



AN ISO 9001: 2015 CERTIFIED COMPANY



# STRAIGHT DUCTS



## SRD



### Description

SARA'S single wall rectangular duct and fittings will be Pittsburgh-lock longitudinal seam construction, with duct provide in standard normal 1.2m lengths. Standard construction will conform with the 2005 SMACNA HVAC Duct Construction standards.

Connectors will be:-

- Side on flange
- S&C Drive slip
- Raw Ends
- Angle flange connector

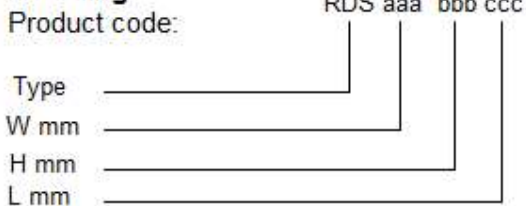
Duct and fittings will be fabricated from:-

- Galvanized steel – ASTM A653 –G90 ( GSM 275 )
- Black steel (with various paints) ASTM-A366/A619
- Stainless steel ASTM A240/480
- Aluminum – ASTM B 209- Type alloy 3003-H14

SARA'S rectangular duct is constructed with strengthening beads around the parameter.

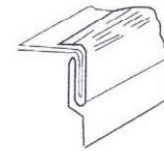
- Ducts can be supplied fully assembled, L-Shape, or wrap around
- Fittings can be supplied either fully assembled or knocked down

### Ordering

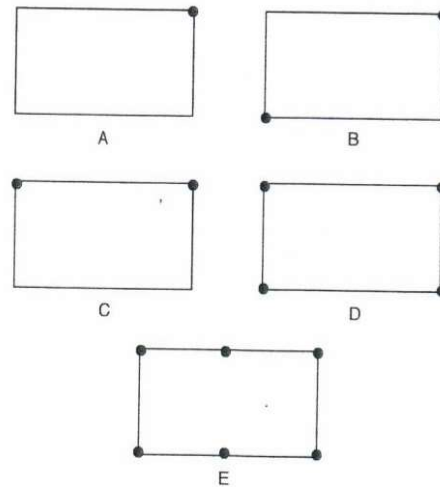


## Dimensions

### Pittsburgh Lock



### Seam Location



### Seam Location

Seam numbers and location vary according to joint type and size.



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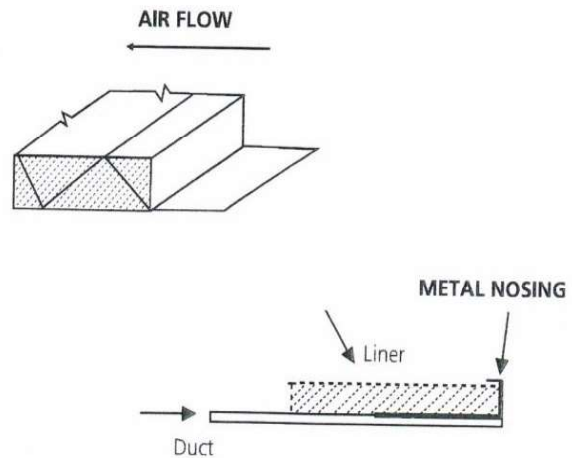
# LINED DUCTS



## LDS



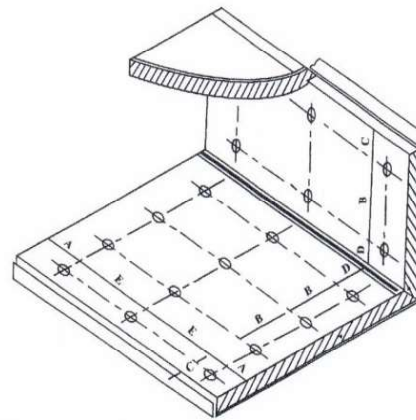
## Dimensions



## Description

SARA'S offers Lined single wall rectangular duct for acoustical and thermal control. Liner applied to the inner surface of the sheet metal duct work using retardant adhesive and pins.

- Two types of fasteners are available, adhesive and welded
- Applying adhesive at end of liner is standard
- Fixing a metal nosing an optional (as per client's request) SARA Standard liner is made of duct liner fiber glass, 25mm thicknesses, 48kg/m<sup>3</sup> density
- Other thicknesses densities are available upon request.



All Transverse edges are coated with adhesive except when nosing is present

Ordering  
Product code: LDS aaa bbb ccc

Type \_\_\_\_\_

W mm \_\_\_\_\_

H mm \_\_\_\_\_

L mm \_\_\_\_\_

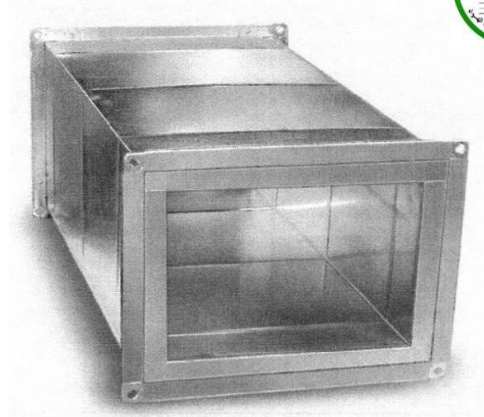
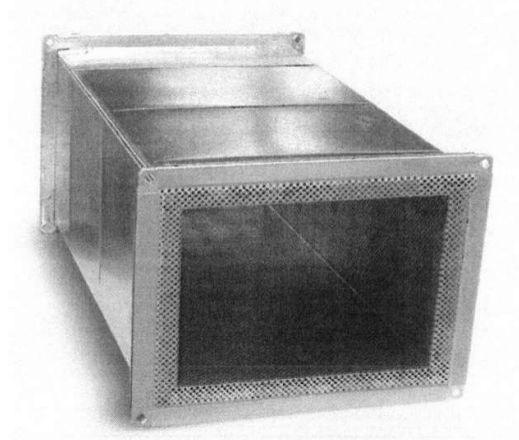
Maximum Spacing for Fasteners  
Actual intervals are approximate

Velocity *	Dimensions				
	A	B	C	D	E
0-2500 FPM	3"	12"	4"	6"	18"
(0-12.7 MPS)	(76.2)	(305)	(102)	(152)	(457)
0-2500 FPM	3"	6"	4"	6"	16"
(12.7-30.5 MPS)	(76.2)	(305)	(102)	(152)	(406)

# DOUBLE WALL DUCTS



## DWD



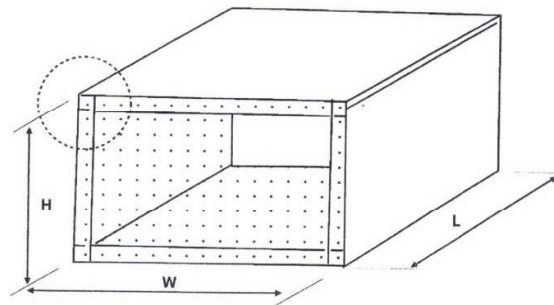
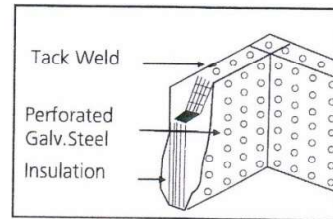
### Description

SARA'S has a complete line of double wall insulated duct & fittings, each piece is constructed of solid metal outer shall and inner shell surrounded by a layer of insulation.

**Perforated sheet is used as inner shell as optional.**

The insulation serves both thermal & acoustical purposes. Our liner insulation is black woven fibber glass 1" thick, 48kg/m<sup>3</sup> density. Several types of insulation materials, densities, thicknesses are available.

