

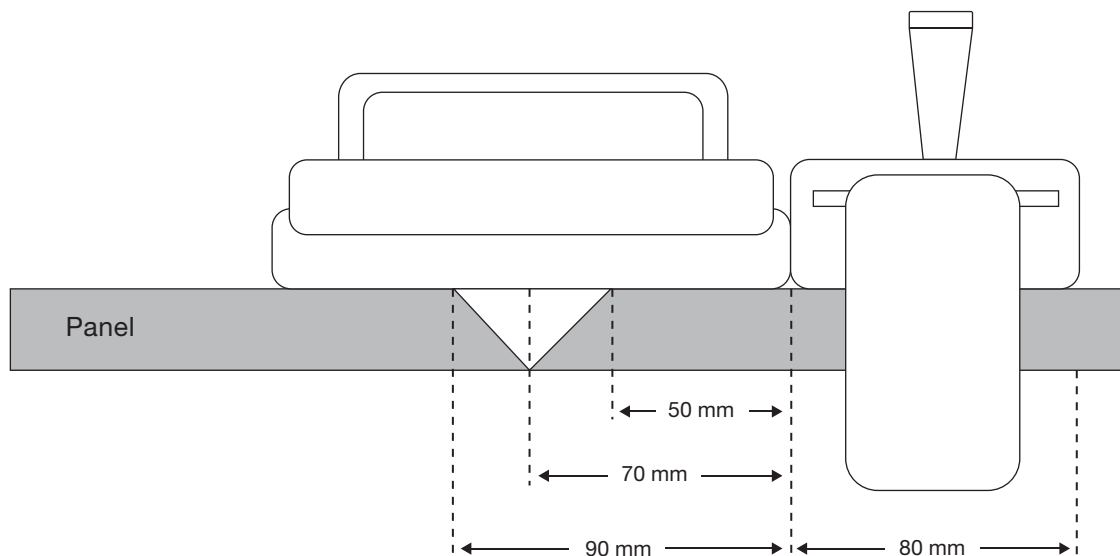


**PRE-INSULATED DUCTING SYSTEM**

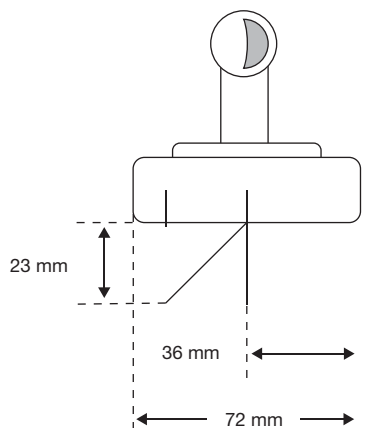
**CONSTRUCTION GUIDELINE**

## CUTTING TOOLS

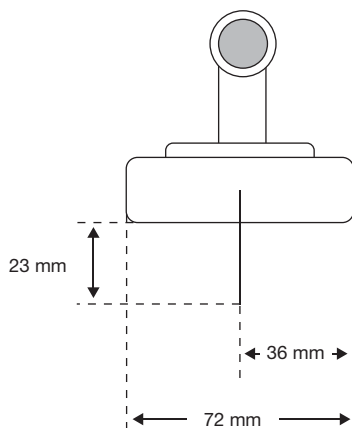
### Double Blade Cutter 45° Degrees



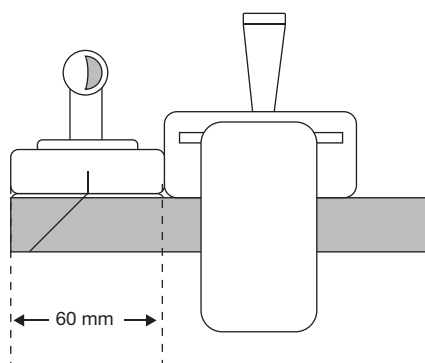
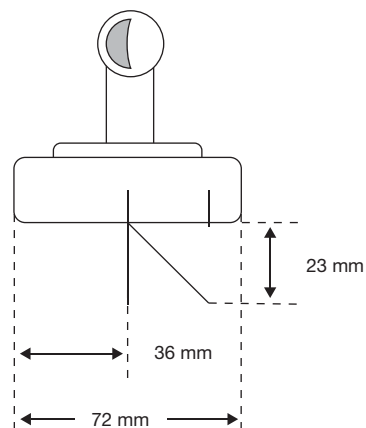
Single Blade Cutter  
45 degrees left



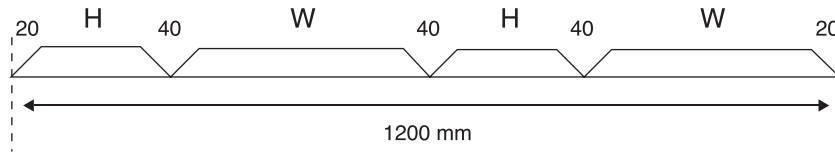
Single Blade Cutter  
90 degrees



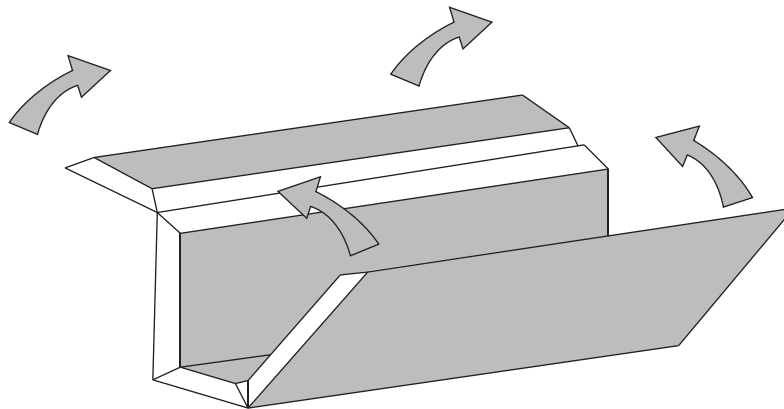
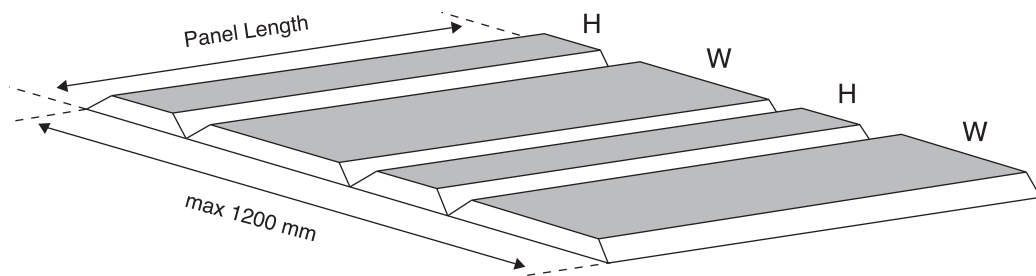
Single Blade Cutter  
45 degrees right



## STRAIGHT DUCT : Method 1



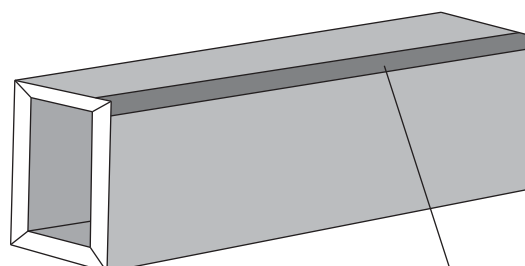
- Cutting along the panel length
- The sum of 4 sides less than 1040 mm ( $2H + 2W$ )



Sequence of  
Assembly

1

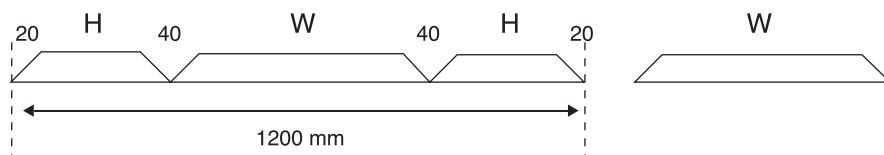
Silicone



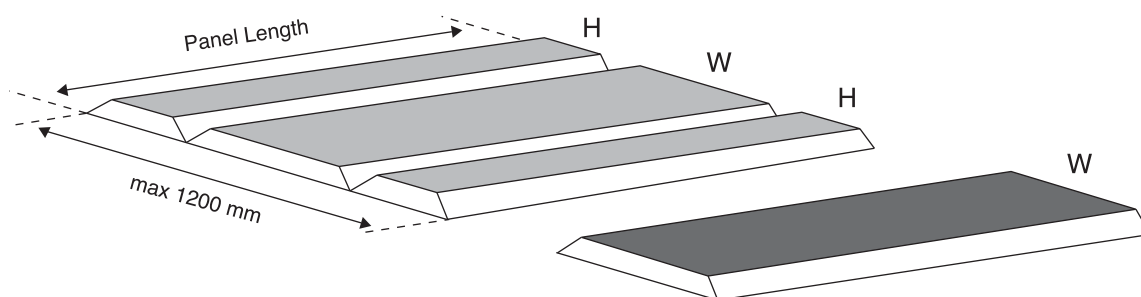
2

Aluminium Tape

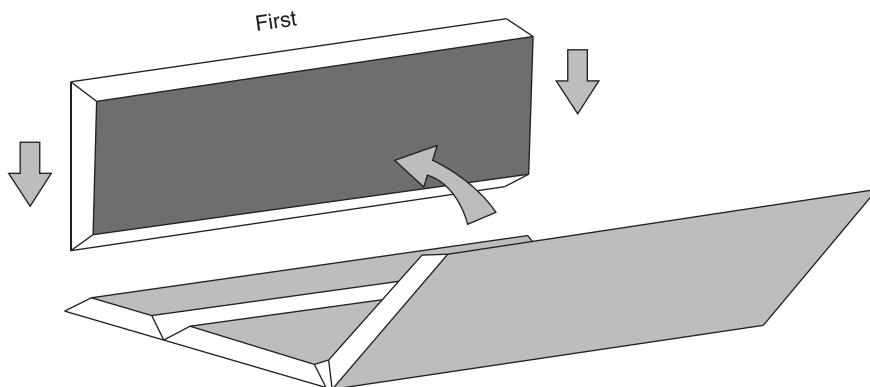
## STRAIGHT DUCT : Method 2A



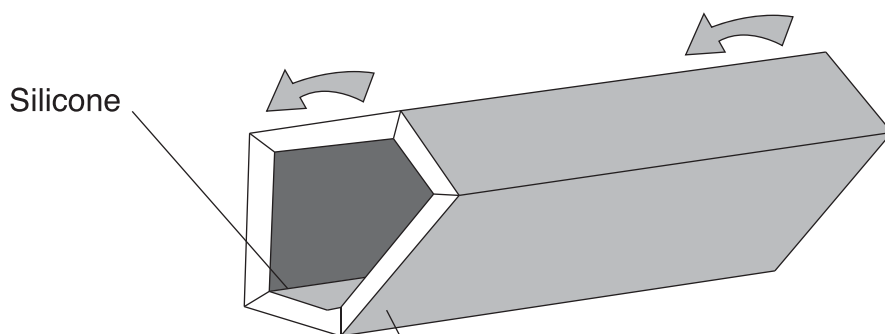
- Cutting along the panel length
- The sum of 3 sides less than 1080 mm ( $2H + W$  or  $2W + H$ )



Sequence of  
Assembly

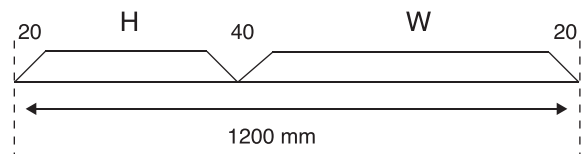
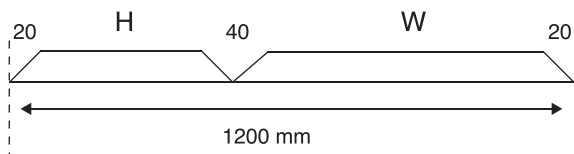


1

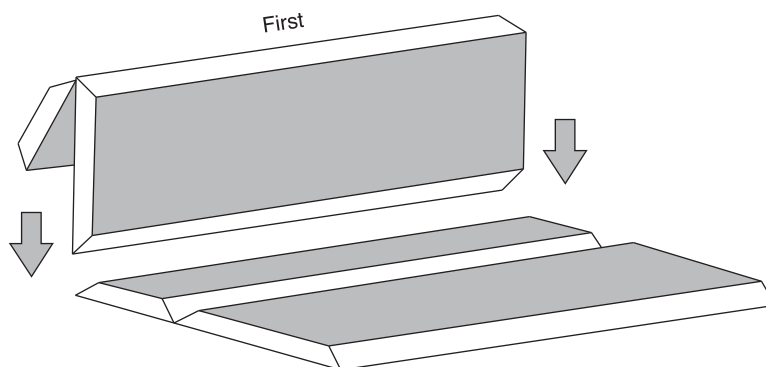
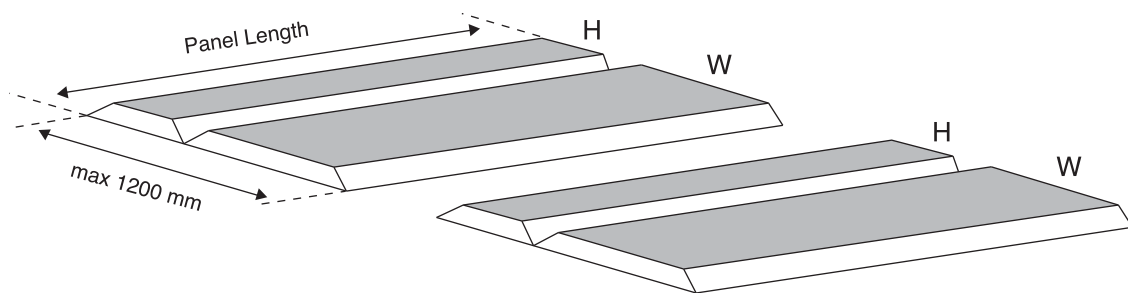


