Shaft Ducting

Layflat Shaft Ducting

Layflat Shaft Duct for positive pressure, with two welded suspension strips.

Heavy duty Polyester/Nylon fabric both sides PVC coated.

Seams profile welded airtight.

Spring steel end rings.

Galvanized spring steel wire cable fastened with spring hooks on both sides.

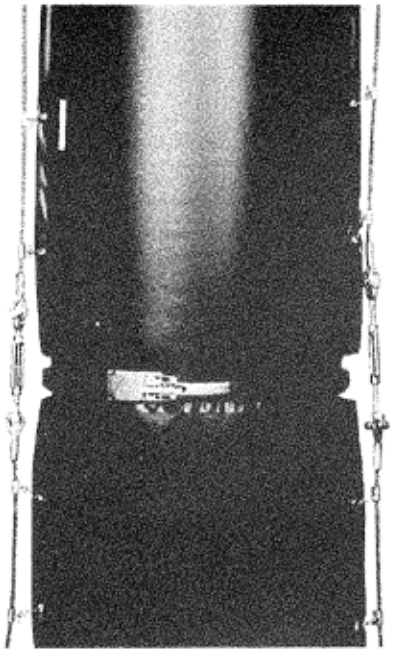
Galvanized adjustable turn buckles.

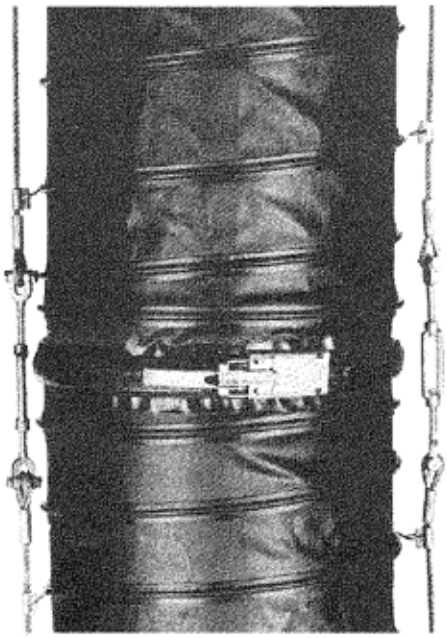
Low friction loss.

High wear resistance and tear strength.

Diameters available from 12” to 94”.

Lengths made to order.





Spiral Shaft Ducting

Spiral Shaft Duct for negative and positive pressure.

Spiral reinforced by spring steel wire helix.

Diameters available from 24” to 96”.

Standard 25’ lengths. Shorter lengths can be manufactured to order.

Helix pitch available in 3” and 6”.

SCHAUENBURG Industries Ltd.

Flexible Lay Flat Round Ducting

Flexible Lay Flat Round Ducting systems are ideal for positive pressure applications. Seams and grommets are welded to be airtight, providing low airflow resistance.

Features

- Woven Polyester/Nylon fabric with both sides PVC coated.
- Low friction loss.
- Spring steel end rings to minimize leakage.
- MSHA approved.
- One welded grommet suspension strip. Two strips are optional.
- Seams and grommet tucks welded to be airtight and provide low airflow resistance.
- High wear resistance and tear strength.
- Flame resistance according to ASTM E-162 flame spread index less than 25 and EMR.
- Antistatic fabric optional.

Sizes

- Standard diameters 12” to 94”.
- Standard length is 25 – 50 feet. Other lengths can be manufactured as requested.

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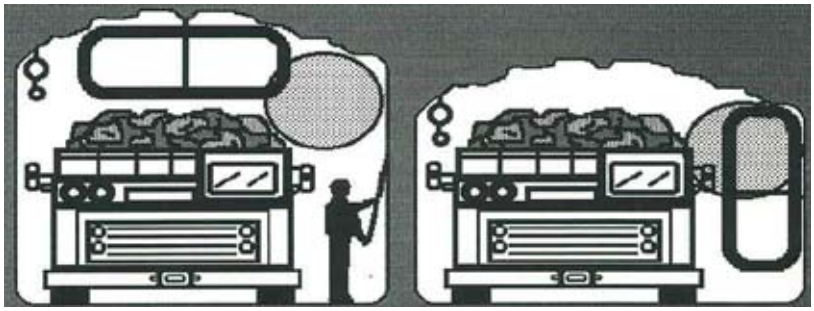
Flexible Lay Flat Oval Ducting

