



# Grilles/Registers/Diffusers Submittals

**Job Name:** Goodwill Retail Center - Chenal

**Date Printed:** 1/29/2025

**Spec Section:** 15 - HVAC

**Contact:** 7631 Northshore Place  
N. Little Rock, AR 72118



**All-In-One**  
**Detailed Submittal Schedule**  
**Grilles/Registers/Diffusers**

Tag	D	C	B	A
Qty	6	1	1	4
Model	DBH	SCD	SCD	SCD
Unit Size	29.250, 8.500	8	6	6
Inlet Size	26x26	8	6	6
Border		31	31	31
Face Size		24, 24	24, 24	12, 12
Fastening	HB-A			
Damper		VCR8E	VCR8E	VCR8E
Finish	B12	B12	B12	B12
Airflow (CFM)		0	0	0
NC	N/A	N/A	N/A	N/A
Accessories	STL, STL, 1B	3C, RC	3C, RC	3C, RC

<b>Tag</b>	1
<b>Qty</b>	1
<b>Model</b>	80FF
<b>Unit Size</b>	22.000, 22.000
<b>Inlet Size</b>	
<b>Border</b>	F
<b>Face Size</b>	26, 26
<b>Fastening</b>	
<b>Damper</b>	
<b>Finish</b>	B12
<b>Airflow (CFM)</b>	
<b>NC</b>	N/A
<b>Accessories</b>	HL, QTR-TURN

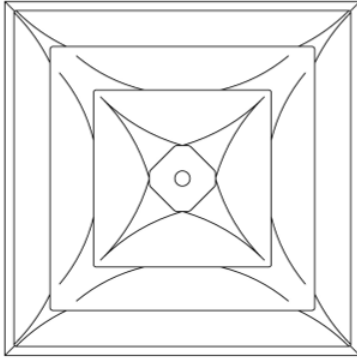


## Performance Notes

Date Printed: 1/29/2025

1. Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets".
2. Throw data is based on the temperature differential (Dt), in degrees Fahrenheit (°F), between supply air temperature and room temperature.
3. Throw values, in feet (ft), are provided at terminal air velocities of 150 fpm, 100 fpm, and 50 fpm for supply applications.
4. The NC, sound pressure level, is based on a room absorption of 10dB re  $10^{-12}$  Watts in each octave band.
5. Blanks (--) indicate an NC level below 15.
6. Air flow is in cubic feet per minute (cfm).
7. Static pressure (Ps), velocity pressure (Pv), and total pressure (Pt) are in inches of water (in. w.g.).

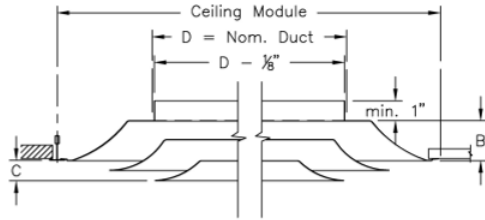
**SCD Square Cone Diffuser**



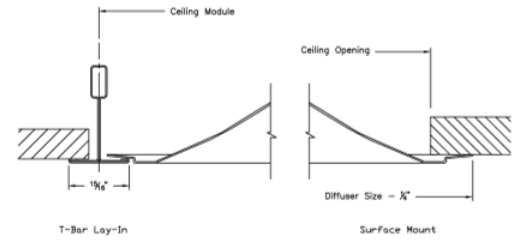
**Duct Diameter:** 6"  
**Backpan Height (B):** 1 1/8"  
**Cone Depth (C):** 1 1/16"  
**Ceiling Module:** 12" x 12"  
**Ceiling Opening (Surface Mount):** 10 1/2" x 10 1/2"  
**No. of Cones:** 3 Cones

**Border:** 31

15/16" T-Bar Lay-In or Surface Mount Application

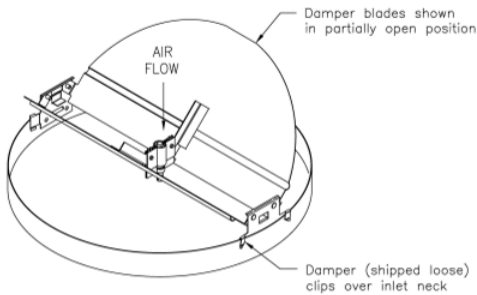


**Frame Detail:**



**Damper:** VCR8E

Full Flow Damper, Diffuser Inlet Neck Mount



**PROJECT:** Goodwill Retail Center - Chenal  
**ENGINEER:**  
**DESCRIPTION:** Square Cone Diffuser  
 SCD-1-2//1/6//12/12/31//3C/RC//VCR8E//B12

**SUBMITTAL NO:** 258274-F  
**CUSTOMER:**

**SUBMITTAL DATE:** 1/29/2025

**Notes:**

- 360° radial horizontal air pattern
- Removable core with locking clips
- Tool-free cone installation/removal
- Dampers ship loose
- For 9/16" flat tee installation with style 31 frame, cross-tees must be firmly secured. Locking any unopposed cross tees to the main beam with clips such as Armstrong STAC is recommended. Corner clips from ceiling suppliers may also be used, or order 916 clip in GRD-PARTS (confirming fit with ceiling on site is recommended).
- Integral hanger loops
- Factory tolerance +/- 1/32"



Scan for link to additional product information

**Material:**

- Diffuser: Steel
- Damper: Coated Steel

**Finish:**

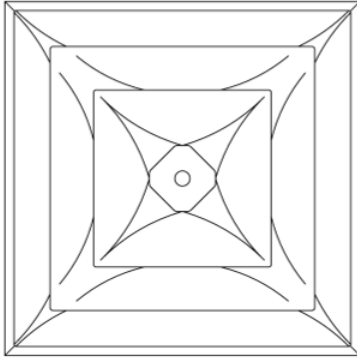
- B12 - Standard White

**PROJECT:** Goodwill Retail Center - Chenal  
**ENGINEER:**  
**DESCRIPTION:** Square Cone Diffuser  
SCD-1-2//1/6//12/12/31//3C/RC//VCR8E//B12

**SUBMITTAL NO:** 258274-F  
**CUSTOMER:**

**SUBMITTAL DATE:** 1/29/2025

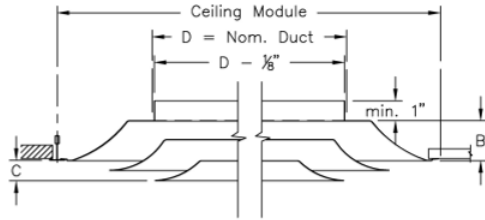
**SCD Square Cone Diffuser**



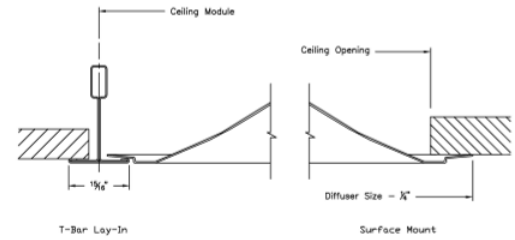
**Duct Diameter:** 6"  
**Backpan Height (B):** 2 1/2"  
**Cone Depth (C):** 1 1/16"  
**Ceiling Module:** 24" x 24"  
**Ceiling Opening (Surface Mount):** 22" x 22"  
**No. of Cones:** 3 Cones

**Border:** 31

15/16" T-Bar Lay-In or Surface Mount Application

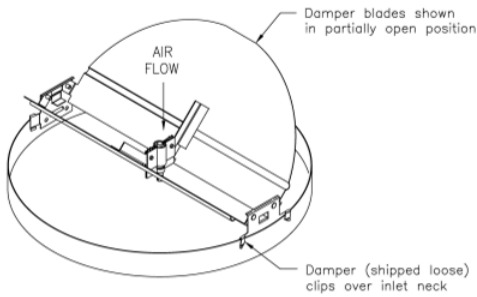


**Frame Detail:**



**Damper:** VCR8E

Full Flow Damper, Diffuser Inlet Neck Mount



**PROJECT:** Goodwill Retail Center - Chenal  
**ENGINEER:**  
**DESCRIPTION:** Square Cone Diffuser  
 SCD-1-2//1/6//24/24/31//3C/RC//VCR8E//B12

**SUBMITTAL NO:** 258274-F  
**CUSTOMER:**

**SUBMITTAL DATE:** 1/29/2025

**Notes:**

- 360° radial horizontal air pattern
- Removable core with locking clips
- Tool-free cone installation/removal
- Dampers ship loose
- For 9/16" flat tee installation with style 31 frame, cross-tees must be firmly secured. Locking any unopposed cross tees to the main beam with clips such as Armstrong STAC is recommended. Corner clips from ceiling suppliers may also be used, or order 916 clip in GRD-PARTS (confirming fit with ceiling on site is recommended).
- Integral hanger loops
- Factory tolerance +/- 1/32"



Scan for link to additional product information

**Material:**

- Diffuser: Steel
- Damper: Coated Steel

**Finish:**

- B12 - Standard White

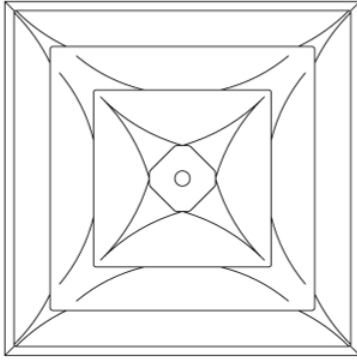
**PROJECT:** Goodwill Retail Center - Chenal  
**ENGINEER:**  
**DESCRIPTION:** Square Cone Diffuser  
SCD-1-2//1/6//24/24/31//3C/RC//VCR8E//B12

**SUBMITTAL NO:** 258274-F  
**CUSTOMER:**

**SUBMITTAL DATE:** 1/29/2025



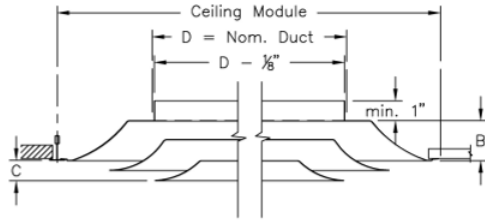
**SCD Square Cone Diffuser**



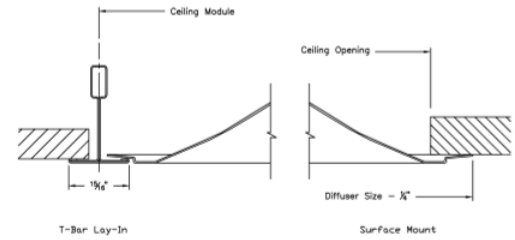
**Duct Diameter:** 8"  
**Backpan Height (B):** 2 1/2"  
**Cone Depth (C):** 1 1/16"  
**Ceiling Module:** 24" x 24"  
**Ceiling Opening (Surface Mount):** 22" x 22"  
**No. of Cones:** 3 Cones

