FLEXIBLE AIR DUCT INSTALLATION GUIDE

Flexible air ducts are specifically used for low and medium pressure heating, cooling, ventilation, air conditioning and exhaust systems.

It is of utmost important to realize that air leakage and pressure loss can seriously affect the system performance. Choosing the right installation elements and paying attention to technical details are also important for maximum efficiency.

To avoid these defects, follow the instructions included in this guide.

Appropriate installation provides maximum productivity with minimum energy consumption, resulting in time and cost saving.

CHOOSING THE RIGHT DIAMETER

In choosing the right diameter, calculated pressure loss is very important. Optimum air velocity should be 3 m/s in flexible air ducts.

As shown in Table 1 pressure loss increases by 498 % when the air velocity increases from 2.79 m/s to 5.48 m/s.

AIR FLOW (m^3/h)	DUCT DIAMETER (mm)	AIR VELOCITY (m/s)	PRESSURE LOSS (Pa)	PRESSURE LOSS DIFFERENCE %
1000	Ø 254	5.48	2.93	% 498
1000	Ø 305	3.80	1.11	% 126
1000	Ø 315	3.56	0.94	% 92
1000	Ø 356	2.59	0.49	% 0

TABLE 1

FLEXIBLE AIR DUCT
INSTALLATION GUIDE

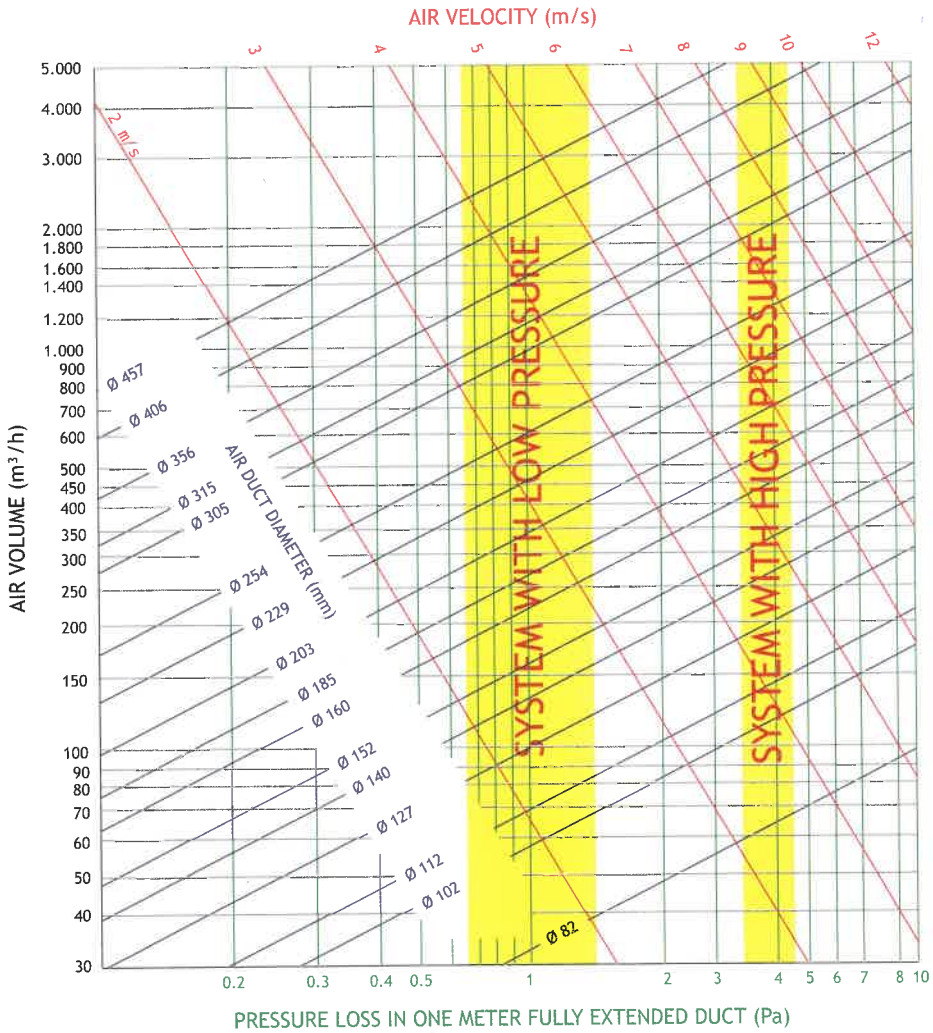


TABLE 2

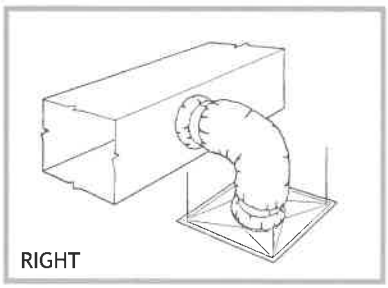
TO DETERMINE THE INSTALLATION LENGTH OF AFS FLEXIBLE AIR DUCTS

Flexible air ducts should be installed in fully extended form to obtain a smooth and flat inner surface. This will minimize pressure loss and keep the diameter steady.

The inner surface of AFS flexible air ducts remains smooth and flat when extended, due to its being manufactured from stronger and thicker aluminium than competitive products.