2

## STRAIGHT DUCT : Method 2B

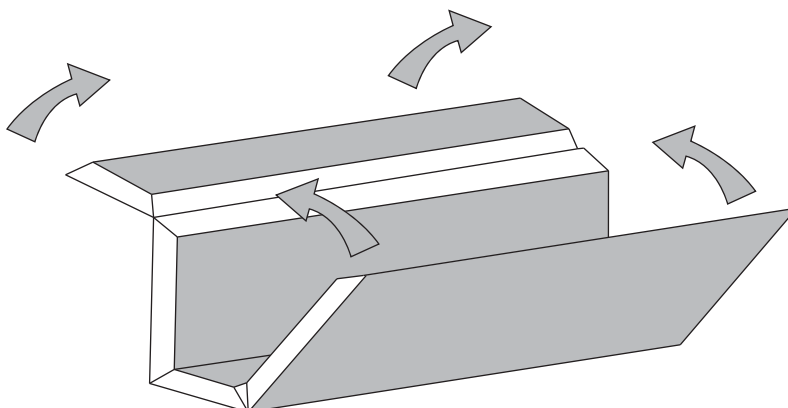


- Cutting along the panel length
- The sum of 2 sides less than 1120 mm (  $W + H$  )



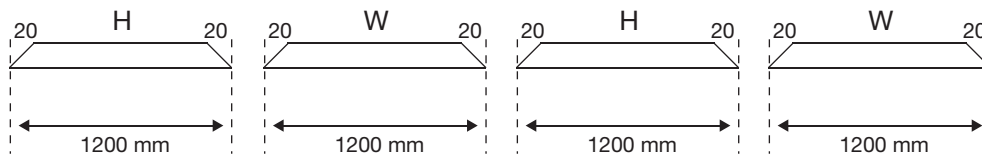
Sequence of  
Assembly

1

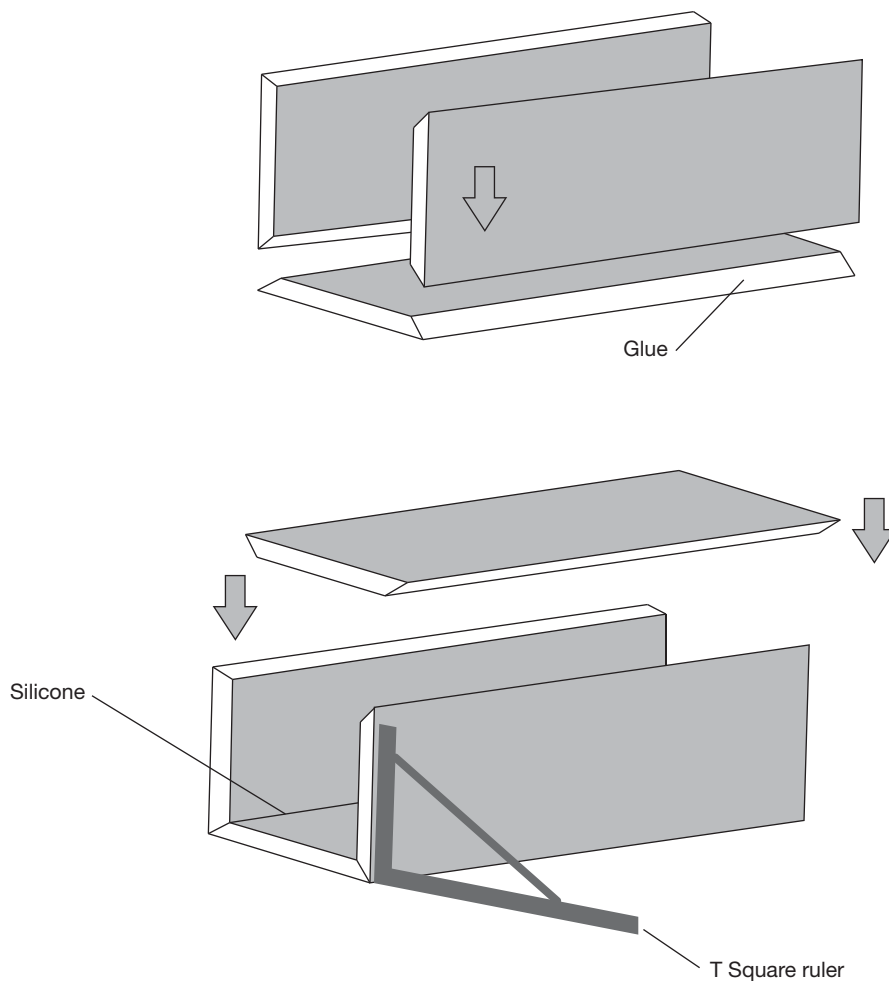


2

## STRAIGHT DUCT : Method 2C



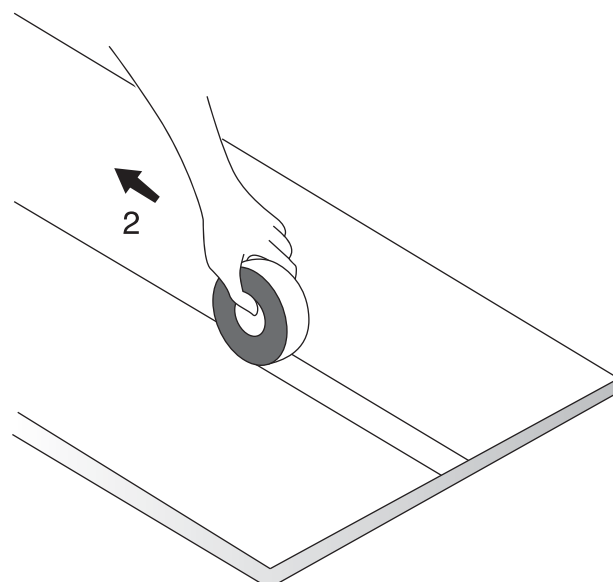
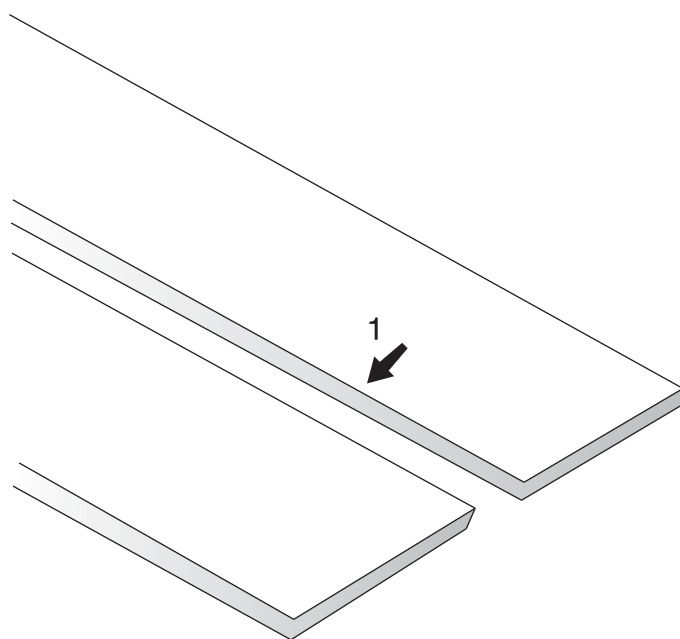
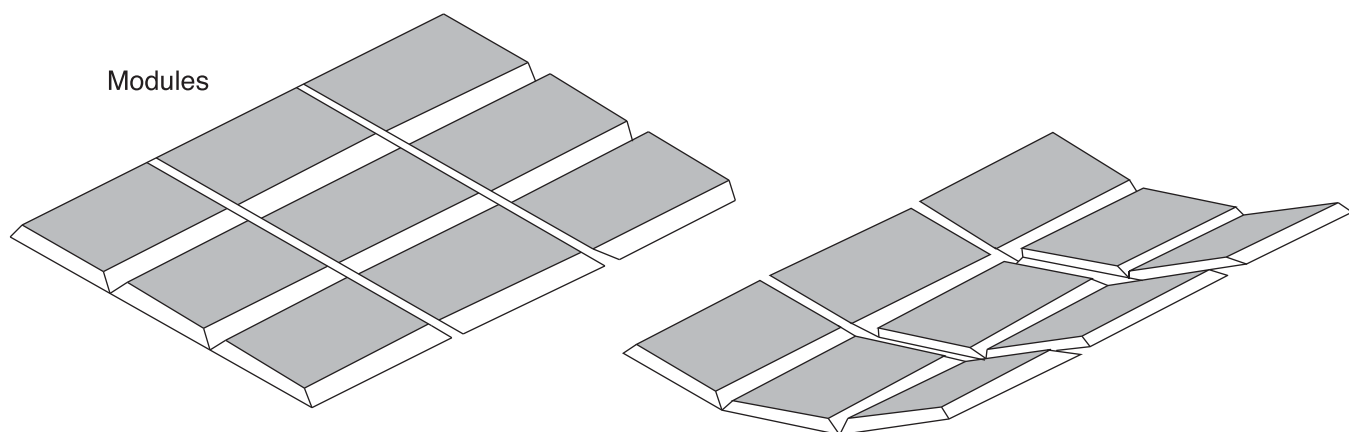
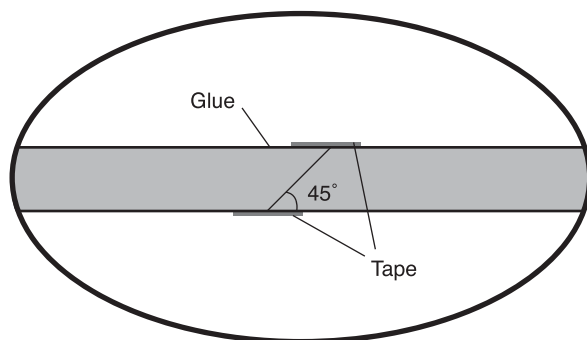
- Cutting along the panel length
- Each side to be less than 1160 mm



### NOTE:

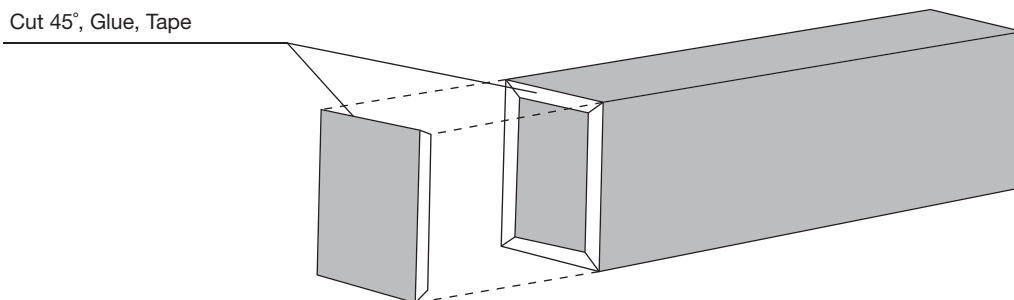
- Use extra silicone (bigger tip cut)
- When assembling the four sides, the sides should be checked (with the T square ruler) and held in position

## STRAIGHT DUCT : Method

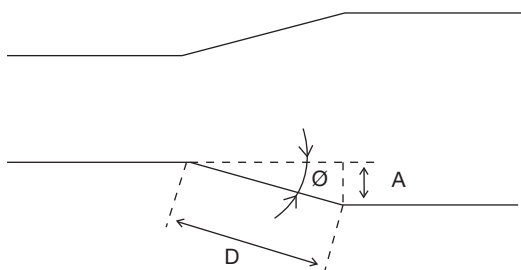


## END CAPS

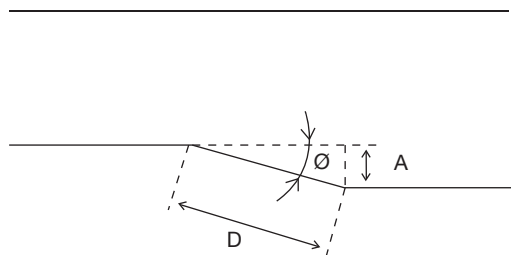
Cut 45°, Glue, Tape



## TRANSITIONS

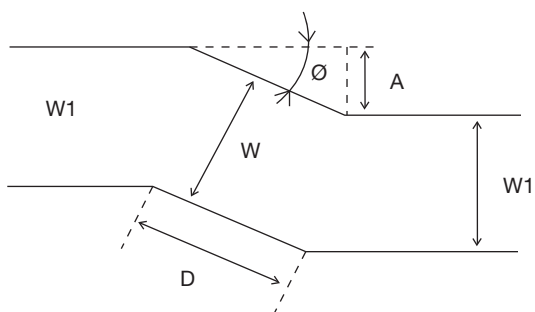


Concentric transition  
 $\text{Ø max. } 20^\circ \text{ (D = 3 x A)}$   
 $\text{Ø suggested } 15^\circ \text{ (D = 4 x A)}$

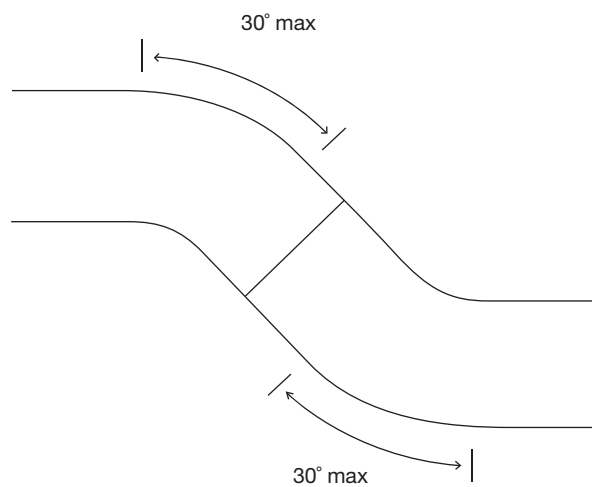


Eccentric transition  
 $\text{Ø max. } 20^\circ \text{ (D = 3 x A)}$   
 $\text{Ø suggested } 15^\circ \text{ (D = 4 x A)}$

