

Double Wall Exhaust Systems to Reduce Surface Temperatures

# Pipe In Pipe Exhaust Co. (Pipe-Co)

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### Pipe-Co Double Wall Exhaust Systems

Product Description:

- System of modular, prefabricated components
- Air gap between inner and outer shells
- Lightweight easy to handle sections
- Wide range of standard catalog components
- Specifically designed for underground mining diesel equipment



Pipe-Co Double Wall Exhaust Systems

Product Description:

- 16 gauge material
- Welded construction
- Gasketless connections with heavy duty V-band clamps
- High temperature sealing bands



Pipe-Co Double Wall Exhaust Systems

Product Description:

- A complete line of straight sections, flex joints, elbows, adapters, purifiers and mufflers are available as well as turbo/manifold connections for most popular engines.
- Available in 2.5", 3", 4" and 5" pipe size.



**Pipe-Co Double Wall Exhaust Systems**

**Benefits:**

- **Reduces surface temperatures.** A diesel engine exhaust system can produce exhaust temperatures in excess of 500° C (1000° F).
- **Reduces potential of fires.** Inadvertent spray of flammable fluids/materials can auto-ignite when contacting extremely hot surfaces.
- **Maintenance friendly.** Will not absorb oil and fuel spills. Ability to power wash components. Visual inspections.

**Pipe-Co Double Wall Exhaust Systems**

**Why:**

- **A mine fire can occur at anytime and often results in a partial or total evacuation of mine personnel and can result in the loss of lives.**


**Categories of Mine Fires**

<b>Coal</b>	<b>%</b>	<b>Metal/Nonmetal</b>	<b>%</b>
Electrical	14	Electrical	10
Friction	24	Friction	5
Mobile Equipment	15	Mobile Equipment	46
Spontaneous Combustion	12	Spontaneous Combustion	2
Cutting and Welding	14	Cutting and Welding	16
Other	21	Other	21

Source: MSHA Accident Reports 1991 - 2000


**Pipe-Co Double Wall Exhaust Systems**

Existing blankets, sleeves and tapes:



**Pipe-Co Double Wall Exhaust Systems**

Existing double wall products:



**Pipe-Co Double Wall Exhaust Systems**

Preferred by major mining companies:

- **Xstrata.** Long standing specification originating at Kidd Creek Mines.
- **Vale Inco.** Performance based specification dealing with "Hot Surface Protection".

Acceptable surface temperatures (Vale Inco targets):

- **For fire prevention caused by inadvertent spray of flammable fluids or contact of flammable materials.** Below auto-ignition temperature for fuels, oils, and paper or wood products **< 180° C (350° F).**
- **For personal protection caused by accidental contact.** Below safe maximum temperature for momentary contact on exposed skin **< 65° C (150° F).**

**Pipe-Co Double Wall Exhaust Systems**

Installations:

- **Heat audit.** Identify all areas that may need to be protected.
  - For fire prevention
  - For operation and maintenance checks
- In areas requiring both fire prevention and personal protection, it may be necessary to apply additional vented shielding.
- In areas requiring only personal protection, vented or perforated shielding may be preferred.


▪ **NOTICE**

**Pipe in Pipe Exhaust Co. is not responsible for installations and as such can not guarantee performance levels. Installers must verify each application to self imposed targets.**

**Pipe-Co Double Wall Exhaust Systems**

**VALIDATION OF SURFACE TEMPERATURES WITH  
PIPE-CO DOUBLE WALL EXHAUST SYSTEM**


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Ottawa, Ontario.