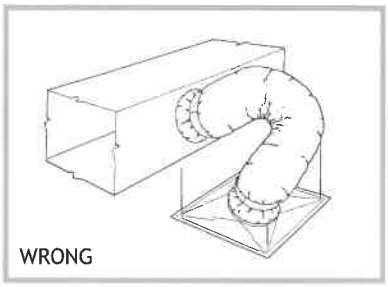
BENDS AND ELBOWS

The number of bends, the angle of each bend and the amount of sag allowed between support joints will seriously affect system performance due to the increased air resistance that each element introduces. It is important to keep the number of bends to a minimum.


RIGHT

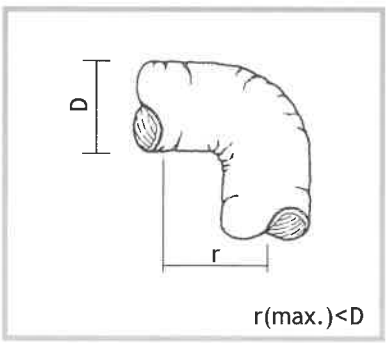
The friction loss in a bend of 90° is equal to the friction loss of 2 m fully extended duct.

When forming 90° bends, it is important that the nominal radius be less than the diameter of the duct. It is important to check that the ducts to be used are suitable for bending, and that when bent they are not deformed.


WRONG

AFS flexible air ducts have a constant diameter throughout the installation. Due to their multi-layer, laminated, construction being reinforced with a steel wire spiral, they resist deformation and preserve their diameter.

The bending radius of AFS flexible ducts is calculated as follows: duct diameter x 0.54



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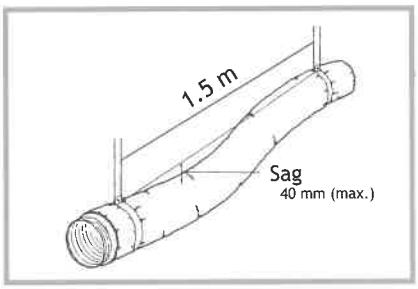
FLEXIBLE AIR DUCT INSTALLATION GUIDE

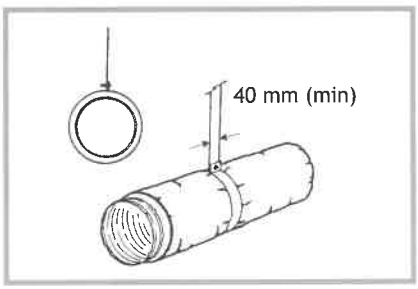
SUPPORTING FLEXIBLE DUCT

Flexible air ducts should be supported at least every 1.5 m. Maximum permissible sag is 40 mm per meter.



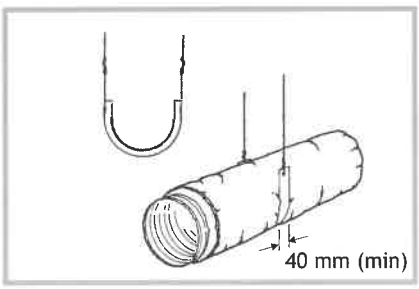
Long horizontal duct installations with sharp bends should have additional supports before and after the bend; the additional supports should be placed away from the bend a distance equal to the diameter of the duct used.

