Flexible Duct, Sheet Metal Fittings, Access Doors, Sound Attenuation, and Accessories

Product Guide Flexmaster U.S.A.

FLEXMASTER U.S.A.
A MASTERDUCT COMPANY
Where there’s quality, there’s Flexmaster U.S.A.®

Flexmaster U.S.A.®, located in Houston, Texas, is a leading commercial HVAC flexible duct and sheet metal fitting manufacturer with over 35 years of success in the industry. Our Flexmaster U.S.A.® product line of air distribution solutions includes: flexible ducts, acoustical ducts, sheet metal fittings, access doors, low-leakage access doors, and accessories for many heating, ventilation, and air conditioning applications.

Designed for efficient installation and engineered to precise standards, our flexible duct sets the standard in quality and dependability. Unique to others in the industry, we manufacture flexible ductwork without the use of glues or adhesives. The mechanical-locked inner core maintains its shape at all 90° bends and offsets, thus eliminating the need for extra reinforcement.

This manufacturing process produces a flexible duct with the highest performance credentials of any flexible duct. The Flexmaster U.S.A.® 20 year warranty is unsurpassed in the HVAC ductwork industry.

Our newest product additions include:

- Medical and Acoustical Solutions
- 2000 G - Class A Factory Sealed Fittings
- Triple Lock Silencers
- Return Air Kits
- Oval Starter Collars

Our 20 year warranty backs our products as a guarantee for their long term performance.
Flexmaster U.S.A.®
A Masterduct Company

Flexmaster U.S.A.* is a Masterduct company manufacturing flexible duct, sheet metal fittings, access doors and HVAC accessories. Worldwide, our company is working towards common brand identity that will improve our visibility as well as promote synergies between our multiple companies across the globe. Flexmaster U.S.A. * item numbers and nomenclatures are not changing and will continue to be branded as in the past.

All Flexmaster U.S.A.* flexible duct products carry the ETL mark which are tested to UL181 Standards and are listed as Masterduct/Flexmaster U.S.A. with ETL.

- Flexible Duct
- Sheet Metal Fittings
- Silencers
- Triple Lock Specialty Metal Products
- Access Doors
- Accessories
- 20 Year Warranty on Most Products

Flexmaster U.S.A.* Advantage

Standard Duct
Flexible Fabric Ducts

Universal Characteristics
• ETL Class 1 Air Duct
• Flame/Smoke: 25/50
• Operating Temperature Range: -20°F to + 250°F
• Rated Velocity: 5500 F.P.M.
• Available Thermal Conductance (R-factor): R4.2, R6 or R8
• 25 Ft. Standard Length
• Vapor Barrier Permeance:
  Black Polyethylene (B) - .10 Perm A.S.T.M., E96, Procedure A
  Silver Mylar (M) - .05 Perm A.S.T.M., E96, Procedure A
• Limited to 14 Foot Runs if Listed as Connector Rated
• 20 Year Warranty - Except on Type 9 (5 Years)

Our flexible duct sets the standard in quality and dependability. Unique to the industry, we manufacture flexible ductwork without the use of glues or adhesives.

The mechanically-locked inner core maintains its shape at all 90° bends and offsets, thus eliminating the need for extra reinforcement or hard 90° elbows. This manufacturing process produces a flexible duct with the highest performance credentials of any flexible duct in the industry.

Type 1 - Acoustical Flex
Core: Polyethylene Fabric (PE)
Pressure Rated:
10” w.g. positive
5” w.g. negative thru 16” dia.
1” w.g. negative, 18” & 20” dia.

Typical Applications:
Acoustical Applications for Conference Rooms/CEO Offices Libraries/Theaters/Schools

*Type 1 PE Replaces Type 8 CPE

Type 3 - High Pressure
Core: Trilaminate of Aluminized Polyester, Fiberglass and Polyester
Pressure Rated:
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.

