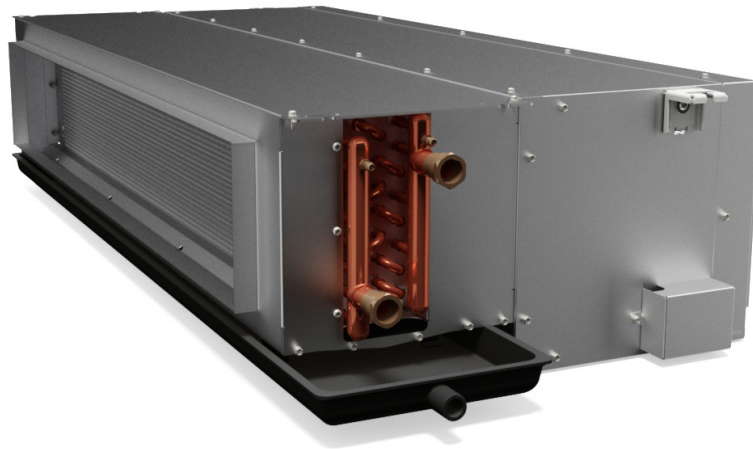


# Installation, Operation and Maintenance Manual

**IOM**

Group: F&C  
Part Number: IOM F&C  
Date: 20 July 2023

**F&C Series**  
**Fixed Horizontal**  
**400, 600, 800, 1000, 1200, 1600, 2000**  
**CFM**



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Manufactured in an ISO 9001 certified facility



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## NOMENCLATURE

### CLIFC-H-400-0-4-0-R-C-0-P-D-N-2-0

**FAMILY**

**TYPE**

H - Horizontal

**CAPACITY (CFM's)**

400  
 600  
 800  
 1,000  
 1,200  
 1,300  
 1,600  
 2,000

**VOLTAGE**

0 - 115-127 / 1 / 60  
 1 - 208-220 / 1 / 60  
 (1,200, 1,600 & 2,000 only)

**COOLONG ROWS**

3 - 3 rows  
 4 - 4 rows  
 6 - 6 rows (2,000 only)

**HEATING ROWS**

0 - 0 rows  
 (Only with 4 cooling rows)  
 1 - 1 hiler  
 (Only with 3 cooling rows)

**CONNECTION SIDE**

R - Right  
 L - Left

**EXTRAS**

TBD

**HEADER**

2 - 2 way modulating  
 (Variable only)  
 3 - 3 way modulating  
 (Variable only)

**CONTROL**

3 - 3 speed  
 (Fixed only)  
 4 - VLD  
 5 - Microset  
 6 - Other  
 N - N/A

**FILTER**

D - Disposable  
 0 - N/A

**PLENUM**

Y - Included  
 N - Not included

**ANTICORROSION**

C - Coil  
 0 - N/A

**FAN**

C - 3 speed  
 E - EC Variable  
 (VLD or Microset control)

### FRAME

All F&C units are constructed of heavy-gauge, corrosion-resistant, corrosion-resistant galvanized steel. All units are approved for installation with "0" clearance to combustible material.

### MOTORS

Standard motors are of the PSC type, permanently lubricated with internal thermal overload protection.

### PLENUM

The return air chambers are made of galvanized steel insulated with high density anti-bacterial and anti-acoustic foam.

### CONDENSATE TRAYS

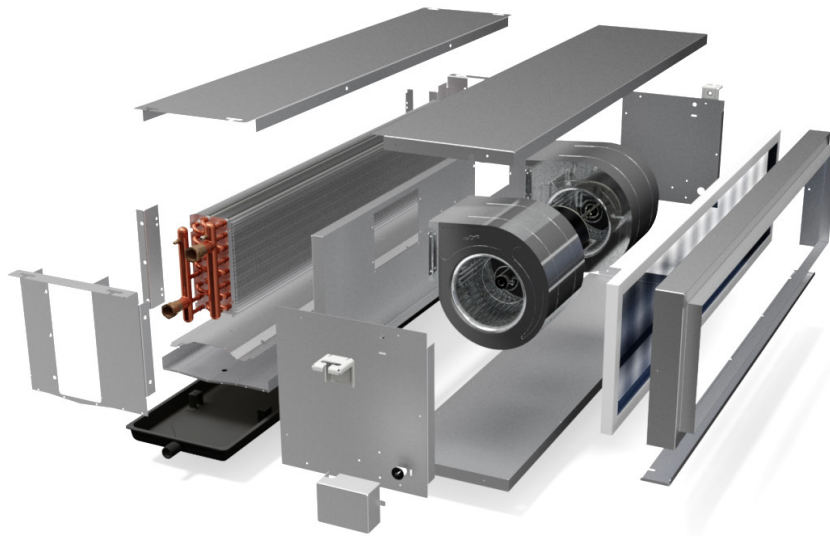
The positive inclined drainage trays are made of galvanized steel, coated on the inside surface with an anti-bacterial and anti-fungal coating.

### COIL

Constructed with seamless copper tubes and headers. Tube tubes are mechanically expanded in corrugated aluminum fin material for permanent bonding of primary to secondary surface. Coils are tested underwater at 350 PSI for operation at 300 PSI. Coils include manual air vents.

### FAN WHEELS

They are double wide, double inlet (DWDI) forward curved, centrifugal type. The wheels are statically and dynamically balanced for smooth and quiet operation. The casing is constructed of heavy-gauge galvanized steel with die-cast inlet cones.



## INSTALLATION AND APPLICATION INFORMATION

### RECEPTION AND HANDLING

Fan & coil units are shipped in individual carton packages for maximum protection during shipment, as well as for ease of handling and storage at the job site. As a measure to protect against loss in transit, follow the recommendations below when receiving the units:

Inspect individual parts of the shipment, before accepting them. If any carton shows apparent damage, open it immediately and inspect its contents before accepting the unit. Do not refuse delivery.

**NOTE: It is the recipient's responsibility to provide reasonable evidence that the concealed damage did not occur subsequent to delivery of the unit.**

### INSTALLATION CONSIDERATIONS

For proper installation and operation, check each of the following points before mounting the unit:

- Before installing the unit, ensure that preparatory measures have been taken for the location of piping and electrical connections to the unit.
- Verify that the structure can support the weight of the units.
- All units must be mounted LEVEL to ensure proper drainage and operation.
- The ductwork connection to the units (where applicable) must not exceed the static pressure rating of the unit.
- The installer must provide condensation protection for water valves and piping. Also, the installer must provide an extension to the condensate pan below the valves and piping, or such items must be properly insulated.

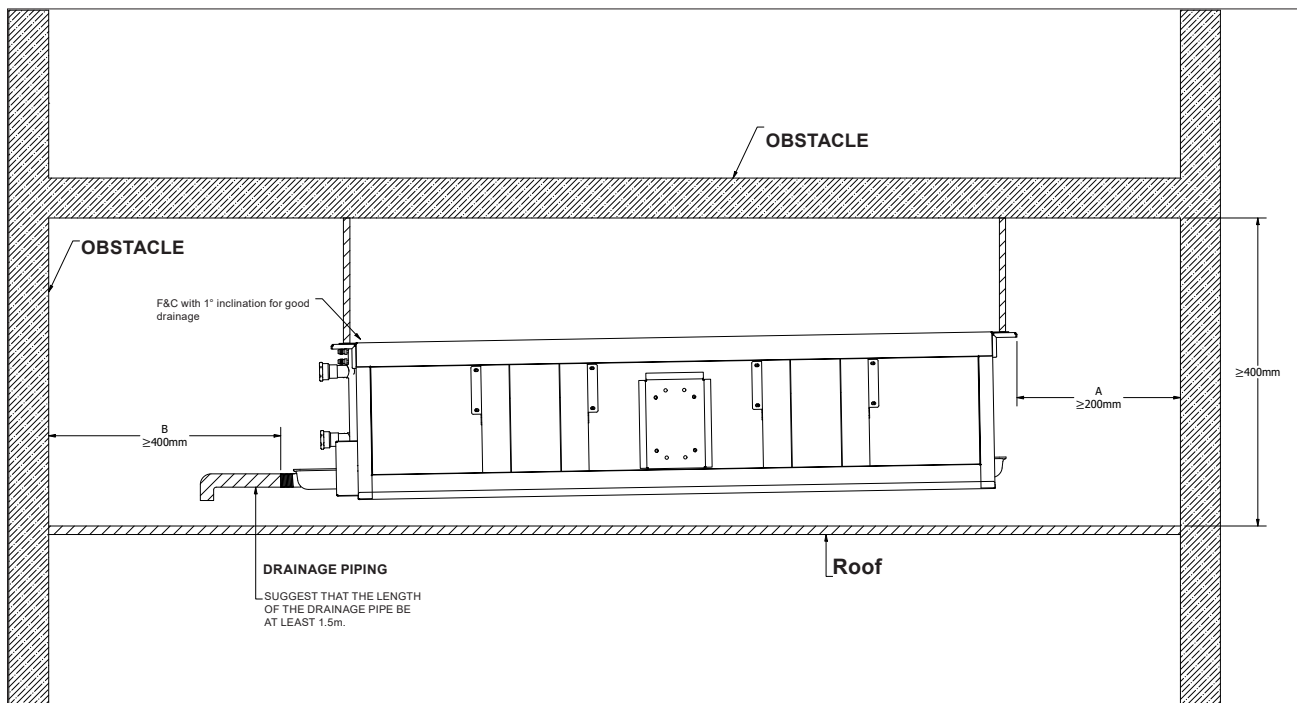
### INSTALLATION

- The unit is designed for concealed ceiling installation.
- There are holes on the top of the unit for hanging. Please refer to figure 1.
- Make sure the top of the unit is level.

### INSULATION

- Insulation design and materials should comply with local and national codes and regulations.
- Chilled water pipes and all parts above the pipes should be insulated.
- It is also necessary to insulate the vent pipe.

**Figure 1. Installation dimensions**



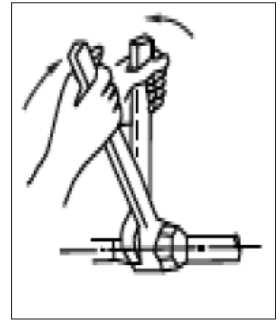
**DUCT CONNECTION**

Minimum 24 gauge galvanized sheet steel duct (supplied by the installer) can be connected to the duct collars of the unit's air inlet and outlet.

**PIPING**

To complete the piping connections, connect the water pipe to the coil with male threaded connector. The water inlet is located on the discharge side of the coil and the outlet on the suction side of the coil.

To avoid destruction of the coil connections, which are made of copper, it is necessary that the thread adjustment is performed using two tap wrenches, where one wrench performs the adjustment and the other one is fixed.



**CONDENSATE DRAIN CONNECTIONS**

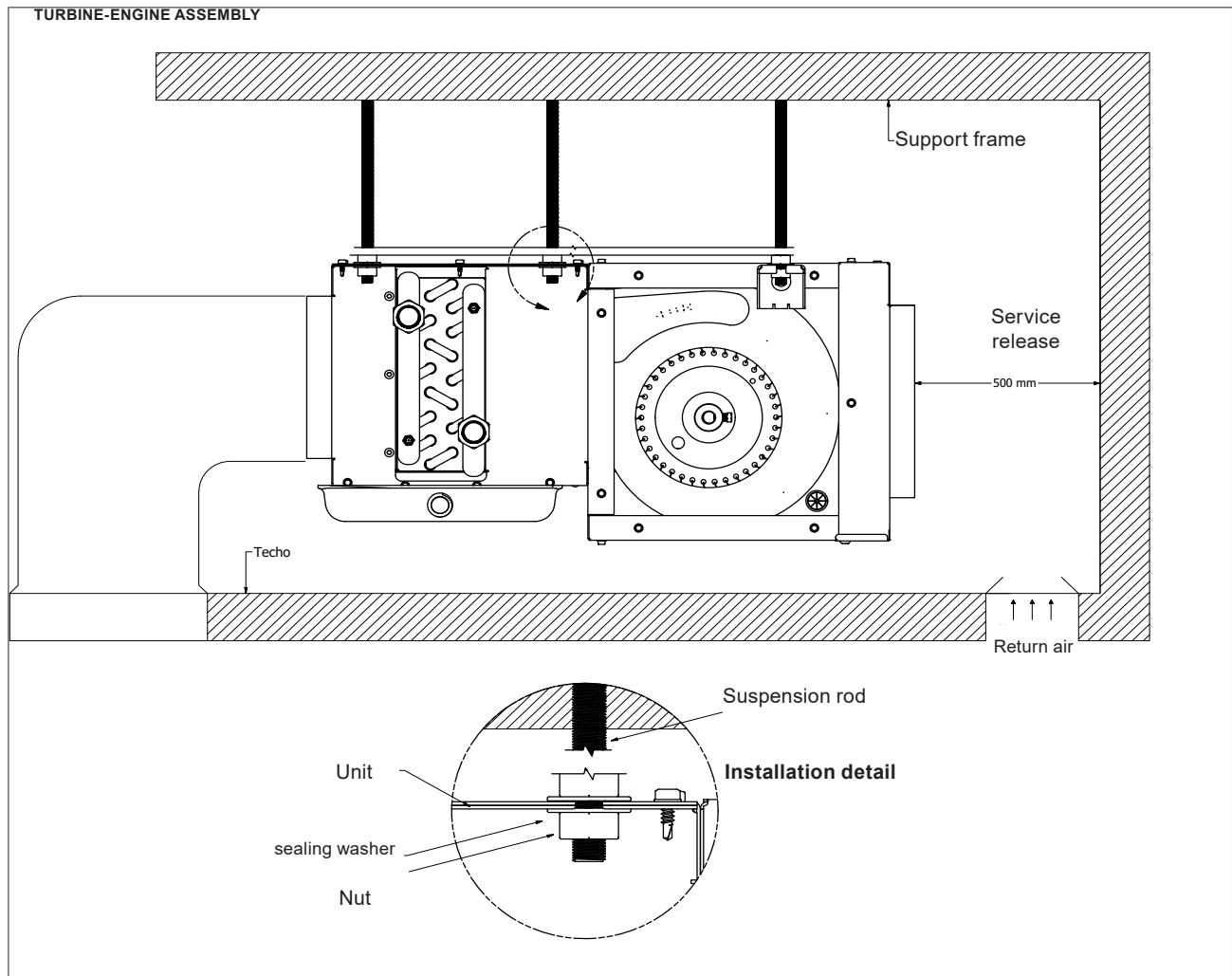
Use either PVC pipe or steel pipe with 1" male FPT connection as drain line. Connect the drain line with tape sealant to prevent leakage. It is recommended to install the drain line with a minimum slope of 1:50.

