

Mounting instruction

Flexible ducts



Flexible ducts

To mount flexible ducts correctly, the next items should be considered. The items will be explained shortly and the drawings will illustrate how to mount the duct.

Mounting instructions (general)

- The duct has to be stretched completely. A duct that has not been stretched completely causes a lot of pressure loss.
- Do not use more of the duct than necessary.
- Use about 1 – 1,5 m of the duct for each connection piece. If more length will be needed (e.g. for acoustic ducts) the duct has to be fastened correctly with circular duct rings.
- During mounting take care that the duct will not be damaged (e.g. a co-ordination with respect to light armatures and ceiling constructions).
- Replace damaged ducts by new ones. Replace also damaged outer jackets of insulated ducts (in connection with loss of air and density of steam).

Shortening of ducts

- The duct has to be stretched completely.
- Measure the correct length and mark it with a felt marker.
- Cut the duct into two pieces over the entire diameter right in a winding.
- Cut the spiral

Making a connection

- Shorten the duct correctly.
- Push the duct 50 mm beyond the connection piece.
- Seal the connection airtight with **aluminum tape**.
- Fix the sealed duct with a duct clamp. A non-insulated duct can also be fixed with a nylon duct clamp.

Suspension points

The maximal sagging of the duct, between two fastening points, should not exceed 50 mm/m (see fig 1)
The distance between two suspension points varies from 1,5 up to 3 m depending of the duct type.
A flexible duct above a ceiling construction needs a 1 m centre-to-centre distance support.

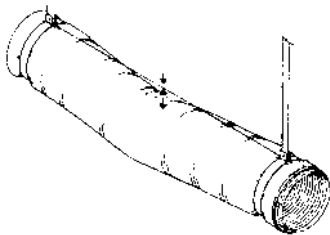


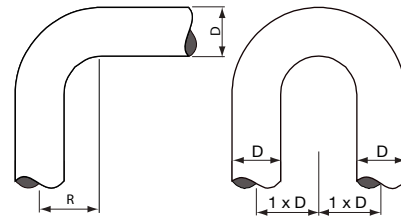
Fig. 1

Max. sagging 50 mm/m

Flexible ducts

Bending radius

The minimal bending radius of each product has been described on the product information page. The bending should be as large as possible. A minimal bending radius provides a greater pressure loss. The bending should be twice the diameter for minimizing the effect of a bend.



Support

A duct is, generally, very flexible and can be transformed easily. In case of transformation the inner diameter will decrease and the pressure loss will increase. Much attention should be paid to fastening the ducts, in case of using duct clamps. Use the correct clamp diameter and make sure that the clamp support the duct half of the diameter minimally (see fig. 2).

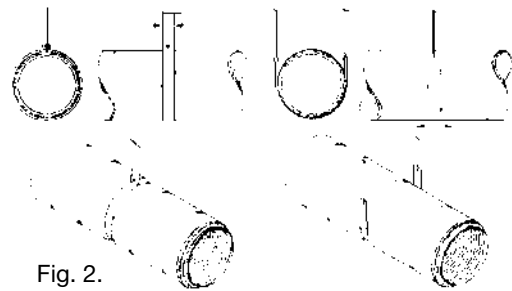
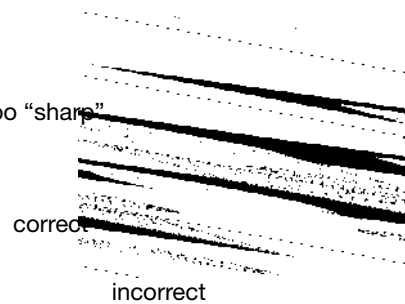


Fig. 2.

Connections to ducts and armatures

The connection of flexible ducts to ducts and diffusers should be performed very carefully. Because many ducts have been mounted with a bend, right after the connection to a duct or diffuser, a supporting clip will be needed.

Fig. 3 The right connection is too “sharp”



Metal ducts can produce a crack if the duct connections are too “sharp” (fig. 3) If the duct has to be connected to light armatures or air diffusers the connection should be as “direct” as possible. The instructions should be consulted. Too many bends close to a diffuser will cause increasing of pressure loss. It will also cause unnecessary noise. Fig. 4 shows a “incorrect” diffuser connection. Fig. 5 shows a “correct” connection.

