

ROUND DUCTS



Certificate SA15/2492

SGS

The management system of

Arabian International Co. for Steel Structures.

Makkah and Medina Highway, Al Hijra Street, Asfan Industrial Area,
P.O. Box 41017, Jeddah, 21521, Saudi Arabia

has been assessed and certified as meeting the requirements of

ISO 9001:2015

For the following activities

**Marketing, Design, Fabrication of Plate Work, Pressure Vessels,
Piping, power boilers, Tanks, Steel Structures, steel ducts, metal work,
Mechanical work and surface treatment.**

Further clarifications regarding the scope of this certificate and the applicability of
ISO 9001:2015 requirements may be obtained by consulting the organisation

This certificate is valid from 5 June 2016 until 5 November 2018 and
remains valid subject to satisfactory surveillance audits.
Re certification audit due before 22 September 2018
Issue 2. Certified since 5 November 2015

Authorised by

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SGS 9001 2015 0216

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Certificate CH17/0097

The management system of

**Arabian International Company
for Steel Structures**

Makkah and Medina Highway, Al Hijra Street, Asfan Industrial Area,
P.O. Box 41017, Jeddah, 21521, Saudi Arabia



has been assessed and certified as meeting the requirements of

OHSAS 18001:2007

For the following activities

**Marketing, Design, Built up, Fabrication, Erection and Installation of
Plate Work, Pressure Vessels, Piping (Low & High Pressure), Power
Boilers, Tanks, Steel Structures, Steel Ducts, Metal Work, Mechanical
Work and Surface Treatment.**

This certificate is valid from 24 January 2017 until 23 January 2020
and remains valid subject to satisfactory surveillance audits
Recertification audit due before 22 December 2019
Issue 1. Certified since January 2017

Authorised by

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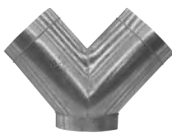



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Arabian International Co. for Steel Structures and Sheet Metal Works (AIC Steel) is a leading designer, fabricator and erector of structural steel, sheet metal and towers. We are AIC SheetMetal Works committed to deliver a wide range of sheet metal work solutions across the world. Incorporated in 2016, AIC sheet metal Works has been serving the needs of HVAC Systems, Cable Management systems, and Sheet Metal Fabrication services. Our industrial facilities are spread across Saudi Arabia, UAE, Egypt, serving the needs of the MENA region. We are qualified professionals who are fully dedicated to serve our clients.

AIC Sheet Metal Works assure high quality standard and committed to maintain an effective Quality Assurance System complying with International Standard ISO9001-2015 (Quality Systems), that will sustain the company's reputation and achieve customer satisfaction. The certificates that AIC holds is a proof of how serious we are emerging to reach an international standard that we are proud of and keep us on top of the industry in the region.

AIC Sheet Metal Works product designs are always based on the relevant international standards and codes to produce cost effective solutions based on accurate calculations validated by advanced testing measures in our labs to ensure products reliability followed by continuous development to fulfill our customer satisfaction.

AIC's standard Round products are fabricated to meet SMACNA's 2005 3rd edition duct construction standards and can be customized to follow your specifications.

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| Round Straight Duct  | 8 | Saddle  | 26 - 29 |
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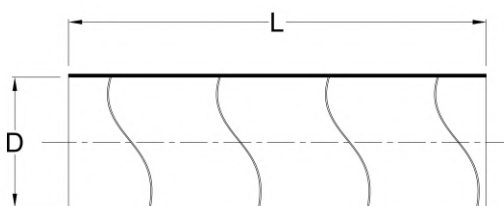
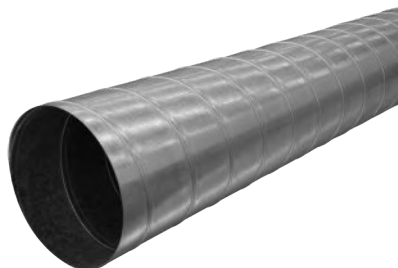
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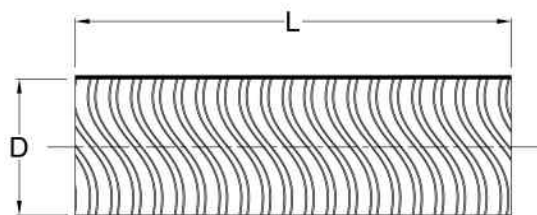
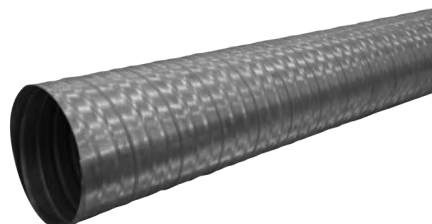
3

4

HC01-Spiral Straight Duct (Not corrugated)



HC01-Spiral Straight Duct (Corrugated)



Ordering Code

Product Code : HC01 - M TH LT ET1 ET2 DS F - D x L

Material

Thickness

Liner type and Thickness

End Type 1

End Type 2

Duct Surface

Finish

Diameter

Length

Description

AIC Single Wall Spiral duct is constructed with an interlocking helical lock seam evenly spaced along the duct length in accordance with SMACNA RL-1 Spiral Seam. The seam is formed on the duct outer surface to provide smooth inner surface that results in minimal friction loss.

All HC-Series construction is conformed with SMACNA HVAC Duct Construction Standard third edition 2005 to withstand up to ± 10 in. wg pressure.

Construction:

HC01 is spirally wound round duct that can be fabricated in lengths up to 6000 mm with standard duct diameters.

HC01 can be offered with corrugated surface upon request for duct thicknesses up to 1.3 mm to provide higher rigidity.

Material:

HC01 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC01 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC01 is available with different liner types and thicknesses.

Seam type:

HC01 is offered with Spiral Seam.

Transverse Joints:

HC01 is offered with various types of SMACNA approved Connections (Raw, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered upon request.
Duct is offered with various paints.

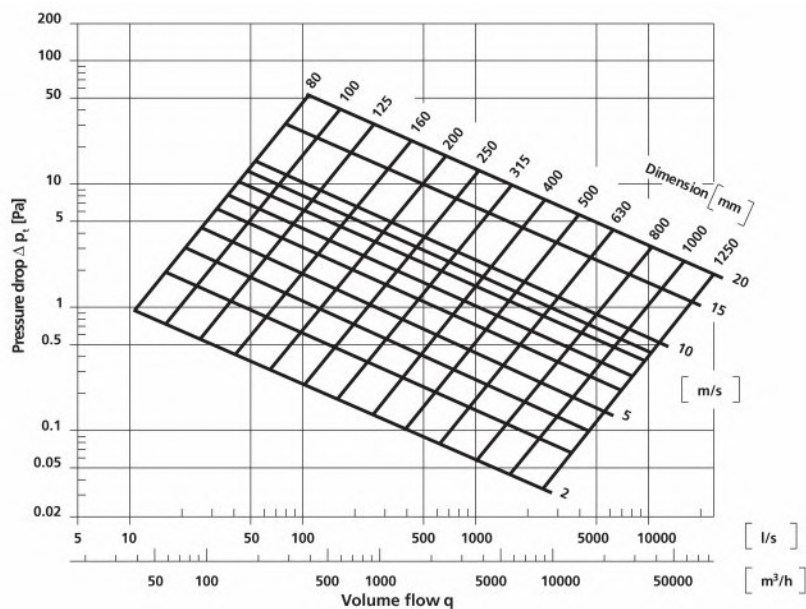
Available Diameters:

HC01 is supplied with wide range of standard diameters, please refer to next Page.

HC01-Standard Diameters

| D (mm) | Circumference πD (m) | Area $(\pi D^2)/4$ (m ²) |
|-----------|---------------------------------|--|
| 80 | 0.251 | 0.005 |
| 100 | 0.314 | 0.008 |
| 125 | 0.393 | 0.012 |
| 140 | 0.440 | 0.015 |
| 150 | 0.471 | 0.018 |
| 160 | 0.503 | 0.020 |
| 180 | 0.565 | 0.025 |
| 200 | 0.628 | 0.031 |
| 224 | 0.704 | 0.039 |
| 250 | 0.785 | 0.049 |
| 280 | 0.880 | 0.062 |
| 300 | 0.942 | 0.071 |
| 315 | 0.990 | 0.078 |
| 355 | 1.115 | 0.099 |
| 400 | 1.257 | 0.126 |
| 450 | 1.414 | 0.159 |
| 500 | 1.571 | 0.196 |
| 560 | 1.759 | 0.246 |
| 600 | 1.885 | 0.283 |

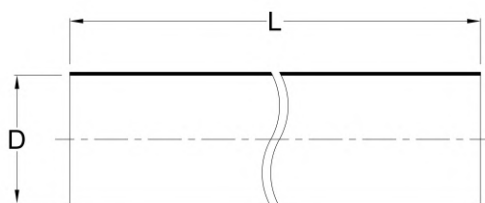
| D (mm) | Circumference πD (m) | Area $(\pi D^2)/4$ (m ²) |
|-----------|---------------------------------|--|
| 630 | 1.979 | 0.312 |
| 650 | 2.042 | 0.332 |
| 700 | 2.199 | 0.385 |
| 750 | 2.356 | 0.442 |
| 800 | 2.513 | 0.503 |
| 850 | 2.670 | 0.567 |
| 900 | 2.827 | 0.636 |
| 950 | 2.985 | 0.709 |
| 1000 | 3.142 | 0.785 |
| 1100 | 3.456 | 0.950 |
| 1150 | 3.613 | 1.039 |
| 1200 | 3.770 | 1.131 |
| 1250 | 3.927 | 1.227 |
| 1300 | 4.084 | 1.327 |
| 1350 | 4.241 | 1.431 |
| 1400 | 4.398 | 1.539 |
| 1450 | 4.555 | 1.651 |
| 1500 | 4.712 | 1.767 |
| 1600 | 5.027 | 2.011 |



Notes:

Non-standard diameter sizes are available as longitudinally seamed ducts with maximum length of 1.5 meter. (Refer to HC02).

HC02-Round Straight Duct



Ordering Code

Product Code : HC02 - M TH LT ET1ET2 F - D x L

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| End Type 1 | |
| End Type 2 | |
| Finish | |
| Diameter | |
| Length | |

Description

AIC Single Wall duct can be fabricated and supplied with wide range of diameters more than the standard sizes.

All HC-Series construction is conformed with SMACNA HVAC Duct Construction Standard third edition 2005 to withstand up to ± 10 in. wg pressure.

Construction

HC02 is round straight duct that can be fabricated with maximum length of 1500 mm and a variety in diameters upon request.

Material:

HC02 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC02 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC02 is available with different liner types and thicknesses.

Seam type:

HC02 is offered with Longitudinal Seam represented in spot, stitch or full weld depending on duct thickness and length.

| Duct Thickness (mm) | Max. Duct Length (mm) | Longitudinal Seam Type |
|--------------------------------------|-----------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | 1000 | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | 800 | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | 1500 | Full Weld |

Traverse Joints:

HC02 is offered with various types of SMACNA approved Connections (Raw, Round Flanges and Round Angle bars).

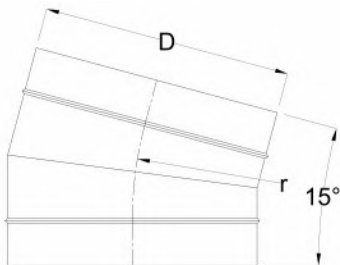
Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Available Diameters:

HC02 is supplied with different diameters from 85 mm up to 1600 mm.

HC03-Round Bend 15°



Ordering Code

Product Code : HC03 - M TH LT ET1 ET2 F - D

Material

Thickness

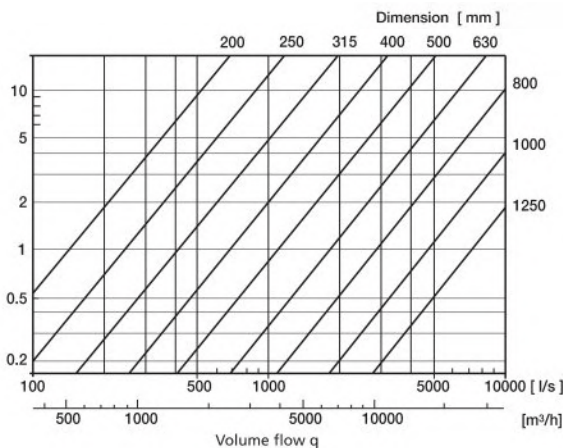
Liner type and Thickness

End Type 1

End Type 2

Finish

Diameter



Description

Bend 15° Elbows allow airflow direction change in a straight run of ductwork.

Construction

HC03 consists of two segments connected to each other using Gore lock seam at thicknesses up to 1.0 mm for SS304 and 316 or up to 1.5 mm for Al3003, G90, and full weld at thicknesses > 1.5 mm.

Material:

HC03 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC03 is offered with various of thicknesses - from Ga. 26 (0.55mm) to Ga. 16 (1.6mm)- based on agreed schedule.

Liner Type and Thickness:

HC03 is available with different liner types and thicknesses.

Seam type:

HC03 is offered with different segment seam and longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC03 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request .
Duct is offered with various paints.

Standard Diameters:

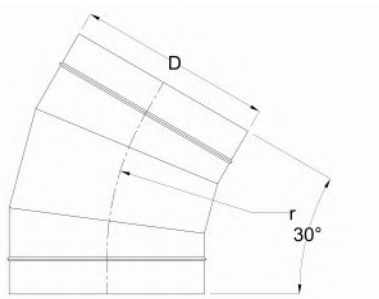
| D (mm) | r (mm) |
|--------|--------|
| 125 | 190 |
| 140 | 210 |
| 150 | 225 |
| 160 | 240 |
| 180 | 270 |
| 200 | 300 |
| 224 | 336 |
| 250 | 375 |
| 280 | 420 |
| 300 | 450 |
| 315 | 475 |
| 355 | 535 |
| 400 | 600 |
| 450 | 675 |
| 500 | 750 |
| 560 | 840 |

| D (mm) | r (mm) |
|--------|--------|
| 600 | 900 |
| 630 | 945 |
| 650 | 975 |
| 700 | 1050 |
| 750 | 1125 |
| 800 | 1200 |
| 850 | 1275 |
| 900 | 1350 |
| 950 | 1425 |
| 1000 | 1500 |
| 1050 | 1575 |
| 1100 | 1650 |
| 1150 | 1725 |
| 1200 | 1800 |
| 1250 | 1875 |

*Other diameters are available from 125 mm up to 1250 mm with step 1.0 mm upon request.

* $r \approx 1.5 D$

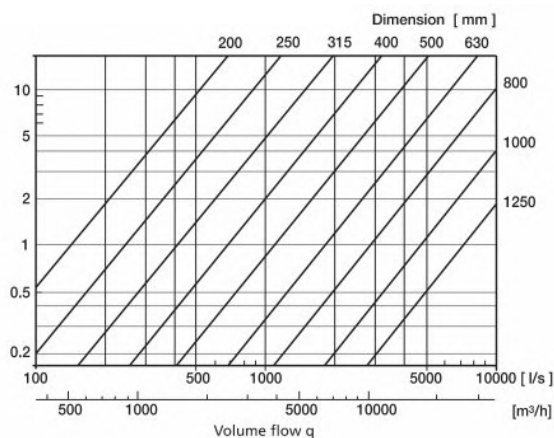
HC04-Round Bend 30°



Ordering Code

Product Code : HC04 - M TH LT ET1 ET2 F - D

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| End Type 1 | |
| End Type 2 | |
| Finish | |
| Diameter | |



Description

Bend 30° Elbows allow airflow direction change in a straight run of ductwork.

Construction

HC04 consists of three segments connected to each other using Gore lock seam at thicknesses up to 1.0 mm for SS304 and 316 or up to 1.5 mm for Al3003, G90, and full weld at thicknesses > 1.5 mm.

Material:

HC04 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC04 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC04 is available with different liner types and thicknesses.

Seam type:

HC04 is offered with different segment seam and longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC04 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars)

Finishing:

Duct openings can be covered based on request.

Duct is offered with various paints.

Standard Diameters:

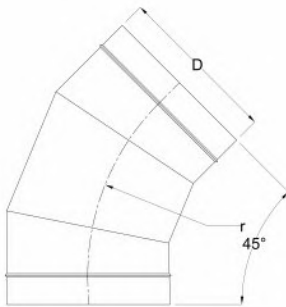
| D (mm) | r (mm) |
|--------|--------|
| 125 | 190 |
| 140 | 210 |
| 150 | 225 |
| 160 | 240 |
| 180 | 270 |
| 200 | 300 |
| 224 | 336 |
| 250 | 375 |
| 280 | 420 |
| 300 | 450 |
| 315 | 475 |
| 355 | 535 |
| 400 | 600 |
| 450 | 675 |
| 500 | 750 |
| 560 | 840 |

| D (mm) | r (mm) |
|--------|--------|
| 600 | 900 |
| 630 | 945 |
| 650 | 975 |
| 700 | 1050 |
| 750 | 1125 |
| 800 | 1200 |
| 850 | 1275 |
| 900 | 1350 |
| 950 | 1425 |
| 1000 | 1500 |
| 1050 | 1575 |
| 1100 | 1650 |
| 1150 | 1725 |
| 1200 | 1800 |
| 1250 | 1875 |

*Other diameters are available from 125 mm up to 1250 mm with step 1.0 mm upon request.

* $r \approx 1.5 D$

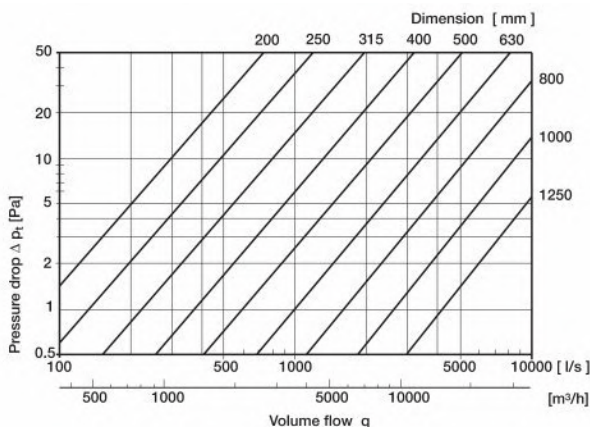
HC05-Round Bend 45°



Ordering Code

Product Code : HC05 - M TH LT ET1 ET2 F - D

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| End Type 1 | |
| End Type 2 | |
| Finish | |
| Diameter | |



Description

Bend 45° Elbows allow airflow direction change in a straight run of ductwork.

Construction

HC05 consists of three segments connected to each other using Gore lock seam at thicknesses up to 1.0 mm for SS304 and 316 or up to 1.5 mm for Al3003, G90, and full weld at thicknesses > 1.5 mm.

Material:

HC05 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC05 is offered with various of thicknesses - from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC05 is available with different liner types and thicknesses.

Seam type:

HC05 is offered with different segment seam and longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC05 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Standard Diameters:

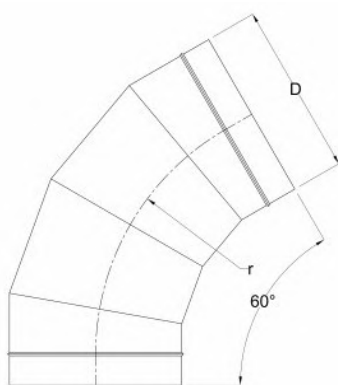
| D (mm) | r (mm) |
|--------|--------|
| 125 | 190 |
| 140 | 210 |
| 150 | 225 |
| 160 | 240 |
| 180 | 270 |
| 200 | 300 |
| 224 | 336 |
| 250 | 375 |
| 280 | 420 |
| 300 | 450 |
| 315 | 475 |
| 355 | 535 |
| 400 | 600 |
| 450 | 675 |
| 500 | 750 |
| 560 | 840 |

| D (mm) | r (mm) |
|--------|--------|
| 600 | 900 |
| 630 | 945 |
| 650 | 975 |
| 700 | 1050 |
| 750 | 1125 |
| 800 | 1200 |
| 850 | 1275 |
| 900 | 1350 |
| 950 | 1425 |
| 1000 | 1500 |
| 1050 | 1575 |
| 1100 | 1650 |
| 1150 | 1725 |
| 1200 | 1800 |
| 1250 | 1875 |

*Other diameters are available from 125 mm up to 1250 mm with step 1.0 mm upon request.

* $r \approx 1.5 D$

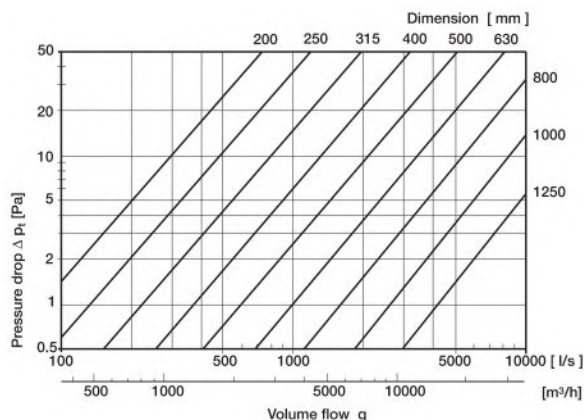
HC06-Round Bend 60°



Ordering Code

Product Code : HC06 - M TH LT ET1 ET2 F - D

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| End Type 1 | |
| End Type 2 | |
| Finish | |
| Diameter | |



Description

Bend 60° Elbows allow airflow direction change in a straight run of ductwork.

