



ENGINEERED FIRE RATED DUCTWORK

SERIES NFRD 1000 VS



Applus⁺ ✓ ESL

NAFFCO Fire Rated Ducts are **UL LISTED**
FIRE RESISTANCE - SMOKE EXTRACTION - VENTILATION
CAD-CAM SOLUTIONS



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NAFFCO Fire Rated Ductwork

01 Fire Rated Ductwork System

INTRODUCTION

NAFFCO Non-Coated Fire Rated Ductwork System is a specialized ventilation & smoke extract ductwork system designed to provide fire protection and containment in buildings. The system is engineered to withstand high temperatures and prevent the spread of fire through ducts, ensuring the safety of occupants and protecting property.

A range of engineered ductwork system from light to heavy duty are available to meet specific project needs, each model is individually tested & Certified by International accredited Laboratories like UL, Applus, ESL. Available in various sizes and configurations, they offer a solution that complies with all relevant fire safety codes and regulations and duly approved by UAE Civil Defense Authority.

KEY FEATURES

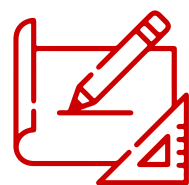
- Available in round, rectangular, or custom sizes
- Complies with international fire safety regulations
- Insulated and non-insulated options
- Customizable lengths and fittings
- Fire resistance rating 60, 90, & 120 minutes available
- Manufactured from high-quality materials ensuring durability and reliability
- Designed to meet or exceed international fire safety standards
- Suitable for various applications including commercial, industrial, and residential buildings
- Easy installation and maintenance
- Ductwork has no coating or Intumescent painted surface which are prone to damage
- Available in Mild Steel, Stainless Steel (optional)
- Duct-A (Fire Outside the Ductwork) & Duct-B (Fire Inside the Ductwork) are tested under full fire condition (Standard time Vs. Temperature Curve) for stability, integrity & insulation criteria and successfully Certified for 120-mins of fire resistance for Ventilation and Smoke Duct.
- NAFFCO Fire Rated Ductwork System include fully tested Volume Control Damper.
- Tested & Certified for Galvanized/Stainless steel/Carbon Steel Rectangular and Circular Ducts.



**VERSATILE FIRE
RESISTANCE RATING**



**EXCELLENT DESIGN
MEETING SAFETY STANDARDS**



**CUSTOMIZABLE
LENGTHS & FITTINGS**

NAFFCO Fire Rated Ductwork

02

Building Regulations & Performance Result

BS9999 / 5588 Part 9 consist of three methods of fire protection for ventilation ductwork.

Method 1: Protection using fire dampers.

Fire is isolated in the compartment of origin by the automatic actuation of fire dampers.

The damper closes and cuts off the passage of the air.

This method is not acceptable where continuous air ventilation has to maintain or where fire damper not permitted.

Method 2: Protection using fire-resisting enclosures.

Service shaft through which the ventilation ductwork passes, make a protective shaft for ductwork itself when constructed to the highest standard of fire resistance.

Method 3: Fire resisting Ductwork.

The ductwork itself forms a protective shaft having fire resistance. The ductwork, when tested should not be of less fire resistance than the fire resistance required for the elements of construction in the area through which it passes.

The product has to be tested and certified to BS476 Part 24:1987 (ISO6944-1985) OR EN 1366-1.

Performance Criteria:

BS476 Part 24:1987 (ISO 6944)

The fire resistance duct to be tested and assessed as per the following criteria:

Stability: Failure shall be deemed to have occurred in Ducts "A" and "B" outside the furnace when the duct collapse in such a manner that the duct no longer fulfils its intended function.

Integrity: The presence and formation of cracks, holes, or other openings, in the specimen, outside the furnace through which the flames or hot gasses can pass shall constitute integrity failure.

Smoke Extraction: When ductwork under fire testing is unable to retain 75% of its original cross-section area inside the furnace or it shrinks to cross-section size more than 25%, hence hampering the flow of flames or hot gases, shall constitute smoke extraction failure.