**ELECTRICAL CONNECTION**

For wiring installation, refer to the wiring diagram on page 22.

**ASSEMBLY**

Install hanger rods and other hanger devices provided by the installer with W3/8 nuts and washers as shown.



## INSTALLATION AND APPLICATION INFORMATION

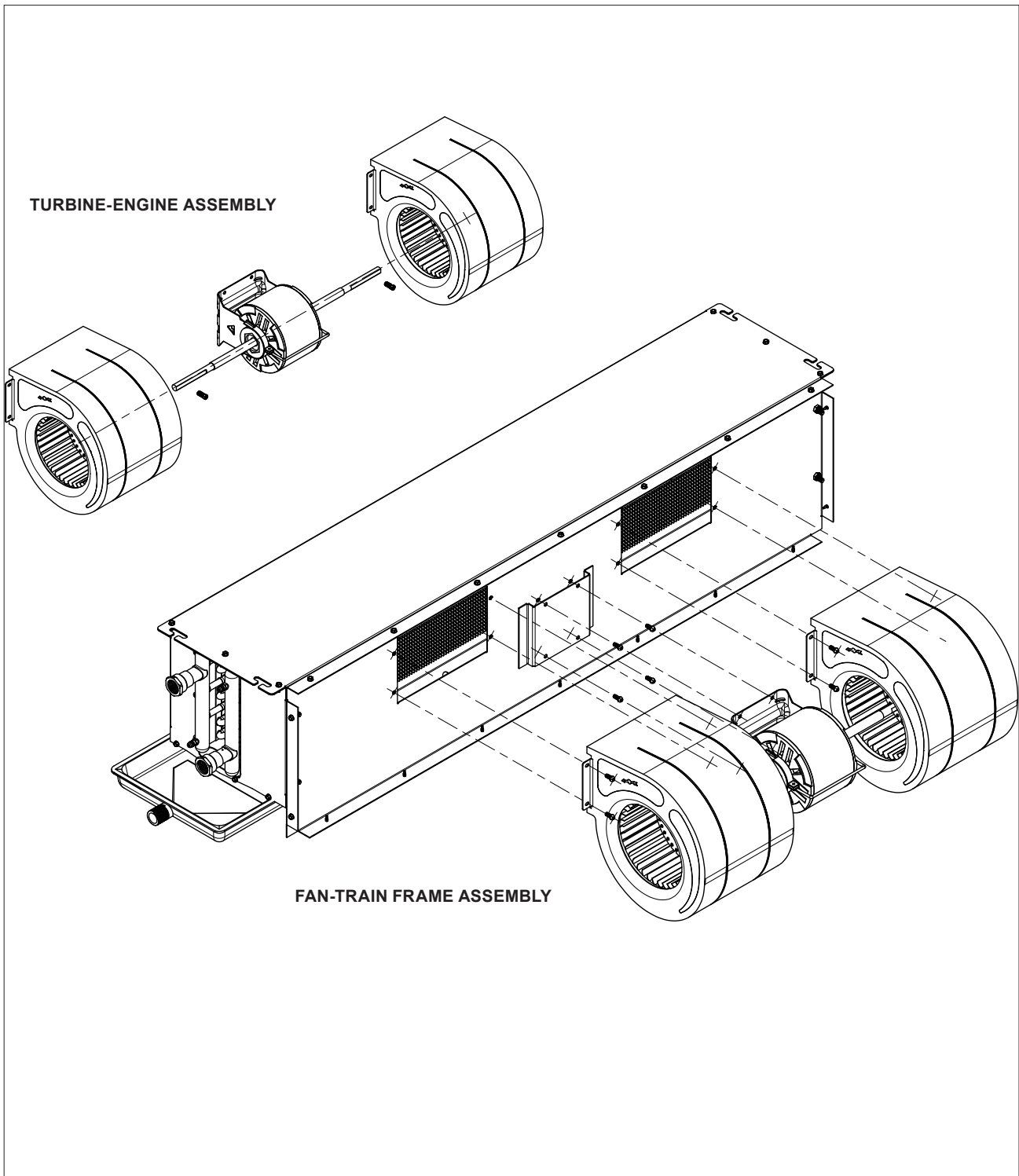
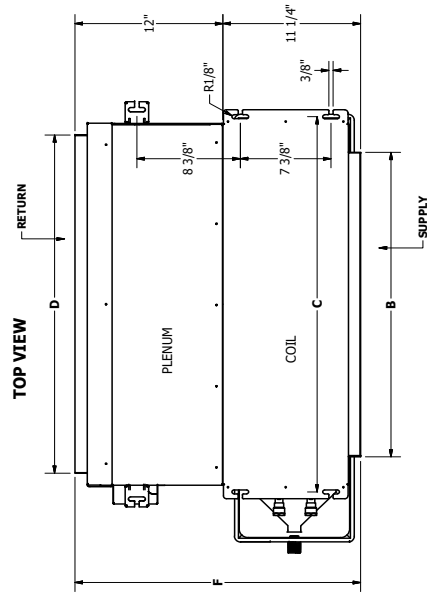


Figure 2. F&C Fixed 400 CFM Right Side

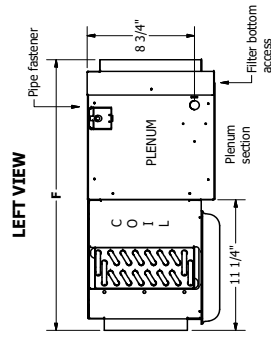
GENERAL DIMENSIONS

MODEL	A <sup>1</sup> (PAN) SIZE	B (INJECTION)	C (RETURN)	D (RETURN)	E (FILTER SIZE)	F	G
400	37 5/8"	26 1/8"	32 3/8"	29"	30.3/8"	23 1/4"	38 1/2"

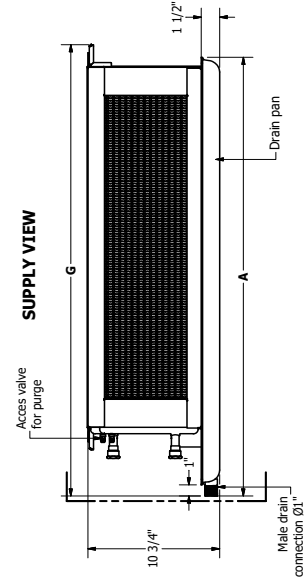


**TOP VIEW**

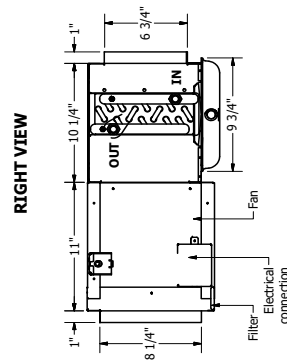
- NOTES:**
1. Return plenums are insulated.
  2. All plenums include throw-away filter.
  3. Filter has separate filter access panel for easier service.
  4. All dimensions in inches.



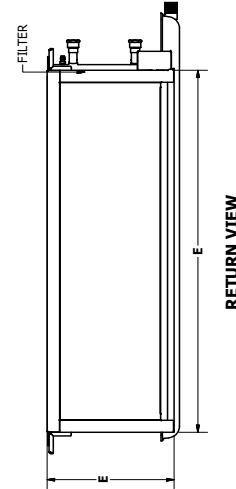
**LEFT VIEW**



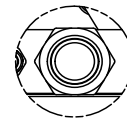
**SUPPLY VIEW**



**RIGHT VIEW**



**RETURN VIEW**



Connection Ø1/2"



## DIMENSIONS AND WEIGHTS

Figure 3. F&C Fixed 400 CFM Left Side

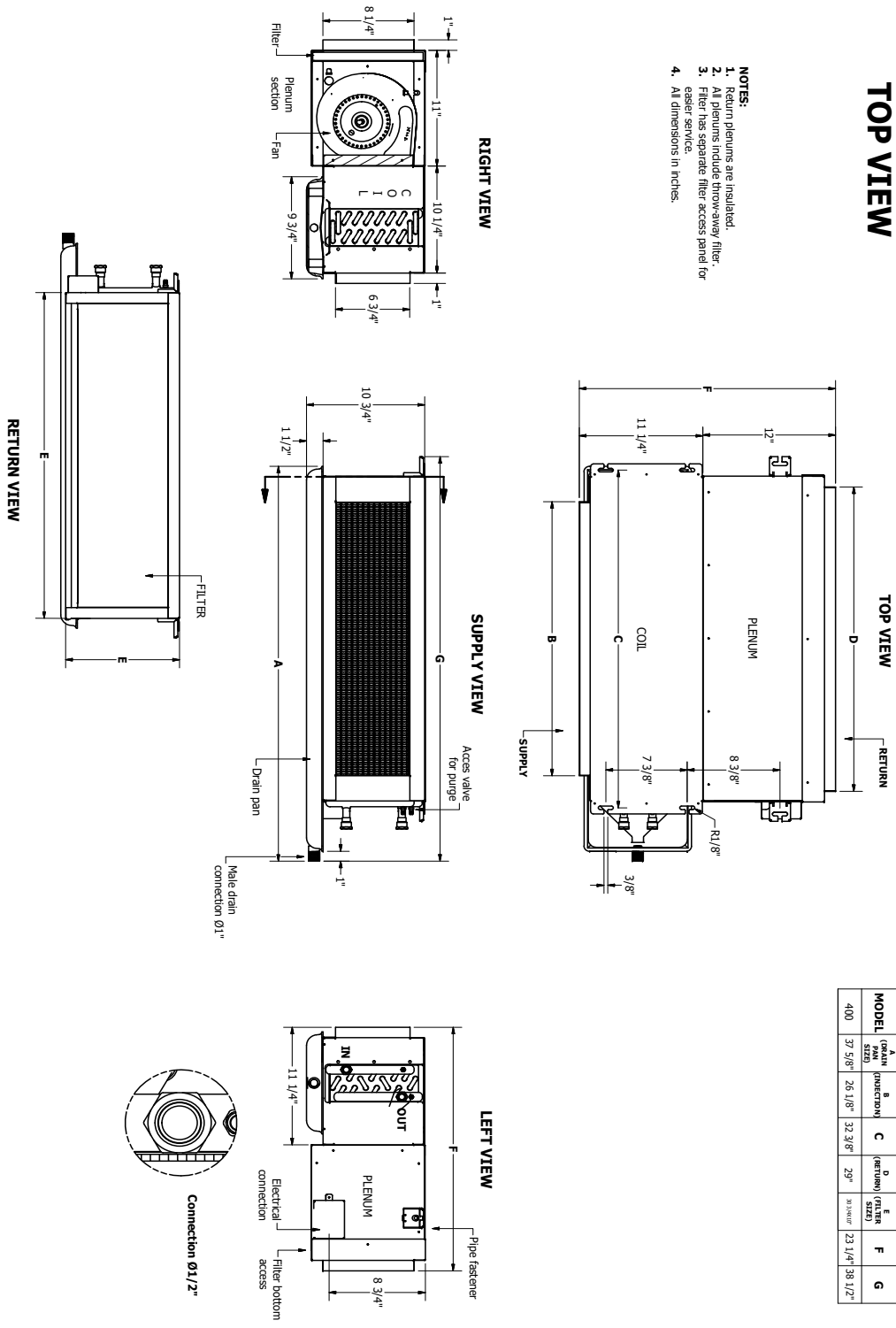
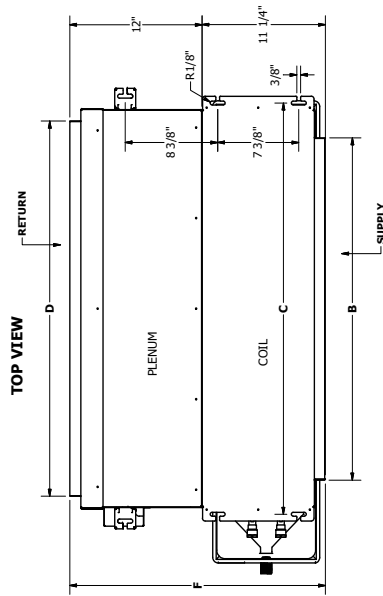