Construction

HC06 consists of four segments connected to each other using Gore lock seam at thicknesses up to 1.0 mm for SS304 and 316 or up to 1.5 mm for Al3003, G90, and full weld at thicknesses > 1.5 mm.

Material:

HC06 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC06 is offered with various of thicknesses - from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC06 is available with different liner types and thicknesses.

Seam type:

HC06 is offered with different segment seam and longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC06 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars)

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Standard Diameters:

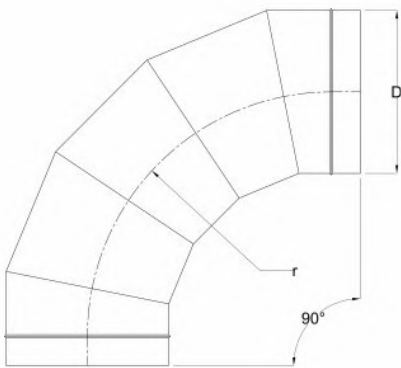
| D (mm) | r (mm) |
|--------|--------|
| 125 | 190 |
| 140 | 210 |
| 150 | 225 |
| 160 | 240 |
| 180 | 270 |
| 200 | 300 |
| 224 | 336 |
| 250 | 375 |
| 280 | 420 |
| 300 | 450 |
| 315 | 475 |
| 355 | 535 |
| 400 | 600 |
| 450 | 675 |
| 500 | 750 |
| 560 | 840 |

| D (mm) | r (mm) |
|--------|--------|
| 600 | 900 |
| 630 | 945 |
| 650 | 975 |
| 700 | 1050 |
| 750 | 1125 |
| 800 | 1200 |
| 850 | 1275 |
| 900 | 1350 |
| 950 | 1425 |
| 1000 | 1500 |
| 1050 | 1575 |
| 1100 | 1650 |
| 1150 | 1725 |
| 1200 | 1800 |
| 1250 | 1875 |

*Other diameters are available from 125 mm up to 1250 mm with step 1.0 mm upon request.

* $r \approx 1.5 D$.

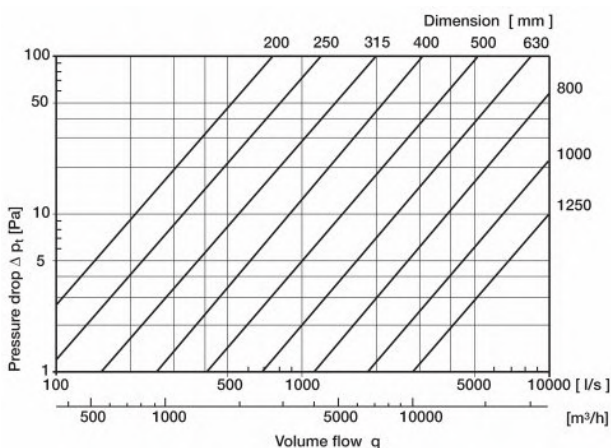
HC07-Round Bend 90°



Ordering Code

Product Code : HC07 - M TH LT ET1 ET2 F - D

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| End Type 1 | |
| End Type 2 | |
| Finish | |
| Diameter | |



Description

Bend 90° Elbows allow airflow direction change in a straight run of ductwork.

Construction

HC07 consists of five segments connected to each other using Gore lock seam at thicknesses up to 1.0 mm for SS304 and 316 or up to 1.5 mm for Al3003, G90, and full weld at thicknesses > 1.5 mm.

Material:

HC07 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC07 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm)- based on agreed schedule.

Liner Type and Thickness:

HC07 is available with different liner types and thicknesses.

Seam type:

HC07 is offered with different segment seam and longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|------------------------|------------------------|
| 0.5 ≤ Thickness. ≤ 1.0 | Stitch Weld |
| 1.2 ≤ Thickness. ≤ 1.5 | Spot Weld |
| 1.2 ≤ Thickness. ≤ 1.6 | Full Weld |

Traverse Joints:

HC07 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Standard Diameters:

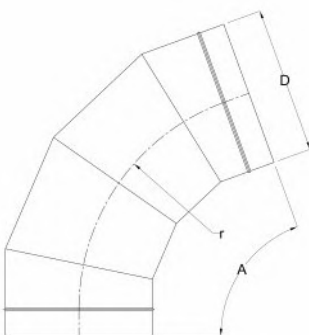
| D (mm) | r (mm) |
|--------|--------|
| 125 | 190 |
| 140 | 210 |
| 150 | 225 |
| 160 | 240 |
| 180 | 270 |
| 200 | 300 |
| 224 | 336 |
| 250 | 375 |
| 280 | 420 |
| 300 | 450 |
| 315 | 475 |
| 355 | 535 |
| 400 | 600 |
| 450 | 675 |
| 500 | 750 |
| 560 | 840 |

| D (mm) | r (mm) |
|--------|--------|
| 600 | 900 |
| 630 | 945 |
| 650 | 975 |
| 700 | 1050 |
| 750 | 1125 |
| 800 | 1200 |
| 850 | 1275 |
| 900 | 1350 |
| 950 | 1425 |
| 1000 | 1500 |
| 1050 | 1575 |
| 1100 | 1650 |
| 1150 | 1725 |
| 1200 | 1800 |
| 1250 | 1875 |

*Other diameters are available from 125 mm up to 1250 mm with step 1.0 mm upon request.

* r ≈ 1.5 D

HC08-Round Generic Bend



Ordering Code

Product Code : HC08 - M TH LT ET1 ET2 F - D x A

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| End Type 1 | |
| End Type 2 | |
| Finish | |
| Diameter | |
| Angle | |

Description

Generic Bend Elbows allow airflow direction change in a straight run of ductwork. It is offered with wide range of angles varied from 15° up to 90°.

Construction

HC08 is offered with various segment numbers depending on selected angle, segments are connected to each other using Gore lock seam at thicknesses up to 1.0 mm for SS304 and 316 or up to 1.5 mm for Al3003, G90, and full weld at thicknesses > 1.5 mm.

Material:

HC08 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC08 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC08 is available with different liner types and thicknesses.

Seam type:

HC08 is offered with different segment seam and longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC08 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.

Duct is offered with various paints.

Standard Diameters:

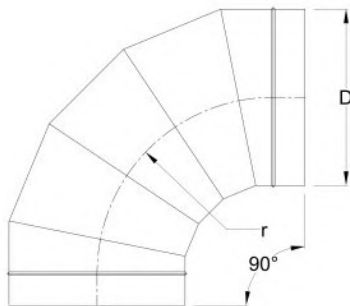
| D (mm) | r (mm) |
|--------|--------|
| 125 | 190 |
| 140 | 210 |
| 150 | 225 |
| 160 | 240 |
| 180 | 270 |
| 200 | 300 |
| 224 | 336 |
| 250 | 375 |
| 280 | 420 |
| 300 | 450 |
| 315 | 475 |
| 355 | 535 |
| 400 | 600 |
| 450 | 675 |
| 500 | 750 |
| 560 | 840 |

| D (mm) | r (mm) |
|--------|--------|
| 600 | 900 |
| 630 | 945 |
| 650 | 975 |
| 700 | 1050 |
| 750 | 1125 |
| 800 | 1200 |
| 850 | 1275 |
| 900 | 1350 |
| 950 | 1425 |
| 1000 | 1500 |
| 1050 | 1575 |
| 1100 | 1650 |
| 1150 | 1725 |
| 1200 | 1800 |
| 1250 | 1875 |

*Other diameters are available from 125 mm up to 1250 mm with step 1.0 mm upon request.

* $r \approx 1.5 D$

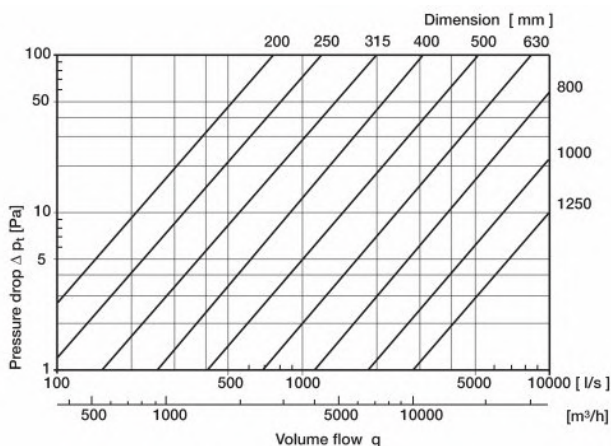
HC09-Bend 90° Short Radius



Ordering Code

Product Code : HC09 - M TH LT ET1 ET2 F - D

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| End Type 1 | |
| End Type 2 | |
| Finish | |
| Diameter | |



Description

Bend 90° Elbows allow airflow direction change in a straight run of ductwork.

Construction

Material:

HC09 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC09 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC09 is available with different liner types and thicknesses.

Seam type:

HC09 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

HC09 consists of five segments connected to each other using Gore lock seam at thicknesses up to 1.0 mm for SS304 and 316 and up to 1.5 mm for Al3003, G90, and full weld at thicknesses > 1.5 mm.

Traverse Joints:

HC09 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Standard Diameters:

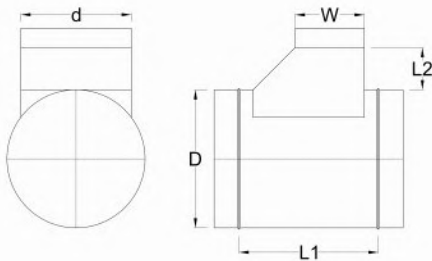
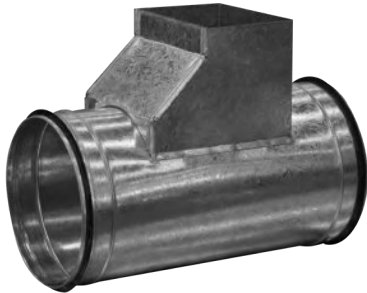
| D (mm) | r (mm) |
|--------|--------|
| 125 | 125 |
| 140 | 140 |
| 150 | 150 |
| 160 | 160 |
| 180 | 180 |
| 200 | 200 |
| 224 | 224 |
| 250 | 250 |
| 280 | 280 |
| 300 | 300 |
| 315 | 315 |
| 355 | 355 |
| 400 | 400 |
| 450 | 450 |
| 500 | 500 |
| 560 | 560 |

| D (mm) | r (mm) |
|--------|--------|
| 600 | 600 |
| 630 | 630 |
| 650 | 650 |
| 700 | 700 |
| 750 | 750 |
| 800 | 800 |
| 850 | 850 |
| 900 | 900 |
| 950 | 950 |
| 1000 | 1000 |
| 1050 | 1050 |
| 1100 | 1100 |
| 1150 | 1150 |
| 1200 | 1200 |
| 1250 | 1250 |

* $r \approx 1.0 D$

* Other sizes are available upon request.

HC10-Round T to Rec. (Eccentric)



Ordering Code

| | | | | | | | | | | | | | | | | | | |
|--------------------------|------|---|---|----|----|-----|-----|-----|---|---|---|---|---|---|---|---|---|---|
| Product Code : | HC10 | - | M | TH | LT | ET1 | ET2 | ET3 | J | F | - | D | x | L | x | W | x | d |
| Material | | | | | | | | | | | | | | | | | | |
| Thickness | | | | | | | | | | | | | | | | | | |
| Liner type and Thickness | | | | | | | | | | | | | | | | | | |
| End Type 1 | | | | | | | | | | | | | | | | | | |
| End Type 2 | | | | | | | | | | | | | | | | | | |
| End Type 3 | | | | | | | | | | | | | | | | | | |
| Seam Type | | | | | | | | | | | | | | | | | | |
| Finish | | | | | | | | | | | | | | | | | | |
| Diameter | | | | | | | | | | | | | | | | | | |
| Length | | | | | | | | | | | | | | | | | | |
| Width | | | | | | | | | | | | | | | | | | |
| Height | | | | | | | | | | | | | | | | | | |

Description

Round T to Rec. eccentric allows you to easily connect between rectangular and round duct systems.

Construction

Material:

HC10 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC10 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC10 is available with different liner types and thicknesses.

Seam type:

HC10 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

HC10 is offered with Pittsburgh lock for thicknesses up to 1.5 mm and Full weld for thickness >1.5 mm

Traverse Joints:

HC10 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars) for Round ends and ("S" & Drive, TDC, SLIDE ON FLANGE, Self-Flange and Slotted Angle Bars) for rectangular end.

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Standard Diameters:

| D (mm) | d (mm) | W (mm) |
|--------|--------|--------|
| 150 | 150 | 650 |
| 160 | 160 | 650 |
| 180 | 180 | 650 |
| 200 | 200 | 650 |
| 225 | 225 | 650 |
| 250 | 250 | 650 |
| 280 | 280 | 650 |
| 300 | 300 | 650 |
| 315 | 315 | 650 |
| 355 | 355 | 1135 |
| 400 | 400 | 1135 |
| 450 | 450 | 1135 |
| 500 | 500 | 1135 |
| 560 | 560 | 1135 |
| 600 | 600 | 1135 |
| 630 | 630 | 1135 |

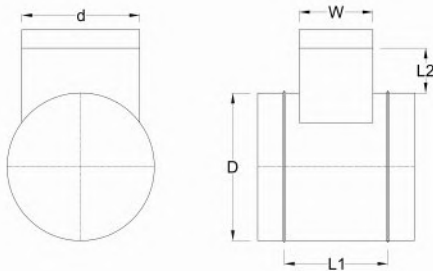
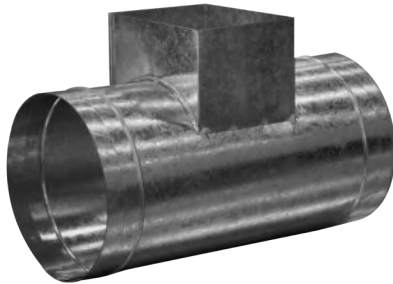
| D (mm) | r (mm) | W (mm) |
|--------|--------|--------|
| 650 | 650 | 1135 |
| 700 | 700 | 1135 |
| 750 | 750 | 1135 |
| 800 | 800 | 1135 |
| 850 | 850 | 1135 |
| 900 | 900 | 1135 |
| 950 | 950 | 1135 |
| 1000 | 1000 | 1135 |
| 1050 | 1050 | 1135 |
| 1100 | 1100 | 1135 |
| 1150 | 1150 | 1135 |
| 1200 | 1200 | 1135 |
| 1250 | 1250 | 1135 |

$$* L_1 = W + 254 \text{ mm}$$

$$* L_2 = 152 \text{ mm}$$

*Other sizes are available from 150 mm up to 1250 mm with step 1.0 mm upon request.

HC11-Round T to Rec. (Centric)



Ordering Code

| | | | | | | | | | | | | | | | | | | |
|--------------------------|------|---|---|----|----|-----|-----|-----|---|---|---|---|---|----|---|---|---|---|
| Product Code : | HC11 | - | M | TH | LT | ET1 | ET2 | ET3 | J | F | - | D | x | L1 | x | W | x | d |
| Material | | | | | | | | | | | | | | | | | | |
| Thickness | | | | | | | | | | | | | | | | | | |
| Liner type and Thickness | | | | | | | | | | | | | | | | | | |
| End Type 1 | | | | | | | | | | | | | | | | | | |
| End Type 2 | | | | | | | | | | | | | | | | | | |
| End Type 3 | | | | | | | | | | | | | | | | | | |
| Seam Type | | | | | | | | | | | | | | | | | | |
| Finish | | | | | | | | | | | | | | | | | | |
| Diameter | | | | | | | | | | | | | | | | | | |
| Length | | | | | | | | | | | | | | | | | | |
| Width | | | | | | | | | | | | | | | | | | |
| Height | | | | | | | | | | | | | | | | | | |

Description

Round T to Rectangular duct allows you to easily connect between rectangular and round duct systems.

Construction

Material:

HC11 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC11 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm)- based on agreed schedule.

Liner Type and Thickness:

HC11 is available with different liner types and thicknesses.

Seam type:

HC11 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

HC11 is offered with Pittsburgh lock for thicknesses up to 1.5 mm and Full weld for thickness >1.5 mm

Traverse Joints:

HC11 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars) for Round ends and ("S" & Drive, TDC, SLIDE ON FLANGE, Self-Flange and Slotted Angle Bars) for rectangular end.

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Standard Diameters:

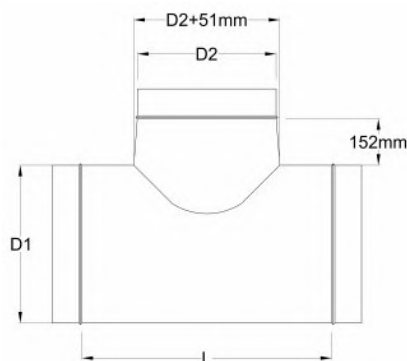
| D (mm) | d (mm) | W (mm) |
|--------|--------|--------|
| 150 | 150 | 805 |
| 160 | 160 | 805 |
| 180 | 180 | 800 |
| 200 | 200 | 800 |
| 225 | 225 | 800 |
| 250 | 250 | 760 |
| 280 | 280 | 760 |
| 300 | 300 | 760 |
| 315 | 315 | 760 |
| 355 | 355 | 1245 |
| 400 | 400 | 1200 |
| 450 | 450 | 1200 |
| 500 | 500 | 1200 |
| 560 | 560 | 1200 |
| 600 | 600 | 1200 |
| 630 | 630 | 1200 |

| D (mm) | r (mm) | W (mm) |
|--------|--------|--------|
| 650 | 650 | 1150 |
| 700 | 700 | 1150 |
| 750 | 750 | 1150 |
| 800 | 800 | 1150 |
| 850 | 850 | 1150 |
| 900 | 900 | 1150 |
| 950 | 950 | 1150 |
| 1000 | 1000 | 1150 |
| 1050 | 1050 | 1105 |
| 1100 | 1100 | 1105 |
| 1150 | 1150 | 1105 |
| 1200 | 1200 | 1105 |
| 1250 | 1250 | 1105 |

* $L_1 = W + 102 \text{ mm}$

* $L_2 = 152 \text{ mm}$

HC12-Tee (Centric)



Ordering Code

| | | | | | | | | | | | | | | | |
|--------------------------|------|---|---|----|----|-----|-----|-----|---|---|----|---|---|---|----|
| Product Code : | HC12 | - | M | TH | LT | ET1 | ET2 | ET3 | F | - | D1 | x | L | x | D2 |
| Material | | | | | | | | | | | | | | | |
| Thickness | | | | | | | | | | | | | | | |
| Liner type and Thickness | | | | | | | | | | | | | | | |
| End Type 1 | | | | | | | | | | | | | | | |
| End Type 2 | | | | | | | | | | | | | | | |
| End Type 3 | | | | | | | | | | | | | | | |
| Finish | | | | | | | | | | | | | | | |
| Main Diameter | | | | | | | | | | | | | | | |
| Length | | | | | | | | | | | | | | | |
| Branch Diameter | | | | | | | | | | | | | | | |

Description

Tee Centric allows you to easily connect ductwork in 90° centric orientation angle having the same center with different cross sections.

Construction

Material:

HC12 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC12 is offered with various of thicknesses - from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC12 is available with different liner types and thicknesses.

Seam type:

HC12 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC12 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Standard Diameters:

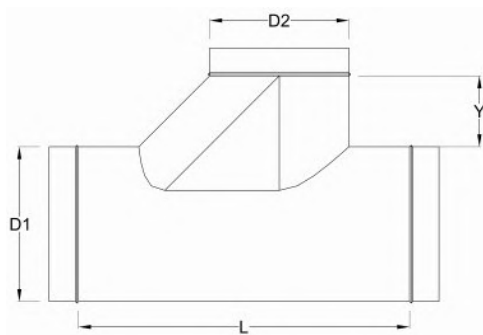
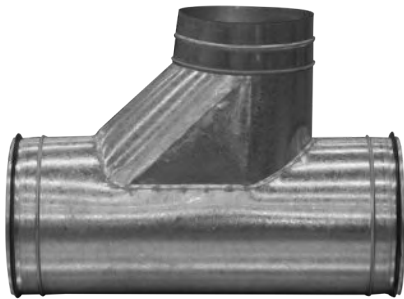
| D1 (mm) | D2 (mm) |
|---------|---------|
| 85 | 85 |
| 100 | 100 |
| 150 | 150 |
| 160 | 160 |
| 180 | 180 |
| 200 | 200 |
| 225 | 225 |
| 250 | 250 |
| 280 | 280 |
| 300 | 300 |
| 315 | 315 |
| 355 | 355 |
| 400 | 400 |
| 450 | 450 |
| 500 | 600 |
| 560 | 560 |

| D1 (mm) | D2 (mm) |
|---------|---------|
| 600 | 600 |
| 630 | 630 |
| 650 | 650 |
| 700 | 700 |
| 750 | 750 |
| 800 | 800 |
| 850 | 850 |
| 900 | 900 |
| 950 | 950 |
| 1000 | 1000 |
| 1050 | 1050 |
| 1100 | 1100 |
| 1150 | 1105 |
| 1200 | 1105 |
| 1250 | 1105 |

$$*L = D_2 + 102 \text{ mm}$$

*Other sizes are available upon request.

