

# CHIMNEY SYSTEMS MK4



## FOR SHEDS, BOATS, CARAVANS, CABINS & YURTS

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### 1. INTRODUCTION.

#### 1-1. FITTING TWIN WALL FLUE SYSTEMS IN BOATS.

BS8511:2010 calls for the use of purpose made chimney sections which are CE marked and comply with the requirements of **BSEN1856-1**, **BS4543**.

*CE marked chimney systems are tested to make sure that the outer external surface of the chimney does not become excessively hot and subsequently cause a fire to surrounding components or combustible materials.*

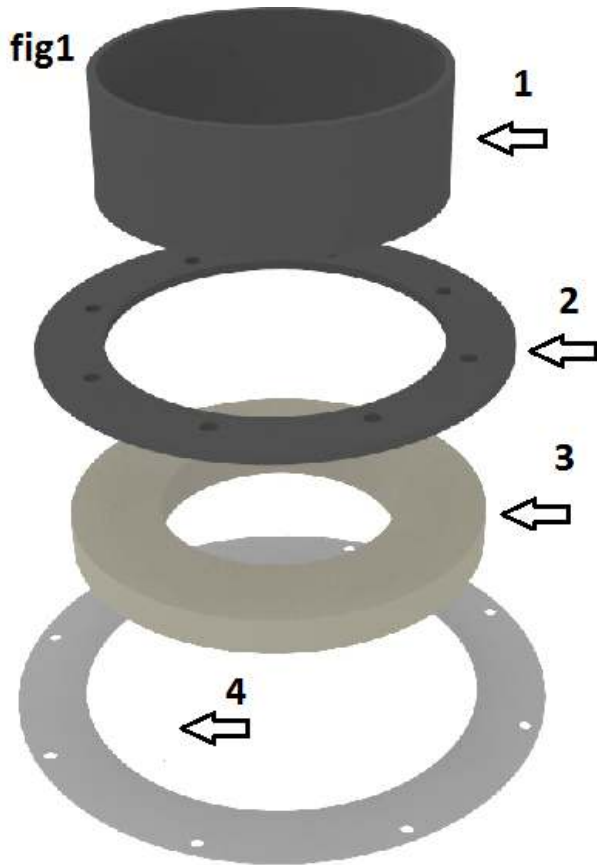
*Depending upon the quality of the flue system manufacturers are required to state a minimum distance from combustibles which in some cases can be 60mm and on other chimney systems 50mm.*

#### 1-2. TRANSITION THROUGH CIELINGS AND DECK PLATES.

Within the proprietary flue manufacturers portfolio of standard parts, there are no components available to facilitate safe, watertight transition of flue pipes through the roof or deck plates on boats and so Bubble Products Ltd have designed a means of doing this generally known as the MK4 Deck Flange system.

This system consists of a deck flange assembly illustrated below which will allow accurate **vertical** alignment of the chimney system on flat or convex roof profiles providing a safer and neater way of getting a hot flue pipe through inner and outer ceiling skins.

Proprietary flue manufacturers allow an air gap distance from combustibles of between 50 and 60mm from the outside diameter of the flue pipe and the relevant firestop spacer is designed to provide that distance from combustibles within the roof space.



KEY to fig1.

1 Vertical Tube

2. Deck Flange

3. Firestop spacer

4. Internal ceiling ring.

5. M8 Stainless fasteners. (Not shown.)

The tube 1 is welded to the deck flange 2 after it has been set up and marked out to provide an accurate vertical support and guide for the twin wall flue pipe.

The firestop spacer 3 is held in place via the ceiling ring 4 which is fastened up to the internal face of the ceiling or deck plate.

*Note that to ensure perfect vertical alignment of the flue system, Item 1 has to be welded to Item 2 after the roof angle has been accurately established and it is essential that all combustible materials are kept at a safe distance (60mm minimum) from the outside diameter of the twin wall flue pipe as it passes through the roof cavity of the vessel, fireproof wool is supplied as a packing for this purpose.*

### 1-3. APPEARANCE.

The chimney systems are generally referred to as Class 1 systems meaning that they are used in applications where flue gas temperatures can be in excess of **260 deg C**.