Figure 4. F&C Fixed 600 CFM Right Side

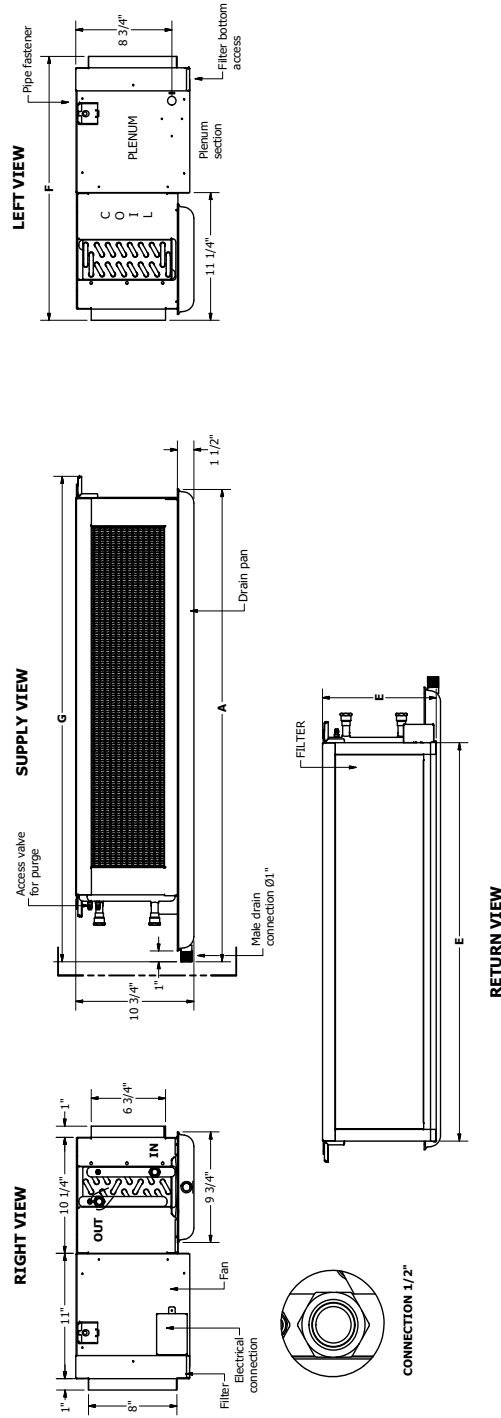
GENERAL DIMENSIONS

MODEL	A (FAN SECTION SIZE)	B (COIL SECTION SIZE)	C (RETURN SIZE)	D (RETURN FILTER SIZE)	E (FILTER SIZE)	F	G
600	41 5/8"	30 1/8"	36 3/8"	33"	23 1/4"	42 1/2"	



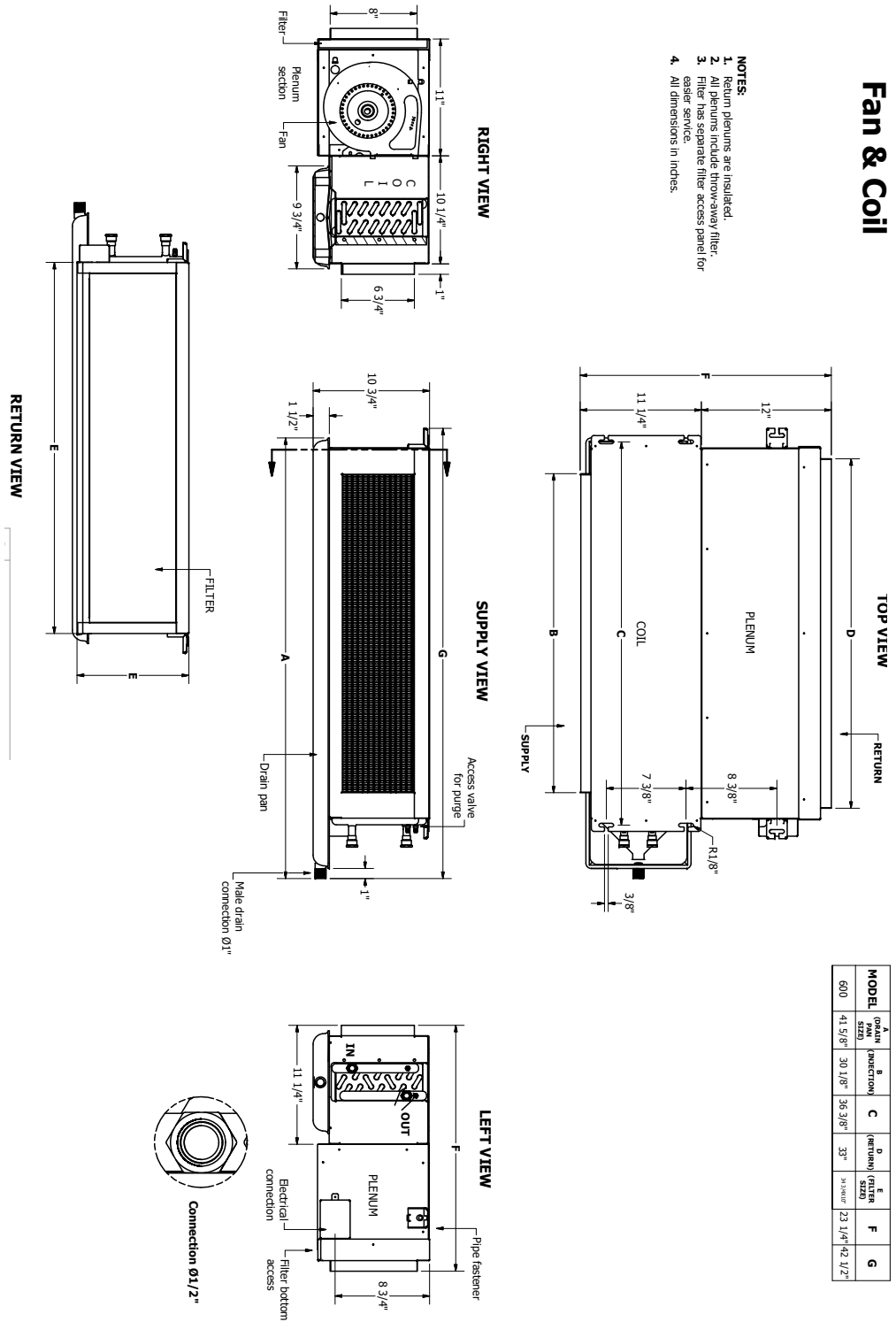
**Fan & Coil**

- NOTES:**
1. Fan plenums are included.
  2. All plenums include throwaway filter.
  3. Filter has separate filter access panel for easier service.
  4. All dimensions in inches.



## DIMENSIONS AND WEIGHTS

Figure 5. F&C Fixed 600 CFM Left Side



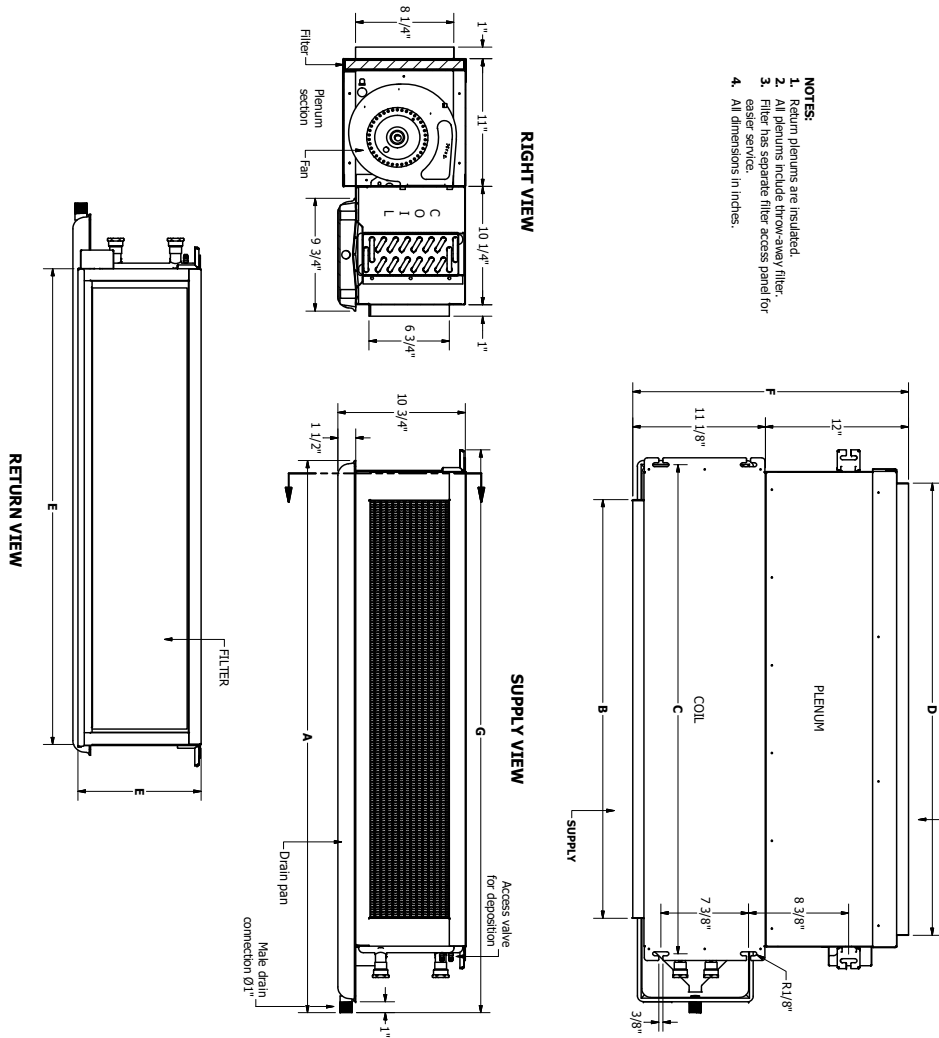


## DIMENSIONS AND WEIGHTS

Figure 7. F&C Fixed 800 CFM Left Side

### Fan & Coil

- NOTES:**
1. Return plenums are insulated.
  2. All plenums include throw-away filter.
  3. Filter has separate filter access panel for easier service.
  4. All dimensions in inches.



### GENERAL DIMENSIONS

MODEL	A (Fan Size)	B (Direction)	C (Return)	D (Return Size)	E (Filter Size)	F	G
800	47 5/8"	36 1/8"	42 3/8"	39"	Ø 36 1/8"	23 1/4"	48 1/2"

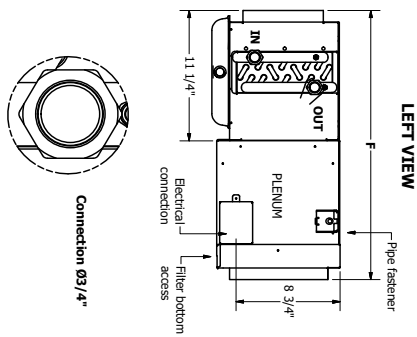
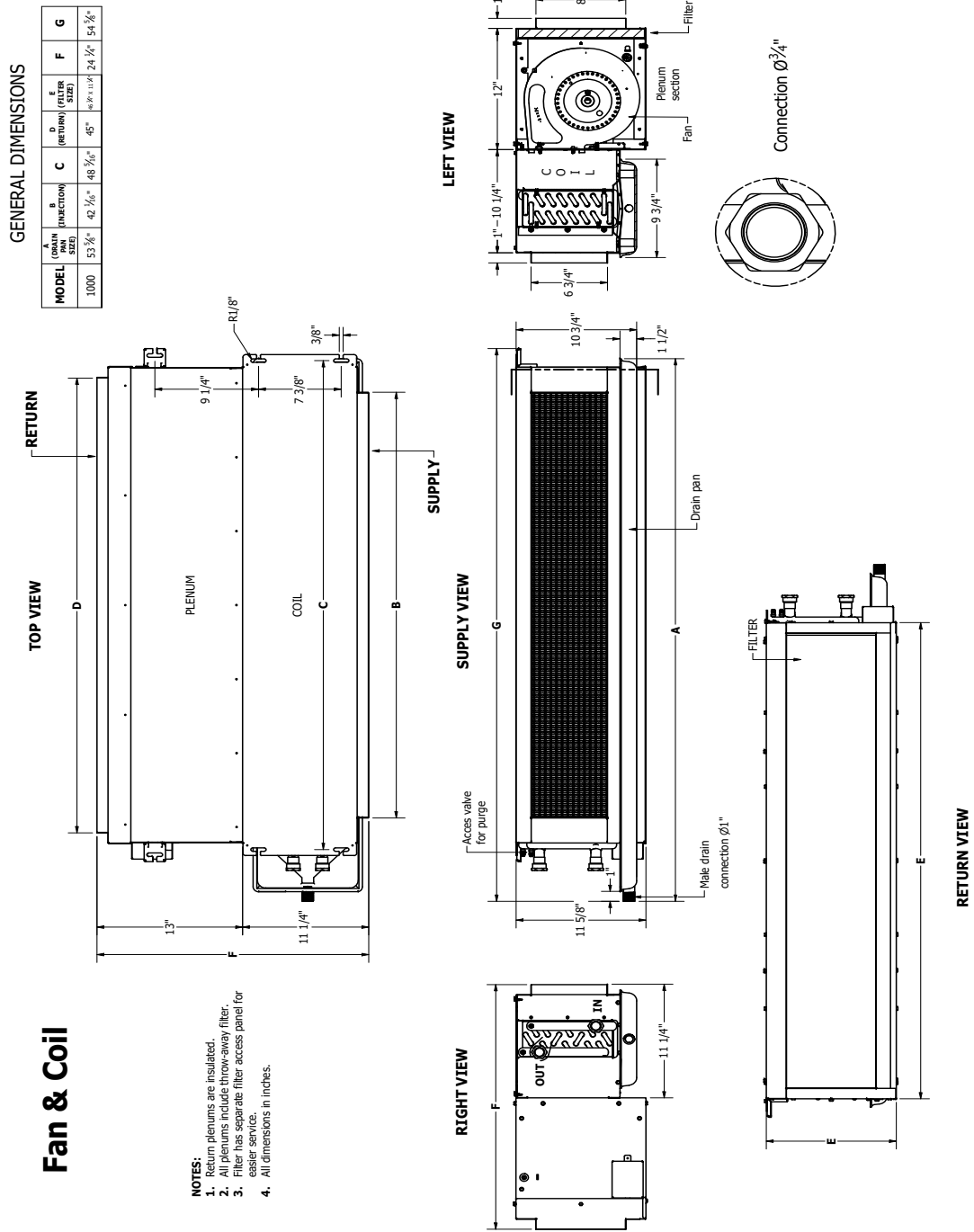