**Border:** 31

15/16" T-Bar Lay-In or Surface Mount Application

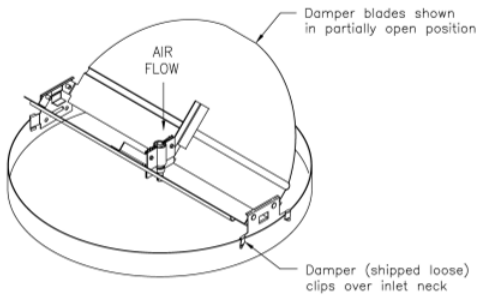


**Frame Detail:**



**Damper:** VCR8E

Full Flow Damper, Diffuser Inlet Neck Mount



**PROJECT:** Goodwill Retail Center - Chenal  
**ENGINEER:**  
**DESCRIPTION:** Square Cone Diffuser  
 SCD-1-2//1/8//24/24/31//3C/RC//VCR8E//B12

**SUBMITTAL NO:** 258274-F  
**CUSTOMER:**

**SUBMITTAL DATE:** 1/29/2025

**Notes:**

- 360° radial horizontal air pattern
- Removable core with locking clips
- Tool-free cone installation/removal
- Dampers ship loose
- For 9/16" flat tee installation with style 31 frame, cross-tees must be firmly secured. Locking any unopposed cross tees to the main beam with clips such as Armstrong STAC is recommended. Corner clips from ceiling suppliers may also be used, or order 916 clip in GRD-PARTS (confirming fit with ceiling on site is recommended).
- Integral hanger loops
- Factory tolerance +/- 1/32"



Scan for link to additional product information

**Material:**

- Diffuser: Steel
- Damper: Coated Steel

**Finish:**

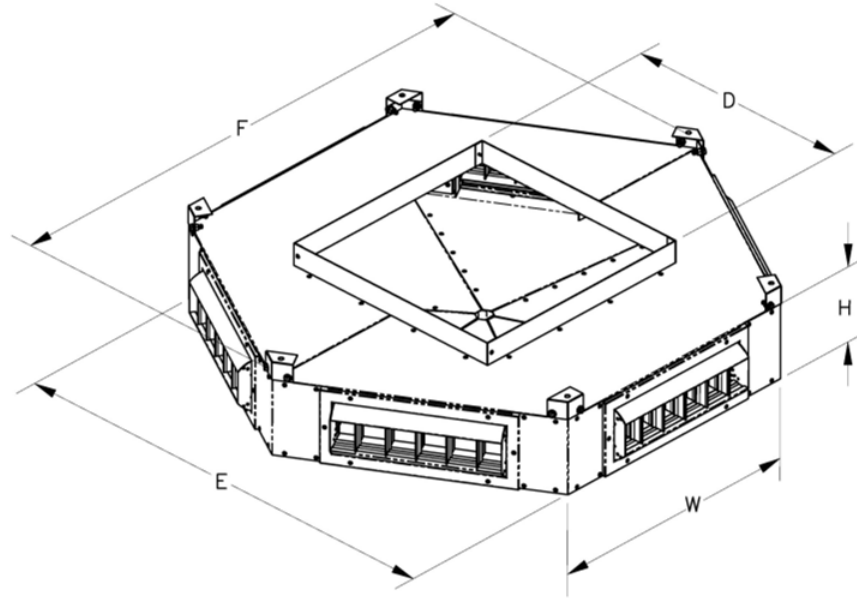
- B12 - Standard White

**PROJECT:** Goodwill Retail Center - Chenal  
**ENGINEER:**  
**DESCRIPTION:** Square Cone Diffuser  
SCD-1-2//1/8//24/24/31//3C/RC//VCR8E//B12

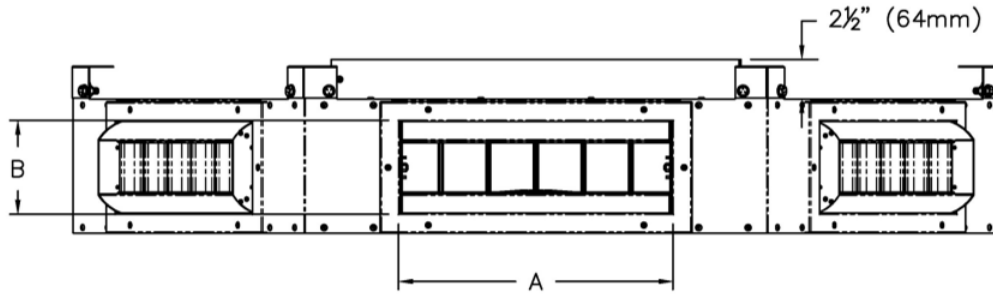
**SUBMITTAL NO:** 258274-F  
**CUSTOMER:**

**SUBMITTAL DATE:** 1/29/2025

**DBH Drop Box with HCD drum diffusers**



Nominal Capacity	W	H	D	A	B	E	F	CFM Range
10T	29 1/4" (743mm)	8 1/2" (216mm)	25 7/8" (657mm)	18" (457mm)	6" (152mm)	50 3/4" (1289mm)	58 1/4" (1480mm)	900 - 4,000



**Drop Plenum Construction:**

- Acoustically insulated flow pyramid
- Bottom and sides acoustically insulated
- Standard inlet
- HB-A - Integral corner hanger brackets
- Corner plate (shipped loose) with 1/2" (13mm) hole for installation with threaded rod

**Drop Diffuser Construction:**

- 6W - 6-way air discharge
- 1B - Single row of blades
- Blades are individually adjustable
- Drum can be rotated 30° in either direction
- Detents on the frame hold the drum in desired position

**PROJECT:** Goodwill Retail Center - Chenal

**ENGINEER:**

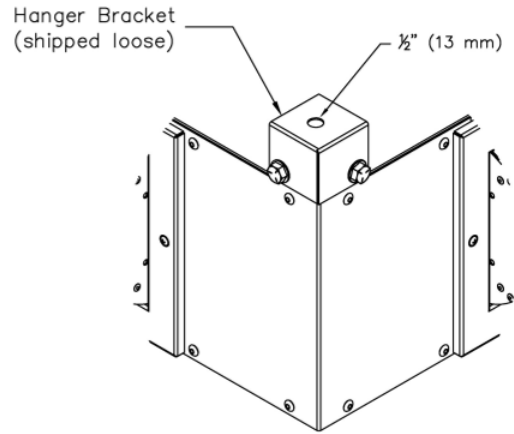
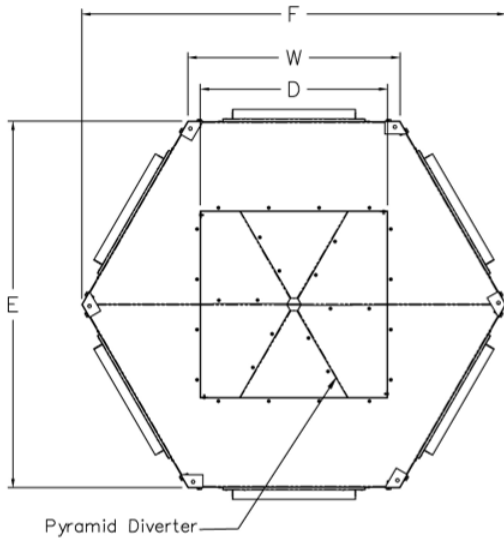
**DESCRIPTION:** Drop Box with HCD drum diffusers

DBH-1-1//I/IN/6W/10T/29.250/8.500/18x6/26x26//STL/STL/1B//INS/FPY/HB-A/PL-B12/B12

**SUBMITTAL NO:** 275914-B

**CUSTOMER:**

**SUBMITTAL DATE:** 1/29/2025



HANGER BRACKET  
DETAIL VIEW

**Drop Plenum Finish:**

- PL-B12 - Standard White

**Drum Diffuser Finish:**

- B12 - Standard White

**Notes:**

- Dimensions A and B are nominal sizes
- Factory tolerance  $\pm 1/8"$  (3mm)

**Material:**

- Drop Plenum - steel
- Drum Diffuser:
- Steel frame and drum interior
- Aluminum blades and drum exterior
- Steel hardware



Scan for link to additional product information and installation instructions.

**PROJECT:** Goodwill Retail Center - Chenal

**ENGINEER:**

**DESCRIPTION:** Drop Box with HCD drum diffusers

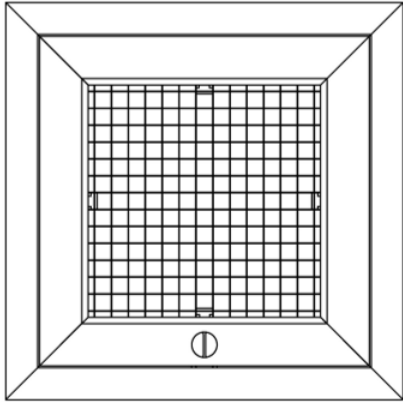
DBH-1-1//1IN/6W/10T/29.250/8.500/18x6/26x26//STL/STL/1B//INS/FPY/HB-A/PL-B12/B12

**SUBMITTAL NO:** 275914-B

**CUSTOMER:**

**SUBMITTAL DATE:** 1/29/2025

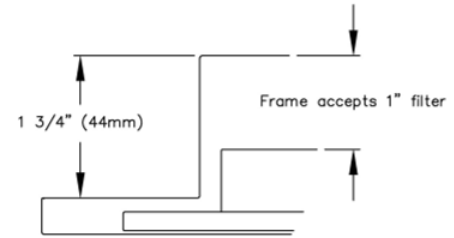
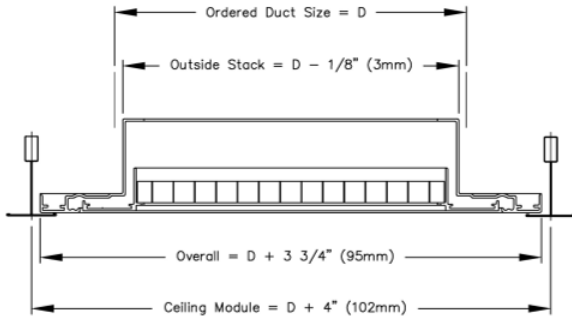
**80FF - Eggcrate Filter Grille**



**Application:** LI  
**Hinge Orientation:** HL - Hinge Parallel to Long Dimension

**Border:** F - 1 1/4" (32mm) Flat Frame (T-bar Lay-in)

**Filter Height:** Frame accepts 1" filter



**PROJECT:** Goodwill Retail Center - Chenal  
**ENGINEER:**  
**DESCRIPTION:** Eggcrate Filter Grille  
80FF-1-1//I/22.000/22.000/LI//F//26/26/HL/QTR-TURN/1/B12

