# DUCTMATE®

THE ENGINEER, FABRICATOR AND
**CONTRACTOR'S GUIDE TO**

# DUCTMATE FLANGE

## 25 /35 /45

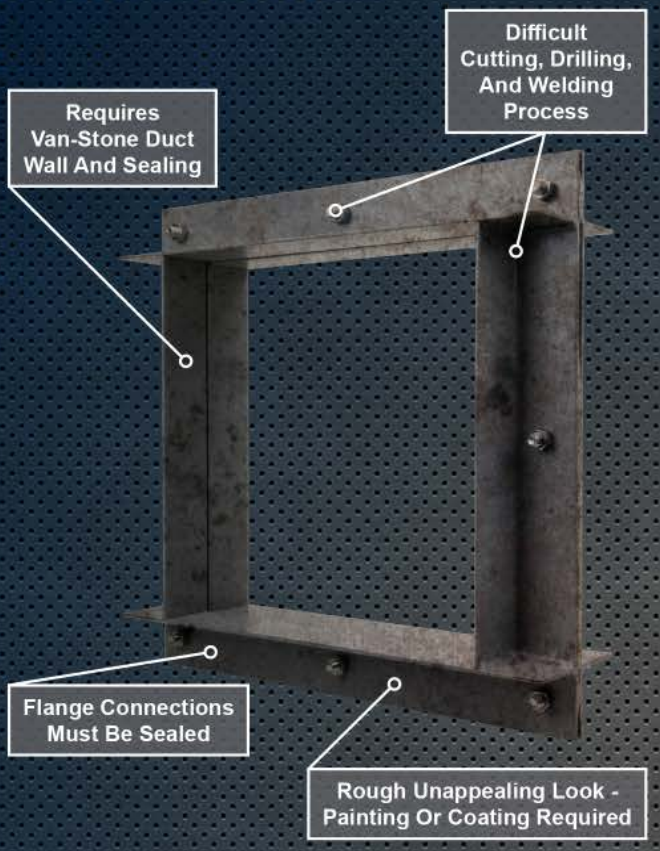
**How an Innovative Rectangular Duct Connection System is Transforming the HVAC industry.**

**WHITEPAPER PREPARED BY:**
DCL SUPPLY LTD.

DCL Supply
HVAC Commercial Industrial

# DUCTMATE®

## Problems




## Labor Intensive

## Solved


## Labor Saving

## Problems - *Solved!*

Heavy duty ductwork requires heavy duty connections and the Ductmate 45 connector system provides better solutions! Equal in strength to a SMACNA K Class connection, the Ductmate 45 system is aesthetically pleasing compared to Companion Angle, installs easier, and is engineered to exceed industry standards on even the largest applications. 100% US Steel, American and Union Made, backed by rigorous testing and our industry leading guarantee - large scale critical air systems are simply better with the Ductmate 45 system. ***Problems - Solved!***

*Cut to Length Options Available!*


DUCTMATE Industries, Inc.

DCL Supply
HVAC Commercial Industrial

*Visit **dclsupply.ca** or call **1-800-263-4541** for more information*

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CASE STUDY

# DUCTMATE FLANGE *goes to*



An ambitious new line and station extension at **Los Angeles County California Metro,** one of the largest transportation agencies in the US, counted on **Ductmate 45 Industrial Rectangular Duct Connector System t**o deliver the quality they needed for the extensive modern HVAC addition.

**Beneath the lights, glamour, and red-carpets of the City of Angels, the LA metro connects 9.6million people over a 1,433-square-mile service area. In 2014, the City began a huge construction project to extend the existing Metro E Line at Crenshaw and Exposition Boulevards and merge it with the Metro C (Green) Line at the Aviation/LAX Station on Aviation Boulevard and beyond.**

The extension would dramatically reduce travel times, lower transportation costs, and improve the quality of life for commuters and residents as well as benefiting the surrounding environment.

Engineering such a monumental and technically complex project, one that would deliver a vast number of socioeconomic solutions, was a challenge as monumental as the biggest movie star's ego.

It was the underground stations where Metro had its most challenging objective. The army of construction workers would need to tunnel under thousands of buildings and congested streets, all in a seismically active area.

The HVAC Contracting Companies of Limbach and Superior Duct were tasked with sourcing and installing the critical air systems needed. With ductwork exceeding 45 square feet in 20’ sections, the contractors had to be extremely selective in the connection system they would use.

Because of the unique below ground operation, the HVAC system had to withstand very rigorous operating standards, as well as meet the engineering standards for catastrophic events such as an earthquake. The ductwork would have to tolerate up to 14” positive and negative pressure and operating temperatures exceeding 480 degrees.

Fortunately Ductmate 45 Industrial Rectangular Duct Connector System, along with the engineering and technical support of Ductmate Industries, was up to the task.

The Ductmate 35 and Ductmate 45 Rectangular Duct Connector Systems, at an incredible cost saving compared to competitive angle flanges, are designed and engineered to increase the overall performance (airtight and structural integrity) of commercial and industrial HVAC systems. They are the most independently tested and widely used connector systems in the world.

Ductmate Industries’ engineering department built industrial sections of duct using the DM 45 connector system and tested it well beyond the performance requirements of the LA Metro project to confirm and support testing completed to achieve approval for this project. This included rigorous shaker testing and simulations specifically for critical projects in earthquake prone regions. Also, because of the extremely high temperature requirements of this project, a specialized silicone sealant was used between the flange faces at each 20’ duct joint. The silicone sealant worked perfectly with the Ductmate 45 System and achieved optimal results for the high temperature HVAC application.

The performance and vast labour-saving characteristics of the Ductmate 45 System lead to it being approved and used over the initially specified companion angle.

Ductmate products have been installed in virtually every type of commercial and industrial HVAC system imaginable including transportation hubs, data centers, waste-water treatment plants, processing plants, and countless other project types for companies such as Google, Microsoft, Facebook and Disney, to name a few. The LA transit line is due to be completed in 2021, and will be one of the most advanced, efficient, safest, and environmentally friendly transit systems in the world ■

# WHAT MAKES DUCTMATE FLANGE A SUPERSTAR

## One of the most highly tested and specified duct connection systems in the world.

**Fabricating connections for HVAC systems using companion angle is a very labour intensive installation process.**

Companion angle is hard to cut, requires countless number of holes to be drilled, must be painted to prevent rust, and requires certified welders to join angle together and to attach to the duct wall, and then attached with equally countless number of nuts and bolts.

Ductmate flange is a self-sealing slide-on connector system where no welding is needed to achieve an airtight seal. Its 4 -bolt design with optional bolt-on or snap-on cleat (which replaces all the nuts and bolts) makes ease of installation and airtight integrity simple. It is the clear choice over labour-intensive companion angle or other alternatives.

For over 40 years, Ductmate has been partnering with companies in the commercial and industrial HVAC space to solve challenging and unique mechanical problems in every conceivable alloy.

The Ductmate 25/35/45 self sealing rectangular duct connector systems are used to connect rectangular ducts when a rigid, leak-free connection is required.

It is a strong and virtually leak-free rectangular duct connection system consisting of **roll-formed flanges, corner pieces, gasket, and cleat.**

The flanges attach to the duct wall and have an integral mastic which allows the flange to seal itself to the duct.

**Corner pieces** are used to add rigidity to the flange, hold the ductwork together, and provide a sealing surface for the gasket. **The gasket** serves as a seal between the flanges.

**The cleat** then insures an even compression of the gasket along the length of the flange.

Nothing else in the market comes close to the ease of installation and outstanding performance of the system ■

### SPECIAL CHARACTERISTICS

- **Simple to install**
- **No additional sealing required**
- **Available in specialty metals**
- **Innovative downset corner insures a proper seal (excludes Ductmate '45')**
- **Patented corner clips ease installation (excludes Ductmate '45')**
- **Sealing materials meet NFPA 90A & B Class 1 requirements**
- **Not recommended for applications with duct gauges heavier than 10 GA or lighter than 22 GA, applications with duct gauges heavier than 16 GA or lighter than 26 GA, or applications with duct gauges heavier than 20 GA or lighter than 26 GA**
- **Virtually no leakage at up to 10" WG positive pressure or down to 10" WG negative pressure. Consult DCL Supply for static pressures exceeding these specifications**


Ductmate 25, 35, and 45 Flange offer superior performance over industry standard TDC and TDF connections. Not only is it easier to install, with a more solid airtight connection achieved in fewer steps, it also offers labour and cost savings, acts as a reinforcement, and is much more versatile in the field.

| TDC / TDF | | DUCTMATE FLANGE SYSTEM |
|---|---|---|
| • TDC & TDF are machine-rolled, fabricated, and roll-formed from the ductwork itself.<br>• **They have the same gauge as ductwork and so are not considered a stiffener.**<br>• Require more inner supports or tie rods.<br>• **Require additional nuts/bolts and gasket.**<br>• An additional sealant may be required to make a tight seal. | CONNECTION | • Roll-formed frame system connection.<br>• **NO additional sealants needed.**<br>• NO bolt corner system – DM35.<br>• **Downset corners for an airtight seal.**<br>• Considered and rated as a duct stiffener.<br>• **Allowance to drop in gauges of ductwork.**<br>• Minimal ties required<br>• **5511M mastic pre-injected into the frame for an airtight connection.** |
| • **Increase labour due to added sealers and nuts/bolts.**<br>• More inner tie rods needed for stiffeners.<br>• **The flange is same gauge as ductwork, so it is less structural.**<br>• More chance of added leakage in corners.<br>• **Cannot do field cuts.** | PERFORMANCE | • Designed and manufactured for faster installation.<br>• **Airtight system.**<br>• Field cuts are optional when needed.<br>• **Increase structural integrity.**<br>• Substantial saving on duct gauges. |
| • Increased labour due to extra sealant required.<br>• **Nuts/Bolts are mandatory and labour intensive.**<br>• More inner tie rod supports mean increased labour in manufacturing. | LABOUR | • NO bolt system makes it faster to install<br>• **No extra sealant required**<br>• The connection is considered a stiffener making it less labour intensive to install multiple pieces |

**There is a good reason why Ductmate 25 / 35 / 45 Flange is one of the most specified flange systems in the world.**

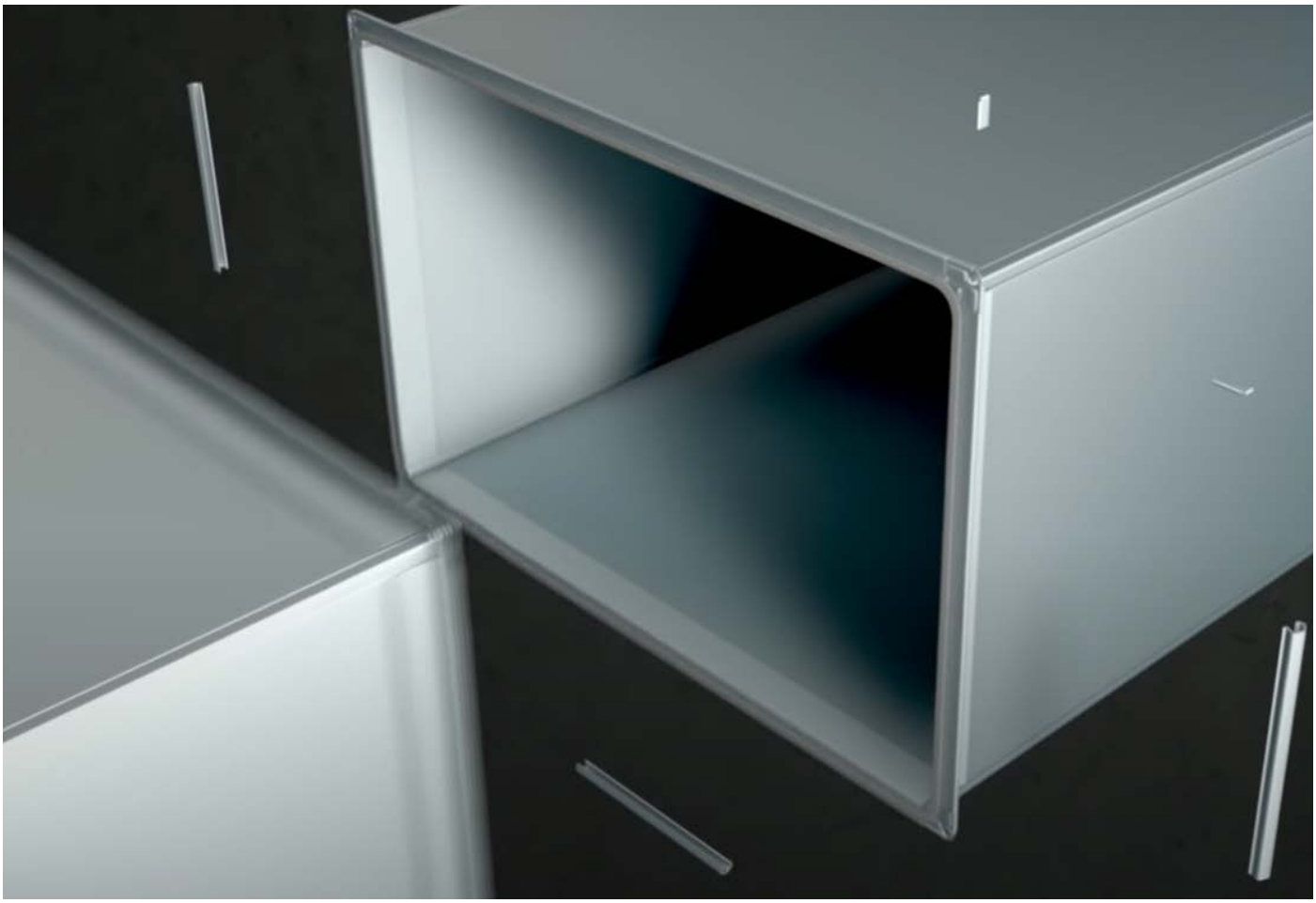
# HOW THEY COMPARE: Ductmate 25 / 35 / 45

*Having the right tools to choose the right DM Flange system is one of the many advantages of the system (See Appendix A for comprehensive construction standards). All systems meet SMACNA construction standards*

| Characteristic | Ductmate 25 | Ductmate 35 | Ductmate 45 |
|---|---|---|---|
| Simple to install | ✓ | ✓ | ✓ |
| No additional sealing required | ✓ | ✓ | ✓ |
| Available in specialty metals | ✓ | ✓ | ✓ |
| Innovative downset corner insures a proper seal | ✓ | ✓ | ✗ |
| Patented corner clips ease installation | ✓ | ✓ | ✗ |
| Sealing materials meet NFPA 90A & B Class 1 requirements | ✓ | ✓ | ✓ |
| Duct gauges heavier than 20 GA or lighter than 26 GA | ✗ | ✓ | ✓ |
| Duct gauges heavier than 16 GA or lighter than 26 GA | ✓ | ✗ | ✓ |
| Duct gauges heavier than 10 GA or lighter than 22 GA | ✓ | ✓ | ✗ |
| Virtually no leakage at up to 10” WG positive pressure or down to 10” WG negative pressure. | ✓ | ✓ | ✓ |

*Call DCL Supply for static pressures exceeding or below positive or negative 10” WG*

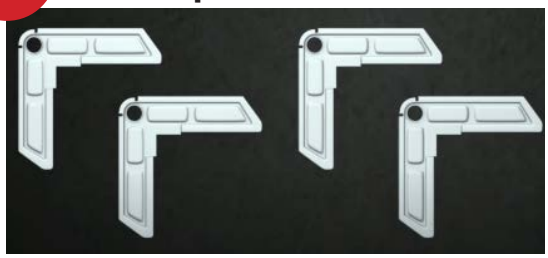
# INSTALLING DUCTMATE FLANGE



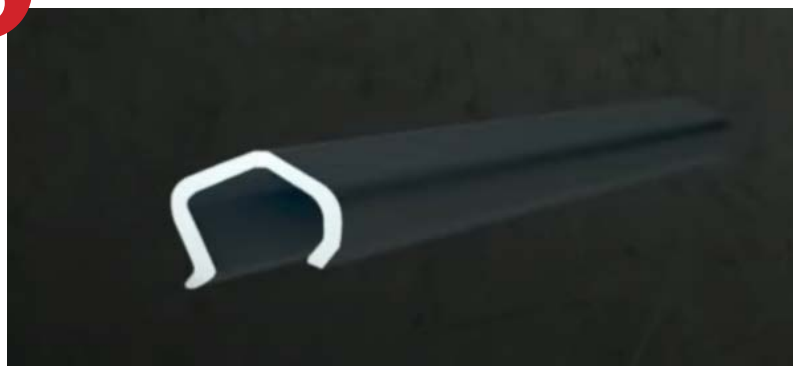
The Ductmate Flange 25/35/45 system consists of four different components:

1. **Flange roll formed to rigid tolerance criteria.**

2. **Precision stamped corner pieces**



3. **Metal or PVC cleats**



4. **Ductmate 440™ Gasket**

# 6 STEPS TO INSTALL DUCTMATE FLANGE

1

## Cut the Flange to size.

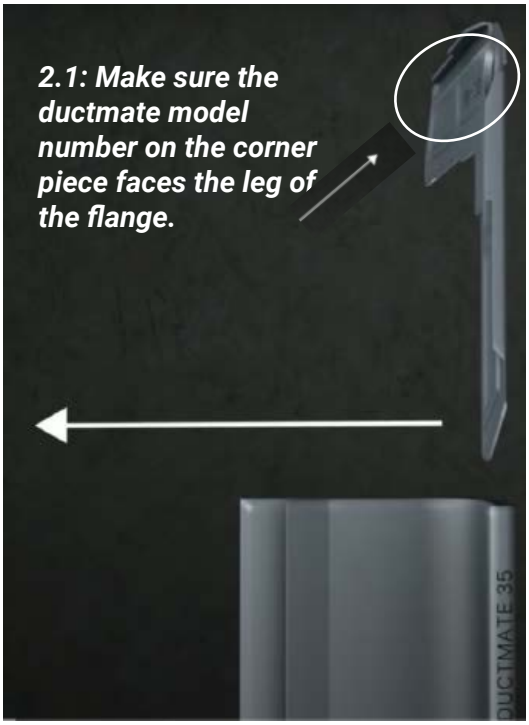
Always cut Ductmate angle **1¼" - 1⅜" shorter** than the duct dimension. For DM45, cut **1½" - 1⅝" shorter.** Slam the blade through the Angle as quickly as possible. Saw must have sufficient horsepower. Always use a metal friction saw blade. A band saw or hack saw can also be used.

***IMPORTANT:*** ***Do not notch the corners when fabricating ductwork for the Ductmate System.***

## Assemble the Frame

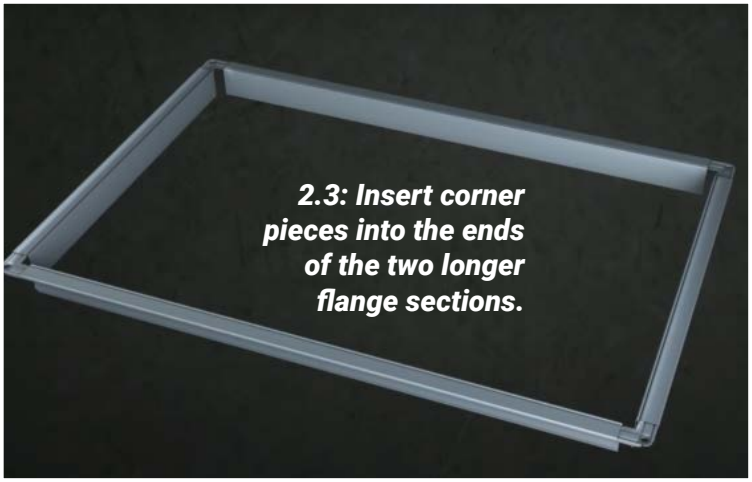
Once the flange is cut, the frame can be assembled.