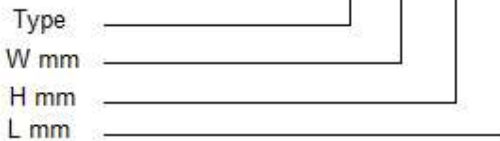
### Dimensions



### Ordering

Product code:

DDS aaa bbb ccc



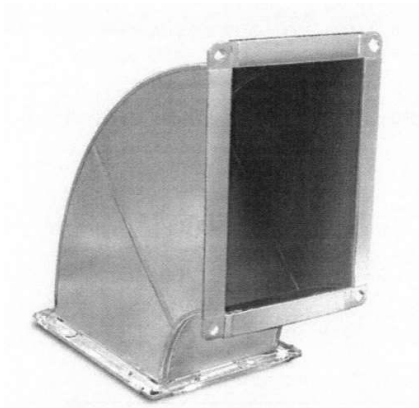
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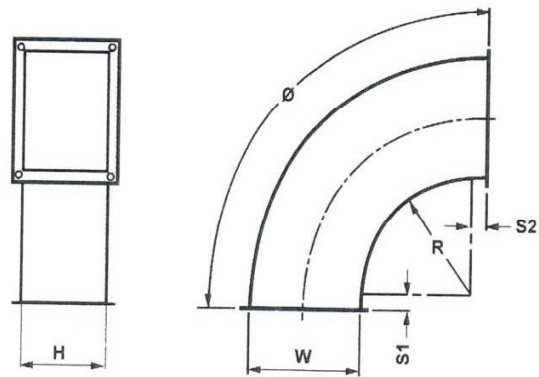
# ELBOW



## Dimensions



$\varnothing = 1^\circ \text{ to } 90^\circ$   
 $R = W$



## Description

RADIUS ELBOW WITHOUT SPLITTER VANE

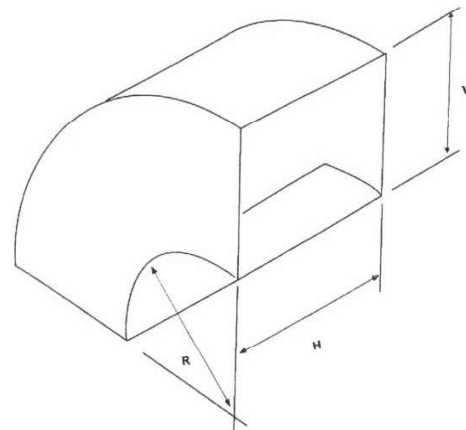
WIDTH (W-mm)

HEIGHT (H-mm)

RADIUS (R-mm)

"R" = W

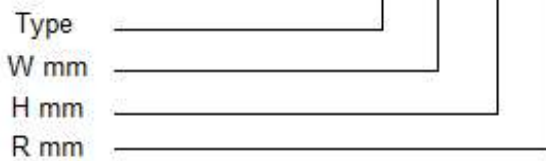
$\varnothing = 1^\circ \text{ to } 90^\circ$



## Ordering

Product code:

ER aaa bbb ccc



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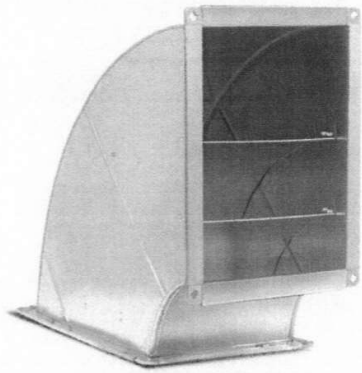




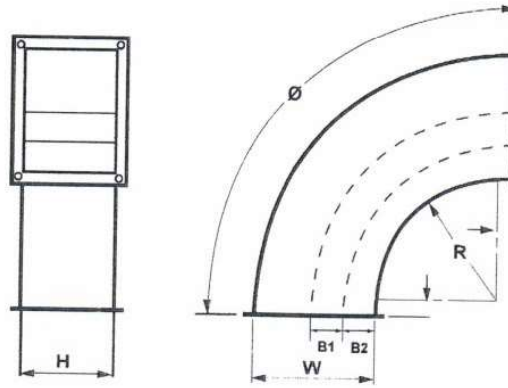
# RADIUS ELBOW WITH SPLITTER

**RE**

**Dimensions**

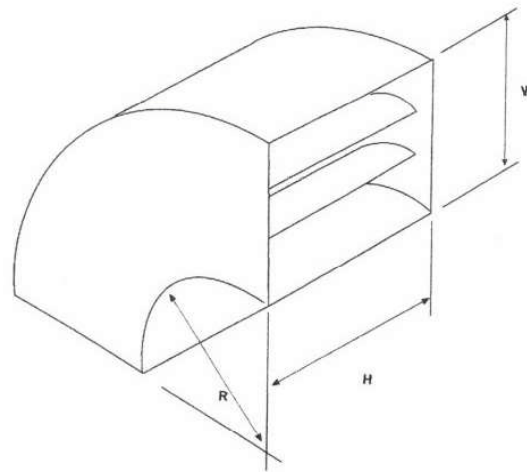


$\varnothing=1^\circ$  to  $90^\circ$   
 $R < W$

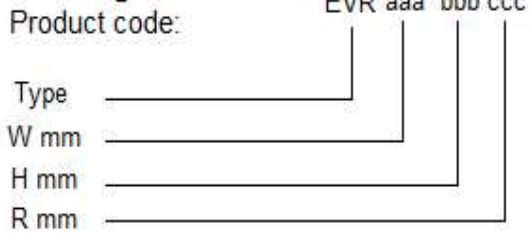


## Description

Radius elbow with splitter vane throat radius  
R is less than W (width)  
Width (W-mm)  
Height (H-mm)  
Radius (R-mm)



## Ordering



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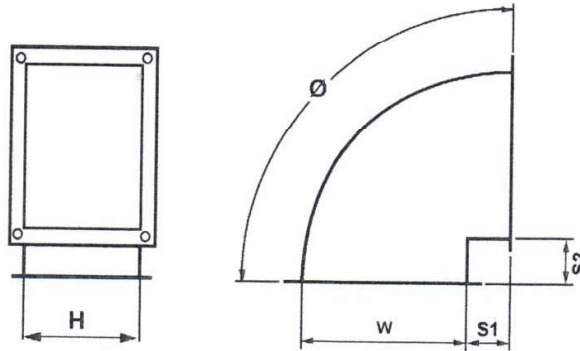
# RADIUS ELBOW WITH SQUARE THROAT



## RES



### Dimensions



### Description

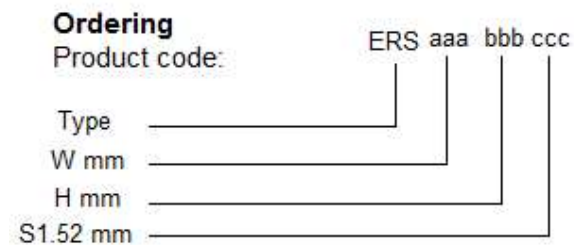
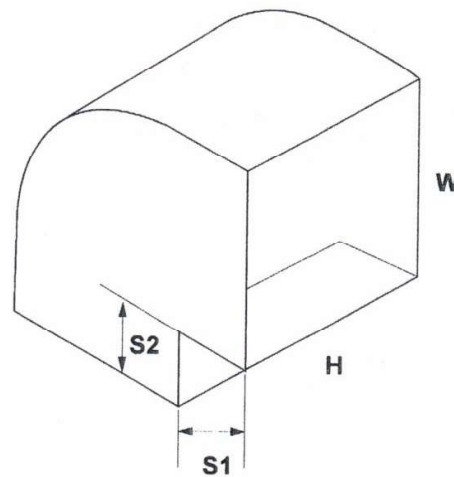
Radius elbow with square throat ERS

