

SPIRO-LOC – Rigid Steel Duct

SPIRO-LOC

Spiro-loc is a light weight sheet metal tubing, which is machine made in a spiral form from metal strip coil stock. Forming dies are held for common sizes between 100 mm and 1500 mm diameter. Special dies can be produced for larger or non standard sizes.

The four ply lock seam adds sufficient strength for the circular shape to be rigidly maintained up to 600 diameter in 0.95 mm material, or 500 diameter in lighter gauge. Additional rigidity and crushing strength can be achieved by the incorporation of one or two external swages. Common applications include ducting for heating, ventilating and air conditioning, void forming in concrete, irrigation pipe and rubbish shutles on high rise buildings.

Standard Construction

Diameter	Material	Wall (BMT)	Swages	Section Length
100-300	Galv. Steel	0.45 or 0.55	Nil	3 m
301-600	Galv. Steel	0.55 or 0.95	Nil	3 m
601-1500	Galv. Steel	0.95	1 [External]	3 m

Standard Die Sizes 'D' In mm									
100	125	150	175	200	225	250	300	350	
400	450	500	550	600	650	700	750	800	850
900	950	1000	1050	1100	1150	1200	1300	1400	1500

Special Construction Options

(1) Wall Thickness (BMT): 0.45 mm to 0.95 mm.

Lockseam Detail		BMT mm	H mm
		0.45	= 2.05
		0.55	= 2.35
		0.95	= 3.10

(2) Swage: Diameters 450 mm and above, 1 or 2 external.

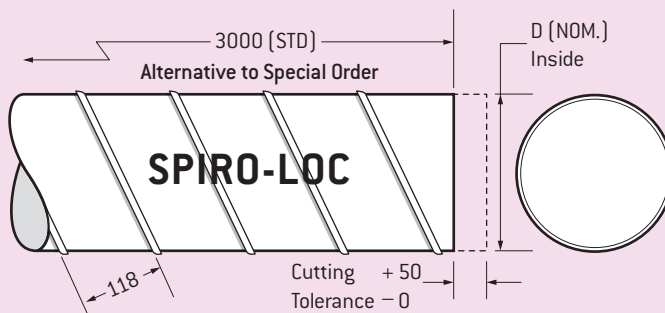
Profile Alternatives	
	Standard Plain
	Single Swage
	Double Swage

(3) Section Length: 750 mm to 6 m [maximum length is limited by practical considerations of handling].

(4) Insulated: Plain, Insulated with a lofted Polyester blanket and 100 micron Polyethylene vapour barrier outer sleeve.

Insulated Die Sizes 'D' In mm									
100	125	150	175	200	225	250	300	350	400
450	500								

