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Comfort Systems USA (Arkansas), Inc. P.O. Box 16620 Little Rock, AR 72231 Phone 501-834-3320 Fax 501-834-5416

Date: 1/13/2025

Return Request: 1/23/2025

Project: HSU – Reynolds Hall Lap Renovation

Supplier: Dollar Sheet Metal **Manufacturer:** Various

Submittal: HVAC Ducts & Casings **Submittal Number:** 23 31 00-01

Drawing # and Installation: Mechanical Drawings

ARCHITECT

SCM Architects 1400 Kirk Road, Suite 220 Little Rock, AR 72223 501-224-3055

GENERAL CONTRACTOR

Nabholz 612 Garland St. Conway, AR 72032 501-505-5800

ENGINEER

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MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc. 9924 Landers Rd. N. Little Rock, AR 72117 501-834-3320

Notes:	Votes:					

CSUSA PROJECT NO. 22-6091

sean@comfortar.com

SUBMITTAL

Product:

Ductwork (G-90)

Manufacturer:

Dollar Sheet Metal, Inc.

Job Name:

HSU Reynolds Lab

Location:

Arkadelphia, AR

Date:

January 6, 2025

HVAC DUCT CONSTRUCTION STANDARDS

METAL AND FLEXIBLE



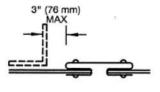


SHEET METAL AND AIR CONDITIONING CONTRACTORS'
NATIONAL ASSOCIATION, INC.
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2 in. wg Static Pos. or Neg.	No Reinforcement	Reinforcement Code for Duct Gage Number								
Duct	Required	Reinforcement Spacing Options								
Dimension		10 ft	8 ft	6 ft	5 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 R	equired	-			
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.		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.	Not De	signed		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-181	

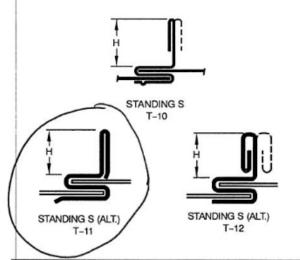
Table 2-3 Rectangular Duct Reinforcement





T-8 DOUBLE "S" SLIP (T-8a REINFORCED)

- · 24 ga for 30 inch width or less
- 22 ga over 30 inch width
- Fasten to each section of the duct within 2 in. from corners and at 6 in. maximum intervals
- . 5/8 in. minimum tabs to close corners

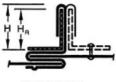


- When using S on all four sides, fasten slip to duct within 2 in. of the corner and at 12 in. maximum intervals
- Any length at 2 in. wg
- 36 in. maximum length at 3 in. wg
- 30 in. maximum length at 4 in. wg
- Not allowed above 4 in. wg



STANDING S (BAR REINFORCED) T-13

- Fasten as per Joint T-10
- Standing portion as per T-10 or T-11 to hold Flat Bar
- Fasten bar stock to the connector within 2 in. of the corner and at 12 in. maximum intervals
- Any length at 2 in. wg
- . 36 in. maximum length at 3 in. wg
- . 30 in. maximum length at 4 in. wg
- · Not allowed above 4 in. wg

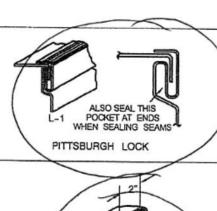


STANDING S (ANGLE REINFORCED) T-14

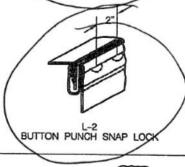
- Fasten as per Joint T-10
- Fasten angle to the connector or duct wall within 2 in. of the corner and at 12 in. maximum intervals
- · Any length at 2 in. wg
- · 36 in. maximum length at 3 in. wg
- 30 in. maximum length at 4 in. wg
- · Not allowed above 4 in. wg

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





- Pocket depth from ¼ in. to ½ in.
- Use on straight duct and fittings
- To ± 10 in. wg



- 5/8 in. pocket depth for 20, 22, and 24 ga
- ½ in. pocket depth for 24 and 26 ga
- To ± 4 in. wg
- Screws must be added at the ends of all duct of 4 in. wg and at the ends of 3 in. wg when the duct is over 48 in. width



