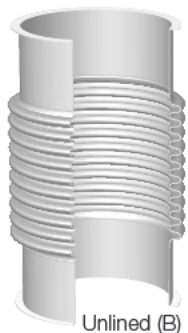
| Size | Dimensions | | | Code number |
|--------|------------|-----|-----|-------------|
| | A | B | C | |
| 100mm | 153 | 116 | 58 | xxx7404 |
| 150mm | 203 | 116 | 58 | xxx7406 |
| 175mm | 228 | 116 | 58 | xxx7407 |
| 200mm | 253 | 116 | 58 | xxx7408 |
| 250mm | 303 | 116 | 58 | xxx7410 |
| 300mm | 353 | 116 | 58 | xxx7412 |
| 350mm | 403 | 116 | 58 | xxx7414 |
| 400mm | 453 | 116 | 58 | xxx7416 |
| 450mm | 453 | 116 | 58 | xxx7418 |
| 500mm | 503 | 116 | 58 | xxx7420 |
| 550mm | 603 | 116 | 58 | xxx7422 |
| 600mm | 653 | 116 | 58 | xxx7424 |
| 650mm | 703 | 300 | 242 | xxx7426 |
| 700mm | 753 | 300 | 242 | xxx7428 |
| 750mm | 803 | 300 | 242 | xxx7430 |
| 800mm | 853 | 300 | 242 | xxx7432 |
| 850mm | 903 | 300 | 242 | xxx7434 |
| 900mm | 953 | 300 | 242 | xxx7436 |
| 950mm | 1003 | 300 | 242 | xxx7438 |
| 1000mm | 1053 | 300 | 242 | xxx7440 |
| 1100mm | 1153 | 300 | 242 | xxx7444 |
| 1200mm | 1253 | 300 | 242 | xxx7448 |

Expansion Bellows

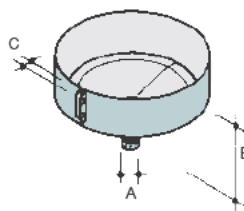
| Size | Code numbers | |
|--------|--------------|---------|
| | A | B |
| 100mm | 1753004 | 1753104 |
| 150mm | 1753006 | 1753106 |
| 175mm | 1753007 | 1753107 |
| 200mm | 1753008 | 1753108 |
| 250mm | 1753010 | 1753110 |
| 300mm | 1753012 | 1753112 |
| 350mm | 1753014 | 1753114 |
| 400mm | 1753016 | 1753116 |
| 450mm | 1753018 | 1753118 |
| 500mm | 1753020 | 1753120 |
| 550mm | 1753022 | 1753122 |
| 600mm | 1753024 | 1753124 |
| 650mm | 1753026 | 1753126 |
| 700mm | 1753028 | 1753128 |
| 750mm | 1753030 | 1753128 |
| 800mm | 1753032 | 1753132 |
| 850mm | 1753034 | 1753134 |
| 900mm | 1753036 | 1753136 |
| 950mm | 1753038 | 1753138 |
| 1000mm | 1753040 | 1753140 |
| 1100mm | 1753044 | 1753144 |
| 1200mm | 1753048 | 1753148 |



Lined (A)



Unlined (B)

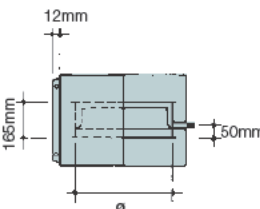


Drain Tee Cap

| Size | Dimensions | | Code number |
|--------|------------|-----|-------------|
| | A | B | |
| 100mm | 1" BSP | 75 | xxx3604 |
| 150mm | 1" BSP | 75 | xxx3606 |
| 175mm | 1" BSP | 75 | xxx3607 |
| 200mm | 1" BSP | 75 | xxx3608 |
| 250mm | 1" BSP | 75 | xxx3610 |
| 300mm | 1" BSP | 75 | xxx3612 |
| 350mm | 1" BSP | 75 | xxx3614 |
| 400mm | 2" BSP | 75 | xxx3616 |
| 450mm | 2" BSP | 75 | xxx3618 |
| 500mm | 2" BSP | 75 | xxx3620 |
| 550mm | 2" BSP | 75 | xxx3622 |
| 600mm | 2" BSP | 75 | xxx3624 |
| 650mm | 2" BSP | 156 | xxx3626 |
| 700mm | 2" BSP | 162 | xxx3628 |
| 750mm | 2" BSP | 169 | xxx3630 |
| 800mm | 2" BSP | 175 | xxx3632 |
| 850mm | 2" BSP | 180 | xxx3634 |
| 900mm | 2" BSP | 184 | xxx3636 |
| 950mm | 2" BSP | 193 | xxx3638 |
| 1000mm | 2" BSP | 202 | xxx3640 |
| 1100mm | 2" BSP | 215 | xxx3644 |
| 1200mm | 2" BSP | 275 | xxx3648 |

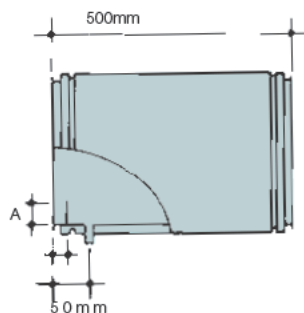
Bellows Jacket

| Size | Code number |
|--------|-------------|
| 100mm | xx79004 |
| 150mm | xx79006 |
| 175mm | xx79007 |
| 200mm | xx79008 |
| 250mm | xx79010 |
| 300mm | xx79012 |
| 350mm | xx79014 |
| 400mm | xx79016 |
| 450mm | xx79018 |
| 500mm | xx79020 |
| 550mm | xx79022 |
| 600mm | xx79024 |
| 650mm | xx79026 |
| 700mm | xx79028 |
| 750mm | xx79030 |
| 800mm | xx79032 |
| 850mm | xx79034 |
| 900mm | xx79036 |
| 950mm | xx79038 |
| 1000mm | xx79040 |
| 1100mm | xx79044 |
| 1200mm | xx79048 |

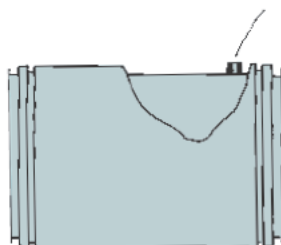


Drain Section

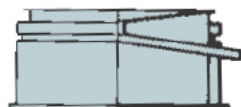
| Size | Code number |
|--------|-------------|
| 100mm | xxx4004 |
| 150mm | xxx4006 |
| 175mm | xxx4007 |
| 200mm | xxx4008 |
| 250mm | xxx4010 |
| 300mm | xxx4012 |
| 350mm | xxx4014 |
| 400mm | xxx4016 |
| 450mm | xxx4018 |
| 500mm | xxx4020 |
| 550mm | xxx4022 |
| 600mm | xxx4024 |
| 650mm | xxx4026 |
| 700mm | xxx4028 |
| 750mm | xxx4030 |
| 800mm | xxx4032 |
| 850mm | xxx4034 |
| 900mm | xxx4036 |
| 950mm | xxx4038 |
| 1000mm | xxx4040 |
| 1100mm | xxx4044 |
| 1200mm | xxx4048 |



Used in a horizontal position to drain off grease/residues inside grease ducts. It has a small vertical dam to channel the run off to a 1 1/2" BSP parallel internally threaded stainless steel drain tube with galvanised plug.



For use as a fire suppression nozzle or hot water/detergent maintenance section (where used as a grease duct). Fitted with a 1 1/2" BSP parallel internally threaded stainless steel drain tube with galvanised plug. Can also be used as a test point.



Used at the bottom of a vertical run of Europa, to provide condensate drainage facilities. The drain tube is 15mm dia., made from 1mm thick stainless steel and projects 50mm from outer Europa wall.

Duct Drain

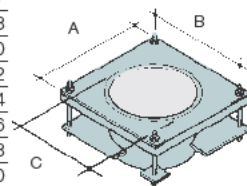
| Size | Dimension A | Code number |
|--------|-------------|-------------|
| 100mm | 15 | xxx3804 |
| 150mm | 23 | xxx3806 |
| 175mm | 27 | xxx3807 |
| 200mm | 30 | xxx3808 |
| 250mm | 38 | xxx3810 |
| 300mm | 46 | xxx3812 |
| 350mm | 53 | xxx3814 |
| 400mm | 61 | xxx3816 |
| 450mm | 69 | xxx3818 |
| 500mm | 76 | xxx3820 |
| 550mm | 84 | xxx3822 |
| 600mm | 91 | xxx3824 |
| 650mm | 98 | xxx3826 |
| 700mm | 105 | xxx3828 |
| 750mm | 113 | xxx3830 |
| 800mm | 121 | xxx3832 |
| 850mm | 128 | xxx3834 |
| 900mm | 135 | xxx3836 |
| 950mm | 142 | xxx3838 |
| 1000mm | 150 | xxx3840 |
| 1100mm | 165 | xxx3844 |
| 1200mm | 180 | xxx3848 |

Nozzle Section

| Size | Code number |
|--------|-------------|
| 100mm | xxx3904 |
| 150mm | xxx3906 |
| 175mm | xxx3907 |
| 200mm | xxx3908 |
| 250mm | xxx3910 |
| 300mm | xxx3912 |
| 350mm | xxx3914 |
| 400mm | xxx3916 |
| 450mm | xxx3918 |
| 500mm | xxx3920 |
| 550mm | xxx3922 |
| 600mm | xxx3924 |
| 650mm | xxx3926 |
| 700mm | xxx3928 |
| 750mm | xxx3930 |
| 800mm | xxx3932 |
| 850mm | xxx3934 |
| 900mm | xxx3936 |
| 950mm | xxx3938 |
| 1000mm | xxx3940 |
| 1100mm | xxx3944 |
| 1200mm | xxx3948 |

Anchor Plate with Condensate Collector

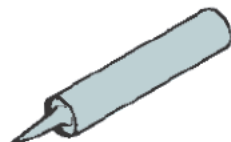
| Size | Code number |
|--------|-------------|
| 100mm | xxx4104 |
| 150mm | xxx4106 |
| 175mm | xxx4107 |
| 200mm | xxx4108 |
| 250mm | xxx4110 |
| 300mm | xxx4112 |
| 350mm | xxx4114 |
| 400mm | xxx4116 |
| 450mm | xxx4118 |
| 500mm | xxx4120 |
| 550mm | xxx4122 |
| 600mm | xxx4124 |
| 650mm | xxx4126 |
| 700mm | xxx4128 |
| 750mm | xxx4130 |
| 800mm | xxx4132 |
| 850mm | xxx4134 |
| 900mm | xxx4136 |
| 950mm | xxx4138 |
| 1000mm | xxx4140 |
| 1100mm | xxx4144 |
| 1200mm | xxx4148 |



Firestop Kit for Fast Track Buildings

Designed to be applied where Europa passage through structures requires a compartmental fire rating of up to 4 hours, (stability and integrity). Provided with Installation Instructions.

| Size | Dimensions A | B | C | Code number |
|--------|--------------|------|------|-------------|
| 100mm | 130 | 340 | 158 | 1757304 |
| 150mm | 380 | 340 | 208 | 1757306 |
| 175mm | 405 | 340 | 233 | 1757307 |
| 200mm | 430 | 390 | 258 | 1757308 |
| 250mm | 480 | 440 | 308 | 1757310 |
| 300mm | 530 | 490 | 358 | 1757312 |
| 350mm | 580 | 540 | 408 | 1757314 |
| 400mm | 630 | 590 | 458 | 1757316 |
| 450mm | 680 | 640 | 508 | 1757318 |
| 500mm | 730 | 690 | 558 | 1757320 |
| 550mm | 780 | 740 | 608 | 1757322 |
| 600mm | 830 | 790 | 658 | 1757324 |
| 650mm | 880 | 840 | 708 | 1757326 |
| 700mm | 930 | 890 | 758 | 1757328 |
| 750mm | 980 | 940 | 808 | 1757330 |
| 800mm | 1030 | 990 | 858 | 1757332 |
| 850mm | 1080 | 1040 | 908 | 1757334 |
| 900mm | 1130 | 1090 | 958 | 1757336 |
| 950mm | 1180 | 1140 | 1008 | 1757338 |
| 1000mm | 1232 | 1190 | 1058 | 1757340 |
| 1100mm | 1330 | 1290 | 1158 | 1757344 |
| 1200mm | 1430 | 1390 | 1258 | 1757348 |



Joint Sealants

Low temperature Sealant

Use where gas temperatures do not exceed 250°C Capable of resisting positive pressures of 5000Pa

310ml cartridges for use in a standard skeleton gun.

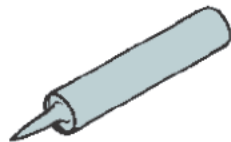
Code number 1756506

High temperature

Use where flue gas temperatures exceed 250°C. Capable of resisting positive pressures of 5000Pa.

310ml cartridges for use in a standard skeleton gun.

Code number 1783108



Weathering Sealant (Sikaflex)

310ml cartridge for application to Channel Band joints on vertical external Europa applications. See joint detail drawing on page 5.

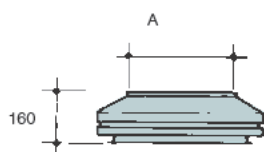
Code number 1758206

Size Number of joints per cartridge (310ml) of sealant:

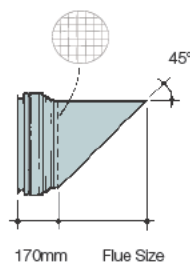
| Size | Number of joints per cartridge (310ml) of sealant: |
|--------|--|
| 100mm | 22.0 |
| 150mm | 14.0 |
| 175mm | 12.3 |
| 200mm | 11.0 |
| 250mm | 9.0 |
| 300mm | 7.6 |
| 350mm | 6.6 |
| 400mm | 5.8 |
| 450mm | 5.2 |
| 500mm | 4.8 |
| 550mm | 4.3 |
| 600mm | 4.0 |
| 650mm | 3.7 |
| 700mm | 3.5 |
| 750mm | 3.2 |
| 800mm | 3.0 |
| 850mm | 2.8 |
| 900mm | 2.7 |
| 950mm | 2.5 |
| 1000mm | 2.5 |
| 1100mm | 2.2 |
| 1200mm | 2.0 |



Tapered Vent Terminal



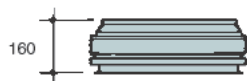
| Size | Dimension A | Code number |
|--------|-------------|-------------|
| 100mm | 82 | xxx3204 |
| 150mm | 124 | xxx3206 |
| 175mm | 145 | xxx3207 |
| 200mm | 165 | xxx3208 |
| 250mm | 201 | xxx3210 |
| 300mm | 250 | xxx3212 |
| 350mm | 290 | xxx3214 |
| 400mm | 331 | xxx3216 |
| 450mm | 373 | xxx3218 |
| 500mm | 414 | xxx3220 |
| 550mm | 455 | xxx3222 |
| 600mm | 497 | xxx3224 |
| 650mm | 537 | xxx3226 |
| 700mm | 577 | xxx3228 |
| 750mm | 619 | xxx3230 |
| 800mm | 661 | xxx3232 |
| 850mm | 701 | xxx3234 |
| 900mm | 742 | xxx3236 |
| 950mm | 783 | xxx3238 |
| 1000mm | 825 | xxx3240 |
| 1100mm | 907 | xxx3244 |
| 1200mm | 990 | xxx3248 |



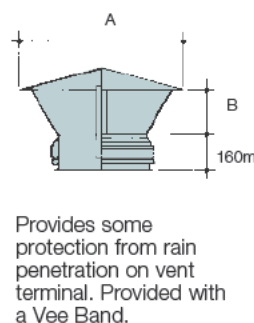
Exhaust Terminal – Horizontal

| Size | Code number |
|--------|-------------|
| 100mm | xxx7104 |
| 150mm | xxx7106 |
| 175mm | xxx7107 |
| 200mm | xxx7108 |
| 250mm | xxx7110 |
| 300mm | xxx7112 |
| 350mm | xxx7114 |
| 400mm | xxx7116 |
| 450mm | xxx7118 |
| 500mm | xxx7120 |
| 550mm | xxx7122 |
| 600mm | xxx7124 |
| 650mm | xxx7126 |
| 700mm | xxx7128 |
| 750mm | xxx7130 |
| 800mm | xxx7132 |
| 850mm | xxx7134 |
| 900mm | xxx7136 |
| 950mm | xxx7138 |
| 1000mm | xxx7140 |
| 1100mm | xxx7144 |
| 1200mm | xxx7148 |