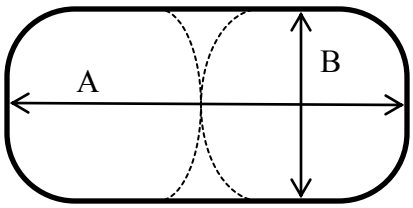
Advantages

- Increased clearance at the back or pillar for travel-ways.
- Increased air volume by maximizing available space for duct.
- Reduced drift size to accommodate ventilation and equipment.
- Reduced waste tonnage for new development drifting.
- Choice between a variety of size combinations, lengths and designs.
- All duct and fittings available in both Lay Flat and Spiral reinforced.



STANDARD SIZES

OVAL EQUIVALENT	Axis A Long Radius	Axis B Short Radius
18”	24.75”	13.50”
24”	33.25”	18.00”
30”	43.25”	22.50”
32”	45.00”	24.00”
36”	51.25”	27.00”
42”	60.00”	31.50”
48”	66.50”	36.00”
54”	76.50”	40.50”
60”	85.25”	45.00”



We have the ability to manufacture special sizes upon request.

Spiral Round Ducting

Spiral Round Ducting has been developed to suit applications where extreme ruggedness and flexibility are required. The ducting has armour of continuous spring steel wire and reinforced profile which is solidly welded onto a heavy PVC coated fabric tube.

Features

- Heavy duty woven Polyester/Nylon fabric both sides PVC coated.
- Spiral reinforced by spring steel wire.
- Seams and profile welded airtight.
- Low friction loss due to smooth inner surface.
- Suitable for high negative and positive pressure.
- Spring steel end-rings.
- Galvanized suspension hooks.
- High wear resistance and tear strength.
- Flame resistance according to ASTM E-162 and Energy Mines & Resources Canada (EMR).
- Acid mine water resistant.
- Rugged construction.
- Ready for fast and easy installation.
- Antistatic feature optional.
- Adaptable to all fittings.

Light Weight Spiral Ducting

The construction of these ducts range in diameter from 12” to 60” and are based on the proven, fully enclosed spring steel helix welded to the fabric of the ducting. The fabric is lighter than the regular Spiral and is recommended for economy where high suction pressure or extreme dust loadings are not a consideration.

Sizes

- 12” to 60” diameter
- Standard length is 25 feet. Can be manufactured in 10’, 15’ and 20’ as requested.

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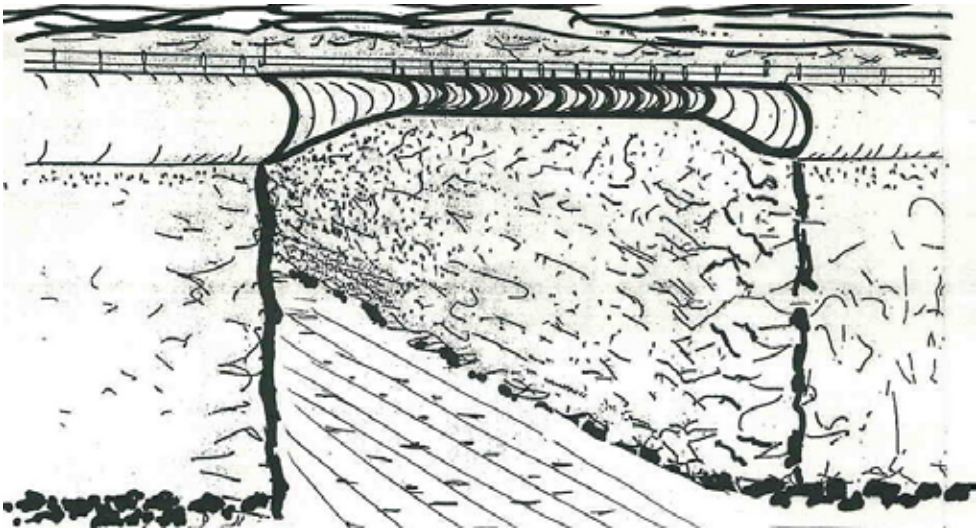
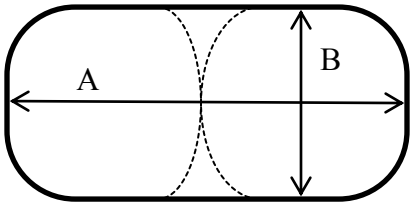
Spiral Oval Ducting

The Schauenburg Spiral Oval Ducting has a heat welded and airtight construction with two heavy duty end rings. A very smooth inner surface results in low friction loss. The spiral is reinforced by spring steel wire. All Spiral Oval Ducting is ready for fast and easy installation.