L-3 GROOVED SEAM ALSO CALLED FLAT LOCK AND PIPE LOCK

To ± 10 in. wg



SEE FIG. 2-7 ALSO

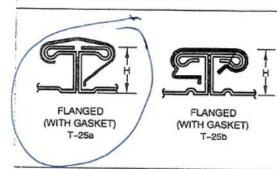
L-4 STANDING SEAM

- To ± 10 in. wg
- I in. seam up to duct width of 42 in.
- 1 ½ in. seam for larger ducts
- May be used on duct interiors
- Fasten at 2 in. maximum from ends and at 8 in. maximum intervals



L-5 SINGLE CORNER SEAM

- To ± 10 in. wg
- Fasten as per L-4



- Assemble per Figure 2-17
- Ratings may be adjusted with EI-rated bar stock or members from Tables 2-29 and 2-30
- Supplemental members may be attached to the duct wall on both sides of the joint
- Single members may be used if they are fastened through both mating flanges
- Gasket to be located to form an effective seal

FIGURE 2-2 RECTANGULAR DUCT/LONGITUDINAL SEAMS



			∫ •	H		H		H		T-13	
	einf. lass	T-2 Standing	Drive	T-10 Standing	g S	T-11 Standing	; S	T-12 Standin	g S	T-14 Standing	s
	EI*	H×T	KG	H×T	KG	H×T	KG	H×T	KG	H×T+HR	KG
	-	(mm)	LM	(mm)	LM	(mm)	LM	(mm)	LM	(mm)	LM
Α	0.12	Use B		Use B		12.7 × 0.55	0.74	Use B		Use D	
В	0.29	28.6 × 0.55	0.6	25.x 0.55	0.9	12.7 × 0.85 25 × 0.55	0.9	25 × 0.55	1.0	Use D	
C	0.55	28.6 × 0.85	0.9	25 × 0.85	1.2	25 × 0.85	1.2	25 × 0.70	1.2	Use D	
D	0.78	28.6 × 1.31	1.2	28.6 × 1.00 25 × 0.85 (+)	1.3	25 × 1.00 25 × 0.85 (+)	1.3	Use E	1.5	41.3 × 0.70 38.1 × 3.2 Bar	2.1
Е	1.9			28.6×1.31	1.5	25 × 1.31 (+)	1.3	25 × 1.31 38.1 × 1.00	1.8	Use F	
F	3.7			Use G				Use G		41.3 × 0.85 38.1 × 3.2 Bar	2.2
G	4.5			41.3 × 1.31	1.9			38.1 × 1.00	1.9	41.3 × 1.00 38.1 × 3.2 Bar	2.6
Н	7.6	NOT CIV	EN							41.3 × 1.31 38.1 × 3.2 Bar	3.0
I	20	NOT GIV	NOT GIVEN			NOT GIVEN		NOT GIVEN 51 × 5 51 × 5 51 × 5		54 × 1.00 51 × 51 × 3.2 Angle	4.3
J	23			NOT GIVE	EN					54 × 1.00 51 × 51 × 4.76 Angle	5.5
K	30									NOT GIVE	N
L	60										

Table 2-31M Transverse Joint Reinforcement

See Section 2.1.4. *Effective EI is number listed times 10⁵ 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.

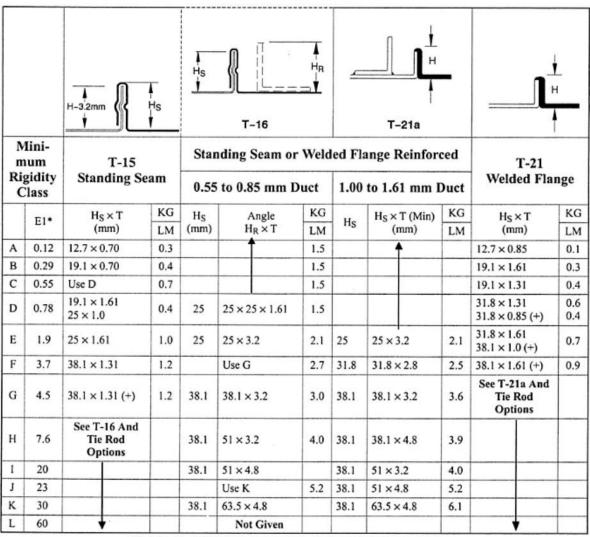


Table 2–33M Transverse Joint Reinforcement

See Section 2.1.4. *Effective EI is number listed times 10⁵ before adjustment for bending moment capacity. See tie rod options elsewhere. (+) indicates positive pressure use only.

