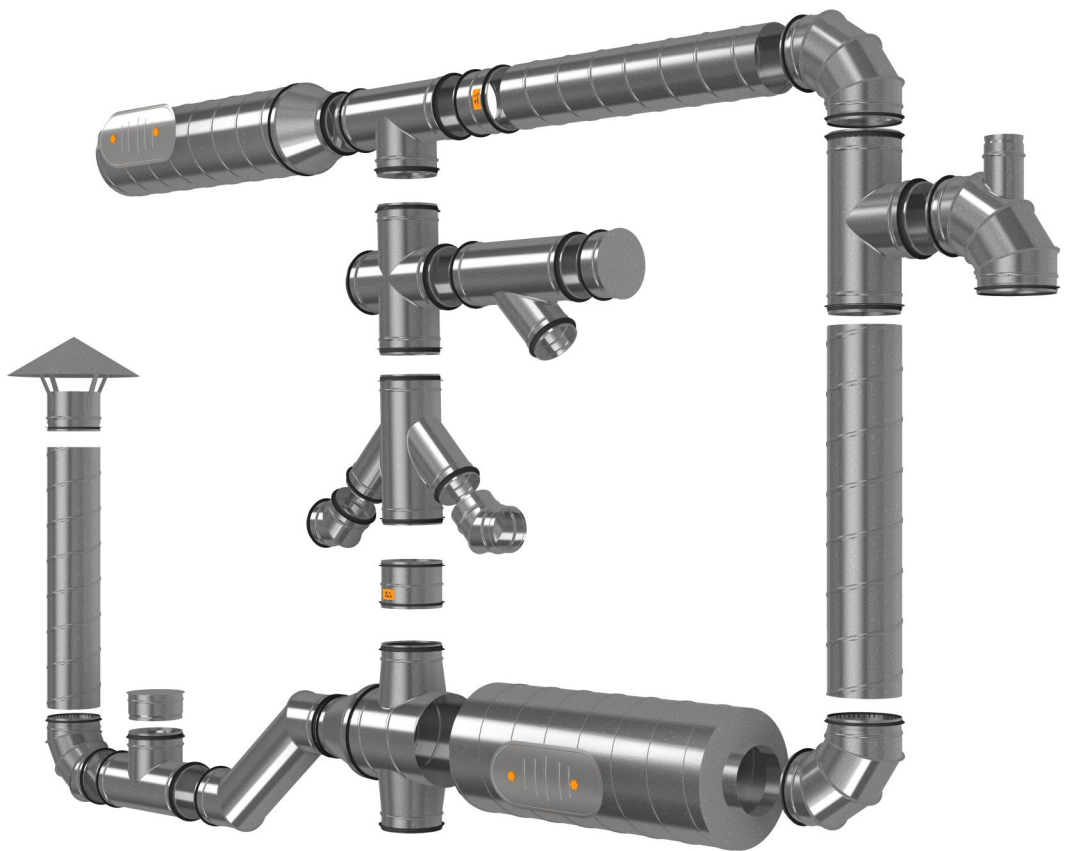


Made in Vietnam

Spiral Circular Ducts Catalogue



Since 2004


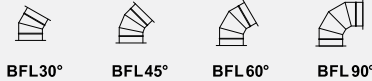


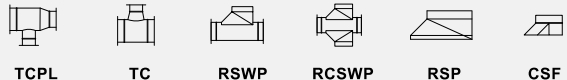
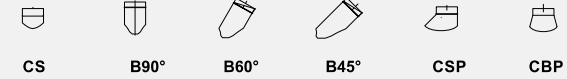
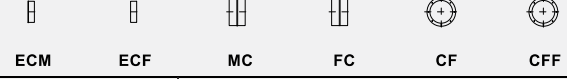



As per SMACNA (2nd Edition-1995 & 3rd Edition-2005)









































Materials: Galvanized, Stainless Steel
316 or 304 & Aluminum



Circular Ducts: Single Wall

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Circular Ducts: Double Wall


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Circular Duct Machine and Factory

About  STARDUCT



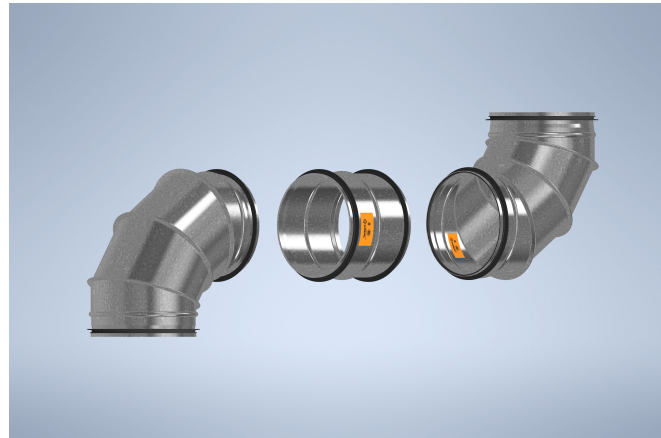
CUTTING		 <p>CURVECUTTER PLASMACUTTER</p>
ROUNDING		 <p>ROLLFORMER</p>
WELDING		 <p>SPOTWELDER STITCHWELDER</p>
SEALING		 <p>SPIRO® SHAPER FITTINGSHAPER</p>
FLANGING & CLOSING		 <p>AEM 400 PRO GORELOCKER</p>



- ✦ 10.000 sqm factory in Hanoi and Hochiminh city
- ✦ 18 years experiences
- ✦ Full range HVAC and air distribution products

Application advantages

- Quick and easy installation.
- The gaskets are factory-installed without play to ensure their proper seating when connections are made.
- This allows accurate mounting of fittings without the risk of breaching the seal or air leaks.
- An environment-friendly installation method which requires no silicones containing toxic solvents that could evaporate into the ductwork.
- The system can be installed in all weather conditions.
- Temperature resistance: -30° to +100 °C.
- Maximum operating vacuum: up to 3000 Pa.
- Maximum operating pressure: up to 5000 Pa.
- Internal and external manufacturing control.
- An aesthetic finish which is particularly important for exposed systems.



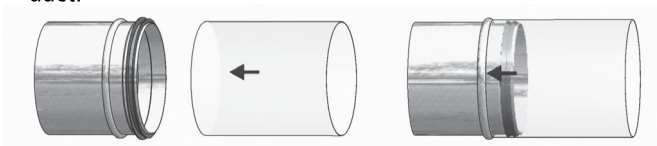
A leak-proof ductwork

The SPIRAL[®] system is a proven system of quick-coupled spiral ducts and fittings provided with factory-installed EPDM gaskets. The gaskets provide leak-proof and durable joints between SPIRAL[®] system components. The system components are available in a full range of diameters from Ø80 to Ø1250 mm. SPIRAL system meets the requirements of **EN 15727:2010** for air tightness class D

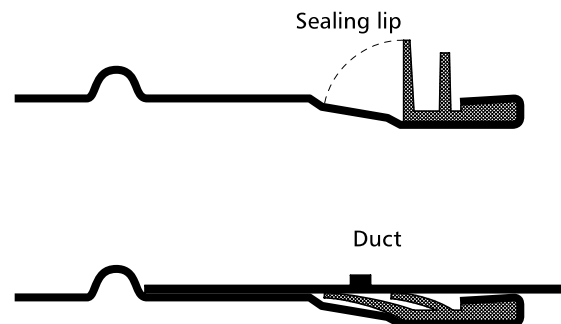
The high-quality of workmanship and factory-installed rubber gaskets enable easy and quick assembly of ventilation ductwork. Ductwork based on SPIRAL[®] system components guarantees long and leak-proof service life and requires no additional sealants.

The key benefit

The gasket fits snugly along the entire circumference of the duct.



Rubber gaskets



The gaskets are made from uniform EPDM rubber. The gasket is mounted at the end of the fitting and held tight in the fitting's hemmed rim. This keeps the gasket firmly in place during and after the installation phase.

Rubber gaskets must meet high quality standards, and therefore we have chosen to make them from EPDM rubber. This material has superior resistance to ozone, UV radiation, and temperature variations, thus providing longer service life.

EPDM gaskets can withstand temperatures of -30 °C to 100 °C.

Installation instructions

Before installation

Ducts to be installed must be clean.

Duct trimming

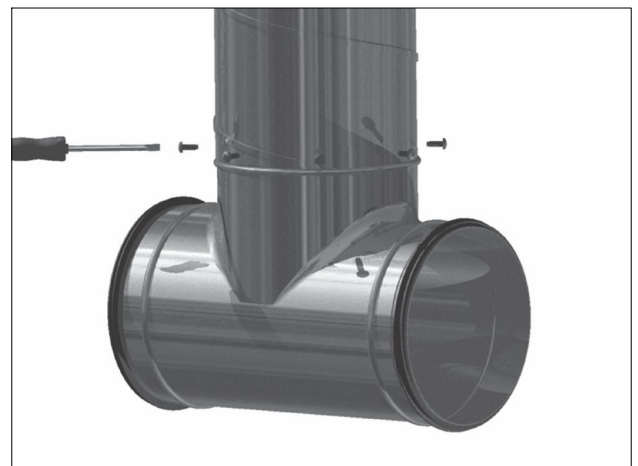
Trim the ducts to the correct angle and size, and deburr the edges.

Installation of fittings

- Check that the ducts and fittings to be installed are not damaged.
Thoroughly inspect gaskets for damage.
- Slide the fitting into the duct up until you reach the stop.
Try sliding the piece in while twisting it left and right to make the joining easier.
- Fasten the piece to the duct with sheet metal screws or aircraft rivets.
Follow the bolting / riveting pattern to avoid misalignment between the joined ductwork components.
It is best to install the screws / rivets alternately on opposite sides.
- The table below shows the recommended thickness of sheet metal screws and aircraft rivets:

$\varnothing d$ (mm)	min. diameter (mm)	number of screws
80 – 250	3.2	3
280 – 500	3.2	4
560 – 710	3.2	6
710 - 1250	4.0	12
1400 – 1600	4.0	16

Place the sheet metal screws (or aircraft rivets) at an even spacing around the joint. Make sure that you do not pierce the gasket. To do this, fasten the screws 10 mm away from the duct edge and the stop. If the joint is not properly coupled, it is best to use new components. If this is impossible, you can seal the screw / rivet holes.

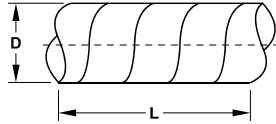


Circular Ducts

Tolerance

TOLERANCE

Ducts:




According to EN 1506

ΦD nom	Tolerance range
100	100,0 - 100,5
125	125,0 - 125,5
140	140,0 - 140,6
150	150,0 - 150,6
160	160,0 - 160,6
180	180,0 - 180,7
200	200,0 - 200,7
224	224,0 - 224,8
250	250,0 - 250,8
280	280,0 - 280,9
300	300,0 - 300,9
315	315,0 - 315,9
355	355,0 - 356,0
400	400,0 - 401,0
450	450,0 - 451,1
500	500,0 - 501,1
550	550,0 - 551,2
560	560,0 - 561,2
600	600,0 - 601,2
630	630,0 - 631,2
650	650,0 - 651,2
710	710,0 - 711,6
750	750,0 - 751,6
800	800,0 - 801,6
850	850,0 - 851,6
900	900,0 - 902,0
950	950,0 - 952,0
1000	1000,0 - 1002,0
1050	1050,0 - 1052,5
1100	1100,0 - 1102,5
1120	1120,0 - 1122,5
1150	1150,0 - 1152,5
1200	1200,0 - 1202,5
1250	1250,0 - 1252,5
1300	1300,0 - 1302,5
1350	1350,0 - 1352,5
1400	1400,0 - 1402,5
1450	1450,0 - 1452,8
1500	1500,0 - 1502,9
1600	1600,0 - 1603,1
1800	1800,0 - 1803,3
2000	2000,0 - 2003,5
2300	2300,0 - 2304,0
2500	2500,0 - 2505,0

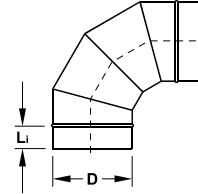
Length

L, L _i , etc	Tolerance mm
0 - 15	+0 -2
16 - 100	+0 -5
101 -	+0 -10
L	±5

Angle

α	Tolerance
	± 2°

Fittings:



According to EN 1506

ΦD, D ₁ , D ₂ , D ₃ , D ₄ nom	Tolerance range	L _i nom
100	98,8 - 99,3	50
125	123,8 - 124,3	50
140	138,7 - 139,3	50
150	148,7 - 149,3	50
160	158,7 - 159,3	50
180	178,6 - 179,3	50
200	198,6 - 199,3	50
224	222,5 - 223,3	50
250	248,5 - 249,3	50
280	278,4 - 279,3	50
300	298,4 - 299,3	50
315	313,4 - 314,3	50
355	353,3 - 354,3	50
400	398,3 - 399,3	50
450	448,2 - 449,3	50
500	498,2 - 499,3	50
550	548,1 - 549,3	50
560	558,1 - 559,3	50
600	598,1 - 599,3	50
630	628,1 - 629,3	50
650	648,1 - 649,3	50
710	708,0 - 709,3	50
750	748,0 - 749,3	50
800	798,0 - 799,3	50
850	848,0 - 849,3	50
900	897,9 - 899,3	50
950	947,9 - 949,3	50
1000	997,9 - 999,3	50
1050	1047,9 - 1049,3	50
1100	1097,9 - 1099,3	50
1120	1117,8 - 1119,3	50
1150	1147,8 - 1149,3	50
1200	1197,8 - 1199,3	50
1250	1247,8 - 1249,3	50
1300	1297,8 - 1299,3	50
1350	1347,8 - 1349,3	50
1400	1397,3 - 1398,8	100
1450	1447,3 - 1448,8	100
1500	1497,3 - 1498,8	100
1600	1596,5 - 1598,2	100
1800	1796,5 - 1798,2	100
2000	1996,5 - 1998,2	100
2300	2294,5 - 2298,0	100
2500	2491,5 - 2497,5	100

Weight

± 10%

Sheet metal thickness

As in sheet metal standard EN 10143:1993

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel:** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal:** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

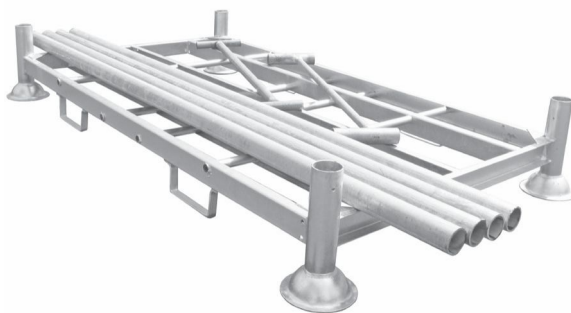
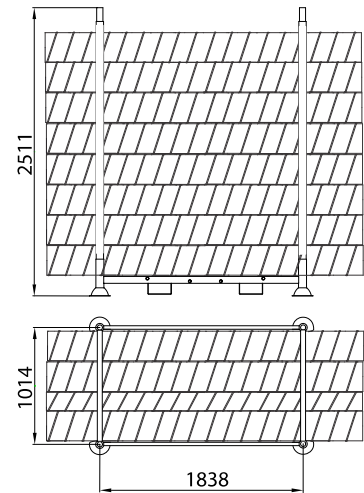
SPIRAL ventilation ducts in racks



Description

Spiral duct sets are available as wholesale units in standard nominal diameters. All sets are composed of 1 to 3 different duct nominal diameters in the same quantity. As a result, the units can be handled on and off transport vehicles with a forklift truck in just 30 minutes. It is also easier and less time-consuming to check the quality and quantity of the supplied components.

