



5235 Ted Street, Houston, Texas 77040
713-462-7694, Fax 713-939-8441
www.flexmasterusa.com

June 2, 2008

Dear Flexmaster USA Representatives:

We recently re-evaluated our flexible duct and are excited to supply you with the current information; this further differentiates us from any competition and should help overcome some objections; please note the following changes:

Our core for type 3; "B", "M" and NI is now rated
20" positive,
10" w.g. negative thru 12"
5" w.g. negative 14" & 16"
1" w.g. negative, 18" & 20"

Our core for type 4; "B", "M" and NI is now rated
25" positive,
(no changes on negatives which are)
10" w.g. negative thru 12"
5" w.g. negative 14" & 16,"
1" w.g. negative, 18" & 20"

Our core for type 5; "B", "M" and NI is now rated
10" positive
10" w.g. negative thru 12"
5" w.g. negative 14" & 16"
1" w.g. negative, 18" & 20"

Our entire flexible duct product offering (insulated and NI) now has a Rated Velocity of 5500 F.P.M; in the past the range was 4000 to 5500 depending on the product.

All of our submittal files have been updated and are available on line.

- Product Gallery link: <http://www.flexmasterusa.com/pg>
- Individual Submittal Data files: <http://www.flexmasterusa.com/pg/sdp.php>
- Full Submittal Data Catalog:
<http://www.flexmasterusa.com/beta/uploads/Full%20Sub%20Data%20Cat%202008.pdf>

Please let me know if you have any questions regarding this information, I appreciate all of your support, please let me know if I can assist you in anyway.

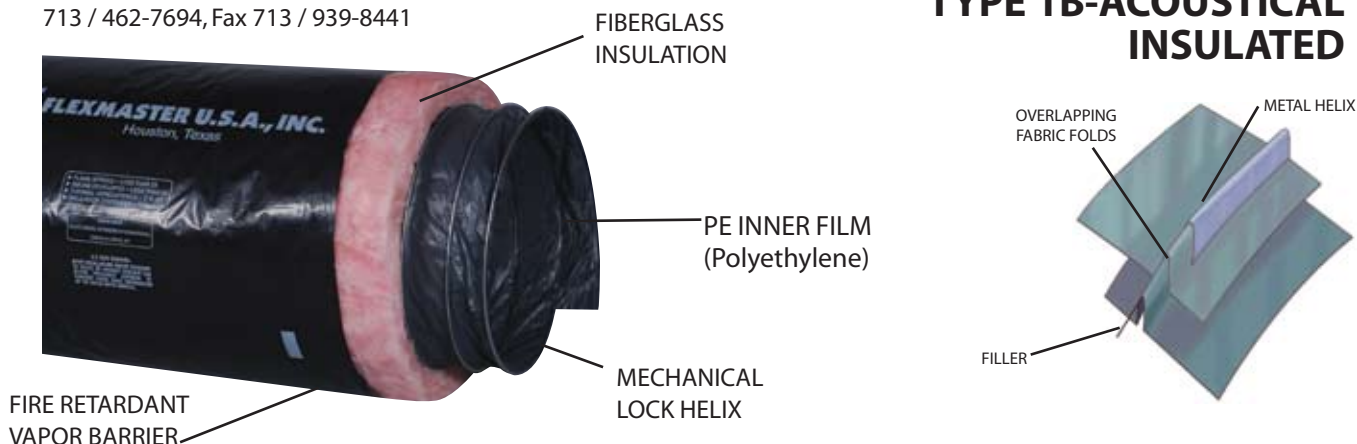
Sincerely,

Neil Silverman
Director Sales & Marketing
Flexmaster USA, Inc.
713-979-5472 Ext 102
713-979-5477 Fax
www.FlexmasterUSA.com



5235 Ted Street, Houston, Texas 77040,
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TYPE 1B-ACOUSTICAL INSULATED



CONSTRUCTION FEATURES

Flexmaster USA's **Type 1B** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, ETL Class I AIR Connector is fabricated with an acoustically transparent PE inner film which allows mid-range sound energy to penetrate the duct wall.

LINER

A PE (Polyethylene) Inner Film.
Mechanically Locked
Without Adhesives.

HELIX

Corrosion Resistant Galvanized Steel.
Formed and Mechanically Locked to Fabric.

VAPOR BARRIER

Black Fire Retardant Polyethylene Material.
Excellent Strength at Low Temperatures.
Will Not Age Harden..

INSULATION

Fiberglass Insulation Blanket, Factory
Wrapped.

TECHNICAL DATA

Standard lengths (feet)25', Special lengths on request	Rated Velocity5500 F.P.M.
Inside Diameter (Inches)3",4",5",6",7",8",9",10",12",14",15",16",18",20"	Working Pressure (W.G.)10" w.g. positive 10" w.g. negative thru 12" Dia. 5" w.g. negative, 14" & 16" Dia. 1" w.g. negative 18" & 20" Dia
Inside Bend Radius (inches)1/2 x I.D. (All Sizes)	Operating Temperature Range-20° to +250°F
Air Friction LossSee Friction Loss Chart	Flame SpreadLess than 25
Vapor Barrier10 perm A.S.T.M.	Smoke DevelopedLess than 50
PermeanceE96, Procedure A	Thermal Conductanceavailable: R-4.2, R-6.0, R-8.0
ETL listed (conforms to UL STD 181)ETL Class 1 Air Connector	
Standard, CodesNFPA 90A and 90B, BOCA, SBBC HUD/FHA, MIN Property Std.	

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

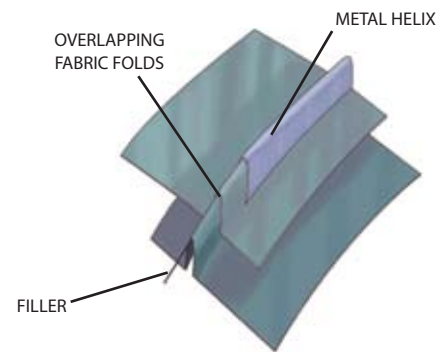
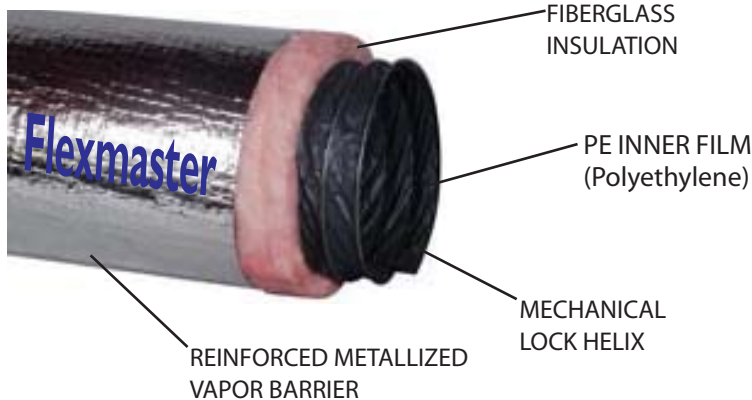
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COMMENTS _____



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TYPE 1M- ACOUSTICAL INSULATED



CONSTRUCTION FEATURES

Flexmaster USA's **Type 1M** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, ETL Class I AIR DUCT is fabricated with an acoustically transparent PE inner film which allows mid-range sound energy to penetrate the duct wall.

LINER

A PE (Polyethylene) Inner Film.
Mechanically Locked
Without Adhesives.

HELIX

Corrosion Resistant Galvanized Steel.
Formed and Mechanically Locked to Fabric.

VAPOR BARRIER

Fire Retardant Reinforced Aluminum Material.
Excellent Strength at Low Temperatures.
Will Not Age Harden.

INSULATION

Fiberglass Insulation Blanket, Factory
Wrapped.

TECHNICAL DATA

Standard lengths (feet).....25', Special lengths on request

Inside Diameter (Inches).....3",4",5",6",7",8",9",10",
12",14",15",16",18",20"

Inside Bend Radius (inches).....1/2 x I.D. (All Sizes)

Air Friction Loss.....See Friction Loss Chart

Vapor Barrier......05 perm A.S.T.M.

Permeance.....E96, Procedure A

ETL listed (conforms to UL STD 181).....ETL Class 1 Air Duct

Standard, Codes.....NFPA 90A and 90B, BOCA, SBBC
HUD/FHA, MIN Property Std.

Rated Velocity.....5500 F.P.M.

Working Pressure (W.G.).....10" w.g. positive
10" w.g. negative thru 12" Dia.
5" w.g. negative, 14" & 16" Dia.
1" w.g. negative 18" & 20" Dia.

Operating

Temperature Range.....-20° to +250°F

Flame Spread.....Less than 25

Smoke Developed.....Less than 50

Thermal Conductance.....available: R-4.2, R-6.0, R-8.0

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

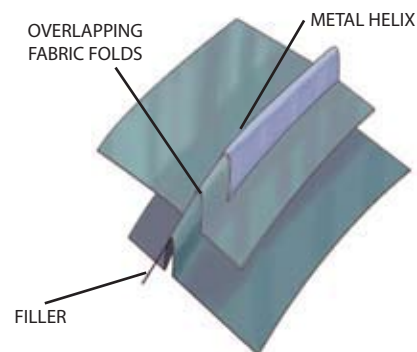
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TYPE 3B-HIGH PRESSURE INSULATED



CONSTRUCTION FEATURES

Flexmaster's **Type 3B** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181 / ETL Class I Air Connector is designed for application in a low to high pressure HVAC air distribution system

LINER

A Trilaminate of Aluminum Foil, Fiberglass and Aluminized Polyester. Mechanically Locked Without Adhesives.

VAPOR BARRIER

Black Fire Retardant Reinforced Material. Excellent Strength at Low Temperatures. Will Not Age Harden.

HELIX

Corrosion Resistant Galvanized Steel. Formed and Mechanically Locked to Fabric.

INSULATION

Fiberglass Insulation Blanket, Factory Wrapped.

TECHNICAL DATA

Standard lengths (feet)25', Special lengths on request	Rated Velocity5500 F.P.M.
Inside Diameter (Inches)3"4",5",6",7",8",9",10",12",14",15",16",18",20"	Internal Working Pressure (W.G.)20" w.g. positive 10" w.g. negative thru 12" Dia. 5" w.g. negative, 14" & 16" Dia. 1" w.g. negative, 18" & 20" Dia.
Inside Bend Radius (inches)1/2 x I.D. (All Sizes)	Minimum Burst Pressure2 1/2 times working pressure
Air Friction LossSee Friction Loss Chart	Operating Temperature Range-20° to +250°F
Vapor Barrier Permeance1 perm A.S.T.M. E96, Procedure A	Flame SpreadLess than 25
UL ListingUL 181 / ETL Class 1 Air Duct	Smoke DevelopedLess than 50
Standard, CodesNFPA 90A and 90B, BOCA, SBBC HUD/FHA, MIN Property Std.	Thermal Conductanceavailable: R-4.2, R-6.0, R-8.0

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

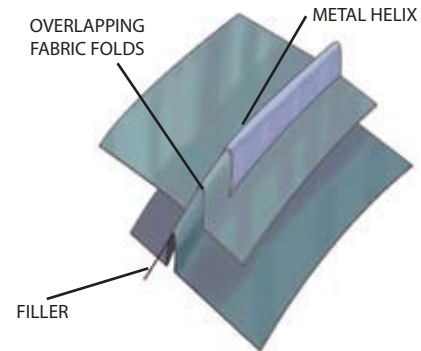
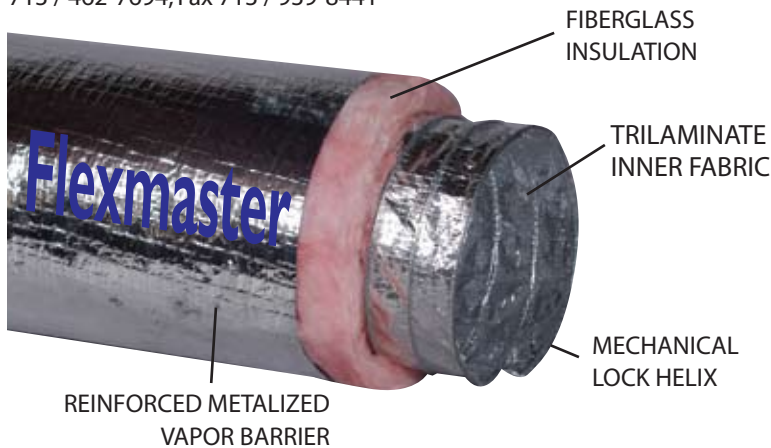
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TYPE 3M-HIGH PRESSURE INSULATED



CONSTRUCTION FEATURES

Flexmaster's **Type 3M** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181 Class I Air Duct is designed for application in a low to high pressure HVAC air distribution system.

LINER

A Trilaminate of Aluminum Foil, Fiberglass and Aluminized Polyester. Mechanically Locked Without Adhesives.

VAPOR BARRIER

Fire Retardant Reinforced Aluminum Material. Excellent Strength at Low Temperatures. Will Not Age Harden.

HELIX

Corrosion Resistant Galvanized Steel. Formed and Mechanically Locked to Fabric.

INSULATION

Fiberglass Insulation Blanket, Factory Wrapped.

TECHNICAL DATA

Standard lengths (feet).....25', Special lengths on request

inside Diameter (Inches).....3",4",5",6",7",8",9",10",
12",14",15",16",18",20"

Inside Bend Radius (inches).....1/2 x I.D. (All Sizes)

Air Friction Loss.....See Friction Loss Chart

Vapor Barrier......05 perm A.S.T.M.

Permeance.....E96, Procedure A

UL Listing.....UL 181, Class 1 Air Duct

Standard, Codes.....NFPA 90A and 90B, BOCA, SBBC
HUD/FHA, MIN Property Std.

Rated Velocity.....5500 F.P.M.

Internal Working Pressure (W.G.).....20" w.g. positive
10" w.g. negative thru 12" Dia.
5" w.g. negative, 14" & 16" Dia.
1" w.g. negative, 18" & 20" Dia.

Minimum Burst Pressure.....2 1/2 times working pressure

Operating Temperature Range.....-20° to +250°F

Flame Spread.....Less than 25

Smoke Developed.....Less than 50

Thermal Conductance.....available: R-5.0, R-6.0, R-8.0

*Flexmaster recommends that you check with the local code body having jurisdiction in your area to determine applicable codes.

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

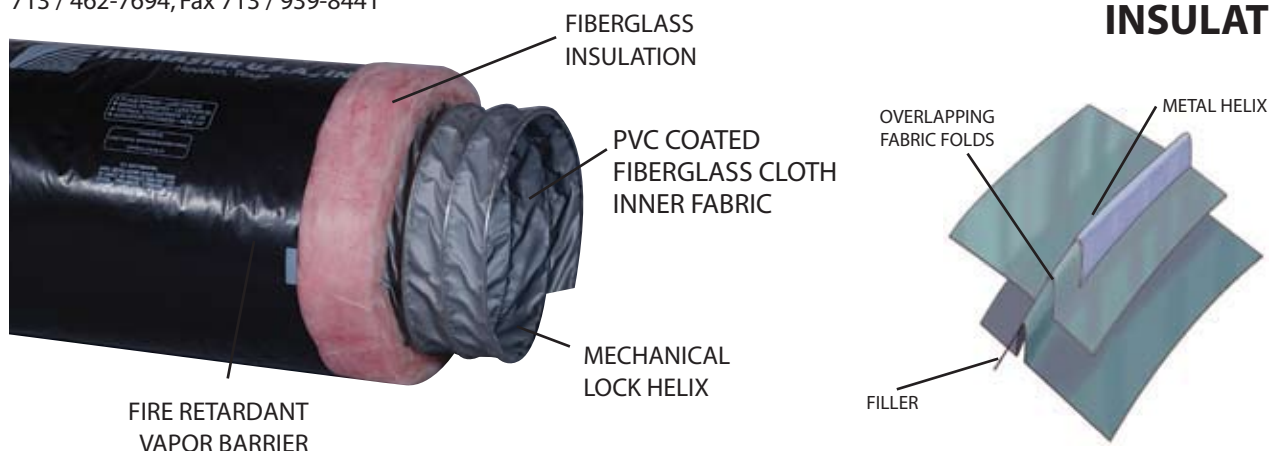
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COMMENTS _____



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TYPE 4B-HIGH PRESSURE INSULATED



CONSTRUCTION FEATURES

Flexmaster's **Type 4B** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181 / ETL Class I AIR DUCT is designed for application in a low to high pressure HVAC air distribution system.

LINER

A PVC Coated Fiberglass Cloth Fabric. Mechanically Locked Without Adhesives.

VAPOR BARRIER

Black Fire Retardant Polyethylene Material. Excellent Strength at Low Temperatures. Will Not Age Harden..

HELIX

Corrosion Resistant Galvanized Steel. Formed and Mechanically Locked to Fabric.

INSULATION

Fiberglass Insulation Blanket, Factory Wrapped.

TECHNICAL DATA

Standard lengths (feet)25', Special lengths on request	Rated Velocity5500 F.P.M.
Inside Diameter (Inches)3",4",5",6",7",8",9",10",12",14",15",16",18",20"	Internal Working Pressure (W.G.)25" w.g. positive 10" w.g. negative thru 12" Dia. 5" w.g. negative, 14" & 16" Dia. 1" w.g. negative, 18" & 20" Dia.
Inside Bend Radius (inches)1/2 x I.D. (All Sizes)	Minimum Burst Pressure2 1/2 times working pressure
Air Friction LossSee Friction Loss Chart	Operating Temperature Range-20° to +250°F
Vapor Barrier Permeance10 perm A.S.T.M. E96, Procedure A	Flame SpreadLess than 25
UL ListingUL 181 / ETL Class 1 Air Duct	Smoke DevelopedLess than 50
Standard, CodesNFPA 90A and 90B, BOCA, SBBC HUD/FHA, MIN Property Std.	Thermal Conductanceavailable: R-4.2, R-6.0, R-8.0

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

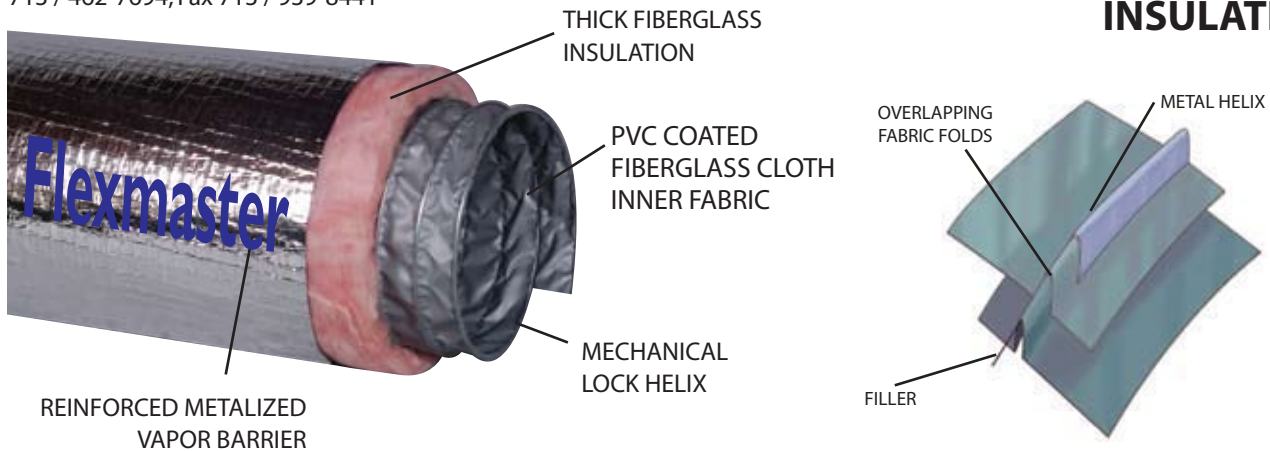
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TYPE 4M-HIGH PRESSURE INSULATED



CONSTRUCTION FEATURES

Flexmaster's **Type 4M** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181/ETL Class I Air Duct is designed for application in a low to high pressure HVAC air distribution system.

LINER

A PVC Coated Fiberglass Cloth Fabric. Mechanically Locked Without Adhesives.

VAPOR BARRIER

Fire Retardant Reinforced Aluminum Material. Excellent Strength at Low Temperatures. Will Not Age Harden.

HELIX

Corrosion Resistant Galvanized Steel. Formed and Mechanically Locked to Fabric.

INSULATION

Fiberglass Insulation Blanket, Factory Wrapped.

TECHNICAL DATA

Standard lengths (feet)25'; Special lengths on request	Rated Velocity5500 F.P.M.
Inside Diameter (Inches)3"4",5",6",7",8",9",10",12",14",15",16",18",20"	Internal Working Pressure (W.G.)25" w.g. positive 10" w.g. negative thru 12" Dia. 5" w.g. negative, 14" & 16" Dia. 1" w.g. negative, 18" & 20" Dia.
Inside Bend Radius (inches)1/2 x I.D. (All Sizes)	Minimum Burst Pressure2 1/2 times working pressure
Air Friction LossSee Friction Loss Chart	Operating Temperature Range-20° to +250°F
Vapor Barrier Permeance05 perm A.S.T.M. E96, Procedure A	Flame SpreadLess than 25
UL ListingUL 181 / ETL Class 1 Air Duct	Smoke DevelopedLess than 50
Standard, CodesNFPA 90A and 90B, BOCA, SBBC HUD/FHA, MIN Property Std.	Thermal Conductanceavailable: R-4.2, R-6.0, R-8.0

*Flexmaster recommends that you check with the local code body having jurisdiction in your area to determine applicable codes.