Figure 8. F&C Fixed 1000 CFM Right Side



## DIMENSIONS AND WEIGHTS

Figure 9. F&C Fixed 1000 CFM Left Side

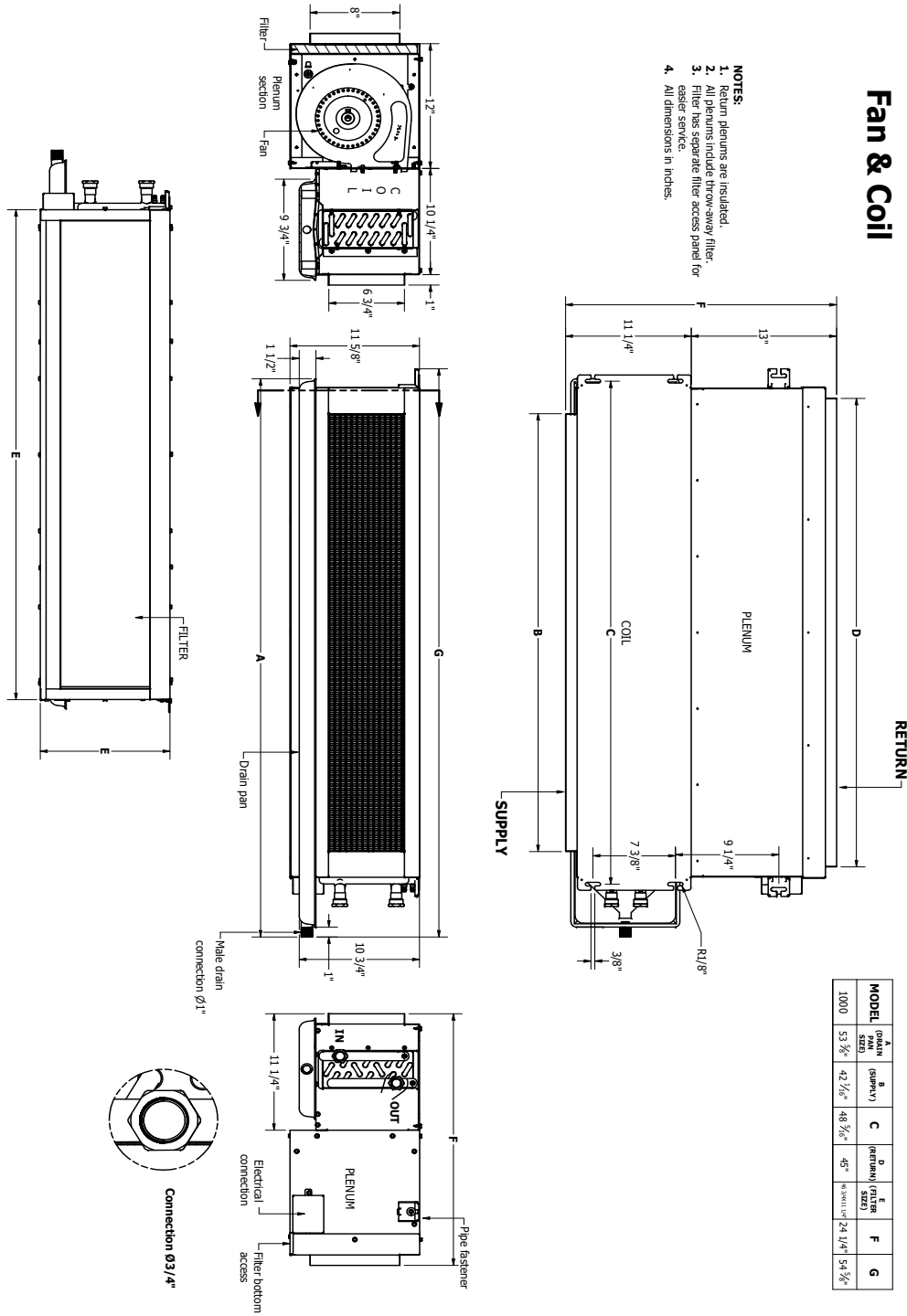
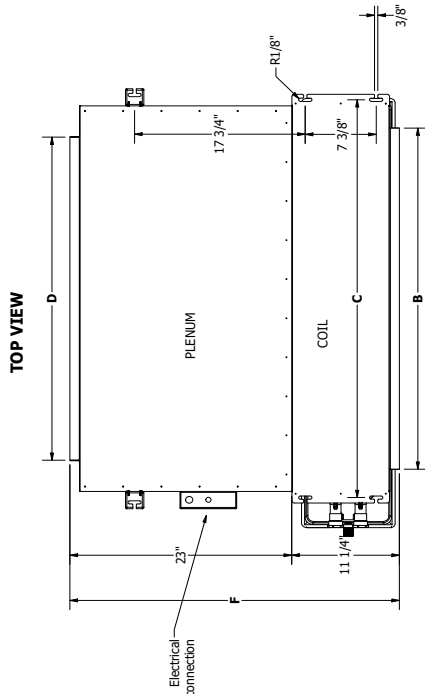


Figure 10. F&C Fixed 1200-1600 CFM Right Side

**GENERAL DIMENSIONS**

MODEL	(OASIS PAN SIZE)	B (INJECTION)	C	D (RETURN)	E (FILTER SIZE)	F	G
1200	47 5/8"	37 1/8"	43 1/4"	35 1/8"	34 1/4"	49 1/8"	
1600							



**Fan & Coil**

- NOTES:**
1. Return plenums are insulated.
  2. All plenums include throw-away filter.
  3. Filter has separate filter access panel for easier service.
  4. All dimensions in inches.

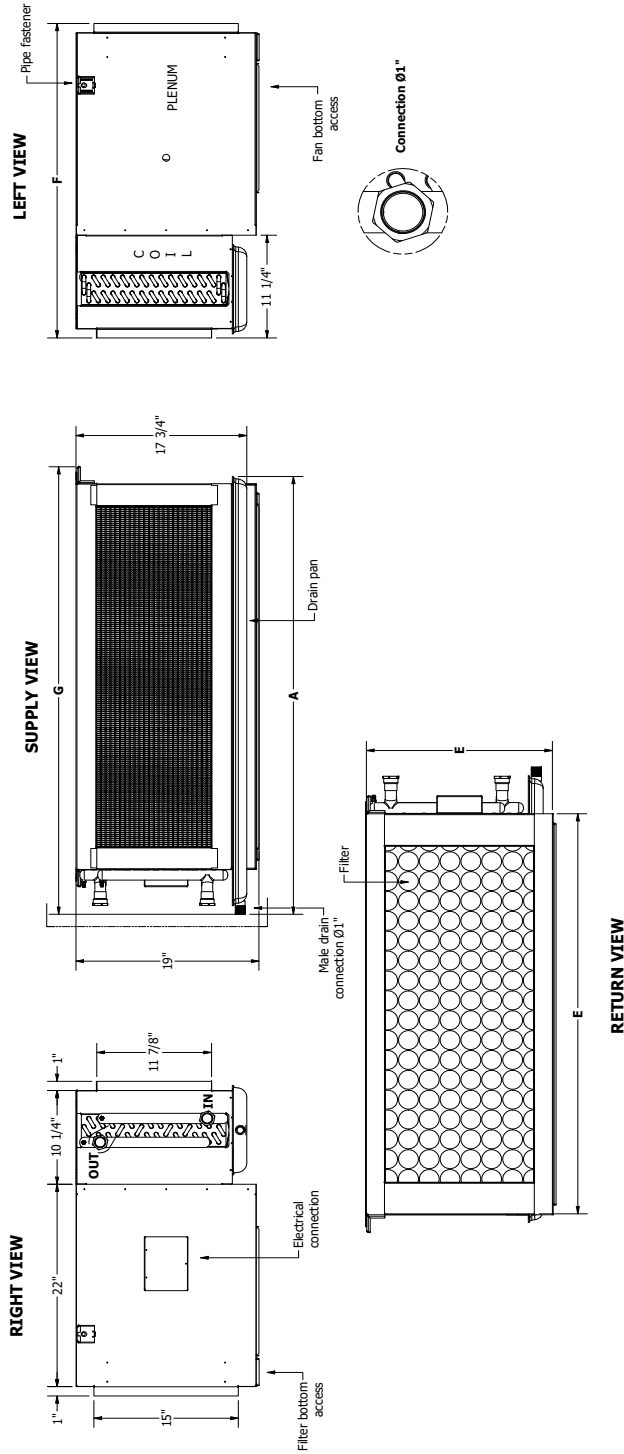






Figure 12. F&C Fixed 1300 CFM Right Side

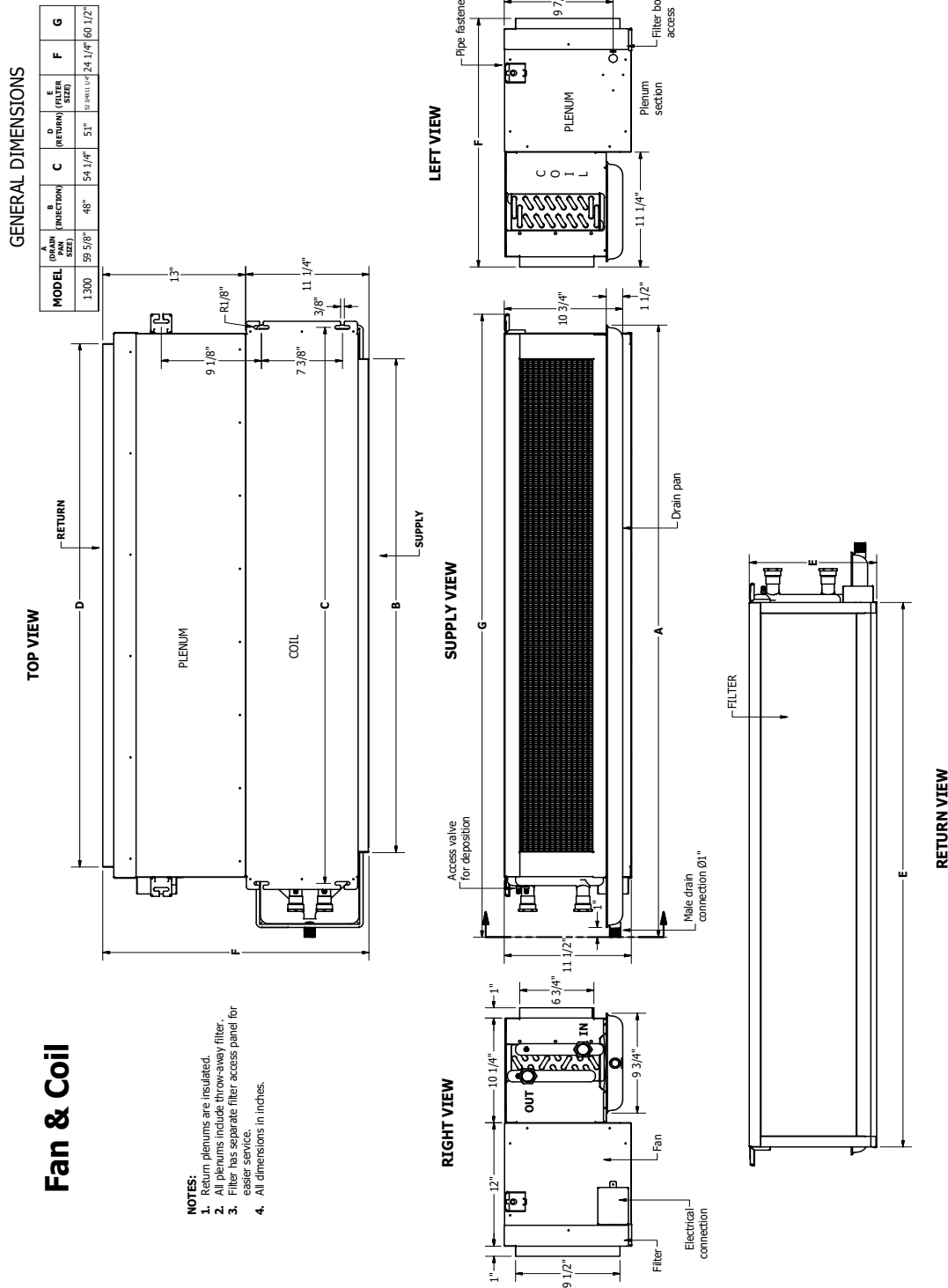




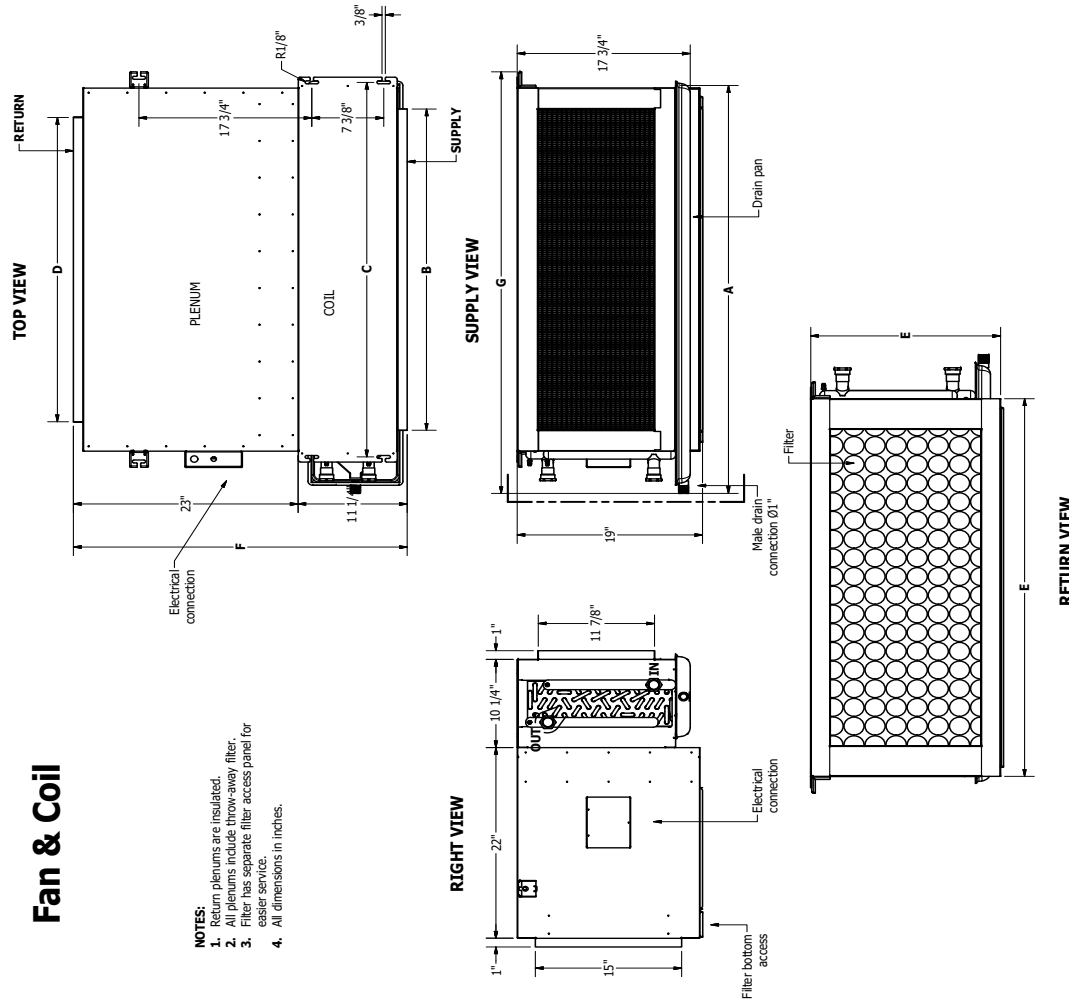
Figure 14. F&C Fixed 2000 CFM Right Side

