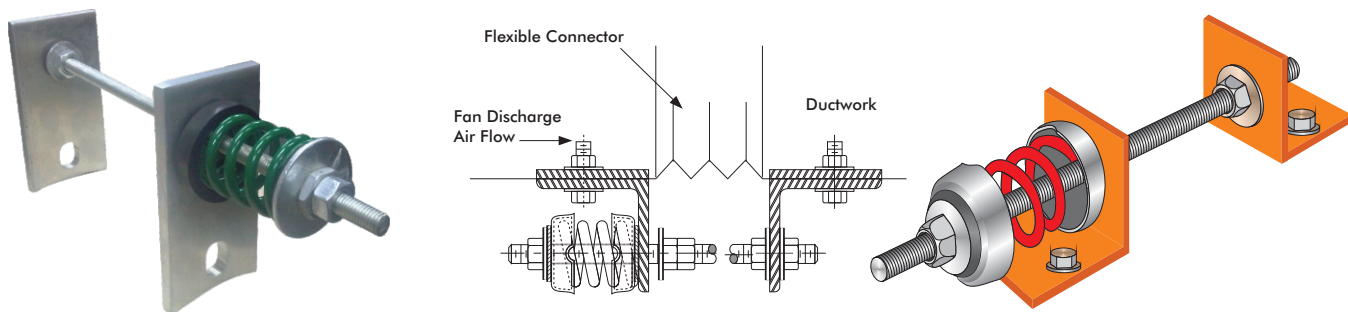


## Description

Easyflex Model EFTR Thrust Restraints are used to counteract the discharge force created by fans during operation. EFTR Thrust Restraints are used in pairs and best utilized when located on the centerline of the discharge outlet of the fan, bridging the flexible duct connector.

Easyflex Model EFTR Thrust Restraints consist of high deflection, large diameter, laterally stable steel coil springs assembled into a threaded rod and bracket assembly. The coil spring have a lateral spring stiffness greater than 1.0 times the rated vertical stiffness to assure coil minimum of 50% overload deflection capability to solid. The coil springs are epoxy powder coated for corrosion protection. EFTR Thrust Restraints feature molded neoprene end load plate assemblies. EFTR Thrust Restraints include threaded adjustment rod with hardware, fan and ductwork mounting bracket angles, bracket back-up plates, and all attachment hardware.



## Applications

ASHRAE recommends that thrust restraints such as Easyflex Model EFTR incorporate the same coil spring deflection as the support isolators. EFTR Thrust Restraints are to be used for all fan heads, suspended fans, and all base-mounted and suspended air-handling equipment operating at 2 inches or greater total static pressure (TSP). EFTR Thrust Restraints are always installed in pairs and often work in conjunction with inertia bases for floor-mounted fans to counteract fan thrust.

Total fan thrust can be calculated using the following formula :

$$\text{Thrust (lbs.)} = 0.036 \times \{\text{TSP (PSI.)}\} \times \{\text{Fan Discharge Outlet Area (sq. in.)}\}$$

To select the correct EFTR Thrust Restraint to be used, this total calculated thrust is to be divided by two (2) and then rounded up to the next highest standard coil spring capacity.

Easyflex EFTR Thrust Restraints are best utilized when located on the centerline of the discharge outlet of the fan. Fan instability can occur when attempts are made to control fan thrust only at the (floor-mounted) isolator location. The attachment of the EFTR brackets must be made at structurally sound locations and cannot be attached to bare unreinforced sheet metal ductwork.