Parallel Vent Terminal



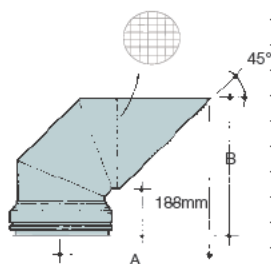
| Size | Code number |
|--------|-------------|
| 100mm | xxx6704 |
| 150mm | xxx6706 |
| 175mm | xxx6707 |
| 200mm | xxx6708 |
| 250mm | xxx6710 |
| 300mm | xxx6712 |
| 350mm | xxx6714 |
| 400mm | xxx6716 |
| 450mm | xxx6718 |
| 500mm | xxx6720 |
| 550mm | xxx6722 |
| 600mm | xxx6724 |
| 650mm | xxx6726 |
| 700mm | xxx6728 |
| 750mm | xxx6730 |
| 800mm | xxx6732 |
| 850mm | xxx6734 |
| 900mm | xxx6736 |
| 950mm | xxx6738 |
| 1000mm | xxx6740 |
| 1100mm | xxx6744 |
| 1200mm | xxx6748 |



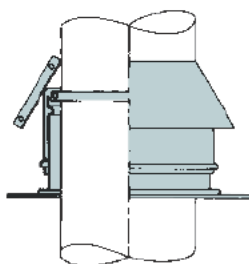
Vent Cap

| Size | Dimensions A | Dimensions B | Code number |
|--------|--------------|--------------|-------------|
| 100mm | 150 | 46 | xxx3404 |
| 150mm | 260 | 71 | xxx3406 |
| 175mm | 305 | 85 | xxx3407 |
| 200mm | 346 | 94 | xxx3408 |
| 250mm | 430 | 121 | xxx3410 |
| 300mm | 520 | 146 | xxx3412 |
| 350mm | 650 | 167 | xxx3414 |
| 400mm | 735 | 193 | xxx3416 |
| 450mm | 820 | 217 | xxx3418 |
| 500mm | 905 | 243 | xxx3420 |
| 550mm | 990 | 268 | xxx3422 |
| 600mm | 1080 | 294 | xxx3424 |
| 650mm | 1170 | 319 | xxx3426 |
| 700mm | 1260 | 344 | xxx3428 |
| 750mm | 1350 | 370 | xxx3430 |
| 800mm | 1440 | 395 | xxx3432 |
| 850mm | 1530 | 420 | xxx3434 |
| 900mm | 1620 | 445 | xxx3436 |
| 950mm | 1710 | 471 | xxx3438 |
| 1000mm | 1800 | 496 | xxx3440 |
| 1100mm | 1980 | 521 | xxx3444 |
| 1200mm | 2160 | 57 | xxx3448 |

Exhaust Terminal – Vertical



| Size | Dimensions A | Dimensions B | Code number |
|--------|--------------|--------------|-------------|
| 100mm | | | xxx7004 |
| 150mm | 246 | 338 | xxx7006 |
| 175mm | 278 | 363 | xxx7007 |
| 200mm | 313 | 388 | xxx7008 |
| 250mm | 382 | 438 | xxx7010 |
| 300mm | 448 | 488 | xxx7012 |
| 350mm | 516 | 538 | xxx7014 |
| 400mm | 585 | 588 | xxx7016 |
| 450mm | 651 | 638 | xxx7018 |
| 500mm | 719 | 688 | xxx7020 |
| 550mm | 789 | 738 | xxx7022 |
| 600mm | 854 | 788 | xxx7024 |
| 650mm | 920 | 838 | xxx7026 |
| 700mm | 990 | 888 | xxx7028 |
| 750mm | 1057 | 938 | xxx7030 |
| 800mm | 1126 | 988 | xxx7032 |
| 850mm | 1185 | 1038 | xxx7034 |
| 900mm | 1260 | 1088 | xxx7036 |
| 950mm | 1320 | 1138 | xxx7038 |
| 1000mm | 1396 | 1188 | xxx7040 |
| 1100mm | 1533 | 1288 | xxx7044 |
| 1200mm | 1668 | 1389 | xxx7048 |



This component weatherproofs the Europa's passage through the roof, and must be used where the expansion of the duct is calculated to exceed 100mm. The telescopic drum section of the Flashing is secured to the roof. The storm collar is located with silicone sealant to the outer Europa skin and is free to rise with expansion. Provided with Installation Instructions.

Telescopic Flat Flashing

| Size | Code |
|--------|---------|
| 100mm | 1757204 |
| 150mm | 1757206 |
| 175mm | 1757207 |
| 200mm | 1757208 |
| 250mm | 1757210 |
| 300mm | 1757212 |
| 350mm | 1757214 |
| 400mm | 1757216 |
| 450mm | 1757218 |
| 500mm | 1757220 |
| 550mm | 1757222 |
| 600mm | 1757224 |
| 650mm | 1757226 |
| 700mm | 1757228 |
| 750mm | 1757230 |
| 800mm | 1757232 |
| 850mm | 1757234 |
| 900mm | 1757236 |
| 950mm | 1757238 |
| 1000mm | 1757240 |
| 1100mm | 1757244 |
| 1200mm | 1757248 |

Flat Flashing 0°-5°

| Size | Dimensions øA øB C square | Code number |
|--------|------------------------------|----------------|
| 100mm | 160 250 495 | 70000006 |
| 150mm | 210 300 495 | 70000009 |
| 175mm | 240 330 610 | 70000010 |
| 200mm | 260 350 610 | 70000011 |
| 250mm | 310 400 610 | 70000012 |
| 300mm | 360 450 660 | 70000013 |
| 350mm | 410 500 762 | 70000014 |
| 400mm | 460 550 862 | 70000015 |
| 450mm | 510 600 914 | 70000016 |
| 500mm | 560 650 965 | 70000017 |
| 550mm | 608 700 1015 | 70000018 |
| 600mm | 660 750 1066 | 70000019 |
| 650mm | Details on Application | |
| 1200mm | | |

5°-30° Flashing

| Size | Dimensions øA øB C square | Code number |
|--------|------------------------------|----------------|
| 100mm | 160 250 495 | 70053006 |
| 150mm | 210 304 508 | 70053009 |
| 175mm | 240 335 550 | 70053010 |
| 200mm | 260 361 578 | 70053011 |
| 250mm | 310 419 610 | 70053012 |
| 300mm | 360 476 678 | 70053013 |
| 350mm | 410 533 762 | 70053014 |
| 400mm | 460 592 952 | 70053015 |
| 450mm | 510 710 1010 | 70053016 |
| 500mm | 560 766 1066 | 70053017 |
| 550mm | 608 824 1124 | 70053018 |
| 600mm | 660 880 1180 | 70053019 |
| 650mm | Details on Application | |
| 1200mm | | |

32°-45° Flashing

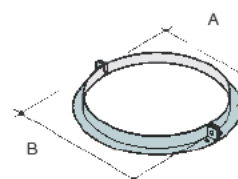
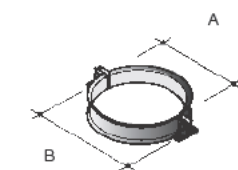
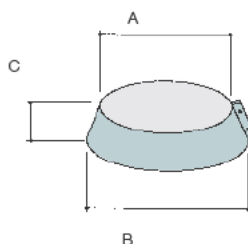
| Size | Dimensions øA øB C square | Code number |
|--------|------------------------------|----------------|
| 100mm | | |
| 150mm | 210 403 610 | 70324509 |
| 175mm | 240 428 650 | 70324510 |
| 200mm | 260 475 678 | 70324511 |
| 250mm | 310 546 737 | 70324512 |
| 300mm | 360 617 820 | 70324513 |
| 350mm | 410 689 889 | 70324514 |
| 400mm | 460 750 1041 | 70324515 |
| 450mm | 510 812 1124 | 70324516 |
| 500mm | 560 892 1220 | 70324517 |
| 550mm | 610 974 1220 | 70324518 |
| 600mm | 660 1034 1300 | 70324519 |
| 650mm | Details on Application | |
| 1200mm | | |

Storm Collar

| Size | Dimensions A B C | Code number |
|--------|------------------------|----------------|
| 100mm | 152 251 70 | 70123406 |
| 150mm | 202 301 70 | 70123409 |
| 175mm | 227 330 70 | 70123410 |
| 200mm | 252 351 70 | 70123411 |
| 250mm | 302 401 70 | 70123412 |
| 300mm | 352 451 70 | 70123413 |
| 350mm | 402 501 70 | 70123414 |
| 400mm | 452 625 150 | 70123415 |
| 450mm | 502 675 150 | 70123416 |
| 500mm | 552 725 150 | 70123417 |
| 550mm | 602 775 150 | 70123418 |
| 600mm | 652 825 150 | 70123419 |
| 650mm | Details on Application | |
| 1200mm | | |

Guide Band

| Size | Dimensions A B | Code numbers Galv. St Stain St. |
|--------|-------------------|------------------------------------|
| 100mm | 157 209 | 1757504 1777504 |
| 150mm | 207 259 | 1757506 1777506 |
| 175mm | 232 284 | 1757507 1777507 |
| 200mm | 257 309 | 1757508 1777508 |
| 250mm | 307 359 | 1757510 1777510 |
| 300mm | 357 409 | 1757512 1777512 |
| 350mm | 407 459 | 1757514 1777514 |
| 400mm | 457 509 | 1757516 1777516 |
| 450mm | 507 559 | 1757518 1777518 |
| 500mm | 557 609 | 1757520 1777520 |
| 550mm | 607 659 | 1757522 1777522 |
| 600mm | 657 709 | 1757524 1777524 |
| 650mm | 707 809 | 1757526 1777526 |
| 700mm | 757 814 | 1757528 1777528 |
| 750mm | 807 864 | 1757530 1777530 |
| 800mm | 857 914 | 1757532 1777532 |
| 850mm | 907 964 | 1757534 1777534 |
| 900mm | 957 1014 | 1757536 1777536 |
| 950mm | 1007 1064 | 1757538 1777538 |
| 1000mm | 1057 1114 | 1757540 1777540 |
| 1100mm | 1157 1214 | 1757544 1777544 |
| 1200mm | 1257 1314 | 1757548 1777548 |



Non load-bearing guiding and lateral support, which locates the vent and at the same time permits thermal movement. Provided with Installation Instructions.

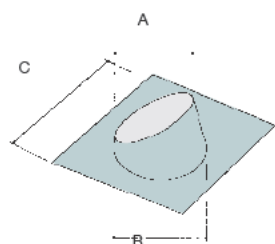
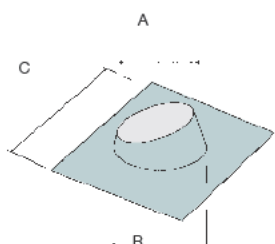
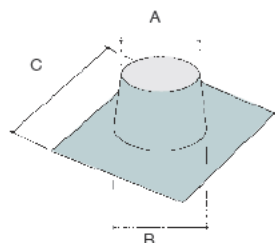
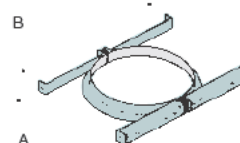
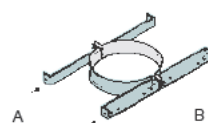
Floor Guide

150mm to 600mm diameter

| Size | Dimensions A B | Code numbers Galv. St Stain St. |
|-------|-------------------|------------------------------------|
| 100mm | 221 686 | 1752004 1778006 |
| 150mm | 271 686 | 1758006 1778006 |
| 175mm | 296 686 | 1758007 1778007 |
| 200mm | 321 686 | 1758008 1778008 |
| 250mm | 371 686 | 1758010 1778010 |
| 300mm | 421 686 | 1758012 1778012 |
| 350mm | 471 826 | 1758014 1778014 |
| 400mm | 521 826 | 1758016 1778016 |
| 450mm | 571 826 | 1758018 1778018 |
| 500mm | 621 826 | 1758020 1778020 |
| 550mm | 671 826 | 1758022 1778022 |
| 600mm | 721 826 | 1758024 1778024 |

700mm to 1200mm diameter

| Size | Code numbers Galv. St Stain St. |
|--------|------------------------------------|
| 650mm | 764 1012 1758026 1778026 |
| 700mm | 814 1012 1758028 1778028 |
| 750mm | 864 1012 1758030 1778030 |
| 800mm | 914 1012 1758032 1778032 |
| 850mm | 964 1012 1758034 1778034 |
| 900mm | 1014 1012 1758036 1778036 |
| 950mm | 1064 1012 1758038 1778038 |
| 1000mm | 1114 1512 1758040 1778040 |
| 1100mm | 1214 1512 1758044 1778044 |
| 1200mm | 1314 1512 1758048 1778048 |



Support Cradle

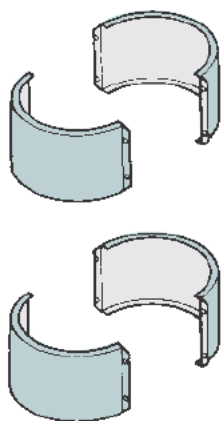
| Size | Dimensions | | Code numbers | | |
|--------|------------|------|--------------|-----------|--|
| | A | B | Galv. St | Stain St. | |
| 100mm | 157 | 209 | 1757604 | 1777604 | |
| 150mm | 207 | 259 | 1757606 | 1777606 | |
| 175mm | 232 | 284 | 1757607 | 1777607 | |
| 200mm | 257 | 309 | 1757608 | 1777608 | |
| 250mm | 307 | 359 | 1757610 | 1777610 | |
| 300mm | 357 | 409 | 1757612 | 1777612 | |
| 350mm | 407 | 459 | 1757614 | 1777614 | |
| 400mm | 457 | 509 | 1757616 | 1777616 | |
| 450mm | 507 | 559 | 1757618 | 1777618 | |
| 500mm | 557 | 609 | 1757620 | 1777620 | |
| 550mm | 607 | 659 | 1757622 | 1777622 | |
| 600mm | 657 | 709 | 1757624 | 1777624 | |
| 650mm | 707 | 764 | 1757626 | 1777626 | |
| 700mm | 757 | 814 | 1757628 | 1777628 | |
| 750mm | 807 | 864 | 1757630 | 1777630 | |
| 800mm | 857 | 914 | 1757632 | 1777632 | |
| 850mm | 907 | 964 | 1757634 | 1777634 | |
| 900mm | 957 | 1014 | 1757636 | 1777636 | |
| 950mm | 1007 | 1064 | 1757638 | 1777638 | |
| 1000mm | 1057 | 1114 | 1757640 | 1777640 | |
| 1100mm | 1157 | 1214 | 1757644 | 1777644 | |
| 1200mm | 1257 | 1314 | 1757648 | 1777648 | |

Support Plate Assembly

| Size | Dimensions | | Code numbers | | |
|--------|------------|------|--------------|-----------|--|
| | A | B | Galv. St | Stain St. | |
| 100mm | 252 | 212 | 1758304 | 1778304 | |
| 150mm | 302 | 262 | 1758306 | 1778306 | |
| 175mm | 327 | 287 | 1758307 | 1778307 | |
| 200mm | 352 | 312 | 1758308 | 1778308 | |
| 250mm | 402 | 362 | 1758310 | 1778310 | |
| 300mm | 452 | 412 | 1758312 | 1778312 | |
| 350mm | 502 | 462 | 1758314 | 1778314 | |
| 400mm | 552 | 512 | 1758316 | 1778316 | |
| 450mm | 602 | 562 | 1758318 | 1778318 | |
| 500mm | 652 | 612 | 1758320 | 1778320 | |
| 550mm | 702 | 662 | 1758322 | 1778322 | |
| 600mm | 752 | 712 | 1758324 | 1778324 | |
| 650mm | 802 | 764 | 1758326 | 1778326 | |
| 700mm | 854 | 804 | 1758328 | 1778328 | |
| 750mm | 904 | 854 | 1758330 | 1778330 | |
| 800mm | 954 | 904 | 1758332 | 1778332 | |
| 850mm | 1004 | 954 | 1758334 | 1778334 | |
| 900mm | 1054 | 1004 | 1758336 | 1778336 | |
| 950mm | 1104 | 1054 | 1758338 | 1778338 | |
| 1000mm | 1154 | 1104 | 1758340 | 1778340 | |
| 1100mm | 1254 | 1204 | 1758344 | 1778344 | |
| 1200mm | 1354 | 1304 | 1758348 | 1778348 | |

Cover Jacket Set

| Size | Code numbers | | |
|--------|--------------|-----------|--|
| | Galv. St | Stain St. | |
| 100mm | 1758104 | 4778104 | |
| 150mm | 1758106 | 4778106 | |
| 175mm | 1758107 | 4778107 | |
| 200mm | 1758108 | 4778108 | |
| 250mm | 1758110 | 4778110 | |
| 300mm | 1758112 | 4778112 | |
| 350mm | 1758114 | 4778114 | |
| 400mm | 1758116 | 4778116 | |
| 450mm | 1758118 | 4778118 | |
| 500mm | 1758120 | 4778120 | |
| 550mm | 1758122 | 4778122 | |
| 600mm | 1758124 | 4778124 | |
| 650mm | 1758126 | 4778126 | |
| 700mm | 1758128 | 4778128 | |
| 750mm | 1758130 | 4778130 | |
| 800mm | 1758132 | 4778132 | |
| 850mm | 1758134 | 4778134 | |
| 900mm | 1758136 | 4778136 | |
| 950mm | 1758138 | 4778138 | |
| 1000mm | 1758140 | 4778140 | |
| 1100mm | 1758144 | 4778144 | |
| 1200mm | 1758148 | 4778148 | |

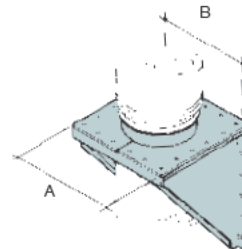


Used to close off the annulus on each side of a Support Plate or Wall Support.