Dimensional Data

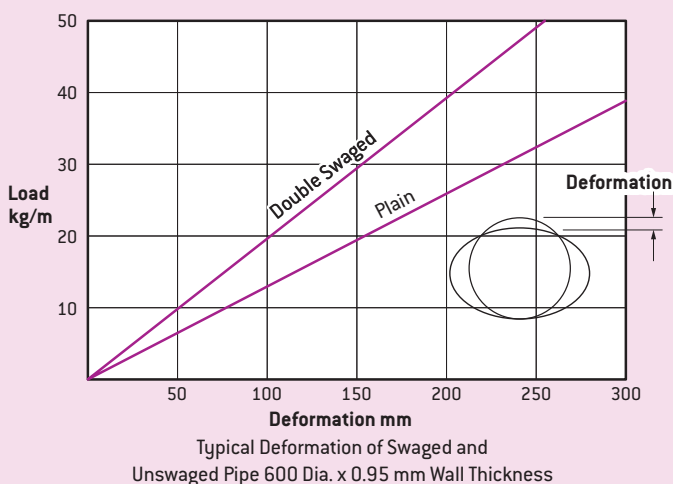


Leakage

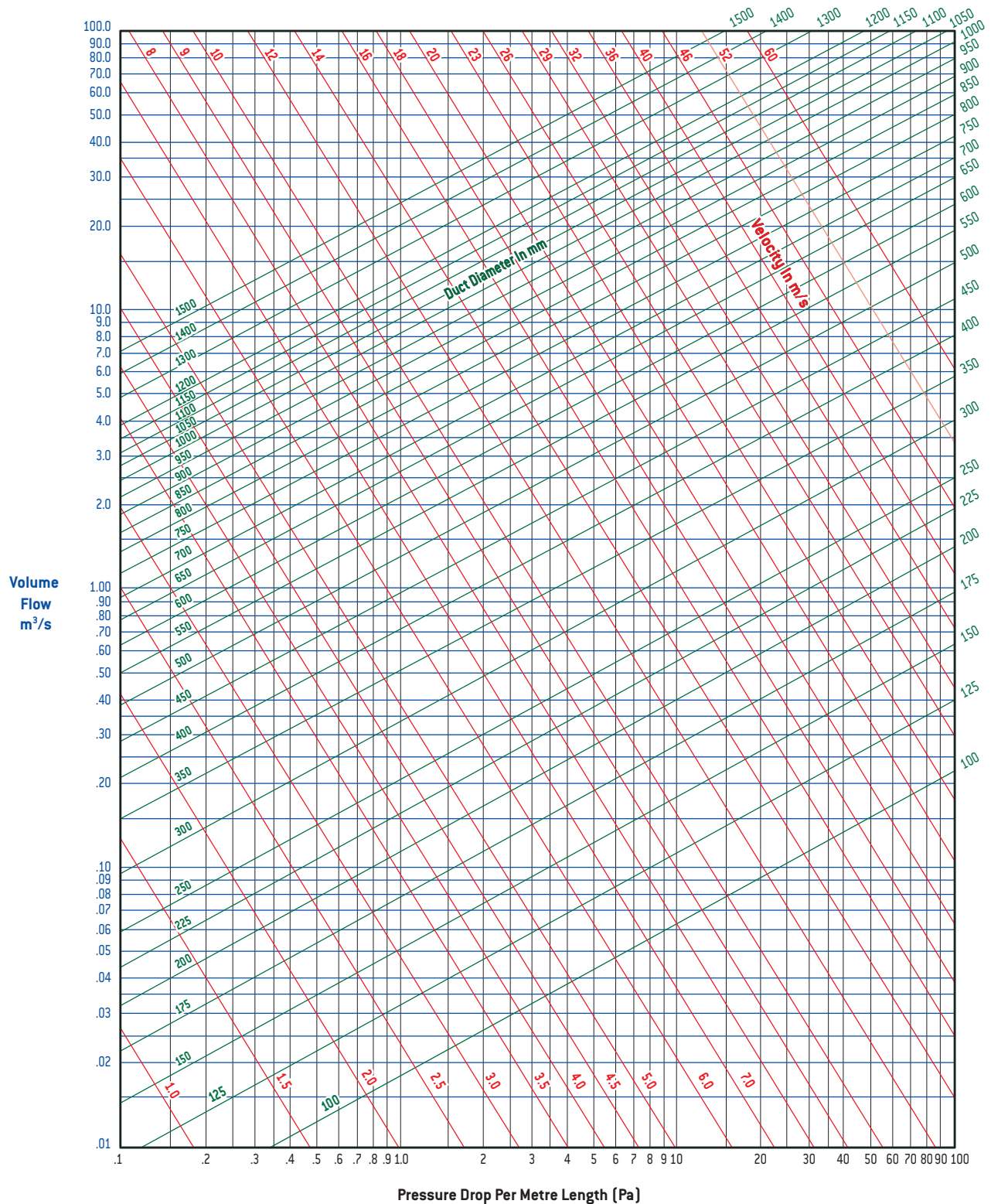
The longitudinal (spiral) four ply seam and the circumferential traverse joints in the Spiro-loc should be sealed after installation to the various pressure rating requirements of standards used in the HEVAC industry. Such standards are SMACNA and AS 4254. We recommend that the SMACNA high and low pressure ducting standards are followed for sealing requirements. Where leakage is critical, e.g. in high pressure conditioned air supply ducts, each length should be inspected for either impact or fatigue damage. Any looseness of the seam will allow the pipe length to bend slightly under its own weight when lifted by its ends. If the section is not rigid it should not be used in critical high pressure locations.