STANDARD SIZES

OVAL EQUIVALENT	Axis A Long Radius	Axis B Short Radius
18”	24.75”	13.50”
24”	33.25”	18.00”
30”	43.25”	22.50”
32”	45.00”	24.00”
36”	51.25”	27.00”
42”	60.00”	31.50”
48”	66.50”	36.00”
54”	76.50”	40.50”
60”	85.25”	45.00”



We have the ability to manufacture special sizes upon request.

Spiral Ducting Diameter & Pitch Chart

	6" Pitch (wire spacing)		3" Pitch (wire spacing)		1 ½" Pitch (wire spacing)		
Diameter	**Weight[1]**	**Maximum Negative Pressure[2]**	**Weight[1]**	**Maximum Negative Pressure[2]**	**Weight[1]**	**Maximum Negative Pressure[2]**	**Wire Diameter**
12"	1.3 lb/ft 1.97 kg/m	8" 2.0 kpa	2.0 lb/ft 2.95 kg/m	14.4" 3.6 kpa	3.6 lb/ft 5.25 kg/m	24" 6.0 kpa	
16"	1.7 lb/ft 2.30 kg/m	8" 2.0 kpa	2.7 lb/ft 3.94 kg/m	14.4" 3.6 kpa	4.7 lb/ft 6.89 kg/m	24" 6.0 kpa	
18"	1.9 lb/ft 2.62 kg/m	8" 2.0 kpa	3.0 lb/ft 4.59 kg/m	14.4" 3.6 kpa	5.3 lb/ft 7.87 kg/m	24" 6.0 kpa	.189
20"	2.0 lb/ft 2.95 kg/m	9.6" 2.4 kpa	3.3 lb/ft 4.92 kg/m	16" 4.0 kpa	5.9 lb/ft 8.86 kg/m	28.8" 7.2 kpa	
24"	2.9 lbs/ft 4.26 kg/m	8" 2.0 kpa	4.8 lb/ft 7.22 kg/m	14.4" 3.6 kpa	8.6 lb/ft 12.79 kg/m	24" 6.0 kpa	
30"	4.5 lb/ft 6.56 kg/m	9.6" 2.4 kpa	7.5 lb/ft 11.15 kg/m	16" 4.0 kpa	13.6 lb/ft 20.34 kg/m	28.8" 7.2 kpa	
36"	5.5 lb/ft 7.54 kg/m	8" 2.0 kpa	9.0 lb/ft 13.45 kg/m	14.4" 3.6 kpa	16.3 lb/ft 24.27 kg/m	24" 6.0 kpa	
42"	6.3 lb/ft 9.51 kg/m	6.8" 1.7 kpa	10.5 lb/ft 15.74 kg/m	12" 3.0 kpa	18.9 lb/ft 28.21 kg/m	20.8" 5.2 kpa	
48"	7.2 lb/ft 10.82 kg/m	6" 1.5 kpa	12.0 lb/ft 5.5 kg/m	10.8" 2.7 kpa	21.7 lb/ft 32.47 kg/m	17.6" 4.4 kpa	.236
54"	8.1 lb/ft 12.14 kg/m	5.2" 1.3 kpa	13.5 lb/ft 20.34 kg/m	9.6" 2.4 kpa	24.4 lb/ft 36.41 kg/m	16" 4.0 kpa	
60"	9.0 lb/ft 13.45 lg/m	4.8" 1.2 kpa	15.0 lb/ft 22.30 kg/m	8.4" 2.1 kpa	27.1 lb/ft 40.4 kg/m	14.4" 3.6 kpa	

1. *Weights are calculated based on 14 oz brattice material.*
2. *Maximum negative pressure is the pressure at which properly installed duct will collapse. Working pressure should be between 50% and 75% of maximum pressure.*

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Ventilation Connections

1. **Quick Connect**
   All hardware is attached to the ducting. There is no bunching at the joints, improving air flow resistance, resulting in fan energy savings and allowing the miner to connect quickly and correctly, thus eliminating leakage.