HC13-Tee (Eccentric)



Ordering Code

| | | | | | | | | | | | | | | | |
|--------------------------|------|---|---|----|----|-----|-----|-----|---|---|----|---|---|---|----|
| Product Code : | HC13 | - | M | TH | LT | ET1 | ET2 | ET3 | F | - | D1 | x | L | x | D2 |
| Material | | | | | | | | | | | | | | | |
| Thickness | | | | | | | | | | | | | | | |
| Liner type and Thickness | | | | | | | | | | | | | | | |
| End Type 1 | | | | | | | | | | | | | | | |
| End Type 2 | | | | | | | | | | | | | | | |
| End Type 3 | | | | | | | | | | | | | | | |
| Finish | | | | | | | | | | | | | | | |
| Main Diamater | | | | | | | | | | | | | | | |
| Length | | | | | | | | | | | | | | | |
| Branch Diamater | | | | | | | | | | | | | | | |

Description

Tee Eccentric allows you to easily connect ductwork in 90° eccentric orientation angle having the same center with different cross sections and ensure smoothly flow of ai .

Construction

Material:

HC13 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC13 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC13 is available with different liner types and thicknesses.

Seam type:

HC13 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC13 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Standard Diameters:

| D1 (mm) | D2 (mm) |
|---------|---------|
| 85 | 85 |
| 100 | 100 |
| 150 | 150 |
| 160 | 160 |
| 180 | 180 |
| 200 | 200 |
| 225 | 225 |
| 250 | 250 |
| 280 | 280 |
| 300 | 300 |
| 315 | 315 |
| 355 | 355 |
| 400 | 400 |
| 450 | 450 |
| 500 | 500 |
| 560 | 560 |

| D1 (mm) | D2 (mm) |
|---------|---------|
| 600 | 600 |
| 630 | 630 |
| 650 | 650 |
| 700 | 700 |
| 750 | 750 |
| 800 | 800 |
| 850 | 845 |
| 900 | 845 |
| 950 | 845 |
| 1000 | 845 |
| 1050 | 800 |
| 1100 | 800 |
| 1150 | 800 |
| 1200 | 800 |
| 1250 | 800 |

* $Y \approx 76.2 : 305$

* $L \approx D_2 + (Y * \tan 45^\circ) + 102 \text{ mm}$

* Other sizes are available upon request.

Description

Construction

HC14 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

HC14 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

HC14 is available with different liner types and thicknesses.

HC14 is offered with different longitudinal seam types depending on duct thickness:

| | |
|---------------------------------------|------------------------|
| Duct Thickness (mm) | Longitudinal Seam Type |
| $0.5 \leq \text{Thickness.} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness.} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness.} \leq 1.6$ | Full Weld |

HC14 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Duct openings can be covered based on request.
Duct is offered with various paints.

HC14 is supplied with different diameters from 85 mm up to 980 mm.

* D = D1 Default

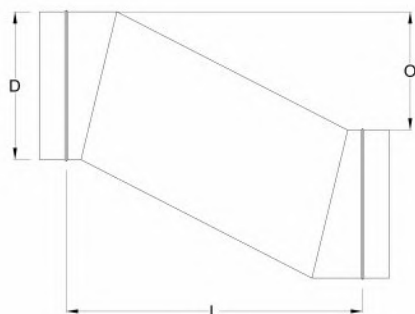
$$* L = \frac{3D}{2} \text{ at } D = D1$$

* Other sizes are available upon request.

Product Code : HC14 - M TH LT ET1 ET2 ET3 F - D x D1 x D2

| Field Name | Start (ft) | End (ft) |
|--------------------------|------------|----------|
| Material | 0 | 100 |
| Thickness | 0 | 200 |
| Liner type and Thickness | 0 | 300 |
| End Type 1 | 0 | 400 |
| End Type 2 | 0 | 500 |
| End Type 3 | 0 | 600 |
| Finish | 0 | 700 |
| Main Diameter | 0 | 800 |
| Branch Diameter 1 | 0 | 900 |
| Branch Diameter 2 | 0 | 1000 |

Description



Construction

HC15 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

HC15 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

HC15 is available with different liner types and thicknesses.

HC15 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|---------------------------------------|------------------------|
| $0.5 \leq \text{Thickness.} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness.} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness.} \leq 1.6$ | Full Weld |

HC15 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Duct openings can be covered based on request.
Duct is offered with various paints.

| D (mm) | Max. offset (mm) |
|--------|------------------|
| 125 | 130 |
| 150 | 190 |
| 160 | 220 |
| 180 | 265 |
| 200 | 315 |
| 225 | 375 |
| 250 | 440 |
| 280 | 515 |
| 300 | 560 |
| 315 | 600 |
| 355 | 700 |
| 400 | 810 |
| 450 | 930 |
| 500 | 1055 |
| 560 | 560 |

| D (mm) | Max. offset (mm) |
|-----------|------------------------|
| 600 | 520 |
| 630 | 560 |
| 650 | 580 |
| 700 | 640 |
| 750 | 700 |
| 800 | 755 |
| 850 | 815 |
| 900 | 870 |
| 950 | 930 |
| 1000 | 990 |
| 1050 | 1045 |
| 1100 | 1105 |
| 1150 | 1165 |
| 1200 | 1220 |
| 1250 | 1280 |

$$* L = (D * \tan \frac{\theta}{2}) + \frac{O}{\tan \theta} + 100 \text{ mm}$$

* $\theta = \text{Max. } 60 \text{ degrees}$

* Other sizes are available upon request.

Product Code : HC15 - M TH LT ET1 ET2 F - D x L x O

Material

Thickness

Liner type and Thickness

End Type 1

End Type 2

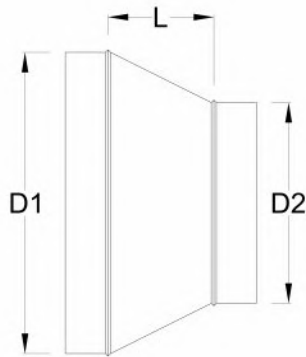
Finish

Diameter

Length

Offset

HC16-Centric Reducer



Ordering Code

Product Code : HC16 - M TH LT F ET1 ET2 - D1 x L x D2

| | |
|--------------------------|---------|
| Material | M |
| Thickness | TH |
| Liner type and Thickness | LT |
| End Type 1 | F |
| End Type 2 | ET1 ET2 |
| Finish | - |
| In Diameter | D1 |
| Length | L |
| Out Diameter | D2 |

Description

Duct Centric Reducer used to connect two round air distribution channels having the same center with different cross sections.

Construction

Material:

HC16 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC16 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC16 is available with different liner types and thicknesses.

Seam type:

HC16 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC16 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Available Diameters:

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 140 | 125 | 125 |
| 150 | 125 | 135 |
| 160 | 125 | 145 |
| 180 | 125 | 160 |
| 200 | 125 | 180 |
| 225 | 125 | 200 |
| 250 | 125 | 225 |
| 280 | 125 | 250 |
| 300 | 125 | 270 |
| 315 | 125 | 285 |
| 355 | 140 | 320 |
| 400 | 160 | 360 |
| 450 | 180 | 405 |
| 500 | 200 | 450 |
| 560 | 225 | 505 |

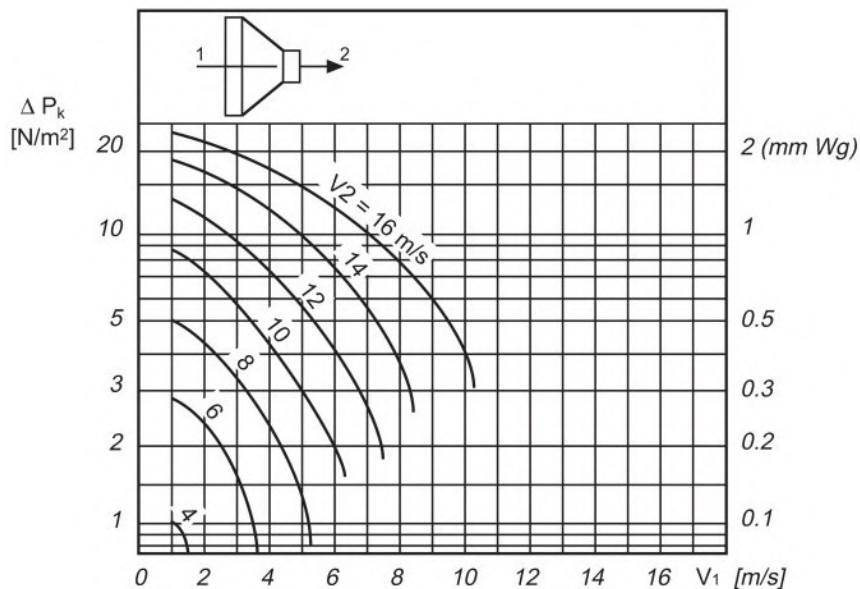
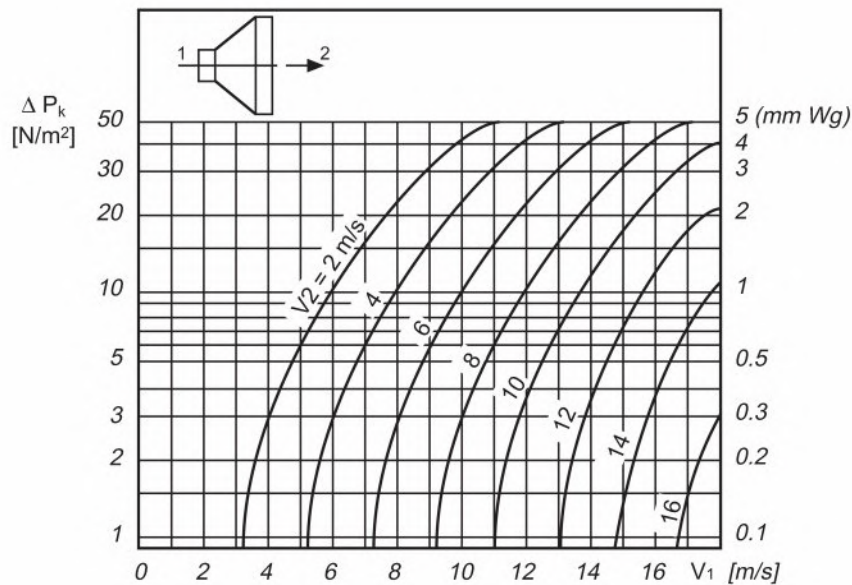
| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 600 | 240 | 540 |
| 630 | 250 | 567 |
| 650 | 260 | 585 |
| 700 | 280 | 630 |
| 750 | 300 | 675 |
| 800 | 320 | 720 |
| 850 | 340 | 765 |
| 900 | 360 | 810 |
| 950 | 380 | 855 |
| 1000 | 400 | 900 |
| 1050 | 420 | 945 |
| 1100 | 440 | 990 |
| 1150 | 460 | 1035 |
| 1200 | 480 | 1080 |
| 1250 | 500 | 1125 |

$$l = \frac{D_1 - D_2}{2 \cdot \tan \frac{\theta}{2}} \text{ Where } \theta \text{ Max. } 45^\circ \text{ For Diverging, } 60^\circ \text{ For Converging}$$

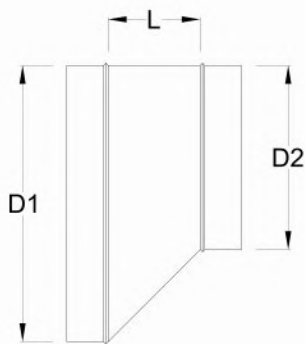
$L_{\min} = 150$

* Other sizes are available upon request.

HC16-Centric Reducer (Pressure Drop Chart)



HC17-Eccentric Reducer



Ordering Code

Product Code : HC17 - M TH LT ET1 ET2 F -D1 x L x D2

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| End Type 1 | |
| End Type 2 | |
| Finish | |
| In Diameter | |
| Length | |
| Out Diameter | |

Description

Duct Eccentric Reducer is used to connect two round air distribution channels with different centers and cross sections.

Construction

Material:

HC17 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC17 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC17 is available with different liner types and thicknesses.

Seam type:

HC17 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC17 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Available Diameters:

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 140 | 125 | 125 |
| 150 | 125 | 135 |
| 160 | 125 | 145 |
| 180 | 125 | 160 |
| 200 | 125 | 180 |
| 225 | 125 | 200 |
| 250 | 125 | 225 |
| 280 | 125 | 250 |
| 300 | 125 | 270 |
| 315 | 125 | 285 |
| 355 | 140 | 320 |
| 400 | 160 | 360 |
| 450 | 180 | 405 |
| 500 | 200 | 450 |
| 560 | 225 | 505 |

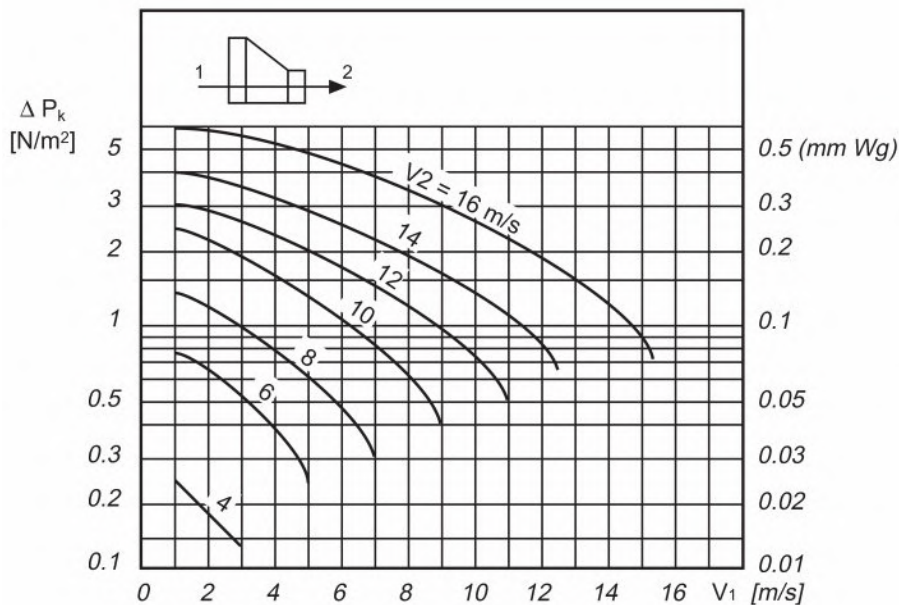
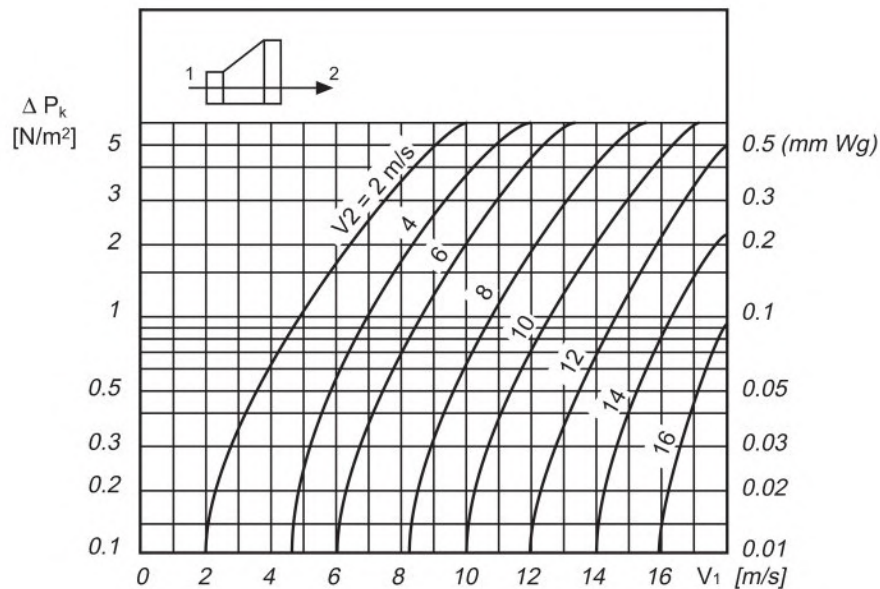
| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 600 | 240 | 540 |
| 630 | 250 | 567 |
| 650 | 260 | 585 |
| 700 | 280 | 630 |
| 750 | 300 | 675 |
| 800 | 320 | 720 |
| 850 | 340 | 765 |
| 900 | 360 | 810 |
| 950 | 380 | 855 |
| 1000 | 400 | 900 |
| 1050 | 420 | 945 |
| 1100 | 440 | 990 |
| 1150 | 460 | 1035 |
| 1200 | 480 | 1080 |
| 1250 | 500 | 1125 |

$$L = \frac{D_1 - D_2}{\tan \theta} \text{ Where } \theta \text{ Max. } 30^\circ$$

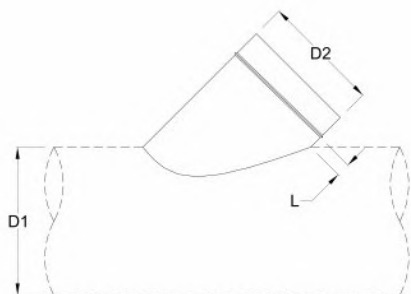
*L min 150

* Other sizes are available upon request.

HC17-Eccentric Reducer (Pressure Drop Chart)



HC18-Saddle 45°



Ordering Code

Product Code : HC18 - M TH LT ET F - D1 x D2 x L

| | | | | | | |
|--------------------------|---|----|----|----|---|-------------|
| Material | M | TH | LT | ET | F | D1 x D2 x L |
| Thickness | | | | | | |
| Liner type and Thickness | | | | | | |
| End Type | | | | | | |
| Finish | | | | | | |
| Main Diameter | | | | | | |
| Branch Diameter | | | | | | |
| Length | | | | | | |

Description

Saddle 45° round duct saddle tap adds a branch from existing round duct at a 45-degrees angle for improved air flow and efficiency.

Construction

Material:

HC18 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC18 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm)- based on agreed schedule.

Liner Type and Thickness:

HC18 is available with different liner types and thicknesses.

Seam type:

HC18 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC18 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

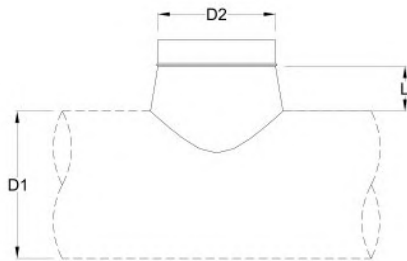
Available Diameters:

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 85 | 85 | 85 |
| 100 | 85 | 100 |
| 150 | 85 | 150 |
| 160 | 85 | 160 |
| 180 | 85 | 180 |
| 200 | 85 | 200 |
| 225 | 85 | 225 |
| 250 | 85 | 250 |
| 280 | 90 | 280 |
| 300 | 95 | 300 |
| 315 | 100 | 315 |
| 355 | 115 | 355 |
| 400 | 130 | 400 |
| 450 | 145 | 450 |
| 500 | 160 | 500 |
| 560 | 180 | 560 |

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 600 | 190 | 600 |
| 630 | 200 | 630 |
| 650 | 205 | 650 |
| 700 | 220 | 700 |
| 750 | 240 | 750 |
| 800 | 255 | 800 |
| 850 | 270 | 850 |
| 900 | 285 | 900 |
| 950 | 300 | 950 |
| 1000 | 315 | 1000 |
| 1050 | 335 | 1050 |
| 1100 | 350 | 1100 |
| 1150 | 365 | 1100 |
| 1200 | 380 | 1100 |
| 1250 | 395 | 1200 |

* Other sizes are available upon request.

HC19-Saddle 90°



Ordering Code

Product Code : HC19 - M TH LT ET F - D1 x D2 x L

| | |
|--------------------------|----|
| Material | M |
| Thickness | TH |
| Liner type and Thickness | LT |
| End Type | ET |
| Finish | F |
| Main Diameter | D1 |
| Branch Diameter | D2 |
| Length | L |

Description

Saddle 90° round duct saddle tap adds a branch from existing round duct at a 90-degrees angle for improved air flow and efficiency.

Construction

Material:

HC19 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC19 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC19 is available with different liner types and thicknesses.

Seam type:

HC19 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC19 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Available Diameters:

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 85 | 85 | 85 |
| 100 | 85 | 100 |
| 150 | 85 | 150 |
| 160 | 85 | 160 |
| 180 | 85 | 180 |
| 200 | 85 | 200 |
| 225 | 85 | 225 |
| 250 | 85 | 250 |
| 280 | 95 | 280 |
| 300 | 100 | 300 |
| 315 | 105 | 315 |
| 355 | 120 | 355 |
| 400 | 135 | 400 |
| 450 | 150 | 450 |
| 500 | 165 | 500 |
| 560 | 185 | 560 |

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 600 | 200 | 600 |
| 630 | 210 | 630 |
| 650 | 215 | 650 |
| 700 | 235 | 700 |
| 750 | 250 | 750 |
| 800 | 265 | 800 |
| 850 | 285 | 850 |
| 900 | 300 | 900 |
| 950 | 320 | 950 |
| 1000 | 335 | 1000 |
| 1050 | 350 | 1050 |
| 1100 | 365 | 1100 |
| 1150 | 385 | 1150 |
| 1200 | 400 | 1200 |
| 1250 | 415 | 1250 |

* Other sizes are available upon request.

Description

Saddle Round to Rectangular Eccentric Duct saddle tap adds a branch from existing round duct to improve air flow and efficiency.

Construction

Material:

HC20 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC20 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC20 is available with different liner types and thicknesses.

