NAFFCO
FLOW CONTROL

Ducts Solutions

- Fire Resistance
- Smoke Extraction
- Ventilation


Where
Precision is a
Must...
CNC Automated
Manufacturing Facility
NAFFCOFlow.com

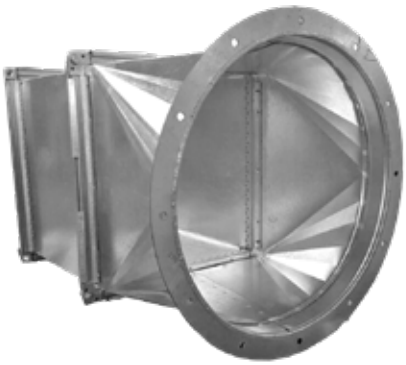
About **Ducts**

A description about our ducts

INTRODUCTION

Ducts are passages used in heating, ventilation, and air conditioning (HVAC) to deliver and remove air. The required airflow includes, for example, supply air, return air, and exhaust air. Ducts commonly also deliver ventilation air as part of the supply air. As such, air ducts are one method of ensuring acceptable indoor air quality as well as thermal comfort.

NAFFCO Flow Control provides a wide-range of ducts products and services, from normal Galvanized Iron (G.I.) ducts to Fire/Smoke resistant duct systems. To ensure customer satisfaction, NAFFCO Flow Control employs up-to-date modern technology, special skilled workforce & professionals, latest automatic duct manufacturing machines to produce ducts & fittings and fire rated duct systems. Our Continuous Girth Flange (CGF) system with auto double sealing is one example of our capacity to stay ahead in HVAC and fire protection field.



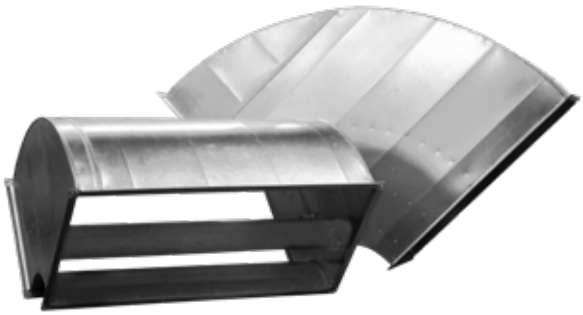
Here, at NAFFCO Flow Control, ducts are fabricated to comply HVAC and industrial requirements as per standards: DW144/SMACNA.

We consume best quality Galvanized Iron steel material conforming to ASTM A653, Un-oiled, Lock-forming Quality, Zero or minimum Spangle, Chromated and Zinc Coating Z27 / G90 / G275 (275gms/sq. m).

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 productivity. Well trained and highly experienced staff guarantees consistency in Quality Assurance.

We also possess the capability to produce ducts in various materials such as:

- ✓ Stainless Steel
- ✓ Aluminium.