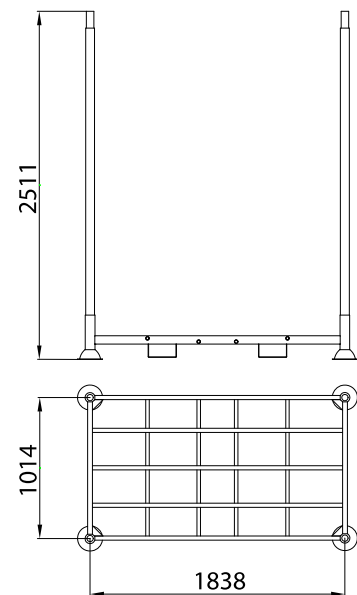
Dimensions



Description

The racks are designed for storage and shipping of SPIRAL round ducts. They can accommodate ducts in the nominal diameter range of 80 mm to 315 mm. If the box capacity needs to be maximized, ducts of max. 3 different nominal diameters can be boxed by placing smaller tubes into larger ones. An empty rack can be collapsed and stacked to save space in warehouses and on transport vehicles.

Dimensions



SPIRAL duct racks

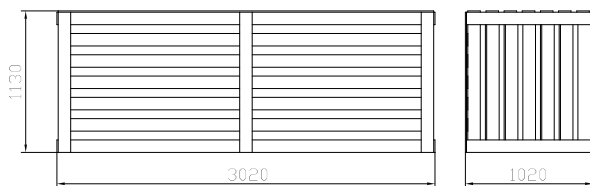
MOBIL-RACK



Description

Spiral duct sets are available as wholesale units in standard nominal diameters. All sets are composed of 1 to 4 different duct nominal diameters in the same quantity. As a result, the units can be handled on and off transport vehicles with a forklift truck in just 30 minutes. The box units are made from fumigated wood to enable shipping by sea. Ventilation ducts in boxes are fully protected from damage also during container transport.

Dimensions



TEMPERATURE LIMITS OF MATERIALS

The shadow fields denotes standard versions.

Product	Material/type	Operation			
		Continual		Intermittent	
		Temperature limit			
		min °C	max °C	min °C	max °C
Pressed and seams welded	Galvanized steel sheet metal		200 ¹		250 ²
	Aluminum sheet metal		200 ³		300
	Stainless sheet metal		500		700
	PVC coated sheet steel metal		80		120
	PE-/EP coated products		150		200
Swaged, spot welded and/or blind interlocked joint	Aluzink sheet metal		315		
	Mastic	-40	70		
Safe gasket and damper blade seal	EPDM rubber	-30	100	-50	120
	Silicone rubber	-70	150	-90	200
Foam rubber seal	EPDM rubber	-30	100	-50	120
Foam plastic gasket	Polyester	-40	70		
Damper shaft bearing	Polyamide	-30	150	-50	200
	Brass		300		
Damper actuator	Electric	-30	50		
	Pneumatic	-5	60		
Duct filter	Polyester		120		
Drain hose	Ethylene vinyl acetate and polyethylene	-45	65		
Insulation	Glass wool		200		
	Rock wool		700		
Silencer	Polyester		130		180

1- Discoloration occurs at about 200°C in Galvanized Steel. This is mostly an appearance problem and does not mean impaired corrosion protection in a normal environment.

2- If temperature rises to about 200°C, the adhesion of the zinc is impaired which means poorer corrosion protection.

3- Aluminum sheet will soften after a couple of years at 200°C
ML = 150° - 200°C

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

UNITS

The SI System (Système International d'Unités) is used in this catalogue in accordance with international practice. Units may be given in the "technical system" in diagrams and tables, in parallel with the SI System.

Some Basic units

For Length	Meter	M
For Mass	kilogramme	kg
For Time	second	s
For Electric Current	ampere	A
For Temperature	kelvin	K

Some Derived units

For Frequency	hertz	Hz	1 Hz = 1/s
For Force	newton	N	1 N = 1 kg*m/s ²
For Pressure, Mechanical stress	pascal	Pa	1 Pa = 1 N/m ²
For Energy, work	joule	J	1 J = 1N*m
For Power	watt	W	1 W = 1J/s
For Electric Potential, Electric tension	volt	V	1 V = 1 W/A

Some Additional units

For Time	minute hour	min h	1 min = 60 s 1 h = 3600s = 60min
For Flat Angles	degree	°	1 ° = 1/360 of a circle
For Volume	litre	l	1 l = 1 000 cm ³ = 1dm ³

Some Multiple prefixes

Index	Designation	Des.	Example	
10 ¹²	tera	T	1 terajoule	1 TJ
10 ⁹	giga	G	1 gigawatt	1 GW
10 ⁶	mega	M	1 megavolt	1 MV
10 ³	kilo	k	1 kilometre	1 km
10 ²	hecto	h	1 hectogramme	1 hg
10 ¹	deca	da	1 decalumen	1 dalm
10 ⁻¹	deci	d	1 decimetre	1 dm
10 ⁻²	centi	cm	1 centimetre	1 cm
10 ⁻³	milli	m	1 milligramme	1 mg
10 ⁻⁶	micro	μ	1 micrometre	1 μm
10 ⁻⁹	nano	n	1 nanohenry	1 nH
10 ⁻¹²	pico	p	1 picofarad	1 pF

Circular Ducts

The SI System

CONVERSION FACTORS

Tables for conversion to other dimensions are given for some of the units commonly used in the industry.

Pressure, p

Pa pascal N/m ²	mm wc mm Aq mm H ₂ O	mm Hg (at 20°C)	in wg “ wg in wc	psi(g) ibf/in ²	bar
1	0,102	0,007 53	0,004 02	0,000 145	0,000 010 0
9,79	1	0,073 7	0,039 4	0,001 42	0,000 097 9
133	13,6	1	0,534	0,019 3	0,001 33
249	25,4	1,87	1	0,036 1	0,002 49
6 895	704	51,9	27,7	1	0,068 9
100 000	10 215	753	402	14,5	1

Length, l

in inch	ft foot	yd yard	m metre	mile
1				
12,0	0,083 3	0,027 8	0,025 4	0,000 015 8
36,0	1	0,333	0,305	0,000 189
39,4	3,00	1	0,914	0,000 568
63 360	3,28	1,09	1	0,000 621
	5 280	1 760	1 609	1

Area, A

in ² sq in	ft ² sq ft	yd ² sq yd	m ² sq metre	ar	ha hectare
1	0,006 94	0,000 772	0,000 645	0,000 006 45	0,000 000 064 5
144	1	0,111	0,092 9	0,000 929	0,000 009 29
1 296	9,00	1	0,836	0,008 36	0,000 083 6
1 550	10,8	1,20	1	0,01	0,000 100
155 000	1 076	120	100	1	0,010 0
15 500 031	107 639	11 960	10 000	100	1

Volume, V

in ³ cu in	l litre	US gal gallon	UK gal gallon	ft ³ cu ft	yd ³ cu yard	m ³ cubic metre
1	0,016 4	0,004 33	0,003 60	0,000 579	0,000 021 4	0,000 016 4
61,0	1	0,264	0,220	0,035 3	0,001 31	0,001 00
231	3,79	1	0,833	0,134	0,004 95	0,003 79
277	4,55	1,20	1	0,161	0,005 95	0,004 55
1 728	28,3	7,48	6,23	1	0,037 0	0,028 3
46 656	765	202	168	27,0	1	0,765
61 024	1 000	264	220	35,3	1,31	1

Velocity, v

ft/min fpm	km/h Bz	ft/s	mile/hour mph	knot kn	m/s
1	0,018 3	0,016 7	0,011 4	0,009 87	0,005 08
54,7	1	0,911	0,621	0,540	0,278
60,0	1,10	1	0,682	0,592	0,305
88,0	1,61	1,47	1	0,869	0,447
101	1,85	1,69	1,15	1	0,514
197	3,60	3,28	2,24	1,94	1

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

Circular Ducts

The SI System

CONVERSION FACTORS

Volume flow, q_v

ft ³ /h cfh	l/min	m ³ /h	ft ³ /min cfm	l/s	m ³ /s
1	0,472	0,028 3	0,016 7	0,007 87	0,000 007 87
2,12	1	0,060	0,035 3	0,016 7	0,000 016 7
35,3	16,7	1	0,589	0,278	0,000 278
60,0	28,3	1,70	1	0,472	0,000 472
127	60	3,6	2,12	1	0,001 00
127 133	60 000	3 600	2 119	1 000	1

Mass, m

oz ounce	lb pound	kg kilogramme
1	0,062 5	0,028 3
16,0	1	0,454
35,3	2,20	1

Mass flow, q_m

lb/min	kg/s
1	0,007 56
132	1

Density, ρ

kg/m ³	lb/ft ³	g/cm ³	lb/in ³
1	0,062 4	0,001 00	0,000 036 1
16,0	1	0,016 0	0,000 579
1 000	62,4	1	0,036 1
27 680	1 728	27,7	1

Force, F

N newton	lbf pound-force	kp kilopound
1	0,225	0,102
4,45	1	0,454
9,81	2,20	1

Torque, M

lbf.in	Nm	lbf.ft	kpm
1	0,113	0,083 3	0,011 5
8,85	1	0,738	0,102
12,0	1,36	1	0,138
86,8	9,81	7,23	1

Energy, work, E

J joule Nm, Ws	Btu British thermal unit	kcal kilocalorie	kWh
1	0,000 948	0,000 239	0,000 000 278
1 055	1	0,252	0,000 293
4 187	3,97	1	0,001 16
3 600 000	3 412	860	1

Circular Ducts

The SI System

CONVERSION FACTORS

Power, P

Btu/h	W watt Nm/s, J/s	kcal/h	hk metric horsepower	hp UK, US horsepower
1	0,293	0,252	0,000 398	0,000 393
3,41	1	0,860	0,000 36	0,001 34
3,97	1,16	1	0,001 58	0,001 56
2 510	735	632	1	0,986
2 544	746	641	1,01	1

Temperature difference, temperature change, ΔT for K; $\Delta \vartheta$ for °C

K kelvin	°F degree Fahrenheit	°C degree Celcius
1	1,80	1,00
0,556	1	0,556
1,00	1,80	1

Associated temperatures

K	°F	°C	Physical state
0,00	-460	-273	Absolute zero
255	0,00	-17,8	Mixture of sal-ammoniac and snow
273	32,0	0,00	Melting point of ice
293	68,0	20,0	Standard atmospheric temperature
311	100	37,8	Normal temperature of human body
373	212	100	Boiling point of water

Conversion between temperatures

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5/9 \quad ^{\circ}\text{C} = \text{K} - 273,15$$

$$^{\circ}\text{F} = ^{\circ}\text{C} \times 9/5 + 32 \quad \text{K} = ^{\circ}\text{C} + 273,15$$

Greek letters

Greek letters are used in technical and scientific text to denote physical units.

Minor variations in the shapes of the letters can be tolerated, in condition that this does not cause any risk of confusion.

Name	Lower case	Upper case	Name	Lower case	Upper case
alpha	α	A	ny	ν	N
beta	β	B	ksi	ξ	Ξ
gamma	γ	Γ	omikron	ο	Ο
delta	δ	Δ	pi	π	Π
epsilon	ε	E	ro	ρ	Ρ
zeta	ζ	Z	sigma	σ	Σ
eta	η	H	tau	τ	Τ
theta	θ	Θ	ypsilon	υ	Υ
iota	ι	I	fi	φ	Φ
kappa	κ	K	ki	χ	Χ
lambda	λ	Λ	psi	ψ	Ψ
my	μ	M	omega	ω	Ω

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

Circular Ducts

Pressure

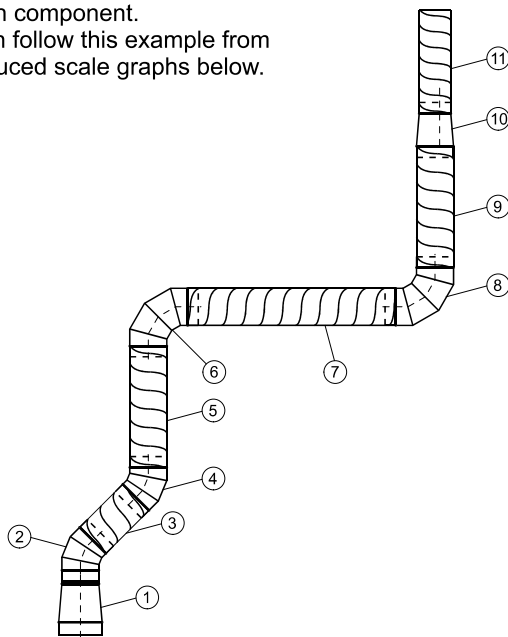
PRESSURE DROP CALCULATION

Fan Pressure Capacity required

Let us do a pressure drop calculation for a simple duct system!

- Number the fittings, in the direction of air flow.
- Then put the dimension and data of each component in a table as in the example.
- Read the pressure drop from the graph for each component.

You can follow this example from the reduced scale graphs below.

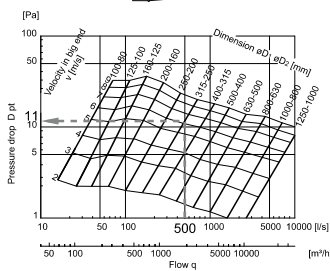


No	Flow l/s	Component Denom.	Dimension Φ mm	Length m	Pressure drop Pa/m	Pressure drop Pa
1	500	RCLL	500-315			4.5
2	500	BFL45°	315			4.0
3	500	SR	315	1.2	1.5	1.8
4	500	BFL45°	315			4.0
5	500	SR	315	2.2	1.5	3.3
6	500	BFL90°	315			8.0
7	500	SR	250	7.5	1.5	11.3
8	500	BFL90°	250			8.0
9	500	SR	250	2.5	1.5	3.8
10	500	RCLL	315-250			11.0
11	500	SR	315	2	5	10.0
Total Pressure Drop (sum of rows 1-11) = 69.7						

Add up the pressure drops on the far right of the table. Then select a suitable fan which gives the required flow $q = 500$ l/s and a total pressure rise of $pt = 125$ Pa.