Typical Applications:
High Pressure Supply Connections, Medium Pressure Exhaust Connections, Low Temperature Heat Exhaust Connections, Light Moisture Connections, Temporary Duct Applications and Upstream of the VAV
Flexible Fabric Ducts

**Type 4 - High Pressure**
- **Core:** PVC Coated Fiberglass
- **Pressure Rated:**
  - 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.
- **Typical Applications:**
  - High Pressure Connections, Clean Room Connections, Light to Moderate Moisture Environments, Temporary Duct Applications, Medium Pressure Exhaust Connections and Upstream of the VAV

**Type 5 - Medium Pressure**
- **Core:** Trilaminate of Aluminized Polyester, Fiberglass and Polyester
- **Pressure Rated:**
  - 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.
- **Typical Applications:**
  - Medium Pressure Supply Connections (VAV/FPB Boxes), Low Pressure Supply Connections (Diffusers/Grilles), Light Pressure Exhaust Connections, Light Moisture Environments,

**Type 6 - Acoustical Flex**
- **Core:** Spunbond Nylon Fabric
- **Pressure Rated:**
  - 6” w.g. positive
  - 5” w.g. negative thru 16” dia.
  - 1” w.g. negative, 18” & 20” dia.
- **Typical Applications:**
  - Acoustical Applications for Conference Rooms/CEO Offices Libraries/Theaters/Schools

**NEW Type 9 - Low Pressure**
- **Core:** A Double Lamination of Tough Polyester with Spring Wire Support
- **Pressure Rated:**
  - 6” w.g. positive
  - 1/2” w.g. negative
- **Typical Applications:**
  - Low Pressure Connections, Light Commercial, Residential
  - *5 Year Warranty

Flexmaster U.S.A.* recommends that you check with the local code body having jurisdiction in your area to determine applicative codes.
Flexible Fabric Ducts

**Thermo Sleeves**

- **TSB** - Black Polyethylene Outer Jacket
  Perm rating = .10 grains per square foot, per hour, per inch of mercury
- **TSM** - Silver Mylar Outer Jacket
  Perm rating = .05 grains per square foot, per hour, per inch of mercury
  Available in 25 ft. standard lengths.
  Sizes to Cover Diameters from 3” thru 10”, 12”, 14”, 15”, 16”, 18”, 20”, 24”
  Thick Fiberglass Blanket - R4.2, R6.0, R8.0

**NEW Blue Fume Flex**

- **Core**: Light flame retardant PVC Coated Fabric, mechanically locked without adhesives
- **Pressure Rated**: 30” w.g. positive
  12” w.g. negative
- **Features**:
  - Light Weight
  - Flame retardant
  - Excellent chemical resistance
  - Highly flexible
  - External helix protects against abrasion
  - No adhesive in construction
- **Typical Applications**:
  Specialty designed for fume arm systems
  Not UL/ETL rated

**Flex Duct Kits**

- **Features**:
  - Factory assembled with collars on each end per ETL standards
  - Shipped assembled per custom order
  - Black polyethylene or silver mylar outer jacket
  - Thermally insulated to R4.2, R6 or R8
  - Standard Sizes: 4” thru 20”
  - Standard Lengths of 5’, 6’ and 7’
  - Custom lengths and sheet metal fitting options available
  - Reduces waste that can occur with 25’ boxes
- **Benefits**:
  - Designed with the HVAC Contractor in Mind
  - Efficient & Cost Effective Installation for Low and Medium Pressure HVAC Systems
  - Affordable Time and Labor Saving Options

**NEW Return Air Kits**

- **Features**:
  - Available in Type 1 or Type 6 flex
  - Shipped assembled, per custom order
  - Black polyethylene or silver mylar outer jacket
  - Thermally insulated to R4.2, R6 or R8
  - Standard Sizes: 4” thru 20”
  - Standard Lengths of 5’, 6’ and 7’
The Flexmaster U.S.A.® Triple Lock Product is an all metal flexible duct which is constructed entirely without the use of adhesives. 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 1.5 diameters, in accordance with accepted practice.