Wall Support Assembly

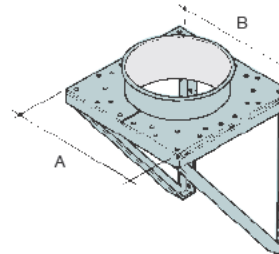
150mm to 600mm diameter

| Size | Dimensions | | Code numbers | | |
|-------|------------|-----|--------------|-----------|--|
| | A | B | Galv. St | Stain St. | |
| 100mm | 252 | | | | |
| 150mm | 302 | 262 | 1758406 | 1778406 | |
| 175mm | 327 | 287 | 1758407 | 1778407 | |
| 200mm | 352 | 312 | 1758408 | 1778408 | |
| 250mm | 402 | 362 | 1758410 | 1778410 | |
| 300mm | 452 | 412 | 1758412 | 1778412 | |
| 350mm | 502 | 462 | 1758414 | 1778414 | |
| 400mm | 552 | 512 | 1758416 | 1778416 | |
| 450mm | 602 | 562 | 1758418 | 1778418 | |
| 500mm | 652 | 612 | 1758420 | 1778420 | |
| 550mm | 702 | 662 | 1758422 | 1778422 | |
| 600mm | 752 | 712 | 1758424 | 1778424 | |



650mm to 1200mm diameter

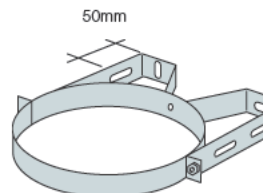
| Size | Dimensions | | Code numbers | | |
|--------|------------|------|--------------|-----------|--|
| | A | B | Galv. St | Stain St. | |
| 650mm | 804 | 754 | 1758426 | 1778426 | |
| 700mm | 854 | 804 | 1758428 | 1778428 | |
| 750mm | 904 | 854 | 1758430 | 1778430 | |
| 800mm | 954 | 904 | 1758432 | 1778432 | |
| 850mm | 1004 | 954 | 1758434 | 1778434 | |
| 900mm | 1054 | 1004 | 1758436 | 1778436 | |
| 950mm | 1104 | 1054 | 1758438 | 1778438 | |
| 1000mm | 1154 | 1104 | 1758440 | 1778440 | |
| 1100mm | 1254 | 1204 | 1758444 | 1778444 | |
| 1200mm | 1354 | 1304 | 1758448 | 1778448 | |



Wall Guide

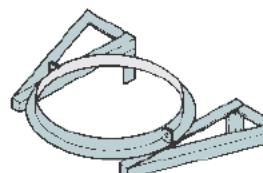
150mm to 600mm diameter

| Size | Code numbers | | |
|-------|--------------|-----------|--|
| | Galv. St | Stain St. | |
| 100mm | 1757904 | 1777904 | |
| 150mm | 1757906 | 1777906 | |
| 175mm | 1757907 | 1777907 | |
| 200mm | 1757908 | 1777908 | |
| 250mm | 1757910 | 1777910 | |
| 300mm | 1757912 | 1777912 | |
| 350mm | 1757914 | 1777914 | |
| 400mm | 1757916 | 1777916 | |
| 450mm | 1757918 | 1777918 | |
| 500mm | 1757920 | 1777920 | |
| 550mm | 1757922 | 1777922 | |
| 600mm | 1757924 | 1777924 | |



700mm to 1200mm diameter

| Size | Code numbers | | |
|--------|--------------|-----------|--|
| | Galv. St | Stain St. | |
| 650mm | 1757926 | 1777926 | |
| 700mm | 1757928 | 1777928 | |
| 750mm | 1757930 | 1777930 | |
| 800mm | 1757932 | 1777932 | |
| 850mm | 1757934 | 1777934 | |
| 900mm | 1757936 | 1777936 | |
| 950mm | 1757938 | 1777938 | |
| 1000mm | 1757940 | 1777940 | |
| 1100mm | 1757944 | 1777944 | |
| 1200mm | 1757948 | 1777948 | |



ASSEMBLY OF COMPONENTS

All Tees, Elbows, Increases, Offsets, Manifolds and Drainage Components must be protected from expansion greater than 6mm.

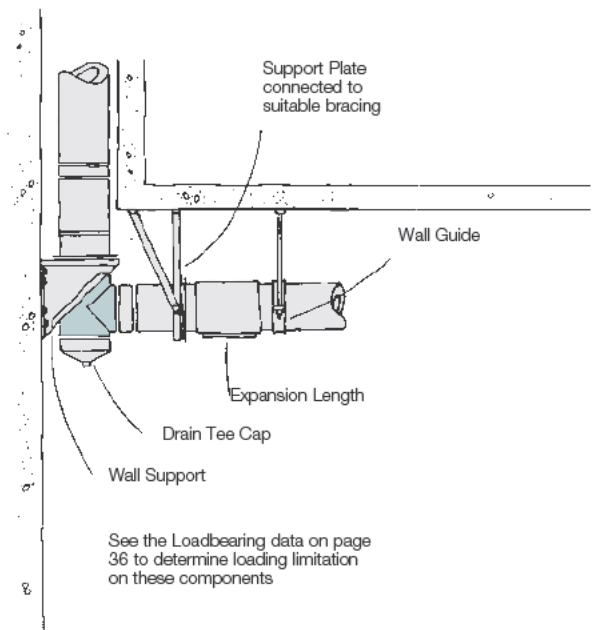
90° & 95° TEES

The 90° and 95° Tees will support vertical chimney/vent when they are supported from below, and are designed to join horizontal connection into vertical application and provide a drain or inspection fitting. For the latter application, the Drain Tee Cap is installed at the base of the Tee and, where required piped to a suitable drain.

When placed on top of a supporting framework or flat plate, the Tee Cap closure becomes inaccessible and cannot be removed. Consequently, where access is required there are two options:

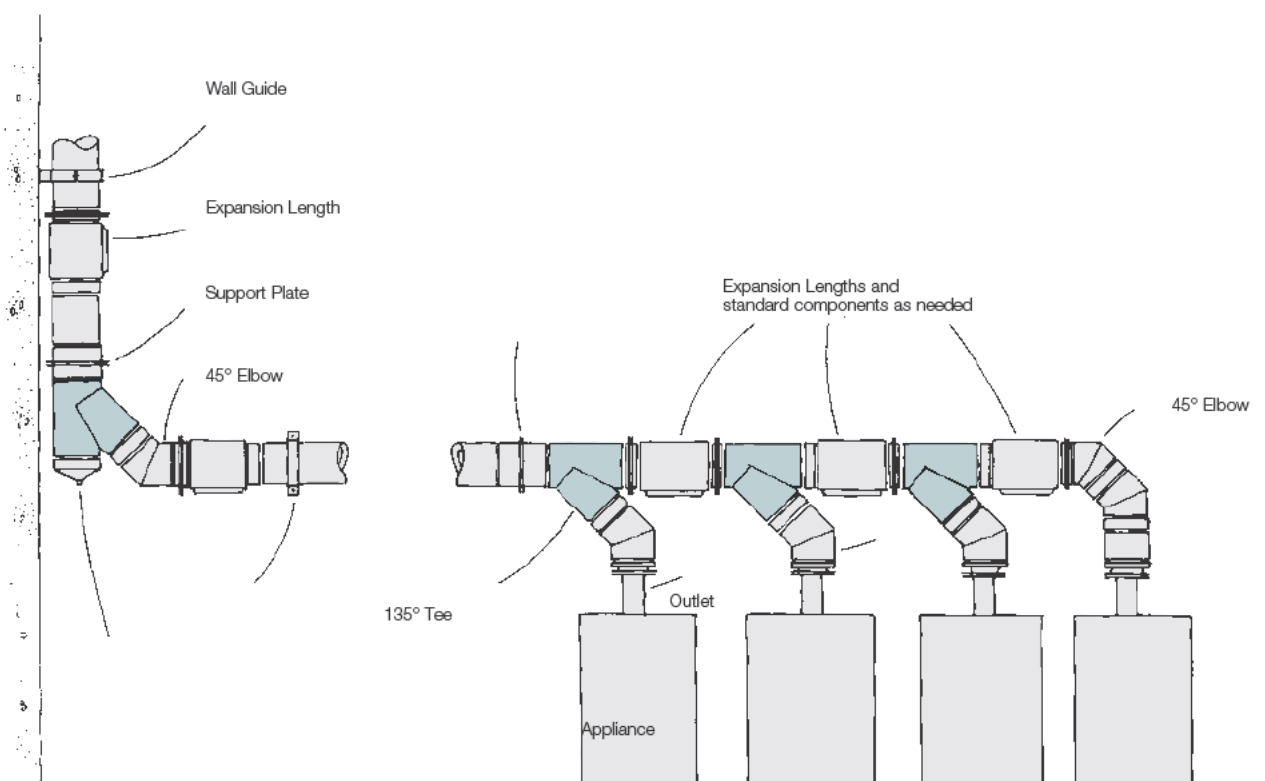
1. Use a Support Plate or Wall Support at the upper Tee Joint or above. See drawing.
2. Support the Tee from its lower joint with a Support Plate or Wall Support if appropriate, and use an additional 500mm standard pipe length or a Hood Transition below the support beneath which a Drain Tee Cap can be located.

It is preferable to always connect the drain fitting of the Drain Tee Cap to a suitable Drain. This will permit rain entering the chimney to wash down, dilute and remove any corrosive combustion condensates. Also, always install the Tee Cap with sealant on the mating surfaces of the flange, as well as in the groove of the Vee Bands. This will prevent leaks and ensure that the drain functions as intended. See section on "Drainage" page 28.



135° TEE

Use of this component allows a 45° entry to the vertical chimney, and support requirements are similar to those dictated for the 90° Tee. Use of this component necessitates the use of a 45° elbow if there is a horizontal breaching configuration. See drawings.



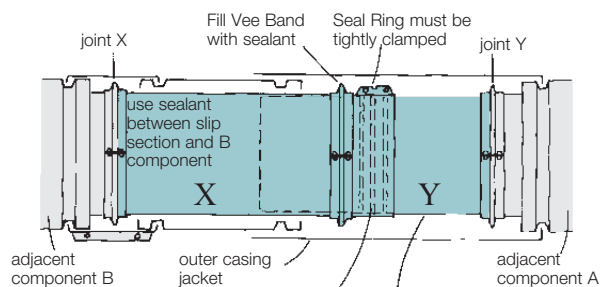
Adjustable Length

This component is not loadbearing and must not be used to accommodate expansion.

The Adjustable Length comprises a sliding inner section, flanged at one end only. This sliding piece is sized to fit closely inside a standard pipe section. A seal ring is provided to prevent the inner section from slipping after assembly. The sliding outer jacket is 304 stainless steel to the same specification as standard product.

Observe the following steps in making up a short length assembly for the Adjustable Length and refer to the data below and drawing.

1. Determine length between flanges of adjacent sections.. Extend slip section to required length. Remove bolts from the seal ring and leave it on slip section, away from the joint to be made.
2. Apply three 8mm diameter beads of the appropriate sealant around the slip section adjacent to the pipe flange, and equally spaced within the seal ring width. See drawing. Removing the slip section may make this easier.
(If high temperature sealant is being used, apply an additional bead of low temperature silicone sealant to each side of the high temperature sealant to provide protection whilst the sealant cures).
3. Open out seal ring and slide over sealant until the flange mates with the flange of element "X". Replace the bolts and loosely clamp in position.
4. Fill the Vee Band with sealant, and loosely fit to the joint.
5. Install the Adjustable Length between required sections or in desired position, and fit the Vee Bands.
6. Tighten the seal ring followed by the Vee Band.
7. Fit the outer cover-jacket and insulation



this end must be down for vertical installation, and must be away from apparatus in horizontal application

3 beads of sealant under seal ring to prevent slippage (see note 3 above)

Slip Section: Adjust to length in piping run before sealing

This data illustrates the minimum and maximum distance that can be applied between the Vee Band Joints at each end of the Adjustable Length.

Installed Distance Between Joints "A" & "B"

| Size | Short Version | | Long Version | |
|--------|---------------|----------|--------------|----------|
| | Min (mm) | Max (mm) | Min (mm) | Max (mm) |
| 100mm | | | | |
| 150mm | 580 | 882 | 830 | 1432 |
| 175mm | 580 | 870 | 830 | 1420 |
| 200mm | 580 | 857 | 830 | 1407 |
| 250mm | 580 | 832 | 830 | 1382 |
| 300mm | 580 | 807 | 830 | 1357 |
| 350mm | 580 | 782 | 830 | 1332 |
| 400mm | 580 | 757 | 830 | 1307 |
| 450mm | 580 | 732 | 830 | 1282 |
| 500mm | 580 | 707 | 830 | 1257 |
| 550mm | 580 | 757 | 830 | 1232 |
| 600mm | 580 | 657 | 830 | 1207 |
| 650mm | | | 830 | 1182 |
| 700mm | | | 830 | 1157 |
| 750mm | | | 830 | 1132 |
| 800mm | | | 830 | 1107 |
| 850mm | | | 830 | 1082 |
| 900mm | | | 1080 | 1557 |
| 950mm | | | 1080 | 1532 |
| 1000mm | | | 1080 | 1507 |
| 1100mm | | | 1080 | 1457 |
| 1200mm | | | 1080 | 1407 |

Expansion Length

Structural steelwork and supports which are not of SFL provision are illustrated to show possible support methods only. Adequate support criteria for Europa must be competently calculated. Please cross refer to "Thermal Expansion" on page 5.

This component is not designed to resist high* pressure, and it is not loadbearing. Use the Bellows for such application.

The Expansion Length can be used to make up odd lengths of pipe as needed in short runs, and serves as an expansion joint for Thermal Expansion in larger runs of pipe.

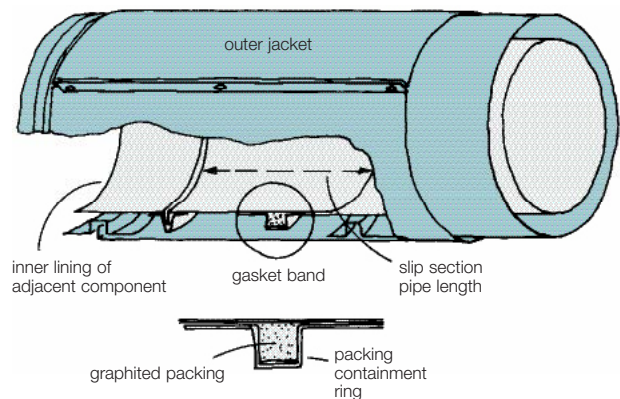
The Expansion Length comprises a sliding inner section, flanged on one end only. This sliding piece is sized to fit closely inside a standard 500mm or 750mm length with which it is provided as ordered. At the sliding joint, the assembly is fitted with a special graphited packing seal.