2





**The frame is now complete.**




## PRO-TIPS

***Never*** *cut the flange with the legs facing up as chips may fall in to the mastic.*

***Never*** *use an abrasive blade as the heat can melt the mastic.*

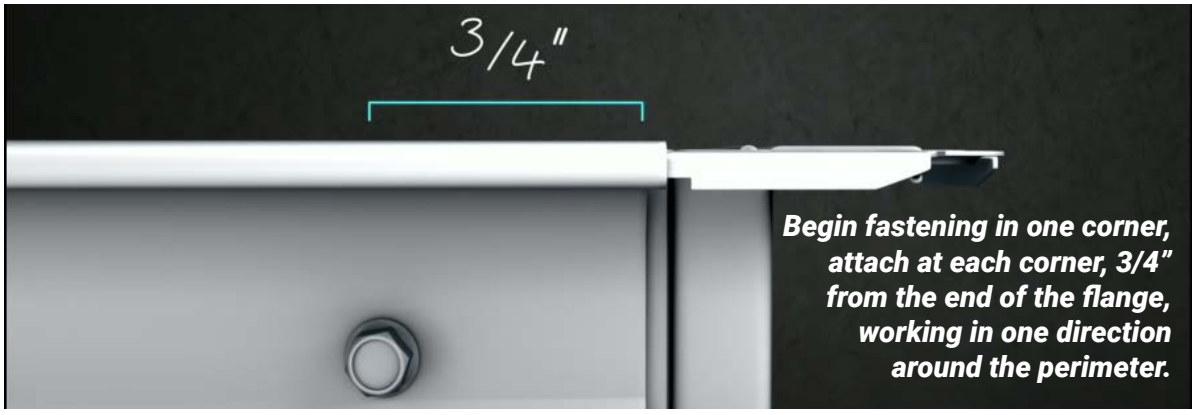
## 3 Attach the Flange to the Duct.

Starting at the corner, use a mallet to tap the flange on to the duct. Work in one direction right around the duct to seating the frame.

***REMEMBER:*** ***There is no need to notch the corners when attaching the Ductmate System.***

Establish metal to metal contact around the full perimeter of the frame. **Because of the exclusive patented downset feature the duct will protrude beyond the Ductmate corner piece**

***VERY IMPORTANT:*** ***If the duct corner or the Pittsburgh lock gets caught under the Ductmate corner, tap the frame outwards to allow the duct corner to slide past the Ductmate corner piece.***


***IMPORTANT:*** ***Self-Drilling screws or spot welds must be used.***

***Additional screws must be placed 2-3" from the end of the flange***

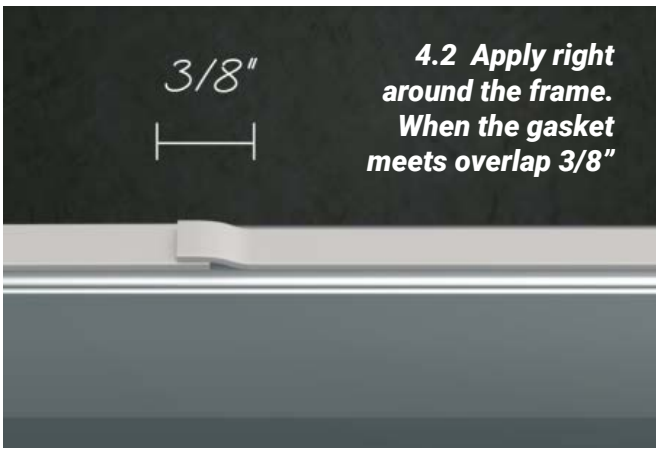
# 4 Apply the Ductmate 440™ Gasket Tape.

Before applying the gasket ensure the frame is free from oil or debris.

***4.1 Begin about halfway on the long frame section. Position in the centre of the flange.***

***IMPORTANT:*** ***Do not stretch the gasket when applying. Press on firmly after applying.***

***4.2 At the corners the gasket must be positioned in an arc. Must cover the three critical points: top edge, corner, and side edge. Corners are the only place the gasket should protrude into the airstream***




***4.2 Apply right around the frame. When the gasket meets overlap 3/8"***

## PRO-TIP

If you are working in colder temperatures ensure the gasket is **kept warm in a hot box or similar** for proper performance.

## 5 Join the Flange

***IMPORTANT:*** **Carefully align the mating frames before they touch because Ductmate 440™ Gasket adheres on contact.**

***5.1 A drift pin can be used for alignment. Squeeze sections closed with a vice grip.***

**PRO-TIP**

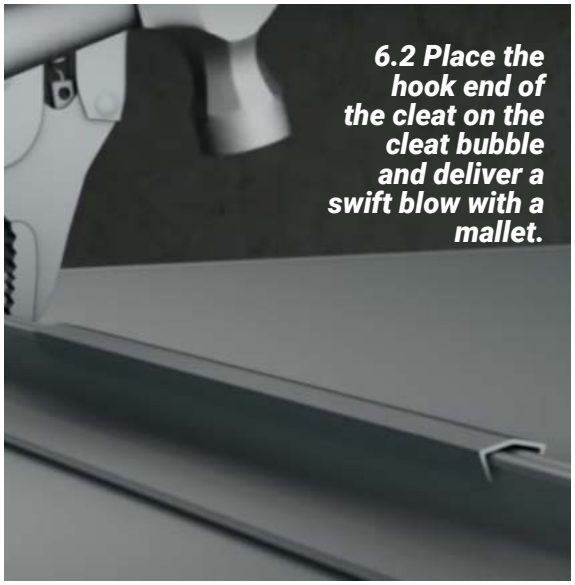
Ductmate provides a corner alignment tool to replace the vice and drift pin.

***5.2 For Ductmate 25 & 35 slide the corner clips onto the joint corner pieces. Tap with a hammer until the tab seats itself into the notch.***

***IMPORTANT:*** **Corner clips are secure for most applications but for heavier gauges (or space limitations) bolts can also be used at each corner. Do not over tighten or under tighten the bolts.**

## 6 Attach the Cleat


*6.1 Apply a vice grip to the flange.*



*6.2 Place the hook end of the cleat on the cleat bubble and deliver a swift blow with a mallet.*

***IMPORTANT:*** **Use a 6” cleat, 24” on centre. For outdoor ductwork use a full length cleat on the top of the flange frame to prevent water getting on the gasket.**

## PRO-TIPS

Ductmate 25/35 cleat can be snapped-on with the Cleater I Tool or with the Cleater II where space is restricted. Ductmate ‘45’ requires the Versa Cleater Tool for installation of the larger Ductmate 45 Snap-On cleat (all specialty tools are available from DCL Supply). Work toward center of the duct using the schedule available on the next page’s specs.

If a corner cannot be clipped or bolted due to inaccessibility, the cleat can be driven onto the mating flanges to complete the connection.

# KEY SPECS FOR ENGINEERS AND INSTALLERS.

## The Ductmate Systems consist of the following components:

a. **Ductmate '45' flange** is roll-formed from **18 GA galvanized steel,** with an **integral sealant.**

b. **Ductmate '35' flange** is roll-formed from **20 GA galvanized steel,** with an **integral sealant.**

c. **Ductmate '25' flange** is roll-formed from **24 GA galvanized steel,** with an **integral sealant.**

d. **Ductmate '45'** electroplated, **bolt corner pieces** insert into the hollow
web of the **'45' angle.**

e. **Ductmate DCIIIA, DCIIIB or DC35 corner pieces** insert into the hollow web of the **'35' Angle.**

f. **Ductmate DC25 clip or DC25 bolt corner pieces** insert into the hollow web of the **'25' Angle.**

g. **Ductmate '45' metal cleat** is roll-formed from **22 GA galvanized steel.**

h. **Metal cleat** is roll-formed from **20 GA galvanized steel.**
*(PVC Cleat is available upon request).*

i. **440 Butyl Gasket** is extruded butyl for use between mating flanges.
*(Neoprene gasket is available upon request).*

j. **Corner clips** are **16 GA galvanized steel.**
*(Use of nuts and bolts optional: ⅜" x 1" for DCIIIB, ⅝" x 1" for Ductmate DC25 corners).*

## CLEAT INSTALLATION

**With DM440 Gasket**
For all low, medium and high pressure applications, use 6" cleat, 24" O.C. (On Centre)

**With Neoprene Gasket**
For 1/2"-2" WG/SP use 6" cleat, 24" O.C.
**For 3"-4" WG//SP use 6" cleat, 18" O.C.**
For 6"-10" WG/SP use 6" cleat, 12" O.C.

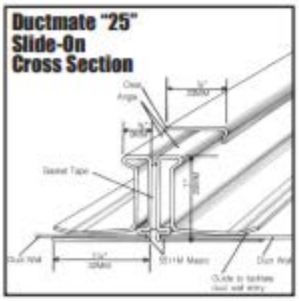
**PVC CLEAT:**
Polyvinyl chloride (PVC) is an organic polymer derived from petroleum and salt.
**Performance Properties:**
**Relative high ignition resistance: flash ignition: 391°/735°F**
**Self ignition: 454°C/850°F**
Low fuel contribution
Lack of flaming drips
High external heat necessary to maintain combustion
UL94-Passes

**UL723 (ASTM E-84) Test Data:** Flame Spread:10 | Fuel Contribution: 0 | Smoke Density: 10 |Service Temp: +32°F to +150°F

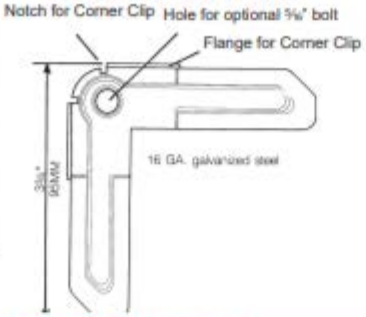
*PVC Cleat is used around perimeter of transverse joint. Not recommended for roof top applications.*

**METAL CLEAT:**
DM Metal Cleat is roll-formed of 20 GA galvanized steel for application around perimeter of transverse joint.

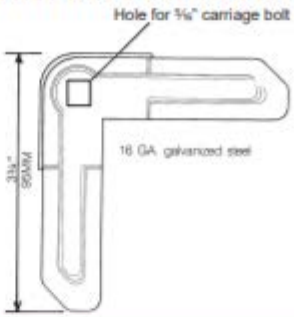
## DUCTMATE '25' COMPONENTS



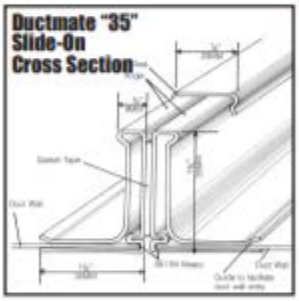

### DC25 Corner Piece



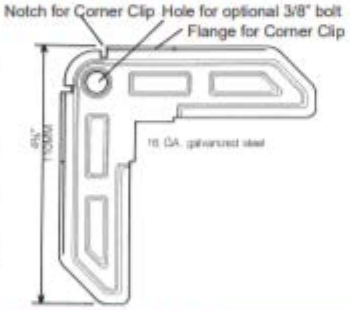

### Bolted DC25 Corner Piece



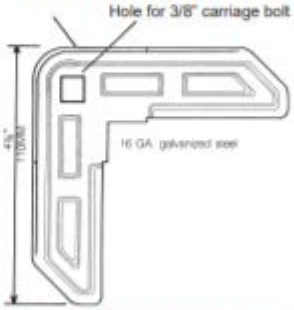

## DUCTMATE '35' COMPONENTS



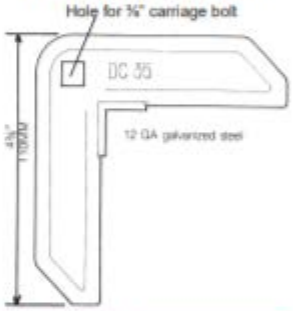

### DCIIIB Corner Piece




### DCIIIA Corner Piece

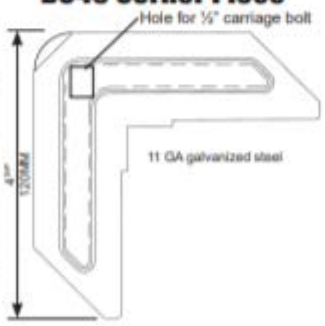



### DC35 Corner Piece




## DUCTMATE '45' COMPONENTS

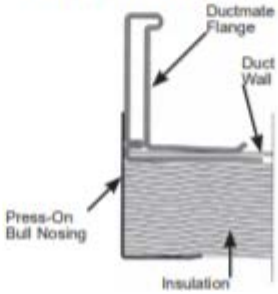

### DC45 Corner Piece




## ADDITIONAL COMPONENTS

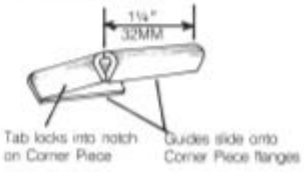
| Corner Bolt Sizes (with nuts) | | |
|---|---|---|
| Ductmate | 25 | 5/16" |
| | 35 | 3/8" |
| | 45 | ½" |

### Press-On Bull Nosing




### Corner Clip

For DCIIIB & DJRGA Boltless Corner Application




**Ductmate '45'** was tested in accordance with **SMACNA testing procedures.** No external sealant was employed and the test results reveal: the **Ductmate '45' system** is comparable to a **SMACNA Class K transverse joint.**

**Ductmate '35'** system is comparable to the **SMACNA Class "J" transverse joint** and the **Ductmate '25'** system is comparable to the **SMACNA Class "F" joint**. **Ductmate '35'** in stainless steel exhibits the same performance as galvanized. **Aluminum DM35** is comparable to a **SMACNA H connection.**

**DM25** is not available in aluminum or stainless. **DC35** corner pieces must be used with aluminum. **Aluminized or PVC cleats** are used with aluminum flanges. **Cleat i**s not available in aluminum.

**Do not notch the corners when fabricating ductwork for the Ductmate System**

# PRODUCTS RELATED TO THE DUCTMATE FLANGE SYSTEM

All Ductmate products are exclusively provided in Canada by DCL Supply Ltd.  .

## DM 440™ Gasket Tape

High quality sealing tape for use with Ductmate's 4-bolt connection systems. Also suitable for use with other rectangular flange systems which require gasket.
Ductmate 440 tape has the widest range of application temperatures of any material on the market, ensuring a positive seal and ease of application under extreme conditions.

## Neoprene Gasket Tape

Excellent for use between duct flanges to produce an airtight seal.

Neoprene Gasket Tape is a synthetic, closed-cell, rubber-based sealing tape. Pressure sensitive adhesive backing, synthetic closed cell tape and simple and easy to install

## Versa-Cleat

Snap-on cleat that can be used in conjunction with a variety of TDC connections along with Ductmate 35 and Ductmate 45 systems.

The unique design of this cleat allows it to be used on most rectangular flange connections

## Bolt-On Cleat

Universal flange clamp designed to be a quick and easy alternative to complete a rectangular duct connection when compared to traditional cleats.
Can be used with multiple flange profiles: DM 25, 35, 45®, WDCI J and H, T.D.C® / T.D.F®, stamped from **11 GA Galvanized Steel**
Easy to install with no special tools required
Neat, professional appearance

# Ductmate Alignment Tool

Reduce on site installation time for rectangular duct. This tool uses the holes in the Ductmate corners to quickly align and compress mating ductwork allowing for fast and easy installation of Ductmate's patented corner clips.

# Cleater® 1 & Cleater® 2

The Cleater 1 & Cleater 2 are used to attach cleat to Ductmate Flange joints.

The Cleater 1 is the ideal tool for attaching cleat to Ductmate Flange joints where spacing is not an issue. Use the Cleater 2 in conjunction with 5/8" deep-wall socket, extensions, and wrench (not included) to attach cleat in hard-to-reach places.

# Universal Press-On Bullnosing

Ductmate Press-On Bull Nosing is universal and can be used on DM Flange and T.D.C / T.D.F systems a fast and effective means to reduce fibers within the air stream.
Double-sided adhesive gasket for fast application, helps protect insulation from damage, available for multiple insulation thicknesses with a consistent product quality

# ABOUT DCL SUPPLY LTD.

DCL Supply
HVAC Commercial Industrial

All Ductmate products are exclusively provided in Canada by DCL Supply Ltd. Call **1-800-263-4541 (press 3 for the order desk)** or visit **www.dclsupply.ca/products** for all product information, Spec Sheets, Safety Data Sheets and full item lists. .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# SOURCES

**CASE STUDY**

https://www.metro.net/projects/crenshaw_corridor/

https://www.youtube.com/watch?v=BgDqv1QWQng

**DUCTMATE FLANGE INSTALLATION VIDEO**

https://youtu.be/dCNRl3rm4sA

**FOR MORE INFORMATION ON ANY PRODUCT, INCLUDING ALL THE DUCTMATE FLANGE SYSTEMS AND RELATED PRODUCTS VISIT: www.dclsupply.ca/products FOR MORE INFORMATION, SPEC SHEETS, SDS SHEETS, AND FULL ITEM LISTS.**

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# APPENDIX A:

# Ductmate Construction Standards

# FORWARD

The widespread use of the “Ductmate® 25, 35, and 45 Slide-On Systems” makes these duct construction guidelines a necessity.

This manual is based on fundamental, sound engineering principles. The criteria used to establish the tables in this publication are ¼” joint and ¾” sheet deflection limits for ducts over 24” wide.

These duct construction standards are based on independent testing using the Ductmate Systems exclusively as manufactured by Ductmate Industries Incorporated U.S.A. No other flange system can be used in conjunction with these tables.

Any reference to SMACNA in this manual refers to the SMACNA 2005 “HVAC Duct Construction Standards, Metal and Flexible,” Third Edition.

# TABLES

When using the Rectangular Duct Construction Tables in this manual, **Reinforcement Spacing** refers to both the Ductmate joints and Intermediate Reinforcements (Center Tie Rods or External Stiffeners.)

Ductmate’s Rectangular Duct Construction Tables are based on 6’, 5’, and 4’ duct section lengths. Columns 6’, 5’, and 4’ are construction guidelines without the use of any joint or intermediate reinforcements.

The 3’, 2½’, and 2’ columns are used in conjunction with the 6’, 5’, and 4’ duct section lengths. These columns provide alternative construction guidelines such as lighter metal gauges, joint tie rods, center tie rods, or external intermediate reinforcements.

When making special fittings, if the duct length matches the 3’, 2½’, and 2’ column spacing, you do not need the CTR or external reinforcement between the joints.

See examples on pages 6-7.

## Positive Pressure

This addendum includes positive pressure guidelines for pressure classes up to 10” w.g.

## Negative Pressure

Duct construction tables for ½”, 1”, 2”, and 3” w.g. can be used for both positive and negative pressures. For negative pressures greater then 3” w.g., please contact Ductmate Industries or refer to the SMACNA Rectangular Industrial Duct Construction Standards. Except for aluminum, the guidelines on pages 8-15 can be used on galvanized, galvannealed, 304 and 316 stainless steel, PVC coated, aluminized, and black iron.