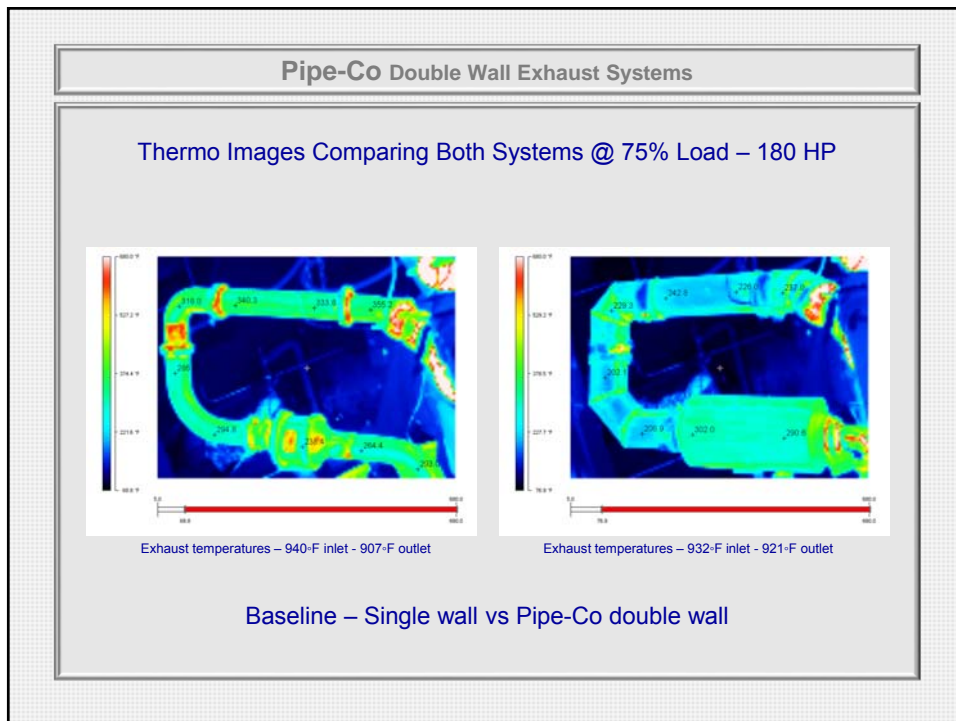
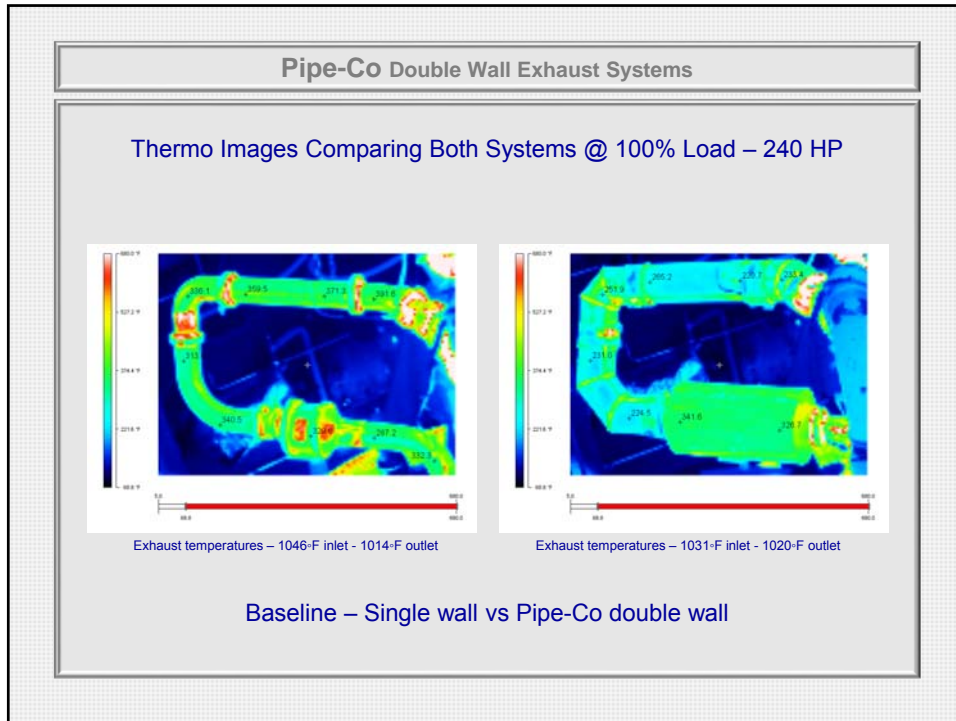
Baseline – Single wall vs Pipe-Co double wall