**SUBMITTAL NO:** 276486-0  
**CUSTOMER:**

**SUBMITTAL DATE:** 1/29/2025

**Standard Construction:**

- Extruded aluminum frame
- Aluminum eggcrate core, 1/2" x 1/2" x 1/2" cells
- Steel locking tabs
- Steel hardware

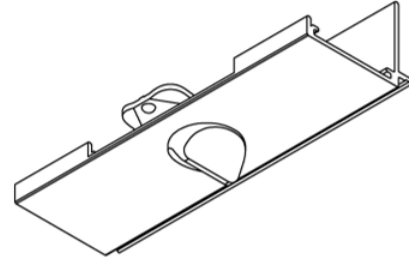
**Notes:**

- Frame F may be installed in T-bar or surface mount
- Mounting holes drilled by the installer
- Filter media supplied by others
- Maximum recommended filter size: D - 1/4" (6mm)
- Minimum recommended filter size: D - 5/8" (16mm)
- Latch quantity varies with size
- Factory tolerance  $\pm 1/32"$  (1)

**Finish:**

- B12 - Standard White

**Latch Option:** QTR-TURN - Plastic 1/4 Turn Latches

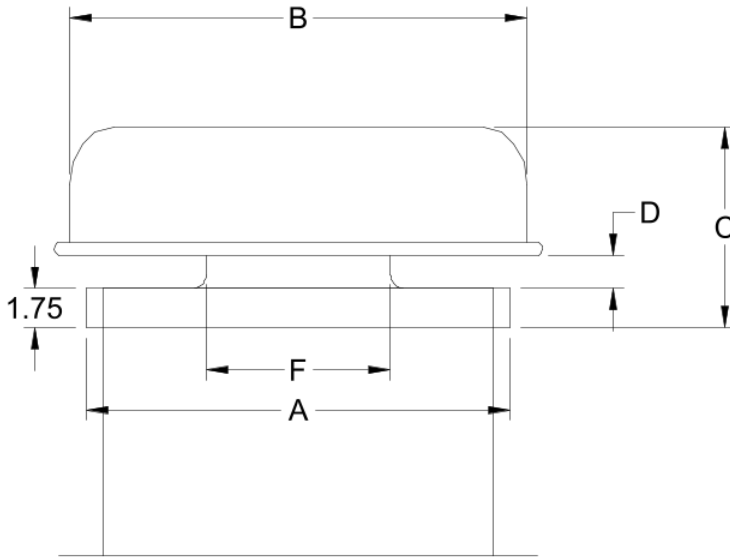


Scan for link to additional product information and installation instructions.

**PROJECT:** Goodwill Retail Center - Chenal  
**ENGINEER:**  
**DESCRIPTION:** Eggcrate Filter Grille  
80FF-1-1//1/22.000/22.000/LI//F//26/26/HL/QTR-TURN/1/B12

**SUBMITTAL NO:** 276486-0  
**CUSTOMER:**

**SUBMITTAL DATE:** 1/29/2025



**Model: GRSI**

**Standard Construction Features:**

- Aluminum housing.
- Aluminum curb cap with prepunched mounting holes.
- Recommended roof opening dimension is at least 2.5 in. larger than the damper size.

**Dimensions**

ID#	Tag	Qty	Model	Model Size (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	Curb Cap Width (in.)	Curb Cap Length (in.)	Weight (lb)
1-1		2	GRSI-8	8	19	20.5	9	1.5	N/A	8.25	19	19	7

**Construction**

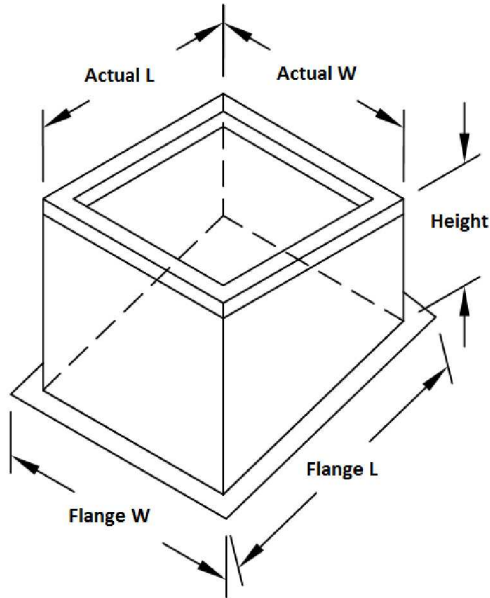
ID#	Flashing Flange	Installation Type	Insect Screen	Birdscreen Material	Unit Material
1-1	No	Non-Ducted	No	Galvanized	Aluminum

**Accessories**

ID#	Hinged Curb Cap	Curb Seal	Hood Insulation (in.)	Tie Down Points
1-1	No	No	None	No

**Roof Curbs**

ID#	Model	Height (in.)	Width (in.)	Length (in.)
1-1	GPIP	12	19	19



## Model: GPIIP

### Pitched Roof Curb

#### Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Designed for pitched roofs - Straight sided without a cant - Wood nailer for attachment of roof flashing material - 2 in. mounting flange - 1 in. thick 3 lb density insulation - Height - Available from 12 in. to 24 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in.. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size. - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension.

Please note: Long side and Short side dimensions are positioned differently on the image above.

#### General

ID#	Tag	Qty	Model	Sizing Method	Undersizing (in.)	Pitch (in.)	Pitch Run	Weight (lb)	Shipped Assembled	Union Made
1-1		2	GPIIP-19-G12	Nominal	1.5	???	Short Side	19	Yes	No Preference

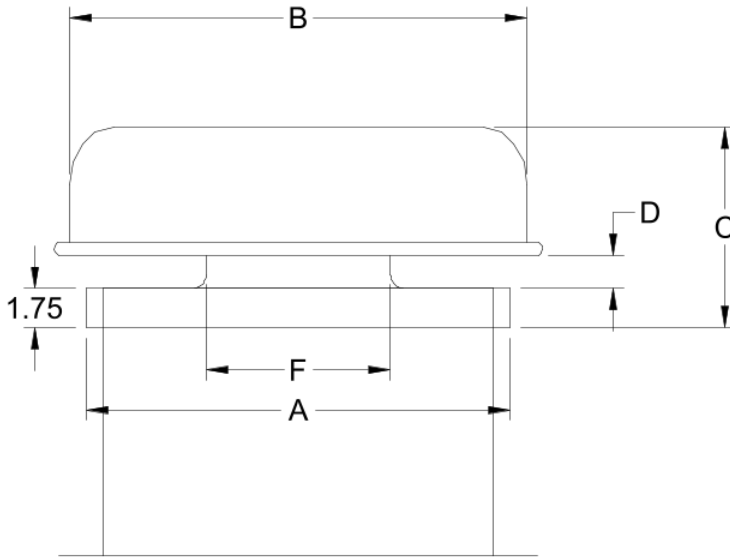
#### Dimensions

ID#	Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)
1-1	12	19	19	17.5	17.5

#### Accessories

ID#	Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
1-1	Galvanized	No	No	1	R4.3





**Model: GRSR**

**Standard Construction Features:**

- Aluminum housing.
- Aluminum curb cap with prepunched mounting holes.
- Recommended roof opening dimension is at least 2.5 in. larger than the damper size.

**Dimensions**

ID#	Tag	Qty	Model	Model Size (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	F (in.)	Curb Cap Width (in.)	Curb Cap Length (in.)	Weight (lb)
2-1		2	GRSR-8	8	19	20.5	9	1.5	N/A	8.25	19	19	7

**Construction**

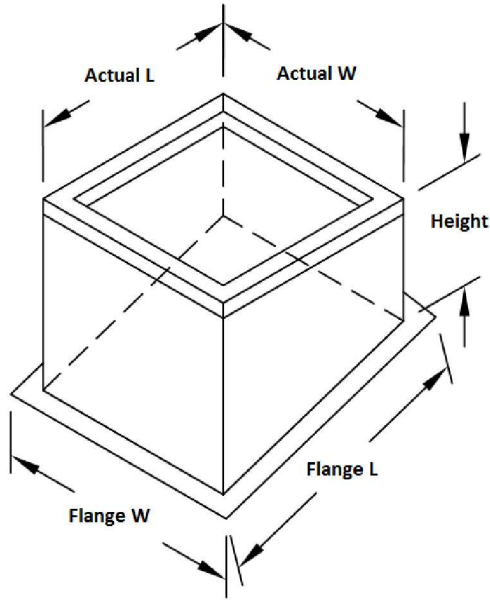
ID#	Flashing Flange	Installation Type	Insect Screen	Birdscreen Material	Unit Material
2-1	No	Non-Ducted	No	Galvanized	Aluminum

**Accessories**

ID#	Hinged Curb Cap	Curb Seal	Hood Insulation (in.)	Tie Down Points
2-1	No	No	None	No

**Roof Curbs**

ID#	Model	Height (in.)	Width (in.)	Length (in.)
2-1	GPIP	12	19	19



## Model: GPIIP

### Pitched Roof Curb

#### Standard Construction Features:

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Designed for pitched roofs - Straight sided without a cant - Wood nailer for attachment of roof flashing material - 2 in. mounting flange - 1 in. thick 3 lb density insulation - Height - Available from 12 in. to 24 in. as specified in 0.5 in. increments. Notes: - The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in.. - The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size. - The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension.

Please note: Long side and Short side dimensions are positioned differently on the image above.

#### General

ID#	Tag	Qty	Model	Sizing Method	Undersizing (in.)	Pitch (in.)	Pitch Run	Weight (lb)	Shipped Assembled	Union Made
2-1		2	GPIP-19-G12	Nominal	1.5	???	Short Side	19	Yes	No Preference

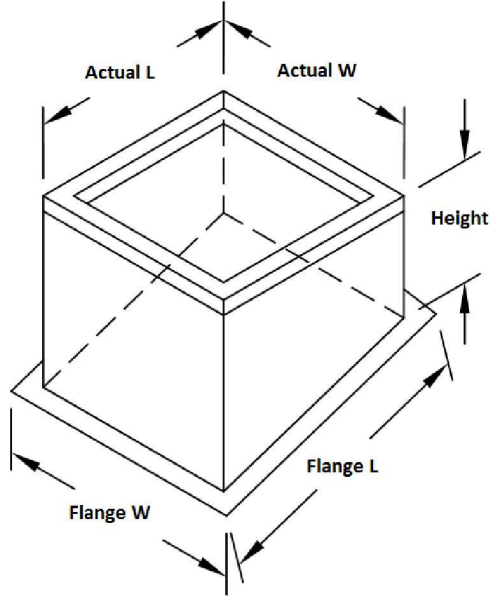
#### Dimensions

ID#	Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)
2-1	12	19	19	17.5	17.5

#### Accessories

ID#	Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
2-1	Galvanized	No	No	1	R4.3

Pitched Roof Curb  
Model: GPIP



**Standard Construction Features:**

- Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of either 18 ga galvanized steel or 0.064 in. aluminum - Designed for pitched roofs - Straight sided without a cant - Wood nailer for attachment of roof flashing material - 2 in. mounting flange - 1 in. thick 3 lb density insulation - Height - Available from 12 in. to 24 in. as specified in 0.5 in. increments.