## OFFSETS

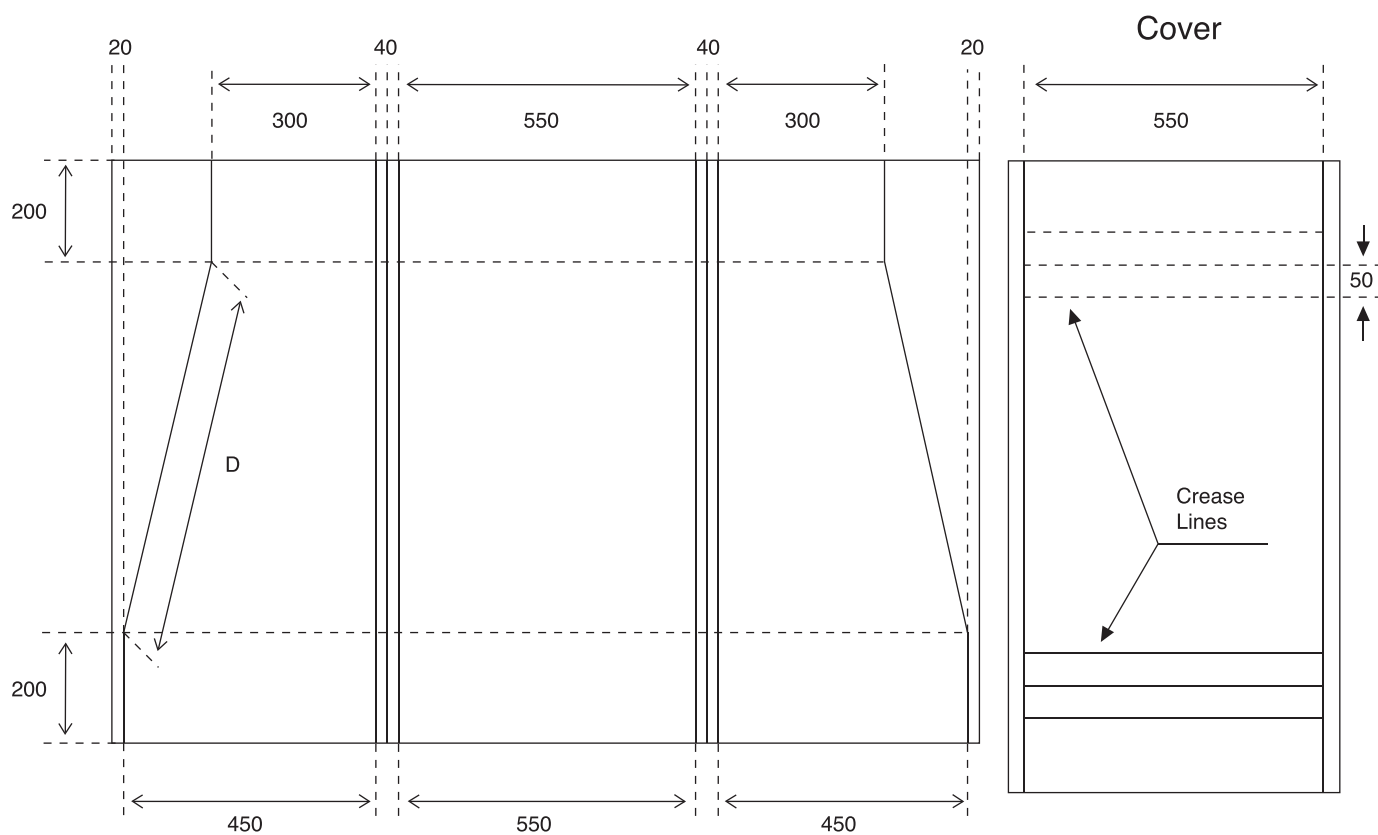
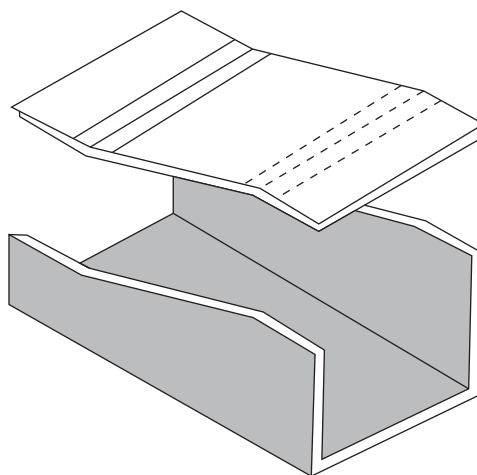


Offset - angled  
 $\text{Ø max. } 30^\circ \text{ (D = 2 x A)}$



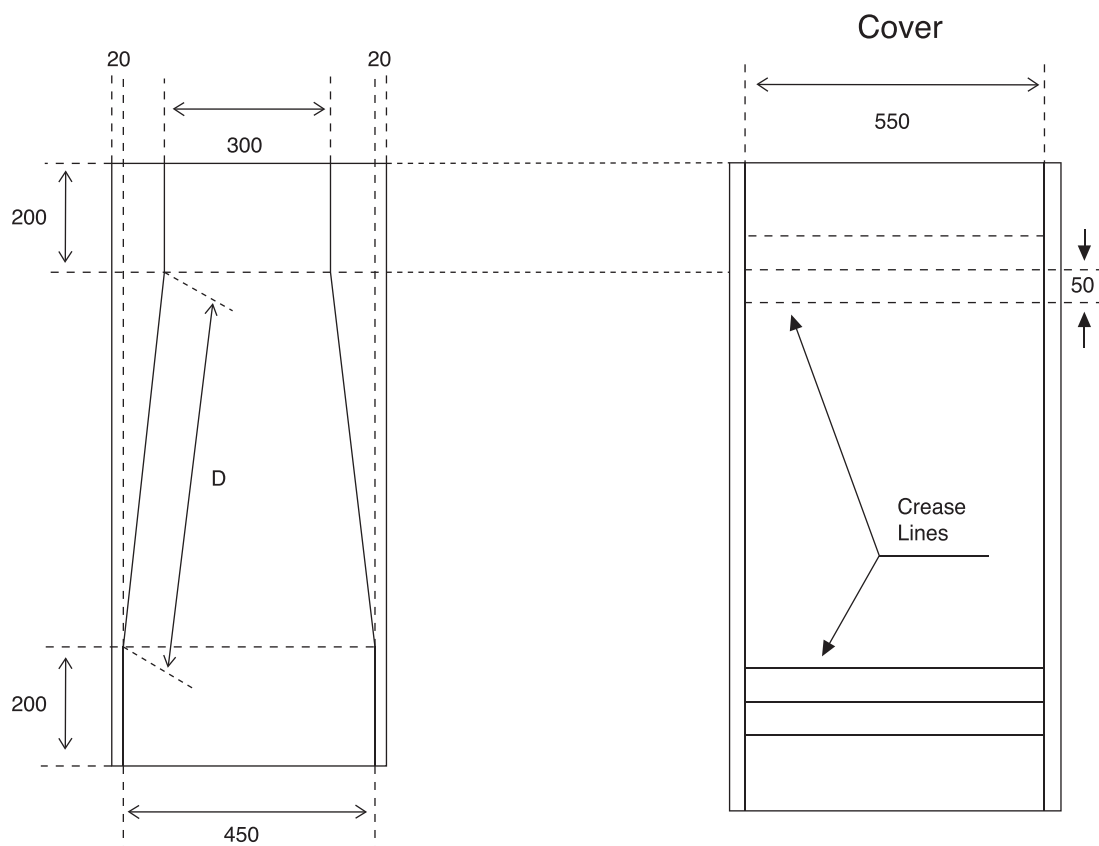
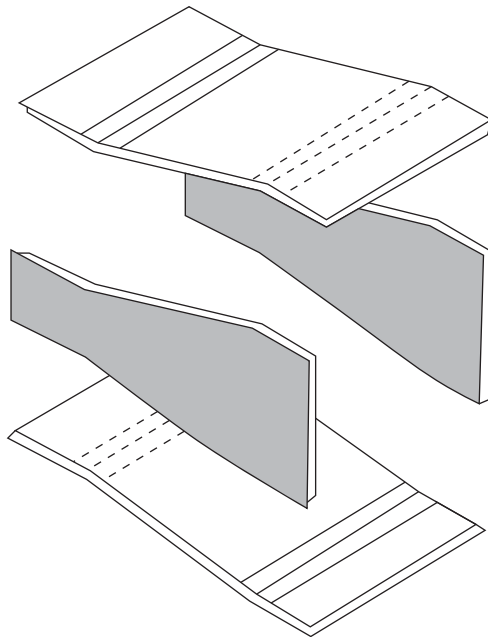
Offset - radiused

## ECCENTRIC REDUCER



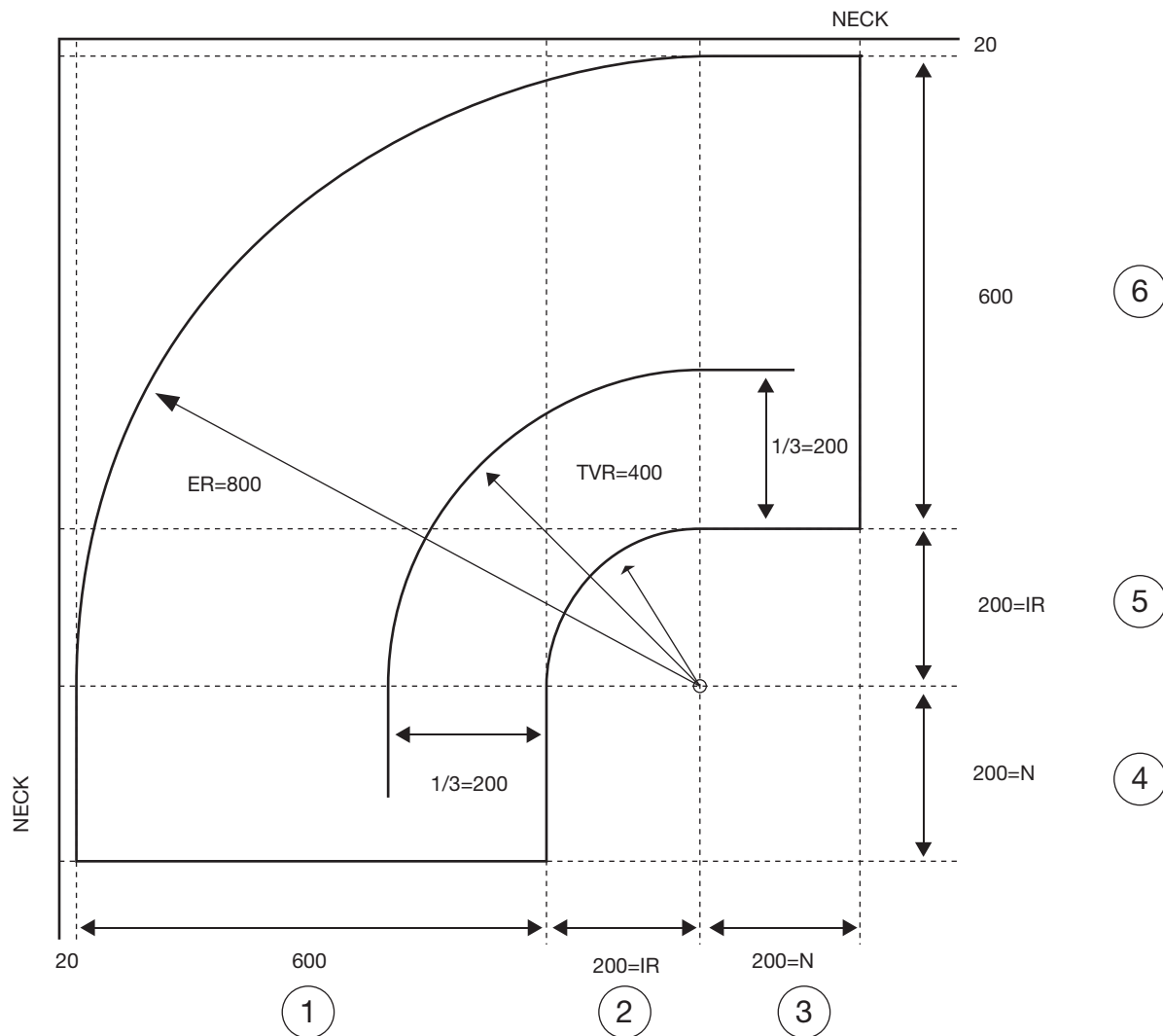
- Dimensions in'mm
- $D \text{ suggested} = 4 \times (450 - 300) = 600$ :  $D \text{ minimum} = (450 - 300) = 450$

## CONCENTRIC REDUCER



- Dimensions in mm
- D suggested =  $2 \times (450-300) = 300$ : D minimum =  $1.5 (450-300) = 225$

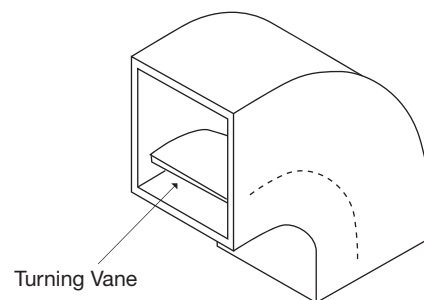
## ELBOW



### LEGEND

N = Neck  
 ER = External Radius  
 IR = Internal Radius (minimum 200)  
 TVR = Turning Vane Radius