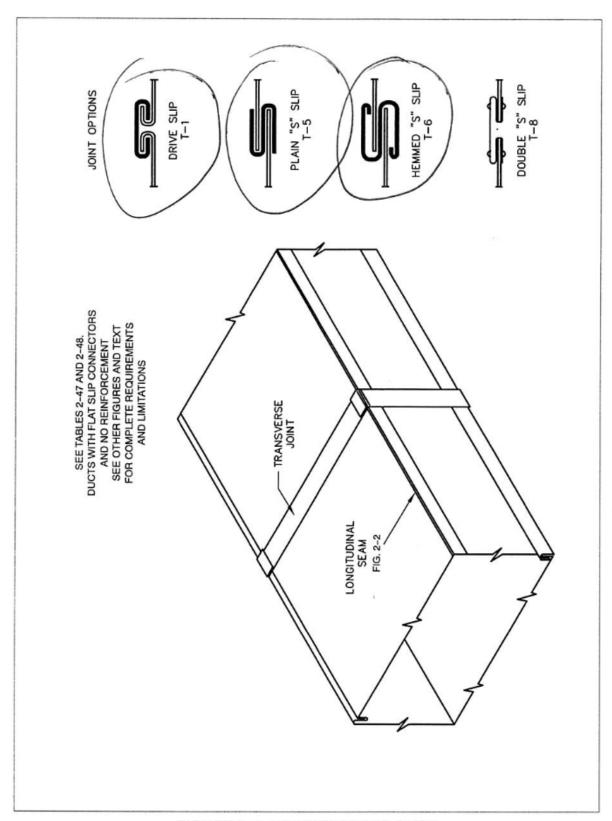


FIGURE 2-8 UNREINFORCED DUCT



2.112

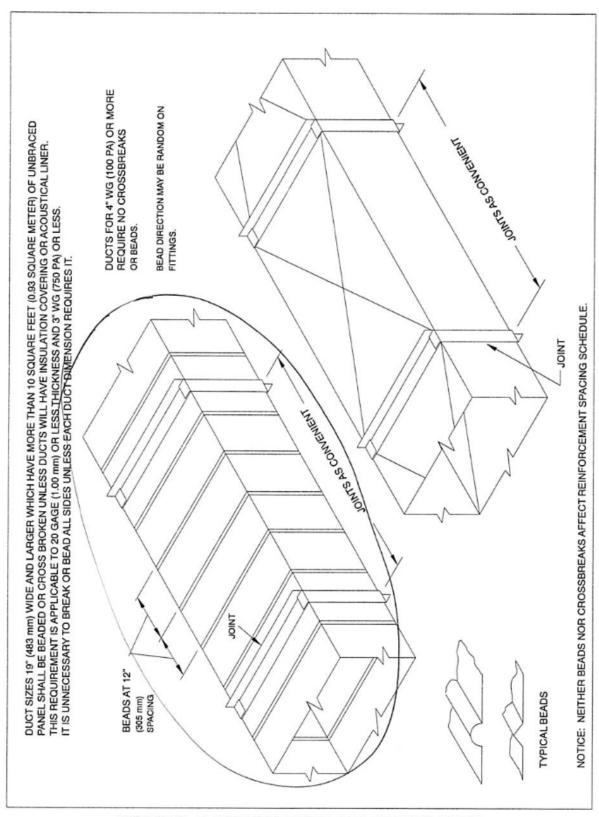


FIGURE 2-9 CROSSBROKEN AND BEADED DUCT



SUBMITTAL

Product:

Duct Sealant and Tape

Manufacturer:

Hardcast, Inc.

