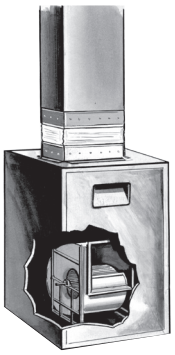
SUBMITTAL RECORD
JOB _____
LOCATION _____
SUBMITTED TO _____
SUBMITTAL PREPARED BY _____
APPROVED BY _____
DATE _____

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. (45.4 cm) in the direction of airflow-**NFPA No. 90A 1999**

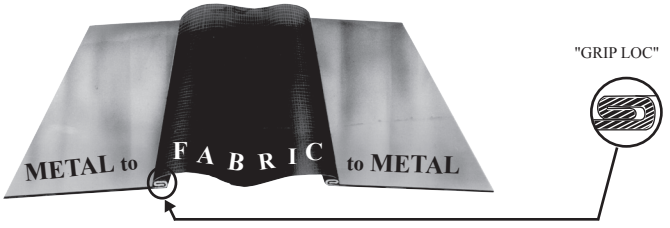
2-1.1.1 Exception No. 3: Vibration isolation connectors in duct systems shall be made of approved flame-retardant fabric or shall consist of sleeve joints with packing of approved noncombustible material. The fabric shall not exceed 10 in. (254 mm) in length in direction of airflow-**NFPA No. 90B 1999**

FABRIC COMPARISONS	Excelon[4]	Neoprene	Durolon	Insulflex*	Thermafab®	Envirofab	Teflon	Glasseal
UL Classified File #	**R4462**	**R4462**	**R4462**	**R4462**	**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
Leakage Resistance[1]	350	595	250	125	400	350	650	120
Tear Strength[2]	100/100	12/12	12/12	8/11	50/40	60/80	50/30	8/9
Tensile Strength[3]	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	MBX (#10159) MSPX (#10263)	MFN (#10003)	MFD (#10002)	IDC (#10173) *Gauge: 28 +Guard Loc	MFT (#10005)	MEV4-100 (#10301)	MCT333 (#10278)	MGL (#10004)
Grip Loc Super Metal-Fab 3x6x3	MB6X (#10160) MSP6X (#10265)	MF6N (#10012)	MF6D (#10011)	Not Available	MF6T (#10013)	Not Available	Not Available	MF6G (#10016)
Grip Loc TDC/TDF 4x4x4 Grip Loc	MBX4x4x4 (#10210) MSPX4x4x4 (#10264) MBX4x6x4 (#10214)	MFN4x4x4 (#10211) MFN4x6x4 (#10246)	MFD4x4x4 (#10237) MFD4x6x4 (#10245)	Not Available	Not Available	MEV4x4x4 (#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. 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)



The Duro Dyne 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.

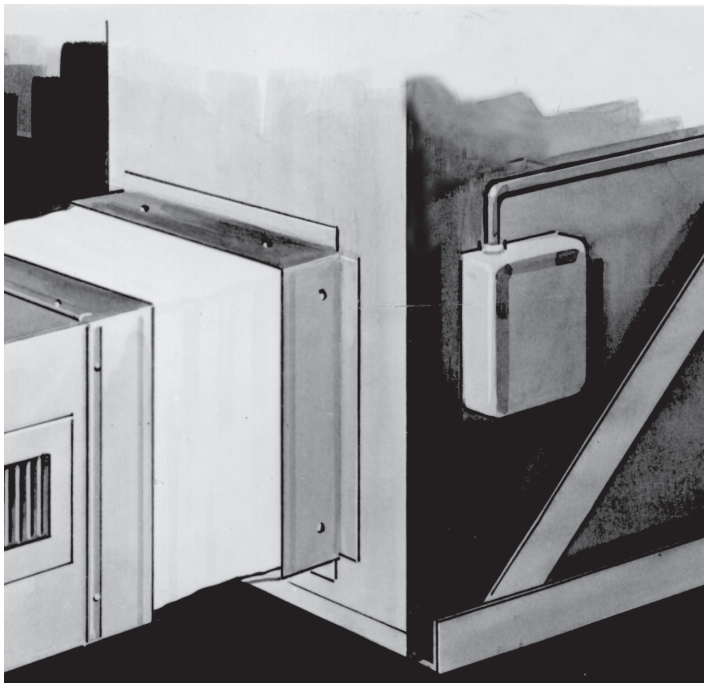
SUGGESTED SPECIFICATION

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 then _____, 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. NFPA 90A Installation of Air Conditioning and Ventilating Systems Para. 2-3.2.2 1999 Edition.
4. NFPA 90B Warm air heating and air conditioning systems. Para. 2-1.1.1 exc. no 3 1999 Edition.
5. NFPA701 Tests for Flame Propagation of Fabrics and film.
6. California State Fire Marshal Approved.
7. Los Angeles City Approved. (See note 1 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 is not LA city approved. Use Excelon-LA when LA city approval is necessary. (See Specification Form Excelon-LA - 203)