W= WIDTH mm

H= HEIGHT mm

$\phi = 1^\circ$  to  $90^\circ$

S1, S2  $\geq 100$ mm



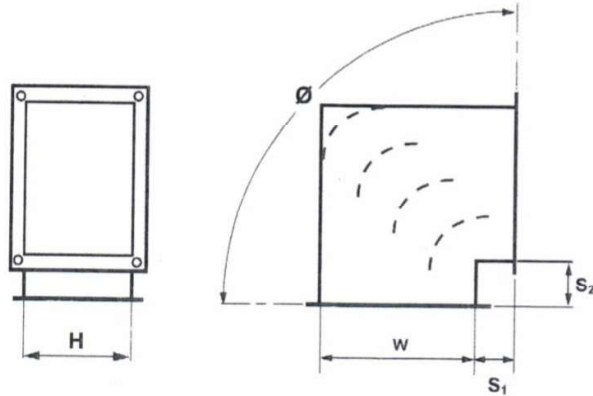
# MITERED ELBOW WITH TURNING VANES



## MEV



### Dimensions



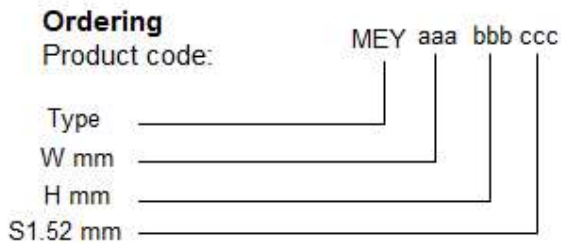
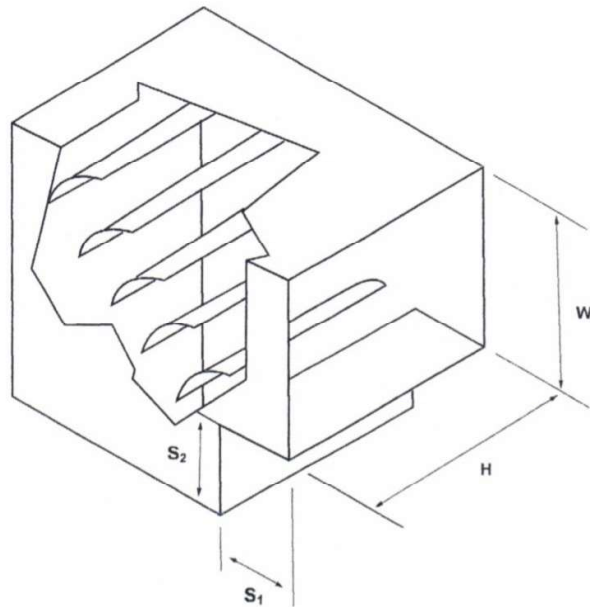
### Description

Mitered Elbow with Turning Vanes MEV

WIDTH (W1 – mm)

HEIGHT (H1 – mm)

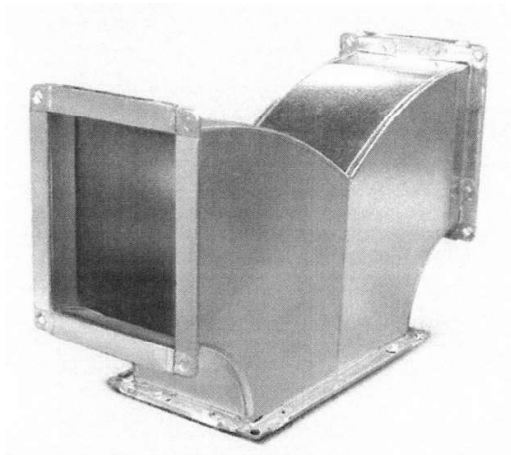
S1, S2 ≥ 100mm



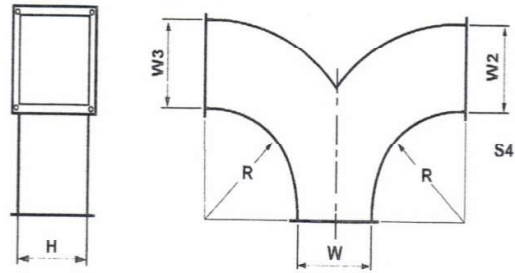


# Y - BRANCH

## RYB



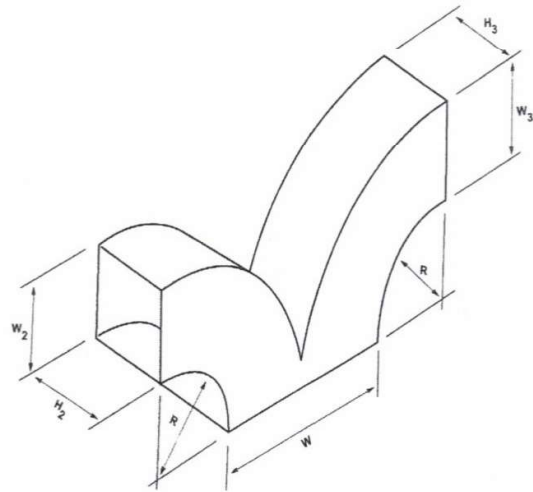
### Dimensions



### Description

Y - Branch

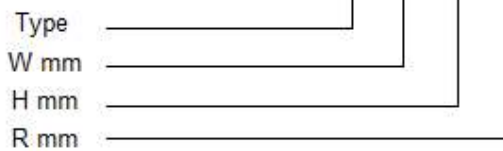
Available with splitter damper



#### Ordering

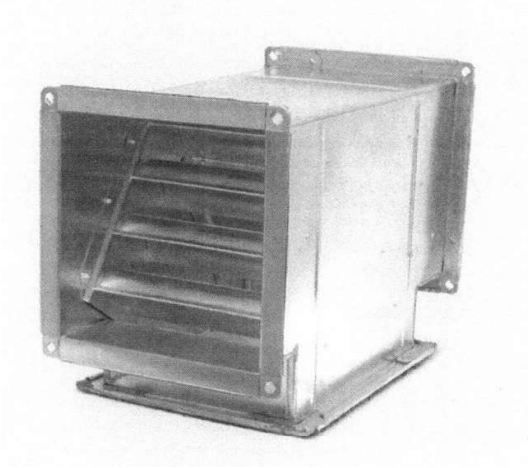
Product code:

RYB aaa bbb ccc

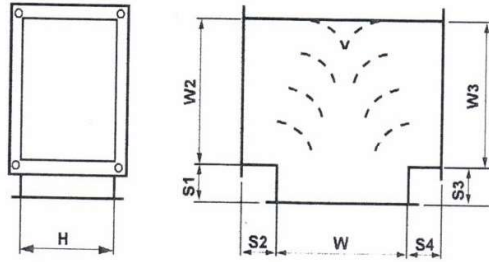


# TEE WITH TURNING VANE

**RT**

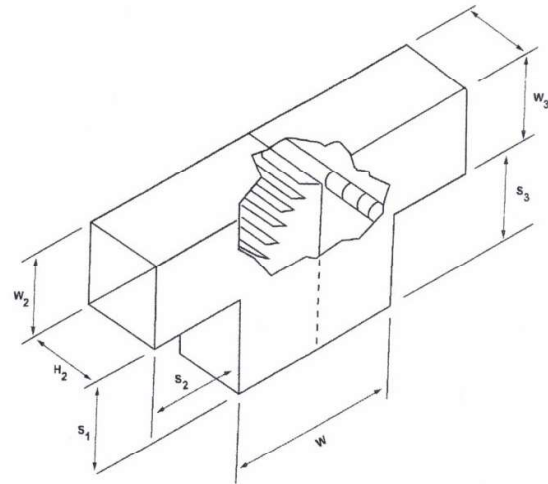


## Dimensions



## Description

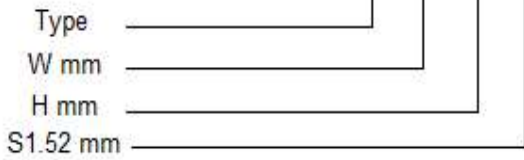
TEE



### Ordering

Product code:

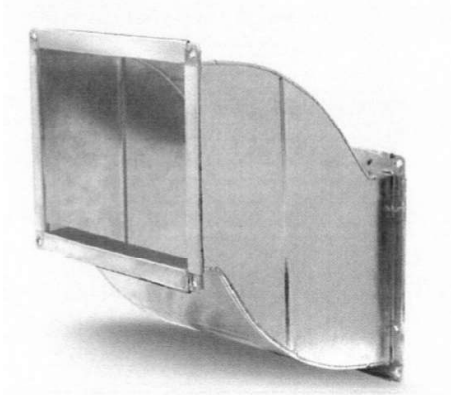
RT aaa bbb ccc



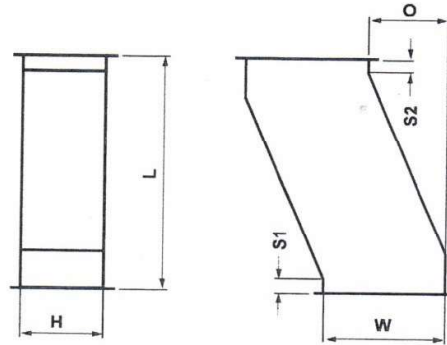


# OFFSET

# ROOF



## Dimensions



## Description

OFFS-OFFSET

WIDTH (W – mm)