On Site Manufacture

Machines and operators are available for on site manufacture where large quantities of tubing are required in relatively inaccessible locations, either within New Zealand or overseas. Such projects as underground ventilation of mine shafts and tunnels for hydro power stations usually warrant this approach. Each must be separately evaluated for material sourcing, transportation and other special requirements. For further information, contact your local Holyoake branch.



Friction Resistance



Notes

1. Above data is for air density of 1.2 kg/m^3 .
2. For swaged pipe use multiplier of 1.05.

Due to a policy of continuous development and improvement the right is reserved to supply products which may differ slightly from those illustrated and described in this publication.

SPIRO-LOC – Installation Data

This data is primarily intended for HVAC application of Spiro-loc Ducting. Contact your local Holyoake branch for information on other applications such as conveying, void forming etc.

Selection of Wall Thickness and Girth Joints

The following table presents data which is acceptable under Australian Standard AS 4254.2 - 2012, 'Ductwork for air-handling systems in buildings, Part 2: Rigid duct'. For more complete information refer to the above Standard.

Duct Size (mm)	Minimum Metal Thickness			
	Max. 500Pa positive pressure	Max. 500Pa negative pressure	Max. 1000Pa positive pressure	Max. 2500Pa positive pressure
Up to 200	0.4	0.4	0.4	0.5
201 to 350	0.4	0.5	0.4	0.5
351 to 650	0.5	0.6	0.5	0.6
651 to 900	0.6	0.8	0.6	0.8
901 to 1250	0.8	1.0	0.8	1.0
1251 to 1500	1.0	1.2	1.0	1.2

Note

Where slip joints or spigots are used, heat shrinkable band is regarded as an effective sealant. This material should be used in accordance with the following table:-

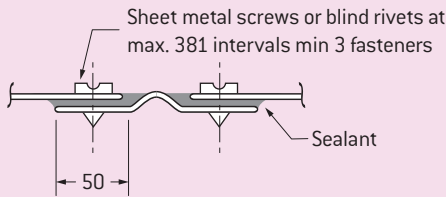
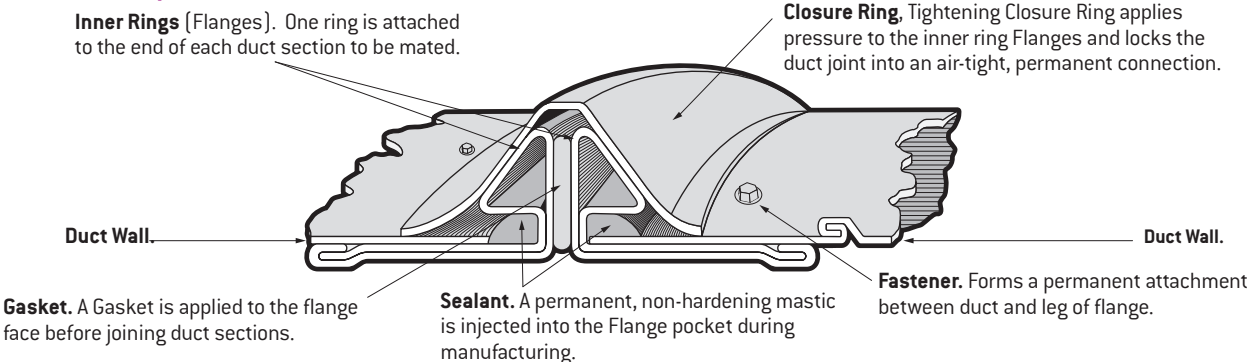
Duct Diameter	Band Width
100 - 250	50
251 - 500	75
501 and above	100

