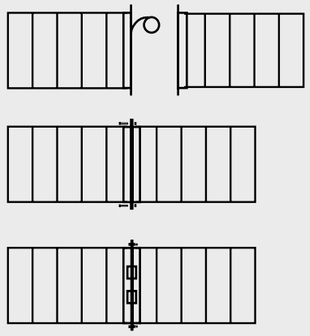
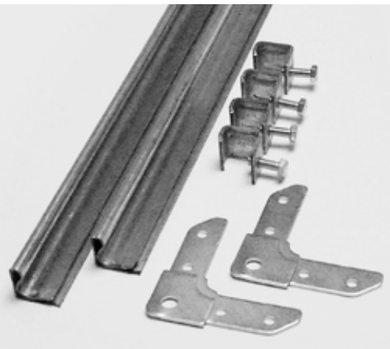
RECTANGULAR DUCT & FITTINGS

ASSEMBLY INSTURCTIONS





Description

SAFID Rectangular Duct and Fittings must be assembled according to these instructions:

Before Assembly
The duct must be free from dirt.

Assembly of Instructions

- Only use undamaged SAFID rectangular duct and fittings.

- Apply continuous gasket to effectively seal flanges and corners.

- Fasten the duct and fitting together with bolts and nuts at four corners.

- Mating flanges shall be locked together by duct clamps spaced at centers not exceeding 200mm.

The following number of duct clamps are recommended for the respective dimensions:

Duct Dimension mm	Number
0-200	0
250-400	1
450-600	2
650-800	3
850-1000	4
1500-1200	5
1250-1400	6
1450-1600	7
1650-1800	8
1850-2000	9
2050-2200	10

STRAIGHT DUCTS

Description

SAFID's single wall rectangular duct and fittings are factory fabricated and supplied with factory applied sealant on all longitudinal joints for S & Drive slip ducts and additionally on transverse joints for all flanged end ducts and fittings.

SAFID's rectangular ducts can be supplied in either fully assembled form or knocked down form for straight ducts (minimum requirement for assembly of straight ducts on site) while fittings will be delivered fully assembled with factory applied sealant.

SAFID's rectangular duct line can be supplied in various materials:

- **G** - Galvanized Steel (in accordance with ASTM 653, G90 coating)
- **H** - Stainless Steel (in accordance with ASTM A240/480 and various material grades)
- **A** - Aluminum Metal (in accordance with ASTM B209, type alloy 3003, H14)
- **P** - Painted Galvanized Steel (as G, but with various paint system i.e. epoxy)

Ordering

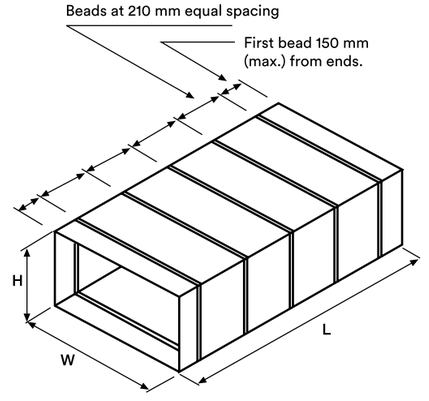
Product Code: SD - aaa - bbb - ccc

Type
W mm
H mm
L mm

Dimensions

All straight ducts are beaded or cross broken (except if ducts are double wall, internally lined, or gauge 18 and heavier). All fittings are cross broken from size 483 mm and above, or beaded on all sizes.

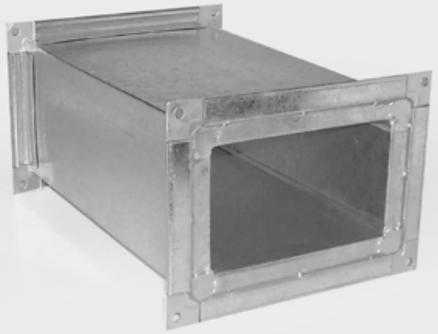
Standard Duct Length: 1200 mm (4 feet)



Beaded Duct

LINED DUCTS

SDL



Description

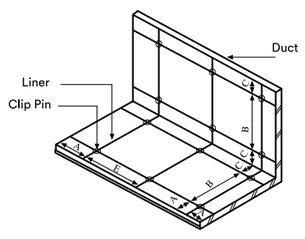
SAFID's lined rectangular duct and fittings are available with an insulating liner faced with a strong, dimensionally stable black Woven Fiber Fabric (WGF) to protect against erosion and microbial growth. This acoustic/thermal liner can be used with air velocities up to 5,000 fpm.

Standard Duct Length: 1200 mm (4 feet)

Standard Acoustic/Thermal Insulation: 25mm, 48 kg/m³, WGF facing. Other thicknesses and densities can be supplied on request.

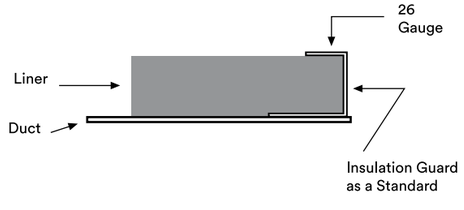
Insulation Edge Coverings: all insulation edges are covered by galvanized steel channels fixed to duct.

Dimensions



Velocity	Dimensions			
	A	B	C	E
2500 - 0 fpm	76	305	102	457
5000 - 2501 fpm	76	152	102	406

Liner bonded to duct with adhesive and welding pins at approximate centers as shown.



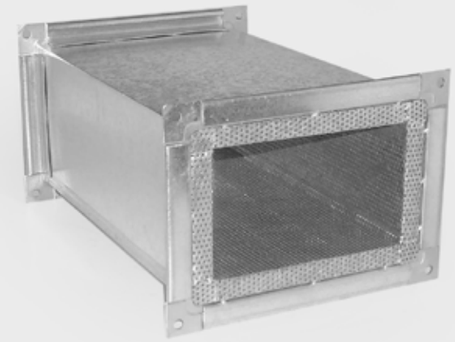
Liner to be 48 kg/m³ (3 lbs/ft³) density, 25 mm thick, unless otherwise specified.

Ordering

Product Code: SDL - aaa - bbb - ccc

- Type
- W mm
- H mm
- L mm

SDS



Description

SAFID's double wall rectangular duct and fittings provide exceptional noise control in air distribution systems. This double wall, insulated ductwork is constructed of solid metal outer shell and perforated inner shell with a layer of acoustic insulation sandwiched in-between.

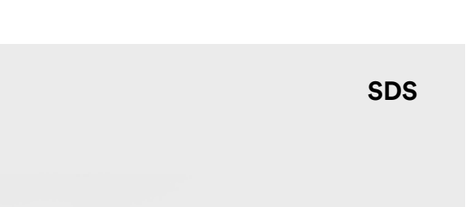
Our standard construction consists of: galvanized steel with a galvanized perforated inner wall and standard acoustic, thermal insulation of 25 mm thickness, 48 kg/m³ density with WGF facing.

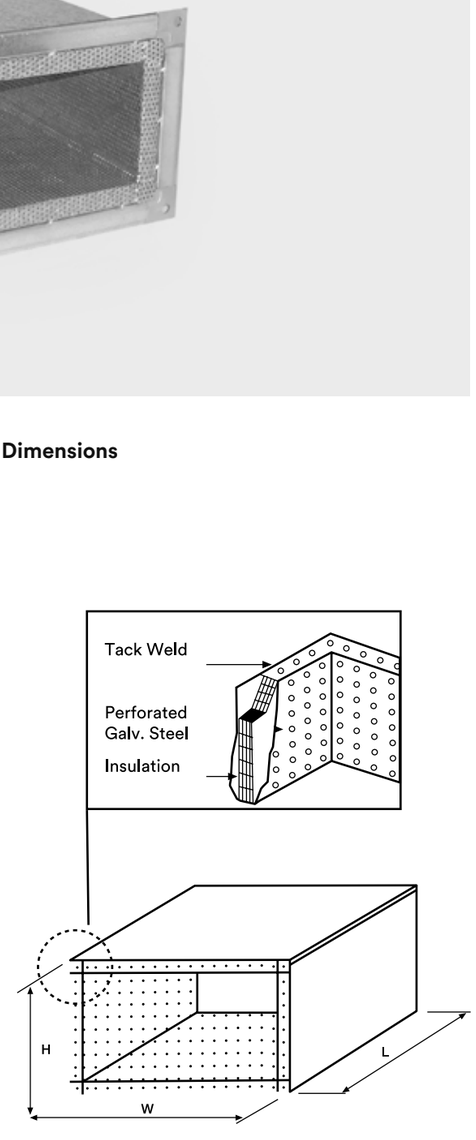
Other types of insulation material, density & thickness are available.

The outer shell can be supplied in galvanized steel, stainless steel, black steel, aluminum or painted steel while for the inner perforated shell only in galvanized steel or black steel.