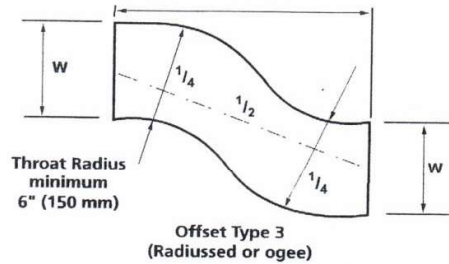
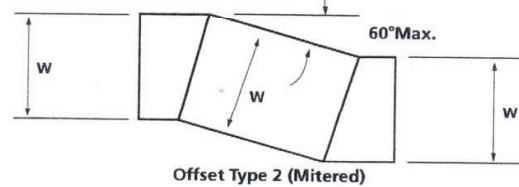
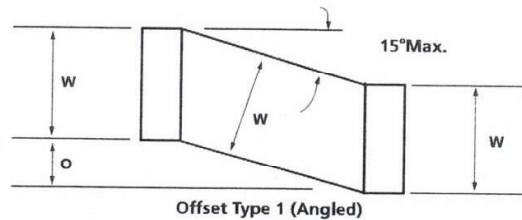
HEIGHT (H – mm)

OFFSET (O – mm)

LENGTH (L – mm)

$L=2w$

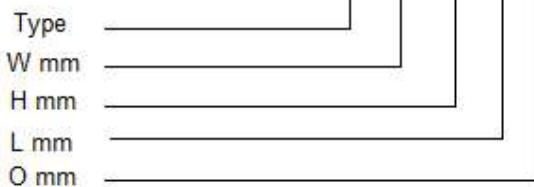
$S1, S2 \geq 100m$



### Ordering

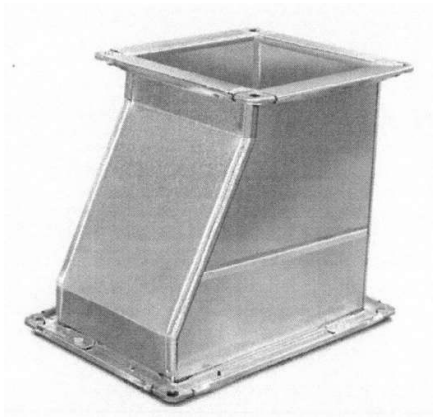
Product code:

ROFF aaa bbb ccc ddd



# DUCT REDUCER

## RDR

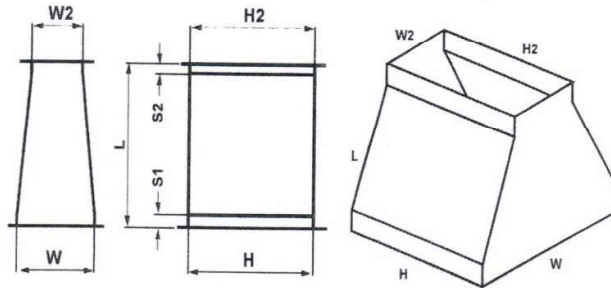


### Description

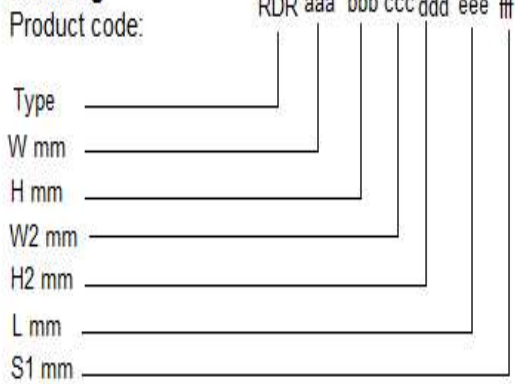
Concentric Reducer  
Eccentric Reducer

WIDTH (W – mm)  
HEIGHT (H – mm)  
WIDTH2 (W2 – mm)  
HEIGHT 2 (H2 – mm)  
LENGTH (L – MM)  
S1, S2 mm

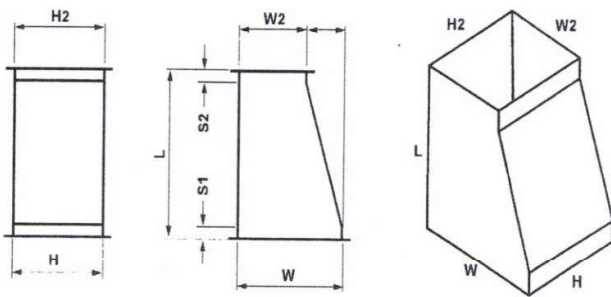
### Dimensions



### Ordering



### Eccentric Reducer



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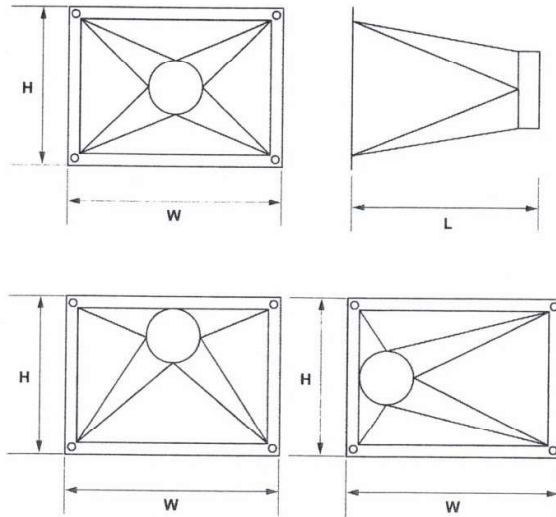
# RECTANGULAR TO ROUND



## TRR



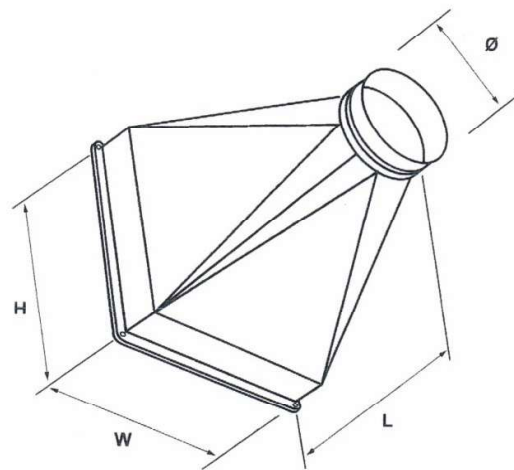
### Dimensions



### Description

- Concentric TRR
- Eccentric TRR
- Rectangular to Round TRR

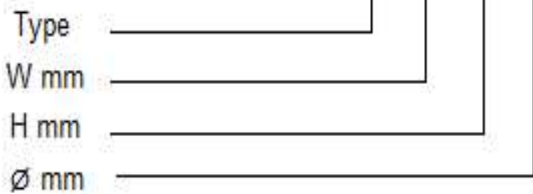
- WIDTH ( $W$  – mm)
- HEIGHT ( $H$  – mm)
- LENGTH ( $L$  – mm)
- Diameter ( $\phi$  – mm)



### Ordering

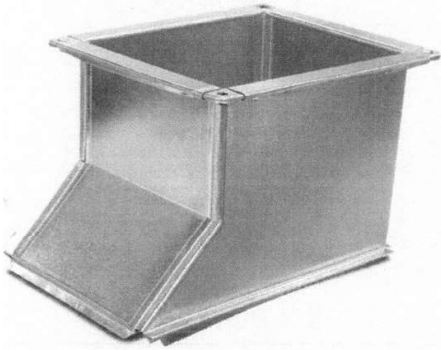
Product code:

TRR aaa bbb ccc

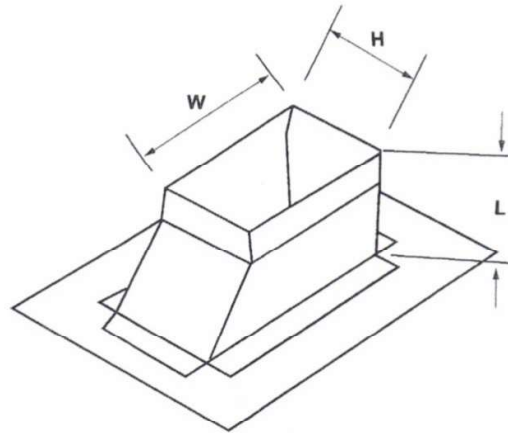
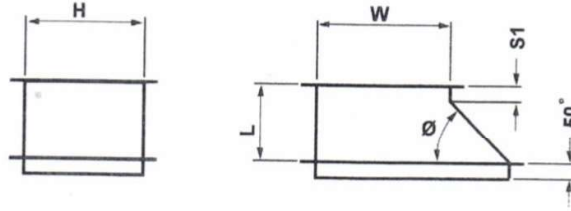


# 45° TAKE OFF

## RTO 45°



### Dimensions



### Description

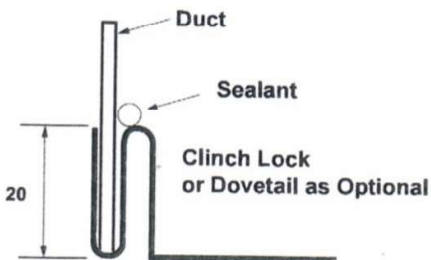
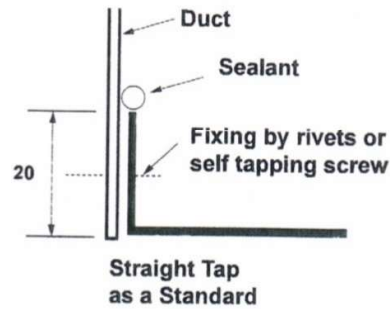
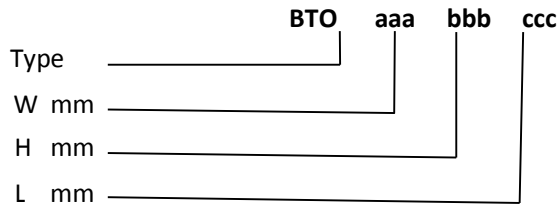
Branch Connection RTO 45°

- WIDTH (W – mm)
- HEIGHT (H – mm)
- LENGTH (L – MM)
- $\theta - 45^\circ$

Detail - A

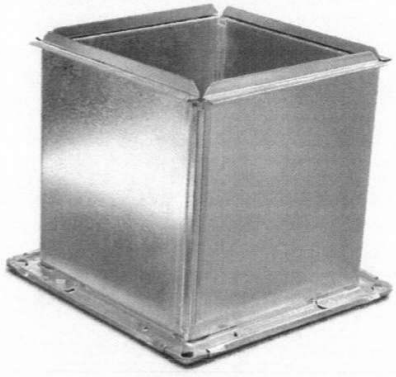
### Ordering

Product code

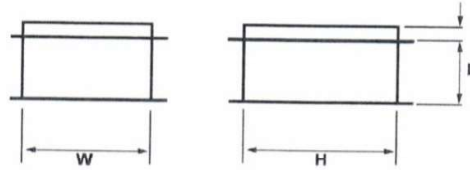


# STRAIGHT TAKE OFF

## STO



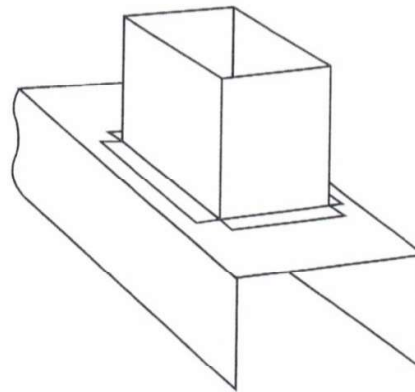
### Dimension



### Description

Rectangular Duct Branch Connection Straight Tank off

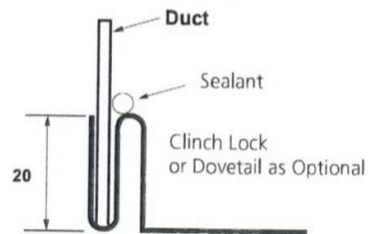
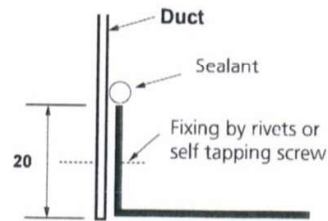
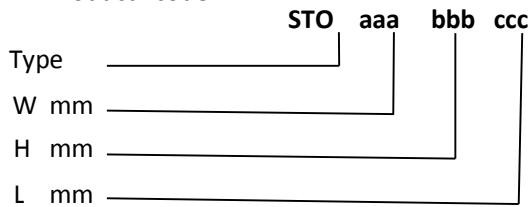
- WIDTH (W – mm)
- HEIGHT (H – mm)
- LENGTH (L – MM)



Detail - A

### Ordering

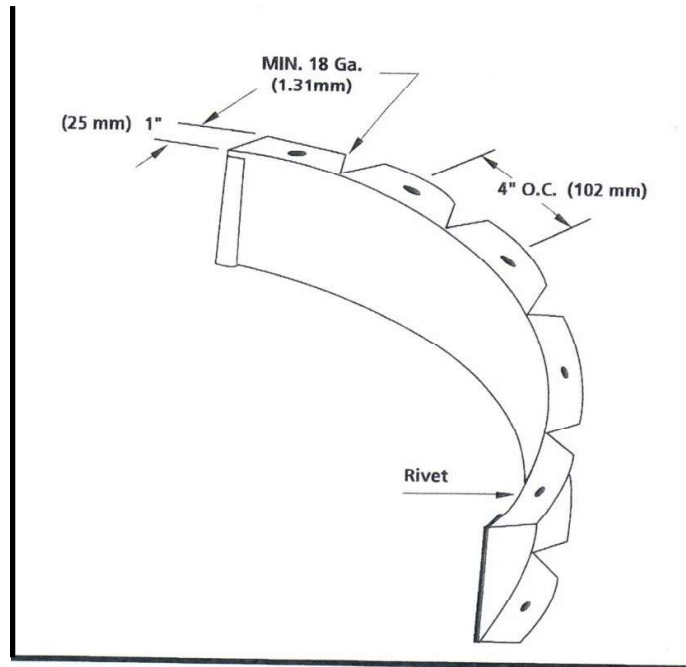
Product code



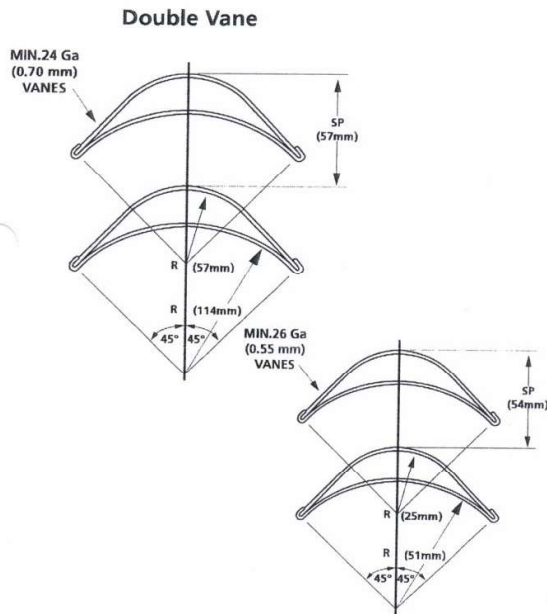
# FABRICATION & ASSEMBLY OF TURNING VANES