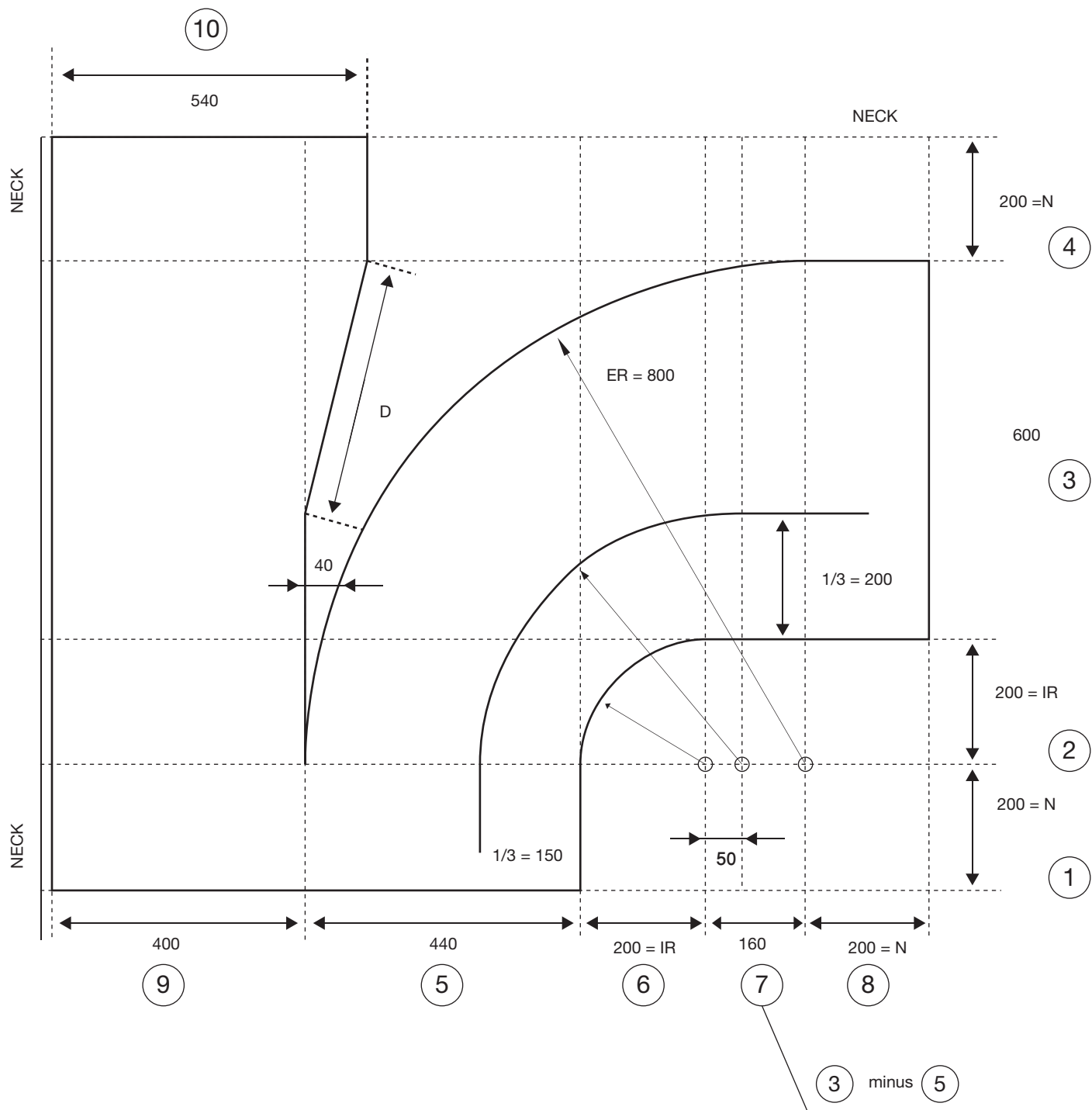
- Dimension in mm
- Numbers in the hoop show suggested tracing procedure



### TURNING VANE:

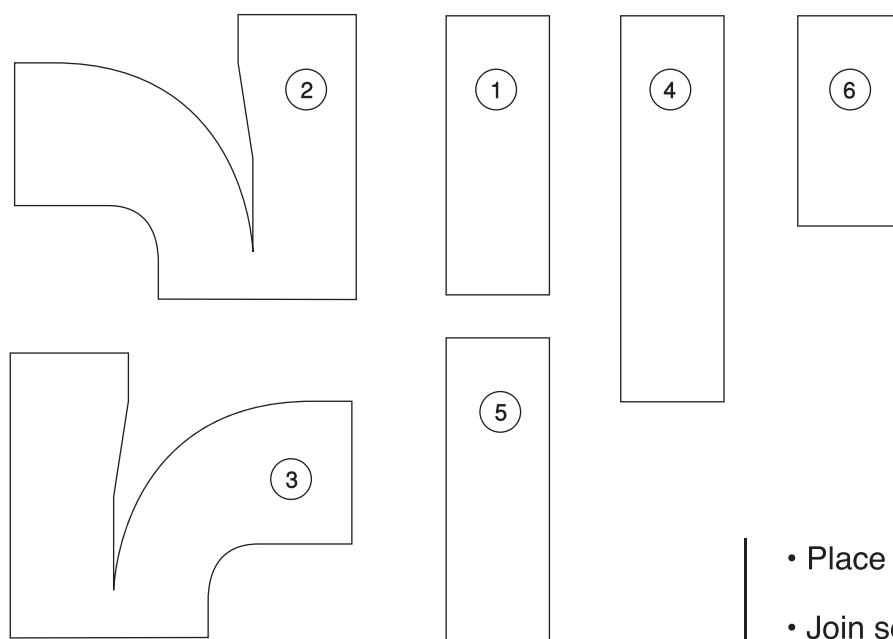
| Elbow side (mm) | Vane |
|-----------------|------|
| 0 - 550         | 0    |
| 600 - 850       | 1    |
| 900 - 1200      | 3    |
| Over 1200       | 3    |

## DYNAMIC BRANCH

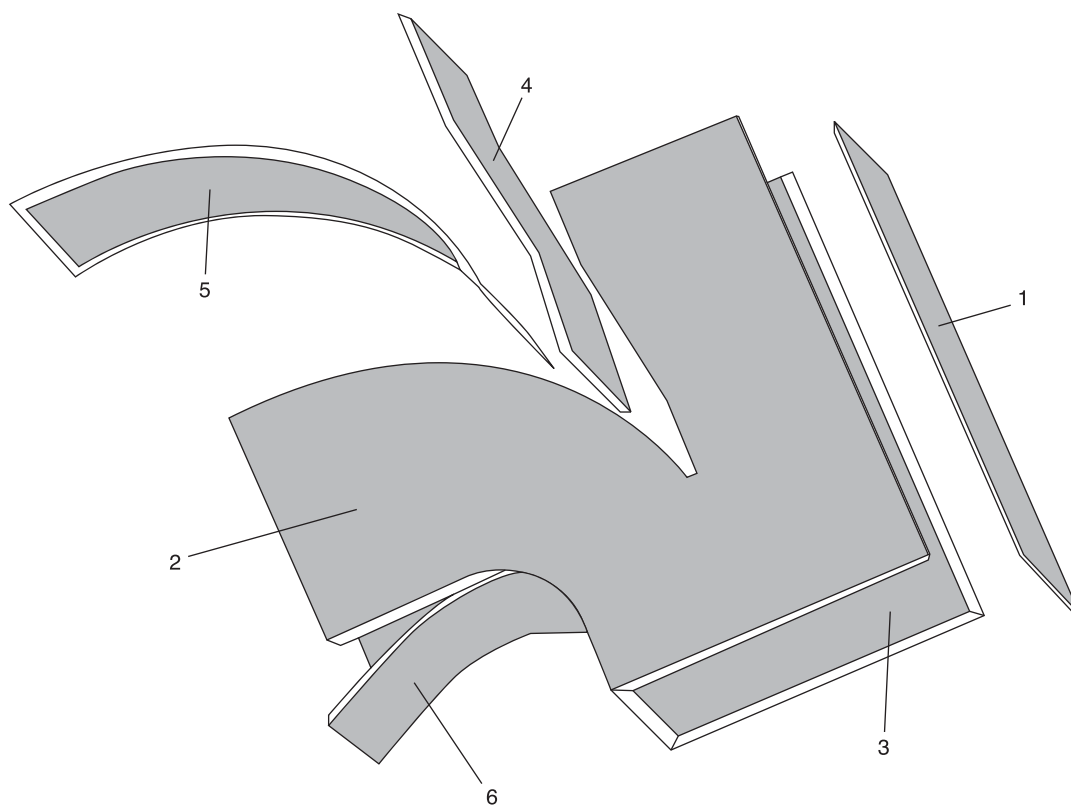


- Dimensions in'mm
- `Numbers in the hoop show suggested tracing tracing procedure
- D suggested =  $4 \times (540/-400) = 560$ ; D minimum =  $3 \times (540-400) = 420$

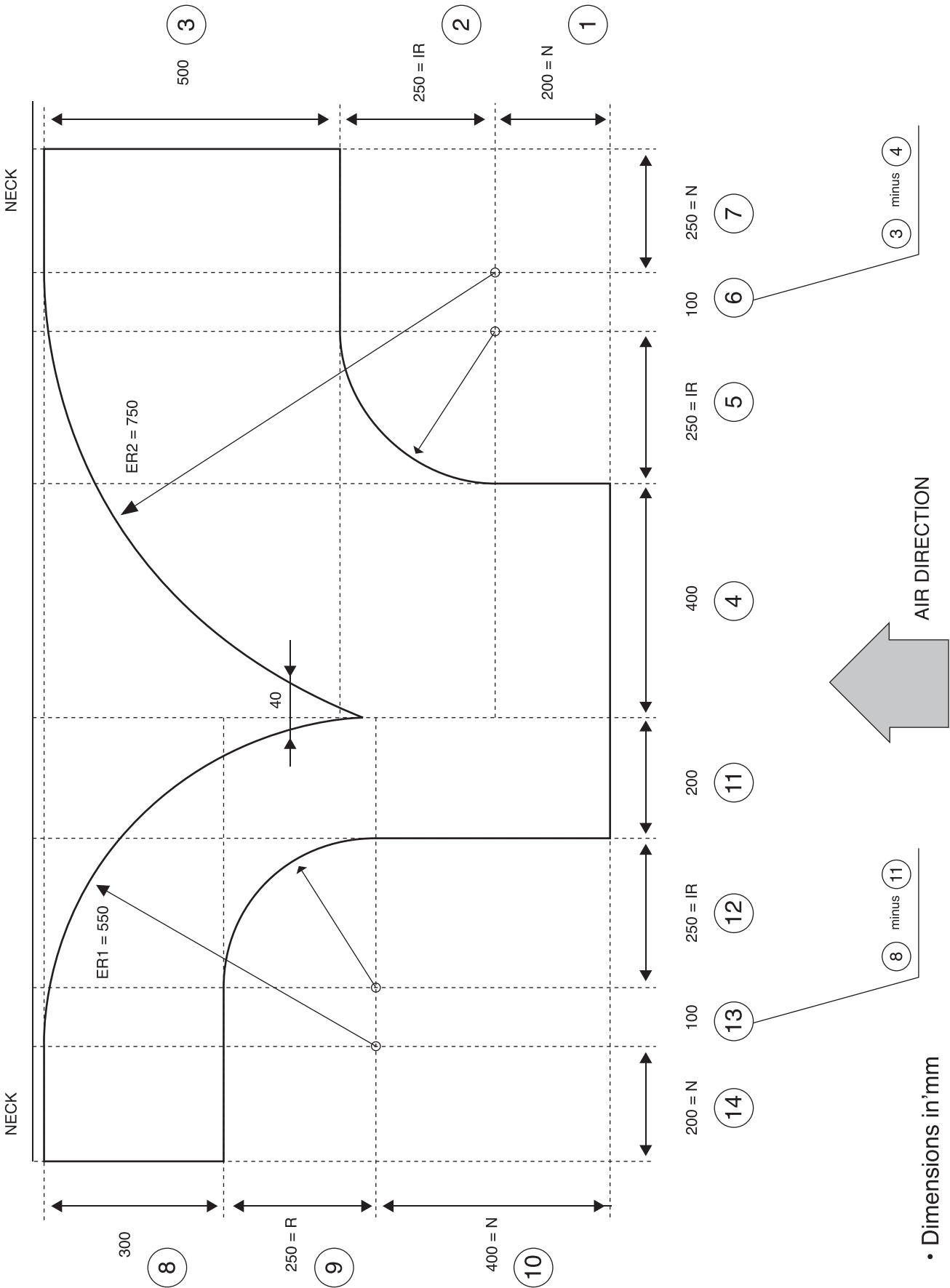
## ASSEMBLY PROCEDURE



- Place 1 on the table
- Join section 2 and section 3 to 1
- Install section 4
- Install section 5
- Install section 6

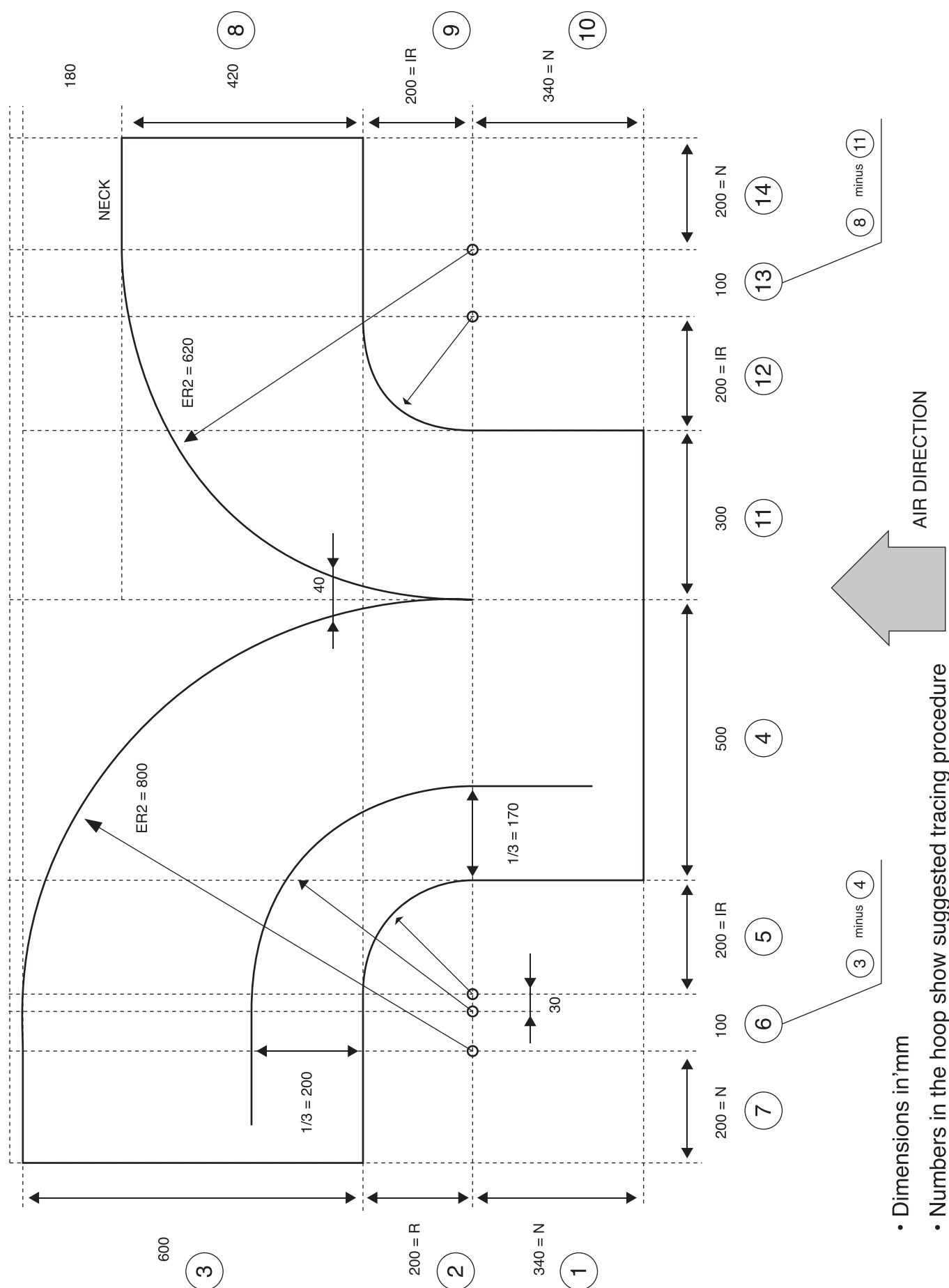


TEE BRANCH (external side flushed)