**Triple Lock**

**Pressure Rated:**
- 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.

**Stainless Steel Non-Insulated:**
- 12” w.g. positive
- 12” w.g. negative

**Temperature Rating:**
- Insulated (-20°F to 250°F) - ETL Class 1, Flame/Smoke: 25/50
- NITL (-60°F to 600°F) - ETL Class 0, Flame/Smoke: 0/0
- NITLSS (-60°F to 1500°F) - ETL Class 0, Flame/Smoke: 0/0

**Diameters Available:** 3”, 4”, 5”, 6”, 8”, 10”, 12”, 14”, 16”, and 18”

**NEW Triple Lock Silencer**

**Pressure Rated:**
- 10” w.g. positive thru 12”
- 6” w.g. positive 14”
- 12” w.g. negative thru 12”
- 4” w.g. negative 14”

**Temperature Rating:**
- Insulated (-20°F to 250°F) - ETL Class 1, Flame/Smoke: 25/50

**Straight Attenuator - Insertion Loss in dBA (5 foot length)**

<table>
<thead>
<tr>
<th>Product</th>
<th>FPM</th>
<th>125</th>
<th>250</th>
<th>500</th>
<th>1K</th>
<th>2K</th>
<th>4K</th>
<th>8K</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA-TLD5-6”</td>
<td>2500</td>
<td>10</td>
<td>25</td>
<td>&gt;41</td>
<td>&gt;42</td>
<td>34</td>
<td>21</td>
<td>13</td>
</tr>
<tr>
<td>SA-TLD5-10”</td>
<td>2500</td>
<td>6</td>
<td>17</td>
<td>29</td>
<td>36</td>
<td>25</td>
<td>16</td>
<td>11</td>
</tr>
<tr>
<td>SA-TLD5-14”</td>
<td>2500</td>
<td>7</td>
<td>13</td>
<td>23</td>
<td>26</td>
<td>16</td>
<td>13</td>
<td>6</td>
</tr>
</tbody>
</table>

Testing was provided by Intertek Laboratories. Testing was conducted in accordance with ASTM Standard E477-2006a, entitled “Standard Test Method for Measuring Acoustical and Airflow Performance of Duct Liner Materials and Prefabricated Silencers” and ADC test Code FD 72-R1, entitled “Flexible Air Duct Test Code FD 72”.

Note: Insertion loss data denoted with a (>) sign has been corrected to take into consideration the effect of the generated sound pressure level approaching the sound pressure level obtained during the insertion loss portion of the test. In some cases, the insertion loss may be higher than shown.

Contact factory for additional information.
Medical Grade Triple Lock

Effective acoustical design in medical care facilities should allow for a good night’s rest for patients and a distraction-free environment for health care professionals.

The Flexmaster U.S.A.® medical grade acoustical duct provides a safe and healthy environment while eliminating noise from the air flow.

- Triple-locked aluminum perforated core, 20-25% open area
- Air stream protected from thermal insulation jacket by ETL-approved acoustical sleeve
- Components will not burn (self extinguishing)
- Anti-microbial properties inhibit the growth of mold and mildew
- 25/50 flame smoke rating
- ETL class 1 rated: conforms to NFPA-90A
- Rated velocity 4000 FPM

Diameter: 6”, 8”, 10”, 12”, 14”, and 16”
Thermal barrier available: R-6.0
Standard Length: 5’ (contact factory for special lengths)

<table>
<thead>
<tr>
<th>Noise Reduction dB (5 foot length, 10” diameter)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hertz</td>
</tr>
<tr>
<td>Octave Band</td>
</tr>
<tr>
<td>MGA-TLB-R6</td>
</tr>
<tr>
<td>MGA-TLM-R6</td>
</tr>
<tr>
<td>MGA-TLD-R6</td>
</tr>
</tbody>
</table>

Straight @ 1,000 FPM
Additional sizes & their dB reductions available by request

Medical Grade Triple Lock

Pressure Rated:
6” w.g. positive
2” w.g. negative.