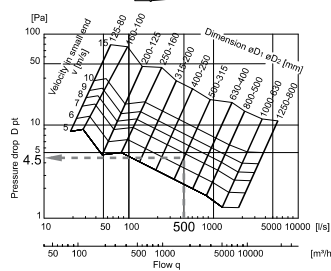
• 1 dimension steps

• RCLL

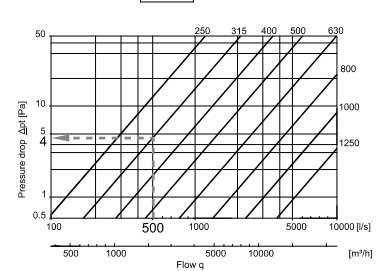


• 2 dimension steps

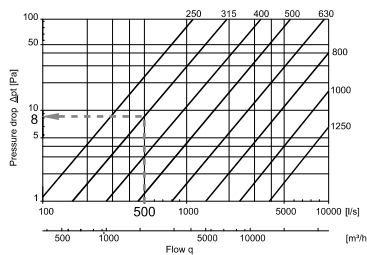
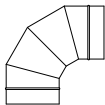
• RCLL



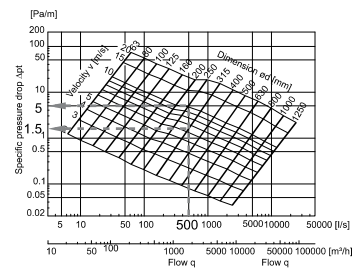
• BFL45°



• BFL90°



• SR

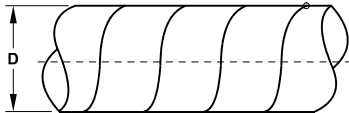


Circular Ducts

Pressure Drop Diagram

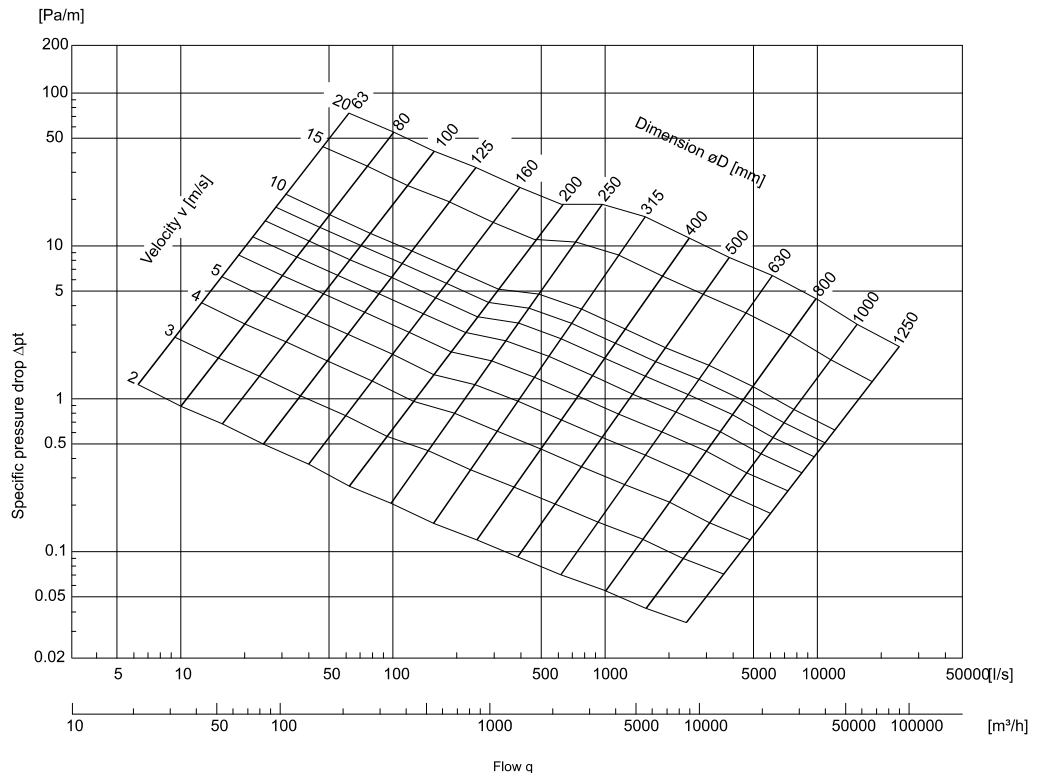
PRESSURE DROP DIAGRAM

Spiral Tube



• SR

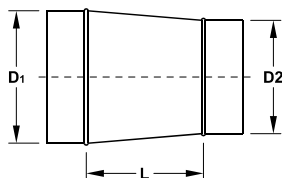
• Technical Data



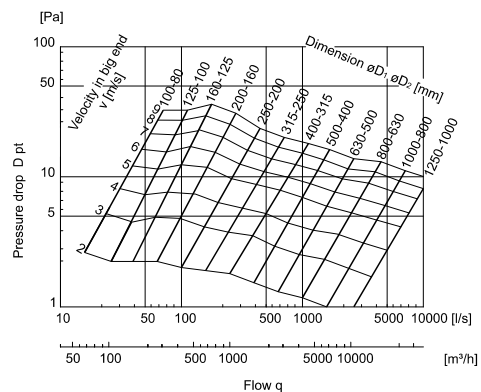
Concentric Reducer

• 1 dimension steps

• Technical Data



• RCLL



* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

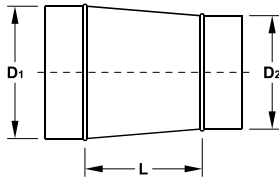
Circular Ducts

Pressure Drop Diagram

PRESSURE DROP DIAGRAM

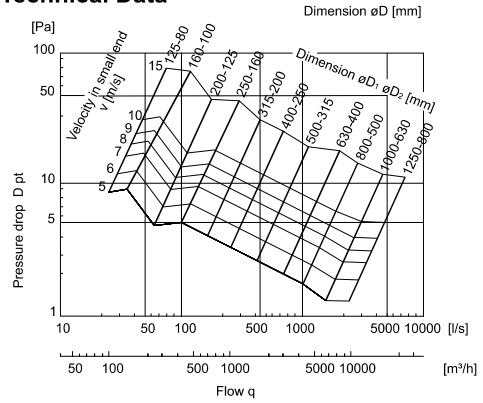
Concentric Reducer

- 2 dimension steps

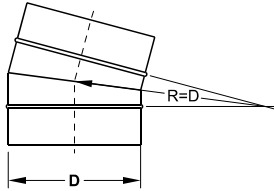


• RCLL

• Technical Data

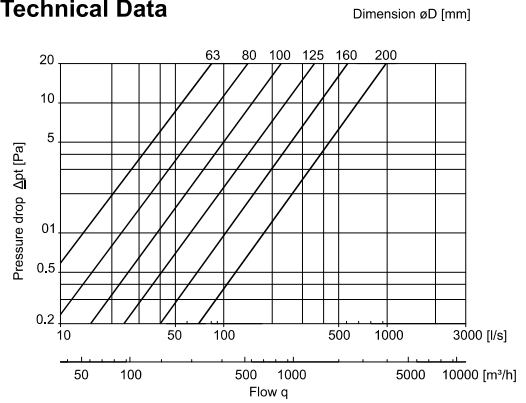


Bend 15°- Lockseamed

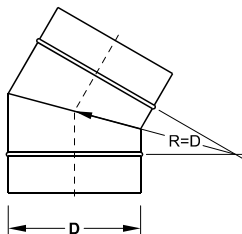


• BFL15°

• Technical Data

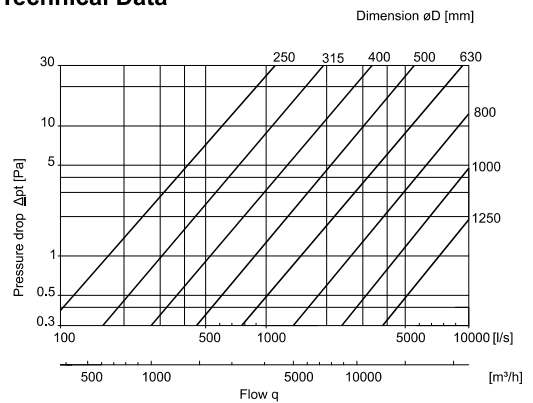


Bend 30°- Lockseamed



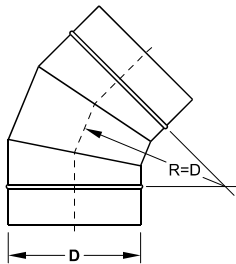
• BFL30°

• Technical Data



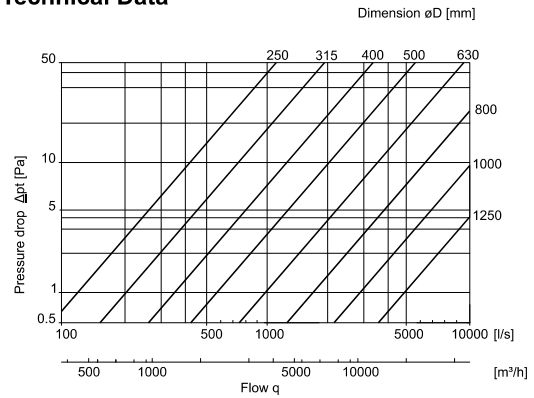
PRESSURE DROP DIAGRAM

Bend 45°- Lockseamed

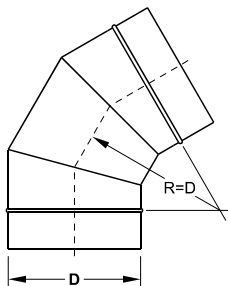


• BFL45°

• Technical Data

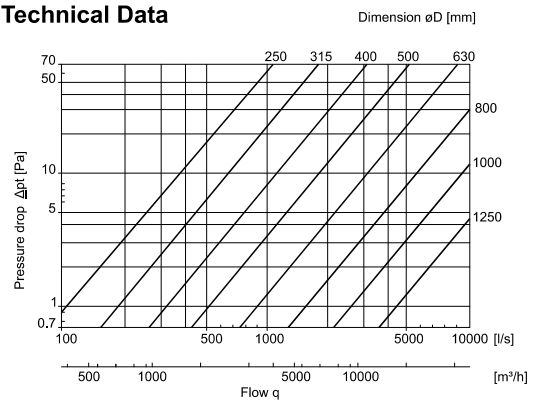


Bend 60°- Lockseamed

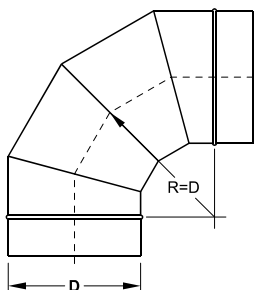


• BFL60°

• Technical Data

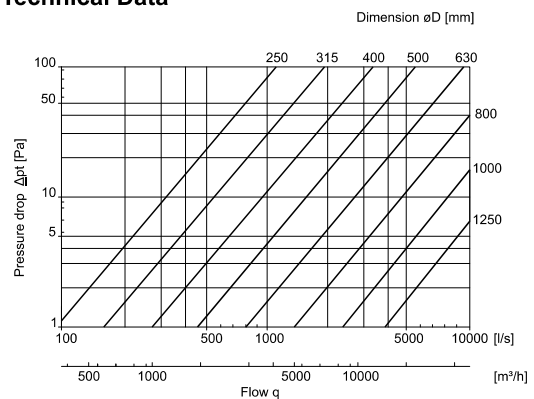


Bend 90°- Lockseamed



• BFL90°

• Technical Data



* Materials Used for Ductworks:

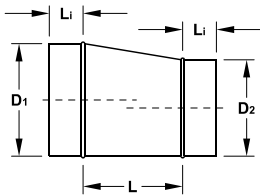
- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

Circular Ducts (Single Wall)

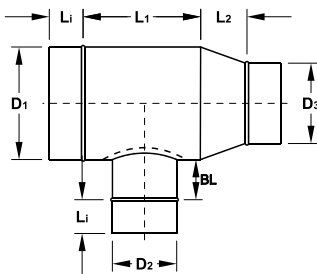
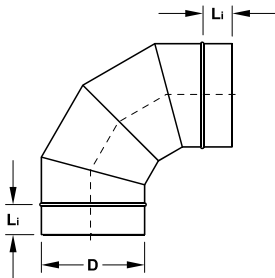
Thickness Schedule (Fittings)

CIRCULAR FITTINGS DUCT WALL THICKNESS SCHEDULE

- Standard Seam: **Stitch Welded**
- Standard Seam for Aluminum: **CLINCH**
- To ± 10 in. wg (Galvanized)
- To ± 10 in. wg (Stainless Steel 304, 316)
- To ± 2 in. wg (Aluminum)



With Outturned Stiffening Corrugation



Dimensions and Wall Thickness

ΦD, D ₁ , D ₂ , D ₃ , D ₄ nom (mm)	Circumference πd (m)	L _i nom (mm)	Materials Thickness (mm)		
			GI	SS304, 316	AL
100	0.314	50	0.6	0.6	1.0
125	0.393	50	0.6	0.6	1.0
140	0.440	50	0.6	0.6	1.0
150	0.471	50	0.6	0.6	1.0
160	0.503	50	0.6	0.6	1.0
180	0.565	50	0.6	0.6	1.0
200	0.628	50	0.6	0.6	1.0
224	0.704	50	0.6	0.6	1.0
250	0.785	50	0.6	0.6	1.0
280	0.880	50	0.7	0.7	1.0
300	0.942	50	0.7	0.7	1.0
315	0.990	50	0.7	0.7	1.0
355	1.115	50	0.7	0.7	1.0
400	1.257	50	0.8	0.8	1.0
450	1.414	50	0.8	0.8	1.2
500	1.571	50	0.8	0.8	1.2
550	1.728	50	0.8	0.8	1.2
560	1.759	50	0.8	0.8	1.2
600	1.885	50	0.8	0.8	1.2
630	1.979	50	1.0	1.0	1.2
650	2.042	50	1.0	1.0	1.2
710	2.231	50	1.0	1.0	1.5
750	2.356	50	1.0	1.0	1.5
800	2.513	50	1.0	1.0	1.5
850	2.670	50	1.0	1.0	1.5
900	2.827	50	1.0	1.0	1.5
950	2.985	50	1.0	1.0	2.0
1000	3.142	50	1.0	1.0	2.0
1050	3.299	50	1.0	1.0	2.0
1100	3.456	50	1.0	1.0	2.0
1120	3.519	50	1.2	1.2	2.0
1150	3.613	50	1.2	1.2	2.0
1200	3.770	50	1.2	1.2	2.0
1250	3.927	50	1.2	1.2	2.0
1300	4.084	50	1.2	1.2	2.0
1350	4.241	50	1.2	1.2	2.0
1400	4.398	100	1.2	1.2	2.0

Circular Ducts (Single Wall)

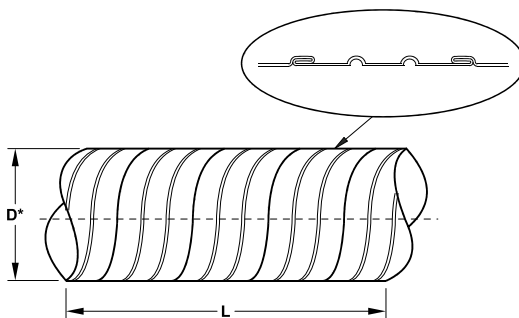
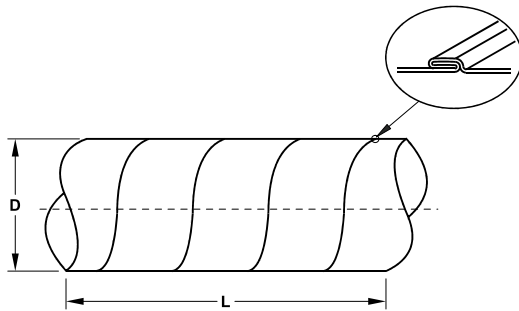
Standard Specifications - Spiral Tube

As per: - SMACNA (2nd Edition-1995) See Pages 3.4/3.8
 - SMACNA (3rd Edition-2005) See Pages 3.5/3.9

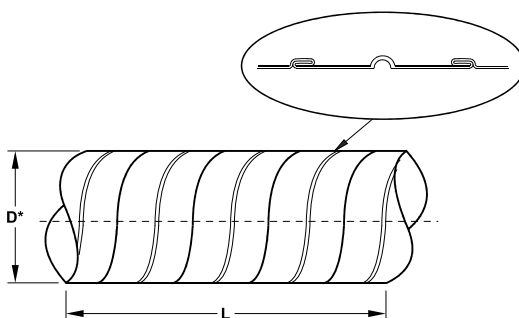
STANDARD SPECIFICATIONS

Spiral Tube

- **SR**
- Standard Length: 3000mm
Custom Lengths Available
- To ± 10 in. wg (Galvanized)
- To ± 10 in. wg (Stainless Steel 304, 316)
- To ± 2 in. wg (Aluminum)