Seam type:

HC20 is offered with Pittsburgh lock for thicknesses up to 1.5 mm and Full weld for thickness >1.5 mm

Traverse Joints:

HC20 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars) for Round ends and ("S" & Drive, TDC, SLIDE ON FLANGE, Self-Flange and Slotted Angle Bars) for rectangular

Finishing:

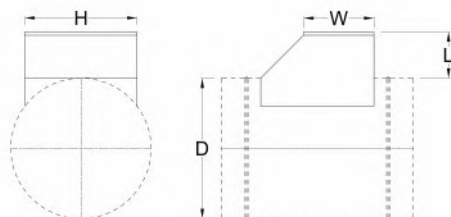
Duct openings can be covered based on request.
Duct is offered with various paints.

Standard Sizes:

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 150 | 150 | 650 |
| 160 | 160 | 650 |
| 180 | 180 | 650 |
| 200 | 200 | 650 |
| 225 | 225 | 650 |
| 250 | 250 | 650 |
| 280 | 280 | 650 |
| 300 | 300 | 650 |
| 315 | 315 | 650 |
| 355 | 355 | 1135 |
| 400 | 400 | 1135 |
| 450 | 450 | 1135 |
| 500 | 500 | 1135 |
| 560 | 560 | 1135 |
| 600 | 600 | 1135 |
| 630 | 630 | 1135 |

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 650 | 650 | 1135 |
| 700 | 700 | 1135 |
| 750 | 750 | 1135 |
| 800 | 800 | 1135 |
| 850 | 850 | 1135 |
| 900 | 900 | 1135 |
| 950 | 950 | 1135 |
| 1000 | 1000 | 1135 |
| 1050 | 1050 | 1135 |
| 1100 | 1100 | 1135 |
| 1150 | 1150 | 1135 |
| 1200 | 1200 | 1135 |
| 1250 | 1250 | 1135 |
| 1200 | 380 | 1100 |
| 1250 | 395 | 1200 |

*Other sizes are available from 150 mm up to 1250 mm with step 1.0 mm upon request.



Ordering Code

Product Code : HC20 - M TH LT ET F - D x W x H x L

Material

Thickness

Liner type and Thickness

End Type

Finish

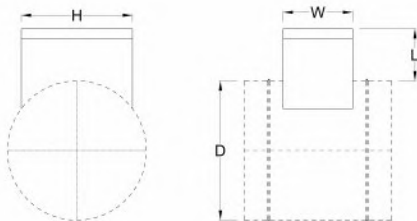
Diameter

Width

Height

Length

HC21-Saddle Round to Rec. (Centric)



Ordering Code

Product Code : HC21 - M TH LT ET F - D x W x H x L

| | | | | | | | | | |
|--------------------------|--|--|--|--|--|--|--|--|--|
| Material | | | | | | | | | |
| Thickness | | | | | | | | | |
| Liner type and Thickness | | | | | | | | | |
| End Type | | | | | | | | | |
| Finish | | | | | | | | | |
| Diameter | | | | | | | | | |
| Width | | | | | | | | | |
| Height | | | | | | | | | |
| Length | | | | | | | | | |

Description

Saddle Round to Rectangular Centric Duct saddle tap adds a branch from existing round duct to improve air flow and efficiency.

Construction

Material:

HC21 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC21 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC21 is available with different liner types and thicknesses.

Seam type:

HC21 is offered with Pittsburgh lock for thicknesses up to 1.5 mm and Full weld for thickness >1.5 mm

Traverse Joints:

HC21 is offered with various types of SMACNA approved Connections (Swaging, Round Flanges and Round Angle bars) for Round ends and ("S" & Drive, TDC, SLIDE ON FLANGE, Self Flange and Slotted Angle Bars) for rectangular end.

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

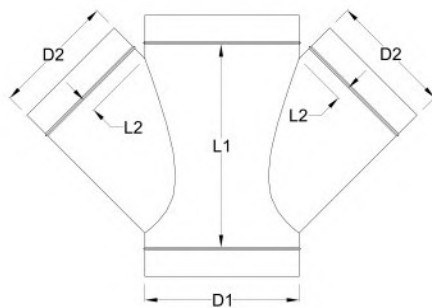
Standard Sizes:

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 150 | 150 | 805 |
| 160 | 160 | 805 |
| 180 | 180 | 800 |
| 200 | 200 | 800 |
| 225 | 225 | 800 |
| 250 | 250 | 760 |
| 280 | 280 | 760 |
| 300 | 300 | 760 |
| 315 | 315 | 760 |
| 355 | 355 | 1245 |
| 400 | 400 | 1200 |
| 450 | 450 | 1200 |
| 500 | 500 | 1200 |
| 560 | 560 | 1200 |
| 600 | 600 | 1200 |
| 630 | 630 | 1200 |

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 650 | 650 | 1150 |
| 700 | 700 | 1150 |
| 750 | 750 | 1150 |
| 800 | 800 | 1150 |
| 850 | 850 | 1150 |
| 900 | 900 | 1150 |
| 950 | 950 | 1150 |
| 1000 | 1000 | 1150 |
| 1050 | 1050 | 1105 |
| 1100 | 1100 | 1105 |
| 1150 | 1150 | 1105 |
| 1200 | 1200 | 1105 |
| 1250 | 1250 | 1105 |
| 1200 | 400 | 1200 |
| 1250 | 415 | 1250 |

* Other sizes are available upon request.

HC22-Cross 45°



Ordering Code

Product Code : HC22 - M TH LT ET1 ET2 ET3 ET4 F - D1 x L x D2

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| End Type 1 | |
| End Type 2 | |
| End Type 3 | |
| End Type 4 | |
| Finish | |
| Main Diameter | |
| Length | |
| Branch Diameter | |

Description

Cross 45° allows the main duct to split into two duct branches with different cross sections.

Construction

Material:

HC22 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC22 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC22 is available with different liner types and thicknesses.

Seam type:

HC22 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC22 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Standard Sizes:

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 85 | 85 | 85 |
| 100 | 85 | 100 |
| 150 | 85 | 150 |
| 160 | 85 | 160 |
| 180 | 85 | 180 |
| 200 | 85 | 200 |
| 224 | 85 | 224 |
| 250 | 85 | 250 |
| 280 | 85 | 280 |
| 300 | 90 | 300 |
| 315 | 94 | 315 |
| 355 | 106 | 355 |
| 400 | 120 | 400 |
| 450 | 135 | 450 |
| 500 | 150 | 500 |
| 560 | 167 | 560 |

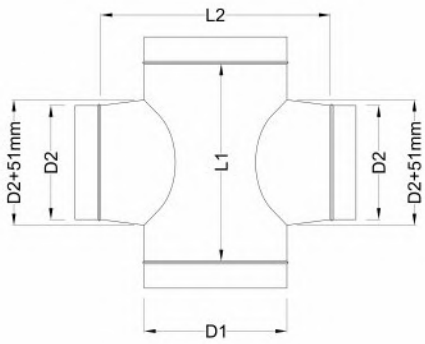
| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 600 | 179 | 600 |
| 630 | 188 | 630 |
| 650 | 194 | 650 |
| 700 | 209 | 700 |
| 750 | 224 | 750 |
| 800 | 239 | 800 |
| 850 | 254 | 813 |
| 900 | 269 | 813 |
| 950 | 284 | 813 |
| 1000 | 299 | 813 |
| 1050 | 314 | 782 |
| 1100 | 328 | 782 |
| 1150 | 343 | 782 |
| 1200 | 358 | 782 |
| 1250 | 373 | 782 |

$$* L_1 = (\sqrt{2} \cdot D_2) + 102 \text{ mm}$$

$$* L_2 = 51 \text{ mm}$$

* Other sizes are available upon request.

HC23-Conical Cross



Ordering Code

Product Code : HC23 - M TH LT ET1 ET2 ET3 ET4 F - D1 x L x D2

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| End Type 1 | |
| End Type 2 | |
| End Type 3 | |
| End Type 4 | |
| Finish | |
| Main Diameter | |
| Length | |
| Branch Diameter | |

Description

Conical Cross allows the main duct to split into two duct branches with different cross sections at 90°.

Construction

Material:

HC23 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC23 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC23 is available with different liner types and thicknesses.

Seam type:

HC23 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Traverse Joints:

HC23 is offered with various types of SMACNA approved Connections (Swaging, Swage with Gasket, Round Flanges and Round Angle bars).

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Standard Sizes:

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 85 | 85 | 84 |
| 100 | 85 | 99 |
| 150 | 85 | 149 |
| 160 | 85 | 159 |
| 180 | 85 | 179 |
| 200 | 85 | 199 |
| 224 | 85 | 223 |
| 250 | 85 | 249 |
| 280 | 94 | 279 |
| 300 | 100 | 299 |
| 315 | 105 | 314 |
| 355 | 119 | 354 |
| 400 | 134 | 399 |
| 450 | 150 | 449 |
| 500 | 167 | 499 |
| 560 | 187 | 559 |

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 600 | 200 | 599 |
| 630 | 210 | 629 |
| 650 | 217 | 649 |
| 700 | 234 | 699 |
| 750 | 250 | 749 |
| 800 | 267 | 799 |
| 850 | 284 | 849 |
| 900 | 300 | 899 |
| 950 | 317 | 949 |
| 1000 | 334 | 999 |
| 1050 | 350 | 1049 |
| 1100 | 367 | 1099 |
| 1150 | 384 | 1106 |
| 1200 | 400 | 1106 |
| 1250 | 417 | 1106 |

* $L_1 = D_2 + 102 \text{ mm}$

* $L_2 = D_1 + 2 \times 152 \text{ mm}$

* Other sizes are available upon request.

Description

Construction

Thickness:

Liner Type and Thickness:

Seam type:

| Duct Thickness (mm) | Longitudinal Seam Type |
|---------------------------------------|------------------------|
| $0.5 \leq \text{Thickness.} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness.} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness.} \leq 1.6$ | Full Weld |

Traverse Joints:

Finishing:

Available Diameters:

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|------------|-----------------|-----------------|
| 85 | 85 | 85 |
| 100 | 85 | 100 |
| 150 | 85 | 150 |
| 160 | 85 | 160 |
| 180 | 85 | 180 |
| 200 | 85 | 200 |
| 224 | 85 | 224 |
| 250 | 85 | 250 |
| 280 | 85 | 280 |
| 300 | 90 | 300 |
| 315 | 94 | 315 |
| 355 | 106 | 355 |
| 400 | 120 | 400 |
| 450 | 135 | 450 |
| 500 | 150 | 500 |
| 560 | 167 | 560 |

| D1 (mm) | D2 Min. (mm) | D2 Max. (mm) |
|---------|--------------|--------------|
| 600 | 179 | 600 |
| 630 | 188 | 630 |
| 650 | 194 | 650 |
| 700 | 209 | 700 |
| 750 | 224 | 750 |
| 800 | 239 | 800 |
| 850 | 254 | 813 |
| 900 | 269 | 813 |
| 950 | 284 | 813 |
| 1000 | 299 | 782 |
| 1050 | 314 | 782 |
| 1100 | 328 | 782 |
| 1150 | 343 | 782 |
| 1200 | 358 | 782 |
| 1250 | 373 | 782 |

$$* L = (\sqrt{2} * D_2) + 102 \text{ mm}$$

Ordering Code

Material

Thickness

Liner type and Thickness

End Type 1

End Type 2

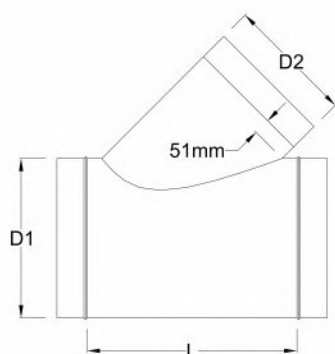
End Type 3

Finish

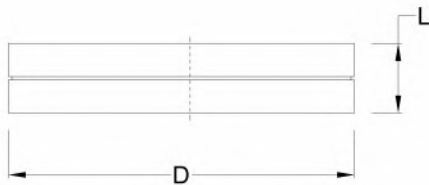
Main Diameter

Length

Branch Diameter



HC25-Female Coupling



Ordering Code

Product Code : HC25 - M TH LT F - D x L

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| Finish | |
| Diamater | |
| Length | |

Description

Female coupling is used to join two fitting

Construction

Material:

HC25 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC25 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC25 is available with different liner types and thicknesses.

Seam type:

HC25 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Available Diameters:

HC25 is offered with wide range of diameters from 85 to 1250 mm.

*Available lengths are 100, 150 and 200 mm.

HC26-Male Coupling



Ordering Code

Product Code : HC26 - M TH LT ET F - D x L

| | | | | | | |
|--------------------------|---|----|----|----|---|---------|
| Material | M | TH | LT | ET | F | - D x L |
| Thickness | | | | | | |
| Liner type and Thickness | | | | | | |
| End Type | | | | | | |
| Finish | | | | | | |
| Diameter | | | | | | |
| Length | | | | | | |

Description

Male coupling is used to join two ducts with raw ends.

Construction

Material:

HC26 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC26 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC26 is available with different liner types and thicknesses.

Seam type:

HC26 is offered with different longitudinal seam types depending on duct thickness:

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Finishing:

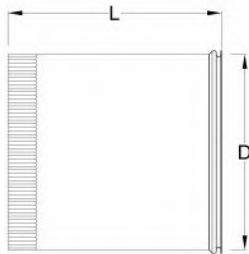
Duct openings can be covered based on request.
Duct is offered with various paints.

Available Diameters:

HC26 is offered with wide range of diameters from 85 to 1600 mm.

*Available lengths are 100, 150 and 200 mm.

HC27-Spin Collar



Description

Spin Collar can be used as transition from a flat metal surface to round pipe. Collar simply twists into place.

Construction

Material:

HC27 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC27 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 24 (0.7mm), upon request.

Liner Type and Thickness:

HC27 is available with different liner types and thicknesses.

Seam type:

HC27 is offered with longitudinal seam stitch weld.

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Available Diameters:

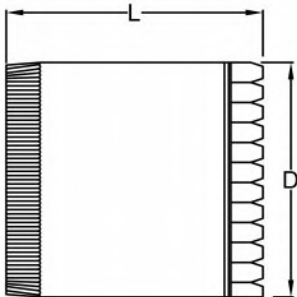
HC27 is offered with wide range of diameters from 100 to 405 mm.

Ordering Code

| | | | | | | | | | | |
|--------------------------|------|---|---|----|----|---|---|---|---|---|
| Product Code : | HC27 | - | M | TH | LT | F | - | D | x | L |
| Material | | | | | | | | | | |
| Thickness | | | | | | | | | | |
| Liner type and Thickness | | | | | | | | | | |
| Finish | | | | | | | | | | |
| Diamater | | | | | | | | | | |
| Length | | | | | | | | | | |

1
2
3
4

HC28-Dove Tail with Tabs



Description

Dove Tail with Tabs are an economical way for starting a new duct run from your supply or return plenum.

Construction

Material:

HC28 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC28 is offered with various of thicknesses - from Ga. 26 (0.55mm) to Ga. 24 (0.7mm).

Liner Type and Thickness:

HC28 is available with different liner types and thicknesses.

Seam type:

HC28 is offered with longitudinal seam stitch weld.

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Available Diameters:

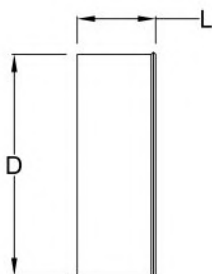
HC28 is offered with wide range of diameters from 75 to 350 mm.

Ordering Code

Product Code : HC28 - M TH LT F - D x L

| | |
|--------------------------|--|
| Material | |
| Thickness | |
| Liner type and Thickness | |
| Finish | |
| Diameter | |
| Length | |

HC29-End Cap



Ordering Code

| | | | | | | | | | | | |
|--------------------------|------|---|---|----|----|----|---|---|---|---|---|
| Product Code : | HC29 | - | M | TH | LT | ET | F | - | D | x | L |
| Material | | | | | | | | | | | |
| Thickness | | | | | | | | | | | |
| Liner type and Thickness | | | | | | | | | | | |
| End Type | | | | | | | | | | | |
| Finish | | | | | | | | | | | |
| Diameter | | | | | | | | | | | |
| length | | | | | | | | | | | |

Description

End Cap stops round duct ends.

Construction

Material:

HC29 is supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304 and 316 in accordance with ASTM A240 and Aluminum Alloy 3003-H14 in accordance with ASTM B209.

Thickness:

HC29 is offered with various of thicknesses -from Ga. 26 (0.55mm) to Ga. 16 (1.6mm) - based on agreed schedule.

Liner Type and Thickness:

HC29 is available with different liner types and thicknesses.

Seam type:

HC29 is offered with different longitudinal seam types depending on duct thickness.

| Duct Thickness (mm) | Longitudinal Seam Type |
|--------------------------------------|------------------------|
| $0.5 \leq \text{Thickness} \leq 1.0$ | Stitch Weld |
| $1.2 \leq \text{Thickness} \leq 1.5$ | Spot Weld |
| $1.2 \leq \text{Thickness} \leq 1.6$ | Full Weld |

Joint:

HC29 is offered with raw type or swage with gasket for more sealant.

Finishing:

Duct openings can be covered based on request.
Duct is offered with various paints.

Available Diameters:

HC29 is available with wide range of diameters from 85 mm up to 1250mm.

* L=75 mm

* Other sizes are available upon request.



System Accessories



Bolts, Nuts and Washers



Description

Bolts and nuts used with the companion angle connection, TDC and Slide on Flange and Self Flanges corners

- HA01 Electroplating galvanized bolts, DIN 933, DIN 6921, DIN 7045
- HA02 Electroplating galvanized nuts, DIN 934, DIN 6923.
- HA03 Electroplating galvanized washer, DIN 125-1A, DIN 128.
- HA06 Hot dipped galvanized bolts, DIN 933, DIN 6921, DIN 7045.
- HA07 Hot dipped galvanized nuts, DIN 934, DIN 6923.
- HA08 Hot dipped galvanized washers, DIN 125-1A, DIN 128.
- HA10 Stainless steel 304 bolts, DIN 933, DIN 6921, DIN 7045.
- HA11 Stainless steel 304 nuts, DIN 934, DIN 6923
- HA12 Stainless steel 304 washers, DIN 125-1A, DIN 128.

HA23- THREADED RODS



Description

HA23 are supplied with various material Galvanized steel G90 in accordance with ASTM A653 and Stainless steel 304 in accordance with ASTM A240.

HA23 are supplied with different diameters (M6, M8, M10, M12, M16 and M20).

*Available length is 3 meters.

HA26- FLEXIBLE RUNS



Description

HA26 is supplied with various material.

- 1- Excelon_MBX333_3"Mx3"Fx3"M
- 2- Excelon_MB6X363_3"Mx6"Fx3"M
- 3- Excelon_MBX444_4"Mx4"Fx4"M
- 4- Thermafab_MFT333_3"Mx3"Fx3"M
- 5- Thermafab_MF6T363_3"Mx6"Fx3"M.

HA27- INSULATION



Description

HA27 Insulation fiber glass wrap material with different density (12, 16, 24 and 48 kg/m3).

Available with sizes 1.2 x 10 m

HA27 could be provided with different thicknesses, 25, 40, 50, 75 and 100 mm.

HA28- GASKET TAPES



Description

HA28 are self-adhesive foam gasket tape for cooling and heating air duct connections to prevent air leakage.

- 1- GASKET TAPES EVA 1/4" x 3/4" ROLL 50'
- 2- GASKET TAPES EVA 3/16" x 1" ROLL 50'
- 3- GASKET TAPES EVA 3/8" x 2" ROLL 50'
- 4- GASKET TAPES PVC 1/4" x 3/4" ROLL 50'
- 5- GASKET TAPES PVC 3/16" x 1" ROLL 50'
- 6- GASKET TAPES PVC 1/4" x 3/4" ROLL 50'
- 7- GASKET TAPES URETHANE 3/16" x 1" ROLL 50'
- 8- GASKET TAPES NEOPRENE 1/4" x 3/4" ROLL 50'
- 9- GASKET TAPES NEOPRENE 1/8" x 1/2" ROLL 50'
- 10- GASKET TAPES NEOPRENE 3/16" x 3/4" ROLL 50'

HA29- ADHESIVE TAPES



Description

HA29 are one side self-adhesive used to cover the separation between insulation material to protect insulation ends and to give the feel of insulation continuity.

- 1 - GASKT-ADH_TAPE-AL-48mm X 50 Yard GASKET TAPES EVA 1/4" x 3/4" ROLL 50'
- 2 - GASKT-ADH_TAPE-DUCT-48mm X 50 Yard GASKET TAPES EVA 3/16" x 1" ROLL 50'

HA51- Round Support Type 1



Description

HA51 are supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304, 304/2B and 316, 316/2B in accordance with ASTM A240.

HA51 are supplied with different thicknesses, 0.85, 0.9, 1.0, 1.2, 1.5, 1.6 and 2.0 mm.

HA51 can be paint and packaged based on request.

HA52- Round Support Type 2



Description

HA52 are supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304, 304/2B and 316, 316/2B in accordance with ASTM A240.

HA52 are supplied with different thicknesses, 0.85, 0.9, 1.0, 1.2, 1.5, 1.6 and 2.0 mm.

HA52 can be paint and packaged based on request.

HA53- Round Support Type 3



Description

HA53 are supplied with various material Galvanized steel G90 and G115 in accordance with ASTM A653, Stainless steel 304, 304/2B and 316, 316/2B in accordance with ASTM A240.

HA53 are supplied with different thicknesses, 0.85, 0.9, 1.0, 1.2, 1.5, 1.6 and 2.0 mm.