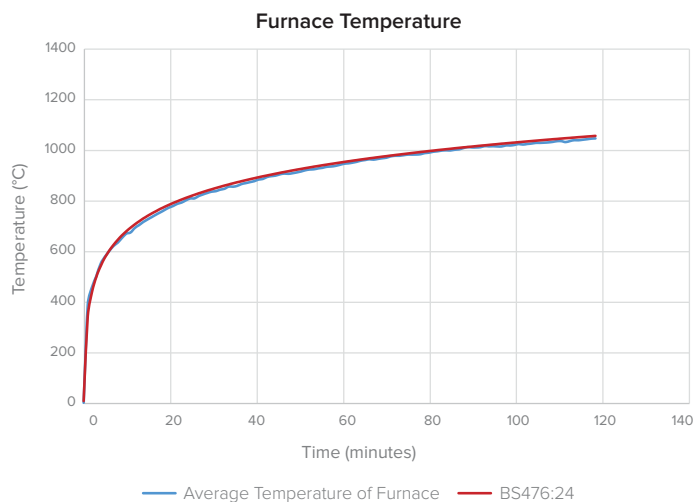
Insulation: Failure deemed to have occurred when the temperature rises above initial ambient temperature on the unexposed surface of the test specimen, outside the furnace, exceed either. 140°C as an average value. 180°C as a maximum value read by any surface thermocouple.



Testing lab for Duct upto 1000°C

NAFFCO testing of the fire duct system is a continuous activity for better value-engineered product and we pass on the benefit to customer and clients.

NAFFCO Fire Rated Ductwork

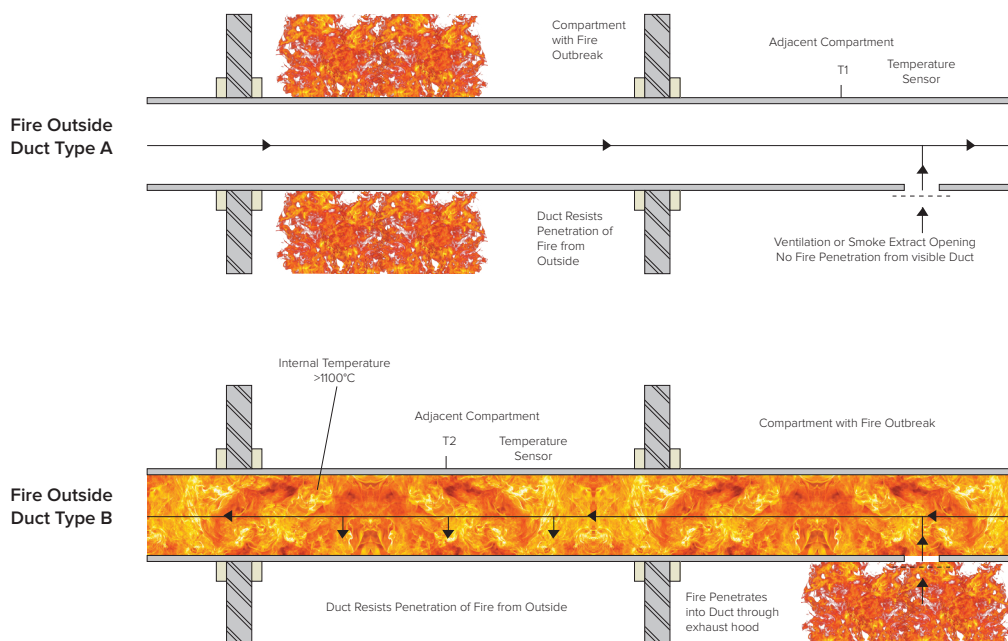


APPLICATIONS

1. Smoke extraction systems.
2. Dual ventilation/Smoke extract systems.
3. Pressurisation systems.
4. Car park extract systems.
5. Non-domestic kitchen extract system.
6. Make up Air Duct.

Definitions of Types A & B Fire Exposure

The testing standard differentiates between types of fire exposure; two classifications apply as detailed below



PREVENT SMOKE & FIRE SPREAD

Approximately, 85% of deaths in fire situations caused by smoke inhalations. The prevention of fire and smoke spread through ducted systems is of critical importance. Non-fire-resisting ductwork systems should be responsible for allowing the initial spread of fire & smoke between components. The use of suitable Fire Rated ductwork will maintain fire compartmentation and assist in the safe dispersal of hazardous smoke and fumes.