* With Outturned Stiffening Corrugation



* With Outturned Stiffening Corrugation
Above THK 1.5mm

Ordering example:

GI SR 200
 Material
 Code
 Dimension D

Dimensions and Wall Thickness

Standard Diameter (mm)	Circumference πd (m)	Area $\pi d^2/4$ (m ²)	Materials Thickness (mm)			Standard Length (mm)
			GI	SS304, 316	AL	
100	0.314	0.008	0.5	0.5	1.0	3000
125	0.393	0.012	0.5	0.5	1.0	3000
140	0.440	0.015	0.5	0.5	1.0	3000
150	0.471	0.018	0.5	0.5	1.0	3000
160	0.503	0.020	0.5	0.5	1.0	3000
180	0.565	0.025	0.5	0.5	1.0	3000
200	0.628	0.031	0.5	0.5	1.0	3000
224	0.704	0.039	0.5	0.5	1.0	3000
250	0.785	0.049	0.5	0.5	1.0	3000
280	0.880	0.062	0.6	0.6	1.0	3000
300*	0.942	0.071	0.6	0.6	1.0	3000
315*	0.990	0.078	0.6	0.6	1.0	3000
355*	1.115	0.099	0.6	0.6	1.0	3000
400*	1.257	0.126	0.7	0.7	1.0	3000
450*	1.414	0.159	0.7	0.7	1.0	3000
500*	1.571	0.196	0.7	0.7	1.0	3000
550*	1.728	0.238	0.7	0.7	1.0	3000
560*	1.759	0.246	0.7	0.7	1.0	3000
600*	1.885	0.283	0.7	0.7	1.0	3000
630*	1.979	0.312	0.8	0.8	1.0	3000
650*	2.042	0.332	0.8	0.8	1.0	3000
710*	2.231	0.392	0.8	0.8	1.2	3000
750*	2.356	0.442	0.8	0.8	1.2	3000
800*	2.513	0.503	0.8	0.8	1.2	3000
850*	2.670	0.567	0.8	0.8	1.2	3000
900*	2.827	0.636	0.8	0.8	1.2	3000
950*	2.985	0.709	0.8	0.8	1.2	3000
1000*	3.142	0.785	0.8	0.8	1.5	3000
1050*	3.299	0.866	0.8	0.8	1.5	3000
1100*	3.456	0.950	0.8	0.8	1.5	3000
1120*	3.519	0.985	1.0	1.0	1.5	3000
1150*	3.613	1.039	1.0	1.0	1.5	3000
1200*	3.770	1.131	1.0	1.0	1.5	3000
1250*	3.927	1.227	1.0	1.0	1.5	3000
1300*	4.084	1.327	1.0	1.0	2.0	3000
1350*	4.241	1.431	1.0	1.0	2.0	3000
1400*	4.398	1.539	1.0	1.0	2.0	3000
1450*	4.555	1.651	1.2	1.2	2.0	3000
1500*	4.712	1.767	1.2	1.2	2.0	3000
1600*	5.027	2.011	1.2	1.2	2.0	3000
1700*	5.340	2.270	1.2	1.2	2.0	3000
1800*	5.655	2.545	1.2	1.2	2.0	3000
1900*	5.969	2.835	1.2	1.2	2.0	3000
2000*	6.283	3.142	1.2	1.2	2.0	3000
2300*	7.226	4.155	1.5			3000
2500*	7.854	4.909	2.0	N.A.	N.A.	3000

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

Circular Ducts (Single Wall)

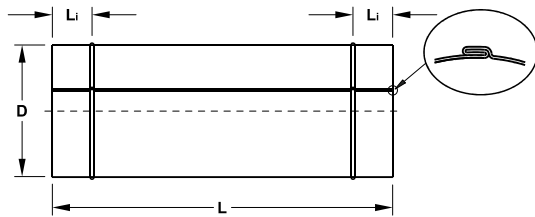
Standard Specifications - Grooved Seam

As per: - SMACNA (2nd Edition-1995) See Pages 3.4/3.8
 - SMACNA (3rd Edition-2005) See Pages 3.5/3.9

STANDARD SPECIFICATIONS

Circular Straight Duct - Grooved Seam

- CSD
- L: Standard Length 1220mm
- To ± 10 in. wg (Galvanized)
- To ± 10 in. wg (Stainless Steel 304, 316)
- To ± 2 in. wg (Aluminum)



With Outturned Stiffening Corrugation

Ordering example:
GI CSD 200
 Material Code Dimension D

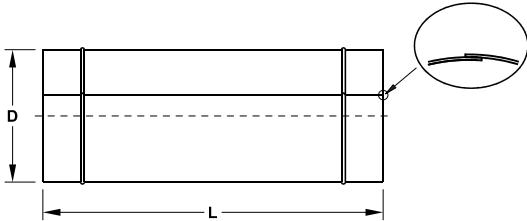
Dimensions and Wall Thickness

Standard Diameter (mm)	Circumference πd (m)	Area $\pi d^2/4$ (m ²)	Li nom (mm)	Materials Thickness (mm)		
				GI	SS304, 316	AL
100	0.314	0.008	50	0.6	0.6	1.0
125	0.393	0.012	50	0.6	0.6	1.0
140	0.440	0.015	50	0.6	0.6	1.0
150	0.471	0.018	50	0.6	0.6	1.0
160	0.503	0.020	50	0.6	0.6	1.0
180	0.565	0.025	50	0.6	0.6	1.0
200	0.628	0.031	50	0.6	0.6	1.0
224	0.704	0.039	50	0.6	0.6	1.0
250	0.785	0.049	50	0.6	0.6	1.0
280	0.880	0.062	50	0.7	0.7	1.0
300	0.942	0.071	50	0.7	0.7	1.0
315	0.990	0.078	50	0.7	0.7	1.0
355	1.115	0.099	50	0.7	0.7	1.0
400	1.257	0.126	50	0.8	0.8	1.0
450	1.414	0.159	50	0.8	0.8	1.2
500	1.571	0.196	50	0.8	0.8	1.2
550	1.728	0.238	50	0.8	0.8	1.2
560	1.759	0.246	50	0.8	0.8	1.2
600	1.885	0.283	50	0.8	0.8	1.2
630	1.979	0.312	50	1.0	1.0	1.2
650	2.042	0.332	50	1.0	1.0	1.2
710	2.231	0.392	50	1.0	1.0	1.5
750	2.356	0.442	50	1.0	1.0	1.5
800	2.513	0.503	50	1.0	1.0	1.5
850	2.670	0.567	50	1.0	1.0	1.5
900	2.827	0.636	50	1.0	1.0	1.5
950	2.985	0.709	50	1.0	1.0	2.0
1000	3.142	0.785	50	1.0	1.0	2.0
1050	3.299	0.866	50	1.0	1.0	2.0
1100	3.456	0.950	50	1.0	1.0	2.0
1120	3.519	0.985	50	1.2	1.2	2.0
1150	3.613	1.039	50	1.2	1.2	2.0
1200	3.770	1.131	50	1.2	1.2	2.0
1250	3.927	1.227	50	1.2	1.2	2.0
1300	4.084	1.327	50	1.2	1.2	2.0
1350	4.241	1.431	50	1.2	1.2	2.0
1400	4.398	1.539	100	1.2	1.2	2.0

FITTINGS - SINGLE WALL

Circular Straight Duct - Stitch Welded Seam

- CSDS
- L: Standard Length: 1220mm

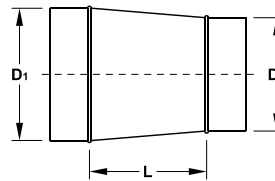


Ordering example:
GI CSDS 200
 Material Code _____
 Dimension D _____



Concentric Reducer

- RCLL
- $L = D_1 - D_2$
- Minimum Length 100mm, Maximum Length 400mm

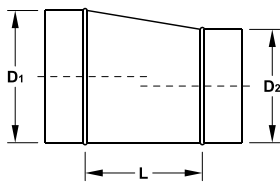


Ordering example:
GI RCLL 200 150
 Material Code _____
 Dimension D₁ _____
 Dimension D₂ _____



Eccentric Reducer

- CLL
- $L = D_1 - D_2$
- Minimum Length 100mm, Maximum Length 400mm

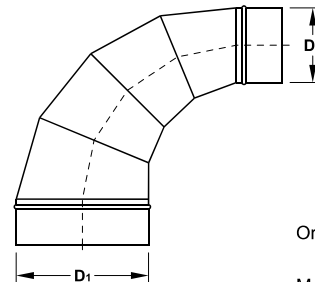


Ordering example:
GI CLL 200 150
 Material Code _____
 Dimension D₁ _____
 Dimension D₂ _____



Reducing Segmented Bend

- RSB

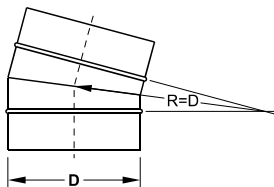


Ordering example:
GI RSB 200 150
 Material Code _____
 Dimension D₁ _____
 Dimension D₂ _____



Bend 15° - Lockseamed

- BFL15°
- Standard 2-Gore

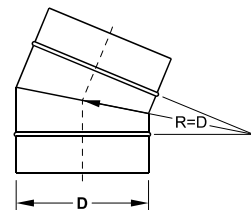


Ordering example:
GI BFL15° 200
 Material Code _____
 Dimension D _____



Bend 22.5° - Lockseamed

- BFL22.5°
- Standard 2-Gore



Ordering example:
GI BFL22.5° 200
 Material Code _____
 Dimension D _____



* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

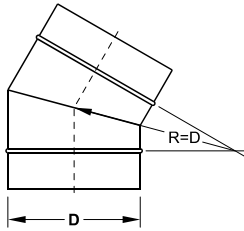
Circular Ducts (Single Wall)

Fittings

FITTINGS - SINGLE WALL

Bend 30°- Lockseamed

- BFL30°
- Standard 2-Gore

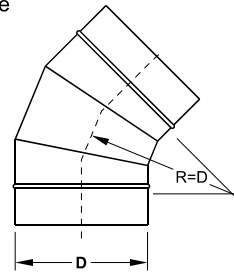


Ordering example:
GI BFL30° 200
Material
Code
Dimension D



Bend 45°- Lockseamed

- BFL45°
- Standard 3-Gore

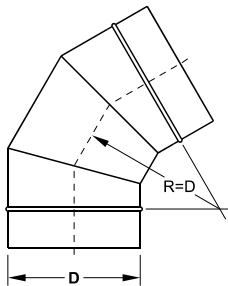


Ordering example:
GI BFL45° 200
Material
Code
Dimension D



Bend 60°- Lockseamed

- BFL60°
- Standard 3-Gore

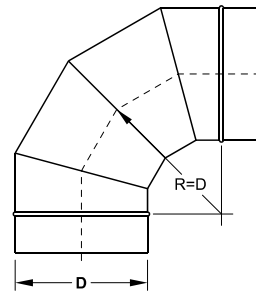


Ordering example:
GI BFL60° 200
Material
Code
Dimension D



Bend 90°- Lockseamed

- BFL90°
- Standard 4-Gore



Ordering example:
GI BFL90° 200
Material
Code
Dimension D

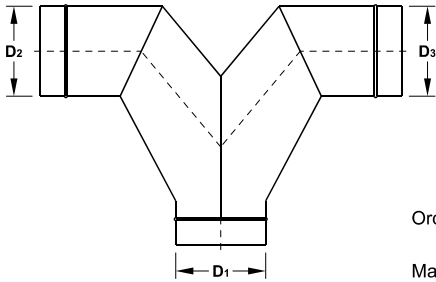


Mitered Elbows				
Duct Velocity	R/D Ratio	Number of Mitered Pieces		
	Centerline Radius to Duct Diameter	90°	60°	45°
Up to 1000 fpm (5mps)	0.6	4	3	3
1001 to 1500 fpm (5 to 7.5mps)	1.0	4	3	3
above 1500 fpm (7.5mps)	1.5	5	4	3

FITTINGS - SINGLE WALL

Twin Segment Bend

• TSB

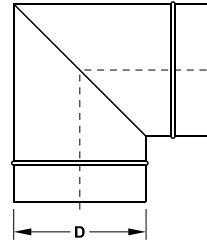


Ordering example:
GI TSB 200 150 150
 Material
 Code
 Dimension D₁
 Dimension D₂
 Dimension D₃

K

2 Segment Bend 90°

• 2SB90°

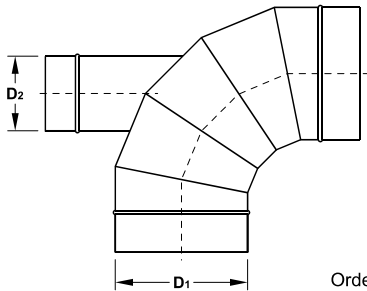


Ordering example:
GI 2SB90° 200
 Material
 Code
 Dimension D

L

Bend 90° Lockseamed with Branch

• BFLB90°

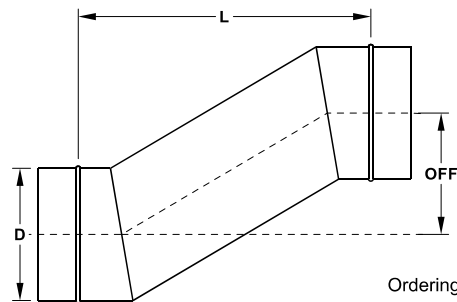


Ordering example:
GI BFLB90° 200 150
 Material
 Code
 Dimension D₁
 Dimension D₂

M

Circular Offset

• CO



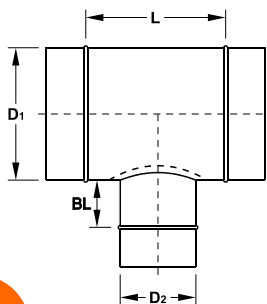
Ordering example:
GI CO 200 300 500
 Material
 Code
 Dimension D
 Offset OFF
 Length L

N

Centric Tee Piece

• TCL

• L = D₂ + 100mm



D ₂	BL
100 to 650mm	50mm
710 to 1400mm	100mm

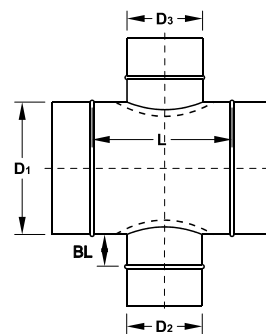
Ordering example:
GI TCL 200 150
 Material
 Code
 Dimension D₁
 Dimension D₂

O

Centric Cross Tee Piece

• XCL

• L = the longer of D₂ or D₃ + 100mm



D ₂ & D ₃	BL
100 to 650mm	50mm
710 to 1400mm	100mm

Ordering example:
GI XCL 200 100 100
 Material
 Code
 Dimension D₁
 Dimension D₂
 Dimension D₃

P

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

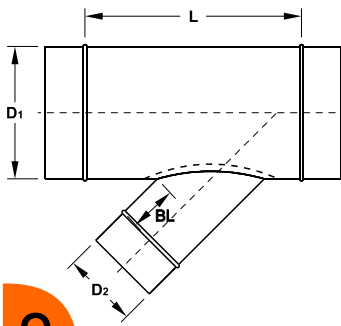
Circular Ducts (Single Wall)

Fittings

FITTINGS - SINGLE WALL

Centric Tee Piece 45°

- **TCL45°**
- $L = D_2 \times 1.5 + 100\text{mm}$



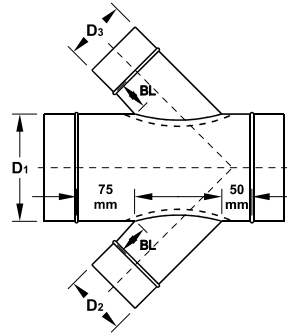
D ₂	BL
100 to 250mm	50mm
280 to 355mm	75mm
400 to 650mm	100mm
710 to 1400mm	150mm