Round Duct Flange Connector System, General Description

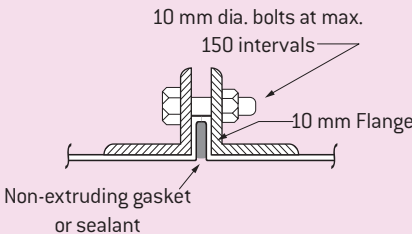
The proprietary Round Duct Flange Connector System consists of 2 inner rings (Flanges) and 1 outer ring (Closure). The Flanges have a pocket with factory installed mastic. The duct end must penetrate the mastic to avoid leakage. The leg of the Flange is attached to the duct by mechanical means such as screws or spot welds. The upstanding, triangular - shaped part of the Flange receives a gasket before mating with second duct section. The closure ring is equipped with a bolt and brackets which permit tightening of the closure ring over the 2 mated inner Flanges creating permanent, air-tight joints for round (spiral) ductwork.

Available in sizes from 200 mm to 1500 mm diameter.

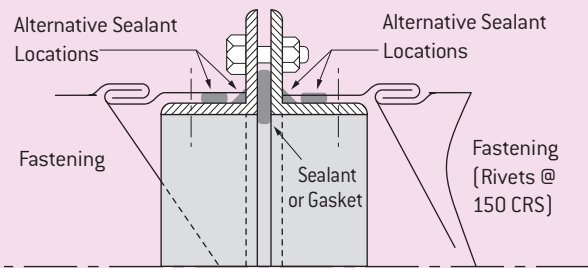
Cross Section and Components



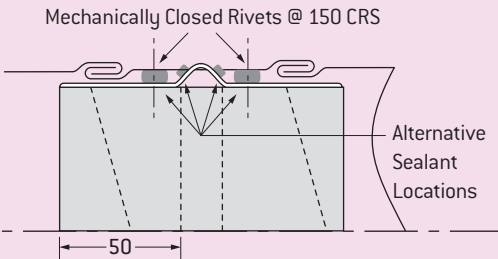
U.S.A Slip Joint



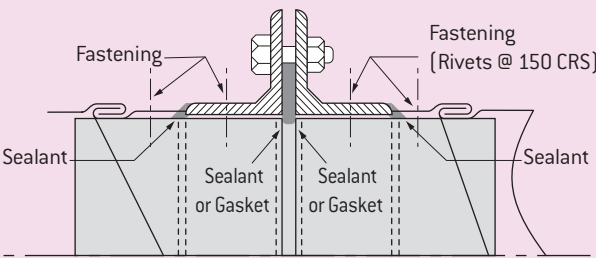
U.S.A Loose Flange or Vanstone Joint



U.K. Internal Flange



U.K. Spigot



U.K. External Flange

Hangers and Supports

The selection of a hanging system should take into consideration the possibly disastrous consequences of its failure. It is a characteristic of any multiple hanger system, that the failure of one hanger transfers that hanger's load to adjacent hangers. If one of these fail, then an even greater load is transferred to the next and so on. The result is a cascading failure in which an entire run of duct might fall.

For these reasons the following is intended as a guide for the use of designers or contractors, who must consider all available factors and adjust to suit. All duct is assumed to be carrying only its own weight.

Refer to page 371K for Holyoake duct hangers.