2. **Multi Clips**
   Used for large diameter ducting where ease of installation is essential. Unit consists of a flat base plate with pressed in 5/16 carriage bolt; pre-formed top plate to fit over end rings of ducting; and a 5/16 wing nut to hold assembly and end rings of ducting together.

3. **Zippers**
   Zippers are sewn directly into the ducting. Internal and external flaps protect the zippers from dirt and further reduce air loss.

4. **Coupling Bands**
   Coupling Bands consist of a full circle of yellow PVC extrusion profile with a patented locking clip. The Coupling Band is placed over both end rings of the ventilation ducting and by tightening the steel wire within the profile an airtight joint is produced.

5. **Integral Flexible Quick Release Couplings**
   To eliminate the need for separate coupling bands, the PVC extrusion is sewn into the ventilation ducting. The extrusion wraps around the end ring and by tightening the buckle an airtight and competent seal is made.

SCHAUENBURG Industries Ltd.

Quick Connect

The Quick Connect system is available on all Flexible Lay Flat and Spiral ventilation ducting.

Features/Advantages

- Joining lengths take 75% less time than the conventional multi clip system.
- All hardware is attached to the duct.
- There is no bunching at the joints, improving air flow resistance, resulting in fan energy savings and allowing the miner to connect quickly and correctly, thus eliminating leakage.
- Miners can quickly suspend and remove ventilation ducting using the Quick Connect clips.

Before Connecting Ducting

Connected Ducting Using Quick Connect

Quick Connect

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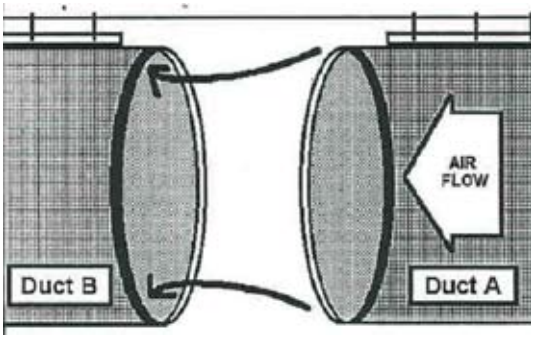
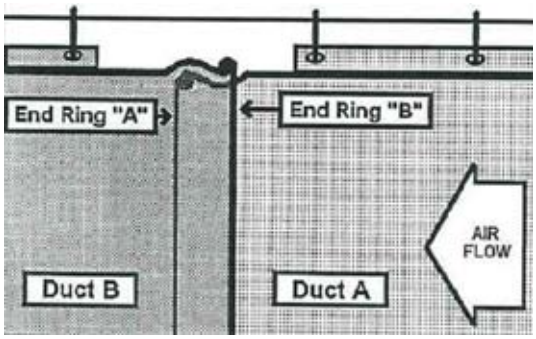
Multi Clip Connections

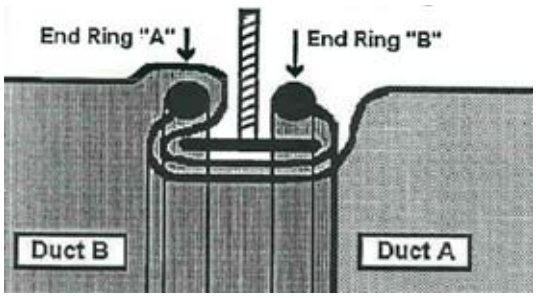
1. Place End Ring “A” on source Duct A into End Ring “B” to join the two lengths.



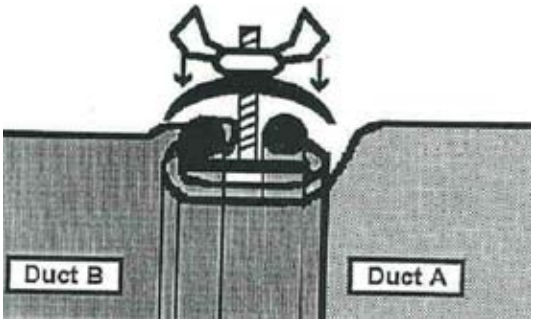
2. Pull back End Rings “A” so that it is against the inside of the End Ring “B”.