Duct construction guidelines for aluminum applications are on pages 17-22.

Metric duct construction guidelines for aluminum can be found on pages 38-43.

In a cell, DM25 refers to the Ductmate 25 Connector system, DM35 refers to the Ductmate 35 system, and DM45 refers to the Ductmate 45 system.

When an intermediate reinforcement is required in a cell, there will be an internal tie rod or an external alphabetical option, or both.

CTR (Center Tie Rod) refers to an internal tie rod halfway between the Ductmate joints.

JTR (Joint Tie Rod) refers to an internal tie rod at the Ductmate joints.

See page 5 for CTR and JTR details.

When using conduit as a tie rod for rods up to 36” long use ½” conduit. For rods 37” and longer use ¾” conduit.

The maximum distance from the duct wall to a tie rod is 48” on center.

When more than one tie rod is required on the same plane at a joint or reinforcement, the maximum distance between tie rods is 48” on center.

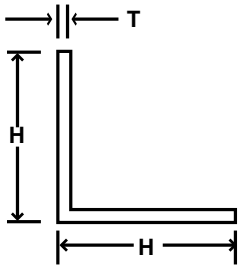
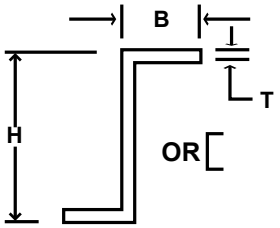
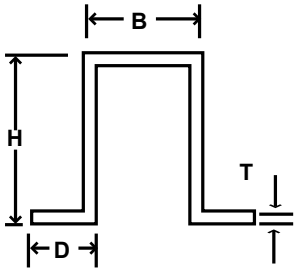
When a CTR and / or JTR is needed on both the width and height dimension of the duct, where the rods intersect, they must be clamped, tied or welded together to prevent vibrating against each other.

If an (*) appears next to the DM25, DM35, DM45, or intermediate reinforcement it indicates that a tie rod is needed.

If an alphabetical letter A through K appears in a cell, it refers to an external intermediate reinforcement option between the Ductmate joints. See the SMACNA profile alternatives for each rigidity class on page 4. Note: At 4” w.g. and up, ends of reinforcements must be tied together per SMACNA (See Figures 2-11 and 2-12 of the SMACNA HVAC Duct Construction Standards, Third Edition - 2005 (positive and negative pressures).

Table 2-29

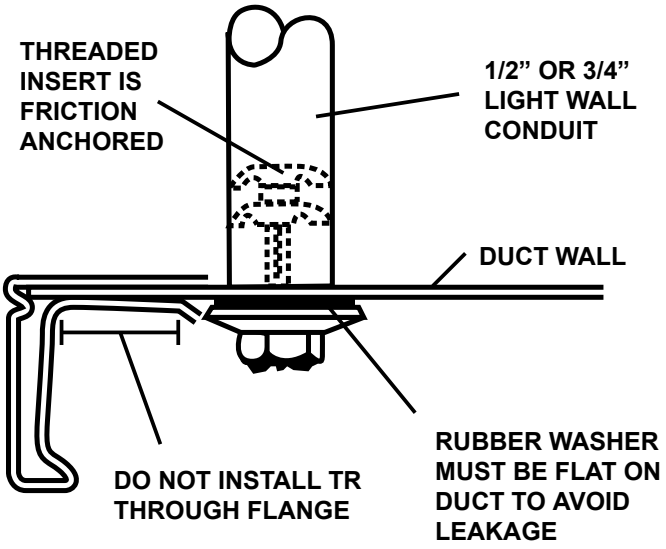
**INTERMEDIATE REINFORCEMENT**

| REINF. CLASS | |  ANGLE | |  CHANNEL OR ZEE | |  HAT SECTION | |
|---|---|---|---|---|---|---|---|
| | EI* | **H x T (MIN)** | **WT/LF** | **H x B x T (MIN)** | **WT/LF** | **H x B x D x T (MIN)** | **WT/LF** |
| **A** | 0.43 | Use C | | Use B | | Use F | |
| **B** | 1.0 | Use C | | $^3/_4$ x $^1/_2$ x 20 ga | 0.24 | Use F | |
| **C** | 1.9 | C 1 x 16 ga<br>C $^3/_4$ x $^1/_8$ | 0.40<br>0.57 | $^3/_4$ x $^1/_2$ x 18 ga<br>1 x $^3/_4$ x 20 ga | 0.31 | Use F | |
| **D** | 2.7 | H $^3/_4$ x $^1/_8$<br>C 1 x $^1/_8$ | 0.57<br>0.80 | 1 x $^3/_4$ x 18 ga | 0.45 | Use F | |
| **E** | 6.5 | C 1$^1/_4$ x 12 ga<br>H 1 x $^1/_8$ | 0.90 | 2 x 1$^1/_8$ x 20 ga | 0.60 | Use F | |
| **F** | 12.8 | H 1$^1/_4$ x $^1/_8$ | 1.02 | 1$^1/_2$ x $^3/_4$ x 18 ga | 0.54 | 1$^1/_2$ x $^3/_4$ x $^5/_8$ x 18 ga<br>1$^1/_2$ x 1$^1/_2$ x $^3/_4$ x 20 ga | 0.90<br>0.83 |
| **G** | 15.8 | 1$^1/_2$ x $^1/_8$ | 1.23 | 1$^1/_2$ x $^3/_4$ x 16 ga | 0.66 | 1$^1/_2$ x $^3/_4$ x $^5/_8$ x 18 ga | 0.80 |
| **H** | 26.4 | 1$^1/_2$ x $^3/_{16}$<br>2 x $^1/_8$ | 1.78<br>1.65 | 1$^1/_2$ x $^3/_4$ x $^1/_8$ | 1.31 | 1$^1/_2$ x 1$^1/_2$ x $^3/_4$ x 18 ga<br>2 x 1 x $^3/_4$ x 20 ga | 1.08<br>0.90 |
| **I** | 69 | C 2 x $^3/_{16}$<br>2$^1/_2$ x $^1/_8$ | 2.44<br>2.10 | 2 x 1$^1/_8$ x 12 ga<br>3 x 1$^1/_8$ x 16 ga | 1.60<br>1.05 | 2 x 1 x $^3/_4$ x 16 ga | 1.44 |
| **J** | 80 | H 2 x $^3/_{16}$<br>C 2 x $^1/_4$<br>2$^1/_2$ x $^1/_8$ (+) | 2.44<br>3.20<br>2.10 | 2 x 1$^1/_8$ x $^1/_8$ | 1.85 | 2 x 1 x $^3/_4$ x 12 ga<br>2$^1/_2$ x 2 x $^3/_4$ x 18 ga | 2.45<br>1.53 |
| **K** | 103 | 2$^1/_2$ x $^3/_{16}$ | 3.10 | 3 x 1$^1/_8$ x 12 ga | 2.00 | 2$^1/_2$ x 2 x $^3/_4$ x 16 ga<br>3 x 1$^1/_2$ x $^3/_4$ x 16 ga | 1.88<br>2.00 |
| **L** | 207 | H 2$^1/_2$ x $^1/_4$ | 4.10 | 3 x 1$^1/_8$ x $^1/_8$ | 2.29 | 2$^1/_2$ x 2 x $^3/_4$ x $^1/_8$<br>3 x 1$^1/_2$ x $^3/_4$ x 12 ga | 3.70<br>3.40 |

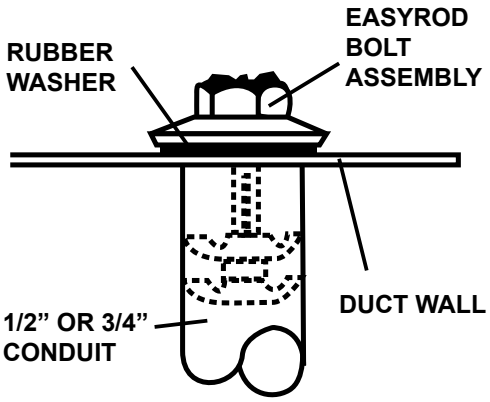
*See* Section 2.1.4 *Effective EI is number listed times $10^5$ before adjustment for bending moment capacity. C and H denote cold formed and hot rolled ratings; when neither is listed, either may be used. *See* tie rod options elsewhere.

*NOTES:*
a. (+) indicates positive pressure use only.
b. Hat Section Dimension “B” may be equal to 2 times Dimension “H” with the same reinforcement class rating.

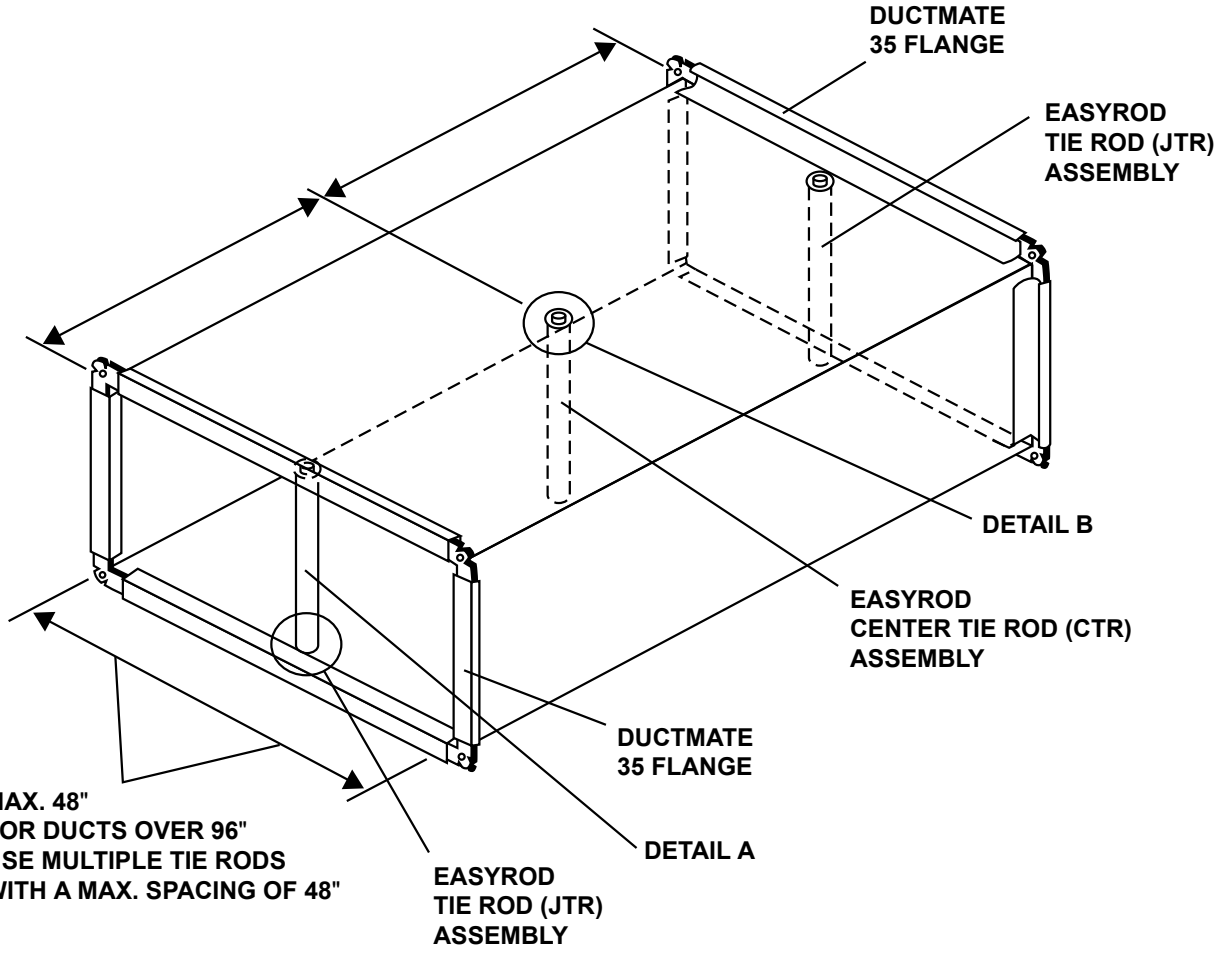
# EZ-ROD / TIE ROD CONSTRUCTION
# USE FOR SHOP FABRICATED OR KNOCKED DOWN DUCTWORK