Ordering example:
GI TCL45° 200 150
 Material
 Code
 Dimension D₁
 Dimension D₂

Q

Centric Cross T- Piece 45°

- **TCCL45°**
- $L = \text{the longer of } D_2 \text{ or } D_3 \times 1.5 + 100\text{mm}$



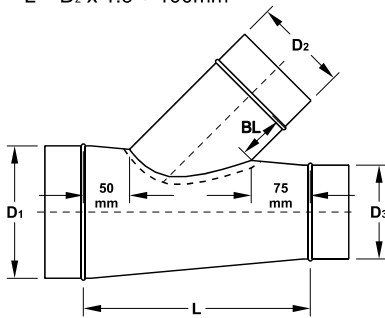
D ₂ & D ₃	BL
100 to 250mm	50mm
280 to 355mm	75mm
400 to 650mm	100mm
710 to 1400mm	150mm

Ordering example:
GI TCCL45° 200 150 150
 Material
 Code
 Dimension D₁
 Dimension D₂
 Dimension D₃

R

Reducing Tee 45°

- **RT45°**
- $L = D_2 \times 1.5 + 100\text{mm}$



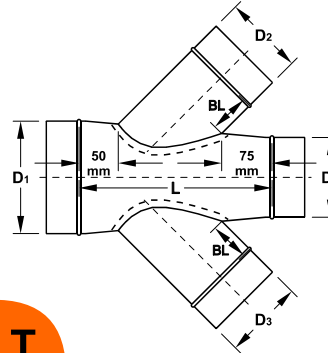
D ₂	BL
100 to 250mm	50mm
280 to 355mm	75mm
400 to 650mm	100mm
710 to 1400mm	150mm

Ordering example:
GI RT45° 200 150 150
 Material
 Code
 Dimension D₁
 Dimension D₂
 Dimension D₃

S

Reducing Cross Tee 45°

- **RCT45°**
- $L = \text{the longer of } D_2 \text{ or } D_3 \times 1.5 + 100\text{mm}$



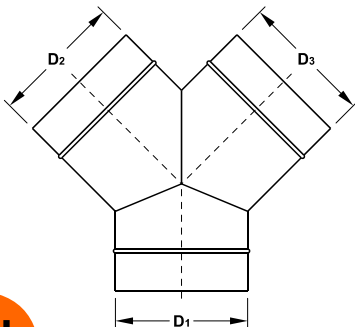
D ₂ & D ₃	BL
100 to 250mm	50mm
280 to 355mm	75mm
400 to 650mm	100mm
710 to 1400mm	150mm

Ordering example:
GI RCT45° 200 150 150 150
 Material
 Code
 Dimension D₁
 Dimension D₂
 Dimension D₃
 Dimension D₄

T

Y - Tee

- **TY45°**
- 30°, 45° and 60° available
- $D_1 = D_2 = D_3$

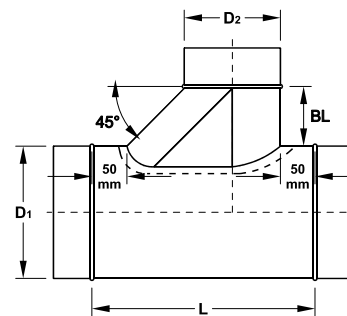


Ordering example:
GI TY45° 200
 Material
 Code
 Dimension D₁

U

Shoe Tee - Offset

- **STO**
- $L = D_2 + BL + 100\text{mm}$



D ₂	BL
100 to 200mm	100mm
225 to 355mm	175mm
400 to 650mm	250mm
710 to 1400mm	300mm

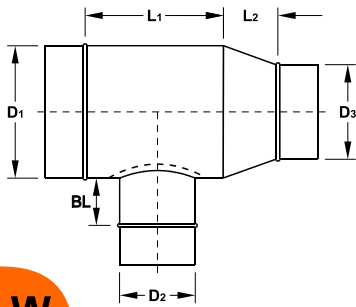
Ordering example:
GI STO 200 150
 Material
 Code
 Dimension D₁
 Dimension D₂

V

FITTINGS - SINGLE WALL

Centric Tee Piece with Reducer

- TCPL
- $L_1 = D_2 + 150\text{mm}$
- $L_2 = D_1 - D_3$
- Minimum L_2 100mm, Maximum L_2 400mm



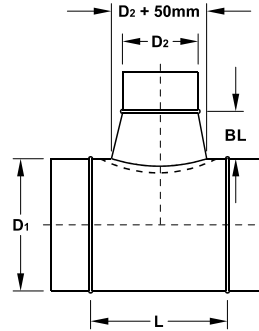
D ₂	BL
100 to 650mm	50mm
710 to 1400mm	100mm

Ordering example:
GI TCPL 200 150 100
 Material _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Dimension D₃ _____

W

Conical Tee

- TC
- $L = D_2 + 150\text{mm}$



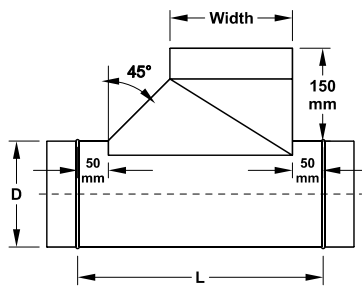
D ₂	BL
100 to 200mm	150mm
224 to 400mm	200mm
450 to 650mm	250mm
710 to 1400mm	300mm

Ordering example:
GI TC 200 150
 Material _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____

X

Rectangular Shoe with Pipe

- RSWP
- $L = \text{Width} + 200\text{mm}$

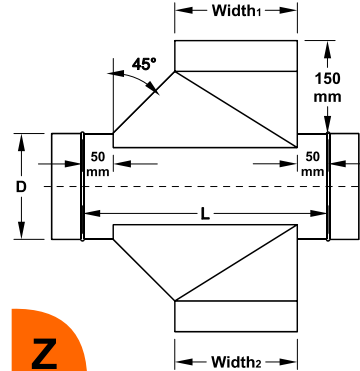


Ordering example:
GI RSWP 200 300x150
 Material _____
 Code _____
 Dim. D _____
 Dim. Width x Depth _____

Y

Rectangular Cross Shoe with Pipe

- RCSWP
- $L = \text{the longer of Width}_1 \text{ or Width}_2 + 200\text{mm}$

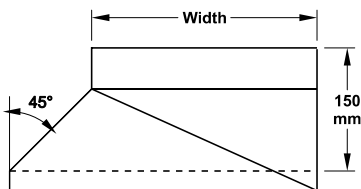


Ordering example:
GI RCSWP 200 300x150 300x150
 Material _____
 Code _____
 Dim. D _____
 Dim. Width₁ x Depth₁ _____
 Dim. Width₂ x Depth₂ _____

Z

Rectangular Shoe on Pipe

- RSP
- $L = \text{Width} + 100\text{mm}$

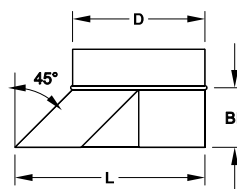


Ordering example:
GI RSP 200 300x150
 Material _____
 Code _____
 Diameter Pipe _____
 Dim. Width x Depth _____

AA

Circular Shoe on Flat

- CSF



D	BL	L
100 to 200mm	75mm	+75mm
224 to 355mm	100mm	+100mm
400 to 650mm	125mm	+125mm
710 to 1400mm	150mm	+150mm

Ordering example:
GI CSF 200
 Material _____
 Code _____
 Dimension D _____

AB

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

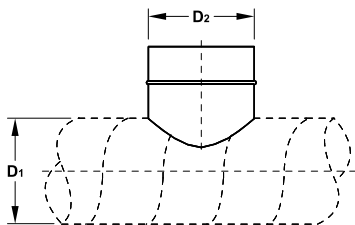
Circular Ducts (Single Wall)

Fittings

FITTINGS - SINGLE WALL

Collar Saddle

• CS

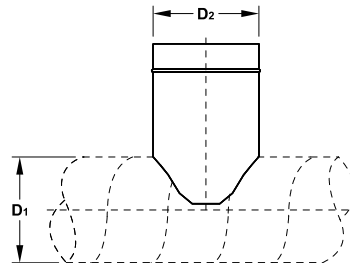


Ordering example:
GI CS 200 200
 Material
 Code
 Dimension D₂
 Diameter Pipe D₁

AC

Branch 90°

• B90°

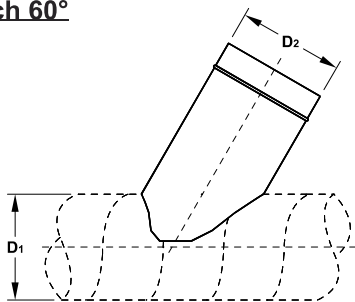


Ordering example:
GI B90° 200 200
 Material
 Code
 Dimension D₂
 Diameter Pipe D₁

AD

Branch 60°

• B60°

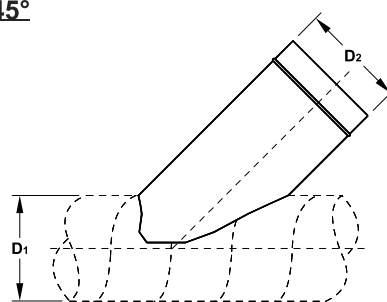


Ordering example:
GI B60° 200 200
 Material
 Code
 Dimension D₂
 Diameter Pipe D₁

AE

Branch 45°

• B45°

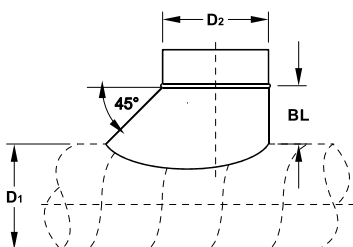


Ordering example:
GI B45° 200 200
 Material
 Code
 Dimension D₂
 Diameter Pipe D₁

AF

Circular Shoe on Pipe

• CSP



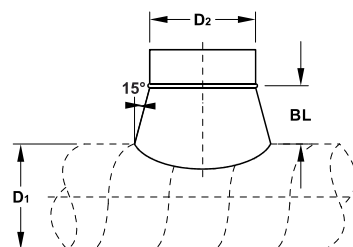
D ₂	BL
100 to 200mm	100mm
224 to 355mm	175mm
400 to 650mm	250mm
710 to 1400mm	300mm

Ordering example:
GI CSP 200 200
 Material
 Code
 Dimension D₂
 Diameter Pipe D₁

AG

Conical Branch on Pipe

• CBP



D ₂	BL
100 to 200mm	150mm
224 to 400mm	200mm
450 to 650mm	250mm
710 to 1400mm	300mm

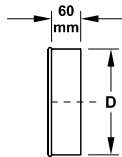
Ordering example:
GI CBP 200 200
 Material
 Code
 Dimension D₂
 Diameter Pipe D₁

AH

FITTINGS - SINGLE WALL

End Cap Tube (Male)

• ECM

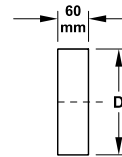


Ordering example:
GI ECM 200
Material
Code
Dimension D

AI

End Cap Fittings (Female)

• ECF

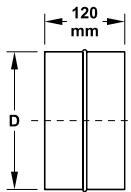


Ordering example:
GI ECF 200
Material
Code
Dimension D

AJ

Coupling Pipe

• MC

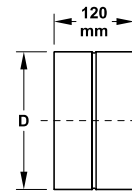


Ordering example:
GI MC 200
Material
Code
Dimension D

AK

Coupling Fitting

• FC



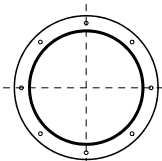
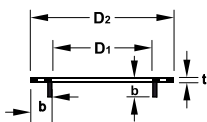
Ordering example:
GI FC 200
Material
Code
Dimension D

AL

Circular Angle Flange

• CF

• $D_2 = D_1 + b$



D ₁	Bolts		b x b x t mm
	Dim.	N	
Up to 125	M6	4	25x25x3
150 to 250	M6	6	30x30x3
280 to 355	M8	8	40x40x4
400 to 500	M8	12	40x40x4
550 to 710	M10	16	40x40x5
750 to 1400	M10	24	50x50x5

Material: Hot Dip Galvanized Steel

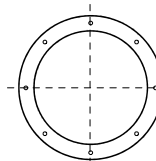
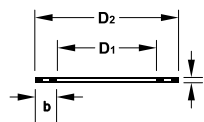
Ordering example:
GI CF 200
Material
Code
Dimension D₁

AM

Circular Flat Flange

• CFF

• $D_2 = D_1 + b$



D ₁	Bolts		b x t mm
	Dim.	N	
Up to 125	M6	4	25x3
150 to 250	M6	6	30x3
280 to 355	M8	8	40x4
400 to 500	M8	12	40x4
550 to 710	M10	16	40x5
750 to 1400	M10	24	50x5

Material: Hot Dip Galvanized Steel

Ordering example:
GI CFF 200
Material
Code
Dimension D₁

AN

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

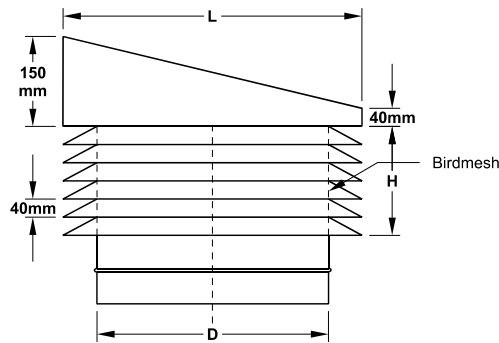
Circular Ducts (Single Wall)

Accessories

ACCESSORIES - SINGLE WALL

Circular Rain Cap

- CRC
- $L = D + 100\text{mm}$
- $H = \text{as per Air Flow}$

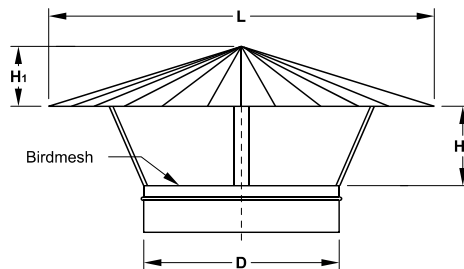


Ordering example:
GI CRC 200
 Material
 Code
 Dimension D



Rain Cowl

- RC
- $L = D + 200\text{mm}$
- $H_1 = D/4$
- $H_2 = D/2$

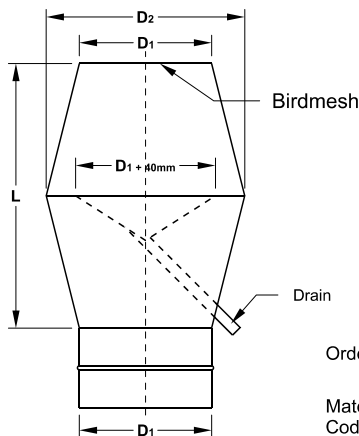


Ordering example:
GI RC 200
 Material
 Code
 Dimension D



Jet Cowl

- JC
- $L = D_1 \times 2$
- $D_2 = D_1 \times 1.5$

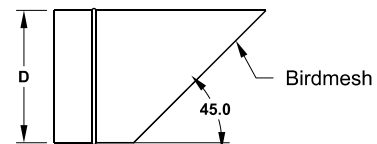


Ordering example:
GI JC 200
 Material
 Code
 Dimension D



Side Discharge Terminal

- SDT

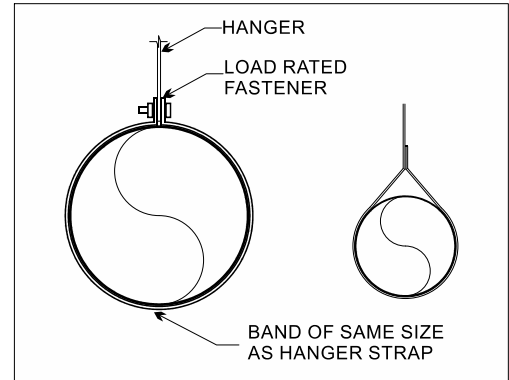
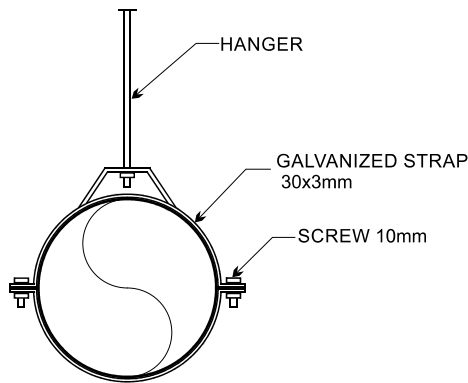