Standard Duct Length: 1200 mm (4 feet)

Dimensions





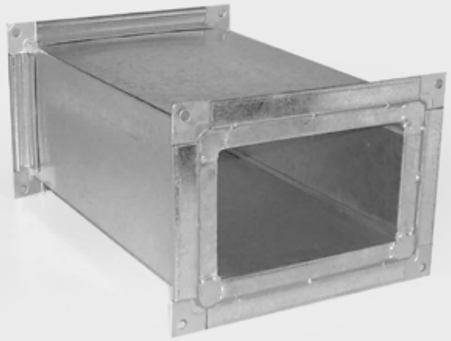
Ordering

Product Code: SDS - aaa - bbb - ccc

- Type
- W mm
- H mm
- L mm

DOUBLE WALL THERMAL DUCTS

SDT



Description

SAFID's double wall rectangular duct and fittings provide exceptional thermal control in air distribution systems and is ideal for external and roof ducts applications.

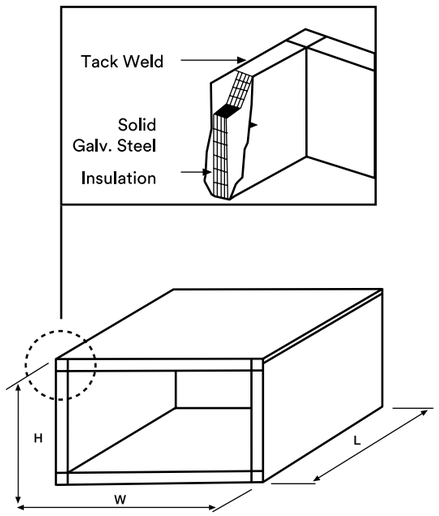
This double wall, insulated ductwork is constructed of solid metal outer shell and solid inner shell with a layer of insulation sandwiched in-between.

Our standard construction consists of: galvanized steel (solid) inner and outer shell, several types of insulation material, densities and thicknesses are available.

The outer and inner shell can be supplied in galvanized steel, black steel, aluminum, stainless steel and painted steel.

Standard Duct Length: 1200 mm (4 feet)

Dimensions

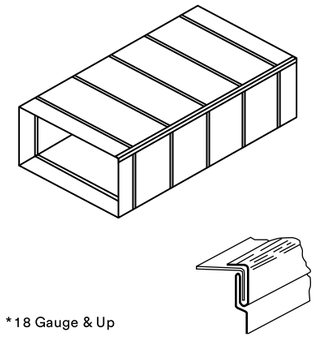


Ordering

Product Code: SDT - aaa - bbb - ccc

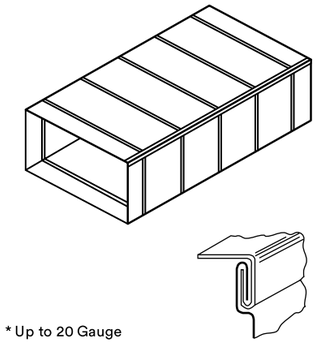
Type
W mm
H mm
L mm

Pittsburgh Lock



*18 Gauge & Up

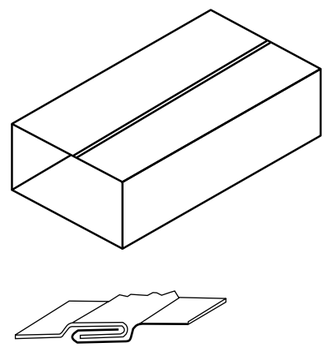
Double Corner Seam



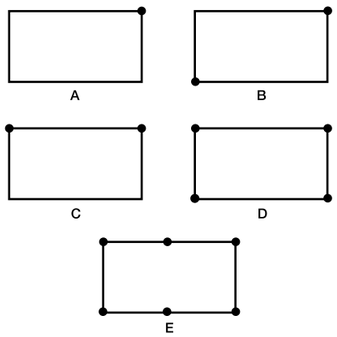
* Up to 20 Gauge

Grooved Seam

For Ducts Length L > 1200 mm



Seam Location



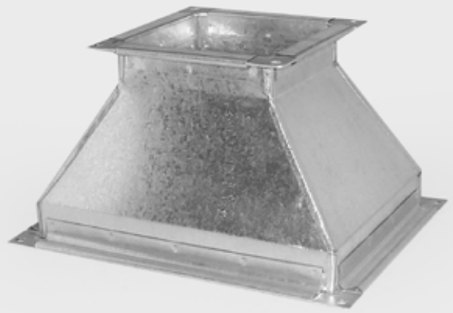
Seam Location

* Seam numbers and locations vary according to joint type and size.

REDUCER

سافيد SAFID

RED



Description

Reducer

Dimensions

Ordering

Product Code: RED - aaa - bbb - ccc - ddd - eee

- Type
- W_1 mm
- H_1 mm
- W_2 mm
- H_2 mm
- L mm

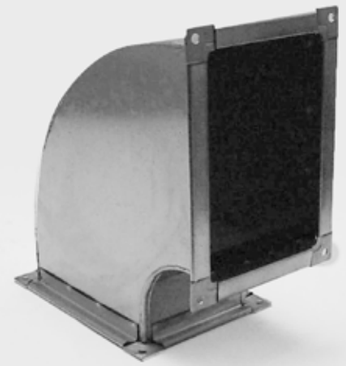
***All fittings are available with acoustic lining or double wall construction.**

سافيد SAFID

RADIUS BEND

SAFID RECTANGULAR

RE

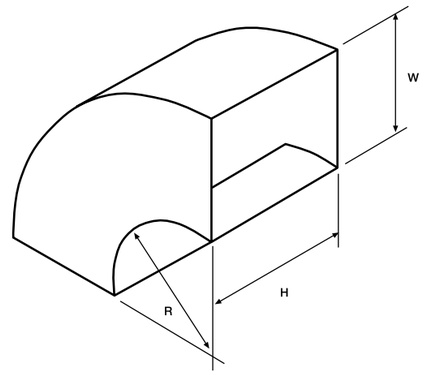


Description

Radius Bend without Splitter Vanes

Where the throat radius is equal to width (R = W).

Dimensions



Ordering

Product Code: RE - aaa - bbb - ccc

- Type
- W mm
- H mm
- R mm

***R = W**

***All fittings are available with acoustic lining or double wall construction.**

RECTANGULAR DUCT & FITTINGS

RADIUS BEND WITH SPLITTER VANES

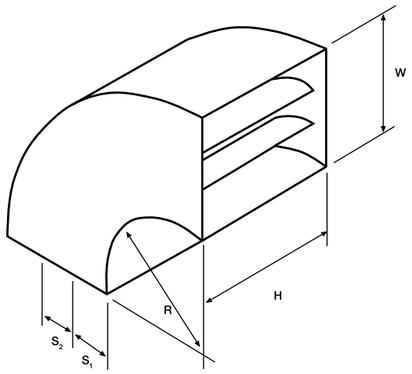
REV

Description

Radius Bend with Splitter Vanes

Where the throat radius is less than the width (R < W).

Dimensions



***All fittings are available with acoustic lining or double wall construction.**

Ordering

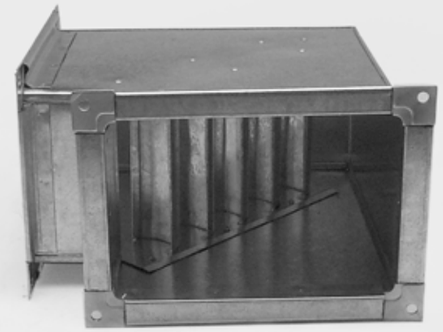
Product Code: REV - aaa - bbb - ccc - S1 - S2

- Type
- W mm
- H mm
- R mm
- Splitter Vane 1 mm
- Splitter Vane 2 mm

***For splitter vanes, please see page 230.**

SQUARE THROAT BEND WITH TURNING VANES

SQ

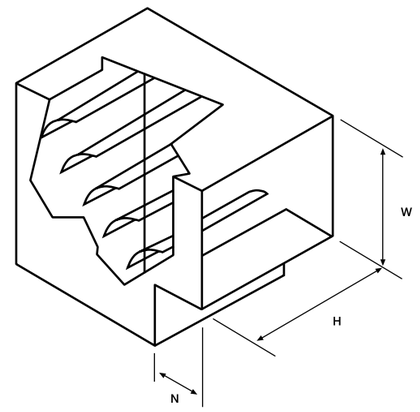


Description

Square Throat with Turning Vanes

Standard Square Throat Length (N): 100 mm

Dimensions



Ordering

Product Code: SQ - aaa - bbb - ccc

- Type
- W mm
- H mm
- R mm

N = Throat (SAFID's standard is 100 mm but can vary)