**DETAIL A**




**DETAIL B**



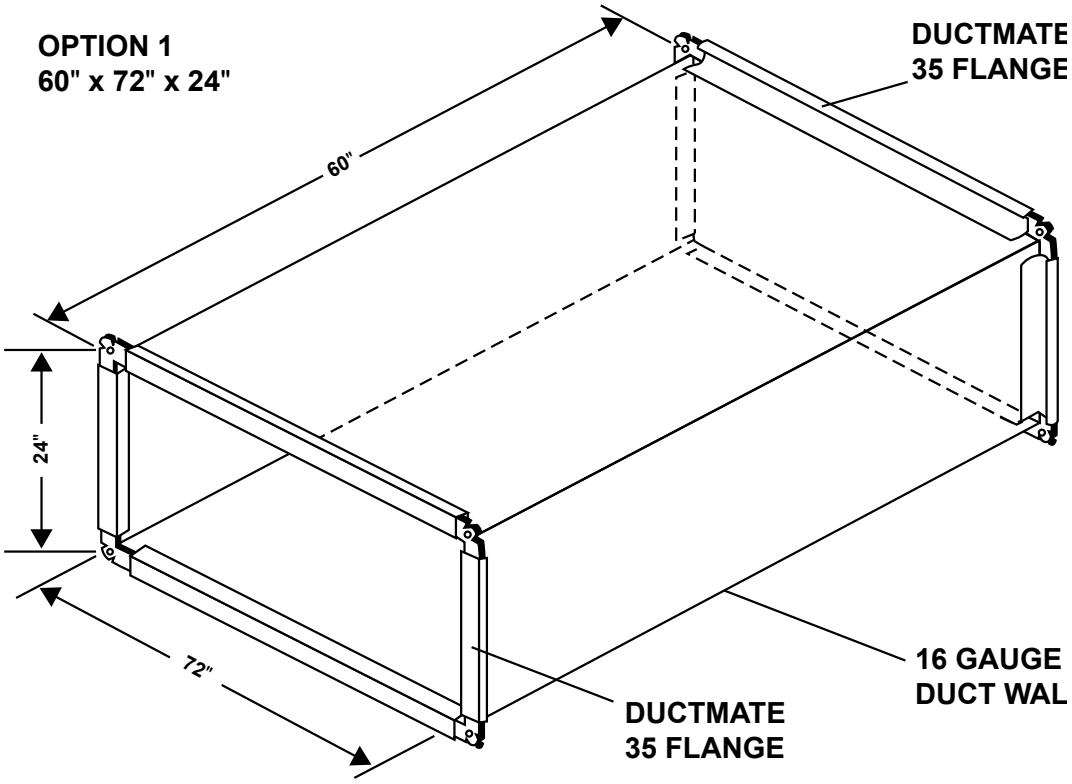
**Senario A**

**2” W.G.**

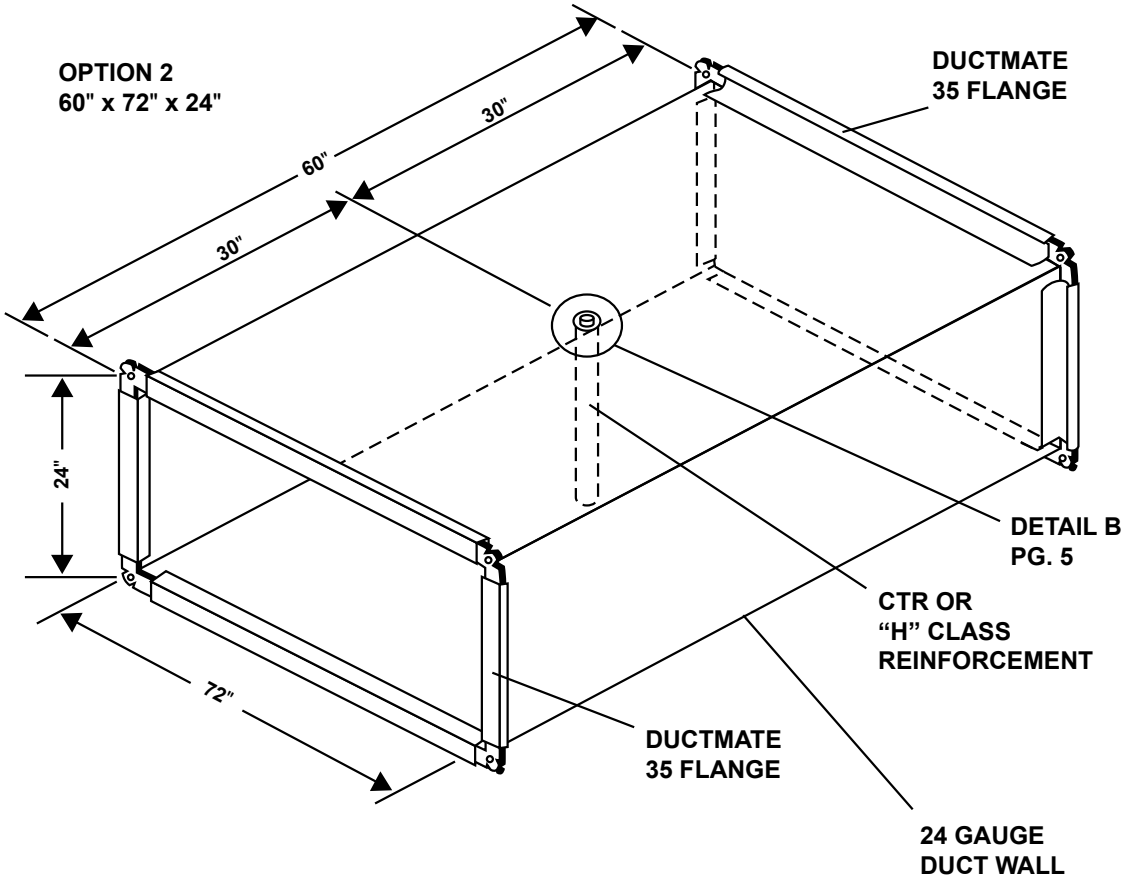
**5’ DUCT SECTIONS**

**72” x 24”**

**OPTION 1**
**60" x 72" x 24"**




**OPTION 2**
**60" x 72" x 24"**

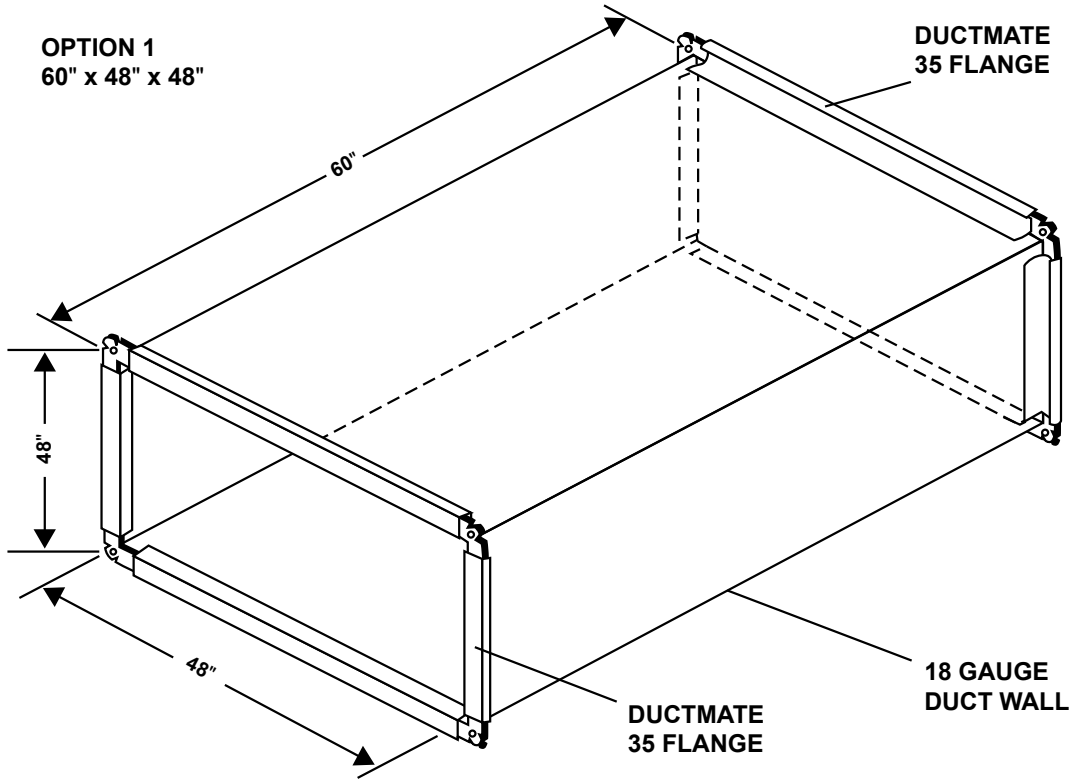


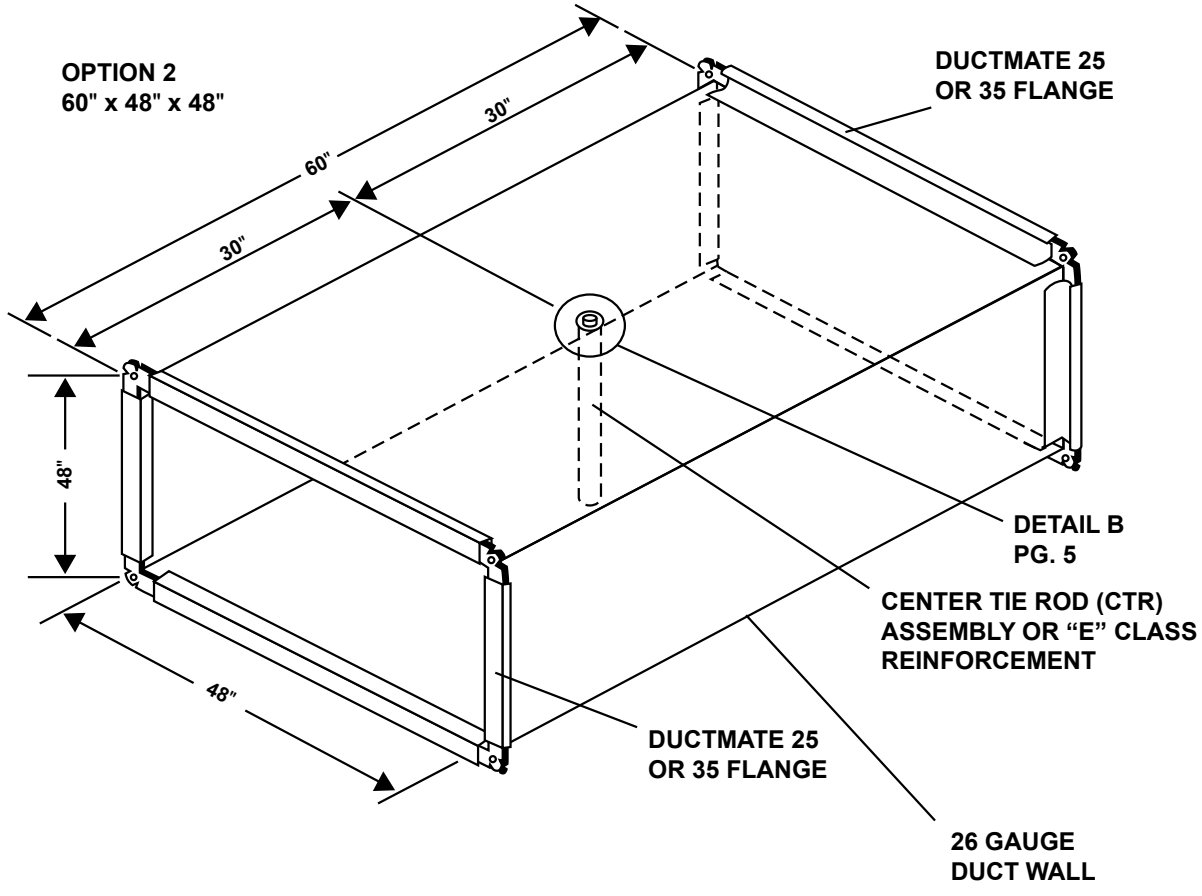
**Senario B**

**3” W.G.**

**5’ DUCT SECTIONS**

**48” x 48”**



| 0.5" W.G. STATIC POS./NEG. | Table 1 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 6' | 5' | 4' | 3' | 2.5' | 2' |
| Duct Size | | | | | | |
| 8" dn | 26 ga-DM25 | | | | | |
| 9, 10" | 26 ga-DM25 | | | | | |
| 11, 12" | 26 ga-DM25 | | | | | |
| 13, 14" | 26 ga-DM25 | | | | | |
| 15, 16" | 26 ga-DM25 | | | | | |
| 17, 18" | 26 ga-DM25 | | | | | |
| 19, 20" | 26 ga-DM25 | | | | | |
| 21, 22" | 26 ga-DM25 | | | | | |
| 23, 24" | 26 ga-DM25 | | | | | |
| 25, 26" | 26 ga-DM25 | | | | | |
| 27, 28" | 26 ga-DM25 | | | | | |
| 29, 30" | 26 ga-DM25 | | | | | |
| 31-36" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 37-42" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 43-48" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 49-54" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 55-60" | 22 ga-DM25 | 24 ga-DM25 | 26 ga-DM25 | 26 ga-DM25 CTR or "F" | | |
| 61-72" | 20 ga-DM25 22 ga-DM35 | 22 ga-DM25 24 ga-DM35 | | 26 ga-DM35 CTR or "H" | | |
| 73-84" | 20 ga-DM35 | 22 ga-DM35 | 24 ga-DM35 | 26 ga-DM35 CTR or "H" | | |
| 85-96" | 20 ga-DM35 | 22 ga-DM35 | | 24 ga-DM35 CTR or "H" | | |
| 97" up | 18 ga-DM35* | 20 ga-DM35* | | 22 ga-DM35 CTR or "H" | | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

| 1" W.G. STATIC POS./NEG. | Table 2 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 6' | 5' | 4' | 3' | 2.5' | 2' |
| Duct Size | | | | | | |
| 8" dn | 26 ga-DM25 | | | | | |
| 9, 10" | 26 ga-DM25 | | | | | |
| 11, 12" | 26 ga-DM25 | | | | | |
| 13, 14" | 26 ga-DM25 | | | | | |
| 15, 16" | 26 ga-DM25 | | | | | |
| 17, 18" | 26 ga-DM25 | | | | | |
| 19, 20" | 26 ga-DM25 | | | | | |
| 21, 22" | 26 ga-DM25 | | | | | |
| 23, 24" | 26 ga-DM25 | | | | | |
| 25, 26" | 26 ga-DM25 | | | | | |
| 27, 28" | 26 ga-DM25 | | | | | |
| 29, 30" | 26 ga-DM25 | | | | | |
| 31-36" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 37-42" | 22 ga-DM25 | 24 ga-DM25 | 26 ga-DM25 | 26 ga-DM25 CTR or "E" | | |
| 43-48" | 22 ga-DM25 | 24 ga-DM25 | 26 ga-DM25 | 26 ga-DM25 CTR or "E" | | |
| 49-54" | 20 ga-DM25 22 ga-DM35 | 22 ga-DM25 24 ga-DM35 | 24 ga-DM25 | 26 ga-DM25 CTR or "F" | | |
| 55-60" | 20 ga-DM25 22 ga-DM35 | 22 ga-DM25 24 ga-DM35 | 24 ga-DM25 | 26 ga-DM25 CTR or "G" | | |
| 61-72" | 22 ga-DM35 | 24 ga-DM35 | | 24 ga-DM35 CTR or "H" | 26 ga-DM35 CTR or "H" | |
| 73-84" | 18 ga-DM35 | 20 ga-DM35 | | 24 ga-DM35 CTR or "H" | 26 ga-DM35 CTR or "H" | |
| 85-96" | 16 ga-DM35* | 18 ga-DM35* | | 22 ga-DM35* CTR or "H*" | 24 ga-DM35* CTR or "H*" | 26 ga-DM35* CTR or "J" |
| 97" up | | | | 20 ga-DM35* CTR or "H*" | 22 ga-DM35* CTR or "H*" | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

| 2" W.G. STATIC POS./NEG. | Table 3 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 6' | 5' | 4' | 3' | 2.5' | 2' |
| Duct Size | | | | | | |
| 8" dn | 26 ga-DM25 | | | | | |
| 9, 10" | 26 ga-DM25 | | | | | |
| 11, 12" | 26 ga-DM25 | | | | | |
| 13, 14" | 26 ga-DM25 | | | | | |
| 15, 16" | 26 ga-DM25 | | | | | |
| 17, 18" | 26 ga-DM25 | | | | | |
| 19, 20" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 21, 22" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 23, 24" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 25, 26" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 27, 28" | 22 ga-DM25 | 24 ga-DM25 | 26 ga-DM25 | 26 ga-DM25 CTR or "C" | | |
| 29, 30" | 22 ga-DM25 | 24 ga-DM25 | 26 ga-DM25 | 26 ga-DM25 CTR or "C" | | |
| 31-36" | 22 ga-DM25 | 24 ga-DM25 | | 24 ga-DM25 CTR or "C" | 26 ga-DM25 CTR or "C" | |
| 37-42" | 20 ga-DM25 22 ga-DM35 | 22 ga-DM25 24 ga-DM35 | 24 ga-DM25 | 24 ga-DM25 CTR or "D" | 26 ga-DM25 CTR or "D" | |
| 43-48" | 20 ga-DM25 22 ga-DM35 | 20 ga-DM25 24 ga-DM35 | | 24 ga-DM35 CTR or "E" | 26 ga-DM25 CTR or "E" | |
| 49-54" | 22 ga-DM35 | 22 ga-DM35 | 20 ga-DM25 22 ga-DM35 | 24 ga-DM35 CTR or "F" | 26 ga-DM35 CTR or "F" | |
| 55-60" | 22 ga-DM35 | 22 ga-DM35 | | 24 ga-DM35 CTR or "G" | 26 ga-DM35 CTR or "G" | |
| 61-72" | 16 ga-DM35 | | 18 ga-DM35 | 22 ga-DM35 CTR or "I" | 24 ga-DM35 CTR or "H" | 26 ga-DM35 CTR or "H" |
| 73-84" | | | | 20 ga-DM35* CTR or "H*" | 22 ga-DM35* CTR or "H*" | 24 ga-DM35* CTR or "H*" |
| 85-96" | | | | 20 ga-DM35* CTR or "H*" | 22 ga-DM35* CTR or "H*" | |
| 97" up | | | | 20 ga-DM35* CTR or "H*" | 22 ga-DM35* CTR or "H*" | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

| 3" W.G. STATIC POS./NEG. | Table 4 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 6' | 5' | 4' | 3' | 2.5' | 2' |
| Duct Size | | | | | | |
| 8" dn | 26 ga-DM25 | | | | | |
| 9, 10" | 26 ga-DM25 | | | | | |
| 11, 12" | 26 ga-DM25 | | | | | |
| 13, 14" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 15, 16" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 17, 18" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 19, 20" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 21, 22" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 23, 24" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 25, 26" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 27, 28" | 22 ga-DM25 | 24 ga-DM25 | 26 ga-DM25 | 26 ga-DM25 CTR or "D" | | |
| 29, 30" | 22 ga-DM25 | 24 ga-DM25 | 26 ga-DM25 | 26 ga-DM25 CTR or "D" | | |
| 31-36" | 20 ga-DM25 22 ga-DM35 | 22 ga-DM25 24 ga-DM35 | | 26 ga-DM25 CTR or "D" | | |
| 37-42" | 20 ga-DM25 22 ga-DM35 | 22 ga-DM25 24 ga-DM35 | | 26 ga-DM25 CTR or "E" | | |
| 43-48" | 18 ga-DM35 | 18 ga-DM35 | 20 ga-DM35 | 24 ga-DM35 CTR or "E" | 26 ga-DM25 CTR or "E" | |
| 49-54" | 16 ga-DM35 | 18 ga-DM35 | 20 ga-DM35 | 24 ga-DM35 CTR or "F" | | 26 ga-DM35 CTR or "E" |
| 55-60" | 16 ga-DM35 | 18 ga-DM35 | 20 ga-DM35 | 24 ga-DM35 CTR or "G" | | 26 ga-DM35 CTR or "F" |
| 61-72" | | | | 20 ga-DM35 CTR or "I" | 22 ga-DM35 CTR or "I" | 26 ga-DM35 CTR or "I" |
| 73-84" | | | | 18 ga-DM35 CTR or "I" | 20 ga-DM35 CTR or "I" | 22 ga-DM35 CTR or "I" |
| 85-96" | | | | 18 ga-DM35* CTR or "H*" | 20 ga-DM35* CTR or "H*" | |
| 97" up | | | | 18 ga-DM35* CTR or "H*" | 20 ga-DM35* CTR or "H*" | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

| 4" W.G. STATIC POS. | Table 5 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 6' | 5' | 4' | 3' | 2.5' | 2' |
| Duct Size | | | | | | |
| 8" dn | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 9, 10" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 11, 12" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 13, 14" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 15, 16" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 17, 18" | 24 ga-DM25 | 26 ga-DM25 | | | | |
| 19, 20" | 24 ga-DM25 | | 26 ga-DM25 | 26 ga-DM25 CTR or "C" | | |
| 21, 22" | 24 ga-DM25 | | 26 ga-DM25 | 26 ga-DM25 CTR or "C" | | |
| 23, 24" | 22 ga-DM25 | | 24 ga-DM25 | 26 ga-DM25 CTR or "D" | | |
| 25, 26" | 22 ga-DM25 | | 24 ga-DM25 | 26 ga-DM25 CTR or "D" | | |
| 27, 28" | 22 ga-DM25 | | 24 ga-DM25 | 24 ga-DM25 CTR or "D" | 26 ga-DM25 CTR or "D" | |
| 29, 30" | 22 ga-DM25 | | 24 ga-DM25 | 24 ga-DM25 CTR or "D" | 26 ga-DM25 CTR or "D" | |
| 31-36" | 22 ga-DM25 | | | 24 ga-DM25 CTR or "E" | 26 ga-DM25 CTR or "E" | |
| 37-42" | 22 ga-DM35 | | | 24 ga-DM35 CTR or "E" | 26 ga-DM25 CTR or "E" | |
| 43-48" | | | | 22 ga-DM35 CTR or "F" | 24 ga-DM35 CTR or "F" | 26 ga-DM35 CTR or "F" |
| 49-54" | | | | 22 ga-DM35 CTR or "G" | 24 ga-DM35 CTR or "G" | 26 ga-DM35 CTR or "G" |
| 55-60" | | | | 22 ga-DM35 CTR or "H" | 24 ga-DM35 CTR or "H" | 26 ga-DM35 CTR or "H" |
| 61-72" | | | | 18 ga-DM35 CTR or "H" | 20 ga-DM35 CTR or "H" | 22 ga-DM35 CTR or "H" |
| 73-84" | | | | 18 ga-DM35* CTR or "H*" | 20 ga-DM35* CTR or "H*" | |
| 85-96" | | | | 18 ga-DM35* CTR or "H*" | 20 ga-DM35* CTR or "H*" | |
| 97" up | | | | 18 ga-DM35* CTR or "H*" | 20 ga-DM35* CTR or "H*" | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

4" W.G. STATIC POSITIVE

| 6" W.G. STATIC POS. | Table 6 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 6' | 5' | 4' | 3' | 2.5' | 2' |
| Duct Size | | | | | | |
| 8" dn | 24 ga-DM25 | | | 26 ga-DM25 CTR or "C" | | |
| 9, 10" | 24 ga-DM25 | | | 26 ga-DM25 CTR or "C" | | |
| 11, 12" | 24 ga-DM25 | | | 26 ga-DM25 CTR or "C" | | |
| 13, 14" | 24 ga-DM25 | | | 26 ga-DM25 CTR or "C" | | |
| 15, 16" | 24 ga-DM25 | | | 26 ga-DM25 CTR or "C" | | |
| 17, 18" | 20 ga-DM25 | 22 ga-DM25 | | 24 ga-DM25 CTR or "C" | 26 ga-DM25 CTR or "C" | |
| 19, 20" | 20 ga-DM25 | 22 ga-DM25 | | 24 ga-DM25 CTR or "C" | 26 ga-DM25 CTR or "C" | |
| 21, 22" | 20 ga-DM25 | 22 ga-DM25 | | 24 ga-DM25 CTR or "C" | 26 ga-DM25 CTR or "C" | |
| 23, 24" | 20 ga-DM25 | 22 ga-DM25 | | 24 ga-DM25 CTR or "D" | 26 ga-DM25 CTR or "D" | |
| 25, 26" | 20 ga-DM25 | 22 ga-DM25 | | 24 ga-DM25 CTR or "D" | 26 ga-DM25 CTR or "D" | |
| 27, 28" | 20 ga-DM25 | 22 ga-DM25 | | 24 ga-DM25 CTR or "D" | 26 ga-DM25 CTR or "D" | |
| 29, 30" | 20 ga-DM25 | 22 ga-DM25 | | 24 ga-DM25 CTR or "D" | 26 ga-DM25 CTR or "D" | |
| 31-36" | | 20 ga-DM25 | | 22 ga-DM25 CTR or "E" | 24 ga-DM25 CTR or "E" | 26 ga-DM25 CTR or "E" |
| 37-42" | | | | 22 ga-DM35 CTR or "F" | 24 ga-DM35 CTR or "F" | 26 ga-DM35 CTR or "F" |
| 43-48" | | | | 22 ga-DM35 CTR or "G" | 24 ga-DM35 CTR or "G" | 26 ga-DM35 CTR or "G" |
| 49-54" | | | | 20 ga-DM35 CTR or "H" | 22 ga-DM35 CTR or "H" | 24 ga-DM35 CTR or "H" |
| 55-60" | | | | 20 ga-DM35 CTR or "H" | 22 ga-DM35 CTR or "H" | 24 ga-DM35 CTR or "H" |
| 61-72" | | | | 18 ga-DM35 CTR or "H" | 20 ga-DM35 CTR or "H" | |
| 73-84" | | | | 18 ga-DM35* CTR or "H*" | 20 ga-DM35* CTR or "H*" | |
| 85-96" | | | | 18 ga-DM35* CTR or "H*" | 20 ga-DM35* CTR or "H*" | |
| 97" up | | | | 18 ga-DM35* CTR or "H*" | 20 ga-DM35* CTR or "H*" | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