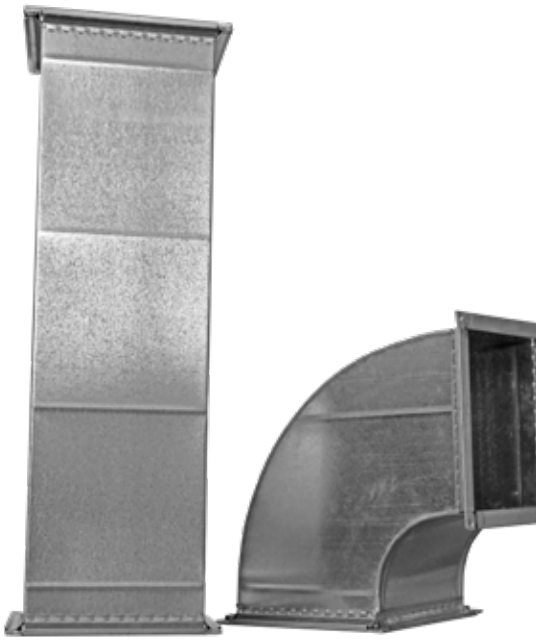


Ducts **Solution**

Types of Duct Fabrication & Specifications

GALVANIZED IRON DUCT

G.I. Rectangular Ducts are fabricated in our factory according to the requirements of customers. Ducts are fabricated using high grade G.I. steel coils and processing of operations is on ultra modern automatic duct making machines operated by experienced and skilled staff. Each duct piece passes through strict Quality Control checks and ensures adhere to specifications and standards, whether it is a normal G.I. duct or a Fire Rated one. The complete range of ducting offered by NAFFCO Flow Control is competitively priced and is insured for full protection against air leakages, fire & smoke and sound.



Features:

- ✓ Ducts are fabricated from high quality (G-90, Z-275) grade G.I. coils of reputed make Jindal, Nippon, POSCO, AGIS & TUF.
- ✓ To strengthen, beading is done to all of our straight ducts at a distance of 300 mm.
- ✓ Pittsburgh longitudinal joints are associated with large pocket size, hence generating extra strong and leak proof joint.
- ✓ Special CGF integral flanges with auto double stitching ensures a product suitable for all applications.

ALUMINIUM DUCT

NAFFCO Flow Control is experienced in fabricating aluminium ducts which is, as mentioned in ASTM B209, BS EN485, BS EN515, BS EN573 subject to the uncovered surroundings.

Aluminium ducts are manufactured from AA1100 sheets of aluminium/sheets with Tailored ‘S’ & Drive ‘C’ cleats of equal grade or crosswise joints of FL flange type.

Plain type (Reflector quality) is also generally utilised as air ducts in places like clean rooms for sensitive industrial application, swimming pool, etc. Stucco engraved form is relatively dent & scratch resistant which is mostly used as cladding on exposed G.I. ducts.

Ducts **Solution**

Types of Duct Fabrication & Specifications

STAINLESS STEEL DUCT

NAFFCO Flow Control's Stainless Steel (SS) ducts are manufactured from SS coils of 316 / 304 grades with transverse & fully welded longitudinal joints.

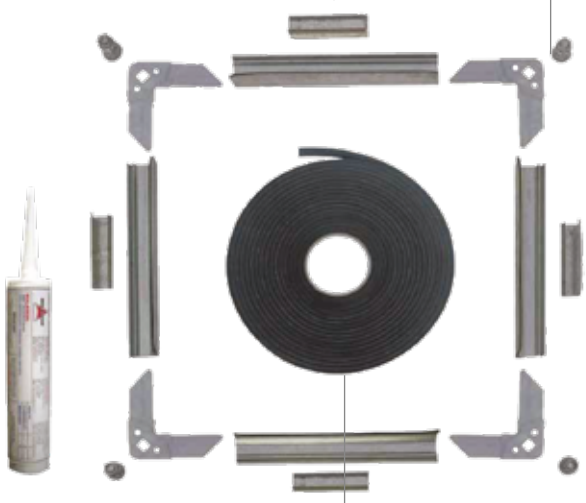
We employ special skilled workforce to manufacture SS ducts and fittings. Stainless steel Ducts are fabricated as per the standards of NFPA, BS and ASHRE.

Stainless Steel ducts are widely utilised in open surroundings to observe zones and in the zones where Cleanliness is the main concern and in extremely abrasive environments. Stainless Steel ducts are stronger, stiffer and finest quality in comparison with G.I. ducts. SS duct has the characteristics of corrosion resistant & fire resistance.

DUCT JOINING

SLIP-ON FLANGES: Roll-formed G.I. Section with embedded sealant. Available in different cross-sections to provide a range of rigidity and strength characteristics.

CORNERS: To be inserted into the hollow we of the slip-on flange. 4 corner pcs. are required for each rectangular frame, 8 corner pcs. per joint.



GASKET: Self-adhesive, micro-cellular, cross-linked, Polyethylene foam type. (Alternatives: PVC or Neoprene)

CARRIAGE BOLTS WITH FLANGED NUTS: Electro-galvanized, square-necked carriage bolts, with flanged nuts, Each joint required 4 sets.