In general, they are suitable for the evacuation of fumes from gas, oil, wood and coal fired atmospheric heating appliances commonly known as stoves, cookers and boilers.

The chimney systems are of twin wall construction and manufactured from stainless steel both internally and externally, they are CE marked and comply with the requirements of **BSEN1856-1**, **BS4543** and HETAS approved.

## 2. CHIMNEY SYSTEM PARTS LIST.

### DECK FLANGE KITS SEE FIG1

Can be supplied to suit the following:-

For 4", 5" and 6" stove outlets which should use 4", 5" and 6" twin wall flue systems.

*Note that the outside diameter of twin wall systems is generally 2" larger than the stove outlet size, 4" = 6"od, 5" = 7" od and 6" = 8" od.*

4", 5" and 6" Deck Flange Kits Comprises of components detailed in fig 1 and its key.

#### STARTING ADAPTORS

A special tapered starter adaptor is supplied for appliances with 4" outlet collars this component needs to be painted with high temperature matt black paint for customers requiring black flue systems.

#### ADJUSTABLE LENGTHS OF FLUE PIPE.

Two lengths available, 370mm to 550 and 550 to 900

#### STRAIGHT LENGTHS OF FLUE PIPE.

Four lengths available 150, 250, 500 and 1000mm lengths.

#### ELBOWS.

Three angles available 15, 30, and 45 Deg.

Elbows need to be secured via a locking band.

#### LOCKING BANDS

Locking band is included with each straight length and elbow.

#### TERMINALS.

Rain Cap and all weather terminals are available.

#### STORM COLLAR.

The storm collar is fitted above the deck flange and is designed to shed excessive water from the flue pipe.

## 4. INSTALLATION.

### 1. POSITION THE APPLIANCE

Position the stove as required into a suitable fireplace and hearth, compliant with the requirements of BS8511:2010 or the appliance manufacturer marine fitting instructions.

Note that it is good practice to try and keep the flue to its maximum length and to do this keep the appliance as low as possible in the vessel, making sure that installation complies with the stove manufacturers, marine fitting instructions, if there are no specific marine fitting instructions supplied with the appliance, do not fit it or request marine fitting instructions from the appliance manufacturer.

### ESTABLISH THE POSITION OF THE FLUE OUTLET HOLE IN THE ROOF OF THE BOAT.

At this stage you will have to decide whether you can use a straight flue system or an offset flue system.

If you are going to use an offset system then you will need to establish the offset which is the horizontal distance between :-

The centre line of the appliance flue outlet and

The centre line of the hole or proposed hole in the roof of the vessel.

Before cutting through the outer steel roof make sure that the ceiling ring (see fig 3) will fit on the inner roof section, note that if the deck flange is fitted close to the roof edge grab rail, it may be necessary to trim one edge of the ceiling ring to allow it to fit internally in the correct position, take great care when establishing correct dimensions.

### 2. MARK OUT AND CUT THROUGH THE ROOF.

Once you have decided to use either a straight or offset flue system it is then possible to work out where the centre of the hole in the roof of the boat needs to be.

Once you have decided where the centre of the hole in the roof of the boat need to be, use the deck flange as a marking template and cut the hole to the same inside diameter of the deck flange.

Try the tube on the deck flange and work out how much needs grinding off or not, to allow a vertical

fit of the chimney.

Fabricate the deck flange assembly and after welding, dress the joint and paint as required.

### 3. CUT THE INNER ROOF LINING.

Making sure that everything is kept concentric, use the outside diameter of the fire stop spacer to mark out for cutting the roof lining.

If required fit new trim timbers to allow a good strong fix of the ceiling plate as detailed later.

### 4. POSITION THE DECK FLANGE.

After the hole is cut, position the deck flange concentrically over it and mark out for drilling the fastener holes.

Drill the holes and using the fasteners supplied with the kit, bolt the assembly to the boat with a suitable seal applied between the joint.

