

SUBMITTAL RECORD

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

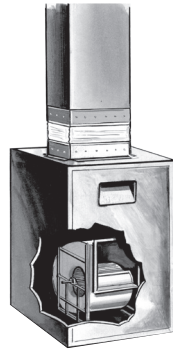


Submittal Form
DDFDC
Flexible Duct Connector

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

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. 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®	Neoprene (Specification Grade)	Durolon	Insulflex®	Thermafab®	Teflon	Glasseal
UL Classified Listing #	R4462	R4462	UL Certified NFPA 701	n/a	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.	-150°F. to 500°F.	-40°F. to 180°F.
Color	Black	Black	White	Black	Grey	Grey Outside/Beige Inside	Grey & Black
Commercial Grade Weight	22 oz.	30 oz.	26 oz.	28 oz. (composite weight)	17 oz.	16.5 oz.	16 oz.
Residential Grade Weight	17 oz.	30 oz.	26 oz.	28 oz. (composite weight)	17 oz.	16.5 oz.	16 oz.
Abrasion Resistance ¹	15,000 cycles	600 cycles	500 cycles	500 cycles	125 cycles	1,000 cycles	1,400 cycles
Leakage Resistance ²	350	595	250	125	400	650	120
Tear Strength ³	100 lbs. / 100 lbs.	12 lbs. / 12 lbs.	12 lbs. / 12 lbs.	8 lbs. / 11 lbs.	50 lbs. / 40 lbs.	50 lbs. / 30 lbs.	8 lbs. / 9 lbs.
Tensile Strength ⁴	240 lbs. / 220 lbs.	500 lbs. / 450 lbs.	225 lbs. / 300 lbs.	70 lbs. / 70 lbs.	200 lbs. / 150 lbs.	400 lbs. / 300 lbs.	90 lbs. / 90 lbs.
Base Fabric	Woven Nylon/Polyester Blend	Woven Fiberglass	Woven Fiberglass	Polyester	Woven Fiberglass	Fiberglass/Satin Weave	Woven Fiberglass
Coating	Vinyl	Neoprene	Hypalon	Vinyl	Silicon Rubber	Teflon	Vinyl
Features	<ul style="list-style-type: none"> • Excellent water resistance • Excellent tear strength • Excellent all purpose fabric • Unaffected by mildew 	<ul style="list-style-type: none"> • Extremely resistant to alkalis & gasoline • Excellent on systems exposed to toxic fumes • Good general purpose fabric • Unaffected by mildew 	<ul style="list-style-type: none"> • Excellent ozone & weathering resistance • Best overall acid resistance • Recommended for rooftop applications • Unaffected by mildew 	<ul style="list-style-type: none"> • Low Smoke Emission • Insulated 3-4-3 Configuration 	<ul style="list-style-type: none"> • Excellent high temp. & chemical resistance • Extremely low smoke emission • Unaffected by mildew 	<ul style="list-style-type: none"> • High temperature resistant • High corrosion resistance • Excellent chemical resistance 	<ul style="list-style-type: none"> • Good, low cost • Resistant to acids & chemical fumes • Resistant to grease & alkalis • Unaffected by mildew
Metal-Fab® Grip Loc	MBX333 (#10159)	MFN333 (#10003)	MFD333 (#10002)	IDC343 (#10173) *Gauge: 28 + Guard Loc	MFT333 (#10005)	MCT333 (#10278)	MGL333 (#10004)
Super Metal-Fab® Grip Loc	MB6X363 (#10160) MB12X3123 (#10252)	MF6N363 (#10012) MFN12N3123 (#10251)	MF6D363 (#10011)	Not Available	MF6T363 (#10013)	Not Available	MF6G363 (#10016)
TDC/TDF Grip Loc	MBX444 (#10210) MBX464 (#10214) MBX484 (#10280) MBX4104 (#10286)	MFN444 (#10211) MFN464 (#10246) MFN484 (#10281) MFN4124 (#10254)	MFD444 (#10237) MFD464 (#10245)	Not Available	Not Available	MCT444 (#10279) MCT4104 (#10287)	Not Available

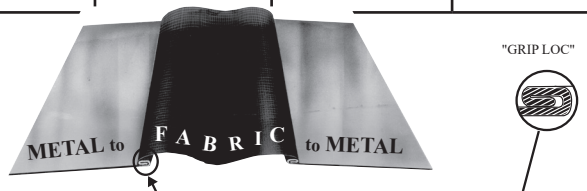
All Metal-Fab, Super Metal-Fab and TDC/TDF Flexible Duct Connectors are manufactured with 24 gauge galvanized steel.

Duro Dyne meets or exceeds the SMACNA steel requirements for flexible duct connector. Other materials are available upon request.

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.

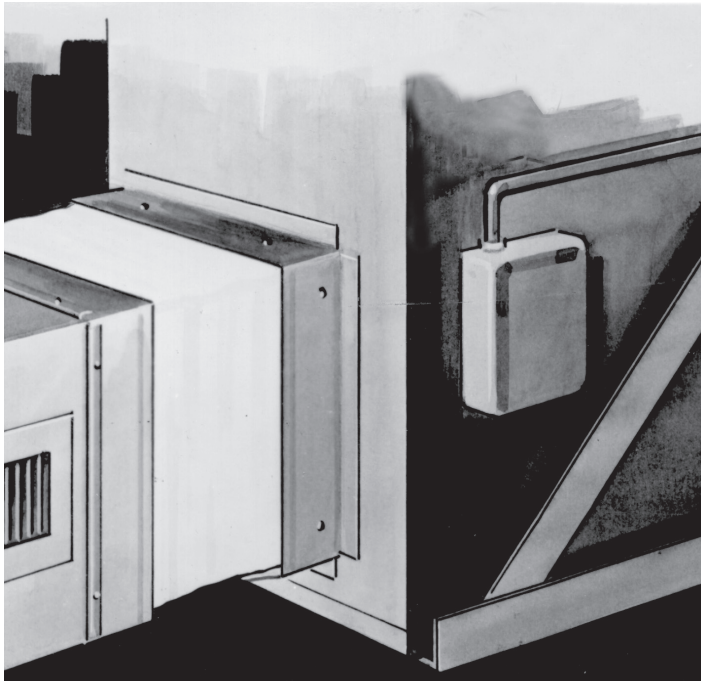
SUGGESTED SPECIFICATION

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

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