- ✓ Flanges have been designed to meet the appropriate SMACNA/DW144 standard classes and to meet the rigidity and leakage requirement as per SMACNA/DW144 standards.
- ✓ It is mandatory to use all system components to obtain the desired performance.

Technical **Data**

Technical Specifications of Ducts

CONSTRUCTIONAL REQUIREMENTS

Rectangular Ducts
Pressure: Low Pressure - 500Pa

SHEET METAL & AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

Duct Dimensions	G.I. Sheet Thickness	Longitudinal Joint	Transverse Joint
0 - 450	0.56 mm	Pittsburgh Seam	S & C Cleats
451 - 750	0.56 mm	Pittsburgh Seam	20 mm Slide On Flanges with 20 mm Corners, and 1 pc of 20 mm Cleat per side.
751 - 1000	0.70 mm	Pittsburgh Seam	20 mm Slide On Flanges with 20 mm Corners, and 1 pc of 20 mm Cleat per side.
1001 - 1200	0.90 mm	Pittsburgh Seam	20 mm Slide On Flanges with 20 mm Corners, and 1 pc of 20 mm Cleat per side.
1201 - 1400	0.90 mm	Pittsburgh Seam	30 mm Slide On Flanges with 30 mm Corners, & 1 pc of 30 mm Cleat per side. Reinforcement Stiffener 30 mm Flange at 600 mm centre.
1401 - 1600	1.00 mm	Pittsburgh Seam	30 mm Slide On Flanges with 30 mm Corners, & 1 pc of 30 mm Cleat per side. Reinforcement Stiffener 30 mm Flange at 600 mm centre.
1601 - 2000	1.00 mm	Pittsburgh Seam	40 mm Slide On Flanges with 40 mm Corners & 40 mm G-Clamp. Reinforcement Stiffener 40 mm Flange at 600 mm centre.
2001 - 2500	1.20 mm	Pittsburgh Seam	40 mm Slide On Flanges with 40 mm Corners & 40 mm G-Clamp. Reinforcement Stiffener 40 mm Flange at 600 mm centre.
2501 - 3000	1.20 mm	Pittsburgh Seam	50 mm Gl angle with nuts & bolts. Reinforcement Stiffener 50 mm Gl angle at 600 mm centre.

DUCTWORK (DW144)

Duct Dimensions	G.I. Sheet Thickness	Longitudinal Joint	Transverse Joint
0 - 400	0.60 mm	Pittsburgh Seam	Opposite Sides Flat Hemmed S & Drive Cleat.
401 - 600	0.80 mm	Pittsburgh Seam	20 mm Slide On Flanges with 20 mm Corners, & 1 pc of 20 mm Cleat per side.
601 - 1000	0.80 mm	Pittsburgh Seam	20 mm Slide On Flanges with 20 mm Corners, & 1 pc of 20 mm Cleat per side.
1001 - 1400	1.00 mm	Pittsburgh Seam	30 mm Slide On Flanges with 30 mm Corners, & 1 pc of 30 mm Cleat per side. Reinforcement Stiffener 30 mm Flange at 600mm centre.
1401 - 2000	1.00 mm	Pittsburgh Seam	30 mm Slide On Flanges with 30mm Corners, & 1 pc of 30 mm Cleat per side. Reinforcement Stiffener 30 mm Flange at 600mm centre.
2001 - 2500	1.00 mm	Pittsburgh Seam	40 mm Slide On Flanges with 40mm Corners, & 1 pc of 40 mm Cleat per side. Reinforcement Stiffener 40 mm Flange at 600mm centre.
2501 - 3000	1.20 mm	Pittsburgh Seam	50 mm Gl angle with nuts & bolts. Reinforcement Stiffener 50 mm Flange at 600mm centre.