HA53 can be painted and packaged based on request.

HA70- Round Clamp



Description

HA70 is an efficient way to secure flexible or rigid round duct connections. The band can withstand up to 60 PSI, as well as extreme temperature conditions. The band is secured in place at the bridge by a slotted hex head screw. This zinc plated carbon steel screw can be flipped up away from the band to offer a quick release when adjustments are needed.

HA70 is offered with different sizes: 8, 10, 12, 18 and 20 inches.

HA71- Steel Wire Rope



Description

HA71 are used to provide a secure hanging of the duct.

HA71 are supplied with various material Black annealed, bright basic and Galvanized steel according SMACNA HVAC Construction Standard third edition 2005.

HA71 are available with different gauges:

- Ga. 12, one wire for duct diameter up to 250mm.
- Ga. 12, Two wires for duct diameter up to 460mm.
- Ga. 8, one wire for duct diameter up to 460mm.
- Ga. 10, Two wires for duct diameter up to 610mm.
- Ga. 8, Two wires for duct diameter up to 900mm.

* With maximum spacing 3.7 m.

HA72- Round Angle Bar



Description

HA72 are supplied with various material Galvanized steel G90 in accordance with ASTM A653 and Stainless steel 304 in accordance with ASTM A240.

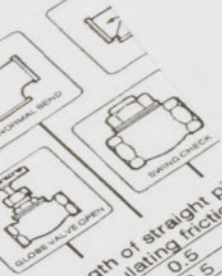
HA72 are supplied with wide range of diameters, from 500 mm up to 2,500 mm, different cross sections:

- 25x25x2.5 and 3.0mm
- 30x30x3.0 mm
- 40x40x3.0 and 4.0mm
- 50x50x3.0, 4.0 and 5.0 mm
- 60x60x5.0 and 6.0 mm
- 75x75x5.0 and 6.0 mm.



Duct Construction

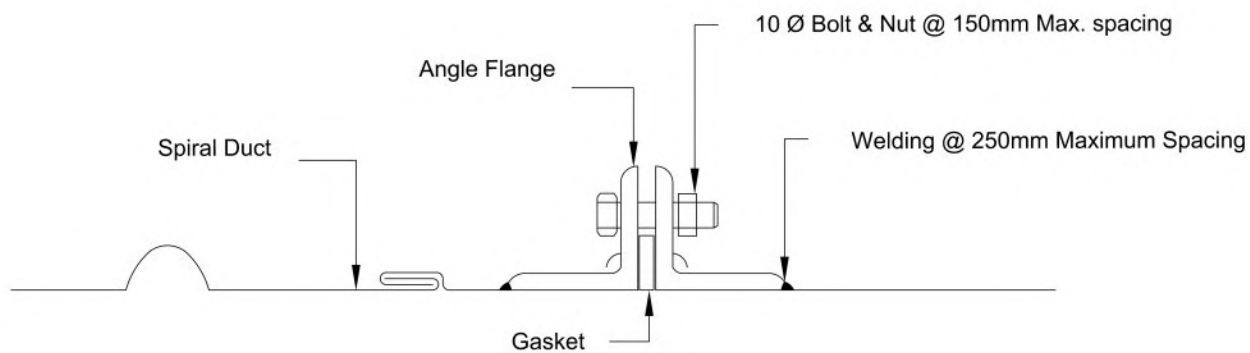
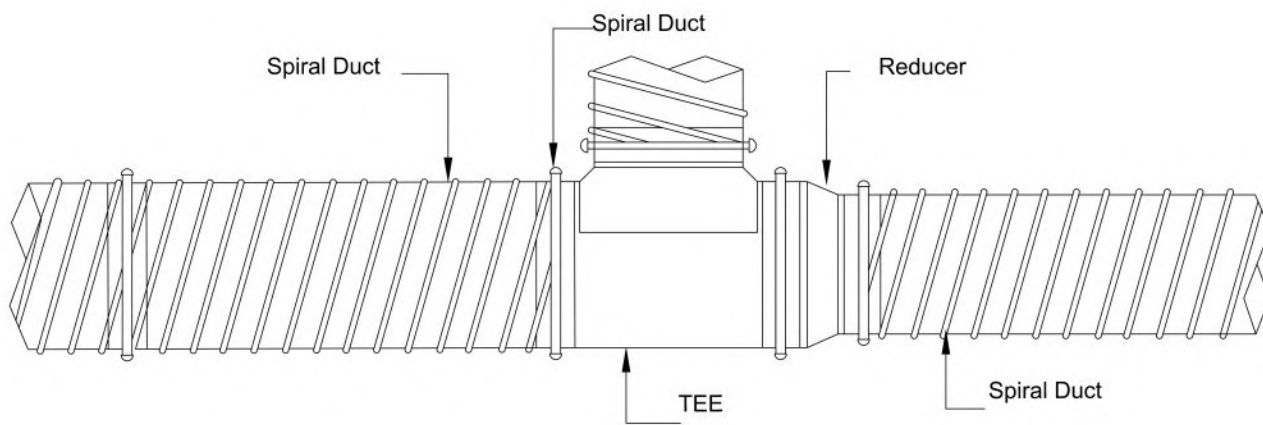
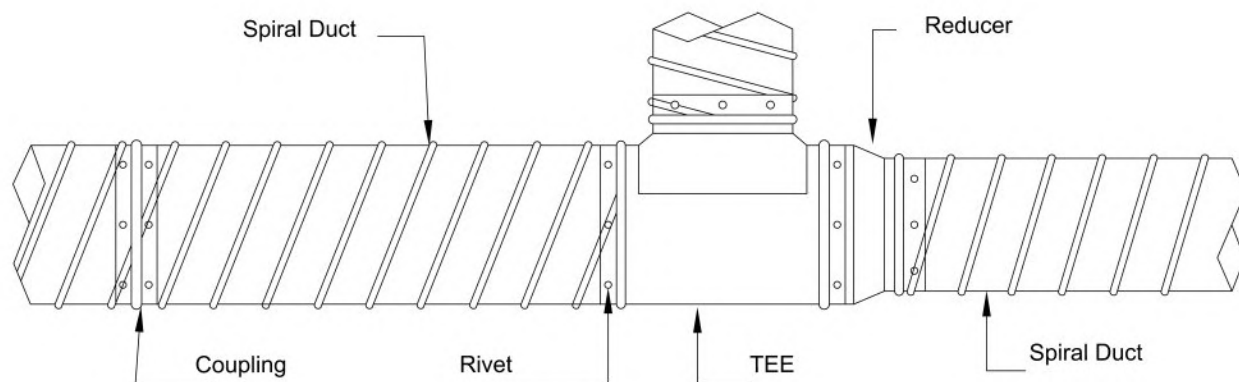
Фрагмент



Equivalent length of straight pipe for calculating friction loss

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| | 0.3 | 0.6 | 0.9 | 1.1 | 1.4 | 1.7 | 2.1 | 2.7 | 3.4 | 4.3 | 5.5 | 6.7 | 8.5 | 10.6 | 12.9 | 15.4 | 18.0 | 20.7 | 23.6 | 26.6 | 29.7 | 32.9 | 36.2 | 39.6 | 43.1 | 46.7 | 50.4 | 54.2 | 58.0 | 61.9 | 65.8 | 69.7 | 73.7 | 77.7 | 81.7 | 85.7 | 89.7 | 93.7 | 97.7 | 101.7 | 105.7 | 109.7 | 113.7 | 117.7 | 121.7 | 125.7 | 129.7 | 133.7 | 137.7 | 141.7 | 145.7 | 149.7 | 153.7 | 157.7 | 161.7 | 165.7 | 169.7 | 173.7 | 177.7 | 181.7 | 185.7 | 189.7 | 193.7 | 197.7 | 201.7 | 205.7 | 209.7 | 213.7 | 217.7 | 221.7 | 225.7 | 229.7 | 233.7 | 237.7 | 241.7 | 245.7 | 249.7 | 253.7 | 257.7 | 261.7 | 265.7 | 269.7 | 273.7 | 277.7 | 281.7 | 285.7 | 289.7 | 293.7 | 297.7 | 301.7 | 305.7 | 309.7 | 313.7 | 317.7 | 321.7 | 325.7 | 329.7 | 333.7 | 337.7 | 341.7 | 345.7 | 349.7 | 353.7 | 357.7 | 361.7 | 365.7 | 369.7 | 373.7 | 377.7 | 381.7 | 385.7 | 389.7 | 393.7 | 397.7 | 401.7 | 405.7 | 409.7 | 413.7 | 417.7 | 421.7 | 425.7 | 429.7 | 433.7 | 437.7 | 441.7 | 445.7 | 449.7 | 453.7 | 457.7 | 461.7 | 465.7 | 469.7 | 473.7 | 477.7 | 481.7 | 485.7 | 489.7 | 493.7 | 497.7 | 501.7 | 505.7 | 509.7 | 513.7 | 517.7 | 521.7 | 525.7 | 529.7 | 533.7 | 537.7 | 541.7 | 545.7 | 549.7 | 553.7 | 557.7 | 561.7 | 565.7 | 569.7 | 573.7 | 577.7 | 581.7 | 585.7 | 589.7 | 593.7 | 597.7 | 601.7 | 605.7 | 609.7 | 613.7 | 617.7 | 621.7 | 625.7 | 629.7 | 633.7 | 637.7 | 641.7 | 645.7 | 649.7 | 653.7 | 657.7 | 661.7 | 665.7 | 669.7 | 673.7 | 677.7 | 681.7 | 685.7 | 689.7 | 693.7 | 697.7 | 701.7 | 705.7 | 709.7 | 713.7 | 717.7 | 721.7 | 725.7 | 729.7 | 733.7 | 737.7 | 741.7 | 745.7 | 749.7 | 753.7 | 757.7 | 761.7 | 765.7 | 769.7 | 773.7 | 777.7 | 781.7 | 785.7 | 789.7 | 793.7 | 797.7 | 801.7 | 805.7 | 809.7 | 813.7 | 817.7 | 821.7 | 825.7 | 829.7 | 833.7 | 837.7 | 841.7 | 845.7 | 849.7 | 853.7 | 857.7 | 861.7 | 865.7 | 869.7 | 873.7 | 877.7 | 881.7 | 885.7 | 889.7 | 893.7 | 897.7 | 901.7 | 905.7 | 909.7 | 913.7 | 917.7 | 921.7 | 925.7 | 929.7 | 933.7 | 937.7 | 941.7 | 945.7 | 949.7 | 953.7 | 957.7 | 961.7 | 965.7 | 969.7 | 973.7 | 977.7 | 981.7 | 985.7 | 989.7 | 993.7 | 997.7 | 1001.7 | 1005.7 | 1009.7 | 1013.7 | 1017.7 | 1021.7 | 1025.7 | 1029.7 | 1033.7 | 1037.7 | 1041.7 | 1045.7 | 1049.7 | 1053.7 | 1057.7 | 1061.7 | 1065.7 | 1069.7 | 1073.7 | 1077.7 | 1081.7 | 1085.7 | 1089.7 | 1093.7 | 1097.7 | 1101.7 | 1105.7 | 1109.7 | 1113.7 | 1117.7 | 1121.7 | 1125.7 | 1129.7 | 1133.7 | 1137.7 | 1141.7 | 1145.7 | 1149.7 | 1153.7 | 1157.7 | 1161.7 | 1165.7 | 1169.7 | 1173.7 | 1177.7 | 1181.7 | 1185.7 | 1189.7 | 1193.7 | 1197.7 | 1201.7 | 1205.7 | 1209.7 | 1213.7 | 1217.7 | 1221.7 | 1225.7 | 1229.7 | 1233.7 | 1237.7 | 1241.7 | 1245.7 | 1249.7 | 1253.7 | 1257.7 | 1261.7 | 1265.7 | 1269.7 | 1273.7 | 1277.7 | 1281.7 | 1285.7 | 1289.7 | 1293.7 | 1297.7 | 1301.7 | 1305.7 | 1309.7 | 1313.7 | 1317.7 | 1321.7 | 1325.7 | 1329.7 | 1333.7 | 1337.7 | 1341.7 | 1345.7 | 1349.7 | 1353.7 | 1357.7 | 1361.7 | 1365.7 | 1369.7 | 1373.7 | 1377.7 | 1381.7 | 1385.7 | 1389.7 | 1393.7 | 1397.7 | 1401.7 | 1405.7 | 1409.7 | 1413.7 | 1417.7 | 1421.7 | 1425.7 | 1429.7 | 1433.7 | 1437.7 | 1441.7 | 1445.7 | 1449.7 | 1453.7 | 1457.7 | 1461.7 | 1465.7 | 1469.7 | 1473.7 | 1477.7 | 1481.7 | 1485.7 | 1489.7 | 1493.7 | 1497.7 | 1501.7 | 1505.7 | 1509.7 | 1513.7 | 1517.7 | 1521.7 | 1525.7 | 1529.7 | 1533.7 | 1537.7 | 1541.7 | 1545.7 | 1549.7 | 1553.7 | 1557.7 | 1561.7 | 1565.7 | 1569.7 | 1573.7 | 1577.7 | 1581.7 | 1585.7 | 1589.7 | 1593.7 | 1597.7 | 1601.7 | 1605.7 | 1609.7 | 1613.7 | 1617.7 | 1621.7 | 1625.7 | 1629.7 | 1633.7 | 1637.7 | 1641.7 | 1645.7 | 1649.7 | 1653.7 | 1657.7 | 1661.7 | 1665.7 | 1669.7 | 1673.7 | 1677.7 | 1681.7 | 1685.7 | 1689.7 | 1693.7 | 1697.7 | 1701.7 | 1705.7 | 1709.7 | 1713.7 | 1717.7 | 1721.7 | 1725.7 | 1729.7 | 1733.7 | 1737.7 | 1741.7 | 1745.7 | 1749.7 | 1753.7 | 1757.7 | 1761.7 | 1765.7 | 1769.7 | 1773.7 | 1777.7 | 1781.7 | 1785.7 | 1789.7 | 1793.7 | 1797.7 | 1801.7 | 1805.7 | 1809.7 | 1813.7 | 1817.7 | 1821.7 | 1825.7 | 1829.7 | 1833.7 | 1837.7 | 1841.7 | 1845.7 | 1849.7 | 1853.7 | 1857.7 | 1861.7 | 1865.7 | 1869.7 | 1873.7 | 1877.7 | 1881.7 | 1885.7 | 1889.7 | 1893.7 | 1897.7 | 1901.7 | 1905.7 | 1909.7 | 1913.7 | 1917.7 | 1921.7 | 1925.7 | 1929.7 | 1933.7 | 1937.7 | 1941.7 | 1945.7 | 1949.7 | 1953.7 | 1957.7 | 1961.7 | 1965.7 | 1969.7 | 1973.7 | 1977.7 | 1981.7 | 1985.7 | 1989.7 | 1993.7 | 1997.7 | 2001.7 | 2005.7 | 2009.7 | 2013.7 | 2017.7 | 2021.7 | 2025.7 | 2029.7 | 2033.7 | 2037.7 | 2041.7 | 2045.7 | 2049.7 | 2053.7 | 2057.7 | 2061.7 | 2065.7 | 2069.7 | 2073.7 | 2077.7 | 2081.7 | 2085.7 | 2089.7 | 2093.7 | 2097.7 | 2101.7 | 2105.7 | 2109.7 | 2113.7 | 2117.7 | 2121.7 | 2125.7 | 2129.7 | 2133.7 | 2137.7 | 2141.7 | 2145.7 | 2149.7 | 2153.7 | 2157.7 | 2161.7 | 2165.7 | 2169.7 | 2173.7 | 2177.7 | 2181.7 | 2185.7 | 2189.7 | 2193.7 | 2197.7 | 2201.7 | 2205.7 | 2209.7 | 2213.7 | 2217.7 | 2221.7 | 2225.7 | 2229.7 | 2233.7 | 2237.7 | 2241.7 | 2245.7 | 2249.7 | 2253.7 | 2257.7 | 2261.7 | 2265.7 | 2269.7 | 2273.7 | 2277.7 | 2281.7 | 2285.7 | 2289.7 | 2293.7 | 2297.7 | 2301.7 | 2305.7 | 2309.7 | 2313.7 | 2317.7 | 2321.7 | 2325.7 | 2329.7 | 2333.7 | 2337.7 | 2341.7 | 2345.7 | 2349.7 | 2353.7 | 2357.7 | 2361.7 | 2365.7 | 2369.7 | 2373.7 | 2377.7 | 2381.7 | 2385.7 | 2389.7 | 2393.7 | 2397.7 | 2401.7 | 2405.7 | 2409.7 | 2413.7 | 2417.7 | 2421.7 | 2425.7 | 2429.7 | 2433.7 | 2437.7 | 2441.7 | 2445.7 | 2449.7 | 2453.7 | 2457.7 | 2461.7 | 2465.7 | 2469.7 | 2473.7 | 2477.7 | 2481.7 | 2485.7 | 2489.7 | 2493.7 | 2497.7 | 2501.7 | 2505.7 | 2509.7 | 2513.7 | 2517.7 | 2521.7 | 2525.7 | 2529.7 | 2533.7 | 2537.7 | 2541.7 | 2545.7 | 2549.7 | 2553.7 | 2557.7 | 2561.7 | 2565.7 | 2569.7 | 2573.7 | 2577.7 | 2581.7 | 2585.7 | 2589.7 | 2593.7 | 2597.7 | 2601.7 | 2605.7 | 2609.7 | 2613.7 | 2617.7 | 2621.7 | 2625.7 | 2629.7 | 2633.7 | 2637.7 | 2641.7 | 2645.7 | 2649.7 | 2653.7 | 2657.7 | 2661.7 | 2665.7 | 2669.7 | 2673.7 | 2677.7 | 2681.7 | 2685.7 | 2689.7 | 2693.7 | 2697.7 | 2701.7 | 2705.7 | 2709.7 | 2713.7 | 2717.7 | 2721.7 | 2725.7 | 2729.7 | 2733.7 | 2737.7 | 2741.7 | 2745.7 | 2749.7 | 2753.7 | 2757.7 | 2761.7 | 2765.7 | 2769.7 | 2773.7 | 2777.7 | 2781.7 | 2785.7 | 2789.7 | 2793.7 | 2797.7 | 2801.7 | 2805.7 | 2809.7 | 2813.7 | 2817.7 | 2821.7 | 2825.7 | 2829.7 | 2833.7 | 2837.7 | 2841.7 | 2845.7 | 2849.7 | 2853.7 | 2857.7 | 2861.7 | 2865.7 | 2869.7 | 2873.7 | 2877.7 | 2881.7 | 2885.7 | 2889.7 | 2893.7 | 2897.7 | 2901.7 | 2905.7 | 2909.7 | 2913.7 | 2917.7 | 2921.7 | 2925.7 | 2929.7 | 2933.7 | 2937.7 | 2941.7 | 2945.7 | 2949.7 | 2953.7 | 2957.7 | 2961.7 | 2965.7 | 2969.7 | 2973.7 | 2977.7 | 2981.7 | 2985.7 | 2989.7 | 2993.7 | 2997.7 | 3001.7 | 3005.7 | 3009.7 | 3013.7 | 3017.7 | 3021.7 | 3025.7 | 3029.7 | 3033.7 | 3037.7 | 3041.7 | 3045.7 | 3049.7 | 3053.7 | 3057.7 | 3061.7 | 3065.7 | 3069.7 | 3073.7 | 3077.7 | 3081.7 | 3085.7 | 3089.7 | 3093.7 | 3097.7 | 3101.7 | 3105.7 | 3109.7 | 3113.7 | 3117.7 | 3121.7 | 3125.7 | 3129.7 | 3133.7 | 3137.7 | 3141.7 | 3145.7 | 3149.7 | 3153.7 | 3157.7 | 3161.7 | 3165.7 | 3169.7 | 3173.7 | 3177.7 | 3181.7 | 3185.7 | 3189.7 | 3193.7 | 3197.7 | 3201.7 | 3205.7 | 3209.7 | 3213.7 | 3217.7 | 3221.7 | 3225.7 | 3229.7 | 3233.7 | 3237.7 | 3241.7 | 3245.7 | 3249.7 | 3253.7 | 3257.7 | 3261.7 | 3265.7 | 3269.7 | 3273.7 | 3277.7 | 3281.7 | 3285.7 | 3289.7 | 3293.7 | 3297.7 | 3301.7 | 3305.7 | 3309.7 | 3313.7 | 3317.7 | 3321.7 | 3325.7 | 3329.7 | 3333.7 | 3337.7 | 3341.7 | 3345.7 | 3349.7 | 3353.7 | 3357.7 | 3361.7 | 3365.7 | 3369.7 | 3373.7 | 3377.7 | 3381.7 | 3385.7 | 3389.7 | 3393.7 | 3397.7 | 3401.7 | 3405.7 | 3409.7 | 3413.7 | 3417.7 | 3421.7 | 3425.7 | 3429.7 | 3433.7 | 3437.7 | 3441.7 | 3445.7 | 3449.7 | 3453.7 | 3457.7 | 3461.7 | 3465.7 | 3469.7 | 3473.7 | 3477.7 | 3481.7 | 3485.7 | 3489.7 | 3493.7 | 3497.7 | 3501.7 | 3505.7 | 3509.7 | 3513.7 | 3517.7 | 3521.7 | 3525.7 | 3529.7 | 3533.7 | 3537.7 | 3541.7 | 3545.7 | 3549.7 | 3553.7 | 3557.7 | 3561.7 | 3565.7 | 3569.7 | 3573.7 | 3577.7 | 3581.7 | 3585.7 | 3589.7 | 3593.7 | 3597.7 | 3601.7 | 3605.7 | 3609.7 | 3613.7 | 3617.7 | 3621.7 | 3625.7 | 3629.7 | 3633.7 | 3637.7 | 3641.7 | 3645.7 | 3649.7 | 3653.7 | 3657.7 | 3661.7 | 3665.7 | 3669.7 | 3673.7 | 3677.7 | 3681.7 | 3685.7 | 3689.7 | 3693.7 | 3697.7 | 3701.7 | 3705.7 | 3709.7 | 3713.7 | 3717.7 | 3721.7 | 3725.7 | 3729.7 | 3733.7 | 3737.7 | 3741.7 | 3745.7 | 3749.7 | 3753.7 | 3757.7 | 3761.7 | 3765.7 | 3769.7 | 3773.7 | 3777.7 | 3781.7 | 3785.7 | 3789.7 | 3793.7 | 3797.7 | 3801.7 | 3805.7 | 3809.7 | 3813.7 | 3817.7 | 3821.7 | 3825.7 | 3829.7 | 3833.7 | 3837.7 | 3841.7 | 3845.7 | 3849.7 | 3853.7 | 3857.7 | 3861.7 | 3865.7 | 3869.7 | 3873.7 | 3877.7 | 3881.7 | 3885.7 | 3889.7 | 3893.7 | 3897.7 | 3901.7 | 3905.7 | 3909.7 | 3913.7 | 3917.7 | 3921.7 | 3925.7 | 3929.7 | 3933.7 | 3937.7 | 3941.7 | 3945.7 | 3949.7 | 3953.7 | 3957.7 | 3961.7 | 3965.7 | 3969.7 | 3973.7 | 3977.7 | 3981.7 | 3985.7 | 3989.7 | 3993.7 | 3997.7 | 4001.7 | 4005.7 | 4009.7 | 4013.7 | 4017.7 | 4021.7 | 4025.7 | 4029.7 | 4033.7 | 4037.7 | 4041.7 | 4045.7 | 4049.7 | 4053.7 | 4057.7 | 4061.7 | 4065.7 | 4069.7 | 4073.7 | 4077.7 | 4081.7 | 4085.7 | 4089.7 | 4093.7 | 4097.7 | 4101.7 | 4105.7 | 4109.7 | 4113.7 | 4117.7 | 4121.7 | 4125.7 | 4129.7 | 4133.7 | 4137.7 | 4141.7 | 4145.7 | 4149.7 | 4153.7 | 4157.7 | 4161.7 | 4165.7 | 4169.7 | 4173.7 | 4177.7 | 4181.7 | 4185.7 | 4189.7 | 4193.7 | 4197.7 | 4201.7 | 4205.7 | 4209.7 | 4213.7 | 4217.7 | 4221.7 | 4225.7 | 4229.7 | 4233.7 | 4237.7 | 4241.7 | 4245.7 | 4249.7 | 4253.7 | 4257.7 | 4261.7 | 4265.7 | 4269.7 | 4273.7 | 4277.7 | 4281.7 | 4285.7 | 4289.7 | 4293.7 | 4297.7 | 4301.7 | 4305.7 | 4309.7 | 4313.7 | 4317.7 | 4321.7 | 4325.7 | 4329.7 | 4333.7 | 4337.7 | 4341.7 | 4345.7 | 4349.7 | 4353.7 | 4357.7 | 4361.7 | 4365.7 | 4369.7 | 4373.7 | 4377.7 | 4381.7 | 4385.7 | 4389.7 | 4393.7 | 4397.7 | 4401.7 | 4405.7 | 4409.7 | 4413.7 | 4417.7 | 4421.7 | 4425.7 | 4429.7 | 4433.7 | 4437.7 | 4441.7 | 4445.7 | 4449.7 | 4453.7 | 4457.7 | 4461.7 | 4465.7 | 4469.7 | 4473.7 | 4477.7 | 4481.7 | 4485.7 | 4489.7 | 4493.7 | 4497.7 | 4501.7 | 4505.7 | 4509.7 | 4513.7 |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--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Transverse Joints