**Notes:**

- The maximum roof opening dimension should not be greater than the "Actual" top outside dimension minus 2 in..
- The minimum roof opening dimension should be at least 2.5 in. more than the damper dimension or recommended duct size.
- The Roof Opening Dimension may or may not be the same as the Structural Opening Dimension.

**Roof Curb Configuration:**

ID #:	Tag:	Qty:	Curb Cap W x L:	Actual W x L:	Flange W:	Flange L:	Height:	Step Hgt:	Damper Tray W x L:
3	IV1 & 2	1	19 x 19	17.5 x 17.5	21.5	22.04	12	N/A	x
5	RV3	1	19 x 19	17.5 x 17.5	21.5	22.04	12	N/A	x

Notes: All dimensions shown are in units of in.

# Dace Mfg.

orders@dacemfg.co

SUBMITTAL

January 2016

PIPE SADDLE TAKEOFF FITTING

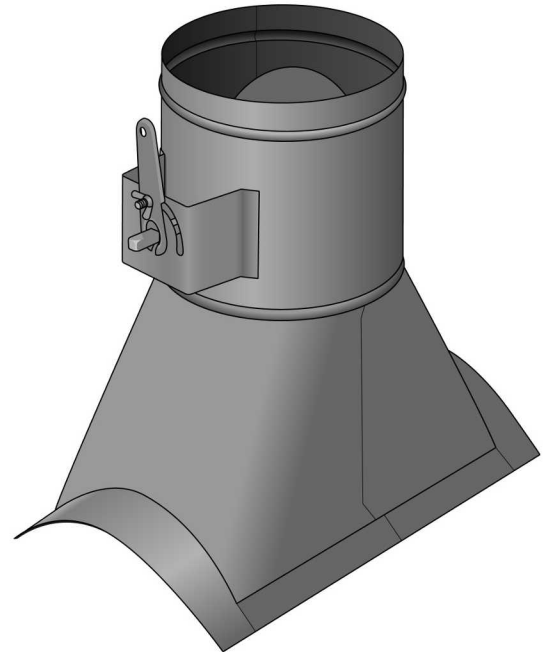
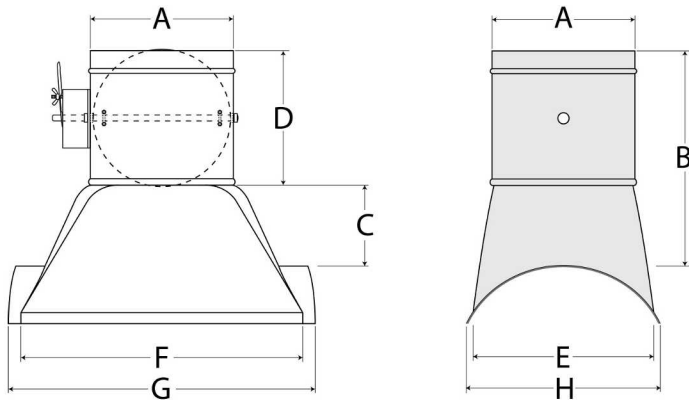
MODEL: PSTOCD - CO3

## PIPE SADDLE TAKEOFF CENTERED

With damper and control option # 3

### PURPOSE DESCRIPTION:

The Pipe Saddle (PSTOCD) is used to make take off connections for HVAC applications in round sheet metal pipe. The duct connection is centered on the fitting.



SIZE	A	B	C	D	E	F	G
5	4 7/8	12	5 1/2	6	5	9	11
6	5 7/8	12	5 1/2	6	6	9	11
7	6 7/8	12	5 1/2	6	7	11	13
8	7 7/8	12	5 1/2	6	8	12	14
9	8 7/8	12	5 1/2	6	9	13	15
10	9 7/8	12	5 1/2	6	10	14	16
12	11 7/8	12	5 1/2	6	12	16	18
14	13 7/8	12	5 1/2	6	14	18	20
16	15 7/8	12	5 1/2	6	16	20	22
18	17 7/8	12	5 1/2	6	18	22	24
20	19 7/8	12	5 1/2	6	20	24	26

### NOTE\*

When the take off is equal to the supply: 6 on 6, 8 on 8, 10 on 10, 12 on 12, etc ..., The 'E' value is reduced by 20%, approximately. This enables a field appropriate installation.

### STANDARD CONSTRUCTION DETAILS

- 26 gauge G90/60 corrosion resistant steel, other gauges and material optional
- two piece unit is spot and stitch welded, SMACNA 3" WG minimum
- 1" perimeter mounting flange with adhesive coated polyethylene gasket
- the barrel is undersized 1/8" and beaded for optimal flex duct retention and as a gasket for pipe.
- the barrel is fastened to the saddle body in a beaded lock with spot welds.
- the damper is manually controlled with a 2" elevated lock quad, 3/8 sq continuous rod fastened by U bolts and supported by two nylon axle bearings. Two U bolts for dampers 12" and larger.

### OPTIONS IN CONSTRUCTION

- material 24 ga, 22 ga, aluminum, stainless steel

# Dace Mfg.

orders@dacemfg.co

SUBMITTAL

Feb 2015

## ROUND MANUAL BALANCE DAMPER

MODEL: RMBD CO3

### Purpose Description:

The round manual balancing damper is used to regulate air flow in pipe.

### CONSTRUCTION:

**BARREL:** (B) 6" long, beaded & tapered.

**ALL DIAMETERS:** (A) sized 1/8" under nominal

### BODY MATERIAL:

26 gauge standard

### OPTIONS:

24 gauge steel

22 gauge steel

SS 304

### DAMPER BLADES:

26 gauge standard

### OPTIONS:

24 GA,

22 GA steel,

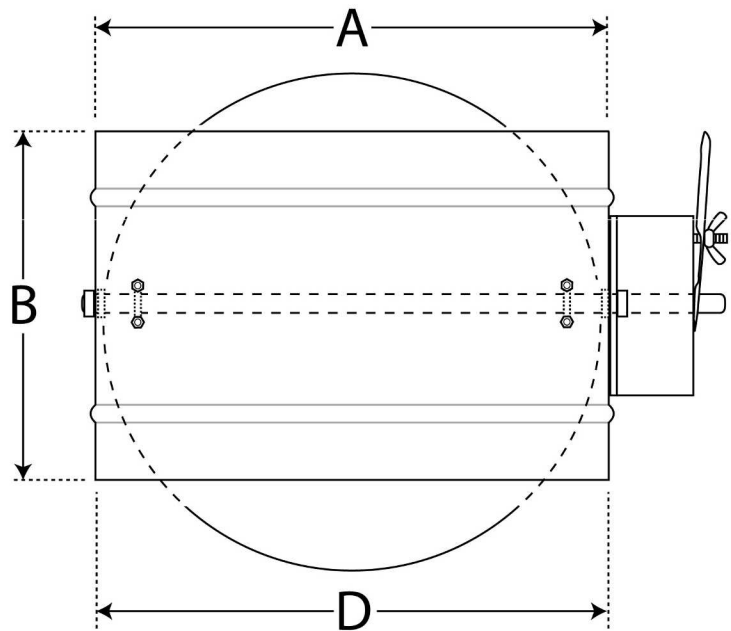
20 gauge—16 gauge steel

SS 304

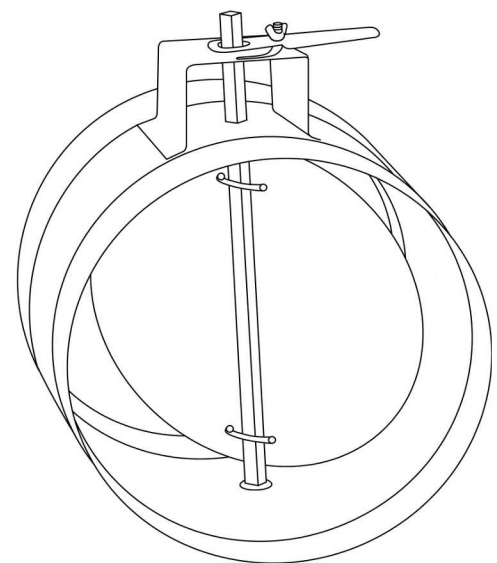
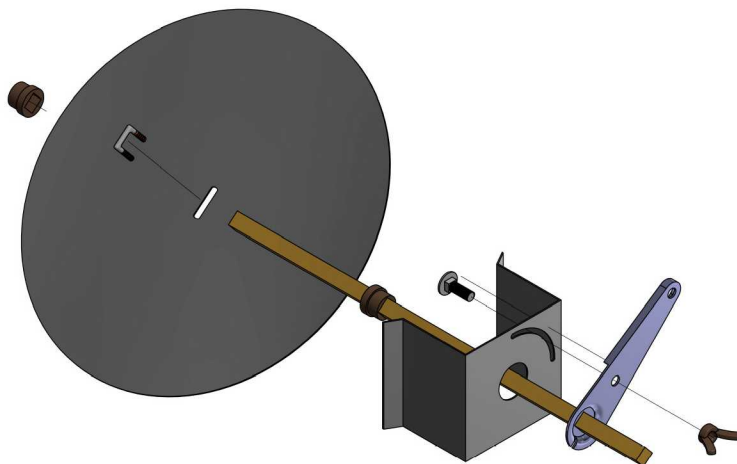
### DAMPER CONTROL:

CO3 - 2" raised handle, locking quadrant, 3/8" square continuous rod, 'U' bolts, nylon bearings

All stainless steel option



## RMBD-CO3



# Dace Mfg.

orders@dacemfg.co

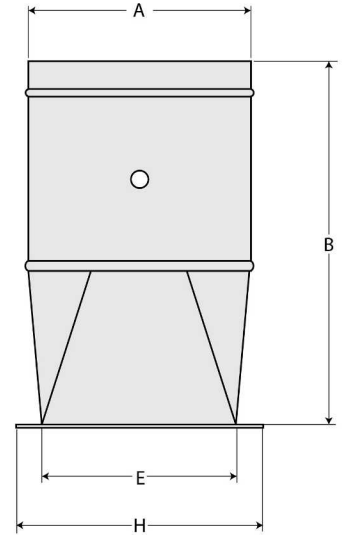
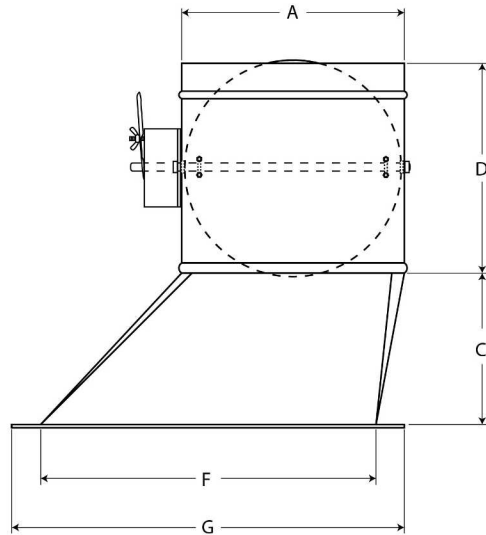
SUBMITTAL