**Pipe-Co Double Wall Exhaust Systems**

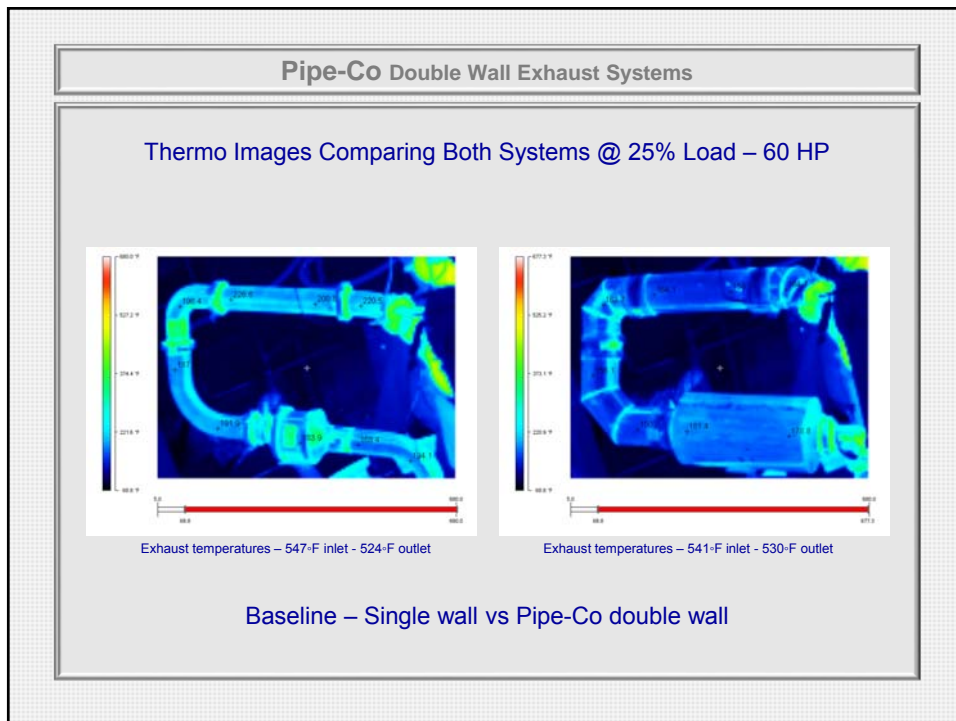
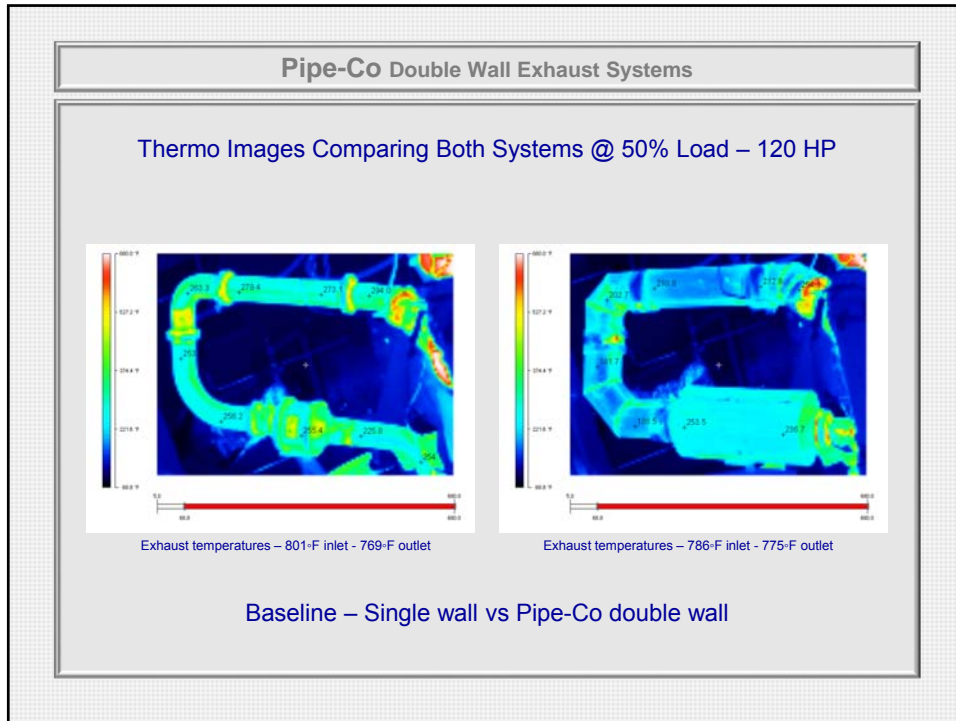
Assemblies connected to Detroit Diesel Series 60 engine  
with 3" diameter exhaust components



Baseline – Single wall vs Pipe-Co double wall









**Pipe-Co** Double Wall Exhaust Systems

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