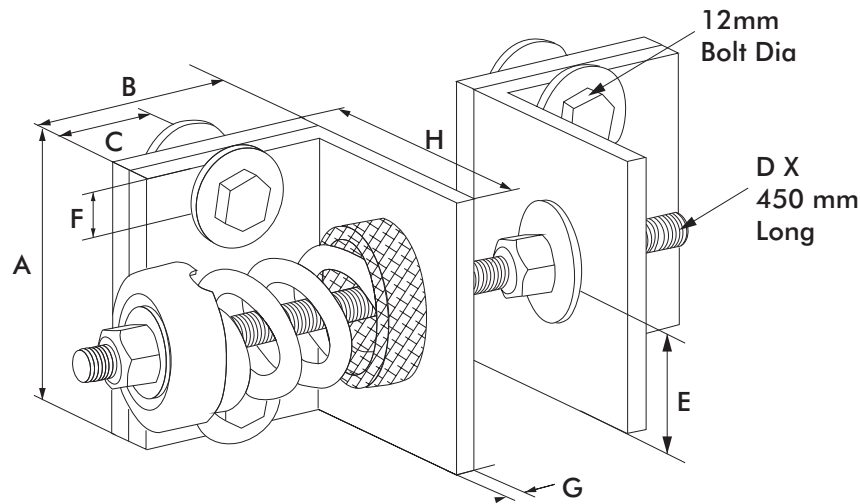
The EFTR coil spring is to be preloaded to allow for approximately 0.25" (6 mm) of additional deflection due to fan motion upon start-up. EFTR Thrust Restraint movement adjustment must be made under normal fan operational static pressures.

- **Compliance - Springs designed according to BS 1726 (Part 1) and recommendations made by SAE (US) and ASHRAE**

## Specification

Thrust Restraints shall consist of high deflection, large diameter, laterally stable steel coil springs assembled into a threaded rod and angle bracket assembly. Coil springs shall have a lateral spring stiffness greater than 1.0 times the rated vertical stiffness to assure coil stability. Coil springs shall provide a minimum of 50% overload deflection capability to solid capacity. Coil springs shall be epoxy powder coated. Thrust Restraints shall feature molded neoprene end load plate assemblies. Thrust Restraints shall include threaded adjustment rod with zinc-plated hardware, and shall include primer painted fan and ductwork mounting bracket angles, bracket back-up plated, and complete fan / ductwork attachment hardware.

Thrust Restraints shall be Model EFTR as manufactured by Kanwal Industrial Corporation.



| Isolator Type | Spring Color | Rated Capacity kg. | Rated Capacity lbs. | Spring O.D. mm | Coil Free Height mm | A mm | B mm | C mm | D mm | E mm | F mm | G mm | H mm |
|---------------|--------------|--------------------|---------------------|----------------|---------------------|------|------|------|------|------|------|------|------|
| EFTR 30       | Yellow       | 30                 | 66                  | 50             | 70                  | 100  | 75   | 30   | 12   | 50   | 15   | 6    | 125  |
| EFTR 60       | Blue         | 60                 | 132                 | 50             | 70                  | 100  | 75   | 30   | 12   | 50   | 15   | 6    | 125  |
| EFTR 100      | Green        | 100                | 220                 | 50             | 70                  | 100  | 75   | 30   | 12   | 50   | 15   | 6    | 125  |
| EFTR 160      | Orange       | 160                | 352                 | 50             | 70                  | 100  | 75   | 30   | 12   | 50   | 15   | 6    | 125  |
| EFTR 200      | Red          | 200                | 440                 | 50             | 70                  | 100  | 75   | 30   | 12   | 50   | 15   | 6    | 125  |
| EFTR 250      | Purple       | 250                | 551                 | 50             | 70                  | 100  | 75   | 30   | 12   | 50   | 15   | 6    | 125  |
| EFTR 300      | Green        | 300                | 661                 | 63             | 92                  | 125  | 75   | 50   | 16   | 62   | 13   | 6    | 125  |
| EFTR 400      | Orange       | 400                | 881                 | 63             | 92                  | 125  | 75   | 50   | 16   | 62   | 13   | 6    | 125  |
| EFTR 500      | Brown        | 500                | 1102                | 63             | 92                  | 125  | 75   | 50   | 16   | 62   | 13   | 6    | 125  |
| EFTR 600      | Black        | 600                | 1322                | 63             | 92                  | 125  | 75   | 50   | 16   | 62   | 13   | 6    | 125  |
| EFTR 800      | Red          | 800                | 1763                | 63             | 92                  | 125  | 75   | 50   | 16   | 62   | 13   | 8    | 125  |
| EFTR1050      | White        | 1050               | 2314                | 63             | 92                  | 125  | 75   | 50   | 16   | 62   | 13   | 8    | 125  |
| EFTR1250      | Green        | 1250               | 2755                | 63             | 92                  | 125  | 75   | 50   | 16   | 62   | 13   | 8    | 125  |