Supports for Horizontal Installation of Spiro-loc

Duct Diameter (mm).	Maximum Spacing (mm).	Drop rod, or Studding Dia (mm).	Flat Steel Strap Hanger Size (mm).	Single Rod System Dia (mm).	Horizontal Tie Rod with one rod System Diameter (mm).
Up to 250	3600	6	25 x 0.8	-	-
251 - 450	3600	6	25 x 0.8	-	-
451 - 600	3600	6	25 x 0.8	-	-
601 - 900	3600	2 x 8	25 x 0.8	10 + F/B	10
901 - 1250	3600	2 x 10	2 x 25 x 1.0	12 + F/B	12
1251 - 1500	3600	2 x 10	2 x 25 x 1.2	12 + F/B	12

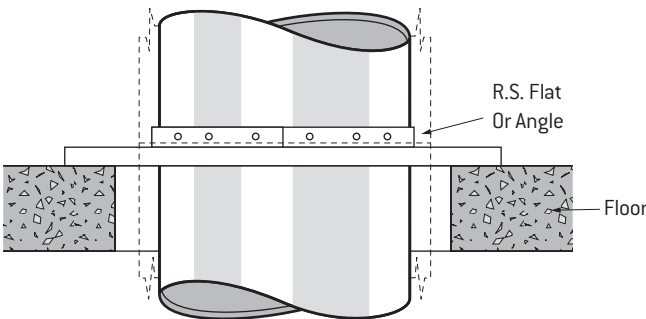
F/B = Flat Bar Band.

Also, refer to AS 4254.2 - 2012 'Ductwork for air-handling systems in buildings, Part 2: Rigid duct'.

Typical Support for Vertical Ducts

Supports for Vertical Installation of Spiro-loc

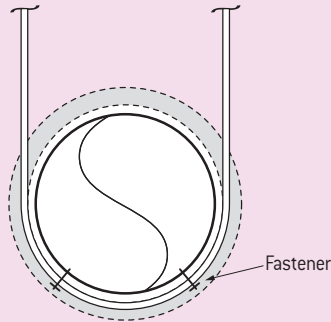
The design of supports for vertical ducts is dictated by site conditions. They are usually located to coincide with floor slabs, subject to a maximum spacing of 4 metres. Supports should be attached to stiffening angles, or to separate supporting angles fixed to the duct.



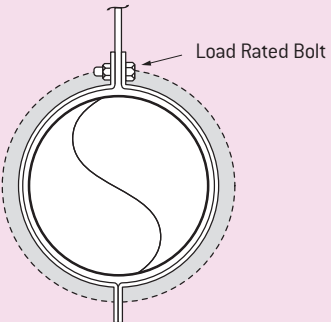
Note

All hangers and supports. Supply and fit by others.

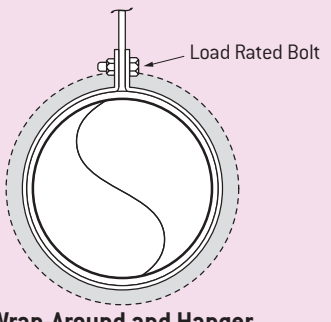
Hangers and Supports – Horizontal Ducts



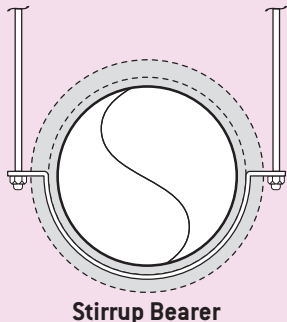
Double Strip U-Hanger Suitable For Pipe Up To 200 Dia. Only



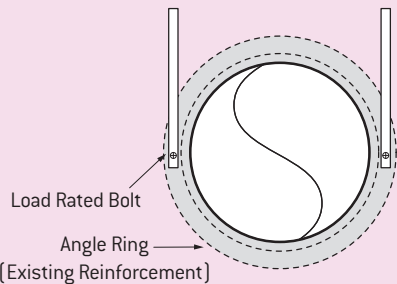
Split-Clip and Hanger



Wrap-Around and Hanger



Stirrup Bearer



Double Hanger: Wrap-Around