**GENERAL DIMENSIONS**

MODEL	A (DRAIN PAN SIZE)	B (INDUCTION)	C	D (RETURN)	E (FILTER SIZE)	F	G
2000	47 5/8"	37 1/8"	43 1/4"	35 1/8"	34 1/4"	49 1/8"	

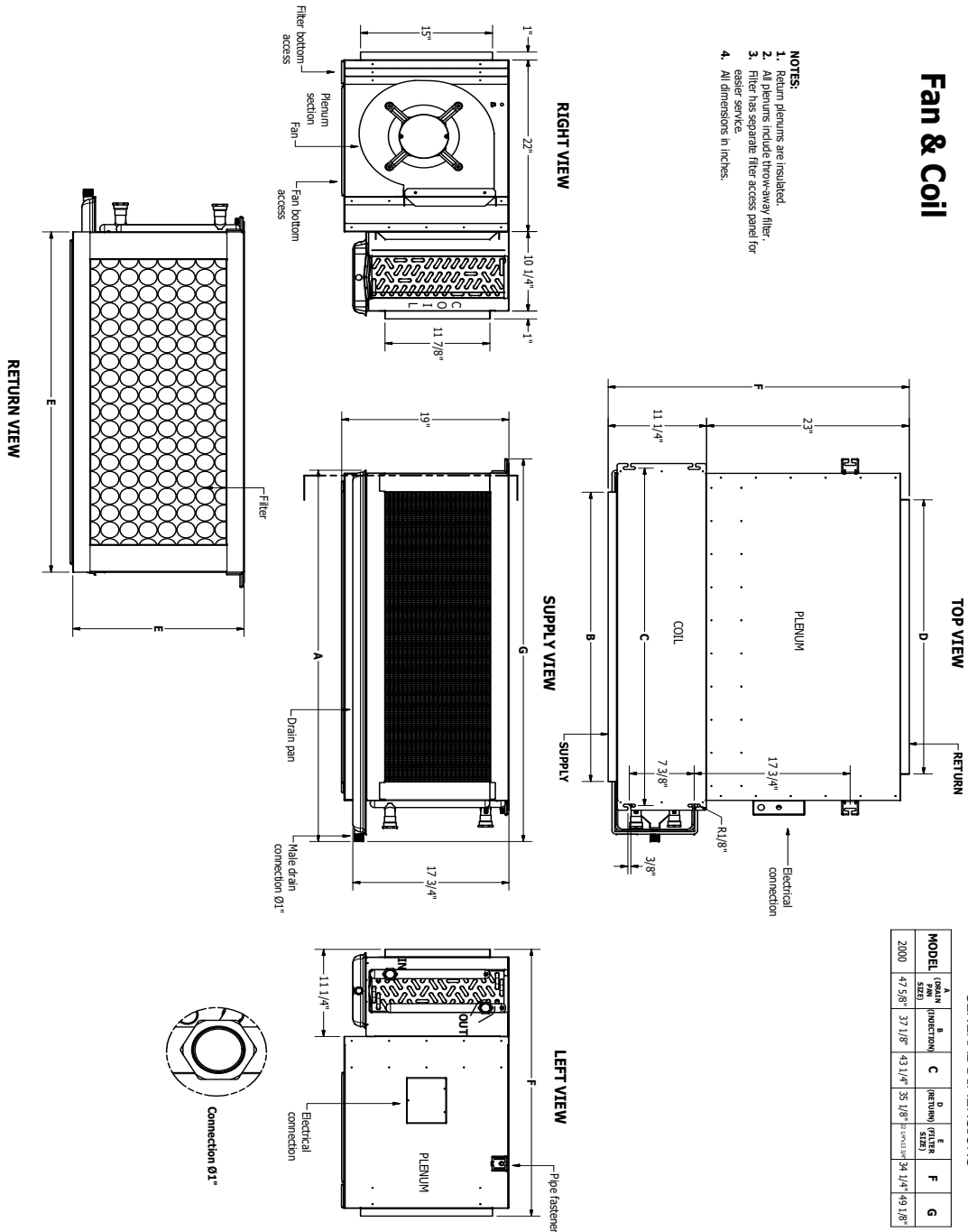
**Fan & Coil**

- NOTES:**
1. Return plenums are insulated.
  2. All plenums include throw-away filter.
  3. Filter has separate filter access panel for easier service.
  4. All dimensions in inches.

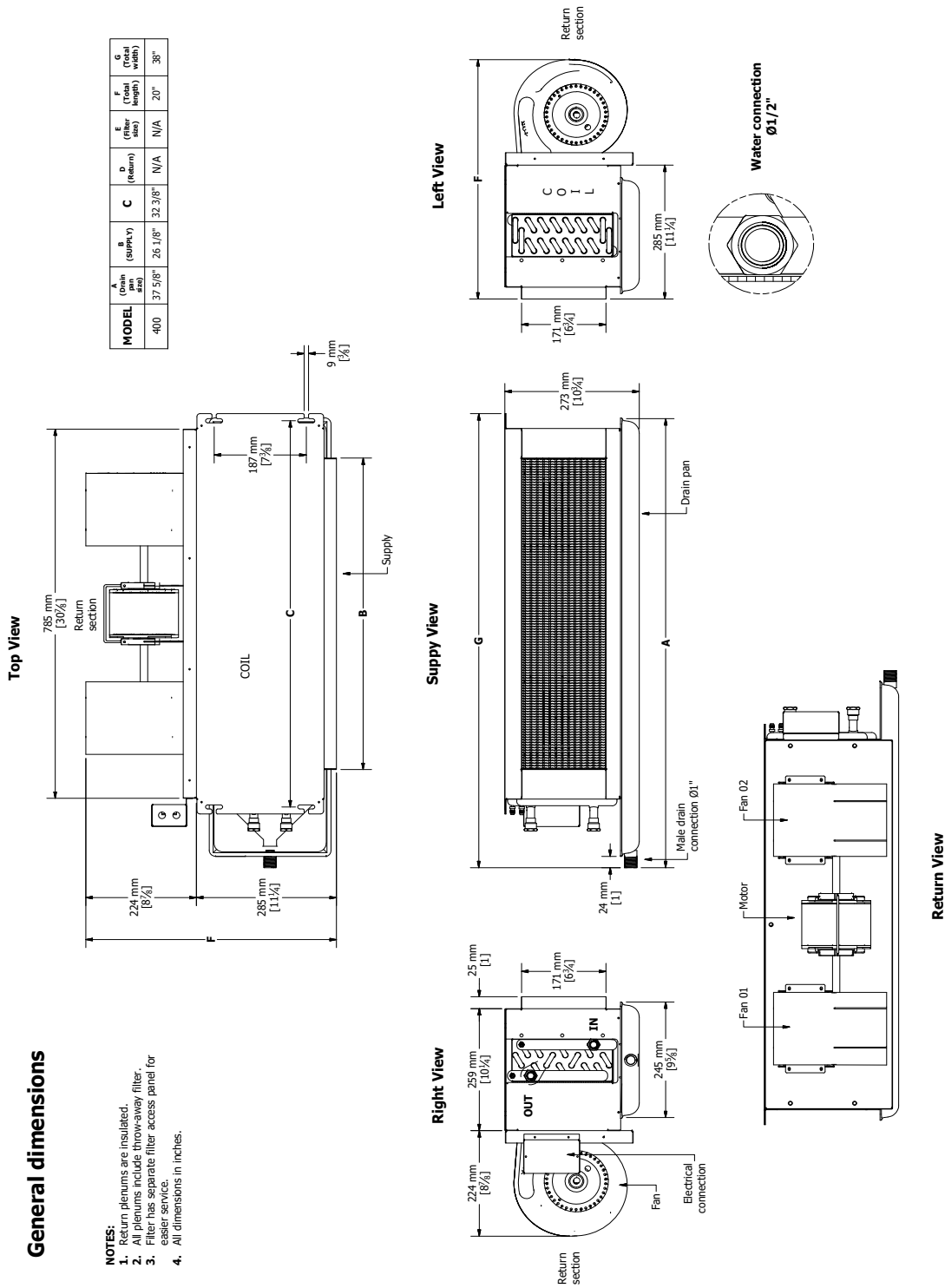


## DIMENSIONS AND WEIGHTS

Figure 15. F&C Fixed 2000 CFM Left Side



**Figure 16. F&C Fixed 400 right side without plenum**



## DIMENSIONS AND WEIGHTS

Figure 17. F&C Fixed 400 left side without plenum

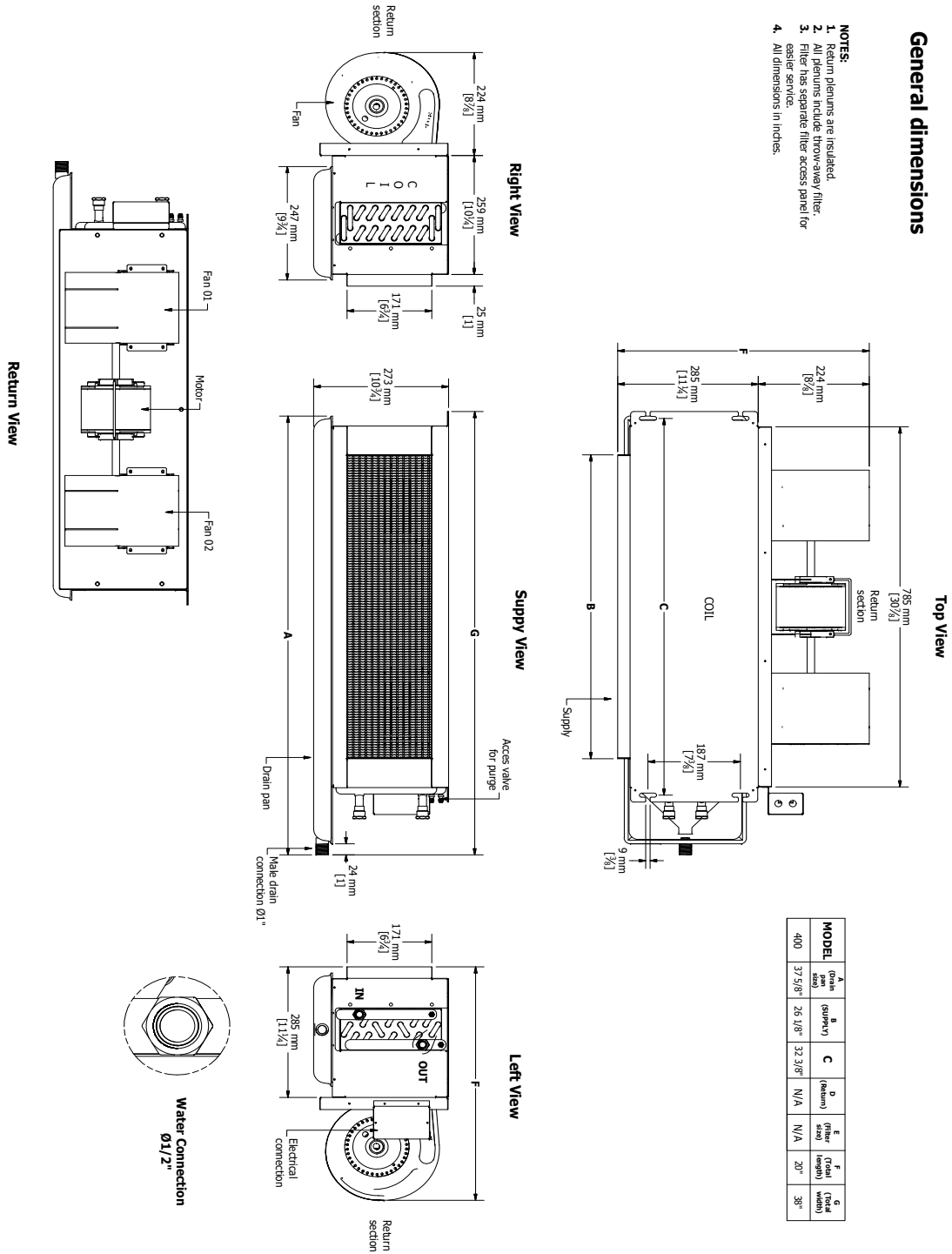
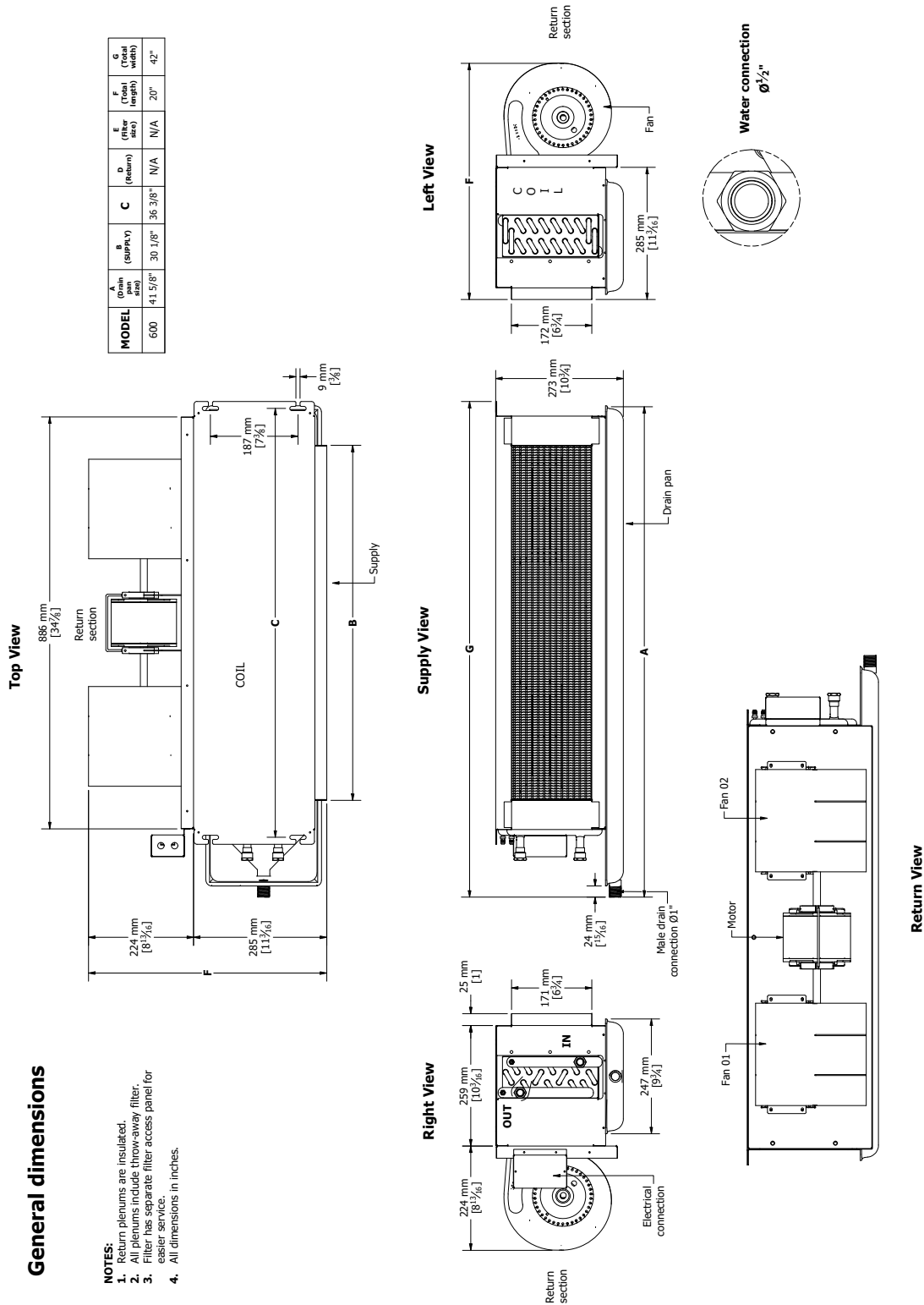