Due to the special technique used in producing the highly resilient multi-layer structure, AFS flexible air ducts are self-supporting even with widely spaced supports.

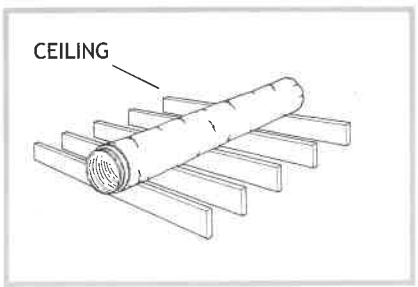


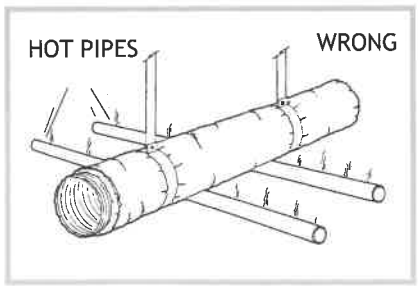
Flexible air duct hangers or saddles should be of sufficient width to prevent any constriction of the duct diameter.

The hangers or saddles should be at least 40mm wide.

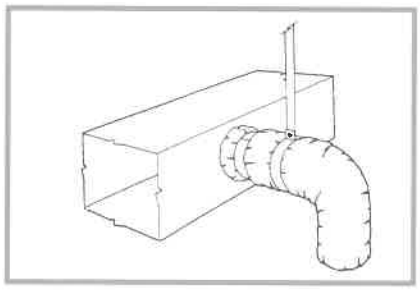


Flexible air ducts may rest on ceiling or truss supports. Do not install flexible air ducts near hot equipments (e.g. steam pipes, furnaces, boilers, etc.) This situation may adversely affect the temperature of the air passing through the duct.

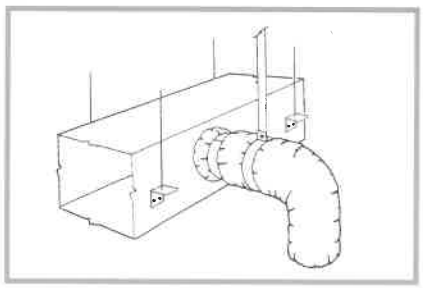


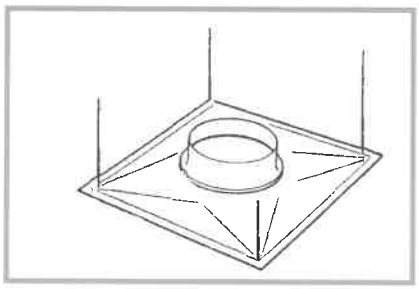


Flexible air ducts should be supported between metal connections and bends, while allowing the duct to extend straight for a few centimetres before making the bend. This will prevent damage to the flexible duct by the edge of the metal collar.

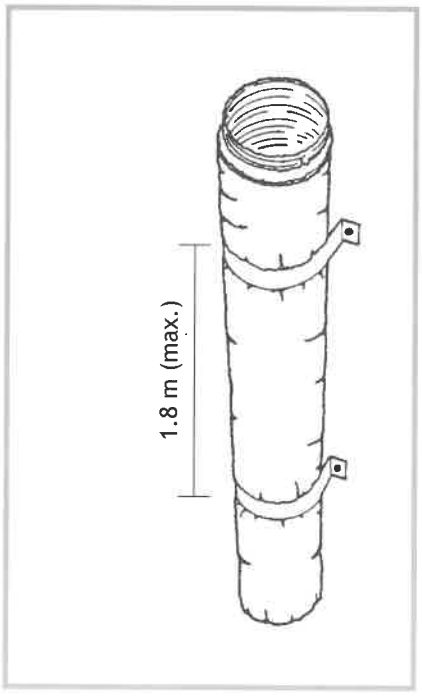


It is important that inlet and outlet vents should be hung by independent supports. Flexible air ducts should not be subjected to load.