Feb 2016

SIDE TAKEOFF FITTING w DAMPER

MODEL: STOD CO3

## HIGH EFFICIENCY TAKEOFF



SIZE	A	B	C	D	E	F	G	H
4	3 7/8	9	6	3	4	8	10	6
5	4 7/8	9	6	3	5	9	11	7
6	5 7/8	9	6	3	5	9	11	7
7	6 7/8	9	6	3	6	11	13	8
8	7 7/8	9	6	3	6	12	14	8
9	8 7/8	9	6	3	7	13	15	9
10	9 7/8	9	6	3	8	14	16	10
12	11 7/8	9	6	3	10	16	18	12
14	13 7/8	9	6	3	12	18	20	14
16	15 7/8	9	6	3	14	20	22	16
18	17 7/8	9	6	3	16	22	24	18
20	19 7/8	9	6	3	18	24	26	20

### STANDARD CONSTRUCTION DETAILS

- 26 gauge G90/60 corrosion resistant steel
- 1" flange with die formed corners & pre punched mounting holes
- entire unit is spot welded, SMACNA 3" WG minimum
- adhesive coated rubber perimeter gasket
- CO3 damper control: a 2" raised locking quadrant, 3/8" sq. axle, nylon bearings, fastened to the damper with U bolts.

### OPTIONS IN CONSTRUCTION

- material 24 ga, 22 ga galvanized steel,
- all aluminum or all stainless steel

# SUBMITTAL

Product: Ductwork (G-90)

Manufacturer: Dollar Sheet Metal, Inc.

Job Name: Goodwill Retail Center

Location: Little Rock, AR

Date: January 29, 2025

# HVAC DUCT CONSTRUCTION STANDARDS

METAL AND FLEXIBLE



ANSI/SMACNA 006-2006



SHEET METAL AND AIR CONDITIONING CONTRACTORS'  
NATIONAL ASSOCIATION, INC.

[www.smacna.org](http://www.smacna.org)



2 in. wg Static Pos. or Neg.	No Reinforcement Required	Reinforcement Code for Duct Gage Number							
		Reinforcement Spacing Options ↓							
		10 ft	8 ft	6 ft	5 ft	4 ft	3 ft	2½ ft	2 ft
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
10 in. and under	26 ga.	Not Required							
11 – 12 in.	26 ga.								
13 – 14 in.	24 ga.		B-26	B-26	B-26	B-26	B-26	B-26	B-26
15 – 16 in.	24 ga.		C-26	C-26	C-26	C-26	C-26	B-26	B-26
17 – 18 in.	22 ga.		C-26	C-26	C-26	C-26	C-26	C-26	B-26
19 – 20 in.	20 ga.	C-22	C-24	C-26	C-26	C-26	C-26	C-26	C-26
21 – 22 in.	18 ga.	D-22	D-24	D-26	D-26	C-26	C-26	C-26	C-26
23 – 24 in.	18 ga.	E-22	E-24	D-26	D-26	D-26	C-26	C-26	C-26
25 – 26 in.	18 ga.	E-22	E-22	E-24	D-26	D-26	C-26	C-26	C-26
27 – 28 in.	18 ga.	F-20	E-20	E-22	E-24	D-26	D-26	C-26	C-26
29 – 30 in.	18 ga.	F-20	F-20	E-22	E-24	E-26	D-26	D-26	C-26
31 – 36 in.	16 ga.	G-18	G-20	F-22	F-24	E-24	E-26	D-26	D-26
37 – 42 in.	Not Designed	H-16	H-18	G-20	G-22	F-24	E-24	E-26	E-26
43 – 48 in.			I-18	H-20	H-22	G-22	F-24	F-24	E-24
49 – 54 in.		I-16G	I-18G	H-20G	H-20G	G-24	F-24	F-24	
55 – 60 in.			I-18G	I-20G	H-20G	G-22	G-24	F-24	
61 – 72 in.			J-16H	J-18H	I-20G	H-22G	H-22G	H-24	
73 – 84 in.				J-16H	I-20G	I-20G	I-22G	I-22G	
85 – 96 in.					J-18H	I-18H	I-20H	I-22H	
97 – 108 in.					K-16I	K-18H	J-18H	I-18H	
109 – 120 in.						K-16I	K-18I	J-18I	

Table 2-3 Rectangular Duct Reinforcement

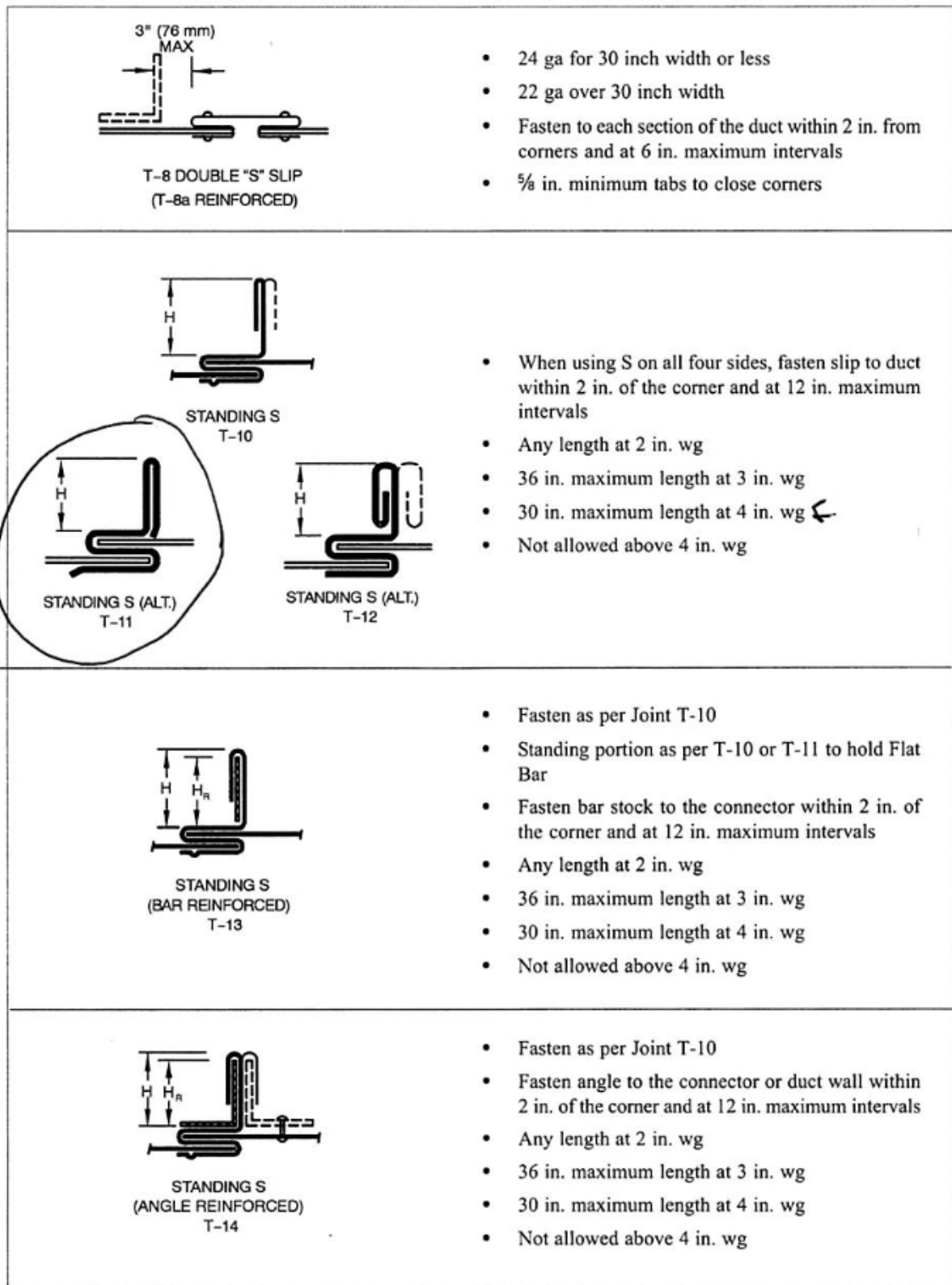
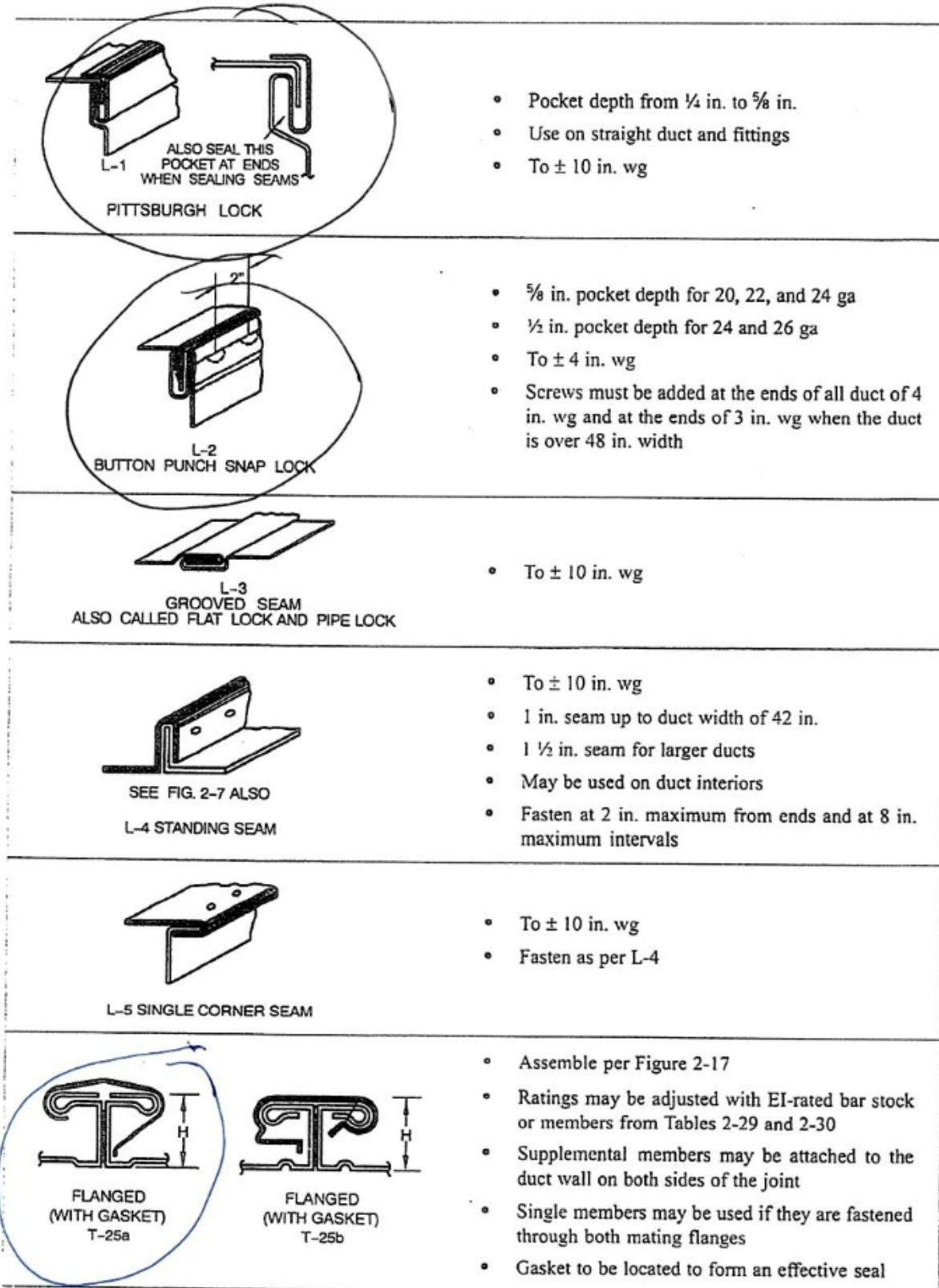


