

SUBMITTAL RECORD

JOB _____
 LOCATION _____
 SUBMITTED TO _____
 SUBMITTAL PREPARED BY _____
 APPROVED BY _____
 DATE _____

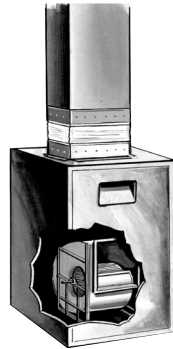


Submittal Form
DDFDC
Flexible Duct Connector

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".



RELATED NFPA 90A & 90B STANDARDS

2-3.2.2 Vibration isolation connectors in duct systems shall be made of an approved flame-retardant fabric or shall consist of sleeve joints with packing of approved material, each having a maximum flame spread index of 25 and a maximum smoke developed index of 50. Exception: Approved flame-retardant fabric having a maximum length of 10 in. (25.4 cm) in the direction of airflow-NFPA No. 90A 1999

2-1.1.1 Exception No. 3: Vibration isolation connectors in duct systems shall be made of approved flame-retardant fabric or shall consist of sleeve joints with packing of approved noncombustible material. The fabric shall not exceed 10 in. (254 mm) in length in direction of airflow-NFPA No. 90B 1999

FABRIC COMPARISONS	Excelon ⁵	Neoprene	Durolon	Insulflex*	Thermafab [®]	Envirofab	Teflon	Glasscel
UL Classified File #	R4462	R4462	R4462	n/a	R4462	R4462	n/a	R4462
Continuous Temp. Range	-40°F. to 180°F.	-40°F. to 200°F.	-40°F. to 250°F.	-40°F. to 180°F.	-65°F. to 500°F.	-40°F. to 200°F.	-150°F. to 500°F.	-40°F. - 180°F.
Color	Black or Spec Chek Orange	Black	White	Black	Grey	Black/White	Grey Outside/ Beige Inside	Grey & Black
Weight Per Square Yard	22	30	26	28 (composite weight)	17	18	16.5	16
Abrasion Resistance¹	15,000 cycles	600 cycles	500 cycles	500 cycles	125 cycles	15,000 cycles	1,000 cycles	1,400 cycles
Leakage Resistance²	350	595	250	125	400	350	650	120
Tear Strength³	100/100	12/12	12/12	8/11	50/40	60/80	50/30	8/9
Tensile Strength⁴	240/220	500/450	225/300	70/70	200/150	200/190	400/300	90/90
Base Fabric	Woven Nylon/ Polyester Blend	Woven Fiberglass	Woven Fiberglass	Polyester	Woven Fiberglass	Polyester	Fiberglass/ Satin Weave	Woven Fiberglass
Coating	Vinyl	Neoprene	Hypalon	Vinyl	Silicon Rubber	Proprietary Vinyl Blend	Teflon	Vinyl
Features	High Tear Strength High Abrasion Resistance	General Purpose	Excellent Ozone and Weathering Resistance Best Overall Acid Resistance	Low Smoke Emission Insulated 3-4-3 Configuration	Very Low Smoke Emission High Temperature Resistant	"Green" 10% Recycled Content UV Reflective Puncture Resistant	High Temperature Resistant High Corrosion Resistance Excellent Chemical Resistance	Resistant to Acids & Chemical Fumes Resistant to Grease & Alkalies Unaffected By Mildew
Codes								
Metal-Fab 3x3x3 Grip Loc	MBX333 (#10159) MSPX333 (#10263)	MFN333 (#10003)	MFD333 (#10002)	IDC343 (#10173) *Gauge: 28 +Guard Loc	MFT333 (#10005)	MEV333 (#10301)	MCT333 (#10278)	MGL333 (#10004)
Super Metal-Fab 3x6x3 Grip Loc	MB6X363 (#10160) MSP6X363 (#10265)	MF6N363 (#10012)	MF6D363 (#10011)	Not Available	MF6T363 (#10013)	Not Available	Not Available	MF6G363 (#10016)
TDC/TDF 4x4x4 Grip Loc	MBX444 (#10210) MSPX444 (#10264) MBX464 (#10214)	MFN444 (#10211) MFN464 (#10246)	MFD444 (#10237) MFD464 (#10245)	Not Available	Not Available	MEV444 (#10300)	MCT444 (#10279)	Not Available



All Metal-Fab, Super Metal-Fab and TDC/TDF Flexible Duct Connectors are manufactured with 24 gauge galvanized steel. Other materials are available upon request. Stainless Steel configurations utilize 304 or 316 grade material.