Ordering example:
GI SDT 200
 Material
 Code
 Dimension D



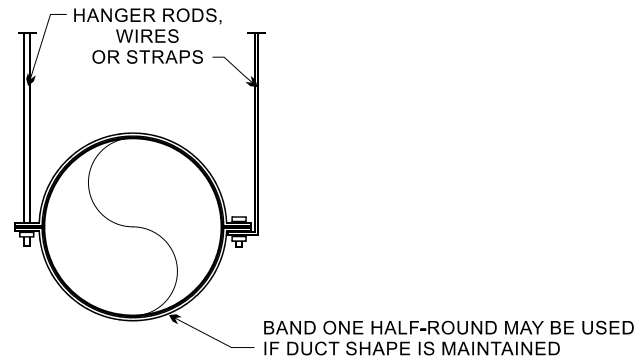
DUCT SUPPORTS

Strap Hangers for Circular Ducts



DVAC Standard 30x3mm

HANGERS MUST NOT DEFORM DUCT SHAPE



Dia.	Maximum Spacing	Wire Dia.	Rod	Strap
10 in. dn 250mm dn	12 ft 3.7m	One 12 ga One 2.75mm	1/4 in. 6.4mm	1 in. x 22ga 25.4 x 0.85mm
11-18 in. 460mm	12 ft 3.7m	Two 12 ga or One 8 ga One 4.27mm	1/4 in. 6.4mm	1 in. x 22ga 25.4 x 0.85mm
19-24 in. 610mm	12 ft 3.7m	Two 10 ga Two 3.51mm	1/4 in. 6.4mm	1 in. x 22ga 25.4 x 0.85mm
25-36 in. 900mm	12 ft 3.7m	Two 8 ga Two 2.7mm	3/8 in. 9.5mm	1 in. x 20ga 25.4 x 1.00mm
37-50 in. 1270mm	12 ft 3.7m	—————▶	Two 3/8 in. Two 9.5mm	Two 1 in. x 20ga (2) 25.4 x 1.00mm
51-60 in. 1520mm	12 ft 3.7m	—————▶	Two 3/8 in. Two 9.5mm	Two 1 in. x 18ga (2) 25.4 x 1.31mm
61-84 in. 2130mm	12 ft 3.7m	—————▶	Two 3/8 in. Two 9.5mm	Two 1 in. x 16ga (2) 25.4 x 1.61mm
85-96 in. 2400mm	12 ft 3.7m	—————▶	Two 1/2 in. Two 12mm	Two 1 1/2 in. x 16ga (2) 38 x 1.61mm

Minimum Hanger Sizes for Round Duct

* Materials Used for Duct Supports:

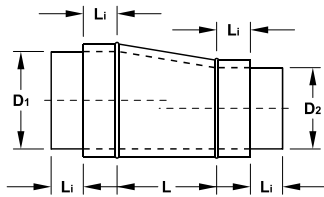
- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation or made Hot Dip Galvanized Steel Sheet, Flat Bar.

Circular Ducts (Double Wall)

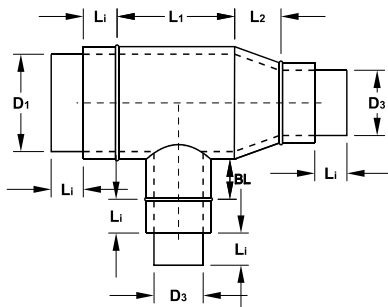
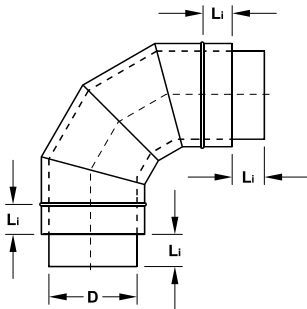
Thickness Schedule (Fittings)

CIRCULAR FITTINGS DUCT WALL THICKNESS SCHEDULE

- Standard Seam: **Stitch Welded**
- Standard Seam for Aluminum: **CLINCH**
- To ± 10 in. wg (Galvanized)
- To ± 10 in. wg (Stainless Steel 304, 316)
- To ± 2 in. wg (Aluminum)



With Outturned Stiffening Corrugation



Dimensions and Wall Thickness - (Double Wall)				
Standard Diameter (mm)	Li nom (mm)	Materials Thickness (mm)		
		GI	SS304, 316	AL
Inner Dia. / Outer Diam.		Inner Dia. / Outer Dia.	Inner Dia. / Outer Dia.	Inner Dia. / Outer Dia.
100 / 150 or 200	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
125 / 180 or 224	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
140 / 200 or 250	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
150 / 200 or 250	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
160 / 200 or 250	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
180 / 224 or 280	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
200 / 250 or 300	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
224 / 280 or 315	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
250 / 300 or 355	50	0.6 / 0.7	0.6 / 0.7	1.0 / 1.0
280 / 355 or 400	50	0.7 / 0.7	0.7 / 0.7	1.0 / 1.0
300* / 355* or 400*	50	0.7 / 0.7	0.7 / 0.7	1.0 / 1.0
315* / 355* or 400*	50	0.7 / 0.7	0.7 / 0.7	1.0 / 1.0
355* / 400* or 450*	50	0.7 / 0.8	0.7 / 0.8	1.0 / 1.0
400* / 450* or 500	50	0.8 / 0.8	0.8 / 0.8	1.0 / 1.2
450* / 500* or 550*	50	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2
500* / 550* or 600	50	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2
550* / 600* or 650*	50	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2
560* / 600* or 650*	50	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2
600* / 650* or 710	50	0.8 / 1.0	0.8 / 1.0	1.2 / 1.2
630* / 710* or 750*	50	1.0 / 1.0	1.0 / 1.0	1.2 / 1.2
650* / 710* or 750	50	1.0 / 1.0	1.0 / 1.0	1.2 / 1.5
710* / 750* or 800*	50	1.0 / 1.0	1.0 / 1.0	1.5 / 1.5
750* / 800* or 850*	50	1.0 / 1.0	1.0 / 1.0	1.5 / 1.5
800* / 850* or 900*	50	1.0 / 1.0	1.0 / 1.0	1.5 / 1.5
850* / 900* or 950*	50	1.0 / 1.0	1.0 / 1.0	1.5 / 1.5
900* / 950* or 1000*	50	1.0 / 1.0	1.0 / 1.0	1.5 / 2.0
950* / 1000* or 1050*	50	1.0 / 1.0	1.0 / 1.0	2.0 / 2.0
1000* / 1050* or 1100*	50	1.0 / 1.0	1.0 / 1.0	2.0 / 2.0
1050* / 1100* or 1150*	50	1.0 / 1.0	1.0 / 1.0	2.0 / 2.0
1100* / 1150* or 1200*	50	1.0 / 1.2	1.0 / 1.2	2.0 / 2.0
1120* / 1200* or 1250*	50	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0
1150* / 1200* or 1250*	50	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0
1200* / 1250* or 1300*	50	1.0 / 1.0	1.2 / 1.2	2.0 / 2.0
1250* / 1300* or 1350*	50	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0
1300* / 1350* or 1400*	50	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0
1350* / 1400* or 1450*	50	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0
1400* / 1450* or 1500*	100	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0

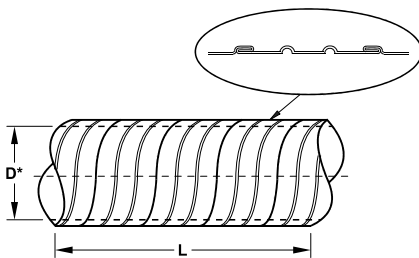
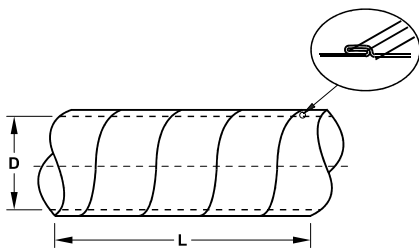
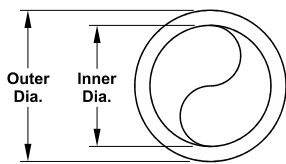
Circular Ducts (Double Wall)

Standard Specifications - Spiral Tube

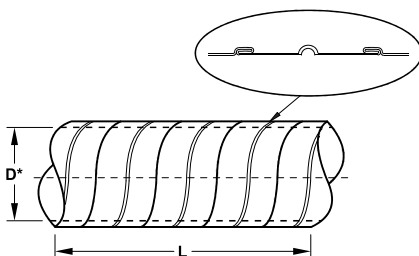
STANDARD SPECIFICATIONS

Spiral Tube

- SR
- Standard Length: 3000mm
Custom Lengths Available
- To \pm 10 in. wg (Galvanized)
- To \pm 10 in. wg (Stainless Steel 304, 316)
- To \pm 2 in. wg (Aluminum)



* With Outturned Stiffening Corrugation



* With Outturned Stiffening Corrugation Above THK 1.5mm

Dimensions and Wall Thickness - (Double Wall)

Standard Diameter (mm)	Materials Thickness (mm)			Standard Length (mm)
	GI	SS304, 316	AL	
Inner Dia. / Outer Diam.	Inner Dia. / Outer Dia.	Inner Dia. / Outer Dia.	Inner Dia. / Outer Dia.	
100 / 150 or 200	0.5 / 0.5	0.5 / 0.5	1.0 / 1.0	3000
125 / 180 or 224	0.5 / 0.5	0.5 / 0.5	1.0 / 1.0	3000
140 / 200 or 250	0.5 / 0.5	0.5 / 0.5	1.0 / 1.0	3000
150 / 200 or 250	0.5 / 0.5	0.5 / 0.5	1.0 / 1.0	3000
160 / 200 or 250	0.5 / 0.5	0.5 / 0.5	1.0 / 1.0	3000
180 / 224 or 280	0.5 / 0.5	0.5 / 0.5	1.0 / 1.0	3000
200 / 250 or 300	0.5 / 0.5	0.5 / 0.5	1.0 / 1.0	3000
224 / 280 or 315	0.5 / 0.5	0.5 / 0.5	1.0 / 1.0	3000
250 / 300 or 355	0.5 / 0.6	0.5 / 0.6	1.0 / 1.0	3000
280 / 355 or 400	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0	3000
300* / 355* or 400*	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0	3000
315* / 355* or 400*	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0	3000
355* / 400* or 450*	0.6 / 0.7	0.6 / 0.7	1.0 / 1.0	3000
400* / 450* or 500	0.7 / 0.7	0.7 / 0.7	1.0 / 1.0	3000
450* / 500* or 550*	0.7 / 0.7	0.7 / 0.7	1.0 / 1.0	3000
500* / 550* or 600	0.7 / 0.7	0.7 / 0.7	1.0 / 1.0	3000
550* / 600* or 650*	0.7 / 0.7	0.7 / 0.7	1.0 / 1.0	3000
560* / 600* or 650*	0.7 / 0.7	0.7 / 0.7	1.0 / 1.0	3000
600* / 650* or 710	0.7 / 0.8	0.7 / 0.8	1.0 / 1.0	3000
630* / 710* or 750*	0.8 / 0.8	0.8 / 0.8	1.0 / 1.0	3000
650* / 710* or 750	0.8 / 0.8	0.8 / 0.8	1.0 / 1.2	3000
710* / 750* or 800*	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2	3000
750* / 800* or 850*	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2	3000
800* / 850* or 900*	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2	3000
850* / 900* or 950*	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2	3000
900* / 950* or 1000*	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2	3000
950* / 1000* or 1050*	0.8 / 0.8	0.8 / 0.8	1.2 / 1.5	3000
1000* / 1050* or 1100*	0.8 / 0.8	0.8 / 0.8	1.5 / 1.5	3000
1050* / 1100* or 1150*	0.8 / 0.8	0.8 / 0.8	1.5 / 1.5	3000
1100* / 1150* or 1200*	0.8 / 1.0	0.8 / 1.0	1.5 / 1.5	3000
1120* / 1200* or 1250*	1.0 / 1.0	1.0 / 1.0	1.5 / 1.5	3000
1150* / 1200* or 1250*	1.0 / 1.0	1.0 / 1.0	1.5 / 1.5	3000
1200* / 1250* or 1300*	1.0 / 1.0	1.0 / 1.0	1.5 / 1.5	3000
1250* / 1300* or 1350*	1.0 / 1.0	1.0 / 1.0	1.5 / 2.0	3000
1300* / 1350* or 1400*	1.0 / 1.0	1.0 / 1.0	2.0 / 2.0	3000
1350* / 1400* or 1450*	1.0 / 1.0	1.0 / 1.0	2.0 / 2.0	3000
1400* / 1450* or 1500*	1.0 / 1.2	1.0 / 1.2	2.0 / 2.0	3000

Ordering example:

GI DW25 SR 200 GI
 Outer Material ————
 Insulation THK ————
 Code ————
 Dimension D ————
 Inner Material ————

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

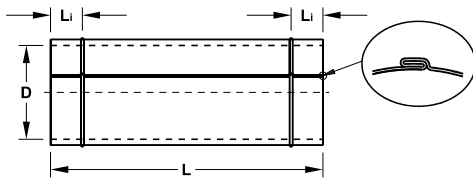
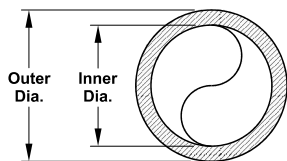
Circular Ducts (Double Wall)

Standard Specifications - Grooved Seam

STANDARD SPECIFICATIONS

Circular Straight Duct - Grooved Seam

- CSD
- L: Standard Length 1220mm
- To ± 10 in. wg (Galvanized)
- To ± 10 in. wg (Stainless Steel 304, 316)
- To ± 2 in. wg (Aluminum)



With Outturned Stiffening Corrugation

Ordering example:

GI DW25 CSD 200 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Inner Material _____

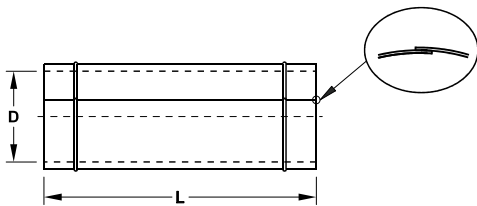
Dimensions and Wall Thickness - (Double Wall)