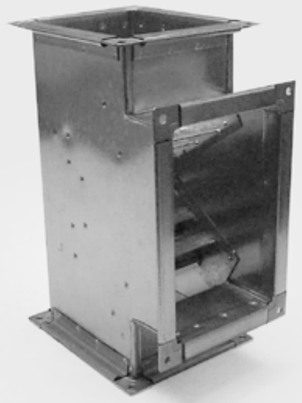
***For turning vanes, please see page 229.**

***All fittings are available with acoustic lining or double wall construction.**

TEE

سـافيد SAFID

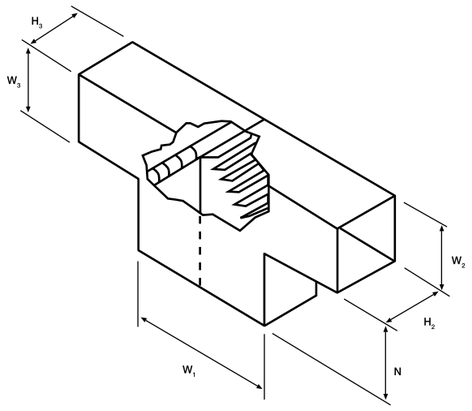
TSR



Description

Tee

Dimensions



Ordering

Product Code: TSR - aaa - bbb - ccc - ddd - eee - fff - ggg

- Type
- W_1 mm
- H_1 mm
- W_2 mm
- H_2 mm
- W_3 mm
- H_3 mm
- *N= Throat, Safid Standard is 100 mm but can vary

***For splitter vanes, please see page 229.**

***All fittings are available with acoustic lining or double wall construction.**

سـافيد SAFID

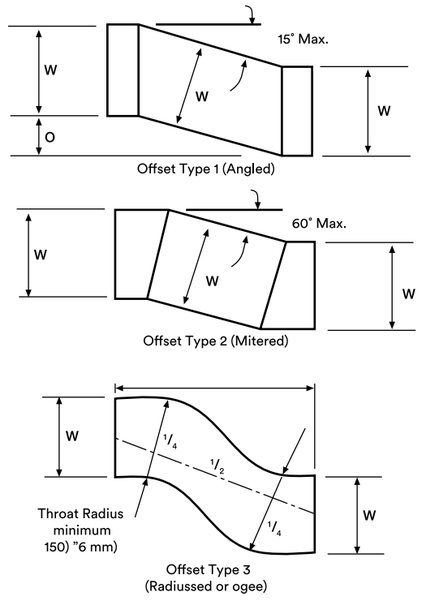
OFFSET

OFF

Description

Offset

Dimensions



Ordering

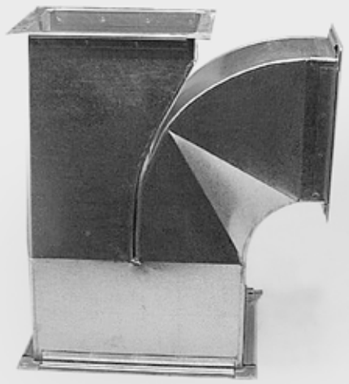
Product Code: OFF - aaa - bbb - ccc - ddd

- Type
- W mm
- H mm
- O mm
- L mm

***All fittings are available with acoustic lining or double wall construction.**

R-FITTING

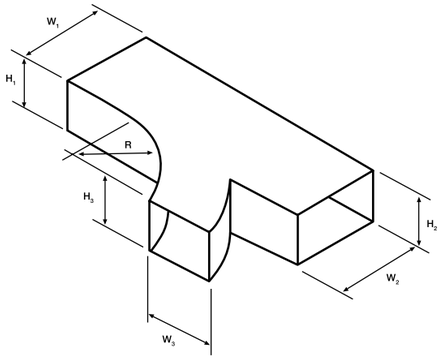
RF



Description

R-Fitting or Parallel Flow Branches

Dimensions



Ordering

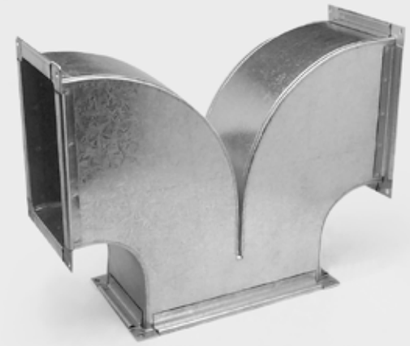
Product Code: RF - aaa - bbb - ccc - ddd - eee - fff - ggg

- Type
- W_1 mm
- H_1 mm
- W_2 mm
- H_2 mm
- W_3 mm
- H_3 mm
- R mm

***Can be supplied with splitter damper upon request.**
***All fittings are available with acoustic lining or double wall construction.**

SPLIT BEND

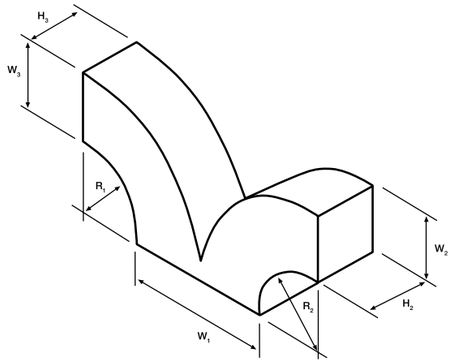
SE



Description

Split Bend

Dimensions



Ordering

Product Code: SE - aaa - bbb - ccc - ddd - eee - fff - ggg - hhh

- Type
- W_1 mm
- H_1 mm
- W_2 mm
- H_2 mm
- W_3 mm
- H_3 mm
- R_1 mm
- R_2 mm

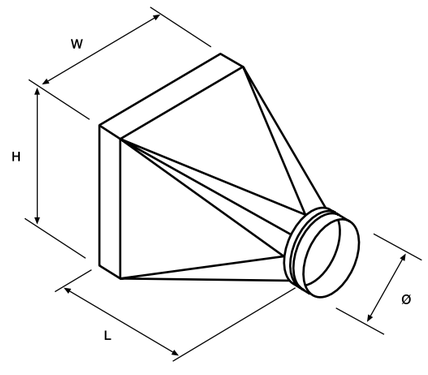
***Can be supplied with splitter damper upon request.**
***All fittings are available with acoustic lining or double wall construction.**

RECTANGULAR TO ROUND TRANSITION

سـافيد SAFID

TRANS

Description	Dimensions
Rectangular to Round Transition	



***All fittings are available with acoustic lining or double wall construction.**

Ordering

Product Code: TRANS - aaa - bbb - ccc - ddd

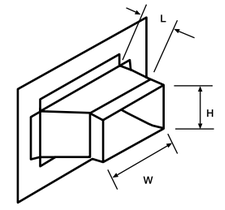
Type
W mm
H mm
ø mm
L mm

سـافيد SAFID

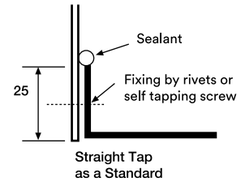
BRANCH CONNECTION - TAKE OFF

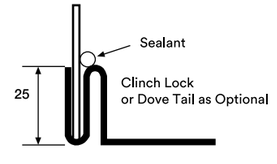
TO 45°

Description	Dimensions
45° Rectangular Branch Connection - Take Off	



$L = {}^{1}/_{4}$ W, Min. 100 mm





***Application of sealant after installation is recommended.**

***Can be supplied with a splitter damper upon request.**

***All fittings are available with acoustic lining or double wall construction.**

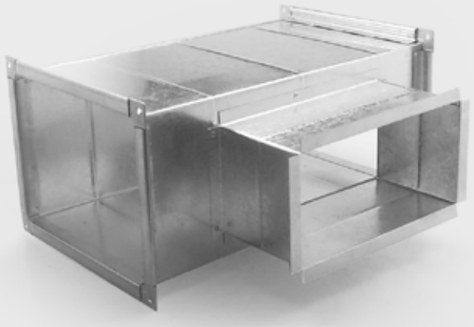
Ordering

Product Code: TO/45° - aaa - bbb - ccc

Type
W mm
H mm
L mm

BRANCH CONNECTION - TAKE OFF

TO 90°



Description

90° Rectangular Branch Connection - Take Off

Dimensions

L = 100 mm

Straight Tap
as a Standard

***Application of sealant after installation is recommended.**

***Can be supplied with a splitter damper upon request.**

***All fittings are available with acoustic lining or double wall construction.**

Ordering

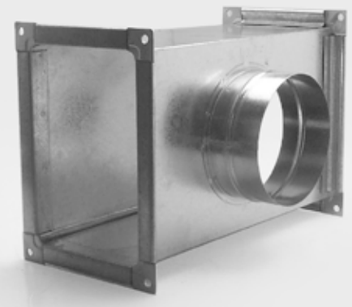
Product Code: TO/90° - aaa - bbb - ccc

- Type
- W mm
- H mm
- L mm

SAFID RECTANGULAR
RECTANGULAR DUCT & FITTINGS

BRANCH CONNECTION - TAKE OFF

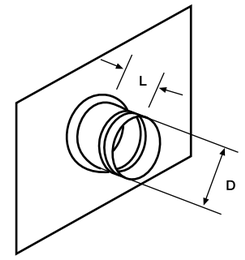
LYT



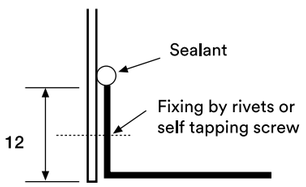
Description

90° Round Branch Connection - Take Off [Flanged]