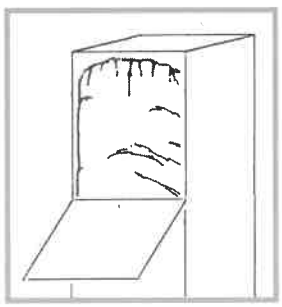
Vertically installed ducts should be supported at least every 1.8 m.

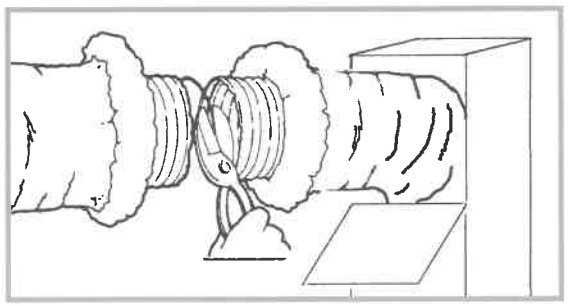


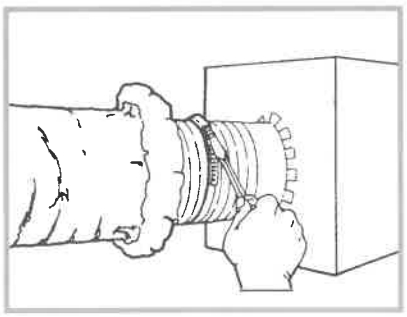
FLEXIBLE AIR DUCT INSTALLATION GUIDE

STEP BY STEP INSTRUCTIONS FOR FLEXIBLE AIR DUCT CONNECTIONS

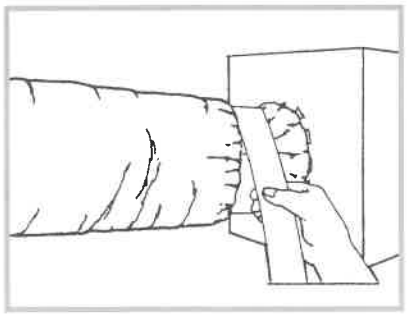
1. Never open a box from the ends to avoid recoil effect. Make a square hole near the upper side of the duct box by beginning from the top lid edge (as shown in the drawing) The hole should not be more than 5 cm larger than the duct diameter. Pull out the duct to the desired length. Cut around it with a knife or scissors . Also cut the highly resilient spiral steel wire with wire cutters. Push the remaining duct back into the box to prevent it from deformation and waste which may occur if the duct is left outside the package.







2. Pull back the jacket and insulation material from inner core. Slide at least 25 mm. of duct over the connection element. Wrap the duct with at least 2 turns of duct tape to form an airtight seal and secure the duct using a metal or plastic clamp.

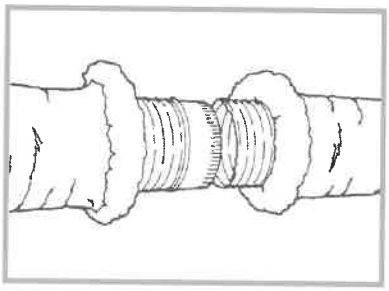


3. Pull the jacket and insulation back over the duct. Tape the jacket with at least 2 wraps of duct tape. A clamp can be used instead of or in combination with the duct tape.

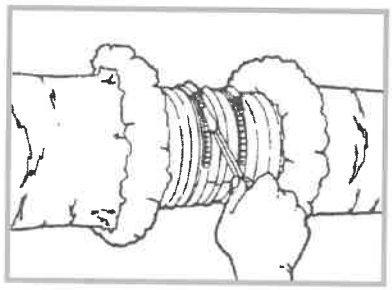
- Disregard references to the insulation material and the jacket for non- insulated ducts.
- It is recommended that the connection element's bead face the outside of the collar.
- Use reinforced aluminium foil tapes that are suitable for low and high temperatures on the connection element and flexible air duct connection.
- Use stainless steel metal clamps to the secure the duct. If plastic clamps are used, tighten the clamps by using the correct tool.