Standard Diameter (mm)	Li nom (mm)	Materials Thickness (mm)		
		GI	SS304, 316	AL
Inner Dia. / Outer Diam.		Inner Dia. / Outer Dia.	Inner Dia. / Outer Dia.	Inner Dia. / Outer Dia.
100 / 150 or 200	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
125 / 180 or 224	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
140 / 200 or 250	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
150 / 200 or 250	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
160 / 200 or 250	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
180 / 224 or 280	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
200 / 250 or 300	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
224 / 280 or 315	50	0.6 / 0.6	0.6 / 0.6	1.0 / 1.0
250 / 300 or 355	50	0.6 / 0.7	0.6 / 0.7	1.0 / 1.0
280 / 355 or 400	50	0.7 / 0.7	0.7 / 0.7	1.0 / 1.0
300* / 355* or 400*	50	0.7 / 0.7	0.7 / 0.7	1.0 / 1.0
315* / 355* or 400*	50	0.7 / 0.7	0.7 / 0.7	1.0 / 1.0
355* / 400* or 450*	50	0.7 / 0.8	0.7 / 0.8	1.0 / 1.0
400* / 450* or 500	50	0.8 / 0.8	0.8 / 0.8	1.0 / 1.2
450* / 500* or 550*	50	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2
500* / 550* or 600	50	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2
550* / 600* or 650*	50	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2
560* / 600* or 650*	50	0.8 / 0.8	0.8 / 0.8	1.2 / 1.2
600* / 650* or 710	50	0.8 / 1.0	0.8 / 1.0	1.2 / 1.2
630* / 710* or 750*	50	1.0 / 1.0	1.0 / 1.0	1.2 / 1.2
650* / 710* or 750	50	1.0 / 1.0	1.0 / 1.0	1.2 / 1.5
710* / 750* or 800*	50	1.0 / 1.0	1.0 / 1.0	1.5 / 1.5
750* / 800* or 850*	50	1.0 / 1.0	1.0 / 1.0	1.5 / 1.5
800* / 850* or 900*	50	1.0 / 1.0	1.0 / 1.0	1.5 / 1.5
850* / 900* or 950*	50	1.0 / 1.0	1.0 / 1.0	1.5 / 1.5
900* / 950* or 1000*	50	1.0 / 1.0	1.0 / 1.0	1.5 / 2.0
950* / 1000* or 1050*	50	1.0 / 1.0	1.0 / 1.0	2.0 / 2.0
1000* / 1050* or 1100*	50	1.0 / 1.0	1.0 / 1.0	2.0 / 2.0
1050* / 1100* or 1150*	50	1.0 / 1.0	1.0 / 1.0	2.0 / 2.0
1100* / 1150* or 1200*	50	1.0 / 1.2	1.0 / 1.2	2.0 / 2.0
1120* / 1200* or 1250*	50	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0
1150* / 1200* or 1250*	50	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0
1200* / 1250* or 1300*	50	1.0 / 1.0	1.2 / 1.2	2.0 / 2.0
1250* / 1300* or 1350*	50	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0
1300* / 1350* or 1400*	50	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0
1350* / 1400* or 1450*	50	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0
1400* / 1450* or 1500*	100	1.2 / 1.2	1.2 / 1.2	2.0 / 2.0

FITTINGS - DOUBLE WALL

Circular Straight Duct - Stitch Welded Seam

- CSDS
- L: Standard Length: 1220mm



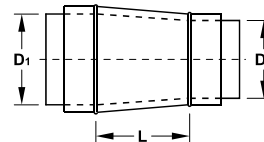
Ordering example:
GI DW25 CSDS 200 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Inner Material _____

A

Concentric Reducer

- RCLL
- $L = D_1 - D_2$
- Minimum Length 100mm, Maximum Length 400mm



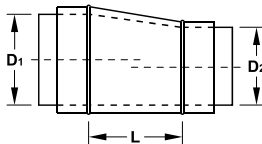
Ordering example:
GI DW25 RCLL 200 150 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Inner Material _____

B

Eccentric Reducer

- CLL
- $L = D_1 - D_2$
- Minimum Length 100mm, Maximum Length 400mm



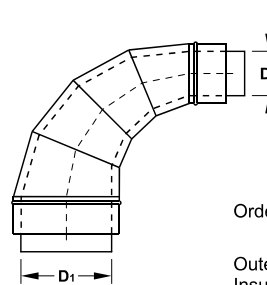
Ordering example:
GI DW25 CLL 200 150 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Inner Material _____

C

Reducing Segmented Bend

- RSB



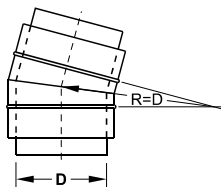
Ordering example:
GI DW25 RSB 200 150 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Inner Material _____

D

Bend 15° - Lockseamed

- BFL15°
- Standard 2-Gore



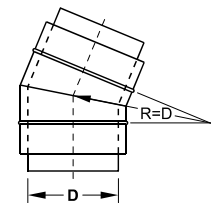
Ordering example:
GI DW25 BFL15° 200 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Inner Material _____

E

Bend 22.5° - Lockseamed

- BFL22.5°
- Standard 2-Gore



Ordering example:
GI DW25 BFL22.5° 200 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Inner Material _____

F

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

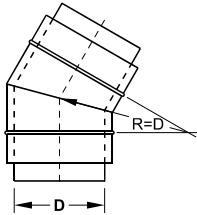
Circular Ducts (Double Wall)

Fittings

FITTINGS - DOUBLE WALL

Bend 30°- Lockseamed

- BFL30°
- Standard 2-Gore



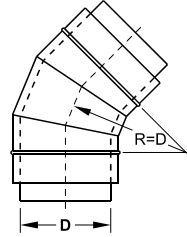
Ordering example:
GI DW25 BFL30° 200 GI

Outer Material
Insulation THK
Code
Dimension D
Inner Material

G

Bend 45°- Lockseamed

- BFL45°
- Standard 3-Gore



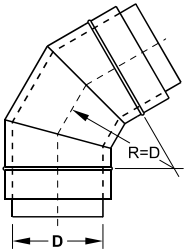
Ordering example:
GI DW25 BFL45° 200 GI

Outer Material
Insulation THK
Code
Dimension D
Inner Material

H

Bend 60°- Lockseamed

- BFL60°
- Standard 3-Gore



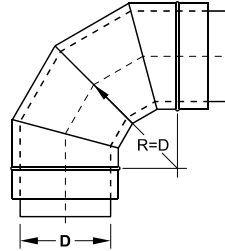
Ordering example:
GI DW25 BFL60° 200 GI

Outer Material
Insulation THK
Code
Dimension D
Inner Material

I

Bend 90°- Lockseamed

- BFL90°
- Standard 4-Gore



Ordering example:
GI DW25 BFL90° 200 GI

Outer Material
Insulation THK
Code
Dimension D
Inner Material

J

Mitered Elbows

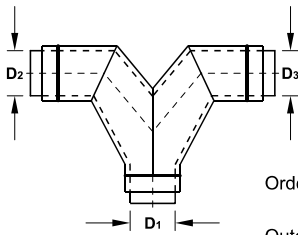
Duct Velocity	R/D Ratio	Number of Mitered Pieces		
	Centerline Radius to Duct Diameter	90°	60°	45°
Up to 1000 fpm (5mps)	0.6	4	3	3
1001 to 1500 fpm (5 to 7.5mps)	1.0	4	3	3
above 1500 fpm (7.5mps)	1.5	5	4	3

Circular Ducts (Double Wall) Fittings

FITTINGS - DOUBLE WALL

Twin Segment Bend

• TSB



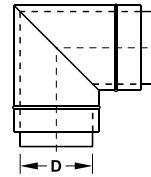
Ordering example:

GI DW25 TSB 200 100 100 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Dimension D₃ _____
 Inner Material _____

K

2 Segment Bend 90°

• 2SB90°



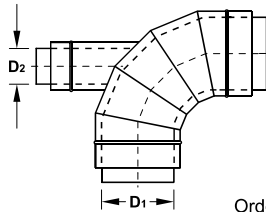
Ordering example:

GI DW25 2SB90° 200 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Inner Material _____

L

Bend 90° Lockseamed with Branch

• BFLB90°



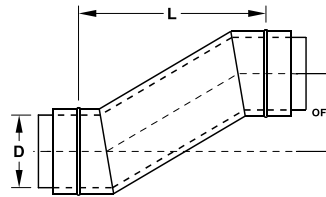
Ordering example:

GI DW25 BFLB90° 200 100 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Inner Material _____

M

Circular Offset

• CO



Ordering example:

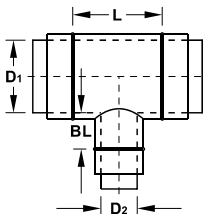
GI DW25 CO 200 300 500 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Offset Off _____
 Length L _____
 Inner Material _____

N

Centric Tee Piece

• TCL

• L = D₂ + 150mm



D ₂	BL
100 to 650mm	100mm
710 to 1400mm	150mm

Ordering example:

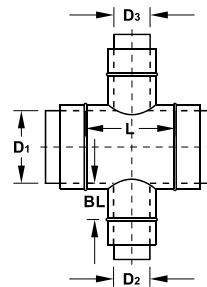
GI DW25 TCL 200 150 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Inner Material _____

O

Centric Cross Tee Piece

• XCL

• L = the longer of D₂ or D₃ + 150mm



D ₂ & D ₃	BL
100 to 650mm	100mm
710 to 1400mm	150mm

Ordering example:

GI DW25 XCL 200 100 100 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Dimension D₃ _____
 Inner Material _____

P

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

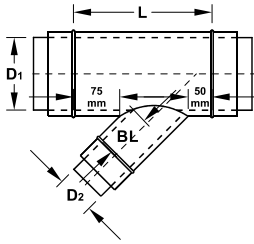
Circular Ducts (Double Wall)

Fittings

FITTINGS - DOUBLE WALL

Centric Tee Piece 45°

- TCL45°
- $L = D_2 \times 1.5 + 150\text{mm}$



D ₂	BL
100 to 250mm	100mm
280 to 355mm	125mm
400 to 650mm	150mm
710 to 1400mm	200mm

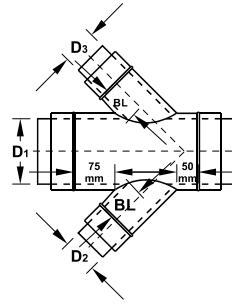
Ordering example:

GI DW25 TCL45° 200 100 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Inner Material _____

Q

Centric Cross T- Piece 45°

- TCCL45°
- $L = \text{the longer of } D_2 \text{ or } D_3 \times 1.5 + 150\text{mm}$



D ₂ & D ₃	BL
100 to 250mm	100mm
280 to 355mm	125mm
400 to 650mm	150mm
710 to 1400mm	200mm

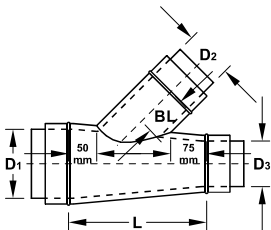
Ordering example:

GI DW25 TCCL45° 200 100 100 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Dimension D₃ _____
 Inner Material _____

R

Reducing Tee 45°

- RT45°
- $L = D_2 \times 1.5 + 150\text{mm}$



D ₂	BL
100 to 250mm	100mm
280 to 355mm	125mm
400 to 650mm	150mm
710 to 1400mm	200mm

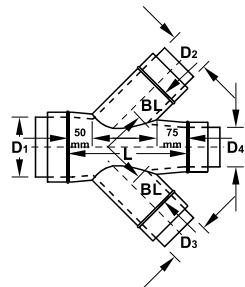
Ordering example:

GI DW25 RT45° 200 150 150 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Dimension D₃ _____
 Inner Material _____

S

Reducing Cross Tee 45°

- RCT45°
- $L = \text{the longer of } D_2 \text{ or } D_3 \times 1.5 + 150\text{mm}$



D ₂ & D ₃	BL
100 to 250mm	100mm
280 to 355mm	125mm
400 to 650mm	150mm
710 to 1400mm	200mm

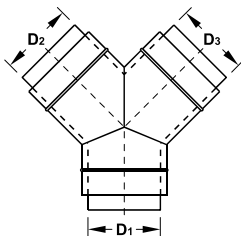
Ordering example:

GI DW25 RCT45° 200 150 150 150 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Dimension D₃ _____
 Dimension D₄ _____
 Inner Material _____

T

Y - Tee

- TY45°
- 30°, 45° and 60° available
- $D_1 = D_2 = D_3$



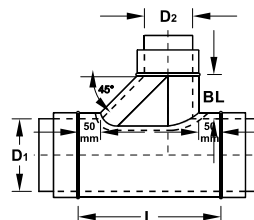
Ordering example:

GI DW25 TY45° 200 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Inner Material _____

U

Shoe Tee - Offset

- STO
- $L = D_2 + BL + 150\text{mm}$



D ₂	BL
100 to 200mm	150mm
225 to 355mm	225mm
400 to 650mm	300mm
710 to 1400mm	350mm

Ordering example:

GI DW25 STO 200 100 GI
 Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Inner Material _____

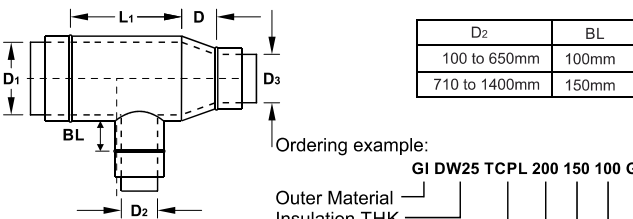
V

Circular Ducts (Double Wall) Fittings

FITTINGS - DOUBLE WALL

Centric Tee Piece with Reducer

- TCPL
- $L_1 = D_2 + 150\text{mm}$
- $L_2 = D_1 - D_3$
- Minimum L_2 100mm, Maximum L_2 400mm

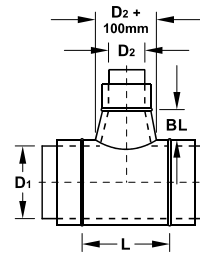


Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Dimension D₃ _____
 Inner Material _____

W

Conical Tee

- TC
- $L = D_2 + 150\text{mm}$



D ₂	BL
100 to 200mm	150mm
224 to 400mm	200mm
450 to 650mm	250mm
710 to 1400mm	300mm

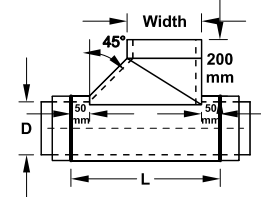
Ordering example:
GI DW25 TC 200 150 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D₁ _____
 Dimension D₂ _____
 Inner Material _____

X

Rectangular Shoe with Pipe

- RSWP
- $L = \text{Width} + 250\text{mm}$



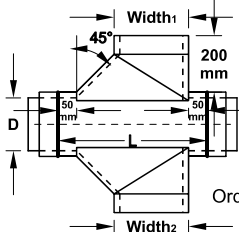
Ordering example:
GI DW25 RSWP 200 300X150 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Dimension Width x Depth _____
 Inner Material _____

Y

Rectangular Cross Shoe with Pipe

- RCSWP
- $L = \text{the longer of Width}_1 \text{ or Width}_2 + 250\text{mm}$



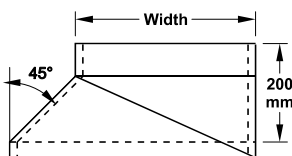
Ordering example:
GI DW25 RCSWP 200 300X150 300X150 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Dimension Width₁ x Depth₁ _____
 Dimension Width₂ x Depth₂ _____
 Inner Material _____

Z

Rectangular Shoe on Pipe

- RSP
- $L = \text{Width} + 150\text{mm}$



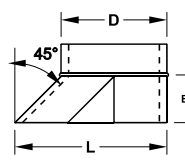
Ordering example:
GI DW25 RSP 200 300X150 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Diameter Pipe _____
 Dimension Width x Depth _____
 Inner Material _____