Do not pull the assembly apart, as it requires a lengthy re-assembly process.

The sliding outer jacket is placed around the outside of the completed assembly with the turned end locating in one of the grooves normally used by a Channel Band. It must also slide in order to avoid expansion stresses.

During assembly, the inner liner must be inserted into the adjacent element with which it is provided, a distance equivalent to not less than half the diameter of the product. Selection of either the short or long version will be determined by the amount of expansion and application. See drawings and Tables for installed expansion tolerance data.

*See Pressure Tightness data on page 33.



Installed Distance Between Joints "A" & "B" (See drawing)

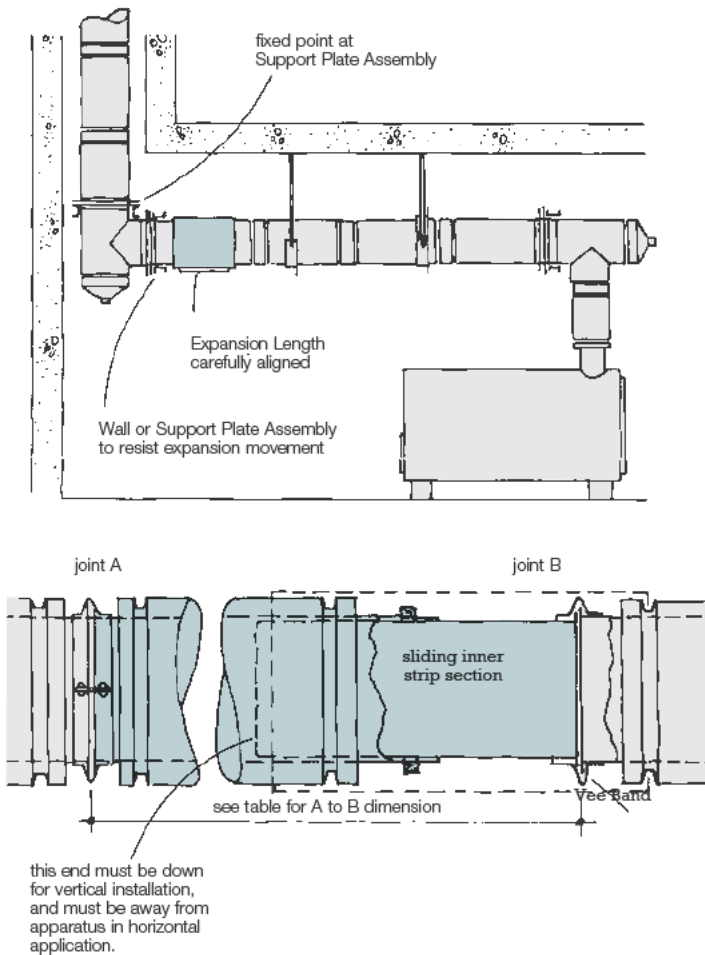
| Size | Short Version | | Long Version | |
|--------|---------------|----------|--------------|----------|
| | Min (mm) | Max (mm) | Min (mm) | Max (mm) |
| 150mm | 550 | 932 | 800 | 1432 |
| 175mm | 550 | 922 | 800 | 1420 |
| 200mm | 550 | 907 | 800 | 1407 |
| 250mm | 550 | 882 | 800 | 1382 |
| 300mm | 550 | 857 | 800 | 1357 |
| 350mm | 550 | 832 | 800 | 1332 |
| 400mm | 550 | 807 | 800 | 1307 |
| 450mm | 550 | 782 | 800 | 1282 |
| 500mm | 550 | 757 | 800 | 1257 |
| 550mm | 550 | 732 | 800 | 1232 |
| 600mm | 550 | 707 | 800 | 1207 |
| 650mm | | | 800 | 1182 |
| 700mm | | | 800 | 1157 |
| 750mm | | | 800 | 1132 |
| 800mm | | | 800 | 1107 |
| 850mm | | | 800 | 1082 |
| 900mm | | | 1050 | 1557 |
| 1000mm | | | 1050 | 1507 |
| 1100mm | | | 1050 | 1457 |
| 1200mm | | | 1050 | 1407 |

The actual dimensions do not make allowances for thermal expansion, which would require the "Min" dimension to be increased if the component is assembled almost closed.

Application

N.B. When calculating stress loading, the mechanical and thermally induced loads must be summed.

When the expansion length is installed between two fixed points, it should be installed nearer to the support furthest away from the apparatus. To ensure axial alignment, lateral bracing Support Assemblies must be fitted close and upstream to the Expansion Length.



The Table below provides expansion data to increase the minimum figure if appropriate.

Thermal Expansion (mm)

| Length (Metres) | 8.5 | 8.0 | 7.5 | 7.0 | 6.5 | 6.0 | 5.5 | 5.0 | 4.5 | 4.0 | 3.5 | 3.0 | 2.5 | 2.0 | 1.5 | 1.0 | 0.5 |
|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| 100 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 200 | 34 | 32 | 30 | 28 | 26 | 24 | 22 | 20 | 18 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 |
| 300 | 51 | 48 | 45 | 42 | 39 | 36 | 33 | 30 | 27 | 24 | 21 | 18 | 15 | 12 | 9 | 6 | 3 |
| 400 | 68 | 64 | 60 | 56 | 52 | 48 | 44 | 40 | 36 | 32 | 28 | 24 | 20 | 16 | 12 | 8 | 4 |
| 500 | 85 | 80 | 75 | 70 | 65 | 60 | 55 | 50 | 45 | 40 | 35 | 30 | 24 | 20 | 15 | 10 | 5 |
| 600 | 102 | 96 | 90 | 84 | 78 | 72 | 66 | 60 | 54 | 48 | 42 | 36 | 30 | 24 | 18 | 12 | 6 |
| 700 | 119 | 112 | 105 | 98 | 91 | 84 | 77 | 70 | 63 | 56 | 49 | 42 | 35 | 28 | 21 | 14 | 7 |
| 800 | 136 | 126 | 120 | 112 | 104 | 96 | 88 | 80 | 72 | 64 | 56 | 48 | 40 | 32 | 24 | 16 | 8 |
| 900 | 153 | 144 | 135 | 126 | 117 | 108 | 99 | 90 | 81 | 72 | 63 | 54 | 45 | 36 | 27 | 18 | 9 |
| 1000 | 170 | 160 | 150 | 140 | 130 | 120 | 110 | 100 | 90 | 80 | 70 | 60 | 50 | 40 | 30 | 20 | 10 |
| Flue Gas Rise °C | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | | | | | | | |

Expansion Bellows

Used for high positive pressure applications of up to 5000Pa and flue gas temperatures up to 600°C.

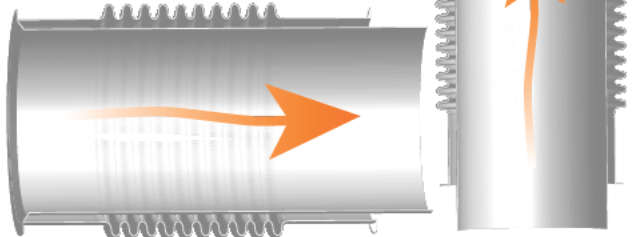
Wherever possible the lined Bellow should be used. This has a 1mm thick straight stainless steel liner to protect the Bellow from the build up of deposits within the convolutions, and eliminates turbulence and flow effects. It is used anywhere in a system for axial and vibration movements only, and must be accurately supported and guided. This component will not accommodate lateral movement and lateral offset and parallel misalignment to the Bellow is positioned at the uppermost end to prevent trapping of water, dirt or other foreign materials between it and the Bellows. The lined Bellows requires careful placement of support guides to avoid prevention of thermal movement. In horizontal use, the Bellow must be attached with the free end away from the appliance. Care must be taken not to pre-stress or compress the component during installation.

For any "Europa" venting system requiring low axial expansion forces the Unlined Bellows will deflect with minimum friction at a known "spring rate". The values for spring rates given in the table, assume that there are no other frictional constraints and also proper alignment of the liner in the case of the Lined Bellows.

Applications

When calculating stress loading, the mechanical and thermal induced loads must be summed.

When the Bellows is installed between two fixed points, it should be installed nearer to the support furthest away from the apparatus. Where unlined bellows are used and where the axial compression is limited to 80mm, the unit is capable of either lateral or angular offsets as per the data in table X. Lined bellows must be braced and supported so there is no possibility of lateral or angular movement. The maximum axial compression for all bellows is 125mm. Where the expansion requirement is greater than 125mm, then additional bellows will be required between the associated two fixed points.

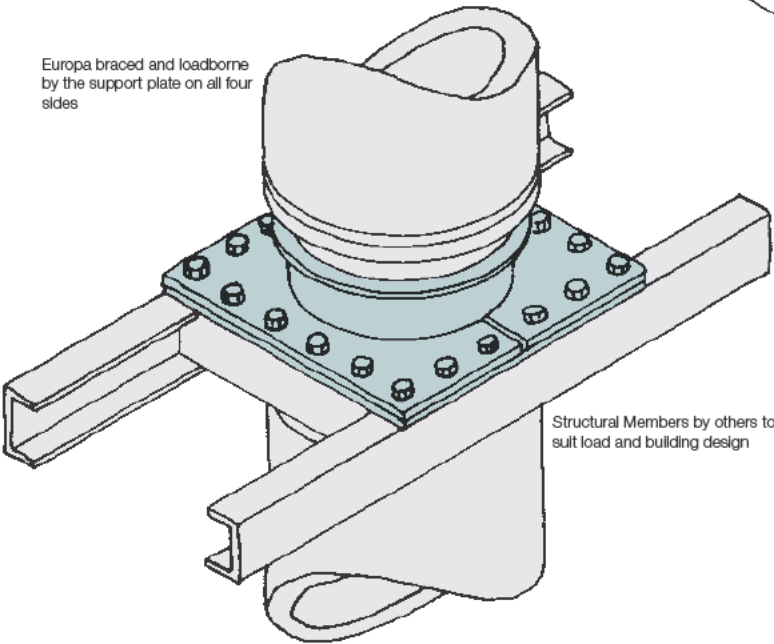
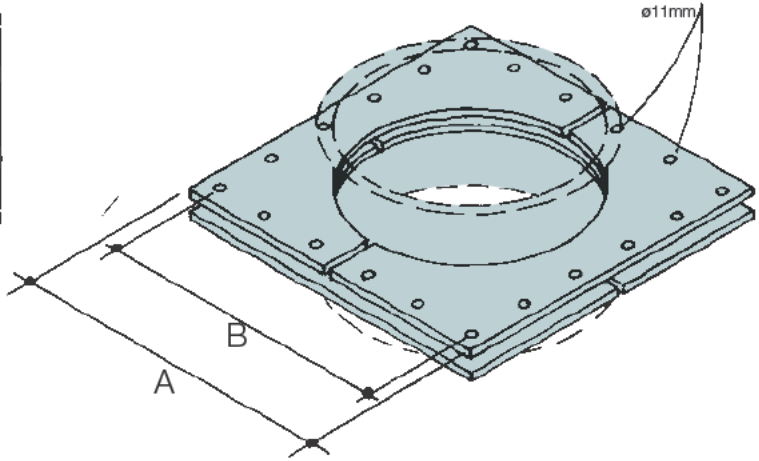
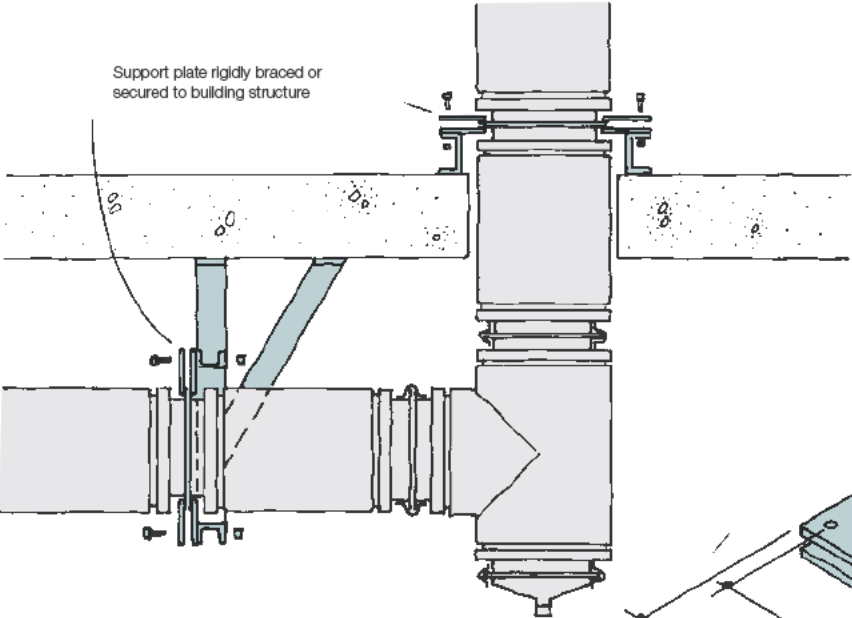


| Flue Size | Diam A (mm) | Axial Spring Rate (N/mm) | At 80mm Axial Compression | |
|-----------|-------------|--------------------------|---------------------------|----------------|
| | | | Angular Offset | Lateral Offset |
| 100 | 133 | 16 | 27° | 16.5 |
| 150 | 184 | 18.5 | 25° | 15.5 |
| 175 | 209 | 21.3 | 22° | 13.5 |
| 200 | 238 | 21 | 20° | 12 |
| 250 | 290 | 91 | 16° | 9.5 |
| 300 | 356 | 15.4 | 13° | 7.5 |
| 350 | 405 | 73 | 11° | 6.5 |
| 400 | 469 | 69.2 | 10° | 6 |
| 450 | 502 | 37 | 9° | 5 |
| 500 | 570 | 80.2 | 8° | 4.5 |
| 550 | 605 | 43 | 8° | 4.5 |
| 600 | 684 | 77.6 | 7° | 4 |
| 650 | 723 | 111 | 7° | 4 |
| 700 | 789 | 90 | 7° | 4 |
| 750 | 837 | 97 | 6.5° | 3.7 |
| 800 | 888 | 103 | 6° | 3.5 |
| 850 | 923 | 144 | 5.5° | 3.2 |
| 900 | 989 | 106 | 5.5° | 3.2 |
| 950 | 1020 | 159.5 | 5° | 3 |
| 1000 | 1096 | 138.5 | 5° | 3 |
| 1100 | 1198 | 152.2 | 4.5° | 2.8 |
| 1200 | 1299 | 166 | 4° | 2.5 |

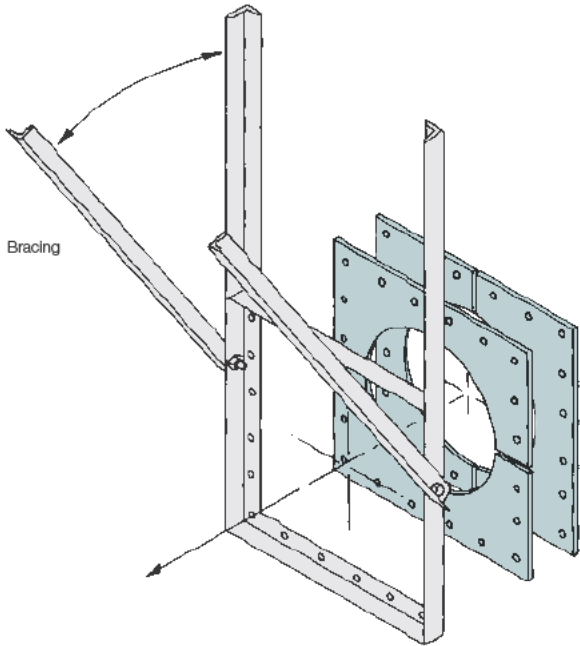
Support Plate Assembly

The assembly provides the maximum strength support for a vertical chimney/vent. It is used to maintain positive joint alignment, and support for expansion joints in both horizontal and vertical application. Between any two fixed points in a system or wherever an expansion joint must slide to prevent bending of tees or elbows. Locate and secure Support Plates as necessary by means of structural ties to the building. This may require the supports both upstream and downstream of a tee, which would then be protected from excessive expansion stresses.

| Size | Dimensions | |
|--------|------------|------|
| | A | B |
| 150mm | 302 | 262 |
| 175mm | 327 | 287 |
| 200mm | 352 | 312 |
| 250mm | 402 | 362 |
| 300mm | 452 | 412 |
| 350mm | 502 | 462 |
| 400mm | 552 | 512 |
| 450mm | 602 | 562 |
| 500mm | 652 | 612 |
| 550mm | 702 | 762 |
| 600mm | 752 | 712 |
| 650mm | 804 | 854 |
| 700mm | 854 | 804 |
| 750mm | 904 | 954 |
| 800mm | 954 | 904 |
| 850mm | 1004 | 1054 |
| 900mm | 1054 | 1004 |
| 950mm | 1104 | 1154 |
| 1000mm | 1154 | 1104 |
| 1100mm | 1254 | 1204 |
| 1200mm | 1354 | 1304 |



Structural Members by others to suit load and building design



NB: If bracing is used, minimum x° angle is 30° . If bracing is not used, welded frame members must be attached to structure members to provide rigidity of framework.

| Size | Framework material (Minimum dimensions) | Bracing material (Minimum dimensions) |
|--------------|--|--|
| 150 - 500mm | 50 x 25 x 5mm | 50 x 50 x 5mm |
| 600 - 1200mm | 125 x 45 x 6mm | 75 x 75 x 6mm |

As the Support Plate interrupts the annulus of the Europa construction, a Cover Jacket Set should be used to close the annulus on each side of the Plate joint.

