

1. Rectangular Attenuator Construction

Rectangular attenuator casings are constructed from galvanised sheet. They comply with the flange deflection limits and air leakage rates as specified with DW/TM1 for class A low pressure systems (+/-500Pa), class B medium pressure systems (+1000/-750Pa) or class C high pressure systems (up to +2000/-750Pa), as required by the project specification.

Standard end connections are either plain rectangular spigots or profile flanges compatible with Doby, Mez or Metu systems. Profile flanges are formed from the parent metal of the casing, and each flange corner is fitted with a one or two-piece flange corner.

Longitudinal joints for all rectangular casings are made using the Pittsburgh Seam method, which provides a firm mechanical joint. High-pressure duct sealant is then applied inside the casing along the length of each seam, and behind each flanged corner that coincides with a seam, to provide an airtight seal.

Internal splitters are fitted into the attenuator casings. Each splitter has a peripheral frame made from 1 or 2 parts (subject to size) which makes up the top and bottom channels and the nose sections at each end. The nose sections are "bullnoses" i.e. having an aerodynamically rounded profile at both ends. The channel and nose parts are constructed from galvanised sheet steel. Side splitters are provided as standard.

The splitters are packed with controlled density acoustic media (mineral wool) having a nominal density of 28kg/m³. This is retained within the peripheral frame by a splitter facing, which is constructed from galvanised expanded steel mesh (XPM). Fibreglass tissue is bonded to the rear of the facing to reduce fibre egress from the infill. Alternatively, the infill can be wrapped and sealed in Melinex polyester film, to provide additional protection where required. Smaller attenuators will be fitted provided with internal attenuator side linings only, manufactured from galvanised expanded steel mesh.

2. Modular Attenuators

Above certain dimensional parameters, attenuators will be provided in modular form. Casings can be joined in width, height, or length to form the final assembly sizes. For units split in width or height, this is achieved by fitting modular rails on the outside of each case in appropriate locations, and then by using a range of brackets and other fixings the modular rails can be joined, which thereby joins the casings. The modular rails are fitted longitudinally along the case, wherever an adjacent casing is to be joined as part of the assembly. They are also fitted on the underside of the bottom casings within the assembly to act as a bearing surface for support or lifting.

3. Circular Attenuators

Circular attenuators are manufactured to similar specifications, with either plain spigot end connections or threaded inserts, depending on unit size. A central acoustic pod may be provided depending on acoustic performance requirements. Circular attenuators may be manufactured from either spiral duct or a plain wrapped casing.

4. Attenuator CE and UKCA Marking

Our standard attenuators are sold as products for use in non-fire rated ventilation systems. There is no harmonised Standard covering such attenuators, therefore this product cannot be UKCA/CE marked under CPR regulations.

We are aware however that our products may be considered for installation as ancillary components in ventilation systems being specifically sold for the prime purpose of smoke or heat exhaust ventilation. Where this occurs, then the entire system may need to be UKCA/CE marked under CPR, and the responsibility for UKCA/CE marking would lie with the person or organisation placing the smoke exhaust system on the open market.

5. Duct Attenuator Fire Rating

There is no specific test standard available for the fire rating of duct mounted attenuators. The closest standard is BS476: Part 24 - Method for determination of the fire resistance of ventilation ducts, which provides a test method to measure the ability of a ductwork system to resist the spread of fire from one fire compartment to another. This standard makes no provision for duct mounted attenuators.

In the absence of an applicable standard we have commissioned Warrington Fire Research to undertake an appraisal of our standard duct mounted attenuators. The conclusion of their report is that when the attenuators are installed within smoke or heat exhaust ductwork and are subjected to an internal air temperature of 300°C for a period of 120 minutes, they will maintain their internal air circulating area. It is assumed that the ductwork support system, the connecting ductwork and fixings between the attenuator and ductwork, will all be suitable for the prescribed heating conditions. Note that this is not a certified system.

In instances where Caice are requested to quote for fire-rated attenuators where detailed requirements are unknown, the quoted price will (as standard) include for attenuators to be manufactured to standard (non fire rated) construction. Please refer to our submittal for details of construction.

Caice can construct attenuators to match the casing construction to the duct construction for most fire rating systems on the market which may assist others in certifying the fire rated duct system. To provide an accurate cost, we would require a detailed specification from the fire system provider. Note that construction to fire rated specifications usually carries a premium cost.

Alternatively, splitters only can be offered for others to fit into fire rated ductwork.

6. Attenuator Delivery

Attenuators will generally be supplied to site on pallets wrapped in lightweight plastic film.