- ✓ TDF flanges & corners can also be provided as optional.
- ✓ CGF flanges & corners can also be provided as optional.
- ✓ Ducts are Stiffened by beading at every 300 mm pitch.
- ✓ Galvanized Iron (G.I.) sheet thickness and type of transverse joints vary based on project specifications and customer requirements.

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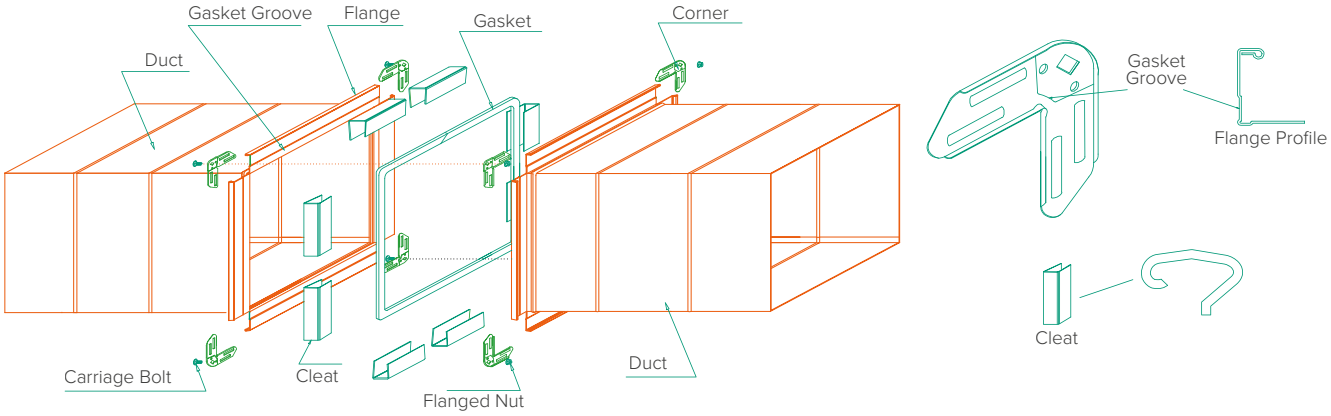
Advance Ducts Fabrication Equipments

STATE-OF-THE-ART DUCT MACHINERY

Ducts **Solution**

Types of Duct Fabrication & Specifications

THE TDF SYSTEM



TDF is a flanging system that consists of forming a flange profile on the duct ends, thus made out of a sheet from which the duct is fabricated. TDF is a 4 bolt duct connection system that eliminates time wastage. Rather than using separate connectors to assemble your system, TDF flanges are roll formed onto the duct during the manufacturing process. This connection minimizes leakage and installation costs. These TDF flange eliminates the additional internal sealing around the edges of duct & thereby saves the labour & material.

Features:

✓ Highly accurate flange profiles and components ensure ease of fitting and high quality assembly.

✓ A Recessed groove on flange and radial groove on corner pieces for proper gasket seating.

✓ Snap fit corner pieces to allow easy fitting at the sites.

SLIP & DRIVE CLEATS SYSTEM

Slip and Drive Cleats system is generally used for low-end, class-critical applications. Traditionally, only the Drive cleats (“C”) which are positioning cleats were used for all four sides, this was giving a poor joint. The Slip cleats [“S” / “Standing 8”] on the alternate opposite sides provide the moderate rigidity to the joint.

‘S’ Cleat

‘C’ Cleat

NOTE: While installing, Drive cleats are always fitted on the shorter sides and Slip cleats on the longer sides.