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

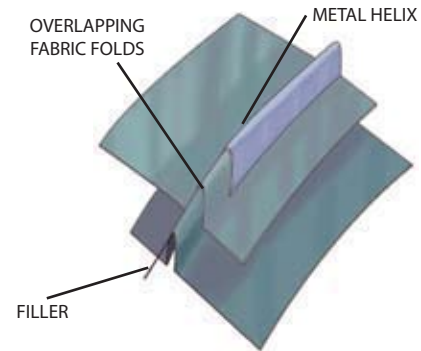
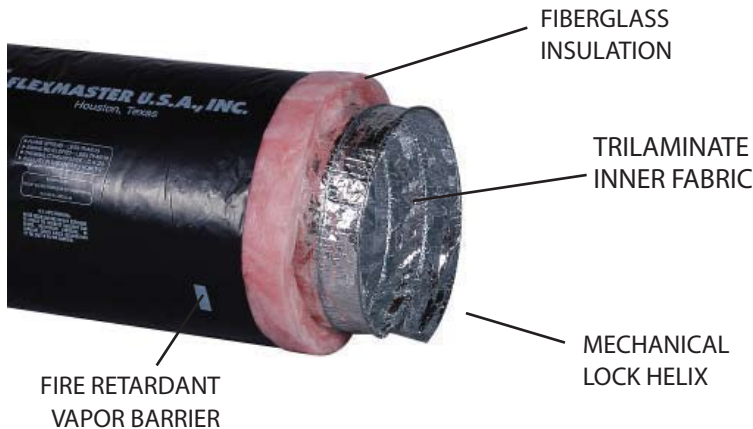
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COMMENTS _____



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TYPE 5B-LOW PRESSURE INSULATED



CONSTRUCTION FEATURES

Flexmaster's **Type 5B** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181 / ETL Class I Air Connector is designed for application in a low to medium pressure HVAC air distribution system.

LINER

A Trilaminate of Aluminum Foil, Fiberglass and Aluminized Polyester. Mechanically Locked Without Adhesives.

VAPOR BARRIER

Black Fire Retardant Reinforced Material. Excellent Strength at Low Temperatures. Will Not Age Harden.

HELIX

Corrosion Resistant Galvanized Steel. Formed and Mechanically Locked to Fabric.

INSULATION

Thick Fiberglass Insulation Blanket, Factory Wrapped.

TECHNICAL DATA

Standard lengths (feet)25', Special lengths on request	Rated Velocity5500 F.P.M.
Inside Diameter (Inches)3"4",5",6",7",8",9",10",12",14",15",16",18",20"	Internal Working Pressure (W.G.)10" w.g. positive 10" w.g. negative thru 12" Dia. 5" w.g. negative, 14" & 16" Dia. 1" w.g. negative, 18" & 20" Dia.
Inside Bend Radius (inches)1/2 x I.D. (All Sizes)	Minimum Burst Pressure2 1/2 times working pressure
Air Friction LossSee Friction Loss Chart	Operating Temperature Range-20° to +250°F
Vapor Barrier Permeance1 perm A.S.T.M.E96, Procedure A	Flame SpreadLess than 25
UL ListingUL 181 / ETL Class 1 Air Duct	Smoke DevelopedLess than 50
Standard, CodesNFPA 90A and 90B, BOCA, SBBCHUD/FHA, MIN Property Std.	Thermal Conductanceavailable: R-4.2, R-6.0, R-8.0

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

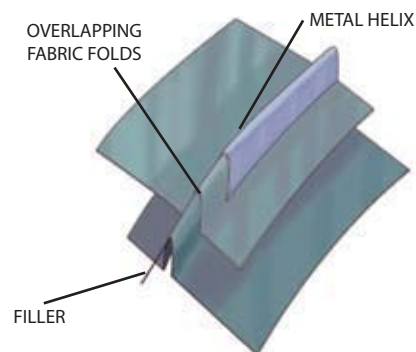
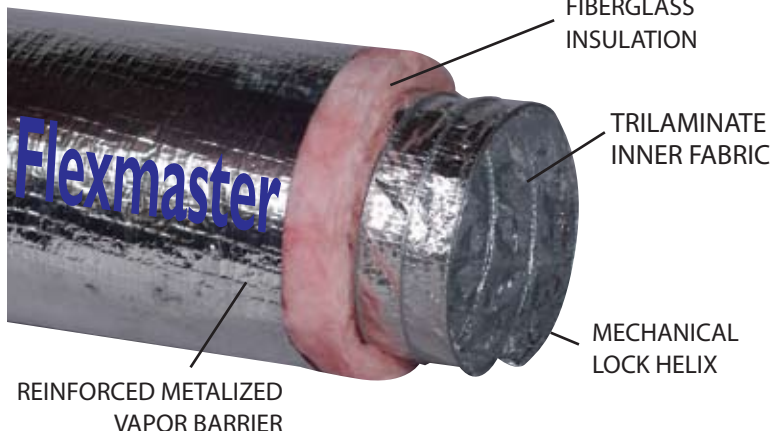
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COMMENTS _____



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TYPE 5M-LOW PRESSURE INSULATED



CONSTRUCTION FEATURES

Flexmaster's **Type 5M** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181/ETL Class I Air Duct is designed for application in a low to medium pressure HVAC air distribution system.

LINER

A Trilaminate of Aluminum Foil, Fiberglass and Aluminized Polyester. Mechanically Locked Without Adhesives.

VAPOR BARRIER

Fire Retardant Reinforced Aluminum Material. Excellent Strength at Low Temperatures. Will Not Age Harden.

HELIX

Corrosion Resistant Galvanized Steel. Formed and Mechanically Locked to Fabric.

INSULATION

Thick Fiberglass Insulation Blanket, Factory Wrapped.

TECHNICAL DATA

Standard lengths (feet).....25', Special lengths on request

Inside Diameter (Inches).....3",4",5",6",7",8",9",10",
12",14",15",16",18",20"

Inside Bend Radius (inches).....1/2 x I.D. (All Sizes)

Air Friction Loss.....See Friction Loss Chart

Vapor Barrier......05 perm A.S.T.M.

Permeance.....E96, Procedure A

UL Listing.....UL 181 / ETL Class 1 Air Duct

Standard, Codes.....NFPA 90A and 90B, BOCA, SBBC
HUD/FHA, MIN Property Std.

Rated Velocity.....5500 F.P.M.

Internal Working Pressure (W.G.).....10" w.g. positive
10" w.g. negative thru 12" Dia.
5" w.g. negative, 14" & 16" Dia.
1" w.g. negative, 18" & 20" Dia.

Minimum Burst Pressure.....2 1/2 times working pressure

Operating Temperature Range.....-20° to +250°F

Flame Spread.....Less than 25

Smoke Developed.....Less than 50

Thermal Conductance.....available: R-4.2, R-6.0, R-8.0

*Flexmaster recommends that you check with the local code body having jurisdiction in your area to determine applicable codes.

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

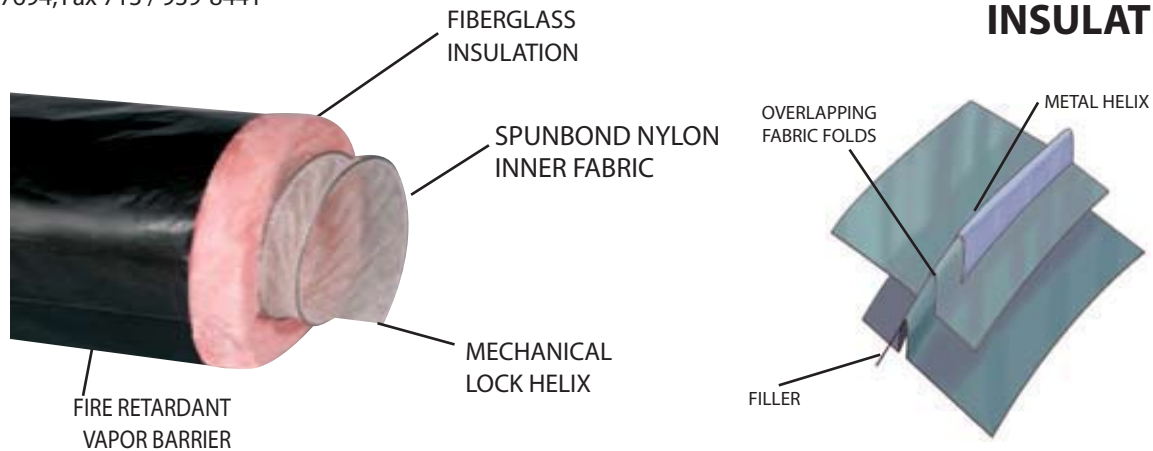
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TYPE 6B-ACOUSTICAL INSULATED



CONSTRUCTION FEATURES

Flexmaster's **Type 6B** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181 / ETL Class I Air Connector is fabricated with an acoustically transparent SPUNBOND Nylon inner fabric which allows Broadband sound energy to penetrate the duct wall.

LINER

SPUNBOND Nylon Fabric.
Mechanically Locked
Without Adhesives.

VAPOR BARRIER

Black Fire Retardant Polyethylene Material.
Excellent Strength at Low Temperatures.
Will Not Age Harden..

HELIX

Corrosion Resistant Galvanized Steel.
Formed and Mechanically Locked to Fabric.

INSULATION

Fiberglass Insulation Blanket, Factory
Wrapped.

TECHNICAL DATA

Standard lengths (feet).....25', Special lengths on request

Rated Velocity.....5500 F.P.M.

Inside Diameter (Inches).....3",4",5",6",7",8",9",10",
12",14",15",16",18",20"

Internal Working Pressure (W.G.).....6" w.g. positive
5" w.g. negative thru 16" Dia.
1" w.g. negative, 18" & 20" Dia.

Inside Bend Radius (inches).....1/2 x I.D. (All Sizes)

Minimum Burst Pressure.....2 1/2 times working pressure

Air Friction Loss.....See Friction Loss Chart

Operating Temperature Range.....-20° to +250°F

Vapor Barrier Permeance......1 perm A.S.T.M.
E96, Procedure A

Flame Spread.....Less than 25

UL Listing.....UL 181 / ETL Class 1 Air Duct

Smoke Developed.....Less than 50

Standard, Codes.....NFPA 90A and 90B, BOCA, SBBC
HUD/FHA, MIN Property Std.

Thermal Conductance.....available: R-4.2, R-6.0, R-8.0

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

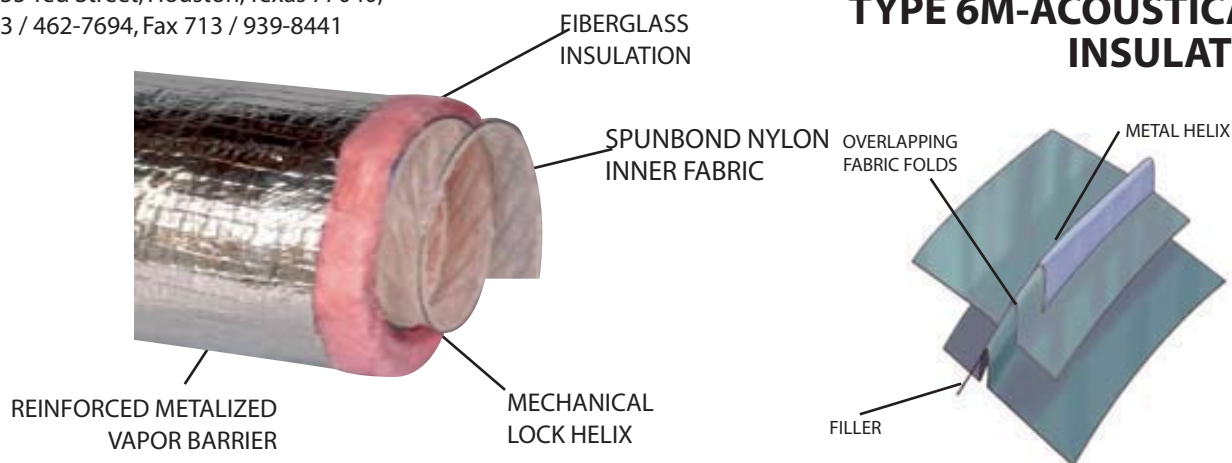
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TYPE 6M-ACOUSTICAL INSULATED



CONSTRUCTION FEATURES

Flexmaster's **Type 6M** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181/ETL Class I Air Duct is fabricated with an acoustically transparent SPUNBOND Nylon inner fabric which allows Broadband sound energy to penetrate the duct wall.

LINER

SPUNBOND Nylon Fabric.
Mechanically Locked
Without Adhesives.

VAPOR BARRIER

Fire Retardant Reinforced Aluminum Material.
Excellent Strength at Low Temperatures.
Will Not Age Harden.

HELIX

Corrosion Resistant Galvanized Steel.
Formed and Mechanically Locked to Fabric.

INSULATION

Thick Fiberglass Insulation Blanket, Factory
Wrapped.

TECHNICAL DATA

Standard lengths (feet)25'; Special lengths on request	Rated Velocity5500 F.P.M.
Inside Diameter (Inches)3",4",5",6",7",8",9",10", 12",14",15",16",18",20"	Internal Working Pressure (W.G.)6" w.g. positive 5" w.g. negative thru 16" Dia. 1" w.g. negative, 18" & 20" Dia.
Inside Bend Radius (inches)1/2 x I.D. (All Sizes)	Minimum Burst Pressure2 1/2 times working pressure
Air Friction LossSee Friction Loss Chart	Operating Temperature Range-20° to +250°F
Vapor Barrier Permeance05 perm A.S.T.M. E96, Procedure A	Flame SpreadLess than 25
UL ListingUL 181 / ETL Class 1 Air Duct	Smoke DevelopedLess than 50
Standard, CodesNFPA 90A and 90B, BOCA, SBBC HUD/FHA, MIN Property Std.	Thermal Conductanceavailable: R-4.2, R-6.0, R-8.0

*Flexmaster recommends that you check with the local code body having jurisdiction in your area to determine applicable codes.

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

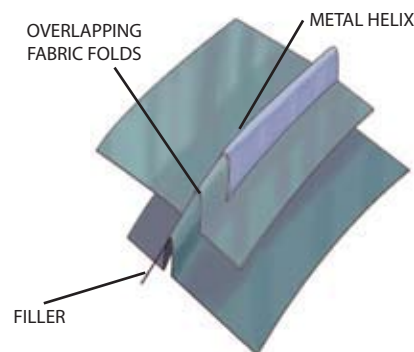
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COMMENTS _____



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TYPE 8B-ACOUSTICAL INSULATED



CONSTRUCTION FEATURES

Flexmaster's **Type 8B** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181 / ETL Class I Air Connector is fabricated with an acoustically transparent CPE inner film which allows mid-range sound energy to penetrate the duct wall.

LINER

A CPE Inner Film.
Mechanically Locked
Without Adhesives.

VAPOR BARRIER

Black Fire Retardant Polyethylene Material.
Excellent Strength at Low Temperatures.
Will Not Age Harden..

HELIX

Corrosion Resistant Galvanized Steel.
Formed and Mechanically Locked to Fabric.

INSULATION

Fiberglass Insulation Blanket, Factory
Wrapped.

TECHNICAL DATA

Standard lengths (feet).....25', Special lengths on request

Inside Diameter (Inches).....3",4",5",6",7",8",9",10",
12",14",15",16",18",20"

Inside Bend Radius (inches).....1/2 x I.D. (All Sizes)

Air Friction Loss.....See Friction Loss Chart

Vapor Barrier......1 perm A.S.T.M.

Permeance.....E96, Procedure A

UL Listing.....UL 181 / ETL Class 1 Air Duct

Standard, Codes.....NFPA 90A and 90B, BOCA, SBBC
HUD/FHA, MIN Property Std.

Rated Velocity.....5500 F.P.M.

Working Pressure (W.G.).....10" w.g. positive
5" w.g. negative thru 16" Dia.
1" w.g. negative, 18" & 20" Dia.

Operating Temperature Range.....-20° to +250°F

Flame Spread.....Less than 25

Smoke Developed.....Less than 50

Thermal Conductance.....available: R-4.2, R-6.0, R-8.0

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

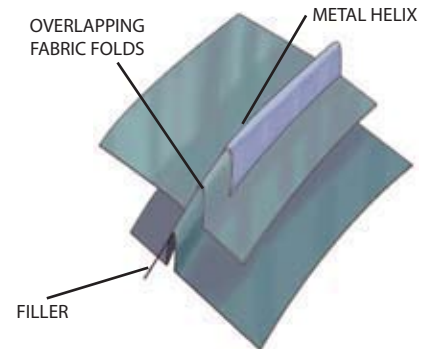
JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



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TYPE 8M-ACOUSTICAL INSULATED



CONSTRUCTION FEATURES

Flexmaster's **Type 8M** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181/ETL Class I AIR DUCT is fabricated with an acoustically transparent CPE inner film which allows mid-range sound energy to penetrate the duct wall.

LINER

A CPE Inner Film.
Mechanically Locked
Without Adhesives.

VAPOR BARRIER

Fire Retardant Reinforced Aluminum Material.
Excellent Strength at Low Temperatures.
Will Not Age Harden.

HELIX

Corrosion Resistant Galvanized Steel.
Formed and Mechanically Locked to Fabric.

INSULATION

Fiberglass Insulation Blanket, Factory
Wrapped.

TECHNICAL DATA

Standard lengths (feet)25', Special lengths on request	Rated Velocity5500 F.P.M.
Inside Diameter (Inches)3",4",5",6",7",8",9",10",12",14",15",16",18",20"	Working Pressure (W.G.)10" w.g. positive 5" w.g. negative thru 16" Dia. 1" w.g. negative, 18" & 20" Dia.
Inside Bend Radius (inches)1/2 x I.D. (All Sizes)	Operating Temperature Range-20° to +250°F
Air Friction LossSee Friction Loss Chart	Flame SpreadLess than 25
Vapor Barrier Permeance05 perm A.S.T.M. E96, Procedure A	Smoke DevelopedLess than 50
UL ListingUL 181 / ETL Class 1 Air Duct	Thermal Conductanceavailable: R-4.2, R-6.0, R-8.0
Standard, CodesNFPA 90A and 90B, BOCA, SBBC HUD/FHA, MIN Property Std.	

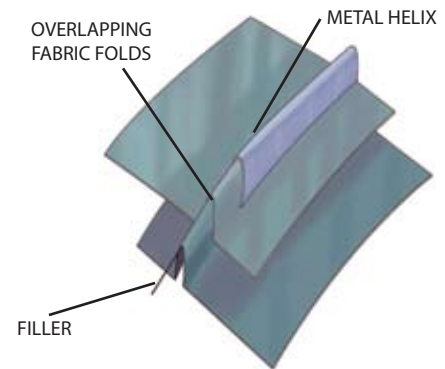
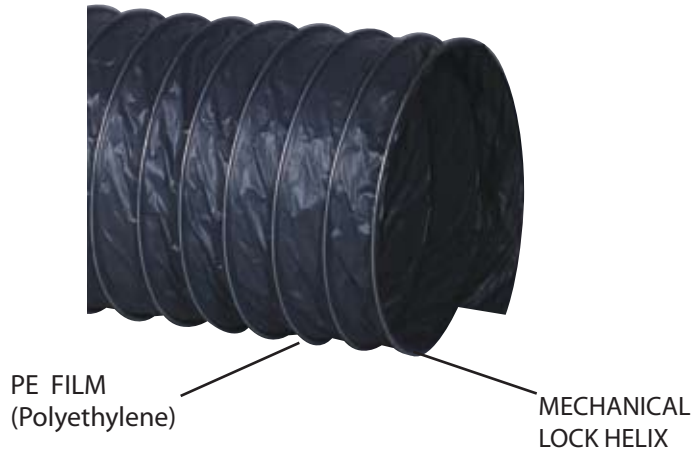
*Flexmaster recommends that you check with the local code body having jurisdiction in your area to determine applicable codes.

JOB NAME _____ LOCATION _____
ENGINEER _____ CONTRACTOR _____
JOB _____ P.O. NUMBER _____ SUBMITTED BY _____
COMMENTS _____



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TYPE 1NI NON-INSULATED



CONSTRUCTION FEATURES

Flexmaster USA's Type 1NI is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This non-insulated ETL Listed Class I Connector is designed for application in a low to medium pressure HVAC air distribution system.

DUCT FABRIC

A PE Polyethylene fabric. Mechanically Locked
Without Adhesives. Durable and Scuff Resistant.

HELIX

Corrosive Resistant Galvanized Steel, Formed
and Mechanically Locked to Fabric. Supporting
Outside Metal Helix, Retains Flexibility.