(Black, high temperature silicone adhesive, not provided in the deck flange kit.)

### 5. FIRE STOP SPACER.

The fire stop spacer will provide heat protection for any combustible materials located near to the through roof location.

It will be fitted around the flue pipe in the cavity between the ceiling lining material and the roof steelwork or outer skin.

The centre hole in the spacer may need to be profiled to suit the outside diameter of the twin wall flue pipe; this can be done using a half round rough file.

Make sure that any combustible foam insulation is removed from the cavity into which the fire stop spacer is to be fitted.

When the twin wall flue pipe passes through the roof space make sure that no combustible materials come within 60 mm of the outer skin of the twin wall.

Fireproof void filler is provided with the kit to provide a fireproof fill for any void around the outer skin of the twin wall.

### 6. CEILING PLATE.

The ceiling plate will be fitted inside the boat to finish off the through roof fitting of the flue pipe and mask the joint between the fire stop spacer and the pre cut roof lining.

It will be screwed up to the trimming timber or roof lining via suitable fasteners.

Make sure that the trimming timbers are at least 60mm from the outer skin of the twin wall flue pipe as it passes through the roof space.

Fireproof void filler is provided with the kit to provide a fireproof fill for any void around the outer skin of the twin wall.

### FIG 3 EXAMPLES OF BOAT STYLE INTERNAL TRIM RINGS AND FIRESTOP SPACERS.



### 5. FINISHING.

Assemble the flue system in a dummy run to make sure that the adjustable length just protrudes through the top of the deck flange tube by enough distance to get the clamp band on.

When you are happy with the dummy run assemble the flue system and note that the gap between the

inside diameter of the deck flange tube and the outer diameter of the twin wall flue pipe must be sealed with a suitable silicone sealant to stop water ingress.

Note that the amount of flue protrusion through the deck flange tube needs to be kept as low as possible for going under low bridges, but high enough to allow the clamp band to be fitted.

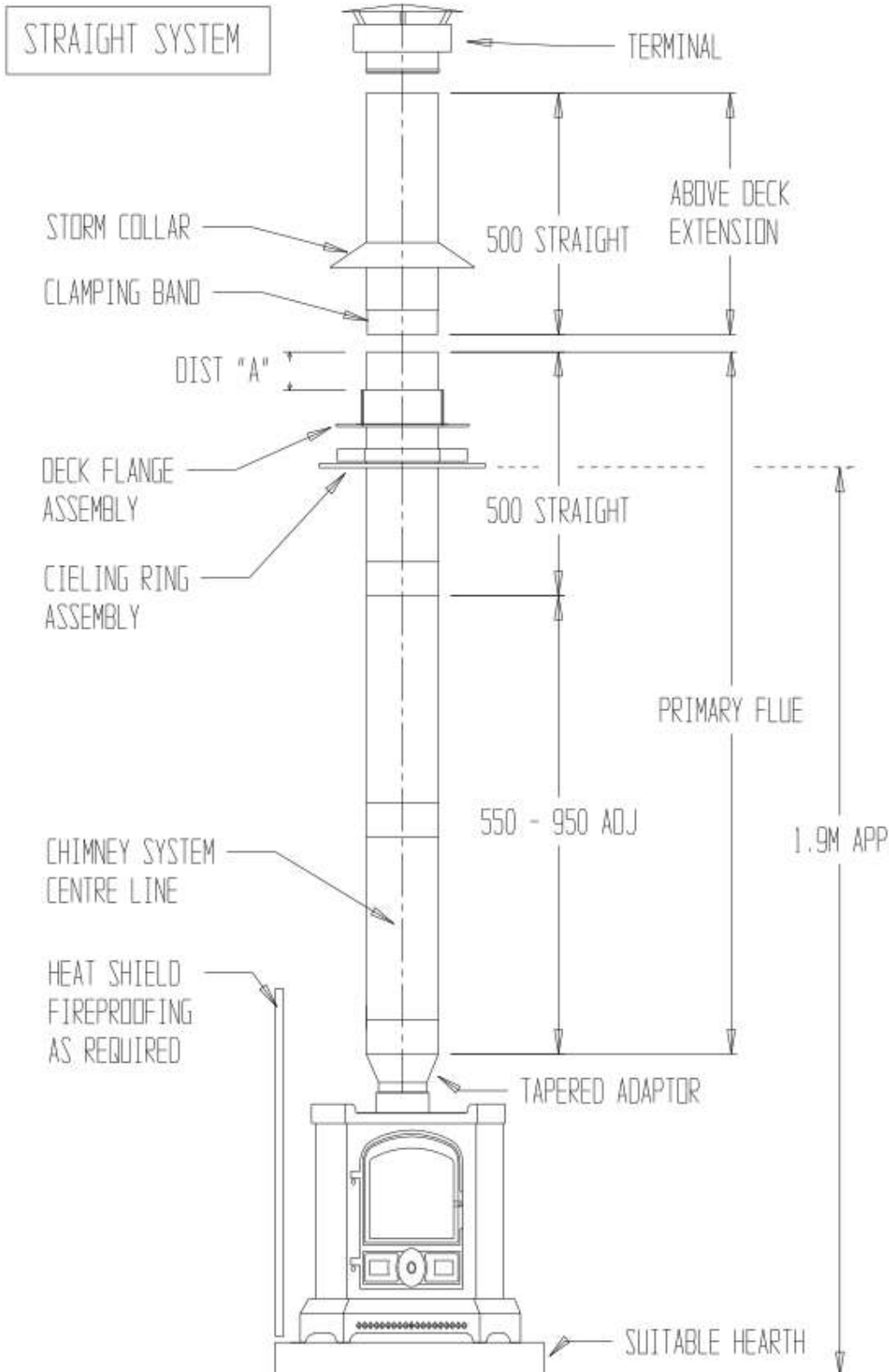
Note that a clamp band is used on the above deck extension.