Notes:

1. Abrasion resistance as per Federal Test Standard 191 Method #5306 using CS 17 wheel with 250 Gram load.
2. 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.)
3. Tear strength in tongue pounds as per Federal Test Standard 191 Method #5134.1 (warp/fill).
4. Tensile strength in grab pounds as per Federal Test Standard 191 Method #5100 (warp/fill).
5. Standard Excelon is not LA city approved. Use Excelon-LA when LA city approval is necessary. (See Specification Form Excelon-LA - 203)

All Duro Dyne Flexible Duct Connector Products are suitable for pressures of -10 to +15 wg. Duro Dyne's standard 'single fold' metal to fabric grip has been tested by an independent testing laboratory to withstand a negative pressure of -10" WC and a positive pressure of +17.25" WC with no tearing or visible separation.

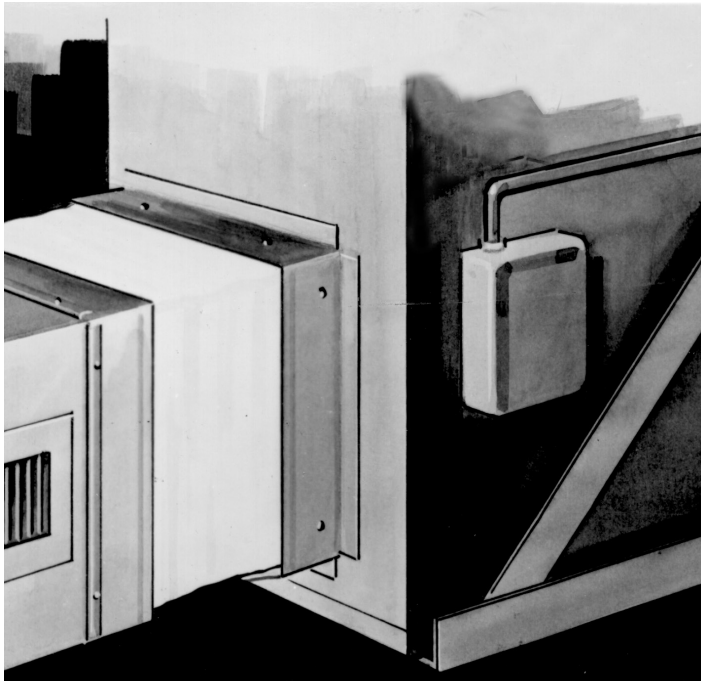
SUGGESTED SPECIFICATION

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 _____, 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.



DURO DYNE[®]

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. NFPA 90A Installation of Air Conditioning and Ventilating Systems Para. 4.3.2.2 2012 Edition.
4. NFPA 90B Warm air heating and air conditioning systems. Para. 4.1.1.1.3.1 2012 Edition. (*See note 1 below)
5. NFPA701 Tests for Flame Propagation of Fabrics and film.
6. California State Fire Marshal Approved.
7. Los Angeles City Approved. (*See note 2 below)
8. Denver City Approved.

All Duro Dyne Flexible Duct Connectors utilize galvanized steel meeting ASTM-A-525 G 60 or better.

Duro Dyne Flexible Duct Connectors are also available with 300 series stainless steel or 3003 aluminum upon request.

*Note 1 - Standard Excelon does not currently meet NFPA 90B 2012 but does meet all previous editions. Use Excelon-LA if NFPA 90B 2012 approval is necessary.

**Note 2 - Standard Excelon is not LA city approved. Use Excelon-LA when LA city approval is necessary. (See Submittal Form for Excelon-LA)

CHEMICAL RESISTANCE

(X = Extremely Resistant)

(NR = Not Recommended)

(O = No Data Available)

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

Duro Dyne East Division, Bay Shore, NY
 Duro Dyne Midwest Division, Fairfield, OH
 Duro Dyne West Division, Fontana, CA
 Duro Dyne Canada, Lachine, Quebec, Canada

631-249-9000 Fax: 631-249-8346
 513-870-6000 Fax: 513-870-6005
 562-926-1774 Fax: 562-926-5778
 514-422-9760 Fax: 514-636-0328

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



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