6" W.G. STATIC POSITIVE

| 10" W.G. STATIC POS. | Table 7 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 6' | 5' | 4' | 3' | 2.5' | 2' |
| Duct Size | | | | | | |
| 8" dn | 20 ga-DM25 | | | 24 ga-DM25 "C" | 26 ga-DM25 "C" | |
| 9, 10" | 20 ga-DM25 | | | 24 ga-DM25 "C" | 26 ga-DM25 "C" | |
| 11, 12" | 20 ga-DM25 | | | 24 ga-DM25 "D" | 26 ga-DM25 "D" | |
| 13, 14" | 20 ga-DM25 | | | 24 ga-DM25 "D" | 26 ga-DM25 "D" | |
| 15, 16" | 20 ga-DM25 | | | 24 ga-DM25 "D" | 26 ga-DM25 "D" | |
| 17, 18" | 20 ga-DM25 | | | 24 ga-DM25 "D" | 26 ga-DM25 "D" | |
| 19, 20" | 18 ga-DM25 | 20 ga-DM25 | | 24 ga-DM25 "E" | 26 ga-DM25 "E" | |
| 21, 22" | 18 ga-DM25 | 20 ga-DM25 | | 24 ga-DM25 "E" | 26 ga-DM25 "E" | |
| 23, 24" | 18 ga-DM25 | 20 ga-DM25 | | 24 ga-DM25 "E" | 26 ga-DM25 "E" | |
| 25, 26" | 18 ga-DM25 | 20 ga-DM25 | | 24 ga-DM25 "E" | 26 ga-DM25 "E" | |
| 27, 28" | 18 ga-DM25 | 20 ga-DM25 | | 24 ga-DM25 "E" | 26 ga-DM25 "E" | |
| 29, 30" | 18 ga-DM25 | 20 ga-DM25 | | 24 ga-DM25 "E" | 26 ga-DM25 "E" | |
| 31-36" | | | | 22 ga-DM35 "E" | 24 ga-DM35 "E" | 26 ga-DM35 "E" |
| 37-42" | | | | 20 ga-DM35 "F" | 22 ga-DM35 "F" | 24 ga-DM35 "F" |
| 43-48" | | | | 20 ga-DM35 "G" | 22 ga-DM35 "G" | 24 ga-DM35 "G" |
| 49-54" | | | | 20 ga-DM35 "H" | 22 ga-DM35 "H" | 24 ga-DM35 "H" |
| 55-60" | | | | 20 ga-DM35* "H*" | 22 ga-DM35* "H*" | |
| 61-72" | | | | 18 ga-DM35* "H*" | 20 ga-DM35* "H*" | |
| 73-84" | | | | 18 ga-DM35* "H*" | 20 ga-DM35* "H*" | |
| 85-96" | | | | 16 ga-DM35* "H*" | 18 ga-DM35* "H*" | 20 ga-DM35* "H*" |
| 97" up | | | | 16 ga-DM35* "H*" | 18 ga-DM35* "H*" | 20 ga-DM35* "H*" |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

| 0.5" - 10" W.G. STATIC POSITIVE / 0.5" - 3" W.G. STATIC NEGATIVE | | Table 8 – DM45 | | | | | |
|---|---|---|---|---|---|---|---|
| | | REINFORCEMENT SPACING | | | | | |
| | | 6' | 5' | 4' | 3' | 2.5' | 2' |
| Duct Size | | | | | | | |
| 0.5" w.g. | 96-150" | 18 ga-DM45 | 20 ga-DM45 | 20 ga-DM45 | | | |
| | 96-160" | | 20 ga-DM45 | 20 ga-DM45 | | | |
| | 96-175" | | | 20 ga-DM45 | | | |
| 1" w.g. | 96-150" | | | | 18 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 96-160" | | | | | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 96-175" | | | | | | 20 ga-DM45 2 x 2 x 3/8 |
| 2" w.g. | 85-120" | | | | 18 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 85-130" | | | | | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 85-140" | | | | | | 20 ga-DM45 2 x 2 x 3/8 |
| 3" w.g. | 85-105" | | | | 18 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 85-110" | | | | | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 85-120" | | | | | | 20 ga-DM45 2 x 2 x 3/8 |
| 4" w.g. | 73-96" | | | | 18 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 73-100" | | | | | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 73-110" | | | | | | 20 ga-DM45 2 x 2 x 3/8 |
| 6" w.g. | 73-85" | | | | 18 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 73-90" | | | | | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 73-96" | | | | | | 20 ga-DM45 2 x 2 x 3/8 |
| 10" w.g. | 55-72" | | | | 18 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 55-75" | | | | | 20 ga-DM45 2 x 2 x 3/8 | 20 ga-DM45 2 x 2 x 3/8 |
| | 55-82" | | | | | | 20 ga-DM45 2 x 2 x 3/8 |

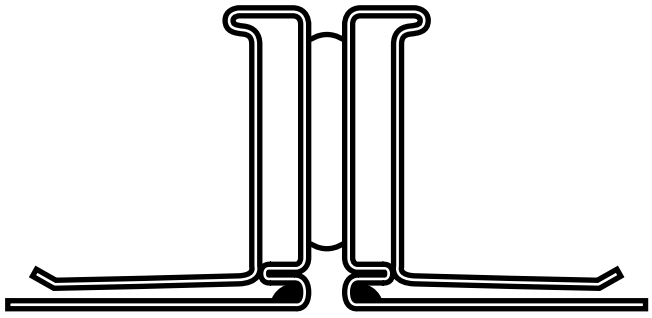
Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

# ALUMINUM CONSTRUCTION GUIDELINES

**CONSTRUCTION STANDARDS FOR ALUMINUM DUCTWORK HAVE BEEN INCLUDED TO AID THE CONTRACTOR WHEN USING DM35 ALUMINUM DUCT CONNECTORS.**



DM35 AL

| 1" W.G. POS. | Table 9<br>**ALUMINUM DUCT CONSTRUCTION**<br>**(AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
|---|---|---|---|
| Duct Size | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 8" dn | DM35AL @ 4' | .032" | NONE |
| 9, 10" | DM35AL @ 4' | .032" | NONE |
| 11, 12" | DM35AL @ 4' | .032" | NONE |
| 13, 14" | DM35AL @ 4' | .032" | NONE |
| 15, 16" | DM35AL @ 4' | .032" | NONE |
| 17, 18" | DM35AL @ 4' | .032" | NONE |
| 19, 20" | DM35AL @ 4' | .032" | NONE |
| 21, 22" | DM35AL @ 4' | .032" | NONE |
| 23, 24" | DM35AL @ 4' | .032" | NONE |
| 25, 26" | DM35AL @ 4' | .032" | NONE |
| 27, 28" | DM35AL @ 4' | .032" | NONE |
| 29, 30" | DM35AL @ 4' | .032" | NONE |
| 31-36" | DM35AL @ 4' | .032" | NONE |
| 37-42" | DM35AL @ 4' | .032" | NONE |
| 43-48" | DM35AL @ 4' | .032" | NONE |
| 49-54" | DM35AL @ 4' | .040" | NONE |
| 55-60" | DM35AL @ 4' | .040" | NONE |
| 61-72" | DM35AL @ 4' | .040" | 2 x 2 x $^{1}/_{4}$" @ 2' |
| 73-84" | DM35AL @ 4' | .050" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{3}/_{16}$" @ 2' |
| 85-96" | DM35AL + ROD @ 4' | .050" | 2 x 2 x $^{3}/_{16}$" + ROD @ 2' |
| 97" up | DM35AL + ROD @ 4' | .064" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{3}/_{16}$" + ROD @ 2' |

DM35AL IS EQUIVALENT TO A SMACNA "H" CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 48" FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 1/2" ALUMINUM ROD.

| 2" W.G. POS. | Table 10<br>**ALUMINUM DUCT CONSTRUCTION**<br>**(AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
|---|---|---|---|
| Duct Size | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 8" dn | DM35AL @ 4' | .032" | NONE |
| 9, 10" | DM35AL @ 4' | .032" | NONE |
| 11, 12" | DM35AL @ 4' | .032" | NONE |
| 13, 14" | DM35AL @ 4' | .032" | NONE |
| 15, 16" | DM35AL @ 4' | .032" | NONE |
| 17, 18" | DM35AL @ 4' | .032" | NONE |
| 19, 20" | DM35AL @ 4' | .032" | NONE |
| 21, 22" | DM35AL @ 4' | .032" | NONE |
| 23, 24" | DM35AL @ 4' | .032" | NONE |
| 25, 26" | DM35AL @ 4' | .032" | NONE |
| 27, 28" | DM35AL @ 4' | .032" | NONE |
| 29, 30" | DM35AL @ 4' | .032" | NONE |
| 31-36" | DM35AL @ 4' | .040" | NONE |
| 37-42" | DM35AL @ 4' | .040" | NONE |
| 43-48" | DM35AL @ 4' | .050" | NONE |
| 49-54" | DM35AL @ 4' | .040" | 2 x 2 x $^{3}/_{16}$" @ 2' |
| 55-60" | DM35AL @ 4' | .040" | 2 x 2 x $^{1}/_{4}$" @ 2' |
| 61-72" | DM35AL @ 4' | .040" | 2 x 2 x $^{3}/_{16}$" + ROD @ 2' |
| 73-84" | DM35AL + ROD @ 4' | .050" | 2 x 2 x $^{3}/_{16}$" + ROD @ 2' |
| 85-96" | DM35AL + ROD @ 4' | .064" | 2 x 2 x $^{3}/_{16}$" + ROD @ 2' |
| 97" up | DM35AL + ROD @ 4' | .064" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{3}/_{16}$" + ROD @ 2' |

DM35AL IS EQUIVALENT TO A SMACNA "H" CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 48" FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 1/2" ALUMINUM ROD.

| 3" W.G. POS. | Table 11<br>**ALUMINUM DUCT CONSTRUCTION**<br>**(AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
|---|---|---|---|
| Duct Size | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 8" dn | DM35AL @ 4' | .040" | NONE |
| 9, 10" | DM35AL @ 4' | .040" | NONE |
| 11, 12" | DM35AL @ 4' | .040" | NONE |
| 13, 14" | DM35AL @ 4' | .040" | NONE |
| 15, 16" | DM35AL @ 4' | .040" | NONE |
| 17, 18" | DM35AL @ 4' | .040" | NONE |
| 19, 20" | DM35AL @ 4' | .040" | NONE |
| 21, 22" | DM35AL @ 4' | .040" | NONE |
| 23, 24" | DM35AL @ 4' | .040" | NONE |
| 25, 26" | DM35AL @ 4' | .040" | NONE |
| 27, 28" | DM35AL @ 4' | .040" | NONE |
| 29, 30" | DM35AL @ 4' | .040" | NONE |
| 31-36" | DM35AL @ 4' | .040" | NONE |
| 37-42" | DM35AL @ 4' | .040" | 2 x 2 x 3/16" @ 2' |
| 43-48" | DM35AL @ 4' | .040" | 2 x 2 x 3/16" + ROD @ 2' |
| 49-54" | DM35AL @ 4' | .040" | 2 x 2 x 3/16" + ROD @ 2' |
| 55-60" | DM35AL @ 4' | .040" | 2 x 2 x 3/16" + ROD @ 2' |
| 61-72" | DM35AL + ROD @ 4' | .040" | 2 x 2 x 3/16" + ROD @ 2' |
| 73-84" | DM35AL + ROD @ 4' | .050" | 2 x 2 x 3/16" + ROD @ 2' |
| 85-96" | DM35AL + ROD @ 4' | .064" | 2 x 2 x 1/4" + ROD @ 2' |
| 97" up | DM35AL + ROD @ 4' | .064" | 2 1/2 x 2 1/2 x 3/16" + ROD @ 2' |

DM35AL IS EQUIVALENT TO A SMACNA "H" CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 48" FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 1/2" ALUMINUM ROD.

| 4" W.G. POS. | Table 12<br>**ALUMINUM DUCT CONSTRUCTION**<br>**(AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
|---|---|---|---|
| Duct Size | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 8" dn | DM35AL @ 4' | .040" | NONE |
| 9, 10" | DM35AL @ 4' | .040" | NONE |
| 11, 12" | DM35AL @ 4' | .040" | NONE |
| 13, 14" | DM35AL @ 4' | .040" | NONE |
| 15, 16" | DM35AL @ 4' | .040" | NONE |
| 17, 18" | DM35AL @ 4' | .040" | NONE |
| 19, 20" | DM35AL @ 4' | .040" | NONE |
| 21, 22" | DM35AL @ 4' | .040" | NONE |
| 23, 24" | DM35AL @ 4' | .040" | NONE |
| 25, 26" | DM35AL @ 4' | .040" | NONE |
| 27, 28" | DM35AL @ 4' | .040" | NONE |
| 29, 30" | DM35AL @ 4' | .040" | NONE |
| 31-36" | DM35AL @ 4' | .040" | $1^1/_2$ x $^1/_2$ x $^1/_8$" @ 2' |
| 37-42" | DM35AL @ 4' | .040" | $1^3/_4$ x $1^3/_4$ x $^1/_8$" @ 2' |
| 43-48" | DM35AL @ 4' | .040" | $1^3/_4$ x $1^3/_4$ x $^1/_8$" @ 2' |
| 49-54" | DM35AL @ 4' | .040" | $2^1/_2$ x $2^1/_2$ x $^1/_8$" @ 2' |
| 55-60" | DM35AL @ 4' | .040" | $2^1/_2$ x $2^1/_2$ x $^1/_8$" @ 2' |
| 61-72" | DM35AL @ 4' | .050" | $2^1/_2$ x $2^1/_2$ x $^1/_8$" @ 2' |
| 73-84" | DM35AL + ROD @ 4' | .064" | $2^1/_2$ x $2^1/_2$ x $^3/_8$" @ 2' |
| 85-96" | DM35AL + ROD @ 4' | .064" | 3 x 3 x $^3/_8$" @ 2' |
| 97" up | DM35AL + ROD @ 4' | .071" | $2^1/_2$ x $2^1/_2$ x $^3/_{16}$" + ROD @ 2' |

DM35AL IS EQUIVALENT TO A SMACNA "H" CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 48" FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 1/2" ALUMINUM ROD.

| 6" W.G. POS. | Table 13<br>**ALUMINUM DUCT CONSTRUCTION**<br>**(AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
|---|---|---|---|
| Duct Size | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 8" dn | DM35AL @ 4' | .040" | NONE |
| 9, 10" | DM35AL @ 4' | .040" | NONE |
| 11, 12" | DM35AL @ 4' | .050" | NONE |
| 13, 14" | DM35AL @ 4' | .050" | NONE |
| 15, 16" | DM35AL @ 4' | .050" | NONE |
| 17, 18" | DM35AL @ 4' | .050" | NONE |
| 19, 20" | DM35AL @ 4' | .050" | NONE |
| 21, 22" | DM35AL @ 4' | .050" | NONE |
| 23, 24" | DM35AL @ 4' | .064" | NONE |
| 25, 26" | DM35AL @ 4' | .064" | NONE |
| 27, 28" | DM35AL @ 4' | .064" | NONE |
| 29, 30" | DM35AL @ 4' | .080" | NONE |
| 31-36" | DM35AL @ 4' | .080" | NONE |
| 37-42" | DM35AL @ 4' | .080" | NONE |
| 43-48" | DM35AL @ 4' | .080" | NONE |
| 49-54" | DM35AL @ 4' | .080" | 2 x 2 x $^{3}/_{16}$" + ROD @ 2' |
| 55-60" | DM35AL @ 4' | .080" | 2 x 2 x $^{3}/_{16}$" + ROD @ 2' |
| 61-72" | DM35AL + ROD @ 4' | .080" | 2 x 2 x $^{3}/_{16}$" + ROD @ 2' |
| 73-84" | DM35AL + ROD @ 4' | .080" | 2 x 2 x $^{1}/_{4}$" + ROD @ 2' |
| 85-96" | DM35AL + ROD @ 4' | .080" | 2 x 2 x $^{1}/_{4}$" + ROD @ 2' |
| 97" up | DM35AL + ROD @ 4' | .080" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{3}/_{16}$" + ROD @ 2' |

DM35AL IS EQUIVALENT TO A SMACNA "H" CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 48" FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 1/2" ALUMINUM ROD.

| 10" W.G. POS. | Table 14<br>**ALUMINUM DUCT CONSTRUCTION**<br>**(AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
|---|---|---|---|
| Duct Size | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 8" dn | DM35AL @ 4' | .040" | NONE |
| 9, 10" | DM35AL @ 4' | .040" | NONE |
| 11, 12" | DM35AL @ 4' | .040" | NONE |
| 13, 14" | DM35AL @ 4' | .050" | NONE |
| 15, 16" | DM35AL @ 4' | .050" | NONE |
| 17, 18" | DM35AL @ 4' | .050" | NONE |
| 19, 20" | DM35AL @ 4' | .064" | NONE |
| 21, 22" | DM35AL @ 4' | .064" | NONE |
| 23, 24" | DM35AL @ 4' | .064" | NONE |
| 25, 26" | DM35AL @ 4' | .064" | NONE |
| 27, 28" | DM35AL @ 4' | .064" | NONE |
| 29, 30" | DM35AL @ 4' | .040" | $1^{3}/_{4}$ x $1^{3}/_{4}$ x $^{1}/_{8}$" @ 2' |
| 31-36" | DM35AL @ 4' | .040" | $1^{3}/_{4}$ x $1^{3}/_{4}$ x $^{1}/_{8}$" @ 2' |
| 37-42" | DM35AL @ 4' | .050" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{1}/_{8}$" @ 2' |
| 43-48" | DM35AL @ 4' | .050" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{1}/_{8}$" @ 2' |
| 49-54" | DM35AL @ 4' | .064" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{3}/_{16}$" @ 2' |
| 55-60" | DM35AL + ROD @ 4' | .064" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{1}/_{8}$" + ROD @ 2' |
| 61-72" | DM35AL + ROD @ 4' | .071" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{1}/_{8}$" + ROD @ 2' |
| 73-84" | DM35AL + ROD @ 4' | .090" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{3}/_{16}$" + ROD @ 2' |
| 85-96" | DM35AL + ROD @ 4' | .090" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{3}/_{16}$" + ROD @ 2' |
| 97" up | DM35AL + ROD @ 4' | .090" | $2^{1}/_{2}$ x $2^{1}/_{2}$ x $^{3}/_{16}$" + ROD @ 2' |

10" W.G. POSITIVE

DM35AL IS EQUIVALENT TO A SMACNA "H" CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 48" FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 1/2" ALUMINUM ROD.

# METRIC

## FORWARD

The widespread use of the “Ductmate® 25, 35, and 45 Slide-On Systems” makes these duct construction guidelines a necessity.

This manual is based on fundamental, sound engineering principles. The criteria used to establish the tables in this publication are 6.4 mm joint and 19.1 mm sheet deflection limits for ducts over 600 mm wide.

These duct construction standards are based on independent testing using the Ductmate Systems exclusively as manufactured by Ductmate Industries Incorporated U.S.A. No other flange system can be used in conjunction with these tables.