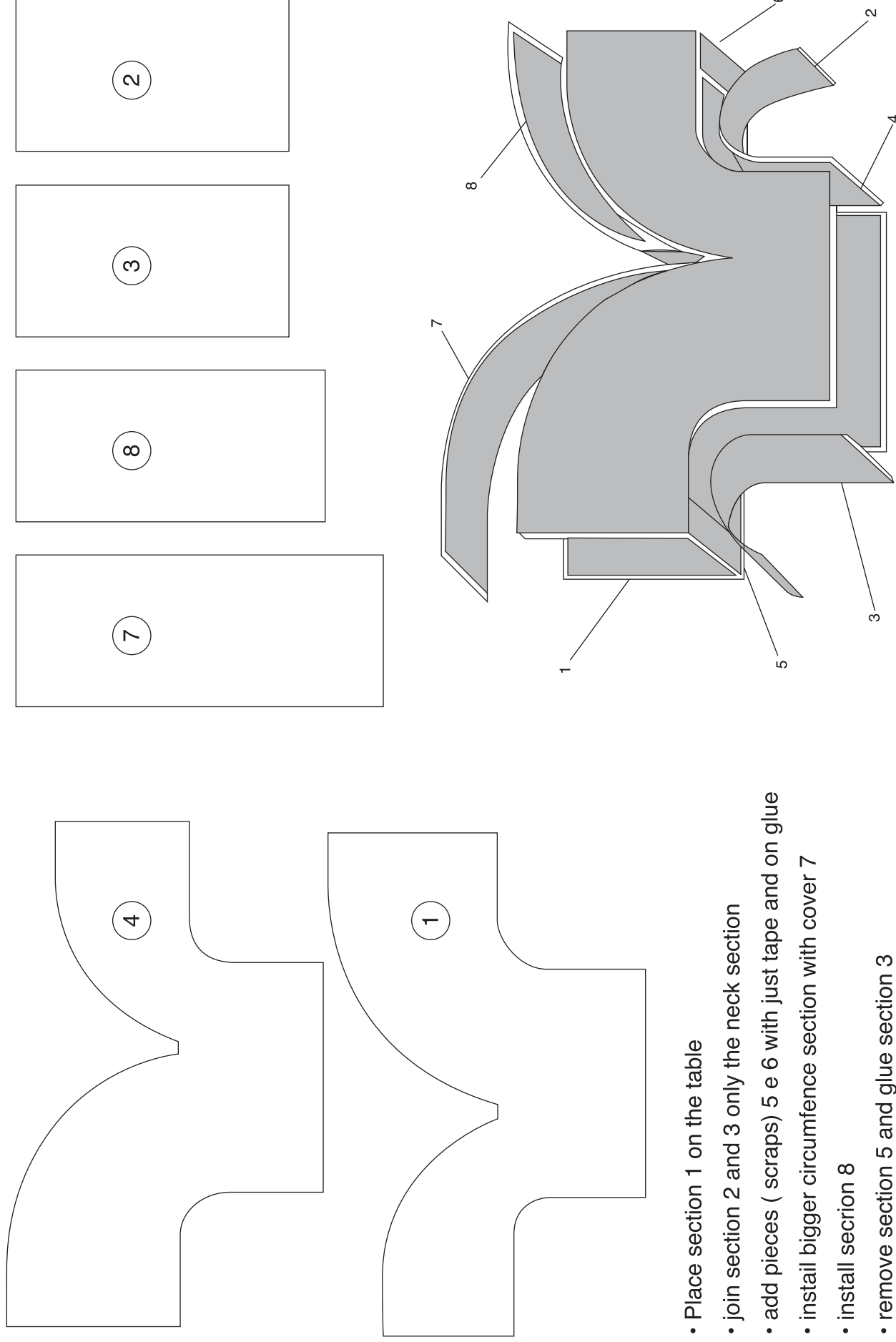
- Dimensions in'mm
- Numbers in the hoop show suggested tracing procedure

### TEE BRANCH (internal sides flushed)



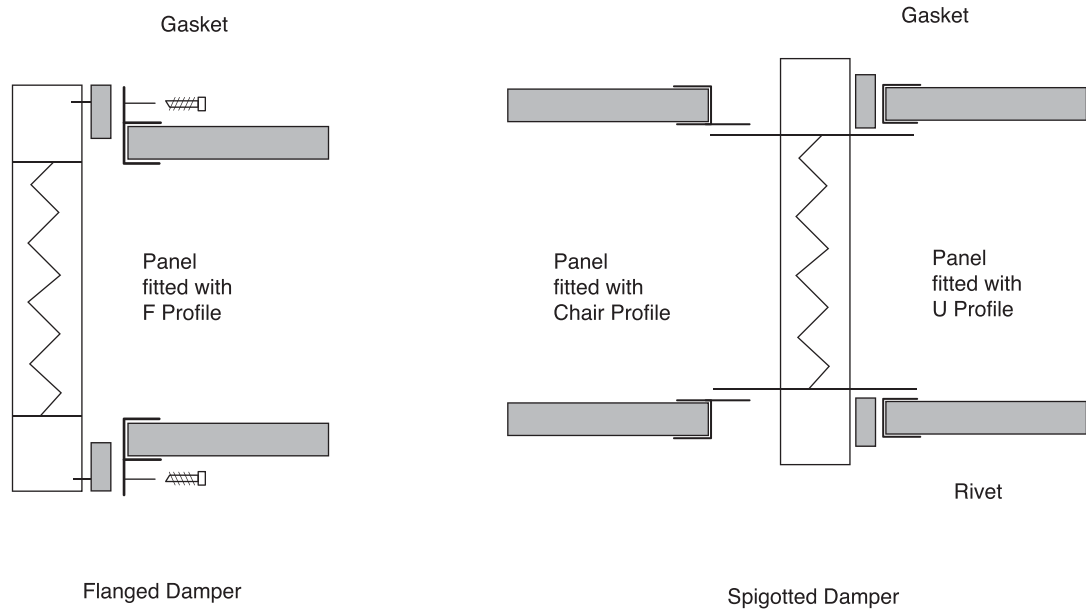
- Dimensions in 'mm
- Numbers in the hoop show suggested tracing procedure

## ASSEMBLY PROCEDURE

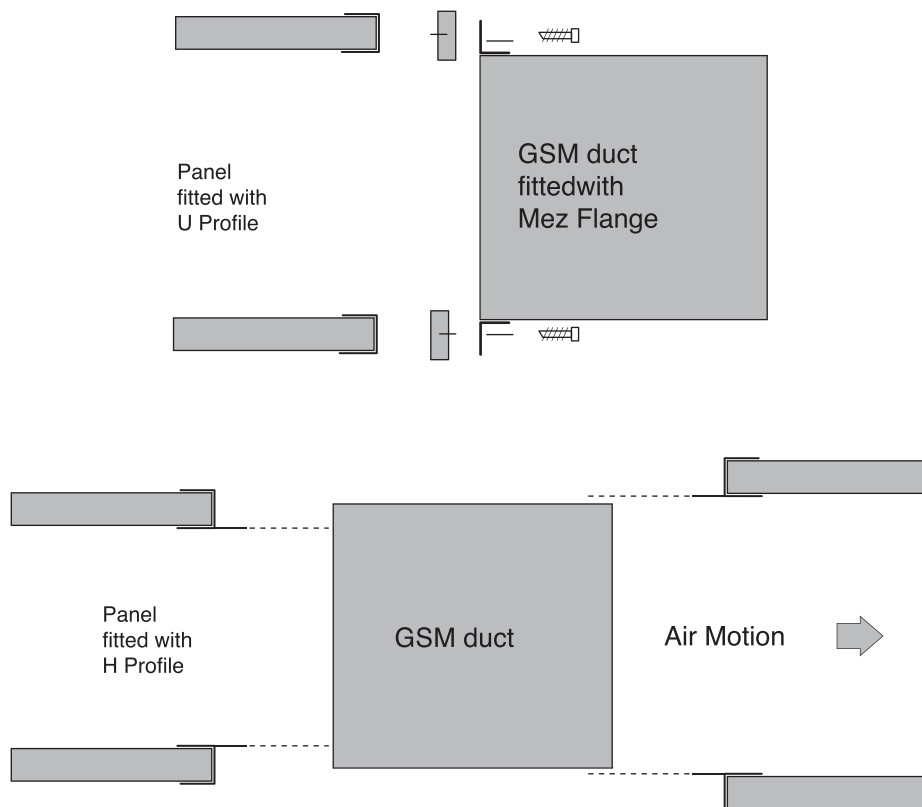


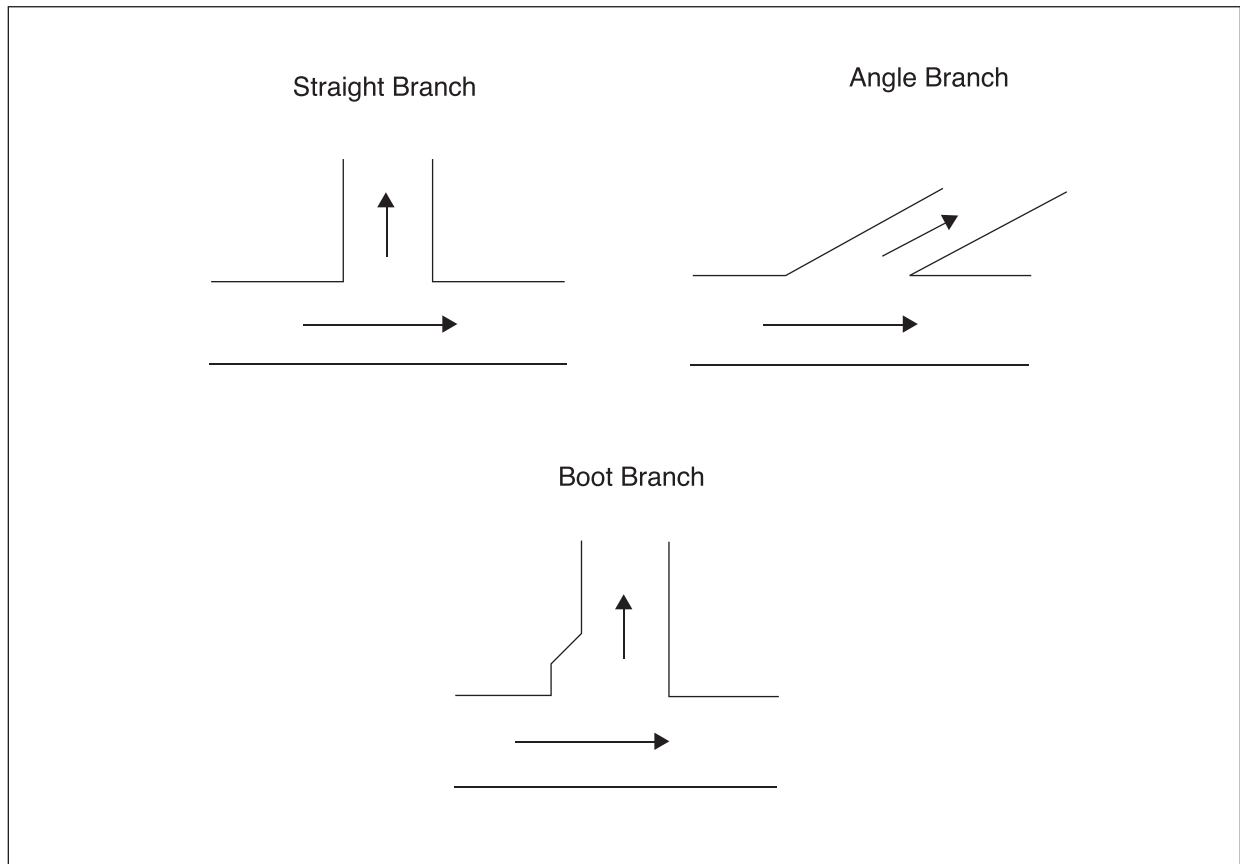
- Place section 1 on the table
- join section 2 and 3 only the neck section
- add pieces ( scraps) 5 e 6 with just tape and on glue
- install bigger circumference section with cover 7
- install section 8
- remove section 5 and glue section 3
- remove section 6 and glue section 2