Dimensions



L = 85 mm



Flanged

***Application of sealant after installation is recommended.**

***For "D" dimensions, please see the Flexible Duct catalogue or the Round Duct and Fittings catalogue for spiral duct dimensions.**

***All fittings are available with acoustic lining or double wall construction.**

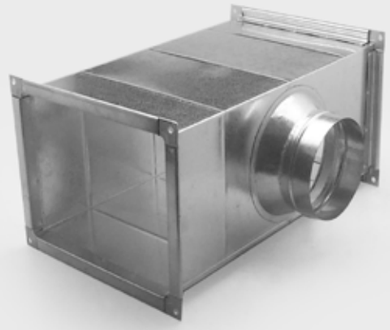
Ordering

Product Code: LYT - aaa

- Type
- D mm

BRANCH CONNECTION - TAKE OFF

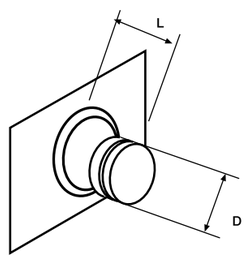
LKT



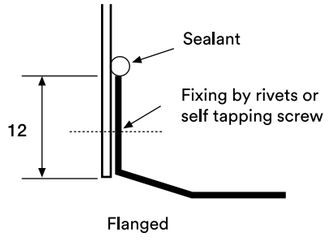
Description

90° Round Branch Connection - Take Off [Conical]

Dimensions



L = 118 mm



Flanged

***Application of sealant after installation is recommended.**

***For "D" dimensions, please see the Flexible Duct catalogue or the Round Duct and Fittings catalogue for spiral duct dimensions.**

***All fittings are available with acoustic lining or double wall construction.**

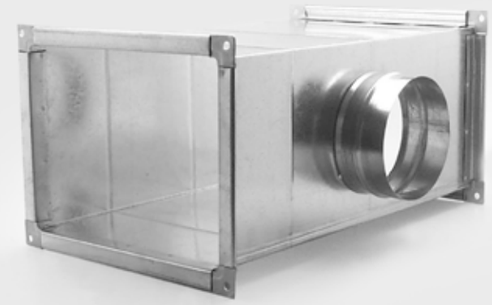
Ordering

Product Code: LKT - aaa

Type

D mm

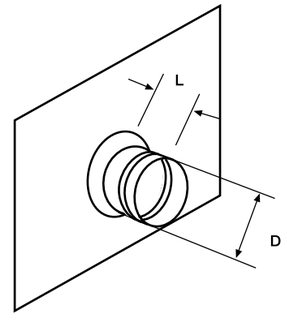
SFL



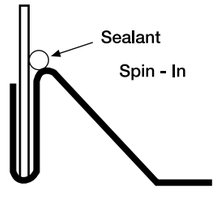
Description

Round Branch Connection - Take Off [Spin In]

Dimensions



L = 85 mm



***Application of sealant after installation is recommended.**

***For 'D' dimensions, please see the Flexible Duct catalogue or the Round Duct and Fittings catalogue for spiral duct dimensions.**

***All fittings are available with acoustic lining or double wall construction.**

Ordering

Product Code: SFL - aaa

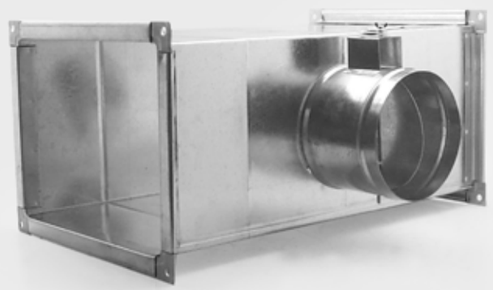
Type

D mm

BRANCH CONNECTION - TAKE OFF

سـافيد SAFID

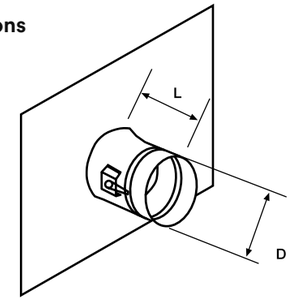
SFLD

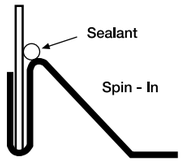


Description

Round Branch Connection - Take Off [Spin In with Damper]

Dimensions





Standard Dimensions	
Dia. Range (D) (mm)	Length (L) (mm)
80 - 315	150

***Application of sealant after installation is recommended.**

***For Pressure Loss and Installation Details, please see page 226.**

***All fittings are available with acoustic lining or double wall construction.**

Ordering

Product Code: SFLD - aaa

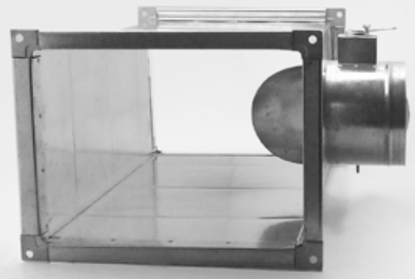
Type

D mm

سـافيد SAFID

BRANCH CONNECTION - TAKE OFF

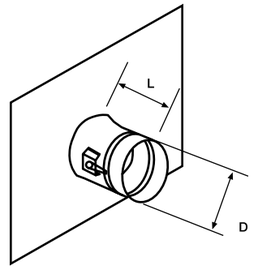
SFLDE

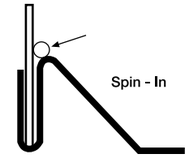


Description

Round Branch Connection - Take Off [Spin In with Damper and Scoop]