Temperature Rating:
Insulated (-20° to 250°F) - ETL Class 1, Flame/Smoke: 25/50
**Sheet Metal Options**

**FL and CB Options**

Flange with Stick On Gasket (SOG)
1" flange with stick on gasket

Insulation Guard (IG)
1" insulation guard, 26 Ga. galvanized

**Damper Control Options**

**NEW BO4 Option for Flexmaster U.S.A.* Fittings**

We now offer the Rossi (Everlock) 2" Standoff which was created to replace the friction locks on the market with a more reliable positive (absolute) lock. It is fully hand-operational so that there are no tools needed for adjusting or readjusting the damper blade position on site. Rossi products adhere to all ETL requirements, Plenum ratings and SMACNA standards for manual damper and comply with NFPA 90A & 90B.

**One Piece Flange Fittings**

Flexmaster U.S.A.* Flanged Spin Collar Fittings and Conical Bellmouths are manufactured in 26 gauge and 24 gauge with a one-piece base, producing a more energy efficient sheet metal fitting.

---

**Sheet metal Gauge Chart**

<table>
<thead>
<tr>
<th>Gauge</th>
<th>Galvanized Steel (in.)</th>
<th>Stainless Steel (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>.0217</td>
<td>.0188</td>
</tr>
<tr>
<td>24</td>
<td>.0276</td>
<td>.0250</td>
</tr>
<tr>
<td>22</td>
<td>.0336</td>
<td>.0313</td>
</tr>
<tr>
<td>20</td>
<td>.0396</td>
<td>.0375</td>
</tr>
</tbody>
</table>

---

**Flange & Gasket**

- FL-SOG
- FLD-SOG
- CB-SOG
- CBD-SOG
Sheet Metal Fittings

**Spin Collar Fittings**
FL, FLD, FLE, FLDE
Available Order Sizes: 4” - 20”
26 Ga., G-90 Galvanized
1/8” Tolerance
Optional Features:
24 Ga., 22 Ga., 20 Ga. Fittings & Dampers
Aluminum, Stainless Steel
BO3 & BO4 Damper Control Options
Flange and Gasket, Insulation Guard
90° or 45° Scoop (Extractor)

**Conical Bellmouth Fittings**
CB, CBD, CBE, CBDE
Available Order Sizes: 4” - 20”
26 Ga., G-90 Galvanized
1/8” Tolerance
Optional Features:
24 Ga., 22 Ga., 20 Ga. Fittings & Dampers
Aluminum, Stainless Steel
BO3 & BO4 Damper Control Options
Flange and Gasket, Insulation Guard
90° or 45° Scoop (Extractor)

**Connecting Sleeves**
SL, SLD
Available Order Sizes: 4” - 20”
26 Ga., G-90 Galvanized
1/8” Tolerance
Optional Features:
24 Ga., 22 Ga., 20 Ga. Fittings & Dampers
Aluminum, Stainless Steel
BO3 & BO4 Damper Control Options
Sheet Metal Fittings

**STO Fittings**
Available Sizes: 5” - 20”
26 Ga. G-90 Galvanized
4” w.g. Construction
1/8” Tolerance

**Features:**
1” Reinforcing Flange with Corner Clips
Prepunched Mounting Holes
Adhesive Coated Gasket for Minimal Leakage

**Optional Features:**
24 Ga., 22 Ga., 20 Ga.
Aluminum, Stainless Steel
BO3 & BO4 Damper Control Options
Insulation Guard

**LDS Fittings**
STO-LDS, STOD-LDS
Available Order Sizes: 5” - 20”
24 Ga. G-90 Galvanized Body
4” w.g. Construction
1/8” Tolerance
Brass Bushings

**Features:**
1” Reinforcing Flange with Corner Clips
Prepunched Mounting Holes
Adhesive Coated Gasket for Minimal Leakage