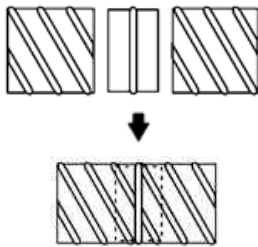
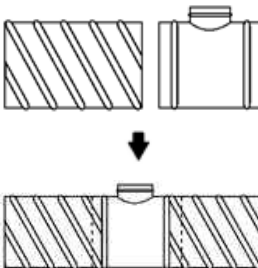
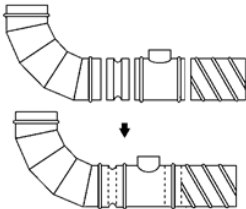
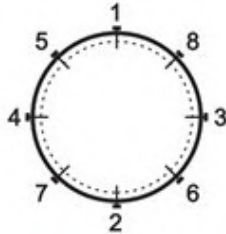
Coupling Joint Connection Instructions

1

2

3

4

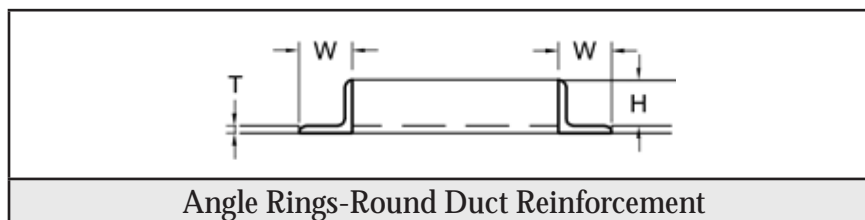
| Duct to Duct | | | | | | | | | | | | | | | | | | | |
|--|---|-------------------------|------------------|----------|-----|---|-----------|-----|---|-----------|-----|---|------------|-----|---|-------------|-----|----|---|
| Duct-to-Duct connections are made by using a male coupling that slips inside the duct sections. |  | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Duct-to-fitting connections are made by slipping the fitting collar into the duct |  | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Fitting-to-fitting connections are made by using a Female coupling that overlaps the fitting sections |  | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| <p>Coupling is attached to the duct or fitting by screws that should be evenly spaced around the perimeter of the connection.</p> <p>Placement of the screws should be opposite to each other as demonstrated in the diagram and the minimum screw diameters and the number of screws is demonstrated in the table.</p> | | | | | | | | | | | | | | | | | | | |
| <table><tr><th>D (mm)</th><th>Min Screw Diameter (mm)</th><th>Number Of Screws</th></tr><tr><td>85 - 125</td><td>3.2</td><td>2</td></tr><tr><td>140 - 250</td><td>3.2</td><td>3</td></tr><tr><td>280 - 630</td><td>3.2</td><td>4</td></tr><tr><td>710 - 1250</td><td>4.0</td><td>6</td></tr><tr><td>1400 - 1600</td><td>4.8</td><td>12</td></tr></table> | D (mm) | Min Screw Diameter (mm) | Number Of Screws | 85 - 125 | 3.2 | 2 | 140 - 250 | 3.2 | 3 | 280 - 630 | 3.2 | 4 | 710 - 1250 | 4.0 | 6 | 1400 - 1600 | 4.8 | 12 |  |
| D (mm) | Min Screw Diameter (mm) | Number Of Screws | | | | | | | | | | | | | | | | | |
| 85 - 125 | 3.2 | 2 | | | | | | | | | | | | | | | | | |
| 140 - 250 | 3.2 | 3 | | | | | | | | | | | | | | | | | |
| 280 - 630 | 3.2 | 4 | | | | | | | | | | | | | | | | | |
| 710 - 1250 | 4.0 | 6 | | | | | | | | | | | | | | | | | |
| 1400 - 1600 | 4.8 | 12 | | | | | | | | | | | | | | | | | |

1

2

3

4



Angle Rings-Round Duct Reinforcement

| Angle Ring Size | |
|----------------------------|----------------------------|
| Reinforcement Class | Size W X H X T (mm) |
| A | 25 x 25 x 3 |
| B | 40 x 40 x 4 |
| C | 50 x 50 x 4 |
| D | 50 x 50 x 5 |
| E | 50 x 50 x 5 |
| F | 60 x 60 x 5 |
| G | 75 x 75 x 6 |

| Ring Attachment Schedule | |
|---------------------------------|------------------------------|
| Duct Dia. (mm) | Number of Attachments |
| 150 and under | 4 |
| 300 and under | 6 |
| 450 and under | 8 |
| 750 and under | 12 |
| 1300 and under | 16 |
| 1950 and under | 20 |
| 2400 and under | 24 |

Notes:

- a) Rings may be attached to the duct wall using screws, rivets or tack welds.
- b) Companion Flanges Used for Reinforcement Shall be

| Companion Flange Joint Used as Reinforcement | |
|---|-------------------------|
| Duct Dia. (mm) | Flange Selection |
| up to 225 | 25 x 25 x 3 |
| 250 - 300 | 30 x 30 x 3 |
| 301 - 601 | 50 x 50 x 4 |
| 650 - 1200 | 50 x 50 x 5 |
| 1201 - 1500 | 60 x 60 x 5 |
| 1501 - 2400 | 75 x 75 x 6 |

Round Duct Gage Unreinforced Positive Pressure to 2500 Pa

| Diameter, mm | longitudinal seam, mm | spiral seam, mm |
|--------------|-----------------------|-----------------|
| 100 | 0.55 | 0.55 |
| 150 | 0.55 | 0.55 |
| 200 | 0.55 | 0.55 |
| 250 | 0.55 | 0.55 |
| 300 | 0.55 | 0.55 |
| 350 | 0.55 | 0.55 |
| 400 | 0.55 | 0.55 |
| 450 | 0.55 | 0.55 |
| 500 | 0.70 | 0.55 |
| 550 | 0.70 | 0.55 |
| 600 | 0.70 | 0.55 |
| 750 | 0.85 | 0.70 |
| 900 | 0.85 | 0.70 |
| 1000 | 0.85 | 0.70 |
| 1200 | 1.00 | 0.85 |
| 1300 | 1.00 | 0.85 |
| 1500 | 1.00 | 0.85 |
| 1650 | 1.20 | 0.85 |
| 1800 | 1.20 | 1.00 |
| 1950 | 1.20 | 1.00 |
| 2100 | 1.20 | 1.00 |
| 2250 | 1.20 | 1.00 |
| 2400 | 1.20 | 1.00 |

NOTES:

- Above Schedule meets the requirements of SMACNA HVAC duct construction standard metal and flexible, third edition 2005.
- Fittings shall have a wall thickness not less than that specified for longitudinal seam straight duct
- Corrugated ducts are not reflected
- For Aluminum and Stainless-Steel Duct thickness 0.6 mm is available instead of 0.55 mm.

Min. Required Gage for Longitudinal Seam Duct Under Neg. Pressure

| Neg. Pressure 500 Pa | Stiffener Spacing | | | | | | | | | | | |
|----------------------------|-------------------|----|--------|---|--------|---|--------|---|--------|---|--------|---|
| | Unstiff. | | 6.00 m | | 3.60 m | | 3.00 m | | 1.80 m | | 1.50 m | |
| Diameter (mm) | GA | R | GA | R | GA | R | GA | R | GA | R | GA | R |
| 100 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 150 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 200 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 250 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 300 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 350 | 0.70 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 400 | 0.70 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 450 | 0.85 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 500 | 0.85 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 550 | 0.85 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 600 | 1.00 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 750 | 1.20 | NR | 0.85 | A | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 900 | 1.50 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 1000 | 1.50 | NR | 0.85 | A | 0.85 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 1200 | N/A | NR | 1.00 | B | 0.85 | A | 0.85 | A | 0.70 | A | 0.55 | A |
| 1300 | N/A | NR | 1.00 | B | 0.85 | B | 0.85 | A | 0.70 | A | 0.70 | A |
| 1500 | N/A | NR | 1.00 | B | 0.85 | B | 0.85 | B | 0.70 | A | 0.70 | A |
| 1650 | N/A | NR | 1.20 | C | 1.00 | B | 0.85 | B | 0.70 | B | 0.70 | A |
| 1800 | N/A | NR | 1.20 | C | 1.00 | B | 1.00 | B | 0.85 | B | 0.70 | B |
| 1950 | N/A | NR | 1.20 | D | 1.00 | C | 1.00 | C | 0.85 | B | 0.85 | B |
| 2100 | N/A | NR | 1.20 | D | 1.00 | C | 1.00 | C | 0.85 | B | 0.85 | B |
| 2250 | N/A | NR | 1.20 | D | 1.20 | D | 1.00 | C | 0.85 | B | 0.85 | B |
| 2400 | N/A | NR | 1.20 | D | 1.20 | D | 1.00 | D | 0.85 | C | 0.85 | B |

NOTES:

- Above Schedule meets the requirements of SMACNA HVAC duct construction standard metal and flexible, third edition 2005.
- Fittings shall have a wall thickness not less than that specified for longitudinal seam straight duct
- Corrugated ducts are not reflected
- For Aluminum and Stainless-Steel Duct thickness 0.6 mm is available instead of 0.55 mm.
- For other reinforcement requirements consult AIC.
- N/A-Not Applicable.
- NR-Not Required.
- R-Reinforcement (Stiffener) Class.

Min. Required Gage for Longitudinal Seam Duct Under Neg. Pressure

| Neg. Pressure 1000 Pa | Stiffener Spacing | | | | | | | | | | | |
|-----------------------------|-------------------|----|--------|---|--------|---|--------|---|--------|---|--------|---|
| | Unstiff. | | 6.00 m | | 3.60 m | | 3.00 m | | 1.80 m | | 1.50 m | |
| Diameter (mm) | GA | R | GA | R | GA | R | GA | R | GA | R | GA | R |
| 100 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 150 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 200 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 250 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 300 | 0.70 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 350 | 0.85 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 400 | 0.85 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 450 | 1.00 | NR | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 500 | 1.00 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 550 | 1.20 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 600 | 1.20 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 750 | 1.50 | NR | 1.00 | A | 0.85 | A | 0.85 | A | 0.70 | A | 0.55 | A |
| 900 | N/A | NR | 1.00 | B | 0.85 | A | 0.85 | A | 0.70 | A | 0.70 | A |
| 1000 | N/A | NR | 1.20 | B | 1.00 | B | 0.85 | A | 0.85 | A | 0.70 | A |
| 1200 | N/A | NR | 1.20 | B | 1.00 | B | 1.00 | B | 0.85 | A | 0.85 | A |
| 1300 | N/A | NR | 1.20 | C | 1.20 | B | 1.00 | B | 0.85 | B | 0.85 | A |
| 1500 | N/A | NR | 1.20 | D | 1.20 | C | 1.00 | B | 0.85 | B | 0.85 | B |
| 1650 | N/A | NR | 1.50 | D | 1.20 | C | 1.20 | C | 1.00 | B | 0.85 | B |
| 1800 | N/A | NR | 1.50 | D | 1.20 | D | 1.20 | C | 1.00 | B | 1.00 | B |
| 1950 | N/A | NR | 1.50 | D | 1.20 | D | 1.20 | D | 1.00 | C | 1.00 | C |
| 2100 | N/A | NR | 1.50 | F | 1.20 | D | 1.20 | D | 1.00 | C | 1.00 | C |
| 2250 | N/A | NR | N/A | G | 1.50 | D | 1.20 | D | 1.20 | D | 1.00 | C |
| 2400 | N/A | NR | N/A | G | 1.50 | D | 1.50 | D | 1.20 | D | 1.00 | D |

NOTES:

- Above Schedule meets the requirements of SMACNA HVAC duct construction standard metal and flexible, third edition 2005.
- Fittings shall have a wall thickness not less than that specified for longitudinal seam straight duct
- Corrugated ducts are not reflected
- For Aluminum and Stainless-Steel Duct thickness 0.6 mm is available instead of 0.55 mm.
- For other reinforcement requirements consult AIC.
- N/A-Not Applicable.
- NR-Not Required.
- R-Reinforcement (Stiffener) Class.

Min. Required Gage for Longitudinal Seam Duct Under Neg. Pressure

| Min. Required Gage for Longitudinal Seam Duct Under Neg. Pressure | | | | | | | | | | | | |
|---|-------------------|----|--------|---|--------|---|--------|---|--------|---|--------|---|
| Neg. Pressure 1500 Pa | Stiffener Spacing | | | | | | | | | | | |
| | Unstiff. | | 6.00 m | | 3.60 m | | 3.00 m | | 1.80 m | | 1.50 m | |
| Diameter (mm) | GA | R | GA | R | GA | R | GA | R | GA | R | GA | R |
| 100 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 150 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 200 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 250 | 0.70 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 300 | 0.70 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 350 | 0.85 | NR | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 400 | 1.00 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 450 | 1.00 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 500 | 1.20 | NR | 0.85 | A | 0.85 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 550 | 1.20 | NR | 1.00 | A | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A |
| 600 | 1.20 | NR | 1.00 | A | 0.85 | A | 0.85 | A | 0.70 | A | 0.70 | A |
| 750 | 1.50 | NR | 1.20 | A | 1.00 | A | 0.85 | A | 0.70 | A | 0.70 | A |
| 900 | N/A | NR | 1.20 | B | 1.00 | B | 1.00 | A | 0.85 | A | 0.85 | A |
| 1000 | N/A | NR | 1.20 | B | 1.20 | B | 1.00 | B | 0.85 | A | 0.85 | A |
| 1200 | N/A | NR | 1.50 | C | 1.20 | B | 1.20 | B | 1.00 | B | 0.85 | B |
| 1300 | N/A | NR | 1.50 | D | 1.20 | C | 1.20 | C | 1.00 | B | 1.00 | B |
| 1500 | N/A | NR | 1.50 | D | 1.20 | C | 1.20 | C | 1.00 | B | 1.00 | B |
| 1650 | N/A | NR | N/A | D | 1.50 | D | 1.20 | D | 1.20 | C | 1.00 | B |
| 1800 | N/A | NR | N/A | F | 1.50 | D | 1.20 | D | 1.20 | C | 1.00 | C |
| 1950 | N/A | NR | N/A | G | 1.50 | D | 1.50 | D | 1.20 | D | 1.20 | C |
| 2100 | N/A | NR | N/A | G | 1.50 | F | 1.50 | D | 1.20 | D | 1.20 | D |
| 2250 | N/A | NR | N/A | G | 1.50 | G | 1.50 | F | 1.20 | D | 1.20 | D |
| 2400 | N/A | NR | N/A | G | N/A | G | 1.50 | G | 1.20 | D | 1.20 | D |

NOTES:

- Above Schedule meets the requirements of SMACNA HVAC duct construction standard metal and flexible, third edition 2005.
- Fittings shall have a wall thickness not less than that specified for longitudinal seam straight duct
- Corrugated ducts are not reflected
- For Aluminum and Stainless-Steel Duct thickness 0.6 mm is available instead of 0.55 mm.
- For other reinforcement requirements consult AIC.
- N/A-Not Applicable.
- NR-Not Required.
- R-Reinforcement (Stiffener) Class.

Min. Required Gage for Longitudinal Seam Duct Under Neg. Pressure

| Min. Required Gage for Longitudinal Seam Duct Under Neg. Pressure | | | | | | | | | | | | |
|---|-------------------|----|--------|---|--------|---|--------|---|--------|---|--------|---|
| Neg. Pressure 2500 Pa | Stiffener Spacing | | | | | | | | | | | |
| | Unstiff. | | 6.00 m | | 3.60 m | | 3.00 m | | 1.80 m | | 1.50 m | |
| Diameter (mm) | GA | R | GA | R | GA | R | GA | R | GA | R | GA | R |
| 100 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 150 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 200 | 0.70 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 250 | 0.70 | NR | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 300 | 0.85 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 350 | 1.00 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 400 | 1.20 | NR | 1.00 | A | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A |
| 450 | 1.20 | NR | 1.00 | A | 0.85 | A | 0.85 | A | 0.70 | A | 0.70 | A |
| 500 | 1.20 | NR | 1.00 | A | 0.85 | A | 0.85 | A | 0.70 | A | 0.70 | A |
| 550 | 1.50 | NR | 1.20 | A | 1.00 | A | 0.85 | A | 0.70 | A | 0.70 | A |
| 600 | 1.50 | NR | 1.20 | A | 1.00 | A | 1.00 | A | 0.85 | A | 0.70 | A |
| 750 | N/A | NR | 1.20 | B | 1.20 | A | 1.00 | A | 0.85 | A | 0.85 | A |
| 900 | N/A | NR | 1.50 | C | 1.20 | B | 1.20 | B | 1.00 | A | 0.85 | A |
| 1000 | N/A | NR | 1.50 | C | 1.20 | B | 1.20 | B | 1.00 | B | 1.00 | B |
| 1200 | N/A | NR | N/A | D | 1.50 | C | 1.20 | C | 1.20 | B | 1.00 | B |
| 1300 | N/A | NR | N/A | D | 1.50 | D | 1.50 | C | 1.20 | C | 1.20 | B |
| 1500 | N/A | NR | N/A | F | 1.50 | D | 1.50 | D | 1.20 | C | 1.20 | C |
| 1650 | N/A | NR | N/A | G | N/A | D | 1.50 | D | 1.20 | D | 1.20 | C |
| 1800 | N/A | NR | N/A | G | N/A | F | 1.50 | D | 1.20 | D | 1.20 | D |
| 1950 | N/A | NR | N/A | G | N/A | G | N/A | F | 1.50 | D | 1.20 | D |
| 2100 | N/A | NR | N/A | G | N/A | G | N/A | G | 1.50 | D | 1.50 | D |
| 2250 | N/A | NR | N/A | G | N/A | G | N/A | G | 1.50 | F | 1.50 | D |
| 2400 | N/A | NR | N/A | G | N/A | G | N/A | G | 1.50 | G | 1.50 | F |

NOTES:

- Above Schedule meets the requirements of SMACNA HVAC duct construction standard metal and flexible, 3rd edition 2005.
- Fittings shall have a wall thickness not less than that specified for longitudinal seam straight duct
- Corrugated ducts are not reflected
- For Aluminum and Stainless-Steel Duct thickness 0.6 mm is available instead of 0.55 mm.
- For other reinforcement requirements consult AIC.
- N/A-Not Applicable.
- NR-Not Required.
- R-Reinforcement (Stiffener) Class.

