

Industrial Modular Ductwork System

What is the innovation and why is innovative

This innovative modular ductwork system relates to the design, fabrication, transportation and construction of large industrial ducts for conveying boiler flue gas to a piece of pollution control equipment. This system allows two large "C" shaped duct modules to be transported, nested into one another, on one truck to the construction site then quickly site assembled to form a duct section having a rectangular cross section. All internal bracing, struts and internal flow devices are then simply bolted into the duct section. This duct section is then bolted via flanges to many other duct sections having the same rectangular cross section to form a complete modularized ductwork system.

What is changed or replaced

This innovative system reduces design and fabrication time by maximizing the number of identical duct sections. It also minimizes construction field labor by eliminating structural field welds, and by bolting the modules together and bolting bracing, struts and flow devices into the complete duct. This is a vast improvement over the traditional method of assembling complete duct sections from shop fabricated panels and loose bracing, struts and flow devices by field fitting and field welding each piece together individually. The quality of construction is also greatly improved while at the same time reducing inspection costs.

Another important factor is the increased safety of the field crew assembling ductwork, since they don't have to install insulation and lagging at high elevations. Instead the insulation and lagging is attached to the ductwork modules at ground level, before they are lifted to their final position.

Where and when it originated

This system was originated by Southern Company Engineering in 2004 to minimize the cost of design, fabrication, transportation and construction for the ductwork required for clean air projects at 11 electric generating facilities in Alabama and Georgia. Plans are to use this system for ductwork at all future clean air projects.

Identify each of the innovations of the nomination

The modular ductwork system replaces the traditional method of custom design, fabrication and construction of ductwork using shop fabricated panels and loose bracing, struts and flow devices field welded together to form a complete duct system for each individual clean air project.

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