3. Place rectangular washer of vent clip into gap on the outside of Duct B so that the washer is BELOW the two end rings down inside the tuck. Squeeze rings together.



4. Firmly tighten down curved clip washer with wing nut so that it draws both end rings together and secures them tightly.



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Zipper Connections

Schauenburg Industries Ltd. supplies a variety of ventilation ducting for the mining industry in a wide range of PVC fabrics and a number of connection styles. The conventional connections include end rings and quick connect but there is an efficient alternative. Zipper connections, with both internal and external flaps, are becoming more and more popular in the industry and have some very distinct advantages:

- Tight seals ensure little or no leakage of valuable air flow
- Zipper connections are quick and easy to attach together
- They are equally simple to disassemble if necessary
- Duct lengths are stand alone, easily removed for replacement or repair
- Internal and external flaps protect the zippers from dirt and further reduce air loss
- Zippers are available in a wide range of styles and sizes to match existing ducts

External flap completely covers zipper

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Coupling Band Connections

The Coupling Band consists of a full circle of yellow PVC extrusion profile with a patented locking clip. The band is placed over both end rings of the ventilation ducting and by tightening the steel wire within the profile an airtight joint is produced. The band can be easily attached to the ventilation ducting and removed for reused.

SCHAUENBURG Industries Ltd.

Integral Flexible Quick Release Coupling Connections

The Integral Flexible Quick Release Coupling can be incorporated into our complete line of flexible PVC ventilation ducting enabling you to join two lengths of ducting in seconds.

Each length of integral coupling ducting comes complete with one end fitted to the PVC coupling and quick release toggle clamp and a standard flexible end ring on the other end.

Simply place the end ring inside the coupling and with one motion of the handle, the two lengths of ducting have an airtight joint.

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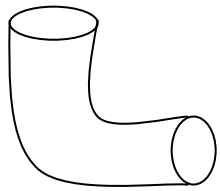
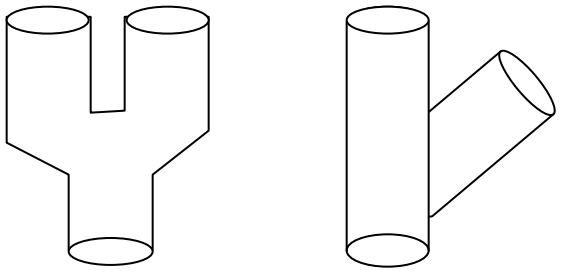
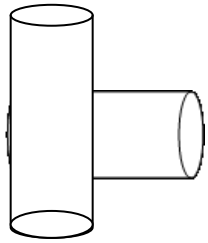
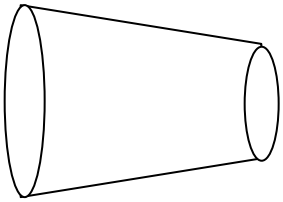
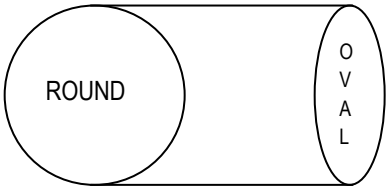
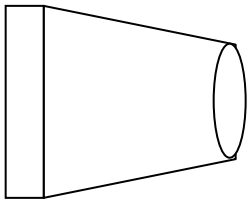
Flexible Fittings

We manufacture many different flexible fittings in various diameters, configurations and lengths. Fittings are available for Flexible Lay Flat and Spiral Ducting in both round and oval conformations.

Elbow	Symmetrical Pant and Lateral Wyes	Tee
		
Reducer	**Transition**	**Fan Adapter**
		

Semi-Circle Regular Ducting

The Semi-Circle Regular Ducting is used for existing drifts, x-cuts and ramps, so you can operate larger LHD equipment with the required air volume and the required clearance in the drift. The Semi-Circle duct takes full advantage of clearance in small headings.