Fit the storm collar as illustrated.

Fit the above deck extension.

Fit the top stub and note that it may be necessary to fit a clamp band on the terminal or top stub.

### 6. EXAMPLES OF STRAIGHT FLUE SYSTEMS



## 7. FLUE SYSTEM OFFSETS FOR CHIMNEY'S REQUIRING BENDS.

In situations where straight flue systems can't be used it then becomes necessary to use bends/elbows which are available in 15, 30 and 45 degree options.

You will see below a page showing the offset distances which can be achieved using either:-

1. Two bends fitted directly together
2. Two bends fitted with a 150 straight between them.
3. Two bends fitted with a 250 straight between them.
4. Two bends fitted with a 500 straight between them.

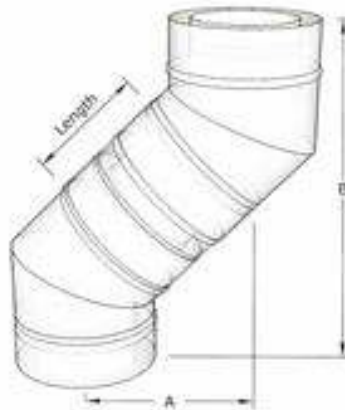
To add even more flexibility it is possible to fit a 370 to 550 adjustable length in between bends which allows even more adjustment.



No Length Between Bends

Bend	Offset	A
15° Bend	A	30
	B	200
30° Bend	A	60
	B	150
45° Bend	A	100
	B	100

These measurements are required when the installer needs to install in one direction and then another. Shown are the measurements for the offsets of bends both with and without length in between.