AA

Circular Shoe on Flat

- CSF



D	BL	L
100 to 200mm	125mm	+125mm
224 to 355mm	150mm	+150mm
400 to 650mm	175mm	+175mm
710 to 1400mm	200mm	+200mm

Ordering example:
GI DW25 CSF 200 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Inner Material _____

AB

* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

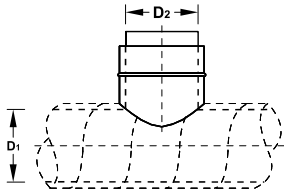
Circular Ducts (Double Wall)

Fittings

FITTINGS - DOUBLE WALL

Collar Saddle

• CS



Ordering example:

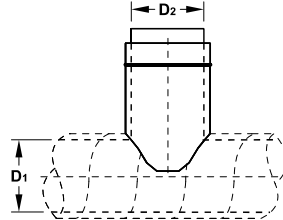
GI DW25 CS 200 200 GI

Outer Material
 Insulation THK
 Code
 Dimension D₂
 Diameter Pipe D₁
 Inner Material

AC

Branch 90°

• B90°



Ordering example:

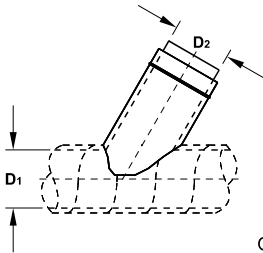
GI DW25 B90° 200 200 GI

Outer Material
 Insulation THK
 Code
 Dimension D₂
 Diameter Pipe D₁
 Inner Material

AD

Branch 60°

• B60°



Ordering example:

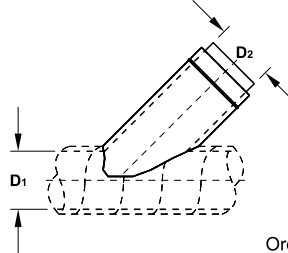
GI DW25 B60° 200 200 GI

Outer Material
 Insulation THK
 Code
 Dimension D₂
 Diameter Pipe D₁
 Inner Material

AE

Branch 45°

• B45°



Ordering example:

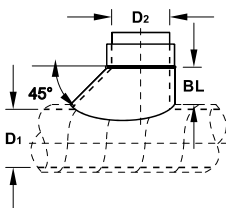
GI DW25 B45° 200 200 GI

Outer Material
 Insulation THK
 Code
 Dimension D₂
 Diameter Pipe D₁
 Inner Material

AF

Circular Shoe on Pipe

• CSP



D ₂	BL
100 to 200mm	100mm
224 to 355mm	175mm
400 to 650mm	250mm
710 to 1400mm	300mm

Ordering example:

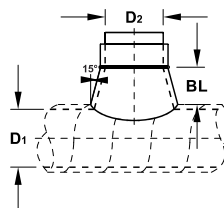
GI DW25 CSP 200 200 GI

Outer Material
 Insulation THK
 Code
 Dimension D₂
 Diameter Pipe D₁
 Inner Material

AG

Conical Branch on Pipe

• CBP



D ₂	BL
100 to 200mm	150mm
224 to 400mm	200mm
450 to 650mm	250mm
710 to 1400mm	300mm

Ordering example:

GI DW25 CBP 200 200 GI

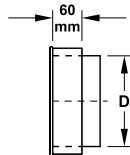
Outer Material
 Insulation THK
 Code
 Dimension D₂
 Diameter Pipe D₁
 Inner Material

AH

FITTINGS - DOUBLE WALL

End Cap Tube (Male)

• ECM



Ordering example:

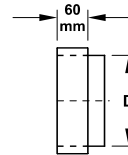
GI DW25 ECM 200 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Inner Material _____



End Cap Fittings (Female)

• ECF



Ordering example:

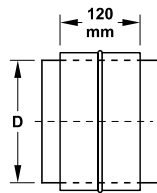
GI DW25 ECF 200 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Inner Material _____



Coupling Pipe

• MC



Ordering example:

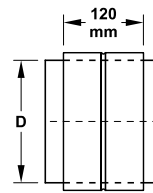
GI DW25 MC 200 GI

Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Inner Material _____



Coupling Fitting

• FC



Ordering example:

GI DW25 FC 200 GI

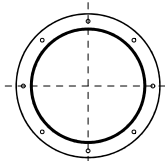
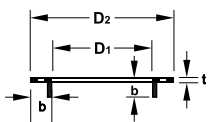
Outer Material _____
 Insulation THK _____
 Code _____
 Dimension D _____
 Inner Material _____



Circular Angle Flange

• CF

• $D_2 = D_1 + b$



D ₁	Bolts		b x b x t mm
	Dim.	N	
Up to 125	M6	4	25x25x3
150 to 250	M6	6	30x30x3
280 to 355	M8	8	40x40x4
400 to 500	M8	12	40x40x4
550 to 710	M10	16	40x40x5
750 to 1400	M10	24	50x50x5

Material: Hot Dip Galvanized Steel

Ordering example:

GI CF 200

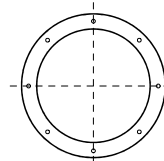
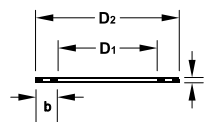
Material _____
 Code _____
 Dimension D₁ _____



Circular Flat Flange

• CFF

• $D_2 = D_1 + b$



D ₁	Bolts		b x t mm
	Dim.	N	
Up to 125	M6	4	25x3
150 to 250	M6	6	30x3
280 to 355	M8	8	40x4
400 to 500	M8	12	40x4
550 to 710	M10	16	40x5
750 to 1400	M10	24	50x5

Material: Hot Dip Galvanized Steel

Ordering example:

GI CFF 200

Material _____
 Code _____
 Dimension D₁ _____



* Materials Used for Ductworks:

- **Galvanized Steel:** (Standard) L.F.Q. Complying with ASTM A653 and Having G90 Coating Designation.
- **Stainless Steel :** (Optional) Complying with ASTM A240M / A480M, Grade 304, 304L, 316 & 316L.
- **Aluminum Metal :** (Optional) Complying with ASTM B209, Alloy 3003, Temper H14.

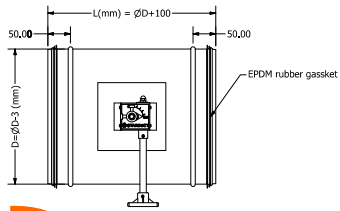
Notes: 1- Circular Angle Flanges are made Hot Dip Galvanized Steel Angle.

2- Circular Flat Flanges are made Hot Dip Galvanized Steel Sheet or Flat Bar.

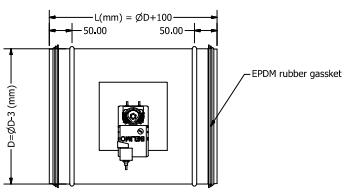
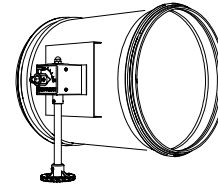
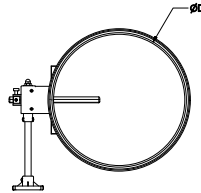
Circular Dampers

Fittings

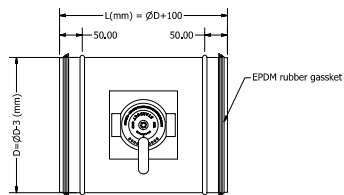
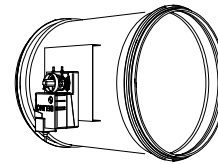
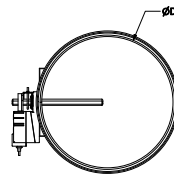
AIR TIGHTNESS SPIRAL DUCT DAMPERS



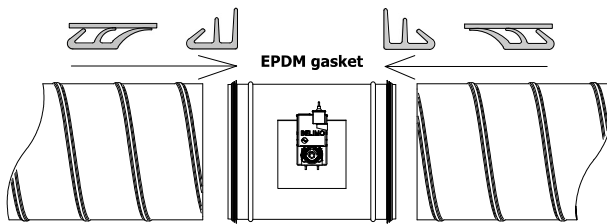
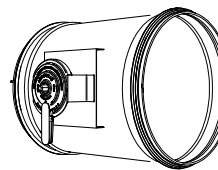
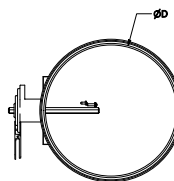
AO SCREW VCD - S-VCD-SR



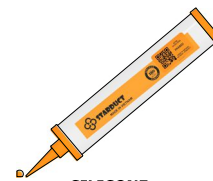
AP MORORIZED VCD - S-VCD-MR



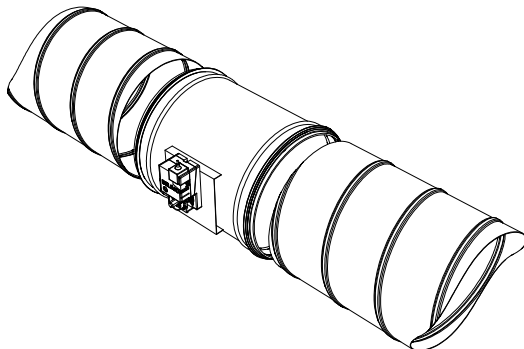
AQ QUARD HANDLE VCD - S-VCD-HR



EPDM GASKETED DAMPER

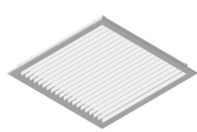


SILICONE



SELF SCREW M6. L15

Air Grilles & Diffusers



Single Layer Blade Air Grille



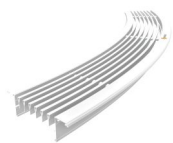
Double Deflection Layer Blade Air Grille



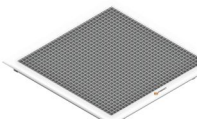
Round Deflection Blade Air Grille



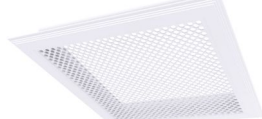
Linear Bar Grille



Curved Linear Bar Grille



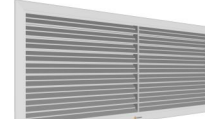
Eggcrate Air Grille



Perforated Face Return Air Grille



Louver Type Return Air Grille



Fresh Air Louver



Square Diffuser



Round Diffuser



Linear Slot Diffuser



Curved Linear Slot Diffuser



Variable Swirl Jet Diffuser



Eye Ball Jet Diffuser



Nozzle Jet Diffuser



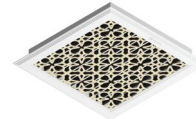
Spot Jet Diffuser



Variable Spot Jet Diffuser



Vent Cap Louver



Decorative Air Grille



Plate Type Ceiling Diffuser (1/2/3 cones)



Square Face Plate Round Ceiling Diffuser (1/2/3 cones - 2-step adjustable)



Disk Valve Diffuser



Round Ceiling Diffuser (1/2/4 cones)



Ring Diffuser



VAV Terminal Unit

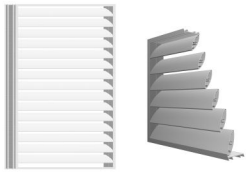
STAR ASIA JSC

STARDUCT MECHANICAL FACTORY

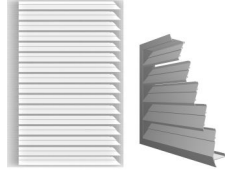
LOT C3/C4 - Phùng Industrial park - Đan Phượng - Hà nội - Việt Nam

Tel.: 024 3514 7999 - Email: nsca@nsca.vn - Web: nsca.vn

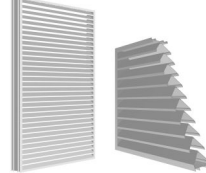
Louvers



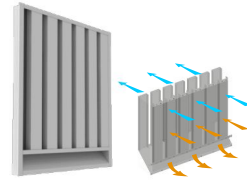
Weather Louver (oval blade)



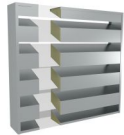
Weather Louver (Z blade)



Weather Louver (V blade)



Sand Louvers



Acoustic Louver (flat blade)



Acoustic Louver (V blade)



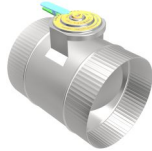
Deflector for Outdoor Unit of Air. Con



Dampers



Multiblade Volume Control Damper



Round Volume Control Damper



Fire Damper (E)



Round Fire Damper (E)



Smoke Damper



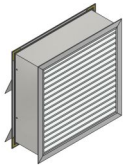
Round Smoke Damper



Non-return Damper



Round Non-return Damper



Backdraft/Pressure Relief Damper



Round Pressure Relief Damper



Insulated Fire Damper (EI)



Round Insulated Fire Damper (EI)

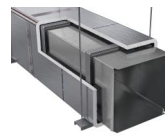
Air Ducts



Rectangular Duct



Spiral Duct



Insulation clad duct



Self-supported thermal insulation Duct (EI)



Flexible Duct



PVC-coat Flexible Duct



Insulated Flexible Duct



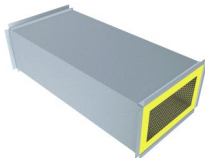
Flexible Connector



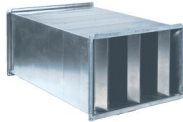
Fire Protection Flex-Connector

Silencers

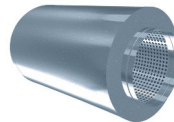
DW144 



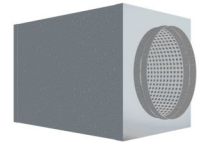
Rectangular Silencer



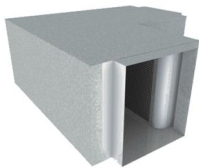
Rectangular Silencer



Circular Silencer



Axial Fan Silencer



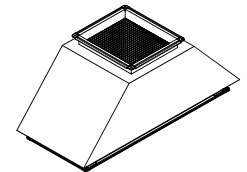
Elbow Silencer



Cross Talk Silencer



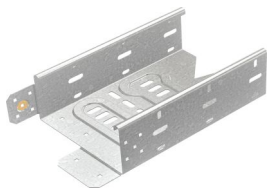
Thin Line Return Dissipater



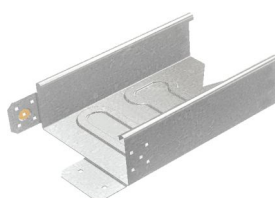
Custom Silencer

Cable Trays & Ladders





Perforated Cable Tray



Trunking



Cable Ladder



Raceway

Unistar Channel & Fittings

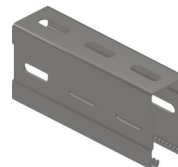




U 4121 channel



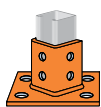
U 4141 channel



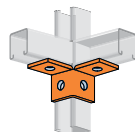
U 4161 channel



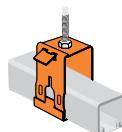
U 4181 channel



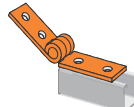
Base bracket



Wing bracket



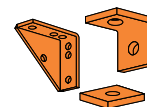
Hanger Bracket



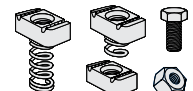
Hinged Bracket



Adjustable Brace Fittings



Small Brackets



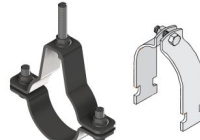
"SPRING NUT"

Pipe Suspension sys. for MEP





Light-Duty Pipe Clamps & Hangers



Mid-Duty Pipe Clamps & Hangers



Anti-vibration Pipe Hangers



Anti-vibration Pipe Clamps

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