LOCATION: TOPS OF THE ARCHES IN DRIFTS & TUNNELS

Round Duct	Semi-Circle Regular Duct		Head Room Reduction
	X (width)	Y (height)	
12”	26”	6”	6”
24”	45”	12”	12”
30”	54”	15”	15”
36”	66”	18”	18”
42”	75”	21”	21”
48”	84”	24”	24”
54”	93”	27”	27”
60”	102”	30”	30”

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Semi-Circle Spiral Ducting

The Semi-Circle Spiral Ducting is used for existing drifts, x-cuts and ramps, so you can operate larger LHD equipment with the required air volume and the required clearance in the drift. Semi-Circle duct takes full advantage of clearance in small headings.

Round Duct	Semi-Circle Spiral Duct		Head Room Reduction
	X (width)	Y (height)	
12”	26”	6”	6”
24”	45”	12”	12”
30”	54”	15”	15”
36”	66”	18”	18”
42”	75”	21”	21”
48”	84”	24”	24”
54”	93”	27”	27”
60”	102”	30”	30”

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High Abuse Spiral Flexible Fan Adapter

Spiral Flexible Fan Adapter is used for active development and stoping areas offering enhanced tensile and tear resistance.

Features/Benefits

- Heat welded and airtight construction with three heavy duty end rings.
- Spiral reinforced by spring steel wire.
- Very smooth inner surface equals low friction loss.
- Flame and acid mine water resistant.
- Ready for fast and easy installation.

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High Abuse Spiral Flexible Wye

Spiral Flexible Wye is used for active development and stoping areas offering enhanced tensile and tear resistance.

Features/Benefits

- Heat welded and airtight construction with three heavy duty end rings.
- Spiral reinforced by spring steel wire.
- Very smooth inner surface equals low friction loss.
- Flame and acid mine water resistant.
- Ready for fast and easy installation.

SCHAUENBURG Industries Ltd.

High Abuse Spiral Flexible Tee

Spiral Flexible Tee is used for active development and stoping areas offering enhanced tensile and tear resistance.

Features/Benefits

- Heat welded and airtight construction with three heavy duty end rings.
- Spiral reinforced by spring steel wire.
- Very smooth inner surface equals low friction loss.
- Flame and acid mine water resistant.
- Ready for fast and easy installation.

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High Pressure Flexible Coupling

High Pressure Flexible Coupling is used for steel ducting and tunnel boring applications.

Features/Benefits

- Cable reinforced quick release PVC bands or steel couplings on each end sized for a fast, secure attachment to steel or fiberglass duct and also to allow quick removal for cleanout of dust collector ducting.
- Heavy duty 24 oz/yd² (800 g/m²) duct to withstand abrasive material in airstream.
- 1 ½" pitch (40 mm) spiral reinforcement to hold high pressure.
- Oval and round diameters available 12" – 72" (300 mm – 1800 mm) for wide range of applications.
- Lengths available to 25' (82 m) per your requirements.
- 2:1 collapsing ratio for elbow misalignment or to allow TBM to turn around bends in tunnel.
- All material MSHA approved for fire resistance.
- Schauenburg is known industry-wide for partnering with customers to engineer solutions for ventilation projects. We welcome inquiries for technical assistance and the opportunity to assist you with new or existing projects.

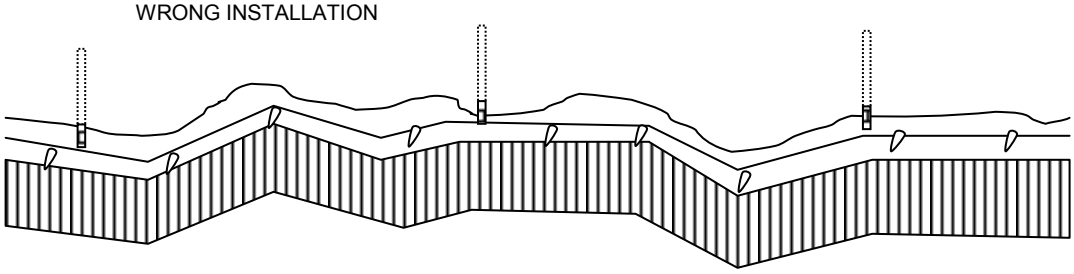
SCHAUENBURG Industries Ltd.