Any reference to SMACNA in this manual refers to the SMACNA 2005 “HVAC Duct Construction Standards, Metal and Flexible,” Third Edition.

## TABLES

When using the Rectangular Duct Construction Tables in this manual, **Reinforcement Spacing** refers to both the Ductmate joints and Intermediate Reinforcements (Center Tie Rods or External Stiffeners.)

Ductmate’s Rectangular Duct Construction Tables are based on 1800 mm, 1500 mm, and 1200 mm duct section lengths. Columns 1800 mm, 1500 mm, and 1200 mm are construction guidelines without the use of any joint or intermediate reinforcements.

The 900 mm, 7500 mm, and 600 mm columns are used in conjunction with the 1800 mm, 1500 mm, and 1200 mm duct section lengths. These columns provide alternative construction guidelines such as lighter metal gauges, joint tie rods, center tie rods, or external intermediate reinforcements.

When making special fittings, if the duct length matches the 900 mm, 750 mm, and 600 mm column spacing, you do not need the CTR or external reinforcement between the joints.

See examples on pages 27-28.

## Positive Pressure

This addendum includes positive pressure guidelines for pressure classes up to 2500 Pa.

## Negative Pressure

Duct construction tables for 125, 250, 500, and 750 Pa. can be used for both positive and negative pressures. For negative pressures greater then 750 Pa, please contact Ductmate Industries or refer to the SMACNA Rectangular Industrial Duct Construction Standards.

Except for aluminum, the guidelines on pages 29-36 can be used on galvanized, galvannealed, 304 and 316 stainless steel, PVC coated, aluminized, and black iron.

Duct construction guidelines for aluminum applications are on pages 38-43.

In a cell, DM25 refers to the Ductmate 25 Connector system, DM35 refers to the Ductmate 35 system, and DM45 refers to the Ductmate 45 system.

When an intermediate reinforcement is required in a cell, there will be an internal tie rod or an external alphabetical option, or both.

CTR (Center Tie Rod) refers to an internal tie rod halfway between the Ductmate joints.

JTR (Joint Tie Rod) refers to an internal tie rod at the Ductmate joints.

See page 26 for CTR and JTR details.

When using conduit as a tie rod for rods up to 900 mm long use 12.7 mm conduit. For rods 901 mm and longer use 19.1 mm conduit.

The maximum distance from the duct wall to a tie rod is 1200 mm on center.

When more than one tie rod is required on the same plane at a joint or reinforcement, the maximum distance between tie rods is 1200 mm on center.

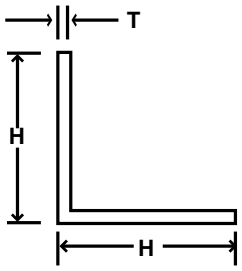
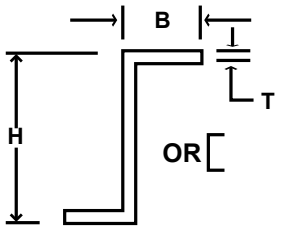
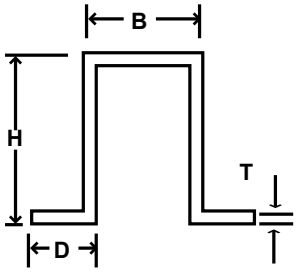
When a CTR and / or JTR is needed on both the width and height dimension of the duct, where the rods intersect, they must be clamped, tied or welded together to prevent vibrating against each other.

If an (*) appears next to the DM25, DM35, DM45, or intermediate reinforcement it indicates that a tie rod is needed.

If an alphabetical letter A through K appears in a cell, it refers to an external intermediate reinforcement option between the Ductmate joints. See the SMACNA profile alternatives for each rigidity class on page 25.

Table 2-29M

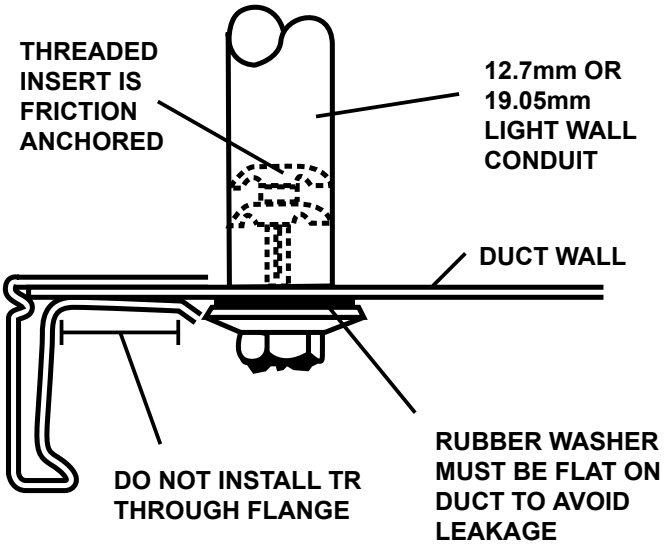
**INTERMEDIATE REINFORCEMENT**

| REINF. CLASS | |  ANGLE | |  CHANNEL OR ZEE | |  HAT SECTION | |
|---|---|---|---|---|---|---|---|
| | EI* | H x T (MIN) (mm) | WT/LF | H x B x T (MIN) (mm) | WT/LF | H x B x D x T (MIN) (mm) | WT/LF |
| **A** | 0.12 | Use C | | Use B | | Use F | |
| **B** | 0.29 | Use C | | 19.1 x 12.7 x 1.00 | 0.36 | Use F | |
| **C** | 0.55 | C 25 x 1.61<br>C 19.1 x 3.2 | 0.60<br>0.85 | 19.1 x 12.7 x 1.31<br>25 x 19.1 x 1.00 | 0.46 | Use F | |
| **D** | 0.78 | H 19.1 x 3.2<br>C 25 x 3.2 | 0.85<br>1.19 | 25 x 19.1 x 1.31 | 0.67 | Use F | |
| **E** | 1.9 | C 31.8 x 2.75<br>H 25 x 3.2 | 1.34 | 51 x 28.6 x 1.00 | 0.89 | Use F | |
| **F** | 3.7 | H 31.8 x 3.2 | 1.52 | 38.1 x 19.1 x 1.31 | 0.80 | 38.1 x 19.1 x 15.9 x 1.31<br>38.1 x 38.1 x 19.1 x 1.00 | 1.34<br>1.24 |
| **G** | 4.5 | 38.1 x 3.2 | 1.83 | 38.1 x 19.1 x 1.61 | 0.98 | 38.1 x 19.1 x 15.9 x 1.31 | 1.19 |
| **H** | 7.6 | 38.1 x 4.8<br>51 x 3.2 | 2.64<br>2.46 | 38.1 x 19.1 x 3.2 | 1.95 | 38.1 x 38.1 x 19.1 x 1.31<br>51 x 25 x 19.1 x 1.00 | 1.61<br>1.34 |
| **I** | 20 | C 51 x 4.8<br>63.5 x 3.2 | 3.63<br>3.13 | 51 x 28.6 x 2.5<br>76 x 28.6 x 1.61 | 2.38<br>1.56 | 51 x 25 x 19.1 x 1.61 | 2.14 |
| **J** | 23 | H 51 x 4.8<br>C 51 x 6.4<br>63.5 x 3.2 (+) | 3.63<br>4.76<br>3.13 | 51 x 28.6 x 3.2 | 2.75 | 51 x 25 x 19.1 x 2.5<br>63.5 x 51 x 19.1 x 1.31 | 3.65<br>2.28 |
| **K** | 30 | 63.5 x 4.8 | 4.61 | 76 x 28.6 x 2.5 | 2.98 | 63.5 x 51 x 19.1 x 1.61<br>76 x 38.1 x 19.1 x 1.61 | 2.80<br>2.98 |
| **L** | 60 | H 63.5 x 6.4 | 6.10 | 76 x 28.6 x 3.2 | 3.40 | 63.5 x 51 x 19.1 x 3.2<br>76 x 38.1 x 19.1 x 2.75 | 5.51<br>5.06 |

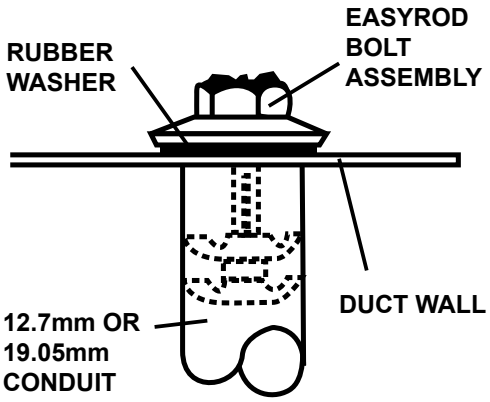
*See* Section 2.1.4 *Effective EI is number listed times $10^5$ before adjustment for bending moment capacity. C and H denote cold formed and hot rolled ratings; when neither is listed, either may be used. *See* tie rod options elsewhere.

*NOTES:*
a. (+) indicates positive pressure use only.
b. Hat Section Dimension “B” may be equal to 2 times Dimension “H” with the same reinforcement class rating.

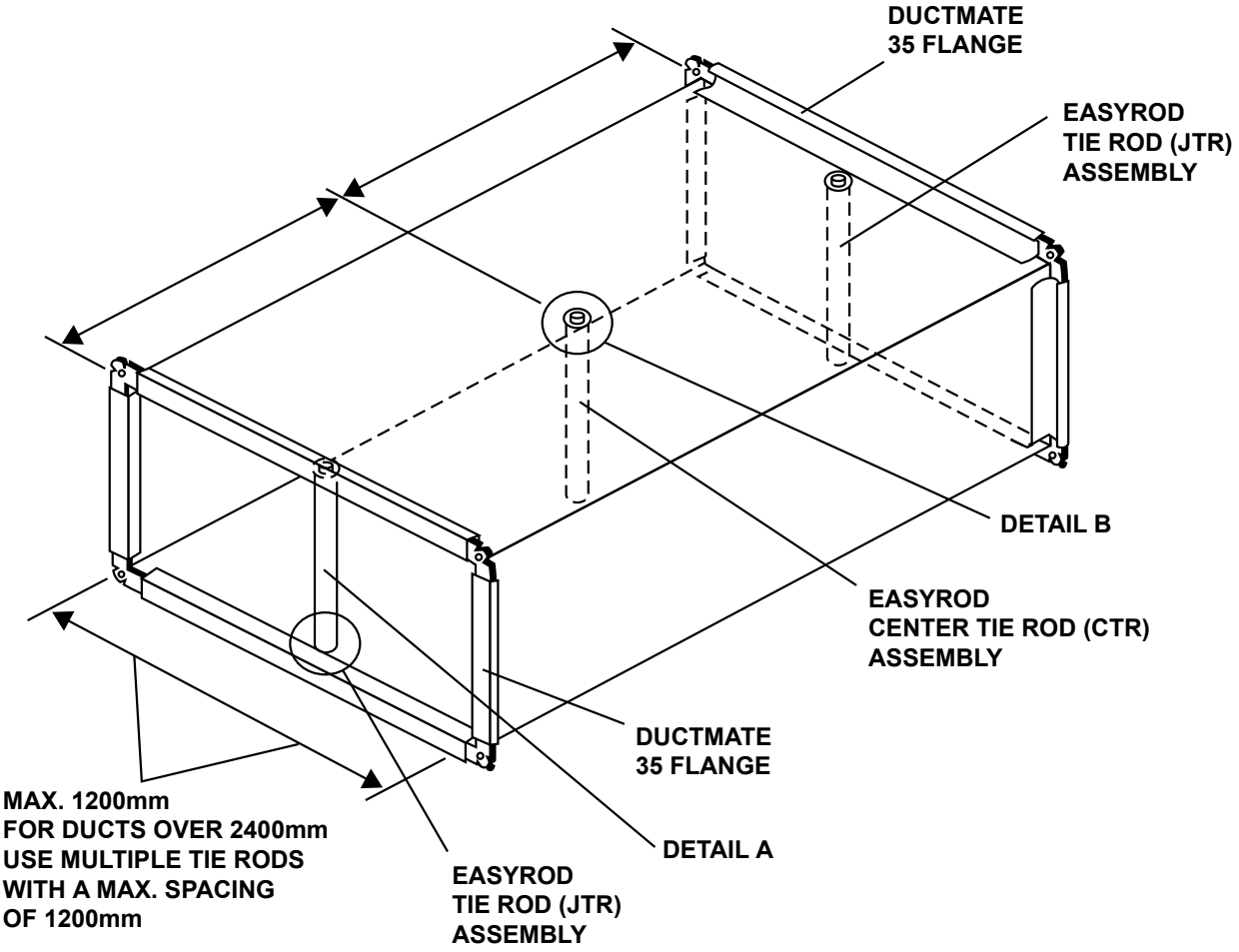
# EZ-ROD / TIE ROD CONSTRUCTION
# USE FOR SHOP FABRICATED OR KNOCKED DOWN DUCTWORK