TECHNICAL DATA

Standard lengths (feet).....25', Special lengths on request

Inside Diameter (Inches).....3",4",5",6",7",8",9",10",
12",14",15",16",18",20"

Inside Bend Radius (inches).....1/2 x I.D. (All Sizes)

Air Friction Loss.....See Friction Loss Chart

ETL listed (conforms to UL STD 181).....ETL Class 1 Air
Connector

Standard, Codes.....NFPA 90A and 90B, BOCA, SBBC
HUD/FHA, MIN Property Std.

Rated Velocity.....5500 F.P.M.

Working Pressure (W.G.).....10" w.g. positive
10" w.g. negative thru 12" Dia.
5" w.g. negative, 14" & 16" Dia.
1" w.g. negative 18" & 20" Dia

Minimum Burst Pressure.....2 1/2 times working pressure

Operating Temperature Range.....-20° to +250°F

Flame Spread.....Less than 25

Smoke Developed.....Less than 50

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



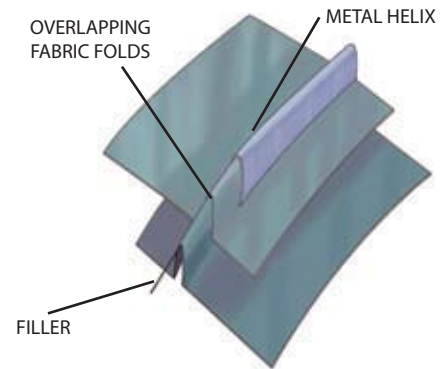
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TYPE 3NI NON-INSULATED



TRILAMINATE FABRIC

MECHANICAL
LOCK HELIX



OVERLAPPING
FABRIC FOLDS

METAL HELIX

FILLER

CONSTRUCTION FEATURES

Flexmaster's **Type 3NI** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This non-insulated, UL-181 / ETL Class I Connector is designed for application in a low to high pressure HVAC air distribution system.

DUCT FABRIC

A Trilaminate of Aluminum Foil, Fiberglass and Aluminized Polyester. Mechanically Locked Without Adhesives. Durable and Scuff Resistant.

HELIX

Corrosive Resistant Galvanized Steel, Formed and Mechanically Locked to Fabric. Supporting Outside Metal Helix, Retains Flexibility.

TECHNICAL DATA

Standard lengths (feet).....25'; Special lengths on request

Inside Diameter (Inches).....3",4",5",6",7",8",9",10",12",14",15",16",18",20"

Inside Bend Radius (inches).....1/2 x I.D. (All Sizes)

Air Friction Loss.....See Friction Loss Chart

UL Listing.....UL 181 / ETL Class 1 Air Duct

Standard, Codes.....NFPA 90A and 90B, BOCA, SBBC
HUD/FHA, MIN Property Std.

Rated Velocity.....5500 F.P.M.

Internal Working Pressure (W.G.).....20" w.g. positive
10" w.g. negative thru 12" Dia.
5" w.g. negative, 14" & 16" Dia.
1" w.g. negative, 18" & 20" Dia.

Minimum Burst Pressure.... 2 1/2 times working pressure

Operating Temperature Range.....-20° to +250°F

Flame Spread.....Less than 25

Smoke Developed.....Less than 50

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



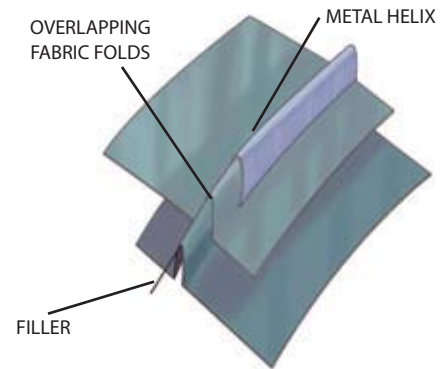
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TYPE 4NI NON-INSULATED



HEAVY COATED
FIBERGLASS CLOTH FABRIC

MECHANICAL
LOCK HELIX



OVERLAPPING
FABRIC FOLDS

METAL HELIX

FILLER

CONSTRUCTION FEATURES

Flexmaster's **Type 4NI** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This non-insulated, UL-181 / ETL Class I air duct is designed for application in a low to high pressure HVAC air distribution system.

DUCT FABRIC

A heavy Coated Fiberglass Cloth Fabric.
Mechanically Locked Without Adhesives.
Durable and Scuff Resistant.

HELIX

Corrosive Resistant Galvanized Steel, Formed
and Mechanically Locked to Fabric. Supporting
Outside Metal Helix.

TECHNICAL DATA

Standard lengths (feet).....25', Special lengths on request
Inside Diameter (Inches).....3",4",5",6",7",8",9",10",
12",14",15",16",18",20"
Inside Bend Radius (inches).....1/2 x I.D. (All Sizes)
Air Friction Loss.....See Friction Loss Chart
UL Listing.....UL 181 / ETL Class 1 Air Duct
Standard, Codes.....NFPA 90A and 90B, BOCA, SBBC
HUD/FHA, MIN Property Std.
Rated Velocity.....5500 F.P.M.

Internal Working Pressure (W.G.).....25" w.g. positive
10" w.g. negative thru 12" Dia.
5" w.g. negative, 14" & 16" Dia.
1" w.g. negative, 18" & 20" Dia.

Minimum Burst Pressure.....2 1/2 times working pressure

Operating Temperature Range.....-20° to +250°F

Flame Spread.....Less than 25

Smoke Developed.....Less than 50

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



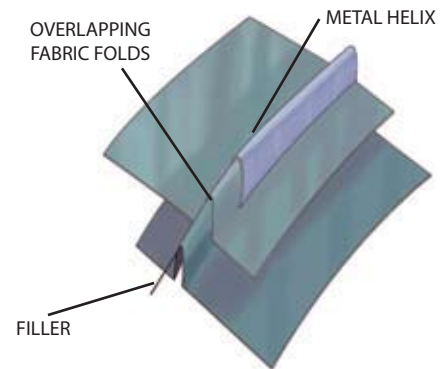
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TYPE 5NI NON-INSULATED



TRILAMINATE FABRIC

MECHANICAL
LOCK HELIX



OVERLAPPING
FABRIC FOLDS

METAL HELIX

FILLER

CONSTRUCTION FEATURES

Flexmaster's **Type 5NI** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This non-insulated, UL-181 / ETL Class I Connector is designed for application in a low to medium pressure HVAC air distribution system.

DUCT FABRIC

A Trilaminate of Aluminum Foil, Fiberglass and Aluminized Polyester. Mechanically Locked Without Adhesives. Durable and Scuff Resistant.

HELIX

Corrosive Resistant Galvanized Steel, Formed and Mechanically Locked to Fabric. Supporting Outside Metal Helix, Retains Flexibility.

TECHNICAL DATA

Standard lengths (feet).....25'; Special lengths on request

Inside.....3",4",5",6",7",8",9",10",

Diameter (Inches).....12",14",15",16",18",20"

Inside Bend Radius (inches).....1/2 x I.D. (All Sizes)

Air Friction Loss.....See Friction Loss Chart

UL Listing.....UL 181 / ETL Class 1 Air Duct

Standard, NFPA 90A and 90B, BOCA, SBBC
Codes.....HUD/FHA, MIN Property Std.

Rated Velocity.....5500 F.P.M.

Internal Working.....10" w.g. positive
Pressure (W.G.).....10" w.g. negative thru 12" Dia.

5" w.g. negative, 14" & 16" Dia.

1" w.g. negative, 18" & 20" Dia.

Minimum Burst Pressure.....2 1/2 times working pressure

Operating
Temperature Range.....-20° to +250°F

Flame Spread.....Less than 25

Smoke Developed.....Less than 50

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



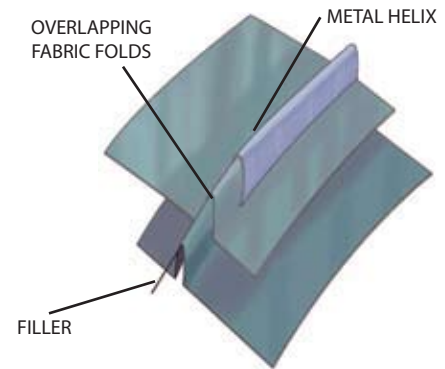
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TYPE 8NI NON-INSULATED



CPE FABRIC

MECHANICAL
LOCK HELIX



OVERLAPPING
FABRIC FOLDS

METAL HELIX

FILLER

CONSTRUCTION FEATURES

Flexmaster's **Type 8NI** is manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This non-insulated, UL-181 / ETL Class I Connector is designed for application in a low to medium pressure HVAC air distribution system.

DUCT FABRIC

A CPE fabric. Mechanically Locked Without Adhesives. Durable and Scuff Resistant.

HELIX

Corrosive Resistant Galvanized Steel, Formed and Mechanically Locked to Fabric. Supporting Outside Metal Helix, Retains Flexibility.

TECHNICAL DATA

Standard lengths (feet).....25'; Special lengths on request

Inside Diameter (Inches).....3",4",5",6",7",8",9",10",12",14",15",16",18",20"

Inside Bend Radius (inches).....1/2 x I.D. (All Sizes)

Air Friction Loss.....See Friction Loss Chart

UL Listing.....UL 181 / ETL Class 1 Air Duct

Standard, Codes.....NFPA 90A and 90B, BOCA, SBBC
HUD/FHA, MIN Property Std.

Rated Velocity.....5500 F.P.M.

Internal Working Pressure (W.G.).....5" w.g. negative thru 16" Dia.
6" w.g. positive

Minimum Burst Pressure.....2 1/2 times working pressure

Operating Temperature Range.....-20° to +250°F

Flame Spread.....Less than 25

Smoke Developed.....Less than 50

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



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TYPE NI-TL NON-INSULATED



TRIPLE LOCK STANDARD ALUMINUM
METAL FLEXIBLE DUCTING

CONSTRUCTION FEATURES

Flexmaster Triple Lock Aluminum ducting is an all metal flexible duct that is constructed entirely without the use of adhesive. The Triple Lock Mechanical joint makes an air tight seam, while the circumferential corrugations provide excellent strength and flexibility. Minimum bend radius to center line is one diameter. However our recommended radius is 1 1/2 diameters in accordance with accepted practice. Triple Lock Aluminum ducting may be easily cut to size and hand formed into elbows or offsets to suit job conditions without subsequent sagging or droop. Triple Lock has much lower pressure loss than conventional cloth ducts due to the small but consistent corrugations that provide both strength and flexibility.

TECHNICAL DATA

Standard lengths (feet)8', Special lengths on request		Rated Velocity5500 F.P.M.	
Inside Diameter (Inches)	3", 4", 5", 6", 8", 10"	Internal Working Pressure (W.G.)	
	12", 14", 16", 18"	10" w.g. positive thru 16" Dia. 6" w.g. positive 18" & 20" Dia. 12" w.g. negative thru 16" Dia. 4" w.g. negative 18" Dia.	
Inside Bend Radius (inches)Min. One Dia.		Minimum Burst Pressure2 1/2 times working pressure	
Air Friction LossSee Friction Loss Chart		Operating Temperature Range-60° to +600°F	
UL ListingUL 181 / ETL Class 0 Air Duct		Flame SpreadLess than 0	
Standard, Codes	NFPA 90A and 90B	Smoke DevelopedLess than 0	
	HUD/FHA, MIN Property Std.		

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



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TYPE SS-NI-TL NON-INSULATED



TRIPLE LOCK STANDARD STAINLESS STEEL
METAL FLEXIBLE DUCTING

CONSTRUCTION FEATURES

Flexmaster Triple Lock 316 TI Stainless steel ducting is an all metal flexible duct that is constructed entirely without the use of adhesive. The Triple Lock Mechanical joint makes an air tight seam, while the circumferential corrugations provide excellent strength and flexibility. Minimum bend radius to center line is one diameter. However our recommended radius is 1 1/2 diameters in accordance with accepted practice. Triple Lock stainless steel ducting may be easily cut to size and hand formed into elbows or offsets to suit job conditions without subsequent sagging or droop. Triple Lock has much lower pressure loss than conventional cloth ducts due to the small but consistent corrugations that provide both strength and flexibility.

TECHNICAL DATA

Standard lengths (feet)8', Special lengths on request		Rated Velocity5500 F.P.M.	
Inside Diameter (Inches)3", 4", 5", 6", 8", 10", 12", 14", 16", 18"		Internal Working Pressure (W.G.)12" w.g. positive (all dia.) 12" w.g. negative (all dia.)	
Inside Bend Radius (inches)Min. One Dia.		Minimum Burst Pressure2 1/2 times working pressure	
Air Friction LossSee Friction Loss Chart		Operating Temperature Range-60° to +1500°F	
UL ListingUL 181 / ETL Class 0 Air Duct		Flame SpreadLess than 0	
Standard, CodesNFPA 90A and 90B HUD/FHA, MIN Property Std.		Smoke DevelopedLess than 0	

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

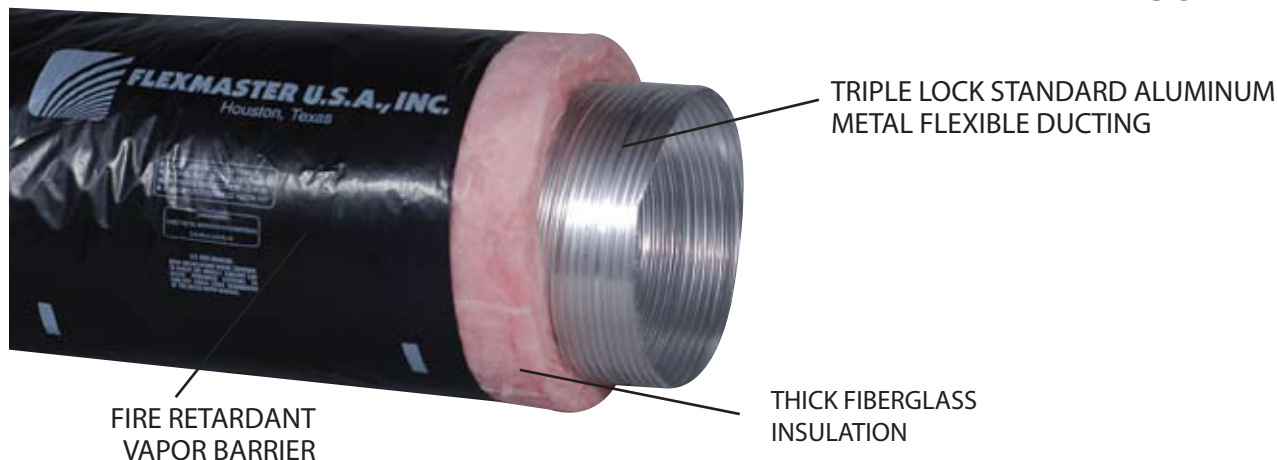
JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



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TYPE TL-B INSULATED



CONSTRUCTION FEATURES

Flexmaster Triple Lock Aluminum ducting is an all metal flexible duct that is constructed entirely without the use of adhesive. The Triple Lock Mechanical joint makes an air tight seam, while the circumferential corrugations provide excellent strength and flexibility. Minimum bend radius to center line is one diameter. However our recommended radius is 1 1/2 diameters in accordance with accepted practice. Triple Lock Aluminum ducting may be easily cut to size and hand formed into elbows or offsets to suit job conditions without subsequent sagging or droop. Triple Lock has much lower pressure loss than conventional cloth ducts due to the small but consistent corrugations that provide both strength and flexibility.

TECHNICAL DATA

Standard lengths (feet)	8', Special lengths on request	Rated Velocity	5500 F.P.M.
Inside Diameter (Inches)	3", 4", 5", 6", 8", 10" 12", 14", 16", 18"	Internal Working Pressure (W.G.)	10" w.g. positive thru 16" Dia. .6" w.g. positive 18" Dia. 12" w.g. negative thru 16" Dia. 4" w.g. negative 18" Dia.
Inside Bend Radius (inches)	Min. One Dia.	Minimum Burst Pressure	2 1/2 times working pressure
Air Friction Loss	See Friction Loss Chart	Operating Temperature Range	-40° to +250°F
UL Listing	UL 181 / ETL Class 1 Air Duct	Flame Spread	Less than 25
Vapor Barrier Permeance	.10 perm A.S.T.M. E96-66, Procedure A	Smoke Developed	Less than 50
Standard, Codes	NFPA 90A and 90B HUD/FHA, MIN Property Std.	Thermal Resistance	available: R-4.2, R-6.0, R-8.0

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

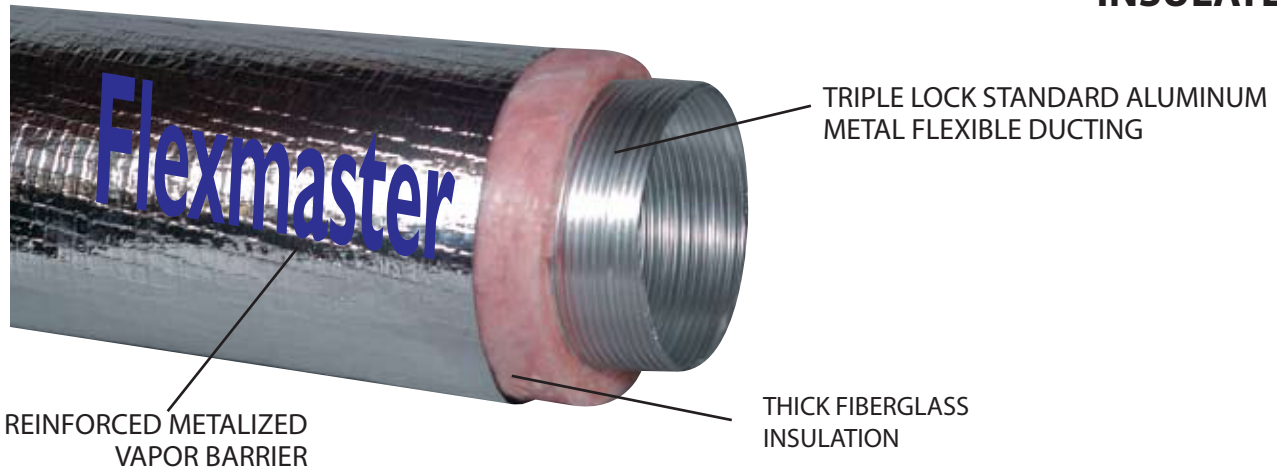
JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



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TYPE TL-M INSULATED



CONSTRUCTION FEATURES

Flexmaster Triple Lock Aluminum ducting is an all metal flexible duct that is constructed entirely without the use of adhesive. The Triple Lock Mechanical joint makes an air tight seam, while the circumferential corrugations provide excellent strength and flexibility. Minimum bend radius to center line is one diameter. However our recommended radius is 1 1/2 diameters in accordance with accepted practice. Triple Lock Aluminum ducting may be easily cut to size and hand formed into elbows or offsets to suit job conditions without subsequent sagging or droop. Triple Lock has much lower pressure loss than conventional cloth ducts due to the small but consistent corrugations that provide both strength and flexibility.

TECHNICAL DATA

Standard lengths (feet)8', Special lengths on request	Rated Velocity5500 F.P.M.
Inside Diameter (Inches)3", 4", 5", 6", 8", 10"12", 14", 16", 18"	Internal Working Pressure (W.G.)10" w.g. positive thru 16" Dia.6" w.g. positive 18" Dia.12" w.g. negative thru 16" Dia.4" w.g. negative 18" Dia.
Inside Bend Radius (inches)Min. One Dia.	Minimum Burst Pressure2 1/2 times working pressure
Air Friction LossSee Friction Loss Chart	Operating Temperature Range-40° to +250°F
UL ListingUL 181 / ETL Class 1 Air Duct	Flame SpreadLess than 25
Vapor Barrier05 perm A.S.T.M.	Smoke DevelopedLess than 50
PermeanceE96-66, Procedure A	Thermal Resistanceavailable: R-4.2, R-6.0, R-8.0
Standard, CodesNFPA 90A and 90BHUD/FHA, MIN Property Std.	