NAFFCO Fire Rated Ductwork

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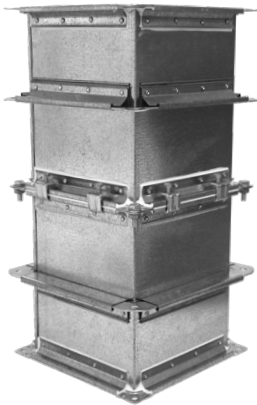
Non-Coated Fire Rated Ductwork System



NFRD 1000 VS (E)

NAFFCO Fire Rated Duct NFRD 1000 VS (E) is constructed with external Slip-on Flange cross joint, Duct is reinforced by adding external stiffener to maintain the required cross-sectional area free for easy extraction of smoke and to make air flow smooth.

The Ductwork is tested & Certified for 2 hours of Fire Rating with below performance criteria as per BS476: Part 24 -1987 (ISO6944:1985) by **UL**.



Performance Result:

Stability: 120 Minutes | Integrity: 120 Minutes | Smoke Extraction: 120 Minutes

NFRD 1000 VS (E2)

NAFFCO Fire Rated Duct NFRD 1000 VS (E2) is tested & Certified for 2 hours of Fire Rating with below performance criteria as per BS476: Part 24 -1987 (ISO6944:1985) by **Applus**, Spain.

Performance Result:

Stability: 120 Minutes | Integrity: 120 Minutes | Smoke Extraction: 120 Minutes

Applus⁺



NFRD 1000 VS

NAFFCO Fire Rated Duct NFRD 1000 VS is constructed with integral Flange CGF Type (Continuous Girth Flange). The CGF 30mm flange is formed on roll forming machine with automatic double row stitching to seal all four sides flanges of duct.

In this process Edge of Fire Duct is mechanically notched on automatic Duct Line Machine and subsequently roll formed in a separate special purpose machine to form CGF30mm flanges from same duct. CGF 30mm flanges are stitched automatically in the same special purpose machine with double layers of cold stitches making the duct flanges completely sealed & leakage proof.

The Ductwork is tested & Certified for 2 hours of Fire Rating with below performance criteria as per BS476: Part 24 -1987 (ISO6944:1985) by **UL**.



Performance Result:

Stability: 120 Min | Integrity: 120 Min | Smoke Extraction: 120 Min

NAFFCO Insulated Steel Fire Rated Duct

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Insulated Steel Fire Rated Ductwork System

INTRODUCTION

NAFFCO Insulated Fire Rated Ducts are designed specially to offer an Engineered & Economical Fire Protection & Smoke Management System to the multiple projects. NAFFCO Fire Rated Duct stands out as the solution for those seeking cost-effective solutions without sacrificing quality. Saving on installation and labor cost due to simple & easy Installation with minimal accessories.

NFRD 1000 VSI 120



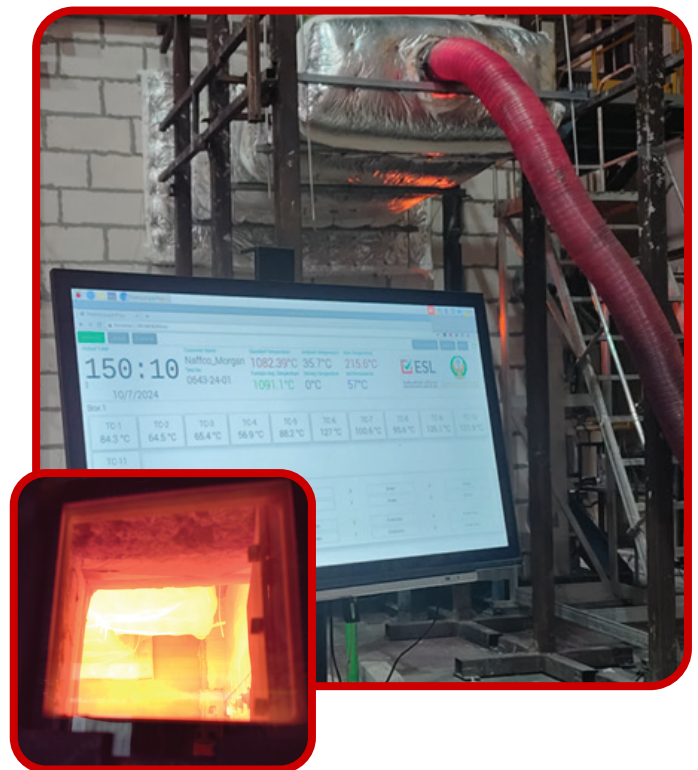
NAFFCO Insulated Fire Rated Ductwork NFRD 1000 VSI120 is constructed with high quality Hot dip Galvanized Steel, external Slip-on Flange cross joint fixed and reinforced by Internal stiffener to maintain the required cross-sectional area free for easy extraction of smoke and to make air flow smooth.