## PAL SYSTEM CONNECTION TO ACCESSORIES

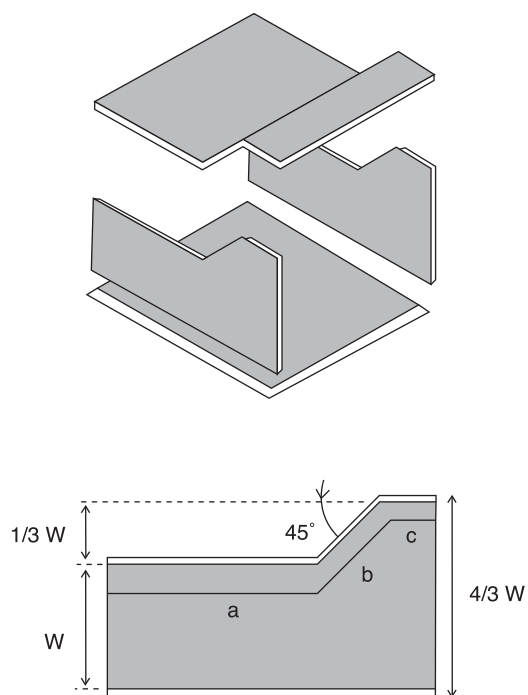


## PAL SYSTEM CONNECTION TO SHEET METAL

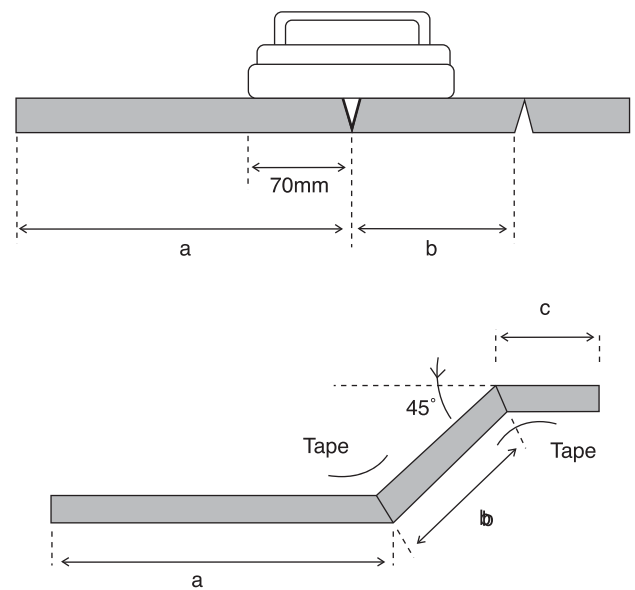




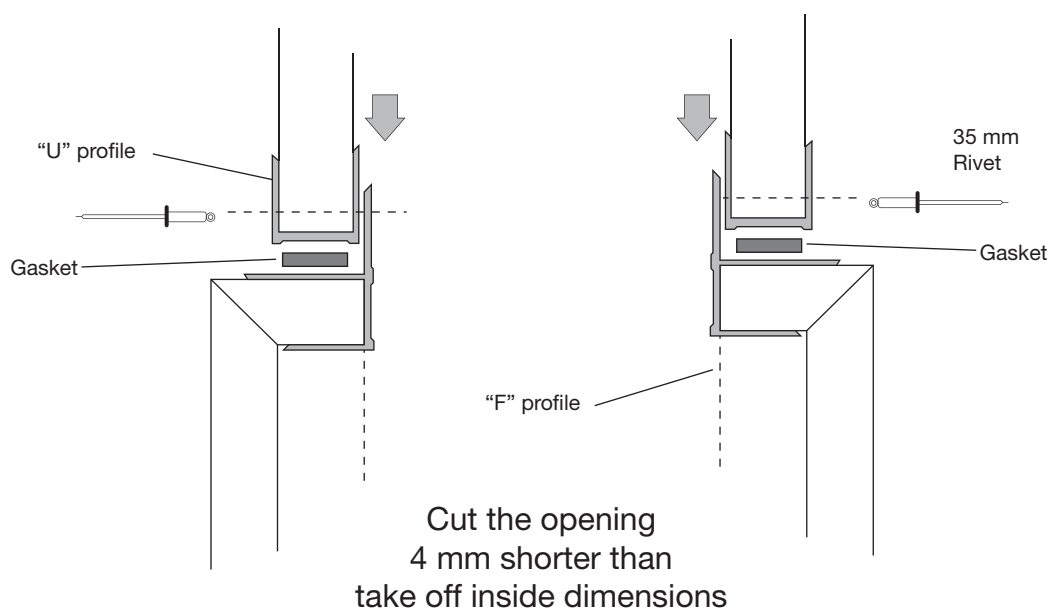
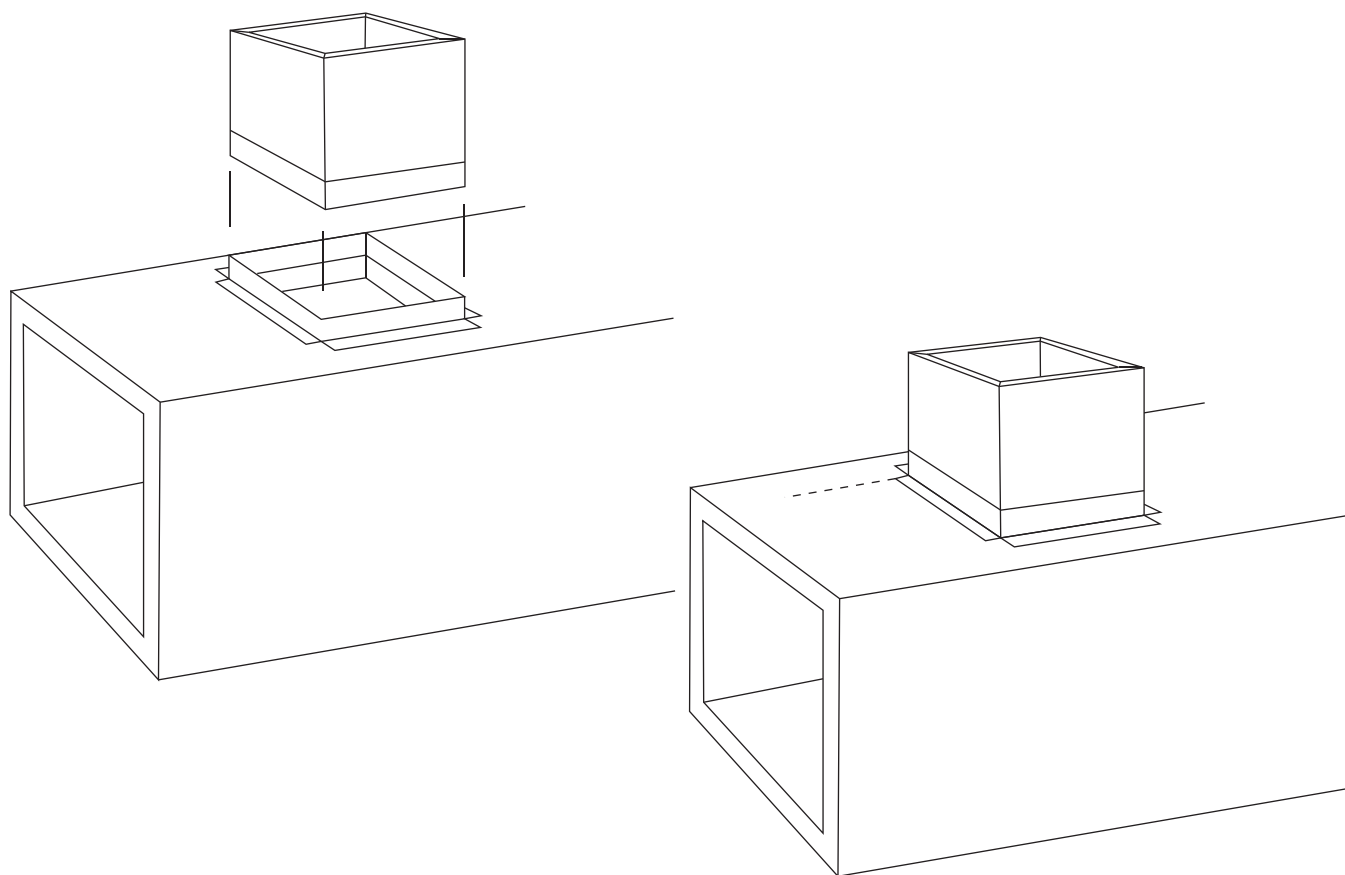
**Boot Branch**



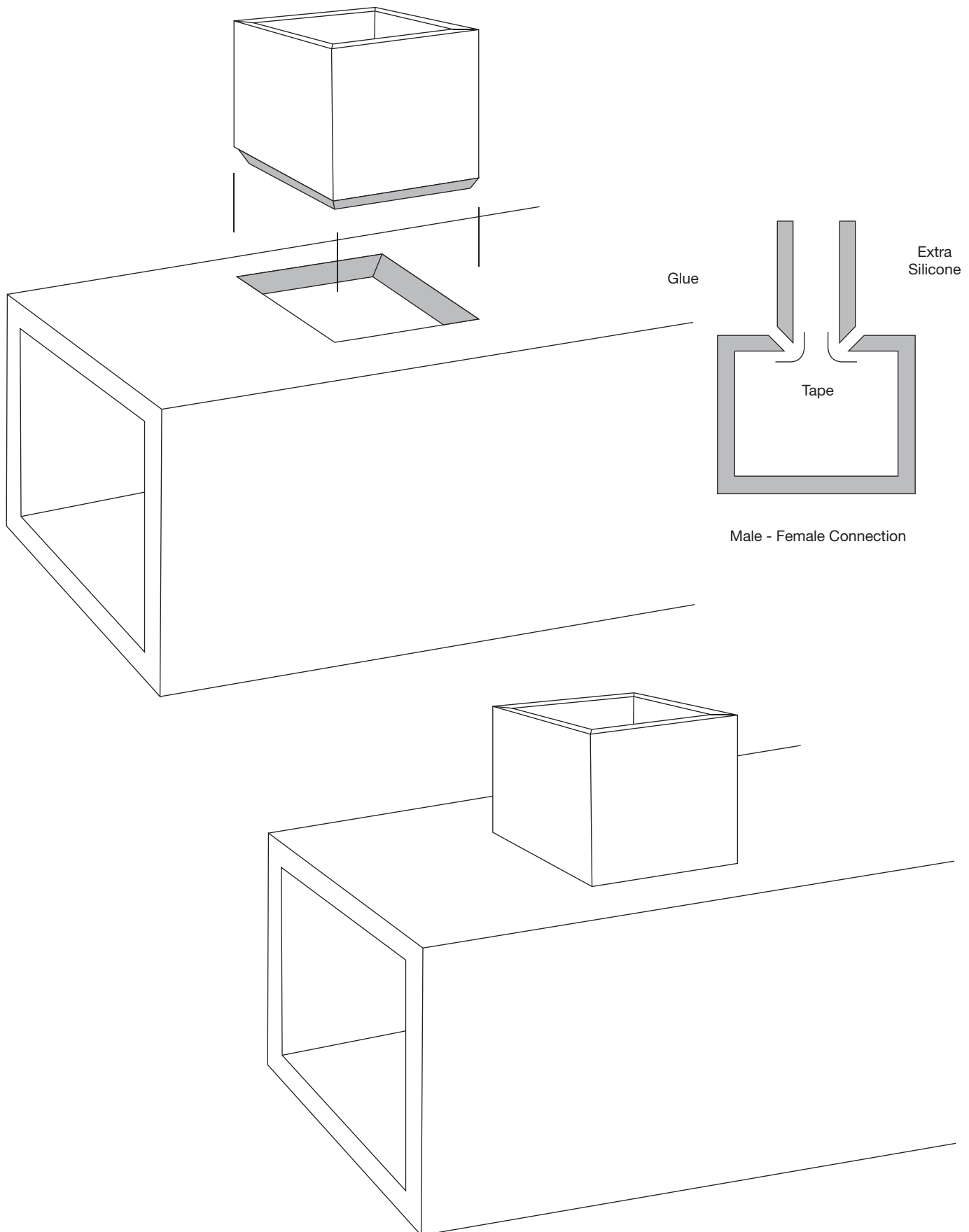
**Jack Plane 22.5 degrees**



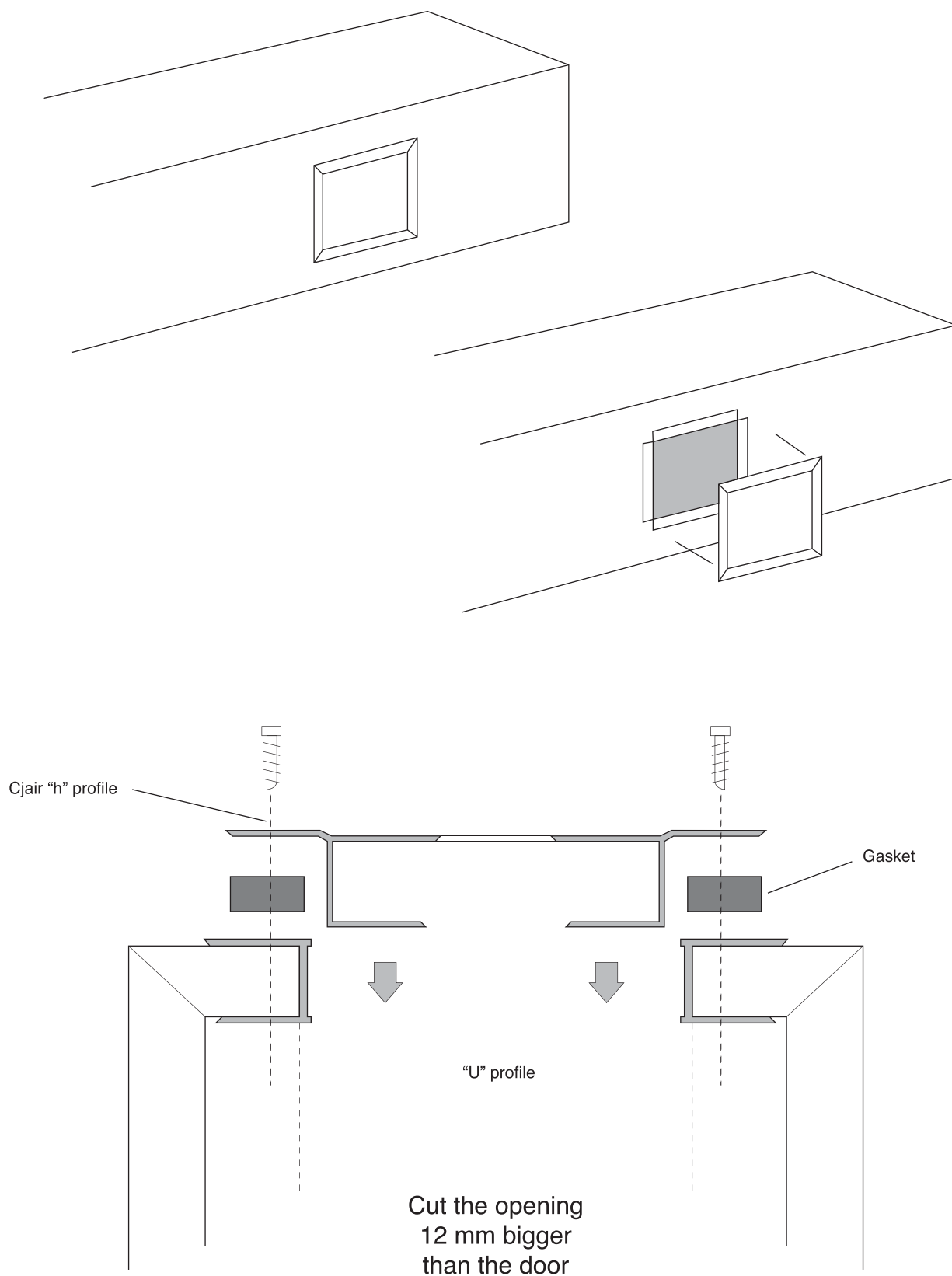
## TAKE - OFF (above 1000 x 1000 mm)