Figure 18. F&C Fixed 600 right side without plenum



- NOTES:**
1. Return plenums are insulated.
  2. All plenums include throw-away filter.
  3. Filter has separate filter access panel for easier service.
  4. All dimensions in inches.



## DIMENSIONS AND WEIGHTS

Figure 19. F&C Fixed 600 left side without plenum

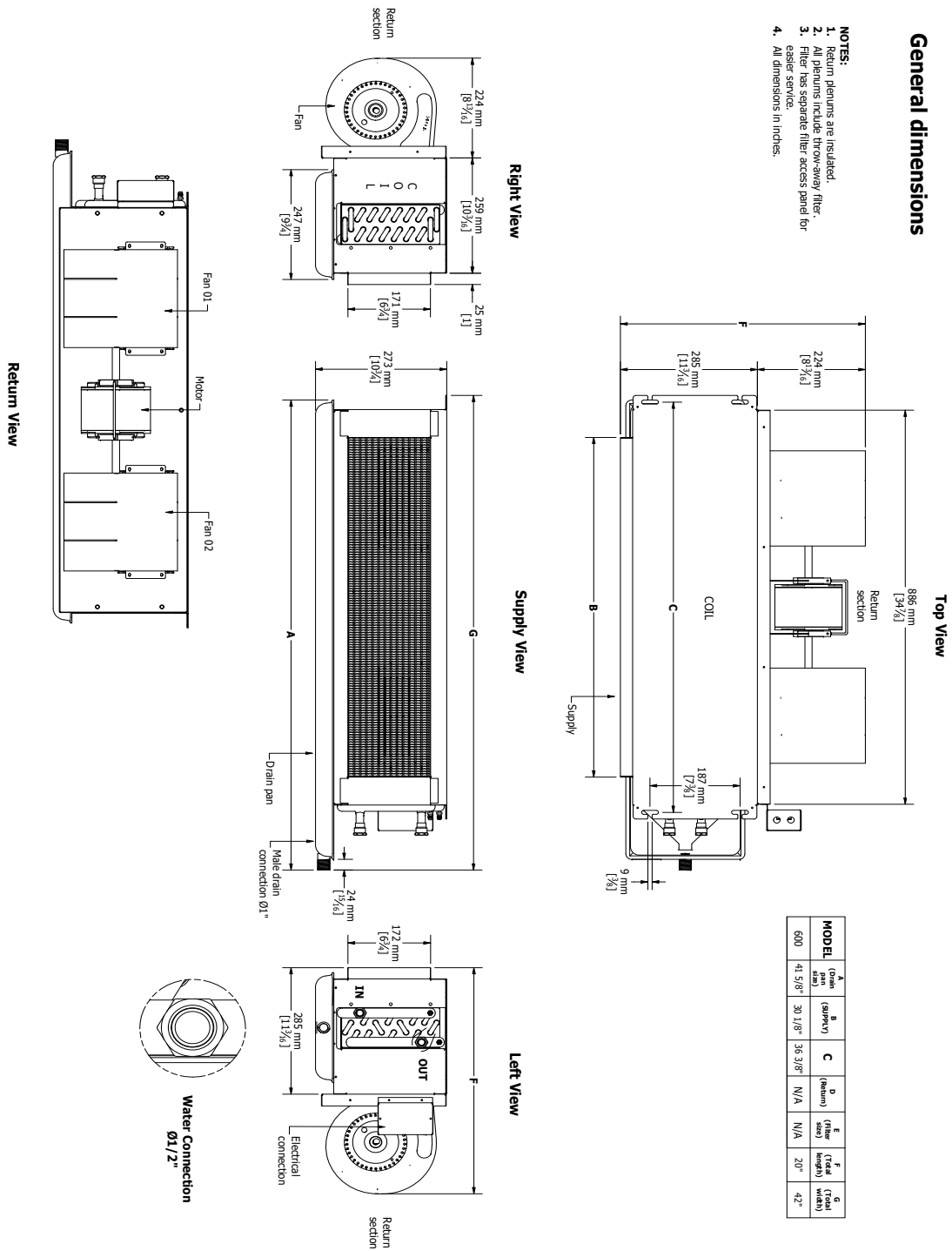
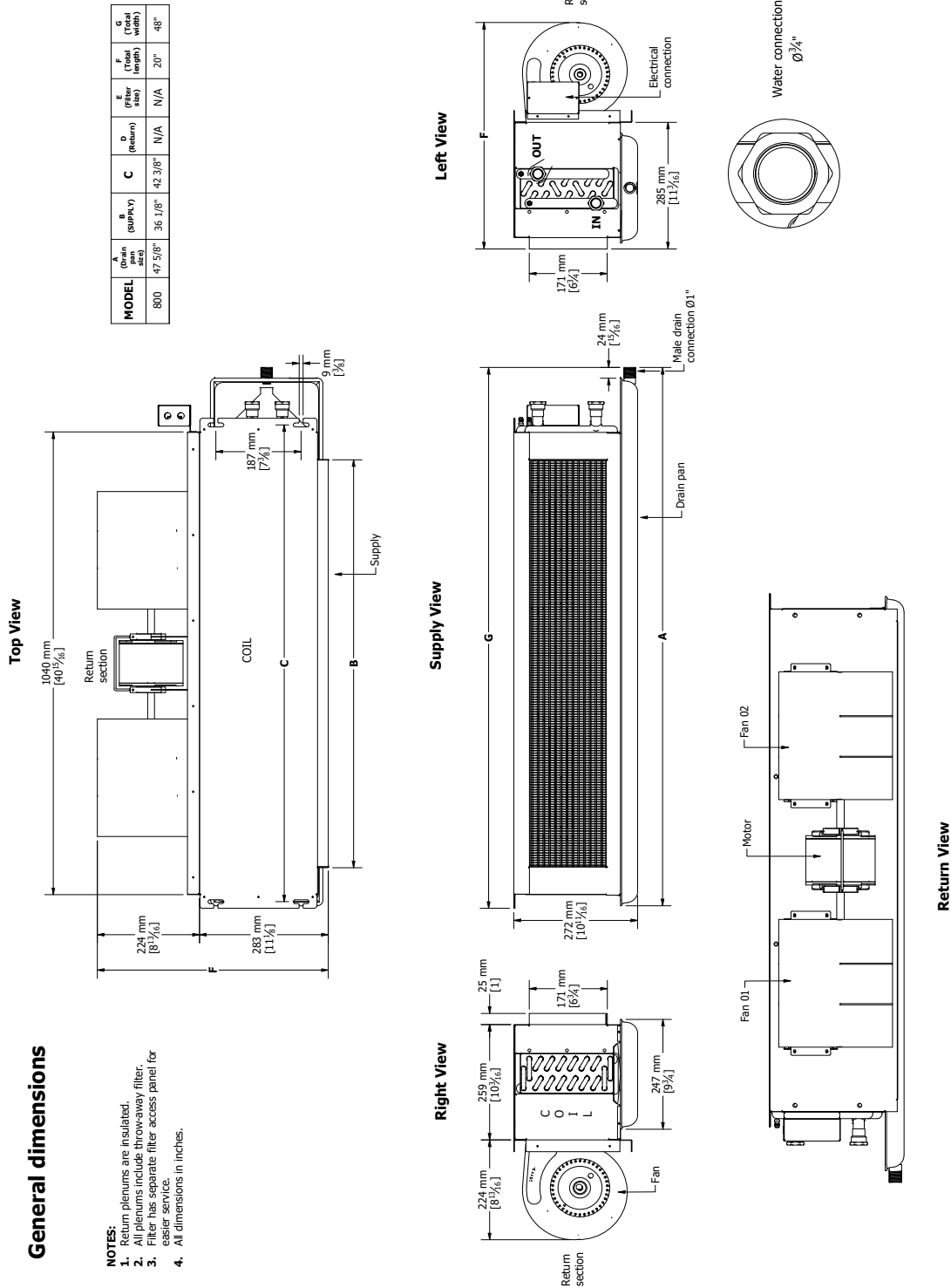