Ductwork is insulated with high temperature resistance Flexible Insulation Blanket, Duct Type-A and Type-B is designed & tested to be used in horizontal or Vertical orientation for ventilation, smoke outlet, and kitchen extract application.

The Ductwork is tested & Certified for 2 hours of Fire Rating with below performance criteria as per BS476: Part 24 -1987 (ISO6944:1985) by **Emirates Safety Laboratory (ESL)**.

Performance Results:

- Stability - 120 Minutes
- Integrity - 120 Minutes
- Smoke Extraction - 120 Minutes
- Insulation - 120 Minutes
- Duct type A and B specimen continued the test - 150 minutes



NAFFCO Insulated Steel Fire Rated Duct

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NAFFCO Fire Rated Ductwork System is comprehensively tested and certified by Underwriters Laboratory (UL) / Applus & ESL for 2 Hours of Fire Rating as per British Standard - BS476 Part 24 1987 (ISO6944-1985).

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MS KITCHEN DUCT

NAFFCO's Fire Rated Kitchen Ductwork System is engineered to ensure maximum fire safety and performance in commercial kitchen environments. Designed for the extraction of grease-laden air, this system fully complies with NFPA 96 standards for ventilation control and fire protection.

Constructed from 1.5mm thick mild steel or carbon black steel, the ductwork features a fully welded design for enhanced structural integrity and airtight performance. Each section is fabricated with either a self-flanged or mild steel angle flange connection, ensuring robust joint strength and ease of installation.



NAFFCO's Insulated Kitchen Ductwork System combines fire safety with thermal efficiency, tailored for demanding commercial kitchen environments. Designed to safely handle grease-laden exhaust air, this system meets NFPA 96 requirements while adding the benefits of insulation to improve energy performance and reduce condensation risks.

Made from durable 1.5mm mild or carbon steel, the ducts feature a fully welded construction for strength and airtightness. Surrounding each section is a specially engineered insulation layer that helps maintain duct temperature, prevents heat loss, and protects surrounding areas from excessive heat exposure.

NAFFCO Fire Rated Ductwork

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Advantages

NAFFCO fire rated ductwork is UL, ESL & Applus Tested & Certified system and duly approved by all UAE Civil Defence Authority.

Ductwork has 'No coating' or Intumescent painted surfaces, which are prone to damage.

Highly efficient ductwork system when used in conjunction with Smoke Control or Smoke Management application or Engineered Smoke Extraction systems.

NAFFCO Fire ductwork ensure continuity of airflow for the rated period in the event of fire in the compartment and maintains its Integrity and Stability.

NAFFCO ductwork system is cost effective to installers due to its lightweight construction and design.

In-house manufacturing facilitated with state of art CNC machines, ensures great quality & consistency.

NAFFCO ductwork manufactured in accordance to DW144 and include both Duct 'A' & Duct 'B', there is no need to specify these when ordering.

NAFFCO fire rated ductwork system include fully tested Volume Control Dampers also.

Every Fire Duct order, receives Installation Instructions, mentioning all installation steps clearly with pictures and photos.