**Optional Features:**
Aluminum, Stainless Steel
Optional Damper Blade Y-Axis Left or Y-Axis Right
2” BO3 Buildout

**NEW 2000G Fittings**
Low Leakage

**Features:**
1” Flange with double sided adhesive gasket (No SOG for SL)
26 Ga., G-90 Galvanized
1/8” tolerance
Factory Class A Sealed
2” BO3 Buildout
Nylon Bushings
Reduces leakage from the damper barrel to less than 1 cfm at 4” s.p. (in. w.g.)
Contact factory for specific leakage data

**Option Features:**
24 Ga.
Aluminum, Stainless Steel
Sheet Metal Fittings

**Saddle Tap Fittings**

FLST, FLDST, FLDBO3ST, FLDBO4ST
STOST, STODST, STODBO3ST, STODBO4ST

Available sizes 5” – 20”
Fits up to 24” spiral pipe
24 ga G-90 Galvanized
1/8” tolerance

Optional features:
Aluminum, stainless steel
22 Ga, 20 Ga.
BO3 & BO4 Damper Control Options

**Square to Round Adapters**

Black Interior Standard
26 Ga., G-90 Galvanized
1/8” Tolerance
Standard Depth Size: 2", 3" or 4"
Custom Sizes Available

Optional Features:
24 Ga., 22 Ga., 20 Ga., Black Interior not Available
26 Ga. can be produced in Galvanized non-black Interior Upon Request
Aluminum, Stainless Steel
Available in Large (Nom. + 1/8”) or Small (Nom. - 1/8”)
Neck size equal to or less than smallest square dimension
Open or Closed Corners
2” oversized square to round
**Round to Round Adapters**

RRC - Round to Round Conical  
RRF - Round to Round Flat  
26 Ga., G-90 Galvanized  
1/8" Tolerance  
Custom Sizes Available

**Optional Features:**  
24 Ga., 22 Ga., 20 Ga.  
Aluminum, Stainless Steel  
Available in Large (Nom. + 1/8") or Small (Nom. - 1/8")

---

**Side Inlet Diffuser Box**

SIDB  
26 ga, G-90 Galvanized  
1/8” tolerance  
Available Plenum sizes: 6”x6” to 24”x24”  
Outlet sizes: 4” to 20”  
Custom sizes available

**Optional features:**  
Oval Outlet  
Black Interior  
24 ga, 22 ga, 20 g  
Aluminum, Stainless Steel,  
Flange and gasket, insulation guard

---

**NEW Oval Starter Collar**

Inlet sizes 5” to 20”  
24 Ga., G-90 Galvanized  
Crimped  
Beaded Collar  
Custom Sizes Available

---

**Sample Product Sizes**

```
Round to Round Adapter

<table>
<thead>
<tr>
<th>Size</th>
<th>Dim &quot;A&quot;</th>
<th>Dim &quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>6.231&quot;</td>
<td>2.5&quot;</td>
</tr>
<tr>
<td>5&quot;</td>
<td>7.516&quot;</td>
<td>3.0&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>8.801&quot;</td>
<td>3.5&quot;</td>
</tr>
<tr>
<td>7&quot;</td>
<td>10.087&quot;</td>
<td>4.0&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>11.372&quot;</td>
<td>4.5&quot;</td>
</tr>
<tr>
<td>9&quot;</td>
<td>12.658&quot;</td>
<td>5.0&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>13.944&quot;</td>
<td>5.5&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>15.220&quot;</td>
<td>6.0&quot;</td>
</tr>
<tr>
<td>14&quot;</td>
<td>16.496&quot;</td>
<td>6.5&quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>17.782&quot;</td>
<td>7.0&quot;</td>
</tr>
<tr>
<td>18&quot;</td>
<td>19.068&quot;</td>
<td>7.5&quot;</td>
</tr>
<tr>
<td>20&quot;</td>
<td>20.354&quot;</td>
<td>8.0&quot;</td>
</tr>
</tbody>
</table>
```