Dimensions





Standard Dimensions	
Dia. Range (D) (mm)	Length (L) (mm)
80 - 315	150

***Application of sealant after installation is recommended.**

***For Pressure Loss and Installation Details, please see page 226.**

***All fittings are available with acoustic lining or double wall construction.**

Ordering

Product Code: SFLDE - aaa

Type

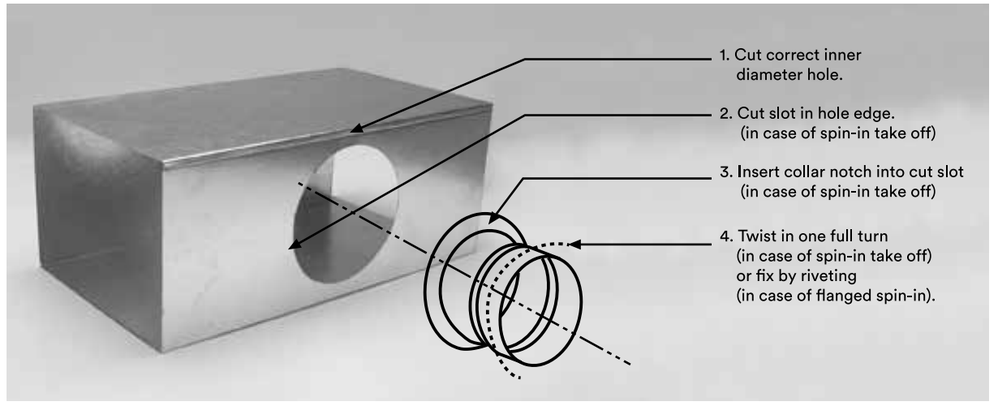
D mm

SAFID RECTANGULAR

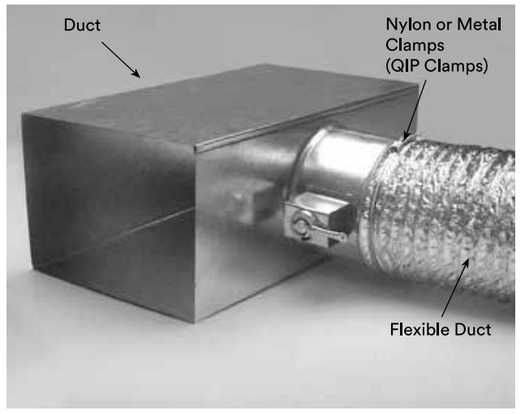
RECTANGULAR DUCT & FITTINGS

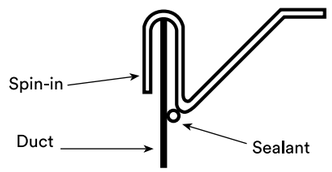
BRANCH CONNECTION - TAKE OFF

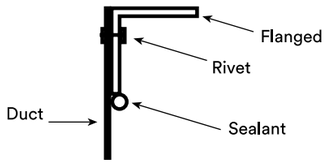
Installation Instructions



Installation Details: Spin In and Flanged Take Off

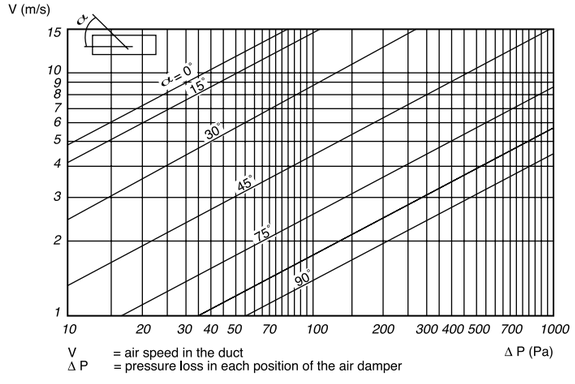






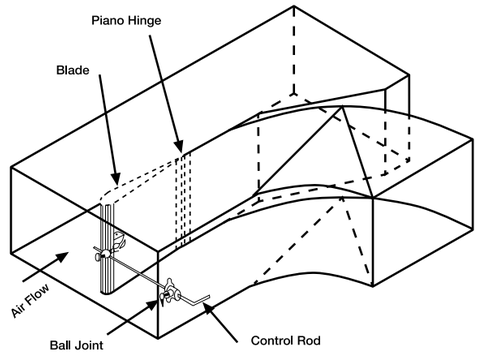
Technical Data

Pressure Loss

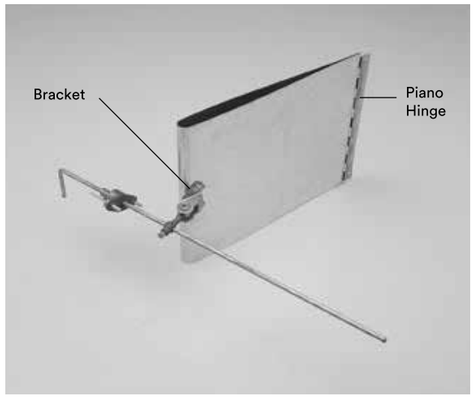


SPLITTER DAMPER

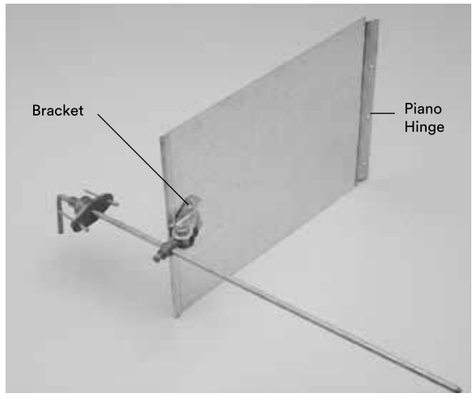
SPL



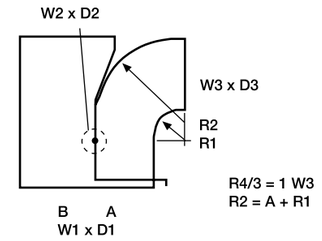
Aerofoil Blade Splitter Damper



Single Blade Splitter Damper (Standard)



Dimensions



Splitter Damper Length is Equal to 1.5 A

Where: A = 100 mm Min.

Trunk may be divided using:

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

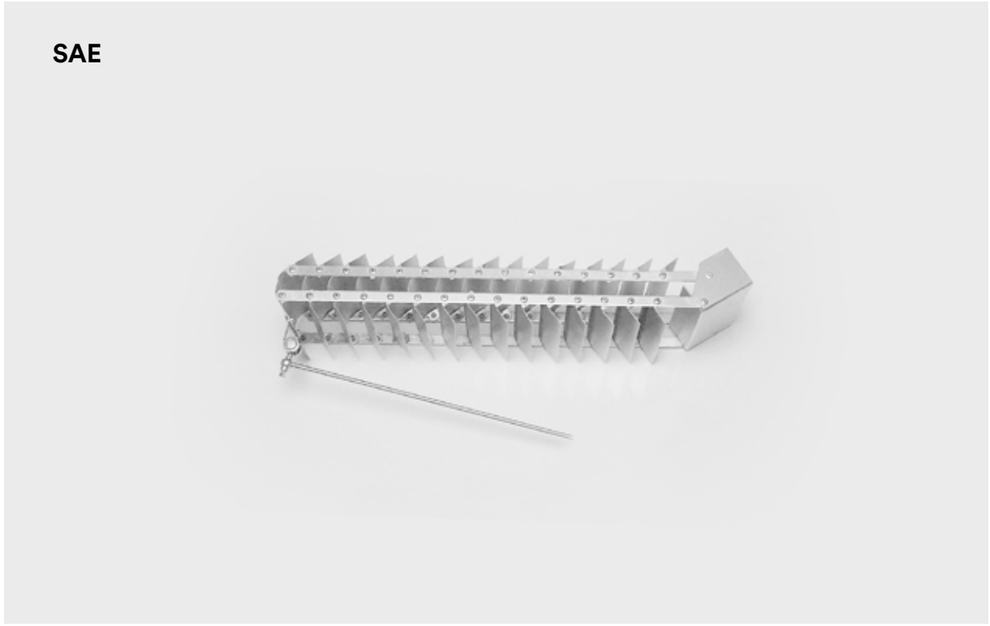
$$B = \left[\frac{(W2 \times D2)}{(W2 \times D2) + (W3 \times D3)} \right] W1$$

One rod up to 610 mm depth (D_1)
Two rods 635 mm to 1525 mm (D_1)
Three rods above 1525 mm depth (D_1)

AIR EXTRACTOR

سـافيد SAFID

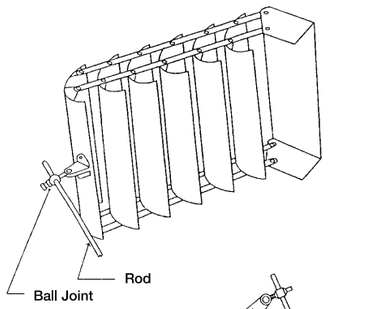
SAE

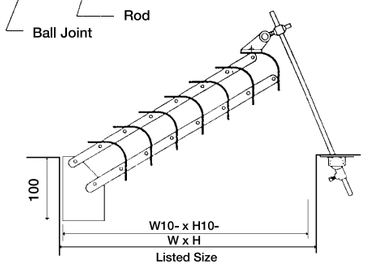


Description

Air Extractor

Dimensions





Ordering

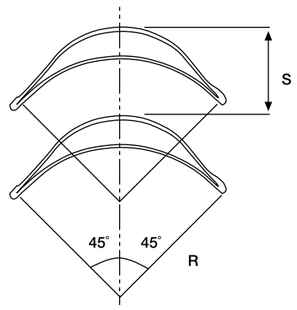
Product Code: SAE - aaa - bbb

Type
W mm
H mm

TURNING VANES

سـافيد SAFID

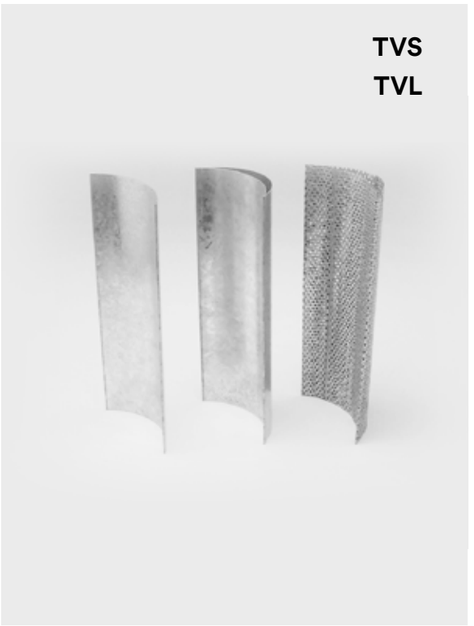
Dimensions



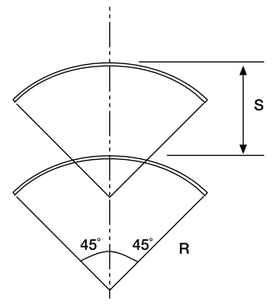
Duct Size	Double Vane Schedule			
	Type	R	S	Ga
1000-0	Small	50	54	26
1000 Up	Large	115	83	24