## TAKEOFF (Up to 1000 x 1000 mm)



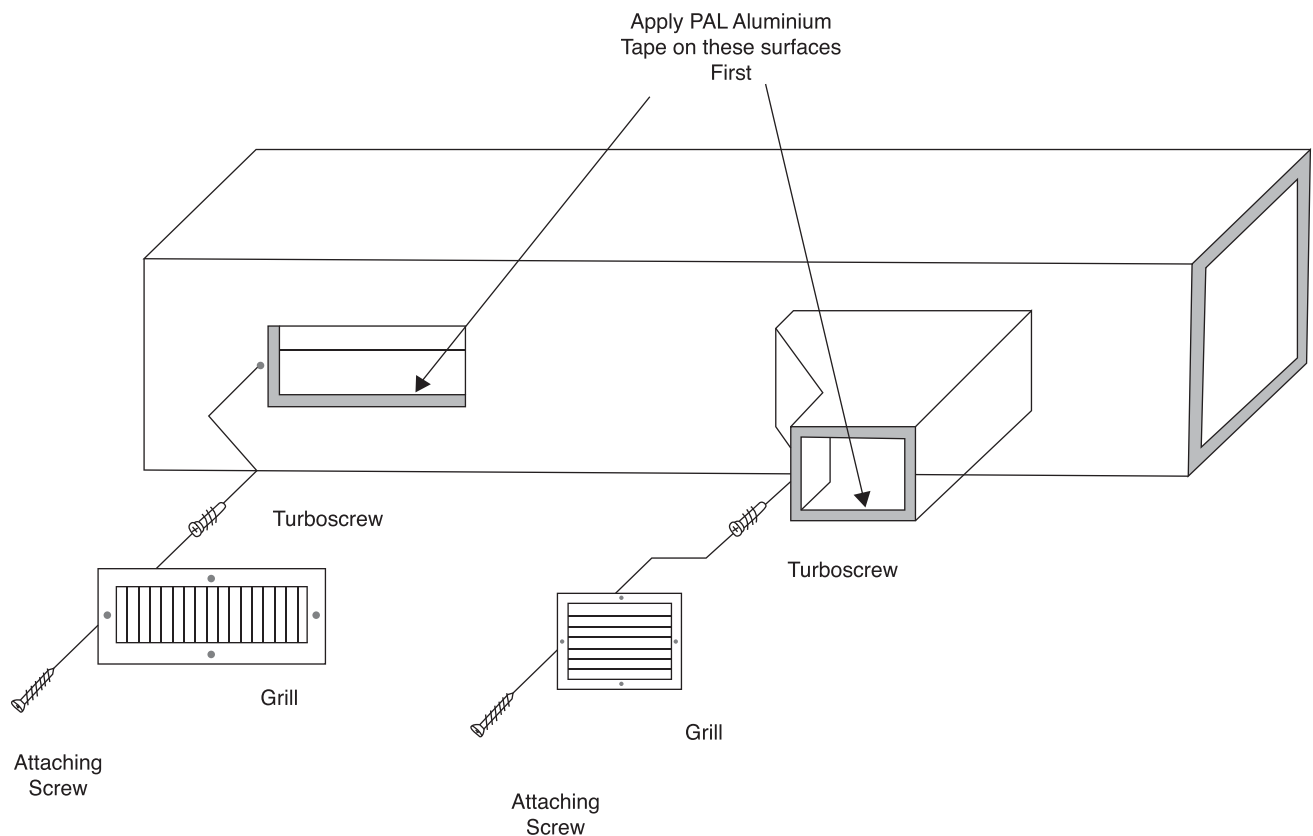
## PROFILES FOR INSPECTION DOORS



## GRILLE INSTALLATION with Pal Turboscrews

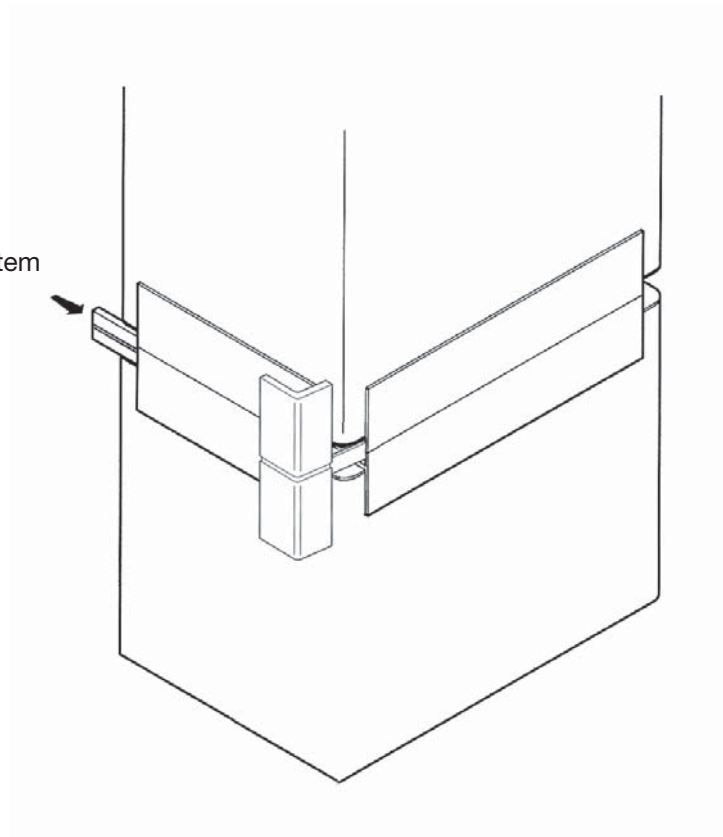
The Turboscrew greatly simplifies the installation doors, etc.

The Turboscrew is easily screwed into the Koolduct panel utilising the simple tool provided and has a large threads which ensure a secure fit. The standard attaching screws for the grill are then screwed into the Turboscrew. The only constraint is the the attaching screws are 4-5 mm in diameter and on longer than the thickness of the Grill plus 22 mm.

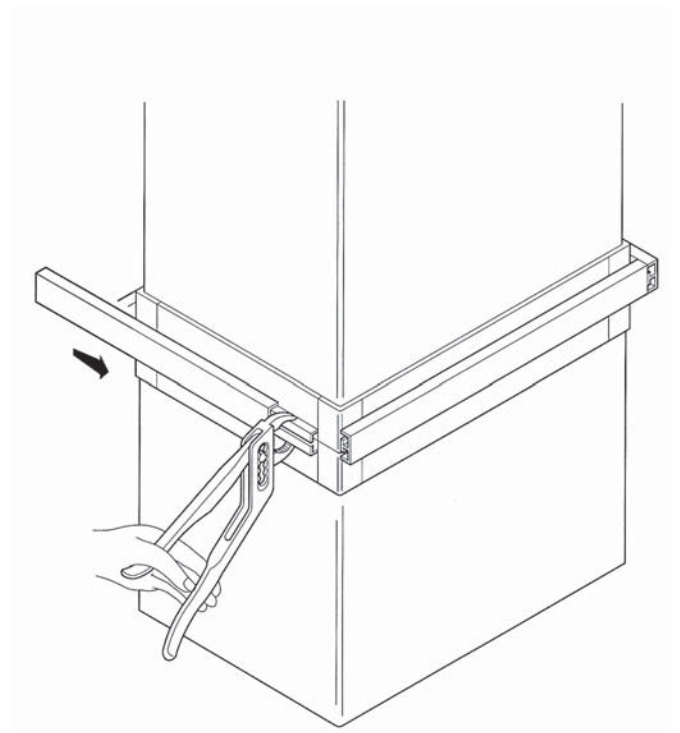
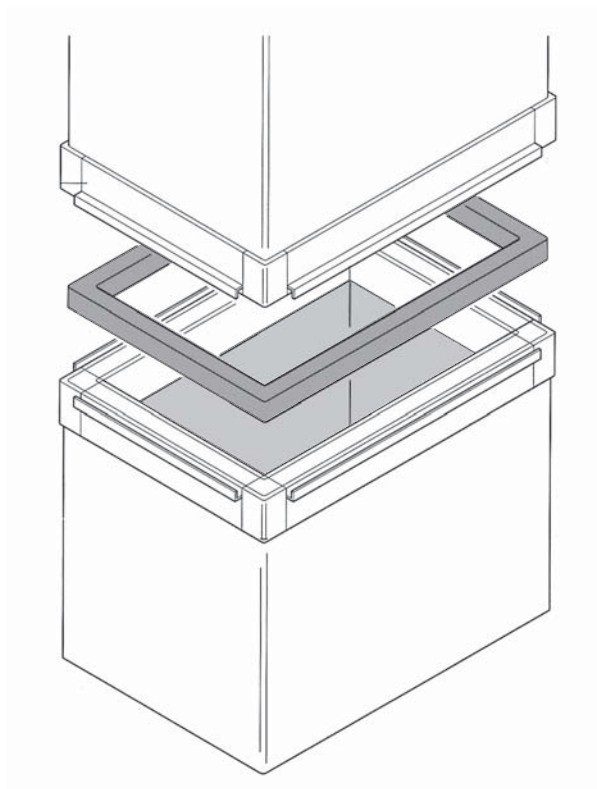