---

**Inlet Size**

```
Inlet Size | Dim “A” | Dim “B”  |
----------|---------|---------|
 5"        | 6.231"  | 2.5"    |
 6"        | 7.516"  | 3.0"    |
 7"        | 8.801"  | 3.5"    |
 8"        | 10.087" | 4.0"    |
 9"        | 11.372" | 4.5"    |
10"        | 12.658" | 5.0"    |
12"        | 15.220" | 6.0"    |
14"        | 17.782" | 7.0"    |
16"        | 20.370" | 8.0"    |
18"        | 22.941" | 9.0"    |
20"        | 25.516" | 10.0"   |
```
Inspector Series Doors

**Inspector Series Spin Doors**

SDSM

**High Pressure, Low Leakage, Spin Door**
24 Ga. door/22 Ga. frame
Standard R4.2 Insulation
More Energy Efficient

**Optional Features:**
- Flange and Gasket (SOG)
- Backplate Only - Available in Aluminum, Stainless Steel
- R6 Insulation
- Safety Cable

Door Sizes: 8”, 10”, 12”, 18”, 24”

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 applications in a low to high-pressure HVAC air distribution system. The Inspector Series Spin Door’s 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 heavy 24 gauge galvanized steel, rolled and double hemmed. The inner door is made of heavy 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.

**Low Leakage**

Independent laboratory testing has concluded our standard SDSM doors are low leakage doors. Leakage rate may vary based on installation by mechanical contractor. Leakage rates may vary with added options such as view ports and Flange and Gasket (SOG) modifications.

**TBSM**

**Low Pressure Tab Door**
24 Ga. door/22 Ga. Frame
Custom Sizes Available
Square or Rectangular
Standard R4.2 Insulation

**Optional Features:**
- Continuous Hinge
- Flange and Gasket (SOG)
- Special Hardware
- Aluminum, Stainless Steel
- R6 Insulation
- Safety Cable

Nominal Door Sizes: 6”, 8”, 10”, 12”, 14”, 16”, 18” 20”, 24”

The Inspector Series Tab Door is manufactured with G-90 galvanized steel to meet the highest quality standards required by SMACNA HVAC access doors. 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 Ga., galvanized steel, formed, notched and hemmed. The double sided insulated R4.2 inner door is constructed of 24 Ga. galvanized steel.
**FLEXRIGHT® Elbows**

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 (406-mm) diameter flexible air ducts.

Nylon cable ties secure duct to duct support, (purchased separately). Made from 100% recycled material (copolymer polypropylene). UL 2043 Listed.

Meets ASHRAE’s Advanced Energy Design Guides for Schools, Warehouses, Office and Retail Buildings.

The FlexRight® flexible duct elbow is manufactured by Build Right Products.

**Nylon Clamps**

UL 181B-C

**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

*N*OTE: Clamps Adjustable for DUCT Diameters 4” thru 10”; for larger diameters join two or more clamps together. Can be used for both high and low pressure flexible duct.

**Nylon Clamps Table**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Maximum Diameter Formed</th>
<th>Dimensions - Inches (mm)</th>
<th>Average Loop Tensile Strength Lbs. (N)</th>
<th>STD Pkg. Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLT-10-LH-L*</td>
<td>11.0 (297.4)</td>
<td>37.1 (942.8) .340 (8.610) .090 (2.300)</td>
<td>175 (778)</td>
<td>50</td>
</tr>
</tbody>
</table>
Accessories

Quick Release Spin Clamps
Bridging over helix allows for better contact of clamp to duct thus lowering leakage.
**Material:** Stainless Steel
**Flex Size:** 4” to 20”