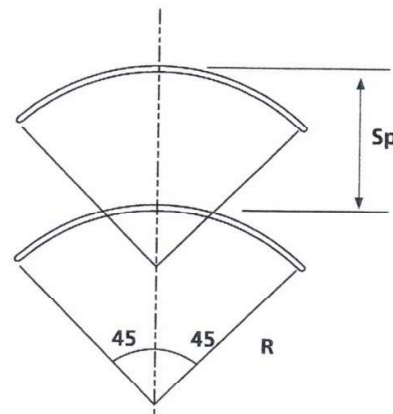
## Short Radius Vanes



## Description



## Single Vane



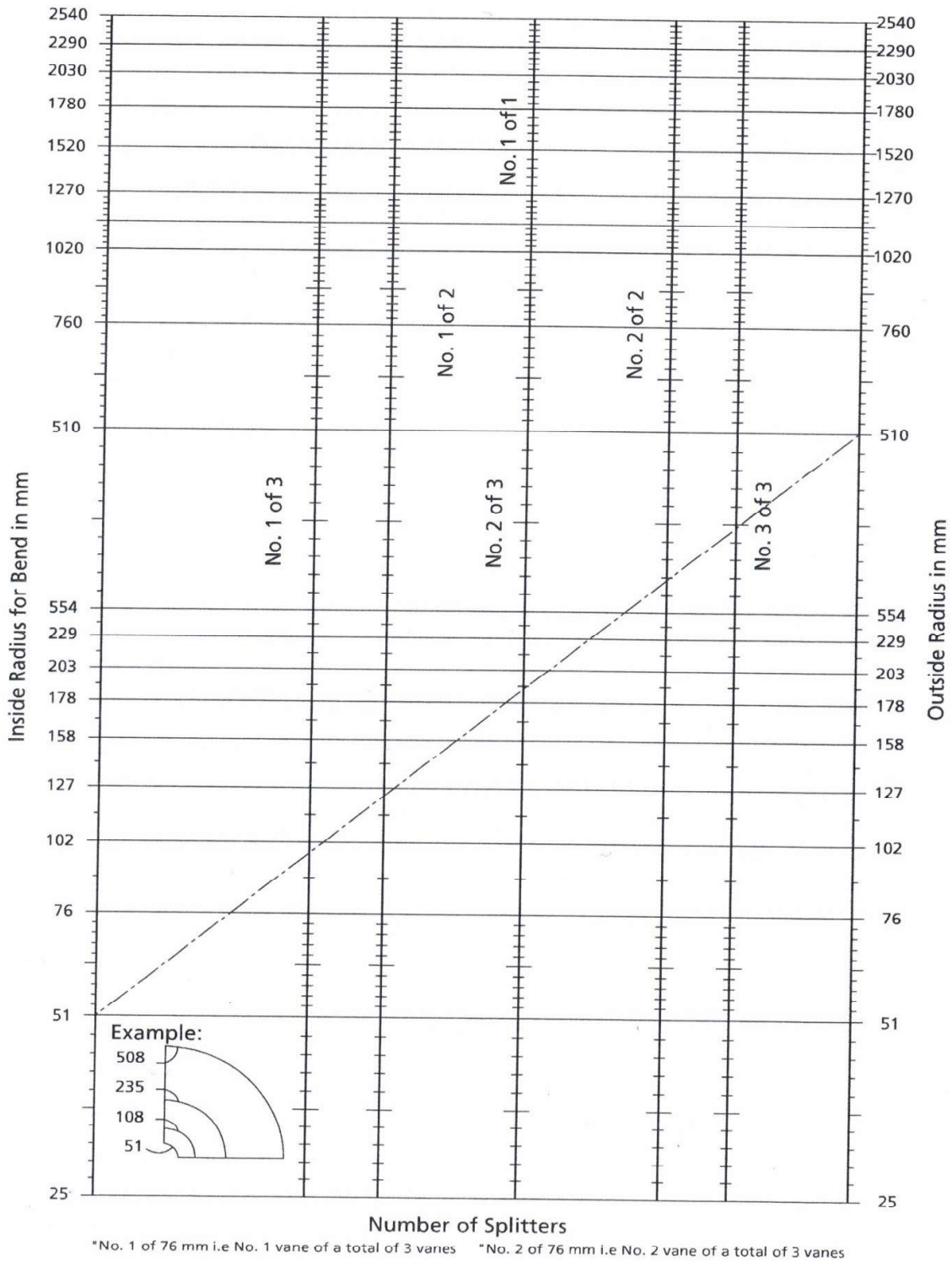
DUCT SIZE	Double Vane Schedule			
	Type	R	Sp	Ga
0-1219	Small	51	54	26(0.55mm)
1219 Up	Large	114	83	24(0.7mm)
* 1500 Up Segmented				

DUCT SIZE	Single Vane Schedule			
	Type	R	Sp	Ga
0-914	Small	50	38	24(0.7mm)
914 Up	Large	114	83	22(0.85mm)
* 1500 Up Segmented				



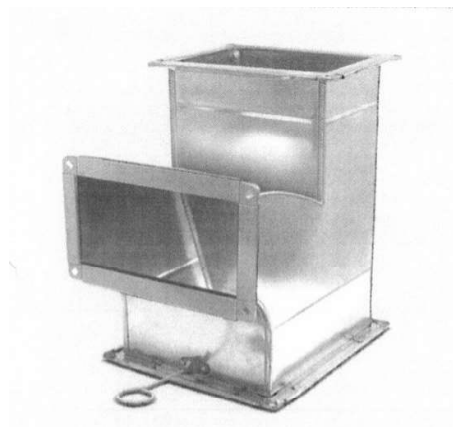
# SPLITTER VANES

## Number of short radius vanes

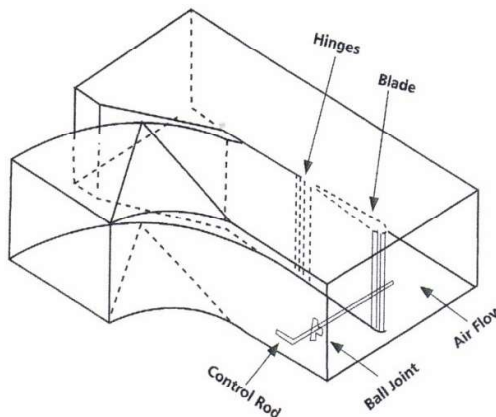


# R- TYPE

# RTY



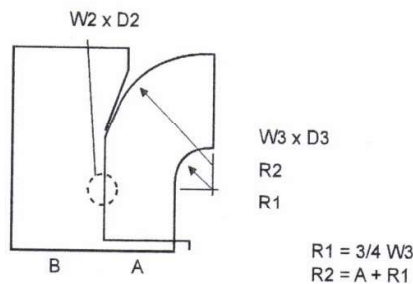
## Dimensions



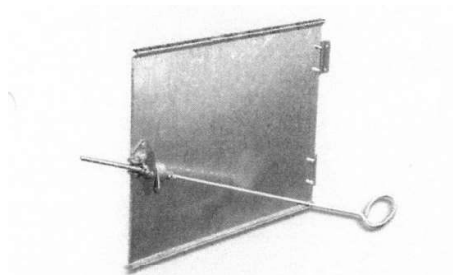
## Description

Splitter Damper

- Available Aerofoil blade as a standard
- Single blade



## Single blade

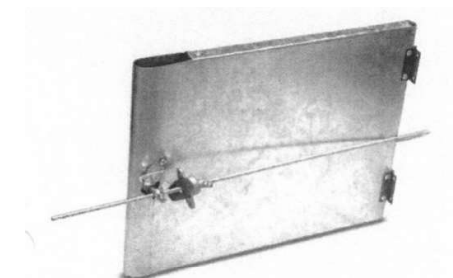


W1 x D1

Splitter Damper Length is Equal to 1.5 A

Where: A = 100 mm Min.