150mm Length

Bend	Offset	A
15° Bend	A	60
	B	200
30° Bend	A	120
	B	150
45° Bend	A	190
	B	100

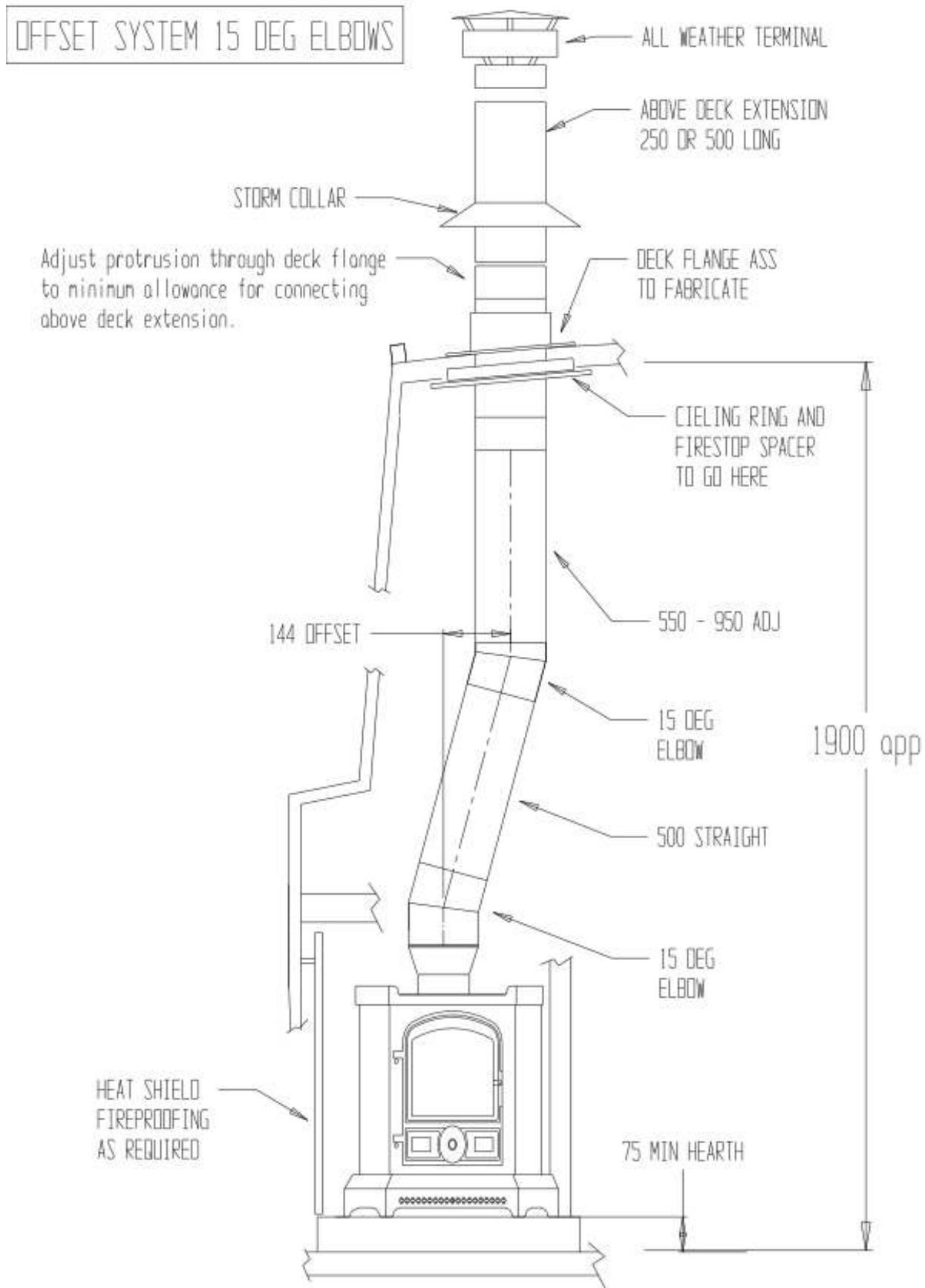
250mm length

Bend	Offset	A
15° Bend	A	70
	B	200
30° Bend	A	140
	B	150
45° Bend	A	210
	B	100

500mm Length

Bend	Offset	A
15° Bend	A	130
	B	200
30° Bend	A	260
	B	150
45° Bend	A	435
	B	100

**FIG 10 100MM FLUE SYTEM SHOWING 144 OFFSET USING 2 X 15 DEG ELBOWS**



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