Special Notes:

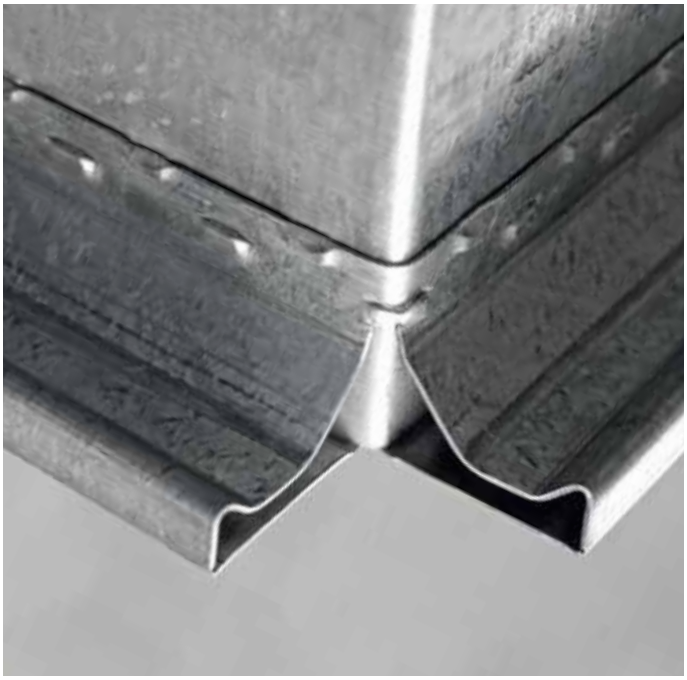
✓ It does not subscribe to usage of red-oxide painted Angle Iron flanges as red-oxide is a known carcinogen.

✓ Conventional G.I. flanges have now become obsolete as they are totally substituted by Slip and Drive cleats system.

✓ TDF can not be made below 250 mm size of the duct. We suggest to use C & S cleat instead of TDF.

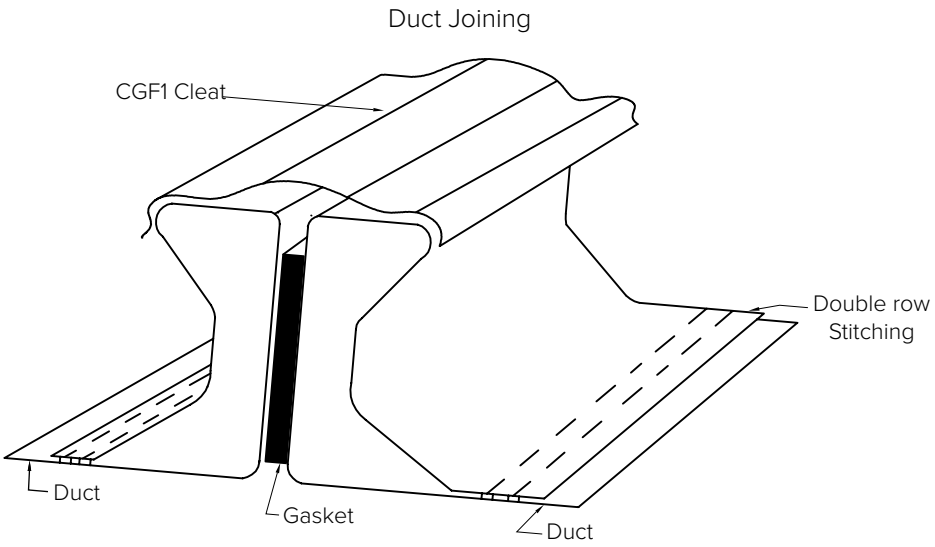
CGF1 FLANGE SYSTEM / NEW ENGINEERING DESIGN

20 mm Profile



30 mm Profile

Accepts short pieces without the need for clamping the product the minimum length is 250 mm.



CGF1 Integral Double Hollow
continuous stitched flange

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Types of Duct Fabrication & Specifications