Figure 20. F&C Fixed 800 right side without plenum



## DIMENSIONS AND WEIGHTS

Figure 21. F&C Fixed 800 left side without plenum

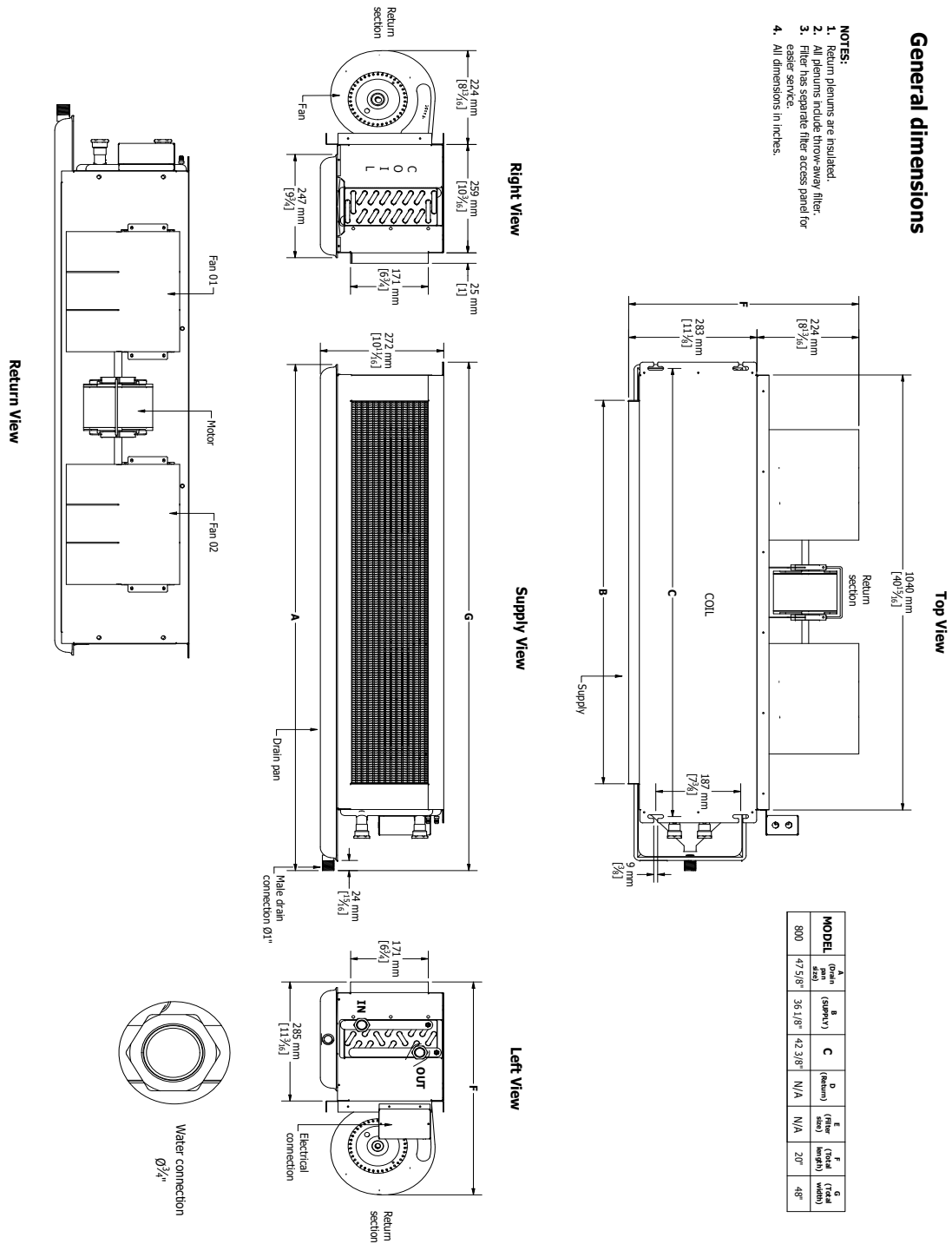
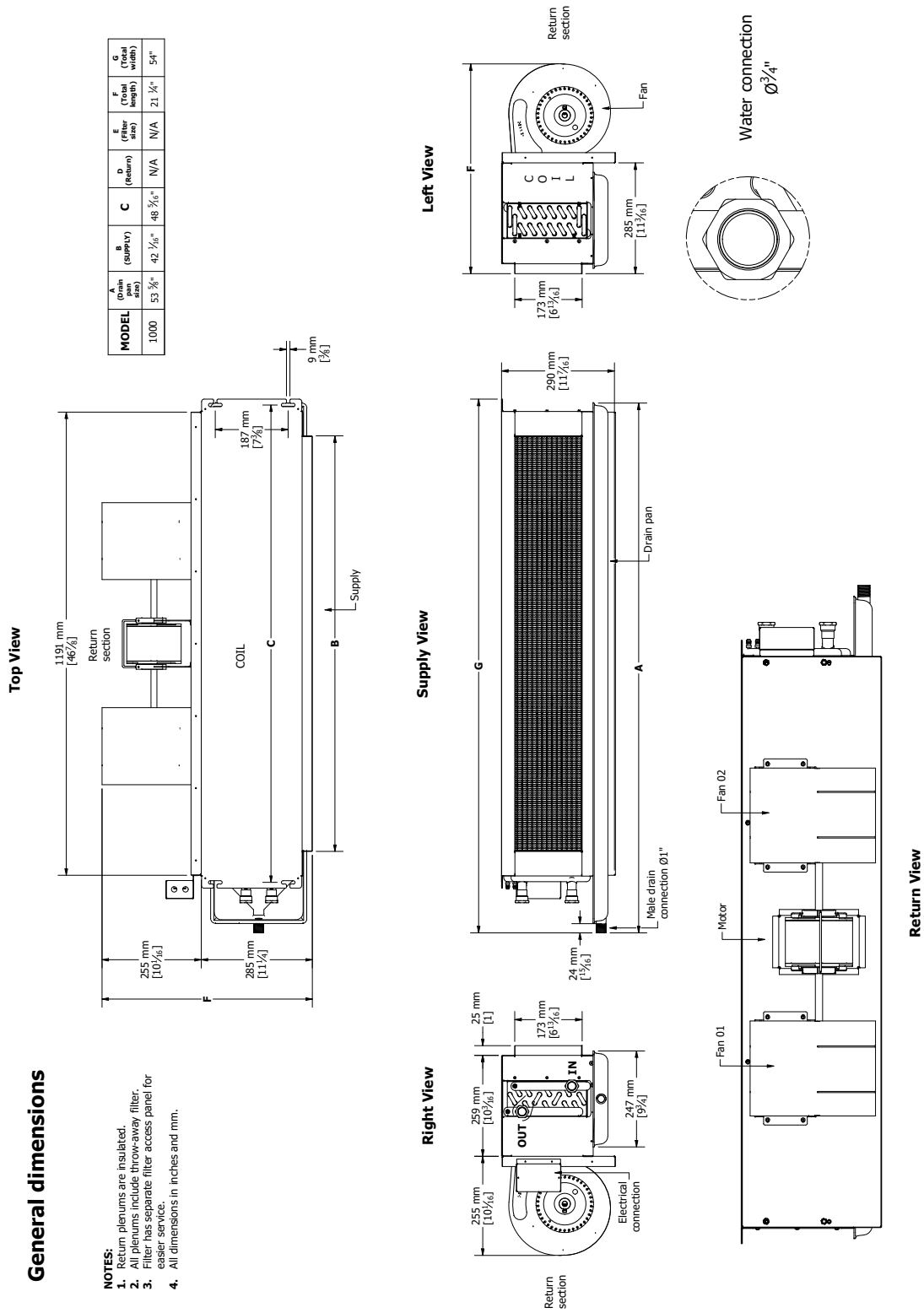


Figure 22. F&C Fixed 1000 right side without plenum



## DIMENSIONS AND WEIGHTS

Figure 23. F&C Fixed 1000 left side without plenum

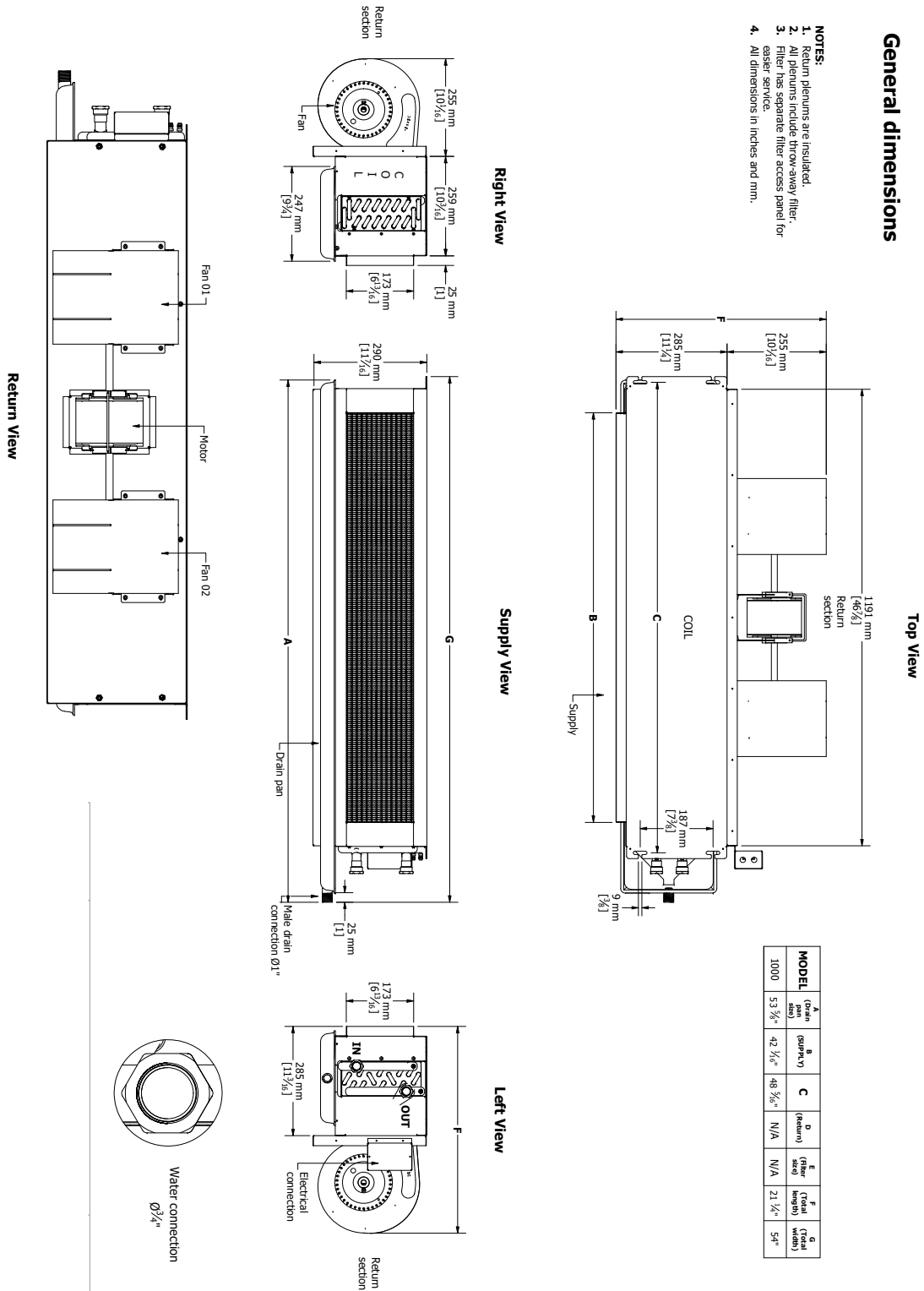
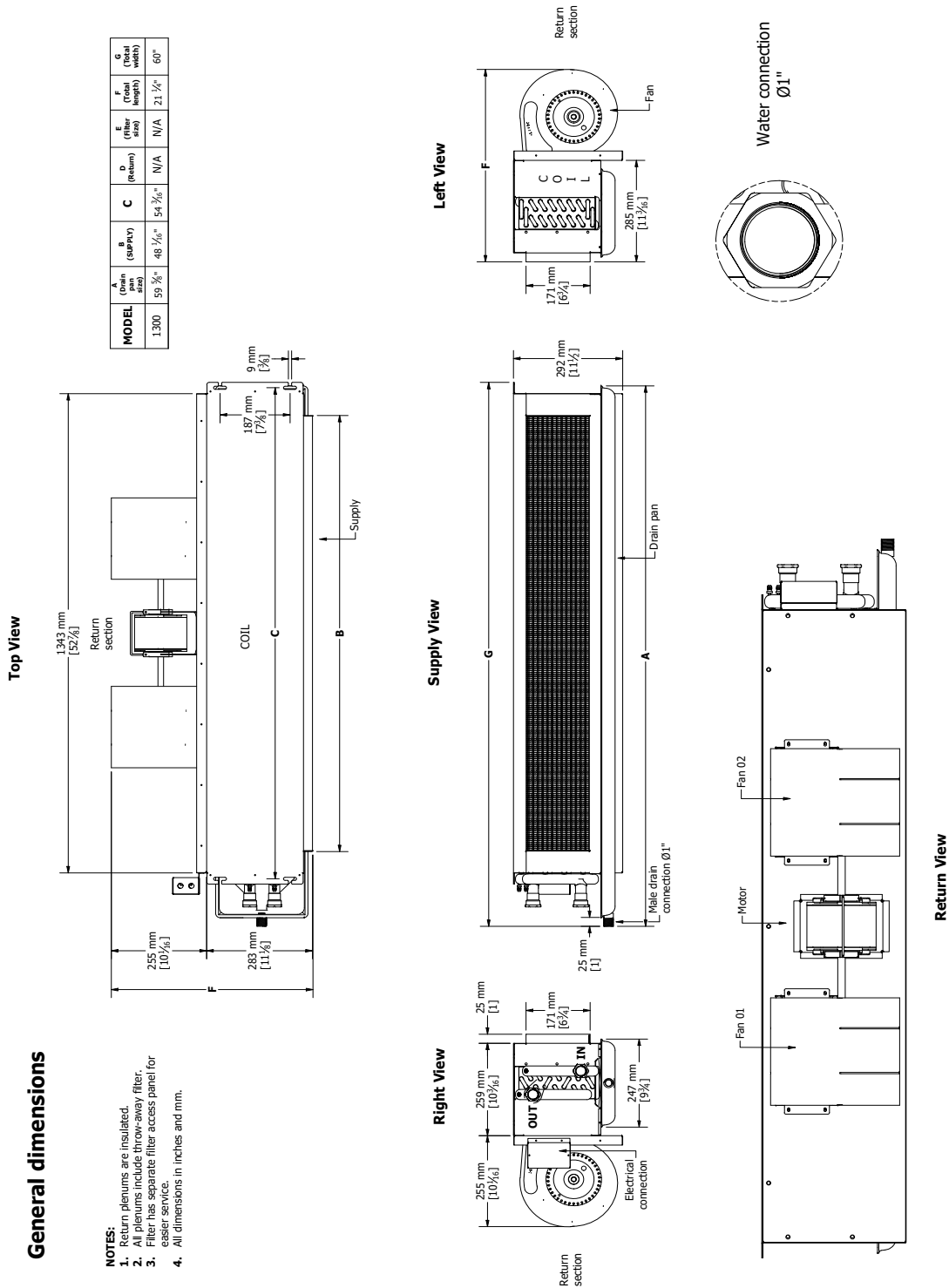
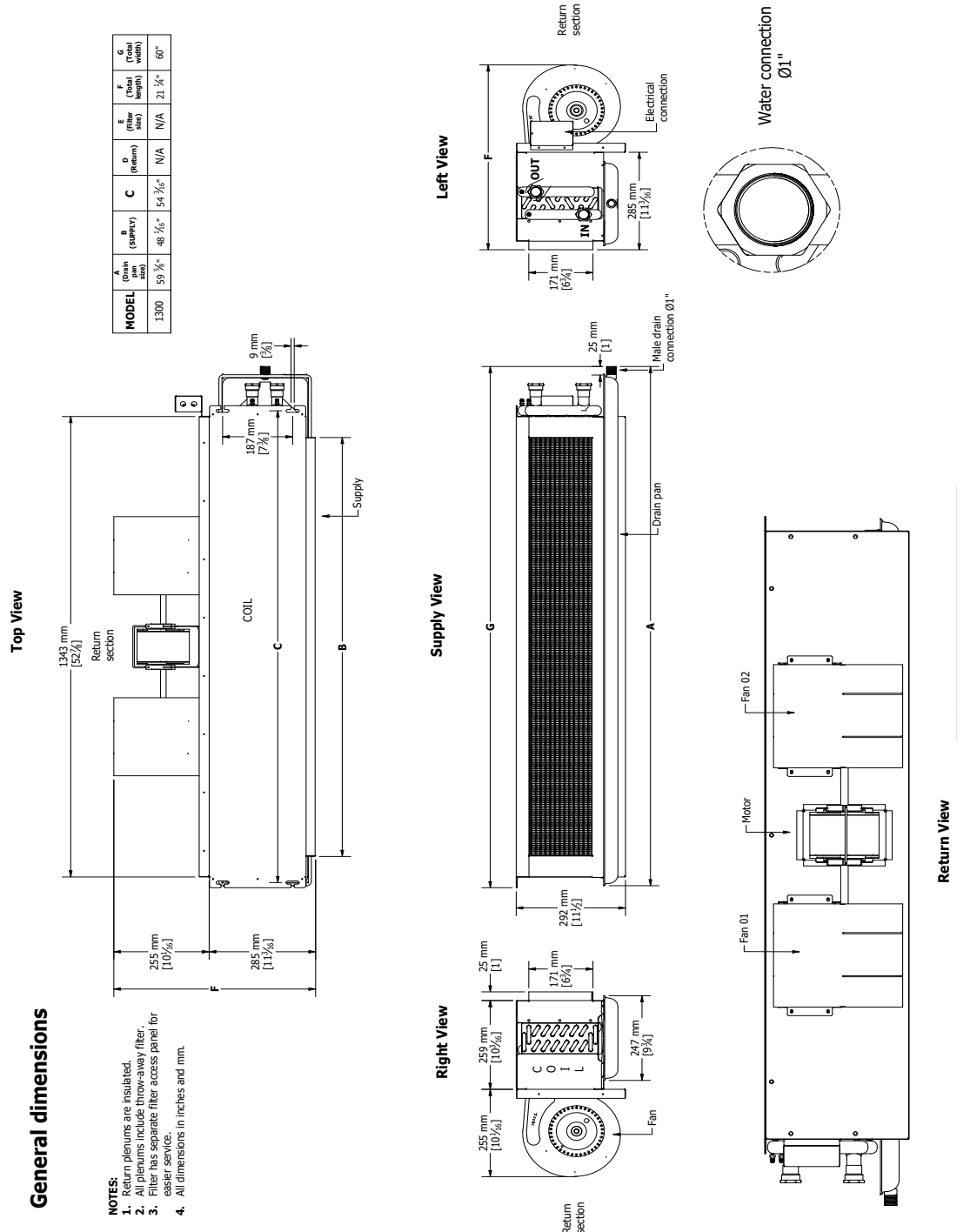