JOB NAME _____ LOCATION _____
ENGINEER _____ CONTRACTOR _____
JOB _____ P.O. NUMBER _____ SUBMITTED BY _____
COMMENTS _____



SPIN COLLAR FITTINGS FOR SHEETMETAL

26 GAUGE G-90 GALVANIZED DIMENSIONS 1/8" TOLERANCE



Plain FL



With Damper FLD



With Scoop FLE *



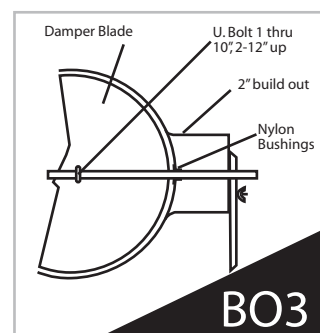
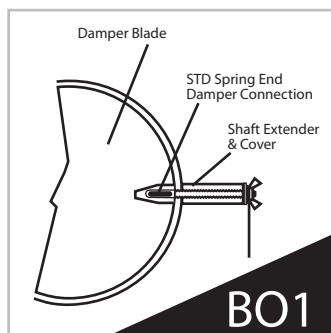
With Damper and Extractor FLDE*

SPECIFY 90° OR 45° Extractor

ORDER SIZE	DIAMETER	Hole Cut Size	LENGTH NO DAMPER	LENGTH W/DAMPER	EXTRACTOR ADDS	
					90°	45°
4"	3 7/8"	3 3/4"	3"	7"	2"	2"
5"	4 7/8"	4 3/4"	3"	7"	2 1/2"	2"
6"	5 7/8"	5 3/4"	3"	7"	3"	2 1/2"
7"	6 7/8"	6 3/4"	3"	7"	3 1/2"	3"
8"	7 7/8"	7 3/4"	3"	7"	4"	3 1/2"
9"	8 7/8"	8 3/4"	3"	7"	4 1/2"	4"
10"	9 7/8"	9 3/4"	3"	7"	5"	4 1/2"
12"	11 7/8"	11 3/4"	3"	7"	6"	5"
14"	13 7/8"	13 3/4"	3"	7"	7"	6"
15"	14 7/8"	14 3/4"	3"	7"	7"	6"
16"	15 7/8"	15 3/4"	3"	7"	8"	7"
18"	17 7/8"	17 3/4"	3"	7"	9"	8"
20"	19 7/8"	19 3/4"	3"	7"	10"	9"

OPTIONAL FEATURES

- Heaver Gauge Construction — 24 ga., 22 ga., 20 ga.
- Aluminum, Stainless Steel or Paint Grip Construction
- Flange, Flange and Gasket, Insulation Guard

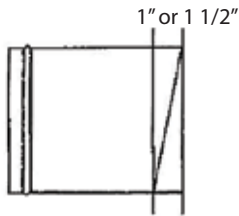


BO1 BUILD OUT, 2", SHAFT EXTENDER, COVER AND HANDLE

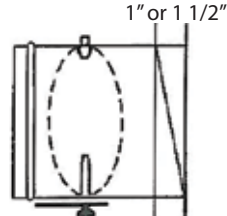
BO3 BUILD OUT, 2", 3/8" SQUARE SHAFT, U. BOLT, NYLON BUSHINGS
LOCKING QUADRANT, HANDLE



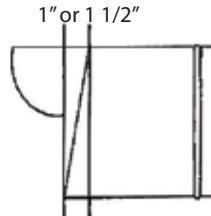
SPIN COLLAR FITTINGS FOR DUCTBOARD



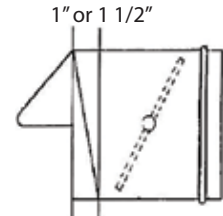
Plain DB



With Damper DBD



With Scoop DBE *



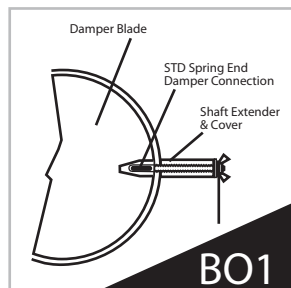
With Damper and Scoop DBDE*

SPECIFY 90° OR 45° SCOOP

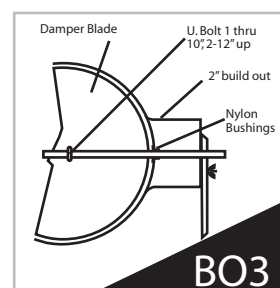
ORDER SIZE	DIAMETER	LENGTH NO DAMPER	LENGTH W/DAMPER	EXTRACTOR ADDS	
				90°	45°
4"	3 7/8"	7 1/4"	7 1/4"	2"	2"
5"	4 7/8"	7 1/4"	7 1/4"	2 1/2"	2"
6"	5 7/8"	7 1/4"	7 1/4"	3"	2 1/2"
7"	6 7/8"	7 1/4"	7 1/4"	3 1/2"	3"
8"	7 7/8"	7 1/4"	7 1/4"	4"	3 1/2"
9"	8 7/8"	7 1/4"	7 1/4"	4 1/2"	4"
10"	9 7/8"	7 1/4"	7 1/4"	5"	4 1/2"
12"	11 7/8"	7 1/4"	7 1/4"	6"	5"
14"	13 7/8"	7 1/4"	7 1/4"	7"	6"
15"	14 7/8"	7 1/4"	7 1/4"	7"	6"
16"	15 7/8"	7 1/4"	7 1/4"	8"	7"
18"	17 7/8"	7 1/4"	7 1/4"	9"	8"
20"	19 7/8"	7 1/4"	7 1/4"	10"	9"

OPTIONAL FEATURES

- Heaver Gauge Construction — 24 ga., 22 ga., 20 ga.
- Aluminum, Stainless Steel or Paint Grip Construction
- Flange, Flange and Gasket, Insulation Guard
- Available to fit 1" or 1 1/2" ductboard



BO1 BUILD OUT, 2", SHAFT EXTENDER, COVER AND HANDLE

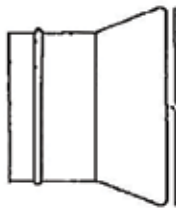


BO3 BUILD OUT, 2", 3/8" SQUARE SHAFT, U. BOLT, NYLON BUSHINGS LOCKING QUADRANT, HANDLE

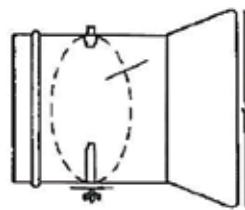


CONICAL BELLMOUTH FITTINGS FOR SHEETMETAL

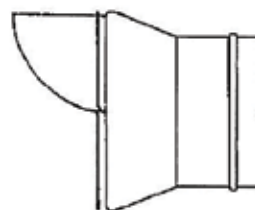
26 GAUGE G-90 GALVANIZED DIMENSIONS 1/8" TOLERANCE



PLAN CB

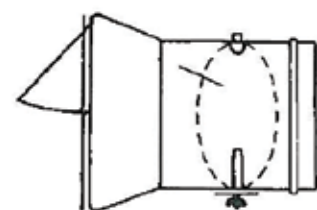


WITH DAMPER CB-D



WITH SCOOP CB-E*

*SPECIFY 90° OR 45° SCOOP

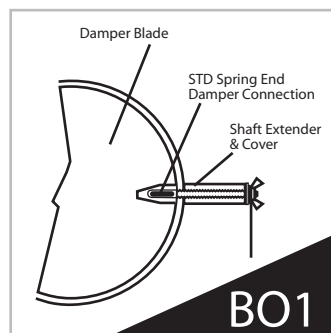


WITH DAMPER AND SCOOP CB-DE*

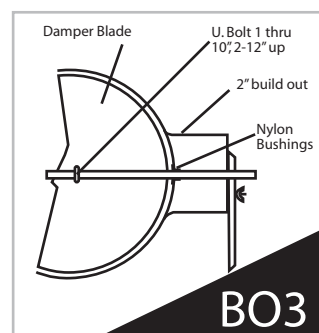
ORDER SIZE	DIAMETER	CONE DIAMETER	Hole Cut Size	LENGTH		EXTRACTOR ADDS	
				NO DAMPER (without extractor scoop)	W/DAMPER (without extractor scoop)	90°	45°
4"	3 7/8"	5 7/8"	5 3/4"	6"	10"	2"	2"
5"	4 7/8"	6 7/8"	6 3/4"	6"	10"	2 1/2"	2"
6"	5 7/8"	7 7/8"	7 3/4"	6"	10"	3"	2 1/2"
7"	6 7/8"	8 7/8"	8 3/4"	6"	10"	3 1/2"	3"
8"	7 7/8"	9 7/8"	9 3/4"	6"	10"	4"	3 1/2"
9"	8 7/8"	10 7/8"	10 3/4"	6"	10"	4 1/2"	4"
10"	9 7/8"	11 7/8"	11 3/4"	6"	10"	5"	4 1/2"
12"	11 7/8"	13 7/8"	13 3/4"	6"	10"	6"	5"
14"	13 7/8"	15 7/8"	15 3/4"	6"	10"	7"	6"
15"	14 7/8"	16 7/8"	16 3/4"	6"	10"	7"	6"
16"	15 7/8"	17 7/8"	17 3/4"	6"	10"	8"	7"
18"	17 7/8"	19 7/8"	19 3/4"	6"	10"	9"	8"
20"	19 7/8"	21 7/8"	21 3/4"	6"	10"	10"	9"

OPTIONAL FEATURES

- Heaver Gauge Construction — 24 ga., 22 ga., 20 ga.
- Aluminum, Stainless Steel or Paint Grip Construction
- Flange, Flange and Gasket, Insulation Guard



BO1



BO3

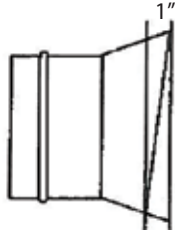
BO1 BUILD OUT, 2", SHAFT EXTENDER, COVER AND HANDLE

BO3 BUILD OUT, 2", 3/8" SQUARE SHAFT, U. BOLT, NYLON BUSHINGS
LOCKING QUADRANT, HANDLE

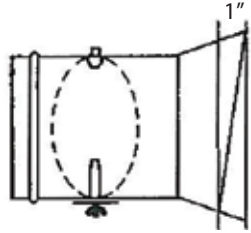


CONICAL BELLMOUTH FITTINGS FOR DUCTBOARD

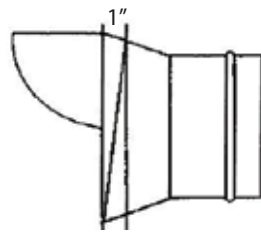
26 GAUGE G-90 GALVANIZED DIMENSIONS 1/8" TOLERANCE



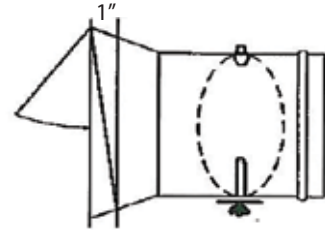
PLAIN DC



WITH DAMPER DC-D



WITH SCOOP DC-E*



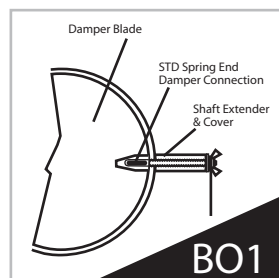
WITH DAMPER & SCOOP DC-DE*

*SPECIFY 90 ° OR 45 ° SCOOP

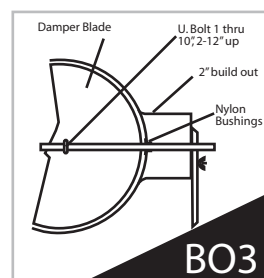
ORDER SIZE	DIAMETER	CONE DIAMETER	LENGTH NO DAMPER (without extractor scoop)	LENGTH W/DAMPER (without extractor scoop)	EXTRACTOR ADDS	
					90°	45°
4"	3 7/8"	5 7/8"	6"	10"	2"	2"
5"	4 7/8"	6 7/8"	6"	10"	2 1/2"	2"
6"	5 7/8"	7 7/8"	6"	10"	3"	2 1/2"
7"	6 7/8"	8 7/8"	6"	10"	3 1/2"	3"
8"	7 7/8"	9 7/8"	6"	10"	4"	3 1/2"
9"	8 7/8"	10 7/8"	6"	10"	4 1/2"	4"
10"	9 7/8"	11 7/8"	6"	10"	5"	4 1/2"
12"	11 7/8"	13 7/8"	6"	10"	6"	5"
14"	13 7/8"	15 7/8"	6"	10"	7"	6"
15"	14 7/8"	16 7/8"	6"	10"	7"	6"
16"	15 7/8"	17 7/8"	6"	10"	8"	7"
18"	17 7/8"	19 7/8"	6"	10"	9"	8"
20"	19 7/8"	21 7/8"	6"	10"	10"	9"

OPTIONAL FEATURES

- Heaver Gauge Construction — 24 ga., 22 ga., 20 ga.
- Aluminum, Stainless Steel or Paint Grip Construction
- Flange, Flange and Gasket, Insulation Guard



BO1



BO3

BO1 BUILD OUT, 2", SHAFT EXTENDER, COVER AND HANDLE

BO3 BUILD OUT, 2", 3/8" SQUARE SHAFT, U. BOLT, NYLON BUSHINGS LOCKING QUADRANT, HANDLE

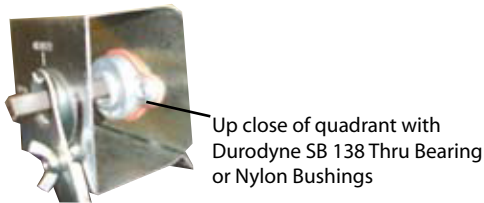


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CBD SOG BO3 UT 3000

Minimum 24 gauge damper plate with locking quadrant operator and sealed end bearings. Damper blade shall be securely attached to shaft to prevent damper from rotating around shaft.

Provide flange and gasket with adhesive peel-back paper for ease of application.



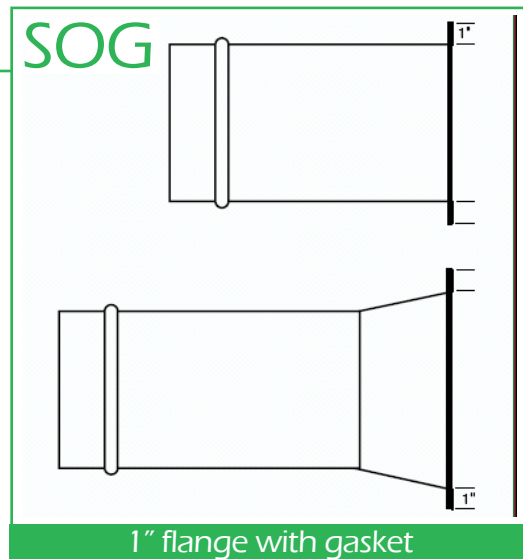
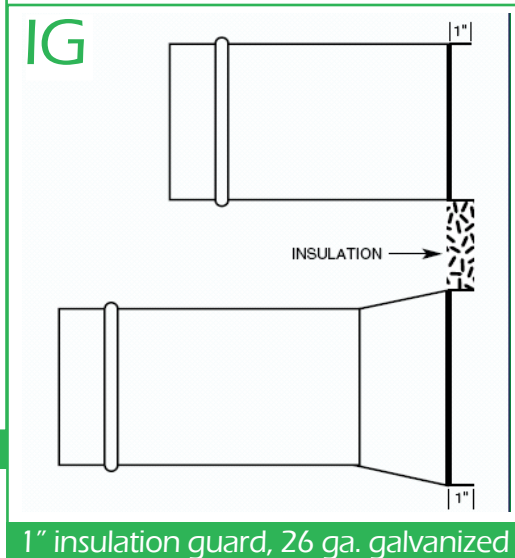
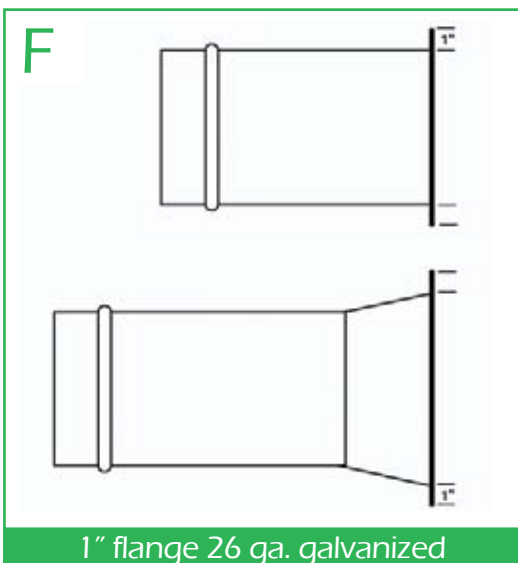
ORDER SIZE	CONE		
	DIAMETER	DIAMETER	LENGTH
6"	5 7/8"	7 7/8"	ALL 10.5"
7"	6 7/8"	8 7/8"	
8"	7 7/8"	9 7/8"	
9"	8 7/8"	10 7/8"	
10"	9 7/8"	11 7/8"	
12"	11 7/8"	13 7/8"	
14"	13 7/8"	15 7/8"	
15"	14 7/8"	16 7/8"	
16"	15 7/8"	17 7/8"	
18"	17 7/8"	19 7/8"	
20"	19 7/8"	21 7/8"	

UT 3000 G Fittings are as described below:

- Heavy 26 Gauge G 90 Galvanized Steel Body
- Heavy 26 Gauge G 90 Galvanized Steel Flange
- Double Sided Adhesive Gasket on Flange
- Extra Heavy 24 Gauge G 90 Glvanized Steel Blade
- 3/8" Square Axle Secured to Blade with U Bolts (2 u-bolts used 8" diameter and larger)
- Sealed End Bearings by Durodyne SB338 or Nylon Bushings
- Thru End Bearings by Durodyne SB138 or Nylon Bushings
- 2" Insulation Build Out
- Locking Hand Quadrant with Flexmaster USA Handle
- Silicone on all Seams

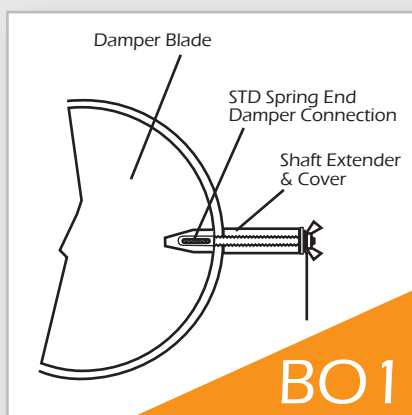
BO3 BUILD OUT, 2", 3/8" SQUARE ALUMINUM SHAFT, 1 U BOLT UP TO 6 INCHES, 2 U BOLTS 8" GREATER
LOCKING QUADRANT, FLEXMASTER USA HANDLE

FL & CB Options

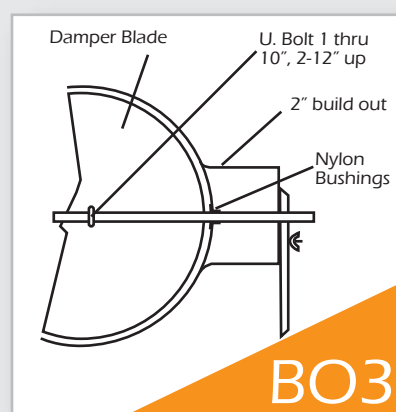


Standard 26 gauge
Available in 24, 22 or 20 gauge
Available in stainless steel and aluminum construction

Damper Options For All Fittings



2" Build Out



2" Build Out

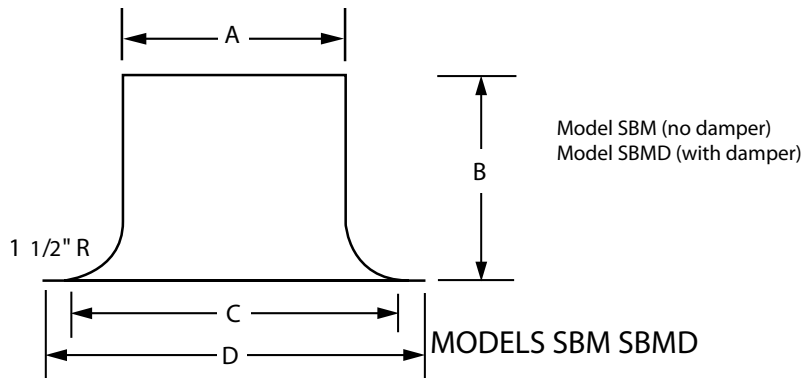
3/8" Square Steel Shaft

Locking Quadrant

Nylon Bushings



BELLMOUTH FITTING



SIZE	OVERALL LENGTH		HOLE SIZE	OVERALL DIA.
	SBMD	SBM		
*A	B	B	C	D
5"	6"	6"	8"	9"
†6"	6"	6"	9"	10"
7"	6"	6"	10"	11"
†8"	6"	6"	11"	12"
9"	6"	6"	12"	13"
†10"	6"	6"	13"	14"
†12"	6"	6"	15"	16"
†14"	6"	6"	17"	18"
16"	9"	2 3/4"	19"	20"
18"	9"	2 3/4"	21"	22"
20"	9"	2 3/4"	23"	24"

*A – dimension undercut by 3/16"

† – one piece construction, 24 gauge galvanized steel

FEATURES

- High Efficiency Takeoff
- Reduced Static Pressure (Savings 45% on Pressure)
- Air Tite Installation
- Labor Saving Installation Energy Savings
- Low Cost/Precision Engineered
- High Velocity/Low Velocity Application (Ideal for VAV Design)
- Gasket Washer to Prevent Leakage
- Build Out Options Available (BO1, BO3)

STANDARD CONSTRUCTION

- 24 Gauge Galvanized Steel
- .125" Neoprene Gasket on Flange
- Pre-Drilled Holes on Flange