CHEMICAL RESISTANCE

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

Chemical	Excelon	Neoprene	Durolon	Insulflex	Thermafab	Envirofab	Teflon	Glasseal
Acetic Acid	~	X	X	~	~	~	X	~
Aluminum Chloride	X	X	X	X	X	X	X	X
Aluminum Sulfate	X	X	X	X	X	X	X	X
Ammonia (Anhyd)	X	X	X	X	X	X	X	X
Ammonium Hydroxide	X	X	X	X	X	X	X	X
Ammonium Sulfate	X	X	X	X	X	X	X	X
Barium Sulfide	X	X	X	X	O	X	X	X
Black Sulfate Liquor	X	X	X	X	~	X	X	X
Boric Acid	X	X	X	X	X	X	X	X
Butyl Alcohol	~	X	X	~	~	~	X	~
Cadmium Plating Solution	X	~	~	~	O	X	O	X
Calcium Chloride	X	X	X	X	X	X	X	X
Calcium Hypochlorite	X	~	X	X	O	X	X	X
Chlorine Water	X	~	~	X	~	X	O	X
Chromic Acid	X	~	X	X	O	X	X	X
Chromium Plating Solution	X	O	O	~	O	X	O	X
Citric Acid	X	X	X	X	X	X	X	X
Copper Chloride	X	X	X	X	O	X	X	X
Copper Sulfate	X	X	X	X	O	X	X	X
Cottonseed Oil	X	X	X	X	X	X	O	X
Diacetone Alcohol	~	X	X	~	O	~	O	~
Disodium Phosphate	X	~	~	X	O	X	O	X
Ethyl Alcohol	~	X	X	~	~	~	X	~
Ethylene Glycol	~	X	X	~	X	~	X	~
Ferric Chloride	X	X	X	X	X	X	X	X
Ferric Sulfate	X	X	X	X	X	X	X	X
Fluroboric Acid	X	X	X	~	O	X	O	X
Formaldehyde (40%)	X	X	X	X	O	X	X	X
Formic Acid	X	X	X	X	O	X	X	X
Glucose	X	X	X	X	X	X	X	X
Glycerine	~	X	X	~	X	~	X	~
Heptane	~	X	X	~	O	~	X	~
Hexane	~	X	X	~	O	~	X	~
Hydrobromic Acid (40%)	~	X	X	~	O	~	X	~
Hydrochloric Acid (conc)	~	X	X	~	~	~	X	~

Chemical	Excelon	Neoprene	Durolon	Insulflex	Thermafab	Envirofab	Teflon	Glasseal
Hydrofluoric Acid (100%)	~	X	X	~	~	~	X	~
Hydrogen Peroxide	X	~	X	X	X	X	X	X
Hydrogen Sulfide	X	X	X	X	O	X	X	X
Lactic Acid	~	X	X	~	O	~	X	~
Linseed Oil	~	X	X	~	X	~	O	~
Magnesium Chloride	~	X	X	~	~	~	X	~
Maleic Acid	X	~	X	X	X	X	O	X
Methyl Alcohol	~	X	X	~	~	~	X	~
Methyl Cellosolve	~	X	X	~	~	~	O	~
Mineral Oil	X	X	X	X	~	X	X	X
Naptha	~	~	~	~	X	~	X	~
Nickel Chloride	X	X	X	X	O	X	X	X
Nickel Sulfate	X	X	X	X	X	X	X	X
Nitric Acid (40%)	X	~	X	X	~	X	X	X
Oleic Acid	X	~	~	X	~	X	X	X
Oleum	~	~	X	~	O	~	X	~
Oxalic Acid	X	X	X	X	X	X	X	X
Phosphoric Acid (85%)	~	X	X	~	X	~	X	~
Pickling Solution	X	~	X	X	O	X	O	X
Potassium Chloride	X	X	X	X	O	X	O	X
Potassium Cyanide	X	X	X	X	O	X	X	X
Potassium Dichromate	X	X	X	X	O	X	X	X
Potassium Hydroxide (40%)	X	X	X	~	X	X	X	X
Potassium Sulfate	X	X	X	X	O	X	X	X
Propyl Alcohol	~	X	X	~	~	~	O	~
Sodium Chloride	X	X	X	X	X	X	X	X
Sodium Hydroxide (40%)	~	X	X	~	X	~	X	~
Sodium Hypochlorite	~	~	X	~	~	~	X	~
Steam	~	X	~	~	O	~	X	~
Sulfur Dioxide (Liquid)	~	X	X	~	X	~	X	~
Sulfuric Acid (50%)	X	~	X	~	~	X	X	X
Sulfuric Acid (over 50%)	~	~	X	~	~	~	X	~
Tannic Acid	X	X	X	X	O	X	X	X
Vinegar	X	X	X	X	X	X	X	X

Duro Dyne East Division, Bay Shore, NY 631-249-9000 Fax: 631-249-8346
Duro Dyne Midwest Division, Fairfield, OH 513-870-6000 Fax: 513-870-6005
Duro Dyne West Division, Santa Fe Springs, CA 562-926-1774 Fax: 562-926-5778
Duro Dyne Canada, Lachine, Quebec, Canada 514-422-9760 Fax: 514-636-0328
www.durodyne.com E-mail: durodyne@durodyne.com

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