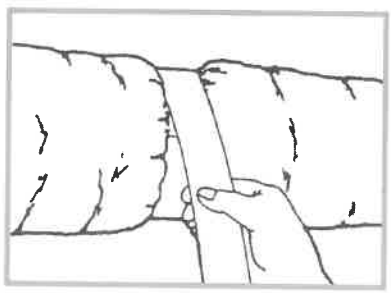
FLEXIBLE AIR DUCT SPLICING INSTRUCTIONS

1. Pull back the jacket and insulation material. Slide each core at least 25 mm over the connection element.



2. Tape the air ducts together with at least 2 turns of duct tape. Secure with 2 clamps.



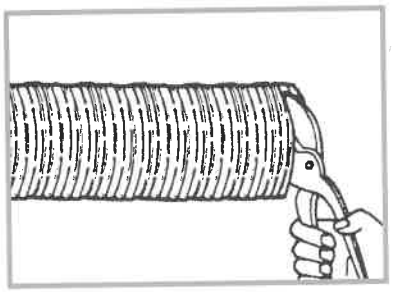


- Disregard references to the insulation material and the jacket for non- insulated ducts.
- It is recommended that the connection element's bead face the outside of the collar.
- Use reinforced aluminium foil tapes that are suitable for low and high temperatures on the connection element and flexible air duct connection.
- Use stainless steel metal clamps to the secure the duct. If plastic clamps are used, tighten the clamps by using the correct tool.

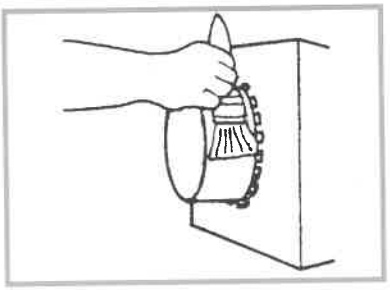
FLEXIBLE AIR DUCT INSTALLATION GUIDE

SEMI FLEXIBLE AIR DUCT CONNECTION INSTRUCTIONS

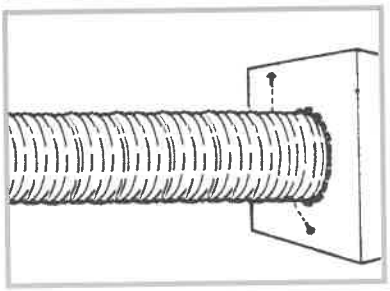
1. Cut the semi flexible air duct all round at the desired length with a knife or snips.



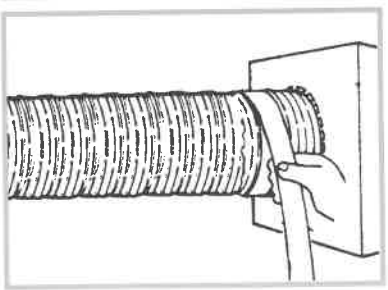
2. If the system pressure is above 1000 Pa, use mastic on the connection element. Slide at least 25 mm of the duct over the connection element.



3. Screw the semi flexible air duct to the connection element with equally spaced screws. For diameters smaller than 300 mm use 3 screws; for larger diameters use 5 screws.



4. Wrap the duct with at least 2 turns of duct tape to cover the screw heads and form an airtight seal.

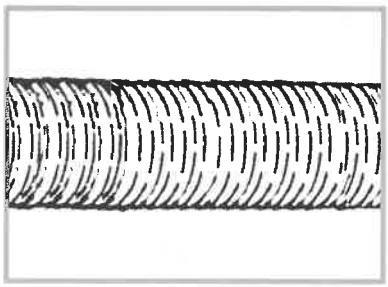


- Use standard duct mastics.
- Use reinforced aluminium foil tapes that are suitable for low and high temperatures on the connection element and semi flexible air duct connection.

SEMI FLEXIBLE AIR DUCT SPLICING INSTRUCTIONS

1. If the system pressure is above 1000 Pa, use mastic on the connection element.

2. Slide at least 25 mm of each duct over the connection element.



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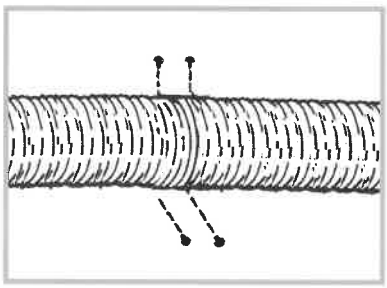
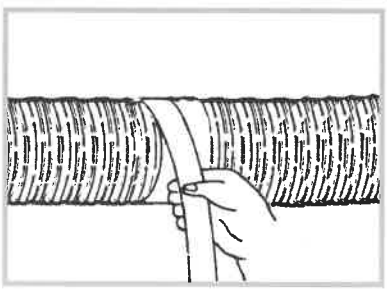