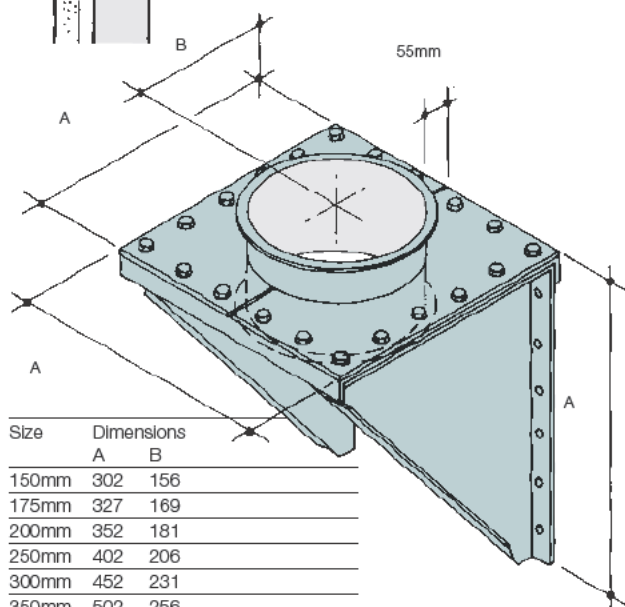
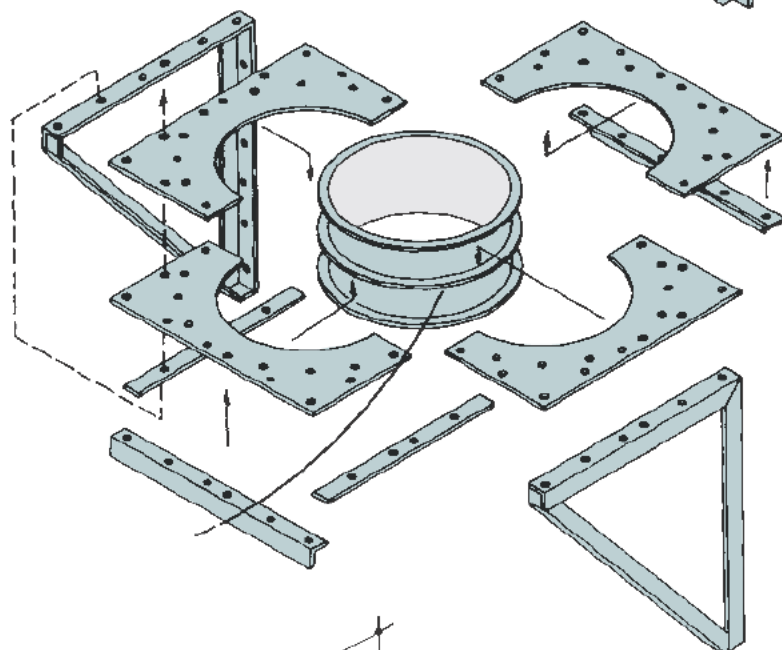
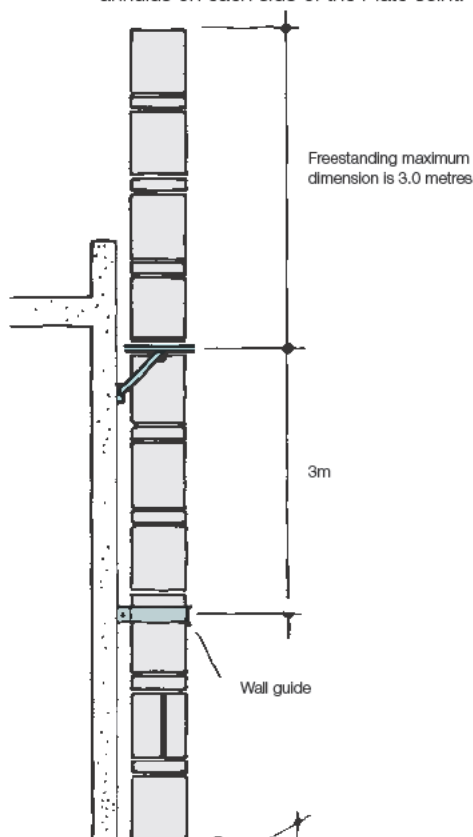
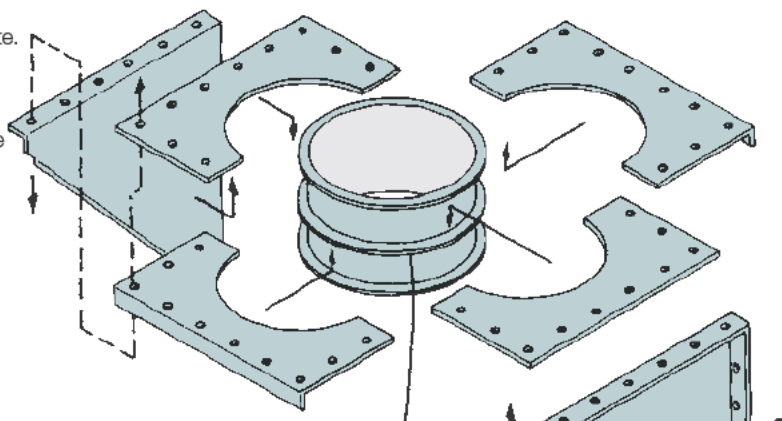
Wall Support Assembly

The Wall Support Assembly consists of a Support Plate, two Side Brackets and a Support Length, see illustrations opposite. The installed length of the Support Length is 170mm.

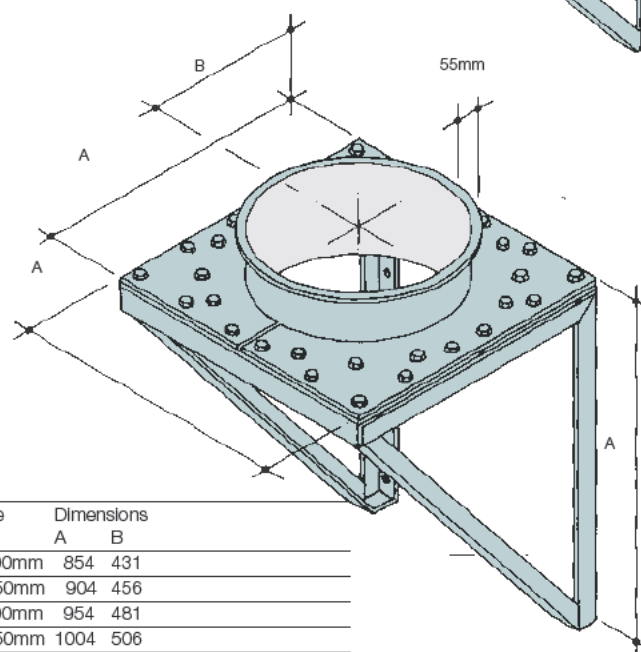
The application of either type is very important. The side support must always be orientated so that they are on the loadbearing side of the trapped Europa welded liner joint. The loadbearing features may be either mechanically (weight) or thermally (expansion) induced, and it is the greater of these which will determine the orientation of the construction. The assembly must be tightly bolted using all the nuts and bolts provided.

The height of Europa between supports must be measured from the expansion length or bellows, which must be used below each support.

As the Wall Support interrupts the annulus of the Europa construction, a Cover Jacket Set should be used to close the annulus on each side of the Plate Joint.



| Size | Dimensions | |
|-------|------------|-----|
| | A | B |
| 150mm | 302 | 156 |
| 175mm | 327 | 169 |
| 200mm | 352 | 181 |
| 250mm | 402 | 206 |
| 300mm | 452 | 231 |
| 350mm | 502 | 256 |
| 400mm | 552 | 281 |
| 450mm | 602 | 306 |
| 500mm | 652 | 331 |
| 550mm | 702 | 356 |
| 600mm | 752 | 381 |



| Size | Dimensions | |
|--------|------------|-----|
| | A | B |
| 700mm | 854 | 431 |
| 750mm | 904 | 456 |
| 800mm | 954 | 481 |
| 850mm | 1004 | 506 |
| 900mm | 1054 | 531 |
| 950mm | 1104 | 556 |
| 1000mm | 1154 | 581 |
| 1100mm | 1254 | 631 |
| 1200mm | 1354 | 681 |

These components are designed to allow the Europa chimney/vent to expand and contract. Any linear movement through the support is permitted by designed clearances.

Nevertheless, the location of these Supports is important and they must always be located just upstream (nearer the appliance) of a joint so that the expansion of the outer casing and hence the Channel Band Clamp joint, moves away from the support unimpeded.

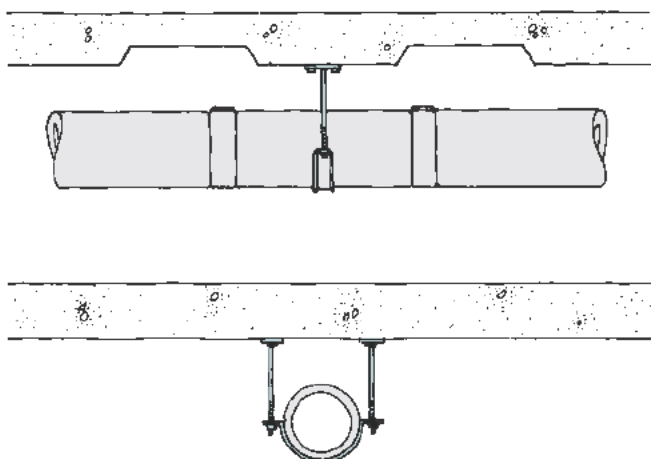
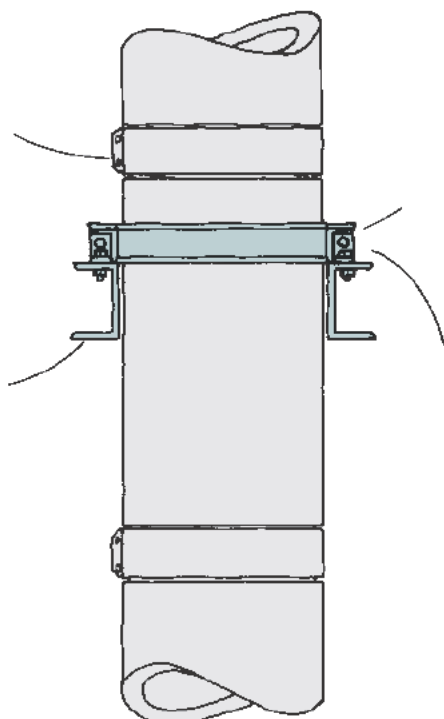
N.B. Supports and Guides described here are only suitable for attachment to non-combustible structure.

Guide Band & Support Cradle

The Guide Band is used as an expansion guide for Europa by attachment to suitable structure.

For horizontal applications, either a Guide Band or a Support Cradle may be suspended by rods or other types of rigid brace. See the typical application drawings on pages 43 to 49.

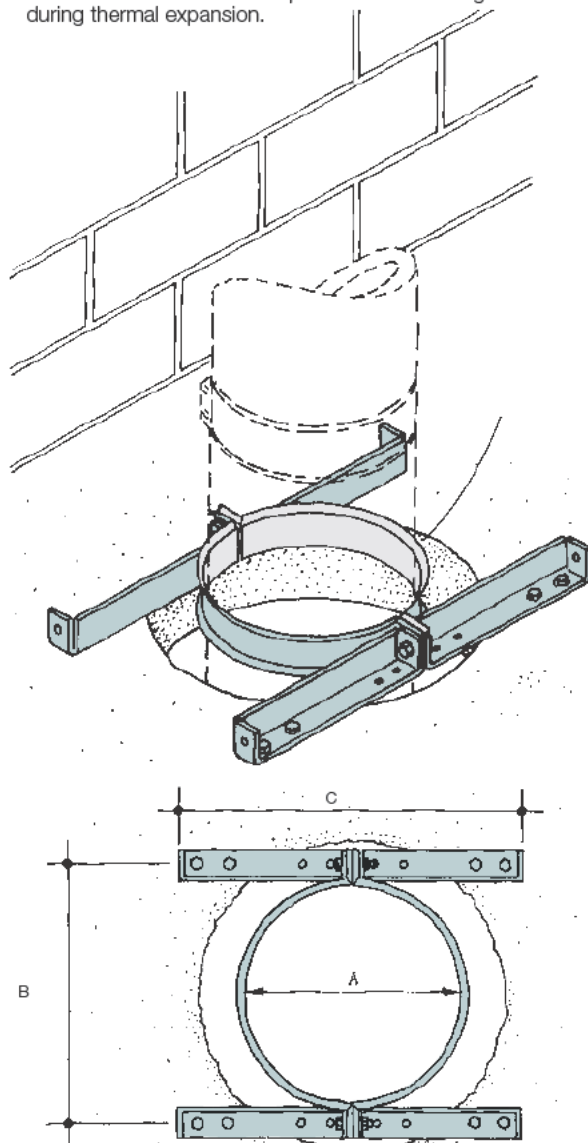
The Guide Band inside diameter is 5mm larger than the outside diameter of the Europa to allow for sliding movement during thermal expansion.



Floor Guide

The Floor Guide comprises a Guide Band, four short angle sections and associated nuts and bolts. See drawing. The component is used as shown where the Europa can be braced on its passage through the floor opening.