Fig. 4

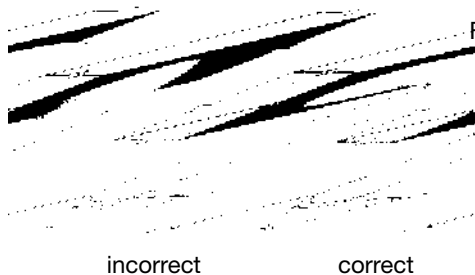


Fig. 5

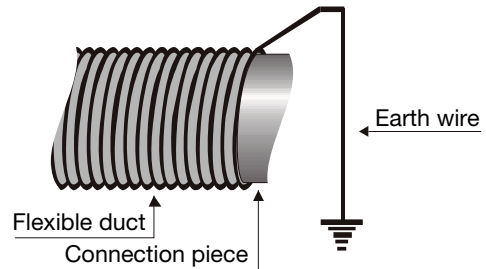
incorrect

correct

Flexible ducts

Static electricity

Building up and discharging electricity can cause explosion risk. This could happen if air, with organic solvents, flows through a synthetic or a laminate duct with high speed. Making a connection between the spiral wire of the duct and an earth wire can minimize building up static electricity. For machine exhausting a connection can be made between the metal wire of the duct and the casing of the machine. The earthing of the machine and the connection between machine and duct, however, has to be controlled frequently. Especially if the exhaust system is in motion or the machine causes vibrations.



Situations in practice

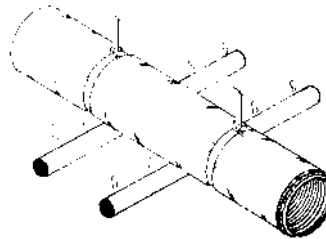
During mounting there are often situations where a longer flexible duct is recommended. An example is the bridging between the difference in height where no standard connection pieces can be used.

Take care that there is no contact between the duct and other existing components with a high temperature. A duct provided with a PVC layer will quickly fall apart, if it is in contact with the tube of the central heating for a while. Even a central heating tube can increase the ageing process of such a duct. The lifespan of ducts can rather be shortened if ducts with different metals (also from other ducts) will be in contact intensively. Rooms, which are warm and damp, could cause a quicker corrosion.

Fig. 6



Fig. 7



Flexible insulated ducts

For insulated flexible ducts there are more points to consider. These points are mainly concentrated on the processing of the duct. For various applications a difference has been made between thermally and acoustically insulated ducts.

Flexible ducts

Thermically insulated

The product series has no ducts, which have already been sealed. But this is possible on request. Ducts which have not been sealed have a maximal output, if the items below have been considered (see fig. 9)

- Shorten the duct correctly.
- Push the duct over the connection piece 50 mm minimally.
- Pull back the insulation blanket in order to apply the tape on the inner duct.
- Seal the connection piece of the inner duct with aluminum tape (TAPE) at least two windings around the duct.
- Push back the insulation blanket to its original position.
- Attach the outer jacket with aluminium tape to the inner duct, at least two complete windings around the duct.
- Take care that the end piece of the duct has been sealed air-tight.
- Attach outer jacket and inner duct together with duct clamps.

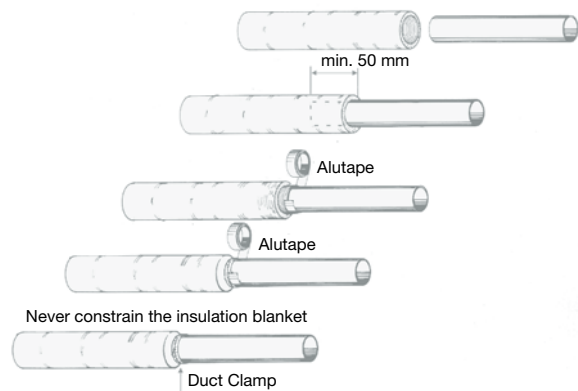


Fig. 9

Mistakes in practice

A mistake which has been made often, is the fixing of the insulation blanket with a clamp, without sealing with tape. There is no guarantee that this way of working is effective, because the sealing is not airtight.



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