## Aerofoil blade



Trunk may be divided using:

$$A = \left( \frac{W3 \times D3}{(W2 \times D2) + (W3 \times D3)} \right) W1$$

$$B = \left( \frac{W2 \times D2}{(W2 \times D2) + (W3 \times D3)} \right) W1$$

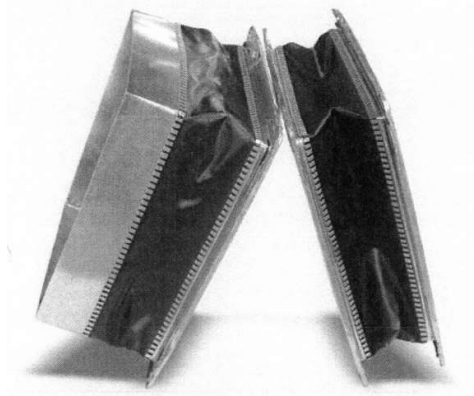
One Rod Up To 610mm depth (D1)  
 Two rods 615 mm to 1525 mm depth (D1)  
 Three rods above 1525 mm depth (D1)



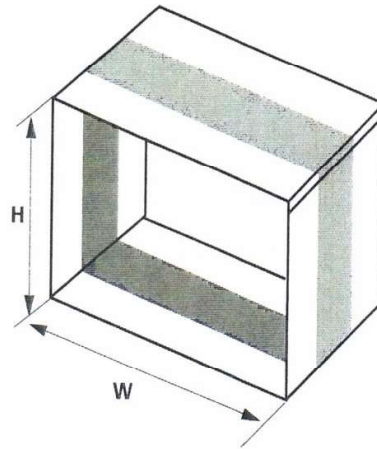
# FLEXIBLE DUCT CONNECTION



## FDC



## Dimensions

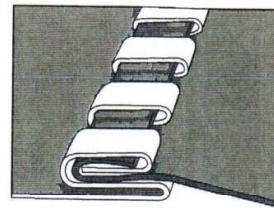
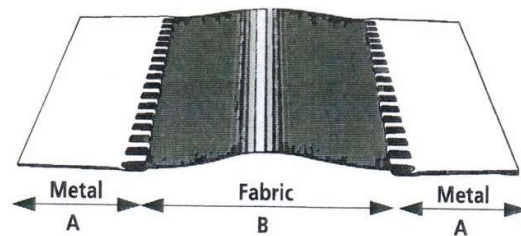


## Description

Flexible duct connector eliminates duct system noises and vibrations.

In order to isolate vibrations caused by air handling units, fans or other equipment connected to air duct, it is highly recommended to install a flexible duct connector joint between the outlet of these devices and the air duct.

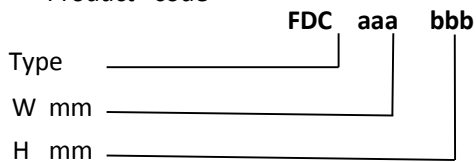
- Flexible connector ends are vary upon request (Duct made, S & drive or flange type).
- Standard size: A x B x A
- FDCJ 1.75" X 3" X 1.75"
- FDCE 2.75" X 4" X 2.75"



Guard Lock Seam

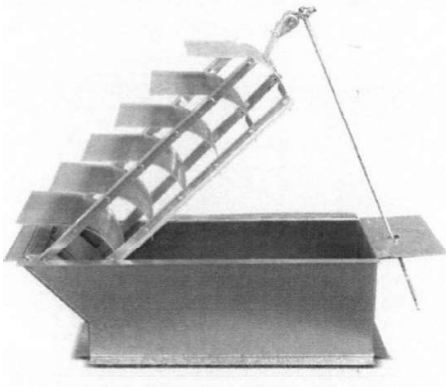
## Ordering

Product code

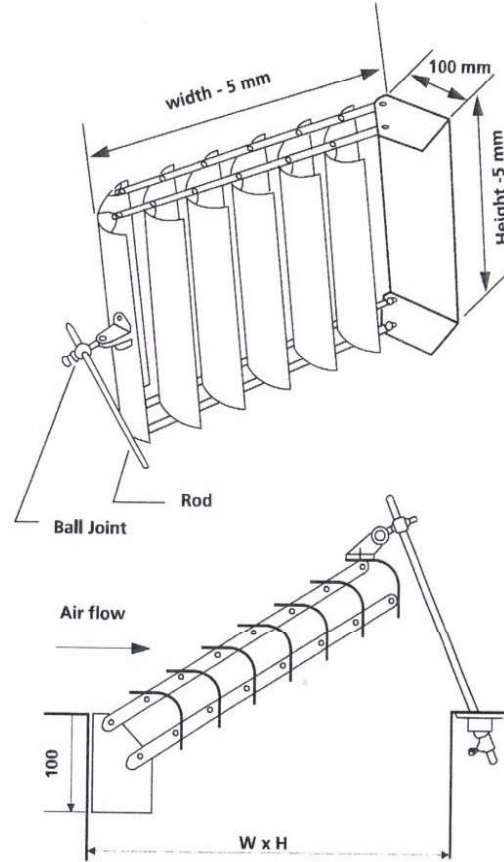


# AIR EXTRACTOR

## AE



### Dimensions



### Description

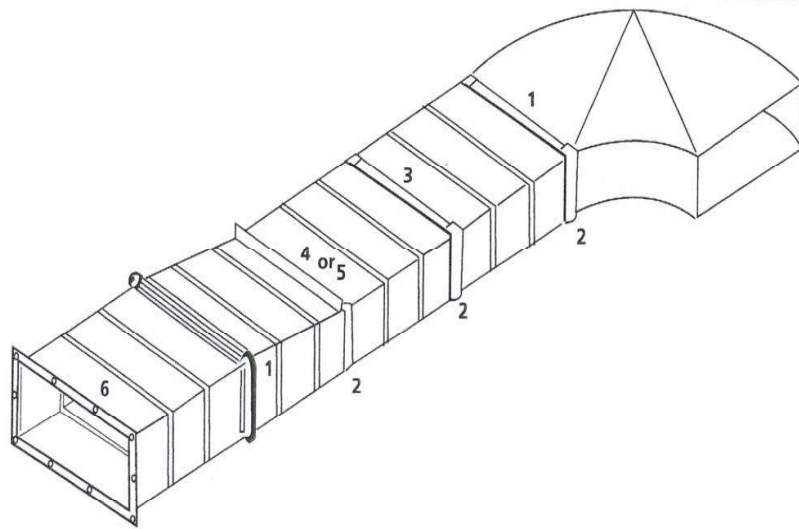
AE is using for extract and control air flow  
 Into take offs and minimizing air turning  
 Pressure losses.  
 Air extractor can be installed at main or  
 Branch duct

### Ordering

Product code

		<b>AE</b>	<b>aaa</b>	<b>bbb</b>
Type	_____			
W mm	_____			
H mm	_____			

# TRANSVER CONNECTOR



## TPC FLANGE



FLANGED (WITH GASKET) T-25a

1

## DRIVE SLIP & HEMMED "S" CLIP



Drive Slip

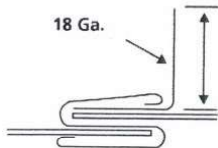
2



Hemmed "S" Slip

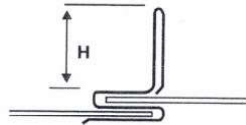
3

## Reinforced "S" Clip & Standing S



Reinforced "S" Slip

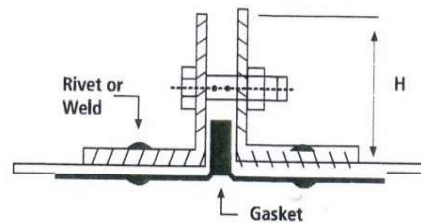
4



Standing S

5

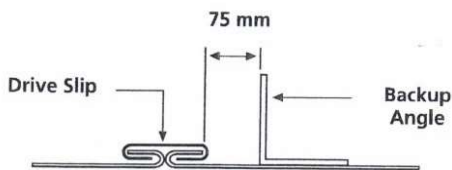
## Companion Angles



Companion Angles

6

## Backup angle for Drive Clip



Application		
Pressure Class	Duct Height	Backup Angles Size
2" W.G.	458-915	25x25x3mm
3" W.G.	458-559	25x25x3mm
4" W.G.	407-508	25x25x3mm