## OPTION 1 - Duct Joining System

Example:  
20 mm Duct Joining System

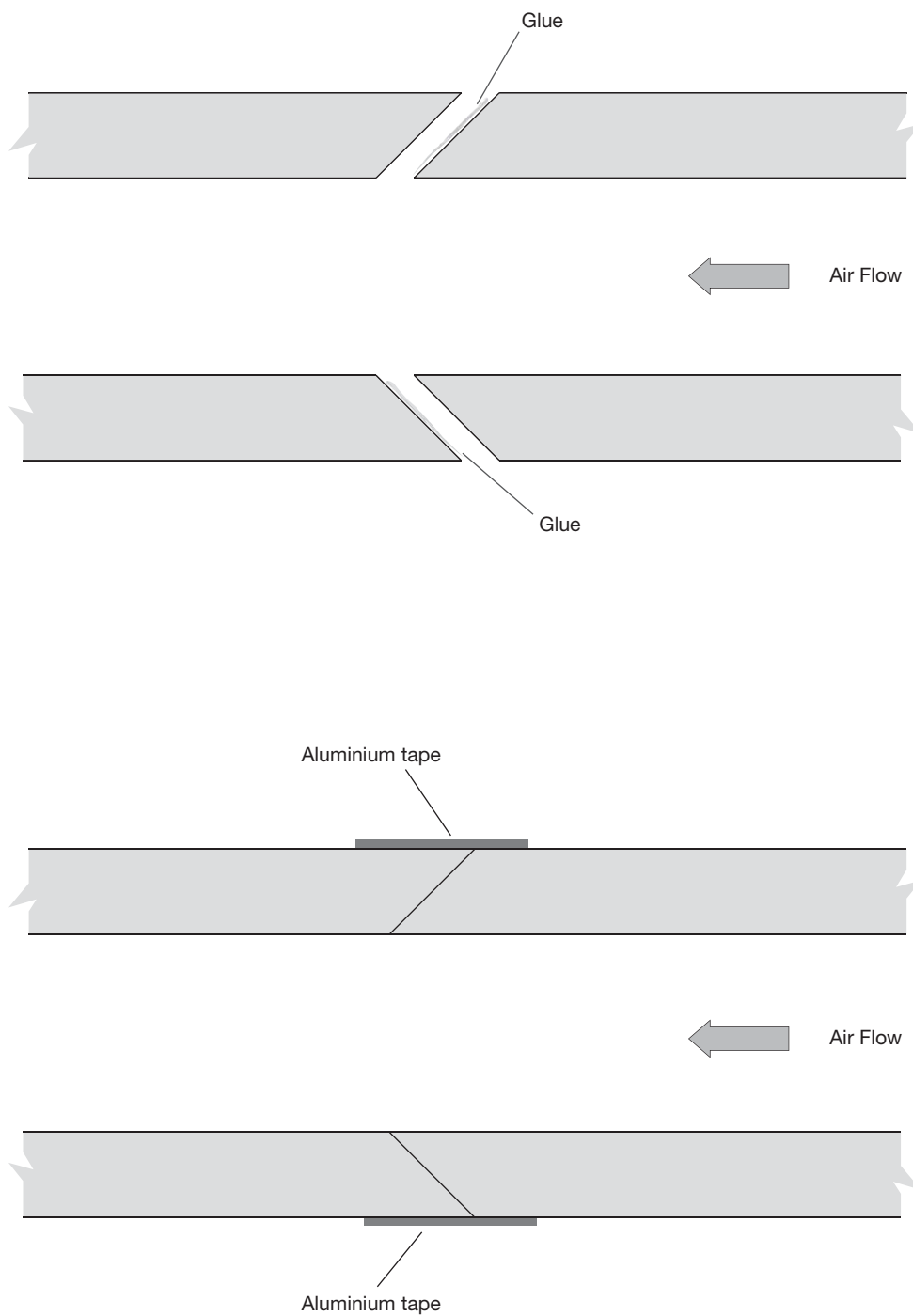


Example:  
30 mm Duct Joining System



## OPTION 2 - For Internal Duct (20 mm Thick) Less than 500 x 500 mm section

### Male - Female Joining System

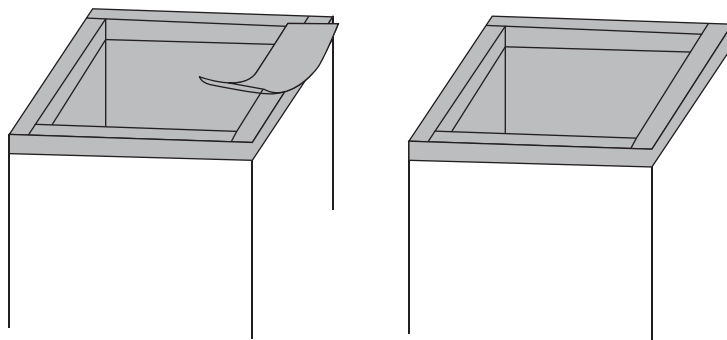


### OPTION 3 - For internal Duct (20mm Thick)

Less than 500 x 500 mm Section

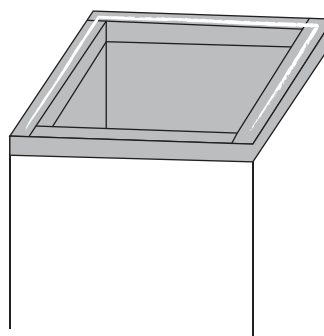
#### STEP 1

Application of aluminium tape on both ends of the duct segments



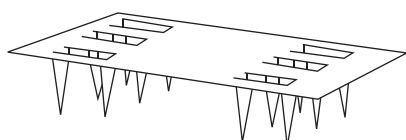
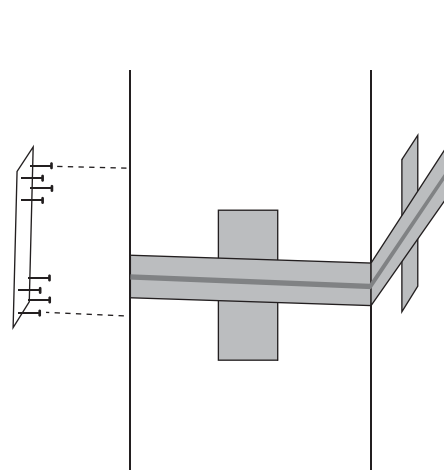
#### STEP 2

Silicone is placed on one side of one duct, then the two duct segments are joined together



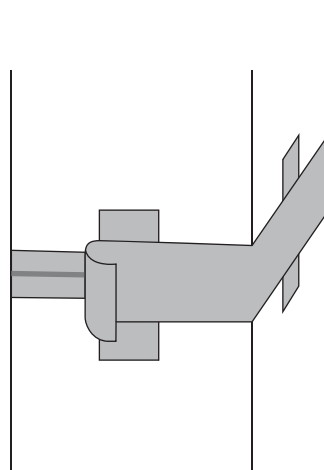
#### STEP 3

Tiger Connectors are placed on all four sides of the duct.  
For small ducts up to 300 mm use ONE Tiger Connector on each side of the duct.  
For ducts with one side 350 to 500 mm use TWO Tiger Connectors on each side.

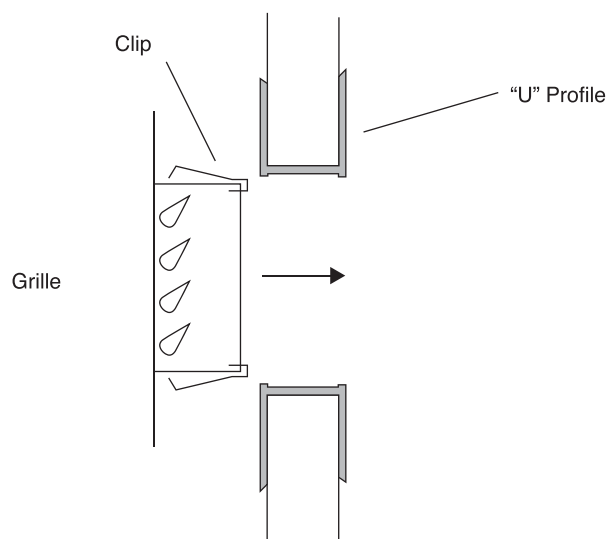


#### STEP 4

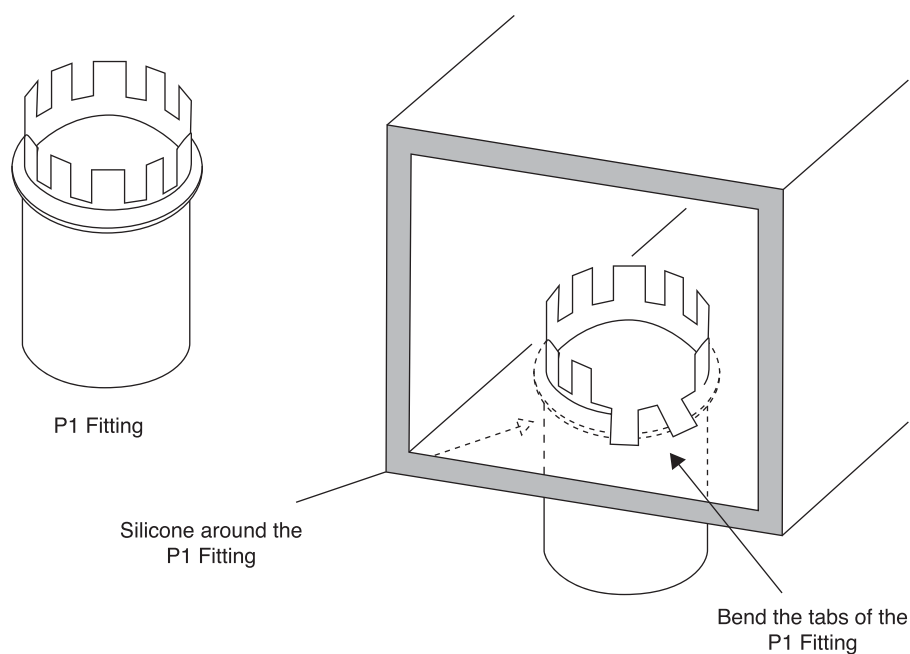
Aluminium tape covers the connection of the two duct segments



## GRILLE INSTALLATION with Aluminium profiles



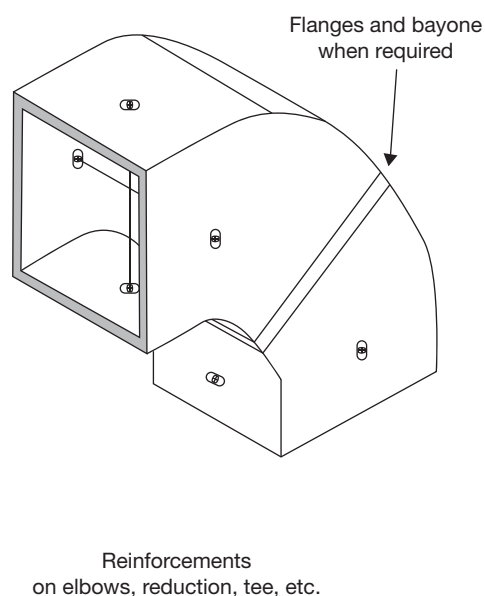
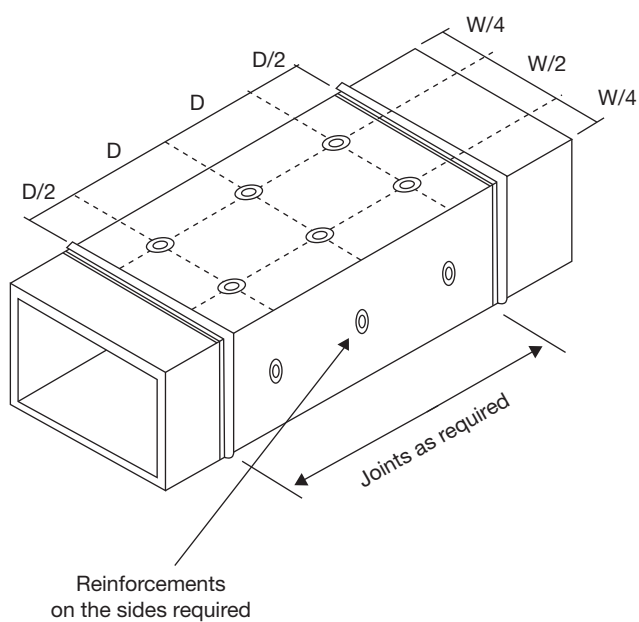
## INSTALLATION OF “P1” FITTINGS for round diffusers and flexible ducts



## Duct Reinforcement

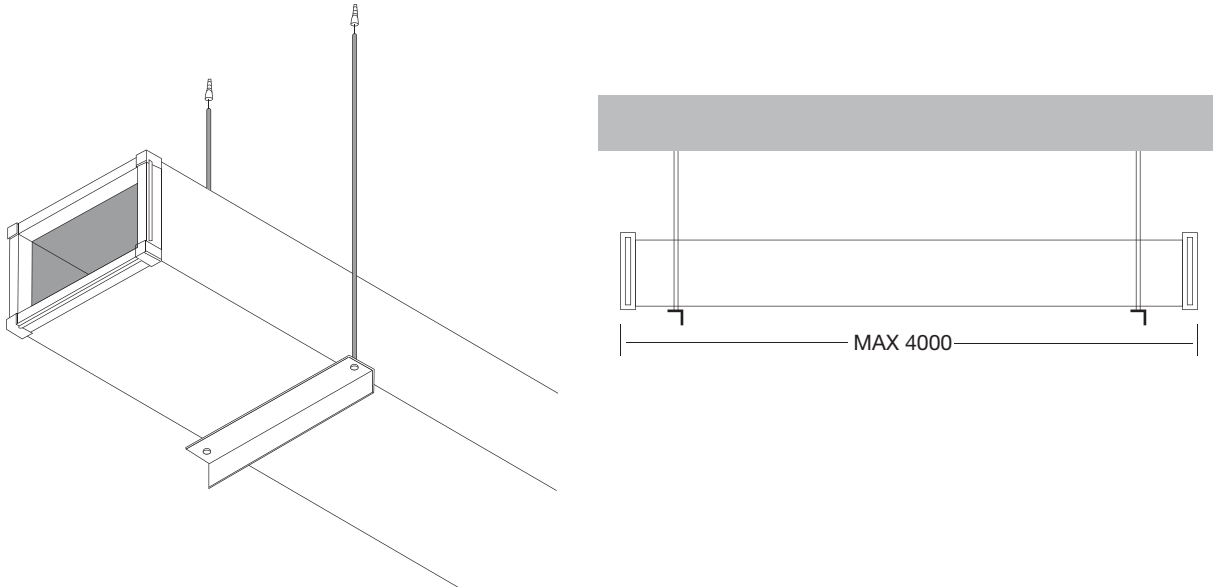
Table for the calculation of stiffening

| <div> <div>DUCT SIDE</div> <div>mm</div> </div> <div> <div>PRESSURE</div> </div> | PA<br>0-150 | PA<br>160-300 | PA<br>310-450 | PA<br>460-600 | PA<br>610-750 | PA<br>760-950 | PA<br>960-1000 | PA<br>1010-1250 | PA<br>1260-1500 | PA<br>1510-1750 | PA<br>1760-2000 |
|----------------------------------------------------------------------------------|-------------|---------------|---------------|---------------|---------------|---------------|----------------|-----------------|-----------------|-----------------|-----------------|
| 510-600                                                                          |             |               |               |               |               |               |                |                 | 1               | 1               | 2               |
| 610-700                                                                          |             |               |               |               |               |               |                | 1               | 1               | 1               | 2               |
| 710-800                                                                          |             |               |               |               |               |               | 1              | 1               | 2               | 2               | 2               |
| 810-900                                                                          |             |               |               |               | 1             | 1             | 1              | 2               | 2               | 2               | 2               |
| 910-1000                                                                         | 1           | 1             | 1             | 1             | 1             | 1             | 2              | 2               | 2               | 2               | 2               |
| 1010-1100                                                                        | 1           | 1             | 1             | 1             | 2             | 2             | 2              | 2               | 2               | 2               | 2               |
| 1110-1200                                                                        | 1           | 1             | 1             | 2             | 2             | 2             | 2              | 2               | 2               | 2               | 2               |
| 1210-1300                                                                        | 1           | 1             | 1             | 2             | 2             | 2             | 2              | 2               | 2               | 2               | 2               |
| 1310-1400                                                                        | 1           | 1             | 1             | 2             | 2             | 2             | 2              | 2               | 2               | 2               | 2               |
| 1410-1500                                                                        | 2           | 2             | 2             | 2             | 2             | 2             | 2              | 2               | 2               | 2               | 2               |
| 1510-1600                                                                        | 2           | 2             | 2             | 2             | 2             | 2             | 2              | 2               | 2               | 2               | 2               |
| 1610-1700                                                                        | 2           | 2             | 2             | 2             | 2             | 2             | 2              | 2               | 2               | 2               | 2               |
| 1710-1800                                                                        | 2           | 2             | 2             | 2             | 2             | 2             | 2              | 2               | 2               | 2               | 2               |
| 1810-1900                                                                        | 2           | 2             | 2             | 2             | 2             | 2             | 2              | 2               | 2               | 2               | 2               |
| 1910-2000                                                                        | 2           | 2             | 2             | 2             | 2             | 2             | 2              | 2               | 2               | 2               | 2               |



D = Recommended Step Interval (see Schedule of Duct Reinforcement)  
W = Width of Duct

## HANGER SYSTEM



## DUCTWORK SUPPORT DETAIL