Min. Required Gage for Longitudinal Seam Duct Under Neg. Pressure

| Neg. Pressure 500 Pa | Stiffener Spacing | | | | | | | | | | | |
|----------------------------|-------------------|----|--------|---|--------|---|--------|---|--------|---|--------|---|
| | Unstiff. | | 6.00 m | | 3.60 m | | 3.00 m | | 1.80 m | | 1.50 m | |
| Diameter (mm) | GA | R | GA | R | GA | R | GA | R | GA | R | GA | R |
| 100 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 150 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 200 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 250 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 300 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 350 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 400 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 450 | 0.70 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 500 | 0.70 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 550 | 0.85 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 600 | 0.85 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 750 | 1.00 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 900 | 1.20 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 1000 | 1.20 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 1200 | 1.50 | NR | 0.85 | B | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 1300 | 1.50 | NR | 0.85 | B | 0.70 | B | 0.70 | A | 0.55 | A | 0.55 | A |
| 1500 | N/A | NR | 0.85 | B | 0.70 | B | 0.70 | B | 0.55 | A | 0.55 | A |
| 1650 | N/A | NR | 0.85 | C | 0.70 | B | 0.70 | B | 0.55 | B | 0.55 | A |
| 1800 | N/A | NR | 1.00 | C | 0.85 | B | 0.70 | B | 0.70 | B | 0.55 | B |
| 1950 | N/A | NR | 1.00 | D | 0.85 | C | 0.85 | C | 0.70 | B | 0.55 | B |
| 2100 | N/A | NR | 1.00 | D | 0.85 | C | 0.85 | C | 0.70 | B | 0.70 | B |
| 2250 | N/A | NR | 1.00 | D | 0.85 | D | 0.85 | C | 0.70 | B | 0.70 | B |
| 2400 | N/A | NR | 1.00 | D | 0.85 | D | 0.85 | D | 0.70 | C | 0.70 | B |

NOTES:

- Above Schedule meets the requirements of SMACNA HVAC duct construction standard metal and flexible, third edition 2005.
- Fittings shall have a wall thickness not less than that specified for longitudinal seam straight duct
- Corrugated ducts are not reflected
- For Aluminum and Stainless-Steel Duct thickness 0.6 mm is available instead of 0.55 mm.
- For other reinforcement requirements consult AIC.
- N/A-Not Applicable.
- NR-Not Required.
- R-Reinforcement (Stiffener) Class.

Min. Required Gage for Longitudinal Seam Duct Under Neg. Pressure

| Neg. Pressure 1000 Pa | Stiffener Spacing | | | | | | | | | | | |
|-----------------------------|-------------------|----|--------|---|--------|---|--------|---|--------|---|--------|---|
| | Unstiff. | | 6.00 m | | 3.60 m | | 3.00 m | | 1.80 m | | 1.50 m | |
| Diameter (mm) | GA | R | GA | R | GA | R | GA | R | GA | R | GA | R |
| 100 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 150 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 200 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 250 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 300 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 350 | 0.70 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 400 | 0.70 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 450 | 0.85 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 500 | 0.85 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 550 | 1.00 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 600 | 1.00 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 750 | 1.2 | NR | 0.85 | A | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 900 | 1.5 | NR | 0.85 | B | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 1000 | 1.5 | NR | 0.85 | B | 0.85 | B | 0.70 | A | 0.55 | A | 0.55 | A |
| 1200 | N/A | NR | 1.00 | B | 0.85 | B | 0.85 | B | 0.70 | A | 0.55 | A |
| 1300 | N/A | NR | 1.00 | C | 0.85 | B | 0.85 | B | 0.70 | B | 0.70 | A |
| 1500 | N/A | NR | 1.00 | D | 0.85 | C | 0.85 | B | 0.70 | B | 0.70 | B |
| 1650 | N/A | NR | 1.2 | D | 1.00 | C | 0.85 | C | 0.70 | B | 0.70 | B |
| 1800 | N/A | NR | 1.2 | D | 1.00 | D | 1.00 | C | 0.85 | B | 0.70 | B |
| 1950 | N/A | NR | 1.2 | D | 1.00 | D | 1.00 | D | 0.85 | C | 0.85 | C |
| 2100 | N/A | NR | 1.2 | F | 1.00 | D | 1.00 | D | 0.85 | C | 0.85 | C |
| 2250 | N/A | NR | 1.2 | G | 1.2 | D | 1.00 | D | 0.85 | D | 0.85 | C |
| 2400 | N/A | NR | 1.5 | G | 1.2 | F | 1.00 | D | 0.85 | D | 0.85 | D |

NOTES:

- Above Schedule meets the requirements of SMACNA HVAC duct construction standard metal and flexible, third edition 2005.
- Fittings shall have a wall thickness not less than that specified for longitudinal seam straight duct
- Corrugated ducts are not reflected
- For Aluminum and Stainless-Steel Duct thickness 0.6 mm is available instead of 0.55 mm.
- For other reinforcement requirements consult AIC.
- N/A-Not Applicable.
- NR-Not Required.
- R-Reinforcement (Stiffener) Class.

Min. Required Gage for Spiral Seam Duct Under Neg. Pressure

| Neg. Pressure 1500 Pa | Stiffener Spacing | | | | | | | | | | | |
|-----------------------------|-------------------|----|--------|---|--------|---|--------|---|--------|---|--------|---|
| | Unstiff. | | 6.00 m | | 3.60 m | | 3.00 m | | 1.80 m | | 1.50 m | |
| Diameter (mm) | GA | R | GA | R | GA | R | GA | R | GA | R | GA | R |
| 100 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 150 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 200 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 250 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 300 | 0.70 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 350 | 0.70 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 400 | 0.85 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 450 | 0.85 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 500 | 1.00 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 550 | 1.00 | NR | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 600 | 1.20 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 750 | 1.20 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 900 | 1.50 | NR | 1.00 | B | 0.85 | B | 0.85 | A | 0.70 | A | 0.55 | A |
| 1000 | N/A | NR | 1.00 | B | 0.85 | B | 0.85 | B | 0.70 | A | 0.70 | A |
| 1200 | N/A | NR | 1.20 | C | 1.00 | B | 0.85 | B | 0.70 | B | 0.70 | B |
| 1300 | N/A | NR | 1.20 | D | 1.00 | C | 1.00 | C | 0.85 | B | 0.70 | B |
| 1500 | N/A | NR | 1.20 | D | 1.00 | C | 1.00 | C | 0.85 | B | 0.85 | B |
| 1650 | N/A | NR | 1.20 | D | 1.20 | D | 1.00 | D | 0.85 | C | 0.85 | B |
| 1800 | N/A | NR | 1.20 | F | 1.20 | D | 1.00 | D | 0.85 | C | 0.85 | C |
| 1950 | N/A | NR | 1.50 | G | 1.20 | D | 1.20 | D | 1.00 | D | 0.85 | C |
| 2100 | N/A | NR | 1.50 | G | 1.20 | F | 1.20 | D | 1.00 | D | 0.85 | D |
| 2250 | N/A | NR | 1.50 | G | 1.20 | G | 1.20 | F | 1.00 | D | 1.00 | D |
| 2400 | N/A | NR | 1.50 | G | 1.20 | G | 1.20 | G | 1.00 | D | 1.00 | D |

NOTES:

- Above Schedule meets the requirements of SMACNA HVAC duct construction standard metal and flexible, third edition 2005.
- Fittings shall have a wall thickness not less than that specified for longitudinal seam straight duct
- Corrugated ducts are not reflected
- For Aluminum and Stainless-Steel Duct thickness 0.6 mm is available instead of 0.55 mm.
- For other reinforcement requirements consult AIC.
- N/A-Not Applicable.
- NR-Not Required.
- R-Reinforcement (Stiffener) Class.

Min. Required Gage for Longitudinal Seam Duct Under Neg. Pressure

| Neg. Pressure 2500 Pa | Stiffener Spacing | | | | | | | | | | | |
|-----------------------------|-------------------|-----|--------|---|-------|---|--------|---|--------|---|--------|---|
| | Unstiff. | | 6.00 m | | 3.6 m | | 3.00 m | | 1.80 m | | 1.50 m | |
| Diameter (mm) | GA | R | GA | R | GA | R | GA | R | GA | R | GA | R |
| 100 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 150 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 200 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 250 | 0.55 | NR | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 300 | 0.70 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 350 | 0.85 | NR | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 400 | 0.85 | NR | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A | 0.55 | A |
| 450 | 1.00 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 500 | 1.20 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 550 | 1.20 | NR | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A | 0.55 | A |
| 600 | 1.20 | NR | 1.00 | A | 0.85 | A | 0.70 | A | 0.70 | A | 0.55 | A |
| 750 | 1.50 | NR | 1.00 | B | 0.85 | A | 0.85 | A | 0.70 | A | 0.70 | A |
| 900 | N/A | N/A | 1.20 | C | 1.00 | B | 0.85 | B | 0.85 | A | 0.70 | A |
| 1000 | N/A | N/A | 1.20 | C | 1.00 | B | 1.00 | B | 0.85 | B | 0.85 | B |
| 1200 | N/A | N/A | 1.20 | D | 1.20 | C | 1.00 | C | 0.85 | B | 0.85 | B |
| 1300 | N/A | N/A | 1.20 | D | 1.20 | D | 1.20 | C | 1.00 | C | 0.85 | B |
| 1500 | N/A | N/A | 1.50 | F | 1.20 | D | 1.20 | D | 1.00 | C | 1.00 | C |
| 1650 | N/A | N/A | 1.50 | G | 1.20 | D | 1.20 | D | 1.00 | D | 1.00 | C |
| 1800 | N/A | N/A | 1.50 | G | 1.20 | F | 1.20 | D | 1.00 | D | 1.00 | D |
| 1950 | N/A | N/A | 1.50 | G | 1.50 | G | 1.20 | F | 1.20 | D | 1.00 | D |
| 2100 | N/A | N/A | N/A | G | 1.50 | G | 1.50 | G | 1.20 | D | 1.20 | D |
| 2250 | N/A | N/A | N/A | G | 1.50 | G | 1.50 | G | 1.20 | F | 1.20 | D |
| 2400 | N/A | N/A | N/A | G | 1.50 | G | 1.50 | G | 1.20 | G | 1.20 | F |

NOTES:

- Above Schedule meets the requirements of SMACNA HVAC duct construction standard metal and flexible, third edition 2005.
- Fittings shall have a wall thickness not less than that specified for longitudinal seam straight duct
- Corrugated ducts are not reflected
- For Aluminum and Stainless-Steel Duct thickness 0.6 mm is available instead of 0.55 mm.
- For other reinforcement requirements consult AIC.
- N/A-Not Applicable.
- NR-Not Required.
- R-Reinforcement (Stiffener) Class.

| Aluminum Round Gage Schedule | | | | |
|------------------------------|-----------------------------------|--------------------------------|-----------------------------------|--------------------------------|
| Duct Diameter (mm) | Maximum 500 Pa static Positive | | Maximum 500 pa static Negative | |
| | Spiral seam gage(mm) | longitudinal seam gage (mm) | spiral seam gage (mm) | longitudinal seam gage (mm) |
| 75 to 200 | 0.60 | 0.80 | 0.60 | 1.00 |
| 230 to 350 | 0.60 | 0.80 | 0.80 | 1.00 |
| 351 to 650 | 0.80 | 1.00 | 1.00 | 1.20 |
| 651 to 900 | 1.00 | 1.20 | 1.20 | 1.50 |
| 901 to 1250 | 1.20 | 1.50 | 1.50 | 1.80 |
| 1251 to 1500 | 1.50 | 2.00 | N/A | 2.50 |
| 1501 to 2100 | N/A | 2.50 | N/A | N/A |

NOTES:

- Above Schedule meets the requirements of SMACNA HVAC duct construction standard metal and flexible, thi d edition 2005.
- Fittings shall have a wall thickness not less than that specified for longitudinal seam straight duct
- Corrugated ducts are not reflected
- Construction of aluminum duct and fittings shall otherwise correspond in the same relationship as for steel duct. Sheet material shall be Alloy 3003-H14 unless otherwise specified. Aluminum fasteners shall be used. Structural members (if used) shall be alloy 6061-T6 or galvanized steel. Hangers in contact with the duct shall be galvanized steel or aluminum.
- For other reinforcement requirements consult AIC.
- N/A means not readily available or not assigned.

Terms & Specification

$$z^2 - 3z = 0$$
$$+ 5z = 4$$



$$f(x, y) = xy +$$

Galvanized Sheet Thickness Tolerances

| Gage | Thickness in Inches | | | Weight | | | | Thickness in Millimeter | | |
|------|---------------------|-------|-------|------------|------------|------------|------------|-------------------------|--------|-------|
| | Min. | Max. | Nom. | Min. lb/sf | Nom. lb/sf | Max. lb/sf | Nom. Kg/m2 | Min. | Max. | Nom. |
| 33 | .0060 | .0120 | .0090 | .2409 | .376 | .486 | 1.835 | .1524 | .3048 | .2286 |
| 32 | .0104 | .0164 | .0134 | .4204 | .563 | .665 | 2.748 | .2642 | .4166 | .3404 |
| 31 | .0112 | .0172 | .0142 | .4531 | .594 | .698 | 2.90 | .2845 | .4369 | .3607 |
| 30 | .0127 | .0187 | .0157 | .5143 | .656 | .759 | 3.20 | .3188 | .4783 | .3988 |
| 29 | .0142 | .020 | .0172 | .5755 | .719 | .820 | 3.51 | .3569 | .5169 | .4369 |
| 28 | .0157 | .0217 | .0187 | .6367 | .781 | .881 | 3.81 | .3950 | .5550 | .4750 |
| 27 | .0172 | .032 | .0202 | .6979 | .844 | .943 | 4.12 | .4331 | .5931 | .5131 |
| 26 | .0187 | .0247 | .0217 | .7591 | .906 | 1.004 | 4.42 | .4712 | .6312 | .5512 |
| 25 | .0217 | .0287 | .0247 | .8407 | | 1.167 | 4.901 | .5274 | .7274 | .6274 |
| 24 | .0236 | .0316 | .0276 | .9590 | 1.156 | 1.285 | 5.64 | .6010 | .8010 | .7010 |
| 23 | .0266 | .0346 | .0306 | 1.0814 | | 1.408 | 6.07 | .6772 | .8772 | .7772 |
| 22 | .0296 | .0376 | .0336 | 1.2038 | 1.406 | 1.530 | 6.86 | .7534 | .9534 | .8534 |
| 21 | .0326 | .0406 | .0366 | 1.3263 | | 1.653 | 7.27 | .8296 | 1.0296 | .9296 |
| 20 | .0356 | .0436 | .0396 | 1.4486 | 1.656 | 1.775 | 8.08 | .906 | 1.106 | 1.006 |
| 19 | .0406 | .0506 | .0456 | 1.6526 | | 2.061 | 9.07 | 1.028 | 1.288 | 1.158 |
| 18 | .0466 | .0566 | .0516 | 1.8974 | 2.156 | 2.305 | 10.52 | 1.181 | 1.441 | 1.311 |
| 17 | .0525 | .0625 | .0575 | 2.1381 | | 2.546 | 11.43 | 1.331 | 1.591 | 1.461 |
| 16 | .0575 | .0695 | .0635 | 2.342 | 2.656 | 2.832 | 12.96 | 1.463 | 1.763 | 1.613 |
| 15 | .0650 | .0770 | .0710 | 2.6481 | | 3.138 | 14.12 | 1.653 | 1.953 | 1.803 |
| 14 | .0705 | .0865 | .0785 | 2.8725 | 3.281 | 3.525 | 16.01 | 1.784 | 2.204 | 1.994 |
| 13 | .0854 | .1014 | .0934 | 3.4804 | | 4.133 | 18.58 | 2.162 | 2.5823 | 2.372 |
| 12 | .0994 | .1174 | .1084 | 4.0516 | 4.531 | 4.786 | 22.11 | 2.523 | 2.983 | 2.753 |
| 11 | .1143 | .1323 | .1233 | 4.6505 | | 5.394 | 24.42 | 2.902 | 3.362 | 3.132 |
| 10 | .1292 | .1472 | .1382 | 5.2675 | 5.781 | 6.002 | 28.21 | 3.280 | 3.740 | 3.510 |
| 9 | .1442 | .1622 | .1532 | 5.8795 | | 6.614 | 30.50 | 3.661 | 4.121 | 3.891 |
| 8 | .1591 | .1771 | .1681 | 6.4874 | 6.875 | 7.222 | 33.566 | 4.040 | 4.500 | 4.270 |

NOTES:

- Based on ASTM A924 924M-94 Standard Specification for general Requirements for Sheet Steel Metallic Coated by the Hot-Dip Process (formerly ASTM A525); and ASTM A653/A-94 Standard Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron alloy Coated Zinc-Iron alloy Coated (Galvanized) by the Hot-Dip Process.
- Tolerances are valid for 48" for 60" wide coil and cut length stock- other dimensions apply to other sheet widths and to strip.
- The lock forming grade of steel will conform to ASTM A 653 (formerly ASTM A 527).
- The Steel producing industry recommends that steel be ordered by decimal thickness only. Thickness and zinc coating class can be stenciled on the sheet. The gage designation is retained for residual familiarity reference only.
- Minimum weight in this table is based on the following computation:
Minimum sheet thickness minus 0.001" of G60 coating times 40.8 lb per s.f. per inch plus 0.0369 lb/sf zinc.
G60 stock would be comparably calculated from:
(.00153") 40.8 + 0.0564 = minimum weight.
However, scale weight may run 2% (or more) greater than theoretical weight. Actual weight may be near 40.82 lb per s.f. per inch.
- G60 coating, per ASTM A653 and ASTM A90, has 0.60 oz/sf (triple spot test) total for two sides. 0.59 oz/sf of zinc equals 0.001".
1 oz is 0.0017" and is 305.15 g/m2
G90 coating is 0.90 oz/sf (triple spot test), or 0.00153". Magnetic gage measurement of zinc coating may have 15% error.
- ASTM A2092, Practices for Preparation of Zinc-Coated Galvanized Steel Surfaces for paint, includes mill phosphatizing.
- ASTM A755 is the Specification for Sheet Steel, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Building Products. Other information is available from the National Coil Coaters Association, Philadelphia, PA.
- Much chemical and atmospheric corrosion information is available from ASM International in Metals Park, Ohio and from NACE International in Houston, TX.
- A principle international standard is ISO 3575, Continuous Hot-Dip Process, Zinc-Coated Carbon steel Sheet of Commercial, Lock Forming and Drawing Qualities.

Aluminum Sheet Thickness-Alloy 3003-H14

| Thickness in Inches | | | | Weight | | Thickness in Millimeter | | |
|---------------------|-----------------------------------|-------|-------|--------------------|-------------------|-------------------------|--------|--------|
| Nom. | Tolerance 48" & (60") Width | Min. | Max. | lb/ft ² | Kg/m ² | Nom. | Min. | Max. |
| .016 | .0015 | .0145 | .0175 | .228 | 1.114 | .4068 | .3683 | .4445 |
| .020 | .002 | .018 | .022 | .285 | 1.393 | .508 | .4572 | .5588 |
| .024 | .002 | .022 | .026 | .342 | 1.671 | .6096 | .5588 | .6604 |
| .025 | .002 | .023 | .027 | .358 | 1.7398 | .635 | .5842 | .6858 |
| .032 | .0025 | .0295 | .0345 | .456 | 2.228 | .8128 | .7493 | .8763 |
| .040 | .0035 | .0365 | .0435 | .570 | 2.786 | 1.016 | .9271 | 1.1049 |
| .050 | .0035 | .0465 | .0535 | .713 | 3.484 | 1.27 | 1.1811 | 1.3589 |
| .063 | .0035 | .0595 | .0665 | .898 | 4.389 | 1.600 | 1.5113 | 1.6891 |
| .080 | .0045 | .0755 | .0845 | 1.140 | 5.571 | 2.032 | 1.9117 | 2.1463 |
| .090 | .0045 | .0855 | .0945 | 1.283 | 6.270 | 2.286 | 2.1717 | 2.4003 |
| .100 | .0055 | .0945 | .1055 | 1.426 | 6.969 | 2.54 | 2.4003 | 2.6797 |
| .125 | .0055 | .1195 | .1305 | 1.782 | 8.709 | 3.175 | 3.0353 | 3.3147 |

Weight is based on 14.256 lb per square foot per inch of thickness (or 17.1 lb/cf). Alloy 1100 is of slightly lower density.

Specification references: ASTM B209 Standard Specification of Aluminum Alloy Sheet and Plate which references ANSI Standard H35.2 Dimensional Tolerances for Aluminum mill Products.