* 1500 Up Segmented

TVS
TVL



Dimensions

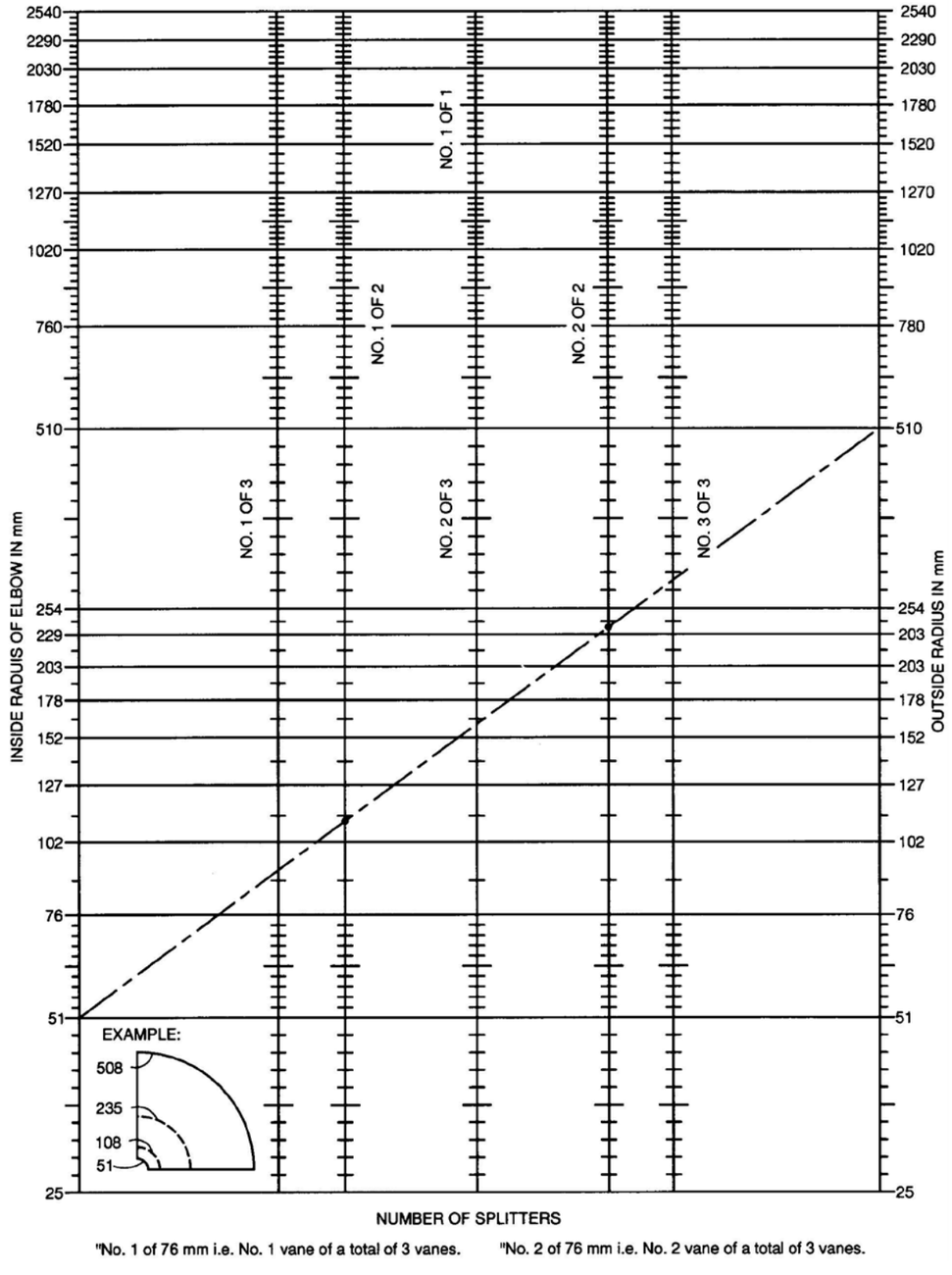


Duct Size	Single Vane Schedule			
	Type	R	S	Ga
900-0	Small	50	38	24
900 Up	Large	115	83	22

* 1500 Up Segmented

SPLITTER VANES

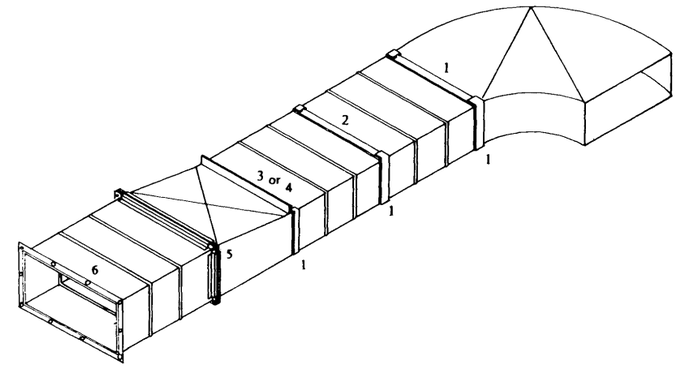
Number of Splitter Vanes for Bends



"No. 1 of 76 mm i.e. No. 1 vane of a total of 3 vanes. "No. 2 of 76 mm i.e. No. 2 vane of a total of 3 vanes.

CHART 4–1M NUMBER OF SHORT RADIUS VANES

Transverse Joints



Drive Slip & Hemmed “S” Slip

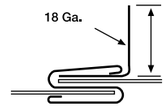
Drive Slip

1

Hemmed "S" Slip

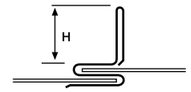
2

Reinforced “S” Slip & Standing S



Reinforced "S" Slip

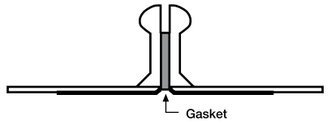
3



Standing S

4

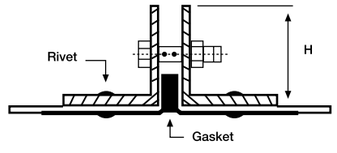
Slide on Flange: SAF - 30



Flange - SAF - 30

5

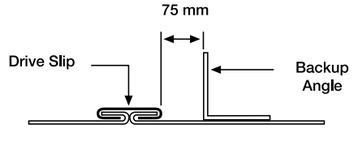
Companion Angles



Companion Angles

6

Backup Angle for Drive Slip

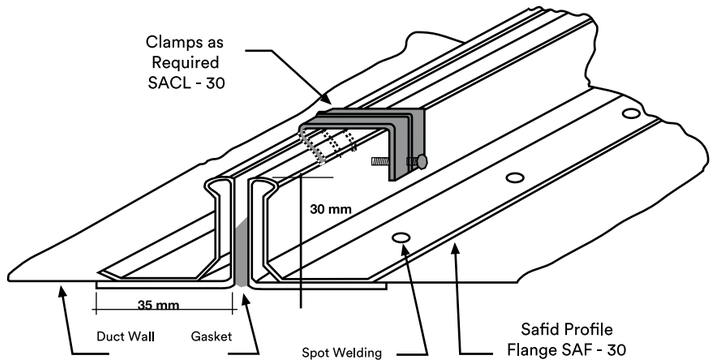


Applications

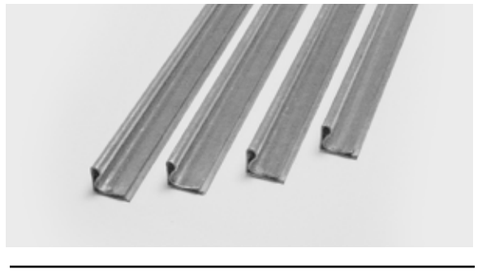
Pressure Class	Duct Height	Backup Angle Size
2” W.G.	458 - 915	25×25×3 mm
3” W.G.	458 - 559	25×25×3 mm
4” W.G.	407 - 508	25×25×3 mm