NOTE: 16", 18" and 20" Bellmouths are 18 Gauge Galvanized Steel Construction

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

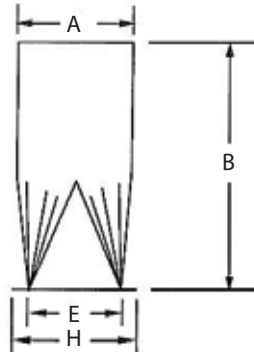
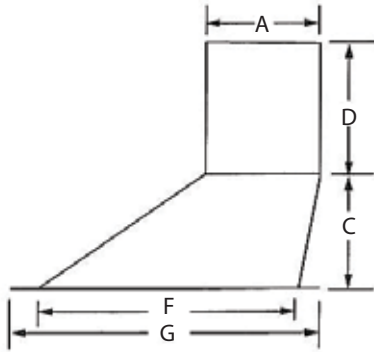
JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



SIDE TAKEOFF FITTINGS

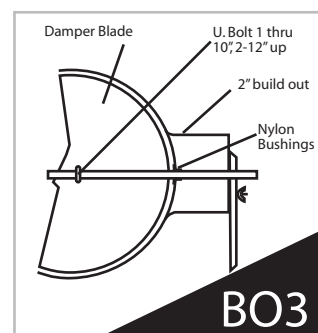
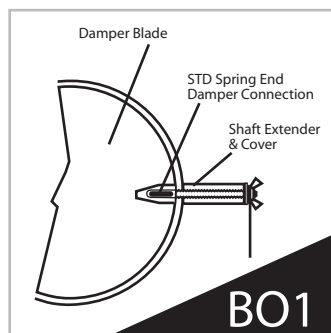
26 GAUGE G-90 GALVANIZED DIMENSIONS 1/8" TOLERANCE



SIZE	A	B	C	D	E	F	G	H
5"	4 7/8"	13"	5 1/2	7 1/2	5	9	11	7
6"	5 7/8"	13"	5 1/2	7 1/2	5	9	11	7
7"	6 7/8"	13"	5 1/2	7 1/2	5	11	13	7
8"	7 7/8"	13"	5 1/2	7 1/2	6	12	14	8
9"	8 7/8"	13"	5 1/2	7 1/2	7	13	15	9
10"	9 7/8"	13"	5 1/2	7 1/2	8	14	16	10
12"	11 7/8"	13"	5 1/2	7 1/2	10	16	18	12
14"	13 7/8"	13"	5 1/2	7 1/2	12	18	20	14
15"	14 7/8"	13"	5 1/2	7 1/2	13	19	21	15
16"	15 7/8"	13"	5 1/2	7 1/2	14	20	22	16
18"	17 7/8"	13"	5 1/2	7 1/2	16	22	24	18
20"	19 7/8"	13"	5 1/2	7 1/2	18	24	26	20

FEATURES

- 26 Gauge, G-90 Galvanized Steel - 4" W.G. Construction
- 1" Wide Mounting Flange w/Die Formed Corner Clips
- Prepunched Mounting Holes
- Adhesive Coated Gasket for Minimal Leakage
- Optional Damper Available



BO1 BUILD OUT, 2", SHAFT EXTENDER, COVER AND HANDLE

BO3 BUILD OUT, 2", 3/8" SQUARE SHAFT, U. BOLT, NYLON BUSHINGS
LOCKING QUADRANT, HANDLE



Flexmaster USA

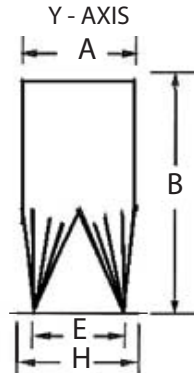
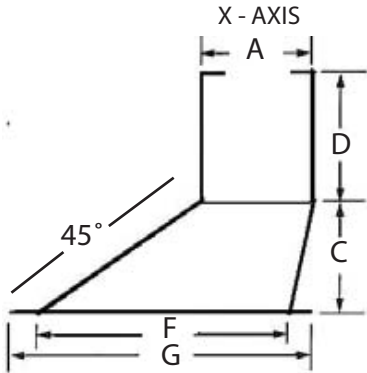
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SUBMITTAL DATA

STO-LDS/STOD-LDS

SIDE TAKEOFF FITTINGS

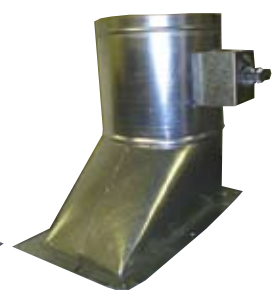
24 GAUGE G-90 GALVANIZED DIMENSIONS 1/8" TOLERANCE



Y Axis Left



Standard X Axis



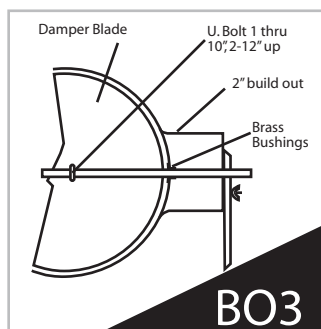
Y Axis Right

SIZE	A	B	C	D	E	F	G	H
5"	4 7/8"	13"	5 1/2	7 1/2	5	9	11	7
6"	5 7/8"	13"	5 1/2	7 1/2	5	9	11	7
7"	6 7/8"	13"	5 1/2	7 1/2	5	11	13	7
8"	7 7/8"	13"	5 1/2	7 1/2	6	12	14	8
9"	8 7/8"	13"	5 1/2	7 1/2	7	13	15	9
10"	9 7/8"	13"	5 1/2	7 1/2	8	14	16	10
12"	11 7/8"	13"	5 1/2	7 1/2	10	16	18	12
14"	13 7/8"	13"	5 1/2	7 1/2	12	18	20	14
15"	14 7/8"	13"	5 1/2	7 1/2	13	19	21	15
16"	15 7/8"	13"	5 1/2	7 1/2	14	20	22	16
18"	17 7/8"	13"	5 1/2	7 1/2	16	22	24	18
20"	19 7/8"	13"	5 1/2	7 1/2	18	24	26	20

FEATURES

Available Order Size 5" to 20"
22 Gauge G-90 Galvanized Steel Damper
24 Gauge G-90 Galvanized Steel Body
1/8" Tolerance
4" W.G. Construction

1" Flange with Corner Clips
Prepunched Mounting Holes
Adhesive Coated Gasket for Minimal Leakage
Optional Damper Blade X or Y (X axis standard)
Brass Bushings



BO3 BUILD OUT, 2", 3/8" SQUARE SHAFT, U. BOLT, BRASS BUSHINGS
LOCKING QUADRANT, HANDLE

Shaft no Locking Quadrant,
for regulator

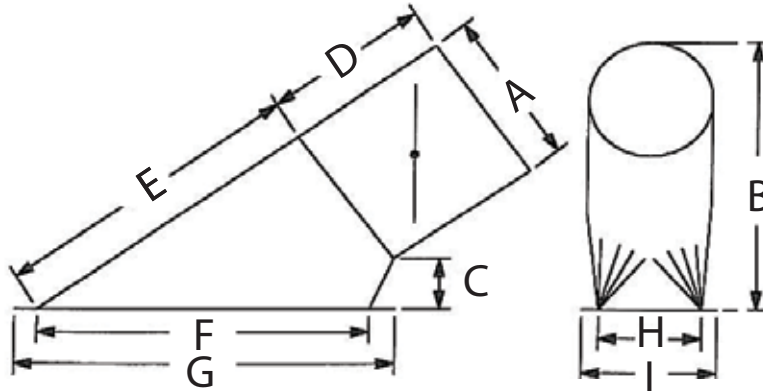
Y Axis Shown





SIDE TAKEOFF FITTINGS

26 GAUGE G-90 GALVANIZED DIMENSIONS 1/8" TOLERANCE

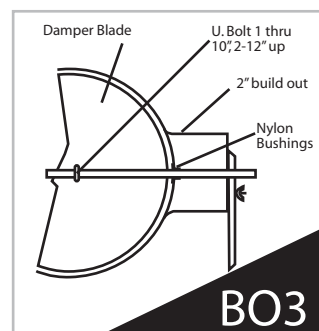
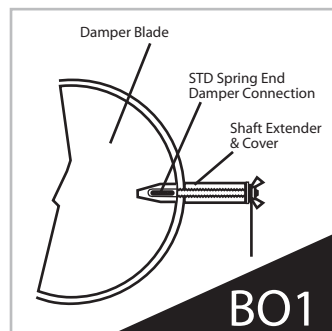


SIZE	A	B	C	D	E	F	G	H	I
5"	4 7/8"	12	2	7 1/2	9	9	11	5	7
6"	5 7/8"	12	2	7 1/2	9	9	11	5	7
7"	6 7/8"	12	2	7 1/2	10	11	13	5	7
8"	7 7/8"	13	2	7 1/2	10	12	14	6	8
9"	8 7/8"	13	2	7 1/2	11	13	15	7	9
10"	9 7/8"	14	2	7 1/2	12	14	16	8	10
12"	11 7/8"	15	2	7 1/2	13	16	18	10	12
14"	13 7/8"	16	2	7 1/2	15	18	20	12	14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

Dim. 1/8" Tolerance

FEATURES

- 26 Gauge, G-90 Galvanized Steel - 4" W.G. Construction
- 1" Wide Mounting Flange w/Die Formed Corner Clips
- Prepunched Mounting Holes
- Adhesive Coated Gasket for Minimal Leakage
- Optional Damper Available



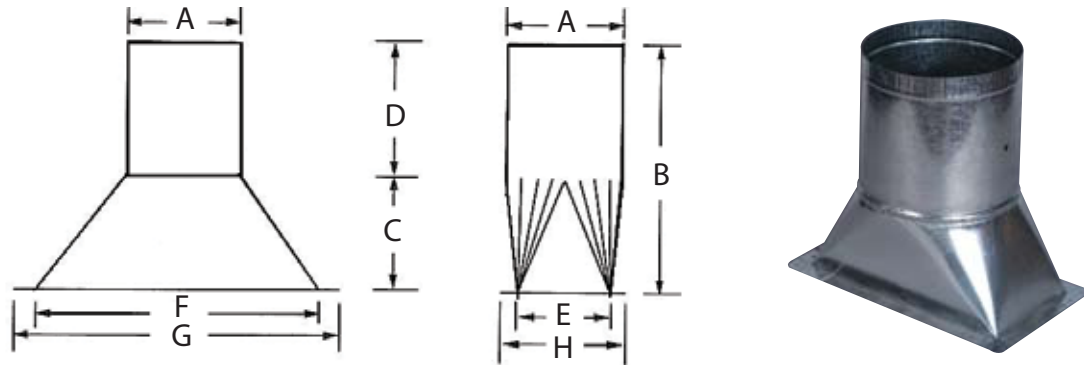
BO1 BUILD OUT, 2", SHAFT EXTENDER, COVER AND HANDLE

BO3 BUILD OUT, 2", 3/8" SQUARE SHAFT, U. BOLT, NYLON BUSHINGS
LOCKING QUADRANT, HANDLE



SIDE TAKEOFF FITTINGS

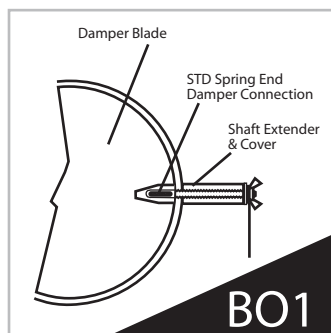
26 GAUGE G-90 GALVANIZED DIMENSIONS 1/8" TOLERANCE



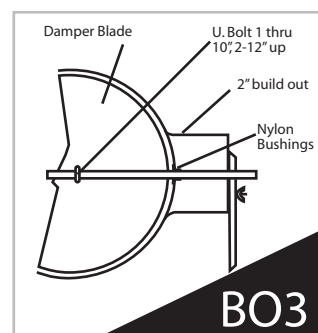
SIZE	A	B	C	D	E	F	G	H
5"	4 7/8"	13"	5 1/2	7 1/2	5	9	11	7
6"	5 7/8"	13"	5 1/2	7 1/2	5	9	11	7
7"	6 7/8"	13"	5 1/2	7 1/2	5	11	13	7
8"	7 7/8"	13"	5 1/2	7 1/2	6	12	14	8
9"	8 7/8"	13"	5 1/2	7 1/2	7	13	15	9
10"	9 7/8"	13"	5 1/2	7 1/2	8	14	16	10
12"	11 7/8"	13"	5 1/2	7 1/2	10	16	18	12
14"	13 7/8"	13"	5 1/2	7 1/2	12	18	20	14
15"	14 7/8"	13"	5 1/2	7 1/2	13	19	21	15
16"	15 7/8"	13"	5 1/2	7 1/2	14	20	22	16
18"	17 7/8"	13"	5 1/2	7 1/2	16	22	24	18
20"	19 7/8"	13"	5 1/2	7 1/2	18	24	26	20

FEATURES

- 26 Gauge, G-90 Galvanized Steel - 4" W.G. Construction
- 1" Wide Mounting Flange w/Die Formed Corner Clips
- Prepunched Mounting Holes
- Adhesive Coated Gasket for Minimal Leakage
- Optional Damper Available



BO1



BO3

BO1 BUILD OUT, 2", SHAFT EXTENDER, COVER AND HANDLE

BO3 BUILD OUT, 2", 3/8" SQUARE SHAFT, U. BOLT, NYLON BUSHINGS
LOCKING QUADRANT, HANDLE

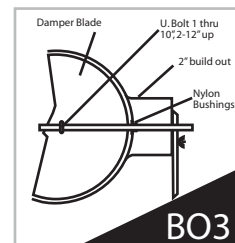
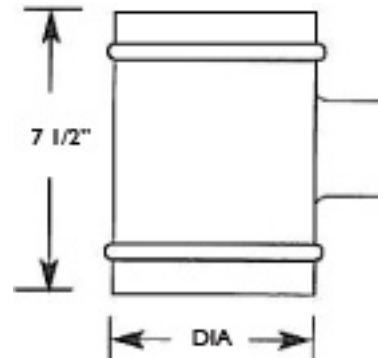
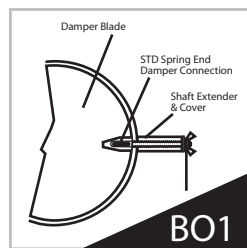
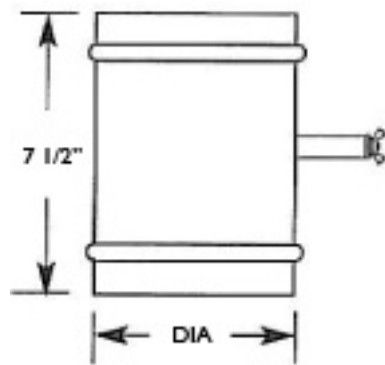


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SL, SLD, SLDBO

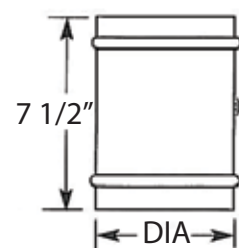
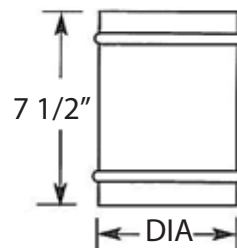
CONNECTING SLEEVES

26 GAUGE G-90 GALVANIZED DIMENSIONS 1/8" TOLERANCE



BO1 BUILD OUT, 2", SHAFT EXTENDER, COVER AND HANDLE

BO3 BUILD OUT, 2", 3/8" SQUARE SHAFT, U. BOLT, NYLON BUSHINGS LOCKING QUADRANT, HANDLE



ORDER SIZE	DIAMETER	LENGTH W/WO DAMPER
4" - 20"	Listed Size Less 1/8"	7 1/2"

STANDARD CONSTRUCTION

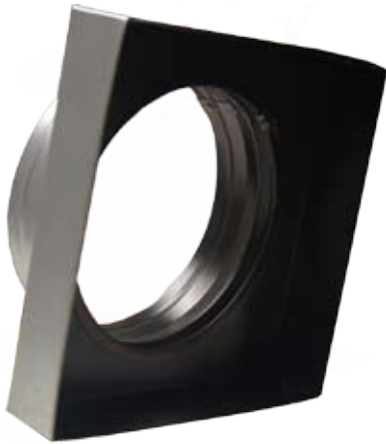
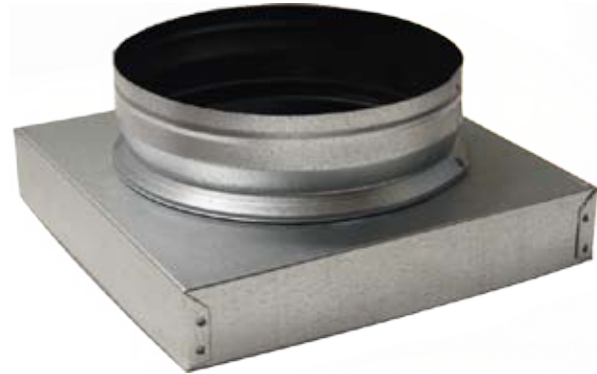
- 26 Gauge, G-90 Galvanized
- 26 Gauge Damper Blade

OPTIONAL CONSTRUCTION

- Heavier Gauge 24 ga., 22 ga., 20 ga.
- BO 1 or BO3 Damper Options
- Aluminum
- Stainless Steel

BLACK COATED INTERIOR SQUARE TO ROUND ADAPTORS

Black Interior
26 Gauge Primed G-90 Galvanized Steel
1/8" Tolerance
Standard Depth Size - 2", 3" or 4"
Open or Closed Corner
Custom Sizes Available



F2SO - 2" Depth; Square; Open Corner
F2SC - 2" Depth; Square; Closed Corner
F3SO - 3" Depth; Square; Open Corner
F3SC - 3" Depth; Square; Closed Corner
F4SO - 4" Depth; Square; Open Corner
F4SC - 4" Depth; Square; Closed Corner

Optional Features:

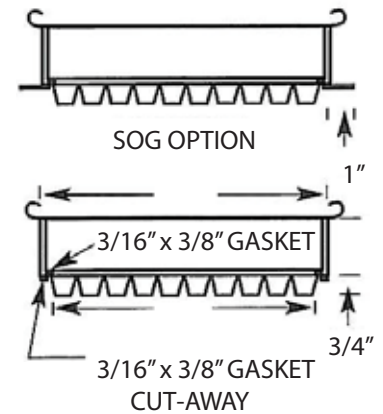
- 24 ga, 22 ga, 20 ga Galvanized Steel - BLACK INTERIOR IS NOT AN OPTION
- Aluminum, Stainless Steel - BLACK INTERIOR IS NOT AN OPTION
- Available in Large (Nom. + 1/8") or Small (Nom. - 1/8")
- Neck size equal to or less than smallest square dimension

JOB NAME _____ LOCATION _____
ENGINEER _____ CONTRACTOR _____
JOB _____ P.O. NUMBER _____ SUBMITTED BY _____
COMMENTS _____



"THE INSPECTOR SERIES" TBSM-TAB DOOR

Sheetmetal Duct Access Doors



G-90 Galvanized Steel
Optional Features:
Continuous Hinge, Flanged,
Custom Sizes, Special Hardware,
Aluminum and Stainless Steel,
R-6.0

NOMINAL DOOR SIZES (IN.)

6 X 6
8 X 8
10 X 10
12 X 12
14 X 14
16 X 16
18 X 18
20 X 20
24 X 24

DUCT CUT SIZES (IN.)

5 1/4 x 5 1/4
7 1/4 x 7 1/4
9 1/4 x 9 1/4
11 1/4 x 11 1/4
13 1/4 x 13 1/4
15 1/4 x 15 1/4
17 1/4 x 17 1/4
19 1/4 x 19 1/4
23 1/4 x 23 1/4

PORT OPENINGS (IN.)

UP TO 8 - 3Ø
10 & 12 - 5Ø
14 & 16 - 7Ø
18 & UP - 11Ø

Flexmaster's – **THE INSPECTOR SERIES – TAB DOOR** is manufactured with G-90 galvanized steel to meet the highest **quality standards required by SMACNA HVAC access door. THE INSPECTOR SERIES – TAB DOOR'S** strong frame construction provides for a solid installation as its outer frame tabs are formed around the sheet metal duct and then the self sealing inner door is put into place and locked by turning the pre-installed cam latches. The outer TAB DOOR frame is 22 gauge, galvanized steel, formed, notched and hemmed. The double sided insulated R-4.2 inner door is constructed of 24 gauge galvanized steel.