<table>
<thead>
<tr>
<th>Clamp</th>
<th>Flex Size</th>
<th>Clamp Min.</th>
<th>Dia. MAX</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS-88</td>
<td>4</td>
<td>2.06</td>
<td>6.00</td>
<td>20”</td>
</tr>
<tr>
<td>LS-88</td>
<td>5</td>
<td>2.06</td>
<td>6.00</td>
<td>20”</td>
</tr>
<tr>
<td>LS-104</td>
<td>6</td>
<td>1.75</td>
<td>7.00</td>
<td>23”</td>
</tr>
<tr>
<td>LS-152</td>
<td>8</td>
<td>2.00</td>
<td>10.00</td>
<td>32”</td>
</tr>
<tr>
<td>LS-152</td>
<td>9</td>
<td>2.00</td>
<td>10.00</td>
<td>32”</td>
</tr>
<tr>
<td>LS-188</td>
<td>10</td>
<td>2.06</td>
<td>12.31</td>
<td>40”</td>
</tr>
<tr>
<td>LS-232</td>
<td>12</td>
<td>10.19</td>
<td>14.00</td>
<td>48”</td>
</tr>
<tr>
<td>LS-258</td>
<td>14</td>
<td>10.00</td>
<td>16.00</td>
<td>52”</td>
</tr>
<tr>
<td>LS-280*</td>
<td>16</td>
<td>14.25</td>
<td>18.00</td>
<td>58”</td>
</tr>
<tr>
<td>LS-312</td>
<td>18</td>
<td>14.00</td>
<td>20.00</td>
<td>64”</td>
</tr>
<tr>
<td>LS-344</td>
<td>20</td>
<td>16.00</td>
<td>22.00</td>
<td>73”</td>
</tr>
</tbody>
</table>

*Can only be used on listed size.
The data presented herein is based on reliable laboratory tests. For all sizes the test bend was formed around a template of the same diameter as the duct resulting in a radius to Diameter ratio of 1. The data has not been extrapolated for other bend ratios but must be considered when comparing values arrived at different R/D Ratios.

By its very nature, flexible duct presents variations not present in the measurement of friction loss in rigid pipe. Variations exist between the test procedure and actual field installations and Flexmaster U.S.A.®, Inc. assumes no responsibility for performance characteristics resulting from conditions which differ from those used in laboratory tests.

### Round Duct Area Table

<table>
<thead>
<tr>
<th>Duct Diameter (inches)</th>
<th>Cross Section Area (sq. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4”</td>
<td>.0873</td>
</tr>
<tr>
<td>5”</td>
<td>.1363</td>
</tr>
<tr>
<td>6”</td>
<td>.1963</td>
</tr>
<tr>
<td>7”</td>
<td>.2672</td>
</tr>
<tr>
<td>8”</td>
<td>.3490</td>
</tr>
<tr>
<td>9”</td>
<td>.4418</td>
</tr>
<tr>
<td>10”</td>
<td>.5454</td>
</tr>
<tr>
<td>12”</td>
<td>.7854</td>
</tr>
<tr>
<td>14”</td>
<td>1.069</td>
</tr>
<tr>
<td>16”</td>
<td>1.396</td>
</tr>
<tr>
<td>18”</td>
<td>1.767</td>
</tr>
<tr>
<td>20”</td>
<td>2.182</td>
</tr>
</tbody>
</table>
Flexmaster U.S.A.® Triple Lock Metal Flexible Ducting
Straight Run Friction Loss

All Metal • Corrosion Resistant • Air Tight • Permanent • High & Low Pressure

Equivalent Length of Ducting for any Bend Radius

<table>
<thead>
<tr>
<th>Dia.</th>
<th>Wt./Ft. Lbs.</th>
<th>Bend Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
<td>.15</td>
<td>6&quot;</td>
</tr>
<tr>
<td>5&quot;</td>
<td>.19</td>
<td>7&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>.22</td>
<td>9&quot;</td>
</tr>
<tr>
<td>7&quot;</td>
<td>.28</td>
<td>10&quot;</td>
</tr>
<tr>
<td>8&quot;</td>
<td>.31</td>
<td>12&quot;</td>
</tr>
<tr>
<td>9&quot;</td>
<td>.35</td>
<td>13&quot;</td>
</tr>
<tr>
<td>10&quot;</td>
<td>.38</td>
<td>15&quot;</td>
</tr>
<tr>
<td>12&quot;</td>
<td>.44</td>
<td>18&quot;</td>
</tr>
<tr>
<td>14&quot;</td>
<td>.56</td>
<td>21&quot;</td>
</tr>
<tr>
<td>16&quot;</td>
<td>.62</td>
<td>24&quot;</td>
</tr>
</tbody>
</table>