4. Wrap ducts with at least 2 turns of duct tape to cover the screw heads and form an airtight seal.

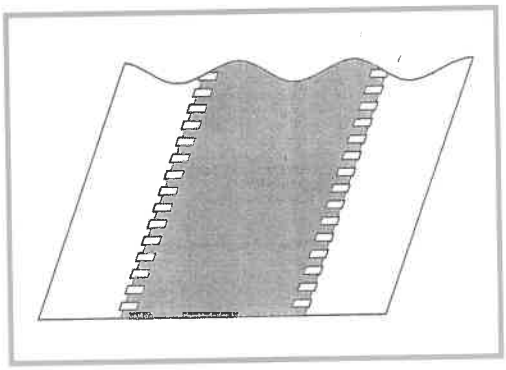


- Use standard duct mastics.
- Use reinforced aluminium foil tapes that are suitable for low and high temperatures on the connection element and semi flexible air duct connection.

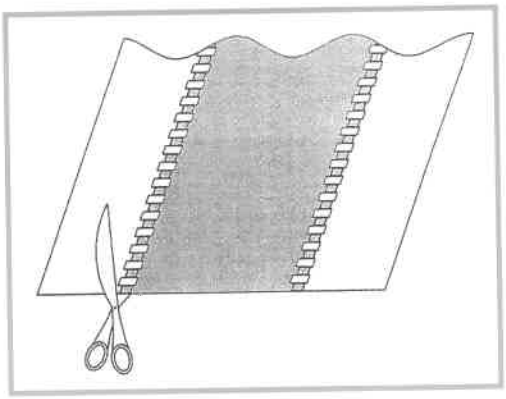
CONNECTOR
INSTALLATION GUIDE

CONNECTOR INSTALLATION INSTRUCTIONS

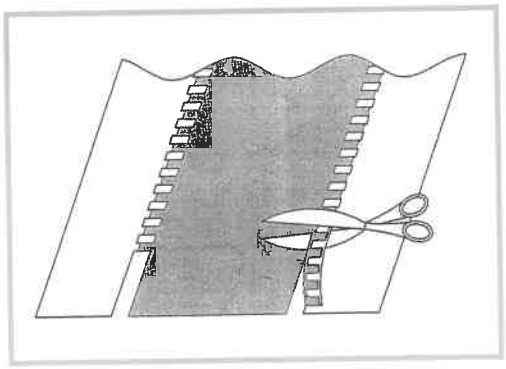
1. Cut CONNECTOR 50 mm more than the desired length.



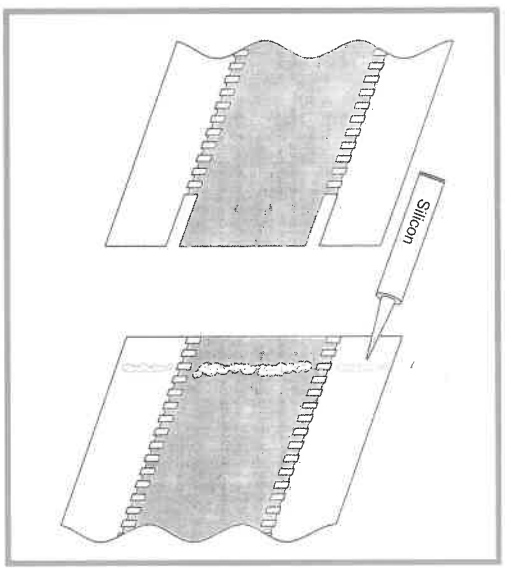
2. Cut each lock-seam on one end of AFS CONNECTOR from right and left edges.



