

Linear Diffusers

Plenum Boxes

Introduction

Correct selection and sizing of distribution plenum boxes and neck reducers is critical because terminal air resistance is very low relative to the distribution ductwork resistance. It is therefore recommended that whenever possible terminals are served by low velocity stub ducts from branch ducting systems fitted with correct balancing controls.

Where it is necessary to specify and use plenums a generous allowance for commissioned noise generation should be made. A similar effect results from use of neck reducers with circular duct connections because the reduced duct area will cause generally higher velocities and hence increased risk of noise generation.

Product Description

PBHL	High-Line Plenum box
PBLL	Low-Line Plenum box
SE	Side Entry spigot
TE	Top Entry spigot
EE	End Entry spigot
CC	Circular Connection
RC	Rectangular Connection
LINED	6mm acoustic lining (optional) reaction to fire class C-s3-d0 to EN 13501-1: 2007
BAFFLE	Perforated plate for a more even air flow to diffuser (Recommended for top entry and offset spigots)

Installation

The plenum boxes and neck reducers are supported by four drop rods through a locating hole positioned near each corner.

When ordering plenum boxes please specify length, width & height, spigot size and position (Top or Side Entry), and control options. Please note that the plenum height should, in general, be 100mm greater than the spigot diameter (Side Entry applications).

Selection Criteria (Using the Nomogram)

By way of example, referring to the data in the CS section, consider a diffuser handling 180 l/s total with a pressure drop of 25Pa. Projecting from this volume through the diffuser pressure loss, then pivot on the plenum dimensions to suit the diffuser 2 slot width, which gives a minimum plenum height of approx 280mm. Draw a line from the air flow selection point through the required spigot air velocity and read off the nearest standard spigot size. In this example the spigot diameter exceeds the selected plenum height, so the height now becomes 315 + 100 = 415mm.

Alternatively, to maintain the original height, select a suitably sized rectangular spigot (300 x 200 in the example) or use multiple circular spigots.

Note: Actual spigot diameter is nominal - 3mm (i.e. 200mm is 197mm actual).

Note: Plenum length is determined by linear diffuser selection.

Recommended max air volume for 3 m/s, 35 dBA based on recommended spigot sizes							
Diameter	97	122	157	197	247	312	397
l/s	22	35	58	92	144	229	370

ORDER EXAMPLE

PBHL/CSF/1200/250/250/SE/150/1CC/Lined/Baffl

Type _____

Diffuser Type _____

Plenum Box Length _____

Plenum Box Width _____

Plenum Box Height _____

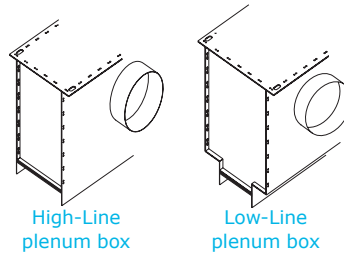
Entry _____

Spigot Size _____

Spigot Connections _____

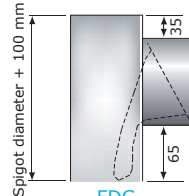
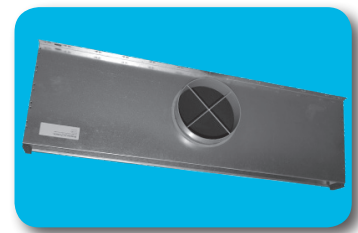
Option _____

Option _____



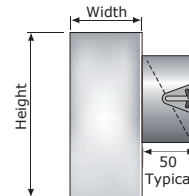
High-Line plenum box

Low-Line plenum box



FDC

Cord operated flap damper for mounting within circular spigots to plenum boxes.



FDQ

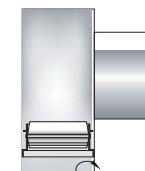
Flap damper with external quadrant control for mounting within circular spigots to plenum boxes.

Control Options



OBCO

Cord operated opposed blade damper for installation within square or rectangular plenum spigots.



OBSS / ED

Standard opposed blade damper for diffuser or duct mounting.

Note: The connection between the diffuser and plenum is adequately sealed for most installations, although secondary additional sealing may be required at the discretion of the installers, if the leakage rate required is particularly low.

Performance Nomogram