The Guide Band inside diameter is 5mm larger than the outside diameter of the Europa to allow for sliding movement during thermal expansion.



| Size | Dimensions | | |
|--------|------------|------|------|
| | A | B | C |
| 100mm | 157 | 221 | 686 |
| 150mm | 207 | 271 | 686 |
| 175mm | 232 | 296 | 686 |
| 200mm | 257 | 321 | 686 |
| 250mm | 307 | 371 | 686 |
| 300mm | 357 | 421 | 686 |
| 350mm | 407 | 471 | 826 |
| 400mm | 457 | 521 | 826 |
| 450mm | 507 | 571 | 826 |
| 500mm | 557 | 621 | 826 |
| 550mm | 507 | 671 | 826 |
| 600mm | 657 | 721 | 826 |
| 650mm | 707 | 764 | 1000 |
| 700mm | 757 | 814 | 1000 |
| 750mm | 807 | 864 | 1000 |
| 800mm | 857 | 914 | 1000 |
| 850mm | 907 | 964 | 1000 |
| 900mm | 957 | 1014 | 1000 |
| 950mm | 1007 | 1064 | 1000 |
| 1000mm | 1057 | 1114 | 1000 |
| 1100mm | 1157 | 1214 | 1000 |
| 1200mm | 1257 | 1314 | 1000 |

Wall Guide

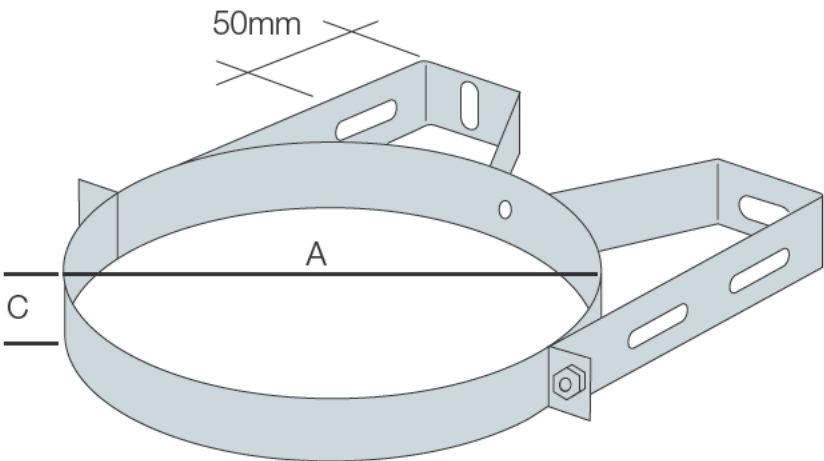
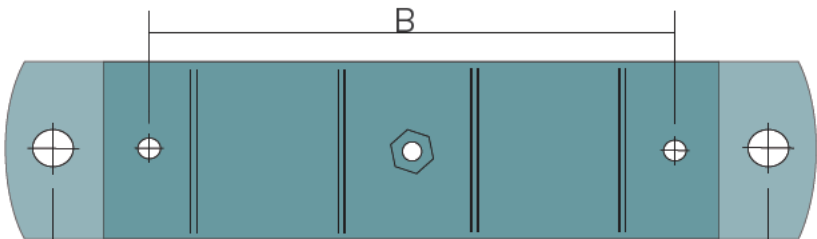
These components comprise a Guide Band or an angle ring with associated bracketry and nuts and bolts for assembly. They do not include the fixings for attachment to the structure. The latter must be provided by the erector and should be of sufficient and suitable strength to ensure adequate attachment.

Both versions are designed to provide 55mm clearance from the outer casing of Europa to non-combustible structures. The assembly is intended to resist lateral or side loads only and must not be used to carry the weight of a vertical Europa assembly. See

The assemblies are not to be used for attachment to any combustible structure. If Europa must be attached to a combustible wall, spacers should be used which maintain the minimum clearance required and also minimise heat conduction through supporting metal parts. See table on page 37 for safe clearance criteria.

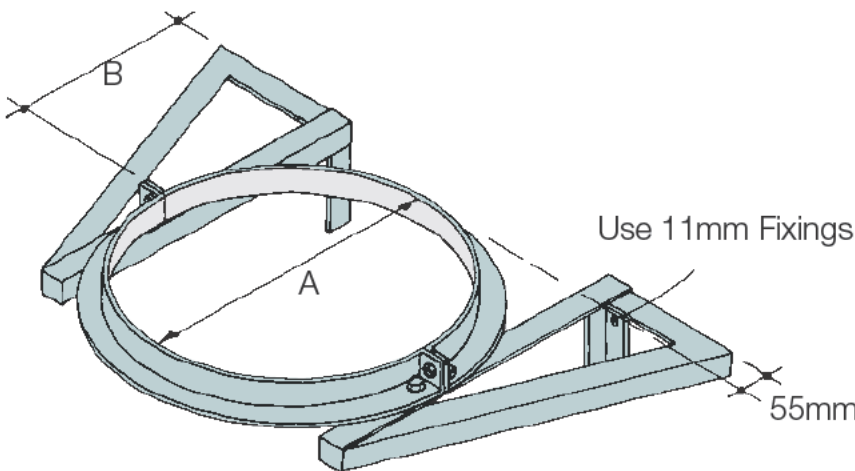
The Guide Band inside diameter is 5mm larger than the outside diameter of the Europa to allow for sliding movement during thermal expansion.

150mm to 600mm diameters

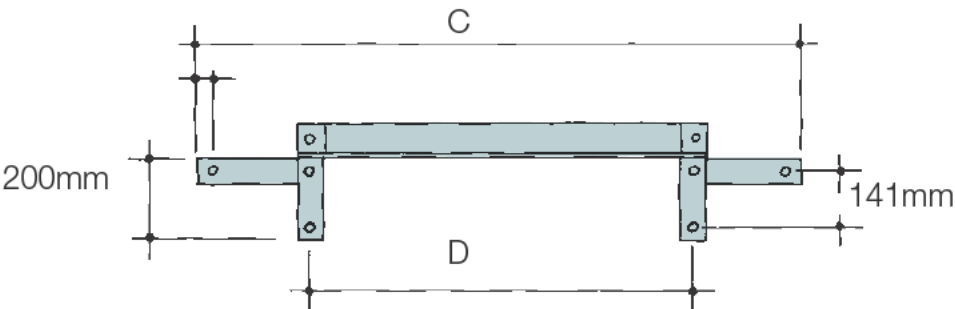


| Ø | Dimensions | | |
|--------|------------|-------|----|
| | A | B | C |
| 100 mm | 154.5 | 125.5 | 50 |
| 150 mm | 205.5 | 274.5 | 50 |
| 175 mm | 234.0 | 203.5 | 50 |
| 200 mm | 255 | 224.5 | 50 |
| 250 mm | 305 | 274.5 | 50 |
| 300 mm | 355 | 324.5 | 50 |
| 350 mm | 405.5 | 372.5 | 50 |
| 400 mm | 455.5 | 422.5 | 75 |
| 450 mm | 505.5 | 473.5 | 75 |
| 500 mm | 555.5 | 522.0 | 75 |
| 550 mm | 605.5 | 573.5 | 75 |
| 600 mm | 655.5 | 624.5 | 75 |

650mm to 1200mm diameters



| Ø | Dimensions | | | |
|---------|------------|-----|------|------|
| | A | B | C | D |
| 650 mm | 707 | 615 | 1136 | 764 |
| 700 mm | 757 | 640 | 1200 | 814 |
| 750 mm | 807 | 665 | 1264 | 864 |
| 800 mm | 857 | 690 | 1328 | 914 |
| 850 mm | 907 | 715 | 1390 | 964 |
| 900 mm | 957 | 740 | 1454 | 1014 |
| 950 mm | 1007 | 765 | 1518 | 1064 |
| 1000 mm | 1057 | 790 | 1582 | 1114 |
| 1100 mm | 1157 | 840 | 1708 | 1214 |
| 1200 mm | 1257 | 890 | 1834 | 1314 |



USE OF ELBOWS & OFFSETS

The Elbows provide joints to make up 15°, 30°, 45°, 90° and 95° changes of direction. All elbows must be protected from thermal expansion and bending forces. For offset data see component range details on page 8.

Sloped or horizontal offsets in the vertical portion of a chimney/vent above the breaching should be avoided except where absolutely necessary. Sloped offsets require more expansion joints and secure bracing above and below elbows. Special care must be exercised in designing the bracing for elbows because these and other fittings, only take limited forces to any bending moments. Additional rigid supports may be needed to hold chimney supports in position. See drawings on page 24 and application drawings on pages 43 to 49.

The length of offset, must be determined by the Europa strength considerations. The maximum dimension between supports are given on the Guide and Lateral Bracing Table on page 37.

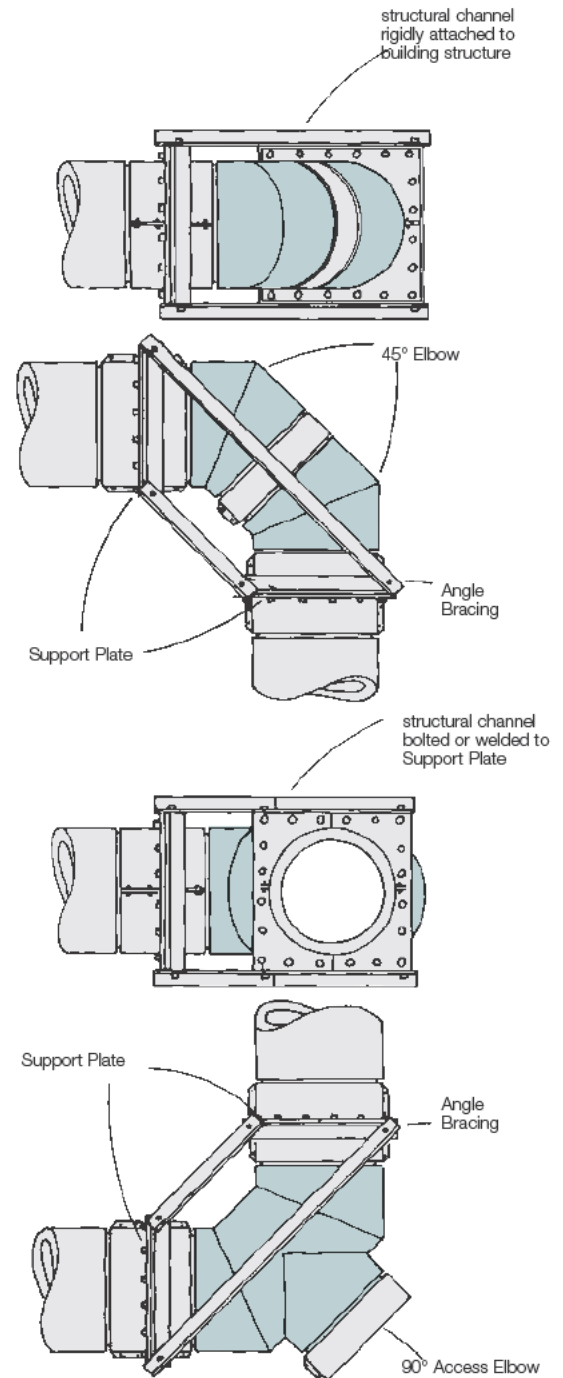
To assure proper guidance of expansion joints, and to prevent unnecessary joint bending, use an adequate number of supports at closer intervals. When it is necessary to provide additional structural stiffening at the elbows or fittings, rigidity can be provided by using an additional Support Plate located at the other end of the elbow or fitting and bolting lateral braces across the corners using angle iron bracing. See drawing.

With frequent support, there is no structural or operating limit to the length of horizontal or sloped portions of a Europa installation providing the system meets the capacity, pressure drop or available draught requirements of the appliance or equipment. The carrying capacity of Europa supports and their structural attachments must consider the weight of the offset plus whatever vertical vent is carried by the support.

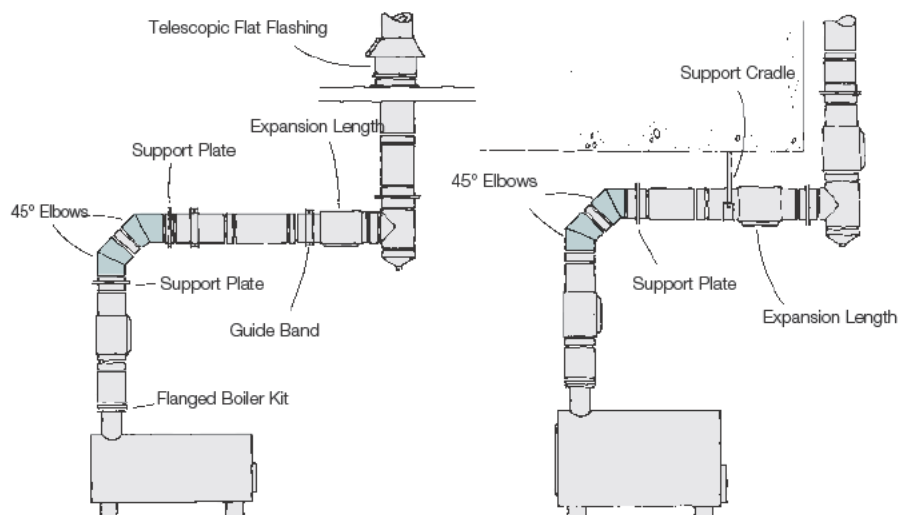
The ends of any sloped or horizontal offset must be anchored to prevent over-stressing elbows, and to ensure proper operation of expansion joints. The vertical section of chimney above the offset must also be supported or anchored, and guided where necessary. The drawings illustrate a variety of ways for offset supports to obtain structural stability.

Re-supports such as those shown in the drawing must be securely anchored to walls, posts or locally fabricated rigid frame work. Supports suspended by threaded rod or from small size angles or straps are not satisfactory to resist bending moments in offsets.

Where used on condensing appliances and where the horizontal is sloped, a drain component must be used at strategic points in the lowest part of the run.



Structural alternatives for stiffening Elbows when using either Plate Support or Wall Support. (The bracing shown is one possible method. Actual bracing should be designed with configuration and building/structure in mind).

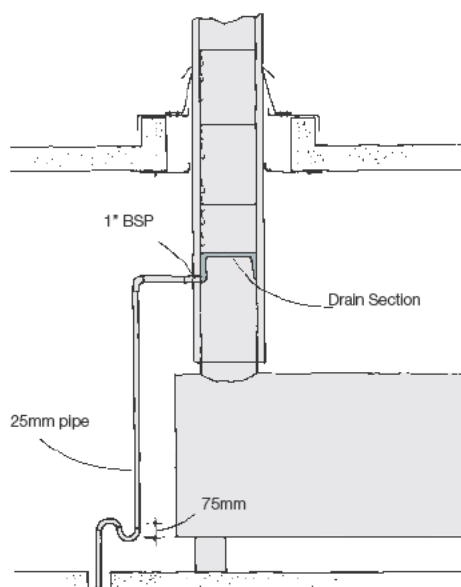


DRAINAGE

Where the Europa is to be used for catering equipment and extract ducts, additional requirements are needed which enable the chimney to be effectively cleaned and which facilitates the collection of grease condensates. There are also occasions where the open end of the vent when subjected to excessive rainfall conditions would justify the use of a Drain Section rather than the use of a Drain Cap, and in some cases both items can be incorporated with this system. This is also important on condensing appliances and provision must be made through suitable and strategically placed component in order to remove the condensation from the system.

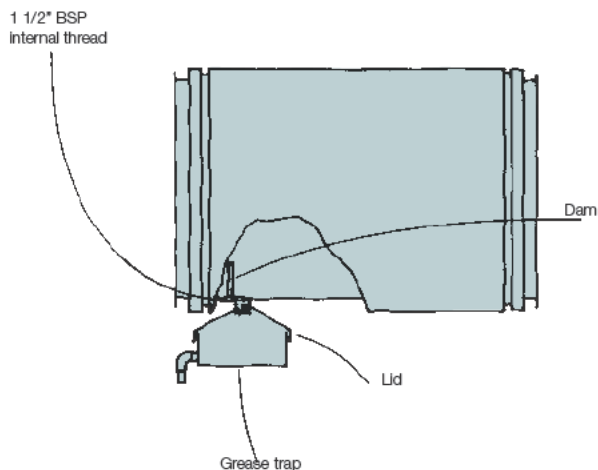
Drain Section

The Drain Section is designed to trap any water or condensation running down the inside of the vent and is drained to a suitable gully or drain. The component should be installed internally in a vertical chimney, thus lessening the chance of freezing. The drain line should be run to a water seal or trap, to suit pressure in the system. See drawing.



Duct Drains

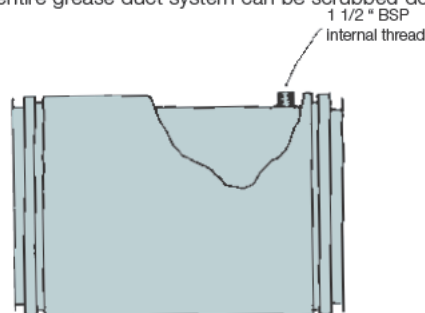
When the Grease Duct is correctly installed with a minimum slope to the drain coupling of 20mm per metre horizontal run, "puddling" of grease or residues will not occur at site other than at the drain couplings because of the functional location of the dams. The material in the duct can easily drain to an externally located trap (supplied by others). See drawing. For use on condensing appliances, a 5° slope should be created to allow back flow of condensation to the duct drain.