Figure 24. F&C Fixed 1300 right side without plenum



## DIMENSIONS AND WEIGHTS

Figure 25. F&C Fixed 1300 left side without plenum



**ELECTRICAL AND SOUND DATA**

Model	Speed	Noise value			
		CFMs	LwA	Sones	dBA
F&C Fix 400	L	234	57.3	3.9	47.6
F&C Fix 400	M	272	60.8	5.2	51.8
F&C Fix 400	H	305	62.7	6.1	54.1
F&C Fix 600	L	577	59.2	4.2	48.7
F&C Fix 600	M	624	61	4.7	50.3
F&C Fix 600	H	687	63.2	5.5	52.6
F&C Fix 800	L	683	58.5	3.9	47.6
F&C Fix 800	M	746	61.6	4.8	50.6
F&C Fix 800	H	794	63.7	5.8	53.3
F&C Fix 1000	L	835	62	5.2	51.8
F&C Fix 1000	M	955	66.1	6.9	55.8
F&C Fix 1000	H	1086	69.5	8.4	58.7
F&C Fix 1200	L	964	64.5	6.4	54.8
F&C Fix 1200	M	1112	68.3	7.9	57.8
F&C Fix 1200	H	1242	70.8	9.3	60.2

ELECTRICAL DATA						
	Speed	in Wg	CFM	dBA	W max	i max (A)
F&C Fix 400	H	0	425	54.1	65	0.8
F&C Fix 600	H	0	559	52.6	168	1.9
F&C Fix 800	H	0	649	53.3	224	2.3
F&C Fix 1000	H	0	873	58.7	345	4.2
F&C Fix 1300	H	0	1008	60.2	476	5.5
F&C Fix 1200	H	0	1200	60.2	972	11
F&C Fix 1600	H	0	1600	60.2	972	15
F&C Fix 2000	H	0	2000	60.2	1458	22





**⚠ WARNING ⚠**

Before attempting any maintenance on the equipment, it is essential that the equipment is disconnected and completely isolated from the mains.

**⚠ CAUTION ⚠**

After disconnection of the power supply, a minimum of 1 minute should be allowed for the rotating parts to stop before removing the access panels.

However, care must be taken, as it is possible that the airflow generated in other parts of the system may cause the tank impeller to rotate (windmill effect).

The access panels are not equipped with clamping devices.

Proper PPE and the correct tools should be used to perform these maintenance tasks.

Access panels that are removed for maintenance operations should be placed at ground level in a retail location until ready to be relocated.

Replace the access panels in the same locations and orientation as found and ensure that the screw fasteners are tightened securely, not over-tightened.

If equipment failure occurs or is suspected, the equipment should be taken out of service until repairs have been made.

**FILTER MAINTENANCE**

Filters must be properly maintained to ensure air cleaning efficiency and to maintain design airflow. Acoustic performance can also be adversely affected by dirty filters.

The duration of filter cleaning depends on the condition of the air. A three-month cycle is normal, but in some cases more frequent maintenance may be required.

There is an air filler installed in the unit in the air inlet path before the heat exchanger coil.

The filler can be slid to either side of the unit. Alternatively, the crosshead screws that secure the filler retaining angle to the air filler can be loosened.

The body of the unit can be loosened to provide sufficient clearance for the filters to be maneuvered out of their retention channels.

If the equipment does not allow the filler to be installed in a separate on-board filler section, remove the screws securing the access panel and remove the filler.

Initially, cleaning can be accomplished by gently tapping and dusting with an air line or vacuum cleaner.

Once removed, the washable filters can be fully immersed in warm water with a mild detergent solution. Agitate the water until all contaminants have been removed.

Then rinse the filter in hot water, allow it to drain and air dry before replacing it.

In case of heavy soiling or damage to the packing media or wire support frame, the entire packing must be replaced. When replacing new filters it is important to ensure that the filters are correctly oriented with respect to the air flow.

Correct orientation is obtained when the wire mesh is positioned towards the heat exchanger and the fill media completely covers the wire mesh.

**MAINTENANCE OF CONDENSATION PANS AND DRAINS**

Check that the drainage pipes are not obstructed and that they drain freely.

Drain traps should be checked to ensure that they are fully primed and functioning properly.

Drain pans should be checked to ensure that they are free of debris. They should be periodically flushed and chemically treated if necessary to remove any contamination or debris.

To clean the drain pan, proceed as follows:

1. Disconnect the condensate drain line from the drain pan connection.
2. Use a damp cloth soaked with a mild soap or anti-bacterial solution to remove any debris or residue buildup.
3. Make sure there are no obstructions or debris in the piping.
4. Reconnect the piping to the drain pan connection

**MAINTENANCE OF WATER-AIR HEAT EXCHANGER COIL FIXED**

**⚠ WARNING ⚠**

The surfaces of the heat exchange coil fins should be inspected for accumulation of dirt, dust, biological contaminants.

The coil should also be inspected for leaks on the surfaces of the connections to the coil tails and on all copper tubing visible from the outside.

To inspect the coil faces the fan access panels should be removed and the air filler should be removed.

## MAINTENANCE

Maintenance is performed as follows:

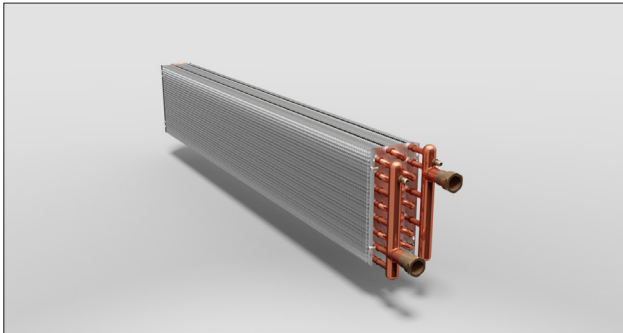
- Dust or surface debris can be removed from the surface by gently brushing with a soft, long-haired brush. Debris can then be vacuumed from surfaces and other areas.
- Remove stubborn deposits or biological contaminants by careful application of a damp cloth. The cloth should be moistened with warm water mixed with a mild detergent solution compatible with the materials used in the construction of the batteries (copper tubes, aluminum fins).
- Compressed air can be used to blow through the coil fins. However, care should be taken to ensure that any residue or wash water does not contaminate the fan assemblies or electrical connections in the fan chamber.
- If there is any evidence of leakage. The coil block should be disassembled and repaired or replaced.

### ⚠ WARNING ⚠

Residual water should be wiped off immediately with a cloth and should not be allowed to saturate the insulation inside the equipment housing.

Treated water in the coil fluid circulation system should not be drained into any sewage disposal system without the approval of the local authorities.

**NOTE: It is the responsibility of the user and maintenance personnel to ensure that all applicable local authorities, legislation and environmental guidelines are followed.**



## FAN MAINTENANCE

Inspection of the fan assembly (comprising impeller and motor) should be performed to determine if motor overheating is occurring and to check that the fan impeller is operating freely and has not suffered any damage.

The fan assembly should be cleaned regularly, as any excessive accumulation of dust or debris can cause the impeller to become unbalanced or the motor to overheat.

The impeller and motor should only be cleaned with a soft, dry brush to remove dust deposits.

The fasteners holding the fan motor to the fan impeller motor

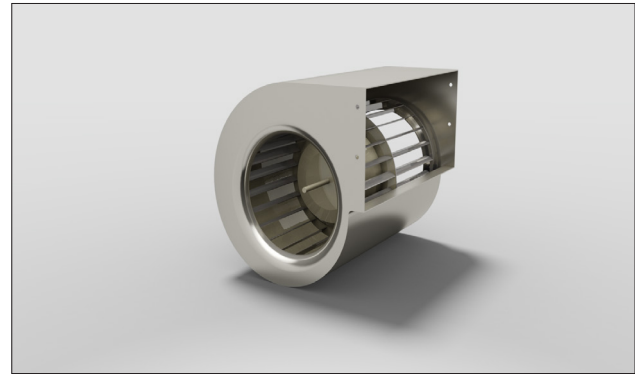
should be checked and adjusted if necessary. In addition, the fasteners holding the fan scroll to the main body of the equipment should also be checked and tightened if necessary. These fasteners should be secure before checking the fan bearings.

The standard fan bearings are "sealed for life", so normal service is not possible and no specific maintenance is possible.

The fans have an expected service life of 40,000 hours.

However, the condition of the bearings should be checked and evaluated at time intervals as indicated below:

- The fan impeller should be manually rotated to detect any roughness or flat spots in the bearings.
- Gentle forward and backward side pressure should be applied to the impeller to detect any movement or excessive play in the bearings. If roughness, flat spots or excessive movement is detected, the fans should be replaced.



## MAINTENANCE OF INTERNAL AND EXTERNAL SURFACES

**NOTE: Nuts, bolts and fasteners should be checked for tightness. The general condition of all components and the equipment in general should be checked.**

The internal and external steel surfaces of the equipment should be checked regularly for scratches, corrosion, or peeling of painted surfaces.

If found, thoroughly clean the affected areas with a wire brush, apply a coat of zinc-rich primer or similar, and refinish with a suitable finish paint.

Insulation materials should be checked for condition and security. If insulation shows signs of dust, it should be replaced. Insulation that is loose or flaking should be secured.

To replace the insulation, proceed as follows:

1. Ensure that sufficient new insulation material with class “O” fire resistance is available.
2. Peel the affected existing insulation from the equipment housing.
3. Re-move any residual glue residue or residual foam.
4. Clean the area using a suitable solvent cleaner, such as ISO propyl alcohol.
5. Place ETL / UL rated glue on the equipment housing and press the new insulation into place. Allow to cure and dry.

**IMPORTANT: In order for the unit to maintain its ETL rating, an ETL / UL rated adhesive must be used.**

## CONTROLS, PRINTED CIRCUIT BOARDS AND WIRING MAINTENANCE

Controls and electrical connections should be checked regularly.

The mains connection should be visually checked.

If there is any indication of damage or deterioration of the power connection, the unit should not be returned to service until the power connection has been replaced by suitably qualified personnel.

The condition of the control device terminals, printed circuit board and associated wiring should be checked by visual inspection.

Any signs of discoloration, arcing or charring of any wiring or terminal block should be investigated immediately, and the equipment should not be returned to service until the problem has been found and rectified.

The printed circuit boards incorporate fuses that protect the string components. In the event of a blown fuse, only new fuses of the same size and rating should be used.

The fuse ratings are permanently marked on the printed circuit board.

If fuses blow persistently, this situation should be investigated immediately and the equipment should be repaired immediately, and the equipment should not be returned to service until the problem has been found and rectified.

## MAINTENANCE SERVICE

In order to maximize the life of the equipment and keep it in good working order, the checks and maintenance tasks detailed in these instructions should be performed as part of a regular and routine maintenance schedule.

Under normal operating conditions, the following schedule is recommended:

MAINTENANCE PROGRAM				
ITEM	MONTHLY	EVERY 3MONTHS	EVERY 6 MONTHS	EVERY 12 MONTHS
Filters		Inspection/ Maintenance		
Coil			Inspection/ Maintenance	
Condensation trays and drains			Inspection/ Maintenance	
Fans			Inspection/ Maintenance	
Internal/external parts				Inspection/ Maintenance
Controls, boards and wiring				Inspection/ Maintenance

Spare parts are available by contacting the Comfort Flex main sales office. Inquiries should include details of the unit part number and contract number, which will appear on the identification label.

Alternatively, product and model details can be found on the nameplate.

At the end of its useful life, the product, components and packaging should be disposed of through an appropriate recycling facility. Do not dispose of any part of the product, components or packaging with normal household waste. Do not discard.

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