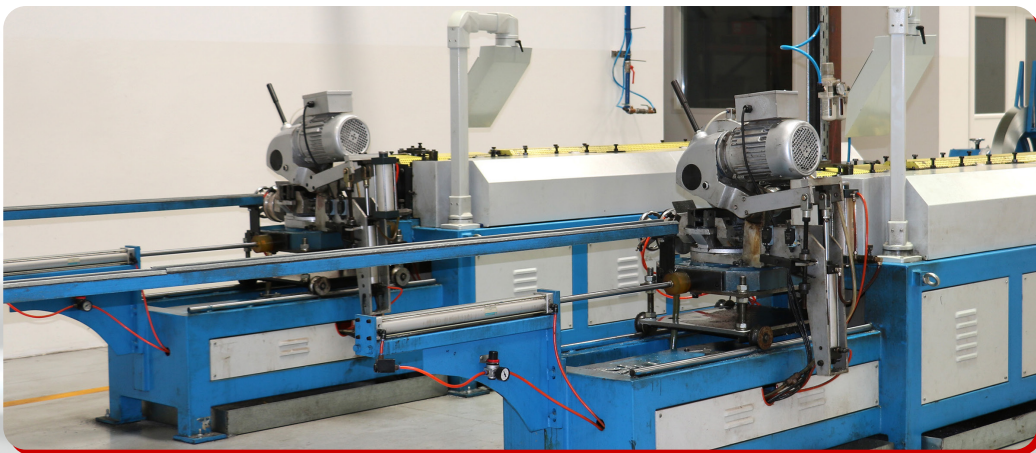
Antimicrobial Coating of high-level disinfectant is provided as an option at cost. It is a powerful BIOCODE that kills all Bacteria, Viruses, Fungus, Moulds, etc.

NAFFCO Fire Rated Ductwork

06 Fabrication of Fire Ducts

1. NAFFCO provides a wide range of ducts, fittings and services, from normal GI ductwork to Fire Rated ductwork, which serves as an important passive fire protection solution for Smoke & Fire and HVAC Air Flow management in a building.
2. NAFFCO Fire Rated ductwork is manufactured from quality GI sheet steel to ASTM A653, G90 grade, Un-oiled, Lock-form Quality, CHROMATED and having Zinc Coating of 275gms/SQM (Z-27).
3. Fire-rated ductwork fabrication based on requirements of HVAC DW/144 standard.
4. State of art CNC duct production and cutting machines are used to maximize machine operations to maintain consistency of workmanship and quality.
5. Skilful fabricators use their best expertise to ensure each piece to its correct size and shape.
6. Sealant application is carried out in the factory. TUF brand is a high level of intumescent sealant which is applied.
7. NAFFCO can use its expertise to break down drawings into simplified item lists and quantities for a quotation for only fire duct supplies or total smoke control systems.
8. NAFFCO provides special high-grade fire stopping intumescent gasket tape for Duct Joints. This gasket tape is proven & time tested for fire resistance.

State of the Art: Duct Machinery



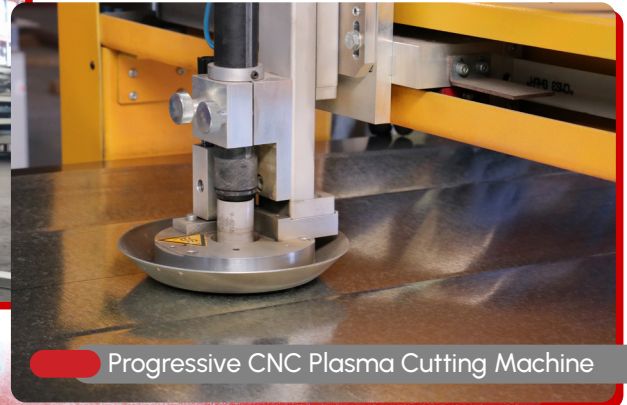
NAFFCO Fire Rated Ductwork

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Quality Assurance & Certificate of Conformity



Automatic Duct Manufacturing Line



Progressive CNC Plasma Cutting Machine



DCDL Machine



Latest CNC Press Break Machine

While manufacturing ducts, every piece is comprehensively checked at each stage of fabrication, adhering strictly to specifications and quality standards, which makes both large and small-scale jobs ensured to be handled with the same care productivity. Well trained and highly experienced workmanship guarantees consistency in Quality Assurance.

Quality for manufacturing & installation, both are important for FRD system hence, inspection is carried out at every stage during installation as well as completion of the site. A detailed report is signed-off before Certificate of Confirmatory is issued. Randomly, a leak test is carried out for a sample lot during manufacturing process.

Certificate of Compliance (COC) for Fire Rated Ductwork issued by NAFFCO trained Installation Engineer after successful inspection of ductwork.



Quality Control



NAFFCO
PASSION TO PROTECT



Serving Over 100 Countries Worldwide

Applus⁺

ESL



NAFFCO
FLOW CONTROL
Email: info@naffcoflow.com
www.naffcoflow.com

In line with NAFFCO Flow Control policy for continuous product development,
NAFFCO Flow Control has the right to change specifications without prior notice.