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

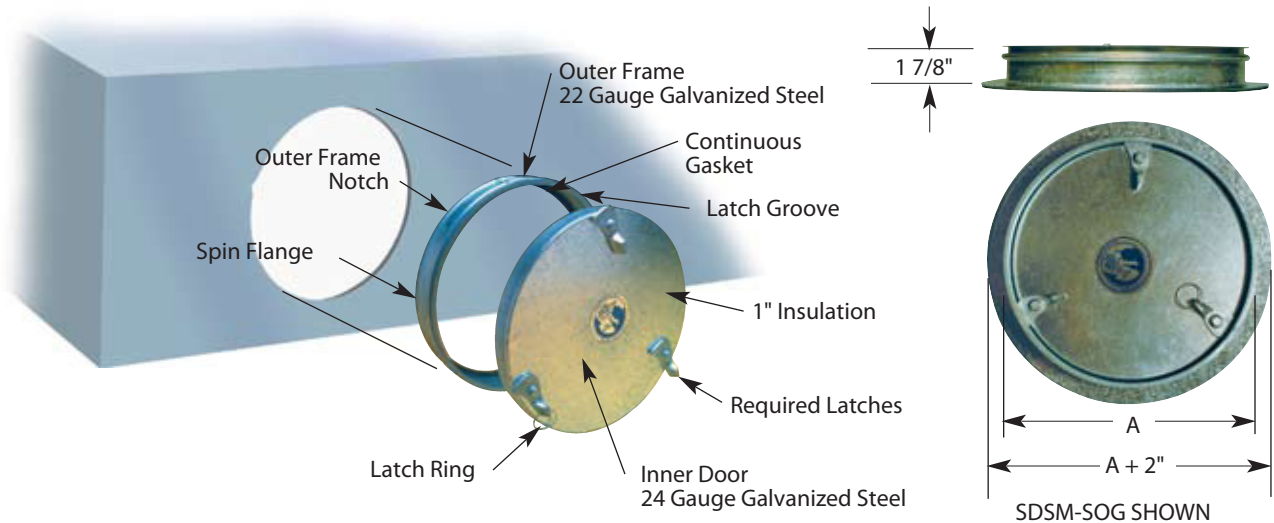
JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



**"THE INSPECTOR SERIES"
SDSM-SPIN DOOR**

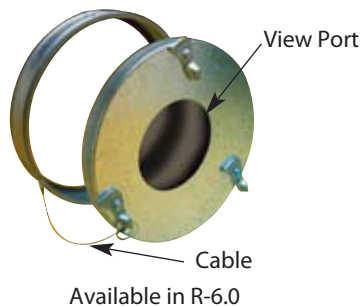
HIGH PRESSURE ACCESS DOOR FOR SHEET METAL
Low Leakage • Quick Installation • Safe Entry and Exit



LOW LEAKAGE

The SDSM door has been tested by an independent certified Lab. The leakage rate may vary based on installation by Mechanical Contractor.

OPTIONS



NOMINAL DOOR SIZE A	MIN. HOLE CUT SIZE*
8"	7 3/8"
10"	9 3/8"
12"	11 3/8"
18"	17 3/8"
24"	23 3/8"

*Tolerance, +1/32"

CONSTRUCTION FEATURES

Flexmaster's - THE INSPECTOR SERIES - SPIN DOOR is manufactured with heavy gauge galvanized steel to meet the highest quality standards required in a high pressure access door. This insulated and gasketed access door is designed for application in a low to high pressure HVAC air distribution system. THE INSPECTOR SERIES - SPIN DOOR unique round construction provides for a quick installation as its outer frame is spun into the sheet metal duct and then the self sealing inner door is put into place and locked by turning the pre-installed latches. The outer SPIN DOOR frame is made of 22 gauge galvanized steel, rolled and double hemmed. The inner door is made of 24 gauge galvanized steel, rolled and triple hemmed. When the outer SPIN DOOR frame is properly installed and sealed for the specified operating pressure the leakage rate is extremely low. No raw edges are exposed and therefore a safe entry and exit is insured.



JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



Part Number	Maximum Diameter Formed	Length (L)	Width (W)	Thickness	Average Loop Tensile Strength Lbs. (N)	STD. Pkg. Qty.
UL181B-C	11.0 (279.4)	37.1 (942.8)	.340 (8.610)	.090 (2.300)	175 (778)	50

Material: 6/6 Nylon

Color: Natural Nylon

Temp Range: -40°F to 185°F

Flammability: U.L.94V-2

ATB: Less than 5 sec. per ASTM D635



A-300 Heavy Duty Tension Tool

For use with Nonmetallic Clamps

120 lb. to 175 lb. duct straps

Manual Tension Control

Neatly Cuts Off Straps

Metal Construction



Flexmaster USA

SUBMITTAL DATA

5235 Ted Street, Houston, Texas 77040,
713 / 462-7694, Fax 713 / 939-8441

STAINLESS STEEL CLAMP QUICK RELEASE LS SERIES

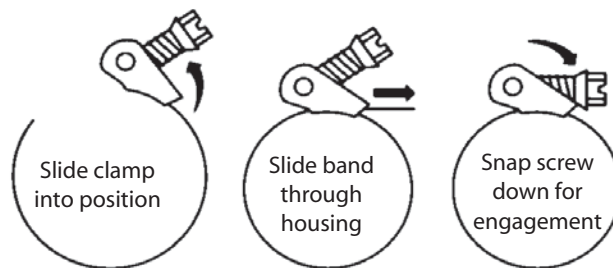


CLAMP	FLEX SIZE	CLAMP MIN.	DIA. MAX	Length
LS-88	4	2.06	6.00	20"
LS-88	5	2.06	6.00	20"
LS-104	6	1.75	7.00	23"
LS-152	8	2.00	10.00	32"
LS-152	9	2.00	10.00	32"
LS-188	10	2.06	12.31	40"
LS-232	12	10.19	14.00	48"
LS-258	14	10.00	16.00	52"
*LS-280	16	14.25	18.00	58"
LS-312	18	14.00	20.00	64"
LS-344	20	16.00	22.00	73"

*Can only be used on stated size.

All materials used in the manufacture of the subject clamp are certified by our suppliers to meet our material specifications. The band is made from AISI 201 stainless steel. The housing is made from AISI 201 stainless steel. The screw is made of AISI 1018 carbon steel. The bridge is made from AISI 410 stainless steel neutral hardened and drawn.

Clamps meet the Maximum Concentration Values (MCV) requirements of the following material: European Directive 2002/95/EC also known as the ROHS Directive. Therefore the clamps are ROHS compliant.



Easy On....Easy Off...in 3 Simple Steps!

Reverse procedure for quick release and removal.

No need to disassemble connection

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



Quick Release Spin Clamp



Material: Stainless Steel

Bridging over helix allows for better contact of clamp to duct thus lowering leakage

CLAMP	SC04	SC05	SC06	SC07	SC08	SC09	SC010	SC012	SC014	SC016	SC018	SC010
FLEX SIZE	4"	5"	6"	7"	8"	9"	10"	12"	14"	16"	18"	20"

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____



Flexmaster USA duct support by FlexRight:

Designed to form flexible duct into highly efficient 90 degree elbows.

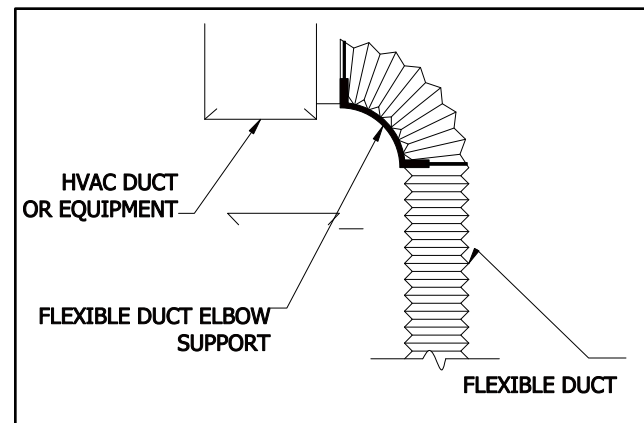
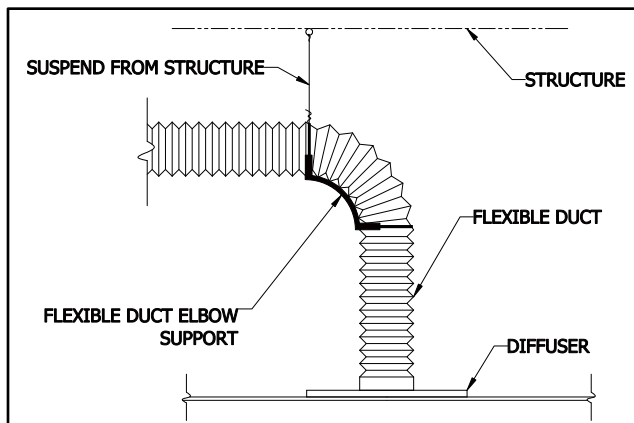
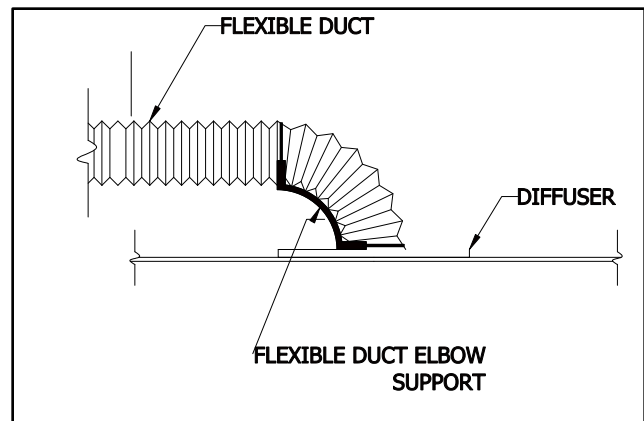
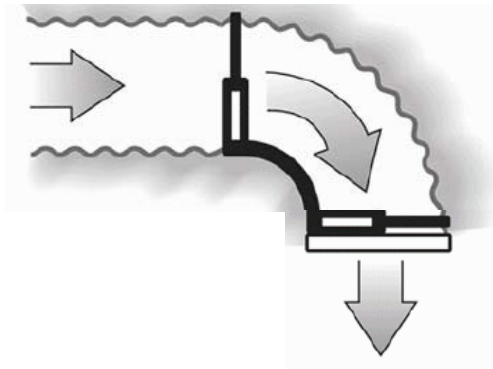
Universal Mount, 1 piece fully adjustable radius forming brace to support 4" inch (102-mm) through 16" inch (406mm) diameter flexible air ducts.

Nylon cable ties secure duct to duct support, (purchased separately and available from Flexmaster USA.)

Made from 100% recycled material (copolymer polypropylene)

UL Listed.

Meets ASHRAE's Advanced Energy Design Guides for Schools, warehouses, office and retail buildings.



Installation Instructions:

- Step 1.** Install flexible duct over air device per flexible duct manufacturer's installation instructions.
- Step 2.** Thread cable ties through both FlexRight saddle bands. *Cable ties not included.*
- Step 3.** Position one end of FlexRight elbow around neck of air device and the other under the flexible duct to form 90° elbow. For best results, keep duct insulation out from under cable tie as it is tightened.
- Step 4.** Using cable tie tensioning tool, fasten cable tie around neck of air device to secure FlexRight.
- Step 5.** Fasten second cable tie around flexible duct. *Do not over-tighten*, as to crush the flexible duct.
- Step 6.** Cut-off and discard excess from both cable tie ends.





FIGURE 1 - SOUND PATH 1

Description	Octave Band Data (Hz)						
	63	125	250	500	1K	2K	4K
Discharge Sound Power Level, VAV Terminal Unit, Inlet Size 8", 650 cfm	60	60	55	51	46	40	35
Attenuation of FLEXMASTER TYPE 3, 8" dia., 10 Feet Long, Straight Duct	0	0	0	-7	-7	-27	-23
SubSum	60	60	55	44	39	13	12
Regenerated Sound Levels of NC-15 rated diffuser	8	15	20	24	25	23	20
SubSum	69	60	55	44	39	23	21
Room Effect for Typical Office	-6	-6	-5	-6	-7	-8	-9
Sound Pressure Levels in Office Space	54	54	50	45	38	31	24

TYPE 3 RATINGS: NC-41, RC-29(N), 44 dBA

ASHRAE Criteria for Executive offices is RC(N) 25-30

FIGURE 1 - SOUND PATH 2

Description	Octave Band Data (Hz)						
	63	125	250	500	1K	2K	4K
Discharge Sound Power Level, VAV Terminal Unit, Inlet Size 8", 650 cfm	60	60	55	51	46	40	35
Breakout TL of corrugated Type 3, 8" diameter	-17	-31	-39	-42	-41	-32	-22
SubSum	43	29	16	9	5	8	13
Room Effect in Plenum Space	-5	-5	-5	-5	-6	-6	-6
SubSum	38	24	11	4	-1	2	7
Typical Mineral Fiber Lay-in Ceiling System TL (one pass)	-4	-8	-8	-12	-14	-15	-15
SubSum	34	16	3	-8	-15	-13	-8
Room Effect for Typical Office	-6	-6	-5	-6	-7	-8	-9
Sound Pressure Levels in Office Space	28	10	-2	-14	-22	-21	-17

TYPE 3 RATINGS: <NC-15, <RC-158(N)

ASHRAE Criteria for Executive offices is RC(N) 25-30



ACOUSTICAL PERFORMANCE

SOUND ATTENUATION - Stright Duct

Flexmaster Type	Diameter In.	Length Ft.	Insertion Losses, dB						
			Octave Band Center Frequency, Hz						
			63	125	250	500	1000	2000	4000
6	6	12	13	38	40	43	44	50	49
		9	10	29	30	32	33	38	37
		6	7	19	20	22	22	25	25
		3	3	10	10	11	11	13	12
		1	1.1	3.2	3.3	3.6	3.7	3.9	2.8
6	8	12	13	38	37	40	42	48	48
		9	10	29	28	30	32	36	36
		6	7	19	19	20	21	24	24
		3	3	10	9	10	11	12	12
		1	1.1	3.2	3.1	3.3	3.5	4	4
6	12	12	13	37	31	34	37	47	34
		9	10	28	23	25	28	35	25
		6	7	19	16	17	19	23	17
		3	3	9	8	8	9	12	8
		1	1.1	3.1	2.6	2.8	3.1	3.9	2.8

SOUND ATTENUATION - 90° Elbow

6	6	12	25	41	46	49	50	49	50
		9	19	31	34	37	38	37	38
		6	13	20	23	25	25	25	25
		3	6	10	11	12	13	12	13
6	8	12	29	42	46	44	44	46	49
		9	22	32	34	33	33	34	37
		6	14	21	23	22	22	23	25
		3	7	11	11	11	11	11	12
6	12	12	29	36	40	41	41	38	38
		9	22	27	30	31	31	29	29
		6	14	18	20	20	20	19	19
		3	7	9	10	10	10	10	10

Notes:

1. Acoustical testing was performed in accordance with Air Diffusion Council (ADC) Test Code FD 72-RI by ETL.
2. Insertion loss values are for flow velocities less than 2500 fmp.
3. The 63 Hz IL values were estimated from higher frequency insertion loss values.
4. Testing was performed with straight run ducts.



ACOUSTICAL PERFORMANCE

SOUND ATTENUATION - Stright Duct

Flexmaster Type	Diameter In.	Length Ft.	Insertion Losss, dB						
			Octave Band Center Frequency, Hz						
			63	125	250	500	1000	2000	4000
6M	6	12	7	34	40	41	43	48	42
		9	5	25	30	31	32	36	32
		6	4	17	20	20	22	24	21
		3	2	8	10	10	11	12	11
		1	0.6	2.8	3.3	3.4	3.6	4	3.5
6M	8	12	12	36	35	42	44	49	44
		9	9	27	27	32	33	37	33
		6	6	18	17	21	22	25	22
		3	3	9	9	11	11	12	11
		1	1	3	2.9	3.5	3.7	4.1	3.7
6M	12	12	11	32	31	40	41	49	34
		9	8	24	23	30	31	37	25
		6	5	16	16	20	20	25	17
		3	3	8	8	10	10	12	8
		1	0.9	2.7	2.6	3.4	3.4	4.1	2.8

SOUND ATTENUATION - 90° Elbow

6M	6	12	20	42	43	47	50	49	49
		9	15	32	32	35	38	37	37
		6	10	21	22	23	25	25	25
		3	5	11	11	12	13	12	12
6M	8	12	24	41	46	49	46	50	52
		9	18	31	34	37	34	36	39
		6	12	20	23	25	23	25	26
		3	6	10	11	12	11	13	13
6M	12	12	28	37	40	43	42	44	40
		9	21	28	30	32	32	23	30
		6	14	19	20	22	21	22	20
		3	7	9	10	11	11	11	10

Notes:

1. Acoustical testing was performed in accordance with Air Diffusion Council (ADC) Test Code FD 72-RI by ETL.
2. Insertion loss values are for flow velocities less than 2500 fmp.
3. The 63 Hz IL values were laboratory measured. However, there is no procedure for qualifying a reverberation room below 100Hz.
4. Testing was performed with straight run ducts.



ACOUSTICAL PERFORMANCE

SOUND ATTENUATION - Stright Duct

Flexmaster Type	Diameter In.	Length Ft.	Insertion Losss, dB						
			Octave Band Center Frequency, Hz						
			63	125	250	500	1000	2000	4000
8B	6	12	6	10	38	46	42	47	30
		9	4	7	29	34	32	35	23
		6	3	5	19	23	21	23	15
		3	1	2	10	11	11	12	8
		1	0.5	0.8	3.2	3.8	3.5	3.9	2.5
8B	8	12	13	16	38	43	42	43	25
		9	9	12	29	32	32	32	19
		6	6	8	19	22	21	22	13
		3	3	4	10	11	11	11	6
		1	1.1	1.3	3.2	3.6	3.5	3.6	2.1
8B	12	12	16	18	35	34	40	31	17
		9	12	14	26	25	30	23	13
		6	8	9	17	17	20	16	8
		3	4	5	9	8	10	8	4
		1	1.3	1.5	2.9	2.8	3.3	2.6	1.4

SOUND ATTENUATION - 90° Elbow

8B	6	12	3	7	31	49	48	49	37
		9	2	5	23	37	36	37	28
		6	2	4	16	25	24	25	19
		3	1	2	8	12	12	12	9
8B	8	12	11	14	37	47	44	43	26
		9	9	11	28	35	33	32	20
		6	6	7	19	23	22	22	13
		3	3	4	9	12	11	11	7
8B	12	12	14	16	41	40	38	37	17
		9	10	12	31	30	29	28	13
		6	7	8	20	20	19	19	8
		3	3	4	10	10	10	9	4

Notes:

1. Acoustical testing was performed in accordance with Air Diffusion Council (ADC) Test Code FD 72-RI by ETL.
2. Insertion loss values are for flow velocities less than 2500 fmp.
3. The 63 Hz IL values were estimated from higher frequency insertion loss values.
4. Testing was performed with straight run ducts.



ACOUSTICAL PERFORMANCE

SOUND ATTENUATION - Stright Duct

Flexmaster Type	Diameter In.	Length Ft.	Insertion Losss, dB						
			Octave Band Center Frequency, Hz						
			63	125	250	500	1000	2000	4000
8M	6	12	4	8	37	48	46	48	32
		9	3	6	28	36	34	36	24
		6	2	4	19	24	23	24	16
		3	1	2	9	12	11	12	8
		1	0.4	0.7	3.1	4	3.8	4	2.7
8M	8	12	11	14	35	43	42	46	26
		9	9	11	26	32	32	34	20
		6	6	7	17	22	21	23	13
		3	3	4	9	11	11	11	7
		1	0.9	1.2	2.9	3.6	3.5	3.8	2.2
8M	12	12	23	25	34	35	40	31	14
		9	17	19	25	26	30	23	11
		6	12	13	17	17	20	16	7
		3	6	6	8	9	10	8	4
		1	1.9	2.1	2.8	2.9	3.3	2.6	1.2

SOUND ATTENUATION - 90° Elbow

8M	6	12	4	8	36	49	50	50	36
		9	3	6	27	37	38	38	27
		6	2	4	18	25	25	25	18
		3	1	2	9	12	13	13	9
8M	8	12	11	14	37	48	46	46	28
		9	9	11	28	36	34	34	21
		6	6	7	19	24	23	23	14
		3	3	4	9	12	11	11	7
8M	12	12	18	20	42	37	37	34	16
		9	14	15	32	28	28	25	12
		6	9	10	21	19	19	17	8
		3	5	5	11	9	9	8	4

Notes:

1. Acoustical testing was performed in accordance with Air Diffusion Council (ADC) Test Code FD 72-RI by ETL.
2. Insertion loss values are for flow velocities less than 2500 fmp.
3. The 63 Hz IL values were laboratory measured. However, there is no procedure for qualifying a reverberation room below 100Hz.
4. Testing was performed with straight run ducts.