Other useful references are published by the Aluminum Association: Specification for Aluminum Structures; Engineering Data for Aluminum Structures; Aluminum Standards and Data.

Stainless Steel Thickness

| Gage | Thickness in Inches | | | | Weight | | | | Thickness in Millimeter | | |
|------|---------------------|-------|-----------|-------|--------|-------|-------------------|--------|-------------------------|--------|--------|
| | Min. | Max. | Tolerance | Nom. | lb/sf | | Kg/m ² | | Nom. | Min. | Max. |
| | | | | | 300 | 400 | 300 | 400 | | | |
| 31 | .0089 | .0129 | .002 | .0109 | .459 | .451 | 2.239 | 2.200 | .2769 | .2269 | .3269 |
| 30 | .0111 | .0145 | .002 | .0125 | .525 | .515 | 2.562 | 2.512 | .3175 | .2675 | .3675 |
| 29 | .0121 | .0161 | .002 | .0141 | .591 | .579 | 2.883 | 2.825 | .3581 | .3081 | .4081 |
| 28 | .0136 | .0176 | .002 | .0156 | .656 | .644 | 3.200 | 3.142 | .3962 | .3462 | .4462 |
| 27 | .0142 | .0202 | .003 | .0172 | .722 | .708 | 3.522 | 3.454 | .4369 | .3569 | .5169 |
| 26 | .0158 | .0218 | .003 | .0188 | .788 | .773 | 3.844 | 3.771 | .4775 | .3975 | .5575 |
| 25 | .0189 | .0249 | .003 | .0219 | .919 | .901 | 4.483 | 4.395 | .5562 | .4762 | .6362 |
| 24 | .0220 | .0280 | .003 | .0250 | 1.050 | 1.030 | 5.122 | 5.025 | .6350 | .5550 | .7150 |
| 23 | .0241 | .0321 | .004 | .0281 | 1.181 | 1.159 | 5.761 | 5.654 | .7137 | .6137 | .8137 |
| 22 | .0273 | .0353 | .004 | .0313 | 1.313 | 1.288 | 6.405 | 6.283 | .7950 | .6950 | .8950 |
| 21 | .0304 | .0384 | .004 | .0344 | 1.444 | 1.416 | 7.044 | 6.908 | .8738 | .7738 | .9738 |
| 20 | .0335 | .0415 | .004 | .0375 | 1.575 | 1.545 | 7.683 | 7.537 | .9525 | .8525 | 1.0525 |
| 19 | .0388 | .0488 | .005 | .0438 | 1.838 | 1.803 | 8.966 | 8.796 | 1.1125 | .9835 | 1.2425 |
| 18 | .0450 | .0550 | .005 | .0500 | 2.100 | 2.060 | 10.245 | 10.050 | 1.2700 | 1.1400 | 1.4000 |
| 17 | .0513 | .0613 | .005 | .0563 | 2.363 | 2.318 | 11.528 | 11.308 | 1.4300 | 1.300 | 1.5600 |
| 16 | .0565 | .0685 | .006 | .0625 | 2.625 | 2.575 | 12.806 | 12.562 | 1.5875 | 1.4375 | 1.7375 |
| 15 | .0643 | .0763 | .006 | .0703 | 2.953 | 2.897 | 14.406 | 14.133 | 1.2856 | 1.6356 | 1.9356 |
| 14 | .0711 | .0851 | .007 | .0781 | 3.281 | 3.219 | 16.006 | 15.704 | 1.9837 | 1.8037 | 2.1637 |
| 13 | .0858 | .1018 | .008 | .0938 | 3.938 | 3.863 | 19.211 | 18.845 | 2.3825 | 2.1825 | 2.5825 |
| 12 | .1000 | .1184 | .009 | .1094 | 4.594 | 4.506 | 22.411 | 21.982 | 2.7788 | 2.5488 | 2.9788 |
| 11 | .1150 | .1350 | .010 | .1250 | 5.250 | 5.150 | 25.612 | 25.124 | 3.1750 | 2.9250 | 3.4250 |
| 10 | .1286 | .1526 | .012 | .1406 | 5.906 | 5.794 | 28.812 | 28.265 | 3.5712 | 3.2712 | 3.8712 |
| 9 | .1423 | .1703 | .014 | .1563 | 6.563 | 6.438 | 32.017 | 31.407 | 3.9700 | 3.6100 | 4.3300 |
| 8 | .1579 | .1859 | .014 | .1719 | 7.219 | 7.081 | 35.217 | 34.544 | 4.3663 | 4.0063 | 4.7263 |

ASTM-A167 - "Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip"(Properties of the 300 series) ASTM-A480 - "Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet and Strip"

Finishes.

No. 1 Finish - Hot-rolled, annealed, and descaled.

No. 2 D Finish - cold-rolled, dull finish

No. 3 B Finish - Cold-rolled, bright finish

Bright Annealed Finish - A bright cold-rolled finish retained by annealing in a controlled atmosphere furnace.

No. 3 Finish - Intermediate polished finish, one or both sides

No. 4 Finish - General Purpose polished finish, one or both sides

No. 6 Finish - Dull stain finish, ampico brushed, one or both sides.

No. 7 Finish - High luster finish

No. 8 Finish - Mirror finish

The 300 series weight is based on 41.99 lb per square foot per inch of thickness (or 504 lb/cf).

The 400 series weight is based on 41.20 lb per square foot per inch of thickness (or 494 lb/cf).

ASTM -A666 covers the structural grade of stainless steel (not used for ducts). For design criteria, generally, consult the AISI Stainless Steel Cold-Formed Structural Design Manual For general application and corrosion data consult the AISI Design Guidelines for the Selection and Use of Stainless Steels and the Specialty Steel Industry of the United States in Washington, D.C.

Conversion Chart: Rectangular to Equivalent Round (for Equal Friction and Capacity)

| a b | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 900 | 1000 | 1200 | 1400 | 1600 | 1700 | 1800 | 1900 | 2000 |
|--------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 100 | 109 | | | | | | | | | | | | | | | | | | | | | | | |
| 125 | 122 | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 133 | 164 | | | | | | | | | | | | | | | | | | | | | | |
| 175 | 143 | 177 | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 152 | 189 | 219 | | | | | | | | | | | | | | | | | | | | | |
| 225 | 161 | 200 | 232 | | | | | | | | | | | | | | | | | | | | | |
| 250 | 169 | 210 | 244 | 273 | | | | | | | | | | | | | | | | | | | | |
| 275 | 176 | 220 | 256 | 287 | | | | | | | | | | | | | | | | | | | | |
| 300 | 183 | 229 | 266 | 299 | 328 | | | | | | | | | | | | | | | | | | | |
| 350 | 195 | 245 | 286 | 322 | 354 | 383 | | | | | | | | | | | | | | | | | | |
| 400 | 207 | 260 | 305 | 343 | 378 | 409 | 437 | | | | | | | | | | | | | | | | | |
| 450 | 217 | 274 | 321 | 363 | 400 | 433 | 464 | 492 | | | | | | | | | | | | | | | | |
| 500 | 227 | 287 | 337 | 381 | 420 | 455 | 488 | 518 | 547 | | | | | | | | | | | | | | | |
| 550 | 236 | 299 | 352 | 398 | 439 | 477 | 511 | 543 | 573 | 601 | | | | | | | | | | | | | | |
| 600 | 245 | 310 | 365 | 414 | 457 | 496 | 533 | 567 | 598 | 628 | 656 | | | | | | | | | | | | | |
| 650 | 253 | 321 | 378 | 429 | 474 | 515 | 553 | 589 | 622 | 653 | 683 | 711 | | | | | | | | | | | | |
| 700 | 261 | 331 | 391 | 443 | 490 | 533 | 573 | 610 | 644 | 677 | 708 | 737 | 765 | | | | | | | | | | | |
| 750 | 268 | 341 | 402 | 457 | 506 | 550 | 592 | 630 | 666 | 700 | 732 | 763 | 792 | 820 | | | | | | | | | | |
| 800 | 275 | 350 | 414 | 470 | 520 | 567 | 609 | 649 | 687 | 722 | 755 | 787 | 818 | 847 | 875 | | | | | | | | | |
| 900 | 289 | 367 | 435 | 494 | 548 | 597 | 643 | 686 | 726 | 763 | 799 | 833 | 866 | 897 | 927 | 984 | | | | | | | | |
| 1000 | 301 | 384 | 454 | 517 | 574 | 626 | 674 | 719 | 762 | 802 | 840 | 876 | 911 | 944 | 976 | 1037 | 1093 | | | | | | | |
| 1100 | 313 | 399 | 473 | 538 | 598 | 652 | 703 | 751 | 795 | 838 | 878 | 916 | 953 | 988 | 1022 | 1086 | 1146 | | | | | | | |
| 1200 | 324 | 413 | 490 | 558 | 620 | 677 | 731 | 780 | 827 | 872 | 914 | 954 | 993 | 1030 | 1066 | 1133 | 1196 | 1312 | | | | | | |
| 1300 | 334 | 426 | 506 | 577 | 642 | 701 | 757 | 808 | 857 | 904 | 948 | 990 | 1031 | 1069 | 1107 | 1177 | 1244 | 1365 | | | | | | |
| 1400 | 344 | 439 | 522 | 595 | 662 | 724 | 781 | 835 | 886 | 934 | 980 | 1024 | 1066 | 1107 | 1146 | 1220 | 1289 | 1416 | 1530 | | | | | |
| 1500 | 353 | 452 | 536 | 612 | 681 | 745 | 805 | 860 | 913 | 963 | 1011 | 1057 | 1100 | 1143 | 1183 | 1260 | 1332 | 1464 | 1584 | | | | | |
| 1600 | 362 | 463 | 551 | 629 | 700 | 766 | 827 | 885 | 939 | 991 | 1041 | 1088 | 1133 | 1177 | 1219 | 1298 | 1373 | 1511 | 1635 | 1749 | | | | |
| 1700 | 371 | 475 | 564 | 644 | 718 | 785 | 849 | 908 | 964 | 1018 | 1069 | 1118 | 1164 | 1209 | 1253 | 1335 | 1413 | 1555 | 1684 | 1803 | 1858 | | | |
| 1800 | 379 | 485 | 577 | 660 | 735 | 804 | 869 | 930 | 988 | 1043 | 1096 | 1146 | 1195 | 1241 | 1286 | 1371 | 1451 | 1598 | 1732 | 1854 | 1912 | 1968 | | |
| 1900 | 387 | 496 | 590 | 674 | 751 | 823 | 889 | 952 | 1012 | 1068 | 1122 | 1174 | 1224 | 1271 | 1318 | 1405 | 1488 | 1640 | 1778 | 1904 | 1964 | 2021 | 2077 | |
| 2000 | 395 | 506 | 602 | 688 | 767 | 840 | 908 | 973 | 1034 | 1092 | 1147 | 1200 | 1252 | 1301 | 1348 | 1438 | 1523 | 1680 | 1822 | 1952 | 2014 | 2073 | 2131 | 2186 |
| 2100 | 402 | 516 | 614 | 702 | 782 | 857 | 927 | 993 | 1055 | 1115 | 1172 | 1226 | 1279 | 1329 | 1378 | 1470 | 1558 | 1719 | 1865 | 1999 | 2063 | 2124 | 2183 | 2240 |
| 2200 | 410 | 525 | 625 | 715 | 797 | 874 | 945 | 1013 | 1076 | 1137 | 1195 | 1251 | 1305 | 1356 | 1406 | 1501 | 1591 | 1756 | 1906 | 2044 | 2110 | 2173 | 2233 | 2292 |
| 2300 | 417 | 534 | 636 | 728 | 812 | 890 | 963 | 1031 | 1097 | 1159 | 1218 | 1275 | 1330 | 1383 | 1434 | 1532 | 1623 | 1793 | 1947 | 2088 | 2155 | 2220 | 2283 | 2343 |
| 2400 | 424 | 543 | 647 | 740 | 826 | 905 | 980 | 1050 | 1116 | 1180 | 1241 | 1299 | 1355 | 1409 | 1461 | 1561 | 1655 | 1828 | 1986 | 2131 | 2200 | 2266 | 2330 | 2393 |
| 2500 | 430 | 552 | 658 | 753 | 840 | 920 | 996 | 1068 | 1136 | 1200 | 1262 | 1322 | 1379 | 1434 | 1488 | 1589 | 1685 | 1862 | 2024 | 2173 | 2243 | 2311 | 2377 | 2441 |
| 2600 | 437 | 560 | 668 | 764 | 853 | 935 | 1012 | 1085 | 1154 | 1220 | 1283 | 1344 | 1402 | 1459 | 1513 | 1617 | 1715 | 1896 | 2061 | 2213 | 2285 | 2355 | 2422 | 2487 |
| 2700 | 443 | 569 | 678 | 776 | 866 | 950 | 1028 | 1102 | 1173 | 1240 | 1304 | 1366 | 1425 | 1483 | 1538 | 1644 | 1744 | 1929 | 2097 | 2253 | 2327 | 2398 | 2466 | 2533 |
| 2800 | 450 | 577 | 688 | 787 | 879 | 964 | 1043 | 1119 | 1190 | 1259 | 1324 | 1387 | 1447 | 1506 | 1562 | 1670 | 1772 | 1961 | 2133 | 2292 | 2367 | 2439 | 2510 | 2578 |
| 2900 | 456 | 585 | 697 | 798 | 891 | 977 | 1058 | 1135 | 1208 | 1277 | 1344 | 1408 | 1469 | 1529 | 1586 | 1696 | 1800 | 1992 | 2167 | 2329 | 2406 | 2480 | 2552 | 2621 |

De= 1.30 [(ab) 0.625/ (a+b) 0.250] where:

a = length of one side of rectangular duct (mm).

b = length of adjacent side of rectangular duct (mm).

De = circular equivalent of rectangular duct for equal friction and capacity (mm).

Example: convert rectangular duct 350x350 to equivalent round.

a = 350, b = 350; from above table De= 383.

HVAC Equations in Metric Units

| | |
|--|--|
| $V = \frac{Q}{A}$ | Q = Air flow rate (m³/s) V = Flow Velocity (m/s) A = Cross-sectional area (m²) |
| $\Delta TP = SP + V_p$ | ΔTP = Total pressure (Pa) SP = static pressure (Pa) V _p = velocity pressure (Pa) V _P = 0.602 V² V = flow velocity (m/s) |
| $\Delta TP = C \times V_p$ | C = fitting loss coefficient |
| $Re = 132.8H \times W \times V / (H + W)$ | Re = Reynolds number W = Width (mm) H = Height (mm) |
| $F = C_L \times P^N$ | F = Leak rate per unit of cut surface CL = Constant P = Static pressure N = Exponent relating turbulence |
| $\frac{Q_2}{Q_1} = \frac{rpm_2}{rpm_1}$ | rpm = Revolution per minute |
| $\frac{P_2}{P_1} = \left(\frac{rpm_2}{rpm_1}\right)^2$ | P = Pressure (Pa) rpm = Revolution per minute |
| $\frac{FP_2}{FP_1} = \left(\frac{rpm_2}{rpm_1}\right)^3$ | FP = Fan power (W) |
| $\frac{d_2}{d_1} = \frac{P_2}{P_1}$ When $Q_1 = Q_2$ | d = Density (kg/m³) |
| $V = 1.414 \sqrt{\frac{V_p}{d}}$ $d = 3.48 \frac{P_b}{T}$ | V = velocity (m/s) V _p = velocity pressure (Pa) d = density (kg/m³) P _b = absolute static pressure (kPa) T = absolute temperature (273 + °C = °K) |
| $Q = C_p \times d \times \frac{L}{S} \times \Delta t$ | Q = heat flow (watt or kilowatt) C _p = specific heat (kJ/kg. °C) d = density (kg/m³) Δt = temperature difference (°C) m³/s = airflow (cubic meter per second) |
| $Q (Lat.) = 3.0 \times \frac{L}{S} \times \Delta W$ | ΔW = humidity ratio (gH ₂ O/kg dry air) |
| $Q (Total Heat) = 1.2 \times \frac{L}{S} \times \Delta h$ | Δh = Enthalpy diff. (kJ/kg dry air) |
| $Q = A \times U \times \Delta t$ | A = area of surface (m²) U = heat transfer coefficient (W/ m². °C) Δt = temperature difference (°C) |
| $R = \frac{1}{U}$ | R = sum of thermal resistance (m². °C /W) U = heat transfer coefficient (W/ m². °C) |
| $\frac{L}{S} = 1000 \times A \times V$ | V = velocity (m/s) A = area of duct (m²) |

Fan Equations

| | |
|---|--|
| $\frac{L/S_2}{L/S_1} = \frac{m^3/S_2}{m^3/S_1} = \frac{rad/S_2}{rad/S_1}$ | L/s = Liter per Second m³/s = Cubic meters per second rad/s = Radians per second |
| $\frac{P_2}{P_1} = \left(\frac{rad/S_2}{rad/S_1}\right)^2$ | P = Static or total pressure (pa) rad/s = Radians per second |
| $\frac{kW_2}{kW_1} = \left(\frac{rad/S_2}{rad/S_1}\right)^3$ | kW = Kilowatts rad/s = Radians per second |
| $\frac{d_2}{d_1} = \left(\frac{rad/S_2}{rad/S_1}\right)^2$ | d = Density (kg/m³) rad/s = Radians per second |
| $\frac{rad/s(fan)}{rad/s(motor)} = \frac{pitch\ diam. motor\ pulley}{pitch\ diam. fan\ pulley}$ | rad/s = Radians per second |

Pump Equations

| | |
|---|--|
| $\frac{L/S_2}{L/S_1} = \frac{m^3/S_2}{m^3/S_1} = \frac{rad/S_2}{rad/S_1}$ | L/s = Liter per Second m³/s = Cubic meters per second rad/s = Radians per second |
| $\frac{m^3/S_2}{m^3/S_1} = \frac{D_2}{D_1}$ | m³/s = Cubic meters per second rad/s = Radians per second D = Impeller Diameter |
| $\frac{H_2}{H_1} = \left(\frac{rad/S_2}{rad/S_1}\right)^2$ | H = Head (kPa) rad/s = Radians per second |
| $\frac{H_2}{H_1} = \left(\frac{D_2}{D_1}\right)^2$ | H = Head (kPa) rad/s = Radians per second D = Impeller Diameter |
| $\frac{BP_2}{BP_1} = \left(\frac{rad/S_2}{rad/S_1}\right)^3$ | BP = Brake horsepower rad/s = Radians per second |
| $\frac{BP_2}{BP_1} = \left(\frac{D_2}{D_1}\right)^3$ | BP = Brake horsepower D = Impeller Diameter |

Metric Equivalents

| Quantity | Symbol | Unit | U.S. Relationship |
|------------------------|---------------------------|--|---|
| Acceleration | m / s ² | Meters per second squared | 1m/s ² = 3.281 ft/sec ² |
| Angular velocity | Rad /s | Radians per second | 1 rad/sec = 9.549 rpm |
| Area | m ² | Square meter | 1m ² = 10.76 sq ft |
| Atmospheric pressure | - | 101.325 kPa | 29.92 in Hg = 14.696 psi |
| Density | kg/m ³ | Kilograms per cubic meter | 1kg/m ³ = 0.0624 ib/cu ft |
| Density Air | - | 1.2 kg/m ³ | 0.075 ib/cu ft |
| Density Water | - | 1000 kg/m ³ | 62.4 ib/cu ft |
| Duct friction loss | Pa/m | Pascal per meter | 1pa/m = 0.1224 in.wg. /100 |
| Enthalpy | KJ/kg | Kilojoule per kilogram | 1kj/kg = 0.4299 Btu/lb dry air |
| Gravity | - | 9.8067 m/s ² | 32.2 ft/sec ² |
| Heat Flow | w | Watt | 1w = 3.412 btu/hr |
| Length (normal) | m | meter | 1m = 3.281 ft = 39.37 in |
| Linear velocity | m/s | Meters per second | 1 m/s = 196.9 fpm |
| Mass flow rat | kg/s | Kilograms per second | 1kg/s = 7936.6 ib/hr |
| Moment of inertia | kg.m ² | Kilograms x square meter | 1kg.m ² =23.73 lb.Sq ft |
| Power | W | Watt | 1w = 0.00134 hp |
| Pressure | kPa Pa | Kilo Pascal (1000 Pascal) Pascal | 1kpa = 0.296 in Hg. 145 1 Pa = 0.004015 in.w.g. |
| Specific heat-air (Cp) | - | 1000 J/kg. °C | 1000 J/kg. °C = 1kJ/kg.°C =0.2388 btu/b °F |
| Specific heat-air (Cv) | - | 717 J/kg. °C | 0.17 btu/lb°F |
| Specific heat-wate | - | 4190 J/kg. °C | 1.0 btu/lb°F |
| Specific volumn | m ³ /kg | Cubic meters per kilogram | 1m ³ /kg = 16.019 cu ft/lb. |
| Thermal conductivity | W.mm/m ² .°C | Watt millimeter per square meter °C | 1w.mm/m ² . °C = 0.0069 btu. in/ft2.hr. °F |
| Volume flow rat | m ³ /kg l/s | Cubic meters per second liters per second 1m ³ /s=1000 l/s 1ml-litres/1000 | 1m ³ /s = 2118.88 cfm (air) 1 l/s = 2.12 cfm (air) 1m ³ /s = 15.850 gpm (water) 1ml/s = 1.05 gph (water) |

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