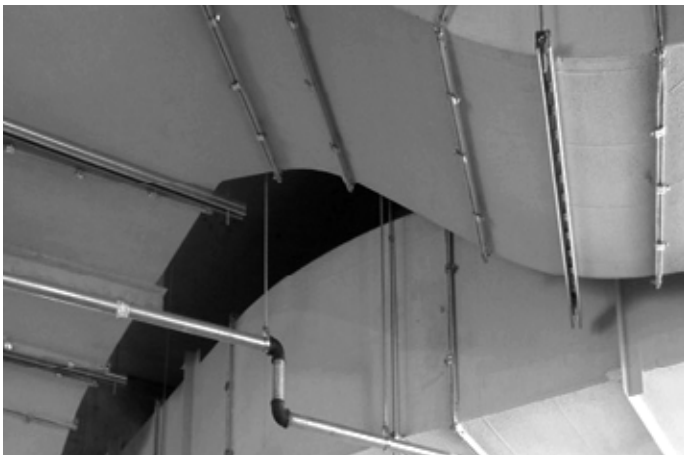
FIRE RATED DUCTWORK SYSTEMS

NAFFCO Flow Control provides 2 hour fire rated Rectangular Galvanized Steel ductwork tested as per BS476 Part 24:1987, both for coated and non-coated fire resistant systems complying to following applications:

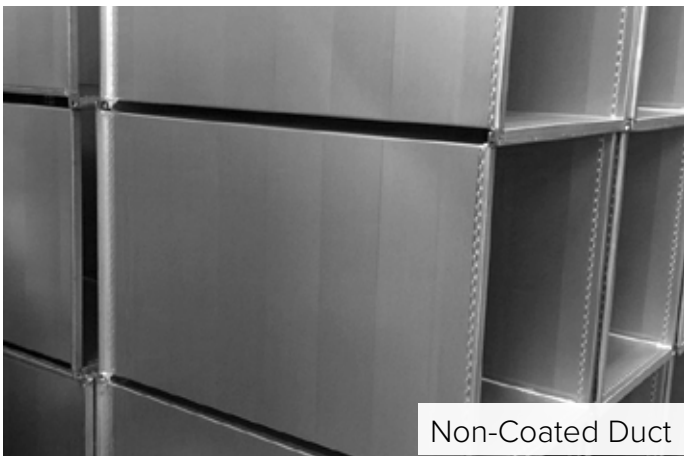
- ✓ Ventilation
- ✓ Stair Pressurisation
- ✓ Smoke Extraction
- ✓ Basement Car park exhaust & make up Air ductwork

For coated fire resistant ductwork, duct is manufactured as per DW144/SMACNA standards. An Intumescent (fire resistant / fire retardant) coating of minimum thickness is sprayed over duct outer surface, which sustain high temperature of fire. Due to flame resistant quality of coating, the duct is able to maintain its stability and integrity for 2 hours as tested in a fire test.

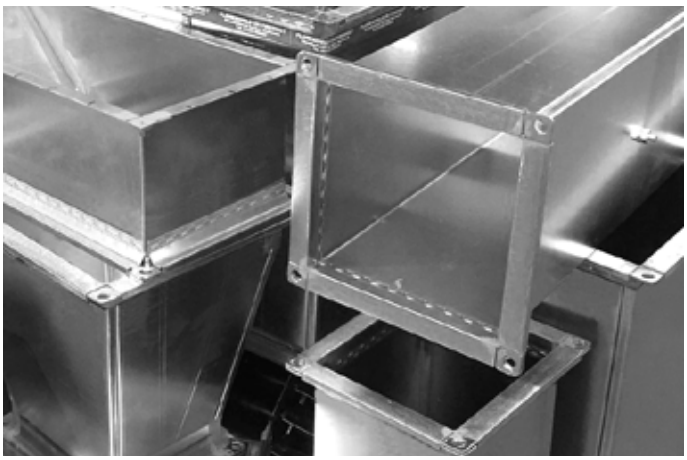
Coated Duct



Non-Coated fire resistant ductwork system is without any fire resistant / fire retardant coating. By virtue of its material, special flange design, duct stiffening & special construction, support system components, the duct is able to sustain high temperature when fire tested to BS476 Part 24. Non-coated duct maintains the stability and integrity for 2 hours.



Non-Coated Duct



Fire rated duct supplied are certified by a third party agency and carry local authorities' approval.

NAFFCO
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Serving Over 100 Countries Worldwide

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