FIGURE 2 - SOUND PATH 1

Description	Octave Band Data (Hz)						
	63	125	250	500	1K	2K	4K
Discharge Sound Power Level, VAV Terminal Unit, Inlet Size 8", 650 cfm	60	60	55	51	46	40	35
Attenuation of FLEXMASTER TYPE 6, 8" dia., 9 Feet Long, Straight Duct	-10	-29	-28	-30	-32	-36	-36
SubSum	50	31	27	21	14	4	-1
Regenerated Sound Levels of NC-15 rated diffuser	8	15	20	24	25	23	20
SubSum	50	31	28	26	25	23	20
Room Effect for Typical Office	-5	-6	-4	-6	-7	-7	-9
Sound Pressure Levels in Office Space	45	25	24	20	18	16	11

TYPE 6 RATINGS: NC-17, RC-18(RH), 24 dBA

ASHRAE Criteria for Executive offices is RC(N) 25-30

FIGURE 2 - SOUND PATH 2

Description	Octave Band Data (Hz)						
	63	125	250	500	1K	2K	4K
Discharge Sound Power Level, VAV Terminal Unit, Inlet Size 8", 650 cfm	60	60	55	51	46	40	35
Breakout TL of FLEXMASTER TYPE 6	-2	-4	-5	-4	-4	-6	-8
SubSum	58	56	50	47	42	34	27
Room Effect in Plenum Space	-5	-5	-5	-5	-6	-6	-6
SubSum	53	51	45	42	36	28	21
Typical Mineral Fiber Lay-in Ceiling System TL (one pass)	-4	-8	-8	-12	-14	-15	-15
SubSum	49	43	37	30	22	13	6
Room Effect for Typical Office	-6	-6	-5	-6	-7	-8	-9
Sound Pressure Levels in Office Space	43	37	32	24	15	5	-3

TYPE 6 RATINGS: <NC-19, <RC-15(R), 27 dBA

ASHRAE Criteria for Executive offices is RC(N) 25-30



FIGURE 2 - SOUND PATH 1

Description	Octave Band Data (Hz)						
	63	125	250	500	1K	2K	4K
Discharge Sound Power Level, VAV Terminal Unit, Inlet Size 8", 650 cfm	60	60	55	51	46	40	35
Attenuation of FLEXMASTER TYPE 8M, 8" dia., 9 Feet Long, Straight Duct	-9	-11	-26	-32	-32	-34	-20
SubSum	51	49	29	19	14	6	15
Regenerated Sound Levels of NC-15 rated diffuser	8	15	20	24	25	23	20
SubSum	51	49	30	25	25	23	21
Room Effect for Typical Office	-5	-6	-4	-6	-7	-7	-9
Sound Pressure Levels in Office Space	46	43	26	19	18	16	12

TYPE 8M RATINGS: NC-24, RC-18(RH), 29 dBA

ASHRAE Criteria for Executive offices is RC(N) 25-30

FIGURE 2 - SOUND PATH 2

Description	Octave Band Data (Hz)						
	63	125	250	500	1K	2K	4K
Discharge Sound Power Level, VAV Terminal Unit, Inlet Size 8", 650 cfm	60	60	55	51	46	40	35
Breakout TL of FLEXMASTER TYPE 8M	-4	-10	-7	-7	-8	-11	-14
SubSum	56	50	48	44	38	29	21
Room Effect in Plenum Space	-5	-5	-5	-5	-6	-6	-6
SubSum	51	45	43	39	32	23	15
Typical Mineral Fiber Lay-in Ceiling System TL (one pass)	-4	-8	-8	-12	-14	-15	-15
SubSum	47	37	35	27	18	8	0
Room Effect for Typical Office	-6	-6	-5	-6	-7	-8	-9
Sound Pressure Levels in Office Space	41	31	30	21	11	0	-9

TYPE 8M RATINGS: <NC-16, <RC-12(R), 27 dBA

ASHRAE Criteria for Executive offices is RC(N) 25-30



FIGURE 1 SOUND PATH 1

Description	Octave Band Data (Hz)						
	63	125	250	500	1K	2K	4K
Discharge Sound Power Level, VAV Terminal Unit, Inlet Size 8", 650 cfm	60	60	55	51	46	40	35
Attenuation of unlined corrugated aluminum duct, 8" diameter	0	0	0	0	-1	-1	-1
SubSum	60	60	55	51	45	39	34
Regenerated Sound Levels of NC-20 rated diffuser	12	20	25	29	30	28	25
SubSum	60	60	55	51	45	39	34
Room Effect for Typical Office	-6	-6	-5	-6	-7	-8	-9
Sound Pressure Levels in Office Space	54	54	50	45	38	31	24

METAL DUCT RATINGS: NC-40, RC-38(N), 46 dBA

ASHRAE Criteria for Executive offices is RC (N) 25-30

Note: The acoustical characteristics of hard metal duct and heavy gauge aluminum corrugated are similar for this case

FIGURE 1 SOUND PATH 2

Description	Octave Band Data (Hz)						
	63	125	250	500	1K	2K	4K
Discharge Sound Power Level, VAV Terminal Unit, Inlet Size 8", 650 cfm	60	60	55	51	46	40	35
Breakout TL of corrugated aluminum duct, 8" diameter	-17	-31	-39	-42	-41	-32	-22
SubSum	43	29	16	9	5	8	13
Room Effect in Plenum Space	-5	-5	-5	-5	-6	-6	-6
SubSum	38	24	11	4	-1	2	7
Typical Mineral Fiber Lay-in Ceiling System TL (one pass)	-4	-8	-8	-12	-14	-15	-15
SubSum	34	16	3	-8	-15	-13	-8
Room Effect for Typical Office	-6	-6	-5	-6	-7	-8	-9
Sound Pressure Levels in Office Space	54	54	50	45	38	31	24

METAL DUCT RATINGS: <NC-15, <RC-158 (N)

ASHRAE Criteria for Executive offices is RC (N) 25-30

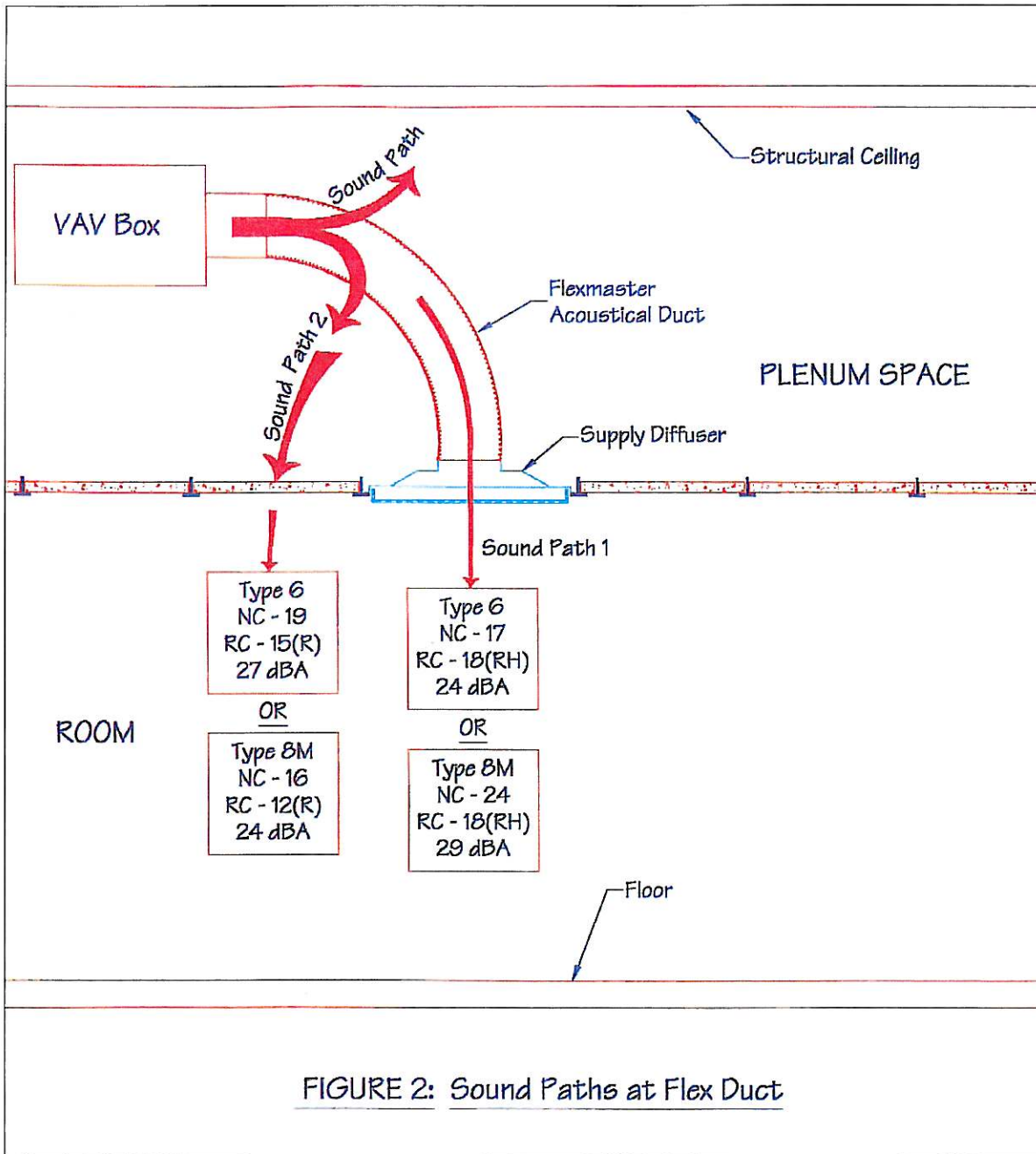
Note: The acoustical characteristics of hard metal duct and heavy gauge aluminum corrugated are similar for this case



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SOUND PATHS WITH FLEXMASTER DUCT



Flexmaster U.S.A., Inc. data has been tested by ETL Testing Laboratories, Inc.

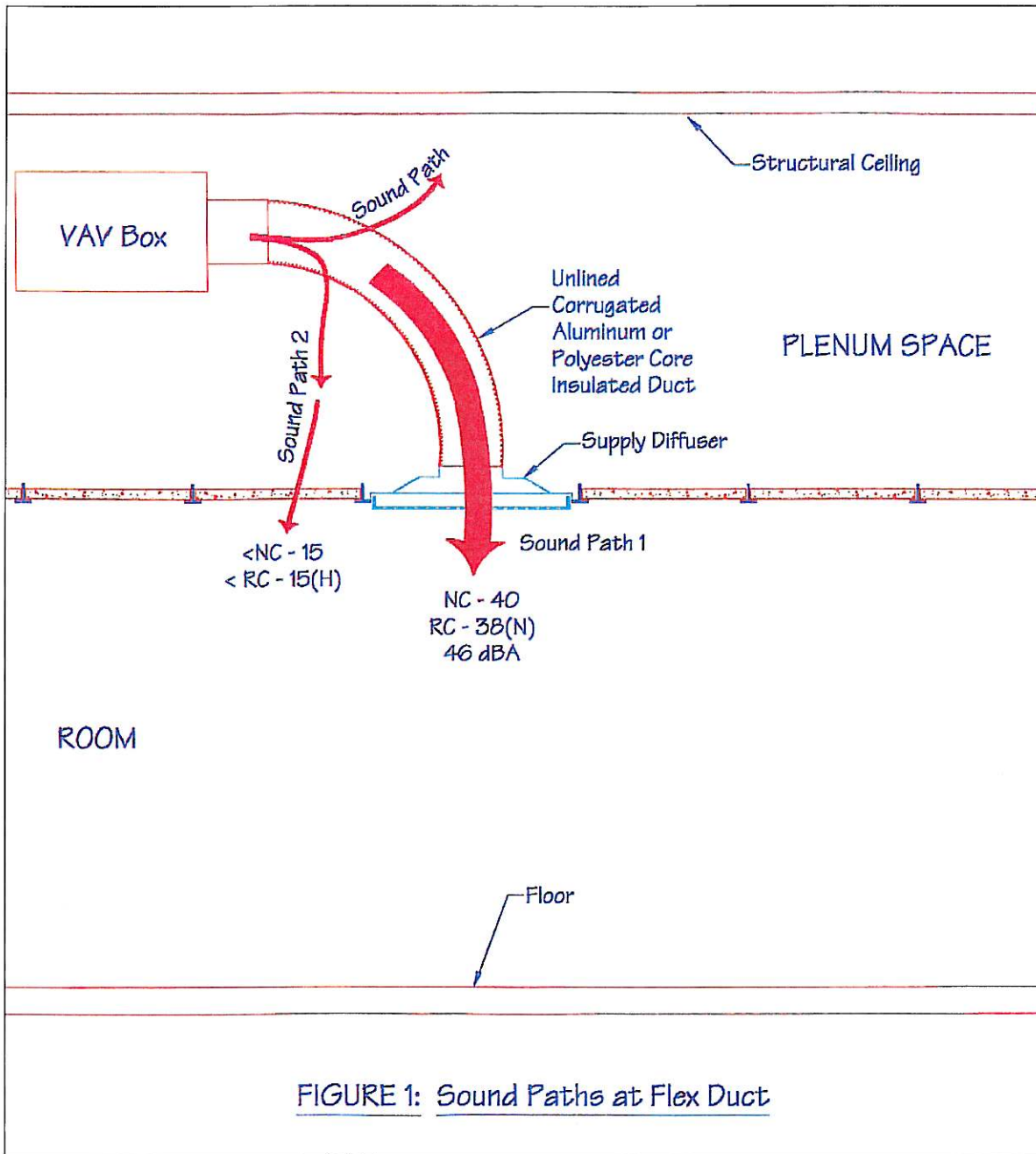
H.F.P. Acoustical Consultants, Inc., Mr. Omar C. Longoria, P.E. compiled data for the presentation model.



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SOUND PATHS WITHOUT FLEXMASTER DUCT



Flexmaster U.S.A., Inc. data has been tested by ETL Testing Laboratories, Inc.

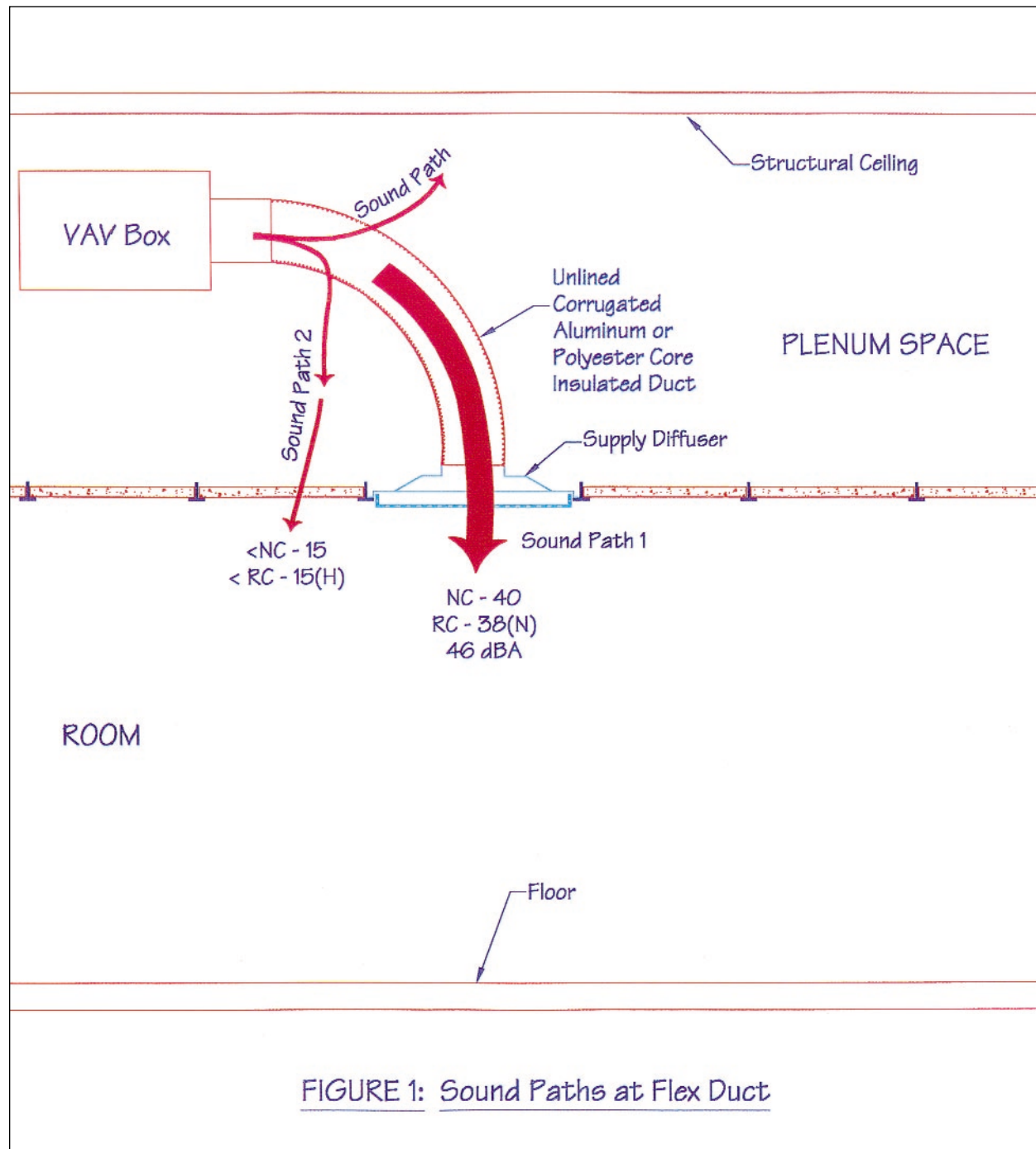
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SOUND PATHS WITHOUT FLEXMASTER DUCT



Flexmaster U.S.A., Inc. data has been tested by ETL Testing Laboratories, Inc.

H.F.P. Acoustical Consultants, Inc., Mr. Omar C. Longoria, P.E. compiled data for the presentation model.

July 28, 2006

EXPERIMENT NUMBER 1200

TEST NUMBER 0038

Sound Tests

On Flexmaster USA

Flexible duct

RENDERED TO:

Flexmaster USA

NOTE

This report is submitted for the private use of the party to whom it is addressed. Its value to the client in regards to other equipment is subject to the representative character of the sample(s) submitted and the comprehensiveness of the tests requested. It is disclosed in confidence with the understanding that it shall not be duplicated, divulged to others, or used without our permission.

INTRODUCTION:

This report gives the test results of sound collected on various types and sizes of Flexmaster flexible duct. Each 6' test specimen was tested both straight and with a 90 degree bend for velocities of 0 FPM, 500 FPM and 1,000 FPM and compared to hard metal duct at the same velocities. Flexmaster provided the following samples for testing.

Type 6M R6, Type 8M R6, MGA TLB, TLM and TLD in R6.

All of the different test specimens of flex were 6' long. Each test specimen was supplied in 6", 8", 10", 12", 14" and 16" diameters.

TEST METHOD:

For the static tests, one end of each test specimen was connected to the test box that used a B&K sound source to generate the sound and the other end of the test specimen was connected to the reverberation room. Sound values were then collected for each of the test specimens.

For the air velocity tests, one end of each test specimen was attached to a box that used a B&K sound source to generate sound and also allowed airflow to pass through. The other end of the test specimen was connected to the reverberation room. Velocities of 500 FPM and 1,000 FPM were set and sound values were collected for each of the test specimens.

The testing was performed on straight lengths of the test specimens and then repeated with a 90 degree bend in the test specimens.

TEST EQUIPMENT:

1 specially built plywood box to hold the B&K sound source for the static sound testing.

1 specially built plywood box to hold the B&K sound source and allow airflow to pass through.

10" airflow meter with electronic drive and calibrated orifice plates to set 500 FPM and 1,000 FPM test points.

B&K 4204 Sound Source used to generate the constant sound level.

B&K 7507 Sound recording meter.

Digital manometers were used to record airflows.

Miscellaneous metal ducts and 90 degree elbows were used.

TEST AUTHORIZATION:

Written authorization from Richard Luck, Vice President, FLEXMASTER USA, INC.

TEST RESULTS:

Please see attached sheets for test results. For the purpose of this test, the only comparison made is test specimens to hard metal duct. The following sheets are included.

STRAIGHT DUCT SUMMARY; 0 AIRFLOW
STRAIGHT DUCT SUMMARY AT 500 FPM; AT 1,000 FPM; DIFFERENCE
90° ELBOW SUMMARY AT 500 FPM; AT 1,000 FPM; DIFFERENCE
90° ELBOW SUMMARY; 0 AIRFLOW
STRAIGHT DUCT SUMMARY(A); 90° ELBOW SUMMARY(D); DIFFERENCE
SOUND WORK SHEETS FOR ALL TEST SPECIMENS

Report submitted by:
ENERGISTICS LABORATORY



Jack Stegall

November 10, 2011

EXPERIMENT NUMBER 1200

TEST NUMBER 0328R1

Sound Tests on Flexmaster USA Flexible Duct Type 1M-R6

RENDERED TO:

Flexmaster USA, Inc.

NOTE

This report is submitted for the private use of the party to whom it is addressed. Its value to the client in regards to other equipment is subject to the representative character of the sample(s) submitted and the comprehensiveness of the tests requested. It is disclosed in confidence with the understanding that it shall not be duplicated, divulged to others, or used without our permission.

INTRODUCTION:

This report gives the test results of sound collected on Flexmaster Type 1M-R6 flexible duct. Each 6 foot test specimen was tested both straight and with a 90° bend for velocities of 0, 500, and 1000 feet per minute (FPM) and compared to hard metal duct at the same velocities. Each test specimen was supplied in 6, 8, 10, 12, 14, and 16 inch diameters.

TEST METHOD:

For the static tests, one end of each test specimen was connected to the test box that used a B&K sound source to generate the sound and the other end of the test specimen was connected to the reverberation room. Sound values were then collected for each of the test specimens.