FIGURE 2-1 RECTANGULAR DUCT/TRANSVERSE JOINTS (CONTINUED)



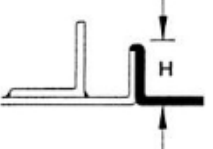
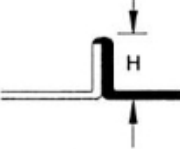


**FIGURE 2-2 RECTANGULAR DUCT/LONGITUDINAL SEAMS**

Reinf. Class	T-2 Standing Drive Slip		T-10 Standing S		T-11 Standing S		T-12 Standing S		T-14 Standing S			
	EI*	H x T (mm)	KG LM	H x T (mm)	KG LM	H x T (mm)	KG LM	H x T (mm)	KG LM	H x T + HR (mm)	KG LM	
A	0.12	Use B		Use B		12.7 x 0.55	0.74	Use B		Use D		
B	0.29	28.6 x 0.55	0.6	25 x 0.55	0.9	12.7 x 0.85 25 x 0.55	0.9	25 x 0.55	1.0	Use D		
C	0.55	28.6 x 0.85	0.9	25 x 0.85	1.2	25 x 0.85	1.2	25 x 0.70	1.2	Use D		
D	0.78	28.6 x 1.31	1.2	28.6 x 1.00 25 x 0.85 (+)	1.3	25 x 1.00 25 x 0.85 (+)	1.3	Use E	1.5	41.3 x 0.70 38.1 x 3.2 Bar	2.1	
E	1.9	NOT GIVEN		28.6 x 1.31	1.5	25 x 1.31 (+)	1.3	25 x 1.31 38.1 x 1.00	1.8	Use F		
F	3.7			Use G		NOT GIVEN	NOT GIVEN	NOT GIVEN	Use G		41.3 x 0.85 38.1 x 3.2 Bar	2.2
G	4.5			41.3 x 1.31	1.9				38.1 x 1.00	1.9	41.3 x 1.00 38.1 x 3.2 Bar	2.6
H	7.6			41.3 x 1.31 38.1 x 3.2 Bar	3.0							
I	20			54 x 1.00 51 x 51 x 3.2 Angle	4.3							
J	23			54 x 1.00 51 x 51 x 4.76 Angle	5.5							
K	30			NOT GIVEN								
L	60											

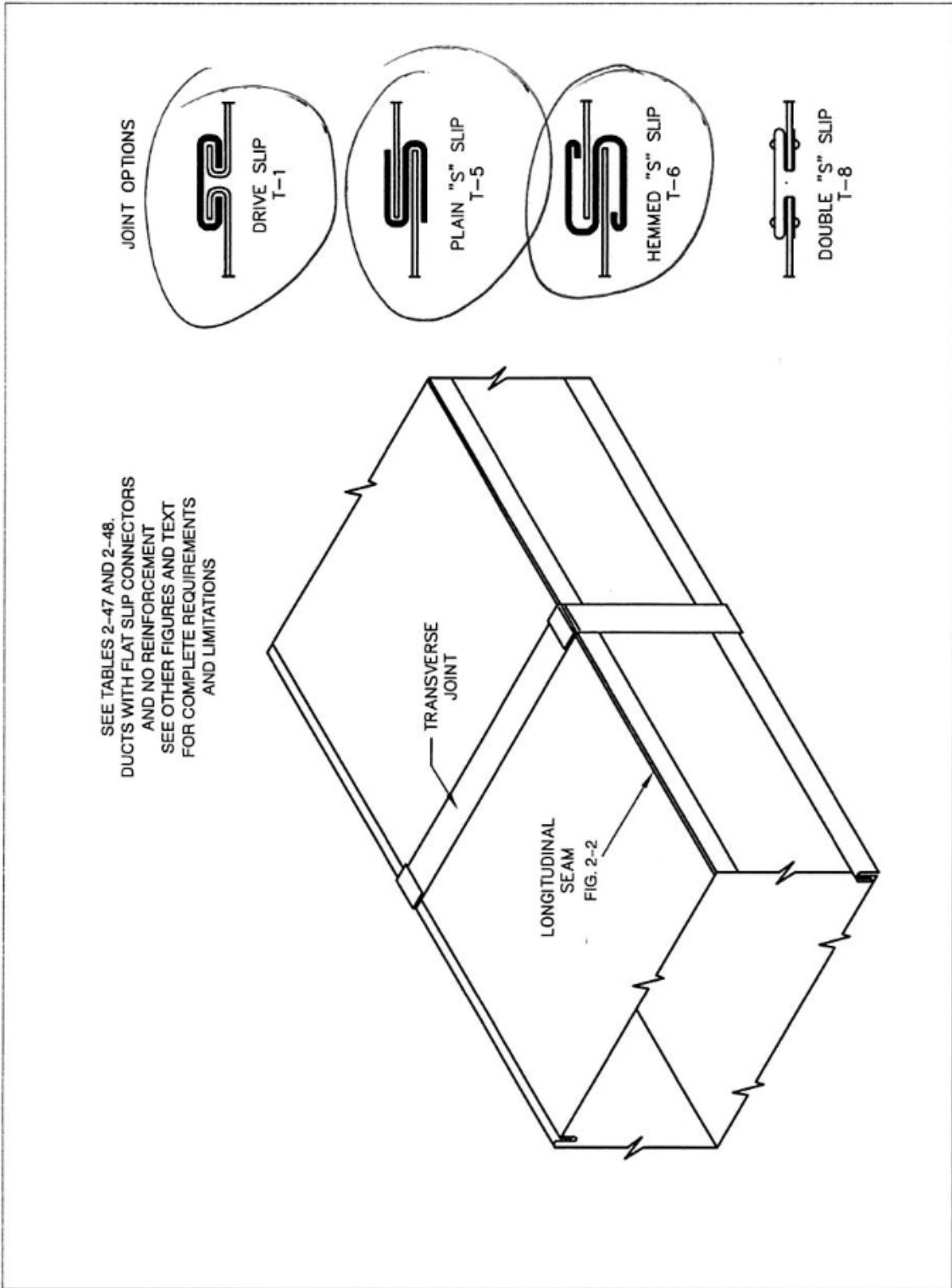
**Table 2-31M Transverse Joint Reinforcement**

See Section 2.1.4. \*Effective EI is number listed times 10<sup>5</sup> before adjustment for bending moment capacity. T-2 and T-10 through T-14 are restricted to 750 mm length at 1000 Pa, to 914 mm length at 750 Pa and are not recommended for service above 1000 Pa. (+) indicates positive pressure use only.

												
Mini- mum Rigidity Class	T-15 Standing Seam			Standing Seam or Welded Flange Reinforced						T-21 Welded Flange		
				0.55 to 0.85 mm Duct			1.00 to 1.61 mm Duct					
EI*	H <sub>S</sub> × T (mm)	KG LM	H <sub>S</sub> (mm)	Angle H <sub>R</sub> × T	KG LM	H <sub>S</sub>	H <sub>S</sub> × T (Min) (mm)	KG LM	H <sub>S</sub> × T (mm)	KG LM		
A	0.12	12.7 × 0.70	0.3						12.7 × 0.85	0.1		
B	0.29	19.1 × 0.70	0.4						19.1 × 1.61	0.3		
C	0.55	Use D	0.7						19.1 × 1.31	0.4		
D	0.78	19.1 × 1.61 25 × 1.0	0.4	25	25 × 25 × 1.61	1.5			31.8 × 1.31 31.8 × 0.85 (+)	0.6 0.4		
E	1.9	25 × 1.61	1.0	25	25 × 3.2	2.1	25	25 × 3.2	31.8 × 1.61 38.1 × 1.0 (+)	0.7		
F	3.7	38.1 × 1.31	1.2		Use G	2.7	31.8	31.8 × 2.8	38.1 × 1.61 (+)	0.9		
G	4.5	38.1 × 1.31 (+)	1.2	38.1	38.1 × 3.2	3.0	38.1	38.1 × 3.2	See T-21a And Tie Rod Options			
H	7.6	See T-16 And Tie Rod Options		38.1	51 × 3.2	4.0	38.1	38.1 × 4.8				
I	20			38.1	51 × 4.8		38.1	51 × 3.2				
J	23				Use K	5.2	38.1	51 × 4.8				
K	30			38.1	63.5 × 4.8		38.1	63.5 × 4.8				
L	60				Not Given							

**Table 2-33M Transverse Joint Reinforcement**

See Section 2.1.4. \*Effective EI is number listed times 10<sup>5</sup> before adjustment for bending moment capacity. See tie rod options elsewhere. (+) indicates positive pressure use only.