Nozzle Section

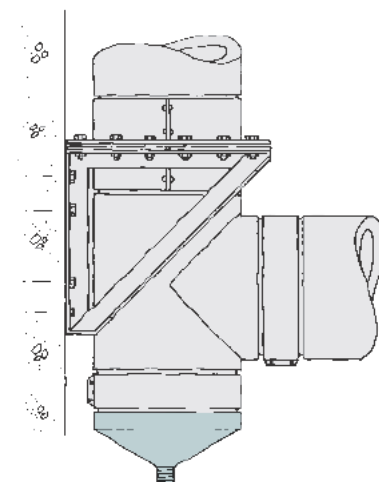
The Nozzle Section is the same basic construction of the Duct Drain with the sector dam removed. See drawing.

The component is designed to be used so that the tapping is on the side or top of the section and has an internal 1 1/2" BSP thread. Under normal circumstances the tapping is plugged, but in such a way that access permits the injection of fire extinguishing chemicals in the event of a fire occurring through the ignition of accumulated grease within the vent/duct. The same access can also be used to facilitate hot water flushing so that the entire grease duct system can be scrubbed down. This



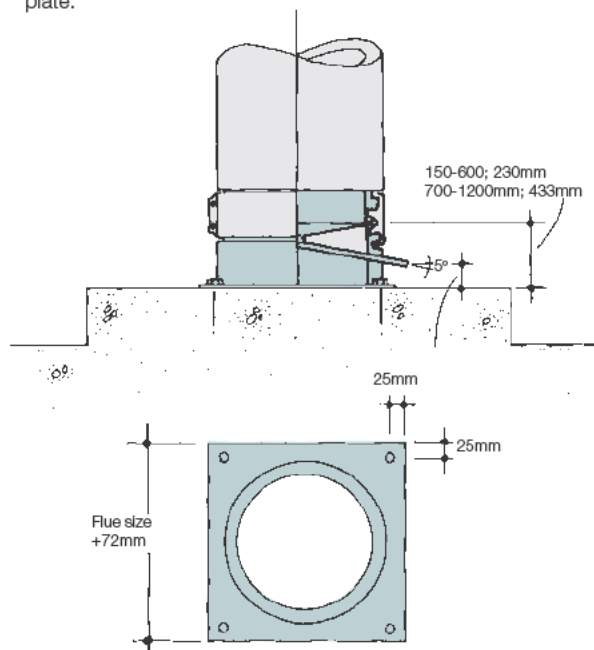
Condensate Collector

Install below a tee



Anchor Plate with Condensate Collector

Used at the bottom of a Europa run and below a Tee. Length of vent above this component must not exceed 13m before an additional loadbearing support should be used. No cap is fitted to the stainless steel drain. The Anchor Plate must be secured to solid foundations through 4 x 10mm diameter holes in the base plate.



TERMINATION

Flat Flashings and Adjustable Flashings (5° - 30° / 32° - 45°) will permit weathering where the chimney passes through the roof structure. The drawing shows a typical application and features the use of the Storm Collar to weatherproof the flashing cone/outer casing interface. Please note that the chimney must be allowed to ride vertically through the cone of the flashing under expansion conditions. The Storm Collar must be secured and sealed with the silicone sealant provided to the outer casing of the chimney. Locate as close to the top of the cone of the flashing as possible so that despite expansion, weatherproofing is maintained.

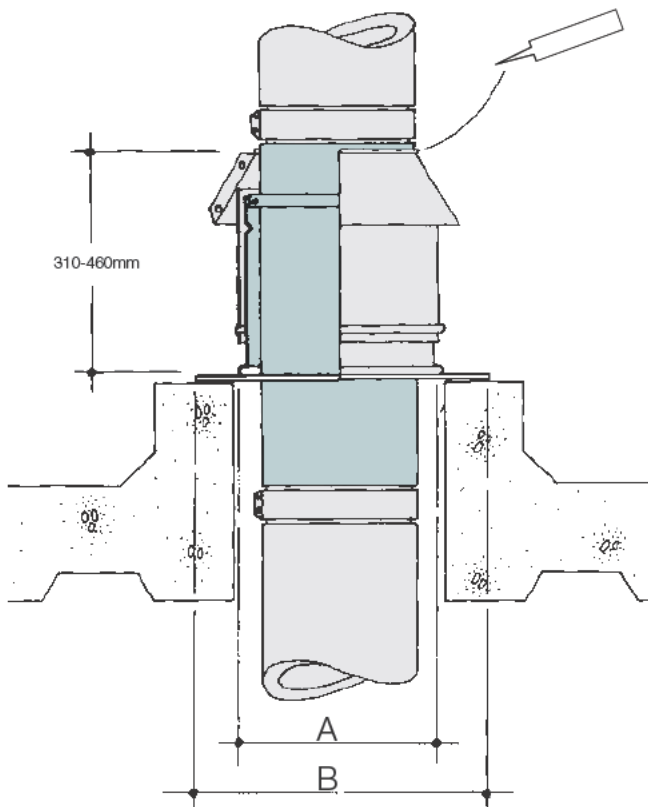
A vertical upward discharge (such as with the Tapered Vent Terminal or Parallel Vent Terminal) provides the most effective means of dispersing chimney gases. Such terminations, however, will allow entry of rain. See page 28 for notes on Drainage.

A Vent Cap is only partially effective in excluding rain. With all Europa terminations where rain is likely to enter the chimney, the following components can be used:

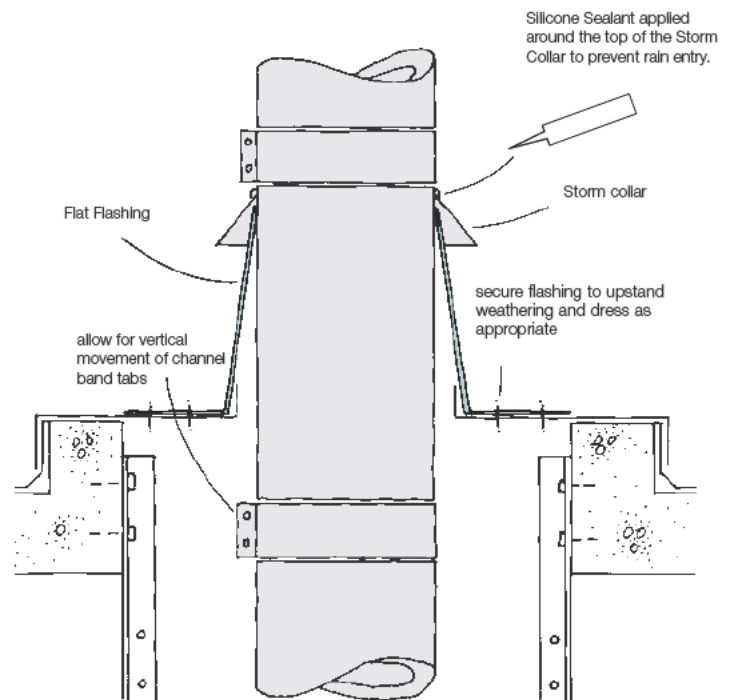
1. A Drain Section located at least 5 diameters below the chimney outlet, but above any Tee or Elbow.
2. A Drain Tee Cap fitted to a suitable drain (use a trap or valve in the drain if the system is under positive pressure).

Telescopic Flat Flashing

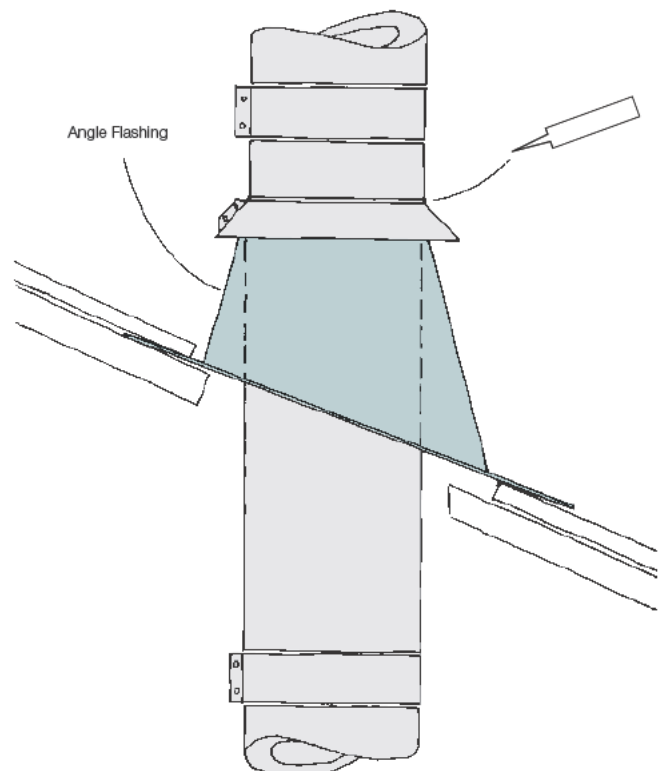
| Size | Dimensions | |
|--------|------------|------|
| | A | B |
| 150mm | 266 | 508 |
| 175mm | 291 | 546 |
| 200mm | 316 | 570 |
| 250mm | 366 | 610 |
| 300mm | 416 | 666 |
| 350mm | 466 | 712 |
| 400mm | 516 | 762 |
| 450mm | 566 | 812 |
| 500mm | 616 | 864 |
| 550mm | 666 | 914 |
| 600mm | 716 | 965 |
| 650mm | 766 | 1014 |
| 700mm | 812 | 1064 |
| 750mm | 862 | 1014 |
| 800mm | 912 | 1164 |
| 850mm | 962 | 1214 |
| 900mm | 1012 | 1264 |
| 950mm | 1062 | 1314 |
| 1000mm | 1112 | 1364 |
| 1100mm | 1212 | 1464 |
| 1200mm | 1312 | 1564 |



Flat Flashing

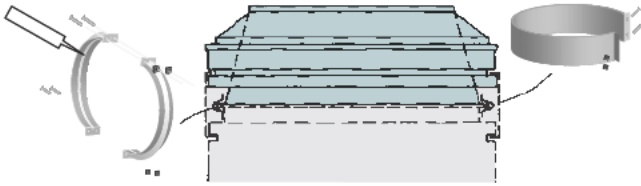


Adjustable Flashing



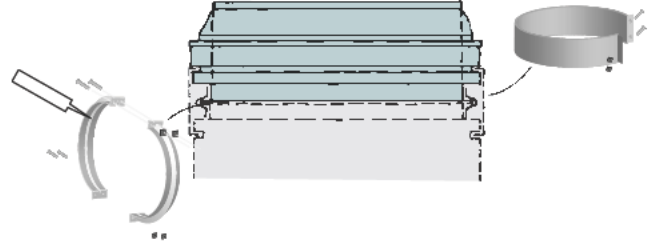
Tapered Vent Terminal

This component must be secured to the top end of the chimney/vent in exactly the same way as standard components. Being open ended, depending upon application a Drain Section or Drain Tee Cap may be required in the vent run.



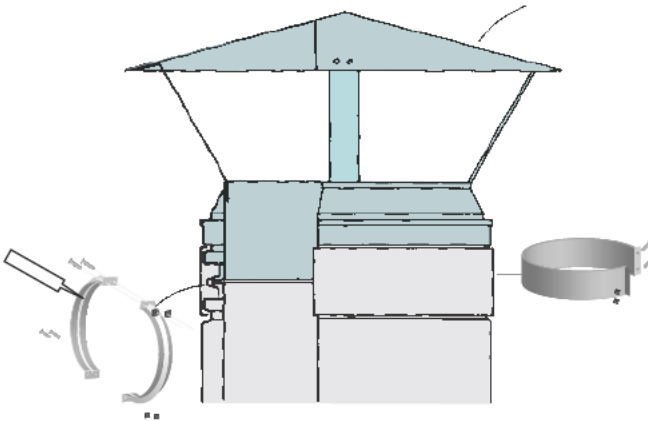
Parallel Vent Terminal

This component must be secured to the top end of the chimney/vent in exactly the same way as standard components. Being open ended, depending upon application a Drain Section or Drain Tee Cap may be required in the vent run.



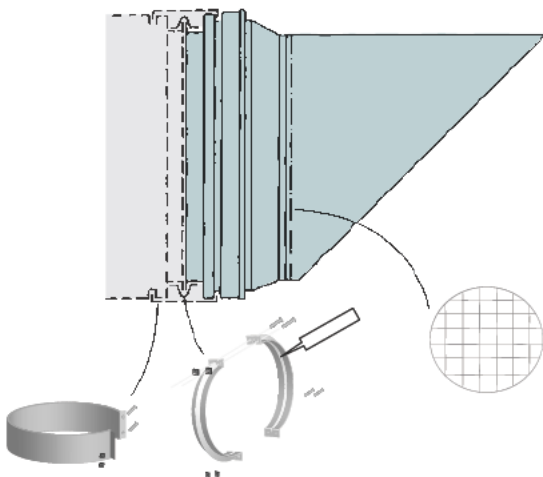
Vent Cap

The Vent Cap combines partial protection against rain entry with low exit flow resistance. It must be located and secured to the top of the final element with a Vee Band and a Channel Band.



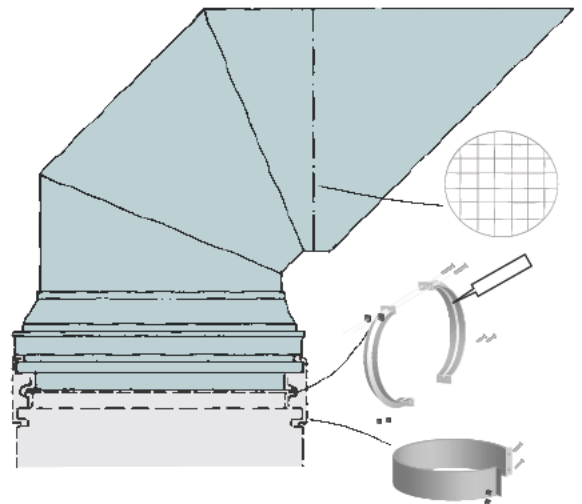
Exhaust Terminal - Horizontal

Secure to the horizontal discharge with a Vee Band and Channel Band, and with the 45° slope facing down.