**Rectangular Ductwork Construction Schedule.**

**2" WG=500 Pascal pressure class- As per SMACNA 2005, 3rd Edition**



Max.Duct Dimension Mm (Inch)	Sheet Gauge.	Min. Sheet Thickness mm	Transverse Joint	Max. Distance Between Joint (mm)	Intermediate Reinforcement
0 – 250 (10")	24	0.6	Hemmed "S" clip Drive cleat	1200	None
251 – 450 (11" – 18")	24	0.6	Hemmed "S" clip Drive cleat	1200	None
451 – 700 (19" – 28")	24	0.6	Standing "S" Drive Cleat	1200	None
701 – 900 (29" – 36")	24	0.6	Standing "S Drive cleat with 25x25x3mm angle	1200	None
901 – 1200 (37" – 48")	22	0.8	Profile flange 35mm	1200	None
1201 – 1350 (49" – 54")	20	1.00	Profile Flange 35mm	1200	None
1351 – 1500 (55" – 60")	18	1.20	Profile Flange 35mm	1200	None
1501 – 2100 (61" – 84")	18	1.20	Companion Angle 50x50x5mm	1200	None
2101 – 2400 (85" – 96")	18	1.20	Companion Angle 50x50x5mm	1200	None
2401 – 2700 (97" – 108")	18	1.20	Companion Angle 50x50x5mm	1200	50x50x5mm Angle @600mm C-C
2701 – Above (109")	18	1.20	Companion Angle 50x50x5mm	1200	50x50x5mm Angle @600mm C-C

**Notes**

- 1 Above materials are made of galvanized steel G90/GSM 275, ASTM A653
- 2 Transverse duct connectors are based on max. 1220mm spacing
- 3 Plain sheet or stiffened sheet by means of beading shall be used
- 4 Duct size above 2500mm will be supplied in knockdown form and assembled at site by others



**Rectangular Ductwork Construction Schedule.**

**3" WG=750 Pascal pressure class- As per SMACNA 2005, 3rd Edition**



Max.Duct Dimension Mm (Inch)	Sheet Gauge.	Min. Sheet Thickness mm	Transverse Joint	Max. Distance Between Joint (mm)	Intermediate Reinforcement
0 – 250 (10")	24	0.6	Standing "S" clip Drive cleat	1200	None
251 – 450 (11" – 18")	24	0.6	Standing "S" clip Drive cleat	1200	None
451 – 550 (19" – 22")	24	0.6	Standing "S Drive cleat with 25x25x3mm angle	1200	None
551 – 750 (29" – 36")	24	0.6	Profile Flange 35mm	1200	None
751 – 900 (31" – 36")	22	0.8	Profile flange 35mm	1200	None
901 – 1050 (37" – 42")	22	0.8	Profile Flange 35mm	1200	None
1051 – 1200 (43" – 48")	20	1.00	Profile Flange 35mm	1200	None
1201 – 1500 (49" – 60")	18	1.20	Companion Angle 50x50x5mm	1200	None
1501 – 2400 (61" – 96")	18	1.20	Companion Angle 50x50x5mm	1200	50x50x5mm Angle @600mm C-C
2401 – Above (97")	18	1.20	Companion Angle 50x50x5mm	1200	50x50x5mm Angle @600mm C-C

**Notes**

- 1 Above materials are made of galvanized steel G90/GSM 275, ASTM A653
- 2 Transverse duct connectors are based on max. 1220mm spacing
- 3 Plain sheet or stiffened sheet by means of beading shall be used
- 4 Duct size above 2500mm will be supplied in knockdown form and assembled at site by others



**Rectangular Ductwork Construction Schedule.**

**4" WG=1000 Pascal pressure class- As per SMACNA 2005, 3rd Edition**



Max.Duct Dimension Mm (Inch)	Sheet Gauge.	Min. Sheet Thickness mm	Transverse Joint	Max. Distance Between Joint (mm)	Intermediate Reinforcement
0 – 400 (16")	24	0.6	Standing "S" clip Drive cleat	1200	None
401 – 500 (17" – 20")	24	0.6	Standing "S Drive cleat with 25x25x3mm angle	1200	None
501 – 750 (21" – 30")	24	0.6	Profile Flange 35mm	1200	None
751 – 900 (31" – 36")	22	0.8	Profile Flange 35mm	1200	None
901 – 1050 (37" – 42")	20	1.00	Profile flange 35mm	1200	None
1051 – 1350 (43" – 54")	18	1.2	Companion Angle 50x50x5mm	1200	None
1351 – 2100 (55" – 84")	18	1.20	Companion Angle 50x50x5mm	1200	50x50x5mm Angle @600mm C-C
2101 – 2400 (85" – 96")	18	1.20	Companion Angle 50x50x5mm	1200	50x50x5mm Angle @600mm C-C
2401 – Above (97")	18	1.20	Companion Angle 50x50x5mm + Tierod	1200	50x50x5mm Angle @600mm C-C

**Notes**

- 1 Above materials are made of galvanized steel G90/GSM 275, ASTM A653
- 2 Transverse duct connectors are based on max. 1220mm spacing
- 3 Plain sheet or stiffened sheet by means of beading shall be used
- 4 Duct size above 2500mm will be supplied in knockdown form and assembled at site by others





**Rectangular Ductwork Construction Schedule.**

**6" WG=1500 Pascal pressure class- As per SMACHNA 2005, 3rd Edition**



Max.Duct Dimension Mm (Inch)	Sheet Gauge.	Min. Sheet Thickness mm	Transverse Joint	Max. Distance Between Joint (mm)	Intermediate Reinforcement
0 – 500 (22")	24	0.6	Profile Flange 35mm	1200	None
551 – 650 (23" – 26")	22	0.8	Profile Flange 35mm	1200	None
651 – 750 (27" – 30")	22	0.8	Profile Flange 35mm	1200	None
751 – 900 (31" – 36")	20	1.00	Profile Flange 35mm	1200	None
901 – 1200 (37" – 48")	18	1.20	Companion Angle 50x50x5mm	1200	None
1201 – 1500 (49" – 60")	18	1.20	Companion Angle 50x50x5mm	1200	50x50x5mm Angle + Tie rod @600mm C-C
1501 – 2100 (61" – 84")	18	1.20	Companion Angle 50x50x5mm	1200	50x50x5mm Angle + Tie rod @600mm C-C
2101 – 2700 (85" – 108")	18	1.20	Companion Angle 50x50x5mm + Tierod	1200	50x50x5mm Angle + Tie rod @600mm C-C
2401 – Above (109")	18	1.20	Companion Angle 50x50x5mm + Tierod	1200	50x50x5mm Angle + Tie rod @600mm C-C

**Notes**

- 1 Above materials are made of galvanized steel G90/GSM 275, ASTM A653
- 2 Transverse duct connectors are based on max. 1220mm spacing
- 3 Plain sheet or stiffened sheet by means of beading shall be used
- 4 Duct size above 2500mm will be supplied in knockdown form and assembled at site by others



**Rectangular Ductwork Construction Schedule.**

**10" WG=2500 Pascal pressure class- As per SMACNA 2005, 3rd Edition**



Max.Duct Dimension Mm (Inch)	Sheet Gauge.	Min. Sheet Thickness mm	Transverse Joint	Max. Distance Between Joint (mm)	Intermediate Reinforcement
0 – 300 (12")	24	0.60	Profile Flange 35mm	1200	None
301 – 400 (13" – 16")	22	0.80	Profile Flange 35mm	1200	None
401 – 500 (17" – 20")	20	1.00	Profile Flange 35mm	1200	None
501 – 550 (21" – 22")	20	1.00	Profile Flange 35mm	1200	None
501 – 650 (23" – 26")	20	1.00	Profile Flange 35mm	1200	None
651 – 700 (27" – 28")	18	1.20	Companion Angle 40x40x3mm	1200	None
701 – 900 (29" – 36")	18	1.20	Companion Angle 50x50x5mm	1200	None
901 – 1350 (37" – 54")	18	1.20	Companion Angle 50x50x5mm	1200	50x50x5mm Angle + Tie rod @600mm C-C
1351 – 1500 (55" – 60")	18	1.20	Companion Angle 50x50x5mm	1200	50x50x5mm Angle + Tie rod @600mm C-C
1501 – 1800 (61" – 72")	18	1.20	Companion Angle 50x50x5mm + Tierod	1200	50x50x5mm Angle + Tie rod @600mm C-C
1801 – Above (73")	16	1.50	Companion Angle 50x50x5mm + Tierod	1200	50x50x5mm Angle + Tie rod @600mm C-C

**Notes**

- 1 Above materials are made of galvanized steel G90/GSM 275, ASTM A653
- 2 Transverse duct connectors are based on max. 1220mm spacing
- 3 Plain sheet or stiffened sheet by means of beading shall be used
- 4 Duct size above 2500mm will be supplied in knockdown form and assembled at site by others.