**FIGURE 2-8 UNREINFORCED DUCT**

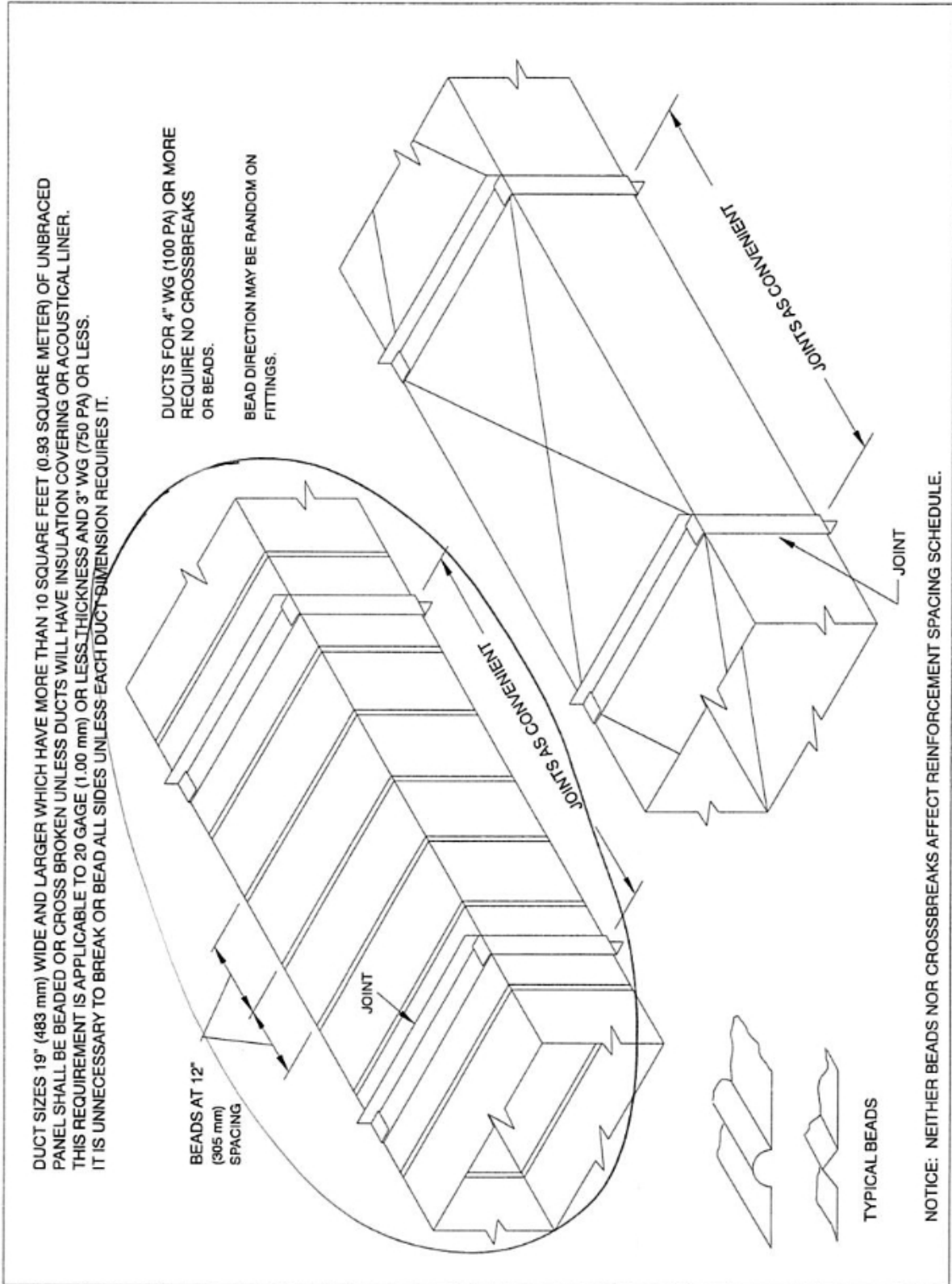


FIGURE 2-9 CROSSBROKEN AND BEADED DUCT

# SUBMITTAL

Product: Duct Sealant and Tape

Manufacturer: Hardcast, Inc.

Job Name: Goodwill Retail Center

Location: Little Rock, AR

Date: January 29, 2025





### OVERVIEW

Foil-Grip 1402 is a pressure-sensitive, 40-year cycle, duct joint and general purpose rolled mastic sealant. It provides an instant water-resistant air-tight grip to most surfaces including sheet metal, flex duct, and PVC-coated duct. Foil-Grip 1402 is suitable for subgrade application on PVC-coated duct and is ideal for replacement applications.

### PART NUMBERS

304093	1 Case w/ (24) 2" x 100' Rolls (Non-printed)
304094	1 Case w/ (16) 3" x 100' Rolls (Non-printed)
304095	1 Case w/ (12) 4" x 100' Rolls (Non-printed)
304096	1 Case w/ (8) 6" x 100' Rolls (Non-printed)
304083	1 Roll 36" x 100' (Non-printed)
304099	1 Case w/ (24) 2" x 100' Rolls (Printed)
304100	1 Case w/ (16) 3" x 100' Rolls (Printed)

### FEATURES AND BENEFITS

- Instant Adhesion
- Indoor/Outdoor
- True Zero VOC
- Metal & Subgrade PVC Ductwork
- All Pressure Classes Up To 20 inches W.C.
- 17-Mil Thickness

### SPECIFICATIONS/STANDARDS COMPLIANCE

Property	Method	Results
Color	Visual	Mil Finish Aluminum Printed/Non-Printed With Gray Butyl Sealant
Backing	Visual	2 mils Aluminum
Thickness	ASTM D3652	17 mils nominal
Peel Strength	ASTM D3330-83	>10 lbs/linear inch
Tensile Strength	ASTM D412	955 psi avg.
Elongation	ASTM D412	500%
Flexibility	ASTM C765	Excellent/No Cracking
Water Resistance	CSTM. RA 8.0	Pass
VOC	EPA Method # 2	0 g/l
Flame	ASTM E84/UL 723	20
Smoke	ASTM E84/UL 723	40
Service Temperature	ASTM D2485/D2243	-20°F to 200°F (-28.8°C to 93.3°C)
Pressure Test	Independent 24 Hour Test up to 5/8-inch Diameter	20 inch w.c.
Weather Resistance	ASTM G53	Passes 2,000 QUV
Bond Time		Immediate/Full Bond: 15 Minutes
UL Rating	UL 723	Passes/Classified
VOC Limitation	SCAQMD Rule 1168	Pass
NFPA	90A & 90B	Class 1

### STORAGE

Temperature	35°F to 110°F (1.7°C to 44°C) DO NOT FREEZE
Shelf Life	24 months
Flammability	Non-flammable

## APPLICATION

Temperature	35°F to 110°F (1.7°C to 44°C)
Preparation	Surface must be dry and free of dirt, oil and grease.
Method	Cut desired length, peel off release liner, apply. Removal or repositioning may damage Foil-Grip 1402 and surface. Overlap at ends. Use squeegee with heavy pressure to assure complete contact.
Clean Up	UN-TACK™ or Solvent (Use safe handling practices.)
Painting	Use paint appropriate for aluminum



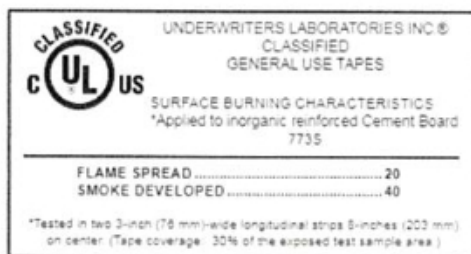
## PRECAUTIONS

Surfaces must be clean and free of moisture and contamination. Do not apply this product in areas where temperatures will exceed 200°F. Keep out of the reach of children. DO NOT use where acidic or alkaline chemicals are present (ie., lab fume hood, vents, etc.).

For Industrial Professional Use Only.

## LEED

Post-industrial Recycled Content	0%
Pre-consumer Recycled Content	0%
VOC Content	0 g/L
Manufacturing Location(s)	Wylie, TX



## PART NUMBERS

304142	1 Case w/ (25) 11 oz. Cartridges (White)
304146	1 Case w/ (25) 11 oz. Cartridges (Gray)
304144	1 Case w/ (4) 1-Gallon Pails (White)
304148	1 Case w/ (4) 1-Gallon Pails (Gray)
304143	1 - 2-Gallon Pail (White)
304147	1 - 2-Gallon Pail (Gray)
304145	1 - 5-Gallon Pail (White)

## TECHNICAL DATA

Color	White & Gray
Consistency	Heavy textured
Base	Synthetic latex
Solvent	Water
Weight per Gallon	11.6 lbs.
Solids Content	73.4%
Viscosity	Thixotropic
Coverage (UL 181 A-M)	Apply 18 mil, scrim, addt. 18 mil
Coverage (UL 181 B-M)	Approximately 214 to 320 lin. ft. per gal. at 20 to 30 mil wet film thickness at 3" width
Shore A Hardness	> 20
Flexibility	Passes ¼ inch mandrel bend
Time to Test	48 hours*
Service Temperature	-20°F to 200°F
Mildew Resistance	Mold & Mildew resistant
VOC	Exempt: 0 g/l Non Exempt: 38 g/l (less water)
Surface Burning	Flame Spread - 0, Smoke Developed - 0 (When tested in accordance with ASTM E84, UL 723)
Pressure Classes	SMACNA ½, 1, 2, 3, 4, 6 and 10 inches w.g.
Seal Class	Meets Seal Class A
Packaging	11 oz. cart.; 1, 2 & 5 gal. pails
Freeze/Thaw Stability	Passed 5 Cycles

\*May vary according to temperature and humidity

## SPECIFICATION/STANDARDS COMPLIANCE

Property	Method	Results
Freeze Thaw & Heat Cycling	ASTM C-731	Pass
Slump Test	ASTM D-2202	Pass
VOC Limitation	SCAQMD Rule 1168	Pass
	USDA	Pass
	FDA	Pass
	EPA	Pass
	City of Los Angeles Approval RR#8427	Pass

A versatile, all purpose duct sealant for use on all types of metal duct, fiberglass duct board, duct fabric and flex duct. CCWI- 181 incorporates a built-in polyester reinforcement for exceptional strength, with UV inhibitors for outdoor use. UL 181A-M listed / UL 181B-M listed.


## APPLICATION

Temperature	35°F to 110°F (1.7°C to 44°C)
Method	Brush, putty knife, caulk gun
Preparation	Surface must be dry, dirt, oil, and grease free.
Rate (UL 181 A-M)	Apply 18 mil, scrim and 18 mil over scrim.
Rate (UL 181 B-M)	Approx. 214 to 320 lin. ft. per gal. at 20 to 30 mil wet film thickness at 3" width.
Clean Up Wet	Soap and water
Clean Up Dry	UN-TACK™ or Solvent (Use safe handling practices.)
Painting	Only latex or epoxy paints
Ductboard	Scrim required for UL 181A-M

## STORAGE

Temperature	35°F to 110°F (1.7°C to 44°C) DO NOT FREEZE
Shelf Life	One year (unopened)
Flammability	Non-flammable

**Underwriters Laboratories Inc.®**  
LISTED  
**17NF**  
**UL 181A-M**  
FOR USE WITH U.L. LISTED RIGID  
FIBERGLASS AIR DUCTS OR CONNECTORS.  
**UL 181B-M**  
FOR USE WITH U.L. LISTED FLEXIBLE  
AIR DUCTS OR CONNECTORS



## PRECAUTIONS

Surface must be clean and free of moisture, contamination and foreign matter. Do not allow this product to freeze. Apply when temperatures will not fall below freezing for at least 36–48 hours, depending on temperature and humidity. Do not apply this product where temperatures will exceed 200°F. Keep out of the reach of children. Review MSDS for complete safety information prior to use. DO NOT use where acidic or alkaline chemicals are present (ie., lab fume hood, vents, etc.)