**DETAIL A**




**DETAIL B**



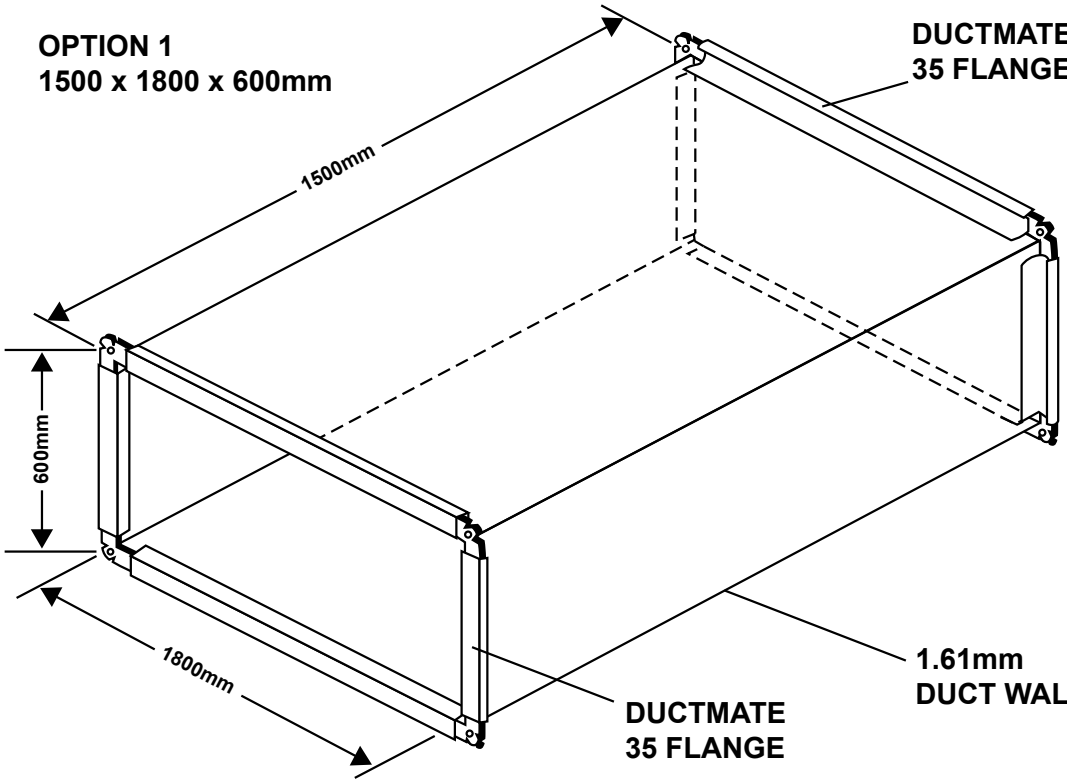
**Senario A**

**500 PA**

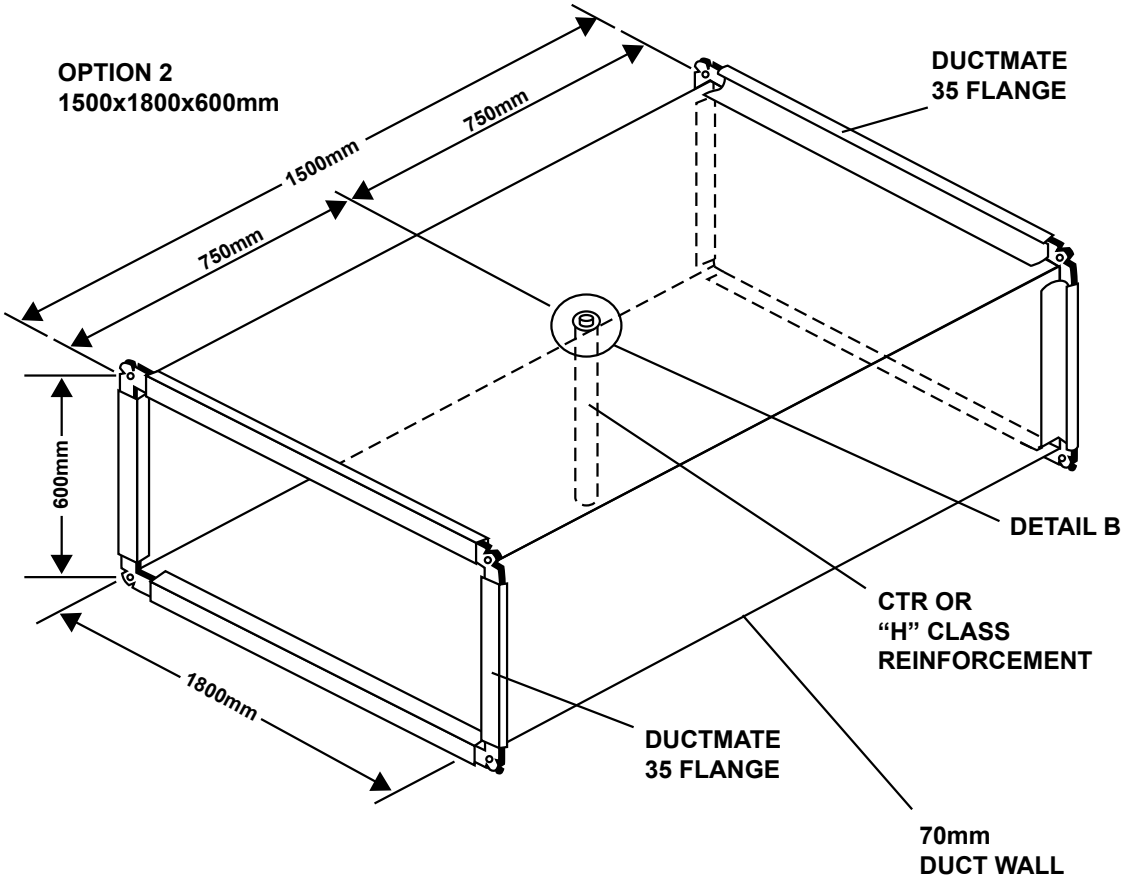
**1500 mm DUCT SECTIONS**

**1800 x 600 mm**

**OPTION 1**
**1500 x 1800 x 600mm**




**OPTION 2**
**1500x1800x600mm**



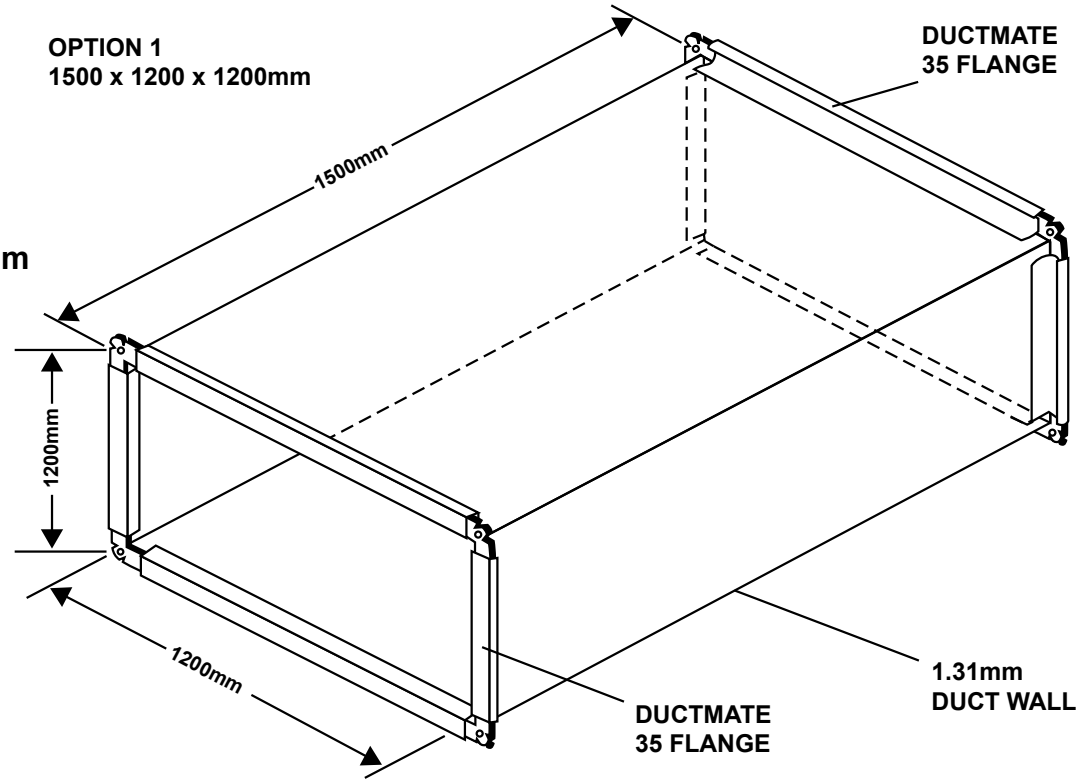
**Senario B**

**750 PA**

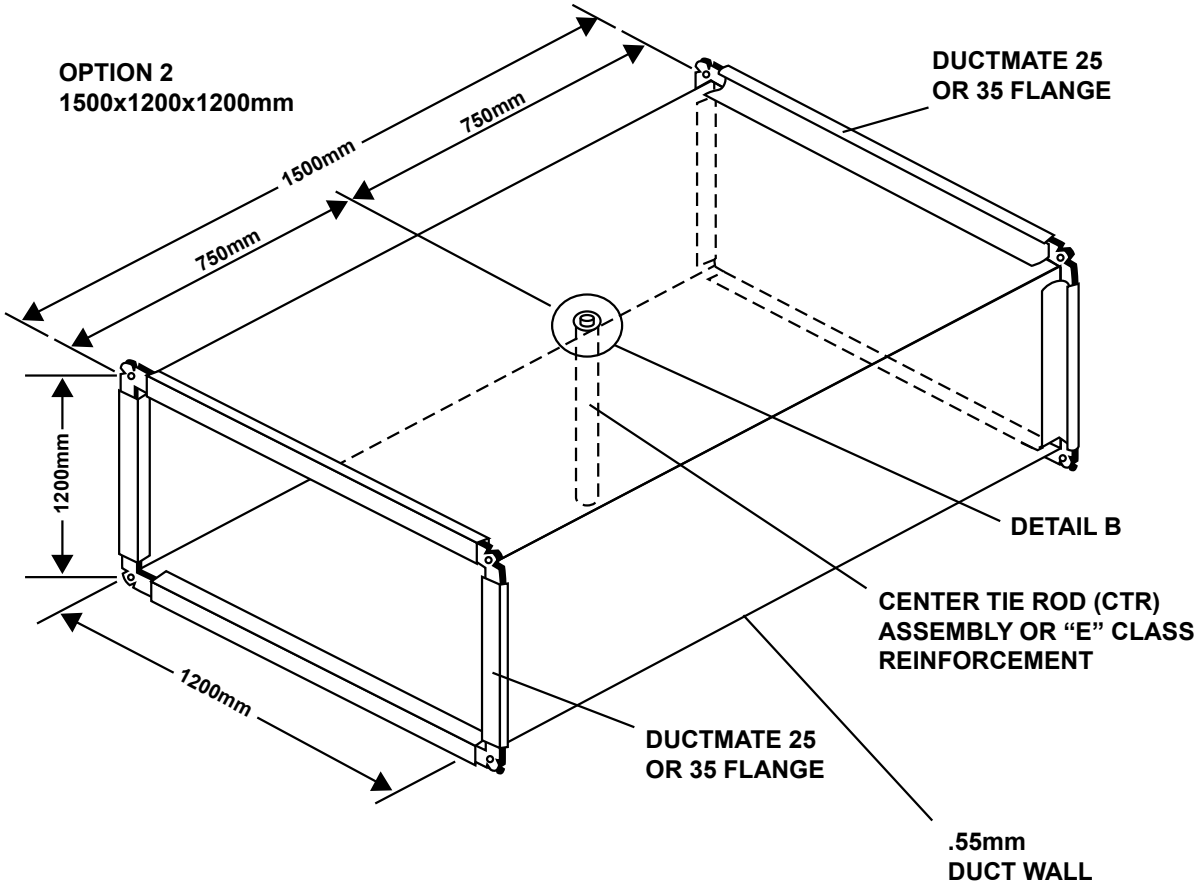
**1500 mm DUCT SECTIONS**

**1200 x 1200 mm**

**OPTION 1**
**1500 x 1200 x 1200mm**




**OPTION 2**
**1500x1200x1200mm**



| 125 PA STATIC POS./NEG. | Table 15 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 1800 mm | 1500 mm | 1200 mm | 900 mm | 750 mm | 600 mm |
| Duct Size (mm) | | | | | | |
| 200 & under | 0.55 ga-DM25 | | | | | |
| 229–250 | 0.55 ga-DM25 | | | | | |
| 251–300 | 0.55 ga-DM25 | | | | | |
| 301–350 | 0.55 ga-DM25 | | | | | |
| 351–400 | 0.55 ga-DM25 | | | | | |
| 401–450 | 0.55 ga-DM25 | | | | | |
| 451–500 | 0.55 ga-DM25 | | | | | |
| 501–550 | 0.55 ga-DM25 | | | | | |
| 551–600 | 0.55 ga-DM25 | | | | | |
| 601–650 | 0.55 ga-DM25 | | | | | |
| 651–700 | 0.55 ga-DM25 | | | | | |
| 701–750 | 0.55 ga-DM25 | | | | | |
| 751–900 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 901–1000 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 1001–1200 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 1201–1300 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 1301–1500 | 0.85 ga-DM25 | 0.70 ga-DM25 | 0.55 ga-DM25 | 0.55 ga-DM25 CTR or “F” | | |
| 1501–1800 | 1.00 ga-DM25 0.85 ga-DM35 | 0.85 ga-DM25 0.70 ga-DM35 | | 0.55 ga-DM35 CTR or “H” | | |
| 1801–2100 | 1.00 ga-DM35 | 0.85 ga-DM35 | 0.70 ga-DM35 | 0.55 ga-DM35 CTR or “H” | | |
| 2101–2400 | 1.00 ga-DM35 | 0.85 ga-DM35 | | 0.70 ga-DM35 CTR or “H” | | |
| 2401–2700 | 1.31 ga-DM35* | 1.00 ga-DM35* | | 0.85 ga-DM35 CTR or “H” | | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

| 250 PA STATIC POS./NEG. | Table 16 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 1800 mm | 1500 mm | 1200 mm | 900 mm | 750 mm | 600 mm |
| Duct Size (mm) | | | | | | |
| 200 & under | 0.55 ga-DM25 | | | | | |
| 229–250 | 0.55 ga-DM25 | | | | | |
| 251–300 | 0.55 ga-DM25 | | | | | |
| 301–350 | 0.55 ga-DM25 | | | | | |
| 351–400 | 0.55 ga-DM25 | | | | | |
| 401–450 | 0.55 ga-DM25 | | | | | |
| 451–500 | 0.55 ga-DM25 | | | | | |
| 501–550 | 0.55 ga-DM25 | | | | | |
| 551–600 | 0.55 ga-DM25 | | | | | |
| 601–650 | 0.55 ga-DM25 | | | | | |
| 651–700 | 0.55 ga-DM25 | | | | | |
| 701–750 | 0.55 ga-DM25 | | | | | |
| 751–900 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 901–1000 | 0.85 ga-DM25 | 0.70 ga-DM25 | 0.55 ga-DM25 | 0.55 ga-DM25 CTR or “E” | | |
| 1001–1200 | 0.85 ga-DM25 | 0.70 ga-DM25 | 0.55 ga-DM25 | 0.55 ga-DM25 CTR or “E” | | |
| 1201–1300 | 1.00 ga-DM25 0.85 ga-DM35 | 0.85 ga-DM25 0.70 ga-DM35 | 0.70 ga-DM25 | 0.55 ga-DM25 CTR or “F” | | |
| 1301–1500 | 1.00 ga-DM25 0.85 ga-DM35 | 0.85 ga-DM25 0.70 ga-DM35 | 0.70 ga-DM25 | 0.55 ga-DM25 CTR or “G” | | |
| 1501–1800 | 0.85 ga-DM35 | 0.70 ga-DM35 | | 0.70 ga-DM35 CTR or “H” | 0.55 ga-DM35 CTR or “H” | |
| 1801–2100 | 1.31 ga-DM35 | 1.00 ga-DM35 | | 0.70 ga-DM35 CTR or “H” | 0.55 ga-DM35 CTR or “H” | |
| 2101–2400 | 1.61 ga-DM35* | 1.31 ga-DM35* | | 0.85 ga-DM35* CTR or “H*” | 0.70 ga-DM35* CTR or “H*” | 0.55 ga-DM35* CTR or “J” |
| 2401–2700 | | | | 1.00 ga-DM35* CTR or “H*” | 0.85 ga-DM35* CTR or “H*” | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

| 500 PA STATIC POS./NEG. | Table 17 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 1800 mm | 1500 mm | 1200 mm | 900 mm | 750 mm | 600 mm |
| Duct Size (mm) | | | | | | |
| 200 & under | 0.55 ga-DM25 | | | | | |
| 229–250 | 0.55 ga-DM25 | | | | | |
| 251–300 | 0.55 ga-DM25 | | | | | |
| 301–350 | 0.55 ga-DM25 | | | | | |
| 351–400 | 0.55 ga-DM25 | | | | | |
| 401–450 | 0.55 ga-DM25 | | | | | |
| 451–500 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 501–550 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 551–600 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 601–650 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 651–700 | 0.85 ga-DM25 | 0.70 ga-DM25 | 0.55 ga-DM25 | 0.55 ga-DM25 CTR or “C” | | |
| 701–750 | 0.85 ga-DM25 | 0.70 ga-DM25 | 0.55 ga-DM25 | 0.55 ga-DM25 CTR or “C” | | |
| 751–900 | 0.85 ga-DM25 | 0.70 ga-DM25 | | 0.70 ga-DM25 CTR or “C” | 0.55 ga-DM25 CTR or “C” | |
| 901–1000 | 1.00 ga-DM25<br>0.85 ga-DM35 | 0.85 ga-DM25<br>0.70 ga-DM35 | 0.70 ga-DM25 | 0.70 ga-DM25 CTR or “D” | 0.55 ga-DM25 CTR or “D” | |
| 1001–1200 | 1.00 ga-DM25<br>0.85 ga-DM35 | 1.00 ga-DM25<br>0.70 ga-DM35 | | 0.70 ga-DM35 CTR or “E” | 0.55 ga-DM25 CTR or “E” | |
| 1201–1300 | 0.85 ga-DM35 | 0.85 ga-DM35 | 1.00 ga-DM25<br>0.85 ga-DM35 | 0.70 ga-DM35 CTR or “F” | 0.55 ga-DM25 CTR or “F” | |
| 1301–1500 | 0.85 ga-DM35 | 0.85 ga-DM35 | | 0.70 ga-DM35 CTR or “G” | 0.55 ga-DM25 CTR or “G” | |
| 1501–1800 | 1.61 ga-DM35 | | 1.31 ga-DM35 | 0.85 ga-DM35 CTR or “I” | 0.70 ga-DM35 CTR or “H” | 0.55 ga-DM35 CTR or “H” |
| 1801–2100 | | | | 1.00 ga-DM35* CTR or “H*” | 0.85 ga-DM35* CTR or “H*” | 0.70 ga-DM35* CTR or “H*” |
| 2101–2400 | | | | 1.00 ga-DM35* CTR or “H*” | 0.85 ga-DM35* CTR or “H*” | |
| 2401–2700 | | | | 1.00 ga-DM35* CTR or “H*” | 0.85 ga-DM35* CTR or “H*” | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

| 750 PA STATIC POS./NEG. | Table 18 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 1800 mm | 1500 mm | 1200 mm | 900 mm | 750 mm | 600 mm |
| Duct Size (mm) | | | | | | |
| 200 & under | 0.55 ga-DM25 | | | | | |
| 229–250 | 0.55 ga-DM25 | | | | | |
| 251–300 | 0.55 ga-DM25 | | | | | |
| 301–350 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 351–400 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 401–450 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 451–500 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 501–550 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 551–600 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 601–650 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 651–700 | 0.85 ga-DM25 | 0.70 ga-DM25 | 0.55 ga-DM25 | 0.55 ga-DM25 CTR or “D” | | |
| 701–750 | 0.85 ga-DM25 | 0.70 ga-DM25 | 0.55 ga-DM25 | 0.55 ga-DM25 CTR or “D” | | |
| 751–900 | 1.00 ga-DM25 0.85 ga-DM35 | 0.85 ga-DM25 0.70 ga-DM35 | | 0.55 ga-DM25 CTR or “D” | | |
| 901–1000 | 1.00 ga-DM25 0.85 ga-DM35 | 0.85 ga-DM25 0.70 ga-DM35 | | 0.55 ga-DM25 CTR or “E” | | |
| 1001–1200 | 1.31 ga-DM35 | 1.31 ga-DM35 | 1.00 ga-DM35 | 0.70 ga-DM35 CTR or “E” | 0.55 ga-DM25 CTR or “E” | |
| 1201–1300 | 1.61 ga-DM35 | 1.31 ga-DM35 | 1.00 ga-DM35 | 0.70 ga-DM35 CTR or “F” | | 0.55 ga-DM35 CTR or “E” |
| 1301–1500 | 1.61 ga-DM35 | 1.31 ga-DM35 | 1.00 ga-DM35 | 0.70 ga-DM35 CTR or “G” | | 0.55 ga-DM35 CTR or “F” |
| 1501–1800 | | | | 1.00 ga-DM35 CTR or “I” | 0.85 ga-DM35 CTR or “I” | 0.55 ga-DM35 CTR or “I” |
| 1801–2100 | | | | 1.31 ga-DM35 CTR or “I” | 1.00 ga-DM35 CTR or “I” | 0.85 ga-DM35 CTR or “I” |
| 2101–2400 | | | | 1.31 ga-DM35* CTR or “H*” | 1.00 ga-DM35* CTR or “H*” | |
| 2401–2700 | | | | 1.31 ga-DM35* CTR or “H*” | 1.00 ga-DM35* CTR or “H*” | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

| 1000 PA STATIC POS. | Table 19 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 1800 mm | 1500 mm | 1200 mm | 900 mm | 750 mm | 600 mm |
| Duct Size (mm) | | | | | | |
| 200 & under | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 229–250 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 251–300 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 301–350 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 351–400 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 401–450 | 0.70 ga-DM25 | 0.55 ga-DM25 | | | | |
| 451–500 | 0.70 ga-DM25 | | 0.55 ga-DM25 | 0.55 ga-DM25 CTR or “C” | | |
| 501–550 | 0.70 ga-DM25 | | 0.55 ga-DM25 | 0.55 ga-DM25 CTR or “C” | | |
| 551–600 | 0.85 ga-DM25 | | 0.70 ga-DM25 | 0.55 ga-DM25 CTR or “D” | | |
| 601–650 | 0.85 ga-DM25 | | 0.70 ga-DM25 | 0.55 ga-DM25 CTR or “D” | | |
| 651–700 | 0.85 ga-DM25 | | 0.70 ga-DM25 | 0.70 ga-DM25 CTR or “D” | 0.55 ga-DM25 CTR or “D” | |
| 701–750 | 0.85 ga-DM25 | | 0.70 ga-DM25 | 0.70 ga-DM25 CTR or “D” | 0.55 ga-DM25 CTR or “D” | |
| 751–900 | 0.85 ga-DM25 | | | 0.70 ga-DM25 CTR or “E” | 0.55 ga-DM25 CTR or “E” | |
| 901–1000 | 0.85 ga-DM35 | | | 0.70 ga-DM35 CTR or “E” | 0.55 ga-DM25 CTR or “E” | |
| 1001–1200 | | | | 0.85 ga-DM35 CTR or “F” | 0.70 ga-DM35 CTR or “F” | 0.55 ga-DM35 CTR or “F” |
| 1201–1300 | | | | 0.85 ga-DM35 CTR or “G” | 0.70 ga-DM35 CTR or “G” | 0.55 ga-DM35 CTR or “G” |
| 1301–1500 | | | | 0.85 ga-DM35 CTR or “H” | 0.70 ga-DM35 CTR or “H” | 0.55 ga-DM35 CTR or “H” |
| 1501–1800 | | | | 1.31 ga-DM35 CTR or “H” | 1.00 ga-DM35 CTR or “H” | 0.85 ga-DM35 CTR or “H” |
| 1801–2100 | | | | 1.31 ga-DM35* CTR or “H*” | 1.00 ga-DM35* CTR or “H*” | |
| 2101–2400 | | | | 1.31 ga-DM35* CTR or “H*” | 1.00 ga-DM35* CTR or “H*” | |
| 2401–2700 | | | | 1.31 ga-DM35* CTR or “H*” | 1.00 ga-DM35* CTR or “H*” | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

| 1500 PA STATIC POS. | Table 20 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 1800 mm | 1500 mm | 1200 mm | 900 mm | 750 mm | 600 mm |
| Duct Size (mm) | | | | | | |
| 200 & under | 0.70 ga-DM25 | | | 0.55 ga-DM25 CTR or “C” | | |
| 229–250 | 0.70 ga-DM25 | | | 0.55 ga-DM25 CTR or “C” | | |
| 251–300 | 0.70 ga-DM25 | | | 0.55 ga-DM25 CTR or “C” | | |
| 301–350 | 0.70 ga-DM25 | | | 0.55 ga-DM25 CTR or “C” | | |
| 351–400 | 0.70 ga-DM25 | | | 0.55 ga-DM25 CTR or “C” | | |
| 401–450 | 1.00 ga-DM25 | 0.85 ga-DM25 | | 0.70 ga-DM25 CTR or “C” | 0.55 ga-DM25 CTR or “C” | |
| 451–500 | 1.00 ga-DM25 | 0.85 ga-DM25 | | 0.70 ga-DM25 CTR or “C” | 0.55 ga-DM25 CTR or “C” | |
| 501–550 | 1.00 ga-DM25 | 0.85 ga-DM25 | | 0.70 ga-DM25 CTR or “C” | 0.55 ga-DM25 CTR or “C” | |
| 551–600 | 1.00 ga-DM25 | 0.85 ga-DM25 | | 0.70 ga-DM25 CTR or “D” | 0.55 ga-DM25 CTR or “D” | |
| 601–650 | 1.00 ga-DM25 | 0.85 ga-DM25 | | 0.70 ga-DM25 CTR or “D” | 0.55 ga-DM25 CTR or “D” | |
| 651–700 | 1.00 ga-DM25 | 0.85 ga-DM25 | | 0.70 ga-DM25 CTR or “D” | 0.55 ga-DM25 CTR or “D” | |
| 701–750 | 1.00 ga-DM25 | 0.85 ga-DM25 | | 0.70 ga-DM25 CTR or “D” | 0.55 ga-DM25 CTR or “D” | |
| 751–900 | | 1.00 ga-DM25 | | 0.85 ga-DM25 CTR or “E” | 0.70 ga-DM25 CTR or “E” | 0.55 ga-DM25 CTR or “E” |
| 901–1000 | | | | 0.85 ga-DM35 CTR or “F” | 0.70 ga-DM35 CTR or “F” | 0.55 ga-DM35 CTR or “F” |
| 1001–1200 | | | | 0.85 ga-DM35 CTR or “G” | 0.70 ga-DM35 CTR or “G” | 0.55 ga-DM35 CTR or “G” |
| 1201–1300 | | | | 1.00 ga-DM35 CTR or “H” | 0.85 ga-DM35 CTR or “H” | 0.70 ga-DM35 CTR or “H” |
| 1301–1500 | | | | 1.00 ga-DM35 CTR or “H” | 0.85 ga-DM35 CTR or “H” | 0.70 ga-DM35 CTR or “H” |
| 1501–1800 | | | | 1.31 ga-DM35 CTR or “H” | 1.00 ga-DM35 CTR or “H” | |
| 1801–2100 | | | | 1.31 ga-DM35* CTR or “H*” | 1.00 ga-DM35* CTR or “H*” | |
| 2101–2400 | | | | 1.31 ga-DM35* CTR or “H*” | 1.00 ga-DM35* CTR or “H*” | |
| 2401–2700 | | | | 1.31 ga-DM35* CTR or “H*” | 1.00 ga-DM35* CTR or “H*” | |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined. See other options.