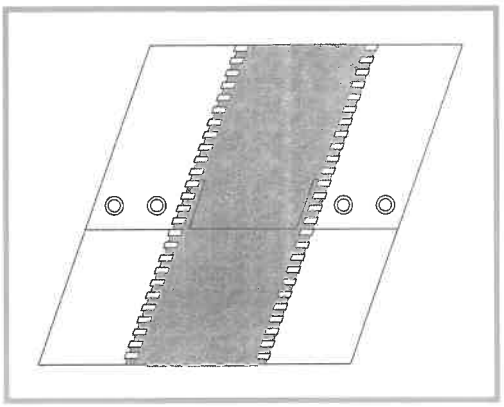
3. Remove them out.



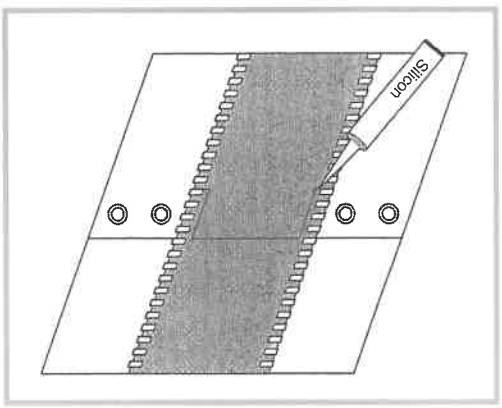
4. Put sufficient amount of silicone onto the other end of AFS CONNECTOR.



5. Place the lock-seams on the other end of AFS CONNECTOR into the area of removed locks and punch or rivet metal parts.



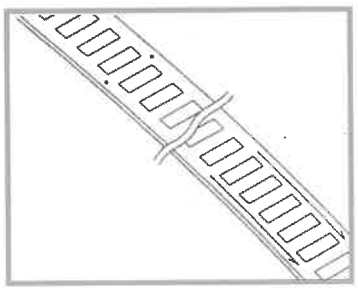
6. Please be sure that all the gaps are sealed.

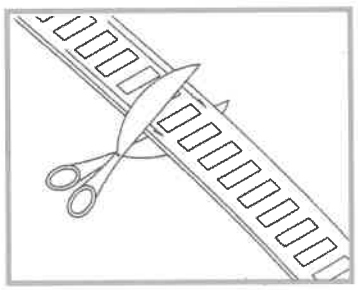


STRIP STEEL BAND INSTALLATION GUIDE

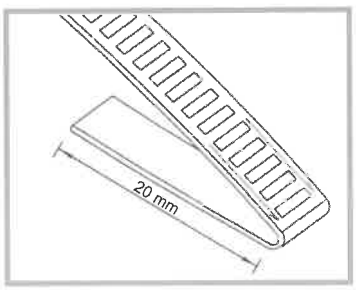
STRIP STEEL BAND INSTALLATION INSTRUCTIONS

1. Find out how many arrow intervals that are marked on the band surface are required for the desired diameter from the table and pull the strip steel band out from the casette and cut (between two arrows is 1 space, between arrow and point is half space)

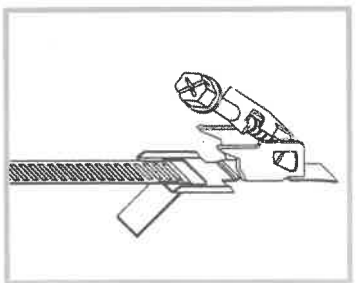




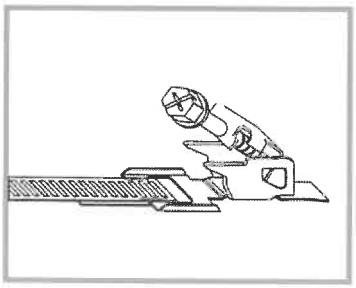
2. Bend the band 20 mm in the direction of arrow.



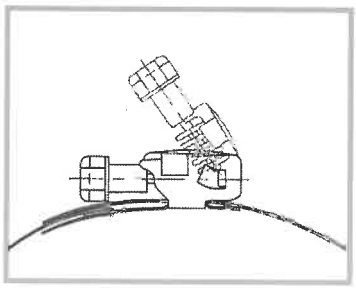
3. Attach the mounting clips to the strip steel band.



4. Tighten the band by using pliers.



6. Strip steel band is ready to use.



Ø	Step
100	3
125	4
150	4,5
175	5
200	6
225	6,5
250	7
275	7,5
300	8,5
350	9,5
400	11
450	12
500	13
600	16

TABLE