**For Industrial Professional Use Only.**

# SUBMITTAL

Product: Flexible Duct Connector

Manufacturer: DURO DYNE

Job Name: Goodwill Retail Center

Location: Little Rock, AR

Date: January 29, 2025

**SUBMITTAL RECORD**

JOB \_\_\_\_\_  
 LOCATION \_\_\_\_\_  
 SUBMITTED TO \_\_\_\_\_  
 SUBMITTAL PREPARED BY \_\_\_\_\_  
 APPROVED BY \_\_\_\_\_  
 DATE \_\_\_\_\_

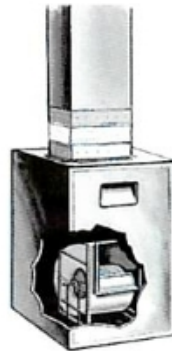


**Specification Form  
 Stainless DDFDC  
 Flexible Duct Connector**

**DESCRIPTION**

All air duct installations for heating, cooling or ventilation are attached to mechanical equipment containing a fan or blower. Vibrations, noises and rattles resulting from operation of the fan or blower are transmitted into the metal ducts which carry the noises throughout the system.

In order to isolate the vibration and noises to the source, an air-tight flexible joint, consisting of a fabric which is attached to sheet metal on both side, must be inserted between the equipment and the ductwork. This vibration isolator is called a "Flexible Duct Connector".



FABRIC COMPARISONS	Excelon <sup>®</sup> 4	Neoprene	Durolon	Teflon
Continuous Temp. Range	-40°F. to 180°F.	-40°F. to 200°F.	-40°F. to 250°F.	-150°F. to 500°F.
Color	Black	Black	White	Grey Outside/ Beige Inside
Weight Per Square Yard	22	30	30±2 oz.	16.5
Leakage Resistance <sup>1</sup>	350	595	250	650
Tear Strength <sup>2</sup>	100/100	12/12	20/20	50/30
Tensile Strength <sup>3</sup>	240/220	500/450	475/375	400/300
ASTM E84 (Flame/Smoke)	10/250	10/55	10/120	0/5
NFPA 701	Yes	Yes	Yes	No
Base Fabric	Woven Nylon/ Polyester Blend	Woven Fiberglass	Woven Fiberglass	Fiberglass/Stain Weave
Coating	Vinyl	Neoprene	Hypalon	Teflon
Features	High Tear Strength High Abrasion Resistance	General Purpose	Excellent Ozone and Weathering Resistance Best Overall Acid Resistance	High Temperature Resistance High Corrosion Resistance Excellent Chemical Resistance
Metal-Fab 3x3x3 Grip Loc <sup>+</sup>	MBXSS333 (#10231)	MFNSS333 (#10232)	MFSS333 (#10234)	MCTSS333 (#10292)
TDC/TDF 4x4x4 Grip Loc	MBXSS444 (#10259) MBX316SS444 (#10275)	MFNSS444 (#10260)	MFD316SS444 (#10276)	MCTSS444 (#10293)
TDC/TDF 4x6x4 Grip Loc	MBXSS464 (#10262)	N/A	N/A	N/A

All stainless steel Flexible Duct Connector is manufactured by Duro Dyne with stainless steel type 304 stainless except those with 316 in the description (#10275 & #10276), .015 in thickness, with a 2B finish.

\*304 stainless steel: Item # 10231, 10232, 10234, 10259, 10260, 10262, 10292 and 10293

\*316 stainless steel: Item # 10275, 10276

**Notes:**

1. Leakage resistance as per Federal Test Standard 191 Method #5512. Results in P.S.I. (To convert inches of water multiply P.S.I. x 27.176.).
2. Tear strength in tongue pounds as per Federal Test Standard 191 Method #5134.1 (warp/fill).
3. Tensile strength in grab pounds as per Federal Test Standard 191 Method #5100 (warp/fill).
4. Standard Excelon is not LA city approved. Use Excelon-LA when LA city approval is necessary. (See Specification Form Excelon-LA - 203)

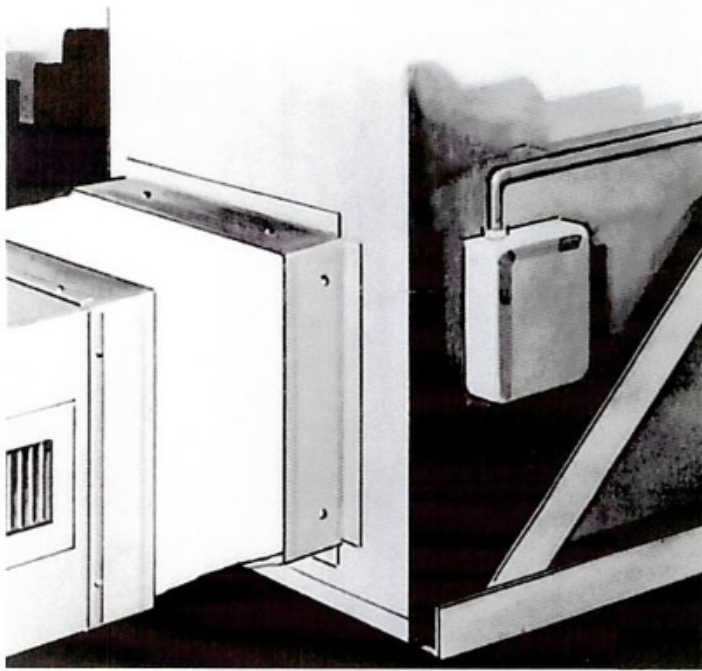
**SUGGESTED SPECIFICATION**

**Vibration Isolating Flexible Duct Connector For Heating, Cooling & Exhaust Supplies & Returns.**

At the inlet and discharge of all air handling equipment( unless otherwise noted) furnish and install vibration isolators. Vibration isolators shall be a coated woven fabric named \_\_\_\_\_ and shall be "Underwriters Laboratories Classified".

Vibration isolators shall have a tear strength of not less than \_\_\_\_\_, an abrasion resistance of not less than \_\_\_\_\_, and a continuous temperature range of \_\_\_\_\_. Vibration isolators shall be preassembled metal to exposed fabric to metal. Fabric and metal shall be joined by means of a double lock seam.

Vibration isolators shall be code \_\_\_\_\_ ( called Flexible Duct Connectors) as manufactured by Duro Dyne Corporation, Bay Shore, N.Y.



## Specifications

All Listed Duro Dyne Flexible Duct Connector Fabrics are designed to meet the following specifications:

1. MIL-C-20696B Para. 4.4.3. (Oil Resistance).
2. MIL-C-20696B Para. 4.4.4. (Hydro Carbon Resistance).
3. NFPA701 Tests for Flame Propagation of Fabrics and film (except Teflon).
4. California State Fire Marshal Approved.
5. Los Angeles City Approved. (See note 1 below)
6. Denver City Approved.

## CHEMICAL RESISTANCE

( X = Extremely Resistant)

( ~ = Not Recommended)

( O = No Data Available)

Chemical	Excelton	Neoprene	Durolon	Teflon	Chemical	Excelton	Neoprene	Durolon	Teflon
Acetic Acid	~	X	X	X	Hydrofluoric Acid (100%)	~	X	X	X
Aluminum Chloride	X	X	X	X	Hydrogen Peroxide	X	~	X	NR
Aluminum Sulfate	X	X	X	X	Hydrogen Sulfide	X	X	X	X
Ammonia (Anhyd)	X	X	X	X	Lactic Acid	~	X	X	X
Ammonium Hydroxide	X	X	X	X	Linseed Oil	~	X	X	O
Ammonium Sulfate	X	X	X	X	Magnesium Chloride	~	X	X	X
Barium Sulfide	X	X	X	X	Maleic Acid	X	~	X	O
Black Sulfate Liquor	X	X	X	X	Methyl Alcohol	~	X	X	X
Boric Acid	X	X	X	X	Methyl Cellosolve	~	X	X	O
Butyl Alcohol	~	X	X	X	Mineral Oil	X	X	X	X
Cadmium Plating Solution	X	~	~	O	Naptha	~	~	~	X
Calcium Chloride	X	X	X	X	Nickel Chloride	X	X	X	X
Calcium Hypochlorite	X	~	X	X	Nickel Sulfate	X	X	X	X
Chlorine Water	X	~	~	O	Nitric Acid (40%)	X	~	X	X
Chromic Acid	X	~	X	X	Oleic Acid	X	~	~	X
Chromium Plating Solution	X	O	O	O	Oleum	~	~	X	X
Citric Acid	X	X	X	X	Oxalic Acid	X	X	X	X
Copper Chloride	X	X	X	X	Phosphoric Acid (85%)	~	X	X	X
Copper Sulfate	X	X	X	X	Pickling Solution	X	~	X	O
Cottonseed Oil	X	X	X	O	Potassium Chloride	X	X	X	O
Diacetone Alcohol	~	X	X	O	Potassium Cyanide	X	X	X	X
Disodium Phosphate	X	~	~	O	Potassium Dichromate	X	X	X	X
Ethyl Alcohol	~	X	X	X	Potassium Hydroxide (40%)	X	X	X	X
Ethylene Glycol	~	X	X	X	Potassium Sulfate	X	X	X	X
Ferric Chloride	X	X	X	X	Propyl Alcohol	~	X	X	O
Ferric Sulfate	X	X	X	X	Sodium Chloride	X	X	X	X
Fluoroboric Acid	X	X	X	O	Sodium Hydroxide (40%)	~	X	X	X
Formaldehyde (40%)	X	X	X	X	Sodium Hypochlorite	~	~	X	X
Formic Acid	X	X	X	X	Steam	~	X	~	X
Glucose	X	X	X	X	Sulfur Dioxide (Liquid)	~	X	X	X
Glycerine	~	X	X	X	Sulfuric Acid (50%)	X	~	X	X
Heptane	~	X	X	X	Sulfuric Acid (over 50%)	~	~	X	X
Hexane	~	X	X	X	Tannic Acid	X	X	X	X
Hydrobromic Acid (40%)	~	X	X	X	Vinegar	X	X	X	X
Hydrochloric Acid (conc)	~	X	X	X					

Duro Dyne Corporate Headquarters, Bay Shore, NY

631-249-9000 • Fax: 631-249-8346

Duro Dyne Midwest • Duro Dyne West • Duro Dyne Canada

www.durodyne.com • E-mail: durodyne@durodyne.com



3/1/2023  
B001411