For the air velocity tests, one end of each test specimen was attached to a box that used a B&K sound source to generate sound and also allowed airflow to pass through. The other end of the test specimen was connected to the reverberation room. Velocities of 500 FPM and 1,000 FPM were set and sound values were collected for each of the test specimens.

The testing was performed on straight lengths of the test specimens and then repeated with a 90° bend in the test specimens.

TEST EQUIPMENT:

1 specially built plywood box to hold the B&K sound source for the static sound testing and dynamic sound testing (airflow pass through)

10 inch airflow meter with electronic drive and calibrated orifice plate to set 500 FPM and 1,000 FPM test points

B&K 4204 sound source used to generate the constant sound level

National Instruments PXI-4461 and PXI-4462 sound measuring instrumentation with PCB Class I microphones

Miscellaneous metal ducts and 90° elbows

TEST AUTHORIZATION:

Written authorization was provided by Neil Silverman, Director Sales & Marketing, Flexmaster USA, Inc.

TEST RESULTS:

For the purpose of this test, the only comparison made is test specimens to hard metal duct. Please see attached sheets for test data.

Report submitted by:
ENERGISTICS LABORATORY



Steve Treckman

November 10, 2011

EXPERIMENT NUMBER 1200

TEST NUMBER 032821

90 Degree Bend RSS + 500 FPM Air Flow									
Size	Model #	dBA	125	250	500	1K	2K	4K	8K

90 Degree Bend RSS + 1000 FPM Air Flow									
Size	Model #	dBA	125	250	500	1K	2K	4K	8K

16	1M-R6	14.4	3.6	18.0	20.8	26.5	18.0	9.2	6.5
14	1M-R6	16.1	4.6	17.9	25.1	28.7	19.5	10.8	8.1
12	1M-R6	18.1	3.2	26.6	29.1	30.5	23.0	11.8	8.6
10	1M-R6	19.2	2.7	19.3	31.4	34.9	25.6	13.0	9.1
8	1M-R6	21.7	1.3	19.0	34.5	35.5	25.6	16.5	13.1
6	1M-R6	22.1	4.2	10.4	28.1	40.0	35.4	21.9	16.0

16	1M-R6	14.4	2.3	17.2	20.0	26.4	18.1	9.1	6.5
14	1M-R6	16.2	3.6	17.3	24.3	28.7	19.6	10.8	8.0
12	1M-R6	17.9	3.3	25.1	27.4	30.1	23.0	11.8	8.5
10	1M-R6	19.3	3.5	18.2	29.9	34.6	25.6	13.1	9.0
8	1M-R6	21.8	2.7	17.5	31.9	35.0	25.5	16.5	13.2
6	1M-R6	22.0	4.3	10.6	27.3	39.5	35.5	22.0	16.2

16	6M-R6	26.0	20.3	27.2	24.6	26.6	25.3	29.3	28.0
14	6M-R6	27.8	22.2	29.1	26.9	28.4	27.5	28.0	26.5
12	6M-R6	30.1	17.5	28.1	27.0	30.9	31.2	29.4	25.4
10	6M-R6	31.4	20.8	28.2	29.1	33.3	33.2	29.9	24.0
8	6M-R6	34.0	20.3	28.6	32.7	34.8	35.4	33.3	29.4
6	6M-R6	28.0	18.2	24.8	28.0	30.2	30.4	25.2	17.6

16	6M-R6	25.9	19.0	27.4	24.7	26.5	25.1	27.0	27.7
14	6M-R6	27.8	21.9	28.5	26.6	28.5	27.4	28.2	26.5
12	6M-R6	30.3	17.4	28.4	27.7	31.1	31.3	29.7	25.5
10	6M-R6	31.2	20.7	27.8	28.9	33.2	33.1	29.9	23.9
8	6M-R6	33.9	20.9	28.7	31.6	34.3	35.4	33.6	29.6
6	6M-R6	28.1	17.4	24.3	28.2	30.2	30.6	25.2	17.4

16	8M-R6	14.0	0.0	8.6	22.1	27.3	18.0	8.7	6.8
14	8M-R6	13.9	3.5	13.3	20.4	23.9	15.6	8.3	8.1
12	8M-R6	16.6	4.5	12.2	24.1	30.1	23.0	10.2	8.2
10	8M-R6	18.7	4.5	13.2	28.0	31.6	24.4	12.7	12.0
8	8M-R6	21.6	6.8	16.8	33.8	36.5	29.3	14.4	11.6
6	8M-R6	23.1	5.8	11.9	27.8	30.5	29.2	17.4	15.0

16	8M-R6	14.1	0.5	8.2	21.7	27.0	18.1	8.6	6.5
14	8M-R6	13.9	3.3	12.4	19.9	23.9	15.4	8.5	7.9
12	8M-R6	16.7	4.4	12.4	24.1	30.3	23.0	10.3	8.2
10	8M-R6	18.6	4.5	12.2	27.0	31.5	24.6	12.6	11.8
8	8M-R6	21.6	7.2	16.4	31.7	35.9	29.4	14.6	11.7
6	8M-R6	23.0	4.2	10.8	27.8	30.4	29.4	17.5	14.7

16	MGA TLM R6	15.5	5.5	15.8	22.4	25.0	17.0	10.2	11.7
14	MGA TLM R6	16.1	5.7	11.8	17.1	25.0	19.4	10.2	11.1
12	MGA TLM R6	17.8	9.5	17.1	19.4	26.4	23.0	11.2	12.9
10	MGA TLM R6	17.5	6.5	17.1	24.2	27.5	20.2	11.5	14.7
8	MGA TLM R6	15.7	15.9	29.8	29.7	25.6	16.6	9.2	10.2
6	MGA TLM R6	27.5	11.7	24.7	29.3	31.4	30.4	22.4	19.1

16	MGA TLM R6	15.6	6.9	15.7	22.3	24.6	16.9	10.2	11.6
14	MGA TLM R6	16.0	6.8	10.9	16.7	24.9	19.3	10.2	10.7
12	MGA TLM R6	17.8	9.4	16.5	19.0	26.2	23.0	11.2	12.8
10	MGA TLM R6	17.5	6.7	16.7	23.7	27.6	20.2	11.3	14.4
8	MGA TLM R6	15.9	16.3	29.0	28.4	25.6	17.2	9.3	10.4
6	MGA TLM R6	27.6	10.5	23.9	29.0	31.2	30.7	22.6	18.9

Straight RSS + 500 FPM Air Flow									
Size	Model #	dBA	125	250	500	1K	2K	4K	8K

Straight RSS + 1000 FPM Air Flow									
Size	Model #	dBA	125	250	500	1K	2K	4K	8K

16	1M-R6	12.6	5.7	22.9	20.9	24.1	15.2	7.9	6.0
14	1M-R6	14.6	4.1	25.9	23.0	26.1	16.6	10.0	7.6
12	1M-R6	16.2	6.6	27.8	22.8	29.0	18.7	10.9	8.2
10	1M-R6	17.5	4.4	27.7	25.7	32.0	21.3	12.4	8.8
8	1M-R6	19.0	5.6	10.6	23.9	34.0	22.5	17.0	11.9
6	1M-R6	24.0	7.4	15.2	31.3	40.4	33.5	20.7	16.8

16	1M-R6	12.5	5.7	22.3	21.0	24.0	15.1	7.8	6.0
14	1M-R6	14.8	3.8	25.9	22.9	25.9	16.8	10.2	7.7
12	1M-R6	16.2	6.6	27.9	22.9	28.9	18.7	11.0	8.2
10	1M-R6	17.6	4.0	26.7	25.3	32.2	21.5	12.6	8.5
8	1M-R6	19.0	5.7	10.2	22.9	34.0	22.5	17.3	12.2
6	1M-R6	23.8	7.5	14.7	30.9	40.0	33.4	20.8	17.1

16	6M-R6	25.1	21.4	23.2	23.2	31.5	26.6	21.2	22.3
14	6M-R6	25.7	23.5	26.7	22.5	31.5	28.1	20.9	21.2
12	6M-R6	26.0	24.2	28.0	24.0	31.5	31.0	20.8	20.8
10	6M-R6	29.1	21.1	28.4	26.0	32.9	38.9	23.6	22.8
8	6M-R6	30.0	28.3	27.6	28.1	31.7	32.7	27.1	21.6
6	6M-R6	28.9	18.7	25.5	28.2	30.0	31.5	26.3	20.3

16	6M-R6	24.9	20.1	23.3	23.1	31.4	26.9	20.8	21.8
14	6M-R6	25.6	23.9	26.5	22.3	31.2	28.2	20.9	21.0
12	6M-R6	26.0	22.8	26.9	24.1	31.5	31.2	20.7	21.0
10	6M-R6	29.4	21.1	27.8	25.4	32.8	39.0	24.1	23.4
8	6M-R6	30.0	26.4	27.3	27.9	31.4	32.9	27.1	21.7
6	6M-R6	28.9	19.7	25.4	28.1	30.0	31.6	26.1	20.1

16	8M-R6	11.4	8.0	18.5	20.6	24.1	15.2	6.6	4.6
14	8M-R6	12.3	8.1	21.0	20.0	24.4	14.5	6.8	4.7
12	8M-R6	14.8	10.0	19.0	22.9	30.4	18.8	9.3	7.1
10	8M-R6	18.6	8.7	14.4	24.9	31.6	23.9	12.7	11.1
8	8M-R6	18.5	16.1	19.9	27.1	31.5	26.9	12.2	7.5
6	8M-R6	21.1	8.2	16.6	27.9	30.0	28.7	14.8	10.8

16	8M-R6	11.3	8.2	18.3	20.2	24.0	15.2	6.3	4.6
14	8M-R6	12.1	7.8	20.0	20.2	24.3	14.3	6.6	4.4
12	8M-R6	14.8	10.1	17.9	23.2	30.4	18.7	9.2	7.1
10	8M-R6	18.7	8.9	13.6	24.7	31.7	24.0	12.7	11.2
8	8M-R6	18.7	11.5	20.0	27.2	31.5	26.9	12.5	7.8
6	8M-R6	21.0	8.4	16.0	27.8	30.0	28.7	14.8	10.8

16	MGA TLM R6	13.8	17.8	21.3	19.6	23.2	14.6	9.4	12.8
14	MGA TLM R6	15.6	12.2	18.4	18.1	24.3	17.2	10.2	10.9
12	MGA TLM R6	17.0	21.3	25.2	21.6	27.6	19.5	11.1	15.3
10	MGA TLM R6	16.1	16.4	25.8	25.7	27.9	18.2	10.0	15.7
8	MGA TLM R6	14.7	25.8	26.5	27.9	24.5	14.8	9.3	10.4
6	MGA TLM R6	26.2	16.5	25.9	27.3	29.8	29.5	20.8	19.5

16	MGA TLM R6	13.7	18.3	20.7	19.9	23.1	14.5	9.2	12.7
14	MGA TLM R6	15.5	12.2	18.0	18.2	24.4	16.9	10.2	10.7
12	MGA TLM R6	16.8	21.4	24.9	22.3	27.7	19.0	10.9	15.2
10	MGA TLM R6	16.1	15.8	24.6	25.8	27.9	18.2	10.0	15.6
8	MGA TLM R6	14.9	26.2	26.3	27.6	24.4	15.3	9.3	10.3
6	MGA TLM R6	26.2	17.7	25.9	27.9	30.3	29.4	20.7	19.4



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MEDICAL GRADE INSULATED ACOUSTICAL DUCT MGA-TLB, MGA -TLM, MGA -TLD



MGA TLB R6



MGA TLM R6



MGA TLD R6

	HERTZ					
FLEXMASTER	125	250	500	1K	2K	4K
MGA TLB R6	12.2	23.2	22.9	27.8	21.4	11.2
MGA TLM R6	15.8	24.6	25.8	27.9	18.2	10.0
MGA TLD R6	10.7	12.8	24	28.6	16.1	10.9

Noise Reduction dB (6 foot length, 10" diameter)

CONSTRUCTION FEATURES

Flexmaster's Medical Grade Acoustical Triple Lock Ductwork, starts with an all aluminum perforated flexible core, with a free open area of 20-25%. The semi rigid and lightweight air duct is manufactured by using a dead soft aluminum strip which is spirally wound, perforated and mechanically locked for strength and durability. The fiberglass blanket is totally isolated from the air stream by UL approved acoustically transparent seamless polyethylene liner. Available options of a black fire retardant polyethylene (MGA-TLB), metallized polyester film (MGA-TLM) or another layer of aluminum triple lock (MGA-TLD) is used for the outer jacket. A minimum bend radius to center line is recommended at 1.5 diameters. End fittings can be provided to accommodate job conditions.

TECHNICAL DATA

Standard length (feet) 5 feet, special lengths on request	Rated Velocity 4000 F.P.M.
Inside Diameter (Inches) 6", 8", 10", 12", 14", 16" Special diameters by request	Internal Working Pressure (W.G.) 6" w.g. positive 2" w.g. negative
Inside Bend Radius (inches) 1.5 x I.D. (all sizes)	Minimum Burst Pressure 15" w.g. positive
Air Friction Loss See Friction Loss Chart	Thermal Conductance R-6.0, R-8.0
UL Listing UL 181/ETL Class 1 Air Duct	Operating Temperature Range -20° F to +250°F
Standard, Codes NFPA 90A and 90B HUD/FHA, MIN Property Std.	Flame Spread Less than 25
	Smoke Developed Less than 50

JOB NAME _____ LOCATION _____

ENGINEER _____ CONTRACTOR _____

JOB _____ P.O. NUMBER _____ SUBMITTED BY _____

COMMENTS _____

Project: _____

Contractor: _____

Engineer: _____

5235 Ted St, Houston, Texas 77040

P: 713.462.7694, F: 713.939.8441

FLEXDUCT KITS

Attachment per UL 181 requirements



CONSTRUCTION FEATURES

Flexmaster USA's UL 181 Flexduct Kits are manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181/ETL Class 1 AIR DUCT can be fabricated with multiple liners including acoustical liners* which allows sound energy to penetrate the duct wall. All Flexible Duct Kit Assemblies meet the UL 181 attachment requirements for flexible duct to sheet metal collars.

LINER OPTIONS:

TYPE 1* ☐ TYPE 5 ☐
 TYPE 3 ☐ TYPE 6* ☐
 TYPE 4 ☐ TYPE 8* ☐

* considered acoustical liners

VAPOR BARRIER

Fire Retardant Material.
 Available in Polyethylene or Aluminum Material
 Excellent Strength at Low Temperatures.
 Will Not Age Harden.

HELIX

Corrosion Resistant Galvanized Steel.
 Formed and Mechanically Locked to Fabric.

INSULATION

Fiberglass Insulation Blanket, Factory Wrapped.

TECHNICAL DATA

Standard lengths	5', 6' 7' & 8' (feet)	Rated Velocity	5500 F.P.M.
	Special lengths on request	Working Pressure:	
		Pos w.g.	Negative W.G
Inside	3", 4", 5", 6", 7", 8", 9", 10"	Type 1	10" Thru 12"
Diameter (inches)	12", 14", 15", 16", 18", 20"	Type 3	10" Thru 12"
		Type 4	10" Thru 12"
Center Line Radius (inches)	1 X ID (All Sizes)	Type 5	10" Thru 12"
		Type 6	5" Thru 16"
Vapor Barrier	B - .1 perm; M - .05 perm	Type 8	5" Thru 16"
Permeance	ASTM E96, Procedure A	Operating	
		Temp Range	-20° to +250° F
UL Listing	UL 181 / ETL Class 1 Air Duct	Flame Spread	Less than 25
		Smoke Developed	Less than 50
Standard	NFPA 90A and 90B, BOCA, SBBC	Thermal Conductance	available R4.2, R6.0, R8.0
Codes	HUD/FHA, MIN Property Std.		

26 Gauge, G90 Collars	End A	End B	Insulation	Outer Vapor Barrier
☐ Male	_____	_____	☐ R 4.2	☐ B - Black Fire Retardant
☐ Female	_____	_____	☐ R 6	☐ Polyethylene Material
☐ Worm Gear	_____	_____	☐ R 8	☐ M - Fire Retardant Reinforced
☐ Other	_____	_____		☐ Aluminum Material



SUBMITTAL DATA

Project: _____
Contractor: _____
Engineer: _____

5235 Ted St, Houston, Texas 77040

P: 713.462.7694, F: 713.939.8441

FLEXIBLE RETURN AIR KITS; TYPE 6 ACOUSTICAL FLEXIBLE DUCT



Attachment per UL 181
requirements



Type 6M



Type 6B

CONSTRUCTION FEATURES

Flexmaster USA's UL 181 Type 6 Flexible Return Air Kits are manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181/ETL Class 1 AIR DUCT is fabricated with an acoustical liner which allows sound energy to penetrate the duct wall. All Flexible Duct Kit Assemblies meet the UL 181 attachment requirements for flexible duct to sheet metal collars.

LINER

A Spun Bond Nylon liner,
Mechanically Locked Without
Adhesives.

VAPOR BARRIER

Fire Retardant Material.
Available in Polyethylene or Aluminum Material
Excellent Strength at Low Temperatures.
Will Not Age Harden.

HELIX

Corrosion Resistant Galvanized Steel.
Formed and Mechanically Locked to fabric.

INSULATION

Fiberglass Insulation Blanket, Factory Wrapped.

TECHNICAL DATA

Standard lengths (feet)	5', 6' and 7'	Rated Velocity	5500 F.P.M.
	Special lengths on request		
Inside Diameter (inches)	3", 4", 5", 6", 7", 8", 9", 10" 12", 14", 15", 16", 18", 20"	Working Pressure (W.G)	6" w.g. Positive 5" w.g. negative thru 16" dia 1" w.g. negative, 18" & 20" dia
Center Line Radius (inches)	1 X ID (All Sizes)	Operating Temperature Range	-20° to +250° F
Vapor Barrier Permeance	B - .1 perm; M - .05 perm ASTM E96, Procedure A	Flame Spread	Less than 25
UL Listing	UL 181 / ETL Class 1 Air Duct	Smoke Developed	Less than 50
Standard Codes	NFPA 90A and 90B, BOCA, SBBC HUD/FHA, MIN Property Std.	Thermal Conductance	available R4.2, R6.0, R8.0

26 Gauge, G90 Collars	End A	End B	Insulation	Outer Vapor Barrier
☐ Male	_____	_____	☐ R 4.2	☐ B - Black Fire Retardant Polyethylene Material
☐ Female	_____	_____	☐ R 6	☐ M - Fire Retardant Reinforced Aluminum Material
☐ Worm Gear	_____	_____	☐ R 8	
☐ Square to Round	_____	_____		

Project: _____
 Contractor: _____
 Engineer: _____

5235 Ted St, Houston, Texas 77040

P: 713.462.7694, F: 713.939.8441

FLEXIBLE RETURN AIR KITS; TYPE 1 ACOUSTICAL FLEXIBLE DUCT



Attachment per UL 181 requirements



NI 15



Type 1B



Type 1M

CONSTRUCTION FEATURES

Flexmaster USA's UL 181 Flexible Return Air Kits are manufactured to meet the highest quality standards in strength, permeability and fire resistance required in a flexible air duct. This insulated, UL-181/ETL Class 1 AIR DUCT is fabricated with an acoustically transparent PE inner film which allows mid-range sound energy to penetrate the duct wall. All Flexible Duct Kit Assemblies meet the UL 181 attachment requirements for flexible duct to sheet metal collars.

LINER

A PE Inner Film. Mechanically Locked Without Adhesives.

VAPOR BARRIER

Fire Retardant Material.
 Available in Polyethylene or Aluminum Material
 Excellent Strength at Low Temperatures.
 Will Not Age Harden.

HELIX

Corrosion Resistant Galvanized Steel.
 Formed and Mechanically Locked to Fabric.

INSULATION

Fiberglass Insulation Blanket, Factory Wrapped.

TECHNICAL DATA

Standard lengths (feet)	5', 6' and 7'	Rated Velocity	5500 F.P.M.
	Special lengths on request		
Inside Diameter (inches)	3", 4", 5", 6", 7", 8", 9", 10" 12", 14", 15", 16", 18", 20"	Working Pressure (W.G)	10" w.g. Positive 5" w.g. negative thru 16" dia 1" w.g. negative, 18" & 20" dia
Center Line Radius (inches)	1 X ID (All Sizes)	Operating Temperature Range	-20° to +250° F
Vapor Barrier Permeance	B - .1 perm; M - .05 perm ASTM E96, Procedure A	Flame Spread	Less than 25
UL Listing	UL 181 / ETL Class 1 Air Duct	Smoke Developed	Less than 50
Standard Codes	NFPA 90A and 90B, BOCA, SBBC HUD/FHA, MIN Property Std.	Thermal Conductance	available R4.2, R6.0, R8.0

26 Gauge, G90 Collars	End A	End B	Insulation	Outer Vapor Barrier
☐ Male	_____	_____	☐ R 4.2	☐ B - Black Fire Retardant Polyethylene Material
☐ Female	_____	_____	☐ R 6	☐ M - Fire Retardant Reinforced Aluminum Material
☐ Worm Gear	_____	_____	☐ R 8	
☐ Square to Round	_____	_____	☐ Non Insulated	