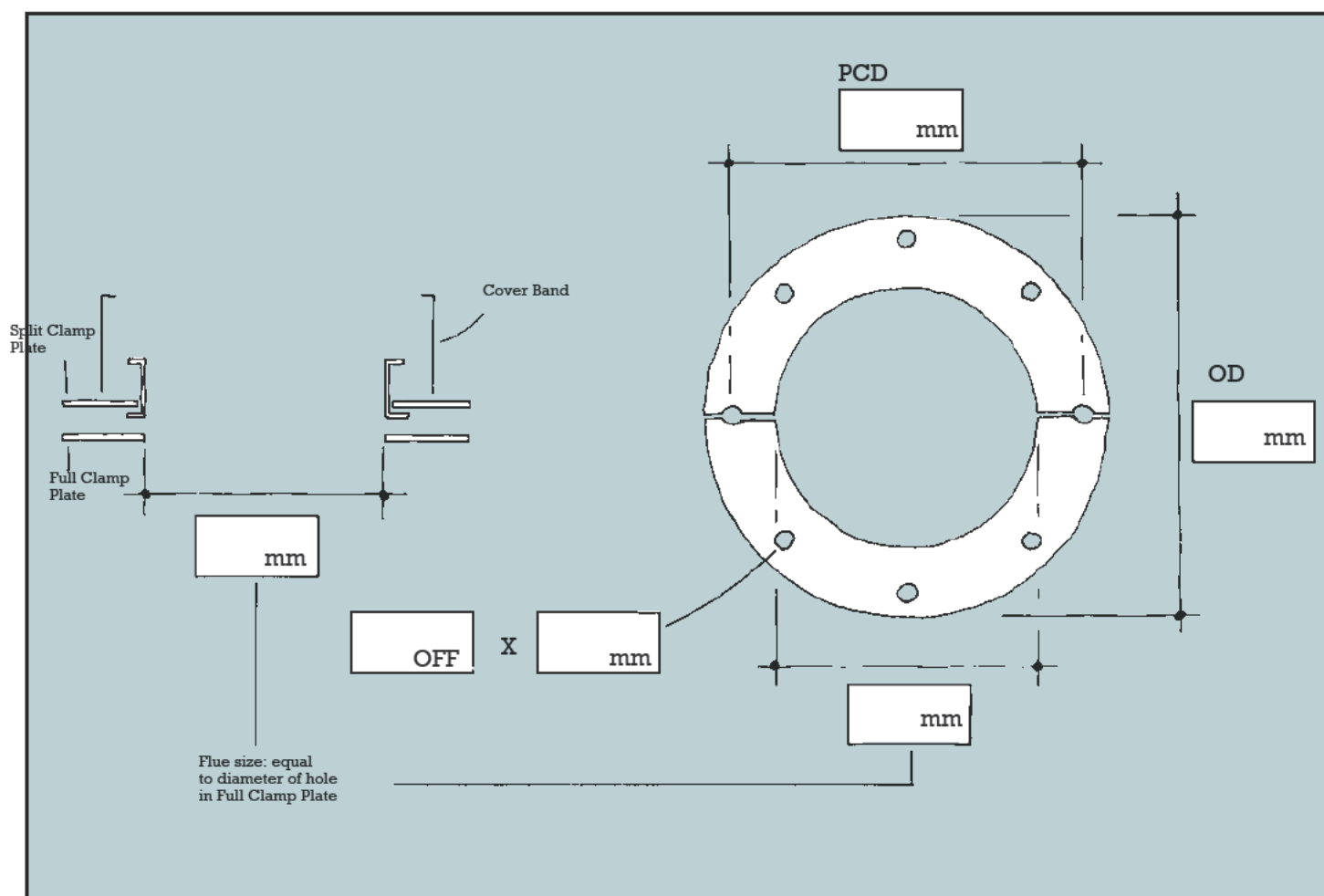
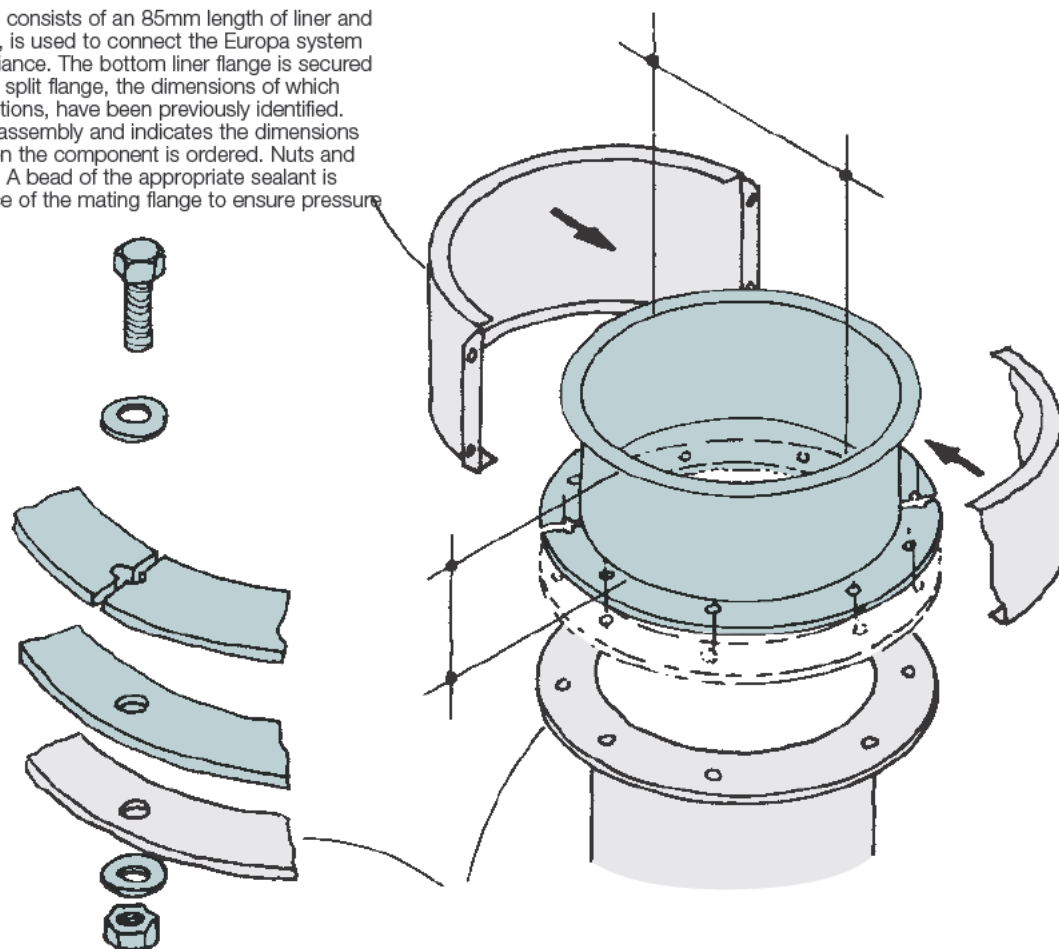
Exhaust Terminal - Vertical

Secure to the final length with a Vee Band and Channel Band.



Flange Adaptor

This component, which consists of an 85mm length of liner and a purpose made flange, is used to connect the Europa system to a ready flanged appliance. The bottom liner flange is secured to the apparatus with a split flange, the dimensions of which as well as the hole positions, have been previously identified. The drawing illustrates assembly and indicates the dimensions which are required when the component is ordered. Nuts and bolts are not provided. A bead of the appropriate sealant is required around the face of the mating flange to ensure pressure tightness.



* Inclusive of 1 Vee Band ** Inclusive of 1 Vee Band and 1 Channel Band ***Inclusive of 1 Vee Band, 1 Channel Band and Insulation at mean density of 270 kg/m³.

Weight

| Size | Lengths, per metre run, (kg) | | | Support components | | | | |
|--------|------------------------------|-------------------|-----------------------------------|--------------------|-------------------|-----------------|-----------------|------------------|
| | Single Wall* | Air Gap Annulus** | Mineral Wool Insulated Annulus*** | Support Plate (kg) | Wall Support (kg) | Guide Band (kg) | Wall Guide (kg) | Floor Guide (kg) |
| 100mm | 3.0 | 5.6 | 6.8 | 4.00 | 8.14 | 1.96 | 3.15 | 5.18 |
| 150mm | 3.9 | 6.2 | 8.7 | 4.80 | 9.52 | 2.08 | 3.36 | 5.24 |
| 175mm | 4.6 | 7.6 | 10.4 | 5.60 | 10.93 | 2.24 | 3.69 | 5.40 |
| 200mm | 5.3 | 8.2 | 11.3 | 6.24 | 12.26 | 2.41 | 3.99 | 5.57 |
| 250mm | 6.6 | 10.0 | 13.9 | 7.62 | 15.06 | 2.73 | 5.02 | 5.89 |
| 300mm | 7.9 | 11.8 | 16.4 | 9.69 | 18.69 | 3.05 | 5.64 | 6.21 |
| 350mm | 9.2 | 13.7 | 18.9 | 11.26 | 21.95 | 3.37 | 6.62 | 7.06 |
| 400mm | 10.5 | 17.1 | 23.0 | 12.88 | 25.39 | 3.72 | 7.26 | 7.41 |
| 450mm | 11.8 | 19.1 | 25.7 | 14.56 | 29.02 | 4.01 | 7.85 | 7.70 |
| 500mm | 13.2 | 21.1 | 28.4 | 16.73 | 33.28 | 4.32 | 8.86 | 8.01 |
| 550mm | 14.3 | 22.5 | 30.2 | 18.11 | 37.05 | 4.61 | 9.42 | 8.30 |
| 600mm | 15.7 | 25.0 | 33.7 | 19.93 | 41.05 | 5.00 | 10.13 | 8.69 |
| 650mm | 16.9 | 26.8 | 36.5 | 36.40 | 58.34 | 10.12 | 25.52 | 18.65 |
| 700mm | 18.4 | 29.1 | 39.0 | 39.38 | 77.25 | 12.48 | 29.28 | 21.89 |
| 750mm | 19.8 | 31.5 | 41.6 | 43.52 | 83.31 | 13.1 | 30.11 | 22.45 |
| 800mm | 21.6 | 33.1 | 44.4 | 46.47 | 88.77 | 14.04 | 31.94 | 23.46 |
| 850mm | 22.4 | 34.6 | 47.2 | 50.04 | 94.02 | 14.70 | 32.98 | 24.20 |
| 900mm | 23.6 | 37.1 | 49.8 | 54.02 | 100.75 | 15.61 | 34.65 | 25.02 |
| 950mm | 27.2 | 41.3 | 54.6 | 58.53 | 107.22 | 16.46 | 36.25 | 25.75 |
| 1000mm | 31.3 | 46.2 | 60.1 | 63.17 | 114.32 | 17.18 | 37.36 | 26.59 |
| 1100mm | 34.7 | 51.0 | 66.2 | 71.74 | 127.35 | 18.70 | 40.03 | 28.11 |
| 1200mm | 37.8 | 55.5 | 72.1 | 80.77 | 140.81 | 20.31 | 45.35 | 29.72 |

Loadbearing capacity of support components

N.B. When calculating loading, the mechanical and thermally induced loads must be summed. Elbows do not loadbear.

| Size | Support Plates (kg) | Wall Supports (kg) | Tees (Supported on their base) (kg) |
|--------|--------------------------------|-------------------------|-------------------------------------|
| | Must be supported on all sides | Subject to wall fixings | |
| 100mm | 425 | 400 | 100 |
| 150mm | 450 | 450 | 100 |
| 175mm | 525 | 500 | 100 |
| 200mm | 600 | 550 | 125 |
| 250mm | 750 | 625 | 150 |
| 300mm | 900 | 700 | 175 |
| 350mm | 1050 | 800 | 200 |
| 400mm | 1250 | 875 | 225 |
| 450mm | 1350 | 950 | 250 |
| 500mm | 1500 | 1050 | 275 |
| 550mm | 1650 | 1125 | 312 |
| 600mm | 1800 | 1200 | 350 |
| 650mm | 1887 | 1287 | 375 |
| 700mm | 1975 | 1375 | 400 |
| 750mm | 2062 | 1462 | 425 |
| 800mm | 2150 | 1550 | 450 |
| 850mm | 2250 | 1625 | 475 |
| 900mm | 2350 | 1700 | 500 |
| 950mm | 2425 | 1787 | 525 |
| 1000mm | 2500 | 1875 | 550 |
| 1100mm | 2500 | 1875 | 600 |
| 1200mm | 2500 | 1875 | 650 |

Proximity To Combustibles

The Europa product is designed for use on commercial and industrial applications where predominantly the surrounding or attaching structure is non-combustible in nature. Where the Europa product is installed in proximity to combustible materials the following clearances should be observed depending on the temperature designation and diameter of the chimney being installed.

| Internal Diameter | DISTANCE TO COMBUSTIBLE MATERIAL | |
|-------------------|----------------------------------|--------------|
| | T600 | T250 |
| | 25l, 50l, 100l | 25l & 25 Air |
| 100mm - 300mm | 100mm | 50mm |
| 350mm - 450mm | 150mm | 75mm |
| 500mm - 600mm | 200mm | 100mm |
| 650mm - 1200mm | 400mm | 200mm |

Where used on high temperature applications and where the chimney rises within a shaft, it is recommended that the shaft is ventilated to prevent possible build-up of heat.

Single Wall Europa

Europa is available as a single wall product for use only as a liner in non-combustible shafts in commercial installations. Where used in such applications, there should be no combustible material within a distance of 500mm and the shaft should be ventilated throughout.

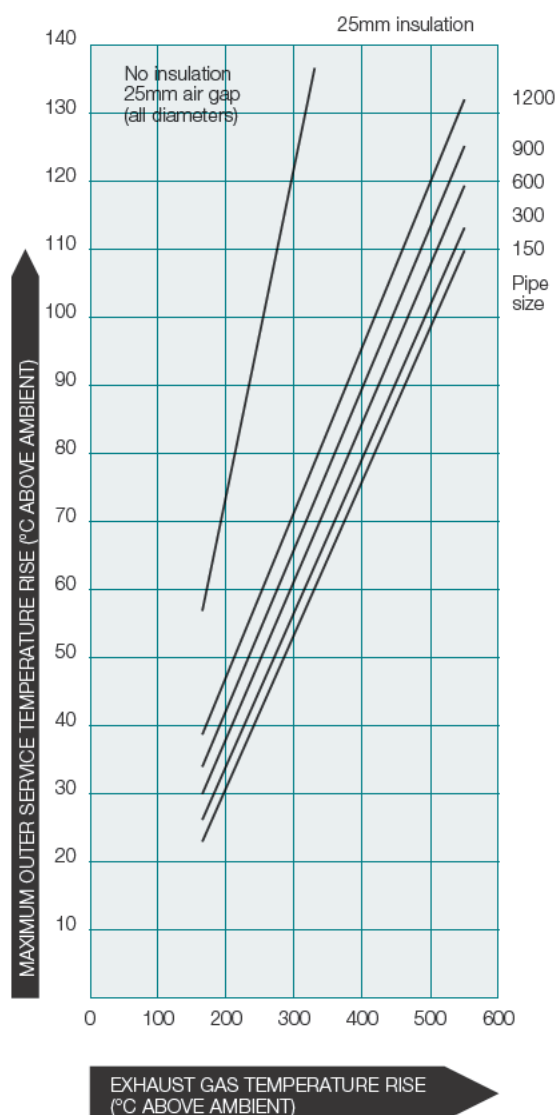
Guide and Lateral Bracing

The Europa must be adequately supported or given lateral bracing in accordance with this Table, bearing in mind the loading characteristics as per page 36.

| Size | Application: Vertical | Horizontal | Freestanding Height above last Guide or Support |
|-----------|--------------------------|------------|---|
| All sizes | 4.0m | 4.0m | 3.0m |

Outer skin temperatures in open room conditions

The graph below is intended to be a guide only. It is indicative of the likely outer skin temperatures for any particular Europa application, but cannot be exact as each situation requires a calculation and knowledge of mass flow, velocity of the gases, and the location and situation of the chimney, ie: enclosed non-ventilated, enclosed ventilated, not enclosed, external, etc.



Four Hour Fire Rating

Europa has been assessed by the Loss Prevention Council for Fire Resistance, in both horizontal and vertical structure penetration.

A fire rating of 4 hours can be achieved in accordance with the stability and integrity criteria of BS 476: Part 24: 1987 for duct type B.



CERTIFICATE OF FIRE APPROVAL

This is to certify that

The product(s) detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations for use on offshore installations classed with Lloyd's Register, and for use on offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer SF Limited
Address Riverside Road
Pottington Business Park
Barnstaple
Devon, EX31 1LZ
United Kingdom (UK)

Type FIRE RESTRICTING DUCTING

Equipment Description A-0 Equivalent Fire Resistant Ducting - Type: "EUROPA" Exhaust Ducting and Chimney System (150mm to 1200mm diameter)

Specified Standard British Standard BS 476: Part 24: 1987
ISO 6944 - 1985

The attached Design Appraisal Document forms part of this certificate.
This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

Date of issue 11 February 2010 **Expiry date** 10 February 2015

Certificate No. SAS F100043 **Signed**

Sheet No 1 of 2 **Name**

Note: S. Abraham
Surveyor to Lloyd's Register EMEA
A Member of the Lloyd's Register Group

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register of any modification or changes to the equipment in order to obtain a valid Certificate.

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| |
|--------------------------------|
| Page 2 of 2 |
| Document number SAS F100043 |
| Issue number 1 |

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Email ldss.enquiries@lr.org



DESIGN APPRAISAL DOCUMENT

Date 11 February 2010 **Quote this reference on all future communications**
LDSS/TA/SFS/JE/MF

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS F100043

This Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

Loss Prevention Council (LPC), Borehamwood, United Kingdom, Test Report Nos. TE 6696, dated October 1988 and TE 7109, dated October 1989 and LPC Appraisal No. CC81971, dated August 1992.

CONDITIONS OF CERTIFICATION

1. May be used for applications where integrity and stability is required up to 240 minutes.
2. May be used for A-60 equivalent applications when constructed of twin walls, inner wall 1.2mm thick, 316 grade stainless steel, outer wall 0.55mm thick, 316 grade stainless steel separated by a suitable A-60 insulation system.
3. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as the approved prototype.

PLACE OF PRODUCTION

SF Limited
Riverside Road
Pottington Business Park
Barnstaple
Devon, EX31 1LZ
United Kingdom (UK)

Supplementary Type Approval Terms and Conditions

This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s).



Martin Barber
Lead Specialist
Statutory Fire & Safety
London Design Support Services
Lloyd's Register EMEA

EUROPA



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