1500 PA STATIC POSITIVE



**For ductwork built for negative pressures higher than 750 PA call DCL Supply at 1-800-263-4541**

| 2500 PA STATIC POS. | Table 21 | | | | | |
|---|---|---|---|---|---|---|
| | REINFORCEMENT SPACING | | | | | |
| | 1800 mm | 1500 mm | 1200 mm | 900 mm | 750 mm | 600 mm |
| Duct Size (mm) | | | | | | |
| 200 & under | 1.00 ga-DM25 | | | 0.70 ga-DM25 “C” | 0.55 ga-DM25 “C” | |
| 229–250 | 1.00 ga-DM25 | | | 0.70 ga-DM25 “C” | 0.55 ga-DM25 “C” | |
| 251–300 | 1.00 ga-DM25 | | | 0.70 ga-DM25 “D” | 0.55 ga-DM25 “D” | |
| 301–350 | 1.00 ga-DM25 | | | 0.70 ga-DM25 “D” | 0.55 ga-DM25 “D” | |
| 351–400 | 1.00 ga-DM25 | | | 0.70 ga-DM25 “D” | 0.55 ga-DM25 “D” | |
| 401–450 | 1.00 ga-DM25 | | | 0.70 ga-DM25 “D” | 0.55 ga-DM25 “D” | |
| 451–500 | 1.31 ga-DM25 | 1.00 ga-DM25 | | 0.70 ga-DM25 “E” | 0.55 ga-DM25 “E” | |
| 501–550 | 1.31 ga-DM25 | 1.00 ga-DM25 | | 0.70 ga-DM25 “E” | 0.55 ga-DM25 “E” | |
| 551–600 | 1.31 ga-DM25 | 1.00 ga-DM25 | | 0.70 ga-DM25 “E” | 0.55 ga-DM25 “E” | |
| 601–650 | 1.31 ga-DM25 | 1.00 ga-DM25 | | 0.70 ga-DM25 “E” | 0.55 ga-DM25 “E” | |
| 651–700 | 1.31 ga-DM25 | 1.00 ga-DM25 | | 0.70 ga-DM25 “E” | 0.55 ga-DM25 “E” | |
| 701–750 | 1.31 ga-DM25 | 1.00 ga-DM25 | | 0.70 ga-DM25 “E” | 0.55 ga-DM25 “E” | |
| 751–900 | | | | 0.85 ga-DM35 “E” | 0.70 ga-DM35 “E” | 0.55 ga-DM35 “E” |
| 901–1000 | | | | 1.00 ga-DM35 “F” | 0.85 ga-DM35 “F” | 0.70 ga-DM35 “F” |
| 1001–1200 | | | | 1.00 ga-DM35 “G” | 0.85 ga-DM35 “G” | 0.70 ga-DM35 “G” |
| 1201–1300 | | | | 1.00 ga-DM35 “H” | 0.85 ga-DM35 “H” | 0.70 ga-DM35 “H” |
| 1301–1500 | | | | 1.00 ga-DM35* “H*” | 0.85 ga-DM35* “H*” | |
| 1501–1800 | | | | 1.31 ga-DM35* “H*” | 1.00 ga-DM35* “H*” | |
| 1801–2100 | | | | 1.31 ga-DM35* “H*” | 1.00 ga-DM35* “H*” | |
| 2101–2400 | | | | 1.61 ga-DM35* “H*” | 1.31 ga-DM35* “H*” | 1.00 ga-DM35* “H*” |
| 2401–2700 | | | | 1.61 ga-DM35* “H*” | 1.31 ga-DM35* “H*” | 1.00 ga-DM35* “H*” |

Columns denote maximum unreinforced spacing.

Indicates is the same as last defined cell.

No construction defined.
See other options.

| 125 - 1500 PA STATIC POSITIVE / 125 - 750 PA STATIC NEGATIVE | | Table 22 – DM45 | | | | | |
|---|---|---|---|---|---|---|---|
| | | REINFORCEMENT SPACING | | | | | |
| | | 1800 mm | 1500 mm | 1200 mm | 900 mm | 750 mm | 600 mm |
| Duct Size (mm) | | | | | | | |
| 125 PA | 2438.4-3810 mm | 1.31 ga-DM45 | 1.00 ga-DM45 | 1.00 ga-DM45 | | | |
| | 2438.4-4064 mm | | 1.00 ga-DM45 | 1.00 ga-DM45 | | | |
| | 2438.4-4445 mm | | | 1.00 ga-DM45 | | | |
| 250 PA | 2438.4-3810 mm | | | | 1.31 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 2438.4-4064 mm | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 2438.4-4445 mm | | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| 500 PA | 2159-3048 mm | | | | 1.31 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 2159-3302 mm | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 2159-3556 mm | | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| 750 PA | 2159-2667 mm | | | | 1.31 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 2159-2794 mm | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 2159-3048 mm | | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| 1000 PA | 854.2-2438.4 mm | | | | 1.31 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 854.2-2540 mm | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 854.2-2794 mm | | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| 1500 PA | 854.2-2159 mm | | | | 1.31 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 854.2-2286 mm | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 854.2-2438.4 mm | | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| 2500 PA | 1397-1828.8 mm | | | | 1.31 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 1397-1905 mm | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |
| | 1397-2082.8 mm | | | | | | 1.00 ga-DM45 50.8 x 50.8 x 9.525 mm |

Columns denote maximum unreinforced spacing.

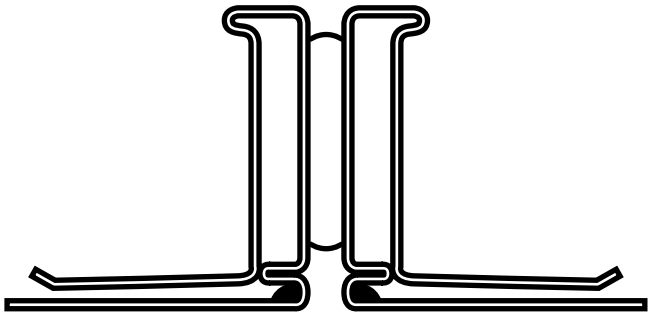
Indicates is the same as last defined cell.

No construction defined.

See other options.

# ALUMINUM CONSTRUCTION GUIDELINES

**CONSTRUCTION STANDARDS FOR ALUMINUM DUCTWORK HAVE BEEN INCLUDED TO AID THE CONTRACTOR WHEN USING DM35 ALUMINUM DUCT CONNECTORS.**



DM35 AL

| 250 PA POS. | Table 23<br>**ALUMINUM DUCT CONSTRUCTION**<br>**(AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
|---|---|---|---|
| Duct Size (mm) | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 200 & under | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 229–250 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 251–300 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 301–350 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 351–400 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 401–450 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 451–500 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 501–550 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 551–600 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 601–650 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 651–700 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 701–750 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 751–900 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 901–1000 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 1001–1200 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 1201–1300 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 1301–1500 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 1501–1800 | DM35AL @ 1200 mm | 1.016 mm | 50.8 x 50.8 x 6.35 mm @ 609.6 mm |
| 1801–2100 | DM35AL @ 1200 mm | 1.27 mm | 63.5 x 63.5 x 4.763 mm @ 609.6 mm |
| 2101–2400 | DM35AL + ROD @ 1200 mm | 1.27 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 2401–2700 | DM35AL + ROD @ 1200 mm | 1.63 mm | 63.5 x 63.5 x 4.763 mm @ 609.6 mm |

DM35AL IS EQUIVALENT TO A SMACNA “H” CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 1200 MM FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 125 MM ALUMINUM ROD.

| 500 PA POS. | Table 24 | | |
|---|---|---|---|
| | **ALUMINUM DUCT CONSTRUCTION (AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
| Duct Size (mm) | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 200 & under | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 229–250 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 251–300 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 301–350 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 351–400 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 401–450 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 451–500 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 501–550 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 551–600 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 601–650 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 651–700 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 701–750 | DM35AL @ 1200 mm | 0.813 mm | NONE |
| 751–900 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 901–1000 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 1001–1200 | DM35AL @ 1200 mm | 1.27 mm | NONE |
| 1201–1300 | DM35AL @ 1200 mm | 1.016 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 1301–1500 | DM35AL @ 1200 mm | 1.016 mm | 50.8 x 50.8 x 6.35 mm @ 609.6 mm |
| 1501–1800 | DM35AL @ 1200 mm | 1.016 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 1801–2100 | DM35AL + ROD @ 1200 mm | 1.27 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 2101–2400 | DM35AL + ROD @ 1200 mm | 1.63 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 2401–2700 | DM35AL + ROD @ 1200 mm | 1.63 mm | 63.5 x 63.5 x 4.763 mm @ 609.6 mm |

DM35AL IS EQUIVALENT TO A SMACNA “H” CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 1200 MM FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 125 MM ALUMINUM ROD.

| 750 PA POS. | Table 25 | | |
|---|---|---|---|
| | **ALUMINUM DUCT CONSTRUCTION (AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
| Duct Size (mm) | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 200 & under | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 229–250 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 251–300 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 301–350 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 351–400 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 401–450 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 451–500 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 501–550 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 551–600 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 601–650 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 651–700 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 701–750 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 751–900 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 901–1000 | DM35AL @ 1200 mm | 1.016 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 1001–1200 | DM35AL @ 1200 mm | 1.016 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 1201–1300 | DM35AL @ 1200 mm | 1.016 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 1301–1500 | DM35AL @ 1200 mm | 1.016 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 1501–1800 | DM35AL + ROD @ 1200 mm | 1.016 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 1801–2100 | DM35AL + ROD @ 1200 mm | 1.27 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 2101–2400 | DM35AL + ROD @ 1200 mm | 1.63 mm | 50.8 x 50.8 x 6.35 mm @ 609.6 mm |
| 2401–2700 | DM35AL + ROD @ 1200 mm | 1.63 mm | 63.5 x 63.5 x 4.763 mm @ 609.6 mm |

DM35AL IS EQUIVALENT TO A SMACNA “H” CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 1200 MM FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 125 MM ALUMINUM ROD.

| 1000 PA POS. | Table 26 | | |
|---|---|---|---|
| | **ALUMINUM DUCT CONSTRUCTION (AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
| Duct Size (mm) | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 200 & under | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 229–250 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 251–300 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 301–350 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 351–400 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 401–450 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 451–500 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 501–550 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 551–600 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 601–650 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 651–700 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 701–750 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 751–900 | DM35AL @ 1200 mm | 1.016 mm | 38.1 x 12.7 x 3.175 mm @ 609.6 mm |
| 901–1000 | DM35AL @ 1200 mm | 1.016 mm | 44.5 x 44.5 x 3.175 mm @ 609.6 mm |
| 1001–1200 | DM35AL @ 1200 mm | 1.016 mm | 44.5 x 44.5 x 3.175 mm @ 609.6 mm |
| 1201–1300 | DM35AL @ 1200 mm | 1.016 mm | 63.5 x 63.5 x 3.175 mm @ 609.6 mm |
| 1301–1500 | DM35AL @ 1200 mm | 1.016 mm | 63.5 x 63.5 x 3.175 mm @ 609.6 mm |
| 1501–1800 | DM35AL @ 1200 mm | 1.27 mm | 63.5 x 63.5 x 3.175 mm @ 609.6 mm |
| 1801–2100 | DM35AL + ROD @ 1200 mm | 1.63 mm | 63.5 x 63.5 x 9.525 mm @ 609.6 mm |
| 2101–2400 | DM35AL + ROD @ 1200 mm | 1.63 mm | 76.2 x 76.2 x 9.525 mm @ 609.6 mm |
| 2401–2700 | DM35AL + ROD @ 1200 mm | 1.8034 mm | 63.5 x 63.5 x 4.763 mm @ 609.6 mm |

DM35AL IS EQUIVALENT TO A SMACNA “H” CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 1200 MM FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 125 MM ALUMINUM ROD.

| 1500 PA POS. | Table 27 | | |
|---|---|---|---|
| | **ALUMINUM DUCT CONSTRUCTION (AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
| Duct Size (mm) | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 200 & under | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 229–250 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 251–300 | DM35AL @ 1200 mm | 1.27 mm | NONE |
| 301–350 | DM35AL @ 1200 mm | 1.27 mm | NONE |
| 351–400 | DM35AL @ 1200 mm | 1.27 mm | NONE |
| 401–450 | DM35AL @ 1200 mm | 1.27 mm | NONE |
| 451–500 | DM35AL @ 1200 mm | 1.27 mm | NONE |
| 501–550 | DM35AL @ 1200 mm | 1.27 mm | NONE |
| 551–600 | DM35AL @ 1200 mm | 1.63 mm | NONE |
| 601–650 | DM35AL @ 1200 mm | 1.63 mm | NONE |
| 651–700 | DM35AL @ 1200 mm | 1.63 mm | NONE |
| 701–750 | DM35AL @ 1200 mm | 2.032 mm | NONE |
| 751–900 | DM35AL @ 1200 mm | 2.032 mm | NONE |
| 901–1000 | DM35AL @ 1200 mm | 2.032 mm | NONE |
| 1001–1200 | DM35AL @ 1200 mm | 2.032 mm | NONE |
| 1201–1300 | DM35AL @ 1200 mm | 2.032 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 1301–1500 | DM35AL @ 1200 mm | 2.032 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 1501–1800 | DM35AL + ROD @ 1200 mm | 2.032 mm | 50.8 x 50.8 x 4.763 mm @ 609.6 mm |
| 1801–2100 | DM35AL + ROD @ 1200 mm | 2.032 mm | 50.8 x 50.8 x 6.35 mm @ 609.6 mm |
| 2101–2400 | DM35AL + ROD @ 1200 mm | 2.032 mm | 50.8 x 50.8 x 6.35 mm @ 609.6 mm |
| 2401–2700 | DM35AL + ROD @ 1200 mm | 2.032 mm | 63.5 x 63.5 x 4.763 mm @ 609.6 mm |

DM35AL IS EQUIVALENT TO A SMACNA “H” CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 1200 MM FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 125 MM ALUMINUM ROD.

| 2500 PA POS. | Table 28 | | |
|---|---|---|---|
| | **ALUMINUM DUCT CONSTRUCTION (AS PER SMACNA DUCT CONTRUCTION STANDARDS)** | | |
| Duct Size (mm) | Joint Spacing | Duct Wall Thickness | Intermediate Reinforcement |
| 200 & under | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 229–250 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 251–300 | DM35AL @ 1200 mm | 1.016 mm | NONE |
| 301–350 | DM35AL @ 1200 mm | 1.27 mm | NONE |
| 351–400 | DM35AL @ 1200 mm | 1.27 mm | NONE |
| 401–450 | DM35AL @ 1200 mm | 1.27 mm | NONE |
| 451–500 | DM35AL @ 1200 mm | 1.63 mm | NONE |
| 501–550 | DM35AL @ 1200 mm | 1.63 mm | NONE |
| 551–600 | DM35AL @ 1200 mm | 1.63 mm | NONE |
| 601–650 | DM35AL @ 1200 mm | 1.63 mm | NONE |
| 651–700 | DM35AL @ 1200 mm | 1.63 mm | NONE |
| 701–750 | DM35AL @ 1200 mm | 1.016 mm | 44.5 x 44.5 x 3.175 mm @ 609.6 mm |
| 751–900 | DM35AL @ 1200 mm | 1.016 mm | 44.5 x 44.5 x 3.175 mm @ 609.6 mm |
| 901–1000 | DM35AL @ 1200 mm | 1.27 mm | 63.5 x 63.5 x 3.175 mm @ 609.6 mm |
| 1001–1200 | DM35AL @ 1200 mm | 1.27 mm | 63.5 x 63.5 x 3.175 mm @ 609.6 mm |
| 1201–1300 | DM35AL @ 1200 mm | 1.63 mm | 63.5 x 63.5 x 4.736 mm @ 609.6 mm |
| 1301–1500 | DM35AL @ 1200 mm | 1.63 mm | 63.5 x 12.7 x 3.175 mm @ 609.6 mm |
| 1501–1800 | DM35AL + ROD @ 1200 mm | 1.8034 mm | 63.5 x 63.5 x 3.175 mm @ 609.6 mm |
| 1801–2100 | DM35AL + ROD @ 1200 mm | 2.286 mm | 63.5 x 63.5 x 4.736 mm @ 609.6 mm |
| 2101–2400 | DM35AL + ROD @ 1200 mm | 2.286 mm | 63.5 x 63.5 x 4.736 mm @ 609.6 mm |
| 2401–2700 | DM35AL + ROD @ 1200 mm | 2.286 mm | 63.5 x 63.5 x 4.736 mm @ 609.6 mm |

DM35AL IS EQUIVALENT TO A SMACNA “H” CLASS STIFFENER.

TIE ROD SPACING SHALL BE NO GREATER THAN 1200 MM FROM DUCTWALL TO TIE ROD OR TIE ROD TO TIE ROD.

TIE RODS SHALL BE 125 MM ALUMINUM ROD.

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