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Fabrication Duct Pressure Classes Advanced Setup & Configuration

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Class summary

What is a Pressure Class?

Types of Pressure Classes

Components of a Pressure Class

STIFFENERS !!!!!

Material allocation and costing

Material Reporting

Q&A

Key learning objectives

At the end of this class, you will be able to:

- Understand the function and need for well defined pressure classes
- Build pressure classes specific to your company/project needs
- Understand the inner working of pressure classes
- Allocate and report material requirements for duct fabrication

What is a Pressure Class?

Ductwork is designed to move air from point A to point B. The amount of air, along with its velocity, is either pushed (generating positive pressure) or pulled (generating a negative pressure) through the ductwork requiring a duct construction standard to with-hold these forces.

In the US we typically follow the SMACNA standards which, for typical ductwork, provide guidelines for ½” thru 10” positive and negative duct construction.

In the UK (and a lot of metric countries) DW/144 provides construction standards for low, medium and high pressure ductwork construction.

These standards define POSSIBLE construction standards for ductwork designed to contain a certain pressure of air.

This definition designates material thickness, connectivity, seaming and reinforcing /stiffening.

The interpretation of these standards becomes a pressure class.

Types of Pressure Class

Autodesk Fabrication software has 4 'formats' of pressure class definition.

1. Single Dimension
2. LS/SS Dimension
3. Single Dimension + Length
4. LS/SS Dimension + Length

Based on the users construction 'philosophy', choosing the correct 'format' can simplify the building of the standards.

Each pressure class is unique and the formats can be mixed as required (eg. 2" WG may be LS/SS Dimension and 4" WG may be Single Dimension).

Pressure classes span rectangular, round and oval construction but can also be expanded to separate the construction of rectangular straight duct (eg Snaplock seam) from rectangular fittings (eg Pittsburg seam).

Additionally, individual fittings can be isolated within a pressure class for a specific seam or connector. (eg. 1/2" Lap seam on a square to round).

Components of a Pressure Class

Prior to building a pressure class, you need to ensure you have the right ingredients. The right material and gauges, the right connectors and seams, and the right stiffeners.

Materials, gauges, connectors and seams are generally standard and straight forward.

Pressure classes can also control splitter vanes (for radius elbows) and turning vanes (for square elbows).

Sealant and dampers can be specified in the pressure classes.

Supports (hangers) is a legacy item in the pressure class definitions that is not typically used (though there are some possibilities of using the 'supports' entry to provide additional reinforcement information/components).

STIFFENERS !!!!!

Stiffeners are additional reinforcement components added to a duct. They can be anything from a bead/cross-break through internal rods (tie rods) to external angle/z-bar or any combination of the above.

Defining, naming and reporting stiffeners is probably the biggest challenge in a pressure class.

Naming – the name of the stiffener is accessible as a print object on the duct labels.

Unfortunately, the name is for ALL panels of the duct so naming can get VERY complicated and involved (eg. 1/2" CTR TB, 3/4" JTR SIDE, 2x2x1/4 Angle MPT).

A better strategy is to use simple naming standards and supplement this with detailed reports and work sheets for heavily stiffened items.

Trying to convey all the information within the stiffener name adds a whole new level of complexity and makes maintenance a challenge.

STIFFENERS !!!!!

A stiffener definition determines where (end and/or mid-point) reinforcement occurs, the number and type of internal rods required, the type and size of angle to use and any additional corner component required.

Creating ONE stiffener per pressure class is a very clean, easy way to define and control stiffeners. This keeps the configuration simple and the information can be nicely presented on a work sheet or report.

Material Allocation and Costing

Autodesk Fabrication software is made of material components.

Connectors, seams, turning vanes, stiffeners, etc are just NAMES – the information required for reporting and fabrication is typically the components required to make the connector, vane, etc.

The components themselves are classified as Ancillary items and these are subdivided into categories such as 'Fixings' (nuts, bolts, washers, etc), 'Ancillary Material' (2x2x1/4 Angle, Ductmate Frame, etc).

Defining and using these ancillaries correctly is strongly recommended but with regards to stiffening, it is essential.

Ancillaries can carry a product code (ID), a direct cost and labor, a table based cost and labor, or any combination of the above.

Material Reporting

Building an Item Stiffener Report

Building an Ancillary Usage Summary Report

Exporting Ancillary Usage Data

Q&A

Any questions?

Session Feedback

- Via the Survey Stations, email or mobile device
- AU 2015 passes given out each day!
- Best to do it right after the session
- Instructors see results in real-time







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