Spiral Ducting Installation Procedure

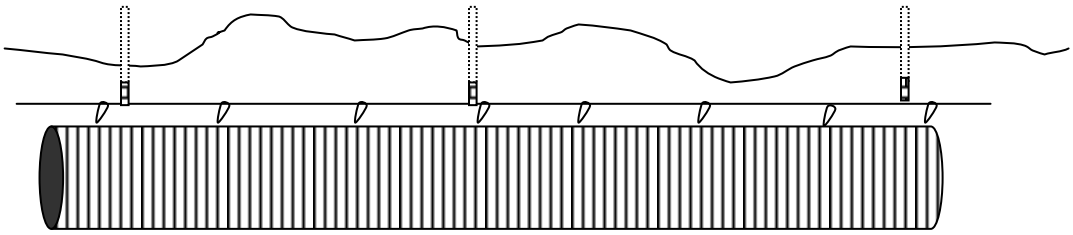
1. Insert eye bolt.
2. Install and tighten suspension rope of approximately 3/16” diameter.
3. Attach chain anchor to suspension rope.
4. Hook ducting onto suspension rope and extend to full length under tension.

Please see diagram below.

WRONG INSTALLATION



RIGHT INSTALLATION



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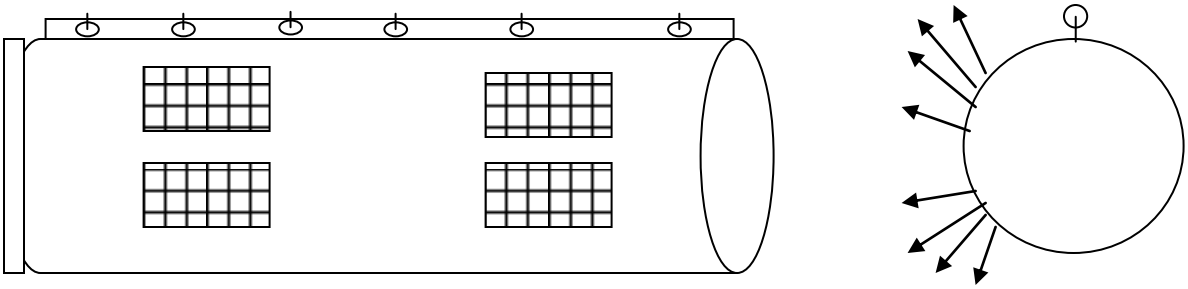
Dispersion Ducting

The perforated window sections create a dispersing air flow for diluting gas and dust concentrations in haulage ways, cross-cuts and other places where fresh air is required. Shape and position of the outlet sections can be altered on request.

The volume of air dispersed can be adjusted by means of a Schauenburg Throttle Valve, installed at the end or in between the ducting columns.



How To Use The Flexible Duct Resistance Chart

A. First, locate your required CFM on the bottom of the chart. Follow a line up until you intersect a diagonal line for the diameter of the ducting you are considering. Follow a line to the left side of the chart. This will give you a general static pressure loss per 100 feet of the ducting. **(=A)**

B. To determine your theoretical length of ducting, apply the following equation:
Actual duct length + Exit loss + Coupling loss = Theoretical length (=B)
Exit loss is equal to 100' of ducting. Each coupling is equal to 6' of ducting.

C. Multiply the static pressure loss (A) by the theoretical length (B) to give the required pressure **(C)**. **A X B = C**

Example

Given:

Required	7000 CFM
Distance	900 ft.
Ducting considering	24" diameter
Couplings – using 100' ducting section, you would have 8 couplings.	

A. To find the static pressure loss, locate 7000 CFM on the bottom of the chart. Move up until the line intersects the 24" diagonal. Move to the left side of the chart and read the pressure loss. This will be 0.39 inches water gage per 100'.
B. To determine the Theoretical ducting length:
Actual ducting length + Coupling loss + Exit loss = Theoretical ducting length
900 + 48 + 100 = 1048
C. Static pressure loss x Theoretical ducting length = Required pressure
A x B = C
0.39/100 x 1048 = 4.09" w.g.

Therefore, the pressure you will need to deliver 7000 CFM through 900 ft. of 24" diameter Schauenburg Flexible Ventilation Ducting is 4.09" w.g.

Flexible Duct Resistance Chart