GASKETS I BOLTS AND NUTS

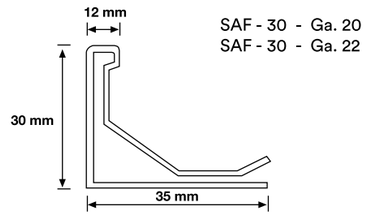
SAF - 30 Flange Joint System



Slide on Flange: SAF 30

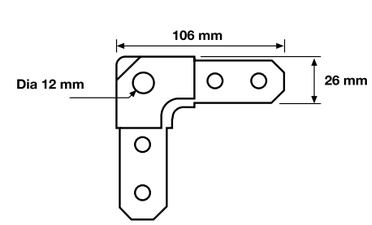


Dimensions



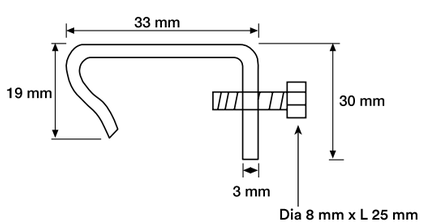
Corner Piece: SACP - 30

Dimensions

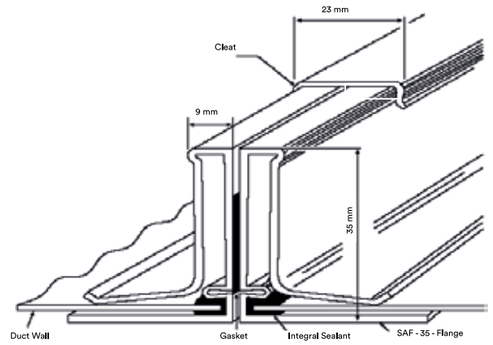


Clamp: SACL - 30, SACL - 35

Dimensions

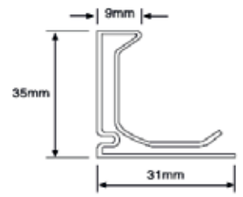


SAF - 35 Flange Joint System



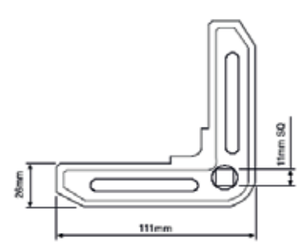
Slide on Flange: SAF - 35

Dimensions



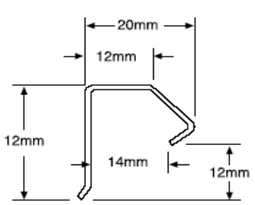
Corner Piece: SACP - 35

Dimensions



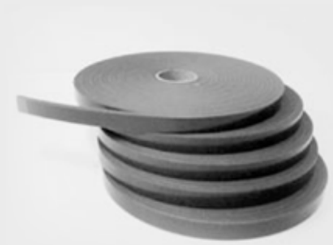
Cleat

Dimensions



GASKETS I BOLTS AND NUTS

GT - Tape



Description

The Gasket Tape (GT) is manufactured out of polyethelene foam with one side self adhesive and is appropriate for longlife in combination with a high air humidity and chemical inertness.

Standard Length: 10 meters per roll

Type & Size:

GT 4/12 mm: 4 mm thickness, 12 mm width (10 rolls per bag)
GT 6/19 mm: 6 mm thickness, 19 mm width (10 rolls per bag)

ET

Description

ET is an EPDM/Neoprene modified elastomeric closed cell self-adhesive foam gasket tape for cooling and heating air duct connections to prevent air leakage, reduce vibration/ noise and also serves as thermal insulation to prevent condensation and heat transfer. With acrylic pressure sensitive adhesive. ET is easily installed on the surfaceof the connection joint.

Standard Length: 10 meters per roll

Type & Size:

ET052010: 5 mm thickness, 20 mm width

Bolts and Nuts

Description

Bolts and Nuts are built of galvanized steel hexagonal cap screw full thread with galvanized hexagonal nut.

Bolts: M10 x 30 mm
Nuts: M10

DUCTWORK CONSTRUCTION SCHEDULE

Table 1-1: 2” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 457	26	Double Corner Seam	Not Required	Slide on Flange (SAF-20/25/30/35)
458 - 914	24	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
915 - 1219	22	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1220 - 1524	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1525 - 1829	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-40/45)
1830 - 2438	18	Pittsburgh Lock Seam	40x40x4 mm Angle @ 600 mm max. c-c	Slide on Flange (SAF-40/45)
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2744 - 3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm

DUCTWORK CONSTRUCTION SCHEDULE

Table 1-2: 2” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 305	26	Double Corner Seam	Not Required	Hemmed “S” Slip Drive Slip (24 Ga.)
306 - 457	26	Double Corner Seam	Not Required	Slide on Flange (SAF-20/25/30/35)
458 - 914	24	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
915 - 1219	22	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1220 - 1524	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1525 - 1829	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-40/45)
1830 - 2438	18	Pittsburgh Lock Seam	40x40x4 mm Angle @ 600 mm max. c-c	Slide on Flange (SAF-40/45)
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2744-3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm

DUCTWORK CONSTRUCTION SCHEDULE

Table 1-3: 2” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 305	26	Double Corner Seam	Not Required	Hemmed “S” Slip Drive Slip (24 Ga.)
306 - 457	26	Double Corner Seam	Not Required	Reinforced “S” Slip with 25x25x16 Ga. Drive Slip (24 Ga.)
458 - 914	24	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
915 - 1219	22	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1220 - 1524	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1525 - 1829	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-40/45)
1830 - 2438	18	Pittsburgh Lock Seam	40x40x4 mm Angle @ 600 mm max. c-c	Slide on Flange (SAF-40/45)
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2744-3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm

SAFID RECTANGULAR
RECTANGULAR DUCT & FITTINGS

DUCTWORK CONSTRUCTION SCHEDULE

Table 1-4: 2” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 457	26	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
458 - 914	24	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
915 - 1067	22	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
1068 - 1219	22	Double Corner Seam	Not Required	Companion Angle 40x40x4 mm
1220 - 1524	20	Double Corner Seam	Not Required	Companion Angle 40x40x4 mm
1525 - 2134	18	Pittsburgh Lock Seam	Not Required	Companion Angle 50x50x5 mm
2135 - 2438	18	Pittsburgh Lock Seam	Not Required	Companion Angle 50x50x5 mm
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2744 - 3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm

DUCTWORK CONSTRUCTION SCHEDULE

Table 2-1: 3” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 457	24	Double Corner Seam	Not Required	Slide on Flange (SAF-20/25/30/35)
458 - 762	24	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
763 - 1067	22	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1068 - 1219	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1220 - 1829	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-40/45)
1830 - 2438	18	Pittsburgh Lock Seam	40x40x4 mm Angle @ 600 mm max. c-c	Slide on Flange (SAF-40/45)
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2744 - 3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm

SAFID RECTANGULAR
RECTANGULAR DUCT & FITTINGS

DUCTWORK CONSTRUCTION SCHEDULE

سـافيد SAFID

Table 2-2: 3" W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 305	24	Double Corner Seam	Not Required	Hemmed "S" Slip Drive Slip (24 Ga.)
306 - 457	24	Double Corner Seam	Not Required	Slide on Flange (SAF-20/25/30/35)
458 - 762	24	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
763 - 1067	22	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1068 - 1219	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1220 - 1829	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-40/45)
1830 - 2438	18	Pittsburgh Lock Seam	40x40x4 mm Angle @ 600 mm max. c-c	Slide on Flange (SAF-40/45)
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2744 - 3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm

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DUCTWORK CONSTRUCTION SCHEDULE

Table 2-3: 3" W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 305	24	Double Corner Seam	Not Required	Hemmed "S" Slip Drive Slip (24 Ga.)
306 - 457	24	Double Corner Seam	Not Required	Reinforced "S" Slip with 25x25x16 Ga. Drive Slip (24 Ga.)
458 -762	24	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
763 - 1067	22	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1068 - 1219	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1220 - 1829	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-40/45)
1830 - 2438	18	Pittsburgh Lock Seam	40x40x4 mm Angle @ 600 mm max. c-c	Slide on Flange (SAF-40/45)
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2744-3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm

SAFID RECTANGULAR
RECTANGULAR DUCT & FITTINGS

DUCTWORK CONSTRUCTION SCHEDULE

Table 2-4: 3” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 305	24	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
306 - 762	24	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
763 - 914	22	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
915 - 1067	22	Double Corner Seam	Not Required	Companion Angle 40x40x4 mm
1068 - 1219	20	Double Corner Seam	Not Required	Companion Angle 40x40x4 mm
1220 - 1829	18	Pittsburgh Lock Seam	Not Required	Companion Angle 50x50x5 mm
1830 - 2438	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2744 - 3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm

Table 3-1: 4” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 457	24	Double Corner Seam	Not Required	Slide on Flange (SAF-20/25/30/35)
458 - 762	24	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
763- 914	22	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
915 - 1067	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1068 - 1524	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-40/45)
1525 - 2134	18	Pittsburgh Lock Seam	40x40x4 mm Angle @ 600 mm max. c-c	Slide on Flange (SAF-40/45)
2135 - 2438	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod
2744-3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod

DUCTWORK CONSTRUCTION SCHEDULE

Table 3-2: 4” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 203	24	Double Corner Seam	Not Required	Hemmed “S” Slip Drive Slip (24 Ga.)
204 - 457	24	Double Corner Seam	Not Required	Slide on Flange (SAF-20/25/30/35)
458 - 762	24	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
763 - 914	22	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
915 - 1067	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1068 - 1524	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-40/45)
1525 - 2134	18	Pittsburgh Lock Seam	40x40x4 mm Angle @ 600 mm max. c-c	Slide on Flange (SAF-40/45)
2135 - 2438	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod
2744 - 3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod

DUCTWORK CONSTRUCTION SCHEDULE

Table 3-3: 4” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 305	24	Double Corner Seam	Not Required	Reinforced “S” Slip with 25x25x16 Ga. Drive Slip (24 Ga.)
306 - 457	24	Double Corner Seam	Not Required	Slide on Flange (SAF-20/25/30/35)
458 - 762	24	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
763 - 914	22	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
915 - 1067	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
1068 - 1524	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-40/45)
1525 - 2134	18	Pittsburgh Lock Seam	40x40x4 mm Angle @ 600 mm max. c-c	Slide on Flange (SAF-40/45)
2135 - 2438	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod
2744 - 3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod

SAFID RECTANGULAR
RECTANGULAR DUCT & FITTINGS

DUCTWORK CONSTRUCTION SCHEDULE

Table 3-4: 4” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 406	24	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
407 - 762	24	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
763- 914	22	Double Corner Seam	Not Required	Companion Angle 40x40x4 mm
915 - 1067	20	Double Corner Seam	Not Required	Companion Angle 40x40x4 mm
1068 - 1524	18	Pittsburgh Lock Seam	Not Required	Companion Angle 50x50x5 mm
1525 - 2438	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod
2744-3048	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod

DUCTWORK CONSTRUCTION SCHEDULE

Table 4-1: 6” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 457	24	Double Corner Seam	Not Required	Slide on Flange (SAF-20/25/30/35)
458 - 762	22	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
763- 914	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
915 - 1219	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-40/45)
1220 - 1829	18	Pittsburgh Lock Seam	40x40x4 mm Angle @ 600 mm max. c-c	Slide on Flange (SAF-40/45)
1830 - 2134	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2135 - 2438	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod
2439 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 TIE Rod
2744 - 3048	18	Pittsburgh Lock Seam	60x60x6 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 60x60x6 mm + 1 Tie Rod

SAFID RECTANGULAR
RECTANGULAR DUCT & FITTINGS

DUCTWORK CONSTRUCTION SCHEDULE

Table 4-2: 6” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 559	24	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
560 - 660	22	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
661 - 762	22	Double Corner Seam	Not Required	Companion Angle 40x40x4 mm
763 - 914	20	Double Corner Seam	Not Required	Companion Angle 40x40x4 mm
915 - 1219	18	Pittsburgh Lock Seam	Not Required	Companion Angle 50x50x5 mm
1220 - 1524	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
1525 - 2134	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
2135 - 2743	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod
2744 - 3048	18	Pittsburgh Lock Seam	60x60x6 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 60x60x6 mm + 1 Tie Rod

DUCTWORK CONSTRUCTION SCHEDULE

Table 5-1: 10” W.G. Pressure Class as per SMACNA 2005 Third Edition

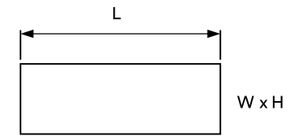
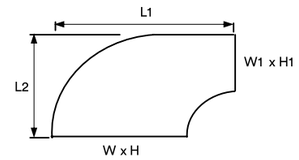
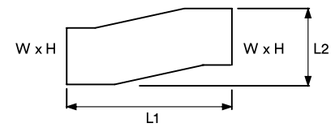
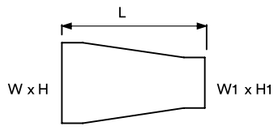
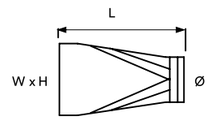
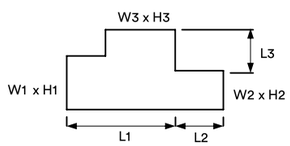
Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 305	24	Double Corner Seam	Not Required	Slide on Flange (SAF-20/25/30/35)
306 - 356	22	Double Corner Seam	Not Required	Slide on Flange (SAF-20/25/30/35)
357 - 457	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
458 - 660	20	Double Corner Seam	Not Required	Slide on Flange (SAF-30/35)
661 - 711	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-30/35)
712 - 1067	18	Pittsburgh Lock Seam	Not Required	Slide on Flange (SAF-40/45)
1068 - 1372	18	Pittsburgh Lock Seam	40x40x4 mm Angle @ 600 mm max. c-c	Slide on Flange (SAF-40/45)
1373 - 1524	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
1525 - 2134	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod
2135 - 2743	16	Pittsburgh Lock Seam	60x60x6 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 60x60x6 mm + 1 Tie Rod
2744 - 3048	16	Pittsburgh Lock Seam	60x60x6 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 60x60x6 mm + 1 Tie Rod

DUCTWORK CONSTRUCTION SCHEDULE

Table 5-2: 10” W.G. Pressure Class as per SMACNA 2005 Third Edition

Maximum Duct Dimension	U.S. Gauge	Longitudinal Seams	Intermediate Reinforcement	Transverse Connections
0 - 305	24	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
306 - 356	22	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
357 - 508	20	Double Corner Seam	Not Required	Companion Angle 30x30x3 mm
509 - 660	20	Double Corner Seam	Not Required	Companion Angle 40x40x4 mm
661 - 711	18	Pittsburgh Lock Seam	Not Required	Companion Angle 40x40x4 mm
712 - 1067	18	Pittsburgh Lock Seam	Not Required	Companion Angle 50x50x5 mm
1068 - 1524	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c	Companion Angle 50x50x5 mm
1525 - 2134	18	Pittsburgh Lock Seam	50x50x5 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 50x50x5 mm + 1 Tie Rod
2135 - 3048	16	Pittsburgh Lock Seam	60x60x6 mm Angle @ 600 mm max. c-c + 1 Tie Rod	Companion Angle 60x60x6 mm + 1 Tie Rod

METHOD OF SURFACE AREA CALCULATION

Description	Formula	Detail
Straight Duct	A = 2 (W+H) L	
Elbow	A = 2 (W+H)(L1+L2)	
Offset	A = 2 (W+H)(L1+L2)	
Reducer	A = 2 (W+H) L	
Transition	A = 2 (W+H) L	
Tee	A = 2 (W1+H1) L1 +2 (W2+H2) L2 +2 (W3 + H3) L3	

SPECIFICATIONS FOR DUCT AND FITTINGS

I. General

A. All Single wall, internally lined or double wall rectangular supply, return and exhaust ductwork shall be SAFID Rectangular as manufactured by SAFID or approved equal.

II. Materials

A. Unless otherwise noted, all duct and fittings shall be G-90 galvanized steel in accordance with ATSM A-924 and A-653 (previously known as A-527).

B. Unless otherwise specified, reinforcement may be uncoated steel or galvanized steel.

C. When specified on contract documents, stainless steel type 304 or type 316 in accordance with ASTM A-240 shall be provided.

III. Construction

A. Where no specific duct pressure class designations are provided, all duct and fittings shall be constructed as per SMACNA's Duct Construction Standards 500 Pa (+2 in W.G.) as shown in the table below:

Rectangular Duct and Fittings	
Maximum Dimensions (mm)	**U.S. Gauge**
0 - 457	26
458 - 914	24
915 - 1219	22
1220 - 1524	20
1525 - 2438	18
2439 - 3048	18

*Longitudinal connections, intermediate reinforcement and transverse connections shall be in accordance with SMACNA 2005 Third Edition, or as the Ductwork Construction Schedule on page 235.

B. Rectangular Ducts and Fittings

1. Rectangular duct and fittings shall be factory fabricated with factory applied sealant for a dependable quality line of products, and must be sufficiently airtight to ensure economical and quiet system performance.

2. All straight ducts shall be beaded, except if duct is internally lined, double wall, Ga. 18 ducts, and 4" w.g. duct pressure class or above.

3. All fittings are cross broken from dimensions 483 mm and above unless if duct is internally lined, double wall, Ga. 18 ducts, and 4" w.g. duct pressure class or above.

4. All fitting ends shall be calibrated to manufacturer's published dimensional tolerance standard.

5. All fittings shall be reinforced like sections of straight duct. One size change fittings, the greater fitting dimension determines the duct gauge.

6. The throat radius of all 90° and 45° radius bends shall be equal to the width (R = W). Radius bend with splitter vanes is applicable if the throat radius is less than the width (R > W).

7. All fittings that are of either spot welded or button punched construction shall be internally sealed. Fittings that are continuously welded construction shall shall not be internally sealed.

IV. Performance

A. Duct system performance shall meet SMACNA's Leakage Class 6 requirements. [Exceed -5000Pa (-20 in W.G.) or 3000Pa (+12 in W.G.)].