Hydronic Equivalents

- One Gallon Water = 8.33 pounds
- Specific heat \( (C_p) \) water = 1.00 Btu/lb °F (@68 °F)
- Specific heat \( (C_p) \) water vapor = 0.45 Btu/lb °F (@68°F)
- One ft. of water = 0.433 psi
- One cu. ft. of water = 62.4 lb = 7.49 gal.
- One in. of mercury (Hg) = 13.6 in. w.g. = 1.13 ft. w.g.
- Atmospheric Pressure = 19.92 in. Hg = 14.696 psi
- One psi = 2.31 ft. w.g. = 2.04 in. Hg

\[
TP = V_p + SP
\]

\[
V_p = \left( \frac{V}{4005} \right)^2
\]

\[
V = V_m \left[ d \text{ (other than standard) } \right]^{0.075} \quad \text{(d = std. air)}
\]

\[
cfm = A \times V
\]

\[
TP = C \times V_p
\]
### Recommended NC-RC Levels for Different Indoor Activity

<table>
<thead>
<tr>
<th>Type of Area</th>
<th>NC-RC Level</th>
<th>Approx. dBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private home (urban)</td>
<td>25-35</td>
<td>30-40</td>
</tr>
<tr>
<td>Individual rooms</td>
<td>30-40</td>
<td>35-45</td>
</tr>
<tr>
<td>Private hospital rooms</td>
<td>25-35</td>
<td>30-40</td>
</tr>
<tr>
<td>Operating rooms</td>
<td>30-40</td>
<td>35-45</td>
</tr>
<tr>
<td>Laboratories</td>
<td>30-40</td>
<td>35-45</td>
</tr>
<tr>
<td>Board rooms</td>
<td>20-30</td>
<td>25-35</td>
</tr>
<tr>
<td>General offices</td>
<td>30-45</td>
<td>35-50</td>
</tr>
<tr>
<td>Concert, opera halls</td>
<td>15-25</td>
<td>20-30</td>
</tr>
<tr>
<td>Movie theaters</td>
<td>30-35</td>
<td>35-40</td>
</tr>
<tr>
<td>Lecture halls</td>
<td>30-35</td>
<td>35-40</td>
</tr>
<tr>
<td>Sanctuaries</td>
<td>20-30</td>
<td>25-35</td>
</tr>
<tr>
<td>Libraries</td>
<td>30-40</td>
<td>35-45</td>
</tr>
<tr>
<td>Schools &amp; Classrooms</td>
<td>30-40</td>
<td>35-45</td>
</tr>
<tr>
<td>Restaurants</td>
<td>35-45</td>
<td>40-50</td>
</tr>
<tr>
<td>Retail Stores</td>
<td>35-45</td>
<td>40-50</td>
</tr>
<tr>
<td>Supermarkets</td>
<td>40-50</td>
<td>45-55</td>
</tr>
</tbody>
</table>

### Insulation Information

All of Flexmaster U.S.A.® products comply with ETL standards of the National Fire Protection Association NFPA No. 90A and NFPA No. 90B, also with the Follow-up Services Procedure and other applicable requirements of ETL. Only those products that properly bear the ETL Mark are considered as listed by ETL.

#### Installed Thickness and Thermal Performance (ASTM C518)

<table>
<thead>
<tr>
<th>Minimum Installed Thickness</th>
<th>R-Value</th>
<th>K*</th>
</tr>
</thead>
<tbody>
<tr>
<td>in.</td>
<td>mm</td>
<td>(hr<em>ft²</em>°F)/Btu</td>
</tr>
<tr>
<td>1.125</td>
<td>29</td>
<td>4.2</td>
</tr>
<tr>
<td>1.625</td>
<td>41</td>
<td>6.0</td>
</tr>
<tr>
<td>2.25</td>
<td>57</td>
<td>8.0</td>
</tr>
</tbody>
</table>

*Conductivity at 75°F (mean temperature at minimum installed thickness.)