Job Name:

HSU Reynolds Lab

Location:

Arkadelphia, AR

Date:

January 6, 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 Ilbs/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



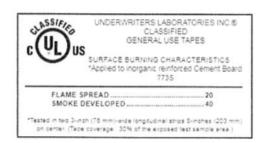
PRECAUTIONS

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





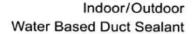
















PART NUMBERS	S
304142	1 Case w/ (25) 11 oz. Cartridges (White)
304146	1 Case w/ (25) 11 oz. Cartridges (Gray)
304144	1 Case w/ (4) 1-Gallon Pails (White)
304148	1 Case w/ (4) 1-Gallon Pails (Gray)
304143	1 - 2-Gallon Pail (White)
304147	1 - 2-Gallon Pail (Gray)
304145	1 - 5-Gallon Pail (White)

TECHNICAL DATA

LECHNICAL 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 1/4 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 1/2 , 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.®



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.





USA: 900 Hensley Lane, Wylie, TX 75098 • (877) 495-4822 Canada: 2100 Remembrance Road, Lachine, QC H8S 1X3 • (800) 544-5535 www.carlislehvac.com

SUBMITTAL

Product:

Flexible Duct Connector

Manufacturer:

DURO DYNE

Job Name:

HSU Reynolds Lab

Location:

Arkadelphia, AR

Date:

January 6, 2025

SUBMITTAL RECORD JOB	
LOCATION	DUR
SUBMITTED TO	
SUBMITTAL PREPARED BY	
APPROVED BY	

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®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 ¹	350	595	250	650		
Tear Strength ²	100/100	12/12 20/20		50/30		
Tensile Strength ³	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/ Woven Fiberglass Polyester Blend		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 ⁺	MBXSS333 (#10231)	MFNSS333 (#10232)	MFDSS333 (#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

Notes:

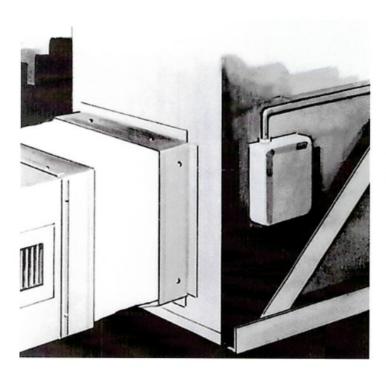
- 1. Leakage resistance as per Federal Test Standard 191 Method #5512. Results in P.S.I. (To convert inches of water multiply P.S.I. x 27.176.).
- 2. Tear strength in tongue pounds as per Federal Test Standard 191 Method #5134.1 (warp/fill).
- Tensile strength in grab pounds as per Federal Test Standard 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 infet and discharge of all a	ir nandling equipment(unless otherwise noted) furnish and install vibration isolators. Vibration i	solators shall be
a coated woven fabric named	and shall be "Underwriters Laboratories Classified".	
Vibration isolators shall have a t	ear strength of not less then , an abrasion resistance of not less than , an	nd a continuous
temperature range of	Vibration isolators shall be preassembled metal to exposed fabric to metal. Fabric and metal sh	
means of a double lock seam.		an or joined by
Vibration isolators shall be code	(called Flexible Duct Connectors) as manufactured by Duro Dyne Corneration B	av Shore N V

^{*316} stainless steel: Item # 10275, 10276





Specifications

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

- 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)
- Denver City Approved.

CHEMICAL RESISTANCE

- (X = Extremely Resistant)
- (~ = Not Recommended)
- (O = No Data Available)

Chemical	Excelor	Heopres	Purolo	Teffon	Chemical	Excelon	Heopres	Durolof	Tellon
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	0
Ammonium Sulfate	X	X	X	X	Magnesium Chloride	~	X	X	X
Barium Sulfide	X	X	X	X	Maleic Acid	X	~	X	0
Black Sulfate Liquor	X	X	X	X	Methyl Alcohol	~	X	X	X
Boric Acid	X	X	X	X	Methyl Cellosolve	~	X	X	0
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	~	~	0	Nitric Acid (40%)	X	~	X	X
Chromic Acid	X	~	X	X	Oleic Acid	X	~	~	X
Chromium Plating Solution	X	0	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	0	Potassium Chloride	X	X	X	o
Diacetone Alcohol	~	X	X	0	Potassium Cyanide	X	X	X	X
Disodium Phosphate	X	~	~	0	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
Ferrie Chloride	X	X	X	X	Propyl Alcohol	~	X	X	O
Ferric Sulfate	X	X	X	X	Sodium Chloride	X	X	X	X
Fluroboric 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
lexane	~	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			Α.	Λ.	Λ

